

# Office of the Environmental Monitor

Quarterly Review No. 5 – June 2009



Reporting Period: 1 March to 31 May 2009

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Cover photo: Brighton Beach Huts and Port Phillip Bay - Laura Hill.

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## Executive Summary

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The Office of the Environmental Monitor's quarterly review is a stocktake of the Office's activities, including its findings, identified opportunities for improvement and advice to project regulators for the period from 1 March to 31 May 2009.

From the evidence provided to the Office and from its own desktop evaluation, the Office reports that during the reporting period, up to 31 May 2009, it identified one partial non-conformance with the Port of Melbourne Corporation's (PoMC) implementation of the Environmental Management Plan's (EMP) 58 Project Delivery Standards (PDS).

The partial non conformance was with respect to Project Delivery Standard No. 24, when on 19 April 2009 the *Queen of the Netherlands* dredged outside areas set by the EMP for South Channel, near Hovell Pile.

The Office is satisfied that the environmental impacts of the partial non conformance were inconsequential.

No other non conformances were identified with the 58 EMP Project Delivery Standards.

During the second quarter of 2009 the results from the Baywide Monitoring Programs that monitor Port Phillip Bay's health were generally within the range of variability that would be expected based on historical data.

The Office acknowledges that underpinning the EMP and PoMC's implementation of this part of its Environmental Management System, is the concept of continuous improvement.

The Office identified opportunities for improvement in some previous quarterly reviews. In this review, one opportunity for improvement was identified for consideration by PoMC and the agencies responsible for delivering the Baywide Monitoring Programs. The Office is satisfied with its implementation during the quarter.

The Office will continue to provide an around-the-clock independent and transparent view on the environmental performance of the dredging project, while implementing the actions outlined in its Work Program.

The Office's next review is due in September 2009.

# Summary of Quarterly Review No.5 findings

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## Findings

1. Up to 31 May 2009, the volumes of material removed conformed to the limits set out in the EMP.
2. During the quarter, up to 31 May 2009, the Office identified one partial non-conformance by the project against one of EMP's 58 Project Delivery Standards.

The partial non conformance was with respect to Project Delivery Standard No. 24, when on 19 April 2009 the *Queen of the Netherlands* dredged outside areas set by the EMP for South Channel, near Hovell Pile.

The Office is satisfied that the environmental impacts of the partial non conformance were inconsequential.

No other non conformances were identified with the 58 EMP Project Delivery Standards.

3. Up to 31 May 2009, results from the Turbidity Monitoring Program and noise compliance monitoring for both underwater and airborne noise identified no non-conformances with the EMP.
4. Up to 31 May 2009, results from the Baywide Monitoring Programs that monitor the Bay's health were generally within the range of variability that would be expected based on historical data. The Contaminants in Fish Monitoring Program found that contaminant concentrations in fish sampled from the lower Yarra River in 2009 were generally lower than the concentrations sampled in 2006 and were below the guideline levels for Australian Food Standards.

Minor EWMA exceedances recorded for some water quality parameters during this quarter do not indicate risks to Bay health.

Although the Office is satisfied the results to date are within the range of expected variability, it is premature to make an overall assessment of the longer-term environmental performance of the project.

# 1. About this quarterly review

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## 1.1. Purpose

The Office of the Environmental Monitor's (the Office) quarterly review provides an independent and transparent view of the environmental performance of the Channel Deepening Project (the project).

This quarterly review is a stocktake of the Office's activities, including its findings, identified opportunities for improvement and advice to project regulators for the period from 1 March to 31 May 2009. This is review No.5 in a series of 16 to be released from 2008 to 2011.

Preparing quarterly reviews is a requirement under the Office's Terms of Reference. The quarterly reviews are timed to follow the release of the PoMC's quarterly reports, which it is required to prepare under the EMP, or rule book.

PoMC is required to provide a quarterly report to the regulators and the Office that summarises the EMP's implementation, within four weeks after the end of the quarter. Consistent with the above EMP requirement, the Office received PoMC's fifth quarter report on 9 June, 2009.

PoMC's quarter report includes information that was available to PoMC up to 30 April 2009. The Office has reviewed this report, the supporting PoMC documents (see Appendix 1 of PoMC Quarterly Project Report No. 5) and notifications provided by PoMC.

The Office's quarterly reviews are in addition to the targeted investigations and audits the Office has and will continue to conduct and commission during the project – activities that help inform the Office's judgement of the overall environmental performance of the project.

This quarterly review also outlines the Office's progress against its three objectives, which are:

1. To be accessible to all stakeholders and the community;
2. To scrutinise, report and advise on the project's environmental performance in an independent and transparent way; and
3. To communicate all available information on the project's environmental performance in a meaningful and timely way to stakeholders and the community.

Regular reporting such as this meets the Office's objective to scrutinise, report and advise on the project's environmental performance in an independent and transparent way.

## 2. Context

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### 2.1. The Office of the Environmental Monitor

The Office provides an around-the-clock independent and transparent view on the environmental performance of the project.

Established by the Victorian Government in December 2007 as a requirement for the project, the Office is led by Mick Bourke, the Environmental Monitor, and is supported by a team of five people: Don Hough, Michael Holloway, John Garnham, Julie Taylor and Laura Hill.

The Office scrutinises the environmental performance of the project independently of PoMC or the project's regulators, the Victorian Government and the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA).

The Office unreservedly prepares its advice on the project and publicly reports its findings and advice to the regulators and the Victorian community.

While holding the role of the Environmental Monitor Mr Bourke, who also holds the position of Chairman of the Environment Protection Authority (EPA) Victoria, has delegated his powers and responsibilities under the Environment Protection Act to senior executives at EPA Victoria and to the Secretary of the Department of Sustainability and Environment (DSE), when dealing with the Channel Deepening Project, PoMC and Port Phillip Bay matters.

The Office's objectives are to:

1. Be accessible to all stakeholders and the community;
2. Scrutinise, report and advise on the project's environmental performance in an independent and transparent way; and
3. Communicate all available information on the project's environmental performance in a meaningful and timely way to stakeholders and the community.

In doing this, the Office will:

- Scrutinise PoMC's conformance against the regulatory and environmental controls set out in the EMP, and the results from Baywide Monitoring Programs and other environmental monitoring programs;
- Report quarterly, annually and at other critical points on the project's environmental performance;
- Advise Government, PoMC and the community on the findings arising from the Office's reports on the project's environmental performance; and
- Consult stakeholders and the community to remain informed on their issues and concerns.

PoMC is obliged to assist the Office. Expert advice from the Independent Expert Group and administrative support from DSE is also available upon request by the Office. The Office is also able to commission audits and investigations as required.

In April 2008 the Office released its first formal Work Program to manage its activities until 2011. The Office has prioritised its Work Program to target three critical aspects of the project:

1. Dredging in the Entrance;
2. The dredging and management of contaminated material from the Yarra River; and
3. Dredging plume management in the south of the Bay.

Over the next two and half years, the Work Program will continue to be updated to reflect issues raised by stakeholders and the community, requests for advice received from regulators and Ministers, and any adjustments that may be made to the dredging schedule in accordance with the EMP and the completion of the operational stage of dredging in 2009.

During the second quarter of 2009 the Office provided comment to the Regulator's delegate, the Secretary of DSE, on the EMP. The Office also attended, as an observer, meetings of the interdepartmental committee of the Channel Deepening Taskforce and the Agency Baywide Monitoring Program Steering Committee.

## 2.2. The Channel Deepening Project

The Victorian and Commonwealth governments approved the Channel Deepening Project in December 2007.

PoMC is the proponent or owner of the project.

In Victoria, the project is regulated by the Secretary of DSE with the Ministers for Roads and Ports, and for Environment and Climate Change having final decision making authority.

For the Commonwealth, the Secretary of DEWHA, and the Commonwealth Minister for the Environment, Heritage and the Arts have regulatory responsibilities for matters of national environmental significance.

Victorian approvals of the project required that the Office be established to ensure the project received the scrutiny it required.

The project involves deepening the existing shipping channels within Port Phillip Bay from the Entrance to the Port of Melbourne, to accommodate ships with a draught of up to 14 metres at all tides. It also involves additional works, such as dredging around ship berths and works to protect services that cross the shipping channels. Dredging of the shipping channels began on 8 February 2008 and dredging by the Trailing Suction Hopper Dredges is scheduled to end by 31 August 2009, with the entire project to be delivered by late 2009.

The project's third Trailing Suction Hopper Dredge, *Prins der Nederlanden* started dredging on 18 February 2009 and completed its assignment on 10 April 2009. It left the Bay for Colombo on 11 April 2009. After several months in Singapore the *Queen of the Netherlands* returned on 7 April 2009 to complete her dredging assignment for the project.

A maximum of 22.92 million m<sup>3</sup> (±15%) of material can be dredged from the existing shipping channels during the project.

Dredging will take place in four areas:

1. The Yarra River and Williamstown Channels (in the Yarra River and Hobsons Bay);
2. The Port Melbourne Channel (in the north of the Bay);
3. The South Channel (in the south of the Bay); and
4. The Entrance to the Bay.

Up to 31 May 2009, the project had dredged approximately 18.70 million cubic metres, around 82 per cent of the total permitted project volume. A breakdown is provided in Table 1.

**Table 1. Dredged volumes up to 31 May 2009**

<b>Dredge Locations</b>	<b>Gross volume (million m<sup>3</sup>)</b>
Yarra River (contaminated soft silts)	0.88
Yarra River (clays)	1.82
Williamstown Channel (contaminated soft silts)	0.50
Williamstown Channel (clays)	0.94
Port Melbourne Channel	2.39
South Channel	11.70
The Entrance	0.46
<b>Total</b>	<b>18.70 million* (approximately)</b>

\* *Total volume may differ from individual amounts due to rounding.*

## 2.3. The Environmental Management Plan

The approval of the project was subject to conditions, including that PoMC must comply with a comprehensive Environmental Management Plan (EMP) or rule book.

Approved by the Victorian and Commonwealth Governments, the EMP sets out the environmental safeguards required to protect the Bay during dredging. It details standards and controls that must be followed by the project and includes:

- The requirements for environmental management during the planning, implementation, evaluation and review of project construction activities;
- The responsibilities for implementing the EMP;
- A set of Project Delivery Standards;
- An overview of the environmental monitoring programs and contingency plans and associated management action;
- Post construction requirements including monitoring and inspections; and
- The transition arrangements from construction phase to operations.

### Environmental performance

The EMP sets out 58 Project Delivery Standards that are rules about where, when and how the project can be delivered. They are a collation of the management mitigation measures, environmental performance monitoring and contingency plans for the project. The standards apply to:

- Construction management (all activities);
- Marine-based works (all areas);
- Land-based works;
- Dredging and plume;
- Dredging schedule;
- Dredged material management;
- Entrance dredging; and
- Hydrohammer use and marine-based pile driving.

With respect to the 58 Project Delivery Standards, the project's environmental performance is monitored by four mechanisms:

#### 1. Environmental monitoring

Environmental monitoring includes monitoring of environmental conditions (e.g. turbidity, underwater and airborne noise). Environmental monitoring data informs project operations. Management actions that may be adopted if response levels or environmental limits are reached or exceeded are identified in contingency plans.

#### 2. Process monitoring, inspections and surveys

Process monitoring, inspections and surveys include monitoring of operational activities, physical conditions and post-construction environmental conditions (e.g. equipment tracking, monitoring of bund and cap construction, bathymetric surveys). Process monitoring inspections and surveys are identified in the Project Delivery Standards alongside process controls. Monitoring data informs any additional management action that may be required.

### **3. Management performance monitoring**

Management performance monitoring includes monitoring of the implementation and effectiveness of the environmental management system (e.g. nature of complaints, number of corrective actions completed). Monitoring data informs the overall management of the project. It does not directly inform operational aspects, but may indirectly do so through the management review process.

### **4. Baywide monitoring**

There are nine Baywide Monitoring Programs that monitor baywide environmental conditions (e.g. water quality, seagrass).

One program, Contaminants in Fish Monitoring Program (2009 Lower Yarra River Fish Study) is complete.

### **Approved EMP amendments**

It was envisaged that the EMP may require amendment from time to time. The process for considering such amendments is set out in the EMP (Section 1.7).

During this quarter the EMP was amended in accordance with requirements set by the Victorian and Commonwealth regulators. Amendments addressed:

- Minor procedural matters

In accordance with the requirements set by the regulator, the amendments and the amended EMP (Revision 7 at 31 May 2009) can be found at PoMC's channel deepening website: <http://www.channelproject.com/environment/management.asp>.

### **Continuous improvement**

A foundation of the EMP, and PoMC's implementation of it as part of its Environmental Management System, is the concept of continuous improvement. The EMP makes it explicit that opportunities for improvement will be identified, see sections 4.1 (CDP management review meetings) and 4.2 (Management review for environmental monitoring) of the EMP for examples.

## 3. Progress to date: Quarterly Review No.5

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Section 3 summarises the Office's activities up to 31 May 2009. These activities are described in terms of the three objectives outlined in the Office's Work Plan (section 2.1).

During the reporting period, the Office continued to focus its attention on maintaining its relationships with project stakeholders (section 3.1). It also scrutinised information on PoMC's implementation of the EMP (section 3.2) and provided information and advice on various matters related to the project (section 3.3) to the regulators, PoMC and the Victorian community.

From the evidence provided to the Office and from its own desktop evaluation, the Office reports that for the quarter, ending 31 May 2009, there was one minor non-conformance by the Project against one of the EMP's 58 Project Delivery Standards.

The non conformance was with respect to Project Delivery Standard No. 24, when on 19 April 2009 the *Queen of the Netherlands* dredged outside areas set by the EMP for South Channel, near Hovell Pile.

The Office is satisfied that the environmental impacts of the non conformance were inconsequential.

No other non conformances were identified with the 58 EMP Project Delivery Standards.

The continuous improvement approach embodied in the international environmental management standard ISO14001 underpins the EMP. The Office has identified two new opportunities for improvement during the reporting period. Information on this is provided in section 3.2.2.

### 3.1. Accessibility and consultation

The Office was established to give the project the scrutiny it requires. The Office identified that to do this effectively it needed to understand the interests and concerns of its stakeholders and the Victorian community, particularly bayside communities.

A key objective of the Office is to be accessible to all stakeholders and the community. The Office prides itself on being accessible and has adopted a two-way communications approach to working with stakeholders and the community. The Office also places significant importance on being accountable and demonstrates this by following-up on issues raised by stakeholders and the community. It is also determined to be independent and transparent when discussing its role and the project with all stakeholders, community organisations and individuals.

During the reporting period the number of enquiries received by the Office rose against the previous quarter. The Office continued to maintain regular contact with the wide range of stakeholders, community organisations and individuals interested in the project. The Office also initiated and accepted invitations to meetings and briefing sessions from stakeholders and the community.

