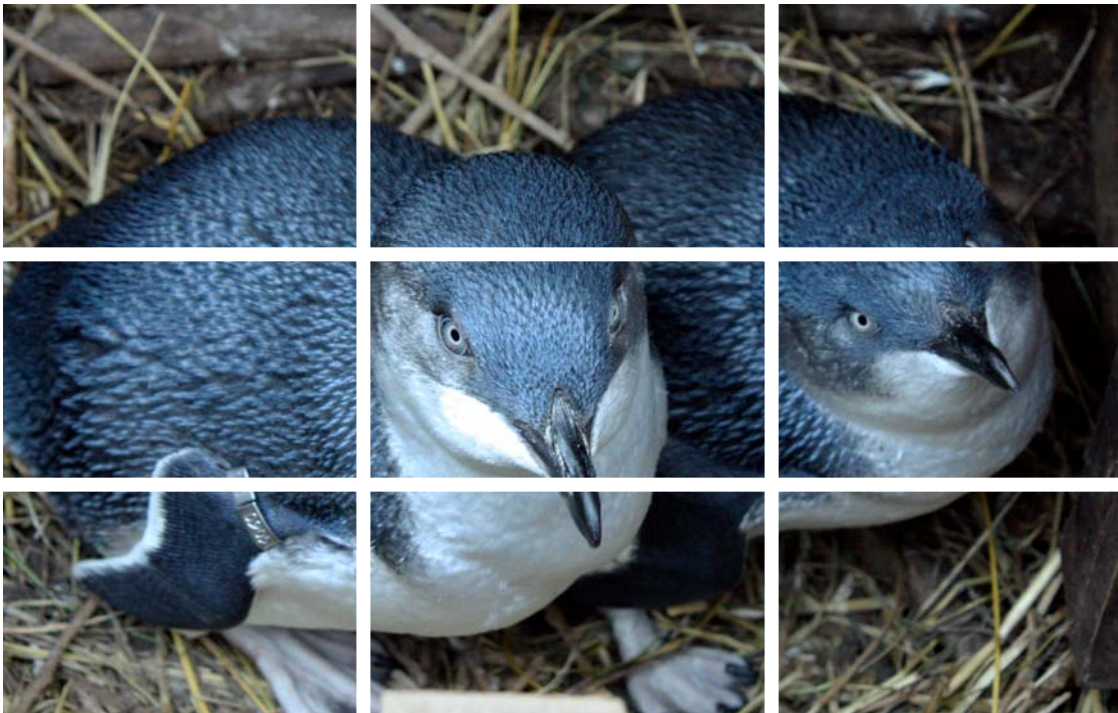


# Office of the Environmental Monitor

Quarterly Review No. 6 – September 2009



Reporting Period: 1 June to 31 August 2009

An electronic copy of this document is available at [www.oem.vic.gov.au](http://www.oem.vic.gov.au)

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Cover photo: Little Penguins from the Phillip Island Nature Parks colony- 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 June to 31 August 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 August 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. 34, when on 3 August 2009 the barge Resolution made an emergency disposal of clean clay outside the area set by the EMP.

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 reporting period 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, two opportunities for improvement have been identified for consideration by PoMC and the project's regulators.

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 December 2009.

# Summary of Quarterly Review No.6 findings

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## Findings

1. Up to 31 August 2009, the volumes of material removed conformed to the limits set out in the EMP.
2. During the quarter, up to 31 August 2009, the Office 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. 34, when on 3 August, 2009 the barge Resolution made an emergency disposal of clean clay outside the area set by the EMP.

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 August 2009, results from the Turbidity Monitoring Program and noise compliance monitoring for both underwater and airborne noise did not identify any non-conformances with the EMP.
4. Up to 31 August 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.

## Opportunities for improvement

In this quarter the Office identified two opportunities for improvement.

### Issue 1: Risk review

The Office's investigation report on the partial non conformance with Project Delivery Standard No. 34 on 3 August 2009 noted that PoMC had identified three actions as a result of the partial non conformance: reinforcing the requirements and importance of reporting near misses to its contractors, identifying opportunities to reduce the risk of similar events, and establishing contingency arrangements.

The Office noted that PoMC had already implemented the first action and established interim arrangements until the risk review could be completed and its findings implemented.

### Opportunity

When implementing the opportunities it has identified, it is recommended that PoMC address the following:

- Should the risk review of the use of non self-propelled barges not provide the certainty required, the review context should be broadened to consider other equipment options;
- The results of the risk review be formally incorporated in the Project risk register, and the register updated as required; and

- Contingency arrangements be considered following the risk-review.

## **Issue 2: EMP transition from construction to post-construction stage**

EMP standards have been progressively implemented during the construction phase of the project. Several standards are already complete, with additional standards to be completed upon conclusion of the construction phase of the project. Similarly, other EMP requirements (such as some notifications) will be completed upon conclusion of the construction phase of the project. As a result, a significant portion of the EMP will be effectively 'closed'.

The EMP also includes a number of post-construction phase standards and requirements such as surveys and inspections, and the Baywide Monitoring Programs.

The process for providing clarity of those remaining requirements in the EMP applicable to the post-construction phase of the project should be transparent.

### **Opportunity**

In reviewing the EMP to progress from the construction to post-construction phase of the project, it is recommended that PoMC, in consultation with the regulators and the Office, develop a transparent process for providing clarity for the remaining requirements in the EMP applicable to the post-construction phase 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 June to 31 August 2009. This is review No.6 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 quarter report No.6 on 8 September 2009.

PoMC's quarterly report includes information that was available to PoMC up to 31 July 2009. The Office has reviewed this report, the supporting PoMC documents (see Appendix 1 of PoMC Quarterly Project Report No. 6) 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.

A report on the implementation of the EMP for the Entrance was released in February 2009.

Up to the end of 2011, 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 reporting period 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 (TSHD) within the Bay ended on 4 September 2009. Other project works continue, with the entire project to be delivered by late 2009.

A maximum of 22.92 million m<sup>3</sup> ( $\pm 15\%$ ) 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 August 2009, the project had dredged approximately 22.72 million cubic metres, around 99 per cent of the total permitted project volume. A breakdown is provided in Table 1.

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

<b>Dredge Locations</b>	<b>Gross volume (million m<sup>3</sup>)</b>
Yarra River (contaminated soft silts)	0.88
Yarra River (clays)	2.13
Williamstown Channel (contaminated soft silts)	0.50
Williamstown Channel (clays)	1.12
Port Melbourne Channel	2.44
South Channel	15.19
The Entrance	0.46
<b>Total</b>	<b>22.72 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 9 at 31 August 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 example.

