Preface

This response to Public Submissions has been prepared on the basis that this PER only relates to the development of Stage 1 of the James Point Private Port: it does not cover the Livestock Holding Facility or the consequent impacts from the Holding Facility or impacts from the changes to port operations which will result if the Holding Facility proceeds.

This position has been taken because the proponent wishes to proceed with the port development independent of whether the Livestock Holding Facility proceeds.

The proponent for the Livestock Holding Facility will submit a separate response to Public Submissions which addresses the impacts of the facility, including the impacts resulting from the changes to the port operations resulting from the Livestock Holding Facility.

For example, the following responses to Public Submissions assume that the source of supply of livestock for export will not change from that currently applying to the trade through Fremantle. Also the general trucking arrangements which currently apply in the case of Fremantle will continue to apply to the Stage 1 Port at Kwinana with the exception being the route changes required to deliver to the new Port.
Issues and Environmental factors

1. General Comments on the Proposal

1.1. Justification for the Proposal

1.1.1. Broad concerns have been expressed in regard to the proposal’s potential environmental impacts. The findings of Environmental Protection Authority (EPA) Bulletin 907 ‘The Marine Environment of Cockburn Sound’ – Strategic Environmental Advice, examined the environmental impacts of long-term port options for Cockburn Sound and concluded that future port developments within Cockburn Sound could not be undertaken without negative environmental impacts and degradation of Cockburn Sound.

Of particular concern is that no justification is given for proposed land reclamation or the breakwater. It is unclear whether the reclamation is needed solely to dispose of the dredge spoil or whether the reclaimed land is required for the storage and processing requirements of the port because of the lack of land available adjacent to the port.

Submissions suggest that the proponent has not justified its proposal in terms of loss of environmental quality and the cumulative impacts on the Cockburn Sound against principles of sustainable development and the principles to be established in the Environmental Protection Policy (EPP) for Cockburn Sound. The suggestion that the current impacts will be reduced or non-existent as a result of the proposed development is considered to be an exaggeration. In view of this, submissions believe that the proposal cannot be justified on environmental grounds.

Response

The general conclusion of the EPA in Bulletin 907 was that future port developments in the Sound would act to further reduce flushing, with implications for degradation of water quality and marine ecosystems. The specific role of the EPA in the case of the Stage 1 James Point proposal is to decide whether any impact on water quality is such that there is a degradation of the Cockburn Sound ecosystem based on the information initially provided in the Public Environmental Review (PER) and any supplementary information provided by the proponent.

It will be the role of the Minister for the Environment to consult with her colleagues to determine whether the overall impact of the port, in terms of Social, Economic and Environmental benefits to Western Australia, is positive.

At no point in the PER was it suggested that current impacts on Cockburn Sound would be reduced, or be non-existent due to implementation of the proposal. However, it was stated that if the proposal went ahead then traffic impacts on Fremantle residents are likely to be reduced as James Point Pty Ltd (JPPL) won trade from the Fremantle Inner Harbour.

Given the number of submissions which questioned the justification for locating a port in Cockburn Sound and the need for another port to service the Perth metropolitan area, a separate section below details the argument for the need for a port at James Point.

It should also be noted, that the Fremantle Port Authority (FPA) have recognised the same issues and also have plans to construct a new port immediately north and west of James Point. It is acknowledged that the two endeavours are competitive and it is likely that if one was to proceed to ultimate completion then the other would not.

The need for a Kwinana General Cargo Port

Summary

The Container and General Cargo Port which currently serves the Perth metropolitan region and surrounding area is the Fremantle Inner Harbour which is situated in Fremantle at the mouth of the Swan River adjacent to the commercial centre of the city.

If expanded to its maximum realistic capacity, (given other land uses and constraints) the existing Inner Harbour can provide sufficient berth capacity for about 15–20 years (Fremantle Port, 1995).
There are, however, a number of constraints to the continued use of the Inner Harbour particularly for some trades (e.g. the noise and smell from livestock export and the noise from scrap metal loading).

There are also constraints to further expansion of Port activity as follows:

- There are road and rail access problems, including growing road congestion with the consequent nuisance value to other users and adjacent residences;
- There is limited scope for the expansion of land availability to service the berths, particularly on Victoria Quay;
- There are conflicting land uses adjacent to the Port related to commercial, recreational, and residential use and tourism activities; and
- There are constraints related to safety with respect to the transport and handling of dangerous cargoes by virtue of proximity to high-density population areas (commercial and residential).

Given the above constraints, the expansion of the Inner Harbour to its maximum capacity will require significant capital to redevelop facilities, to provide additional land and to improve road and rail access. However, some constraints are of a community or environmental nature and cannot be overcome without removing some trades (livestock and scrap metal) or severely limiting hours of operation.

Regardless of the capital invested in Fremantle Inner Harbour there will still be a need for additional Port facilities with a start of construction requirements as early as 12 years away.

Additionally there is an immediate desirability to remove the nuisance impact of some trades from affecting a large number of people who live and work near Fremantle Inner Harbour (livestock, scrap metal).

There are practical, commercial and social reasons for the establishment of facilities (with an appropriate land use buffer zone, and with well planned road and rail access) as an alternate to the heavy infrastructure investment required to improve the overall access to and efficiency of Fremantle, where even with such an investment, the noise, odour and traffic impacts on a large population adjacent to Fremantle Port will remain.

The Kwinana Heavy Industry Strip is the major heavy industry area in close proximity to Perth. There is also significant medium and light industry development adjacent to Kwinana but the area is not serviced by general cargo facilities. General cargo generated for export or imported for use in the Kwinana strip currently is handled through Fremantle. The availability of a general cargo facility at Kwinana would have a positive economic benefit for the area.

The creation of a new port will act to generate significant job growth locally and regionally. The proposed location for the new port is within the Kwinana Heavy Industry strip, there is a buffer zone in place and road and rail links to the State and National networks.

**Fremantle Port**

*(a) Berth Capacity*

There is sufficient berth length capacity in Fremantle for about 11 commercial cargo berths (averaging about 250 metres each)—8 on North Quay and 3 on Victoria Quay.

The current approximate allocation of berths in Fremantle based on 250 metre modules is as follows:

<table>
<thead>
<tr>
<th>Berth Type</th>
<th>North Quay</th>
<th>Victoria Quay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Containers</td>
<td>5 (Berths 3 to 10)</td>
<td>0</td>
</tr>
<tr>
<td>General Cargo</td>
<td>2 (Berths 1/2, 11/12)</td>
<td>2 (Berths E, H)</td>
</tr>
</tbody>
</table>

Some of the above berths have constraints related to age, need for redevelopment and the limitation in the available area of land backing. This relates particularly to the following berths:

*Container Berths:*

No. 10 Berth, North Quay requires reconstruction to Container Handling Standard.

*General Cargo Berths:*

No. 1 and 2 Berths, North Quay are 50 years old and have limited load carrying capacity.
E Berth, Victoria Quay is an old berth with limited land backing.

Given that there are constraints it is also recognised that there is the opportunity to redevelop the older berths and to provide some increase in land backing, particularly to the North Quay Berths.

There is also opportunity to extend the length of available container handling berth at the expense of general cargo berths.

A realistic long-term redevelopment target for the Fremantle Inner Harbour Berth availability based on 250 metre berth modules is:

<table>
<thead>
<tr>
<th>Berth</th>
<th>Containers</th>
<th>General Cargo</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Quay</td>
<td>6 (Berths 1 to 10)</td>
<td>2 (Berths 11 and 12)</td>
</tr>
<tr>
<td>Victoria Quay</td>
<td>0</td>
<td>2 (Berths H &amp; J)</td>
</tr>
</tbody>
</table>

Under the Fremantle circumstances of limited container exchange per vessel, a realistic target capacity for a container berth is 120,000 containers per berth per year or 720,000 containers for 6 berths. An indicative time frame for the Inner Harbour reaching its berth capacity for containers is 15 years and it is not unreasonable to expect that the berth capacity for general cargo has a similar time horizon.

Based on the above assessment of Inner Harbour Berth Capacity, there will be a need for container/general cargo berth capacity over and above the Inner Harbour Capacity within about fifteen years. The lead-time for planning, approvals and development would likely see construction commence at least three years prior to this fifteen-year time frame.

(b) Land Backing

Three of the potential Inner Harbour general cargo berths, Victoria Quay Berths (E, H, and J), have limited land backing. There is little scope to extend the land backing to E Berth, as it is bounded by the Passenger Terminal Building, D Shed and the Rail Corridor. There is marginal scope to extend the land backing behind H and J Berths.

The suitability and useability of the Victoria Quay berths is significantly constrained by the cargo handling/storage area behind them.

(c) Transport Interfaces

Rail Access

Freight rail access to the Container Berths on North Quay is by a rail line, which accesses from the south and which is situated on the immediate perimeter to the Commercial Centre of Fremantle.

To the west, the rail line runs along the ocean foreshore on one side and commercial and residential buildings on the other.

The line also divides the Historic west end of Fremantle and Victoria Quay from the commercial centre of Fremantle. There are high-density residential accommodation units developed and/or currently being developed adjacent to the line.

(d) Road Access

North Quay

The main arterial road access to North Quay is Leach Highway, High Street, Stirling Highway, Tydeman Road and Port Beach Road. There is significant road use and congestion currently experienced on this access route and any solutions to alleviate the congestion will be costly and complicated.

Victoria Quay

The main access to Victoria Quay is Leach Highway, High Street, Stirling Highway, Canning Highway, East Street and Beach Street. There are current planning proposals to improve the access to Victoria Quay but all have design limitations and conflict issues related to non-port traffic and land use.

(e) Conflicting Land Use

North Quay

There is a significant residential population in close proximity to North Quay Port Operations. Noise,
smell and visual impacts of trades such as scrap metal and livestock impact on a significant residential population. Additional noise from 24 hour port activity including, container handling and the nuisance value of heavy traffic are significant constraints on the continued growth/expansion of Port operations. Complaints from residents regarding noise and odour are common.

**Victoria Quay**

Victoria Quay is substantially confined by the freight and passenger rail lines, and the commercial and residential development beyond the rail line. Also a substantial part of Victoria Quay is now allocated to other than commercial port usage (Tourist and recreational related use).

The close proximity of the commercial Centre of Fremantle, the development of adjacent residential units and the focus on recreational pursuits and tourism combine to make the expansion of Port activity on Victoria Quay difficult, and its use for trades such as livestock and scrap metal is becoming less acceptable.

**Alternative Port Options**

(a) **Selection of Kwinana/Naval Base**

An inter-agency study was undertaken by the WA Government in 1988 with the objective of identifying and ensuring the preservation of a site for a Container and General Cargo Port to supplement the Fremantle Inner Harbour, when the latter reached the limit of its economic capacity. Five potential sites were identified and of those sites, the study identified Naval Base/Kwinana as the preferred site. The Government endorsed this selection.

In the mid 1990’s a further inter-agency study was undertaken to identify the preferred alternative for the siting of livestock export facilities. The study considered regional ports as well as Fremantle and Kwinana sites, and recommended Naval Base/Kwinana as the preferred site for livestock export facilities.

The FRIARS regional planning study completed in the late 1990’s notes the selection of Naval Base/Kwinana as the preferred site for future general cargo facilities. The FRIARS report also addresses road and rail access to the proposed port site.

In 1997, the WA Government acknowledged the Naval Base/Kwinana site as appropriate and called for proposals for the private development of a General Cargo Port in the area.

The Government has subsequently entered into an agreement with JPPL which provides JPPL with the right (subject to a number of conditions, including environmental approval) to construct and operate a private port in the area.

(b) **Regional Ports**

Regional Port Development (e.g. Bunbury) may reduce/delay the need for alternative general cargo facilities to the Fremantle Inner Harbour.

However, the study on the siting of livestock export facilities which was conducted in the mid 1990’s concluded that it was not a viable commercial option to relocate the major part of the livestock trade to a Regional Port.

The use of the regional port facilities in Geraldton, Bunbury, Albany and Esperance would involve the transport of livestock through and the loading of livestock on to vessels adjacent to built up residential and commercial areas. Such an approach is likely to be as unacceptable from a noise, odour, traffic and visual nuisance perspective, as in Fremantle.

With respect to cargo in general, land transport logistics are such that regional ports would only be commercially competitive in attracting cargo away from Fremantle from within a limited hinterland.

As such the establishment of general cargo facilities at regional ports, as an alternative to near Perth metropolitan area facilities, is a solution for only a minor part of the overall trade.

**Social Impacts: Kwinana versus Fremantle**

The following table provides an estimate of the number of residences within a 1, 2, 3 and 4 km radius of the existing Fremantle Inner Harbour (IH) and the proposed James Point Stage 1 development at Kwinana.
### Conclusions

1. There is a need for alternative general cargo port facilities to the Fremantle Inner Harbour, particularly for trades which have adverse impact on adjacent residences.

2. Naval Base Kwinana has been selected and is generally accepted as the preferred site within the Perth metropolitan area for alternative port facilities (e.g., Fremantle Port, 1995).

3. Regional Ports are a viable economic/commercial alternative for only a small part of the overall trade.

4. The advantages of the Kwinana/Naval Base siting are:
   - The Port will provide a much-needed general cargo facility to service the Kwinana Industrial strip (where no facility currently exists);
   - The Port is within the Kwinana Heavy industry strip with an established land use buffer zone; and
   - The water area is already used for commercial shipping.

5. There is existing arterial road and freight rail access with already planned expansion of such. Traffic access in general avoids built up commercial and residential areas and, relative to the Fremantle Inner Harbour, experiences very little congestion.

6. There are approximately 400 residences within 4 km of the Proposed Kwinana Port (versus an estimated 18,000 plus within 4 km of Fremantle Inner Harbour). Of those residences about 15 remain in the Naval Base Industrial Area, 145 are in Hope Valley (which the WA Government already recognises as being in the Heavy Industry Buffer Zone and is currently acquiring the properties) and 59 are in Wattleup, which is in a similar situation to Hope Valley. There are no residences within 1 km of the proposed port and there are only about 15 within 2 km.

### 1.1.2. Submissions have highlighted that the proposed facility is duplicative of existing facilities and is not considered necessary at this time. It is not a replacement for the existing Fremantle Inner Harbour or Bulk Cargo Jetties and both these facilities will continue to operate. Indeed, it has been stated that the port of Fremantle may need to expand operations to the James Port area in 15 to 20 years time to meet its cargo-handling needs. Accordingly, submitters consider that it would be more sensible to allow the area to remain undeveloped until closer to the time when the additional cargo handling capacity is really needed.

Submitters believe that in the future it is likely that an optimum planning solution in the context of the environment and multiple uses could be achieved. Cargo handling technology is likely to continue to improve and integrated planning of port operations in Cockburn Sound (there are about 6 separate port operations at present) may be able to accommodate both expansion of cargo handling capacity with minimal impacts on the environment and recreational access. Submissions therefore consider that firm decisions on the port proposal should be deferred until closer to the time when it is needed.
Response

Refer to “The need for a Kwinana General Cargo Port” following response to 1.1.1.

The timing is such that a new port development could operate competitively and profitably at James Point at present.

The James Point Port will provide an alternative facility and an option for customers in the following cases:

- The Fremantle Inner Harbour for livestock, scrap metal and general cargo;
- The Bulk Cargo Jetty for bulk imports;
- The possible expansion of the Bulk Cargo Jetty south towards Rockingham for growth in bulk products; and
- The existing BHP Number 2 Jetty for bulk imports and exports.

There are immediate environmental, social and transport benefits to be gained by moving the livestock trade out of Fremantle.

There are similar benefits to be gained by moving the scrap metal trade out of Fremantle.

There are commercial and economic benefits to be gained by providing general cargo facilities closer to the source and destination of cargoes related to the Kwinana Industrial Area.

The bulk cargo jetty is 4 km south of the proposed James Point development (4 km deeper into Cockburn Sound). It is within 2 km of the mussel farms which are adjacent to the Kwinana Grain Jetty.

The potential impacts of bulk handling of industrial products and the potential consequences to Rockingham and to the mussel farms of any spillage/pollutant are much more significant for the use of the Bulk Cargo Jetty than they are for the James Point Development, which is in the centre of the industrial area.

Similarly, any expansion of the bulk cargo jetty will involve an extension south adjacent to Wells Park and closer to Rockingham and the mussel farms.

The BHP Number 2 Jetty operation is based on an old facility using old equipment. There is significant dust generation and spillage of product onto the jetty and JPPL contends that there is no adequate means of ensuring that product spillage does not enter the water, either directly or by subsequent wash off the jetty.

Any bulk cargoes which James Point handle will result in a loss of those products from either the BHP facility or from the bulk cargo jetty, with the consequent benefits of:

- Reducing/containing the quantity of product handled closer to Rockingham;
- Reducing the need to expand the bulk cargo jetty south in the direction of Wells Park and Rockingham;
- Reducing the quantity of product handled across the old and environmentally inadequate BHP facility; and
- Providing the opportunity for product to be handled across a new facility with newly set environmental licence conditions.

Any general cargo, scrap metal or livestock handled across the James Point facility will result in a directly corresponding reduction of the quantity handled through the Fremantle Inner Harbour with the consequent reduction in traffic, noise and odour impacts to Fremantle residences and businesses.

The remaining three jetty facilities in Cockburn Sound (Alcoa, BP and the Grain Jetty) are facilities dedicated each to be a particular industry and there is little prospect of any consolidation of their activities.

In summary, there is an immediate need for the proposed James Point facility and there will be subsequent economic and commercial benefits from the proposal.

For every tonne of cargo handled across the new facility there will be one tone less handled across existing or new alternative facilities, and there are net environmental benefits to be gained by directing
trades across the proposed facility versus directing them across existing facilities or alternatively sited new facilities.
Any improvements in available technology can be incorporated in the proposed new port immediately or as they become available.

1.1.3. Submissions have highlighted that an Environmental Protection Policy (EPP) is currently being formulated by the EPA, with the assistance of the Cockburn Sound Management Council (CSMC) and aims to establish broad objectives and set environmental criteria for Cockburn Sound. The draft EPP is anticipated to be released later this year. Submissions believe that the proposal should not be considered until the EPP and associated environmental quality criteria (EQC) have been finalised to provide a framework to assess the James Port proposal against.

Response
JPPL are aware that the CSMC are in process of preparing an EPP for the Sound. The CSMC made a submission on the Stage 1 Port PER as part of the Environmental Impact Assessment (EIA) process which has been incorporated in this Department of Environmental Protection (DEP) summary of submissions. As such, it is implicit that JPPL will be responding to the CSMC submission in this document. Further, it is implicit that if the submission came from the CSMC, then the policies and objectives of the CSMC would also be communicated to JPPL via this summary of submissions.

At no point has the EPA or DEP communicated to JPPL that an EPP or EQCs for Cockburn Sound need be completed before this project can be assessed.

1.2. Issues related to project location and design

1.2.1. Submissions believe the proposed port facility is inappropriately located because Cockburn Sound is a sheltered body of water with no natural navigational access deeper than 5 metres, and very few places deeper than 20 metres. Cockburn Sound has never been a strategically sound choice for a port facility, however it is a superb recreational asset, usable in all seasons. Given the extent of the urban sprawl between Fremantle and Rockingham, it is economically unwise and environmentally unsound to plan for the perpetuation of industrial facilities in this area. In this regard, submissions believe that the proposal should be relocated to regional trading centres. Submissions have specifically suggested the Port of Albany be considered as an appropriate alternative as it is heavily underdeveloped and is considered internationally, to be one of the finest deep-water harbours in the world.

Response
Refer to “The need for a Kwinana General Cargo Port” following response to 1.1.1.

Previous studies, including the alternative Port Site Study conducted in 1988, have exhaustively considered the alternatives for general cargo facilities to complement the Fremantle Inner Harbour.

The result was that Cockburn Sound in general and Kwinana/Naval Base in particular was chosen as the preferred alternative.

It is not economically viable to expect cargo to be transported unnecessarily long distance over the land in order to direct it through a regional port. Princess Royal Harbour (Albany) faces the same environmental issues as does Cockburn Sound with respect to circulation, pollution and port use.

The Government policy is directed at the continued use and further development of the Kwinana Industrial Area for the foreseeable future. Given this situation, it would be sound planning to consolidate the port facilities within the same area.

1.2.2. Port boundaries (dotted red lines) are shown differently in the two figures in the region of Barter Road to the north of the LandCorp site. Please clarify the extent of the port boundaries.

Response
The correct Stage 1 Port boundaries are shown in Figure 1.
PORT LIMITS

Breakwater if required

Proposed Channel
Dredging to -13.7m

Reclamation Area 1

Reclamation Area 2A

LandCorp Boundary

Breakblating pocket +1.4m

L.P.G. GAS

Calista Channel
Stirling Channel

Proposed Channel
Dredging to -13.7m

Reclamation Area 1

Reclamation Area 2A

LandCorp Boundary

PORT LIMITS

Berthing Pocket -14.0m

LANDCORP CONCEPTUAL LAYOUT

JAMES POINT PORT FACILITIES: STAGE 1

James Point Pty Ltd

STAGE 1 CONCEPTUAL LAYOUT

Figure 1
1.3. **Issues related to consideration of alternatives**

1.3.1. Submitters expect that a PER should describe the impacts of the proposal, including consideration of alternative locations and designs to avoid or minimise impacts. Despite the environmentally sensitive nature of Cockburn Sound the James Point PER contains little information on possible alternative sites and no evidence to suggest the proponent has considered alternative designs. The feasibility of alternative designs with less and fewer environmental impacts should be examined prior to consideration being given to approving the proposal as put up in the PER.

Submitters have suggested that consideration should be given to:

- Building only jetty structures with no land reclamation; and
- Consolidation of existing structures. Specifically it has been suggested that site of the present BHP jetties could be used for the proposed port activities leaving the Barter Road Beach for a variety of recreational uses.

Has the proponent considered alternative designs (including those above) to that documented in the PER, which utilise and consolidates existing facilities, with the view of reducing environmental impacts associated with reclamation and breakwater construction? What alternative designs have been considered and are there any design changes that can be made to the proposed port design to reduce the environmental and social impacts on Cockburn Sound?

**Response**

Refer to “The need for a Kwinana General Cargo Port” following response to 1.1.1.

JPPL proposed the James Point Port Development in response to a request for proposals which was issued by the State Government and which nominated the area available for siting a port facility (an 8 km strip of coast between Naval Base and James Point).

The area nominated by Government is the result of previous studies and decisions related to the possible siting of general cargo port facilities. The area selected by James Point is the only practical area for general cargo port facilities within the strip nominated by Government.

JPPL has examined many alternatives for the design layout of the port and will continue to refine its design having regard for environmental as well as operational and commercial considerations. The offshore breakwater is a refinement to the original design to provide some protection while minimising the impact on circulation.

The nature of general cargo and livestock operations is that land backing is a practical necessity for efficient operation. Also the use of land backed berths makes the management (confinement and collection) of spillage more effective.

There is a need for dredging and the most environmentally acceptable way to dispose of the dredge material is its confinement and use for reclamation. Subject to achieving other environmental objectives, the balance of dredge spoil against fill requirements for land backing is an effective design solution.

Jetty structures do not provide a cost effective solution for efficiently handling livestock and general cargo. The existing BHP jetties are old and have significant structural and maintenance problems.

JPPL is currently investigating options for freeing up more of Barter Beach but it is likely that the only sensible option will be to move the Stage 1 development south and this will require the cooperation of other parties including the eventual owner of the BHP land.

The design of the protective breakwater was modified to reduce residence times in the harbour by moving the breakwater offshore. Although a more costly approach, this had a significant effect in reducing residence times compared to a breakwater extending from the shore. Residence times are low enough such that there is a very low risk of water quality problems occurring within the port.
1.3.2. The values of Cockburn Sound, which will be lost as a result of the proposal has not been factored into the consideration of alternatives.

Response

In considering alternatives, JPPL always looked to improve the environmental outcome. However, there are significant limitations on where the Port can be sited (refer to “The need for a Kwinana General Cargo Port” following response to 1.1.1) and what the berth configuration can be. Further, the values of Cockburn Sound are numerous and sometimes in conflict.

Environmental Values (EVs) have been defined by ANZECC & ARMCANZ (2000) as “particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, welfare, safety or health and which require the protection from the effects of pollution, waste discharges and deposits.”

The EVs do not encompass economic or other non-environmental values. However, the State Government, in selecting James Point as the site most suitable for a port development (prior to the existence of JPPL), has effectively made the decision that there will be a net benefit to the community in such a project proceeding in this location.

1.3.3. Has the proponent considered alternative locations for the export of live sheep such as Bunbury, Albany, Esperance or Geraldton with a view of utilising existing port facilities, revitalising important regional towns and therefore minimising environmental impacts?

Response

The underlying sentiment is laudable, and if JPPL could have sited in a rural port, that option would have been selected due to the likelihood of lower land costs and greater support. However, as outlined in “The need for a Kwinana General Cargo Port” following response to 1.1.1, the economics do not justify this approach. The demand for the port services is in the Perth metropolitan area.

1.4. Issues related to land use and planning

1.4.1. The subject land is zoned a combination of General Industry and Local Parks Recreation and Drainage. The PER does not correctly identify the Local Parks and Recreation and Drainage Reserve. Town Planning Scheme No. 2 Clause 6.8 states (in part):

“A use falling within the General Industrial zone including any offensive trade or noxious industry shall be considered by Council in accordance with industrial classifications and locational criteria that Council shall adopt from time to time”.

The locational criteria are contained under the Town Planning Scheme Report entitled “Buffer Zones for Industrial Classes”. The potential maximum impact of the port (as proposed) on the surrounding area would involve the yarding, loading and shipping of sheep. The closest classification in the Schedule of Uses (Attachment C) is “Animal Pens”. The classification system breaks the activity into two (2) categories being Class III (up to 300 head) and Class II (300-3000 head).

The proposal includes the loading of up to 110,000 head of stock and as such is several orders of magnitude above the listed upper category. A reasonable position given the scale of the proposal would be to assume that the proposal therefore constitutes a Class I Industry in terms of the classification system. This establishes a recommended buffer distance of 2 km from residential development with “Approximate” upper limit of 4 km.

The Hope Valley townsite is within the 2 km limit and the 4 km distance includes a small portion of the Medina area. While the FRIARS study and subsequent state legislation involves the removal of the Hope Valley Townsite, this is a long-term process and it is likely that residences will remain in the area for many years. As such the proximity of the Townsite to the sheep holding and loading facility is an integral factor in the local decision making process. Has the proponent consulted with the relevant decision making authorities to determine whether the proposal meet the requirements of the above classification system and relevant planning scheme provisions?
Response
This proposal relates to the Port, it excludes the livestock holding facility.
The Stage 1 development is 2.4 km from Hope Valley and 4 km from the north west corner of Medina.
If the assertion in the submission is accepted that a reasonable position is to assume a Class 1 industry with recommended buffer distances from residential of a minimum of 2 km or up to 4 km then this proposal meets the minimum in the case of Hope Valley (which is being removed) and the upper limit of recommendation in the case of Medina.
It is worthy of note that the Town of Kwinana has approved a new residential subdivision at Bertram Road which is within 3.5 km of one of the two major feedlots servicing the export industry, and there is an existing good quality residential area in the vicinity of Wellard Road and Leda Boulevard which is within 3 km of the same feedlot. It is also worth noting that the loading of livestock at Kwinana will be similar to the current operation at Fremantle which has an estimated 1,000 residences within 1 km of loading operations.
The PER addresses issues considered under the Environmental Protection Act 1986. The submissions related to Land Use Planning, although they may be valid concerns, are not part of the scope for this assessment. The proponent will address the Land Use Planning matters by means of a Development Application to the WA Planning Commission. Despite being irrelevant to the current EPA process, the following brief comments are provided on the specific issues raised:
• Zoning of affected land: Zones and Reservations will be dealt with under the Planning Application. No offensive or noxious uses have been included in the Stage 1 development.
• Town Planning Scheme Report: This aspect will be dealt with under the Planning Application. The section of the Scheme Report referred to is not part of the Statutory Town Planning Scheme and does not carry statutory authority.
• Loading up to 110,000 head of stock: This reference is to a second separate proposal and "Livestock Holding Facility" and is being confused with the James Point Port Proposal. The State Government, through the Fremantle-Rockingham Industrial Area Regional Strategy, has decided to relocate the residents of Hope Valley and this has already commenced.
• Consultation: Please refer page 141 of the PER where the full consultation program prior to PER submission is set out. This public consultation process has continued subsequent to the submission of the PER.

2. Biophysical Factors and Issues

2.1. Marine biota and associated habitat (including seagrass, benthic and other marine flora and faunal communities)

Impact from dredging

2.1.1. Threats to seagrass beds exist from dredging, port construction and operations by increasing nutrients in water column and reducing light reaching the sea floor. It is not considered that this has been adequately addressed in the PER. How will the proponent ensure the seagrass beds located 2 km to the northwest are protected from the impacts of dredging?

Specifically, how will the proponent ensure the seagrasses receive enough light to maintain photosynthetic processes during construction and operation? How will light attenuation through the water column be assessed and what turbidity and light attenuation criteria are proposed? For example a submission has suggested that an appropriate distance from the seagrass beds should be set by the proponent, at which construction (end-tipping or dredging) must cease if a sediment plume reaches this boundary.

Response
As stated above, the primary threat to seagrass beds during construction will come from turbidity plumes generated by dredging which reduce the light received by the seagrasses. At present the proponent intends to use a cutter-suction type dredge which generally produces less turbidity than other types of dredge. However, recent dredging activity for the Jervoise Bay Industrial Infrastructure development has shown that significant dredge plumes are still likely to occur with cutter suction
It is estimated that 1.24 million m³ will need to be dredged for the Stage 1 development, while recent dredging for the Jervoise Bay Industrial Infrastructure project has involved a volume of about 3.4 million m³ and taken 5 months to complete.

On this basis, it may be assumed that dredging activity for the Stage 1 development will take about two months to complete given that similar size plant will be employed.

The seagrasses in the vicinity are unlikely to be adversely impacted by shading of two months duration especially if dredging is undertaken during winter months. Gordon et al. (1995) and Neverauskas, (1988) showed that P. sinuosa could be 99% shaded for up to six months and recover, however, these were relatively healthy seagrasses which were not at their depth limit for survival.

As part of the Construction EMP, a Dredge Management Plan will be prepared which considers the likely impact of dredging on seagrass and presents a monitoring plan and associated criteria and actions to be taken in the event that criteria are exceeded. This plan will take into account the results of the Jervoise Bay dredge monitoring and will be reviewed and approved by the DEP prior to commencement of dredging.

2.1.2. Will seagrass health be monitored during the dredging phase of the project to verify whether seagrass is being impacted by the proposal?

Response

Yes. There are already programs of seagrass health monitoring in the vicinity of the works. As part of the Dredge Management Plan, a seagrass health monitoring plan will be implemented which targets seagrasses most likely to be impacted by the dredging while also considering the sites and techniques in use by the other programmes.

2.1.3. Although the proponent suggests on Pg 101 that the closest seagrass areas are 2 km northwest of the development; transect 2 of the James Point Marine Survey (Appendix 2) shows seagrass well within 1 km of the area which is to be dredged (Figure 7.2). Submissions consider that such small areas of seagrass are significant if the shallow water seagrass meadows of Cockburn Sound are to re-establish in the long term. How can the proposal be re-designed to avoid the removal of and reduce impacts on any seagrass?

Response

The submission is correct in that there are small patches of seagrass closer to the dredge area than 2 km. These patches did not occur on Transect 2 (refer Appendix 2), rather they occur on Transects 3 and 6. These patches are about 1.2 km away from the port and about 100 m away from the Stirling Channel. The patches have also been identified on recent aerial photography (March 2001) taken as part of a wider seagrass mapping project for the region.

There is likely to be a requirement for deepening and widening of the Stirling Channel which will involve dredging adjacent to these patches of seagrass. On the basis of the survey information in Appendix 2 and recent aerial photography, the dredging will not result in the removal of seagrass. Dredging impacts on seagrasses through the generation of turbid plumes will be managed as set out in the response to 2.1.1.

2.1.4. Surveys of seagrass meadows near James Point have been undertaken annually by Edith Cowan University to measure seagrass health and cover. The results of the surveys have shown that the patches of seagrass to the north-west of James Point (predominantly Posidonia sinuosa) have shown signs of stress. Considering that the seagrass patch in question is currently under stress, what measures will the proponent undertake to reduce the impacts of dredging the Stirling Channel on the seagrass beds? How will the proposal impact on the already stressed seagrass beds?

Response

Seagrass health monitoring in winter 2001 associated with dredging for the Jervoise Bay Southern Harbour Development showed no significant change in shoot (p>0.05) or leaf densities (p>0.05) within either P. sinuosa or P. australis meadows after 2 months of continuous impact from dredge plumes. Mean shoot densities recorded in P. sinuosa meadows were between 416 shoots/m² 433.6 shoots/m², while leaf densities were between 718.4 leafs/m² and 763.2 leafs/m². In general, mean
Shoot and leaf densities were lower in the *P. australis* meadow, varying between 276 shoots/m$^2$ and 315.2 shoots/m$^2$, while leaf densities were between 554.4 leafs/m$^2$ and 630.4 leafs/m$^2$.

The seagrass 2 km northwest of the port and 1 km north of the end of Stirling Channel has been surveyed in summer on a regular basis for the DEP by Dr P. Lavery of Edith Cowan University. It has been found that *P. angustifolia* at the site (‘Kwinana’) had mean shoot densities of 396 shoots/m$^2$ in January 2001 and that densities at this site had decreased since 1998, from 815 shoots/m$^2$ in 1998, to 780 shoots/m$^2$ in 1999 and 335 shoots/m$^2$ in 2000.

