

Office of the Environmental Monitor

Quarterly Review No. 4 – March 2009



Reporting Period: 1 December 2008 to 28 February 2009

An electronic copy of this document is available at www.oem.vic.gov.au

Published by the Victorian Government
Office of the Environmental Monitor
Melbourne, March 2009

© Office of the Environmental Monitor 2009

This publication is copyright. No part may be reproduced by any process except in accordance with the provision of the *Copyright Act 1968*. Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

ISSN 1836-0033

For more information contact the Office of the Environmental Monitor on 03 9637 8392.

Disclaimer

This publication may be of assistance to you but the State Government of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Cover photo: Darren Cottam, EPA Victoria Project Scientist - Baywide Beach Monitoring Program, examining a water sample taken from Sandridge Beach.

Contents

Executive Summary.....	iii
Summary of the Office's fourth quarter findings	iv
1. About this quarterly review.....	1
1.1. Purpose.....	1
2. Context.....	2
2.1. The Office of the Environmental Monitor.....	2
2.2. The Channel Deepening Project.....	4
2.3. The Environmental Management Plan.....	6
3. Progress to date: fourth quarter.....	8
3.1. Accessibility and consultation.....	8
3.2. Scrutinise and advise.....	12
3.2.1. Conformance with the EMP.....	12
- Volume of material removed by the project.....	12
- EMP Project Delivery Standards.....	13
- EMP requirements to notify and report.....	14
- Monitoring programs.....	16
- Environmental monitoring.....	17
- Baywide monitoring.....	17
3.2.2. Opportunities for improvement.....	20
3.3 Report and communicate.....	22
3.3.1. The Office's web site.....	22
3.3.2. Stakeholder and community meetings.....	24
3.3.3. Media releases and briefings.....	24
4. Future directions: Reviews No. 5 & 6.....	24
4.1. Upcoming reviews.....	25
4.2. Review No. 5.....	25
5. Appendix.....	25
Appendix 1. Project conformance with EMP Project Delivery Standards.....	25
Appendix 2. PoMC internal audits scrutinised by the Office in previous quarters.....	58
Appendix 3. PoMC notifications received by the Office in previous quarters.....	59

Executive Summary

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 December 2008 to 28 February 2009.

From the evidence provided to the Office and from its own desktop evaluation, the Office reports that during the fourth quarter, up to 28 February 2009, it identified no non-conformances with Port of Melbourne Corporation's (PoMC) implementation of the Environmental Management Plan's (EMP) 58 Project Delivery Standards (PDS).

Furthermore, 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 its first and second quarter reviews. Its third quarter review did not identify further opportunities for improvement. In this quarterly review two opportunities for improvement have been identified for consideration by PoMC. The Office is satisfied that the intent of these opportunities have been addressed by PoMC.

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

The Office's next quarter review is due in June 2009.

Summary of the Office's fourth quarter findings

Findings

1. Up to 28 February 2009, the volumes of material removed conformed to the limits set out in the EMP.
2. Up to 28 February 2009, the Office identified no non-conformances with PoMC's implementation of the EMP's 58 Project Delivery Standards.
3. Up to 28 February 2009, results from the Turbidity Monitoring Program and noise compliance monitoring for both underwater and airborne noise identified no non-conformances with the EMP.
4. Up to 28 February 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.

1. About this quarterly review

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 December 2008 to 28 February 2009. This is the fourth quarterly review 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 fourth quarter report on 10 March 2009.

PoMC's fourth quarter report includes information that was available to PoMC up to 31 January 2009. The Office has reviewed this report, the supporting PoMC documents (see Appendix 1 of PoMC Quarterly Project Report No. 4) 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

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.

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

The Office's objectives are to:

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

In doing this, the Office will:

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

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

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

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

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

During the fourth quarter 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. On 18 February 2009 the Office reported on its initial Work Program for the Entrance.

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 the Department of the Environment, Water, Heritage and the Arts, and the Commonwealth Minister for the Environment, Water, Heritage and the Arts have regulatory responsibilities for matters of national environmental significance.

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

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

The design depth for the Entrance was reached on 17 September 2008. In mid October the Trailing Suction Hopper Dredges, *Cornelis Zanen (CoZa)* and the *Queen of the Netherlands* departed the Bay for scheduled maintenance and other works in Singapore. The *CoZa* returned and commenced dredging on 16 December 2008. PoMC also deployed a third Trailing Suction Hopper Dredge, the *Prins der Nederlanden*. It started dredging on 18 February 2009 and is scheduled to complete dredging by 14 April 2009 (PoMC Dredging Schedule 5 March 2009). The *Queen of the Netherlands* is scheduled to return from Singapore in April 2009.

A maximum of 22.9 million m³ (±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 28 February 2009, the project had dredged approximately 12.69 million cubic metres, around 55 per cent of the total permitted project volume. A breakdown is provided in Table 1.

Table 1. Dredged volumes up to 28 February 2009

Dredge Locations	Gross volume (million m³)
Yarra River (contaminated soft silts)	0.87
Yarra River (clays)	0.89
Williamstown Channel (contaminated soft silts)	0.51
Williamstown Channel (clays)	0.65
Port Melbourne Channel	2.28
South Channel	7.03
The Entrance	0.46
Total	12.69 million* (approximately)

* *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 is a 126 page document that 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).

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 (now Revision 6) can be found at PoMC's channel deepening website:
<http://www.channelproject.com/environment/management.asp>.

Continuous improvement

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

3. Progress to date: fourth quarter

Section 3 summarises the Office's activities up to 28 February 2009. These activities are described in terms of the three objectives outlined in the Office's Work Plan (section 2.1).

During the fourth quarter of the project, 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 fourth quarter of the project, ending 28 February 2009, it identified no non-conformances with PoMC's implementation of the EMP's 58 project Delivery Standards.

For the project to date there has been one partial non-conformance. This arose with respect to standard No.42, when on 20 July 2008 clean up operations at the Entrance were not fully completed in line with one of the five requirements set by this standard.

The continuous improvement approach embodied in the international environmental management standard ISO14001 underpins the EMP. In the third quarter review no opportunities were identified for the project. The Office has identified two new opportunities for improvement during the fourth quarter. Information on this is provided in section 3.2.2.

3.1. Accessibility and consultation

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

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

During the fourth quarter of the project the number of enquiries received by the Office continued to decrease. Despite this, 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 210 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 fourth quarter. 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

Fourth quarter	
Issue	Response
1. Third dredge – <i>Prins der Nederlanden</i>	<p>In late December 2008, PoMC announced that a third Trailing Suction Hopper Dredge, the <i>Prins der Nederlanden</i>, would begin removing sand from the south of the Bay in February 2009.</p> <p>In response, the Office asked PoMC to ensure the results from the turbidity, seagrass and light monitoring programs would happen in time with an accelerated dredging schedule. PoMC have provided this assurance.</p> <p>This means any changes to the Bay's health from dredging in the south will be detected and timely adjustments can be made to dredging works to protect the Bay's sensitive plants and animals.</p> <p>The environmental safeguards around this part of the project remain strict. This means PoMC will have to closely monitor and conform to turbidity limits, regardless of how many vessels are dredging.</p> <p>The Office will closely follow dredging operations in the south of the Bay and will promptly report any environmental incidents or non-compliances to the project's regulators and the community.</p>
2. Presence of sharks	<p>Following several unfortunate shark attacks along the New South Wales and Tasmanian coast in January 2009 the media reported that the dredging of Port Phillip Bay could attract more sharks.</p> <p>There is no evidence to support the claim that the process of dredging increases shark numbers. The interest in shark numbers is a seasonal occurrence that peaks in summer when the number of people using the beaches increases.</p> <p>Port Phillip Bay is a dynamic ecosystem with hundreds of thousands of plants and animals including sharks.</p> <p>Over the past 50 years there have been no reports of shark attacks on humans in Port Phillip Bay.</p>

<p>3. Penguin health</p>	<p>In January the Office noted reports of ill and dead Little Penguins washing up on Victoria's beaches, including Phillip Island and Port Phillip Bay.</p> <p>As part of the Channel Deepening Project's monitoring program the Phillip Island Little Penguin colony is monitored.</p> <p>Results from monitoring of penguins' body weight from October to December 2008 showed the birds' weights were healthy and consistent with long-term summer weight averages</p> <p>Supplementary data from a satellite tracking program showed adult penguins were travelling further in Bass Strait to look for food, which affected chick survival rates.</p> <p>Tests conducted on dead Little Penguins found the birds were young, thin and had little to no fat reserves, indicating starvation.</p> <p>Research shows that 80 per cent of fledglings and 15 per cent of the adult penguin population die each year and it is not uncommon for large numbers of dead Little Penguins to wash up from December to March.</p> <p>While the phenomenon is natural, the Office will continue to monitor the number of reports of dead or ill penguins and will continue to report the results from the Little Penguin Monitoring Program as soon as they become available.</p>
<p>4. Fish health</p>	<p>Recreational anglers reported fish caught from Port Phillip Bay with discolouration of the skin and flesh. Fisheries Victoria was notified and samples of the fish were collected and submitted for pathological examination. There were no significant findings from the examination.</p> <p>Recreational anglers also reported the presence of parasites in some fish. Parasites, including roundworms, flukes and tapeworms periodically infect recreational finfish species in Port Phillip Bay and Western Port.</p> <p>These parasites are common in marine finfish, with infections often visible as lesions or actual parasites, inside and/or on the surface of the internal organs of the fish.</p> <p>Typically, these infections cause little harm and infected fish often present as healthy. Infections are usually in response to seasonal changes in environmental conditions and associated fish movements.</p>

In addition to the meetings and briefings attended by Office personnel during the fourth quarter of the project, the Office received and responded to one email received via the 'contact us' page of the web site. The Office also fielded approximately 25 phone calls from stakeholders and the community and responded to more than 60 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).