Since the project began, the Office has hosted or attended more than 260 meetings with stakeholders and individuals representing local councils, industry, environment and the health sector, State and Commonwealth governments and the media.

These meetings continue to provide an opportunity to hear first hand stakeholder and community views about the project and its implementation against the EMP, as well as views on the Office's performance during the project.

The meetings also give Office personnel, including the Environmental Monitor, the opportunity to share and discuss results from the 20 plus monitoring programs operating across the Bay.

The Office appreciates the time and interest of stakeholders, community groups and individuals in meeting with the Office and outlining and discussing matters of interest to them.

The Office acknowledges that stakeholder and community views vary and on some occasions opinions regarding the merits of the project were strongly held. While the Office responded to issues raised about the monitoring of the project, several recurring issues were identified by stakeholders and the community during the reporting period. The key issues and the Office's response are detailed in Table 2 below.

**Table 2. Issues raised by stakeholders and the community and the Office's response**

<b>Quarterly Review No. 5</b>	
<b>Issue</b>	<b>Response</b>
1. Tidal surges	<p>On 26 April 2009 the combination of strong winds and a low pressure system over Bass Strait caused tidal surges to occur at some Bay beaches. The tidal surge also occurred in Bass Strait and is evident in the tidal height records for Lorne Pier.</p> <p>Tidal surges are a natural phenomenon. A tidal surge is a rise above the normal water level along a shore that is the result of strong winds pushing on the water's surface and/or reduced atmospheric pressure that allows the water to pile up higher than what would normally occur.</p> <p>Up to 31 May 2009, seven months of tidal height data scrutinised by the Office showed changes in Bay tidal heights, following the end of dredging at the Entrance to Port Phillip Bay, were consistent with the Channel Deepening Project's predictions.</p>
2. Capping of the Bund	<p>Capping of the bund that holds 1.38 million cubic metres of contaminated sediment began on 2 May 2009 and is now complete, subject to verification by bathymetric survey.</p> <p>The Office has commissioned an independent audit to confirm that it meets the requirements set out in the EMP. The findings of the audit are due in June 2009.</p>

<p>3. 2009 Lower Yarra River Fish Study – fish species tested</p>	<p>The results from the 80 black bream, a target species, were sufficient to determine if there was a significant change in the contaminant concentrations of fish from the lower Yarra River since 2006.</p> <p>Insufficient numbers of the other target species, yellow-eye mullet, were caught during sampling for the 2009 Lower Yarra River Fish Study.</p> <p>Yellow-eye mullet are seasonally present in the lower Yarra River. Instead of delaying the study until enough yellow-eye mullet were caught, it was decided to proceed with the analysis of the black bream.</p>
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In addition to the meetings and briefings attended by Office personnel during the reporting period, the Office received and responded to three emails received via the 'contact us' page of the web site. The Office also fielded approximately 10 phone calls from stakeholders and the community and responded to more than 70 media enquiries.

While the Office has received mostly positive feedback from stakeholders and the community on how it provides and communicates information, it remains committed to identifying ways to improve this process and welcomes feedback.

The Office will continue to place significant importance on being accessible and meeting with the wide range of stakeholders interested in the project in the future.

## 3.2. Scrutinise and advise

The Office takes its responsibility to continuously scrutinise the project and provide Government regulators, stakeholders and the community with advice on how it is tracking against the EMP or rule book seriously. It is committed to doing this in an independent and transparent way.

To assist this, the Office has appointed Dr Peter Nadebaum of GHD to undertake a series of independent audits on the project. The Office has also commissioned the Australian Bureau of Meteorology's National Tidal Centre to provide advice on tidal height changes and sought advice from the Independent Expert Group. To date the following reports have been completed.

### Reports on Independent Audits

- Audit of the Channel Deepening EMP Project Delivery Standards (December 2008).
- Audit of Port of Melbourne Corporation Annual Report February 2009 (January 2009).
- Targeted audit of dredging in the Entrance to Port Phillip Bay (February 2009).
- Targeted audit of EMP requirements for Management of Contaminated Sediments (March 2009).
- Audit of the mechanisms used to monitor environmental performance (March 2009).

### Reports on Tidal Height Changes

- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 1: October 2008.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 2: November 2008.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 3: December 2008.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 4: January 2009.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 5: February 2009.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 6: March 2009.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 7: April 2009.

### Reports from the Independent Expert Group

- Comments on the findings re short-chain chlorinated paraffins in the Yarra mouth sediments.
- Ripper Draghead Compliance Verification.
- Entrance Dredging Clean up.
- Report by an Expert Panel - 2009 Lower Yarra River Fish Study.

#### 3.2.1. Conformance with the EMP

As highlighted in section 2.3 of this review, the project's environmental performance must be assessed against 58 Project Delivery Standards, with the standards being informed by four monitoring mechanisms.

Importantly, the EMP also sets out limits for the project, as well as obligations for PoMC to notify the Office and regulators on certain matters.

The following sections detail a number of the EMP's specific requirements and identifies whether or not the project has conformed to its standards and controls.

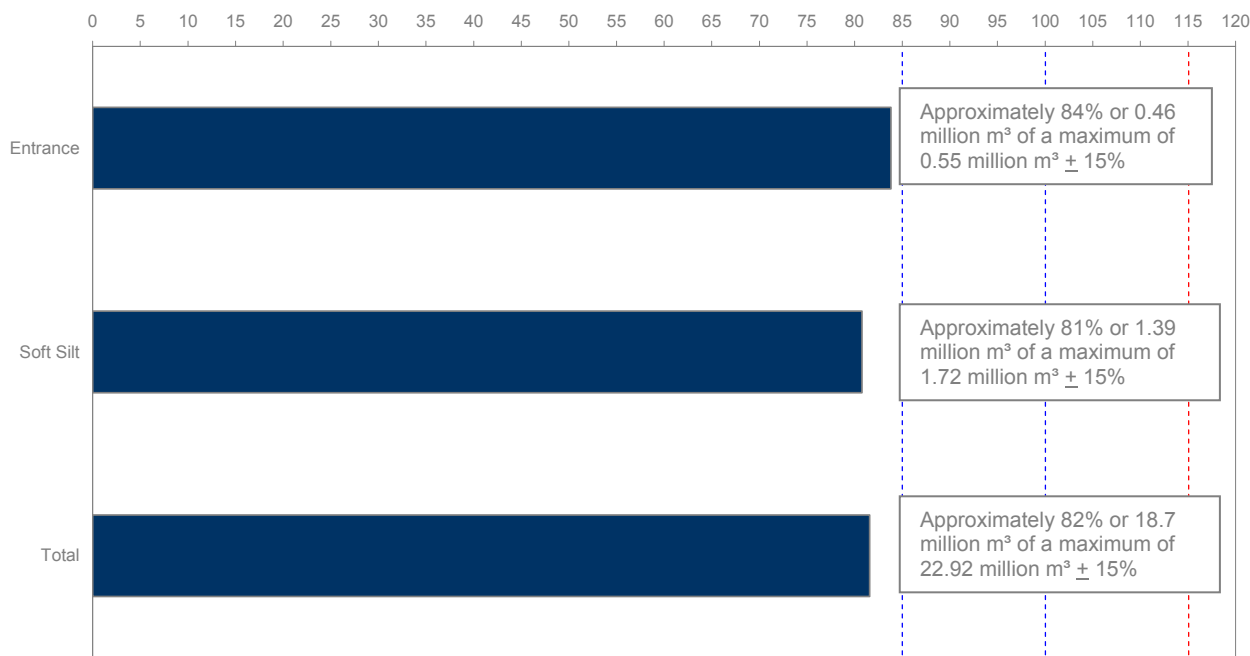
## Volume of material removed by the project

The EMP sets limits on the maximum *in situ* volume (gross volume) that can be dredged:

- The maximum *in situ* volume is 22.92 million m<sup>3</sup> ±15%.
- The maximum *in situ* volume in the Entrance is 0.55 million m<sup>3</sup> ±15%.
- The maximum *in situ* volume of contaminated sediments (soft silts) is 1.72 million m<sup>3</sup> ±15%.

Based on the information provided by PoMC, Figure 1 shows the gross volumes of material removed at 31 May 2009. The Office reports that the volumes of material dredged conformed to the limits set out in the EMP.

**Figure 1. Percentage of gross volumes of material removed up to 31 May 2009**



\*Note: The red line indicates the maximum *in situ* volume allowed to be removed during the Project.

### Finding

1. Up to 31 May 2009, the volumes of material removed conformed to the limits set out in the EMP.

### EMP Project Delivery Standards

PoMC must comply with the EMP's 58 Project Delivery Standards, which are rules about where, when and how the project must be delivered.

The Office has carefully scrutinised PoMC's activities during this reporting period. To help inform the Office's Quarterly Review No.5, it carefully considered PoMC's Quarter Report No.5

and the 46 reports that PoMC provided as supporting documentation. In addition, the Office examined the results from the environmental and Baywide Monitoring Programs (see below).

Nine of the 46 reports contain the findings of internal audits (see Table 3). PoMC's internal audits apply to key activities and the use of key equipment for the project. They include identification and reporting on conformance with a series of controls, inspections, surveys and monitoring requirements that are required for pre-construction, construction and post-construction phases of the project.

Table 3 lists the PoMC internal audits scrutinised by the Office during the reporting period. A list of the internal audits scrutinised in previous quarters is provided in Appendix 2.

**Table 3. PoMC internal audits scrutinised by the Office this quarter**

<b>Internal audits this quarter</b>	<b>Date of audit</b>
EMP Audit – <i>Storken</i> – Yarra River	29 April 2009
EMP Audit – <i>CoZa</i> – Yarra River and Hobsons Bay	21 April 2009
EMP Audit – <i>Ain d'Schalut</i> – Yarra River and Hobsons Bay	21 April 2009
Pre-start audit – <i>Extended Queen</i> – (North and South of Bay)	8 April 2009
Pre-start audit – <i>Ain d'Schalut</i> – (Yarra River and Hobsons Bay)	3 April 2009
EMP Audit – <i>Goomai</i> – (Services Protection incl. Yarra Tree)	18 March 2009
EMP Audit – Berthworks (32 South Wharf)	17 March 2009
EMP audit – Navigation Aids – (land-based)	16 March 2009
EMP Audit – <i>Prins</i> – (South of Bay)	6 March 2009

The Office examined PoMC's internal audit reports against each of the 58 Project Delivery Standards. The Office provided PoMC with the opportunity to provide factual comments of results on its initial examination and sought further information from PoMC on several of the standards. The results from the Office's final examination are provided in Appendix 1.

### **EMP requirement to notify and report**

The EMP includes rules about how quickly PoMC must notify the Office and regulators of events and critical points in the project. Notifications received by the Office during the fourth quarter are listed in Table 4.

Table 4. PoMC notifications received by the Office this quarter

Notification date	Comment
<b>Response Level reached</b>	
5 March 2009	Turbidity Response Level 2 (R2) reached on 4 March at monitoring buoy 2948.
<b>Environment limit exceeded</b>	
26 April 2009	Turbidity environmental limit exceeded, at 12.00 pm on 26 April at monitoring buoy 2948.
<b>Pollution event</b>	
30 May 2009	Notification of an oil spill of approximately two litres and action taken. The spill was from the <i>Miclyn Legend</i> and happened in the South Channel on 30 May.
21 May 2009	Notification that an oily substance was detected on the surface of the Yarra River near Yarraville. It was unrelated to the dredger, or support vessels, in the area.
2 April 2009	Notification of an oil spill of about five to 10 litres. The spill was from the <i>Storken</i> and happened in Port Melbourne Channel on 1 April.
<b>Imminent environmental hazard</b>	
Not applicable	
<b>Completion of dredging of contaminated sediments within an area</b>	
29 April 2009	Completion of dredging of contaminated sediments within an area of the Yarra River.
20 March 2009	Completion of dredging of contaminated sediments within an area of the Yarra River.
<b>Placement of contaminated material in bund</b>	
27 May 2009	Notification that the requirements for the placement of contaminated material in bund has been met.
15 May 2009	Notification that the requirements for the placement of contaminated material in bund has been met.
<b>Entrance clean up</b>	
Not applicable	

<b>Project Delivery Standard</b>	
8 May 2009	Notification of a partial non conformance with a PDS.
<b>Dredging schedule</b>	
6 May 2009	Monthly update and revision of the dredging schedule (Rev 2 Upd 4).
9 April 2009	Monthly update and revision of the dredging schedule (Rev 2 Upd 3).
5 March 2009	Monthly update and revision of the dredging schedule (Rev 2 Upd 2).
<b>Quarterly project report</b>	
9 June 2009	PoMC provided its Quarterly Report No. 5.
<b>Baywide monitoring – algal blooms</b>	
14 May 2009	Notification of a potential occurrence of an algal bloom.
9 April 2009	Notification of a potential occurrence of an algal bloom.
5 March 2009	Notification of a potential occurrence of an algal bloom.
<b>Sands and adjacent coast and beaches monitoring</b>	
Not applicable	
<b>6 hour EWMA for turbidity conformance locations</b>	
Not applicable	
<b>PoMC annual report</b>	
Not applicable	
<b>Independent audits</b>	
9 April 2009	Notification of the release of the Audit of mechanisms used to monitor environmental performance.
17 March 2009	Notification of the release of the Audit of EMP requirements for Management of Contaminated Sediments.

## **Finding**

2. During the quarter, up to 31 May 2009, the Office identified one partial non-conformance by the project against one of EMP's 58 Project Delivery Standards.

The partial non conformance was with respect to Project Delivery Standard No. 24, when on 19 April 2009 the *Queen of the Netherlands* dredged outside areas set by the EMP for South Channel, near Hovell Pile.

The Office is satisfied that the environmental impacts of the partial non conformance were inconsequential.

No other non conformances were identified with the 58 EMP Project Delivery Standards.

## **Monitoring programs**

As indicated in section 2.3, the EMP requires PoMC to monitor the project's environmental performance using four mechanisms:

1. Environmental monitoring;
2. Process monitoring, inspections and surveys;
3. Management performance monitoring; and
4. Baywide monitoring.

During the reporting period, up to 31 May 2009, the Office continued to give particular attention to three indicators of water quality including physical indicators such as turbidity, chemical indicators such as dissolved metals, and biological indicators such as algae. These indicators are addressed through mechanisms one and four listed above.

This involved:

- The detailed examination of results from the network of 20 turbidity monitoring buoys that measured the dredging plume (a physical indicator) that formed part of the environmental monitoring; and
- The detailed examination of the Baywide Monitoring Programs, specifically Algal Bloom and Nutrient Cycling Monitoring Programs that provided information on physical, chemical and biological indicators.

In addition, the Office examined data from the EPA's beach monitoring program and the Baywide Water Quality Monitoring Program.