As stated in the response to 2.1.1, JPPL will develop a Dredge Management Plan which considers the likely impact of dredging on seagrass and presents a monitoring plan and associated criteria and actions to be taken in the event that criteria are exceeded. This plan will incorporate the information generated by the DEP monitoring as well as information from the Jervoise Bay monitoring work and other research in the region by Murdoch University. It will be reviewed and approved by the DEP prior to commencement of dredging.

2.1.5. What types of benthic fauna and flora (apart from seagrasses) will suffer directly from dredging and indirectly from the turbidity and sedimentation? How will they be protected?

Response

The benthic habitat survey conducted as part of the impact assessment found the majority of the habitat is comprised of sand, silt or shell rubble deposits on sand. The substrata were sometimes coated with fine brown algae and clumps of red and brown algae were occasionally seen growing from the sediment. The fauna observed included the following invertebrates likely to be impacted by dredging: anemone, sea pens, sea stars, sea squirts and polychaetes. Dolphins, fish and crabs will be able to move away from dredge activities.

There will not be any attempt to protect algal habitat or fauna typically found on the seafloor in the region. The dredge management plan will focus on the protection of seagrass habitat as this is the most vulnerable and important habitat in the Sound.

Impact from land reclamation and other construction activities

Submitters believe the few seagrass beds that remain in Cockburn Sound are extremely important and should be protected. The PER predicts that there will be no loss of seagrass, although 19 ha of shallow habitat (where seagrass grew in 1954) will be lost. This is inconsistent with EPA Bulletin 907: which states that “it is important to retain the sandy banks and sandy margins of Cockburn Sound, where seagrass once grew, so as not to lose future opportunities for seagrass re-establishment in the Sound.”

Submissions have also raised concern with respect to impacts on marine fauna, including turtles, dolphins and fin fish.

Noting the above, please respond to the following specific matters raised by the public.

2.1.6. What is the heritage significance of the remaining seagrass beds? What mechanisms exist under the existing State and Federal Heritage or Environmental legislation to protect the remaining beds of seagrass?

Response

It is JPPL’s understanding that the term, “heritage significance” does not apply to remaining seagrass beds. However, in EPA Bulletin 907, the EPA has expressed that an objective is protection from any further loss of seagrass in Cockburn Sound. Therefore the recommendations of the EPA to the Minister for the Environment provide the mechanism for protection of seagrass. However, the final decision as to whether a proposal is acceptable or not rests with the Minister.

The JPPL proposal will not result in the further loss of seagrass habitat in Cockburn Sound.

2.1.7. Precluding future re-establishment of seagrass by removing habitat (directly through land reclamation and threatening a larger potential habitat area through cumulative impact) has not been addressed in the PER. A description of the benthos to be impacted by the proposal in terms of areas, which used to contain seagrasses and areas most likely to support seagrasses, should be provided. How much seagrass habitat will be lost? Is the loss of seagrass habitat consistent with the recommendations of EPA Bulletin 907?
Response

It should be noted that a recent detailed examination of aerial photography from 1967, 1972 and 1981 of the region between the BHP jetties and the Alcoa Jetty suggests that the area shown as sand in 1967 by DAL (DAL 2000) probably supported seagrass habitat in 1967 and 1972. This is also the conclusion reached by Cambridge (1979).

As such, the JPPL Stage 1 proposal will be largely built on sand habitat which once supported seagrass. Due to the difficulty in generating accurate maps from 1967 photography due to poor penetration in the James Point region, an accurate assessment of the amount of habitat which once contained seagrass, cannot be produced. However, the photography suggests that the seafloor beyond ~70 m offshore supported seagrass. If it is assumed that all habitats offshore from this distance is seagrass then the development will result in the loss of about 14 ha of sand habitat which once supported seagrass.

The development will not result in the loss of existing seagrass habitat.

<table>
<thead>
<tr>
<th>2.1.8.</th>
<th>In view of the loss of seagrass habitat, the proponent should either consider alternative designs for the port, which would not cause loss of habitat, or at least, create additional habitat (in addition to the 2.8ha sub-tidal habitat created as a result of the proposal) of equal value to that which would be lost because of the port. Commitments to re-establish seagrass in remaining shallow habitat should be considered. How will the proponent adequately offset the impacts caused by the loss of shallow seagrass habitat?</th>
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<tbody>
<tr>
<td><strong>Response</strong></td>
<td>The development will not result in the loss of existing seagrass habitat.</td>
</tr>
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</table>

2.1.9. Two endangered turtle species are found in the area. The turtles rely on seagrass and Cockburn Sound as habitat. Submissions also claim that the presence of squid and bait in this area also make it valuable to these endangered species. Environment Australia specifically expressed concern about the reduction of feeding areas for these creatures when they assessed the Jervoise Bay project. They stated that reduced habitat could result in the animals losing condition and that this could affect their ability to breed. How will the proposal impact on the turtles? How will turbid plumes impact on the foraging behaviour of the turtles? Considering the presence of an endangered species in the area, what types of environmental approvals are required from the Commonwealth Government?

| **Response** | The Environment Australia Submission on the Jervoise Bay Industrial Infrastructure noted that there were two species of turtle (Logger head, *Caretta caretta* and Leatherback, *Dermochelys coriacea*), both listed as endangered, which had been reported from Cockburn Sound. The turtles breed and are generally found much further north (in Shark Bay and northwards). They are occasionally found washed up on beaches around the Perth metropolitan area. It is thought that a combination of storms and the southward flowing Leeuwin Current is the primary mechanism which brings them to local waters. They do not breed in local waters and would not purposefully migrate to local waters to feed, nor are local waters recognised as a habitat for turtles. As such, the impact of the development on turtles is not considered to be a concern. The Environment Australia Database is useful, but very general and needs to be used with caution, for example an inquiry for the Cockburn Sound location will suggest whales are present as well as other protected species not typically associated with the Sound. |

2.1.10. Sheltered beaches are important nursery areas. Fisheries WA have indicated that the results of a very extensive body of work that has been undertaken in near shore marine and estuarine habitats of south-western Australia now clearly confirms that the 0+ year classes of most economically important coastal finfish species utilise protected marine shoreline habitats, and similar habitats in the lower reaches of estuaries. The greater the level of protection it seems, the more valuable the habitat.

The proposal will result in the loss of a beach and its replacement with a different type of habitat. It is likely that lowering the depth of the seabed will also make a significant difference in terms of the value of the site as a fish nursery area. Public submissions argue
that the replacement of a near-shore shallow habitat with a new rock habitat (artificial reef) will destroy a nursery area suitable for juvenile fish. Several questions have been posed with regard to the loss of shallow sandy habitat and recognised nursery area, including:

- How will the proposal impact upon the value of the site as a fish nursery area?
- What are the impacts of reclamation on juvenile fish populations?
- Can these impacts be avoided? If so, how?
- How will the proponent offset the loss of valuable shallow sandy habitat?
- Will the breakwater and rock armour provide habitat value as a nursery for juvenile fish, similar to the existing marine shoreline habitat?

Please provide a considered response to each of the questions above.

Response

With the limited amount of information currently available, it is difficult to predict the degree of impact that the development will have on the nursery function of the area. As the submission states, nearshore sandy areas provide important habitats for the juveniles of a number of commercially and recreationally important finfish species. A number of studies have shown the importance of these regions to such species in south-western Australia (Lenanton 1982; Lenanton et al. 1982; Robertson & Lenanton 1984; Ayvazian & Hyndes 1994, Hyndes et al. 1995, 1999).

An analysis of data collected during a six-weekly sampling program carried out over a year during 1992/1993 showed that 47 species of finfish occur in the sandy nearshore environment between Mandurah and the entrance channel to the Swan River Estuary (Hyndes, unpubl. data). Of these species, seven economically important species ranked in the top 20 species, namely (in order of abundance) sandy sprat (whitebait), blue sprat, yellow-eye mullet, western school whiting, southern school whiting and King George whiting (Hyndes, unpubl. data). Other less abundant species included estuarine cobbler, small-toothed flounder, blue-spotted flathead and trumpeter whiting. While this provides a list of potential species that may occupy the James Point region, the species assemblage in that region is likely to be a subset of these species. The degree to which the beach of that region is exposed to wave activity is likely to influence the species occupying the area, as has been shown for whiting species in the metropolitan region (Hyndes et al. 1995).

The only site in the study by Hyndes (unpubl. data) was at the Grain Terminal, to the south of James Point. Both sandy and blue sprat as well as western school and southern school whiting were relatively abundant at that site. However, the degree of exposure and other characteristics of the nearshore region of James Point are likely to differ from the region near the Grain Terminal. This may influence the species composition at the region in question.

Any reclamation of the nearshore region will remove potential nursery habitat for the above species. The degree to which this will impact on the species will depend on the extent to which those species occupy the region and the proportion of the total available nursery habitat that will be removed. The impact is unavoidable. In the broadest terms, there is approximately 32 km of coastline inside the Sound (between Woodman Point and the tip Garden Island in the north and the causeway in the south) for which the nearshore region consists of shallow sand or mixed shallow sand and seagrass habitat. The JPPL Stage 1 development would result in loss of approximately 2% of this nearshore habitat type.

JPPL will not create additional shallow sandy habitat in the vicinity of James Point, however, the proponent will be willing to discuss with the EPA means of offsetting the loss of impact by enhancing the protection and understanding of other key fish nursery areas in the Sound.

The port breakwater and rock armour will provide a vastly different habitat to that which the development is replacing. The species that occupy shallow sandy substrata will generally not occupy the created habitat. The new structurally-complex habitat will be occupied by other species, which typically occupy reef habitats.

2.1.11. Submissions consider that further detail should be to demonstrate how habitat loss is to be mitigated through the design and construction of the breakwater. The proponent could investigate the options for maximising the area of rock placed below low tide level in order to create the maximum reef habitat possible. The proponent should also look to replace the
shallow sandy habitat which will be lost through this port development. It may be possible to create a sheltered sandy beach at a point along the breakwater (particularly on the north western side, which is likely to accumulate macro algal wrack) to compensate for the loss of the fish nursery off Barter Beach. This solution would require hydrodynamic modelling and breakwater design work. Please comment on the above suggestions.

Response

Assuming the breakwater slope will be ~1:1.5 the construction of the breakwater will result in about 27 ha of new subtidal reef without any modification to increase the area. If the slope below the water line was increased to 1:2, this area would increase to about 36 ha. However, it would be extremely difficult to justify the extra cost for a relatively small increase in new subtidal reef. Without modification, the offshore breakwater will create a significant fish habitat in the region and as access will be restricted, the combination of new habitat and low fishing pressure will increase fish stocks in the area.

Creating shallow sandy habitat on the north-western side would be extremely expensive option and would not be undertaken unless there was a strong environmental or economic imperative. The loss of shallow fish habitat is not expected to cause a significant impact as this will be partially offset by reduced fishing pressure due to access restrictions.

2.1.12. Submissions have highlighted the presence of dolphins that feed in the area and are concerned the impacts of the proposal on the dolphins have not been considered in the PER. Submissions have indicated that dolphins regularly visit the Barter Road Beach and that a dolphin tour company operates out of Rockingham. What are the impacts of the proposal on the dolphin pods, which frequent the area? What are the impacts of the proposal on the dolphin tour company, which operates in Cockburn Sound?

Response

A report into the effect of the Stage 1 proposal on dolphins was prepared by Dr M. Calver, P. Waterson and H. Finn from the School of Biological Sciences and Biotechnology at Murdoch University (Calver et al. 2001). The concluding section answers the above submission and is quoted in full below.

“Given our current understanding of dolphin ecology in Cockburn Sound, it is unlikely that the impacts arising from the proposed James Point Port (Stage 1) development, if managed using best environmental practice methods to minimise habitat degradation, will initiate population decline.

However, the proponent should be aware that: a) considerable scientific uncertainty exists about the ultimate effect on the dolphin population of the construction and operation of the proposed development; b) the development will likely change the behavioural ecology of the dolphins (e.g. through short- and long-term changes in habitat use) and affect prey species habitat; and c) this response does not address the impact of future expansion of the James Point Port (Stage 1) development and the cumulative impact of proposed industrial development scenarios near the Jervoise shelf area.

The proposed James Point Port (Stage 1) development will affect commercial dolphin interaction operations in Cockburn Sound since patterns of dolphin habitat use for the area around the development are likely to change. The operator has indicated that the area within a 5 km radius of the development is an important location for interactions due to the reliability of finding dolphins and relatively shallow waters. If habitat use patterns for this area decrease—a potential outcome—the operator will have to utilise other areas which may be less suitable due to factors such as distance, likelihood of finding dolphins, etc. Reductions in water clarity during the dredging and construction phase will also reduce the suitability of areas near the development.

Murdoch University research to date suggests that the dolphin population in Cockburn Sound would be unable to adapt to broad-scale habitat degradation in the Sound in the future and that maintenance of current ecosystem structure and function is critical to the viability of the dolphin population. This consideration is particularly relevant to the management of heavily utilised (and presumably ecologically significant) habitat areas such as the Jervoise shelf. Even with continued monitoring of population demographics and identification of a declining trend, population decline would be difficult to reverse, particularly if conditions facilitating population recovery were difficult to implement due to the permanent and irreversible nature of future industrial developments. As such, we advocate a
precautionary approach to the assessment of environmental impacts arising from future industrial and maritime development in the Sound. The current regime of environmental impact assessment and its focus on individual development proposals is inadequate to assess the effect of ecological changes resulting from the cumulative impact of multiple developments. In the future we recommend that the impact of proposed developments be approached from a long-term integrated planning and assessment process.”

Impact from operations

2.1.13. Potential spillages or run off of animal waste from holding tanks/evaporation ponds would be of concern, as Murdoch University have invested considerable resources in a seagrass re-vegetation programme in the vicinity of the proposal. Will the Murdoch University programme be compromised and have they been consulted on the impacts of the proposal on their seagrass research programme?

Response

This response does not include the livestock holding facility and does not include holding tanks and evaporation ponds associated with the holding pens. However, there will be the need to contain, collect, hold and dispose of minor quantities of waste associated with the loading of livestock from trucks onto vessels.

The researchers at Murdoch University have been contacted. The University is running a number of seagrass experiments in the Cockburn Sound region, however, none of these programmes have sites on eastern margin of the Sound.

The design of the facility will be such that animal wastes or other contaminants do not discharge to the Sound.

2.1.14. A decrease in light levels at the seabed in harbour areas will result in a decrease in microscopic plant communities that dwell on the seabed (microphytobenthos). Presently, the primary production from microphytobenthos is likely to be high on the eastern margin of The Sound. Any reduction or loss of these communities may significantly affect sediment oxygenation, nutrient recycling (particularly nutrient release) and ecosystem function within the harbours. Please comment on how this matter is addressed.

Response

A simple response may be: The deepening of ~22 ha on the eastern margin (which has an area of ~250 ha) of Cockburn Sound (which has an area of ~920 ha) is highly unlikely to have any measurable impact on nutrient recycling in the port or the region which is flushed on a near daily basis.

A more detailed response may be: The microphytobenthos (MPB) both generates (during part of the day) and consumes (during part of the day and all of the night) oxygen. When the MPB is generating oxygen, sediment oxygen demand would be partly met by MPB efflux and partly by diffusion of oxygen from the water column: the depth to which the sediment remains oxygenated would therefore be slightly deeper than at night. When the MPB is consuming oxygen, the sediment (including MPB) oxygen demand would be wholly met by diffusion of oxygen from the water column: the depth to which the sediment remains oxygenated would therefore be slightly shallower than during the day.

The net result is a vertical migration of the aerobic/anaerobic boundary within sediments on a daily basis, and resultant variations in nutrient cycling processes that require oxygen (eg respiratory breakdown of organic matter, conversion of ammonium to nitrate) and those that require anoxic conditions (denitrification). Denitrification is a major mechanism by which nitrogen is lost from marine sediments, and the seeming contradiction in oxygen requirements required for denitrification to proceed (oxygen for ammonium to be released from amino acids and for the conversion of ammonium to nitrate, and the absence of oxygen for denitrification) is easily met in most sediments as their oxygen levels vary both spatially and diurnally.

Under extended conditions of low oxygen, denitrification rates may decrease, and the proportion of sediment nitrogen re-released as DIN back into the water column (to support phytoplankton growth) may increase. For this reason, extended periods of low oxygen can cause an indirect increase in nitrogen supply to an ecosystem—due to a decrease in the rate of nitrogen loss from the ecosystem.

The deepening of the harbour area will result in less light reaching the seabed, and so MPB communities will be reduced. Therefore, both the generation and consumption of oxygen by MPB communities will be less, and some change may occur in the depth and pattern of vertical migration of
the aerobic/anaerobic boundary within sediments. However, unless sediment oxygen demand continually exceeds supply (via oxygen diffusion through the water column), denitrification should not be impeded. The scenario anticipated is similar to that in the Cockburn Sound basin: available data indicate that oxygen levels in bottom waters generally remain high, with the inference that sediment oxygen demand is not outstripping supply.

Sediment nutrient release that previously sustained the MPB will become available to phytoplankton in the waters of the harbour. The settling of phytoplankton to the seabed will also be greater within the calmer waters of the harbour. The primary production available to support sediment fauna will, if anything, increase; this is evident in the accumulation of organic matter that occurs in sediments in sheltered, deeper waters. The biomass, abundance and biodiversity of sediment fauna is expected to become more akin to that of the deep basin of the Sound.

Impacts on the MPB are not considered to be a key environmental issue for the Stage 1 port development.

2.2. Coastal processes and littoral drift (including impacts on the seabed)

The community has expressed concern about the impacts of the proposal on coastal processes. In particular, concern has been raised with regard to the:

- detail and rigour of the proponent’s modelling of potential impacts;
- extent of the proponent’s commitments to manage impacts; and
- types of management proposed.

Submissions relating to each of these generic issues are summarised below.

2.2.1. Section 6.6 of the PER states that JPPL will undertake a detailed wave modelling study with the aim of establishing the port and temporary breakwater configuration that will have minimum impact on the beaches adjacent to the development. Submitters consider that the more detailed post-approval modelling suggested by the proponent in it’s PER should be conducted prior to Ministerial approval and options to manage altered sediment movement need to be discussed in detail up-front during the EIA process. Why was it not possible to have had the detailed studies conducted and reported as part of the PER?

The statement implies that the modelling presented in the PER has not been very detailed and accordingly this has not instilled public confidence in the proponent. If approval is granted, how much time will be available between the granting of the approval and the commencement of construction to enable such a study to be completed? How much variation in final design will be permitted as a result of these detailed studies? Will the other modelling (circulation, flushing etc) remain valid if the configuration is changed?

Response

JPPL is yet to undertake detailed modelling of wave reflection and refraction and any subsequent impact on the coastal processes because the land tenure and operational requirements are yet to finalise. Any slight changes in the plan shape could have a significant effect on the modelling. When the final offshore breakwater design parameters are set, JPPL will then use wave modelling to refine the shape of the offshore breakwater such that wave energy is not focussed onto the coast.

The PER used first principles to describe wave climate based on the conceptual offshore breakwater shape.

The stable shape of the coastline and observations suggest that the predominant swell direction is normal to the coast, resulting in a stable beach shape. Wind waves from seabreeze arrive oblique from the south-west causing some northerly transport.

Desktop ray tracing techniques were used to check for likely focussing of normally incident swell. It was found that, for the concept shape:

- Swell magnification will occur at the beach 0~100 m south;
- Swell energy will decrease in the region ~400 m north; and
- Swell magnification will occur in the region ~400–1200 m north, which includes the Kwinana Power Station.
The likely increase in swell wave energy arriving to the north is a concern with the conceptual stage configuration, however, by changing the geometry of the offshore breakwater this effect can be eliminated and dissipation of wave energy will occur through transmission back out into the Sound. The incorporation of detailed design phase will include fine-scale shaping of the offshore breakwater to maximise the dispersion of reflected waves.

JPPL is mindful of the impact of the Jervoise Bay Northern Harbour breakwater on the erosion of Woodman Point and, as stated in the PER, will be using the detailed design phase to undertake modelling and impact assessment on an iterative basis. The results will be presented to the DEP prior to preparation of the Construction EMP. Given concerns in the local community regarding coastal erosion issues, this work will also be made available to the local community on request.

2.2.2. Submissions believe that reclaiming an area and armouring it will completely change the adjacent shorelines. The PER states that "although changes in transport magnitude may be small, the impact to the coastline may be significant due to the narrow beaches, and potential disruption of replenishment from the south."

Because the proponent’s current modelling presented in the PER cannot establish whether the environmental impact is unacceptable (or the required level of remediation works), submissions believe that the proponent is deferring the assessment of this factor to the post-approval stage of the project. This is considered to be unsatisfactory. This work should also be made available to the public for comment.

The impacts of the proposal on coastal processes should be described in the context of the Environmental Values and objectives identified by the EPA in Perth’s Coastal Waters: Environmental values and Objectives (EPA 2000). This document outlines the importance of maintaining ecosystem integrity, including retaining the physical coastal processes on which many foreshore and littoral communities are dependant.

If modelling predicts that the breakwater would cause an erosion problem and Environmental objectives may be compromised, then the proponent should make firm commitment to manage the impacts. A sand bypass method or beach nourishment of the northern beaches has been suggested.

Response

Detailed modelling was not undertaken for reason in 2.2.1. The detailed modelling work will be made available to the public on request.

The EPA 2000 document referred to above concerns itself with water quality and not coastal processes and has been misinterpreted.

JPPL do not believe that the EPA objectives with respect to the ecological integrity of Cockburn Sound would be compromised by impacts on coastal processes.

If, following detailed modelling and design, beach erosion is a problem. JPPL will commit to implementing long-term solutions satisfactory to the local government authorities, Department of Planning & Infrastructure and the DEP.

2.2.3. The commitment by the proponent to “monitor beach profiles in the region and implement remedial works if required” does not address the possible problems. Contingency measures suggested in the contingency plan should be fully examined for their impact on the rest of the coastline and their interaction with the other processes highlighted in the project (i.e. water flow through the port) before implementation occurs.

Submitters are also concerned that the only commitment made if ‘the port is causing irrevocable and significant loss of the shoreline’ is to investigate the use of structures as a management tool. Submissions believe there should be a stronger commitment to more than just investigation if the port is causing irrevocable and significant loss of the shoreline.

Firm commitments and contingency plans to manage coastal process issues need to be clarified up front and prior to approvals. What matters will be addressed in the contingency plan and how will changes to coastal processes be managed.
Response
As a condition of Environmental Approval to proceed with Stage 1, JPPL is prepared to commit to the following measures in order to minimise and manage changes to coastal processes:

- Detailed modelling and Stage 1 design refinement to the extent necessary to ensure changes to coastal processes are predicted with reasonable accuracy and are within manageable limits.
- Coastal management procedures to monitor and to ensure that changes to coastal processes are within the agreed limits.

2.2.4. Submissions believe the use of “structures” (e.g. groynes) to control erosion should not be permitted. If modelling or subsequent monitoring suggests that the breakwater could cause erosion problem then a sand bypass method should be used. Has the sand bypass method been considered are a means of mitigating the impacts of the proposal on coastal processes? What other engineering solutions are available to mitigate the impacts of the proposal on coastal processes?

Response
JPPL agrees that the use of structures on the beaches should be a last resort to erosion control. JPPL believes that the detailed design process can generate a structure which has minimal impact on coastal processes while meeting operational criteria, making the need for any structures or sand bypassing unlikely.

2.2.5. Submissions suggest that erosion of the Woodman Point West beach adjacent to Cockburn Power Boat Association following a breakwater construction has generated considerable concern from local conservation action groups. Submissions have indicated that this is indicative of what will occur north of the proposed port if it proceeds. What reassurances will the proponent provide to the local community that increased beach erosion north of the Port will not occur to the same extent as that occurring at the Woodman Point Beach West?

Response
JPPL are aware that the erosion at Woodman Point is due to configuration of the Northern Harbour breakwater and a simple wave ray reflection diagram of the northern harbour breakwater for west swell suggests that the greatest increase in energy due to the breakwater will occur at beach immediately west of the groyne. The focussing of waves onto Woodman Point could have been reduced by altering the curvature of the breakwater.

When the design parameters have been finalised, the JPPL offshore breakwater will be shaped and aligned to minimise wave focussing onto the shore and increase energy dispersion offshore. Refer also to 2.2.1 and 2.2.2.

2.2.6. The PER does not acknowledge or quantify the effect of construction on the existing Stirling and Calista Channels. Is there the potential for an increased level of siltation within the existing channels? How will maintenance dredging be managed to reduce environmental impacts? Submissions consider that JPPL include in its construction EMPs such measures as required to minimise the impact of construction on the existing channels and outline remediation measures should the channels be adversely affected with due consideration given to the environmental impacts of maintenance dredging.

Response
To the best of JPPL’s knowledge, the Stirling and Calista channels have not needed maintenance dredging since they were first dredged in the late 1960s.

The protected nature of Cockburn Sound means that siltation of channels within the Sound is not a major problem. JPPL do not envisage the need to undertake a significant programme of maintenance dredging nor expect that its development will have any impact on the existing channels.

If any maintenance dredging is required, the programme will be submitted to DEP for approval. The environmental impacts will be assessed and controlled using the framework developed for the Dredge Management Plan prepared for construction.
2.3. Dunes

2.3.1. Submitters believe that it would be inappropriate, particularly for the purpose of a new port, to lose 900 m of coastal dunes in the James Point area. Please comment.

**Response**

JPPL concur that the loss of coastal dunes is never an ideal environmental outcome. However, the dune complex is not subject to any special protection, is relatively degraded, in a region zoned for heavy industrial use and is isolated from other native vegetation. JPPL would like to suggest that the overall benefits to the Western Australian community from the project outweigh the loss of 900 m of dune system located within a heavy industrial precinct.

2.3.2. According to the PER, the threatened Southern Brown Bandicoot *Isoodon obesulus* may occur on the dunes to be impacted and number of bird species protected under international migratory bird treaties, may also utilise the area on a transitory basis. A large number of bird species are also likely to utilise the project area, as well as a low to moderate diversity of reptile species. Despite this, the PER gives no indication of the extent of the survey and fails to address the impacts on the fauna identified. The proponent should address the impacts on threatened fauna and birds protected under migratory bird international agreement and examine designs to minimise disturbance, allow for translocation of species or compensate for removal of habitat.

**Response**

As discussed in the PER, the fragmented nature and limited size of the habitat remnants in this area are likely to mean that only a substantially reduced subset of the original native ground fauna would remain in the area.

Site specific surveys addressed the immediate impact areas associated with the proposed port development and comprised non-systematic site assessments only (i.e. trapping was not conducted). While the submission refers to the Southern Brown Bandicoot *Isoodon obesulus fusciventer* as threatened, it is actually listed by the Department of Conservation and Land Management as ‘Conservation Dependent’, having been downgraded from Schedule 1 ‘rare and endangered’ several years ago. The species core habitat typically comprises areas with an intact understorey and given the structurally degraded nature of much of the habitats affected by this proposal, the areas to be impacted are not likely to support any locally or regionally significant populations of this species. Given this, it is considered unlikely that any change to the conservation status of *I. obesulus* would arise as a result of the proposed port.

Similarly, the migratory bird species referred to are not likely to be reliant on the areas affected by this proposal for any key breeding or foraging resources, using the project area on a transitory basis only.

2.4. Terrestrial vegetation

2.4.1. The reclamation of dunes will remove the coastal strip at James Point. This will result in a loss of locally rare Quindalup vegetation complex, identified in the Green Link Concept Plan as locally significant. The Quindalup complex is poorly represented in conservation reserves with extensive clearing of coastal dunes occurring for industrial and port developments in the Kwinana Industrial Area. Rare flora species *Dodonaea hackettiana* and *Grevillea olivacea* (priority 4) have been recorded in the area, although they were not located during field surveys. Reclamation works would thus lose any of the rare species remaining on site. The proposal will also result in the loss of *Lepidosperma gladiatum* sedge land. This sedge land has just two species compromising the entire assemblage and has been noted as an unusual vegetation association. It occurs locally in two locations, both along the section of the coastline affected by the port.

The proponent should consider designs that minimise the impact on dunes or compensate for their removal, such as revegetation of nearby coastal dunes.

**Response**

The proponent recognises the local significance of Quindalup dune vegetation and its poor level of existing conservation at a regional scale. As noted in this submission the threatened flora species *Dodonaea hackettiana* and *Grevillea olivacea* were not recorded from the site during flora surveys and are therefore not relevant to consideration of the impacts of this proposal.
In recognition of the local vegetation values of the project area, the proponent will undertake an assessment of local vegetation condition as part of the detailed design of the port and associated onshore facilities. The findings of this work will be incorporated into final design, with the objective of retaining better condition or more significant areas, such as the *Lepidosperma gladiatum* sedgeland, wherever this can be practically achieved. Much of the vegetation in the area is degraded to varying extents. The proponent will develop a Landscape Management Plan for the facility, which will include bush regeneration and landscaping procedures utilising locally occurring native species for areas under the proponent’s control that are not required for port facilities.

2.4.2. Livestock truck routes pass close to sensitive bushland habitats in the Spectacles (Beeliar Regional Park) and the Wandi Wildflower Conservation Reserve. Sheep droppings and other matter falling off trucks will increase the risk of introducing weed pests (Calthrop, Pattersons Curse etc) in to the above mentioned and other sensitive areas. How will the proponent ensure that transport operators manage waste falling off trucks? How will the transport operators be monitored to ensure waste spillages are being managed and prevented?

**Response**

The section of road which will incur an increase in the number of livestock vehicles using it is the 7 km section of Anketell Road west of Kwinana Freeway, Rockingham Road between Anketell Road and Beard Street.

The road routes referred to carry an existing high volume of heavy haulage traffic that is likely to represent the same risk of weed spread referred to in this submission. It is firstly worth recognising that the increased traffic volume represented by this proposal may not significantly increase any such risk of weed spread that already exists. Also, given the length of the haulage routes for livestock trucks, the proportion of the total route that passes adjacent to nature reserves, and therefore the risk that a significant amount of matter that also happens to be infested with viable noxious weed propagules falls out at this time, is very small. Finally, any droppings and other matter that may fall from livestock trucks is only likely to accumulate in the immediate road reserve of these areas and not be deposited centrally into the nature reserves referred to. Main Roads WA has existing weed monitoring and control programmes in place for all major road reserves in the metropolitan area as part of their routine network maintenance and this is likely to control any additional weed colonists that may arise as a result of this proposal. The proponent therefore considers the risk that this proposal will significantly increase weed levels in the Spectacles or Wandi Wildflower Reserve to be negligible.

2.5. **Introduction of exotic organisms**

2.5.1. Will the risk associated with the introduction of exotic marine organisms to Cockburn Sound increase if a reliable substitute for traditional antifouling paints such as TBT is not found before restrictions are in place? What is the likelihood of this scenario occurring?

**Response**

The overseas vessels which will visit the new Port, either currently use or will visit the Fremantle Inner Harbour or alternative facilities in Cockburn Sound if the new Port does not proceed. TBT based anti-fouling paints reduce the risk of introduced species transfer by vessel hulls. Significant international and national effort is focussed on the problem of TBT replacement and there are currently a number of alternative solutions undergoing trials and also on the market. The replacement coatings used will have been subject to rigorous testing and analysis and will be effective in reducing the fouling of hulls.

By law, JPPL will not have any control over the coatings on ships visiting the port if those coatings comply with the current International and Australian regulations.

Current use of Cockburn Sound has resulted in the introduction of two pest species, the European fan worm (*Sabella spallanzanni*) and the Asian date mussel (*Musculista senhousia*).

The successful introduction of an exotic species via ship will require some level of matching between the original and new environments to occur. The ability of the new species to adapt to the new conditions will determine the threat, many organisms are introduced but do not survive for this reason.

2.5.2. The EPA guidelines set for this PER indicates the proponent should “Undertake an assessment of the likely presence of introduced species and a risk assessment of exotic
organism introduction associated with increased shipping...”. It does not appear that the proponent has undertaken any work to identify the presence of any introduced species in the area of the proposed development. Dated and unpublished references relating to local coastal waters are made within the document. Introductions can be very localised and related to specific trade routes; hence generalisations based on regional studies should not be made. Submissions believe that without specific information regarding any introduced species in the exact locality a meaningful risk assessment of further introductions cannot be made.

Response

The vessels which will use the new port will visit Fremantle/Kwinana regardless of whether the port proceeds. Of these vessels, about 120 will be redirected from the Fremantle IH to Kwinana if the new Port proceeds. In all there are currently about 700 overseas vessels per year which enter Cockburn Sound.

The port will be receiving ~200 international vessels each year. The risk of introduction of exotic species will be greatest from:

1. Vessels exchanging large volumes of ballast water.
2. Vessels berthed for long periods.
3. Vessels associated with trade from regions not previously trading through Cockburn Sound.

The risk associated with the first point will be reduced by application of new AQIS guidelines for ballast water exchange (refer 2.5.3 below).

The risk associated with the second point is small as almost all international vessels will enter and leave the port within 72 hours.

The increased risk associated with the third point is also small as the port has been developed on the basis of attracting existing trade from Fremantle and catering for increases in trade from current trading partners.

