MWH
BUILDING A BETTER WORLD

Davis Langdon

Victorian Desalination Project | Independent Reviewer & Environmental Auditor

# IR&EA REPORT

## COMPLIANCE WITH ENVIRONMENTAL PERFORMANCE REQUIREMENTS QUARTER 2 2011

## QUARTERLY REPORT TO THE MINISTER FOR ENVIRONMENT AND CLIMATE CHANGE

**July 2011**

MWH

BUILDING A BETTER WORLD

Davis Langdon

MWH
BUILDING A BETTER WORLD

Davis Langdon

# CONTENTS

## Tables



## Figures

# SUMMARY

The Victorian Desalination Project (VDP – the Project) is being constructed on the coast in South Gippsland near Wonthaggi by the AquaSure consortium in a public-private partnership with the Victorian Government. The Project includes a desalination plant, a pipeline to transfer water to the Melbourne water distribution network near Cardinia, and an underground power supply, which will be largely in the same alignment as the pipeline. AquaSure has contracted Thiess Degrémont Joint Venture (TDJV) to design and construct, and Degrémont Thiess Services (DTSJV) to operate and maintain the VDP.

The overall environmental management framework for the VDP was initially defined in the Environmental Effects Statement (EES) for the reference project. This framework was further refined and included in the Project Deed as a contractual requirement for both the Design and Construction (D&C) and Operations and Maintenance (O&M) Stages of the Project. The main components of the Environmental Management Framework are:

- The VDP must be designed and constructed in accordance with a set of documented Environmental Performance Requirements, included in Appendix S3 of the Project Deed. In addition, Commonwealth and Victorian environmental legal requirements must be met.
- An Environmental Management System and Environmental Management Plans to support delivery of compliance with the Environmental Performance Requirements; and
- Additional requirements in the Project Deed to support environmental management.

The Independent Reviewer and Environmental Auditor (IR&EA) provides independent oversight of design engineering, construction, and environmental performance of the VDP. The IR&EA is jointly appointed by the State Government and AquaSure; the consortium building the VDP, and which will subsequently operate it. In particular, the IR&EA audits the Project Activities to assess whether the environmental requirements of the Project are being met. The Department of Sustainability and Environment (DSE) Capital Projects Division administers the Contract with AquaSure on behalf of the State.

This report provides a summary of the IR&EA's monthly environmental audit outcomes from April - June 2011.

Works commenced at the desalination plant site on the coast near Wonthaggi on 30 September 2009. The Project Activities occurring during the reporting period were:

- **Plant site**: minor bulk earthworks, civil works, building works, electrical works and mechanical installation. Site revegetation continued outside the construction footprint.
- **Utilities alignment**: pipe stringing and trenching, pipe and conduit laying, power cable installation and trench back-filling. Reinstatement works continued at the northern end of the alignment.

During the reporting period a total of 12 formal audit findings were raised, including two Non Compliances and nine Areas for Improvement. A list of these findings, as well as corrective and preventive actions to the end of June 2011 taken by AquaSure and TDJV to close the findings is given in Appendix 1.

The number of findings raised during the reporting period is remaining steady, and on ground environmental management continues to effectively address environmental issues.

As the works at the plant site move from earthworks towards primarily civil construction activities, the associated environmental risks reduce. The treatment of Acid Sulphate Soils (ASS) has continued successfully, and investigations into the location of any additional ASS material in stockpiles and the constructed dunes on site are continuing. The required management of any ASS located will be developed with the overview of the EPA appointed environmental auditor. The annual migration of shearwaters was the subject of a mitigation plan to rescue any birds which landed on the plant site. The plan was developed in conjunction with the Phillip Island Nature Park, and successfully guided the relocation of about a dozen birds from the plant site.

Works along the utilities alignment during the reporting period were almost complete. Some minor sections of pipe and power cable remain to be laid, and several waterway crossings are still to be completed. The length of the alignment and the wet weather experienced combined to keep sediment control as an on-going challenge. When reinstatement works recommence in spring, biosecurity controls will need to be reintroduced.

The audit findings during the reporting period were generally minor, and reflect the good management of on ground environmental issues. A Non Compliance was raised relating to defined monitoring not being done in waterways along the utilities alignment after substantial rainfall. Across the project the absence of reliable construction waste management data led to a Non Compliance.

The conclusions in relation to the objectives for the Environmental Audits in the Project Deed are given below.

**Operation of the Environmental Management System**

The AquaSure Environmental Management System (EMS) continued to provide an effective framework for environmental management. The EMS underwent a surveillance audit by the independent, third-party certification body, and this confirmed its continuing effectiveness.

Formal mechanisms for auditing, reviewing and reporting on environmental management continued to be well managed.

**Implementation of each component of the EMP**

The D&C EMP and the Area EMPs were generally effective in guiding on-ground environmental management activities. Audit findings continue to be related largely to housekeeping matters, and to the documentation not accurately reflecting actual environmental management.

Due to an increase in night works at the Plant Site and the potential for night time noise, the EPA requested validation that night works are being conducted in accordance with the relevant EPA requirements. In response to this, DSE Capital Projects Division requested a focused audit of the Plant and General Area Noise and Vibration Sub Plan, related Performance Requirements, and the relevant EPA Publications. This audit showed no major non-conformances.

Draft revisions to the D&C EMP relating to construction verification and cleaning activities were provided to DSE Capital Projects Division and the IR&EA for review and comment before the formal submission. The finalisation of this documentation is now crucial as some minor verification activities have already commenced, and significant activities are scheduled for the near future.

**Other Environmental requirements**

Construction related Environmental Performance Requirements are integrated into the relevant sub plans of the Area EMPs. Accordingly, the audits of the EMPs provide assurance that the Performance Requirements are being met. In addition, construction requirements and methodologies are defined in Site Establishment Packages and Temporary Works Packages, which refer to the D&C EMP and the Performance Requirements. These packages are certified by the IR&EA.

The design related Performance Requirements are integrated into the relevant Design Package. The IR&EA certification of the Design Packages includes assurance that the related performance requirements have been adequately addressed.

During the reporting period there were no material audit findings which would suggest that the Performance Requirements had not been met. PLJV advised that an area near the Cranbourne Terminal Station was not fenced off as required by the Cultural Heritage Management Plan (CHMP) for the Cranbourne Extension. AquaSure has requested the IR&EA audit compliance with the requirements of all CHMPs for the Project.

# 1 INTRODUCTION

The Victorian Desalination Project (VDP) is being constructed on the coast in South Gippsland near Wonthaggi by the AquaSure consortium in a public-private partnership with the Victorian Government. The project includes the desalination plant, a pipeline to transfer water to the Melbourne water distribution network near Cardinia, and an underground power supply, which will be largely in the same alignment as the pipeline.

Environmental management for both the design and construction, and operational stages of the VDP was a major part of planning for the Project. The Project was the subject of a comprehensive Environment Effects Statement, including a Panel hearing, and requires compliance with a range of environmental requirements and approvals as outlined in the Project Deed between the State and AquaSure. Design and construction of the VDP is being carried out under a formal environmental management framework which includes an overarching Project Environmental Management System (EMS), and specific Environmental Management Plans (EMPs) for the overall Design and Construction phase and each area of construction (the plant site, the pipeline and power supply corridor, and the marine works). The operational and maintenance stage similarly will operate under specific Environmental Management Plans. In addition a range of environmental requirements has been defined relating to the design and operation of the desalination plant, and to the construction activities.