Water quality indicators received particular attention because they are the most immediately responsive indicator to the effects of dredging. (In examining this information the Office was mindful that water quality is also responsive to external factors such as strong winds and storm water run off).

## Environmental monitoring

Environmental monitoring covers three indicators: turbidity, underwater and airborne noise.

Eleven conformance turbidity buoys that form part of a network of 20 buoys across the Bay are located at critical locations to protect sensitive marine plants and animals such as seagrass, benthic invertebrates and sea birds.

During the reporting period, the Office examined and publicly reported on weekly turbidity monitoring results and noted the following events.

On 4 March 2009 turbidity levels at a monitoring buoy 2948, near the southern Dredged Material Ground, exceeded two of the project's Response Levels. The *Prins der Nederlanden* was dredging sand from the south of the Bay at the time. Dredging works combined with winds between 55 and 75 kilometres an hour drove turbidity levels above Response Level 1. PoMC suspended dredging, but turbidity levels continued to rise, peaking just above Response Level 2 later that evening. Turbidity levels declined overnight and by 6.00am on 5 March 2009 were below Response Level 1.

On 26 April 2009 turbidity Response Level 1 at a monitoring buoy 2948, located south of the south east Dredged Material Ground was reached at 6.00am, and due to strengthening winds the *Queen of the Netherlands*, which was dredging in the south of the Bay, stopped dredging at 9.30am. At around midday, the turbidity reading, exceeded the environmental limit. The reading was 19 nephelometric turbidity units (NTU) compared to the limit of 17 NTU. Turbidity levels returned to below the environmental limit and Response Levels by 6.00am Monday 27 April, 2009. The *Queen of the Netherlands* recommenced dredging at 6.45am on 27 April 2009.

PoMC received two airborne noise complaints up to 30 April 2009. One was at Kensington and was not related to the project. The other was in the Newport/Spotswood area and is subject to an investigation.

No notifications of a loss of a 6-hourly Exponentially Weighted Moving Averages (EWMAs) for turbidity measurements at conformance buoys were received during the quarter. See Table 4 of this review.

During the reporting period the Office also scrutinised the technical results from noise compliance monitoring for both underwater and airborne noise. The results indicate that there were no non-conformances with the relevant standards and that the monitoring was done according to the EMP.

### Finding

3. Up to 31 May 2009, results from the Turbidity Monitoring Program and noise compliance monitoring for both underwater and airborne noise identified no non-conformances with the EMP.

## Baywide monitoring

The Office examined a range of data from the Baywide Monitoring Programs to inform its judgement on the project's overall environmental performance during the reporting period. This information is available on the Office's web site ([www.oem.vic.gov.au](http://www.oem.vic.gov.au)).

Table 5 outlines the information the Office examined from 1 March to 31 May 2009.

**Table 5. Baywide monitoring information examined by the Office**

Baywide Monitoring Program	Information / Data examined by the Office
Algal Bloom Monitoring Program	Quarterly Report No.5 for Baywide Algal Bloom Monitoring Program  PoMC Quarterly Report No.5 and PoMC Assessments of results outside expected variability
Plume Intensity and Extent Monitoring Program	Report on Event 5 for Baywide Plume Intensity and Extent Monitoring.  PoMC Quarterly Report No. 5
Contaminants in Fish Monitoring Program	Report of the Lower Yarra River Fish Study: Investigation of Contaminants in Fish.  2009 Lower Yarra Fish Study: report from an expert panel
Nutrient Cycling Monitoring Program	Milestone Report No. 4  Progress Reports 11 & 12  PoMC Quarterly Report No. 5
Little Penguins Monitoring Program	Data reports 9 & 10  Quarterly Report 4  PoMC Quarterly Report No. 5
Seagrass Monitoring Program	Milestone Report 3  PoMC Quarterly Report No. 5
Water Quality Monitoring Program	Progress Reports 14, 15 & 16  Milestone Report 3  PoMC Quarterly Report No. 5 and PoMC Assessments of results outside expected variability

Fish Stock and Recruitment Monitoring Program	<p>Milestone Report 2 for Fish Egg and Larval Monitoring Program</p> <p>Milestone Report 2 and Progress Report 3 for Recreational Fishery Monitoring Program</p> <p>PoMC Quarterly Report No. 5</p>
Ramsar-listed Wetlands Monitoring Program	No reports were due during this reporting period

The Contaminants in Fish Monitoring Program (2009 Lower Yarra River Fish Study) began on 12 January 2009, approximately three months after the bulk of the contaminated sediment was removed from the Yarra River. A report on the program and an expert panel review of it were released on 27 May 2009. The report found that contaminant concentrations in fish sampled from the lower Yarra River were generally lower than the concentrations sampled in 2006 and were below the guideline levels for Australian Food Standards.

The expert panel review found that the current health advice, which was in place prior to dredging, was informed by expert advice that considered the contaminant concentrations found in the 2006 samples. The health advice was based on conservative consumptions and consideration of national and international guidelines, and nothing observed in the 2009 data indicated the need to review this advice.

Event 5 of the Plume Intensity and Extent Monitoring Program demonstrated that the turbidity plume generated during dredging over summer in Port Melbourne and Williamstown channels did not deviate beyond modelled predictions.

Results for the remaining programs (Seagrass, Little Penguins, Water Quality, Algal Blooms and Fish Stock and Recruitment) were generally within the range of expected variability. In this reporting period, minor EWMA exceedances recorded for some water quality parameters were investigated by PoMC in accordance with the EMP's requirements. The Office has reviewed the investigation reports and is satisfied that these investigations were completed satisfactorily. The Office concludes that these exceedances do not indicate risks to Bay health.

The Office reports that to date, the results from the Baywide Monitoring Programs that monitor the Bay's health are generally within the range of variability that would be expected based on historical data. It should be noted that the Baywide Monitoring Programs will operate until the end of 2011, with the exception of the Contaminants in Fish Monitoring Program, which is now complete and the Plume Intensity and Extent Monitoring Program, which will be completed following the end of dredging by the Trailing Suction Hopper Dredges.

Although the Office is satisfied that the results from the first 18 months of the project are generally within the range of expected variability, it is still premature to make an overall assessment of the longer-term environmental performance of the project. The Office will continue to examine results from the Baywide Monitoring Programs to inform its judgement on the overall environmental performance of the project.

**Finding**

4. Up to 31 May 2009, results from the Baywide Monitoring Programs that monitor the Bay's health were generally within the range of variability that would be expected based on historical data. The Contaminants in Fish Monitoring Program found that contaminant concentrations in fish sampled from the lower Yarra River in 2009 were generally lower than the concentrations sampled in 2006 and were below the guideline levels for Australian Food Standards.

Minor EWMA exceedances recorded for some water quality parameters during this quarter do not indicate risks to Bay health.

Although the Office is satisfied the results to date are within the range of expected variability, it is premature to make an overall assessment of the longer-term environmental performance of the project.

### 3.2.2 Opportunities for improvement

The continuous improvement approach embodied in the international environmental management standard ISO14001 underpins the EMP. The Office identified opportunities for improvement in its first, second and fourth quarter reviews.

In its first quarterly review, released in June 2008, the Office highlighted:

The volume of data generated by the monitoring programs operating across the Bay is significant and will continue to grow rapidly. The Office supports the release of meaningful data (e.g. summary tables or graphs) rather than the release of raw unprocessed data. Furthermore, the Office encourages the release of meaningful data as it becomes available, rather than releasing data at arbitrary three monthly or longer intervals. Therefore, the Office appreciates the commitment of parties who have worked with the Office to identify ways to reduce the lag-time between sampling, time taken in the laboratory, analysis of the results and delivery of reports, while still maintaining the integrity of the reported information.

Each of the monitoring programs required by the EMP and other Bay monitoring programs have specific objectives and the data derived from each program needs to be considered on a program by program basis. However, the Office considers that substantial benefit could be gained by the continued and strengthened integrated consideration of findings from these programs, as anticipated by the EMP (section 3.8). In doing so, the Office considers that explicit consideration of external factors, such as continued below average rainfall, is warranted.

The Office notes the significant attention agencies have given to these matters.

A significant increase in quality and extent of data and interpretive material has now occurred. For example, raw water quality data for the Bay has been acquired through Australia's Integrated Marine Observing System, and historic fisheries data has been re-analysed to provide more integrated assessment of trends in fish stocks to more effectively inform management.

The Office commends the commitment of parties who have worked with the Office to identify ways to provide data and reports that meet the quality standards in terms timing, accuracy and completeness. These standards are important to the community's confidence in the data, its interpretation and subsequent management action.

The Office considers that with the pending transition of the Project from operational to post operational phase, agencies responsible for delivering the Baywide Monitoring Programs must ensure quality remains an enduring feature of the monitoring programs and data from these programs continues to be made available to the community in a meaningful form.

Up to 31 May 2009, one opportunity for improvement was identified. It arose from an independent audit commissioned by the Office on the mechanism used to monitor environmental performance.

#### **Issue 1: Mechanisms used to monitor environmental performance**

An independent audit of the mechanisms used to monitor environmental performance found that while compliance had been achieved with the requirements subject to audit it made six suggestions which could improve management systems or their auditability.

## **Opportunity**

The audits suggestions covered:

- Clarification of equipment used with respect to that stated in the Monitoring Underwater Noise – Detailed Design;
- Reporting of monthly in-situ measurements listed in the Baywide Monitoring Program Water Quality Detailed Design;
- Clarification of sampling frequency for the Baywide Monitoring Program Nutrient Cycling Detailed Design;
- Reporting for the Baywide Monitoring Program Little Penguin Monitoring Program;
- Description of sampling analysis of the Baywide Monitoring Program Fish Stock and Recruitment Detailed Design: Annual Trawl; and
- Description of monitoring equipment used in the Baywide Monitoring Program Fish Stock and Recruitment Detailed Design: Anchovy.

The Office is satisfied that these suggestions have been implemented.

Future opportunities for improvement may be identified by the Office or by the independent auditor appointed to conduct 11 audits of the EMP.

### 3.3. Report and communicate

A key objective of the Office is to communicate all available information on the project's environmental performance and the Bay's health in a timely manner to stakeholders and the community. The primary methods for achieving this are the Office's web site, participating in stakeholder and community meetings and through the regular release of announcements to the media. The Office has also undertaken to provide quarterly and annual reviews on its activities and findings, as well as reviews at critical points to the project's environmental performance.

At the completion of the quarter, up to 31 May 2009, the Office is pleased to report that it continued to promptly release information on the project's environmental performance, as it became available, via the web site and through media releases or other public information channels.

#### 3.3.1. The Office's web site

The Office's primary communication tool is its web site ([www.oem.vic.gov.au](http://www.oem.vic.gov.au)). It is a one-stop-shop for all data and information on the environmental performance of the project and the Bay's health. Through the web site, the Office has made available data and reports from monitoring programs, fact sheets, media releases, project progress updates, short web videos and links to other relevant information on the Bay such as web cams.

During the reporting period, the Office continued to regularly update the web site with project news and information from the wide range of monitoring programs. The Office continued to make adjustments to the web site to improve its usability, especially for monitoring data.

During the next quarter the Office will continue to maintain the web site, ensuring its content is relevant and up-to-date. Alterations and additions will continue to be made as required.

The Office considers video a valuable way of explaining the wide range of monitoring programs operating across the Bay and therefore has committed to producing several more videos.

From 1 March to 31 May 2009 the Office published 75 fact sheets, media releases and reports on monitoring programs on its web site. See Table 6.

**Table 6. Information and data published to the web site until 31 May 2009**

<b>Item</b>	<b>Number this quarter</b>	<b>Number to date</b>
Fact sheets	5	17
Media releases and statements	16	107
Web videos	0	2
Office's Work Plan	0	1
Office's Work Programs (including revisions)	0	3
Weekly project updates	12	59
Office environmental incident reports and advice	0	3
Turbidity Monitoring Program results	13	67
Plume Intensity and Extent Monitoring Program quarterly reports	1	5
Nutrient Cycling Monitoring Program reports	3	17
Algal Bloom Monitoring Program reports	1	5

Water Quality Monitoring Program reports	4	19
EPA Beach Monitoring Program reports	13	60
Little Penguin Monitoring Program report	3	14
Port Phillip Bay Annual Trawl monitoring program reports	0	2
Recreational Fishery Surveys progress report	2	5
Seagrass Monitoring Program	1	4
Port Phillip Bay Anchovy Study	0	2
Fish Egg and Larval Monitoring Program	1	3
Fish in Seagrass Monitoring Program	0	3
<b>Total</b>	<b>75</b>	<b>398</b>

During the reporting period web site traffic increased compared to the previous quarter. The web site was viewed by 2081 unique visitors (Table 7), with more than 24,000 page views. Popular pages were the Monitoring Program and Results, 2009 Lower Yarra River Fish Study and Beach Monitoring Program pages. A total of 2.97 GB of monitoring reports, web videos, fact sheets and media releases were downloaded from the site, reflecting the level of community interest in the environmental performance of the project.

**Table 7. Summary of usage statistics for the Office's web site**

	Month	Unique visitors	Number of visits	Pages
<b>Quarter 1 2008</b>	Feb 2008	284	694	14662
	Mar 2008	452	830	16095
	Apr 2008	498	957	9067
	May 2008	507	915	8367
	<b>Total</b>	<b>1741</b>	<b>3396</b>	<b>48191</b>
<b>Quarter 2 2008</b>	June 2008	414	759	6425
	July 2008	470	1008	10454
	August 2008	454	978	7039
	<b>Total</b>	<b>1338</b>	<b>2745</b>	<b>23918</b>
<b>Quarter 3 2008</b>	September 2008	470	984	7041
	October 2008	556	1023	6511
	November 2008	483	823	6577
	<b>Total</b>	<b>1509</b>	<b>2830</b>	<b>20129</b>
<b>Quarter 4 2008</b>	December 2008	454	816	7085
	January 2009	654	1041	9460
	February 2009	600	975	717
	<b>Total</b>	<b>1708</b>	<b>2832</b>	<b>17262</b>
<b>Quarter 5 2009</b>	March 2009	735	1130	7560
	April 2009	658	1057	7621
	May 2009	688	1101	9134
	<b>Total</b>	<b>2081</b>	<b>3288</b>	<b>24315</b>

### 3.3.2. Stakeholder and community meetings

The Office continued to meet with a wide range of stakeholders and members of the community interested in the project during the reporting period. The Office hosted or attended more than 55 meetings with stakeholders and individuals representing local councils, industry, environment, the health sector, State and Commonwealth government and the media. The Office considers

these meetings benefited all parties involved in the project and it has committed to continuing discussions with stakeholders and the community over the next three years.

### **3.3.3. Media releases and briefings**

During the reporting period, the Office disseminated a total of 16 media releases and media statements to metropolitan, suburban and regional media outlets. The media releases aimed to communicate easy-to-understand, relevant and timely information on the Office's progress as well as information on the project and monitoring program results to the Victorian community via media channels such as newspapers, television and radio.