2.5.3. What inspection procedures are in place to prevent and manage the introduction of exotic organisms?

Response

The Australian Quarantine and Inspection Service (AQIS) released a Regulation Impact Statement that relates to recent amendments to the Quarantine Act 1908 through the Quarantine Amendment Act 1999, as well as proposed amendments to the Quarantine Regulations 2000. The amendments to the Quarantine Act were made in anticipation of the new Mandatory Ballast Water Management Arrangements for the International Shipping Industry released in July 2001.

The Mandatory Ballast Water Arrangements require the following:

1. Accurate reporting to AQIS regarding ballast water arrangements (mandatory requirement under the Quarantine Act 1908). Vessels that do not carry Ballast Water will still be required to undertake mandatory reporting to AQIS.
2. If required, undertaking exchange and/or other treatment/management options as directed by AQIS, prior to discharge of ballast water in Australian waters (inducing non proclaimed ports).
3. Re-submission and/or updating of ballast water information provided, when ballast water details for the voyage have altered.
4. Mandatory access to safe on board sampling points.
5. Disposal of sediment only on land resulting from ballast tank and/or hold cleaning in accordance with AQIS requirements.
6. No discharge of ballast water within Australian waters without prior written permission from a Quarantine officer.

AQIS has developed as web based decision support system that became available for use in July 2001. The Australian Ballast Water Decision Support System (DSS) is a computer based system that will be used to process information and assess the quarantine risk of ballast water.

International vessels/Ports etc will be able to assess the risk prior to a vessels arrival, thus enabling
compliance with the requirements of AOIS.

Acceptable treatment/management options at present are:

a) Exchange of ballast water at sea, through sequential exchange (empty/re-fill) flow through (3 times the ballast tanks volume), or the dilution method.

b) Non discharge of high risk ballast tanks.

c) Tank to tank transfer, preventing discharge of high risk tanks ballast water.

JPPL will instigate an audit and advice procedure which ensures that:

- The vessel has been accepted by the Australian Quarantine and Inspection Service; and
- Ballast water exchange has occurred at sea whilst in clear oceanic water remote from coastal influences.

A record of the time and position of the re-ballasting is kept:

- Ensure that no ballast water or sediment resulting from tank or hold cleaning is discharged into the waters of the port; and
- Exercise care when de-ballasting to prevent the suspension of sediment.

2.5.4. Consideration needs to be given to the proponent’s accountability should toxic algae or marine pests become established in the port or its surrounds. Will the proponent bear the full costs of any clean up and compensation if an invasion of exotic organism/s occurs?

Response

Harmful phytoplankton species (particularly dinoflagellates) are the most likely nuisance organisms to be introduced. Although at least 4 km north of existing mussel bed leases, JPPL will include a phytoplankton surveillance programme, in the port Water Quality Management Plan.

If harmful species are found, there are existing procedures for response. These will be detailed in the Operations EMP for approval by the DEP.

In addition, an Introduced Species Management Plan will be prepared which will include regular surveys of the port waters will be conducted to search for other introduced species. Any species found will be reported and dealt with in a manner considered appropriate by the regulatory authorities.

JPPL in common with other port operators will be accountable to the extent of the law with respect to pollution including the introduction of exotic marine species.

2.6. Feral pigeon management

2.6.1. Representatives from the Department of Conservation and Land Management (CALM), City of Rockingham, Town of Kwinana, Co-operative Bulk Handling (CBH), Health Department of Western Australia, Department of Environmental Protection and the Mussel Growers Association have been meeting on a regular basis since 1997, to discuss measures to control the feral pigeon population in the Rockingham / Kwinana area.

The size of the feral pigeon population (Columba livia) in the Rockingham region has increased markedly over the past 15 years. Staff from CALM has observed the population on the Shoalwater Islands increase from a few hundred in 1986 to approximately 2000 in 1992. The pigeons appear to use the Shoalwater Islands to roost and breed, flying to the mainland during the day to feed. All of the Shoalwater Islands, extending from Bird Island south to the Sisters, are “A” Class Nature Reserves managed by CALM.

This increase in population size has been associated with a subsequent increase in management problems. On the Shoalwater Islands, pigeons compete directly with the migratory Bridled Tern for the small crevices on vertical faces of rocky outcrops and on talus slopes. The Bridled Tern is a trans-equatorial migratory species protected under international agreements Australia has with China and Japan. Pigeons also provide a vector for the introduction of weeds and disease, and provide an unnatural source of nutrients to the islands. Along the Kwinana Strip, pigeons feeding on spilt grain have caused elevated levels of faecal coliform (food poisoning bacteria) in the adjacent waters of Cockburn Sound. In the Town of Kwinana and City of Rockingham’s municipal boundaries, there has been an increase in the problems associated with pigeons roosting on and in buildings.
In the long term, reducing the pigeon population to a manageable level will be dependent upon reducing available food sources. As a short-term strategy however, co-ordinated poisoning programs have been carried out with the participation of organisations including CBH, CSBP, Western Power and Coogee Chemicals. The proposal will provide for roosting areas and a source of food for feral pigeons with the likely effect of increasing the size of population.

In conclusion, the introduction of large volumes of feed in storage, on sheep trucks and ships, and in truck wash down areas, could exacerbate this problem by further increasing feral pigeon populations and causing harm to the environment as outlined above. How will this issue be managed? What design measures have been included to the port facility?

**Response**

JPPL will participate in appropriate measures to control feral pigeons, including controlled poisoning if they are located in the area of the port. The Operations EMP will also include housekeeping measures to minimise potential food sources. Any fodder will be stored in closed storage areas and the surrounding area will be regularly cleaned to ensure there are no potential food sources available. In particular the area will be swept clean immediately following the delivery of fodder.

The proponent will take steps to disturb roosting sites and or destroy the pigeons should such a problem occur at the port.
3. Pollution Factors and Issues

3.1. Groundwater quality

With regard to groundwater, the public has expressed concern that:

- the proposal may have significant environmental impacts by affecting the inflow and dilution of existing contaminated groundwater plumes
- the proposal may result in additional contamination of groundwater which will in turn impact on the marine environment of Cockburn Sound; and
- additional information is required with respect to existing status of groundwater and soils as well as proposed management responses.

These issues are detailed below for JPPL’s consideration and written response.

3.1.1. The groundwater entering the port area exhibits high loadings of nutrients and other contaminants, from several point sources in the industrial area and from diffuse sources within the catchment. More information is required quantifying the impacts of contaminated groundwater discharge to the port, and predictions as to whether the proposed works could alter (and particularly, accelerate) the release of contaminants into the Sound and how groundwater is diluted in nearshore waters.

Response

Groundwater entering the site can be inferred to contain elevated nutrient concentrations (up to 10mg/L DIN) based on monitoring at a variety of facilities in the vicinity of the project site and the presence of extensive horticultural activities to the east. Other point sources of groundwater impact are undoubtedly present in the project area, however, the severity of these remains to be ascertained. Due to currently unresolved issues regarding access to land backing the port, JPPL commits that a detailed survey of the groundwater quality within the port boundaries will be undertaken and that a Contaminated Groundwater Management Plan prepared for approval by DEP prior to construction.

Experience from elsewhere in the Sound shows that impacts to the marine ecosystem by metals, inorganic and organic compounds discharged via groundwater are difficult to quantify. Even the accidental discharge by CSBP of approximately 1,000 kg of arsenic to the Sound in 1999 failed to produce any statistically significant impact on sediment quality in the region of the spill (DAL, 1999). In contrast, the mass loading of nitrogen to the Sound is several orders of magnitude greater than other compounds of concern and measurable impacts are quite evident, particularly where the natural flushing processes in the near shore zone are restricted (for example in the region south of James Point and in the Northern Harbour). In the case of the James Point site, the likely absence of concentrated nutrient plumes and the comparatively high level of flushing of the port are likely to lower the risk of nutrient related impacts.

The rate of release of groundwater borne contaminants into the marine environment is governed by the:

- Elevation of the water table;
- Tidal elevations in relation to the watertable and water table responses to tidal changes, and to a lesser extent;
- Elevation of swells and waves reaching the shore line.

Groundwater discharge from the Safety Bay Sand will normally occur within a few tens of metres of the shoreline. Groundwater in the underlying Tamala Limestone will also discharge in the near shore zone although there is anecdotal evidence that discharge may also occur several hundreds of metres from the shore due to the presence of solution channels and cavities. Groundwater discharge will predominantly occur in late winter during periods of elevated groundwater levels, but may be virtually absent at other times. More global factors such as El Nino and La Nina cycles will produce long-term changes in average sea levels that will also have an important role in groundwater discharge rates into the marine environment.

Dredging and filling works associated will the harbour construction may impact upon the location of groundwater discharges by changing the shape of the shoreline and producing deeper shipping channels closer to the shore. However, these works associated with the port development will not accelerate the discharge of groundwater and contaminants into the Sound.
3.1.2. Concern has been expressed that the proposal will greatly increase the risk of groundwater contamination at the site due to spillages of animal wastes and washdown water. What design and management measures are proposed to minimise or avoid contamination of groundwater? How will the effectiveness of the design and management measures be monitored? What contingency measures will be in place in the event of a spill of animal wastes and washdown water?

Submissions are concerned about the possibility of any groundwater flow from any sewerage facilities from the port and other developments within. Will the liquid waste be disposed off to sewer? What are the environmental impacts on groundwater and the marine environmental of Cockburn Sound if the liquid waste is not disposed to sewer? How will the proponent ensure that additional nutrients are not released into the Sound from nutrient rich groundwater?

Noting the above, what consideration has the proponent given to the use of hydrodynamic modelling of groundwater to properly evaluate the risk of faecal contamination and other contaminants reaching the marine environment?

Response

JPPL will design its land backing and cargo transfer areas so that:

- Areas including truck holding areas are fully sealed;
- Drainage from such areas are controlled to collect spillage and effluent and to prevent direct discharge into the water or ground; and
- Collected effluent is held, treated and disposed of in a manner acceptable to the DEP and forming part of the licence conditions for handling relevant cargoes.

For example:

- Cleaning will take place immediately after loading and any contaminated water will be collected in either a tanker or sealed collection areas prior to treatment;
- The small amounts of animal wastes resulting from loading operations will be collected from the facility and transported off site for use as fertiliser or to an approved treatment plant;
- Contaminated liquid from the truck wash will be contained within the truck wash facility, treated and where practical recycled;
- Uncontaminated runoff will be collected in soak wells, first flush interceptors will be installed if there is a demonstrated need for them. Monitoring of groundwater down-gradient of major soakage points will be incorporated into the Contaminated Groundwater Management Plan;
- In the event of an oil or chemical spill the offending material will be cleaned up and disposed of in an accredited facility off site. Spills on land will generally not be able to contaminate the Sound or the groundwater; and
- A sewage service is not available within the area and JPPL will install a package wastewater treatment plant to handle day to day wastewater generated by port activities, the treated wastewater will then be trucked or piped offsite for further treatment.

3.1.3. A contamination survey has not been conducted of either the soils or the groundwater. There are several potential sources, which may give rise to groundwater contamination up gradient of the James Point Port stage 1 proposal. Submissions believe that an investigation of both the groundwater and any possible soil contamination should be undertaken, and a detailed report submitted on the likelihood of this contamination having a detrimental effect on waters within both the proposed port and Cockburn Sound.

Response

JPPL commit to undertake a detailed survey of the local groundwater quality and prepare a Contaminated Groundwater Management Plan prior to construction. Delayed resolution of land tenure issues has prevented this happening to date. Such investigations should identify the quality of groundwater moving onto and leaving the site in the Safety Bay Sand Aquifer in addition to characterising any existing sources of groundwater impact within the project area.
3.1.4. Based on the conclusions of EPA Bulletin 907 and the Southern Metropolitan Coastal Waters Study, the proponent should be required to undertake the recovery and remediation of contaminated groundwater entering the Sound at the port site. This would be consistent with requirements on similar developments such as Jervoise Bay ‘Southern Harbour’ and Port Catherine developments. With the Port Catherine development, the proponents were required to address the flow of nutrient rich groundwater into the ocean in order to demonstrate that the development will lead to an improvement in water quality entering the Sound. The response has been a proposal for a large interception drain so as to avoid a build-up of nutrient rich water within the confines of the proposed breakwaters to avoid algal blooms. How will the proponent prevent the contaminated ground waters from reaching the port waters and Cockburn Sound in the context of demonstrating the proposal will lead to an improvement in water quality entering the Sound?

Response

While it is acknowledged that groundwater conditions below the proposed site are unlikely to be pristine, comparison with the Northern Harbour and Port Catherine is of limited relevance due to the likely absence of concentrated nutrient plumes. In the Northern Harbour case, two concentrated local sources of nitrogen (from Weston Bioproducts and Water Corporation) are discharging into the harbour in addition to lower concentration nitrogen from diffuse sources within the catchment. At James Point the main nutrient input is likely to be from these diffuse horticultural sources. Further, flushing in the Northern Harbour takes about an order of magnitude longer than it will in the JPPL port and also flushing times in the Port Catherine canals will be longer than in the port.

Unless significant concentrated groundwater contaminant plumes are identified within the proposed development area, the approach to improving the quality of groundwater inputs to the port will be based on the removal of ongoing sources of groundwater impact and the subsequent dispersion and decay of residual groundwater impacts. Direct intervention on groundwater plumes would only be justified where significant impacts on water quality in the proposed port are likely, and analysis of the available data suggests this will not be the case at James Point.

3.2. Surface water quality

Submitters are concerned about contamination as a result of surface water discharge and believe that a zero discharge policy should be adopted to ensure that all contaminated stormwater is contained within the proposal’s boundaries. Specific submissions are detailed below.

3.2.1. Submissions consider the proponent has not demonstrated ‘best management practices’ in regard to the management of contaminated and potentially contaminated stormwater to protect groundwater and surface water. The PER does not identify how the proposal will comply with EPA draft Guidance Statement No. 26 on the Management of Surface Run-off from Industrial and Commercial Sites, March 1999. Consideration should be given to options for the treatment and re-use of potentially contaminated stormwater. Specifically, what design and technologies are available to ensure stormwater leaving the site is of acceptable quality? Please comment.

How will port operations be managed to minimise the amount of nutrients and other contaminants (e.g. livestock faeces) entering port waters and therefore minimise the possibility of algal blooms and further reducing water quality?

Response

As a result of the public comments, the proponent has reviewed its concept design and elected not to use evaporation ponds. These will be replaced with sealed collection areas for liquid waste from livestock handling and other port activities and soakwells for uncontaminated water from road runoff. The port area will be sealed and curbed such that runoff and spills are directed to design holding points. In the event of an oil or chemical spill the offending material will be cleaned up and disposed of in an accredited facility off site. Spills on land will generally not be able to contaminate the Sound or the groundwater.

JPPL will install a package wastewater treatment plant to handle day to day wastewater generated by port activities, the treated wastewater will then be recycled, pumped or trucked offsite.

In accordance with EPA draft guidance statement 26, JPPL will prepare a Stormwater Management
Plan as part of the Operations EMP. The plan will specify the type of runoff expected from each major type of surface and the criteria by which it is to be classified into stormwater for onsite and offsite disposal.

3.2.2. Submissions have indicated that stormwater containing bird and/or animal droppings are known to contain significant amount of thermo-tolerant coliform and other harmful bacteria that may impact on the aquaculture industries in Cockburn Sound. How will this issue be managed?

**Response**

Stormwater will not be discharged directly to Cockburn Sound. It is suggested that significant amounts of bird droppings already enter the Sound, with no adverse effects on mussel quality.

3.2.3. Submissions believe there is no way that a filtration basin/system will cope with the volume of run-off from 19ha. A rainfall event of 50 mm will result in 10,000cu.m of water flowing into an 800cu m pit. Such events are possible. This has been demonstrated at CBH, (which is to the South and not north (8.7) of the proposal). Viral and bacterial contamination from livestock faeces can make their way through sand filtration into the Sound. These can remain viable for years. The public will be concerned about this water treatment process particularly in view of viral contaminants from livestock that can seriously affect human health. How will the proponent minimise the risks of viral and bacterial contamination? What contingency measures will be implemented in the event contaminants are identified?

**Response**

This submission is correct, and the design philosophy has been modified. If livestock are transported through the port, waste and runoff associated with livestock will be collected and moved offsite for suitable treatment. Livestock waste will not be discharged to the Sound.

In the detailed design phase, stormwater run-off collection and soakage pits will be designed by a specialist hydraulic engineer.

3.2.4. The possible relocation and potential impacts of a BHP stormwater drain that currently discharges in the area of proposed reclamation should be addressed. Will the drain be relocated? The opportunity to retrofit the drain to ensure the quality of stormwater leaving the site improves to acceptable standards should be considered and investigated.

**Response**

JPPL does not have any control over the quality of the water entering the BHP stormwater drain, nor does JPPL have any responsibility for its fate. This matter is probably best addressed by the Cockburn Sound Management Council and BHP.

Pipes/culverts will be installed to allow existing stormwater runoff to continue to run unimpeded through the James Point development.

3.3. **Marine water and sediment quality**

**Construction and on-going operations**

With regard to the potential impacts of construction and operation, the primary issues raised during the public review period include, but are not limited to:

- Validity and reliability of water quality modelling;
- Impacts of nutrients and contaminants in the context of altered hydrodynamics as a result of the proposal; and
- Proposed management responses

Details of submissions are provided below for JPPL’s response.

3.3.1. The flavour of submissions suggest that there is limited faith in the reliability of water quality predictions and submitters consider that the operations of the James Point Port will result in adverse effects on the water quality.

Although modelling in the PER states that there should be no algal blooms associated with the reduced water quality and reduced flushing, this is called into question based on experience with other harbour developments, where a number of water quality problems
have occurred that were not predicted by modelling. Northern Harbour (Jervoise Bay) is presented as an example where development has resulted in adverse impacts on water quality and subsequently proved the proponent’s predictions to be wrong. Because of the environmental sensitivity of Cockburn Sound and the lack of consideration of cumulative impacts, the Precautionary Principle should be applied.

Considering the levels of uncertainty inherent in environmental modelling, how can the precautionary principle be applied to the project to avoid and mitigate the proposal’s impacts on Cockburn Sound’s hydrology?

In view of the public perception and uncertainties with regard to model results, has the proponent consulted and verified its results against hydrodynamic modelling for similar ports?

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| The mass balance models used for the original predictions of water quality in the Northern Harbour CER (HGM, 1996), although simple, were technically sound. At the time of the CER preparation the true extent of the groundwater load to the harbour was unknown and the residence time had been calculated using a desktop approach. Subsequently, as more information on the groundwater loads to Jervoise Bay has been generated it has been found that the same mass balance models provide a reasonable approximation of annual average nitrogen and chlorophyll concentrations in the Northern Harbour. However, the models do not predict algae blooms and there still has not been a detailed examination of the residence time of the Northern Harbour using a calibrated hydrodynamic model. Even if a fully calibrated model were set up for the Northern Harbour, which incorporated groundwater flows and the resultant baroclinic and ecological effects, the model would not be able to predict algae blooms.

The modelling for the James Point port drew on the experiences gained through the modelling and monitoring of water quality in the Northern Harbour as well as the modelling for the Southern Harbour. The approach taken was to use the best possible hydrodynamic modelling techniques to allow a confident assessment of the likely residence times of the port and use the large dataset of measured water quality from the Sound and the Northern Harbour in conjunction with the likely nitrogen loads to the port to come up with sensible estimates of annual average productivity. The methods chosen for forecasting water quality were deliberately kept simple as experience suggest that more complicated models will not necessarily provide better predictions due to the difficulties in assigning parameter values at the process level. The modelling provided ranges of likely outcomes and, based on the ranges of annual average productivity and experience with other harbour and marina developments on the WA coast, an assessment of the risk of blooms was made. It is was found that there was a very low risk of the development causing algae blooms through the mechanism of increased residence times of nutrient rich waters.

The hydrodynamic modelling has been peer reviewed by leading Australian modellers and has been deemed by the DEP to be equivalent to current best practice. Further, the DEP are now using the model set up for James Point as part of the process of generating Environmental Quality Criteria and their zones for Cockburn Sound.

*The Precautionary Principle:* There is no consensus definition of what is termed the precautionary principle. One common definition is: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically". In other words, actions taken to protect the environment and human health take precedence.

However, the principle's definition and goals are vague, leaving its application a subjective matter. The principle fundamentally requires demonstration of the complete absence of effect, the difficulty of achieving this certainty means that much effort has been expended on providing commentary on its application (Foster et al. 2000). Because of the potential cost of proving the negative, commentaries recommend that, when invoked, it is made clear on what grounds (e.g. the risk to the environment associated with the activity is severe). This reverts the process to a risk-based approach, in that the level of proof required that impacts are acceptable is dependent on the ramifications of an incorrect prediction of impacts.

In respect to the issue of impact of the port on water quality, JPPL strongly believe that the likely impact on the port has been adequately described and that there is no risk that the port will have the
same water quality problems as the Northern Harbour. The ongoing monitoring will allow JPPL to establish management measures if water quality deviates unacceptably from agreed acceptable quality.

3.3.2. Figures showing the relationship between summer N-loads and summer chlorophyll are presented in the State of Cockburn Sound Report (CSMC 2001). In most cases, there is a strong relationship between summer N-loads and chlorophyll concentrations. However, Figure 4.9 of the PER presents a relatively weak relationship between annual N-loads and average summer chlorophyll concentrations. It would appear that the figures presented in CSMC (2001) represent the most valid relationship between nitrogen loads and chlorophyll as data from the same times of the year are used to general a relationship over time. Are data presented in Figure 4.9 used as the basis for predicting water quality in the port? If so, are there likely to be differences in predicted water quality in the port if the strong relationships between summer N-loads and chlorophyll a as presented in CSMC (2001) are used as a basis for predicting water quality instead of the weak relationship presented in the PER?

Response

The comments on Figure 4.9 are correct, in that annual loads were compared with summer chlorophyll concentrations and in preparing Figure 2.10 of the Pressure-State-Response report for the CSMC (CSMC, 2001), DAL altered the underlying data to show the summer loads and summer chlorophyll concentrations. The data underlying the figure were not used as the basis for predicting water quality in the port, the water quality in the port was predicted using data collected in the region of the port and on the basis of estimated nitrogen loads within the port area.

3.3.3. The proponent should be required to commit to a detailed water quality contingency plan which would require remedial action where monitoring shows that water quality deteriorates below acceptable standards because of port related activities. What are examples of remedial actions that can be undertaken in the event water quality deteriorates below acceptable standards?

Response

JPPL will commit to preparing a Water Quality Management Plan which includes protocols for regular water quality monitoring and contingency water quality monitoring within the port. The Jervoise Bay Northern Harbour provides an extreme example of measures which may be taken when water quality falls below standards deemed suitable for the Sound. Two examples of reactive management are:

(1). On occasions when summer monitoring in the Northern Harbour has found phytoplankton blooms or the presence of phytoplankton species of concern, the DEP and Health Department have been alerted and twice weekly monitoring implemented and the DEP and Health Department consulted as to appropriate courses of action. This usually includes toxicological testing of the species of concern. Although it is yet to occur, if the phytoplankton species was confirmed as being toxic, the harbour would be closed to shellfish harvesting and any other activity where risk to the public was increased.

(2). Further, in the Northern Harbour it has been recognised that high groundwater nitrogen loads to the harbour have created a situation where summer phytoplankton blooms are common. As a result the Department of Commerce and Trade implemented a programme to remove nitrogen rich groundwater upstream from the harbour. This is an expensive and technically challenging strategy, however, preliminary results are promising.

The Water Quality Management Plan for the harbour will include protocols for algal bloom events and also the provision to investigate the cause of any unexpected water quality problems with the aim of being able to manage or reduce the problem.

However, on the basis of studies already carried out (DAL, 2001), JPPL can say with confidence that water quality problems of the scale found in the Northern Harbour will not occur in James Point.

3.3.4. Port construction, dredging and shipping movements will mean more nutrients in the water column, which take longer to disperse. What are the environmental impacts of increased nutrients in the marine water column and longer residence times?
Response

The waters of Cockburn Sound are in general nitrogen limited (the waters of the Northern Harbour are not), this means the addition of significant amounts of bioavailable forms of nitrogen will generally promote phytoplankton growth (primary productivity) above natural levels with all other factors being equal.

As well as nitrogen concentrations, any increase in productivity will depend on the water temperature, the presence of phytoplankton, light availability, concentrations of other trace nutrients and presence or absence of grazers. Phytoplankton also have a finite response time to changes in nutrient concentrations and a short increase in nutrient levels which may be caused by resuspension of the bottom through shipping movements is unlikely to result in significant effects on productivity in the region.

Between July and December 2001, there has been extensive dredging activity north of James Point associated with the construction of the Jervoise Bay Southern Harbour. As part of the monitoring, nutrient (ammonium, nitrate+nitrite) and chlorophyll concentrations were measured in the dredge plume and in waters unaffected by dredging. There was no difference in nutrient or chlorophyll concentrations between the two sets of samples (DAL, unpublished data). It is considered improbable that dredging will cause elevated nutrient levels. The Dredge Management Plan will include monitoring to further test this hypothesis.

3.3.5. The development of the James Point facility has the potential to impact on algal populations in Cockburn Sound and, in turn, affects the mussel farms if this results in blooms of potentially toxic algae. Algal populations are particularly sensitive to changes in environmental conditions, including changes to levels of salinity and it does not necessarily require increased nutrients from nitrogen or phosphorous to cause such changes. There is insufficient information to develop sound predictive models of changes for particular species of algae. Please comment.

Response

An increase in phytoplankton biomass may not necessarily change the composition of the phytoplankton community, but experience of significantly altered environments (such as the Northern Harbour) has shown that there may be an increase in the dominance of certain species including potentially toxic taxa (eg. dinoflagellates) compared to other areas within Cockburn Sound.

Although conditions in the port will not be nearly as conducive to blooms as in the Northern Harbour routine monitoring of phytoplankton assemblages at several locations within the development and several locations outside of the development will be undertaken. There is no need to undertake monitoring prior to construction as the phytoplankton assemblages of Cockburn Sound are reasonably well known and the assemblages of James Point would not be significantly different from those routinely collected around the aquaculture leases. Data collected during the Southern Metropolitan Coastal Waters Study (DEP, 1996) showed that there was considerable consistency in the structure of the phytoplankton assemblage along the eastern coastline of Cockburn Sound.

The project will not result in changes in salinity within the port such that they are outside the ranges typically found in Cockburn Sound.

The submission is correct in that developing a model which can predict changes in species composition would require exhaustive amounts of data and research and there would still be limited confidence in any final predictions, the approach taken was to look at actual trends in composition and biomass through the seasons and spatially and use this to try and develop a prediction of likely effects on composition. With the slight change in nutrient levels predicted, it was concluded that any change in species composition within the port solely due to nutrient status was unlikely. However, the presence of shipping may inoculate the port with new species (an event which defies modelling), as such a phytoplankton monitoring programme will be implemented.

3.3.6. The development of the facility will result in an increased amount of stormwater run-off into Cockburn Sound and that this could affect species of algae such as Dinophysis acuminata and Gymnodium breve. What is the likelihood of algal blooms of D. acuminata and G. breve occurring in the port? What are the ecological consequences of these blooms occurring?
**Response**

The port will not result in an increased amount of stormwater into Cockburn Sound. The likelihood of *D. acuminata* and *G. breve*-like in the port is considered to be the same as in waters south of the port, which is very low. Some strains of these species can be toxic and cause toxins to build up in shellfish, which in turn may poison human consumers.

3.3.7. What contingency measures can the proponent employ to mitigate the impacts of phytoplankton blooms that may occur following port construction?

**Response**

JPPL will commit to preparing a Water Quality Management Plan which includes protocols for regular water quality monitoring and contingency water quality monitoring within the port. The Water Quality Management Plan for the harbour will include protocols for algal bloom events and also the provision to investigate the cause of any unexpected water quality problems with the aim of being able to manage or reduce the problem.

If potentially harmful species are found in numbers the Health Department has indicated are likely to be of concern, then the Health Department will be notified, the species tested for toxicity, and the Health Department may decide to erect warning signs indicating the presence of the bloom and prohibiting risk activities.

JPPL believe that the risk of harmful phytoplankton blooms within the harbour is very low.

3.3.8. A submitter suggests that Section 8.9.6 should include the monitoring for possible phytoplankton cysts in marine sediments that result from shipping (ballast water). The monitoring should be undertaken prior to dredging occurring to assess the likelihood of mobilising any phytoplankton cysts that may impact on nearby aquaculture facilities. Please comment.

**Response**

The Introduced Species Management Plan may include a programme for regular sampling of sediments for exotic organisms including exotic phytoplankton cysts. The requirement for monitoring of cysts will be established during the Plan review process.

JPPL’s initial thoughts are that there is no need to monitor for cysts already in the sediment at the development site as these cysts are likely to be indicative of dinoflagellate taxa already present in Cockburn Sound (including potentially toxic taxa) and would be present in other locations as well. Therefore, the mobilisation of these cysts by dredging and construction of the development would be of no consequence.

If, in the case of cysts from taxa not currently encountered in Cockburn Sound being present, then these too are also likely to be found in other locations. It would be difficult to predict whether or not these cysts would be germinated by conditions created as a result of the development.

3.3.9. Primary factors affecting the productivity of marine waters around Stage 1 of the James Point Port development are the elevated levels of nitrogen in the groundwater and the point sources near the shoreline immediately south of James Point. Given that currents in this location are typically northward, submissions expect the prevailing currents to bring nutrient rich water into James Point Port. How were nutrient contributions from groundwater and point sources, south of the proposal considered within the PER’s water quality impact predictions?

**Response**

JPPL were aware that the prevailing currents were likely to bring waters into the port from the coastal area to the south (refer Section 4.5.5 of the PER). The water quality predictions were made using the measured summer nutrient and chlorophyll concentrations in the waters south of the port, at sampling sites JPA and JPB (refer Figure 4.8 in the PER) as the quality of the source water for the predictions. By using measured values in waters immediately south of the port, the effects of groundwater and point sources to the south were implicitly included in the estimates of water quality for the port.
3.3.10. At present, water quality in the part of Cockburn Sound adjacent to the proposal is not satisfactory in terms of phytoplankton levels (CSMC draft Cockburn Sound Pressure-State-Response Study May 2001). Although the modelling documented in the PER suggests that algal blooms are unlikely to occur in the harbour, submissions suggest that this proposal would make it incrementally harder to achieve the environmental values and objectives for water quality detailed in Perth’s Coastal Waters Environmental Values and Objectives (EPA 2000). Please comment.

**Response**

JPPL would submit that it is highly unlikely that the environmental quality criteria proposed (0.8 ug/l of chlorophyll a) will be met in this region regardless of whether the port proceeds or not. Further, the effect of the port development on water quality is minor. If water quality south of the port met the proposed nutrient related criteria, it is likely that port waters would meet the proposed criteria because of the effective flushing of the port and the lack of nutrient inputs.

3.3.11. Submissions are concerned that the port area will not be managed to meet primary contact recreational criteria (EQO 3). This does not meet the expectations expressed by the community and identified by the EPA in Perth’s Coastal Waters Environmental Values and Objectives – the position of the EPA. This document identified areas where various environmental and social quality objectives apply. It is not acceptable to the community that any areas already identified as S3 be expanded or increased in any way. The objectives, as the community understands them, are to work toward higher not lower environmental and social values.

**Response**

The port waters will not be used for contact recreation, therefore they will not be managed as such. However, the port will be managed such that waters outside the port boundaries do meet EQO3.

The argument presented in 3.3.11 suggests there can be no further development in marine waters, nor any increase in human activity, as all would lead to decreases in value. Society will always have to reach compromises between uses of the marine environment and such fixed positions are neither constructive nor defensible. JPPL will take their obligations with regard to environmental quality seriously and work with the community and Government to meet them.

3.3.12. The proposal should not effect or cause changes to the boundaries of various levels of protection during construction or operation, both within the port and beyond its footprint. How will JPPL ensure that its proposed port does not cause shifts in the size or shape of areas designated in the EPP for Cockburn Sound as E3 and E4 levels of protection?

**Response**

Firstly the areas designated in the EPP are draft. Secondly, they cannot be fixed for the reasons outlined in 3.3.11. As Perth’s population grows and industrial activity increases, the zones will need to be modified unless there is a radical change in Government policy and there is a complete embargo on further marine development within Western Australia’s premier industrial location.

3.3.13. The PER states that the bottom waters are fully flushed in approximately 5-6 days, as compared to 4 days under existing conditions. However, at page 104 (last para) it states that flushing times of 2-4 days are unlikely to present water quality problems – does this mean we can expect water quality problems here with the 5 to 6 days predicted?

**Response**

In calm autumn conditions, under existing conditions it was predicted that water would remain in the port boundaries for about 4 days and that under the same calm conditions this water could remain there for 5 to 6 days. These conditions only occur on a very limited basis. The average residence time is likely to be about 1 day, the PER referred to average flushing times of 2 to 4 days as being unlikely to result in water quality problems.

3.3.14. What contingency measures will the proponent implement during the construction phase to prevent excessive amounts of silt/sand being stirred up which might adversely impact on the mussel farms at Kwinana Grain Terminal and Southern Flats? Any contingency plans should include the notification of the Chairman of the Western Australian Mussel Producers
Association in the event of chemical or other spills associated with the use of the facility.

Response

Silt and sediment stirred up from dredging and construction activities are unlikely to impact on the commercial shellfish leases in the Sound due to the ~ 4 km separation.

There are considerable suspended sediment data available from the recent dredging operations for the Southern Harbour. As part of the preparation of the Dredge Management Plan, the mussel growers will be consulted and criteria for acceptable levels of suspended sediments concentrations and light will be agreed.