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.

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.

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.

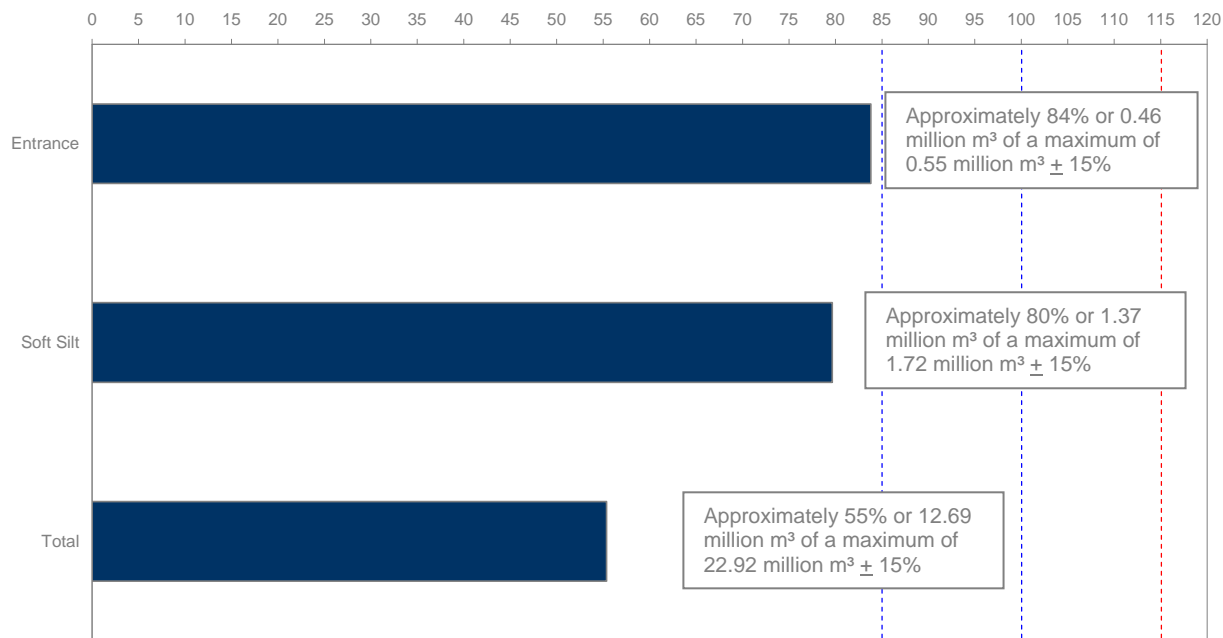
Volume of material removed by the project

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 m³ ±15%.
- The maximum *in situ* volume in the Entrance is 0.55 million m³ ±15%.
- The maximum *in situ* volume of contaminated sediments (soft silts) is 1.72 million m³ ±15%.

Based on the information provided by PoMC, Figure 1 shows the gross volumes of material removed at 28 February 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 28 February 2009



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

Finding

1. Up to 28 February 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 fourth quarter review, it has also carefully considered PoMC's fourth quarter report and the 41 reports that PoMC provided as supporting documentation. In addition, the Office examined the results from the environmental and Baywide Monitoring Programs (see below).

Nine of the 41 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 fourth quarter. A list of the internal audits scrutinised in previous quarters is provided as Appendix 2.

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

Internal audits this quarter	Date of audit
EMP audit – Berthworks (32 South Wharf)	30 January 2009
EMP audit – <i>Storken</i> – (Services)	29 January 2009
EMP audit – <i>Goomai</i> – Yarra River	28 January 2009
EMP audit – <i>CoZa</i> – North of Bay	26 January 2009
EMP close out audit – Entrance	19 December 2008
EMP audit – Berthworks (Yarraville to Newport Park including Holden Dock)	17 December 2008
Pre-start audit – <i>CoZa</i> (return) – North of Bay	16 December 2008
EMP audit – Navigation Aids – (land based)	17 November 2008
EMP audit – <i>Storken</i> – Yarra River	17 November 2008

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

EMP requirement to notify and report

The EMP includes rules about how quickly PoMC must notify the Office and regulators of events and critical points in the project. Relevant notifications received by the Office during the fourth quarter are listed in Table 4. A list of PoMC notifications received by the Office in previous quarters is provided as Appendix 3.

Table 4. PoMC notifications received by the Office this quarter

Notification date	Comment
Response Level reached	
Not applicable	
Environment limit exceeded	
Not applicable	
Pollution event	
28 January 2009	Notification of an oil spill of between 10 to 15 litres and action taken. The spill was from the <i>Storken</i> and happened at the Yarra River on 27 January.

27 January 2009	Notification of an oil spill of between five to 10 litres and action taken. The spill was from the <i>Storken</i> and happened at the Yarra River on 25 January.
27 January 2009	Notification of an oil spill of less than one litre and action taken. The spill was from the <i>Storken</i> and happened at the Yarra River on 24 January.
20 January 2009	Notification of an oil spill of about 150 litres and action taken. The spill was from a moored barge and happened at the Yarra River on 20 January.
16 December 2008	Notification of an oil spill of one litre and action taken. The spill was from the <i>Tanunda</i> and happened at the Yarra River on 16 December.
Imminent environmental hazard	
Not applicable	
Completion of dredging of contaminated sediments within an area	
9 January 2009	Completion of dredging of contaminated sediments within an area north of services in the Yarra River.
31 December 2008	Completion of dredging of contaminated sediments within the 33 South Wharf, Swanson Dock Swing Basin, Maribyrnong River mouth and Holden Dock areas.
31 December 2008	Completion of dredging of contaminated sediments within an area north of services in the Yarra River.
19 December 2008	Completion of dredging of contaminated sediments within the Swanson and Appleton Dock areas.
16 December 2008	Completion of dredging of contaminated sediments within the Gellibrand Pier, Williamstown Channel and Webb Dock areas.
12 December 2008	Completion of dredging of contaminated sediments within the Williamstown Channel in the vicinity of the junction of the Gellibrand Swing Basin and the Webb Dock approach.
Placement of contaminated material in bund	
Not applicable	
Entrance clean up	
Not applicable	

Dredging schedule	
3 February 2009	Monthly update and revision of the dredging schedule (Rev 2 Upd 1).
16 January 2009	Monthly update and revision of the dredging schedule (Rev 2).
4 December 2008	Monthly update and revision of the dredging schedule (Rev 1 Upd 9).
Quarterly project report	
10 March 2009 2008	PoMC provided its fourth quarter report.
Baywide monitoring – algal blooms	
19 February 2009	Notification of a potential occurrence of an algal bloom.
10 February 2009	Notification of a potential occurrence of an algal bloom.
9 January 2009	Notification of a potential occurrence of an algal bloom.
19 December 2008	Notification of a potential occurrence of an algal bloom.
Sands and adjacent coast and beaches monitoring	
Not applicable	
6 hour EWMA for turbidity conformance locations¹	
17 February 2009	Loss of three six-hour EWMA for monitoring buoy 2602 on 17 February.
PoMC annual report	
6 February 2009	Notification of Annual Report on performance against EPBC/NES matters referenced in Annexure 8 (PoMC Annual Project Report – February 2009).
Independent audits	
13 February 2009	Notification of the release of the Audit of Dredging in the Entrance to Port Phillip Bay.
5 February 2009	Notification of the release of the Audit of PoMC Annual Project Report – February 2009.
29 December 2008	Notification of the release of the Audit of Channel Deepening Project EMP Project Delivery Standards.

Finding

2. During the fourth quarter, up to 28 February 2009, the Office identified no non-conformances with PoMC's implementation of the EMP's 58 Project Delivery Standards.

Monitoring programs

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

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

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

This involved:

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

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

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

Environmental monitoring

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

Eleven conformance turbidity meters that form part of a network of 20 meters 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 fourth quarter, the Office examined and publicly reported on weekly turbidity monitoring results. During this time no turbidity Response Levels were reached.

PoMC received one airborne noise complaint in December 2008 relating to pile driving activities associated with berthwork operations. PoMC responded to this complaint and conducted noise monitoring tests in the area. Test results indicated that noise from the pile driving was within SEPP N-1 limits. The Office received notification of one data loss during the fourth quarter. It was short in duration (maximum data loss was three 6-hourly Exponentially Weighted Moving Averages (EWMAs). See Table 4 of this review.

During the fourth quarter 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 28 February 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 fourth quarter. This information is available on the Office's web site (www.oem.vic.gov.au).

Table 5 outlines the information the Office examined from 1 December 2008 to 28 February 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.4 for Baywide Algal Bloom Monitoring Program. PoMC Quarterly Report No.4 and PoMC Assessment of results outside expected variability.
Plume Intensity and Extent Monitoring Program	There is no new information during this reporting period.

Contaminants in Fish Monitoring Program	There is no new information during this reporting period.
Nutrient Cycling Monitoring Program	Milestone Report No.3. Progress Reports 8, 9 & 10 for the Baywide Nutrient Cycling Monitoring Program. PoMC Quarterly Report No.4.
Little Penguins Monitoring Program	Data Reports 7 & 8. Quarterly Report 3 of the Baywide Little Penguin Monitoring Program. PoMC Quarterly Report No. 4
Seagrass Monitoring Program	Milestone Reports 1 & 2 of the Baywide Seagrass Monitoring Program. PoMC Quarterly Report No.4.
Water Quality Monitoring Program	Progress reports 11, 12 & 13 and the Baywide Water Quality Monitoring Program. PoMC Quarterly Report No.4. Assessments of results outside expected variability.
Fish Stock and Recruitment Monitoring Program	Milestone Report 1 for the Anchovy Study. Progress Report 2 for the Fish Egg and Larval Survey. Progress Report 2 for the Recreational Fishing Monitoring Program. Progress Report 2 for the Fish in Seagrass Monitoring Program. PoMC Quarterly Report No.4.
Ramsar-listed Wetlands Monitoring Program	There is no new information for this reporting period.