The Office considers that this method was effective in communicating updates to the community during the reporting period and will continue to prepare and issue media releases as required.

The Office also received more than 70 media enquiries and participated in more than 30 media interviews and both accepted and organised media briefings with journalists. The Office will continue to provide relevant and timely information to the media and aims to maintain its availability to journalists and reporters.

## 4. Future directions: Reviews No. 6 & 7

While the Office considers that the project is progressing well in accordance with its objectives, it acknowledges that less than 18 per cent of material remains to be dredged, and the dredging by the Trailing Suction Hopper Dredges is scheduled to be completed by 31 August 2009. Nevertheless, the Office will remain vigilant in scrutinising the environmental performance of the project against the EMP and communicating its findings and recommendations to the Victorian community.

The Office will continue to provide an around-the-clock independent and transparent view on the environmental performance of the project, while implementing its Work Program.

Furthermore, the Office will continue to review its progress, every quarter, with Review No. 6 due in September 2009.

### 4.1. Review No. 6

#### **Accessibility and consultation**

The Office will report on its progress in continuing discussions with stakeholders, community organisations and individuals interested in the project. The Office will seek feedback from stakeholders and community groups its reporting of the second quarter of 2009.

#### **Scrutinise and advise**

The Office will report its findings generated from scrutinising documentation held by PoMC, as well as information from Victorian agencies to judge whether or not the project complied with all 58 Project Delivery Standards. Specifically, the Office expects to release independent audit reports covering the mechanisms to protect the Bay's seagrass, requirements for the construction of the underwater bund used to contain contaminated silts and requirements for the placement of the sand capping on the contaminated silts.

#### **Report and communicate**

The Office will provide an update on its progress to report and communicate information on the project's environmental performance. This will include information on its web site, the production of short videos, issuing media releases and stakeholder meetings.

## 5. Appendix

### Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

Construction management (all activities)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>1. <b>Hours of operation</b></p> <ul style="list-style-type: none"> <li>▪ All activities may be conducted on a 24 hour, 7 days a week basis, except where explicitly restricted within a PDS, or relevant legislation.</li> </ul>	✓	PoMC audits 66, 68, 70 and 75 indicate conformance with EMP PDS hours of operation.
<p>2. <b>Airborne noise</b></p> <ul style="list-style-type: none"> <li>▪ All activities must be conducted within SEPP N-1 limits.</li> <li>▪ Noise assessment (desktop) of dredging vessels and major equipment (that are new to the CDP and not included in the existing modelling) to be conducted before acceptance and mobilisation onto project. Where the assessment indicates that the vessel or equipment may not conform to the SEES risk assessment outputs, appropriate action is to be taken as described in Airborne Noise Contingency Plan.</li> </ul>	✓  ✓	<p>PoMC audits 66, 68, 70, 71, 74, 75 and 76 indicate that all activities for the PoMC reporting period 1 February 2009 to 30 April 2009 were in conformance with SEPP N-1 guidelines.</p> <p>PoMC pre-start audits 67, 72 and 73 indicate that a desktop assessment of the <i>Prins der Nederlanden</i>, <i>Ain d'Schalut</i> and <i>Queen of the Netherlands</i> airborne noise emissions were undertaken.</p> <p>Pre-start desktop noise assessments were done for the piling operations at Gellibrand Pier (77), and for dredging operations for the <i>Prins der Nederlanden</i> (80), <i>Queen of the Netherlands</i> (81) and the <i>Ain d'Schalut</i> (83).</p>
<p>3. <b>Airborne Noise Monitoring</b></p> <ul style="list-style-type: none"> <li>▪ Noise monitoring to be undertaken as described in the Airborne Noise Monitoring Program (Annexure 5):               <ul style="list-style-type: none"> <li>- An initial daytime compliance noise check of CDP activities in the Yarra River and Hobsons Bay will be undertaken at the monitoring location(s) nearest to the work activity over the first 3 days of construction activities.</li> <li>- An evening and/or night-time noise check will be undertaken when equipment identified with the potential to exceed SEPP N-1 limits is to be used in the evening or night.</li> </ul> </li> </ul>	✓	<p>PoMC audits 66, 67, 68, 71, 74 and 76 indicate that noise monitoring was undertaken as required and described in the Airborne Noise Monitoring Program.</p> <p>Noise monitoring results 77, 78, 79, 80, 81, 82 and 83 indicate that airborne noise measurement results were compliant with SEPP N-1 limits.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Construction management (all activities)</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<ul style="list-style-type: none"> <li>▪ Where monitoring indicates an exceedence, or potential exceedence, of SEPP N-1 limits, appropriate action is to be taken as described in Airborne Noise Contingency Plan.</li> </ul>	✓	PoMC audits 66, 67, 68, 71, 74 and 76 indicate that noise measurement results were compliant with SEPP.
<p><b>4. Waste management</b></p> <ul style="list-style-type: none"> <li>▪ All marine vessels to have sewage containment or treatment facilities. Sewage treatment will comply with Section 23G of the <i>Pollution of Waters by Noxious Substances Act 1986</i> (Vic).</li> <li>▪ No disposal of untreated sewage or other wastes to the bay.</li> <li>▪ Contractor waste management arrangements to include waste minimisation, containment, segregation and appropriate reuse, recycling, treatment and disposal.</li> <li>▪ The handling and disposal of unexpected materials identified during dredging (e.g. inert debris such as metallic wastes and timber) to be included in waste management arrangements.</li> <li>▪ All waste to be managed in accordance with:               <ul style="list-style-type: none"> <li>- <i>Environment Protection Act 1970</i> (Vic)</li> <li>- <i>Quarantine Act 1908</i> (Cwlth) (applicable vessels)</li> <li>- <i>Pollution of Waters by Oil and Noxious Substances Act 1986</i> (Vic)</li> </ul> </li> </ul>	✓	PoMC audits 66 to 76 indicate that, for vessels and activities, waste management arrangements were in accordance with PDS 4.
<p><b>5. Energy and greenhouse gases</b></p> <ul style="list-style-type: none"> <li>▪ The project will identify, calculate and report on energy consumption and greenhouse emissions on major plant and equipment consistent with the provisions of the Greenhouse Challenge Plus Program.</li> </ul>	✓	<p>PoMC audits 68, 71, 74, 75 and 76 indicate that reporting of fuel consumption for the calculation of greenhouse gas emissions for the <i>Prins der Nederlanden</i>, <i>Goomai</i>, <i>Ain d'Schalut</i>, <i>Cornelis Zanen</i> and <i>Storcken</i> was received monthly.</p> <p>PoMC audits 66 and 70 indicate that reporting of fuel consumption for the calculation of greenhouse gas emissions with respect to berthworks was received monthly.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Construction management (all activities)</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>6. Equipment maintenance</b></p> <ul style="list-style-type: none"> <li>▪ Maintenance programs will be implemented for all plant and equipment as defined in the <i>Occupational Health and Safety Regulations 2007 (Vic)</i>.</li> </ul>	✓	<p>PoMC audits 67, 68, 71 to 76 indicate that all maintenance programs were implemented and records kept for <i>Prins der Nederlanden, Goomai, Queen of the Netherlands, Ain d'Schalut, Cornelis Zanen</i> and <i>Storcken</i> plant and equipment.</p> <p>PoMC audits 66, 69 and 70 indicate that maintenance programs are in place for plant and equipment involved in berthworks and navigational aids.</p>
<p><b>7. Fuels, oils, chemicals and hazardous goods</b></p> <ul style="list-style-type: none"> <li>▪ Storage and handling of chemicals in accordance with: <ul style="list-style-type: none"> <li>- <i>Dangerous Goods Act 1985 (Vic)</i></li> <li>- <i>International Ship Management (ISM) Code</i> (applicable vessels)</li> <li>- <i>Pollution of Waters by Oil and Noxious Substances Act 1986 (Vic)</i></li> </ul> </li> <li>▪ Asbestos to be managed in accordance with the <i>Occupational Health and Safety Regulations 2007 (Vic)</i>.</li> </ul>	✓	<p>PoMC audits 67, 68, 71 to 76 indicate that storage of chemicals and hazardous goods occurred for <i>Prins der Nederlanden, Goomai, Queen of the Netherlands, Ain d'Schalut, Cornelis Zanen</i> and <i>Storcken</i> in accordance with PDS 7.</p> <p>PoMC audits 66, 69 and 70 indicate that storage and handling of chemicals occurred in accordance with PDS 7 for berthworks and navigational aids activities.</p>
<p><b>8. Emergency response preparedness</b></p> <ul style="list-style-type: none"> <li>▪ Development and testing of emergency response procedures, integrated with Melbourne Port Emergency Management Plan (MPEMP), including provision for fuel, oil and chemical spills.</li> <li>▪ All dredge vessels to have oil spill response kits on board. Relevant personnel to be trained in its use.</li> </ul>	<p>✓</p> <p>✓</p>	<p>PoMC pre-start audits 67, 72 and 73 indicate that vessel emergency response preparedness is in accordance with PDS 8 for the <i>Prins der Nederlanden, Ain d'Schalut</i> and <i>Queen of the Netherlands</i>.</p> <p>PoMC audit 69 indicates that emergency response requirements communicated to all workers for land-based navigational aids. PoMC audits 66 and 70 for berthworks indicate that emergency response procedures linked to MPEMP and include requirements for testing.</p> <p>PoMC audits 68, 71, 74, 75 and 76 indicate that oil spill kits are on board the <i>Prins der Nederlanden, Goomai, Ain d'Schalut, Cornelis Zanen</i> and <i>Storcken</i>, and that crew were trained in their use.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Marine-based works (all areas)</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>9. <b>Safety</b></p> <ul style="list-style-type: none"> <li>A safety zone of 600 m radius to be established around major dredging equipment during operations.</li> </ul>	✓	<p>PoMC pre-start audits 67 and 73 indicate that safety zone requirements have been communicated to crew of <i>Prins der Nederlanden</i> and <i>Queen of the Netherlands</i>.</p> <p>PoMC audits 68 and 75 indicate that safety zone requirements were established around <i>Prins der Nederlanden</i> and <i>Cornelis Zanen</i> as required by PDS 9.</p> <p>PoMC audits 71 and 74 indicate that vessel masters are aware of safety zone requirements established around major dredging equipment as required by PDS 9.</p>
<p>10. <b>Marine pests</b></p> <ul style="list-style-type: none"> <li>Marine pest inspection and certification of monitoring and support vessels, dredgers and pontoons is required before mobilisation onto project, where these are sourced from outside Port Phillip Bay. Certification must be received from the final port of call, before entry to Port Phillip Bay.</li> <li>All vessels to comply with “Protocol for Environmental Management – Domestic Ballast Water Management in Victorian State Waters”, EPA Publication 949.1 (June 2006)</li> <li>All vessels to comply with “Australian Ballast Water Management Requirements”, AQIS (1 June 2007)</li> </ul>	✓	<p>PoMC pre-start audits 67 and 73 indicate that a declaration of clean hull was obtained for the <i>Prins der Nederlanden</i> and <i>Queen of the Netherlands</i> from its final port of call. Pre-start audit 72 indicates that a marine pest certificate was received for the <i>Ain d’Schalut</i>.</p> <p>PoMC audits 71, 74 and 76 indicate that no ballast water exchange made with Bay waters for <i>Goomai</i>, <i>Ain d’Schalut</i> and <i>Storcken</i>.</p>
<p>11. <b>Vessel anchoring</b></p> <ul style="list-style-type: none"> <li>Vessels to anchor in accordance with the Port Waters of Melbourne Operations Handbook, 2006. This does not include the anchoring of pontoons at DMGs.</li> </ul>	✓	<p>PoMC audits 71, 74 and 76 indicate that no anchoring of the <i>Goomai</i>, <i>Ain d’Schalut</i> or <i>Storcken</i> was undertaken.</p> <p>PoMC audits 68 and 75 indicate that the <i>Prins der Nederlanden</i> and <i>Cornelis Zanen</i> anchored in accordance with PDS 11.</p>
<p>12. <b>Vessel bunkering</b></p> <ul style="list-style-type: none"> <li>All bunkering to take place in accordance with PoMC Bunkering Guidelines and vessel bunkering procedures.</li> </ul>	✓	<p>PoMC audits 68, 71, 74, 75 and 76 indicate that all bunkering of the <i>Prins der Nederlanden</i>, <i>Goomai</i>, <i>Ain d’Schalut</i>, <i>Cornelis Zanen</i> and <i>Storcken</i> occurred in accordance with PoMC bunkering requirements and vessel bunkering procedures.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Marine-based works (all areas)</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>13. Cetaceans – vessel manoeuvring</b></p> <ul style="list-style-type: none"> <li>▪ If within 300 m of a dolphin or whale the vessel must not: <ul style="list-style-type: none"> <li>- approach a whale or dolphin head on</li> <li>- be in the path of a whale or dolphin</li> <li>- separate any whale or dolphin from a group</li> <li>- come between a mother and a calf</li> <li>- drop or lower an anchor overboard from the vessel.</li> </ul> </li> <li>▪ Within 300 m of a whale or dolphin, the vessel must: <ul style="list-style-type: none"> <li>- maintain a constant speed that does not exceed 5 knots</li> <li>- avoid sudden changes in direction</li> <li>- manoeuvre the vessel to a distance of at least 200 m from the whale or dolphin if it shows any signs of disturbance (where safe to do so).</li> </ul> </li> </ul>	✓	<p>PoMC audits 66, 67, 70, 72 and 73 indicate that relevant personnel completed cetacean spotting, identification and reporting training.</p> <p>PoMC audits 68, 71, 74, 75 and 76 indicate that the <i>Prins der Nederlanden</i>, <i>Goomai</i>, <i>Ain d'Schalut</i>, <i>Cornelis Zanen</i> and <i>Storken</i> complied with cetacean manoeuvring requirements outlined in PDS 13.</p>
<p><b>14. Cetacean sightings and log</b></p> <ul style="list-style-type: none"> <li>▪ Personnel on board vessels are to report all sightings of cetaceans.</li> <li>▪ A log of cetacean sightings and action taken to be kept for all work areas.</li> </ul>	✓	<p>PoMC audits 66, 67, 70, 72 and 73 indicate that a cetacean log was on site for marine-based work.</p> <p>PoMC audits 68, 71, 74, 75 and 76 indicate that the <i>Prins der Nederlanden</i>, <i>Goomai</i>, <i>Ain d'Schalut</i>, <i>Cornelis Zanen</i> and <i>Storken</i> complied with cetacean sighting and log requirements outlined in PDS 14.</p>
<p><b>15. Services protection and removal</b></p> <ul style="list-style-type: none"> <li>▪ Management measures including positional controls and mechanical devices or annexures to dredging equipment to minimise the risk of damage to services.</li> </ul>	✓	<p>PoMC audit 76 indicates that positional controls and spud caps were in place for the <i>Storken</i> in order to protect services.</p> <p>PoMC audits 71, 72 and 74 indicate that positional controls were in place to minimise the risk of damage from the <i>Goomai</i> and <i>Ain d'Schalut</i> to services.</p>
<p><b>16. Marine-based berthworks and river protection works</b></p> <ul style="list-style-type: none"> <li>▪ Management measures to minimise quantity of debris entering the river during demolition and construction works.</li> </ul>	✓	<p>PoMC audits 66 and 70 indicate that management measures were in place to minimise debris entering the river from berthworks.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Marine-based works (all areas)</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>17. <b>Heritage (marine-based) – identification of potential relics</b></p> <ul style="list-style-type: none"> <li>▪ If potential relics are identified during construction activities, the process described in Annexure 6 will be followed.</li> </ul>	✓	PoMC audits 71, 74 and 76 indicate that no potential heritage items were identified for <i>Goomai</i> , <i>Ain d'Schalut</i> or <i>Storcken</i> activities.
<p>18. <b>Maritime heritage – berthworks and river protection</b></p> <ul style="list-style-type: none"> <li>▪ Recording and removal of Stony Creek Ballast Wharf Yarra River (H7822-0423) site in Newport Park, and the Lower South Wharf (H7822-0598) site associated with the expansion of the Swanson Dock swing basin as follows: <ul style="list-style-type: none"> <li>- Recording of above-water and below-water remains of the structure and any visible artefacts associated with the structure.</li> <li>- Monitoring of the riverbank modification works leading to the destruction of the site by an appropriately qualified archaeologist. If significant items are uncovered, the works will be suspended and the archaeologist given an opportunity to record the finds.</li> <li>- In the event that the riverbed is to be disturbed, to be preceded by test excavations to determine the nature of the archaeological deposit on the riverbed and to recover a sample of significant artefacts.</li> </ul> </li> </ul>	Completed	PoMC audit 70 indicates that archaeological monitoring during riverbank modification works has been completed.  Reports on these works were provided as part of Quarterly Review No.4.
<p>19. <b>Maritime heritage – dredging</b></p> <ul style="list-style-type: none"> <li>▪ Multibeam survey to be conducted on the bed of South Channel, SE DMG and the PoM DMG extension within 2 months before the start of dredging. Results to be reviewed by an archaeologist. Where any potential additional heritage sites are identified, these shall be investigated and appropriate management action taken, as advised by the archaeologist. Where an additional heritage site is identified, a report of the findings is to be made available to Heritage Victoria.</li> <li>▪ Conduct survey, excavation and removal of the Unidentified Dromana site (S894) (former Hovell pile light), South Channel. Report to be provided to Heritage Victoria.</li> <li>▪ Before the start of dredging, the following items will be recorded and removed: <ul style="list-style-type: none"> <li>- Dumped rock and artefacts, Port Melbourne Channel.</li> <li>- Wheels and axle, located at Hovell Pile, South Channel.</li> </ul> </li> </ul>	Completed  Completed  Completed	Reports on these works were provided as part of Quarterly Review No.1 and 2.  Reports on these works were provided as part of Quarterly Review No.1.  Reports on these works were provided as part of Quarterly Review No.4.