## **3. Progress to date: Quarterly Review No.6**

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Section 3 summarises the Office's activities up to 31 August 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 August 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. 34, when on 3 August 2009 the barge Resolution made an emergency disposal of clean clay outside the area set by the EMP.

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.

The continuous improvement approach embodied in the international environmental management standard ISO14001 underpins the EMP. The Office identified two opportunities for improvement during the reporting period.

### **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 decreased compared with 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 320 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. 6</b>	
<b>Issue</b>	<b>Response</b>
1. Port Phillip Bay tides	<p>There have been no changes to the Bay's sea level from dredging. The project's environmental assessment process predicted that after the Entrance to the Bay was deepened, high tides within the Bay would increase by approximately one centimetre and low tides would decrease by the same amount.</p> <p>Ten months of tidal height monitoring data shows the Bay's tides remain consistent with dredging predictions. Tide height changes of around one centimetre continue to be detected within the Bay.</p>
2. Tidal surges	<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 would normally occur.</p>
3. Dredging, transportation and placement of contaminated sediment	<p>The EMP sets out requirements for the removal and placement of contaminated sediment by the dredge vessels (TSHDs) or backhoe and grab dredgers.</p> <p>In July 2009, the Office responded to a media enquiry about whether or not contaminated sediment dredged from the Yarra River and the north of the Bay had been placed and contained in the bund correctly.</p> <p>The Office closely followed works undertaken to remove, manage and place contaminated material during the project and did not identify any non conformances by the project against the EMP relating to the removal, management and placement of contaminated sediment.</p> <p>The findings from an independent audit commissioned by the</p>

	<p>Office on the removal, management and placement of unconsolidated contaminated sediment found the project was fully compliant with the rule book.</p> <p>An independent audit into whether or not the bund was built correctly found the bund was built in accordance with all of the EMP's rules around its location, construction, equipment used and design.</p> <p>An independent audit designed to verify the bund's sand capping layer and confirm that it had been applied correctly found the sand capping layer had been spread over the bund in accordance with all of the EMP's rules around its application, equipment used and thickness.</p>
<p>4. Anchovy study results</p>	<p>The June 2008 Baywide Anchovy Study was the first detailed study undertaken in Port Phillip Bay since the 1950s.</p> <p>Results showed that anchovies were abundant in the Bay at that time, although no anchovies aged 0+ were present in a sample of fish taken for ageing. The lack of juveniles in this sample was attributed to either a low level of recruitment or sampling issues related to the difficulty of sampling a population of small, mobile and highly aggregated fish in a large body of water.</p> <p>Preliminary results from the June 2009 survey will be available at the end of September, with final results available by December 2009. Further sampling scheduled for 2010 and 2011 will provide a better understanding of how anchovy populations vary from year to year.</p>
<p>5. Fish study weights</p>	<p>The 2009 Lower Yarra River Fish Study report released in May 2009 noted that the fish sampled in January 2009 were consistently leaner, in that their weight was consistently less for the same length, than in April and May 2006.</p> <p>Fish weights vary naturally. Weight can vary depending on the stage of a fish breeding cycle as well as the abundance and availability of food.</p> <p>The Office and EPA Victoria investigated the issue and concluded that based on weight and length data from bream taken elsewhere in Victoria, there was nothing unusual about the size of the bream caught for the 2009 Lower Yarra River Fish Study.</p>

<p>6. Radionuclides in the Yarra River</p>	<p>The Office reviewed previously considered information on the presence of radionuclides in the Yarra River.</p> <p>The implications of radionuclides were comprehensively considered during the 2007 public inquiry as part of the Supplementary Environment Effects Statement. Research into the levels of radionuclides in the water and sediment at a number of locations in the Bay were undertaken in the 1990s. The radionuclide levels were at low concentrations, typical of background levels and presented no radiation hazard to human health or the Bay environment.</p> <p>Furthermore, radionuclides are naturally present in the Yarra River, in very low levels. The catchment and the Bay are intrinsically linked. If high levels of radionuclides entered the Yarra River then this would have registered in testing undertaken in the 1990s.</p>
<p>7. Seastars on Bay beaches</p>	<p>Seastars including the Northern Pacific Seastar are regularly found on beaches, particularly during the colder months when they move into the shallower waters and are washed ashore during storms.</p>

In addition to the meetings and briefings attended by Office personnel during the reporting period, the Office received and responded to four emails received via the 'contact us' page of the web site. The Office also fielded eight 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).
- Focused audit of dredging in the South Channel & mechanisms to protect seagrass (June 2009).
- Targeted audit of EMP requirements for construction of the bund (August 2009).
- Targeted audit of EMP requirements for sand capping (August 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.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 8: May 2009.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 9: June 2009.
- Tide Height Assessment Following Dredging in Port Phillip Bay. Report 10: July 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.

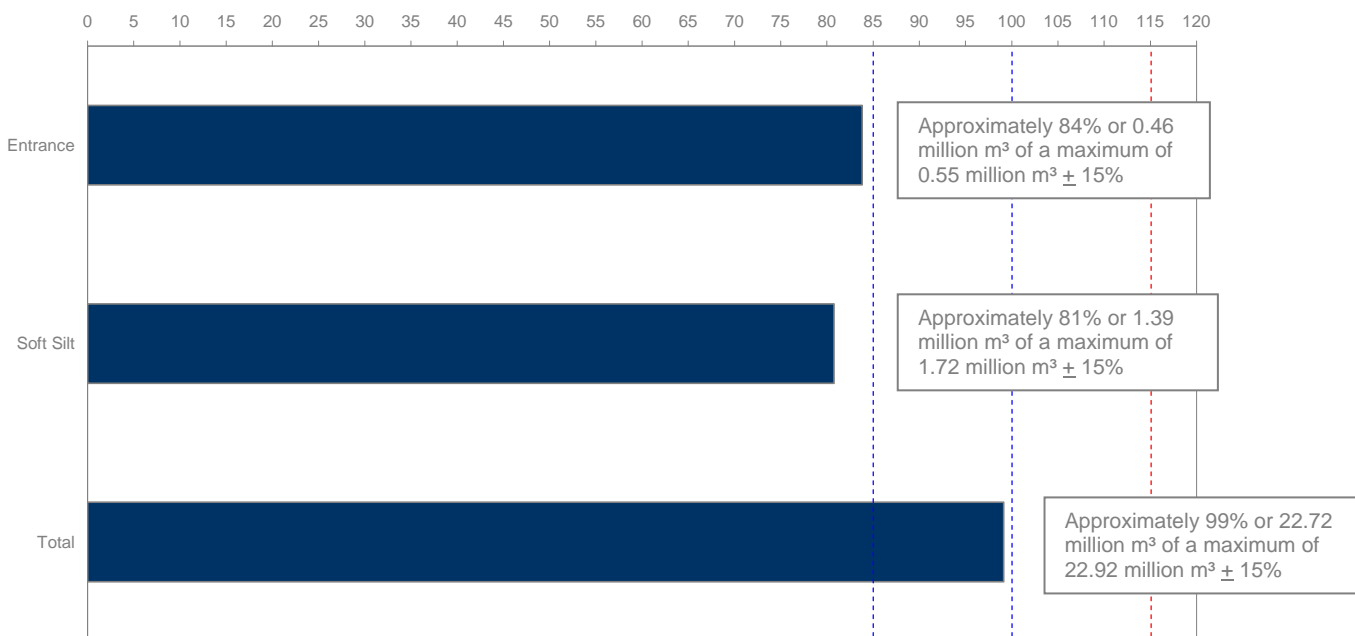
#### Volume of material removed by the project