There is no evidence to suggest that the dredging will cause phytoplankton blooms (refer to response 3.3.4).

3.3.15. The contamination of Cockburn Sound from the cleaning of livestock vessels has been raised as a concern. How is it proposed to manage this issue?

Response

Livestock vessel exteriors will not be cleaned down in the port. Internal cleaning is highly unusual but if there is a need for any cleaning, wastewater will be piped ashore and sent for treatment offsite.

3.3.16. The PER states that “JPPL will monitor turbidity, suspended sediment concentration, and size and orientation of plumes generated during construction”. What water quality criteria will be used during monitoring to determine whether construction activities are having an impact on the marine ecosystem?

Response

The water quality criteria will be generated during the process of preparing the Dredge Management Plan. The criteria will take into account the light requirements of nearby seagrass species and the duration of any shading.

3.3.17. If the staging of Stage 1 requires that Reclamation Area 2A is not constructed for an extended period of time, then the impacts of Reclamation Area 1 should be addressed separately and independent of Area 2A to determine the significance of impacts in the medium-term. What are the likely impacts of Area 1 on water quality if it was a stand-alone element of the larger proposal?

Response

It is assumed that the submission is concerned with the construction impacts of the two phases of reclamation as there will be no long-term difference in water quality with and without reclamation area 2A.

If the reclamation is undertaken in separate phases, then individual Construction EMPs will be issued for each phase. The same issues and type of impacts will be relevant to each phase.

Experience of the Jervoise Bay Southern Harbour construction suggests that the plumes associated with reclamation are significantly smaller than those associated with dredging.

3.3.18. The PER has not assessed the environmental impacts of the proposal without the offshore breakwater in place. The proponent has indicated that the offshore breakwater may be constructed and depends on the types of cargoes to be handled at the port. What are the environmental impacts of the port proposal without the offshore breakwater in place?

Response

The port may be built without the offshore breakwater or the breakwater may be added at a later date. The breakwater was included in the PER because it was regarded as representing the worst case scenario with respect to impacts on circulation, coastal processes and water quality.
3.3.19. Further consideration is required to assess the environmental impacts of the causeway which would be required in order to join the breakwater with the mainland during construction. How long will the causeway remain in place? What are the likely impacts on water quality and coastal processes while the causeway is in place? How will these impacts be managed?

**Response**

The causeway will be in place for the order of 3 months while the offshore breakwater is built. The causeway will not have any impact on long-term water quality.

The detailed design phase of the offshore breakwater, which will rely on wave modelling results, will examine the issue of the causeway and likely impacts on coastal processes. It is likely that the causeway will not have a significant impact on coastal processes.

3.3.20. Can the design of the facility ensure the flow-through of water, either by inclusion of bridges or pipes to prevent the entrapment of water?

**Response**

The facility has been designed with a gap about 200 m wide at the northern end for this reason (refer Figure 3.1 of the PER).

3.3.21. With regard to water quality, the PER argues that because “there is no seagrasses within the port” and water quality does not meet DEP criteria for Cockburn Sound, it “is not considered to be a significant issue”. Despite the fact that seagrass may not currently grow in the area, this argument neglects the issue that water quality can affect future seagrass colonization of sandy habitat in the vicinity of the proposal. The argument also neglects that the objective for Cockburn Sound is to improve overall environmental quality. Please comment.

**Response**

Refer to responses to 3.3.10 and 3.3.11.

3.3.22. To what extent will the proposal impact on the processes of nitrogen recycling from sediments? What contingency would be in place if sediment monitoring showed that an increase in organic content is resulting in high levels of nutrient release to the water column that may have potential effects on water quality within the port and further a field? It is noted that this scenario occurs in most semi-enclosed water bodies.

**Response**

Impacts on sediment nitrogen cycling is not a concern. Refer to the response to 2.1.14. JPPL will monitor sediment organic content and nutrient content on an annual basis as part of the Sediment Quality Management Plan.

3.3.23. How were the DO levels of 4-5 mg/l arrived at (Section 8.3.5)? Although conditions necessary for reduced vertical mixing are expected to be rare, what is the expected frequency of such conditions occurring within the port basin and shipping channels?

**Response**

The DO levels of 4–5 mg/l were arrived at by looking at other potentially similar situations measured in Cockburn Sound. The situation in Mangles Bay was considered to provide a reasonable analogue.

3.3.24. What are the anticipated dispersal patterns of TBT and the expected concentrations of this contaminant in water during dredging?

**Response**

Although TBT is present in small concentrations, levels are lower than the lowest National screening guideline level. Further, TBT binds to the sediments and is unlikely to be released. TBT in the water column will not be an issue of concern during dredging.

3.3.25. What are the impacts of dredging on water quality if it were undertaken in summer as opposed to during winter? Will the proponent commit to staging the dredging works at a time of year when nutrient and light stimulation of phytoplankton growth presents least environmental risk?
Response (do we need to refer to dredge management plan – does not appear to answer question)

The best time to undertake dredging is over the winter months as this is when any reduction in light reaching nearby seagrass beds will have the least effect on the long-term survival of seagrass.

It is considered to be unlikely that phytoplankton blooms will be caused by dredging (refer 3.3.4).

Dredging–turbidity

3.3.26. How will plumes of sediments generated by dredging and end-tipping be managed and monitored? Will silt curtains be deployed to reduce the impacts of dredging on the marine environment?

Response

The Construction EMP will include a Dredge Management Plan. This will detail the monitoring and the criteria which will be applied.

The monitoring is likely to occur on a twice weekly basis and include measurements of TSS, turbidity and secchi disk depth. In addition, there will be continuous measurement of light over adjacent seagrass meadows.

3.3.27. Will the proponent set an appropriate distance from the seagrass at which point the contractors will be required to stop work if a sediment plume reaches the boundary?

Response

No, the impact of dredging on seagrass will arise from shading for an extended period of time (order of months). Dredge impact controls will be established such that the most vulnerable seagrasses receive adequate light to ensure their survival.

Dredging is unlikely to result in any smothering, however, initial intensive surveys will be undertaken to characterise the plume and ensure that any assumptions made in the Dredge Management Plan were applicable.

Dredge monitoring results will be communicated to the DEP on a weekly basis.

3.3.28. Previous experience in Cockburn Sound suggests that turbidity plumes may have a significant negative impact on the ecology of adjacent areas. Although there are only small areas of seagrass and reef algae in areas likely to be affected by the plumes, any damage would have an incremental impact and make the task of maintaining and improving the condition of the Sound more difficult. What short-term effects on the areas of seagrass, reef algae and benthic algal mats are expected from dredging? Will these communities recover when water quality is restored after construction?

Response

JPPL would concur that it is likely that extensive sidecast dredging of channels in the late 1960s and also scallop dredging in the 1970s would have been a significant contributor to the loss of seagrass meadows in the Sound.

Fortunately there is now a lot more known about the light requirements of seagrasses in the Sound. The Dredge Management Plan will be written with the key objective of protecting adjacent seagrass (Posidonia sinuosa and P. australis).

The short term impact will be shading which will translate to reduced production. If the shading is only for the order of a few months then there is every likelihood the seagrass will fully recover (Neretiviskas 1988; Gordon et al. 1995). Currently seagrass health monitoring is being undertaken of a larger and longer dredge programme for the construction of the Southern Harbour, the final impacts of this programme on seagrass health will be known by mid-2002 and this extensive information will be used to develop the criteria and their duration for the JPPL project.

Impact of increased shipping operations

With regard to the potential impacts of shipping movements, the primary issues raised during the public review period include, but are not limited to:

- Tributytin contamination;
- Ballast water management and marine pest incursions;
• Spills of hydrocarbons and other contaminants; and
• Turbidity from ship movements.
Details of submissions are provided below for JPPL’s response.

3.3.29. The PER predicts that the international shipping traffic to Cockburn Sound will increase by approximately 100 ships per annum. Please note that a submission suggests that the figures regarding ship movements are not correct. Actual ship visits to the Outer Harbour in 1999/2000 numbered 708, meaning there were 1416 ship movements. Please comment.

Response
JPPL acknowledges that the number of commercial vessels visiting the Outer Harbour is currently about 700 per year resulting in about 1,400 movements.

3.3.30. Broad concerns have been expressed regarding the impact of contamination from toxic substances such as Tributyltin (TBT), marine pest incursions and the risk of oil spills as a result of the predicted increase in ship visits to Cockburn Sound. Some submitters do recognise that the regulatory arrangements for usage of TBT and implementation of the new ballast water guidelines will not be implemented/enforced until necessary Commonwealth legislations are in place. However, this does not provide confidence to members of the public that TBT contamination and ballast water will be managed and regulated satisfactorily. What assurances can the proponent provide to ensure that the matters of TBT and ballast water will be managed to an acceptable standard in the absence of the relevant Commonwealth legislation? How can the proponent actively monitor and regulate international shipping operators with a view of minimising the risks of pest incursions, oil spills and contamination from TBT-treated ships?

Response
TBT will be managed under the Commonwealth legislation and IMO regulations current at the time.
Ballast water will be managed in accordance with the AQIS procedures in force at the time (refer to 2.5.3 for details of the current protocols).
JPPL will have in place protocols regarding the discharge of ballast water in the port and forbidding hull cleaning within the port. JPPL protocols will be updated as required to meet current best practice.

3.3.31. The PER concedes that there would be some forms of contamination beyond the proponent’s control. Submissions consider that all forms of pollution and contamination management should be within the control of the proponent and that any risks of pollution control beyond the proponent’s control is considered to be unacceptable. Please specify the contamination risks, which are considered to be beyond the proponent’s control.

Response
Under international law, there are some aspects of shipping which JPPL will not have any control over as the safety of a ship and its crew will always take precedence over other issues. This applies to all ports in Australia.
This means that JPPL cannot control the nature of the antifouling coating if the current IMO regulations are being met, nor can JPPL enforce ballast water control techniques which will jeopardise a ship’s safety. JPPL can only ensure that ships visiting the port meet current AQIS and IMO regulations.

3.3.32. What evidence is there that alternative antifouling paints to replace TBT won’t cause contamination and environmental toxicity problems?

Response
JPPL cannot control the nature of the antifouling coating if the current IMO regulations are being met, if ratified anti-foulants contain copper as the active substance (which is likely to be the case for some vessels) then it is likely that copper contamination will occur. There is evidence to suggest that the ban on TBT on vessels less than 25 m length in WA has resulted in the same phenomenon, with copper contamination increasing in heavily trafficked areas.

3.3.33. Ballast water on ships entering the sound must be monitored to ensure no contamination of the Sound and any monitoring program needs to be clearly identified and the records
available to the public. Submissions requests that the programme identify any emergency response procedures that will be necessary should some form of pest, viral or any other contaminants be identified.

Response

Ballast water will be managed in accordance with the AQIS procedures in force at the time (refer to 2.5.3 for details of the current protocols).

3.3.34. The James Port facility is likely to handle and provide service to a diverse range of cargo, possibly including livestock export. This presents a number of impacts regarding sullage whilst ships are in port and mooring in the Cockburn Sound basin. Strict management of sullage should continue from the time live sheep and cattle are loaded and unloaded on board vessels until reaching open waters away from Cockburn Sound and the metropolitan coast. Submissions ask whether assurances with respect to no discharge of animal wastes from ships will be provided by the proponent. Submissions note that a workable system, which manages animal wastes from ships, is currently operating at Fremantle Port and, therefore, should be investigated. How does the proponent intend to manage sullage from ships to ensure wastes are not discharged or released from any ships that may arrive in Cockburn Sound?

Response

Livestock vessels are not permitted to be cleaned either within a port or within Australian waters. That practice will continue. No discharge of sullage will be permitted and JPPL will ensure that the current ship management practices which apply in Fremantle will be maintained or improved.

3.3.35. A submission claims that dredging shipping channels in the shallow coastal area north of James Point will certainly result in increased ship movements in Cockburn Sound. Having ships moving regularly in these comparatively shallow channels will cause continual disturbance of the sediments with consequent increases in turbidity of an unknown magnitude. Has the generation of turbidity from shipping movements in shallow channels been assessed and quantified? What are the likely impacts of turbidity generated from frequent shipping movements on light penetration and potential growth of seagrasses or of algae in adjacent areas?

Response

Vessels visiting the port will use existing commercial shipping channels. The only additional area of deepening is the navigation/manoeuvring basin within the port.

The effects of shipping on increased turbidity has not been quantified. However, an examination of impacts of shipping along the FPA channel through Success and Parmelia Banks suggests that the passage of shipping has not caused loss of seagrass habitat on the edge of the channel. Further, there is evidence that some seagrass (Halophila spp.) has colonised the originally bare floor of the channel (Cockburn Cement, 1994).

Considerably more shipping passes through the FPA Success and Parmelia channels than will be passing through the Stirling Channel to the port. Additionally, shipping moves faster in the FPA channel and would generate greater turbidity than in the Stirling Channel.

Increased shipping movements is unlikely to result in any increased impact on the remnant seagrass adjacent to the Stirling Channel.

3.4. Contamination

Dredge spoil

3.4.1. Submissions note that contaminants are contained in sediments in the vicinity of the proposed port. Has the contamination status of the sediments to be dredged been characterised with adequate number of samples? What will the effects of dredging/construction be on these contaminants? Will these contaminants be dispersed throughout Cockburn Sound?

Response

A pilot survey of the sediments to be dredged has been undertaken. The adequacy of this survey to characterise the sediments will be reviewed when the dredge area has been finalised. The pilot survey
found that mercury levels were close to or just above ISQG-Low levels. The low levels of contamination and the fact that most will stay bound to the sediments means there is negligible risk of dredging causing adverse impacts through the dispersion of contaminants.

3.4.2. Will a long-term dredge spoil disposal strategy be prepared? Can the proponent confirm that all dredged material will meet national standards for suitability as landfill? What methodology was used to determine whether the dredged material is within the acceptable standards?

**Response**

All dredge spoil will be used for reclamation. The results of the pilot testing for JPPL and experience with the material dredged for the Southern Harbour suggests that the dredge spoil is likely to meet the DEP standards for landfill. The results will be re-assessed when the dredge area is finalised.

Sediments were sampled from the top 10 cm of the seabed as if there is any contamination it will be greatest near surface in sediments which are not regularly resuspended or reworked through bioturbation. The sediments were stored in polycarbonate vials on ice and transported to laboratories which were NATA registered for the analysis to be performed. The results were then compared against the National Interim Sediment Quality Guidelines, the analysis will be revisited in the Dredge Management Plan as the final guidelines have now been published (ANZECC & ARMCANZ, 2001).

**Liquid and solid waste – construction and on-going operations**

In general submissions have expressed broad concern regarding the management of solid and liquid waste, the potential for spillage of waste and impacts on groundwater quality and Cockburn Sound. Accordingly, it is suggested that proponent be required to contain and isolate all waste from ground and surface water for treatment and disposal. Submissions believe that detailed waste management procedures should be outlined up-front in the EIA process to be confident that risks of any spillage can be managed.

**Response**

JPPL will prepare a Waste Management Plan as part of the Operations EMP.

3.4.3. What design and management procedures are proposed to avoid contamination of groundwater and marine waters of Cockburn Sound? Please give consideration to the management of all potential waste material including, the removal and disposal of the 132 tons of animal waste per week that will be generated during livestock export activities. In answering, please also discuss the contingency measures to be in place to ensure any incidents regarding solid and liquid waste handling are minimised and quickly controlled and ameliorated.

**Response**

The 132 tonnes of animal waste per week is generated by the livestock holding facility if it proceeds, however, the livestock holding facility is not part of this proposal.

The livestock loading activity which is part of this proposal is similar to that currently happening at Fremantle.

The estimated solid and liquid waste resulting from loading operations (and which will need to be contained/collected and disposed of) is about 5 tonne per large sheep carrier per visit and about 2 tonne per small cattle carrier per visit.

Truck marshalling areas within the port will be designated and designed to include sealed surfaces and isolated runoff collection points so that waste can be collected and the area washed down without effluent escaping into ground water or into Cockburn Sound.

Actual loading systems and areas will be similarly designed, but also on the basis that trucks enter the area only when ready to discharge thus minimising waste spillage adjacent to the berth.

There will not be significant quantities of waste held in the port at any time and it is difficult to envisage a circumstance of accidental spillage threatening to enter Cockburn Sound. However, the Port will be equipped to handle containment and collection of the minor amounts of waste involved at any time.
3.4.4. Particular concern has been expressed in relation to the management of wastes generated during transport to and from the proposed port. How will spillages of waste from transportation of livestock and other goods be managed? Suitable containers, which are compatible with transport requirements, should be used to minimise handling and risks of spillage.

Response

Livestock will be transported from existing sources to the proposed Kwinana Port in the same fashion as they are currently transported to Fremantle. About 90% of the sheep currently exported are transported to the Port from the existing two major feedlots at Wellard and Mundijong.

An approximate estimate of the current truck movements into and within the Perth Metropolitan area related to live sheep export is as follows (based on semi trailers, 400 sheep per unit):

| No. of truck movements | i) Source to existing feedlots at Baldivis and Mundijong (either direct or via sale yards). | 9,000 |
| ii) Source direct to Fremantle Port. | 1,000 |
| iii) Feedlots (Baldivis and Mundijong) to Fremantle wharf. | 9,000 |

An approximate estimate of the current truck movements into and within the Perth Metropolitan area related to live cattle export is as follows (based on semi-trailers, 50 cattle per unit):

| Source to Fremantle Port (either via holding facilities at Midland or Mundijong or direct) | 2,000 |

If the proposed port at James Point proceeds and the livestock export trade substantially relocates to the new port, then:

With respect to live sheep trade

Item i) above (transport into Feedlots) will remain substantially unchanged.

Item ii) above (transport direct to Port) will change to the extent that this traffic will be taken off Leach Highway, Stirling Street, Tydeman Road and will be transferred via Tonkin Highway and Albany Highway to Thomas Road and Anketell Road thus relieving some congestion from the current route.

Item iii) (transport Feedlots to Port) will change to the extent that:

- The distance travelled by about 9,000 trucks will be shortened from 47.5 km to 26.5 km, an overall saving of about 190,000 truck kilometres;
- About 18 km of travel along the Freeway from Anketell Road to Leach Highway will be eliminated; and
- 11.5 km of transport from the intersection of the Kwinana Freeway and Leach Highway to Fremantle Port via Leach Highway and Stirling Street will be replaced by 8.5 km of transport from the intersection of the Kwinana Freeway and Anketell Road to the new Port via Anketell Road, Rockingham Road and Beard Street.

With respect to the live cattle trade

- For those cattle being transferred through Midland the trucks will be taken off Leach Highway/Stirling Road and will be transferred via Tonkin Highway and Albany Highway to Thomas Road and Anketell Road; and
- For those cattle being transferred from the south-west region or through the Mundijong Feedlot the distance travelled by trucks to the new port will be an estimated 21 km shorter than travelling to Fremantle, also eliminating the heavily used route comprising Leach Highway and Stirling Street.

Overall there will be significant trucking benefits to be achieved by use of the proposed Kwinana Port in lieu of Fremantle for livestock export by:
• Reduced transport distances from the south-west area and from existing feedlots;
• Reduced truck numbers on heavily used roads such as Leach Highway and Stirling Street;
• Reduced transport time for livestock being transferred from existing feedlots to Ports; and
• Reduced quantity of waste spillage from trucks due to reduced transport time.

The trucks will be marshalled in allocated suitable designed areas within the Port to ensure containment and to facilitate collection of waste spillage.

The regulation of the design of livestock transport trays to contain waste and prevent spillage is an issue beyond the scope of this assessment.

### Additional fill material

3.4.5. Will fill, in addition to dredge spoil, be required for reclamation? Where will the additional fill be sourced?

**Response**

Yes, it is likely that about 135,000 m$^3$ of clean fill will be required. The fill is yet to be sourced, however, the DEP will be informed of the source and its quality as part of the Construction EMP.

### Oil spill

3.4.6. The PER states that the control of hydrocarbons and other pollutants will be managed by ensuring that loading and unloading operations will be conducted in accordance with best environmental practices and procedures. However, emergency response plans and contingency plans should also be developed to comply with the requirements of the Australian Maritime Safety Authority, the National Oil Spill Plan and the relevant State and local oil spill contingency arrangements. Plans should also be developed to address spills of other pollutants. How will pollution events be managed during the operations phase and who will be responsible for implementing JPPL’s response and contingency plans?

**Response**

An overview of the responsibilities for combating oil spills is provided in Section 13.3 of the PER. A complete Oil Spill Contingency Plan will be prepared for the port as part of the Operations EMP preparation process.

### Air

3.5.1. Submissions expressed concern over inadequate detail on the impacts of dust from construction. It is therefore difficult to ascertain whether dust control measures will be adequate. Has an assessment of the potential for the site to cause pollution been undertaken? What contingency arrangements will be implemented to minimise dust leaving the site prior to and during development?

**Response**

Given that there is no apparent dust problem at the site at present, it is difficult to envisage any action being required prior to the commencement of construction. Standard procedures for the suppression of dust will be employed during construction and will be detailed as part of the licensing process. The Proponent will be required to ensure that there are no unacceptable impacts from dust during construction.

3.5.2. Will monitoring of dust be undertaken to ensure that dust generated by the proposal does not adversely impact upon welfare and amenity of residents and employees? What criteria will be used?

**Response**

A Dust Management Plan will be prepared and dust will be monitored during construction.

3.5.3. It is considered that the transport of livestock and feed to the facility and the disposal of wastes will create significant amounts of dust that will impact on residents’ amenity. The dust from trucks will require that residents along trucking routes will need to keep their houses closed, impacting on amenity. What consideration has been given to the impacts of dust on people living in the nearby areas and along proposed transport routes? How will the impacts of dust be managed?
Response
The Proponent does not agree with the contention that the transport activities associated with the facility will create significant amounts of dust. Whilst the transport of fodder does have the potential to create dust, all of the trucks are fully covered to prevent the loss of product or the generation of dust. The livestock vehicles do not generate any significant dust while they are loaded and the requirement for trucks to be washed after delivery eliminates the build up of material that could generate dust on the return journey. The transport of waste will be in fully covered, purpose built trailers. Additionally the operation at Kwinana will be similar to the current operation at Fremantle where there is significantly more potential for dust to impact on adjacent areas and where no problem currently exists.

3.5.4. Dust from the proposal has the potential to cause a nuisance to adjacent premises especially when sensitive activities are being carried out such as painting.

Response
The Proponent acknowledges the potential for dust to be a nuisance, but intends incorporating procedures to minimise that potential in the Dust Management Plan. The evidence from current livestock operations in Fremantle is that there is no dust problem for adjacent operations. There is already a bulk unloading facility in the vicinity of the new Port (BHP Number 2 Jetty) and JPPL is unaware of an significant dust problems caused by its operation to adjacent premises JPPL will be competing for the same business from a new facility with appropriate dust management controls.

3.5.5. Western Power’s (Generation) Kwinana Power plant and associated switchyard equipment is vulnerable to dust and other airborne contaminants. Insufficient information is provided in the PER as to the anticipated loadings or how dust will be managed. Generation is concerned that activities will incur additional cost through increased maintenance on dust sensitive equipment. Will JPPL enter into binding agreements with Generation, for compensation, funding of plant modification or remediation of dust impacts due to the proposed port facility?

Response
JPPL will work cooperatively with Western power to address all concerns regarding potential impact on the operations of the Kwinana Power Station, however JPPL will not enter into any agreement relating to compensation.

The proponent is committed to ensuring that its project meets statutory requirements (including those related to air quality) and is prepared to work with adjacent industries to ensure that it minimises any impact of its operations.

3.5.6. Recent complaints have been reported regarding grain dust settling on the waters of Cockburn Sound. Submitters understand that the Environmental Protection Policy (EPP), currently being formulated, will contain direct reference to aesthetic quality regarding the waters of Cockburn Sound. Users of Cockburn Sound rate water colour and clarity as highly important to amenity. Will dust emanating from the proposal affect the clarity and colour of Cockburn Sound’s waters? How will dust be managed to prevent off-site impacts?

Response
The cargoes that JPPL will be seeking to handle through the proposed port and which have the potential to cause dust and spillage problems which could impact on the amenity of Cockburn Sound are:

i) Fodder loading associated with livestock export – This product is currently handled through Fremantle with little impact to surrounding land and water areas. The transfer of the operation to Kwinana will provide the opportunity for more permanent facilities and for enhanced dust/spillage control.

ii) Bulk cargoes – These cargoes are currently handled through existing alternative facilities in Cockburn Sound. JPPL will be installing new facilities and equipment and will expect that its licence conditions will require improved dust/spillage control over existing operations.

3.5.7. Western Power’s (Generation) Kwinana Power plant and associated switchyard equipment is vulnerable to dust and other airborne contaminants. Insufficient information is provided in
the PER as to the anticipated loadings or how dust will be managed. Generation is concerned that activities will incur additional cost through increased maintenance on dust sensitive equipment. Will the proponent enter into binding agreements with Generation, for compensation, funding of plant modification or remediation of dust impacts due to the proposed livestock facility?

Response

JPPL will work cooperatively with Western power to address all concerns regarding potential impact on the operations of the Kwinana Power Station, however JPPL will not enter into any agreement relating to compensation.

The proponent is committed to ensuring that its project meets statutory requirements (including those related to air quality) and is prepared to work with adjacent industries to ensure that it minimises any impact of its operations.

3.6. Noise

Background and Summary

James Point Pty Ltd (JPPL) recognises the potential of the proposed Port to cause noise impact during construction and operation and has committed, in the PER, to preparing Noise Management Plans for both stages of the project.

During construction, equipment and practices will be selected to be the quietest reasonably available. This will include restricting pile driving to day-time hours Monday to Saturday, excluding public holidays, unless compelling reasons for operating outside these hours arise and prior approval has been obtained from the Department of Environmental Protection. Noise generated by construction activities are not governed by the levels assigned in the Environmental Protection (Noise) Regulations 1997, however an acoustic assessment of the construction proposal concluded that the normal protection criteria applying at the most constraining noise sensitive premises would be satisfied.

During Port operation, the ventilation systems of loaded livestock vessels will be the dominant noise sources. Feed loading systems currently in use at Fremantle would constitute significant noise sources, however JPPL has committed to taking all reasonable and practicable measures to ensure that feed loaders used at the proposed Port do not significantly contribute to the exceedence of noise levels assigned in the Environmental Protection (Noise) Regulations 1997.

The Acoustic Assessment concluded that:
- At Medina the assigned levels would be satisfied at all times, but that for 0.1% of the night-time period the noise attributable to livestock vessels could significantly contribute were there to coincidently be a cumulative exceedence.
- At Hope Valley, the assigned levels will be satisfied during day and evening times, but may be exceeded 0.2% of the night time period. Additionally, were there to be an exceedence of the assigned levels due to other noise sources, the livestock vessels could significantly contribute to that exceedence up to 1% of the evening and 0.8% of the night times if the occurrences were coincidental. Scenarios were also examined if the noisiest vessel was assumed to be tonal at the noise sensitive receptor, although this was considered improbable.
- Having regard to the precision of noise modelling, the conservative approach taken in the analysis and the small percentage exceedence calculated, the acoustic impact of the Port operations is negligible.

Responding to comment that the Acoustic Assessment focussed on noise sensitive premises and did not clearly establish compliance with the assigned levels at the Port boundary, JPPL commissioned further work to examine this question more closely. The conclusion published in September 2001 was that;
- Typically individual livestock vessels and pairs of vessels for which sound power levels are known, would comply with the assigned level at the Port boundary.
- A pinch-point does exist at one point where the boundary is sharply indented and only 200m from the nearest berth. At this point the exceedence might be 3dB(A), however the neighbouring premise is itself a bulk-materials handling facility and Port. There is also consideration being given to increasing the industrial receptor assigned level to 70 or 75 dB(A), in which case the 3dB(A) would no longer represent an exceedence.
- One measured vessel is far noisier than the others and would alone or in combination exceed the assigned level at the Port boundary. This is an older vessel which is expected to be phased out of service to Western Australia. In the past few years it has typically visited Fremantle 7 to 8 times per year, but at the time of writing had berthed once in the 2001-2002 financial year.

- Having regard to all factors, the Port operation is not considered to impact on the surrounding industries.

### Port noise

#### 3.6.1.

The Kwinana Industries Council (KIC) is currently investigating cumulative noise impacts from the Kwinana industrial area, with a view to setting noise emission budgets for the various possible contributors. The views of KIC should therefore be sought as to their likely criteria (which may be more stringent than the noise regulations) and the relevant comparisons carried out. Submissions indicated that the EPA would need to be satisfied that KIC’s criteria could be met. Has the proponent consulted with the KIC in this regard? Has the proponent considered the proposal in the context of KIC’s noise emission budgets? Can the proponent meet KIC’s criteria and therefore attempt to achieve standards that are beyond regulatory limits?

#### Response

The independent Acoustic Assessment conducted of the proposed Port concluded that “the acoustic impact of the Port to the surrounding area is considered negligible”.

JPPL has consulted the KIC regarding the Port proposal.

KIC has not yet (October 2001) completed validation of its noise model and has to the best of our knowledge not developed any “KIC criteria”. It is understood that KIC will not be in a position to begin negotiations amongst its members on noise control until the first quarter of 2002. It is further understood that KIC members currently considering noise control measures are those individually exceeding the assigned levels beyond their premise boundary. How KIC may in future develop criteria more stringent than those specified in the Environmental Protection (Noise) Regulations 1997 for addressing cumulative exceedence of the assigned noise levels is as yet unresolved and untested.

#### 3.6.2.

The noise contours in Figure 00092/03 of the HSA report shows contours only up to 55dB(A), which is not high enough to compare with the 65dBA_{10} assigned level for Industrial noise receivers. Notwithstanding, it would appear from the sound power levels of the ships as given in the report that the assigned levels may well be exceeded to the north and south of the subject site. This issue needs to be addressed quantitatively and commitments identified for its management.

#### Response

Herring Storer Acoustics conducted supplementary work to more accurately establish vessel’s noise impact at the premise boundary. This involved predicting noise levels at varying distances from each of six vessels for which JPPL has reliable measured Sound Power Levels and from the 36 combinations of two vessels (including each ship with itself as a second ship of similar SWL could conceivably be in Port at the same time).

Excluding cases involving one significantly noisier ship, the individual vessels and with one minor exception the 25 combinations of vessels were below 65dBA_{10} downwind at the typical distance to the premise boundary (approximately 400 m).

Due to the irregular shape of the premise boundary there is a small triangle of land to the south-east of the Port at which the separation is considerably less, at only 200 m from the southern-most berth oriented towards the coast. That wedge of land is part of the BHP transport site, containing road, rail and ship facilities for receiving, storing and out-loading bulk materials.

The noisier vessel has typically made around 7 or 8 visits per year, averaging two days, to Fremantle in recent years. As an older vessel it is expected to be progressively phased out of service to Western Australia and has not made a call at Fremantle in the first 4 months of the 2001-2002 financial year.

JPPL commits to locating noisier vessels at the more distant berth whenever operational constraints permit.
One further consideration is that industry has long held that the assigned level of 65dBL10 is an unrealistically low and overly protective level to assign to premise boundaries between sites in a heavy industrial area. Consideration is currently being given to increasing that level in the Noise Regulations. Were that level increased to 70 dBL10 then all single and paired vessel combination scenarios would comply, excluding the noisiest vessel.

The conclusion contained in the supplementary acoustic assessment is that given the uncertainty in acoustic modelling, the conservative assumptions, the likely phasing-out of the noisiest vessel and that compliance is achieved at the majority of boundary locations, the cases of exceedance are “not considered to impact on the surrounding industries”.

Considering a social issue, this Port provides the opportunity to relocate an existing trade from Fremantle Harbour at which these vessels may be berthed as little as 200 m from a residential area, to a site within a heavy industrial area with a typical separation of 400 m to a road and beyond that industrial premises, such as a base-load power station, a scrap metal yard and a bulk-materials storage and transport facility. This is considered to be of significant strategic community advantage.

3.6.3. Noise predictions appear to focus on noise sensitive premises. As the noise regulations also require compliance at industrial boundaries, the noise modelling should indicate the predicted noise levels at the boundary of adjacent industrial premises.

Response
Refer to the response to question 3.6.2.

3.6.4. The proponent should commit to noise management measures, including noise specifications for the feed blowers, air slide conveyors, sheep ship fans and other fixed or mobile plant. The noise levels from the feed blowers are sufficient to exceed the assigned levels at the adjacent Industrial boundaries. Therefore, a firm commitment should be sought from the proponent to manage noise emissions from the feed blowers. What consideration has the proponent given to reducing the noise emissions from feed blowers, air slide conveyors, sheep ship fans and other fixed or mobile plant through design and engineering measures?

Response
James Point Port will ensure that, to the extent within its power, equipment operated at its premises conforms to occupational and environmental noise requirements. To this end all reasonable and practicable measures will be taken to control noise emissions from feed loading equipment such that it does not significantly contribute to an exceedance of assigned levels.

Foreign registered vessels operating between other countries and Australia do so under International Maritime Organisation conventions and have access to Australian ports under agreements entered into by Australian Commonwealth Government. JPPL commits to approaching the operators of any vessel which is unreasonably noisy in its operation at James Point Port, with the intention of seeking ameliorative measures or use of quieter vessels for this service. Balancing this approach is the need to recognise that it is the State and nation’s interest that Western Australia remain a preferred supplier of livestock and that unreasonable demands not be made such that other countries become more attractive and trade is lost.