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

Marine-based works (all areas)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<ul style="list-style-type: none"> <li>▪ Conduct site inspection in vicinity of the <i>HMAS Goorangai</i> (S294) before the start of dredging in that area.</li> <li>▪ Conduct two inspections of the Edward (S209) before the start of dredging in the Entrance.</li> <li>▪ Inspection and site works described above to be carried out under the supervision of an archaeologist.</li> </ul>	<p>NA</p> <p>Completed</p>	<p>PoMC advised on 17 June 2009 that no dredging occurred near the <i>Goorangai</i>.</p> <p>Reports on these works were provided as part of Quarterly Review No.4.</p>
<ul style="list-style-type: none"> <li>▪ The following management measures shall be implemented for the wreck of the <i>HMAS Goorangai</i> (S294):               <ul style="list-style-type: none"> <li>- Use of the sweep bar in conjunction with the TSHD in the vicinity of the <i>HMAS Goorangai</i> to minimise overdredge.</li> <li>- Draghead tracking to confirm that dredging has not occurred within the area of heritage significance.</li> <li>- The area to which these controls apply are identified in Drawing CDP-ENV-50254 – Construction Areas – Heritage Significance (Drawings are included in Annexure 7).</li> </ul> </li> <li>▪ Survey to be carried out under the supervision of an archaeologist and report to be provided to Heritage Victoria.</li> </ul>	<p>NA</p>	<p>PoMC advised on 17 June 2009 that no dredging occurred near the <i>Goorangai</i>, therefore these management measures do not apply for this period.</p>
<ul style="list-style-type: none"> <li>▪ Multibeam survey to be conducted on the bed of Williamstown Channel, Port Melbourne Channel and South Channel within 12 months of completing dredging, to identify whether any more heritage sites have become exposed by batter adjustment. Results to be reviewed by an archaeologist. Where any potential additional heritage sites are identified, these shall be investigated and appropriate management action taken, as advised by or agreed with the archaeologist.</li> <li>▪ Conduct site inspection within 2 months of completion of dredging in the vicinity of <i>HMAS Goorangai</i> (S294). This area is identified in Drawing CDP-ENV-50254-Construction Areas- Heritage significance (Drawings are included in Annexure 7).</li> <li>▪ South Channel Pile Light (H1519 and H7821-0006) – four inspections of site, scheduled one per season within the first year after completion of dredging, with the aim of recording and recovering artefacts that have become exposed.</li> </ul>	<p>NA</p> <p>NA</p> <p>NA</p>	<p>Requirements do not apply to this reporting period as dredging was not yet completed.</p> <p>Requirements do not apply to this reporting period as dredging was not yet completed.</p> <p>Requirements do not apply to this reporting period as dredging was not yet completed.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Marine-based works (all areas)</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<ul style="list-style-type: none"> <li>▪ Unidentified – Port Melbourne n.2 (787) – eight inspections of the site, scheduled one per season for 2 years following completion of dredging, with the aim of recording erosion processes affecting the site.</li> <li>▪ Inspections to be carried out under the supervision of an archaeologist and reports to be provided to Heritage Victoria.</li> </ul>	NA	Requirements do not apply to this reporting period as dredging was not yet completed.

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

Land-based Works		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>20. <b>Stormwater and groundwater management</b></p> <ul style="list-style-type: none"> <li>Develop, implement and maintain stormwater and groundwater management plan to appropriately contain and manage discharges in accordance with <i>Environmental Guidelines for Major Construction Sites</i>, <i>EPA Publication 480</i>, <i>SEPP (Groundwaters of Victoria)</i>, and <i>SEPP (Waters of Victoria)</i>.</li> </ul>	✓	PoMC audits 69 and 70 indicate that stormwater run off controls have been addressed at all sites for land-based navigation aids and stormwater runoff controls included in construction EMP at 32 South Wharf berthwork site.
<p>21. <b>Contaminated material</b></p> <ul style="list-style-type: none"> <li>Manage and dispose of any land-based contaminated material in accordance with the <i>Environment Protection Act 1970</i>, subordinate legislation and associated guidance and technical notes. This includes <i>Industrial Waste Management Policy (Waste Acid Sulfate Soils)</i>, and <i>SEPP (Prevention and Management of Contaminated Land)</i></li> </ul>	✓	<p>PoMC audit 69 indicates that no contaminated material was identified at either site for land-based navigation aids.</p> <p>PoMC audit 70 indicates that disposal of contaminated soils taken from berthworks for 32 South Wharf site occurred in accordance with PDS 21.</p>
<p>22. <b>Aboriginal heritage</b></p> <ul style="list-style-type: none"> <li>If a potential heritage or Aboriginal site is identified during construction activities, the process described in Annexure 6 of the EMP will be followed.</li> <li>Monitoring by relevant Aboriginal representatives during construction at the Rocky Point and Narrows PEL Beacon sites in accordance with the Cultural Heritage Management Plan.</li> <li>As far as practicable, and in accordance with the Cultural Heritage Management Plan, avoid excavation on the access track to the Narrows PEL Beacon site at Queenscliff. This will minimise the risk of causing impacts on any undiscovered Aboriginal archaeological sites.</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>PoMC audit 70 indicates that no potential heritage relics were identified during construction activities at 32 South Wharf.</p> <p>Advice from PoMC dated 17 June 2008 indicated that no potential aboriginal heritage sites were identified during berthwork activities at sites Yarraville to Newport Park, including Holden Dock, Swanson Dock and Gellibrand Pier.</p> <p>PoMC also advise that berthworks at Swanson Dock have ceased.</p> <p>PoMC audit 70 indicates that alternate access routes were used at The Narrows site in order to avoid unnecessary impact caused by the access track. Monitoring by relevant Aboriginal representatives occurred at both sites during construction.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Dredging and plume PDS</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>23. <b>Sands and adjacent coast and beaches monitoring</b></p> <ul style="list-style-type: none"> <li>▪ Undertake a baseline bathymetric survey of the Sands flood tidal delta system, with continuous cover of the area within the Entrance from Point Lonsdale to St Leonards (including Swan Bay), across to Hovell Pile to Martha Point to Point Nepean, and including all the adjacent coast and beaches within that area, at a resolution of better than or equal to five metre horizontal spacing and vertical accuracy of better than or equal to 0.5 m. To be completed prior to commencement of dredging in the south, and two and four years after dredging commences.</li> <li>▪ Multibeam surveys of the Entrance shipping channels and South Channel to be undertaken prior to commencement of dredging in respective areas in the south, and two and four years after dredging commences.</li> <li>▪ Current measurements to be undertaken in South Channel and inside the Entrance after completion of dredging. Measurements to be compared against SEES predictions.</li> <li>▪ Sediment size analyses to be undertaken in conjunction with refined sediment transport numerical modelling post-construction.</li> </ul>	<p>NA</p> <p>NA</p> <p>NA</p> <p>NA</p>	<p>Initial baseline bathymetric survey completed and reported as part of Quarterly Review No.1.</p> <p>Initial multibeam survey completed and reported as part of Quarterly Review No.1.</p> <p>Requirement does not apply to this period as dredging was not yet completed.</p> <p>Requirement does not apply to this period as dredging was not yet completed.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

Dredging and plume PDS					Conformance	Office of the Environmental Monitor comment*
<b>Environmental controls</b>						
<b>24. Dredging</b>						
<ul style="list-style-type: none"> <li>▪ Design depths are to be achieved as a minimum in all areas. Due to dredging tolerance, actual construction depth will exceed design depths. Design depths are as follows:</li> </ul>						
	Great Ship Channel / layby	South Channel (fairway / channel / Hovell Pile)	Port Melbourne and Williamstown Channels	Yarra River Channel		
Design depth (m)	17.3 / 14.3	16.8 / 15.8 / 16.3	15.8	16.1 / 15.8 / 15.2		
<ul style="list-style-type: none"> <li>▪ Dredging must remain within the maximum total insitu volume, width constraints and construction depth constraints identified below:                             <ul style="list-style-type: none"> <li>- Maximum total insitu volume to be dredged is 22.92 million m<sup>3</sup> ± 15%, and</li> <li>- Maximum insitu volume to be dredged in the Entrance is 0.55 million m<sup>3</sup> ± 15%, and</li> <li>- Maximum insitu volume of contaminated sediments (soft silts) to be dredged is 1.72 million m<sup>3</sup> ± 15% (dredging volume to be finalised following pre-construction bathymetry survey), and</li> <li>- A minimum of 50% of the area to be dredged and within toe lines is to be within 0.9 m of the design depth (sands and clays) and within 1.3 m of the design depth (Entrance). This does not apply to the sand waves within South Channel, and</li> <li>- A minimum of 90% of the area to be dredged and within toe lines is to be within 1.8 m of the design depth (19.1 m total depth) as determined following completion of dredging (Entrance only), and</li> <li>- For areas to be dredged, final channel width to be no greater than 25 m outside of the Williamstown Channel, Port Melbourne Channel, and South Channel design toe lines and 15 m of the Entrance design toe line. 50% of the delivered toe line is to be within 15 m of the Williamstown Channel, Port Melbourne Channel, and South Channel design toe lines and 9 m of the Entrance design toe line. This does not apply to the sand waves within South Channel, and the north-west side of Nepean Bank (where the minimum amount to achieve a design depth of 17.3m is to be dredged).</li> </ul> </li> </ul>					✓	<p>A report on reaching design depth of the Great Ship Channel and associated lay-by area was provided as part of Quarterly Review No.4.</p> <p>The design depth for the other areas listed has not yet been reported as being achieved.</p>
					✓	<p>PoMC audits 68, 71, 74, 75 and 76 indicate that vessel tracking and operation of the <i>Prins der Nederlanden</i>, <i>Goomai</i>, <i>Ain d'Schalut</i>, <i>Cornelis Zanen</i> and <i>Storken</i> were conducted in accordance with PDS 24 and that conformance with depth, width and volume requirements has been demonstrated.</p> <p>PoMC Quarterly Report No.5 indicates that about 5.7 million m<sup>3</sup> of the 22.92 million m<sup>3</sup> ±15% maximum total volume was dredged between 1 February 2009 and 30 April 2009.</p> <p>Approximately 17.42 million m<sup>3</sup> has been dredged to 30 April 2009.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

Dredging and plume PDS		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<ul style="list-style-type: none"> <li>▪ Construction zone – construction zones have been identified to limit the footprint of dredging activities. Construction areas are identified in drawings listed below.</li> <li>▪ All dredging activities to take place within the construction zones. No dredging (as a subset of dredging activities) is to take place within 65 m of the outside edge of the construction zone (Port Melbourne Channel, South Channel and the Entrance only, except to the extent necessary to achieve a design depth of 17.3m along the north-west side of Nepean Bank). This is to be confirmed through draghead tracking (in dredging mode only) and validated by bathymetry survey (where draghead tracking indicates that dredging in this area has potentially occurred).</li> <li>▪ Dredging equipment and associated support vessels will be required to manoeuvre outside construction areas, including transit between construction areas. Toe lines and construction zones are identified on:               <ul style="list-style-type: none"> <li>- Drawing 35328 – Channel Deepening Project – Port of Melbourne – Coastal Management Consent Scope of Works</li> <li>- Drawing 35329 – Channel Deepening Project – Port of Melbourne – South – Coastal Management Consent Scope of Works</li> <li>- Drawing 35330 – Channel Deepening Project – Port of Melbourne – North – Coastal Management Consent Scope of Works</li> <li>- Drawing 35331 – Channel Deepening Project – Port Phillip Entrance – South Channel – Coastal Management Consent Scope of Works</li> <li>- Drawing 35332 – Channel Deepening Project – Port Phillip Entrance – South Channel – Coastal Management Consent Scope of Works</li> <li>- Drawing 35333 – Channel Deepening Project – South Channel – West - Coastal Management Consent Scope of Works</li> <li>- Drawing 35334 – Channel Deepening Project – South Channel – East - Coastal Management Consent Scope of Works</li> <li>- Drawing CDP-ENV-50254 – Construction Areas – Heritage significance</li> </ul> </li> <li>▪ (Drawings are included in Annexure 7)</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>PoMC pre-start audits 67, 72 and 73 indicate that on-board monitoring and tracking systems for the <i>Prins der Nederlanden</i>, <i>Ain d'Schalut</i> and <i>Queen of the Netherlands</i> are in conformance with PDS 24 including definition and identification of construction zones.</p> <p>PoMC audits 68, 71, 74, 75 and 76 indicate that vessel tracking and operation of the <i>Prins der Nederlanden</i>, <i>Goomai</i>, <i>Ain d'Schalut</i>, <i>Cornelis Zanen</i> and <i>Storcken</i> were conducted in accordance with PDS 24 and that conformance with depth, width and volume requirements has been demonstrated.</p> <p>The Office notes that the dredging equipment and associated support vessels are permitted to manoeuvre outside construction zones.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