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 August 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 August 2009



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

#### Finding

1. Up to 31 August 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.6, it carefully considered PoMC's Quarter Report No.6, which covered the period from 1 May to 31 July 2009 and the 44 reports that PoMC provided as supporting documentation. In addition, the Office examined the results from the environmental and Baywide Monitoring Programs (see below).

Eight of the 44 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.

**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 and Hobsons Bay	22 July 2009
EMP Audit – <i>Ain d'Schalut</i> – Yarra River and Hobsons Bay	15 July 2009
EMP Audit – <i>CoZa</i> – North and South of Bay	10 July 2009
Pre-start audit – Navigation Aids – (land-based)	1 July 2009
EMP Audit – <i>Goomai</i> – (Yarra River including Service Protection)	16 June 2009
EMP Audit – Extended <i>Queen of the Netherlands</i> – North and South of Bay (including capping at PoM DMG)	14 May 2009
EMP Audit – Berthworks ( Yarraville to Newport Park incl. Holden Dock	7 May 2009
Pre-start audit – Commencement of capping (Stage 1 PoM DMG)	1 May 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 requirements for the construction and sand capping of the bund

As part of the requirements for the management of dredge material, PoMC was required to build a bund at the Port of Melbourne Dredged Material Ground to store and contain contaminated sediment dredged from the Port Melbourne, Williamstown and Yarra River Channels and associated berthworks.

Different types of sediment have been dredged as part of the project. They include:

*Contaminated sediment;*

1. Unconsolidated contaminated sediment (soft silts), and
2. Contaminated clays.

*Uncontaminated sediment;*

1. Clay (consolidated sediment), and
2. Sand (from South Channel).

The bund was built using uncontaminated sediment, being consolidated sediment sourced from Port Melbourne Channel and uncontaminated clay from the Yarra River and Williamstown Channels. Quantities of sand from South Channel and contaminated clay from Appleton Dock and near Webb Dock could also be used, but with strict limitations and controls set out in the EMP.

The bund was constructed in several stages during 2008. This was to allow contaminated sediment to be placed within the bund during its construction. Prior to the placement of contaminated sediment in the partially constructed bund, PoMC was required to provide notifications that the (a) partially constructed bund had been constructed in accordance with design specification and (b) bund capacity could contain the expected volume of contaminated sediment, were required to be provided to Regulators. These notifications were closely scrutinised by the Office.

Contaminated sediment could be dredged either by TSHD, e.g. the CoZa operating in non-overflow mode to reduce suspension of sediment in the water column, or by backhoe or grab dredge e.g. Storcken or Goomai. When removed by a TSHD, unconsolidated contaminated sediment had to be hydraulically placed (pumped through a pipeline) within the bund through a diffuser suspended at least one metre below the minimum crest of the bund. Contaminated clay and unconsolidated contaminated sediment dredged by backhoe or grab dredge could be directly discharged into the bund from the hopper or barge.

A total of 1.38 million cubic metres of contaminated sediment was placed in the bund by May 2009. The majority and all hydraulically placed contaminated sediment was placed in the bund by 7 October 2008.

Capping of the bund could occur approximately 140 days after the completion of hydraulically placed contaminated sediment. This was to provide sufficient time for settling and some dewatering of the contaminated sediment to occur, so it could support the overlying sand cap.

To ensure orderly timing of the capping of the bund, the regulator agreed (in April 2009) that PoMC could place a small amount (13,000 million cubic metres) of contaminated sediment yet to be dredged in the newly created extension to the main bund, built to contain sediment dredged as part of future maintenance programs. This allowed PoMC to commence capping of the main bund at the beginning of May 2009, which was 207 days after completion of hydraulically placed contaminated sediment.

Sand dredged from South Channel was used to cap the bund and was completed on 9 June 2009. Between the 6 and 8 June 2009 the contaminated sediment placed in the extension bund was also capped with clean sand.

Audits of the main bund construction and sand capping were conducted by the independent auditor. The audits determined that both the bund and the sand capping had been completed in full compliance with the EMP. Audit reports can be found at <http://www.oem.vic.gov.au/Independentaudits>.

## 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 this quarter are listed in Table 4.

**Table 4. PoMC notifications received by the Office this quarter**

Notification date	Comment
<b>Response Level reached</b>	
16 August 2009	Turbidity Response Level 2 (R2) reached on 16 August at monitoring buoy 2948, located south of the SE DMG.
3 August 2009	Turbidity Response Level 1 (R1) reached on 3 August at monitoring buoy 2948, located south of the SE DMG.
19 July 2009	Turbidity Response Level 2 (R2) reached on 19 July at monitoring buoy 2948, located south of the SE DMG.
10 June 2009	Turbidity Response Level 1 (R1) reached on 10 June at monitoring buoy 7005, located in Hobsons Bay.
<b>Environment limit exceeded</b>	
Not applicable	
<b>Pollution event</b>	
3 July 2009	Notification of an oil spill of between 50 and 100 litres of hydraulic fluid that occurred on 2 July and action taken. The spill was from the <i>Storken</i> and more than 95 per cent was recovered on board the dredge with only approximately two litres entering the Yarra River.
13 June 2009	Notification of an oil spill of approximately 100 litres hydraulic fluid that occurred on 12 June and action taken. The spill was from the <i>Storken</i> and between 80 to 90 per cent was recovered on board the dredge with between 10 to 20 litres entering the Yarra River.
2 June 2009	Notification of an oil spill of approximately 50 litres of hydraulic fluid and action taken. The spill was from <i>Storken</i> and occurred in the Yarra River on 2 June.
1 June 2009	Notification of an oil spill of approximately five to six litres hydraulic fluid that occurred in the Yarra River on 31 May and action taken. The spill was from the <i>Storken</i> .
<b>Imminent environmental hazard</b>	
Not applicable	
<b>Completion of dredging of contaminated sediments within an area</b>	