The Independent Reviewer and Environmental Auditor (IR&EA) provides independent oversight of design engineering, construction, and environmental performance of the VDP. The IR&EA is jointly appointed by the State Government and AquaSure; the consortium building the VDP, and which will subsequently operate it. In particular, the IR&EA audits the Project Activities to assess whether the environmental requirements of the Project are being met. The Department of Sustainability and Environment (DSE) Capital Projects Division administers the contract with AquaSure on behalf of the State.

This report provides a summary of the IR&EA's monthly environmental audit outcomes from April - June 2011.

# 2 THE VDP ENVIRONMENTAL MANAGEMENT FRAMEWORK

The overall environmental management framework for the VDP was initially defined in the Environmental Effects Statement (EES) for the reference project. This framework was further refined and included in the Project Deed as contractual requirements for both the Design and Construction (D&C) and Operations and Maintenance (O&M) phases of the Project. The main components of the Environmental Management Framework are:

- The VDP must be designed and constructed in accordance with a set of documented Environmental Performance Requirements, included in Appendix S3 of the Project Deed. In addition, Commonwealth and Victorian environmental legal requirements must be met.
- An Environmental Management System and Environmental Management Plans to support delivery of compliance with the Environmental Performance Requirements; and
- Additional requirements in the Project Deed to support environmental management.

The main elements of the Environmental Management Framework for the D&C stage are summarised below.

## 2.1 Environmental performance requirements

The Project Deed, in Appendix S3, sets out over 200 individual Environmental Performance Requirements in 39 environmental areas. They apply variously to the D&C and/or the O&M stages of the Project, and are required to be met as a condition of the Project Deed. Many of the Environmental Performance Requirements must be considered in the design of the desalination plant, to ensure that operational environmental performance requirements can be met.

Some of the Environmental Performance Requirements are relevant to construction activities. The D&C EMPs should effectively incorporate these requirements, and include mechanisms to ensure that they are met.

Specific project approvals, and general environmental requirements are necessary under both Commonwealth and Victorian legislation. Some of the key environmental legal requirements derive from the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and Victorian legislation including the *Environment Effects Act 1978*, the *Environment Protection Act 1970*, the *Planning and Environment Act 1987*, the *Flora and Fauna Guarantee Act 1988* and the *Wildlife Act 1975*. A full list of applicable legislation is given in the EES (Technical Appendix 2).

AquaSure must have a process to manage the identification of the compliance requirements associated with all the Environmental Performance Requirements, including approvals. In addition, AquaSure must identify how they will comply with these requirements and track progress of compliance actions.

## 2.2 EMS and EMPs

The Project is being designed and constructed, and will be operated, under the guidance of a set of formal environmental management documents:

- AquaSure maintains an overarching project Environmental Management System (EMS), which is required to be independently certified to the Australian and International standard AS/NZS ISO 14001:2004[1]. The EMS guides all aspects of environmental management for the project, including on-the-ground management of environmental issues and risks, as well as supporting mechanisms such as compliance management, delivery of relevant training, communication, auditing, inspections and monitoring.
- Specific documented Environmental Management Plans (EMPs) for the Plant Site, the Utilities corridor (covering the construction of the transfer pipeline and the underground power supply), and the marine intake and outlet structures. These Area EMPs are consistent with AquaSure's EMS, and include explicit requirements defined in Appendix S3 of the Project Deed. They are managed by AquaSure as part of their obligations under the Project Deed, and maintained by the D&C contractor, Thiess Degrémont Joint Venture (TDJV).

## 2.3 Other project environmental requirements

The Project Deed defines a number of other environmental conditions. The key ones are included in Appendix S3 and include:

- The appointment by AquaSure of a suitably qualified Environmental Management Representative (EMR), with appropriate resources to manage the implementation of the EMPs and to monitor compliance with the Environmental Requirements.
- Requirements for management of environmental incidents, provision of environmental training, control by AquaSure of subcontractors, and reporting and auditing.

The Project Deed also includes requirements for revision and approval of the EMS and EMPs, and for communication on environmental matters between AquaSure, the State and the IR&EA.

[1] AS/NZS ISO 14001:2004. Environmental management systems. Requirements with guidance for use.
[2] AS/NZS ISO 19011:2002. Guidelines for quality and/or environmental management systems auditing

## 2.4 IR&EA environmental audits

The IR&EA is required under the Project Deed to conduct monthly audits of the Project Activities to determine whether they have been undertaken in accordance with the EMS, the EMP and Environmental Requirements.

The independent environmental audits are carried out on a rolling monthly basis. Audit and surveillance activities include field surveillance of construction activities, formal audits of the EMS and subordinate D&C and Area EMPs, and review of design documentation for compliance with design-based environmental performance requirements.

A risk-based approach is used to select the monthly activities and areas for surveillance and audit. AquaSure is required by the Project Deed to provide a Certificate of Environmental Compliance to the IR&EA and the State confirming that the Project Activities have been carried out in accordance with the EMP and the Environmental Requirements. These certificates are to be provided monthly on the first business day of each month.

The IR&EA has developed a Verification and Monitoring Plan under which all audit and surveillance activities are carried out.

Monthly Environmental Audit Reports are provided to AquaSure and the State, providing a summary of the audit activities, findings and conclusions.

As a condition of the EMP approval, quarterly reports are prepared for the State to provide to the Minster for Environment and Climate Change on performance against the environmental requirements of the Project Deed, based on the findings of the monthly environmental audits. This report provides a summary of the environmental audit activities and outcomes conducted from April - June 2011. In addition the Design Review and Certification process provides evidence that the Project design is in accordance with the Environmental Performance Requirements defined in the Project Deed.

# 3 CONDUCT OF ENVIRONMENTAL AUDITS

The overall conduct of the environmental audits is consistent with the conduct of audit activities given in ISO 19011:2002[2]. The required timing of audit activities, including conducting audits and reporting, is defined in the Project Deed. An overview of the audit process is provided below and is shown in Figure 1 at the end of this section.

The environmental audits assess whether environmental management arrangements, as defined by AquaSure and approved by the State, in the EMS and D&C and Area EMPs, are being implemented. The environmental audits also address whether environmental risks are being adequately managed, and whether the Project Environmental Requirements are being met.

## 3.1 Audit objective

The objective for the environmental audit is given in clause 13.9 of the Project Deed, which requires that "*the Independent Reviewer & Environmental Auditor … form an opinion as to whether or not the Environmental Management Plan and Environmental Requirements are being complied with, … [and] to assess performance in relation to:*

- *the operation of the Environmental Management System;*
- *the implementation of each component of the Environmental Management Plan; and*
- *each other Environmental Requirement."*

Environmental requirements are set out in Appendix S3 (Environmental Requirements) of the Project Deed, Environmental Approvals, and Ministers' requirements.