Dredging and plume PDS					Conformance	Office of the Environmental Monitor comment*																														
<b>Environmental controls</b>																																				
<ul style="list-style-type: none"> <li>Dredging to be undertaken in accordance with EMP Method Statement for Dredging works North – Contaminated (CDP_ALL_MS_408)</li> <li>Tracking of equipment activity as follows:</li> </ul>					✓	PoMC audits 68, 71, 74, 75 and 76 indicate that vessel tracking and operation of the <i>Prins der Nederlanden</i> , <i>Goomai</i> , <i>Ain d'Schalut</i> , <i>Cornelis Zanen</i> and <i>Storcken</i> have been conducted in accordance with PDS 24.																														
<table border="1"> <thead> <tr> <th>Equipment</th> <th>Time</th> <th>Date</th> <th>Coordinates</th> <th>Other</th> </tr> </thead> <tbody> <tr> <td>TSHD</td> <td>✓</td> <td>✓</td> <td>Dredging – x,y,z of dragheads (northing, easting, depth to Chart Datum)  Sailing and placement of dredged material – x,y (northing, easting)</td> <td>Status of cycle (i.e. dredging, sailing, placement of dredged material)</td> </tr> <tr> <td>Backhoe Dredge and Grab Dredge (contaminated material only)</td> <td>✓</td> <td>✓</td> <td>x,y,z bucket (northing, easting, depth to Chart Datum)</td> <td>Nil</td> </tr> <tr> <td>Split hopper barges</td> <td>✓</td> <td>✓</td> <td>x,y (northing, easting)</td> <td>Nil</td> </tr> <tr> <td>Spreader pontoon</td> <td>✓</td> <td>✓</td> <td>x,y (northing, easting)</td> <td>Nil</td> </tr> <tr> <td>Diffuser pontoon</td> <td>✓</td> <td>✓</td> <td>x,y,z of diffuser (northing, easting, depth to Chart Datum)</td> <td>Nil</td> </tr> </tbody> </table>					Equipment	Time	Date	Coordinates	Other	TSHD	✓	✓	Dredging – x,y,z of dragheads (northing, easting, depth to Chart Datum)  Sailing and placement of dredged material – x,y (northing, easting)	Status of cycle (i.e. dredging, sailing, placement of dredged material)	Backhoe Dredge and Grab Dredge (contaminated material only)	✓	✓	x,y,z bucket (northing, easting, depth to Chart Datum)	Nil	Split hopper barges	✓	✓	x,y (northing, easting)	Nil	Spreader pontoon	✓	✓	x,y (northing, easting)	Nil	Diffuser pontoon	✓	✓	x,y,z of diffuser (northing, easting, depth to Chart Datum)	Nil	✓	PoMC audits 68, 71, 74, 75 and 76 indicate that vessel tracking and operation of the <i>Prins der Nederlanden</i> , <i>Goomai</i> , <i>Ain d'Schalut</i> , <i>Cornelis Zanen</i> and <i>Storcken</i> have been conducted in accordance with PDS 24.
Equipment	Time	Date	Coordinates	Other																																
TSHD	✓	✓	Dredging – x,y,z of dragheads (northing, easting, depth to Chart Datum)  Sailing and placement of dredged material – x,y (northing, easting)	Status of cycle (i.e. dredging, sailing, placement of dredged material)																																
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<ul style="list-style-type: none"> <li>Use of green valve at all times when using overflow.</li> <li>The overflow valve of the TSHD will be closed when sailing.</li> </ul>					✓	PoMC audits 68 and 75 indicate that operation of the <i>Prins der Nederlanden</i> and <i>Cornelis Zanen</i> has been conducted in accordance with PDS 24.																														
					✓																															

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Dredging and plume PDS</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>25. <b>Management of pipeline between TSHD and spreader or diffuser pontoon during transfer of sediments</b></p> <ul style="list-style-type: none"> <li>▪ Pipeline will be lit at night.</li> <li>▪ Support vessels will maintain a watch for non-project vessels.</li> <li>▪ Pumping will cease if an unauthorised vessel encroaches within 100 m of the pipeline, or if the integrity of the pipeline is compromised.</li> </ul>	Completed	Reports on these works were provided as part of Quarterly Review No.4.
<p>26. <b>Third party infrastructure</b></p> <ul style="list-style-type: none"> <li>▪ The process described in Annexure 6 will be followed for the management of sulfides, ammonium, TSS and turbidity in the Newport Power Station cooling water intake.</li> </ul>	✓	PoMC advised on 17 June 2009 that Newport Power Station intake monitoring is continuing consistent with Annexure 6 of the EMP (Rev 6).
<p>27. <b>Dredging of unconsolidated contaminated sediment</b></p> <ul style="list-style-type: none"> <li>▪ Contaminated sediment exists in the Yarra River and Williamstown Channels and the southern section of the Port Melbourne Channel. Dredging of contaminated sediment to be conducted with the following equipment: <ul style="list-style-type: none"> <li>- TSHD operating in non-overflow mode with a silt draghead.</li> <li>- Grab dredge.</li> <li>- Backhoe dredge.</li> </ul> </li> </ul>	✓	<p>PoMC pre-start audit 72 indicates that dredging of contaminated sediments scheduled to be undertaken by the <i>Ain d'Schalut</i> will be conducted according to PDS 27.</p> <p>PoMC audits 71 and 74 indicate that dredging of contaminated sediments by the <i>Goomai</i> and <i>Ain d'Schalut</i> in the Yarra River occurred in accordance with PDS27.</p> <p>Advice from PoMC dated 17 June 2008 indicated that the <i>Storken</i> dredged contaminated sediment in accordance with PDS 27.</p>
<p>28. <b>Dredging of contaminated clays</b></p> <ul style="list-style-type: none"> <li>▪ Contaminated clays in the two locations within Appleton Dock and near Webb Dock (identified in Annexure 7, Drawing CDP-Env-50383), and batter walls will be dredged with the following equipment to design depth: <ul style="list-style-type: none"> <li>- TSHD operating in non-overflow mode with a clay draghead.</li> <li>- Grab dredge.</li> <li>- Backhoe dredge.</li> </ul> </li> </ul>	✓	<p>PoMC audits 71 and 74 indicate that dredging of contaminated sediments by the <i>Goomai</i> and <i>Ain d'Schalut</i> in the Yarra River occurred in accordance with PDS28.</p> <p>PoMC advised on 17 June 2009 that dredging of contaminated clays by the <i>Cornelis Zanen</i> occurred only in non-overflow mode with the clay draghead.</p>


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## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Dredging and plume PDS</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>29. <b>Monitoring removal of contaminated sediments – TSHD</b></p> <ul style="list-style-type: none"> <li>▪ The following process is to be used to determine the transition from dredging contaminated to uncontaminated material within the Yarra River and Williamstown Channels. This process applies to the TSHD.               <ol style="list-style-type: none"> <li>1. The thickness of the contaminated sediments will be determined based on:                   <ol style="list-style-type: none"> <li>a. pre-dredge hydrographic survey</li> <li>b. estimated top of underlying uncontaminated clay, based on the combined interpretation of boreholes and seismic investigation.</li> </ol> </li> <li>2. Nominate the number of passes of the TSHD draghead required to dredge the full depth of unconsolidated contaminated sediments. This is to be based on the excavation thickness of a single pass of the TSHD draghead. Part passes will be rounded up to the nearest whole number.</li> <li>3. Identify areas of similar depth that can be practicably dredged with the same number of passes. This means localised shallower or deeper pockets of contaminated sediment that are too small to practicably be dredged separately will be incorporated into adjoining areas.</li> <li>4. Apply a grid over each area for comparison of nominated and completed draghead passes. The grid cell size will be determined based on draghead width and draghead position accuracy.</li> <li>5. Record x,y,z coordinates of draghead tracks while dredging.</li> <li>6. Calculate the number of draghead passes recorded in each grid cell within an area.</li> <li>7. Dredging of underlying uncontaminated material will only commence when no fewer than the nominated number of dredging passes (minimum of 1 pass) has been recorded in each grid cell within an area.</li> </ol> </li> </ul>	<p>Completed</p>	<p>Dredging of contaminated sediment (silt) by TSHD was completed in October 2008. No work for dredging this material was scheduled after 5 October 2008 in the EMP Dredging Schedule and no activity was described in PoMC Weekly CDP Updates after 5 October 2008.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Dredging and plume PDS</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>30. Monitoring removal of contaminated sediments – backhoe and grab dredges</b></p> <ul style="list-style-type: none"> <li>▪ The following process is to be used to determine the transition from dredging contaminated to uncontaminated material within the Yarra River and Williamstown Channels. This process applies to the backhoe/grab.               <ol style="list-style-type: none"> <li>1. The thickness of the contaminated sediments will be determined based on:                   <ol style="list-style-type: none"> <li>a. pre-dredge hydrographic survey</li> <li>b. estimated top of underlying uncontaminated clay, based on known maintained levels.</li> </ol> </li> <li>2. Apply a grid over the area for determination of area coverage. The grid cell size will be determined based on backhoe/grab width and position accuracy.</li> <li>3. Remove full thickness of contaminated sediments to top of uncontaminated clay.</li> <li>4. Record x,y,z coordinates of backhoe or grab.</li> <li>5. Dredging of the underlying uncontaminated material will only commence when removal of contaminated sediment to the full thickness has been recorded in each grid cell within an area.</li> </ol> </li> </ul>		<p>PoMC pre-start audit 72 indicates that the method used to determine the transition from dredging contaminated to uncontaminated material as described in PDS 30 will be used by the <i>Ain d'Schalut</i>.</p> <p>PoMC audit 71 and 74 indicates that identification of the transition from dredging contaminated to uncontaminated material has occurred for the <i>Goomai</i> and <i>Ain d'Schalut</i> in accordance with PDS 30.</p> <p>The Office has received Notifications from PoMC indicating that the requirements for commencement of dredging the underlying uncontaminated material have been met for the following areas:</p> <ul style="list-style-type: none"> <li>▪ Yarra River, in the services area south of Westgate Bridge, Kp 5.100 to Kp 5.363.</li> <li>▪ Yarra River, in the services area south of Westgate Bridge, Kp 5.363 to Kp 5.447.</li> </ul>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Dredging schedule</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>31. <b>Dredging schedule</b></p> <ul style="list-style-type: none"> <li>▪ The initial dredging schedule to be submitted to DSE before implementation.</li> <li>▪ Subsequent revisions of the dredging schedule and monthly updates will be submitted to DSE within 2 working days of approval by CDP management.</li>   <li>▪ Dredging to take place as summarised in 'Dredging Summary'.</li> <li>▪ Dredging schedule to include: <ul style="list-style-type: none"> <li>- dredging technology</li> <li>- dredging configuration (i.e. number and location of dredges, use of interval dredging)</li> <li>- timing, duration and sequence of dredging in Project Areas.</li> </ul> </li> <li>▪ Capping layer to be placed around 140 days after completion of the hydraulic placement of contaminated sediment to allow the sediment sufficient time to gain enough strength to support the capping layer.</li>   <li>▪ Capping will be completed before 31 December 2009.</li> </ul>	<p>Completed</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>NA</p>	<p>Report on this was provided as part of Quarterly Review No.1.</p> <p>PoMC audits 67, 68, 71, 74, 75 and 76 indicate that the dredging schedules Rev 2 (Updates 1-3) met the requirements of PDS 31.</p> <p>PoMC audits 67, 68, 71, 74, 75 and 76 indicate that the dredging schedules Rev 2 (Updates 1-3) met the requirements of PDS 31.</p> <p>PoMC advised the Office that capping of the bund commenced on 1 May 2009. Hydraulic placement of contaminated sediment was completed on 5 October 2008, therefore capping began 207 days after completion of hydraulic placement of contaminated sediment.</p> <p>Requirement does not apply to this period.</p>
<p>32. <b>Consideration of environmental limits</b></p> <ul style="list-style-type: none"> <li>▪ Revisions to the dredging schedule will be assessed to confirm ability to comply with airborne noise and turbidity environmental limits.</li> </ul>	<p>✓</p>	<p>PoMC audits 67, 68, 71, 74, 75 and 76 indicate that dredge schedules Rev 2 (Updates 1-3) met the requirements for the consideration of environmental limits in accordance with PDS 32.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Dredging schedule</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>33. <b>Consideration of seasonal sensitivities</b></p> <ul style="list-style-type: none"> <li>▪ No dredging permitted between 18 December and 31 January in the South of bay to mitigate impacts on the recreation and tourism activities during the holiday season.</li> <li>▪ Restrict dredging in Williamstown Channel (within Hobsons Bay) to less than 50% of key anchovy spawning period from 1 December to 28 February. A two weeks on/two week off sequence will be applied to this period.</li> <li>▪ No dredging using the TSHD in the Yarra River or Williamstown Channels between 15 October to 30 November to protect migration of the endangered Australian grayling species (relates to EPBC Act / NES matters – refer to Annexure 8).</li> <li>▪ Dredging using the TSHD in Yarra River between 1 April and 31 July restricted to no more than two calendar months, or equivalent in days to protect Australian grayling larval drift.</li> <li>▪ In preparing the dredging schedule, consideration will be given to seasonal sensitivities and preferred seasons identified in 'Key Seasonal Sensitivities and Preferred Seasons'. The decision process, including how seasonal sensitivities were considered, will be documented.</li> </ul>	<p>✓</p> <p>✓</p> <p>NA</p> <p>✓</p> <p>✓</p>	<p>PoMC dredging schedules Rev 2 (Updates 1-3) indicate that no dredging by a TSHD occurred in the South of the bay during this time.</p> <p>PoMC dredging schedules Rev 2 (Updates 1-3) indicate that dredging by a TSHD conformed to this requirement.</p> <p>Requirement does not apply to this period.</p> <p>PoMC dredging schedules Rev 2 (Updates 1-3) indicate that dredging by a TSHD conformed to this requirement.</p> <p>PoMC audits 67, 68, 71, 74, 75 and 76 indicate that dredge schedules at the time of the audit met the requirements for the consideration of seasonal sensitivities in accordance with PDS 33.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Dredged material management</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>34. <b>Dredged material placement</b></p> <ul style="list-style-type: none"> <li>▪ DMGs – all dredged material placement activities to take place within the specified DMGs (including associated construction areas) set out in:               <ul style="list-style-type: none"> <li>- Drawing 35328 – Channel Deepening Project – Port of Melbourne – Coastal Management Consent Scope of Works</li> <li>- Drawing 35331 – Channel Deepening Project – Port Phillip Entrance – South Channel Coastal Management Consent Scopes of Works.</li> </ul>               (Drawings are included in Annexure 7)             </li> <li>▪ Dredged material placement – All dredged material to be placed in accordance with ‘Dredging Summary’.</li> <li>▪ Dredged material placement including capping – to be undertaken in accordance with EMP Method Statement for material placement in PoM DMG (CDP_ALL_MS_410).</li> <li>▪ Dredging and disposal locations to be recorded as per tracking of equipment table (refer to Table 11 – Dredging and plume PDS).</li> <li>▪ Volumes are to be calculated from hydrographic survey data.</li> <li>▪ Dredged material placement will not commence if a whale is sighted within 300 m of the TSHD placing material into a DMG. If a whale is sighted, placement can commence if the whale has been seen to move beyond 300m, or has not been sighted within 300m for at least 15 minutes.</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>PoMC audits 68, 71, 74, 75 and 76 indicate that placement of dredged material in the specified DMGs has occurred in accordance with PDS 34.</p> <p>PoMC audit 68 and 75 indicates that placement of dredged material included considerations to be undertaken when a whale is in the vicinity.</p>