20 August 2009	Completion of dredging contaminated sediments within an area (32 South Wharf)
14 August 2009	Completion of dredging of contaminated sediments within an area (Yarraville).
17 June 2009	Completion of dredging of contaminated sediments within an area (Gellibrand Pier Dolphin and Beacon 38B).
<b>Placement of contaminated material in bund</b>	
5 June 2009	Notification that the requirements for the placement of contaminated material in bund had been met.
<b>Entrance clean up</b>	
Not applicable	
<b>Project Delivery Standard</b>	
4 August 2009	Notification of a partial non conformance with a PDS No. 34.
<b>Dredging schedule</b>	
31 August 2009	Notification (Rev 2 Update 9) provided as required by EMP Table 6.
5 August 2009	Notification (Rev 2 Update 8) provided as required by EMP Table 6.
17 July 2009	Notification (Rev 2 Update 7) provided as required by EMP Table 6.
8 July 2009	Notification (Rev 2 Update 6) provided as required by EMP Table 6.
3 June 2009	Notification (Rev 2 Update 5) provided as required by EMP Table 6.
<b>Quarterly project report</b>	
8 September 2009	PoMC provided its Quarterly Report No. 6.
<b>Baywide monitoring – algal blooms</b>	
27 August 2009	Notification of a potential occurrence of an algal bloom.
31 July 2009	Notification of a potential occurrence of an algal bloom.
6 July 2006	Notification of a potential occurrence of an algal bloom.
11 June 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>	
12 June 2009	Loss of one 6 hour EWMA for a turbidity conformance location.
<b>PoMC annual report</b>	
Not applicable	
<b>Independent audits</b>	
19 August 2009	Notification of the release of the Audit of PoMC implementation of the EMP by external auditor (Targeted audit of EMP requirements for sand capping - August 2009)
5 August 2009	Notification of the release of the Audit of PoMC implementation of the EMP by external auditor (Targeted audit of EMP requirements for construction of the bund – August 2009).
3 July 2009	Notification of the release of the Audit of PoMC implementation of the EMP by external auditor (Focused audit of dredging in the South Channel & mechanisms to protect seagrass – June 2009).
<b>Construction and post-constructions reports</b>	
19 June 2009	Notification of the Post-construction Bathymetric Survey (3 month) of the Entrance.

<p><b>Finding</b></p> <p>2. During the quarter, up to 31 August 2009, the Office 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).</p> <p>The partial non conformance was with respect to Project Delivery Standard No. 34, when on 3 August, 2009 the barge Resolution made an emergency disposal of clean clay outside the area set by the EMP.</p> <p>The Office is satisfied that the environmental impacts of the partial non conformance were inconsequential.</p> <p>No other non conformances were identified with the 58 EMP Project Delivery Standards.</p>
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## 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 August 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. The Office notes the beach monitoring program is scheduled to end in September 2009.

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 10 June 2009, elevated turbidity levels were recorded at the Hobsons Bay monitoring buoy (site 7005). The turbidity level 6hr EWMA Response Level 1 (35 NTU) was exceeded at 6.00 am and turbidity EWMA peaked around midday. Turbidity levels declined rapidly after midday, though the EWMA still slightly exceeded the Response Level at 6:00 pm, but dropped below it soon after. One TSHD, the *CoZa*, was operating in the Yarra River at the time. The elevated turbidity was due to strong west to west south westerly winds coupled with high tides and swell.

On 19 July 2009, the turbidity EWMA levels at monitoring buoy South of SE DMG (site 2948) exceeded Response Level 2 (14 NTU) at midnight and 6.00am (15.8 and 14.5 NTU respectively). Response Level 1 (9.0 NTU) was still exceeded at midday. Two TSHDs were dredging in South Channel prior to turbidity levels reaching Response Level 2. Dredging was suspended for several hours until wind strength had dropped and raw turbidity levels decreased, recommencing at about 6.45am.

On 3 August 2009 the turbidity EWMA level exceeded Response Level 1 (9.0 NTU) at 12:00 noon, recording a level of 9.2 NTU at the monitoring buoy south of the SE DMG (site 2948). Levels began to decrease shortly afterwards. The TSHD, *Queen of the Netherlands*, was dredging in South Channel East and deposited sediment at the SE DMG at 9:30am that morning. The vessel ceased operations at that time until 12:50pm, when dredging activity resumed. The elevated turbidity was attributed to strong westerly winds of up to 38 knots (gusting to 58 knots) during the night near Mornington Peninsula.

On 16 August 2009 the turbidity EWMA level at 12:00pm exceeded Response Level 2 at the monitoring buoy south of SE DMG (site 2948). Dredging by the TSHD, the *CoZa*, had been suspended at 10:15am in anticipation of the Response Level being exceeded. Turbidity levels remained above Response Level 2 at 6.00pm and by midnight had declined, but remained above Response Level 1. Dredging resumed at 6:30pm. Turbidity levels continued to decrease and were below Response Level 1 at 6 am on 17 August. Northerly and westerly winds of up to 49 knots contributed to the elevated turbidity at this location.

One notification of a loss of a 6-hourly Exponentially Weighted Moving Averages (EWMAs) for turbidity measurements at conformance buoys was received during the quarter. This occurred on 11 June 2009 and was short in duration (only one 6-hour EWMA). See Table 4 of this review.

PoMC reported on three airborne noise complaints up to 31 July 2009. These were at Queenscliff and Dromana. In all instances, noise assessments from desktop monitoring confirmed compliance of noise with SEPP (N-1) noise limits. Additionally, the noise assessment conducted in response to a complaint in April 2009 at Newport/Spotswood (reported in Quarterly Review #5) concluded that, although noise from dredging operations were compliant with SEPP(N-1), noise associated with rock load-out to and from barges for service protection works had the potential to exceed SEPP (N-1) evening and night-time limits, and recommended additional field noise monitoring. This monitoring occurred on 7 May 2009 and concluded that rock load-out works were compliant with SEPP (N-1) limits.