The Contaminants in Fish Monitoring Program (2009 Lower Yarra River Fish Study) began on 12 January 2009, approximately three months after the bulk of contaminated sediment was removed from the Yarra River. Sixty Black Bream were collected from the Lower Yarra River and have been submitted for laboratory analysis. Results are expected in May 2009. Too few Yellow-eye Mullet were caught to allow laboratory testing. Low numbers of Yellow-eye Mullet were attributed to seasonal conditions.

Sampling for the Plume Intensity and Extent Monitoring Program (core event 5) was undertaken during this quarter and is to be reported in April 2009. The Ramsar-listed Wetlands Monitoring Program is conducted annually in March, so there are no new results for this quarter. Reports for both of these programs are expected in the next quarter.

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. Minor EWMA exceedances recorded for some water quality parameters and in the Algal Bloom Monitoring Program were investigated by PoMC in accordance with the requirements of the EMP. The Office has reviewed the investigation reports and is satisfied that these investigations have been completed satisfactorily. The Office concludes that these exceedances do not indicate risks to Bay health.

It should be noted that the Baywide Monitoring Programs will operate until the end of 2011. Although the Office is satisfied that the results from the first year of the CDP are generally within the range of expected variability, it is still premature to make an assessment of the longer-term environmental performance of the project. The Office will continue to examine results from the Baywide Monitoring Programs to inform its judgement on the overall environmental performance of the project.

Findings

4. Up to 28 February 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 during this quarter do not indicate risks to Bay health.

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

3.2.2 Opportunities for improvement

The continuous improvement approach embodied in the international environmental management standard ISO14001 underpins the EMP. The Office identified opportunities for improvement in its first and second quarter reviews. It did not identify any further opportunities in its third quarter review.

In the fourth quarter, two opportunities for improvement were identified. These opportunities were identified by an independent audit commissioned by the Office on the implementation of the EMP Project Delivery Standards¹.

Issue 1: Reports on the monitoring of airborne noise

PDS No. 2 relates to airborne noise. The auditor noted that PoMC routinely documents monitoring of airborne noise that is conducted on its behalf by consulting company Bassett. These documents are provided to the public as stand alone reports supporting its Quarterly Reports. There is opportunity to improve the clarity of technical information provided in the reports so as to avoid confusion amongst the public over the compliance or otherwise of the project with the SEPP N-1.

Opportunity

The auditor found that the wording in the Basset noise monitoring reports should clearly state where exceedances of the SEPP N-1 have arisen due to background noise levels rather than due to dredging or piling works and provide clear justification for this conclusion.

It is recognised that these reports are intended to be a brief document advising PoMC of compliance with the SEPP N-1 only and hence do not contain detailed technical information on the methodology used. However, as these documents are provided to the public as stand alone reports supporting the Quarterly Project Report, there is opportunity to improve the clarity of technical information provided in the Basset noise monitoring reports so as to avoid confusion among the general public over the compliance or otherwise of the project with the SEPP N-1.

Progress

PoMC has advised that the Basset reports have been reformatted to include:

- background noise measurements undertaken at the monitoring location (LA90 and LAeq);
- noise levels measured during the dredging/piling activity;
- a statement of the SEPP (N-1) time period classifications;
- a brief narrative discussing background and operation measurements;
- a comparison of calculated SEPP (N-1) limits with average background noise level and measured noise levels;
- a brief discussion of results; and
- a summary that includes a statement of compliance.

PoMC has also advised that all Bassett noise reports contained within its Quarterly Report Four have used the above format.

The Office is satisfied that the intent of this opportunity has been addressed.

¹ Audit of the Channel Deepening EMP Project Delivery Standards (December 2008).

Issue 2: Stormwater and groundwater management

PDS No. 20 relates to stormwater and groundwater management. The auditor noted that this can be a complex area with varying requirements depending on the works being carried out, and adequacy will depend on the relevance of the checklist and the scope of the inspectors' inspections. An opportunity for improvement is for PoMC to continue to carry out periodic audits of the adequacy of stormwater and groundwater management measures as well as compliance with the EMP.

Opportunity

The auditor found that PoMC should continue to carry out periodic audits of the adequacy of stormwater and groundwater management measures as well as compliance with the EMP. Although full compliance has been assigned to this requirement, the auditor notes that this can be a complex area with varying requirements depending on the works being carried out, and adequacy will depend on the relevance of the checklist and the scope of the inspectors' inspections.

Progress

PoMC has advised that the stormwater and groundwater management measures are only applicable to land-based works during the construction phase of the Project. Stormwater management is routinely reviewed as part of each internal audit undertaken for land-based works, including berthworks and navigation aid sites.

Site constructions have typically involved minimal ground/surface disturbance to existing facilities. In areas where berthworks decking has been removed and/or excavation has occurred, particular attention has occurred to assess adequacy of stormwater management measures. Internal audits (PoMC 2008d, 2008e, 2009d) included as appendices to Quarterly Report 4, confirm conformance with EMP stormwater and groundwater requirements.

The Office is satisfied that the intent of this opportunity has been addressed.

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

3.3. Report and communicate

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

At the completion of the fourth quarter, 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). 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 fourth quarter, 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, and several new pages were added to provide visitors with access to more information on the project's performance against the EMP. An example of this is the *Dredging facts and news* web page. Here visitors can read the latest news on dredging works in the Bay. See www.oem.vic.gov.au/dredgingfactsandnews.

During the next quarter the Office will continue to improve the web site, particularly its content. Work will be done to make it more accessible and user-friendly. Alterations and additions will continue to be made as required.

The Office has received positive feedback from stakeholders and the community on the Fish Egg and Larvae Monitoring Program video it published on the web site during the fourth quarter. The Office considers video a valuable way of explaining the wide range of monitoring programs operating across the Bay and therefore has committed to producing several more videos over the coming months.

In the fourth quarter the Office published 90 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 28 February 2009

Item	Number this quarter	Number to date
Fact sheets	1	12
Media releases and statements	16	91
Web videos	1	2
Office's Work Plan	0	1
Office's Work Programs (including revisions)	0	3
Weekly project updates	9	47
Office environmental incident reports and advice	1	3
Turbidity Monitoring Program results	13	54
Plume Intensity and Extent Monitoring Program quarterly reports	3	4
Nutrient Cycling Monitoring Program reports	5	14
Algal Bloom Monitoring Program reports	1	4
Water Quality Monitoring Program reports	3	15
EPA Beach Monitoring Program reports	13	47
Little Penguin Monitoring Program report	3	11
Port Phillip Bay Annual Trawl monitoring program reports	0	2
Recreational Fishery Surveys progress report	1	3
Seagrass Monitoring Program	1	3
Port Phillip Bay Anchovy Study	1	2
Fish Egg and Larval Monitoring Program	1	2
Fish in Seagrass Monitoring Program	1	3
Total	74	323

During the fourth quarter, the web site was viewed by 1708 unique visitors (Table 7), with more than 17,000 page views. Popular pages were the 2009 Lower Yarra River Fish Study, Monitoring Program and Results and the Media releases pages. A total of 2.7 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
Quarter 1	Feb 2008	284	694	14662
	Mar 2008	452	830	16095
	Apr 2008	498	957	9067
	May 2008	507	915	8367
	Total	1741	3396	48191
Quarter 2	June 2008	414	759	6425
	July 2008	470	1008	10454
	August 2008	454	978	7039
	Total	1338	2745	23918
Quarter 3	September 2008	470	984	7041
	October 2008	556	1023	6511
	November 2008	483	823	6577
	Total	1509	2830	20129

Quarter 4	December 2008	454	816	7085
	January 2009	654	1041	9460
	February 2009	600	975	717
	Total	1708	2832	17262

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 fourth quarter. During the quarter, 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 over the next three years.

3.3.3. Media releases and briefings

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

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

The Office also responded to more than 6- 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.

4. Future directions: Reviews No. 5 & 6

While the Office considers that the project is progressing well in accordance with its objectives, it acknowledges less than 50 percent of material remains to be dredged. Therefore, the Office will remain vigilant in scrutinising the environmental performance of the project against the EMP and communicating its findings and recommendations to the Victorian community.

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

Furthermore, the Office will continue to review its progress, every quarter, with Review No. 5 due in June 2009.

4.1. Upcoming reviews

Based on PoMC's current dredging schedule works to place a sand capping layer on the contaminated sediment (soft silt) on the northern Dredged Material Ground will commence with the return of the *Queen of the Netherlands*. The capping sand will be sourced from the South Channel.

The Office's Work Program for the management of contaminated material and the management of the plume to meet light requirements of seagrass in the southeast of the Bay provides an indication of what will appear in future quarterly reviews.

The following section outlines what the next quarterly review is anticipated to address.

4.2. Review No. 5

Accessibility and consultation

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

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 the project had complied with all 58 Project Delivery Standards. Specifically, the Office expects to release independent audit reports covering the 58 Project Delivery Standards, the project's environmental performance, the mechanisms to protect the Bay's seagrass, the dredging and placement of contaminated material and the construction of the underwater bund used to contain contaminated silts.