The environmental audits focus on:

- Construction-related Environmental Performance Requirements (including conditions of environmental approvals), which are the subject of a monthly rolling audit program designed to determine conformance with the EMS and D&C EMPs;
- Specific requirements of the EMS, D&C EMP, D&C Area EMPs, and subordinate documents which relate to the implementation of the overall EMS and EMPs; and
- Design-related Environmental Performance Requirements, conformance with which is assessed through audits of AquaSure/TDJV's internal processes for

[2] AS/NZS ISO 19011:2002. Guidelines for quality and/or environmental management systems auditing

integrating Performance Requirements into design requirements, and during the Design Review and Certification process.

## 3.2 Pre-audit activities

The audit activities for each month period are determined through the following activities:

1. ***Review of the Construction Program*** to identify the Project Activities occurring during the audit period.
2. ***Review of the AquaSure/TDJV Environmental Risk Registers*** to identify environmental risks relevant to the identified Project Activities, and the related identified controls (EMP Sub Plans or other requirements). The relevant elements of the controls form part of the audit criteria.
3. ***Review of the IR&EA field surveillance checklist and results of previous audits*** to identify any areas in which the planned environmental arrangements may not be met.
4. ***Review of EMS and EMP requirements.*** EMS and EMP requirements not directly related to control of identified environmental risks (e.g. training, communication, document and record management requirements) are reviewed to identify any key requirements which should form part of the audit.
5. ***Review of the relevant environmental approvals.*** The environmental approvals relevant to the identified Project Activities are reviewed to identify compliance requirements. The key compliance requirements are generally integrated into the Area EMPs, and are included as part of the audit criteria.
6. ***Review of AquaSure and TDJV records*** relating to*:* internal audits; environmental monitoring; non-conformance, corrective and preventive actions; and incidents.
7. ***Confirmation of audit criteria and development of checklists.*** Audit criteria are developed from the audit areas identified in the tasks above and included in checklists which are used to guide audit interviews, records reviews and inspections.

## 3.3 Audit scope

A scope for each audit is defined, and generally includes:

- AquaSure EMS implementation, including the responsibilities of the Environmental Management Representative (EMR) as required in Appendix S3 of the Project Deed;
- Implementation of the requirements of the D&C EMP;
- Implementation of the D&C Area EMPs as related to high risk areas identified by the AquaSure/TDJV environmental risk identification and management processes.

## 3.4 Audit reference documents

Audit reference documents are defined, relevant to the project activities and audit scope. These are generally the relevant EMP, and particularly the relevant sub plan. Specific audit issues are identified from the reference documents, and included in a checklist, which are completed with audit observations and evidence each month and maintained as audit records.

## 3.5 Audit activities

Audit and surveillance activities include:

- Field surveillance of construction activities;
- Formal audits of the EMS and subordinate D&C and Area EMPs, both in the field to check on-ground compliance with environmental management arrangements, and office-based audits to assess the implementation of necessary environmental management procedures and processes; and
- Review of design documentation for compliance with design-based environmental performance requirements.

Activities and areas for surveillance and audit activities are chosen monthly on a risk basis.

## 3.6 Audit findings classification

Audit findings are classified according to the following definitions:

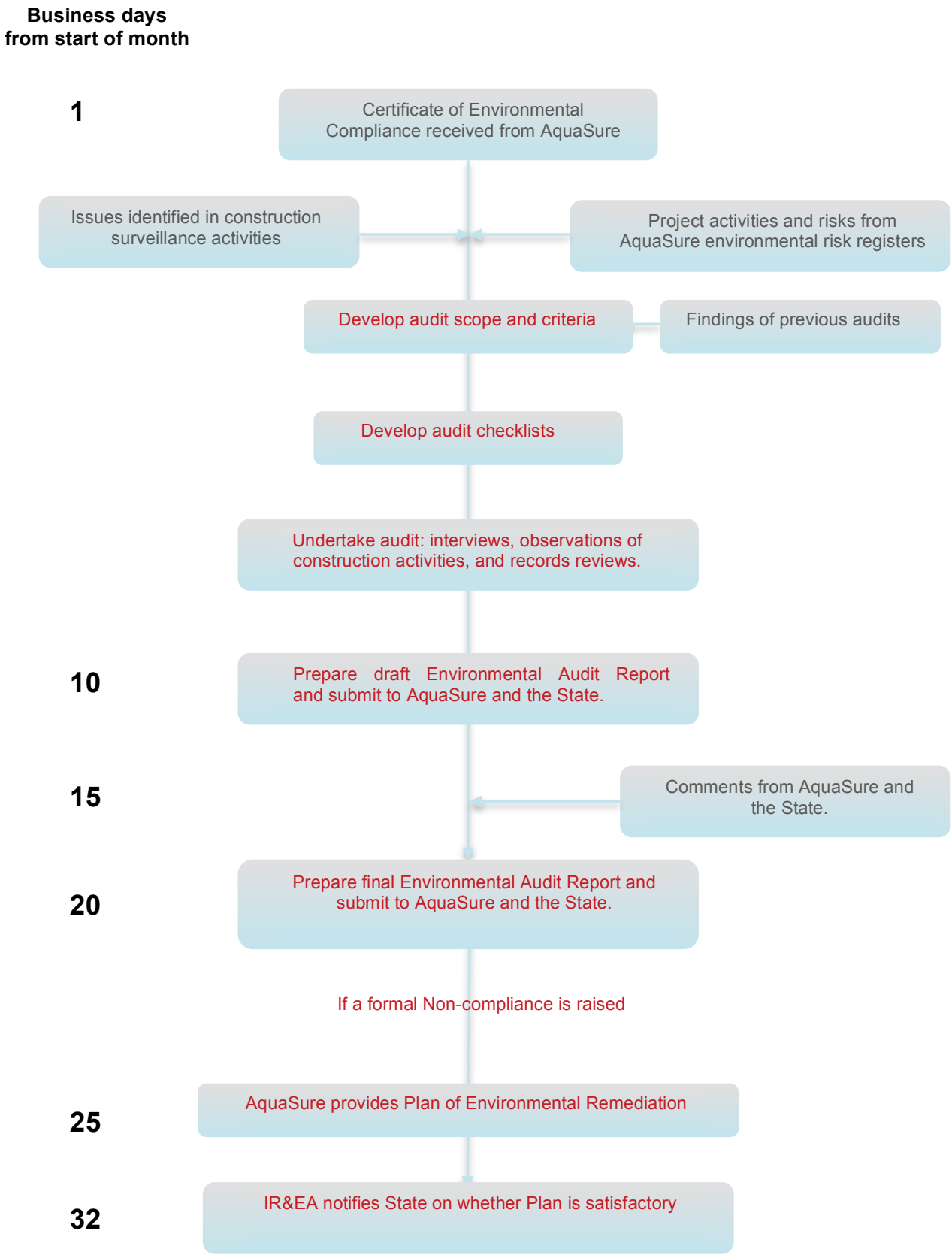
***Non-compliance***: The absence of, or the failure to implement and maintain, one or more requirements of the relevant EMP or subordinate documentation, or a situation, which would, on the basis of available objective evidence raise significant doubt as to the effectiveness of environmental management.