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 August 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 June to 31 August 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.6 for Baywide Algal Bloom Monitoring Program  PoMC Quarterly Report No.6
Plume Intensity and Extent Monitoring Program	No reports fell due during this reporting period.
Contaminants in Fish Monitoring Program	This monitoring program was completed during the previous reporting period.
Nutrient Cycling Monitoring Program	Milestone Report 6  Progress Reports 13 & 14  PoMC Quarterly Report No. 6
Little Penguins Monitoring Program	Data reports 11 & 12  Quarterly Report 5  PoMC Quarterly Report No. 6
Seagrass Monitoring Program	Milestone Report 5  Progress Report 2  PoMC Quarterly Report No. 6

Water Quality Monitoring Program	<p>Progress Reports 17, 18 &amp; 19</p> <p>PoMC Quarterly Report No. 6 and PoMC Assessments of results outside expected variability</p>
Fish Stock and Recruitment Monitoring Program	<p>Progress Report 3 for Fish Egg and Larval Monitoring Program</p> <p>Progress Report 2 and Milestone Report 2 for Port Phillip Bay Trawl Monitoring Program</p> <p>Milestone Report 3 and Progress Report 4 for the Recreational Fishery Monitoring Program</p> <p>Progress Report 3 and Milestone Report 3 for the Key Fishery Species in Seagrass Beds Monitoring Program</p> <p>PoMC Quarterly Report No. 6</p>
Ramsar-listed Wetlands Monitoring Program	No reports fell due during this reporting period

The Contaminants in Fish Monitoring Program was concluded in the previous reporting period.

A Plume Intensity and Extent Monitoring Program sampling event was conducted in the south of the Bay during this reporting period, and a report is due in the next reporting period.

Results for the remaining programs (Seagrass, Little Penguins, Water Quality, Algal Blooms, Nutrient Cycling 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 and the conclusions were sound. 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 and Plume Intensity and Extent Monitoring Programs which are now complete.

The Office is satisfied that the results from the first 18 months of the project are generally within the range of expected variability. Dredging by TSHDs for the project is now complete, and all of the monitoring to date has indicated results generally within expected variability for all programs. There are still some outstanding data, collected during the current reporting period, yet to be

reported on, including information from the Plume Intensity and Extent, Water Quality, Algal Blooms, Fish Stock and Recruitment, Little Penguins and Seagrass monitoring programs. 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 August 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.

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

Although dredging by TSHDs in the Bay is now complete, there are still results from the dredging period for most monitoring programs that have not yet been reported. These results will be published on the Office's web site as they become available, and will be reviewed in the Office's next quarterly review.

### 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, fourth and fifth quarter reviews. In this quarter the Office identified two opportunities for improvement.

The Office's investigation report noted that PoMC had identified three actions as a result of the partial non conformance: reinforcing the requirements and importance of reporting near misses to its contractors, identifying opportunities to reduce the risk of similar events, and establishing contingency arrangements.

#### **Issue 1: Risk review**

The Office noted that PoMC had already implemented the first action and established interim arrangements until the risk review could be completed and its findings implemented.

#### **Opportunity**

When implementing the opportunities it has identified, it is recommended that PoMC address the following:

- Should the risk review of the use of non self-propelled barges not provide the certainty required, the review context should be broadened to consider other equipment options;
- The results of the risk review be formally incorporated in the Project risk register, and the register updated as required; and
- Contingency arrangements be considered following the risk-review.

The EMP sets out the standards and procedures to be followed in the construction (operational) and post-operational stages of the project.

#### **Issue 2: EMP transition from construction to post-construction stage**

EMP standards have been progressively implemented during the construction phase of the project. Several standards are already complete, with additional standards to be completed upon conclusion of the construction phase of the project. Similarly, other EMP requirements (such as some notifications) will be completed upon conclusion of the construction phase of the project. As a result, a significant portion of the EMP will be effectively 'closed'.

The EMP also includes a number of post-construction phase standards and requirements such as surveys and inspections, and the Baywide monitoring programs.

The process for providing clarity of those remaining requirements in the EMP applicable to the post-construction phase of the project should be transparent.

#### **Opportunity**

In reviewing the EMP to progress from the construction to post-construction phase of the project, it is recommended that PoMC, in consultation with the regulators and the Office, develop a transparent process for providing clarity for the remaining requirements in the EMP applicable to the post-construction phase of the project.

Future opportunities for improvement may be identified by the Office or by the independent auditor appointed to conduct 11 audits of the EMP, seven of which have now been completed.

### 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 August 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. A forward-looking web calendar is currently being developed to show stakeholders and the community when reports from the Baywide Monitoring Programs will be available during years 2010 and 2011.

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.

From 1 June to 31 August 2009 the Office published 72 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 August 2009**

Item	Number this quarter	Number to date
Fact sheets	0	17
Media releases and statements	15	122
Web videos	1	3
Office's Work Plan	0	1
Office's Work Programs (including revisions)	0	3
Weekly project updates	12	71
Office environmental incident reports and advice	0	3
Turbidity Monitoring Program results	13	80
Plume Intensity and Extent Monitoring Program quarterly reports	0	5
Nutrient Cycling Monitoring Program reports	3	22
Algal Bloom Monitoring Program reports	1	6
Water Quality Monitoring Program reports	3	22

EPA Beach Monitoring Program reports	12	75
Contaminants In Fish Monitoring Program	0	2
Little Penguin Monitoring Program report	3	17
Port Phillip Bay Annual Trawl monitoring program reports	2	4
Recreational Fishery Surveys progress report	1	6
Seagrass Monitoring Program	2	7
Port Phillip Bay Anchovy Study	0	2
Fish Egg and Larval Monitoring Program	1	5
Fish in Seagrass Monitoring Program	2	6
Independent audit reports	3	8
<b>Total</b>	<b>74</b>	<b>487</b>

During the reporting period web site traffic increased compared to the previous quarter. The web site was viewed by 2162 unique visitors (Table 7), with more than 26,000 page views. Popular pages were the Monitoring Program and Results, Little Penguin Foraging Trips and Weekly Dredging Update pages. A total of 3.2 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>
<b>Quarter 6 2009</b>	June 2009	652	1067	6781
	July 2009	709	1184	7831
	August 2009	801	1341	12372
	<b>Total</b>	<b>2162</b>	<b>3592</b>	<b>26984</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 70 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 until the end of 2011.