Report and communicate

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

5. Appendix

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

Construction management (all activities)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>1. Hours of operation</p> <ul style="list-style-type: none"> ▪ All activities may be conducted on a 24 hour, 7 days a week basis, except where explicitly restricted within a PDS, or relevant legislation. 	✓	PoMC audits 51, 53, 54 and 57 indicate conformance with EMP PDS hours of operation.
<p>2. Airborne noise</p> <ul style="list-style-type: none"> ▪ All activities must be conducted within SEPP N-1 limits. ▪ 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. 	✓ ✓	<p>PoMC audits 49, 51, 53, 54, 55, 56 and 57 indicate that all activities for the PoMC reporting period 1 November 2008 to 31 January 2009 were in conformance with SEPP N-1 guidelines.</p> <p>PoMC audit 50 indicates that desktop noise assessments of major new equipment for land-based navigational aids would be undertaken if required.</p> <p>PoMC pre-start audit 52 indicates that a desktop assessment of the <i>Cornelis Zanen</i> airborne noise emissions was undertaken. Emission levels identified as less than the <i>Queen of the Netherlands</i>.</p>
<p>3. Airborne Noise Monitoring</p> <ul style="list-style-type: none"> ▪ Noise monitoring to be undertaken as described in the Airborne Noise Monitoring Program (Annexure 5): <ul style="list-style-type: none"> - 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. - 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. 	✓	<p>PoMC audits 49, 51, 52, 53, 55 and 56 indicate that noise monitoring was undertaken as required and described in the Airborne Noise Monitoring Program.</p> <p>Noise monitoring results 58, 59, 60, 63 and 64 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.

Construction management (all activities)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<ul style="list-style-type: none"> ▪ 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. 	✓	<p>PoMC audits 49, 51, 52, 53, 55 and 56 indicate that noise measurement results were compliant with SEPP.</p> <p>Noise monitoring results 61 and 62, in response to complaints received, indicate that noise measurement results were compliant with SEPP.</p>
<p>4. Waste management</p> <ul style="list-style-type: none"> ▪ 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 (Vic)</i>. ▪ No disposal of untreated sewage or other wastes to the bay. ▪ Contractor waste management arrangements to include waste minimisation, containment, segregation and appropriate reuse, recycling, treatment and disposal. ▪ 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. ▪ All waste to be managed in accordance with: <ul style="list-style-type: none"> - <i>Environment Protection Act 1970 (Vic)</i> - <i>Quarantine Act 1908 (Cwlth)</i> (applicable vessels) - <i>Pollution of Waters by Oil and Noxious Substances Act 1986 (Vic)</i> 	✓	<p>PoMC audits 49, 51, 52, 53, 54, 55, 56 and 57 indicate that, for vessels and activities during this period, waste management arrangements were in accordance with PDS 4.</p>
<p>5. Energy and greenhouse gases</p> <ul style="list-style-type: none"> ▪ 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. 	✓	<p>PoMC audit 50 indicates that contractor for land-based navigational aids has met requirements to provide information.</p> <p>PoMC audits 49, 53, 54, 55 and 56 indicate that reporting of fuel consumption for the calculation of greenhouse gas emissions for the <i>Queen of the Netherlands, Cornelis Zanen, Goomai</i> and <i>Storcken</i> was received monthly.</p> <p>PoMC audits 51 and 57 indicate that reporting of fuel consumption for the calculation of greenhouse gas emissions with respect to berthworks was received monthly.</p>

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

Marine-based works (all areas)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>9. Safety</p> <ul style="list-style-type: none"> A safety zone of 600 m radius to be established around major dredging equipment during operations. 	✓	<p>PoMC audits 52, 53 and 54 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 49, 55 and 56 indicate that vessel masters of barges are aware of safety zone requirements established around major dredging equipment as required by PDS 9.</p>
<p>10. Marine pests</p> <ul style="list-style-type: none"> 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. All vessels to comply with “Protocol for Environmental Management – Domestic Ballast Water Management in Victorian State Waters”, EPA Publication 949.1 (June 2006) All vessels to comply with “Australian Ballast Water Management Requirements”, AQIS (1 June 2007) 	✓	<p>PoMC pre-start audit 52 indicates that a declaration of clean hull was obtained for the <i>Cornelis Zanen</i> from its final port of call and that the vessel complies with domestic and national ballast water management requirements.</p> <p>PoMC audits 49, 55 and 56 indicate that no ballast water exchange made with Bay waters for <i>Goomai</i> and <i>Storken</i>.</p>
<p>11. Vessel anchoring</p> <ul style="list-style-type: none"> Vessels to anchor in accordance with the Port Waters of Melbourne Operations Handbook, 2006. This does not include the anchoring of pontoons at DMGs. 	✓	<p>PoMC audits 49, 55 and 56 indicate that no anchoring of the <i>Goomai</i> or <i>Storken</i> occurred while operating in the Yarra River.</p> <p>PoMC audit 54 indicates that the <i>Cornelis Zanen</i> anchored in accordance with PDS 11.</p>
<p>12. Vessel bunkering</p> <ul style="list-style-type: none"> All bunkering to take place in accordance with PoMC Bunkering Guidelines and vessel bunkering procedures. 	✓	<p>PoMC audits 49, 54, 55 and 56 indicate that all bunkering of the <i>Cornelis Zanen</i>, <i>Goomai</i> and <i>Storken</i> occurred in accordance with PoMC bunkering requirements and vessel bunkering procedures.</p>

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

Marine-based works (all areas)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>13. Cetaceans – vessel manoeuvring</p> <ul style="list-style-type: none"> ▪ If within 300 m of a dolphin or whale the vessel must not: <ul style="list-style-type: none"> - approach a whale or dolphin head on - be in the path of a whale or dolphin - separate any whale or dolphin from a group - come between a mother and a calf - drop or lower an anchor overboard from the vessel. ▪ Within 300 m of a whale or dolphin, the vessel must: <ul style="list-style-type: none"> - maintain a constant speed that does not exceed 5 knots - avoid sudden changes in direction - 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). 	✓	<p>PoMC pre-start audit 52 indicates that relevant personal completed cetacean spotting, identification and reporting training for marine-based navigational aid operations.</p> <p>PoMC audits 49, 53, 54, 55 and 56 indicate that the <i>Queen of the Netherlands, Cornelis Zanen, Goomai</i> and <i>Storcken</i> complied with cetacean manoeuvring requirements outlined in PDS 13.</p> <p>PoMC audit 57 indicates that relevant personnel were trained in cetacean spotting identification for marine-based work.</p>
<p>14. Cetacean sightings and log</p> <ul style="list-style-type: none"> ▪ Personnel on board vessels are to report all sightings of cetaceans. ▪ A log of cetacean sightings and action taken to be kept for all work areas. 	✓	<p>PoMC audits 51 and 57 indicate that a cetacean log was on site for marine-based work.</p> <p>PoMC audits 49, 52, 53, 54, 55 and 56 indicate that the <i>Queen of the Netherlands, Cornelis Zanen, Goomai</i> and <i>Storcken</i> complied with cetacean reporting requirements outlined in PDS 14.</p>
<p>15. Services protection and removal</p> <ul style="list-style-type: none"> ▪ Management measures including positional controls and mechanical devices or annexures to dredging equipment to minimise the risk of damage to services. 	✓	<p>PoMC audits 49 and 55 indicate that positional controls and spud caps were in place for the protection of services for the <i>Storcken</i>.</p> <p>PoMC audit 56 indicates that positional controls were in place for the protection of services for the <i>Goomai</i>.</p>
<p>16. Marine-based berthworks and river protection works</p> <ul style="list-style-type: none"> ▪ Management measures to minimise quantity of debris entering the river during demolition and construction works. 	✓	<p>PoMC audits 51 and 57 indicate that management measures are in place to minimise debris entering the river for berthworks.</p>

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

Marine-based works (all areas)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<ul style="list-style-type: none"> ▪ Conduct site inspection in vicinity of the <i>HMAS Goorangai</i> (S294) before the start of dredging in that area. ▪ Conduct two inspections of the Edward (S209) before the start of dredging in the Entrance. ▪ Inspection and site works described above to be carried out under the supervision of an archaeologist. 	<p>NA</p> <p>Completed</p>	<p>PoMC advised on 13 March 2009 that no dredging occurred near the <i>Goorangai</i>.</p> <p>Reports on these works were provided as part of Quarterly Report No.1. PoMC audit 53 indicates that two inspections of the shipwreck <i>Edward</i> (S209) were completed before the start of dredging in the Entrance.</p>
<ul style="list-style-type: none"> ▪ The following management measures shall be implemented for the wreck of the <i>HMAS Goorangai</i> (S294): <ul style="list-style-type: none"> - Use of the sweep bar in conjunction with the TSHD in the vicinity of the <i>HMAS Goorangai</i> to minimise overredge. - Draghead tracking to confirm that dredging has not occurred within the area of heritage significance. - The area to which these controls apply are identified in Drawing CDP-ENV-50254 – Construction Areas – Heritage Significance (Drawings are included in Annexure 7). ▪ Survey to be carried out under the supervision of an archaeologist and report to be provided to Heritage Victoria. 	<p>NA</p>	<p>PoMC advised on 13 March 2009 that no dredging occurred near the <i>Goorangai</i>, therefore these management measures do not apply for this period.</p>
<ul style="list-style-type: none"> ▪ 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. ▪ 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). ▪ South Channel Pile Light (H1519 and H7821-0006) – four inspections of site, scheduled one per season within the first year after completion of dredging, with the aim of recording and recovering artefacts that have become exposed. 	<p>NA</p> <p>NA</p> <p>NA</p>	<p>Requirements do not apply to this reporting period as dredging was incomplete.</p> <p>Requirements do not apply to this reporting period as dredging was incomplete.</p> <p>Requirements do not apply to this reporting period as dredging was incomplete.</p>

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

Marine-based works (all areas)		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<ul style="list-style-type: none"> ▪ Unidentified – Port Melbourne n.2 (787) – eight inspections of the site, scheduled one per season for 2 years following completion of dredging, with the aim of recording erosion processes affecting the site. ▪ Inspections to be carried out under the supervision of an archaeologist and reports to be provided to Heritage Victoria. 	NA	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.