> ***Note:*** A non-compliance may be an individual non-compliance or a number of minor but related audit non-conformances, which when considered in total are judged to constitute a non-compliance.

***Area for improvement***: A deficiency in the implementation of the relevant EMP or subordinate documentation judged to be a risk to the environment, or to environmental management, without constituting an overall failure in the area concerned.

**Observation**: An audit finding which may relate to an incidental or isolated system discrepancy, which does not compromise the effectiveness of environmental management, or constitute an actual or potential environmental risk.

**Figure 1. Overview of the environmental audit process**



# 4 PROJECT ACTIVITIES AND ENVIRONMENTAL AUDITS

## 4.1 Project activities

Project activities during the reporting period were:

- **Plant site**: minor bulk earthworks, civil works, building works, electrical works and mechanical installation. Site revegetation continued outside the construction footprint.
- **Utilities alignment**: pipe stringing and trenching, pipe and conduit laying, power cable installation and trench back-filling. Reinstatement works continued at the northern end of the alignment.

Views of these construction activities are shown in Figures 2, 3 and 4 below.

**Figure 2. Mulch piled before spreading, Plant Site April 2011**

**Figure 3. Powlett River crossing, April 2011**

## 4.2 Environmental audits

The IR&EA conducted the following audits during the reporting period:

| Audit No | Date | Scope |
|---|---|---|
| 78 | 5/4/11 | Office audit of implementation of the Environmental Management Representative's (EMR's) responsibilities and relevant requirements of the Project Deed |
| 79 | 5/4/11 | Office audit of documentation and records related to requirements of the D&C EMP |
| 80 | 6/4/11 | Field audit of implementation of key requirements and sub-plans of the D&C Plant and General Area EMP |
| 81 | 7/4/11 | Field audit of implementation of key requirements and sub-plans of the D&C Utilities Area EMP |
| 82 | 8/4/11 | Office audit of the implementation of the Baseline Marine Monitoring Program |
| 83 | 9/5/11 | Office audit of implementation of the Environmental Management System (EMS), and the Environmental Management Representative's (EMR's) responsibilities and relevant requirements of the Project Deed |
| 84 | 12/5/11 | Office audit of documentation and records related to requirements of the D&C EMP |
| 85 | 5/5/11 | Field audit of implementation of key requirements and sub-plans of the D&C Plant and General Area EMP |
| 86 | 10/5/11 | Field audit of implementation of key requirements and sub-plans of the D&C Utilities Area EMP |
| 87 | 9/5/11 | Office audit of the implementation of the Baseline Marine Monitoring Program |
| 88 | 10/6/11 | Office audit of implementation of the Environmental Management System (EMS), and the Environmental Management Representative's (EMR's) responsibilities and relevant requirements of the Project Deed |
| 89 | 7/6/11 | Office audit of documentation and records related to requirements of the D&C EMP |
| 90 | 8/6/11 | Field audit of implementation of key requirements and sub-plans of the D&C Plant and General Area EMP |
| 91 | 9/6/11 | Field audit of implementation of key requirements and sub-plans of the D&C Utilities Area EMP |
| 92 | 6/6/11 | Office audit of the implementation of the Baseline Marine Monitoring Program |

# 5 AUDIT FINDINGS AND CONCLUSIONS

## 5.1 Audit findings

During the reporting period a total of 12 formal audit findings were raised, including two Non Compliances and nine Areas for Improvement. A list of the findings and the corrective and preventive actions to the end of June 2011 taken by AquaSure and TDJV to close these findings is given in Appendix 1. A summary of the numbers of audit findings is given in Table 1 below.

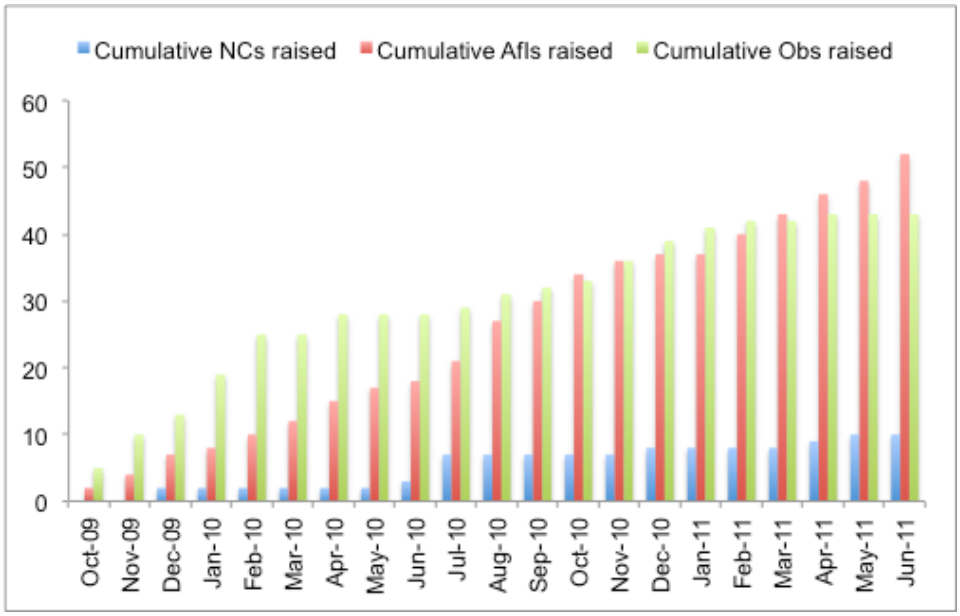
**Table 1. Summary of environmental audit findings Q2 2011**

| Audit finding type | No. Open at April '11 | No. Raised April - June '11 | No. Closed April - June '11 |
|---|---|---|---|
| Non Compliance | 2 | 2 | 2 |
| Area for Improvement | 6 | 9 | 9 |
| Observation | 5 | 1 | 0 |
| **Totals** | **13** | **12** | **11** |

The number of findings raised during the reporting period is remaining steady, and on ground environmental management continues to effectively address environmental issues.

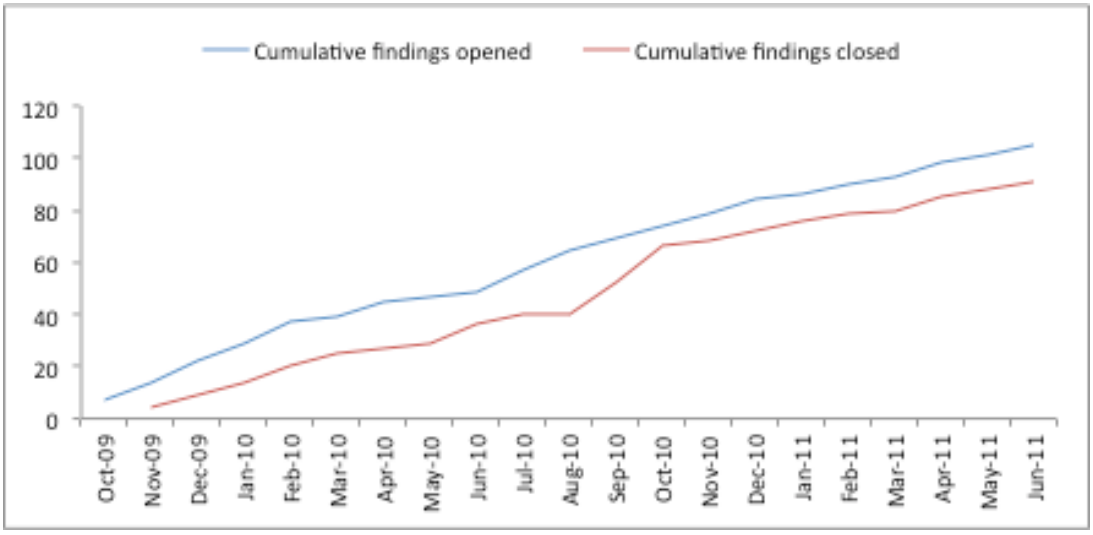
The cumulative number of each type of audit finding raised since project inception is given in Figure 4 below.