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

During the reporting period, the Office disseminated a total of 15 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 20 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.

### **3.3.4 Video and social media**

During the reporting period, the Office continued to use video and social media to provide information to stakeholders and the community.

The Office produced a short web video on the Baywide Little Penguin Monitoring Program. The program is one of nine baywide monitoring programs running across the Bay until the end of 2011. The short video demonstrated the monitoring program and explains its value to the management of the Project and the Bay. The video was uploaded to YouTube and was also distributed to stakeholders via Facebook.

The Office has received positive feedback from stakeholders and the community on the video. It considers video valuable in helping explain the wide range of scientific monitoring programs operating across the Bay and therefore has committed to producing more videos over the coming months.

## **4. Future directions: Reviews No. 7 & 8**

The Office considers that the project is progressing well in accordance with its objectives and it acknowledges that less than one per cent of material remains to be dredged by the backhoe and grab dredges. (Dredging by the TSHDs was completed on 4 September 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 independent and transparent view on the environmental performance of the project and will do this on an around-the-clock basis until end of the project.

Furthermore, the Office will continue to review its progress, every quarter, with Review No. 7 due in December 2009.

### **4.1. Review No. 7**

#### **Accessibility and consultation**

The Office will report on its progress in continuing discussions with stakeholders, community organisations and individuals interested in the project, and notes that the level of interest and the topics of interest are now very different to what they were a year ago. The Office will seek feedback from stakeholders and community groups on its reporting of the fourth quarter of 2009 during which time all project works are scheduled to be completed.

#### **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 project's environmental performance against the EMP's 58 rules. During the quarter the Office will assess those Project Delivery Standards that with the completion of the project works-stage would be no longer applicable and could therefore be 'closed'. Advice on those that could be closed may be included in either the Office's next quarterly review to be released in December 2009 or its second annual review to be released in January 2010.

#### **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)

<b>Construction management (all activities)</b>		
<b>Environmental controls</b>	<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</b>
<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 86 and 90 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>	✓  NA	<p>PoMC audits 86, 87, 88, 89, 90, 91 and 92 indicate that all activities for the PoMC reporting period 1 May 2009 to 31 July 2009 were in conformance with SEPP N-1 guidelines.</p> <p>No new vessels or major equipment was introduced to the CDP during this quarter, therefore this component of this PDS does not apply.</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 pre-start audits 85 and 89 indicate that airborne noise monitoring will occur for sand capping operations and land-based navigation aids.</p> <p>PoMC audits 87, 88, 91 and 92 indicate that noise monitoring was undertaken as required and described in the Airborne Noise Monitoring Program.</p> <p>Noise monitoring results 94, 95, 96, and 98 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>	✓	<p>PoMC audits 87, 88, 91 and 92 indicate that noise measurement results were compliant with SEPP.</p> <p>Noise monitoring results 93, 97, 99, 100 and 101, in response to complaints received, indicate that noise measurement results were compliant with SEPP.</p>
<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>	✓	<p>PoMC audits 86, 87, 88, 89, 90, 91 and 92 indicate that, for vessels and activities, waste management arrangements were in accordance with PDS 4.</p>
<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>Pre-start audit 89 indicates the contractor has confirmed requirements for the provision of fuel consumption for land based navigation aids.</p> <p>PoMC audits 87, 88, 90, 91 and 92 indicate that reporting of fuel consumption for the calculation of greenhouse gas emissions for the <i>Queen of the Netherlands, Goomai, Cornelis Zanen, Ain d'Schalut, and Storken</i> was received monthly.</p> <p>PoMC audit 86 indicates 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>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 audits 87 and 90 indicate that safety zone requirements were established around <i>Queen of the Netherlands</i> and <i>Cornelis Zanen</i> as required by PDS 9.</p> <p>PoMC audits 88 and 91 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 audits 88, 91 and 92 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 88, 91 and 92 indicate that no anchoring of the <i>Goomai</i>, <i>Ain d’Schalut</i> or <i>Storcken</i> was undertaken.</p> <p>PoMC audits 90 indicate that the <i>Cornelis Zanen</i> anchored in accordance with PDS 11.</p> <p>Advice from PoMC dated 9 September 2009 indicated that the <i>Queen of the Netherlands</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 88, 90, 91 and 92 indicate that all bunkering of the <i>Goomai</i>, <i>Cornelis Zanen</i>, <i>Ain d’Schalut</i> and <i>Storcken</i> occurred in accordance with PoMC bunkering requirements and vessel bunkering procedures.</p> <p>Advice from PoMC dated 9 September 2009 indicated that the <i>Queen of the Netherlands</i> bunkered in accordance with PDS</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)

Marine-based works (all areas)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
		12.
<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 audit 86 indicates that relevant personnel completed cetacean spotting, identification and reporting training.</p> <p>PoMC audits 87, 88, 90, 91 and 92 indicate that the <i>Queen of the Netherlands</i>, <i>Goomai</i>, <i>Cornelis Zanen</i>, <i>Ain d'Schalut</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 audit 86 indicates that a cetacean log was on site for marine-based work.</p> <p>PoMC audits 87, 88, 90, 91 and 92 indicate that the <i>Queen of the Netherlands</i>, <i>Goomai</i>, <i>Cornelis Zanen</i>, <i>Ain d'Schalut</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 92 indicates that positional controls and spud caps were in place for the <i>Storken</i> in order to protect services.</p> <p>PoMC audits 88 and 91 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>

\* 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>16. <b>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>	✓	PoMC audit 86 indicates that management measures were in place to minimise debris entering the river from berthworks.
<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 88, 91 and 92 indicate that no potential heritage items were identified for <i>Goomai</i> , <i>Ain d'Schalut</i> or <i>Storken</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	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> </ul>	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.

\* 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>▪ 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	Reports on these works were provided as part of Quarterly Review No.4.
<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>	NA Completed	PoMC advised on 9 September 2009 that no dredging occurred near the <i>Goorangai</i> .  Reports on these works were provided as part of Quarterly Review No.4.
<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>	NA	Advice from PoMC dated 9 September 2009 indicated that no dredging occurred near the <i>Goorangai</i> , between 1 May and 31 July 2009, therefore these management measures do not apply for this period.
<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> </ul>	NA  NA	Requirements do not apply to this reporting period as dredging was incomplete.  Requirements do not apply to this reporting period as dredging was incomplete.