Land-based Works		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>20. Stormwater and groundwater management</p> <ul style="list-style-type: none"> 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>. 	✓	PoMC audits 50, 51 and 57 indicate that stormwater run off controls have been addressed at all sites for land-based navigation aids and included in berthwork construction environment management plans.
<p>21. Contaminated material</p> <ul style="list-style-type: none"> 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> 	✓	<p>PoMC audit 50 indicates that no contaminated material was identified at either site for land-based navigation aids.</p> <p>PoMC audit 51 and 57 indicates that disposal of contaminated soils taken from berthworks for Yarraville to Newport Park, including Holden Dock, and 32 South Wharf site occurred in accordance with PDS 21.</p>
<p>22. Aboriginal heritage</p> <ul style="list-style-type: none"> If a potential heritage or Aboriginal site is identified during construction activities, the process described in Annexure 6 of the EMP will be followed. Monitoring by relevant Aboriginal representatives during construction at the Rocky Point and Narrows PEL Beacon sites in accordance with the Cultural Heritage Management Plan. 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. 	<p>✓</p> <p>✓</p> <p>✓</p>	<p>PoMC audit 57 indicates that no potential heritage relics have been identified during construction activities at 32 South Wharf.</p> <p>Advice from PoMC dated 12 December 2008 indicated that no potential aboriginal heritage sites were identified during berthwork sites Yarraville to Newport Park, including Holden Dock.</p> <p>Advice from PoMC dated 12 December 2008 indicated only minor excavation on the Lover Walk access track occurred and no additional Aboriginal heritage sites were identified.</p> <p>PoMC audit 50 indicates that alternate access routes were being used at The Narrows site in order to avoid unnecessary impact caused by the access track.</p>

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

Dredging and plume PDS

Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>23. Sands and adjacent coast and beaches monitoring</p> <ul style="list-style-type: none"> ▪ 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. ▪ 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. ▪ Current measurements to be undertaken in South Channel and inside the Entrance after completion of dredging. Measurements to be compared against SEES predictions. ▪ Sediment size analyses to be undertaken in conjunction with refined sediment transport numerical modelling post-construction. 	<p>NA</p> <p>NA</p> <p>NA</p> <p>NA</p>	<p>Initial baseline bathymetric survey completed and reported as part of Quarterly Report No.1. PoMC audit 53 indicates that initial Lidar survey of the Sands flood tidal delta system completed.</p> <p>See Endnote 1.</p> <p>Initial multibeam survey completed and reported as part of Quarterly Report No.1. PoMC audit 53 indicates that initial multibeam survey of the Entrance was completed.</p> <p>See Endnote 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.

Dredging and plume PDS


Environmental controls	Conformance	Office of the Environmental Monitor comment*
<ul style="list-style-type: none"> ▪ Construction zone – construction zones have been identified to limit the footprint of dredging activities. Construction areas are identified in drawings listed below. ▪ 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). ▪ 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"> - Drawing 35328 – Channel Deepening Project – Port of Melbourne – Coastal Management Consent Scope of Works - Drawing 35329 – Channel Deepening Project – Port of Melbourne – South – Coastal Management Consent Scope of Works - Drawing 35330 – Channel Deepening Project – Port of Melbourne – North – Coastal Management Consent Scope of Works - Drawing 35331 – Channel Deepening Project – Port Phillip Entrance – South Channel – Coastal Management Consent Scope of Works - Drawing 35332 – Channel Deepening Project – Port Phillip Entrance – South Channel – Coastal Management Consent Scope of Works - Drawing 35333 – Channel Deepening Project – South Channel – West - Coastal Management Consent Scope of Works - Drawing 35334 – Channel Deepening Project – South Channel – East - Coastal Management Consent Scope of Works - Drawing CDP-ENV-50254 – Construction Areas – Heritage significance ▪ (Drawings are included in Annexure 7) 	<p>✓</p> <p>✓</p> <p>✓</p>	<p>PoMC pre-start audit 52 indicates that on-board monitoring and tracking systems for the <i>Cornelis Zanen</i> are in conformance with PDS 24 including definition and identification of construction zones.</p> <p>PoMC audits 49, 54, 55 and 56 indicate that vessel tracking and operation of the <i>Cornelis Zanen</i>, <i>Storken</i> and <i>Goomai</i> have been conducted in accordance with PDS 24 and that conformance with depth, width and volume requirements has been demonstrated.</p> <p>See Endnote 1 and 2.</p> <p>The Office notes that the dredging equipment and associated support vessels were permitted to manoeuvre outside construction zones.</p> <p>See Endnote 1 and 2.</p>

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

Dredging and plume PDS		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>25. Management of pipeline between TSHD and spreader or diffuser pontoon during transfer of sediments</p> <ul style="list-style-type: none"> ▪ Pipeline will be lit at night. ▪ Support vessels will maintain a watch for non-project vessels. ▪ Pumping will cease if an unauthorised vessel encroaches within 100 m of the pipeline, or if the integrity of the pipeline is compromised. 	✓	<p>PoMC advised that dredging of contaminated sediments by the <i>Cornelis Zanen</i> was completed on 5 October 2008. This concluded the hydraulic placement of contaminated sediments in the PoM DMG. Therefore requirement for a pipeline to be deployed during transfer of sediment to the PoM DMG is completed.</p> <p>See Endnote 2.</p>
<p>26. Third party infrastructure</p> <ul style="list-style-type: none"> ▪ 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. 	✓	<p>PoMC advised on 13 March 2009 that Newport Power Station intake monitoring is continuing consistent with Annexure 6 of the EMP (Rev 6).</p>
<p>27. Dredging of unconsolidated contaminated sediment</p> <ul style="list-style-type: none"> ▪ 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"> - TSHD operating in non-overflow mode with a silt draghead. - Grab dredge. - Backhoe dredge. 	✓	<p>PoMC audit 56 indicates that dredging of contaminated sediments by the <i>Goomai</i> in the Yarra River occurred in accordance with PDS27.</p> <p>See Endnote 2.</p>
<p>28. Dredging of contaminated clays</p> <ul style="list-style-type: none"> ▪ 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"> - TSHD operating in non-overflow mode with a clay draghead. - Grab dredge. - Backhoe dredge. 	✓	<p>PoMC audit 56 indicates that dredging of contaminated sediments by the <i>Goomai</i> in the Yarra River occurred in accordance with PDS27.</p> <p>PoMC advised on 13 March 2009 that dredging of contaminated clays by the <i>Cornelis Zanen</i> occurred only in non-overflow mode with the clay draghead.</p> <p>See Endnote 2.</p>


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

Dredging and plume PDS

Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>29. Monitoring removal of contaminated sediments – TSHD</p> <ul style="list-style-type: none"> ▪ 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"> 1. The thickness of the contaminated sediments will be determined based on: <ol style="list-style-type: none"> a. pre-dredge hydrographic survey b. estimated top of underlying uncontaminated clay, based on the combined interpretation of boreholes and seismic investigation. 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. 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. 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. 5. Record x,y,z coordinates of draghead tracks while dredging. 6. Calculate the number of draghead passes recorded in each grid cell within an area. 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. 		<p>PoMC audit 54 indicates that the process for monitoring transitions from dredging contaminated to uncontaminated material by the <i>Cornelis Zanen</i> has been conducted in accordance with PDS 29.</p> <p>During the reporting period, 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"> ▪ Yarra River, including Swanson and Appleton Docks, Kp 2.026 to 3.510; ▪ Yarra River – 4 locations between Kp 2.776 to Kp 4.522; ▪ Yarra River (edges of both sides), Kp 3.860 to Kp 5.100; ▪ Yarra River, south of services, Kp 6.485 to Kp 7.844; ▪ Webb Dock approaches Kp 6.994 to 7.564; ▪ Vicinity of Gellibrand Swing Basin and Webb Dock approach, Kp 7.456 to Kp 8.984; ▪ Williamstown Channel, Kp 7.563 to 8.626; and ▪ Gellibrand Pier, Kp 8.906 to Kp 9.232. <p>PoMC advised that dredging of contaminated sediments by the <i>Cornelis Zanen</i> was completed on 5 October 2008. This concluded the hydraulic placement of contaminated sediments in the PoM DMG. Therefore this PDS is now completed.</p> <p>See Endnote 2.</p>

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

Dredging and plume PDS

Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>30. Monitoring removal of contaminated sediments – backhoe and grab dredges</p> <ul style="list-style-type: none"> ▪ 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"> 1. The thickness of the contaminated sediments will be determined based on: <ol style="list-style-type: none"> a. pre-dredge hydrographic survey b. estimated top of underlying uncontaminated clay, based on known maintained levels. 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. 3. Remove full thickness of contaminated sediments to top of uncontaminated clay. 4. Record x,y,z coordinates of backhoe or grab. 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. 		<p>PoMC audit 56 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>PoMC advised on 13 March 2009 that the Alliance confirms all contaminated clay dredging to date, when undertaken by either the backhoe or grab dredges, has been undertaken according to 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"> ▪ Yarra River, including Swanson and Appleton Docks, Kp 2.026 to 3.510; ▪ Yarra River – 4 locations between Kp 2.776 to Kp 4.522; ▪ Yarra River (edges of both sides), Kp 3.860 to Kp 5.100; ▪ Yarra River, south of services, Kp 6.485 to Kp 7.844; ▪ Webb Dock approaches Kp 6.994 to 7.564; ▪ Vicinity of Gellibrand Swing Basin and Webb Dock approach, Kp 7.456 to Kp 8.984; ▪ Williamstown Channel, Kp 7.563 to 8.626; and ▪ Gellibrand Pier, Kp 8.906 to Kp 9.232. <p>See Endnote 2.</p>