\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Dredged material management</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>35. PoM DMG – bund</b></p> <ul style="list-style-type: none"> <li>▪ Bunds to be constructed in accordance with design specifications (Drawings C001, C002 and C003). (Drawings are included in Annexure 7)</li> <li>▪ Bunds to be constructed using: <ul style="list-style-type: none"> <li>- consolidated sediments (clays) dredged from Port Melbourne Channel</li> <li>- uncontaminated clays dredged from Yarra River and Williamstown Channels (this is due to a deficit of clay from the Port Melbourne Channel)</li> <li>- sand from South Channel used for cleaning the TSHD hopper</li> <li>- contaminated clay from Appleton Dock, near Webb Dock and batter walls. The contaminated clays will be covered with uncontaminated clays or by capping, effectively isolating the contaminated clay from the marine environment.</li> </ul> </li> <li>▪ Once the main bund (Stage 1) is constructed, the remainder of consolidated sediments (clays) will be placed in the DMG extension (Stages 3 and 4). This clay will be used to construct bunds for future maintenance requirements in accordance with design specifications.</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>PoMC audits 71, 74, 75 and 76 and PoMC Notifications indicate that construction of the bund has followed requirements outlined in PDS 35.</p> <p>PoMC audits 71, 74, 75 and 76 and PoMC Notifications indicate that construction of the bund has followed requirements outlined in PDS 35.</p> <p>The main bund has now been constructed. PoMC Notifications indicate that construction of the maintenance bund for future maintenance requirements has followed requirements outlined in PDS 35.</p>
<p><b>36. PoM DMG – containment of contaminated material</b></p> <ul style="list-style-type: none"> <li>▪ Contaminated unconsolidated sediments will require dredging and disposal into the DMG prior to completing the bund. As a result, contaminated unconsolidated sediments will be placed within the partially constructed banded DMG. Therefore, before the placement of the contaminated unconsolidated sediments the following information is required: <ul style="list-style-type: none"> <li>- Confirmation that the partially constructed bund has been constructed in accordance with design specifications.</li> <li>- Confirmation of bund capacity and volume of contaminated unconsolidated sediments to be dredged.</li> </ul> </li> <li>▪ Daily during TSHD disposal (weather permitting) and weekly during barge disposal, hydrographic surveys required during placement of contaminated sediments to monitor depth contours and confirm DMG capacity and bund freeboard.</li> </ul>	<p>✓</p> <p>✓</p>	<p>PoMC audits 71, 74 and 76 and PoMC Notifications indicate that requirements for the interim (partially constructed) maintenance bund have been met, that the partially constructed bund has been constructed in accordance with design specifications and that the bund capacity has been determined.</p> <p>PoMC audits 71, 74 and 76 and PoMC Notifications indicate that regular hydrographic surveys have been completed for placement of contaminated sediments and that interim maintenance bund capacity has been determined.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Dredged material management</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>37. PoM DMG – capping</b></p> <ul style="list-style-type: none"> <li>▪ Prior to the placement of cap material the following is required.                             <ul style="list-style-type: none"> <li>- Confirmation by survey that bund has been constructed in accordance with design specifications.</li> <li>- All contaminated material removed for all dredging management units as per Table 11 – Dredging and plume PDS.</li> </ul> </li> <li>▪ Construction of cap for PoM DMG.                             <ul style="list-style-type: none"> <li>- Cap material to be placed in accordance with design requirements (Refer to drawings C001, C002 and C003).</li> <li>- Cap thickness to be confirmed by survey and/or physical testing prior to transfer to PoMC.</li> </ul> </li> <li>▪ Bottom water velocity will be measured adjacent to the PoM DMG at -15m CD. This and other data will be used to inform the placement of the capping layer around 140 days after completion of the hydraulic placement of contaminated sediment, in accordance with EMP Method Statement for material placement in PoM DMG (CDP_ALL_MS_410).</li> </ul>		<p>Advice from PoMC dated 17 June confirms the following environmental controls were undertaken prior to the start of sand capping:</p> <ul style="list-style-type: none"> <li>• Survey confirmation that the bund was constructed in accordance with design specifications</li> <li>• All contaminated material that required placement in the main bund was removed as per Table 11 - Dredging and Plume PDS</li> <li>• Bottom Water velocity was measured adjacent to the PoM DMG at -15m CD.</li> </ul> <p>This was covered in an internal PoMC audit that will be reported on in the next review.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Dredged material management</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>38. PoM DMG – maintenance and inspection</b></p> <ul style="list-style-type: none"> <li>▪ Maintenance and inspection procedures to be put in place for the long-term management of the PoM DMG and incorporated into PoMC operations management system.</li> <li>▪ Inspections and corrective measures to be in accordance with design specifications (Drawing C003).</li> <li>▪ Post-construction inspections of the bund should be undertaken in general accordance with the following intervals after completion of the construction of the bund. <ul style="list-style-type: none"> <li>- 2 weeks.</li> <li>- 1 month.</li> <li>- 2 months.</li> <li>- 4 months.</li> <li>- 8 months.</li> <li>- 12 months.</li> <li>- At 12-monthly intervals for the first five years after completion.</li> <li>- At 24-monthly intervals thereafter.</li> <li>- Within 2 weeks of a storm event (a 1 in a 100 year event) or seismic event (greater than 4.5ML on the Richter Scale), subject to safety considerations due to weather.</li> </ul> </li> <li>▪ Post construction inspections of representative areas of the capping should be undertaken in general accordance with the following intervals after completion of the capping. <ul style="list-style-type: none"> <li>- 1 month.</li> <li>- 4 months.</li> <li>- 12 months.</li> <li>- At 12-monthly intervals for the first five years after completion.</li> <li>- At 24-monthly intervals thereafter</li> <li>- Within 2 weeks of a storm event (a 1 in a 100 year event) or seismic event (greater than 4.5ML on the Richter Scale), subject to safety considerations due to weather.</li> </ul> </li> <li>▪ Undertake a marine pest survey of PoM DMG within 3 years of completion of project.</li> </ul>	<p>NA</p> <p>NA</p> <p>NA</p> <p>NA</p> <p>NA</p>	<p>Requirement does not apply as capping had not been completed during this reporting period.</p> <p>Note that the Office was advised by PoMC that regular surveys of the bund occur while it is under construction.</p> <p>Requirement does not apply as capping had not been completed during this reporting period.</p> <p>Requirement does not apply to this period.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Dredged material management</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>39. <b>SE DMG</b></p> <ul style="list-style-type: none"> <li>▪ Minimum 0.5 m sand material to be placed over Entrance rock material.</li>   <li>▪ Dredged material to be placed to maximum -15 m below Chart Datum.</li>   <li>▪ Once the dredged materials have been placed in DMG, survey to confirm materials have been placed in accordance with requirements prior to transfer to PoMC.</li> </ul>	<p>NA</p> <p>✓</p> <p>NA</p>	<p>Requirement does not apply to this reporting period as dredging was not completed.</p> <p>PoMC audit 68 indicates that placement of dredged material in the SE DMG occurred in accordance with depth requirements.</p> <p>Requirement does not apply to this reporting period as dredging was not completed.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Entrance dredging PDS</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>40. Draghead design</b></p> <ul style="list-style-type: none"> <li>▪ The draghead will be designed to minimise rockfall in accordance with the recommendations contained within Report number Z4117, <i>Physical Model Experiments with Ripper Dragheads in Rock. Experimental research program on reduction of spill WL</i> Delft Hydraulics, October 2006.</li> <li>▪ An independent peer reviewer is to verify:               <ul style="list-style-type: none"> <li>- that the draghead design is in accordance with the above mentioned report.</li> </ul> </li> </ul> <p>And:</p> <ul style="list-style-type: none"> <li>- that the draghead has been constructed in accordance with the design.</li> </ul>	Completed	Reports on completion of this PDS were provided as part of Quarterly Review No.1.
<p><b>41. Dredging in the Entrance</b></p> <ul style="list-style-type: none"> <li>▪ All dredging to be conducted with the ripper draghead.</li> <li>▪ When dredging towards the canyon, the draghead to be lifted so that no rock will be removed within 5 metres of the canyon edge, as defined in EMP Method Statement for Dredging works South – Entrance (CDP_ALL_MS_409).</li> <li>▪ When dredging the canyon edge itself, dredging to be conducted from the canyon towards the plateau.</li> </ul>	Completed	Reports on these works were provided as part of Quarterly Review No.4.

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Entrance dredging PDS</b>														
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>												
<p>42. <b>Clean up in the Entrance</b></p> <ul style="list-style-type: none"> <li>All clean up activities to be conducted with the clean up draghead. This may be either the ripper draghead with the teeth shielded or else a separate drag head.</li> <li>Clean-up to be undertaken in accordance with EMP Method Statement for Dredging works South – Entrance (CDP_ALL_MS_409). Weather forecasts will be obtained from a reputable service provider.</li> <li>Conduct removal of loose material in accordance with the table below. This will result in approximately twenty programmed clean up events. After clean up, dredging may recommence.</li> </ul> <table border="1"> <thead> <tr> <th>Quantity dredged (Q)</th> <th>Hs predicted &lt;3m</th> <th>Hs predicted &gt;3m</th> </tr> </thead> <tbody> <tr> <td>&lt;10,000 m<sup>3</sup></td> <td>Continue dredging</td> <td>Continue dredging</td> </tr> <tr> <td>10,000 m<sup>3</sup> &lt; Q &lt; 24,000 m<sup>3</sup></td> <td>Continue dredging</td> <td>Clean-up for 8-18 hours depending on quantity dredged</td> </tr> <tr> <td>~24,000 m<sup>3</sup></td> <td>Clean-up for at least 18 hours</td> <td>Clean-up for at least 18 hours</td> </tr> </tbody> </table> <p>Note: Q = Quantity dredged, HS = Significant wave height</p> <ul style="list-style-type: none"> <li>In addition to the programmed clean-up events, conduct other clean-up events: <ul style="list-style-type: none"> <li>prior to removal of the ridge along the north-west side of Nepean Bank as identified in EMP Method Statement for Dredging works South – Entrance (CDP_ALL_MS_409)</li> <li>once design profile has been achieved</li> <li>in any areas identified at Management Review meetings (e.g. areas identified through towed video survey)</li> </ul> </li> <li>The following process is to be used to monitor spatial extent of the clean up events. This process applies to each dredge – clean up cycle. <ol style="list-style-type: none"> <li>Apply a grid over the dredging area for comparison of draghead passes (dredging) and draghead passes (clean up)</li> <li>The x,y,z coordinates of the draghead tracks will be recorded during dredging and clean up.</li> </ol> </li> </ul>	Quantity dredged (Q)	Hs predicted <3m	Hs predicted >3m	<10,000 m <sup>3</sup>	Continue dredging	Continue dredging	10,000 m <sup>3</sup> < Q < 24,000 m <sup>3</sup>	Continue dredging	Clean-up for 8-18 hours depending on quantity dredged	~24,000 m <sup>3</sup>	Clean-up for at least 18 hours	Clean-up for at least 18 hours	<p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p> <p>Completed</p>	<p>Reports on these works were provided as part of Quarterly Review No.4.</p> <p>Reports on these works were provided as part of Quarterly Review No.4.</p> <p>Reports on these works were provided as part of Quarterly Review No.4.</p> <p>Reports on these works were provided as part of Quarterly Review No.4.</p> <p>Reports on these works were provided as part of Quarterly Review No.4.</p> <p>Reports on these works were provided as part of Quarterly Review No.4.</p>
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\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Entrance dredging PDS</b>				<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>															
<b>Environmental controls</b>																				
<ul style="list-style-type: none"> <li>Clean up is to continue until clean up has occurred in no fewer than 90% of the grid cells which were dredged during the cycle.</li> <li>If the time and/ or spatial coverage clean-up requirements described above are not achieved as a result of safety considerations due to unfavourable metocean conditions, then the following apply:</li> </ul>				Completed	Reports on these works were provided as part of Quarterly Review No.4.															
<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Spatial extent of clean up</th> </tr> <tr> <th colspan="2"></th> <th>≥80%</th> <th>&lt;80%</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Clean up time remaining</td> <td>≤ 1 hour clean up remaining</td> <td>No further clean-up required. Dredging may recommence when metocean conditions permit</td> <td>Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.</td> </tr> <tr> <td>&gt;1 hour clean up remaining</td> <td>Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.</td> <td>Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.</td> </tr> </tbody> </table>						Spatial extent of clean up				≥80%	<80%	Clean up time remaining	≤ 1 hour clean up remaining	No further clean-up required. Dredging may recommence when metocean conditions permit	Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.	>1 hour clean up remaining	Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.	Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.	Completed	Reports on these works were provided as part of Quarterly Review No.4.
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		≥80%	<80%																	
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	>1 hour clean up remaining	Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.	Clean up is to resume when metocean conditions permit until the clean up requirements described above are achieved.																	
<b>43. North-west side of Nepean Bank</b> <ul style="list-style-type: none"> <li>Along the north-west side of Nepean Bank (i.e. in the direct vicinity of the Point Lonsdale section of the Port Phillip Heads Marine National Park) a ridge at least 5 m wide along the north-west edge of the bank will be left in place until the remaining area has been dredged to the required design depth (as shown in drawing CDP-Env-50439). (Drawings are included in Annexure 7), and as identified in EMP Method Statement for Dredging works South – Entrance (CDP_ALL_MS_409)</li> <li>The north-west edge of Nepean Bank to be dredged last in the dredging schedule for Nepean Bank.</li> </ul>				Completed	Reports on these works were provided as part of Quarterly Review No.4.															
				Completed	Reports on these works were provided as part of Quarterly Review No.4.															