**Figure 4. Audit findings by category.**



The overall number of audit findings raised (and closed) since the project started is given in Figure 5 below.

**Figure 5. Cumulative number of audit findings, Project inception to date.**

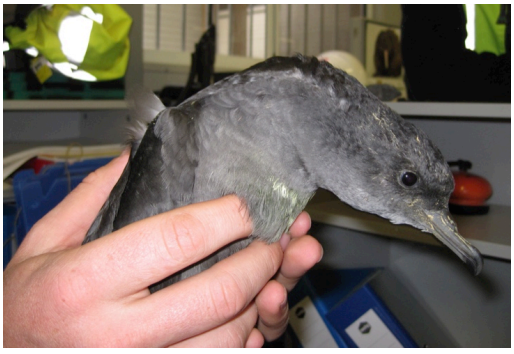



As the works at the plant site move from earthworks towards primarily civil construction activities, the associated environmental risks reduce. The treatment of Acid Sulphate Soils (ASS) has continued successfully (see Figure 6), and investigations into the location of any additional ASS material in stockpiles and the constructed dunes on site are continuing. The required management of any ASS located will be developed with the overview of the EPA appointed environmental auditor. The annual migration of shearwaters was the subject of a mitigation plan to rescue any birds which landed on the plant site. The plan was developed in conjunction with the Phillip Island Nature Park, and successfully guided the relocation of about a dozen birds from the plant site (see Figure 7).

**Figure 6. Acid sulphate soils treatment, May 2011**


**Figure 7. Shearwater migration planning, May 2011**





Works along the utilities alignment during the reporting period were almost complete. Some minor sections of pipe and power cable remain to be laid, and several waterway crossings are still to be completed. The length of the alignment and the wet weather experienced combined to keep sediment control as an on-going challenge. When

reinstatement works recommence in spring, biosecurity controls will need to be reintroduced.

**Figure 8. Reinstatement of the utilities alignment at Berwick, May 2011.**

**Figure 9. Waterway reinstatement, June 2011**

The audit findings during the reporting period were generally minor, and reflect the good management of on ground environmental issues. A Non Compliance was raised relating to defined monitoring not being done in waterways along the utilities alignment after substantial rainfall. Across the project, the absence of reliable construction waste management data led to a Non Compliance.

## 5.2 Audit conclusions

The conclusions in relation to the objectives for the Environmental Audits in the Project Deed are given below.

### 5.2.1 Operation of the Environmental Management System

The AquaSure Environmental Management System (EMS) continued to provide an effective framework for environmental management. The EMS underwent a surveillance audit by the independent, third-party certification body, and this confirmed its continuing effectiveness.

Formal mechanisms for auditing, reviewing and reporting on environmental management continued to be well managed.

### 5.2.2 Implementation of each component of the EMP

The D&C EMP and the Area EMPs were generally effective in guiding on-ground environmental management activities. Audit findings continue to be related largely to housekeeping matters, and to the documentation not accurately reflecting actual environmental management.

Due to an increase in night works at the Plant Site and the potential for night time noise, the EPA requested validation that night works are being conducted in accordance with the relevant EPA requirements. In response to this, DSE Capital Projects Division requested a focused audit of the Plant and General Area Noise and Vibration Sub Plan, related Performance Requirements, and the relevant EPA Publications. This audit showed no major non-conformances.

Draft revisions to the D&C EMP relating to construction verification and cleaning activities were provided to DSE Capital Projects Division and the IR&EA for review and comment before the formal submission. The finalisation of this documentation is now crucial as some minor verification activities have already commenced, and significant activities are scheduled for the near future.

### 5.2.3 Other Environmental requirements

Construction related Environmental Performance Requirements are integrated into the relevant sub plans of the Area EMPs. Accordingly, the audits of the EMPs provide assurance that the Performance Requirements are being met. In addition, construction requirements and methodologies are defined in Site Establishment Packages and Temporary Works Packages, which refer to the D&C EMP and the Performance Requirements. These packages are certified by the IR&EA.

The design related Performance Requirements are integrated into the relevant Design Package. The IR&EA certification of the Design Packages includes assurance that the related performance requirements have been adequately addressed.

During the reporting period there were no material audit findings which would suggest that the Performance Requirements had not been met. PLJV advised that an area near the Cranbourne Terminal Station was not fenced off as required by the Cultural Heritage Management Plan (CHMP) for the Cranbourne Extension. AquaSure has requested the IR&EA audit compliance with the requirements of all CHMPs for the Project.

# Appendix 1. Environmental audit findings Q2 2011

The following table summarises the audit findings which were open at the beginning of the reporting period, and those raised during the reporting period.