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

Dredging schedule		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>31. Dredging schedule</p> <ul style="list-style-type: none"> ▪ The initial dredging schedule to be submitted to DSE before implementation. ▪ Subsequent revisions of the dredging schedule and monthly updates will be submitted to DSE within 2 working days of approval by CDP management. ▪ Dredging to take place as summarised in 'Dredging Summary'. ▪ Dredging schedule to include: <ul style="list-style-type: none"> - dredging technology - dredging configuration (i.e. number and location of dredges, use of interval dredging) - timing, duration and sequence of dredging in Project Areas. ▪ 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. ▪ Capping will be completed before 31 December 2009. 	<p>Completed</p> <p>✓</p> <p>✓</p> <p>NA</p> <p>NA</p>	<p>Report on this was provided as part of Quarterly Report No.1.</p> <p>PoMC audits 49, 53, 54, 55 and 56 indicate that the dredging schedules (updates) met the requirements of PDS 31.</p> <p>See Endnote 1 and 2.</p> <p>PoMC audits 49, 53, 54, 55 and 56 indicate that the dredging schedules (updates) met the requirements of PDS 31.</p> <p>See Endnote 1 and 2.</p> <p>Requirement does not apply to this period.</p> <p>Requirement does not apply to this period.</p>
<p>32. Consideration of environmental limits</p> <ul style="list-style-type: none"> ▪ Revisions to the dredging schedule will be assessed to confirm ability to comply with airborne noise and turbidity environmental limits. 	<p>✓</p>	<p>PoMC audits 49, 54, 55 and 56 indicate that dredge schedules (Rev1 Upd 7, 8 and 9 and Rev 2) met the requirements for the consideration of environmental limits in accordance with PDS 32.</p>

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

Dredging schedule

Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>33. Consideration of seasonal sensitivities</p> <ul style="list-style-type: none"> ▪ 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. ▪ 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. ▪ 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). ▪ 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. ▪ 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. 	<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 style="text-align: center;">✓</p>	<p>PoMC dredging schedule Rev 2 indicates that no dredging by a TSHD occurred in the South of the bay during this time.</p> <p>See Endnote 1</p> <p>PoMC audit 54 indicates 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 2</p> <p>PoMC dredging schedule Rev 2 indicates that no dredging using a TSHD was scheduled for the Yarra River of Williamstown Channel for this period.</p> <p>See Endnote 2</p> <p>Requirement does not apply to this period.</p> <p>PoMC audits 49, 53, 54, 55 and 56 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 2</p>

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

Dredged material management		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>34. Dredged material placement</p> <ul style="list-style-type: none"> ▪ DMGs – all dredged material placement activities to take place within the specified DMGs (including associated construction areas) set out in: <ul style="list-style-type: none"> - Drawing 35328 – Channel Deepening Project – Port of Melbourne – Coastal Management Consent Scope of Works - Drawing 35331 – Channel Deepening Project – Port Phillip Entrance – South Channel Coastal Management Consent Scopes of Works. <p>(Drawings are included in Annexure 7)</p> ▪ Dredged material placement – All dredged material to be placed in accordance with ‘Dredging Summary’. ▪ Dredged material placement including capping – to be undertaken in accordance with EMP Method Statement for material placement in PoM DMG (CDP_ALL_MS_410). ▪ Dredging and disposal locations to be recorded as per tracking of equipment table (refer to Table 11 – Dredging and plume PDS). ▪ Volumes are to be calculated from hydrographic survey data. ▪ Dredged material placement will not commence if a whale is sighted within 300 m of the TSHD placing material into a DMG. If a whale is sighted, placement can commence if the whale has been seen to move beyond 300m, or has not been sighted within 300m for at least 15 minutes. 	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>PoMC audits 49, 53 and 54, 55 and 56 indicate that placement of dredged material in the specified DMGs has occurred in accordance with Standard 34.</p> <p>See Endnote 1 and 2.</p> <p>PoMC audit 53 indicates that placement of dredged material included considerations to be undertaken when a whale is in the vicinity.</p> <p>See Endnote 1 and 2</p>

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

Dredged material management		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>35. PoM DMG – bund</p> <ul style="list-style-type: none"> ▪ Bunds to be constructed in accordance with design specifications (Drawings C001, C002 and C003). (Drawings are included in Annexure 7) ▪ Bunds to be constructed using: <ul style="list-style-type: none"> - consolidated sediments (clays) dredged from Port Melbourne Channel - uncontaminated clays dredged from Yarra River and Williamstown Channels (this is due to a deficit of clay from the Port Melbourne Channel) - sand from South Channel used for cleaning the TSHD hopper - 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. ▪ 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. 	<p>✓</p> <p>✓</p> <p>NA</p>	<p>PoMC audits 49, 54, 55 and 56 and PoMC Notifications indicate that construction of the bund has followed requirements outlined in PDS 35.</p> <p>PoMC audits 49, 54, 55 and 56 and PoMC Notifications indicate that construction of the bund has followed requirements outlined in PDS 35.</p> <p>See Endnote 2.</p> <p>Requirements do not apply to this reporting period as the main bund was not yet completed.</p>
<p>36. PoM DMG – containment of contaminated material</p> <ul style="list-style-type: none"> ▪ 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"> - Confirmation that the partially constructed bund has been constructed in accordance with design specifications. - Confirmation of bund capacity and volume of contaminated unconsolidated sediments to be dredged. ▪ 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. 	<p>✓</p> <p>✓</p>	<p>PoMC audits 49, 54, 55 and 56 and PoMC Notifications indicate that requirements for the interim (partially constructed) bund have been met, that the partially constructed bund has been constructed in accordance with design specifications and that the bund capacity has been determined.</p> <p>See Endnote 2.</p> <p>PoMC audits 49, 54, 55 and 56 and PoMC Notifications indicate that regular hydrographic surveys have been completed for placement of contaminated sediments and that interim 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.

Dredged material management		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>37. PoM DMG – capping</p> <ul style="list-style-type: none"> ▪ Prior to the placement of cap material the following is required. <ul style="list-style-type: none"> - Confirmation by survey that bund has been constructed in accordance with design specifications. - All contaminated material removed for all dredging management units as per Table 11 – Dredging and plume PDS. ▪ Construction of cap for PoM DMG. <ul style="list-style-type: none"> - Cap material to be placed in accordance with design requirements (Refer to drawings C001, C002 and C003). - Cap thickness to be confirmed by survey and/or physical testing prior to transfer to PoMC. ▪ 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). 	NA	Requirements do not apply to this reporting period as bund was being constructed and placement of contaminated sediments has not been completed.

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

Dredged material management		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>38. PoM DMG – maintenance and inspection</p> <ul style="list-style-type: none"> ▪ 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. ▪ Inspections and corrective measures to be in accordance with design specifications (Drawing C003). ▪ 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"> - 2 weeks. - 1 month. - 2 months. - 4 months. - 8 months. - 12 months. - At 12-monthly intervals for the first five years after completion. - At 24-monthly intervals thereafter. - 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. ▪ 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"> - 1 month. - 4 months. - 12 months. - At 12-monthly intervals for the first five years after completion. - At 24-monthly intervals thereafter - 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. ▪ Undertake a marine pest survey of PoM DMG within 3 years of completion of project. 	NA	<p>Requirements do not apply to this reporting period as the bund was under construction.</p> <p>Note that the Office was advised by PoMC that regular surveys of the bund occur while it is under construction.</p>

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

Dredged material management		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>39. SE DMG</p> <ul style="list-style-type: none"> ▪ Minimum 0.5 m sand material to be placed over Entrance rock material. ▪ Dredged material to be placed to maximum -15 m below Chart Datum. ▪ 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. 	<p>NA</p> <p>NA</p> <p>NA</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.