JPPL undertakes, subject to overriding safety or operational constraints, to preferentially locate at the more distant berth, noisier livestock vessels that might significantly contribute to an exceedance of the noise regulations. Additionally, although it is normal practice to only operate ventilation fans once stock are aboard vessel, the Port operator will remain vigilant in observing conformance to this practice and liaising with vessels representatives in the case of non-compliance.
3.6.5. The PER noise assessment did not recognize the presence of existing residential premises in Naval Base. The HSA report indicates predicted noise levels of approximately 45 dB(A) in this area. Given that the area is zoned Industrial, the assigned levels under the noise regulations are likely to be very high in this area, typically 50 – 55 dB(A) between 10pm and 7am, and therefore the predicted levels may well comply. To what extent will the predicted noise levels result in an unacceptable impact if the background levels drop below this level during the night?

Response

The Environmental Protection (Noise) Regulations 1997 specify assigned levels for different receiving premises, which in the case of noise sensitive premises may be subject to upward adjustment for the “influencing factor” of surrounding land-uses, such as major roads.

The James Point Port Acoustic Assessment (HSA, January 2001) recognised the various land uses and premises radiating out from the proposed Port. The study determined that the most constraining noise sensitive premises were those on the south-western margin of Hope Valley with an influencing factor of zero. Therefore it was that location to the east which was compared for compliance with assigned levels, and to the south-east Medina was evaluated, having regard to it being downwind of the Port under north-westerly wind conditions. Influencing factor calculations for various locations were published in Appendix C of the Acoustic Assessment report.

Even were prevailing ambient noise levels to drop in Naval Base, the predicted Port noise levels would still comply with the assigned levels.

3.6.6. It has been pointed out that the sheep ship “Livestock Express”, which was included in the Works Approval application for this proposal, and is reportedly noisier than the vessels included in the analysis, has been omitted from the PER. What consideration has been given to the noise from the “Livestock Express”? Will the “Livestock Express” contribute to noise exceedences in surrounding suburbs?

Response

The vessel referred to in the Works Approval application as the “Livestock Express” (as is painted on the vessel sides) is more correctly named the “Cormo Express”. Noise emissions from that vessel were included in the published Acoustic Assessment (HSA, 2001) based upon measurements taken on 27 October 2000, in the same period and using the same equipment and methods as other vessels included in the evaluation. The Sound Power Level determined for the Cormo Express in October 2000 was lower than previously available, as used in the Works Approval application. The acoustic consultants are confident that the October measurements are more thorough and the results are more accurate than the previous values.

The “Cormo Express” will not cause nor significantly contribute to any cumulative exceedance of assigned noise levels in surrounding suburbs.

3.6.7. There is no commitment in the PER in relation to the noise emission levels from the sheep ships. Therefore, a commitment from the proponents, based on some agreement with the shipping companies would be an appropriate means of managing this factor. Will the port operator enter into binding agreements with shipping operators to control and manage noise from ships? How will the shipping operators be monitored to ensure compliance?

Response

Refer to the response to question 3.6.4.

While noise remains a potential issue for the Port, as part of its structured noise management programme JPPL will undertake periodic noise monitoring, at times when noise emissions are expected to be typical and also when noisier vessels are in Port. The results and analysis of this monitoring will be annually reported to the Department of Environmental Protection, the community consultative body and be available for inspection on request.

JPPL undertakes to inform the operators of any vessels determined to significantly contribute to an exceedance and to strenuously seek to influence such operators to control the noise emissions.

3.6.8. Noise from the animals, including cattle needs to be addressed quantitatively. What consideration has been given in the noise assessment to the noise made by the animals,
particularly cattle, in the holding pens? How will the consideration of noise generated by the animals affect the noise modelling predictions in the PER?

**Response**
This response is specifically concerned with the Port and is independent of whether the livestock holding facility proceeds. Any impacts of the proposed livestock holding facility will be addressed through the PER for that facility.

From experience, noise from livestock being loaded onto vessels is not a significant issue. Acoustically it is inconsequential compared to the more dominant source, vessel ventilation systems.

3.6.9. The noise predictions are based upon noise modelling of 8 livestock ships at Fremantle. There is a 10 dB(A) difference between the quietest and loudest ships suggesting that there is a significant difference in noisy equipment on such vessels. What confidence can the community have that a particularly noisy ship will not visit the Port in future?

**Response**
Refer to response 3.6.4.

The Acoustic Assessment conducted for the proposed James Point Port was based upon measurement of 6 livestock vessels. Two other vessel measurements were compromised by prevailing environmental conditions and could therefore not be reliably used. These measurements represent eight of the ten large livestock vessels currently operating and the noisiest vessels generally are the older vessels. There are two relatively new builds in operation and a further two new builds will enter the trade in 2002. It is a reasonable expectation that the older noisier vessels will be phased out or will visit less frequently. From these measurements and knowledge of livestock vessels currently operating at Fremantle, JPPL is confident that the study represents the worst case.

This study is believed to be the most comprehensive livestock shipping acoustic evaluation ever undertaken in Western Australia in terms of quantified vessel noise emission data and the sophistication of modelling. On that basis, this evaluation is considered to provide greater confidence in the outcomes than any known comparable study.

3.6.10. Submissions believe that the noise modelling may have been underestimated because it is not uncommon for there to be 3 livestock vessels berthed concurrently rather than the 2 ships used in the noise report. Further modelling should be carried out. Separate modelling for one, two or three ships and their cumulative impacts with tonal components must be carried out to determine impacts over the existing levels of industry, port and shipping. How will noise emissions from a third ship influence the noise modelling predictions in the PER?

**Response**
JPPL contests the assertion that it is “not uncommon for there to be 3 livestock vessels berthed concurrently”. Such events are uncommon, occurring possibly three or four times a year for a short duration. When they do occur, it is even less common for all three vessels to be loading livestock or to have stock aboard and the ventilation systems (the most significant noise source) of all three vessels concurrently operational.

The extremely small percentage of the year on which this may be the case and the significant additional complexity this would have added to the already complex modelling and interpretation was not considered warranted by the frequency.

It is concluded that the concurrence of three vessels in Port will not significantly change the conclusions of the Acoustic Assessment.

3.6.11. What regulatory powers exist to prevent noise nuisance from ships berthing in the Port, if it is found to be a problem?

**Response**
This question is best answered by the Department of Environmental Protection which has powers under the Environmental Protection Act 1986 and the Environmental Protection (Noise) Regulations 1997.

3.6.12. The proponent predicts that the noise will be experienced at Hope Valley. Considering that
people in Wattleup are disturbed by the noise and odour emanating from the Motorplex it is reasonable to say that the predictions are likely to be wrong and that in fact areas such as parts of Medina to the south and Woodman Point to the north may also experience noise not previously heard. Please comment.

**Response**

JPPL stands by the conclusions of the Acoustic Assessment, that the conservatively predicted noise levels are such that the noise impact of the Port’s operations on residential areas in Medina and near Woodman Point will be negligible.

3.6.13. Considering the degree of recreation undertaken on and around the Sound and the present imbalance seen by the community, elevated noise is undesirable in an area that is to maintain multi-purpose use. To what extent will noise affect the recreational amenity of Cockburn Sound both offshore, on the coastline and inland areas?

**Response**

No criteria exist for determining legal compliance of noise levels over Cockburn Sound. However, by way of comparison the $L_{A10}$ noise level assigned in Environmental Protection (Noise) Regulations 1997 to noise sensitive areas more than 15 m from a building used for a noise sensitive use, is 60 dB. Levels of less than this magnitude will be achieved within the closed waters associated with the proposed James Point Port and adjacent facilities.

JPPL is therefore of the view that amenity of Cockburn Sound will not be unreasonably impacted.

3.6.14. The noise levels for Medina have not been considered alongside current noise levels from industry and transport, general traffic and the Kwinana Motorplex. Assessment of noise levels should be real and not made in isolation of existing levels. What is the cumulative effect of noise from this proposal and increased heavy traffic, in addition to current levels of noise from freeway traffic, Thomas road traffic, Motorplex events, and industrial noise?

**Response**

The existence of higher background levels of noise at some premises is reflected in the application by the Noise Regulations of an influencing factor to assigned levels at noise sensitive premises. The potential for the proposed Port operations to significantly contribute to an exceedance of assigned noise levels has been addressed in the Acoustic Assessment by determining the frequency at which the Port noise contribution might be above the level of 5 dB(A) less than the assigned level at the receiving premise. The frequency of such occurrences is predicted to be so low as to be a negligible contributor to any cumulative exceedance. The noise levels predicted from the Port will be significantly lower than existing ambient noise.

3.6.15. The response of livestock noise generated from surrounding industrial activity, is not addressed in the PER. For example, operation of plant protection devices such as safety relief valves can result in very high short-term noise levels that could panic stock. Whilst events of this nature are not uncommon the amount of energy being dealt with in a plant emergency is large and no other viable alternatives for plant protection exist. There will be periods during the commissioning of Western Power’s new plant in late 2003 that may require venting of large quantities of steam that could cause considerable increase in short-term noise levels at neighbouring facilities. To what extent has the proponent considered the impacts of noise events from surrounding industrial activities on livestock?

**Response**

JPPL does not consider that industrial noise such as that described in question 3.6.15 will impact on stock being loaded onto vessels. However, the same as JPPL will work to keep its neighbours informed of its activities, particularly unusual events, it expects that its neighbours will demonstrate a similar level of courtesy and inform it in advance of circumstances that may impact on its operations.

**Traffic noise**

3.6.16. Predicted impacts of truck noise on adjacent premises should be provided. The proponent should be guided by the EPA statements for EIA No. 14 (version 3) Road and Rail Transportation Noise (Draft 10/5/00). There are concerns about 120 livestock truck movements per day, most of which will use Anketell Road, passing within 100m of about 30
residences including the Wandi Heights Subdivision. The EPA Statement for Transportation Noise recognises that lower night time noise levels should continue until 7am. Truck movements should be timed to ensure that trucks do not deliver to the site until at least 7:30am to minimise disruption to residential premises. If the livestock holding facility is not constructed, then the sheep will be trucked directly to the Port over a short intensive period of time. Modelling of truck noise during this delivery period should be modelled to show compliance with the Noise Regulations and the EPA Statement for Transportation Noise in relation to residences and industrial premises.

Response

If the Livestock Holding Facility is not approved (and live sheep continue to be predominantly transferred from the existing feed lots) then the only section of Anketell Road which will have significantly increased levels of livestock truck movements is the section between the Kwinana Freeway and Rockingham Road.

There are about three residences located along this section of road and they are set well back from the road. The increase in truck movements in this area will be offset by a corresponding reduction along:

- Kwinana Freeway (between Anketell Road and Leach Highway);
- Leach Highway (between the Freeway and Stirling Street);
- Stirling Street; and
- Tydeman Road.

The reduction in the number of truck kilometres travelled and in the adjacent residences impacted is far more significant than the negative impact of the increased movements on the section of Anketell Road in question.

The cited “EPA Guidance No. 14” is not recorded as a current Guidance Statement according to the DEP web site. The “Noise Regulations” do not apply to vehicles operating on public roads. It appears that there are no criteria in either case against which to establish compliance.

Construction noise

3.6.17. The issue of the possible impact of the 72,000 truck movements likely to be associated with the transport of material between the quarries in Postans Road and the Port has been addressed in the PER by way of commentary, and has not been addressed quantitatively. Although the PER preferred not to present an assessment in accordance with the preliminary draft Guidance for EIA No. 14 – Road and Rail Transportation Noise, Version 3, this or other objective criteria should have been the basis of the PER’s assessment.

Response

The cited “EPA Guidance No. 14” is not recorded as a current Guidance Statement according to the DEP web site. The “Noise Regulations” do not apply to vehicles operating on public roads. It appears that there are no criteria in either case against which to establish compliance. Additionally, the truck movements referred to in the question are construction activities, not operational, and are therefore of only a temporary nature.

JPPL has committed in the PER (Table 15.1, item 2.3) to develop a construction material extraction and transport plan in consultation with local authorities with the objective of minimising impact on noise sensitive premises.

3.6.18. The locations of any affected residences do not appear to have been identified in the PER. However, along the roads identified in the PER, there are known to be residences in Postans Road and at least one residence near Anketell Road. Assuming residences are set back 15m from the road, and the noise level of a truck passing is 75 dB(A) at this distance, the $L_{Aeq,1h}$ level is estimated to be approximately 62dB(A). When compared with the criteria in the preliminary draft Guidance for EIA No. 14 – Road and Rail Transportation Noise, Version 3 for acceptable noise level increases, this level would represent a significant impact. How will the concerns of affected residences in relation to excessive noise emissions from transport be addressed? How will noise emissions from transport operations be managed?
Response

Refer to responses 3.6.16 and 3.6.17.

There are three residences in the section of Anketell Road which will experience additional levels of movements of livestock vehicles. The closest existing residence is about 30 metres away from the road. Additionally, the roads identified for access to the Port are roads nominated as major arterial roads for access to the Kwinana area.

Question 3.6.18 refers to a “preliminary draft Guidance”. To the best of our knowledge no such Guidance has been issued by the EPA for proponents to use in making proposals, nor for its own use in assessing proposals. It is also JPPL’s understanding that the statements made in the question regarding the truck traffic representing “a significant impact” in terms of criteria contained in the preliminary draft guidance may not be a correct interpretation. JPPL cannot provide further comment under such circumstances.

3.6.19. The noise of pile driving should be described more fully in terms of the number of piles to be driven, the driving method, the likely time period and hours of operation. The sound power given in the draft PER for piling is 130 dB(A). The piling method is not stated. The sound power of a drop hammer in use at the Barrack Street jetty was estimated from sound pressure levels measured by DEP to be approximately 136 dB(A). Using this figure instead of the value in the PER would give an estimated sound level of 50 dBL Amax in Hope Valley. This level may be high enough to cause problems if not appropriately managed. Alternatives to drop hammer methods, such as the “G pile” method, should be investigated and discussed. What consideration has the proponent given to alternative methods of pile driving in the context of minimising noise emissions?

Response

Specifics such as the number of piles to be driven are not as yet known. Measurements by the Port’s acoustic consultants during pile driving for construction of the second Narrows Bridge provided the level used in the James Point Port Acoustic Assessment.

JPPL has committed (PER Table 15.1, items 2.5 and 2.6) to preparing and implementing a Construction Noise Management Plan to ensure that construction noise impacts comply with statutory requirements and acceptable standards. JPPL will ensure that all reasonable and practicable measures are taken to control construction noise, in accordance with the practices set out in section 6 of AS 2436-1981. As piling will only be conducted during “day-time hours” and the quietest reasonably available equipment and methods will be employed, the resultant ambient noise as predicted in the Acoustic Assessment is considered not to be annoying.

3.7. Odour

Background and Summary

James Point Pty Ltd (JPPL) recognises that, of the cargos to be handled at the proposed Port, livestock has the potential to emit odour which will on occasions be discernable beyond the Port boundary and therefore requires assessment to establish acceptably of the impact.

Substantial numbers of livestock (predominantly sheep and cattle) are currently exported through the Port of Fremantle, and JPPL aims to attract that trade to the James Point Port at Kwinana. JPPL believes the Kwinana location to be far superior to Fremantle, as the Kwinana port is:

• Located within a heavy industrial area with an established air quality buffer zone extending between 4 and 6 km inland, whereas at Fremantle no buffer exists and one berth used to load livestock is only 200 m from the nearest residential and commercial precinct (Northbank).
• Serviced by direct road transport routes through mainly rural and industrial areas, compared to the access to Fremantle Port through densely developed urban areas and congested road systems resulting in higher fuel consumption and exhaust, noise and odour emissions in high density residential areas.
• Capable of accommodating a co-located livestock holding facility and direct ship loading. This would obviate the need for double handling as is currently the case with delivery of livestock to the existing holding facilities south of Kwinana and subsequent reloading and truck transport to
the export vessel in Fremantle.

The table in the preamble, “The need for a Kwinana General Cargo Port” at the beginning of this document provides a comparison of the number of residences adjacent to existing livestock loading operations at Fremantle versus the number adjacent to the proposed Port at Kwinana. The table provides compelling evidence that loading at Kwinana will significantly reduce the overall impact of surrounding residents and land users.

The Environmental Protection Authority has issued a Guidance Statement (No.47) which provides advice on appropriate separation between odour sources and neighbouring populations in order to protect amenity in areas where odour sensitive land uses are involved. The EPA proposes that for an odour to cause annoyance it must be recognisable, rather than just detectable. The EPA recommends an acceptability guideline for odour emanating from poultry farms to be $70U/m^3$, 99.9%, 1-hour average and suggests that the guideline may possibly also be reasonably applied to other similar odour sources involving biological decomposition of organic material, such as cattle feedlots and piggeries.

To establish whether the odour impact from the proposed Port was likely to be acceptable (i.e. it did not unreasonably impact the amenity of neighbours), JPPL’s consultants conducted a semi-quantitative evaluation, consisting of:

- Establishing an odour emission rate for sheep aboard a livestock vessel berthed in Fremantle Port.
- Modelling the extent of the $70U/m^3$, 99.9%, 1-hour average odour plume at Fremantle at the emission rate so established.
- Predicting the extent of the odour plume which would result at Kwinana were livestock loaded aboard ship at the proposed Port under the same conditions as observed at Fremantle. Additionally, the model included emissions from the proposed adjacent livestock holding facility so as to establish the cumulative odour impact of the two facilities.
- Comparison of the predicted odour plume with the EPA guideline of $70U/m^3$, 99.9%, 1-hour average.

A number of factors constrain confidence in the results obtained by this approach, but a number of other conservative factors have been applied to increase confidence that the modelling does not significantly underestimate the impact.

Constraining factors include:

- Variability in conditions and therefore odour emissions between the vessel observed for this study and other vessels used in the livestock trade.
- Variability across the human population in perception of odour compared to the two persons involved in this study.
- The limited number of odour observations undertaken in the study.
- That standard protocols of dynamic olfactometry were not applied.

Conservative factors included:

- Modelling conducted using cumulative odour emissions from both the Port and including the proposed adjacent Livestock Holding Facility

On balance the $70U/m^3$, 99.9%, 1-hour average odour contour predicted at Fremantle using the derived emission data is considered realistic. It extends over residential areas of North Fremantle and Northbank and was the impact substantially more severe than predicted, far more complaints would be anticipated than have been received by the Fremantle Port Authority. Modelling for the James Point Port using the source emission rate data established at Fremantle and meteorological data from Kwinana, is believed to provide a realistic prediction of the odour plume from the proposed Port.

Although irregular in shape, the $70U/m^3$, 99.9%, 1-hour average cumulative odour contour was predicted to extend around 1 to 1.5 km from the proposed port, well within the Kwinana Industrial Area. Therefore the prediction is that neighbours beyond the industrial area should not be exposed to odours at a concentration and frequency that would cause a significant impact upon their amenity. It is a well established precedent that higher standards of environmental protection are expected beyond the industrial area than within it (e.g. acceptable noise, risk and air quality criteria). JPPL believes that odour should be treated in the same way, and that a higher odour concentration and occurrence frequency is acceptable within the industrial area, without unreasonably impacting upon amenity (i.e.
JPPL will manage all aspects of the proposed Port within its control, to the extent reasonable and practicable, so as to minimise odour emissions. JPPL will monitor odour emissions from the Port, both routine and under extreme circumstances. JPPL will establish a community enquiry service to provide information and respond to concerns regarding Port operations, including odour emissions. Complaints will be investigated and a response provided to the complainant. JPPL will participate in an appropriate community forum to constructively exchange information with the community.

Impacts on residents

3.7.1. Considerable community concern has been expressed by residents of surrounding suburbs regarding the impact of the proposal from odour. Submissions consider that the odour would be intolerable/objectionable/unacceptable and it would be unacceptable for residents of surrounding suburbs to be subject to any level of livestock odour from the proposed handling of livestock.

Response

Perception of odour is a very personal and subjective experience, and therefore difficult to predict and describe with the rigour that some parties would wish. However, from its extensive experience handling the shipment of livestock, the advice of its consultants and the published guidance of the Environmental Protection Authority (EPA 2000), JPPL is confident that the amenity of residential suburbs will not be unacceptably impacted by odours emanating from the proposed port.

The odour evaluation undertaken as part of this proposal is based upon the EPA’s guidance that an odour originating from biological decomposition of organic material is unlikely to “unreasonably interfere” with amenity if 99.9% of the time the 1-hour average odour concentration does not exceed 7OU. The odour model output predicts this to be the case for all residential suburbs surrounding the proposed Port.

The EPA guidance explicitly states that in the case of nuisance impacts such as odours, it is appropriate that acceptance criteria be conservative but not be required to be the “no impact” level.

JPPL acknowledges that, while detectable odours may occasionally be experienced at the nearest residences, this will be infrequent and will not constitute an unreasonable interference with amenity. If no new project were permitted if there was the possibility of an occasional discernable odour at a residence, almost all activities in society would be precluded, from installing a bus stop outside a residence to establishing a fast-food outlet near a residential area.

3.7.2. Submissions claim that the proponent would have residents believe that they would be unable to smell the odour from the facility in Medina. A lack of information relating to the profile of complaints in Fremantle mean that only anecdotal information is available. It is suggested that residents in East Fremantle and up to six kilometres from the existing loading operation in Fremantle are impacted by odour. Submissions suggest that the spatial extent and strength of the odour can depend on the strength and direction of wind. Concern has been expressed regarding the effect of strong westerly, south-westerly and east/north-east winds, which prevail in the Kwinana area, on the extent (in both space and time) of odour impacts and residents downstream. This should be incorporated into the proponent’s assessment of odour. Have these meteorological conditions been accounted for in the proponent’s assessment of odour impacts? If so, how has this been considered?

Response

The prediction of odour impact was performed using numerical modelling, the same as used to predict air contaminant dispersion and ground-level concentrations. The model was run using a year’s real meteorological data (1995) from the Kwinana region, and therefore contains winds from all directions experienced in that year. Using nominated input conditions, the model calculates predicted 1-hour average ground level odour concentrations, throughout the whole year, for areas surrounding the modelled emission source. The 1-hour concentrations predicted were interrogated for locations at which there were predicted to be more than nine values equal to or exceeding 7OU. A contour is then drawn enclosing all these points, the 7OU contour, i.e. the extent of the area predicted to experience ground-level odour concentrations of 7OU or greater for more than nine 1-hour periods in the year.

By its very nature, this approach recognises that there is predicted to be less than nine 1-hour events of odours exceeding 7OU beyond the plotted contour included in the PER. This concentration and
frequency satisfies the EPA guidance for acceptability. As stated in response to question 3.7.1, the EPA criterion is not one of “no impact”, but of reasonable impact i.e. does not unreasonably interfere with amenity.

The submission refers to the lack of information regarding the profile of complaints at Fremantle and to anecdotal information on the distance from Fremantle at which smells are detected.

The Table included in the preamble to this document provides an estimate of the number of residences versus distance from livestock loading operations for Fremantle IH and for the JPPL Stage 1 development.

The following information is relevant to the impact of odour at Fremantle and the complaints received versus the likely impact at Kwinana.

a) There is an established buffer zone at Kwinana. There is no established buffer zone at Fremantle.

b) The closest Medina residence to the proposed Port at Kwinana is 4 km away. By contrast there are an estimated 18,000 residences within 4 km of livestock loading operations at Fremantle.

c) There are an estimated:
   • 0 residences within 1 km at Kwinana.
   • 15 residences plus the Naval Base Hotel within 2 km
   • 400 residences plus the Naval Base Hotel within 4 km.

d) There are an estimated 1000 residences within 1 km of livestock loading operations at Fremantle including about 250 new high class residences within about 300 metres of Number 12 Berth, North Quay, which has been used for livestock loading.

e) There are good quality and relatively new residences in the vicinity of Leda Boulevard and Wellard Road, South-East Kwinana which are within 3.0 km of one of two existing major feedlots servicing the export trade.

f) There is a new residential subdivision approved by the Kwinana Council adjacent to Bertram Road, East Kwinana which is within 3.5 km of the same feedlot.

f) A 4 km radius from Fremantle includes areas of Mosman Park, East Fremantle, Palmyra, White Gum Valley, Beaconsfield and South Fremantle as well as the Fremantle Commercial Centre.

h) Information obtained from the FPA and the DEP indicates that over a 3 year period complaints related to livestock loading in Fremantle have been registered in writing from about 5 complainants and verbally from about 30 complainants. A substantial proportion of the complaints are from North Fremantle, Fremantle and North Bank residents who are within 1 km of livestock loading operations.

i) Information obtained from the Town of Kwinana and the DEP Kwinana office indicates that no complaints have been registered with respect to the existing feedlot which is within 3.0 km of an existing residential area.

3.7.3. The odour study focuses on the 7OU contour and concludes that residential areas will not be subject to annoyance due to odours from animals in the sheds or on ships. The 7OU contour represents odours that have a “distinct” intensity, however it would be useful so that residents fully understand the implications of the proposal to provide a map showing the “weak” and the “very weak” odour intensity contours. How far are these contours likely to extend into residential areas?

Response

As stated in the responses to questions 3.7.1 and 3.7.2, the 7OU contour is based on predicted intensity and frequency provided as a guidance by the EPA for general acceptability. The criterion used is already depicting the predicted extent of an odour concentration that is just distinct more than 9 hours in 8760 (hours in 1 year). To portray odours at that low frequency and at concentrations that are typically not even recognisable, is not considered helpful. JPPL does not believe that generating more predictions for occurrences of lower odour concentration or frequency would help residents to better understand the implications of the proposal.
3.7.4. What is the extent of the 5 OU threshold and 3 OU contours, including at sea. It is noted the quote that ‘above 5 OU’ ‘complaints could be expected’ (Appendix B p12). These lower limits are especially relevant to the potential impact on recreational amenity at sea as there will be less competing odours than in a suburban setting and should be considered. Potential impacts on the recreational amenity of Cockburn Sound; especially in relation to the seaward areas affected by odour is an element that needs to be taken into account when assessing odour impacts.

**Response**

The reference cited in question 3.7.4 to “5OU” was in the context of examining odour thresholds from various sources and in various jurisdictions around Australia and the world. This reference related to odour from sewage treatment and represented the concentration above which the Sydney Water Board anticipated it could expect complaints having regard to the “annoyance” characteristic of their particular odour. In its context, this figure was cited as part of developing background information as to how different types of odour had been treated in different jurisdictions and was not in any way inferring a level at which livestock odour at Kwinana might cause complaints.

As stated in answers provided above, the Western Australian EPA has provided guidance (EPA 2000) that for odours of the nature being assessed, a relevant criterion for not unreasonably impacting amenity would be 7OU, 99.9 percentile, 1-hour average. In arriving at that value the EPA treated the odour on its own merit and did not assume any masking due to “competing” odours in an urban setting, as suggested in question 3.7.4.

Conversely, persons recreating on Cockburn Sound will have low exposure frequencies within the predicted 7OU contour relative to the model assumption of continuous exposure and are therefore much less likely to actually experience odours as a result of their recreating in the vicinity of the Port. Therefore, there is no rational basis for concluding that a more stringent criterion should apply over the waters of Cockburn Sound and a strong basis for suggesting that it should be more liberal.

3.7.5. The information on odours in the PER is incomplete as there is no information as to the likely odour levels that will be experienced in Rockingham. The proponent should provide the full results of the odour modelling so that residents in Rockingham will know whether they are likely to detect odour. Are the residents in Rockingham likely to detect odour?

**Response**

The closest Rockingham residence to the Port is 6.5 km away. By comparison, Claremont to the north-east and Spearwood to the south are 6.5 km from Fremantle.

Residents in Rockingham are extremely unlikely to experience recognisable odours emanating from the James Point Port operations. The modelling described in responses given above, predicts the 7OU, 99.9 percentile, 1-hour average concentration contour extending south to the northern leg of Mason Road, Kwinana Beach which is less than 2 km from the Port and well north of the City of Rockingham. Odours beyond this contour are considered acceptable, based upon the EPA’s guidance (EPA 2000).

3.7.6. The Rockingham Beachfront is a vibrant commercial area with many cafes, outdoor eating areas and grassed areas, which are popular for picnicking and for barbeques. If unpleasant odours were detected in the area, it would affect the patrons and users of the area, result in fewer visitors and profitability of the businesses. What assurances will be given that odour will not be able to be detected at the Rockingham Beachfront area?

**Response**

The Rockingham beachfront area described in question 3.7.6 is approximately 8 km to the south south-west of the proposed Port. It is therefore not realistic to suggest that it would experience odours from the Port at a concentration and frequency that would significantly impact amenity.

3.7.7. Beach areas adjacent to the proposal will be subjected to levels of odour not conducive to pleasant recreation. How will odours from the proposal impact upon the recreational activities at Wells Park or Challenger Beach? Will the proposal result in a loss of recreational amenity?

**Response**
Challenger Beach is approximately 2.5 km to the north north-west of the proposed Port and Wells Park almost 5 km to the south south-west. Both are beyond the predicted extent of the 7OU, 99.9 percentile, 1-hour average contour. By comparison, Port Beach is within 2.0 km of loading operations in Fremantle. For the same reasons described in response to questions 3.7.1, 3.7.2 and 3.7.4, JPPL is confident that there will be no unacceptable loss of recreational amenity at these locations.

3.7.8. Submissions have indicated that there are 22 families who reside in Naval Base. Furthermore, the Naval Base hotel has a manager in residence and both short and long term residents. The distance from the port to the nearest resident would therefore be less than 900 metres. There are also other residences within a 1.5 kilometre radius from the facility. In addition, a deli and medical centre occurs approximately 900 metres from the proposed port. To what extent has the PER considered odour impacts on the residents of Naval Base, patrons and residents of the Naval Base Hotel, and the deli and hospital mentioned above?

Response

JPPL submits that the distances from the livestock loading operations at the proposed Port are as follows:

- To the Naval Base Hotel 1.3 km
- To the delicatessen 1.1 km
- To Rockingham Road 1.2 km

By comparison the distances from the livestock loading operations at Fremantle are as follows:

- To the Railway Hotel 300 metres
- To the Swan Hotel 300 metres
- To the Leftbank Tavern 2 km
- To North Bank residential area 300 metres

There are also numerous commercial, industrial and residential premises well within 1 km of Fremantle operations.

JPPL has not been able to identify more than 15 residences in the Naval Base area that are within 2 km of the Port. These 15 residences remain in an industrial area surrounded by industrial/commercial operations.

The extent of the predicted 7OU, 99.9 percentile, 1-hour average odour contour was portrayed in PER Figure 10.1. JPPL recognises the uncertainties attaching to the derivation of this contour, however, it does provide an indicative prediction of the extent of the area beyond which odour emanating from the Port would not be considered likely to constitute an unreasonable interference to general amenity. The Naval Base Hotel and the residential areas of Naval Base east of Rockingham Road are beyond the 7OU contour depicted in Figure 10.1 and were therefore considered unlikely to experience unreasonable odour interference.

3.7.9. To what extent has the PER odour assessment considered the impacts of odour on the patrons of the Motorplex Drag and Speedway stadium.

Response

The Motorplex development is over 2 km to the east south-east of the proposed Port and is therefore well beyond the predicted 7OU, 99.9 percentile, 1-hour average odour contour and therefore unlikely to experience unreasonable interference attributable to odour.

Odour assessment

3.7.10. The PER states that the holding facility and the port are viable on a stand-alone basis, if one proceeds without the other. If the port goes ahead without the livestock facility, then "the port would receive livestock in a similar manner to Fremantle". The odour modelling is based on the two facilities proceeding, which may not be a worst-case scenario. Submissions have indicated that the loading process in Fremantle may cause odour problems if, for example, loading is delayed and the livestock gets wet while in the trucks. Presumably, this could also happen at proposed Port if there was no livestock holding facility. The proponent should comment on any likely changes to odour modelling scenarios if one facility was to
proceed without the other. What consideration has been given to the impacts of odour from the port and associated livestock loading operations without the livestock holding facility? How will the modelling of the port operations as a stand-alone facility (without the livestock facility) affect the PER’s odour modelling predictions?

Response
Since preparation of the PER, James Point Livestock Pty Ltd has determined that it would not be commercially viable for the Livestock Holding Facility to proceed at Kwinana independent of the Port. JPPL believes that the Port could still proceed and handle livestock exports without establishment of the Livestock Holding Facility, but with the loss of many of the benefits resulting from co-location. This response is prepared on the basis that the Port proceeds without the Livestock Holding Facility. The response for the livestock holding facility is being submitted separately and will address the impacts of the livestock holding facility (including any change to Port operations).

The Port PER odour assessment did not address the possibility of direct truck to vessel load-out in the absence of an on-site holding facility. This is not necessary, as the odour evaluation was based on the presence of 250,000 sheep distributed between a fully loaded large livestock vessel in the Port (110,000 head) and the adjacent holding facility (140,000 head). If the holding facility were not co-located, the number of sheep and therefore odour sources present at the Port would be reduced, likewise the odour emission. The 7OU, 99.9 percentile, 1-hour average odour contour would accordingly shrink inwards.

3.7.11. The modelling done on odours at Fremantle seems to be based on two ships over three days. This would seem an inadequate basis for recommendations at James Point, as livestock passing through Fremantle are currently fed on a low odour food process at Baldivis for some days before being transported to Fremantle. The James Point proposal will not see this happening, with livestock being brought straight to holding pens at the port. Can the operations occurring at Fremantle provide a sound basis for this proposal’s odour modelling in this regard?

Response
This response is on the basis that the Port proceeds without the livestock holding facility. Livestock exported through Fremantle arrive from two metropolitan holding facilities as well as direct from farms and the situation will be similar for exports through the proposed Kwinana Port.