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Entrance dredging PDS</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>44. <b>Fish modelling</b></p> <ul style="list-style-type: none"> <li>▪ Modelling of dispersal of King George whiting larvae in the RL -22 m scenario. Report to be prepared summarising the modelling outcomes and comparison with the existing model.</li> </ul>	Completed	Reports on completion of this PDS were provided as part of Quarterly Review No.1.
<p>45. <b>Pre-construction plateau inspection</b></p> <ul style="list-style-type: none"> <li>▪ Conduct bathymetric survey and visual monitoring of scour holes at 3 monthly intervals in the trial dredge area and immediately adjacent areas of the Great Ship channel until the start of dredging. Following final survey, report to be prepared containing assessment of rate of scour and accretion and the mobility of material, the maximum potential depth of scour and the potential extent of lateral erosion in the scour holes. The assessment to include the consideration of hydrodynamic data records. Report to be available during construction.</li> </ul>	Completed	Reports on completion of this PDS were provided as part of Quarterly Review No.1.
<p>46. <b>Construction plateau inspection</b></p> <ul style="list-style-type: none"> <li>▪ 4-6 weeks following commencement of dredging, and subject to weather conditions and dredge schedule, conduct towed video survey of dredged and adjacent areas. Results to be considered at CDP Management review meeting.</li> <li>▪ Commence towed video survey at Rip Bank and Nepean Bank dredge plateaus to assess existence of loose rock as soon as practicable once design profile has been achieved and final clean up has been completed. Results of video to be reviewed to determine requirement for any additional clean up. Implement management action as determined. Report to be prepared following the towed video survey and additional clean up (if required).</li> </ul>	Completed  Completed	Reports on completion of this PDS were provided as part of Quarterly Review No.1.
<p>47. <b>Post-construction plateau inspection</b></p> <ul style="list-style-type: none"> <li>▪ Undertake towed video survey at Rip Bank and Nepean Bank dredge plateaus to assess existence of loose rock within 3 months following completion of dredging in the Entrance.</li> </ul>	✓	PoMC Quarterly Project Report No. 5 advised that the video survey has commenced.
<p>48. <b>Pre and post-construction bathymetric survey</b></p> <ul style="list-style-type: none"> <li>▪ Bathymetric survey of the Entrance to be undertaken to identify bathymetric changes at following intervals: <ul style="list-style-type: none"> <li>- Prior to commencement of dredging in the Entrance</li> <li>- 3, 6, 9, 12 months post-dredging</li> <li>- 2 years post-dredging</li> <li>- 4 years post-dredging</li> </ul> </li> </ul>	✓	Reports on completion of pre-construction bathymetric survey was provided as part of Quarterly Review No.1.  PoMC Quarterly Project Report No. 5 advised that the 3 month post-dredging survey has commenced.

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Entrance dredging PDS</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<ul style="list-style-type: none"> <li>- 10 years post-dredging</li> <li>- prior to programmed major maintenance dredging campaign (towed video survey also to be conducted at this time)</li> <li>▪ Report to be prepared following each survey containing assessment of accumulation and mobility of accretion due to scour, confirmation of the declared channel depth, and identifying any management responses such as no further action, further hydrodynamic modelling, further investigation or risk review (e.g. Aboriginal and non-Aboriginal heritage assessment) and/or additional clean up.</li> </ul>	NA	Reports on completion of pre-construction bathymetric survey was provided as part of Quarterly Review No.1.
<p><b>49. Post-construction deep reef habitat – impact &amp; recovery assessment</b></p> <p>Due to the difficulties of using quantitative ecological methods in the Entrance environment, there is a need for flexibility in undertaking the following:</p> <ul style="list-style-type: none"> <li>▪ Quantitative surveys by diver-operated video and remotely operated vehicle to describe the nature and distribution of impacts on the deep reef habitats. Surveys will be along standardised isobaths</li> <li>▪ Surveys will compare the coverage and distribution of physical and biological parameters, to document the status of any ongoing physical disturbance, any biological impacts and recovery.</li> <li>▪ Locations will include areas at Rip Bank and Nepean Bank and within the Port Phillip Heads Marine National Park impacted by rockfall, plus control areas both within and remote from the general area of rockfall.</li> <li>▪ Timing will be: <ul style="list-style-type: none"> <li>- Commence as soon as practicable after completion of dredging, but no later than 30 days after the final Entrance clean up has been completed (once design profile is achieved) to the satisfaction of the Minister for Environment and Climate Change. And results reported as soon as practicable following the completion of the survey and its analysis.</li> <li>- approximately four and ten years after completion of dredging</li> </ul> </li> </ul>	✓	PoMC Quarterly Project Report No. 5 advised that the 3 month post-dredging survey has commenced. A field report for the deep reef impact and recovery assessment has been released ( Port Phillip Bay Channel Deepening Project Deep Reef Impact and Recovery Assessment – Field Report, May 2009).
<p><b>50. Post-construction tide monitoring report</b></p> <ul style="list-style-type: none"> <li>▪ Collect tide gauge data at Queenscliff (296000N 5761900E), Hovell Pile (316325N 5755800E), West Channel Pile (303538N 5770405E), Williamstown (Breakwater Pier) (316790N 5807170E), Fawkner Beacon (317863N 5797863E) and Point Lonsdale Jetty (291600N 5759150E) for at least one year after completion of construction activities. Prepare a report to identify any changed tide conditions at Williamstown, Queenscliff, Geelong, Point Cook, Werribee and Mordialloc subsequent to completion of the project.</li> </ul>	NA	Requirement does not apply to this period.

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Hydrohammer use and marine-based pile driving</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<b>51. Minimise use of hydrohammer</b> <ul style="list-style-type: none"> <li>▪ Hydrohammer is only to be used following confirmation that material cannot be practically dredged by the TSHD. All available practical measures will be taken to break up hard material prior to use of the hydrohammer.</li> </ul>	NA	Requirement does not apply to this reporting period as hydrohammer was not used.
<b>52. Hours of operation</b> <ul style="list-style-type: none"> <li>▪ Hydrohammer and marine-based pile driving operations to take place during daylight only (daylight is defined as where there is adequate light to see a minimum distance of 600 m).</li> <li>▪ Hydrohammer only to be used Monday to Friday, excluding public holidays.</li> </ul>	✓  NA	PoMC audit 66 indicates that marine-based pile driving operations only occurred during daylight hours as defined by PDS 52.  Note that hydrohammer was not used in this reporting period.
<b>53. Start procedure</b> <ul style="list-style-type: none"> <li>▪ The start procedure for the hydrohammer and pile driving unit will comprise the use of a noise producing device that is capable of gradually increasing the level of acoustic energy for 10 minutes prior to use of this equipment. The noise producing device shall provide an initial noise level that is no greater than 140 dB (this noise level is less than that known to produce a Temporary Threshold Shift for cetaceans). This is to enable mobile fauna to move away.</li> </ul>	✓	PoMC audit 66 indicates that noise generating devices were used during marine-based pile driving activities.
<b>54. Hydrohammer – noise assessment</b> <ul style="list-style-type: none"> <li>▪ An initial noise check of the hydrohammer, confirming actual noise emissions against the modelling used to evaluate underwater noise impacts from the CDP will be undertaken, as follows:               <ul style="list-style-type: none"> <li>- Underwater noise monitoring of the hydrohammer by marine biology acoustic specialist.</li> <li>- Hydrohammer operations only to continue for as long as necessary to obtain sufficient data to confirm the source noise level and ambient underwater noise levels.</li> <li>- Analysis by marine biology acoustic specialist to confirm that the emission measurements conform to model used in the SEES risk assessment. Once confirmed, no further monitoring is required.</li> <li>- Hydrohammer operations only to resume following written confirmation by marine biology acoustic specialist that the results of the noise emission monitoring are within those modelled.</li> <li>- If the specialist confirms that the noise results significantly differ from those assessed in the noise modelling (either more or less), the contingencies identified within the Underwater Noise Contingency Plan are to be considered and appropriate action taken prior to continuing the use of the hydrohammer for the CDP.</li> </ul> </li> </ul>	NA	Requirement does not apply as hydrohammer was not used in this reporting period.


\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

## Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)

<b>Hydrohammer use and marine-based pile driving</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p><b>55. Hydrohammer – cetaceans</b></p> <ul style="list-style-type: none"> <li>▪ Hydrohammer vessel master to ensure that there are personnel available to observe a minimum of 600 m radius from the hydrohammer vessel (may be in combination with other project vessel crews or land based).</li> <li>▪ A minimum of 15 minutes of active cetacean spotting required before hydrohammer operations commence.</li> <li>▪ Vessel master to confirm ‘all clear’ for cetaceans within a 600 m radius of the hydrohammer before the commencement of hydrohammer operations.</li> <li>▪ Hydrohammer vessel master will advise other CDP vessels in the vicinity that hydrohammer operations are scheduled. Crews of these vessels will then also keep a watch for cetaceans before and during hydrohammer operations.               <ul style="list-style-type: none"> <li>- If a cetacean is spotted within 600 m of the hydrohammer vessel or is assessed as likely to move within 600 m of the hydrohammer vessel, the hydrohammer to suspend operations immediately. Operations may only recommence when no cetacean has been sighted within 600 m of the hydrohammer for at least 15 minutes, or if the cetacean(s) are seen to move beyond 600 m.</li> </ul> </li> <li>▪ Any break in hydrohammer operations that results in a break in observations will require the 15 minutes pre-startup observation to be redone before hydrohammer operations can resume.</li> </ul>	NA	Requirement does not apply as hydrohammer was not used in this reporting period.
<p><b>56. Hydrohammer – no-dive zone</b></p> <ul style="list-style-type: none"> <li>▪ A 1.4 km ‘no-dive zone’ to be established around the hydrohammer operations. Beach activities (e.g. swimming, snorkelling, surfing) will be unrestricted within 500 m of shore.</li> </ul>	NA	Requirement does not apply as hydrohammer was not used in this reporting period.
<p><b>57. Marine-based pile driving – noise assessment</b></p> <ul style="list-style-type: none"> <li>▪ An initial check of marine-based pile driving equipment, confirming actual noise emissions against the modelling used to evaluate underwater noise impacts from the CDP will be undertaken as described in the Underwater Noise Monitoring Program (Annexure 5).</li> </ul>	✓	PoMC audit 66 and noise monitoring result (84) indicates that underwater noise testing of marine-based pile driving equipment was undertaken on commencement of piling operations and conforms to modelling.

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

**Appendix 1. Project Conformance with EMP Project Delivery Standards (PDS)**

<b>Hydrohammer use and marine-based pile driving</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<p>58. <b>Marine-based pile driving – cetaceans</b></p> <ul style="list-style-type: none"> <li>▪ ‘All clear’ for cetaceans within a 300 m radius of the pile driving unit to be confirmed before the commencement of pile driving operations.</li> <li>▪ Maintain a watch for cetaceans when operating in Williamstown Channel, North of bay and South of bay and berths.</li> <li>▪ If a cetacean is spotted within 300 m of equipment, the following actions shall be taken:               <ul style="list-style-type: none"> <li>- Pile driving unit to suspend operations immediately.</li> <li>- If cetaceans are not seen to move beyond 300 m, operations cannot restart until no cetacean has been sighted for at least 15 minutes.</li> <li>- If cetaceans are seen to move beyond 300 m, operations can recommence immediately.</li> </ul> </li> </ul>		<p>PoMC audit 66 indicates that “start up” and “shut down” procedures for marine-based pile driving is included in the work package CEMP and communicated to relevant staff.</p>

\* For more information on PoMC audit numbers, please refer to table following this Appendix 1.

<b>Reference Number</b>	<b>Audit Description</b>	<b>Date</b>
66	EMP Audit – Berthworks (Gellibrand Pier)	16 February 2009
67	Pre-start audit – <i>Prins der Nederlanden</i> – (North and South of Bay)	17 February 2009
68	EMP Audit – <i>Prins</i> – (South of Bay)	6 March 2009
69	EMP audit – Navigation Aids – (land-based)	16 March 2009
70	EMP Audit – Berthworks (32 South Wharf)	17 March 2009
71	EMP Audit – <i>Goomai</i> – (Services Protection incl. Yarra Tree)	18 March 2009
72	Pre-start audit – <i>Ain d'Schalut</i> – (Yarra River and Hobsons Bay)	3 April 2009
73	Pre-start audit – <i>Extended Queen</i> – (North and South of Bay)	8 April 2009
74	EMP Audit – <i>Ain d'Schalut</i> – Yarra River and Hobsons Bay	21 April 2009
75	EMP Audit – <i>CoZa</i> – Yarra River and Hobsons Bay	21 April 2009
76	EMP Audit – <i>Storken</i> – Yarra River	29 April 2009
	<b>Noise Monitoring</b>	
77	Bassett (2009d) Boskalis – Channel Deepening Project Works - Desktop review of the potential noise impacts from the piling operations at Gellibrand Pier	13 February 2009
78	Bassett (2009b) Boskalis – Channel Deepening Project Works – Airborne Noise Monitoring – Portsea	20 - 23 February 2009
79	Bassett (2009a) Boskalis – Channel Deepening Project Works - Measurement of noise from the piling operations at Gellibrand Pier	24 February 2009
80	Bassett (2009e) Boskalis – Channel Deepening Project Works - <i>Prins der Nederlanden</i> – Pre-start Desktop Airborne Noise Assessment for new vessel	4 March 2009
81	Bassett (2009g) Boskalis – Channel Deepening Project Works - Desktop Review of the <i>Queen of the Netherlands</i> dredging noise	9 April 2009
82	Bassett (2009c) Boskalis – Channel Deepening Project Works - Airborne Noise Monitoring – Queenscliff	18 April 2009
83	Bassett (2009f) Boskalis – Channel Deepening Project Works – <i>Ain d'Schalut</i> – Pre-start Desktop Airborne Noise Assessment for new vessel	28 April 2009
84	CMST (2009) Gellibrand Pier impact pile driving underwater noise	24 February 2009

For more information on PoMC audit numbers, please refer to table following this Appendix 1.