Entrance dredging PDS		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>40. Draghead design</p> <ul style="list-style-type: none"> ▪ 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. ▪ An independent peer reviewer is to verify: <ul style="list-style-type: none"> - that the draghead design is in accordance with the above mentioned report. <p>And:</p> <ul style="list-style-type: none"> - that the draghead has been constructed in accordance with the design. 	Completed	<p>Reports on completion of this PDS were provided as part of Quarterly Report No.1.</p> <p>PoMC audit 53 indicates that the draghead has been designed in accordance with the recommendations of the Delft report and that an independent peer review was undertaken.</p> <p>See Endnote 1.</p>
<p>41. Dredging in the Entrance</p> <ul style="list-style-type: none"> ▪ All dredging to be conducted with the ripper draghead. ▪ 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). ▪ When dredging the canyon edge itself, dredging to be conducted from the canyon towards the plateau. 	Completed	<p>PoMC audit 53 indicates that dredging in the Entrance was conducted with the ripper draghead and that all controls identified in the EMP Method Statement for Dredging works South – Entrance associated with dredging toward the canyon and dredging the canyon edge were followed.</p> <p>See Endnote 1.</p>

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

Entrance dredging PDS														
Environmental controls	Conformance	Office of the Environmental Monitor comment*												
<p>42. Clean up in the Entrance</p> <ul style="list-style-type: none"> 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. 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. 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. <table border="1"> <thead> <tr> <th>Quantity dredged (Q)</th> <th>Hs predicted <3m</th> <th>Hs predicted >3m</th> </tr> </thead> <tbody> <tr> <td><10,000 m³</td> <td>Continue dredging</td> <td>Continue dredging</td> </tr> <tr> <td>10,000 m³ < Q < 24,000 m³</td> <td>Continue dredging</td> <td>Clean-up for 8-18 hours depending on quantity dredged</td> </tr> <tr> <td>~24,000 m³</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"> In addition to the programmed clean-up events, conduct other clean-up events: <ul style="list-style-type: none"> 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) once design profile has been achieved in any areas identified at Management Review meetings (e.g. areas identified through towed video survey) 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"> Apply a grid over the dredging area for comparison of draghead passes (dredging) and draghead passes (clean up) The x,y,z coordinates of the draghead tracks will be recorded during dredging and clean up. 	Quantity dredged (Q)	Hs predicted <3m	Hs predicted >3m	<10,000 m ³	Continue dredging	Continue dredging	10,000 m ³ < Q < 24,000 m ³	Continue dredging	Clean-up for 8-18 hours depending on quantity dredged	~24,000 m ³	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>PoMC audit 53 indicates that all clean up activities were conducted with the clean up draghead and undertaken in accordance with EMP Method Statement for Dredging works South – Entrance (noting the exception regarding clean up event 15 covered in the Quarterly Review No. 2).</p> <p>See Endnote 1.</p>
Quantity dredged (Q)	Hs predicted <3m	Hs predicted >3m												
<10,000 m ³	Continue dredging	Continue dredging												
10,000 m ³ < Q < 24,000 m ³	Continue dredging	Clean-up for 8-18 hours depending on quantity dredged												
~24,000 m ³	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.

Entrance dredging PDS																
Environmental controls		Conformance	Office of the Environmental Monitor comment*													
<ul style="list-style-type: none"> 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. 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: 		<p>Completed</p> <p>Completed</p>	<p>PoMC audit 53 indicates that all clean up activities were undertaken in accordance with EMP Method Statement for Dredging works South – Entrance (noting the exception regarding clean up event 15 covered in the Quarterly Review No. 2).</p> <p>See Endnote 1.</p>													
<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><80%</th> </tr> </thead> <tbody> <tr> <th rowspan="2">Clean up time remaining</th> <th>≤ 1 hour clean up remaining</th> <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> <th>>1 hour clean up remaining</th> <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
		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.													
<p>43. North-west side of Nepean Bank</p> <ul style="list-style-type: none"> 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) The north-west edge of Nepean Bank to be dredged last in the dredging schedule for Nepean Bank. 		<p>Completed</p> <p>Completed</p>	<p>PoMC audit 53 indicates that a ridge at least 5m wide along the north-west side of the Nepean Bank was retained until the remaining area was dredged, and that this ridge was dredged last.</p> <p>See Endnote 1.</p>													

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

Entrance dredging PDS		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>44. Fish modelling</p> <ul style="list-style-type: none"> 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. 	Completed	<p>Reports on completion of this PDS were provided as part of Quarterly Report No.1.</p> <p>PoMC audit 53 indicates that modelling of King George whiting larvae occurred prior to commencement of dredging.</p>
<p>45. Pre-construction plateau inspection</p> <ul style="list-style-type: none"> 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. 	Completed	<p>Reports on completion of this PDS were provided as part of Quarterly Report No.1.</p> <p>PoMC audit 53 indicates that the pre-construction plateau inspection was completed.</p>
<p>46. Construction plateau inspection</p> <ul style="list-style-type: none"> 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. 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). 	<p>Completed</p> <p>Completed</p>	<p>Reports on completion of this PDS were provided as part of Quarterly Report No.1.</p> <p>PoMC audit 53 indicates that a final towed video survey was undertaken once design profile was reached and final clean up completed.</p> <p>See Endnote 1.</p>
<p>47. Post-construction plateau inspection</p> <ul style="list-style-type: none"> 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. 	NA	<p>Completion of this survey does not occur within the period of this review.</p>
<p>48. Pre and post-construction bathymetric survey</p> <ul style="list-style-type: none"> Bathymetric survey of the Entrance to be undertaken to identify bathymetric changes at following intervals: <ul style="list-style-type: none"> Prior to commencement of dredging in the Entrance 3, 6, 9, 12 months post-dredging 2 years post-dredging 4 years post-dredging 	✓	<p>Reports on completion of pre-construction bathymetric survey was provided as part of Quarterly Report No.1. PoMC audit 53 indicates that a pre-construction bathymetric survey was completed.</p> <p>Completion of the 3 month post dredging survey does not occur within the period of this review.</p> <p>See Endnote 1.</p>

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

Entrance dredging PDS		
Environmental controls	Conformance	Office of the Environmental Monitor comment*
<ul style="list-style-type: none"> - 10 years post-dredging - prior to programmed major maintenance dredging campaign (towed video survey also to be conducted at this time) ▪ 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. 	NA	<p>Reports on completion of pre-construction bathymetric survey was provided as part of Quarterly Report No.1.</p> <p>See Endnote 1.</p>
<p>49. Post-construction deep reef habitat – impact & recovery assessment</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"> ▪ 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 ▪ 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. ▪ 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. ▪ Timing will be: <ul style="list-style-type: none"> - 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. - approximately four and ten years after completion of dredging 	NA	<p>Completion of this impact and recovery assessment does not occur within the period of this review.</p>
<p>50. Post-construction tide monitoring report</p> <ul style="list-style-type: none"> ▪ 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. 	NA	<p>Requirement does not apply to this period.</p>

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

Hydrohammer use and marine-based pile driving

Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>51. Minimise use of hydrohammer</p> <ul style="list-style-type: none"> ▪ 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. 	NA	Requirement does not apply to this reporting period as hydrohammer was not used.
<p>52. Hours of operation</p> <ul style="list-style-type: none"> ▪ 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). ▪ Hydrohammer only to be used Monday to Friday, excluding public holidays. 	<p style="text-align: center;">✓</p> <p style="text-align: center;">NA</p>	PoMC audit 51 indicates that marine-based pile driving operations only occurred during daylight hours as defined by PDS 52. Note that hydrohammer was not used in this reporting period.
<p>53. Start procedure</p> <ul style="list-style-type: none"> ▪ 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. 	✓	PoMC audit 51 indicates that noise generating devices were used during marine-based pile driving activities.
<p>54. Hydrohammer – noise assessment</p> <ul style="list-style-type: none"> ▪ 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"> - Underwater noise monitoring of the hydrohammer by marine biology acoustic specialist. - 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. - 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. - 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. - 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. 	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.

Hydrohammer use and marine-based pile driving

Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>55. Hydrohammer – cetaceans</p> <ul style="list-style-type: none"> ▪ 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). ▪ A minimum of 15 minutes of active cetacean spotting required before hydrohammer operations commence. ▪ Vessel master to confirm ‘all clear’ for cetaceans within a 600 m radius of the hydrohammer before the commencement of hydrohammer operations. ▪ 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"> - 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. ▪ 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. 	NA	Requirement does not apply as hydrohammer was not used in this reporting period.
<p>56. Hydrohammer – no-dive zone</p> <ul style="list-style-type: none"> ▪ 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. 	NA	Requirement does not apply as hydrohammer was not used in this reporting period.
<p>57. Marine-based pile driving – noise assessment</p> <ul style="list-style-type: none"> ▪ 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). 	✓	PoMC audit 51 and noise monitoring result (65) indicate that underwater noise testing of marine-based pile driving equipment was undertaken on commencement of piling operations and conforms to modelling.

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

Hydrohammer use and marine-based pile driving

Environmental controls	Conformance	Office of the Environmental Monitor comment*
<p>58. Marine-based pile driving – cetaceans</p> <ul style="list-style-type: none"> ▪ 'All clear' for cetaceans within a 300 m radius of the pile driving unit to be confirmed before the commencement of pile driving operations. ▪ Maintain a watch for cetaceans when operating in Williamstown Channel, North of bay and South of bay and berths. ▪ If a cetacean is spotted within 300 m of equipment, the following actions shall be taken: <ul style="list-style-type: none"> - Pile driving unit to suspend operations immediately. - If cetaceans are not seen to move beyond 300 m, operations cannot restart until no cetacean has been sighted for at least 15 minutes. - If cetaceans are seen to move beyond 300 m, operations can recommence immediately. 		<p>PoMC audit 51 indicates that “start up” and “shut down” procedures for marine-based pile driving is included in the work package CEMP and communicated to relevant staff.</p>

Endnote

1. Conformance with this Rule during this Quarter has been assessed through the independent Activity No. 2 Audit No. 1 audit titled 'Targeted audit of dredging in the Entrance of Port Phillip Bay – February 2009' conducted by GHD, and has been found to be compliant.
2. Conformance with this Rule during this Quarter has been assessed through the independent Activity No. 2 Audit No. 2 audit titled 'Targeted audit of EMP requirements for Management of Contaminated Sediments – March 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