As no odour emission rates for sheep could be found in the literature in early 2000, an exercise was conducted at Fremantle to establish an indicative value. During and following completion of sheep loading, two persons on four occasions spread over three days approached the vessel, from downwind, until both could detect the odour. Two of those results together with the prevailing meteorological conditions were used to back-model the odour to the source and estimate the average emission rate per sheep aboard. Following comparison with livestock emission rates cited in the literature, the lower of the two calculated values was selected.

That emission rate per animal was then used with real meteorological information from Kwinana to predict odour dispersion, for sheep at the James Point Port location. Recognising that there was a proposal to establish a livestock holding facility adjacent to the vessel berths, the model addressed cumulative odour emission rates by including the maximum number of sheep anticipated to be concurrently aboard ship and in the holding facility. The number of sheep used for the odour study is very conservative if the livestock holding facility does not proceed and the vast majority of sheep will have been in the existing feedlots prior to transfer to the Port.

It is recognised that this approach is semi-quantitative, however it is better than the qualitative approach previously agreed in discussions with the DEP, and because the loading situation will be similar to Fremantle valid comparisons can be made with the Fremantle experience.

3.7.12. It is suggested that the odour work undertaken by the proponent is underpinned by too many assumptions and is not based on enough data to gain any certainty about impacts on residents. Given these concerns, what level of certainty can be placed on the results of the odour modelling presented in the PER?

Response
The odour impact evaluation is semi-quantitative, as described in the response to question 3.7.11. On
the one hand confidence is limited by the method employed to establish the sheep odour emission rate and the uncertainties which arise in conducting dispersion modelling. Balancing this are the conservative assumptions used in the modelling, such as the number of sheep assumed to be continuously present between the Port and Livestock Holding Facility.

The objective for odour control is to not unreasonably interfere with the amenity of persons surrounding the Port. The results of the modelling and the guidelines established by the EPA are expressed as probabilities of exceedance of criteria. None of these are definitive.

JPPL is satisfied that the evaluation of the odour impact at James Point combined with the observation of the Fremantle operation provides a level of confidence sufficient to determine that odour emanating from loading of livestock through the port is not likely to unreasonably interfere with the amenity of persons surrounding the Port.

3.7.13. The odour modelling study (ERS, 2001) claims the proposal will result in improved odour control, however there is no reference point for comparison i.e. there currently isn’t a livestock holding facility at Fremantle. Hence the question to be asked is improved over what?

Response
This submission does not include or address the Livestock Holding Facility.
No reference to “improved odour control” can be found in the published odour modelling study for the Port (ERS 19 December 2000 Revision 1).

3.7.14. The odour modelling study (ERS, 2001), highlights the factors affecting the results of the odour modelling are:

a) variability in conditions on each ship and hence the odour emission will vary in relation to the total number of sheep;
b) odour detection was based on two people detecting the odour as opposed to a panel and sensitivity of individuals for odours may vary up to 50 to 100 fold;
c) limited odour sample population; and
d) standard protocols for dynamic olfactometry (the science of odour) were not followed.

Each of these four factors raises significant concerns about the accuracy and validity of the modelling.

Response

The points quoted in question 3.7.14 were cited in the ERS report as factors influencing the confidence in the derivation of a representative odour emission rate per sheep and as an explanation as to why the approach was described only as semi-quantitative. The same section of the report went on to provide two separate items of validation that the derived results were realistic and could therefore be applied with some confidence.

One validation argument is that based upon the derived odour emission rate of 1OU/sheep/second, the predicted 7OU contour for a livestock vessel at the northern berths in Fremantle Harbour would extend over numerous commercial and residential properties in North Fremantle and Northbank (only 200 metres from Berth 12), and were the vessel at the Number 2 Berth at the south-western end of the Port would extend over the E-Shed and the western edge of the Fremantle Town CBD. If this were a significant underestimate of the emission rate then it would be expected that under these circumstances a substantial complaint history would exist, and this is not the case. Fremantle Port Authority over a three year period mid-1998 to 2001 received written odour complaints from only four or five complainants. The Port also received thirty verbal complaints, a proportion of these being from the same complainants and twelve were in a single week during the three years.

Therefore the cited factors are not considered to “raise serious concerns about the accuracy and validity of the modelling”.

3.7.15. The EPA’s Guidance for the Assessment of Odours recommends that the impact predictions should cover a range of conditions such as typical impacts and reasonable worst-case
impacts. Further modelling should be carried out to ensure that:

a) A greater range of ships is covered over a longer time period;
b) Odour detection is carried out by a proper odour panel;
c) The odour sample population is expanded;
d) Standard protocols for dynamic olfactometry must be followed, and
e) The impact predictions should cover a range of conditions such as typical impacts and reasonable worst-case impacts.

Please comment on the level of certainty with regard to the prediction of odour impacts noting the above.

Response

The response to question 3.7.14 addresses confidence in the methods adopted and validation of the results obtained from the Odour Impact Evaluation study.

The EPA’s Draft Guidance for the Assessment of Odour Impacts (April 2000) cited in question 3.7.15 refers to Draft Guidance Statement No. 3 on Industrial – Residential Buffer Areas (EPA 1997). The latter Guidance recommends generic separation distances between odour sources and odour sensitive land uses (“residential areas”), which should be adopted unless more scientific studies are undertaken by a proponent, if justified.

For stockyards holding animals prior to shipment, the recommended buffer distance is 1000 metres to residential areas. Although this proposal does not address a holding facility, the criteria has been used with respect to livestock held on board a vessel. This criterion is more than satisfied in the case of the James Point Port proposal. On this basis it is questionable whether more studies are justified.

Furthermore, the approach taken to this evaluation was responsible and conservative, in that it had regard to cumulative odour emanating from both the proposed Port and the adjacent Livestock Holding Facility. The determination of the odour emission rate per animal and the approach to odour dispersion modelling was common to both proposed premises. In reference to the Livestock Holding Facility evaluation, when referring to a Works Approval Application which proceeded the PER, the EPA stated that the proponent had submitted a “competent technical document” and that it was not necessary “to issue Guidelines, noting the quality of the document already provided”.

In view of all these considerations, it is not considered necessary in this case to follow the protocols set out in question 3.7.15.

3.7.16. The odour modelling study (ERS, 2001) states that “odour detection was based on two people detecting the odour as opposed to a panel and sensitivity of individuals for odours may vary up to 50 to 100 fold”. It is therefore assumed that the extent of the distinct odour contour may be up to 100 times greater than depicted in the PER and there is very little certainty with regard to the impacts predicted. Will the proponent repeat the sampling using an odour panel to provide greater certainty?

Response

It is agreed that conducting dynamic olfactometry may increase confidence in the predictions, but for the reasons stated in response to questions 3.7.14 and 3.7.15 it is believed that the evaluation performed is appropriate to the conditions for the proposed James Point Port - in particular the presence of the industrial air quality buffer zone, the separation distance to residential areas and the operating history at Fremantle where about 200 metres separates the nearest berth used for livestock vessels and the Northbank precinct.

3.7.17. In relation to rigour of the proponent’s assessment of odour strength the following questions have been posed. How smelly were the ships used in the odour study? Was the smell typical, worse or better?

Response

The vessel used to derive the odour emission rate per sheep was the largest capacity vessel currently in service at Fremantle. No comparative odour studies are known to exist for vessels servicing Fremantle. However from limited odour complaints history at Fremantle it appears that most, if not all, vessels have received mention at some time. The vessel used for reference by ERS has been the subject of at least one odour complaint.
3.7.18. The odour modelling study (ERS, 2001) stated a number of vague unsubstantiated comments with regard to odour complaints, including the following:

a) Whilst there are odour complaints from existing operations at Fremantle Port the complaints are relatively few in consideration of commercial markets/outdoor dining facilities and residential areas being in close proximity (again indicating the relatively inoffensive nature of the odour).

b) Population numbers in the Kwinana industrial area are relatively low.

c) The model assumes the ship is on the North Quay, if the ship were on Victoria Quay then the contour would extend over the ‘E Shed’ markets that have a number of outdoor dining areas. The relatively low number of complaints from the sheep-ship loading activities indicates the model assumptions, for the emission rate and the odour criteria are representative and could be used for the proposed development at James Point.

Will these vague terms be clarified?
This confirms the need for information on complaints relating to operations at Fremantle to be provided for comparison.

**Response**

To protect privacy, neither the names nor addresses of persons making odour complaints at Fremantle are accessible to the proponents of this project. From the information that can be gleaned from the complaints history, it is concluded that most complaints are made by residents in the North Fremantle and Northbank residential precincts. A few complaints seem to have come from persons operating or visiting commercial premises in Fremantle or North Fremantle.

In the three years of complaints records sighted by the proponent, only four or five persons appear to have lodged written complaints regarding odour (one complainant sending 21 emails and letters). Thirty verbal complaints were registered in the same three year period, but the information available does not allow analysis as to the location from which the complaint originated. It does however appear that some of the complainants have made multiple complaints, and therefore the number of individual complainants is less than thirty.

Considering the extreme proximity of Fremantle Harbour berths to residential and commercial areas (about 200m to Northbank) this number of complainants over a three year period is not considered very significant.

3.7.19. Odour from livestock trading at the port is dependent on many factors, including the quality of the feed. A failure to properly manage one or more of these factors often results in unacceptable odours. Therefore there is an expectation that “plant upset's” resulting in offensive odours from the ship or livestock holding sheds will occur at a frequency and duration that is unacceptable to both workers and residents. What consideration has been given to ‘plant upsets’ in the odour modelling study (ERS, 2001)? How can ‘plant upsets’ be managed?

**Response**

The response excludes the livestock holding facility. The source of odour will be from loading operations onto vessels.

JPPL recognises the need to manage odour emissions from the Port to levels as low as reasonably possible. Apart from encouraging high standards of hygiene aboard vessels on arrival, the two most important factors are separation from sensitive receptors, which the proposed location provides with its industrial zoning and established buffer zone, and the reduction in the time vessels are in port, which is facilitated by the proposed co-location of the livestock holding facility expediting loading rates.

JPPL does not agree that failure to control “factors often results in unacceptable odours” and that “offensive odours” “will occur at a frequency and duration that is unacceptable”. If the person making this submission can provide any supporting evidence for these assertions, JPPL will be happy to address the evidence.

3.7.20. Odour complaint data from the Fremantle area may not be applicable to this proposal. Complaints to the Fremantle Council tend to be made by visitors and new residents rather than established ‘sensitised’ residents who are aware of the odour source and its transitory
Response

The information available to the proponent is for odour complaints to the Fremantle Port Authority. From the information contained in the complaints record it appears that most complaints come from local residents in close proximity to the working port berths.

3.7.21. In the EPA’s Guidance for the Assessment of Odour Impacts it states (under Complaints verification/ground truthing) that as part of the longer-term odour management, it is highly recommended that proponents perform community odour surveys and complaint verification to validate their odour predictions against the longer-term community perceptions. It is suggested that the odour modelling study should have provided significantly more data on odour complaints received due to the operations at Fremantle. The following questions are posed in this regard.

- How many complaints are received in relation to odours from trucks?
- What is the most common cause of complaints i.e. ships half full of smelly sheep from South Australia picking up more sheep in Fremantle?
- Are particular ships smellier than others? If so why?
- Are complaints seasonal for any reason?
- Are there more complaints in wet or dry weather?
- Does the quality of the feed make a difference to the intensity of the odour from the manure?
- What control does the proponent have over this?

JPPL is not the operator of the Fremantle Port and does not have access to sufficient information to authoritatively answer most of the above questions in relation to Fremantle. In an attempt to address this submission, JPPL acquired information under the provisions of the Freedom of Information Act and found that:

- Available data in relation to the Fremantle operations do not provide sufficient information to provide a valid response to the first six questions.
- The proponent has no control over the quality of feed.

The only sections of the road in Kwinana which will experience a significant increase in use by livestock trucks is Anketell Road (west of the Freeway), Rockingham Road (between Anketell Road and Beard Street) and Beard Street. On this basis the potential for additional complaints arising from trucks is minimal.

JPPL has committed (No. 3.21 & 3.22) to preparing and implementing an Odour Management Plan that will address odour controls and odour complaint handling.

JPPL has committed (No. 3.25, PER page 152) to preparing and implementing a Community Consultation Plan, including consideration of the establishment of a consultation group to facilitate dialogue between the Port and the community. It may however be more effective to use an existing consultative forum, recognising that the community has limited resources to participate in all the consultation opportunities now presented by different enterprises in the Kwinana region.

JPPL will be establishing a formal complaints management system, incorporating recording and investigation any complaints, providing feed-back to complainants and adopting feasible measures to improve odour control where identified.

3.7.22. Although sheep are held on particleboard floors on the ships and do not experience soiling problems, conditions will be different at James Point. The sheep will come straight in from farms, sometimes off green feed and they will be held at times in consistently wet weather. Different conditions could cause soiling which would increase odour. The potential of the different conditions to cause soiling should be considered and the generation of increased odour be evaluated as a consequence.
**Response**

The conditions at Kwinana for livestock export will be comparable to those currently applying in Fremantle.
3.7.23. The odour modelling study has not considered odour impacts from cattle or other animals. How will the different types of manure from different animals affect the results and finding of the odour modelling undertaken in the PER?

Response
The odour modelling performed for the James Point Port proposal assumed 110,000 sheep loaded aboard ship and 140,000 present in the adjacent holding facility. For loading operations alone, without the holding facility, these numbers are considered to be a conservative overestimate of the likely population. The total cattle in the port at any one time will be less than 25,000 and the odour impact will be less than the case of 250,000 sheep. Any cattle will replace an odour proportionate number of sheep i.e. 7.5 sheep per head of cattle.

3.7.24. Because the distance that the sheep will be travelling straight from farms is longer than from the feedlots at Mundijong and Wellard, the build up of manure and urine will be much greater. Submissions are convinced that this will result in stronger odours than are currently experienced at Fremantle. Can the comparison between the proposed trading of livestock at James Point Port and Fremantle Port in the odour modelling study (ERS, 2001) be considered inappropriate? How can the odour modelling account for the greater distances required for transporting livestock?

Response
This response excludes the Livestock Holding Facility. In the absence of a holding facility at the new port over 90% of the sheep will come from the existing feedlots and will have travelled 21 km less than if they were exported through Fremantle.

3.7.25. Will shipping delays at the proposed Port (assuming James Point Port obtains approval), which is commonplace in this industry, both in respect to actual arrival and in gaining AQIS clearance, lead to higher odour impacts? Has this been considered within the odour modelling?

Response
We do not agree that significant delays in port are “commonplace”. We do acknowledge that the odour impact will vary depending upon the conditions aboard the specific vessel, as stated in the odour impact evaluation report. Delays in arrival or the commencement of loading due to AQIS clearance are not generally a contributor to odour, as empty vessels arrive clean and do not operate the ventilation fans until stock are loaded. The odour evaluation was based upon the largest sheep vessel currently in service, when fully loaded having had stock aboard for two days.

3.7.26. The Works Approval document (September 2000) states that odour observations were made by one person. The odour modelling study (ERS, 2001), however, states that two persons were involved in the sampling. The odour observation data presented in the documents appear to be identical. Was the sampling repeated or was it the same data? As the confidence that can be ascribed to the odour strength estimates would depend on the number of people involved in sampling, some clarification is required as to which data has been used and whether a two person panel provides sufficient confidence on potential odour impacts.

Response
The odour modelling study is correct, two persons were involved in the odour observations. The Works Approval document was in error. Two persons were considered adequate for the purpose of the exercise being conducted at the time.

3.7.27. A confidence (95%) interval should be placed around the 7 OU contour to define some level of statistical certainty with respect to model outputs.

Response
It is not possible nor have our odour consultants ever seen confidence bands plotted against output contours from dispersion models.

3.7.28. The odour detection distance and meteorological data were used to back calculate an odour emission rate from the sheep ship of between 1 and 2 OU/sheep/sec. Details of the calculation used to estimate meteorological conditions (stability class in particular) should be
Response
The model inputs and outputs are documented in the Port proposal Odour Impact Evaluation report (ERS 2000) provided to the DEP and made available to other parties on request.

3.7.29. The lower value of 1 OU/sheep/sec was adopted for modelling of the proposed facility. A literature estimate of 1.2 OU/animal/s for intensive piggery operations is provided for comparison by the proponent, who states that pigs have a higher odour potential than sheep. As this may have implications for the predictions of the odour model, an explanation or reference should be provided to support this assumption.

Response
Much of the international literature on animal odour emissions addresses the more problematic animals such as pigs and poultry with high ammonia levels in their waste. References to sheep are far fewer in number. Some references have been located providing relative odours of sheep and other species.

The New Brunswick Department of Agriculture, Fisheries and Agriculture guidelines for calculating buffer distances when establishing and operating livestock facilities (1997) cites a factor of 0.7 : 1.0 for sheep compared to pigs (on an equal weight basis). The Ohio State University Bulletin 604 “Ohio Livestock Manure and Wastewater Management Guide” states that “poultry and hog wastes produce more offensive odours than cattle”. The New Brunswick guidelines cite the same livestock factor (0.7) for cattle in barn confinement and sheep (on an equal animal weight basis). Per head, beef cattle are cited as typically 6.6 times the weight of sheep. This supports the proposition that modelling based on sheep remains valid for cattle when displacing sheep in the holding facility at the ratio of 7.5 : 1. The same reference cites the ammonia content (the main odour source) of semi-solid pig manure as more than twice that of beef cattle.

3.7.30. The odour modelling study states that cattle may occasionally be held as well as sheep and that the model will be applicable for a substitution ratio of 1:7.5. This ratio represents the stated maximum number of cattle (2000) that would replace a given number of sheep (15000), but the basis of this assumption in terms of odour effects is not clear and should be clarified as appropriate.

Response
This information relates to the livestock holding facility which is excluded from this response.

3.7.31. The management and removal of animal waste from the loading facility has the potential to increase odour emissions. How will the removal of animal wastes impact upon the odour modelling predictions?

Response
The meaning of “loading facility” is uncertain but is taken to be the berth deck area and ramps used for loading livestock onto the vessels. There is no reason to believe the stock will be more odorous while in this area than any other. Animal waste deposited on the berth and ramps will be thoroughly cleaned-up after loading, as is currently the case at Fremantle. However, the James Point Port livestock berths will be specifically designed and constructed to contain any deposited waste, for easy mechanical cleaning and to direct waste into collection sumps, rather than shedding from the berth deck, in the event of rain. Collected animal waste will be regularly removed from site by contractors, the same as waste from the proposed Livestock Holding Facility and truck wash interceptor. This handling of waste is not believed to significantly impact the odour modelling predictions. It should be remembered that the odour source emission rates incorporate the animal wastes generated.

3.7.32. Impacts at near source receptors in adjacent industrial facilities may be greater than that suggested by the modelling due to “peak to mean” effects. Please comment.

Response
The “peak to mean effect” cited in the question refers to the relative characteristic of the odour experienced at a point over different averaging periods, specifically the ratio of the short-term peak odour concentration compared to some longer period average.
This ratio is explicitly used in some jurisdictions in characterising the nature of an odour impact. In New South Wales they define the peak concentration “as the maximum concentration that is exceeded no more than a specified percentage of time” (NSW EPA, Approved methods and guidance for the modelling and assessment of air pollutants in NSW).

In Western Australia, the EPA has determined that odour emissions of “distinct” intensity will not cause an unacceptable impact on amenity provided the 1 hour average is not exceeded 0.01% of the time. In determining the 1-hour odour guideline used in this evaluation, the EPA had regard to the likely presence of short-term higher concentrations (EPA Guidance No. 47, Appendix 4, Section 5.1.1). These are the parameters which were used in the odour evaluation modelling for the James Point Port, i.e. the plotted contour depicts the area beyond which it is predicted that the EPA 1-hour odour criteria will be satisfied at the specified frequency.

JPPL’s consultants advise that this is a reasonable approach to evaluation of the Port odour, as the source emission characteristics are not likely to change significantly over time-frames shorter than one hour, as for example might be the case with a short-term industrial process discharge. It is recognised that meteorological conditions will vary in that timeframe (eg. swings in wind direction), but in view of the relatively low offensiveness of the typical livestock odour, the one hour average is considered appropriate.

3.7.33. The modelling presented by the proponent does not consider potential impacts of existing odour sources, which could include cumulative or synergistic effects. How will the odour from the proposed port interact with the existing odour sources?

Response

The odour impact evaluation of the proposed Port was based on modelling which included cumulative emissions with the proposed adjacent livestock holding facility, in recognition of the similar characteristics of the odour from that source. Other emissions in the area are from manufacturing and processing industries and no published information is known to exist that would enable cumulative or synergistic effects to be evaluated.

The proposed Port is located in a heavy industrial area with a substantial established air quality buffer zone, in recognition of the reality that even at best practice there are emissions to air from industry which it is in society’s interest to separate from non-industrial land-uses.

As addressed in responding to other questions, the predicted extent of the odour footprint which will protect odour sensitive premises is well within the established air quality buffer zone.

3.7.34. Why were standard protocols for dynamic olfactometry not followed?

Response

Standard protocols for dynamic olfactometry were not followed as the complexity and cost was not considered warranted for the nature of the proposal. This is consistent with the advice from the DEP that a subjective evaluation and account was appropriate. JPPL went further by performing dispersion modelling based on an odour emission rate derived semi-quantitatively. Dynamic olfactometry is not itself a hard science, and although more rigorous in some regards, still depends on the noses of panel members detecting the odour in the sample presented. It is subject to all the same variables in collecting a representative air sample for presentation to the panel as was the case with sniffing the ambient environment downwind of the vessel studied by ERS.

In terms of a realistic approach to characterising the odour emitted by a livestock vessel, the approach taken in this evaluation is considered appropriate to the circumstances.

Impacts within the industrial area

3.7.35. Workers employed in the Kwinana Industrial Area (KIA) object to JPL’s opinion that they would be desensitised to the smell from the operation of the proposal. Submissions consider that workers should not be treated differently to other people. Why are odour impacts not being managed at the boundary of the facility?

Response

Nowhere has JPPL or its consultants stated that persons working in the surrounding industrial area would be “desensitised to the smell”. Conversely, the PER recognised that despite the control measures to be employed, there would be occasions when the livestock odour would be distinct
beyond the Port boundary. JPPL will be working actively to fulfil its responsibilities to its neighbours.

The objective of odour management is to prevent the creation of an unreasonable impact upon the amenity of persons experiencing emissions from the Port. In this regard there is clearly a difference between the amenity that persons expect in their homes and that which might be considered acceptable in a heavy industrial area.

By way of example, levels of noise assigned as acceptable in the Environmental Protection (Noise) Regulations 1997 are predicated on the basis that day-time noise levels in an industrial area may be 20dB(A) or almost 100 times louder than at noise sensitive premises and at night time 30dB(A) or 1000 times louder. Similarly, when assessing an industrial proposal at Kwinana the EPA (Bulletin No. 847) determined that it was acceptable that intermittent ambient atmospheric concentrations of chlorine gas (a toxic chemical) emitted from the plant be five times the concentration in the industrial area than they were required to be beyond the Kwinana industrial air quality buffer zone. Likewise under the provisions of the Environmental Protection (Kwinana)(Atmospheric Wastes) Policy 1999, 1-hour average sulphur dioxide ground level concentrations in the industrial area are permitted to be twice that required beyond the buffer. Even individual risk of fatality levels imposed beyond a premise boundary are considered acceptable in an industrial area when 50 times higher than in normal public places and the cumulative industrial risk is acceptable up to 100 times higher.

These levels of protection reflect the different expectations as to the quality of environment in an industrial area, the duration and frequency of attendance at the workplace compared to home and the reality that it is an industrial area – people enter it knowing what it is. This is why buffer zones are created, to provide practical separation from areas in which society wants to confidently maintain a higher standard of environment.

Having said all the above, JPPL is not taking the environment or the goodwill of its neighbours for granted. It will apply all reasonable measures within its control to minimise odour emissions from the Port. Although the modelling predicts an odour footprint extending beyond the Port boundary within which odour is predicted to exceed the EPA criteria for sensitive receptors, it should also be remembered that the criteria is extremely rigorous in that it only accommodates an odour intensity predicted to be distinct or more intense for nine 1-hour periods per year. Although there are examples of more stringent Australian criteria for odour sensitive receptors, there are also many more liberal criteria permitting higher odour intensities and/or frequencies of occurrence.

3.7.36. Concern has been expressed by Kwinana Industries regarding the potential odour impacts from the proposal. Submissions believe that it will be impossible to ensure there is no impact on the KIA and there is concern that any increased odour, particularly a new ‘rural’ odour, will be to the detriment of existing industries and businesses. Indeed the odour study concludes that large areas of the KIA within the 7OU contour are undeveloped. It would not be unreasonable to claim that the regular existence of offensive odour will reduce the likelihood of this land being developed in the future. This would not be in the best interest of the State as the heavy industrial area is limited in how much it is able to expand both in the KIA and elsewhere.

Response

Refer to response 3.7.35.

The loading operation for livestock at Kwinana will be comparable with the current situation at Fremantle, where odour impacts a significantly greater number of residences, commercial and industrial premises, and employees.

The 7OU contour is predicted based on the 99.9% 1-hour average, a very high level of protection.

While acknowledging that there will be occasional distinct livestock odours beyond the Port boundary, JPPL does not agree that odour from the Port operations will significantly detrimentally affect existing industry beyond its boundary. Nor does it believe its presence will impact the attractiveness of the surrounding vacant land. To the contrary, it is probable that the presence of a deep water port with land-backed berths in close proximity would make the area more attractive to most industries requiring heavy industrial land.

JPPL therefore believes that, on balance, it is enhancing the area.

3.7.37. Within the 7OU (odour unit) contour there are between 7 - 10 industrial premises employing...
a total of about 200 persons. Several other industries employing a total of about 1000 persons are located immediately beyond the 7 OU contour. Most of these industries have active trade union representation. Past experience suggests that in many cases workers will place demands upon employers if they are subjected to offensive odours from neighbouring premises. The potential for industrial action should be taken into account.

**Response**

Despite the fact that there are a greater number of premises and employees close to loading operations at Fremantle, the experience has not shown that the odour impact on commercial and industrial premises is such that it results in unacceptable odour levels or consequent complaints/action by employees.

JPPL is mindful of its neighbours and its duty of care to neighbours employees and will not harm the health or welfare of their neighbours. JPPL acknowledges that there will be odours and that very occasionally these may even be annoying beyond the Port boundary. That is recognised by the EPA in adopting the 99.9% frequency criteria, i.e. odour concentrations are predicted to exceed 7OU beyond the plotted contour 0.01% of the time.

3.7.38. By virtue of the moderate intensity, low frequency and non-threatening nature of the odour from the Port, JPPL does not believe that the circumstances would be “offensive” at neighbouring premises in terms of causing people harm (e.g. headaches, asthma or nausea) or unreasonably interfering with their amenity. It is anticipated that odour complaints due to the proposed development will be received from workers both within and beyond the 7OU contour and that the Town of Kwinana will be expected to take action. It is suggested that the proponent or the EPA obtain and provide the following advice:

- a) What are the most appropriate legal powers to deal with odour complaints received by Council from workers in the industrial area, where the odour is believed to emanate from the port?
- b) What are the most appropriate legal powers to deal with odour complaints made to Council by workers where the odour is believed to emanate from the livestock ships?
- c) What legal action can the DEP take if complaints are received by the DEP in relation to odours from the proposed livestock holding facility and/or ships in Kwinana?

**Response**

JPPL is not the correct party to provide such advice to the Town of Kwinana.

3.7.39. The PER states *there will be occasions on which the odour of sheep will be distinct. Persons within this area will generally be in an industrial workplace and are less likely to be sensitive to occasional sheep odour.*

The Town of Kwinana is committed to protecting the environment of workers in the Kwinana industrial areas. It would be inappropriate for the Town of Kwinana to condone any proposed development that is predicted to emit an odour that is likely to be offensive to persons living or working on neighbouring and nearby premises. The Town of Kwinana recently refused a Town Planning application and an application for consent to establish an offensive trade in the Kwinana Industrial Area. It was considered that the impacts of the proposal could not be managed to a level where provisions of the relevant planning policy could be complied with and, therefore, the proposal was contrary to the Scheme provisions.

The relevant Policy is contained under Part IV (Clause 4.3) of the Scheme, part of which includes the following provisions. "Area 15 – Kwinana Industrial Strip”. *Whereas* heavy industries (Class 1 and 2) have established under agreement acts and *whereas* airborne emissions (SO₂) cause occasional nuisance to adjacent businesses and residents and *whereas* the overall aesthetic appearance and presentation is of a low standard and *whereas* the road network and accessibility is severely limited, the following planning policy shall apply:

- (a) *The predominant use shall be general industry with the limitation that noise, vibration, groundwater pollution, airborne emissions and odours, shall not adversely affect nearby businesses or residents;"*

How does the proponent believe it can comply with the planning requirements of the local council?
Response
Refer to response to question 3.7.37.

JPPL confirms its predictions that there will be occasional distinct odours emanating from the Port and extending over the immediate surrounding industrial area, but JPPL strongly contests the proposition that occasional distinct (i.e. recognisable) odour in the industrial area beyond its premise boundary constitutes an “offensive” trade in the Kwinana Industrial Area.

JPPL strongly believes that Port operations will not significantly “adversely affect nearby businesses or residents”.

3.7.40. The odours from the proposed development are not typical of an industrial area and in a relatively odour free environment, the odours are likely to be especially noticeable and more likely to cause complaint. In the EPA’s Guidance for the Assessment of Odour Impacts it states that it is usually accepted that a distinct odour may just be able to be recognised (i.e. has a concentration equivalent to its recognition threshold). Based on its research, the EPA proposes that for an odour to contribute to annoyance, the odour must be recognisable rather than detectable. A person residing or working in a typical rural environment is routinely subjected to and generally accepts odours from typical rural industries and activities. The odour generated by large numbers of sheep in trucks and ships will be conspicuous and immediately recognisable in the centre of WA’s major heavy industrial area. This increases the likelihood of annoyance and complaints from occupiers of industrial premises. Please comment.

Response
The concentration of livestock such as will occur at the Port is more akin to an industry than a rural pursuit. While livestock odour has its own complex characteristics, the predominant odour components of cattle and sheep waste are ammonia and hydrogen sulphide (Ohio State University, “Ohio Livestock Manure and Wastewater Management Guide”; Schmidt & Jacobson 1995, “Odour and Odour Policy Criteria”), which are contained in atmospheric discharges in the Kwinana Industrial Area.

3.7.41. The proposed industry operates on a timetable that is measured in days i.e. the ships take one or two days to fill. Therefore, a “plant upset” causing offensive odour is likely to result in a window of complaints lasting several days. This raises the probability that neighbours will complain to the regulatory authorities (Council and the DEP). How will the proponent work with the regulatory authorities and what complaint response procedures will be implemented in managing the complaints from surrounding industrial premises?

Response
The response excludes the Livestock Holding Facility and its impacts.

JPPL will establish a 24-hour a day complaint contact and investigation procedure to receive reports from the public, neighbours or regulatory agencies. The timing of investigation will depend upon the severity of the circumstances being reported, and all persons making a report will receive a prompt response in the form they prefer (email, telephone or letter).

JPPL recognises that there will be instances in which under normal operations odour will be noticeable at neighbouring industrial premises and will establish close working relationships with both regulators and neighbours in order to facilitate both proactive and reactive consultations. It is however not correct to state that such incidents are “likely to result in windows of complaint lasting several days” as the majority of livestock vessels arrive and depart within two days. Probably the worst case scenario would be the very rare event of a vessel breaking down after being loaded, in which case JPPL would take all reasonable steps to facilitate the vessel’s departure and would keep interested neighbours informed of progress. These rare circumstances are no different to a plant breakdown in a processing industry. While JPPL acknowledges that under such circumstances odour may cause temporary annoyance at immediately neighbouring premises, this is an amenity impact and not a health or safety threat as might be the case in an industrial plant upset.

JPPL acknowledges that circumstances do currently arise at Fremantle where odour from a vessel may be more intrusive than normal, however it should be remembered that the nearest berth at Fremantle is only about 200m from the Northbank residential and commercial precinct. Under a typical south-
westerly wind the nearest downwind boundary at the proposed James Point Port is twice that distance. Additionally, as new livestock vessels come into service replacing older vessels the number of incidents which might evoke a complaint is expected to continue to decline.

3.7.42. Town of Kwinana receives an average of 27 odour complaints per year with many of these complaints being lodged by persons working in industrial areas. Over the past 10 years the Town of Kwinana suggests that the DEP Kwinana office has received more than 800 odour complaints in Kwinana and Rockingham, of these almost 20% were from workers in industrial areas. Significant resources are expended by both Kwinana Council and DEP in investigating, validating and where possible remedying these complaints. It would be inappropriate for the Town of Kwinana to condone any proposed development that is predicted to emit an odour that is likely to be offensive to persons living or working on neighbouring and nearby premises.

Response
Refer to responses 3.7.18 and 3.7.39.

Fremantle Harbour contains numerous facility operators and contractors. To the best of JPPL’s knowledge FPA has not in the last three years recorded any odour complaints from business operators or persons within the Port area. Livestock vessels may be berthed at Fremantle Harbour in very close proximity to residential and commercial precincts and yet over the last three years it appears that only four or five persons have been sufficiently aggrieved to lodge written complaints with the FPA. Additionally, 30 verbal complaints have been recorded, many apparently from the same complainants.