\* 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 86 and 89 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 Yarraville to Newport Park incl. Holden Dock berthworks 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 86 indicates that management and disposal of contaminated soils has occurred for Yarraville to Newport Park incl. Holden Dock berthworks in accordance with PDS 21.</p> <p>PoMC audit 89 indicates that procedures were developed for the management/disposal of any unexpected contaminated material for land-based navigation aids.</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>Completed</p> <p>Completed</p>	<p>PoMC audit 86 indicates that no potential heritage relics were identified during construction activities at Yarraville to Newport Park incl. Holden Dock berthworks.</p> <p>Advice from PoMC dated 9 September 2009 indicated that no potential aboriginal heritage sites were identified during berthwork activities at Gellibrand Pier, and that all berthworks activities at Gellibrand Pier have been completed.</p> <p>PoMC audit 89 indicates that response process are in place for managing any potential heritage or Aboriginal sites identified during land-based navigation aid construction at Swanson Dock, 32 South Wharf and Gellibrand Pier.</p> <p>Advice from PoMC dated 9 September 2009 indicated that all Navigational Aid construction and installation works at Queenscliff were completed by June 2009, and that all construction and monitoring requirements have been complied with in accordance with PDS 22.</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 incomplete.</p> <p>Requirement does not apply to this period as dredging was incomplete.</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 87, 88, 90, 91 and 92 indicate that vessel tracking and operation of the <i>Queen of the Netherlands</i>, <i>Goomai</i>, <i>Cornelis Zanen</i>, <i>Ain d'Schalut</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.6 indicates that about 4.48 million m<sup>3</sup> of the 22.92 million m<sup>3</sup> ±15% maximum total volume was dredged between 1 May 2009 and 31 July 2009.</p> <p>Approximately 21.90 million m<sup>3</sup> has been dredged to 31 July 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>X</p> <p>✓</p>	<p>PoMC audits 87, 88, 90, 91 and 92 indicate that vessel tracking and operation of the <i>Queen of the Netherlands</i>, <i>Goomai</i>, <i>Cornelis Zanen</i>, <i>Ain d'Schalut</i> and <i>Storken</i> were conducted in accordance with PDS 24 and that conformance with depth, width and volume requirements has been demonstrated. PoMC audit 87 refers to the partial non-conformance when the <i>Queen of the Netherlands</i> dredging outside of the construction zone in South Channel on 19 April, noting that this occurred in the previous quarter.</p> <p>The Office has investigated the partial non-conformance and the investigation reports can be found at:</p> <p><a href="http://www.oem.vic.gov.au/Officeinvestigationsreportsadvice">http://www.oem.vic.gov.au/Officeinvestigationsreportsadvice</a></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)**

<b>Dredging and plume PDS</b>																																			
<b>Environmental controls</b>				<b>Conformance</b>	<b>Office of the Environmental Monitor comment*</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 87, 88, 90, 91 and 92 indicate that vessel tracking and operation of the <i>Queen of the Netherlands</i> , <i>Goomai</i> , <i>Cornelis Zanen</i> , <i>Ain d’Schalut</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
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																															
<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 87 and 90 indicate that operation of the <i>Queen of the Netherlands</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>	✓	Advice from PoMC dated 9 September 2009 indicated that Newport Power Station intake monitoring is continuing consistent with Annexure 6 of the EMP (Rev 9).
<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>	✓	Advice from PoMC dated 9 September 2009 indicated that the <i>Storken</i> dredged contaminated sediment in accordance with PDS 27.
<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 88 and 91 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 audit 90 indicates that dredging of contaminated clays by the <i>Cornelis Zanen</i> occurred only in conformance with PDS 28.</p> <p>Advice from PoMC dated 9 September 2009 indicated that the <i>Storken</i> dredged contaminated sediment in accordance with PDS 28.</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>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>30. <b>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 audit 88 indicates that identification of the transition from dredging contaminated to uncontaminated material has occurred for the <i>Goomai</i> in accordance with PDS 30.</p> <p>Advice from PoMC dated 9 September 2009 indicated that the <i>Storken</i> and <i>Ain d'Schalut</i> dredged contaminated sediment 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, 32 South Wharf, Kp 2.865 to Kp 3.200.</li> <li>▪ Yarra River, at Yarraville Dock, Kp 3.910 to Kp 4.075.</li> <li>▪ Yarra River, at Westgate Bridge (Beacon 38B), Kp 4.775 to Kp 4.795.</li> <li>▪ Yarra River, Gellibrand Pier dolphin, Kp 8.971 to Kp 9.017.</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><b>31. 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>✓</p>	<p>Report on this was provided as part of Quarterly Review No.1.</p> <p>PoMC audits 87, 88, 90, 91 and 92 indicate that the dredging schedules Rev 2 (Updates 4-7) met the requirements of PDS 31.</p> <p>See Endnote 1.</p> <p>PoMC audits 87, 88, 90, 91 and 92 indicate that the dredging schedules Rev 2 (Updates 4-7) met the requirements of PDS 31.</p> <p>See Endnote 1.</p> <p>PoMC advised the Office that capping of the main bund commenced on 2 May 2009 and was completed on 9 June 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. Capping of the contaminated material placed in the extended bund commenced on 6 June 2009 and was completed on 8 June 2009.</p> <p>See Endnote 3.</p>
<p><b>32. 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 87, 88, 90, 91 and 92 indicate that dredge schedules Rev 2 (Updates 4-7) met the requirements for the consideration of environmental limits in accordance with PDS 32.</p> <p>See Endnote 1.</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><b>33. 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>NA</p> <p>NA</p> <p>NA</p> <p>✓</p> <p>✓</p>	<p>Requirement does not apply to this period</p> <p>Requirement does not apply to this period</p> <p>Requirement does not apply to this period.</p> <p>PoMC dredging schedules Rev 2 (Updates 4-7) indicate that dredging by a TSHD conformed to this requirement, dredging a total of 55 days for this period.</p> <p>PoMC audits 87, 88, 90, 91 and 92 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> <p>See Endnote 1.</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 has advised that the main bund has been completed.</p> <p>PoMC pre-start audit 85 indicates that the bund has been constructed in accordance with design specifications.</p> <p>PoMC audits 88, 90 and 91 and PoMC Notifications indicate that construction of bunds has followed requirements outlined in PDS 35.</p> <p>See Endnote 2.</p> <p>The main bund has now been constructed. PoMC Notifications indicate that construction of the extension 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 88 and 91 and PoMC Notifications indicate that requirements for the partially constructed bund (stage 3) have been met, that the partially constructed bund has been constructed in accordance with design specifications.</p> <p>PoMC Notifications indicate that regular hydrographic surveys have been completed for placement of contaminated sediments and, together with PoMC audits 88 and 91, that bund capacity has been determined.</p> <p>See Endnote 2.</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><b>Completed</b></p>	<p>PoMC pre-start audit 85 indicates that all contaminated material required to be placed in the main bund has been removed and bathymetric surveys to confirm that bund has been constructed according to design specifications completed</p> <p>PoMC audit 87 indicates that capping placement at the PoM DMG was being undertaken in accordance with PDS 37.</p> <p>PoMC pre-start audit 85 indicates that bottom water velocity measurements were undertaken and used to inform the timing and placement of sand capping.</p> <p>See Endnotes 2 and 3.</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)