Reference Number	Audit Description	Date
49	EMP Audit – <i>Storcken</i> – Yarra River	14 November 1008
50	EMP Audit – Land-based Navigation Aids	14 November 1008
51	EMP Audit – <i>Berthworks</i> – Yarraville to Newport Park (incl. Holden Dock)	15 December 2008
52	Pre-start Audit – <i>Cornelis Zanen</i> (return) – North of Bay (incl. Hobsons Bay and Yarra River)	11-15 December 2008
53	Close Out Audit – Entrance Dredging	2 October – 19 December 2008
54	EMP Audit – <i>Cornelis Zanen</i> - North of Bay (incl. Hobsons Bay and Yarra River)	23 January 2009
55	EMP Audit - <i>Storcken</i> – Yarra River	27 January 2009
56	EMP Audit - <i>Goomai</i> – Yarra River	28 January 2009
57	EMP Audit – Berthworks (32 South Wharf)	30 January 2009
	Noise Monitoring	
58	Bassett (2008e). Boskalis - Channel Deepening Project Works - Potential piling noise from Navigation Aids Improvements at Beacon 5	30 September 2008
59	Bassett (2008a). Boskalis - Channel Deepening Project Works –Holden Oil Dock – Piling Noise	4 December 2008
60	Bassett (2008d). Boskalis - Channel Deepening Project Works –Desktop assessment of the potential noise impacts of daytime, evening and nighttime piling operations at 32 South Wharf	5 December 2008
61	Bassett (2008b). Boskalis - Channel Deepening Project Works – 32 South Wharf Piling Operations noise; complaint response, 18 th December 2008	19 December 2008
62	Bassett (2008c). Boskalis - Channel Deepening Project Works - 32 South Wharf Piling Operations noise; complaint response, 22/23 rd December 2008	23 December 2008
63	Bassett (2008b). Boskalis - Channel Deepening Project Works – Yarra Bank Protection Works – Piling Noise	12 January 2009
64	Bassett (2008b). Boskalis - Channel Deepening Project Works – Noise measurements of 32 South Wharf piling operations (including night works), December 2008	23 January 2009
65	CMST (2008). Channel Deepening Project Works – Port of Melbourne Williamstown Channel impact pile driving underwater noise	15 November 2008

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

Appendix 2. PoMC internal audits scrutinised by the Office in previous quarters

Internal audits previous quarters	Date of audit
EMP audit – Berthworks (Swanson Dock West and 32 South Wharf)	22 October 2008
EMP audit – Navigation Aids (marine-based)	07 October 2008
EMP audit – <i>Goomai</i> (Yarra River)	01 October 2008
EMP Audit – Berthworks (Yarraville to Newport Park incl. Holden Dock)	16 September 2008
Pre start audit – Navigation Aids (land-based)	19 September 2008
EMP audit – <i>Storken</i> (Yarra River)	22 August 2008
Pre start audit – Navigation Aids (marine-based)	06 August 2008
Pre-start audit – <i>Storken</i> – Yarra River and Hobsons Bay	21 July 2008
EMP audit – <i>CoZa</i> – Yarra River and Hobsons Bay	17 July 2008
EMP audit – Berthworks (Swanson Dock East)	16 July 2008
EMP audit – <i>Queen of the Netherlands</i> – Entrance	15 July 2008
Pre-start audit – Berthworks (Gellibrand Pier)	14-15 July 2008
EMP audit – Berthworks (Swanson Dock West and 32 South Wharf)	27 June 2008
Pre-start audit – Berthworks (Yarraville to Newport Park including Holden Dock)	4-6 June 2008
Pre-start audit – <i>CoZa</i> Yarra River and Hobsons Bay – May 2008	21-23 May 2008
Pre-start audit – Berthworks (Swanson Dock East)	14-16 May 2008
EMP audit – <i>CoZa</i> – Port Melbourne Channel	10-16 May 2008
EMP audit – <i>Goomai</i> – Yarra River	5-7 May 2008
Pre-start audit – <i>CoZa</i> – Port Melbourne Channel	5 May 2008
Pre-start audit – <i>Goomai</i>	8-24 April 2008
Pre-start audit – Berth works (32 South Wharf and Swanston Dock West)	8-11 April 2008
Pre-start audit – Entrance dredging	1-4 April 2008
EMP Audit - <i>Queen of the Netherlands</i> – Port Melbourne Channel	19-21 March 2008
EMP Audit - <i>Queen of the Netherlands</i> – South Channel	8-19 February 2008
Pre-start audit - <i>Queen of the Netherlands</i> – South Channel	6-8 February 2008

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

Appendix 3. PoMC notifications received by the Office in previous quarters

Notification date	Comment
Response Level reached	
23 November 2008	Turbidity Response Levels 1 and 2 (R1 and R2) reached on 23 November and 25 November respectively at monitoring buoy 7005. R2 level was suspected to be a result of fouling.
5 November 2008	Turbidity Response Level 1 (R1) reached on 4 November at monitoring buoy 8016.
15 August 2008	Turbidity Response Level 1 (R1) reached on 15 August at monitoring buoy 2948.
3 July 2008	Turbidity Response Level 1 (R1) reached on 3 July at monitoring buoy 2948.
4 April 2008	Turbidity Response Level 1 (R1) reached on 3 April at monitoring buoy 2948.
Environment limit exceeded	
22 November 2008	Turbidity environmental limit was exceeded at 18.00 on 22 November and the exceedance continued to 12.00 on 23 November at monitoring buoy 8016.
Pollution event	
13 October 2008	Notification of an oil spill of about 20 litres and action taken. The spill was from the <i>Tanunda</i> and happened at the Yarra River on 13 October.
7 October 2008	Notification of an oil spill of about five litres of biodegradable hydraulic fluid. The spill was from the <i>Storken</i> and happened at the Yarra River on 7 October.
30 August 2008	Notification of an oil spill on 30 August of less than 1000 litres and the action taken. The spill was from the <i>Queen of the Netherlands</i> and happened at the Entrance to the Bay. The Office's report and advice on this incident can be found at http://www.oem.vic.gov.au/Officeinvestigationsreportsadvice .
28 August 2008	Notification of an oil spill on 28 August of about 20 litres and the action taken. The spill was from the <i>PoMBAA</i> and happened at the Port of Melbourne Dredged Material Ground.
16 August 2008	Notification of an oil spill on 16 August of less than 10 litres and the action taken. The spill was from the <i>Storken</i> and happened at the Yarra River.
24 July 2008	Notification of an oil spill on 7 June 2008 of less than two litres and the action taken. The spill was from the <i>Discovery</i> and happened at the Yarra River.

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

Imminent environmental hazard	
10 November 2008	Notification of an imminent environmental hazard during landside works at No. 6 Wharf, Yarraville on 10 November.
Completion of dredging of contaminated sediments within an area	
3 October & 18 September 2008	Completion of dredging of contaminated sediments within an area downstream of the Westgate Bridge.
19, 5 & 2 September 2008	Completion of dredging of contaminated sediments within the Williamstown Channel in the vicinity of Gellibrand Pier Swing Basin.
29, 27, 12 August 25, 10, 9, 2 July 30, 23 June 29, 8 May 2008	Notifications that dredging of contaminated sediments within areas of the Yarra River and Williamstown Channel had been completed.
Placement of contaminated material in bund	
19 September 2008	Notification that the requirements for the placement of contaminated material in the Port of Melbourne Dredge Material Ground had been met.
28 July 2 June 18 April 2008	Notifications that the requirements for the placement of contaminated material in the Port of Melbourne Dredge Material Ground had been met.
Entrance clean up	
2 October 2008	Notification that the final clean up at the Entrance had been completed.
Dredging schedule	
5 November	Monthly update and revision of the dredging schedule (Rev 1 Upd 8).
8 October	Monthly update and revision of the dredging schedule (Rev 1 Upd 7).
3 September	Monthly update and revision of the dredging schedule (Rev 1 Upd 6).
7 August	Monthly update and revision of the dredging schedule (Rev 1 Upd 5).
11 July	Monthly update and revision of the dredging schedule (Rev 1 Upd 4).
4 June	Monthly update and revision of the dredging schedule (Rev 1 Upd 3).
9 May	Monthly update and revision of the dredging schedule (Rev 1 Upd 2).
9 April	Monthly update and revision of the dredging schedule (Rev 1 Upd 1).
29 February	Monthly update and revision of the dredging schedule (Rev 1).
29 January 2008	Monthly update and revision of the dredging schedule (Rev 0).

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

Quarterly project report	
4 December 2008	PoMC provided its third quarter report.
5 September	PoMC provided its second quarter report.
5 June 2008	PoMC provided its first quarter report.
Baywide monitoring – algal blooms	
8 October	Notification of a potential occurrence of an algal bloom.
13 August	Notification of a potential occurrence of an algal bloom.
21 May 2008	Notification of a potential occurrence of an algal bloom.
Sands and adjacent coast and beaches monitoring	
11 June 2008	Notification that the baseline bathymetric survey of the Great Sands had been completed.
6 hour EWMA for turbidity conformance locations¹	
26 November 2008	Loss of three six-hour EWMA for monitoring buoy 2601 on 24 and 25 November.
5 November 2008	Loss of three six-hour EWMA for monitoring buoy 2006 on 4 November.
27 October 2008	Loss of two six-hour EWMA for monitoring buoy 2006 on 26 October.
24 October 2008	Loss of one six-hour EWMA for monitoring buoy 2006 on 23 October.
22 October 2008	Loss of two six-hour EWMA for monitoring buoy 8016 on 22 October.
25 September 2008	Loss of one six-hour EWMA for monitoring buoy 2006 on 24 September.
17 September 2008	Loss of four six-hour EWMA for monitoring buoy 2601 on 16 and 17 September.
PoMC annual report	
N/A	
Independent audits	
N/A	

1: Reporting of data losses that affect the calculation of a six-hour EWMA was a recommendation of the Office's second quarterly review that was released on 15 September 2008. On 2 September this recommendation was formally incorporated into the EMP.

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