The Department of Environmental Protection advise (DEP letter 28 June 2001) that over the preceding 3 years it had not received any odour complaints pertaining to the Wellard livestock holding facility in Baldivis, despite its proximity to the south-east of Kwinana. Likewise neither the Town of Kwinana nor the City of Rockingham has received any complaints.

This suggests that the nature of livestock handling operations is not as likely to cause such impact upon amenity or peace of mind as to generate complaints as reflected in the numbers cited in Response 3.7.42 for other Kwinana industrial operations.

3.7.43. The impacts of odour on the Naval Base Hotel are not discussed in the PER. Will people who live in the hotel and patrons of the Naval Base Hotel, be able to detect odour as a result of the livestock facility? What assurances are given that odour will not impact on patrons of the Naval Base Hotel?

Response
This response excludes the Livestock Holding Facility.

As stated in response to other questions above, JPPL acknowledges that modelling predicts that odour may be experienced at an intensity that is distinct at very low frequencies (< 0.01%) beyond the depicted 7 OU contour.

The Naval Base Hotel is sited within the Kwinana Heavy Industrial Area beside a road carrying over 30,000 vehicles per day, approximately 1.5km from the proposed Port and slightly (approximately 200 m) beyond the predicted 7 OU contour depicted in the PER. At this distance a livestock odour may be distinguishable outdoors very occasionally but, even allowing for the uncertainties in the predictive modelling, it is not likely that this will significantly impact amenity at the Naval Base Hotel. By comparison:

- The Railway Hotel is within 300 m of livestock loading at Berths 11/12 Fremantle;
- The Swan Hotel is within 300 m;
- The Left Bank is within 1000 m; and
- North Bank residential development is within 300 m.

3.7.44. The PER discusses a draft criterion for acceptable odours in residential areas but does not discuss an acceptable criterion in the workplace. It is acknowledged that workplaces have lower levels of protection than residential areas for other environmental impacts. A draft criterion should also be established for odour in the workplace and this proposal assessed against that criterion. What criterion does the proponent consider should supply to the
workplace environment?

Response
The question posed is one which requires determination by the EPA. It should be noted that other regulatory advisors strongly counsel that, due to the uncertainty in odour measurement and dispersion modelling, odour levels should be used in decision making but should not be the decision-maker with regards to a proposal proceeding.

3.7.45. A submission representing an industrial premise within the 7 OU contour believes that employees are likely to experience health issues associated with odour from the proposal. Have health related impacts from odour on adjacent employees of adjacent premises been considered?

Response
JPPL has no knowledge of any health issues associated with livestock odour and despite close involvement by its participants in the livestock export trade has experienced no employee health issues associated with livestock odour. Livestock loading has been undertaken in Fremantle for more than 20 years, impacting a far greater number of people in close proximity than will occur at Kwinana and there are no recorded incidents of related health concerns.

3.7.46. There is no modelling of any degree of odour other than 7OUs and no data given to allow the public to assess the odour impacts on its premises or members. In terms of odour units and odour intensity, what odour levels will nearby industrial premises be subjected to?

Response
Near-field odour concentrations have not been determined as there are no criteria for industrial premises. However, for the current export operation at Fremantle, there are al fresco dining, residential and commercial premises within a few hundred metres of operating berths used to ship livestock.

3.7.47. A submitter from within the 7 OU contour believes that levels of 3 OU are appropriate to the level of occupancy for adjacent industrial premises. What measures can be taken to ensure employees within the industrial area do not experience odour levels greater than 3 OU?

Response
Refer to response to question 3.7.44.

3 OU is just above the detection limit and below the recognition threshold. By proposing a 3 OU limit within the heavy industrial area, submission 3.7.47 is asserting that a recognisable odour should never (not even at a very low frequency) be permitted to extend beyond a premise boundary. This is simply not a realistic criterion for the Kwinana heavy industrial area. It may be conceivable for a few privileged industries that hold vast areas of land surrounding their operations, but will preclude many valuable and appropriate uses of the mosaic of remaining parcels of land. The recognition by government, regulatory agencies and industry is well established, that an air quality buffer zone exists to separate a zone of air quality considered appropriate to an industrial area from the quality that society wants to maintain beyond the industrial area.

The acceptance of lower air quality within the industrial area, even where the potential impact may be upon health rather than just amenity, is based on risk assessment. Persons working within the area are exposed for only a proportion of the time compared to persons in residential areas whom it is presumed may be exposed continually. It is also accepted that persons working in the industrial area are there on a semi-voluntary basis and are also better able to respond to adverse changes in air quality than persons at sensitive premises such as hospitals or schools. An odour emission, which is not an air toxic, should not be treated more severely.

3.7.48. Issues of concern to surrounding industrial premises include the impacts of air quality, in particular dust burden and odour and personnel safety (due to the usage of road transport associated with the proposal). It has been suggested that the proponent should enter into binding agreements for compensation, funding of plant modifications or remediation of impacts due to the livestock holding facility developments. Will the proponent enter into binding agreements with affected parties to compensate for any additional costs that may be incurred by the surrounding industries as a result of the proposal?
Response
This response excludes the livestock holding facility. It only addresses the JPPL Stage 1 port.

3.7.49. Sensitive land uses as defined in the EPA Assessment of Odour Impacts (draft) include residential, childcare facilities and hospitals etc. Potential impacts on personnel working in premises adjacent to an odour source is not considered explicitly, however, it is noted that section 49 (1) and (5) of the Environmental Protection Act 1986 states that:

49. (1) “unreasonable emission” means an emission of noise, odour or electromagnetic radiation which unreasonably interferes with the health, welfare, convenience, comfort or amenity of any person”

49. (5) A person who –
(a) emits an unreasonable emission from any premises; or
(b) causes an unreasonable emission to be emitted from any premises, commits an offence. What assurances will the proponent provide to adjacent premises that odour from proposal implementation will not ‘unreasonably interfere’ with the health, welfare, convenience, comfort or amenity of any persons?

Response
Refer to responses to questions 3.7.18, 39, 42, 43, 44 and 47.

As stated numerous times in responding to previous questions, from direct knowledge and experience of the circumstances of livestock export through the Port of Fremantle, and having regard to the established acceptance of differential air quality within the Kwinana Industrial Area compared to more sensitive land-uses, JPPL is firmly of the view that the health, welfare, convenience, comfort amenity of persons working in the industrial areas around the proposed James Point Port will not be unreasonably impacted.

Odour management
3.7.50. What design changes could be made to the structure of the loading facilities to reduce the impacts of odour?

Response
JPPL cannot at this time identify any changes that could be made to the structure of the livestock loading facilities to further reduce the odour emissions. However, some of the major initiatives to reduce odour will be the efficient loading of vessels, reduced vessel time in Port, positioning vessels to minimise odour impact outside the Port boundary and immediate cleanup of waste on completion of loading.

3.7.51. What odour control technologies can be implemented to reduce the impacts of odour? Has the proponent considered the different available technologies and ‘best-practice’ management methods of odour control in the PER?

Response
Refer also to 3.7.50

Loading livestock onto vessels is a fairly simple and low technology process with limited opportunity to adopt odour control technologies. JPPL will ensure that any waste deposited by livestock will be promptly and thoroughly cleaned-up and removed from site following loading.

3.7.52. There is concern that, no amelioration activities have been identified that could be taken to minimise odour impacts. Ameliorative measures should be identified and considered to manage odour impacts and also to demonstrate ‘best-practice’ odour management.

Response
Refer to response to question 3.7.50 and 3.7.51.
3.7.53. What measures will or can be taken to avoid odour impact on recreational users of Cockburn Sound i.e. boating, swimming etc.?

**Response**

Refer to response to question 3.7.50 and 3.7.51.

3.7.54. The proponent has not made any commitments about enforceable actions in the event of repeated complaints or excessive odour. Will the proponent commit to ongoing monitoring, investigation of complaints and remedial actions if allowable odour levels and durations are exceeded?

**Response**

Refer to response to question 3.7.21 regarding an Odour Management Plan, including complaints handling and investigation.

While JPPL is convinced that surrounding amenity will not be unreasonably impacted by odour from the Port, should persistent substantiated complaints result from Port operation JPPL will adopt any reasonable and practicable measures to control the cause of the offensive odour.

3.7.55. Submissions have requested specific details and commitments to be required of the proponent in regard to measures for continuous odour monitoring, verification, reporting and follow up action. What arrangements are in place for continuous odour monitoring, verification, reporting and follow up action to occur during project implementation?

**Response**

Refer to response to question 3.7.21 regarding an Odour Management Plan, including complaints handling and investigation.

No odour complaints registration and investigation arrangements are currently in place but will be developed and implemented prior to commencing livestock loading operations at the Port.

3.7.56. The predictions made in the PER with regard to impacts of odour should be verified during project implementation and the results of verification should feedback into the environmental management of the facility. How will the predictions of odour impact be verified during the implementation of the proposal and how will it feed back into environmental management of the proposal?

**Response**

Direct verification of the predicted extent of the 99.9% 7 OU 1-hour average odour contour is not feasible.

JPPL will routinely evaluate the results of its own observations of odour emissions from the Port premise and any off-site reports, to establish whether any pattern of odour emissions is identified which might constitute an unreasonable impact. The results of this evaluation will be reviewed to establish any reasonable and practicable additional measures which can be adopted to mitigate such impact.

3.7.57. The proponent should commit to maintaining a detailed and comprehensive complaints register.

**Response**

JPPL has committed to maintaining a detailed and comprehensive complaints register. Refer to response to question 3.7.21 regarding an Odour Management Plan, including complaints handling and investigation.
3.7.58. How will the 7 OU odour criteria proposed in the PER be adopted and incorporated within the Minister’s statement of approval to ensure that the odour criteria are enforceable?

**Response**

This is a question for the Environmental Protection Authority and the Minister to address. In terms of the provisions of the Environmental Protection Act 1986, it is an offence to emit an unreasonable emission from a premise. James Point Port will be subject to this law and the Department of Environmental Protection’s enforcement policy.

**Impacts from transport of livestock en route**

3.7.59. Impacts from off-site operations such as the transport of livestock have not been considered in the PER. How will odour from trucking livestock to the port affect the amenity of residents who live along the transport routes?

**Response**

The proposed trucking routes to the Port involve less exposure of residents to odour along the transport routes to the James Point Port than to Fremantle Port. There will therefore be a net benefit to the residents of the Perth metropolitan area of removing these trucks from roads in densely built-up areas. The prime route into the Port direct from farms will be along Anketell Road which is predominantly through rural lots, poultry sheds, bushland and mineral processing waste ponds. Stock originating from existing holding facilities (which equates to about 90% of the sheep exported) will use the same or similar routes as they follow to Fremantle for the section from feedlots to the intersection of the Kwinana Freeway and Anketell Road.

From that point, the existing route to Fremantle (Freeway, Leach Highway and Stirling Street) will be replaced by Anketell Road (west of Freeway), Rockingham Road and Baird Street resulting in a saving of 21 km per truck movement and impact on significantly fewer residences adjacent to the transport routes.

3.7.60. The proposed truck routes suggest that the majority of trucks use Anketell Road. Currently this road is connecting the Kwinana Industrial Area and areas to the east. An increase in heavy vehicle movements along this road would impact on a number of Special Rural (2ha) properties. Given that these vehicles are likely to have an associated odour the effect on these landowners could be significant. It is possible that urban development could occur adjacent to Anketell. The preferred concept for the Jandakot Structure Plan (as at August 2000) identified areas adjacent to Anketell Road for future urban development. As such the number of people affected by the proposed transport routes could be greater. The PER has not assessed the impacts to the possible future residential population along Anketell Road.

**Response**

Refer to the response to question 3.7.59.

Land surrounding Anketell Road between the Kwinana Freeway and Rockingham Road is currently zoned “Rural” or “Parks and Recreation” (The Spectacles wetlands).

JPPL acknowledges that the three residences along Anketell Road may experience livestock transport odour which is not currently the case. As stated in question 3.7.60, these properties are sizeable Special Rural lots, and any odour experienced from livestock transport trucks will be a rural odour. Balancing this relatively minor impact, a significant reduction will be achieved in livestock transport along Leach Highway and Stirling Street.

3.8. **Light**

3.8.1. The use of high-density lighting at the facility can disrupt the amenity of nearby residents and encourage noise and movement from the animals when they might be normally resting. Will high-density lighting be used at the facility? Have the impacts of light spill been evaluated on increasing noise from livestock and the amenity of nearby residents?

**Response**

Lighting at the Port will be sufficient to provide for safe operations and security and will be operated only on an as-needed basis. The Port is remote from residential areas, however lighting facilities will be constructed so as not to unreasonably impact beyond the Port boundary.
Based upon extensive experience in the livestock export trade JPPL disputes the suggestion that Port lighting will “encourage noise and movement from the animals when they might normally be resting”. The livestock at the Port will be either in the process of loading, in which case they would not normally be resting, or aboard ship, in which case Port lighting has no impact.

4. Social Factors and Issues
4.1. Recreation and commercial
Beach access
4.1.1. The PER states, “Public access to much of the area to be incorporated into the proposal is restricted. Currently, unauthorised use is made of the sandy beach located north of the existing BHPT#1 jetty, mainly for exercising of horses. This Beach will be reclaimed and the area will become part of the Port facility. Public access will continue to be restricted to reduce unnecessary public risk.”

The proponent’s analysis on the impacts on recreational use of the beach is inadequate. While the proponent claims that the recreational use of the beach is unauthorised, this use represents a cultural and social connection by many people in the community for at least 50 years. The proponent appears to have made little effort to identify a profile of recreational users of Barter beach and it is of concern to note that the interests of about 10 commercial bait fishermen has been entirely overlooked in the proponent’s consultation process.

The Town of Kwinana identified a considerable number of users of Barter Road Beach and many of these users claim to have continuously enjoyed the beach environment for decades. It should be noted that there are only 3 km of public beaches in 17 km of coastline in this area. Users include professional racehorse trainers, social horse and pony owners, dog owners, recreational fishermen and commercial bait fishermen. Many of these Beach users live in distant suburbs including Armadale and they have learned of the proposed Beach closure by word of mouth.

The level of consultation undertaken by the proponent is not considered to be satisfactory and the proponent should be required to carry out a proper social impact study including the identification of Beach users and a survey to identify the number of users, and possible alternative options of allocating sections of the beach to recreational users.

With the loss of Barter Road beach, where are the residents supposed to enjoy recreation on the shores of Cockburn Sound?

Response
JPPL proposes to acquire land which is owned under Freehold title by the WA Government and which has about 900 m of water frontage in the area known as Barter Beach. The land title extends to the high water mark.

The land is administered by LandCorp and has been allocated for port purposes for many years.

The WA Government, in calling for proposals for a private port, invited respondents to consider about 8 km of coastline including this area.

JPPL has had its proposal for a Private port accepted and has signed a contract with the WA Government based on its proposal—which incorporates the land in question and Barter Beach in the area for the development of land backed berth facilities.

There is an alternative exercise beach allocated for horses in the Rockingham Shire immediately north of the Kwinana Grain Jetty. JPPL’s currently proposed development will leave a portion of Barter Beach (450 m out of a total length of 1300 m) available for alternative uses such as swimming of horses and bait fishing.

The foreshore to the BHP land holding immediately south of the proposed Stage 1 development is included in the overall concept for the private port as contained in JPPL’s contract with Government.

With this in mind, JPPL is approaching LandCorp to request that the foreshore strip of BHP land be made available for port purposes and that JPPL have the opportunity to purchase it.

If this is achieved then JPPL can move its Stage 1 development in a southerly direction and free up a total of about 800 m (over 50%) of the Barter beach strip for alternative use.

JPPL has consulted with a representative of the horse fraternity and presented this as an option.
4.1.2. The Town of Kwinana’s Town Planning Scheme reflects the Barter beach area as Local Parks and Recreation Reserve. This does not of itself enable public access but would provide Council power to determine Development Applications having regard to the intended purpose of the Reserve. The purpose of the Reserve could be to protect the foreshore and if the risks and hazard issues are resolved satisfactorily, to allow public access to the area, possibly after acquisition. Will the proponent consult with the relevant decision making authorities with a view of resolving the risks and hazard issues associated with the proposal and hence, maintain public access to the adjacent beach area?

**Response**

Refer also to 4.1.1.

Yes the proponent will consult with all relevant decision makers to seek an amicable resolution to the conflicting use requirements for Barter Beach.

4.1.3. The current types of use of the Barter Road beach do not result in conflict between users. If the area was to be further restricted this may result in increased conflict between users of other beach areas. What consideration has been given to the issues of conflict between different recreational users of other beaches? Will other beaches be subject to increased environmental pressures as a result? How could this be managed?

**Response**

Horse exercise/riding is the primary use of Barter Beach which could impact on other beaches if the activity is transferred. There is an alternative beach in reasonable proximity which is allocated to horses (north of Kwinana Grain Jetty) and from observation the transfer of the horse activity to this beach will not cause undue conflict or environmental concern.

4.1.4. In the future, if Cockburn Sound is to be available for shared recreational use there will be a very high value placed on areas where people can have access to the Sound. Retaining the Barter Road Beach would retain flexibility of use of the site for the future. Has the potential values of the Barter Road beach been considered by the proponent in the context of evaluating alternative locations?

**Response**

There are no identified alternative locations suitable for the development of a general cargo port approximate to Perth which are logistically suitable and commercially viable and which cause less social and/or environmental impact.

4.1.5. Submissions consider the proposal offers an opportunity to rationalise the shipping facilities at Kwinana and make available beaches that are currently not available for public use. If the proposal is to be approved in its current design, then it should be a requirement that the proponent enter into an agreement with the nearby industries to relocate their shipping activity to this new facility. The existing berthing structures and groynes could then be removed and the beaches re-established. This would ensure that the beach lost as a result of the proposal is replaced with other beaches currently not available to the public. What options have been considered with a view rationalising infrastructure and of accommodating the existing recreational uses?

**Response**

There are currently six commercial jetty structures in Cockburn Sound. Of these:

- The Kwinana Grain Jetty, the BP Refinery Jetty and the Alcoa Alumina Jetty are private structures dedicated to the major industries they service.
- The Fremantle Port Authority owned Bulk Cargo Jetty is located adjacent to CSBP and services industries which are predominantly sited adjacent to the jetty and have pipeline and or conveyor connections to the jetty.

There is no scope to consolidate the activities from these four facilities onto an alternative facility. The remaining two jetties are:

- The BHP Number One Jetty which is derelict and has been substantially unused for more than 15 years.
years.

- The BHP Number Two Jetty which provides a service to third parties for the import/export of bulk materials.

The proposed new Port is intended to absorb the Number One Jetty in its development and will provide an alternative facility to the BHP Number Two Jetty for bulk cargoes.

It will be a newer facility incorporating better technology and environmental controls for bulk cargoes and it will also provide a facility suitable for general cargo which does not currently exist at Kwinana.

It is sited at the most suitable location in Cockburn Sound with respect to minimising social and environmental impacts and its construction will remove the need to develop alternative facilities in the sound at less suitable locations.

Most of the foreshore in the Kwinana strip is prohibited public access because of private ownership of land by industry to the water line and because of safety issues related to proximity to industry.

For the same reason most of the foreshore is unavailable for port development.

The proposed Stage 1 development is sited within the only location in the Kwinana heavy industry strip which is readily available and suitable for port development. Notwithstanding, the proponent will explore an option as outlined in the response to 4.1.1 to move Stage 1 in a southerly direction to free up part of Barter Beach for other uses.

4.1.6. A submitter has indicated that LandCorp was in the process of arranging to prepare an appropriate lease for the area with a view to ‘assist in the management of this informal recreational area’. The submitter has consequently raised the question as to why the PER did not mention the draft lease of the Barter Road Beach, which was to be prepared by Town of Kwinana and LandCorp?

**Response**

JPPL was advised by the Department of Transport that LandCorp had been approached by the Town of Kwinana with a proposal to grant the Town of Kwinana a short term lease which would enable the Town of Kwinana to apply its by-laws to manage public use of the beach until the area was required for other purposes. The Department of Transport, after consultation with JPPL, advised LandCorp it had no objection to such an arrangement until the land was required for the port development.

4.1.7. Submissions believe that no development at Barter Beach Road should take place until such time as another beach of equivalent size and suitability for horse exercise is established in the Kwinana/Rockingham area.

**Response**

There is an alternative beach north of the Kwinana Grain Jetty which is 1.2 km long and which the Rockingham Council has made available for horse use.

4.1.8. A significant number of people currently exercise their horses and dogs at Barter Beach. The WA Trotting Association has provided Town of Kwinana with a list of 2600 persons who live in the South Metropolitan area and have either used Barter Beach for training horses or may wish to use it in the future. Barter Beach is the most appropriate beach to be maintained as a horse exercise beach in the area from Fremantle to Mandurah. Submissions believe that the enduring recreational access and use of Barter Beach should be maintained and either:

- The Port should not be constructed, or
- The Port should be relocated, or
- If approved, the Port should be redesigned to accommodate continued access to Barter Beach for recreational users and commercial bait fishermen.
- The State Government should fund a process aimed at the provision of an alternative horse (animal) beach within the region. This process should involve all stakeholders including local government and horse industry representatives.

Please comment in relation to the above points.

**Response**

Refer to previous answers above.
JPPL has met Alan Parker representing the horse fraternity and raised the option of moving Stage 1 of the port south to free up about half of Barter Beach. The option is dependant on JPPL acquiring the BHP foreshore land.

**Fishing and commercial activities**

4.1.9. Barter beach is considered to be an important community asset and is used by commercial bait fisherman for bait fishing. Concerns have been expressed that under the James Point proposal, the fishermen will lose access to approximately one kilometre of beach, which they have fished at for over thirty years. Coupled with the other beaches, which they have lost in Cockburn Sound, this will greatly affect their incomes and livelihood. Although the PER states that the breakwater would provide fish habitat, this would not replace the beach for commercial beach fishing. For recreational beach fishers, the breakwater would largely be inaccessible. Submissions are concerned that there are no commitments or management measures in the PER to mitigate the impacts on commercial and recreational fisheries. Submissions consider that for the proponent to comply with the EPA’s guidelines, the proponent should consult with the fishermen’s representative association (the Cockburn Sound Professional Fishermen’s Association) with a view to cover the potential impacts of the port proposal, management and mitigation options and compensation. How will the impacts of the proposal on fisheries be managed and mitigated? Will the fisherman be compensated for their loss of income?

**Response**

Of the 1300 m of beach between BHP and Western Power’s water intake the Stage 1 proposal leaves about 450 m available. If the move of Stage 1 south is achieved about 800 m of beach will remain available.

The West Coast Beach Bait (Fish Net) Managed Fishery extends from Lancelin in the north to Tim’s Thicket in the south. It is considered by Fisheries (2000) to be fully exploited and in 1999-2000 had a total annual value to fishers of about $200,000. The beach bait fishery at Bunbury is considerably larger.

4.1.10. The aquaculture industry in Cockburn Sound is seriously concerned that the proposal will add to nutrient contamination of the groundwater, which will ultimately find its way to the Sound and increase the risk of algal blooms in the region. Any issue or proposal which has the potential to add to the risk of contamination of mussels and other shellfish, results in additional testing and costs in risk management. The industry would be concerned if new outfalls were created. The industry is also concerned in the case of extremely high rainfall events bacterially contaminated faecal material will find its way to the marine environment. The Sound can no longer tolerate further contamination. Already there are frequent closures (for public health safety reasons) shellfish collecting areas in the sound. Public confidence in the safety of eating Cockburn Sound mussels is essential to the viability of the industry. What assurance can the proponent provide to the public that at no stage will nutrients, or any other contaminants, such as bacterially contaminated faecal material, originating from the development find their way into the Sound? If contaminants are expected to be discharged then the proponent should advise what the contaminants will be and the levels in any discharge or run-off and whether the levels will impact the aquaculture industry.

**Response**

JPPL understand that the aquaculture industry is concerned and that the industry is mature and provides significant revenue to its operators. JPPL will consult with the industry during the preparation of its Dredge and Water Quality Management Plans.

However, the mussel aquaculture beds are at least 4.5 km south of the port and will be impacted by the outfalls south of the port and berthing and docking activities at the CSBP jetty to a far great extent than any activities at the port.

The port will not result in additional outfalls to the Sound.

The proposed port will also handle bulk cargoes which otherwise may be handled at the Bulk Cargo Jetty which is much closer to the mussel leases or may be handled at the BHP Number 2 Jetty. The technology and methods to be used at the proposed port will ensure that rigorous controls are in place to minimise spillage and pollution.
Livestock ships will not be washed down into the Sound, nor will livestock waste be discharged to the Sound. The control of impacts from livestock vessels will form an explicit component of the Water Quality Management Plan for the Sound.

JPPL will undertake phytoplankton monitoring within the port and inform the DEP, Health Department and the mussel growers if potentially harmful species are detected at levels above the Health Department criteria.

4.1.11. Submissions have indicated that the James Point proposal area is one where crabs have continued to be caught on a regular basis despite seagrass loss and, is therefore, extensively used by recreational boaters. How will the proposal impact upon the fishing and crabbing activities in the James Point area?

Response
The cargoes to be handled at the new port are similar to those being handled in Fremantle Inner Harbour and at the BHP Number Two Jetty and FPA Bulk Cargo Jetty.

The environmental controls will be equal to or more rigorous than those currently applying. There will however be an extension to the water area which is subject to restricted access due to commercial vessel movement as indicated by the proposed private port boundaries. JPPL does not expect any deterioration in water quality due to the new port but does acknowledge an increase in the area of restricted access.

4.1.12. What guarantee will be provided to the public that fish and crustaceans that have fed in these waters will be safe to eat when captured outside the harbour?

Response
The activities conducted within the port would otherwise occur in the Fremantle Inner Harbour or at alternative existing or new facilities in Cockburn Sound.

The port and its standard operations will not jeopardise the quality of fish and crustaceans caught outside the harbour.

JPPL will have strict operating procedures in place to reduce the risk of spills or other incidents which may compromise the water quality. In the event of an incident which has a potential impact on the quality of seafood in the region, the Health Department, DEP, CSMC and Fisheries will be notified immediately.

4.1.13. Will the proponent be erecting warnings in the area surrounding the harbour advising the public that pollution from within this facility is likely to render seafood that enter the area unfit for human consumption regardless of where they are caught?

Response
Such signs will not be required as the port will not affect the quality of fish caught in the area. In the event of an incident where public health may be at risk, the Health Department or CSMC may arrange for temporary signage to be erected.

4.1.14. The proposal may result in frequent phytoplankton blooms. Phytoplankton blooms may include the presence of phytoplankton species that produce bio-toxins that can affect local mussels and shellfish. This in turn can lead to the closure of mussel farms in the Cockburn Sound. What assurances can the proponent provide that potentially toxic phytoplankton blooms will not occur in the proposed port? What contingency measures are in place in the event a potentially toxic phytoplankton bloom occurs? What communication procedures will be in place, between the proponent and the aquaculture industry, in the event of a potentially toxic phytoplankton bloom?

Response
The nutrient concentrations and residence times within the port will only be marginally higher than that elsewhere on the eastern margin and the port will not result in frequent phytoplankton blooms. As part of the Water Quality Management Plan, JPPL will incorporate the guidelines used by WASQAP and in the event of a potentially harmful bloom, the aquaculture industry, Fisheries, CSMC, DEP and Health Department will be informed immediately.
Communication procedures will be clearly set out and consistent with those currently used by Waters and Rivers Commission and WASQAP.

4.1.15. The PER has indicated that the entire area delineated on charts by the “port limits” is to be closed to commercial and recreational fishers. Submissions are concerned that the port limits proposed includes an area well away from the Stage 1 development (it includes the stage 2 development area). Furthermore, it includes the seaward side of the breakwater. Submissions consider that the proposed port limits should be restricted to the minimum area necessary to accommodate recreational and commercial fishers. Submissions ask why, in the event that stage 1 is approved, that fishing should be excluded from these areas.

Response
The port area and port boundary will be adjusted over time only to include the area necessary to ensure the safety of operations and of the public. The initial area will be limited to that shown as the Stage1 Port limits.

4.1.16. The PER document reports modelling work which has been carried out on the impact of the port development on the BP cooling water discharge however, there is no acknowledgement of the fact that the plume acts as a fish aggregation site in winter and is fished by fishermen at the site known as “Kay’s Bank”. The proponent intends to include this area in the port limits despite the fact that it is not close to the stage 1 development. To what extent were the impacts of the proposal on the recreational and commercial fishing in this area considered? How does the proponent intend to mitigate the impacts of the proposal on the fishing opportunities in the area known as ‘Kay’s Bank’? Will the proponent compensate those who will suffer commercial loss?

Response
Refer to 4.1.15 above.
JPPL will restrict public access within port boundaries only to the extent necessary to ensure the safety of operations and of the public.
JPPL will not compensate commercial fishing losses associated with the port development as the port is being constructed in an industrial area. The port breakwaters will provide increased fish protection and breeding habitat.

Boating
4.1.17. Cockburn Sound is intensely used by recreational boat users. The plight of animals on sheep ships is a highly emotive issue. Livestock transportation within Cockburn Sound is incompatible with an area of high recreation usage.

Response
There will be significantly less exposure of export livestock if the trade is conducted through Kwinana rather than Fremantle. The proponent contends that the welfare of livestock on vessels is well controlled and regulated. Also there is no ability to observe the condition of the livestock once on board either from the adjacent berth or from an adjacent craft.

4.1.18. Submissions believe the Port will have a significant impact on the recreational facilities in Cockburn Sound, as well as the amenity of recreational boating in and around Cockburn Sound. Submissions ask whether the percentage of Cockburn Sound planned for commercial versus recreational use will rise as a result the proposal and, therefore, impact upon the recreational boating opportunities of Cockburn Sound. What are the impacts of increased shipping in Cockburn Sound on recreational safety and amenity?

Response
There will, in time, be the need for additional port facilities in Cockburn Sound and JPPL believes that this proposal will have the least impact, both socially and environmentally, of all of the options which are available and comply with existing legislation aimed at preventing potential conflict. There will be very little impact on the recreational boating opportunities within Cockburn Sound.

Social impact study
4.1.19. There is considerable community concern that the PER did not include a social impact study.
The PER should include a social impact study to enable an analysis of the socio economic impacts predicted due to this proposal. The study should address questions and matters such as:

- The likely impact upon Fremantle port and the existing feedlot owners, workers and communities;
- The likely economic impact upon the horse racing industry;
- The likely economic impact of an outbreak of disease resulting in quarantine closure of the port and the livestock holding facility;
- Employment impacts on both the Kwinana and the Fremantle areas;
- Traffic Impacts;
- Visual amenity, especially from the Rockingham Beachfront;
- Amenity impacts from odours on businesses in the area, especially the Rockingham beachfront;
- Loss of recreation opportunities through the loss of beach; and
- Impact on the nearby Kwinana workforce because of the odour levels (including economic – i.e. would workers be seeking a special “odour” allowance or other compensation to work when stock is being handled and loaded).

Please comment on the above questions and matters.

Response

With respect to the matters raised:

- The proposed new port is regarded by those in the livestock export industry as having a beneficial result for the industry.
- The one exception is the Livestock Transport Association whose members will lose business because the transport distance from existing feedlots to port will be reduced by 21 km in the case of Kwinana versus Fremantle resulting in a reduction of an estimated 190,000 truck km per year of transport requirements (if all livestock export transfers from Fremantle to Kwinana).
- The impact on Fremantle Port will be determined by the commercial competitiveness of Fremantle as the proposed port will not replace Fremantle but will compete with Fremantle. It is likely that Fremantle’s rate of growth will be reduced and ultimately the use of Fremantle will reach an upper level driven by capacity and competitiveness.
- The economic impact on the horse racing industry will be limited. There is an alternative beach for horses in the Rockingham Shire which is within 6 km of the site of the proposed port. If JPPL can achieve a move south of its Stage 1 development, then about 800 metres of Barter Beach will remain for other uses.
- The export of livestock will be similar to the current operation in Fremantle. The likelihood of disease is not different to the current circumstance and the consequences are the same.
- The majority of the persons employed specifically on livestock export in Fremantle IH are involved in stevedoring which is currently undertaken by Western Stevedores. There is no significant impact on these persons resulting from a transfer to Kwinana.
- The port development and operation at Kwinana will create employment opportunities in the region.

An estimate of full time equivalent jobs at Kwinana is:

- Development 20 jobs for two years
- Operation Initially 50, growing as the port expands

Traffic impacts have been addressed in the PER.

In summary the major impacts will be to:

- Reduce overall truck kilometres (by resulting in Kwinana cargo moving through the Kwinana Port, by giving customers an opportunity to consider road transport economics when selecting Fremantle or Kwinana as the port of choice and by reducing the distance from feedlot to port in the case of livestock)
- Transfer traffic from the congested roads of Leach Highway and Stirling Road to Anketell Road.
• Offer improved road transport access to the port through the major arterial road system.

The visual amenity will not be materially affected as demonstrated by the photo impressions (generated for the Livestock Holding Facility proposal) included as Appendix A.

The odour impacts have been addressed elsewhere within this submission.

The loss of beach recreation has an impact on a limited number of users other than the horse fraternity and this has been addressed elsewhere in this submission.

4.1.20. Broad concerns have been expressed regarding the loss of Barter Beach because many people use the beach and have used the beach for many years. Furthermore, submissions are concerned that the proponent did not undertake a survey of beach users. Considerable submissions believe that a social impact study should have been carried out:

- To identify users of the Barter Beach and find out where the alternative beaches are and whether they are able to cope with additional users; and
- To determine the community’s opinion about the live sheep trade and to identify opportunities for making the trade more acceptable to the community if possible.