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| 2 | Oct-09 | O | 2/04 | The roles and responsibilities of the Environmental Management Representative as defined in Appendix S3, Clause 2 of the PS&PR have been only partially implemented in the following areas:<br>The role of the EMR in environmental communication channels is not clearly defined (subclause (vii)).<br>While the EMR provided evidence of involvement in internal and external environmental communications, these responsibilities are not formally defined in the EMS. The EMS Manual (at section 4.4.2) references the Community Involvement Plan, which does not include defined communications responsibilities for the EMR. | December 2009: Update EMS s4.4.2 & s4.4.3, and the AquaSure CIP, to reflect what external communication input the EMR is involved with.<br>January 2010: the identified action is still being implemented<br>February 2010: the identified action is still being implemented<br>March 2010: the identified action is still being implemented<br>April 2010: the following draft documents are under preparation:<br>• Draft protocol for communication with eternal agencies<br>• Draft protocol for communication with stakeholders on environment issues and complaints<br>• Draft revised CIP; including definition of EMR roles and responsibilities<br>May 2010: The role of the EMR in environmental communication channels is to be defined in the revised EMS Manual and in the Community Involvement Plan. The mechanism has been prepared and approved internally and will be presented to the Environmental Agency Group.<br>June 2010: The mechanism was presented to the EAG, which provided no comments. Finding to remain open until the EMS and revised CIP are formally approved by DSE.<br>July 2010: EMR is involved in communication channels through the Community Involvement Manager. The CIP has not yet been formally amended to include a formal process. Finding to remain open until the EMS and revised CIP are formally approved by DSE.<br>August 2010: CIP revision not yet completed.<br>September 2010: A revised CIP had been submitted to DSE for formal approval as a revised Project Plan. This finding to remain open until the revised CIP is formally approved.<br>November 2010: the CIP has been revised in response to comments from DSE, and is awaiting a revised TDJV CIP | Remains open |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| | | | | | before being finalised and resubmitted to DSE for approval.<br>December 2010: Action is on-going.<br>January 2011: CIP not yet approved.<br>February 2011: DSE has some minor comments still outstanding.<br>March 2011: The revised draft of the CIP adequately addresses the role of the EMR. The CIP is to be revised for other purposes, and to be submitted for State consent. This finding to remain open until the revised CIP has received consent.<br>April 2011: The CIP is still to be submitted for State consent.<br>May 2011: The CIP is still to be submitted for State consent.<br>June 2011: The CIP is still to be submitted for State consent. | |
| 36 | 8-Jul-2010 | NC | 36/03 | **D&C Plant and General Area EMP, Resource Efficiency sub-plan**. The Resource Efficiency sub-plan is not being adequately implemented. In particular:<br>- While waste, water and energy data are now being collected in some form, these data are not being analysed.<br>- There is no systematic identification of waste and resource efficiency opportunities.<br>- Procurement procedures and practises including environmental purchasing criteria and evaluation could not be demonstrated. | August 2010: a formal Plan for Environmental Remediation was submitted on 3 August by TDJV and included the following actions:<br>- Ongoing - Resource efficiency is under review across the project. Waste, water and energy usage is being collected and reviewed by the environmental team to look for improvement opportunities.<br>- Procurement safety and environmental checklist (which is provided to all subcontractors and suppliers as part of the tender process) will be reviewed by a member of the environmental team to ensure environmental evaluation in procurement is completed and best practice applied. Procedure is being developed to document this process.<br><br>September 2010: Actions are still in progress. Resource Efficiency data are being collected, and a project wide Resource Efficiency Plan is to be prepared.<br>Procurement practices are handled in Melbourne.<br><br>A Project Wide Resource Efficiency report will be prepared for period from the commencement of works to the end of the 09/10 financial year. This report will include reporting of:<br>- Water usage<br>- NGER [National Greenhouse and Energy Reporting] reporting, and<br>- Waste reporting.<br>Based on the findings of the reporting, opportunities will be | Finding Closed Audit No 79, April 2011 |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| | | | | | identified for improvements in resource efficiency.<br>The report will require a request for NGER reporting data from major subcontractors, as such the report will be for the end of September 2010, with the report to be provided by 18 October 2010. The data will then be reviewed quarterly and reported annually based on the financial year to align with NGER reporting requirements.<br>October 2010: Actions are on-going.<br>November 2010: Actions are on-going.<br>December 2010: The Resource Efficiency Plan is being managed through TDJV for the whole of the Project.<br>January 2011: The Resource Efficiency Plan is being managed through TDJV for the whole of the Project.<br>February 2011: Consultant has been retained to prepare a waste management plan.<br>Draft available, with some data from Marine works still to come. Draft for comment scheduled to be available by end February.<br>March 2011: A draft construction waste management report has been developed. The draft report has an initial assessment of waste generation and disposal (including statements of reuse and recycling rates), and water usage. The report identifies data gaps, and identifies actions to be taken to address these gaps. The report and included data and recycling / reuse rates will be subject to audit in the near future. The Non Compliance will be closed when the final version of the waste management report is issued and a Part D Notice (Rectification of Environmental Non-Compliance Certification) is received.<br>April 2011: Part D notice and final version of Waste Report has been issued. The Waste Report includes data gaps and statements of recycling rates which will be verified at audit. Waste consultants to be engaged to assess actual waste volumes.<br>**Finding Closed** | |
| 37 | 6-Jul-2010 | NC | 37/04 | **D&C Utilities Area EMP Resource Efficiency sub-plan.** The Resource Efficiency sub-plan is not being adequately implemented. In particular:<br>- While waste, water and energy data are now being collected in some form, these data are not | August 2010: a formal Plan for Environmental Remediation was submitted on 3 August by TDJV and included the following actions:<br>- Ongoing - 'Resource efficiency is under review across the project. Waste, water and energy usage is being collected | Finding Closed Audit No 79, April 2011. |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| | | | | being collated or analysed.<br>- There is no systematic identification of waste and resource efficiency opportunities, and no documented Waste and resource Management Strategy as identified in the sub-plan.<br>- Procurement procedures and practises including environmental purchasing criteria and evaluation could not be demonstrated. | and reviewed by the environmental team to look for improvement opportunities.<br>- Procurement safety and environmental checklist (which is provided to all subcontractors and suppliers as part of the tender process) will be reviewed by a member of the environmental team to ensure environmental evaluation in procurement is completed and best practice applied. Procedure is being developed to document this process.<br><br>A Project Wide Resource Efficiency report will be prepared for period from the commencement of works to the end of the 09/10 financial year. This report will include reporting of:<br>- Water usage<br>- NGER [National Greenhouse and Energy Reporting] reporting, and<br>- Waste reporting.<br>Based on the findings of the reporting, opportunities will be identified for improvements in resource efficiency.<br>The report will require a request for NGER reporting data from major subcontractors, as such the report will be for the end of September 2010, with the report to be provided by 18 October 2010. The data will then be reviewed quarterly and reported annually based on the financial year to align with NGER reporting requirements.<br>September 2010: actions are still in progress. Resource Efficiency data are being collected, and a project wide Resource Efficiency Plan is to be prepared.<br>October 2010: Actions are on-going.<br>November 2010: Actions are on-going.<br>December 2010: The Resource Efficiency Plan is being managed through TDJV for the whole of the Project.<br>January 2011: The Resource Efficiency Plan is being managed through TDJV for the whole of the Project.<br>February 2011: Consultant has been retained to prepare a waste management plan. Draft available, with some data from Marine works still to come. Draft for comment scheduled to be available by end February.<br>March 2011: A draft construction waste management report has been developed. The draft report has an initial assessment of waste generation and disposal (including statements of | |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| | | | | | reuse and recycling rates), and water usage. The report identifies data gaps, and identifies actions to be taken to address these gaps. The report and included data and recycling / reuse rates will be subject to audit in the near future. The Non Compliance will be closed when the final version of the waste management report is issued and a Part D Notice (Rectification of Environmental Non-Compliance Certification) is received.<br>April 2011: Part D notice and final version of Waste Report has been issued. The Waste Report includes data gaps and statements of recycling rates which will be verified at audit. Waste consultants to be engaged to assess actual waste volumes.<br>**Finding Closed** | |
| 49 | 6-Oct-2010 | Obs | 49/01 | AquaSure EMS Manual, 9.5.1 AquaSure Audits. The AquaSure EMR is the internal auditor, but he is not registered in accordance with Att E.4 | November 2010: No action.<br>December 2010: No further action. Revision to EMS being considered.<br>January 2011: Action is on going. A management review to be arranged to consider EMS revisions.<br>February 2011: Management Review meeting scheduled for 16 February.<br>March 2011: Management review meeting held on 21 February. Minutes provided noting approval of revision. A revised EMS is to be submitted for State consent.<br>April 2011: The revised EMS is still to be submitted for State consent.<br>May 2011: The revised EMS is still to be submitted for State consent.<br>June 2011: The revised EMS is still to be submitted for State consent | Remains open |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| 50 | 5-Oct-2010 | AfI | 50/01 | D&C EMP, 8.2.3 Training. The Training matrix (Attachment H) identifies Senior management environmental due diligence training and Green Star familiarisation for senior Project and environmental staff, which is not considered by TDJV to be relevant, and accordingly is not conducted. | TDJV response:<br>Section 8.2.3 will be revised to reflect the current senior Project and environmental staff training requirements.<br>November 2010: Action is on going. Revision to D&C EMP requires DSE approval.<br>December 2010: Sighted changes register.<br>January 2011: Ministerial consent is required for an amendment to the EMP.<br>February 2011: Revisions to the D&C EMP are to be submitted to DSE for consent.<br>March 2011: No further action.<br>April 2011: Amendment agreed by DSE BES and EMP to be revised and reissued.<br>May 2011: Revised EMP to be issued in the next week.<br>June 2011: The revised D&C EMP has been formally issued.<br>**Finding closed.** | Finding Closed Audit No 89 June 2011 |