Dredged material management		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>38. <b>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 style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">NA</p>	<p>Advice from PoMC dated 9 September 2009 indicates that the 2 week and 1 month post-construction surveys of the PoM DMG (Stage 1) bund have been completed.</p> <p>Advice from PoMC dated 9 September 2009 indicates that the 1 month post-construction surveys of the capping of new dredge material within the bunded area of the PoM DMG (Stage 1) and the PoM DMG (Extension) have been completed.</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>NA</p> <p>NA</p>	<p>Requirement does not apply to this reporting period as dredging was not completed.</p> <p>Advice from PoMC dated 9 September states that this requirement will be confirmed prior to transfer of the DMG to PoMC.</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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<10,000 m <sup>3</sup>	Continue dredging	Continue dredging												
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~24,000 m <sup>3</sup>	Clean-up for at least 18 hours	Clean-up for at least 18 hours												

\* 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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	>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. 6 advised that the post construction plateau inspection has been completed.  The Office has received a copy of this report.
<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. 6 advised that the 3 and 6 month post dredging bathymetric surveys have been 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)

Entrance dredging PDS		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<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>	✓	
<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. 6 advised that the 3 month post construction deep reef habitat survey has been completed.
<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>
<p>51. <b>Minimise use of hydrohammer</b></p> <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.
<p>52. <b>Hours of operation</b></p> <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>	<p style="text-align: center;">✓</p> <p style="text-align: center;">NA</p>	<p>PoMC audit 86 indicates that no marine-based pile driving operations occurred on site during the audit for the Yarraville to Newport Park incl. Holden Dock berthworks.</p> <p>Note that hydrohammer was not used in this reporting period.</p>
<p>53. <b>Start procedure</b></p> <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>	NA	PoMC audit 86 indicates that no marine-based pile driving operations occurred on site during the audit for the Yarraville to Newport Park incl. Holden Dock berthworks.
<p>54. <b>Hydrohammer – noise assessment</b></p> <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>	NA	PoMC audit 86 indicates that no marine-based pile driving operations occurred on site during the audit for the Yarraville to Newport Park incl. Holden Dock berthworks.

\* 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)

Hydrohammer use and marine-based pile driving		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<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>	NA	PoMC audit 86 indicates that no marine-based pile driving operations occurred on site during the audit for the Yarraville to Newport Park incl. Holden Dock berthworks.

### Endnote

1. Conformance with this Rule, for dredging in the South Channel, has been assessed through the independent Activity No. 2 audit titled 'Focused audit of dredging in the South Channel & mechanisms to protect seagrass – June 2009' conducted by GHD, and has been found to be compliant.
2. Conformance with this Rule, relating to construction of the main bund, has been assessed through the independent Activity No. 2 audit titled 'Targeted audit of EMP requirements for construction of the bund – August 2009' conducted by GHD, and has been found to be compliant.
3. Conformance with this Rule, for capping of the main bund, has been assessed through the independent Activity No. 2 audit titled 'Targeted audit of EMP requirements for sand capping – August 2009' conducted by GHD, and has been found to be compliant.

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

**Table listing Port of Melbourne Corporation audits and noise monitoring reports**

<b>Reference Number</b>	<b>Audit Description</b>	<b>Date</b>
85	Pre-start audit – Commencement of capping (Stage 1 PoM DMG)	1 May 2009
86	EMP Audit – Berthworks ( Yarraville to Newport Park incl. Holden Dock	7 May 2009
87	EMP Audit – Extended <i>Queen of the Netherlands</i> – North and South of Bay (including capping at PoM DMG)	14 May 2009
88	EMP Audit – <i>Goomai</i> – (Yarra River including Service Protection)	16 June 2009
89	Pre-start audit – Navigation Aids – (land-based)	1 July 2009
90	EMP Audit – <i>CoZa</i> – North and South of Bay	10 July 2009
91	EMP Audit – <i>Ain d’Schalut</i> – Yarra River and Hobsons Bay	15 July 2009
92	EMP Audit – <i>Storken</i> - Yarra River and Hobsons Bay	22 July 2009
	<b>Noise Monitoring</b>	
93	Bassett (2009a) – Desktop Assessment, Newport Complaint Response, Yarra River Protection Works (including rock load out)	27 April 2009
94	Bassett (2009b) – Queen of the Netherlands pass-by noise measurements	28 April 2009
95	Bassett (2009c) – Channel Deepening Project Airborne Noise Monitoring – Queenscliff, 3 <sup>rd</sup> May 2009	6 May 2009
96	AECOM (2009a) – Channel Deepening Project Works – Extended Queen of the Netherlands pass-by noise assessments – With dredging equipment operating	4 May 2009
97	AECOM (2009b) – Channel Deepening Project Works –Night-time Noise Measurements, Newport Complaint Response, Yarra River Protection Works (including rock load-out)	8 May 2009
98	AECOM (2009c) – Channel Deepening Project Works – Queen of the Netherlands Noise Measurements	1 June 2009
99	AECOM (2009d) – Channel Deepening Project Works – Queen of the Netherlands – Queenscliff Noise Complaint Response	16 July 2009
100	AECOM (2009e) – Channel Deepening Project Works – Desktop Assessment South Channel East – Dredging Operations Complaint in Clarendon Street, Dromana	30 July 2009
101	AECOM (2009f) – Channel Deepening Project Works – Desktop Assessment South Channel East – Dredging Operations Complaint in Clarendon Street, Dromana – Potential noise impacts in Burton Street area	30 July 2009