Please comment.

Response

The major impact from the loss of Barter beach is to the horse fraternity and this has been addressed elsewhere. The community attitude to the livestock sheep trade is beyond the scope of environmental assessment of the suitability of the proposed port for the trade. However, the use of the Kwinana Port for the trade offers the opportunity to improve the handling of the stock including the loading onto vessel with benefits to the welfare of the stock.

4.1.21. Submissions have requested a social impact study be undertaken to address the 22 families who reside at Naval Base, patrons and residents of the Naval Base hotel (900 metres from proposed port) and the deli/lunch bar and medical centre located approximately 900 metres from the proposed port.

Response

As documented following the response to 1.1.1, JPPL contends that the Naval Base Hotel and Deli Bar are more than 1,000 metres from the proposed livestock loading operation.

4.2. Heritage

4.2.1. All Aboriginal sites are protected under the auspices of the Aboriginal Heritage Act 1972 (AHA) whether they are/are not listed on the Sites Register maintained by the AAD. AAD recommends that prior to any developments commencing that archaeological surveys and ethnographic consultations be conducted with local Aboriginal Communities and Native Title claimants. Reports detailing these investigations should be lodged with the AAD.

Response

JPPL has undertaken an ethnographic consultation and archaeological survey and has lodged a copy of the results with the AAD. The study has not identified any Aboriginal sites within the area of the proposed Stage 1 area.

4.2.2. AAD advises that Native Title claimants are not the only individuals who should be consulted regarding the proposed development. Rather, any people who claim to have knowledge about the heritage values of an area should be given the opportunity to be consulted. What consultation has or will be undertaken by the proponent in this regard?

Response

JPPL has undertaken an ethnographic consultation and archaeological survey and has lodged a copy with the AAD. The study has not identified any Aboriginal sites within the area of the proposed Stage one area.

4.2.3. If an Aboriginal site is to be impacted by any proposed development it will be necessary for a section 18 permit to be obtained from the Minister on advice from the Aboriginal Cultural Material Committee (ACMC) to ensure that the proponent is not in breach of the AHA.

Response
JPPL has undertaken an ethnographic consultation and archaeological survey and has lodged a copy with the AAD. The study has not identified any Aboriginal sites within the area of the proposed Stage 1 development.

4.2.4. The project area is covered by one registered native title claim and one Aboriginal site has been registered within a 5 km radius of the project area. As yet a field survey of the proposed development area has not been undertaken. Appropriate surveys and consultation with Aboriginal groups and individuals need be undertaken to ensure that a breach of the AHA does not occur.

Response

JPPL has undertaken an ethnographic consultation and archaeological survey and has lodged a copy with the AAD. The study has not identified any Aboriginal sites within the area of the proposed Stage 1 development.

4.3. Risk (Public health and safety)

Port construction

4.3.1. Broad concerns have been expressed regarding the impact of carting fill and armour to the construction site over an 18-month period. Concerns relate specifically to safety, noise, and dust impacts upon local residents. Proponent commitment 2.3 should address the resolution of complaints in consultation with the relevant local authorities.

Response

A register of complaints will be held and all complaints will be dealt with within the EPA criteria as set in the conditions.

4.3.2. The PER does not provide specific information on potential dangerous goods pipeline corridors. This needs to be addressed in a Quantitative Risk Assessment.

Response

Information on the corridor for dangerous goods pipelines is at this stage not known. As with any engineering control such as a pipeline corridor it is required by the regulatory authority that a QRA be undertaken.

Port operations

4.3.3. The PER suggests that hazardous materials would be transported through the port. Submissions are concerned that the port may be used to accept and export nuclear wastes. What types and classes of hazardous materials will be transported through the port? Will nuclear materials and wastes be transported through the port?

Response

Nuclear wastes are subject to controls imposed by Government, it is not envisaged that the port would transport such wastes through its facility.

The dangerous goods that the port would transport would be the same as the existing port and that is:

Class 1 - Explosives.
Class 2 - Compressed and Liquefied Gases.
Class 3 - Flammable Liquids.
Class 4 - Flammable Solids.
Class 5 - Oxidising Substances.
Class 8 - Toxic Substances.
Class 7 - Radioactive Substances.
Class 8 - Corrosive Substances.
Class 9 - Miscellaneous Dangerous Goods.

The proposed port will also offer a general cargo facility which is more remote from major residential areas than existing port facilities in Fremantle.
4.3.4. The import or export of dangerous goods or the class of dangerous goods that will be handled through the port has not been addressed in sufficient detail. Why is there a lack of detail regarding the transport of hazardous material? Has the risk modelling included all possible dangerous goods that will be imported and exported from the port?

**Response**
The lack of detail is due to the commercial uncertainty. The type and quantity would not exceed that handled at the present facilities at this point in time. The reality is that as the port and thus the trade develops the Risk Analysis process as required by the DEP and the Mines Department would be followed in order to control the risk generators caused by the transport of such goods through the port. This is the main reason for extrapolating the present facilities risk generators as an interim through the port site.

4.3.5. Management plans, emergency response plans and contingency plans to address the storage of dangerous and hazardous goods and potential spillage should be developed by the proponent to the requirements of the Department of Minerals and Energy.

**Response**
Management plans, emergency response plans and contingency plans will be subject to approval from:
- Department of Transport WA.
- Department of Environmental Protection WA.
- Department of Minerals and Energy.

4.3.6. Under the *Navigation Act and the Port Authorities Act 1999*, the Fremantle Port Authority (FPA) has the responsibility to ensure the safe and efficient transit of all commercial shipping operations within FPA Gazetted waters. The pilotage procedures are in place to ensure the safe passage of ships and at the same time ensures the protection of the environment by carefully managing shipping movements. A submitter has indicated that anything short of careful planning, monitoring and best practice would increase the risk of environmental incidents. The absence of any negotiated arrangements on pilotage and vessel movement controls is a serious deficiency in the proponent’s environmental risk planning. How will shipping traffic volumes be regulated? What arrangements and procedures are in place to manage shipping access and pilotage in the interest of reducing the risk of shipping collisions and groundings and therefore, environmental incidents occurring in Cockburn Sound?

**Response**
Shipping will be conducted through the Fremantle Port Authority area of control and into the JPPL area of control by accredited Pilots and in accordance with the State Government contract conditions as set.
JPPL agrees with the sentiments within the submission.
It is accepted that the control and navigation of the vessels through the FPA area requires a clear and accepted management system.

4.3.7. The comparison of the proponent’s public risk assessment with public risk assessments conducted for Fremantle Port is totally inappropriate and misleading. The reference to risk levels calculated for Fremantle for the year 2010 is inappropriate, as this has been taken from a 1993 study that is no longer valid. Trade estimates made in 1993 for the year 2010 have proven excessively low and have already been exceeded. Valid comparisons cannot be drawn between Fremantle Port’s facilities, equipment and operations even if an up to date report were referenced. Please comment on the validity of the PER’s public risk assessment and how comparisons to Fremantle Port Authority’s assessment could be justified.

**Response**
The QRA for the Fremantle Port Authority commenced in 1993 however addendums were undertaken in 1994, 1995 and 1998.
These QRAs are still referenced in the FPA publications such as the Dangerous Cargoes Standard
issued in February 2000.

The submission assumes a worst case scenario, in that all of the Dangerous Goods including those in transit on vessels will transfer from the Inner Harbour to the new facility.

As a screening process it is considered appropriate to use established quanta. As the trade develops then a dynamic QRA will in accordance with the requirements of the regulatory authorities, be undertaken.

The port is a transit area and unlike other hazardous facilities in the area a port does not process dangerous goods but allows a transition between marine and land transport.

In addition valid comparisons can be made as there are only limited high consequence risk generators. The risk contours are sensitive to Toxic Isotainers through the existing facility and this is magnified due to the urban development and thus the societal risk implications as a result of the population density.

4.3.8. Submissions note that an evacuation plan exists for poisonous gas situations in the Kwinana Industrial Area. It would be impossible to evacuate livestock from the loading facilities or holding pens quickly. Will the animals be left to be contaminated or die in the event of an emergency?

Response

This response excludes the livestock holding facility. Evacuation plans will address the removal of vehicles loading with stock and the possible sailing of vessels.

The greatest threat to the animals will be from off site risk and is outside the $10^{-5}$ contour.

4.3.9. Generation is required to man Kwinana Power Station at all times. The PER states that hazardous cargoes would be dealt with in a manner consistent with standards. There is no reference to contingency plans or any consideration of what works may be required within the Kwinana Power Station that would guarantee personnel safety and power system security in the event of a mishap. Of particular concern is the lack of control that the port operators have over shipping activities.

Response

The submission refers to the threat to the workforce in the Power Station. The risk to the workforce from the port activity will meet the EPA criteria for both onsite and offsite risk.

The planning process that the power station has in place for its workforce as a result of its OS&H responsibilities should not need to be altered. Again the port is a transit area and does not store Dangerous Goods.

Transport of goods to and from the port facility

4.3.10. The PER suggests that hazardous materials would be transported through the port. More detail is required about the type of hazardous materials and the transport routes of hazardous materials. Further, the import or export of dangerous goods or the class of dangerous goods that will be handled through the port and details of specific transport corridors has not been addressed in sufficient detail. Specifically, what types of hazardous materials will be transported through the port? What management strategies will be employed to ensure that the operations, handling, storage and transport of hazardous goods to and from the port facility is consistent with EPA and DME requirements? Detailed management plans, emergency response plans and contingency plans should be developed prior to approval being granted to manage the impacts associated with hazardous goods.

Response

The response to 4.3.3 applies to part of this submission. Any dangerous goods transported to and from the port area are carried in accordance with the Dangerous Goods (Transport) (Road and Rail) Regulations 1999, the conduct of those Regulations are a matter for the Department of Minerals and Energy WA.

Within the port area, the Dangerous Goods are handled in accordance with the Australian Standard AS3846 The Handling and Transport of Dangerous Goods in Port Areas as well as the proposed as yet draft Dangerous Goods (Transport) (Dangerous Goods in Ports) Regulations 2001.
In addition, the results of the mandatory QRA will provide advice on the type and quantity allowed within the Port Area.

4.3.11. How will truck routes to the port impact on residents and workers in the area as well as those people using the roads to access the Cockburn Power Boat Association?

Response
The proposed truck routes minimise the impact on residents and workers by utilising only major roads that avoid existing residential areas and with the exception of a small section of Anketell Rd all of the transport routes proposed, are currently being used. The proponent considers that the impact on residents along the routes will be reduced as a consequence of this proposal.

It is difficult to envisage the port having an impact on the traffic for the Cockburn Power Boat Association.

4.3.12. The PER states that hazardous materials will be transported through the port in accordance with the requirements of the Explosives and Dangerous Goods Act 1961. A submitter has indicated that the legislation relevant to transportation of hazardous material through ports should be undertaken in accordance with the Dangerous Goods (Transport) Act 1998.

Response
The regulation that this submission refers to is more probably the Dangerous Goods (Transport) (Road and Rail) Regulations 1999. Those regulations are advised to have limited relevance to an area such as a port (which as a worksite will have no public access) as they are predominantly designed to ensure public safety on public roads.

As a result of the new Australian Standard AS 3846 (The Handling and Transport of Dangerous Cargoes in Port Areas) there is a new Regulation about to enter into force which will apply to all ports and port authorities that currently fall within the meaning of Section 3 of the Shipping and Pilotage Act 1967.

The proposed regulations will replace the current suite of port specific dangerous goods regulations that will apply to all ports of Western Australia.
The proposed regulations will adopt AS 3846 in full and have the same objective as outlined in this standard.

4.3.13. The PER provides no details of how heavy vehicle traffic going in and out of the port is to be controlled so that residential areas are not adversely affected by the environmental impacts associated with odour, noise, dust and visual amenity. Furthermore, submissions asks whether the transport arrangements will remain unchanged in the event that the stockholding yards proposal is not approved but the port is given approval to export livestock. Either way, the proponent should also provide details on which truck routes will be used to service the port and the controls to be implemented to ensure that trucks use these designated routes.

How will heavy vehicle traffic affect the amenity of residents along the trucking routes? What controls will be in place to enforce designated truck routes? How will the proponent monitor the activities of truck drivers servicing the port?

Response
The proposed truck routes are not only preferable from the point of view of minimising impacts on residences, but are the most cost effective options for the transport operators.

The Main Roads Department has legislative powers necessary to control the routes used by heavy vehicles, including livestock transporters. Livestock and other transporters are required to obtain permits, which amongst other conditions specify the route to be used. The Department also has an enforcement branch that monitors compliance with the legislative requirements and can act upon complaints received from the public.

Whilst this will almost certainly ensure that alternative routes are not used, JPPL will establish a complaints register that may be used to support any action that is taken against transport operators.

4.3.14. The proposal will result in more than 220 truck movements each day over a 14-hour period. Submissions are concerned as to what impact the extra traffic will have on the local roads within the area, particularly at key intersections. Submissions note that the corner of Anketell
Road and Rockingham Road had been described by the Fire and Emergency Services as the most dangerous corner in WA because of the dangerous goods being trucked to and from industry, the oil and gas pipelines in the area and the dangerous goods carried by rail, converging into one locality. Will the existing internal road network be able to cope with the increased traffic? How will transport risks be managed?

**Response**

The proponent does not have information that indicates that the Fire and Emergency services have made the statement that the corner of Anketell road and Rockingham road is the most dangerous, rather evidence suggests that the corner of Patterson Road and Kwinana Beach Road were the most dangerous. Since then both intersections have had traffic lights installed.

4.3.15. Personnel safety is of high concern to surrounding industries. No undertakings are made to make road improvements, to accommodate increased traffic as a result of the proposal, even though reference to what could be done is made. The development of road infrastructure should be part of the conditions of approval of the Stage 1 development. Otherwise, road improvements should be committed to and undertaken prior to construction.

**Response**

Under the terms of the contract between JPPL and the Government, the Government is committed to providing upgraded road and rail access to the proposed port. These matters have been discussed with the respective Government agencies.

### 5. Other Matters

#### 5.1. Management responsibility

5.1.1. Submissions consider it essential in order to maintain community confidence and expectations, that the proponent demonstrate the capability, expertise and commitment of resources to adhere to ongoing environmental responsibilities. In the absence of demonstrated responsible environment performance as a port operator, broad motherhood statements should be replaced with commitments to achieve certain environmental standards within defined timeframes such as ISO14001 certification, prior to commencement of operation. Will the proponent consider achieving certification with relevant environmental standards prior to operations?

**Response**

The proponent’s shareholders and in particular the key personnel have a demonstrable track record as port operators with an exemplary record with respect to their environmental responsibilities. In addition, JPPL has demonstrated to the Government through the selection process that it has the competency, experience and capacity to develop and operate the port. Moreover, the contract with Government binds JPPL to meeting performance criteria with the consequence of non-performance being cancellation of the contract.

5.1.2. In relation to cargo handling, the reference to AS3846/1995 in the PER document should be AS3846/1998.

**Response**

The submitter is correct.
5.1.3. The interrelationship between the Livestock Holding facility and the James Point Port projects could potentially result in environmental accountabilities not being correctly assigned or the parties not being willing to be held accountable for environmental management commitments.

Response
This submission excludes the livestock holding facility. If the livestock facility is approved, JPPL’s responsibilities will be clearly defined as part of that approval.

5.1.4. Western Power uses Cockburn Sound as a source for cooling water. Disturbance and silt migration during the construction period and from the increased level of shipping during port operation is likely to contribute to condenser fouling leading to added expenditure by Western Power due to decreased thermal efficiency and condenser maintenance. Submissions believe that the increased risk of the port operations on Western Power’s cooling water intake structure has not been adequately addressed. A commitment is required that the proponent will be accountable for impacts of port construction and operation on Western Power’s operations.

Response
JPPL is committed to working cooperatively with Western Power to ensure the port causes the minimum possible disturbance to the operations of the Kwinana Power Station. JPPL will monitor the impact of the construction and operation on the Western Power cooling water quality. As part of the preparation of the Construction and Operation EMPs, JPPL will agree water quality criteria for suspended sediment concentrations in the vicinity of the intake and monitor this parameter. JPPL and Western Power will agree on actions to be taken in the event that criteria are exceeded.

5.1.5. Will the port be subject to the provisions of the Port Authorities Act 1999 and the Port Authorities Regulations 2001?

Response
No. The Port Authorities Act, 1999 and the regulations made pursuant to that Act applies to Government owned and controlled ports. JPPL will be subject to the conditions set out in its contract and to other legislation related to issues associated with the operations of the port.

5.2. Cumulative impacts
5.2.1. Cumulative impacts are formed by successive additions, which may be small in isolation but considered together, increase to constitute a significant impact. The PER’s consideration of James Point Port in isolation from the proposed FPA Port at Naval Base, Port Catherine development, Jervoise Bay Southern Harbour, Fremantle Port and numerous industrial jetties, ignores the important issue of cumulative impacts; an issue central to any evaluation of environmental impact in Cockburn Sound.

EPA Bulletin 907: The Marine Environment of Cockburn Sound, stated the EPA’s expectation that “proponents developing proposals which have the potential to affect the marine environment of Cockburn Sound, should consider the cumulative environmental implications on the Sound, taking into account the relationship between the proposal and the existing and planned future uses in Cockburn Sound.” This has not been attempted in the PER and therefore does not comply with the EPA’s objectives documented in the guidelines, which are required to be addressed in the public review document. The proponent should be required to undertake research and investigation into cumulative environmental impacts, and should be implemented prior to any assessment of the proposed port. To what extent can the PER’s water quality impact predictions on Cockburn Sound be relied upon, in the absence of adequate research and investigation into proposal’s cumulative environmental impacts on Cockburn Sound?

Response
The environmental impact assessment process saw the development of a hydrodynamic model for the southern metropolitan coastal waters of Perth, which focussed on Cockburn Sound and James Point. The model was reviewed by eminent national reviewers and declared by the DEP to be consistent with current best practice. The DEP subsequently requested access to the model for their own work on preparing the EQC for Cockburn Sound. The numerical model provided the cornerstone for the
assessment of cumulative impacts of the port on the Sound.

It was agreed with the EPA that JPPL would provide an assessment of the cumulative impacts of current and approved developments in the PER, which has been done. It was agreed that a separate document concerning the cumulative impact of the Stage 2 development would be provided separately and a further study would be undertaken by the FPA concerning the potential impacts of their outer harbour proposal.

The study of the cumulative impacts of the Stage 2 development was submitted earlier this year, while the FPA document (which makes use of the same hydrodynamic model) is still under preparation.

5.2.2. There is a deficiency in the PER by the separate consideration of the stages of development for the port, which exemplifies the lack of an integrated approach towards planning for port facilities in Cockburn Sound. The PER does not provide sufficient information about later stages of port development (stage 2). Neither does the James Point website, despite an EPA guideline asking for a description of all stages of the proposed port development and outline at a preliminary level, the likely combined impacts of the ultimate port development. Importantly, the cumulative impact was not considered in models determining environmental impacts. Submissions consider the lack of consideration of Stage 2 impacts to be a major deficiency. While each stage will be subject to environmental review, it is considered that the impact of the entire port (Stage 1 and 2) should be considered in context, with the other ports proposed for Cockburn Sound.

Response
Refer also to 5.2.1.

JPPL has submitted that the Stage 1 development stands alone and it is seeking approval only for Stage 1. JPPL will need to apply separately for environmental approval for any future stages.

5.2.3. What is the status of the separate document that the proponent is required to develop in regard to Stage 2 impacts? Will it be available for public review? What are the impacts of Stage 2 in terms of loss of beach and shallow waters, reduction in water quality along the coast from James Point to Jervoise Bay, and decline of social values (eg. Fishing, boating, aesthetics) in the Kwinana Beach area?

Response
The Stage 2 document has been submitted to the EPA. The document was submitted as advice to the EPA and was not submitted as part of a formal environmental impact assessment of the Stage 2 development. When the Stage 2 development is formally referred to the EPA, then a public environmental review document for the project will be prepared.

5.2.4. The proposal, once operational, has the potential to introduce additional toxicants from increased shipping movements and land-based activities, to the marine environment. Increased frequency of phytoplankton blooms in the harbour may also introduce further toxicants to the Sound. In this regard, the proponent should undertake modelling of cumulative toxicological impacts on marine ecosystems and shellfish industries.

Response
The land based activities will not result in the introduction of additional toxicants to the Sound. Toxicants introduced from anti-foulants on shipping will accumulate in the sediments. Surveys of other berths and harbours in Western Australia have shown that the increase is greatest in the immediate vicinity of the berth. The shipping visiting the port will use existing shipping routes so if there is any increase in toxicant levels they will be occur in areas already impacted.

Phytoplankton blooms do not currently occur in the region immediately north of James Point (Trichodesmium may occasionally be blown into the area) and phytoplankton blooms are not expected to occur after the port is constructed. The prediction was for a slight increase in productivity, but not to the levels where blooms occur regularly. Further, it would not be possible to model the toxicological impacts of phytoplankton blooms with any accuracy.

5.2.5. Should approval be granted for reclamation area 2A, such a development would interfere with the usefulness of the existing Jetty No 1 from a navigational viewpoint. Has consultation occurred with the users and owners of Jetty No 1 regarding the impacts of the
Response

BHP Jetty Number 1 is derelict and has been closed for safety reasons for some time. JPPL has had extensive consultation with the owner of the jetty and was authorised to seek approval to refurbish and upgrade the jetty. The Stage 1 proposal for the port would have no impact on the existing usage of the Number 2 jetty, although it should be pointed out that it requires substantial work to bring it up to a standard that would meet current environmental expectations. JPPL would ultimately like to provide a replacement facility that meets current environmental standards.

5.2.6. The construction of the offshore breakwater would cause environmental and safety conflicts with the future FPA Outer Harbour development plans. The alternative is for the breakwater to be re-located prior to the FPA outer harbour being constructed, and situated in a manner that will not cause such conflict. Should the proposal be approved, a commitment would be necessary in respect of removal of the breakwater if it conflicts with future developments. To what extent has the proponent demonstrated that the proposal at James Point will not compromise the future developments proposed by FPA and others?

Response

JPPL has already committed to remove the breakwater (if it is constructed) in the event that the FPA Outer Harbour Development Plan is approved and there will be a demonstrated safety or environmental conflict by having the breakwater in place.

5.2.7. It is believed that the Southern Harbour development will receive source waters from the completed James Point Port. Hence the nutrient related water quality of the ‘source’ waters might be expected to decline. To what extent will water quality in James Point Port impact on water quality at the Northern and Southern Harbour Developments in Jervoise Bay?

Response

The influence of the port on the Southern Harbour was described in PER Sections 8.3 and 8.8. Under prevailing south-westerly winds, the net water flow is northward along the eastern margin of the Sound (refer PER Section 4.3). As such, there will be periods when the water entering the Southern Harbour has travelled north arriving directly from the port. However, if the wind is strong enough to drive the water up into the Southern Harbour, then it will have been rapidly moved though the port (within ~ ½ day) and also will be mixed as it moves up the coast. For this reason, it is suggested that the water quality within the port will have little or no bearing on the water quality within the Southern Harbour.

5.2.8. Submissions understand that the Fremantle Port Authority (FPA) is also planning to build new port facilities in Cockburn Sound, to the north of James Point. The likely impacts of this proposal are not known at this time, but it would be expected that the impacts would be similar to the James Point port.

The FPA proposal raises further issues, which affect the James Point proposal:

- Can two ports be justified on economic and planning grounds?
- Would the cumulative environmental and social impacts of both ports be unacceptable, but the impacts of a single port manageable?
- Which site is best suited for a port and which site would cause fewer and less environmental and social impacts?
- Which port offers the best opportunity to rationalise and consolidate the existing berthing facilities at Kwinana thus allowing greater public access to beaches in the Kwinana area?

Response

JPPL are in no position to comment on the issue of the FPA’s future plans or on issues which are obviously a matter of Government Policy. However, it was Government Policy to promote the development of a private port at James Point and JPPL contends that the JPPL site is the most suitable site and will significantly reduce/delay the need for any further development.
5.3. **Visual amenity**

5.3.1. The Port extends for a significant distance into Cockburn Sound and will be clearly visible from the Sound, Garden Island, and Rockingham. Visual amenity is not addressed in the PER, and it should be a requirement. What are the visual impacts of the port on the view shed from the shores of Cockburn Sound, Garden Island, and Rockingham? How will the proponent ensure that the visual amenity of Cockburn Sound is not unduly affected?

**Response**
The proponent considers that there will be minimal impact on the visual amenity of the area when viewed from Garden Island and the Rockingham beachfront. Photographs of the area with the port and livestock handling facilities superimposed were prepared for the Livestock Handling Facility proposal and are included as Appendix A. The impact on visual amenity of the Stage 1 development will be less than that shown in Appendix A.

5.3.2. The livestock holding facility will be clearly visible from Cockburn Sound? To what extent will the proposal impact upon the visual amenity of recreational users of Cockburn Sound?

**Response**
The livestock holding facility is not part of this submission.

The proponent considers that there will be minimal impact on the visual amenity of the area when viewed from Garden Island and the Rockingham beachfront. Refer to Appendix A and 5.3.1.

5.3.3. Submissions consider that the sight of livestock transport is distressing and that the proposal will affect visual amenity of road users.

**Response**
The proponent acknowledges that some people find the sight of livestock transport distressing. However, whether this proposal proceeds or not, or whether livestock export continues or not livestock will continue to be transported by road. If the proposed port at Kwinana does proceed and livestock are exported through it, it will reduce the overall level of road transport of livestock within the Metropolitan area and through built up areas adjacent to Fremantle. Hence the level of public exposure will be reduced.

5.4. **Introduction of diseases**

5.4.1. The increased likelihood of disease transfer/introduction, eg foot and mouth is of considerable concern with little attention given to quarantine issues in the PER. What quarantine and disease control measures will be in place to minimise the risk of disease transmittal from vessels arriving from foreign ports?

**Response**
There is no increased likelihood of disease arriving from the proposed port.

Issues related to shipping arriving from foreign ports are matters that are dealt with by the respective ports of arrival in accordance with legislative requirements currently in force. Any risks related to shipping will not change as a consequence of this proposal. AQIS already has in place stringent procedures that apply to all vessels arriving in Australia from foreign ports.

5.4.2. Some animal diseases, including “foot and mouth”, are believed to be transmitted in wind blown dust from manure. The proposed location is extremely unprotected and exposed to prevailing winds that will distribute dust inland. In addition there are significant numbers of workers on adjacent industrial premises that may be exposed to both zoonotic (animal to human) diseases and Legionella bacteria. This would not be the case if the livestock holding facility were located more appropriately in a rural area with appropriate buffer distances to adjacent residences and workplaces.

**Response**
The port proposal does not include any provision for a livestock holding facility and the submission is irrelevant to consideration of approvals for the port.
5.4.3. It is considered that there is a real risk of disease to residents and passers by who are generally not exposed to farm animals. Dust and associated microbes in faeces which is emitted from trucks en route, are of most concern in this regard. Please discuss.

Response
If there was any substance in the assertion, it would certainly have manifested itself amongst the residents living in the densely populated traffic routes used for many years to transport livestock to the port in Fremantle.

5.4.4. Should a significant outbreak of disease be detected in the livestock holding facility or the port area, then access to and from this area may need to be restricted for lengthy periods for quarantine reasons. The number of roads to the port is restrictive and access by trucks to and from other industries, including the Kwinana Power Station, in the area may be compromised by any quarantine order. Clearly it would be disastrous for the Kwinana Industrial Area if power or other services could not be supplied to industry due to quarantine induced shut down.

Response
This submission excludes the livestock holding facility. The risk of such an occurrence, based on historical evidence is infinitesimal, if it exists at all. Additionally the same risk currently exists for Fremantle.

5.4.5. While it may be unlikely, a significant disease outbreak occurring within the stock facility could result in stock having to be disposed of in the event that quarantine prevents transport of stock away from the facility. Such an event would be extremely offensive and quarantine requirements could impact the operations of nearby industrial premises.

Response
Refer to the response to 5.4.4.

5.5. Rail Transport
5.5.1. A proposed rail system has been shown in Figure 3.2 of the PER document. The rail alignment truncates privately owned land and businesses; has not been explained and seems to have been arbitrarily included. It is labelled ‘possible future rail loop’. Has the proponent consulted with the owners of the land or the government departments responsible for rail transport planning (Department of Transport, Ministry for Planning) in relation to this ‘possible future’ loop? Have the relevant environmental constraints been identified for the proposed rail infrastructure?

Response
The possible future rail loop does not form part of the proposal for which environmental approval is being sought. Notwithstanding this, JPPL has held preliminary discussion with the relevant Government departments. However, since the PER was released, circumstances have changed and the potential rail loop may not be practical.

5.6. Impacts on roads
5.6.1. Concern has been expressed that the proposed truck numbers will negatively affect the condition of roads along the routes proposed in the PER, including roads within the Kwinana area. If roads are negatively impacted or if new roads are required, who will foot the bill?

Response
The major impact from Stage 1 of the port is the increased traffic in Anketell Road (between the Freeway and Rockingham Road) and Beard Street. It is understood that Anketell Road has been identified as a main arterial Road and the contract for the proposed private port requires an upgrade of Beard Street. The commercial arrangements are not a matter for this environmental approval process.

5.6.2. The proposed traffic movements documented in the PER will result in truck movements being reassigned from State roads to local roads and will consequently lead to nuisance in the form of road safety, noise and odour to adjoining properties. The use of local roads for livestock cartage movements is considered to be inappropriate and unsuitable.
**Response**

Refer to 5.6.1

The only roads significantly impacted by this proposal are Anketell Road and Beard Street and the impact on residences is minimal.

5.6.3. Kwinana industries already transport a large proportion of the State’s mineral and chemical products, therefore, the road transport system is considered to be vitally important to maintaining ongoing commercial sustainability of industry. With the proposed increase in large vehicle movements created by the operation of this proposal, it will be inevitable that the capacity on existing routes will be consumed and future road transport availability will be severely diminished. What consideration has been given to the issue raised above and the general cumulative impact of the proposal on road transport routes in and out of the KIA?

**Response**

The future planning proposals for the arterial road network are included in the FRIARS report and address the likely location of a port in the area.

5.6.4. Submissions believe proposals for road building to accommodate the port proposal will impact on Beeliar Regional Park, Thompson Lake and other important wetland reserves. Submissions consider that the environmental and social impacts of any programme for road building to accommodate the port proposal be assessed, as the quality of life of residents and communities in the area will be degraded.

**Response**

The port is about 2 km south of the Beeliar Regional Park and considerably further away from Thompson Lake.

Road building associated with the port will be restricted to the west of Rockingham Road and south of the Kwinana Power Station. There will be no impact from road building on Beeliar Regional Park or any other local wetlands.

The port will rely on existing arterial roads for trucking routes and proposed arterial road links as outline in the FRIARS report.

5.6.5. Personnel safety is of paramount concern to the surrounding industrial premises. No undertakings are made to make road improvements even though reference to what could be done is made. The development of road infrastructure should be part of conditions for the proposal to proceed. Road improvements should be committed to and undertaken prior to construction.

**Response**

Refer to 4.3.15.

**5.7. Livestock trade**

5.7.1. Considerable opposition has been expressed in submissions regarding the animal welfare aspects of the livestock trade generally. The trade in live export of animals is raises several ethical and animal welfare concerns including:

- It is unethical to export Australian animals to countries whose animal welfare standards are lower than our own. Once the sheep/cattle have left our shores they are outside of our jurisdiction. The current fiasco of our cattle being rejected and bashed by Korean farmers is a clear example of this problem;

- Each year over a hundred thousand sheep die during the long journey to the Middle East. The causes include salmonellosis, pneumonia, constant stress, climatic extremes and the failure to eat pellet feed; and

- At the end of a long journey, which may include unloading at multiple ports, the animals undergo a ritual slaughter, usually without pre-stunning, which would fall far below the current acceptable standards of slaughter in Australia.

**Response**

The export of livestock is a lawful and legitimate business activity. Judgements as to whether the
trade should or should not be allowed do not come under the scope of the Environmental Protection Act 1986. They are matter of Government Policy.
While the trade remains as a lawful approved export, JPPL considers that it should make every attempt to ensure that the facilities, practices and procedures associated with the operations over which it has control, are the best possible.

5.7.2. Submissions suggest that a large number of Western Australians would not support the trade in live animals on animal welfare ground. It would be more appropriate, both environmentally and economically, to slaughter animals in Australia and export frozen meat only. Please comment.

Response
JPPL considers the request to comment on the economic justification of an alternative process irrelevant in relation to the EPA's consideration of this project. JPPL has provided information to demonstrate that the project is not only environmentally acceptable and the impacts manageable, but also a considerable improvement on the existing situation—of cargo and livestock being moved through Fremantle.

5.7.3. Submissions believe that this proposal will reduce the value of residential properties both in the vicinity of the proposal and also along the proposed truck routes. Submissions ask whether they would be entitled to compensation.

Response
The question of entertainments to compensation is one that should be addressed to an appropriately qualified legal practitioner. JPPL refutes any suggestion that its proposal would reduce property values in the vicinity of the proposal and along truck routes and that it should be liable for compensation. The proposed truck routes with the exception of a small section of Anketell Rd are also part of the existing routes.
References


APPENDIX A
VISUAL IMPACT PHOTOGRAPHS
Proposed Livestock Holding Facility.

View from Garden Island

Proposed Livestock Holding Facility.

View from 2.5 km Offshore
Proposed Livestock Holding Facility.  View from Rockingham