| 54 | 4-Nov-2010 | Obs | 54/01 | **AquaSure EMS Manual. 7.5 Legal and other requirements**. Standards Australia publications are not regularly checked or reviewed unless included in the notification by LawLex. It is noted this may not be relevant for environmental standards. | December 2010: Requirement to review Standards Australia publications to be removed from EMS. Still to be completed.<br>January 2011: Action is on-going. A management review is to approve revision.<br>February 2011: Management Review meeting scheduled for 16 February.<br>March 2011: Management review meeting held on 21 February. Minutes provided noting approval of revision. A revised EMS is to be submitted for State consent.<br>April 2011: The revised EMS is still to be submitted for State consent.<br>May 2011: The revised EMS is still to be submitted for State consent.<br>June 2011: The revised EMS is still to be submitted for State consent | Remains open |
| 54 | 4-Nov-2010 | Obs | 54/02 | **AquaSure EMS Manual**. **9.2 Non-conformity, corrective and preventative actions.** Non-conformities are not managed in accordance with the AquaSure procedure "Non Compliance, Corrective and Preventive Action" AQS-SYS-PR003. The EMR has developed a separate audit findings register. | December 2010: AQS NC procedure may be revised to accommodate EMRs process. In progress.<br>January 2011: Action is on-going. Management review meeting to endorse change.<br>February 2011: Management Review meeting scheduled for 16 February.<br>March 2011: Management review meeting held on 21 February. Minutes provided noting approval of revision. A revised EMS is | Remains open |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| | | | | | to be submitted for State consent.<br>April 2011: The revised EMS is still to be submitted for State consent.<br>May 2011: The revised EMS is still to be submitted for State consent.<br>June 2011: The revised EMS is still to be submitted for State consent. | |
| 71 | 19/02/11 | AfI | 71/02 | **D&C EMP Plant and General Area. Acid Sulfate Soils Sub Plan**. Management and treatment of Acid Sulfate Soil at the plant site is not consistent with the control measures documented in the sub plan. Independent technical experts have recently formally endorsed these variations to ASS management and treatment. TDJV advise that the EPA Appointed Auditor, engaged to audit ASS management under the conditions of the Pollution Abatement Notice, is reviewing the revised control measures. It is further advised that the revised sub plan is to be submitted to the State and the IR&EA for consent as required in the Project Deed. | TDJV response:<br>The Acid Sulfate soils sub-plan has been amended to reflect on site management practices as further understanding of the site specific requirements develops. These amendments to ASS management and treatment were then sent to the projects independent technical experts Golder Associates (Golder) for review as per the attached documentation (107631033-022-L-Rev1). TDJV have adopted all of Golder's recommendations to the proposed changes as outlined in the review document. This has been forward to the EPA appointed auditor and will form part of the 53V audit.<br>The amended sub-plan (as per Golder's review) will be sent to the Minister for approval with the next round of documentation. As such the sub-plan documentation will not match the appropriate on site management practices until the revised sub-plan has ministerial sign off.<br>The implementation of each control measure is recorded in the monthly control measures compliance checklist and provided to the EMR as supporting evidence of compliance. In response to the particular control measures listed in the Non Compliance, the following evidence is provided (as extracts from the January 2011 Checklist):<br>- TDJV will submit the revised D&C Plant and General Area EMP Attachment I11 – Acid Sulfate Soils Sub-Plan to the State for consent.<br>March 2011: Comments have been received by TDJV from DSE and have been incorporated into the revised sub plan.<br>April 2011: The revised sub plan has been submitted to DSE for formal consent.<br>May 2011: The revised sub plan is still with DSE for consent.<br>June 2011: The sub plan has been approved by the Minister.<br>**Finding Closed.** | Finding Closed Audit No 90 June 2011 |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| 72 | 8/02/11 | AfI | 72/01 | **D&C EMP, Utilities Area, Acid Sulfate Soils Sub Plan.** Excavation on the utilities alignment near the Powlett River has commenced without a formally approved and authorised site specific Attachment to the ASS Management Plan. | TDJV response:<br>Works in the area of the Powlett River are being completed in accordance with the control measures and contingency measures outlined in the D&C Utilities EMP - AttI12 Acid Sulfate Soil Sub Plan. Following finalisation of the Acid Sulfate Soil drilling in this area, Attachment B1 to the D&C Utilities EMP - AttI12 Acid Sulfate Soil Sub Plan was completed and submitted to DSE, IREA and EPA for review and comment.<br>March 2011: Submitted as defined and comments received and responded to. Submitted to DSE for comment.<br>April 2011: The Attachment has not yet been formally authorised.<br>May 2011: Correspondence from DSE sighted noting no further comments. AEM advises the Attachment was included in the relevant Work Packs. **Finding Closed** | Finding Closed Audit No 86, May 2011 |
| 76 | 3/03/11 | AfI | 76/01 | D**&C EMP, PGA Hazardous Chemicals sub plan**. Some hazardous chemicals stored on an unpaved area near the box cut were observed. | TDJV response:<br>The chemicals were removed from the area and taken to the box cut and stored within the bunded work area where they were to be used. The engineer who ordered the chemicals was advised both verbally and via email of the requirements of storing mixed class dangerous goods. The Desal Daily was used to communicate the requirements to the entire site community. Ongoing inspections of the area continue and no further breaches of storage have been found.<br>April 2011: Action noted. No chemicals were observed to be inappropriately stored during the April audit.<br>**Finding Closed** | Finding Closed Audit No 80, April 2011 |
| 77 | 7/03/11 | AfI | 76/02 | **D&C EMP, Plant and General Area, Resource Efficiency sub plan**. Inert construction waste was observed at a number of areas around the site to be stored on the ground, not in containers as required by the sub plan. Some wastes were clearly segregated, but other wastes were unsorted. IR&EA surveillance personnel have previously noted this issue. | TDJV response:<br>Although the waste was inert and posed no environmental danger at all, the piling of waste in designated areas does not look good and can lead to poor housekeeping. As such a progressive clean-up has begun of the site, including the areas identified in the audit with good results. The Desal Daily was used to communicate to the work force and housekeeping has improved. Ongoing inspections will continue via the weekly inspection checklist to ensure the good practices continue.<br>April 2011: Action noted. Considerable improvement in site housekeeping was noted during the April audit.<br>**Finding Closed** | Finding Closed Audit No 80, April 2011 |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| 77 | 7/03/11 | AfI | 77/01 | **D&C EMP, Utilities Water Quality and Erosion Management sub plan**. Sediment fencing on both sides of the Powlett River requires repair to ensure that turbid water is not discharged to the river. | TDJV response:<br>A Site Environment Inspection Report has been issued to construction crews instructing them on the rectification of the fence. Verification of completion of works pending.<br>April 2011: the sediment fencing has been repaired.<br>**Finding Closed** | Finding Closed, Audit No 81, April 2011 |
| 80 | 6/04/11 | AfI | 80/01 | **D&C EMP Plant and General Area. Risk register.** Construction verification and cleaning activities have commenced on site, but are not yet included in the environmental risk register. Accordingly any required controls have not been formally identified and included in the EMP. It is noted that work required to identify the required revisions to the D&C EMP has commenced. | May 2011: The PGA risk assessment is being reviewed to identify any additional control measures.<br>June 2011: Pre-commissioning documentation is still being developed (and a draft was provided to the IR&EA for review after the audit). Construction verification activities continue, managed through permit system. Desal Daily notification of hydro testing in RO building sighted dated 8 June. | Remains open |
| 81 | 7/04/11 | N | 81/01 | **D&C EMP Utilities Area Monitoring Inspection Reporting and Auditing Schedule**. Monitoring has not included sampling of high or medium flow waterways within 12 hours of a substantial rainfall event. | TDJV response:<br>The laboratory water quality monitoring within 12hr of substantial rainfall will be removed from the D&C Utilities Area EMP Attachment L – Monitoring, Inspection, reporting and Audit Schedule. Laboratory sampling of medium and high flow waterways prior, during and post construction activities will continue to ensure that any potential changes to the water quality parameters assessed by laboratory monitoring are detected and if required, rectification works can be completed. The sampling has not been undertaken because due to the time taken to return sample results from laboratory water quality sampling, it is non-informative to the management of the site in time frame of a response to a substantial rainfall event. Continuous turbidity monitoring completed in high and medium waterways provides a more effective indicator of changes in water quality in response to substantial rainfall.<br><br>May 2011: The response is noted and accepted, particularly as construction on waterways is almost complete. This finding to be closed when a Part D Notice is received.<br>June 2011: No further action. | Remains open |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| 81 | 7/04/11 | O | 81/02 | **D&C EMP, Utilities Area. 9.1.2 Environmental inspections**. The Site Environmental Inspection Reports (SEIR) include identification of required rectification actions. There is no formal recording of close out of these actions. | TDJV response:<br>A review of the actions in the outstanding SEIR will be undertaken to ensure that all actions have been closed out.<br>May 2011: Review commenced, but not yet completed.<br>June 2011: Sighted a number of SEIRs, many actions are now being closed out, but review is on going. | Remains open |
| 81 | 7/04/11 | AfI | 81/03 | **D&C EMP Utilities Area Water Quality and Erosion Management sub plan**. Two Type C waterways in The Gurdies were not protected by sediment fences. | TDJV response:<br>A Site Environmental Inspection Report was generated to address the erosion and sediment control measures in this area.<br>May 2011: The AEM advises sediment fences have been installed. **Finding Closed**. | Finding Closed, Audit No 86, May 2011. |
| 82 | 8/04/11 | AfI | 82/01 | **Baseline Marine Monitoring Program**. Installation of the settlement plates in the defined inshore and offshore locations later than suggested in the BMMP may pose a risk to the eventual analysis of parts of the program. | TDJV response:<br>The integrity of the BMMP program will continue to be assessed as further data is obtained. In the event that an MBACI approach for the inshore settlement plate component is not feasible (i.e. assuming the plant begins undiluted brine discharge to the ocean in December 2011) then a gradient based design will be implemented in accordance with the approved BMMP. Although a gradient design is not as powerful as MBACI, it does not compromise the capacity of the program to meet the overall aims and objectives.<br><br>May 2011: Response noted. **Finding closed**. | Finding Closed Audit No 87, May 2011 |
| 83 | 9/05/11 | AfI | 83/01 | **AquaSure EMS. 9.5.1 AquaSure audits**. The EMR conducts monthly audits, but these are not targeted to high risk activities as required by the EMS. | June 2011: EMR is to coordinate audits with TDJV Environmental Manager. | Remains open |
| 84 | 11/05/11 | N | 84/01 | **D&C EMP Resource Efficiency Sub Plans. Waste Management Report 2010.** Data are not available to support the statements of recycling in the Waste Management Report. The amount of recyclable waste in general waste has not been reliably quantified. Data are not well presented and do not clearly identify how recycling rates were generated. | TDJV response:<br>A Waste Assessment consultant has been engaged to conduct on site waste assessments for both the Plant Site and Utilities Corridor. The first round of assessments will be conducted on 15 and 16 June 2011 and will continue on a monthly basis. The assessments will be used to develop and assess quantifiable monthly achievements of waste targets. Quarterly reviews of the waste data will commence in the second quarter 2011 against the waste assessment data obtained.<br>June 2011: Actions are on going. | Remains open |

| AUDIT NO. | DATE | TYPE. | FINDING NO. | FINDING | ACTION | STATUS |
|---|---|---|---|---|---|---|
| 85 | 5/05/11 | AfI | 85/01 | **D&C EMP PGA Noise and Vibration sub plan; EPA Publication 1254, Noise Control Guidelines, section 2.** Actions implemented to manage noise from night works being undertaken at the plant site are not clearly reflected in current environmental management documentation. | June 2011: A comprehensive audit of noise management was undertaken by IR&EA. **This finding closed and replaced with finding 90/02.** | Finding Closed Audit No 90 June 2011 |
| 88 | 10/06/11 | AfI | 88/01 | **AquaSure EMS, 8.3.1 Communication**. While the EMR demonstrated relevant interaction with key stakeholders particularly government regulators, there is not regularly scheduled meetings with DSE and EPA outside the broader Environmental Agency Meetings. | Response from TDJV pending | Remains open |
| 90 | 8/06/11 | AfI | 90/01 | **D&C EMP Plant and General Area, Hazardous materials sub plan.** Small quantities of fuel and chemicals were observed around the site to be stored unbunded. | Response from TDJV pending | Remains open |
| 90 | 8/06/11 | AfI | 90/02 | **D&C EMP Plant and General Area Noise and Vibration sub plan.** The sub plan does not systematically reflect the noise management undertaken at the plant site, including the planning and scheduling of potentially noisy activities. | Response from TDJV pending | Remains open |
| 91 | 9/06/11 | AfI | 91/01 | **D&C EMP Utilities Area Waterways and wetlands sub plan.** The sediment controls at the waterway crossing at Wenn Road did not adequately protect disturbed areas | Response from TDJV pending | Remains open |