



Victorian Desalination Project | Independent Reviewer & Environmental Auditor

IR&EA REPORT

COMPLIANCE WITH ENVIRONMENTAL PERFORMANCE REQUIREMENTS QUARTER 2 2010 QUARTERLY REPORT TO THE MINISTER FOR ENVIRONMENT AND CLIMATE CHANGE

JULY 2010









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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 with Thiess Degrémont Joint Venture (TDJV) to design and construct, and with 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 2010.





Works commenced at the desalination plant site on the coast near Wonthaggi on 30 September 2009. The works during the reporting period at the plant site included:

- continuing site establishment activities, such as the construction of temporary construction roads and facilities (offices, storage areas etc);
- bulk earthworks to excavate the building footprints and the box cut;
- · initial civil works; and
- building works.

Vegetation clearing and construction of haul roads and Rights of Way (ROWs) continued along the end of the utilities corridor. Trenching and pipe laying continued, and the laying of the power cable conduit commenced in June 2010.

During the reporting period a total of 10 new formal audit findings were raised, and 13 open audit findings from the previous reporting period were carried over. While many of the new audit findings related to documentation and records supporting environmental management, a number of findings related to management of onground environmental risks. Along the utilities alignment, minor issues of dust and litter management were identified, and an open finding related to inadequate weed management has not been resolved. At the plant site, construction water management documentation was the subject of an audit finding which identified that environmental management documentation did not keep pace with actual management practices. The EPA issued a Pollution Abatement Notice in relation to potential environmental risks from acid sulfate soils and construction water management.

A Non-compliance (adverse environmental audit report under clause 13.9 of the Project Deed) was raised on the compliance management system. An open audit finding was elevated to a Non-compliance due to some compliance criteria for Performance Requirements not being adequately defined, and that the processes for communicating and verifying compliance requirements are not adequate.

A complete revision of the EMS Manual, the D&C EMP and Area EMPs was submitted at the end of June to the State and the IR&EA for preliminary review before formal submission for approval by the Minister for Environment and Climate Change. Once the Minister has approved the revised environmental management documentation, on-ground practices and documented environmental management practices will be aligned.

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





Operation of the Environmental Management System

A major revision of the EMS Manual, the D&C EMP and the Area EMPs was provided to the State and the IR&EA for preliminary comment at the end of June 2010. AquaSure anticipate that a formal submission of the documentation for approval by the Minister for Environment and Climate Change will occur by the end of July. The revised documentation is being prepared with the aim to further align actual environmental management practices and environmental management documentation with changing operational requirements and the requirements of the Project Deed.

During the reporting period, TDJV revised their organisational structure for environmental management, so that the AquaSure EMR is directly involved in the development and review of all environmental documentation for the Project, and is directing TDJV staff on day to day environmental issues on a technical basis. This provided direct accountability and responsibility for environmental management by AquaSure. This was particularly relevant during the major revision of the environmental management documentation due to the EMR's overall level of authority for environmental management across the Project.

Implementation of each component of the EMP

Documentation did not keep pace with on-ground practices for construction water management and acid sulfate soils management. In other areas audited, the Plant and General Area, and Utilities Area EMPs were generally appropriately implemented.

Other Environmental requirements

The State requested an audit of compliance with EPA statutory documents and Guidelines referenced in the Performance Requirements. An audit was undertaken of the project environmental management documentation, which demonstrated that the documentation complied with the referenced documents.

A Non-compliance was raised during the reporting period relating to the compliance management system. It identified that compliance criteria for some eleven of the over 200 Performance Requirements are not adequately defined, and that the processes for communicating and verifying compliance requirements are deficient.





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 Environmental 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 2010.





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) 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 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 38 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 *Environment Protection and Biodiversity Conservation Act 1999* (Cth), 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, to identify how it will comply with these requirements, and to track the 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 14001:2004¹. 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 the Project 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.





2.4 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 Environmental Management System, the Environmental Management Plan and the 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 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.

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 environmental audits. This report provides a summary of the environmental audit activities and outcomes conducted from April - June 2010. 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 19011:2002². 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 Environmental Management System and EMPs; and
- Design-related Environmental Performance Requirements, conformance with which is assessed through audits of AquaSure/TDJV's internal processes for integrating Performance Requirements into design requirements, and during the Design Review and Certification process.

 $^{^{2}\,}$ ISO 19011:2003. Guidelines for quality and/or environmental management systems auditing





3.2 Pre-audit activities

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

- Review of the Construction Program to identify the Project Activities occurring during the audit period.
- 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 usually 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 were 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 the Project Scope and Project Requirements Appendix S3;
- 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.

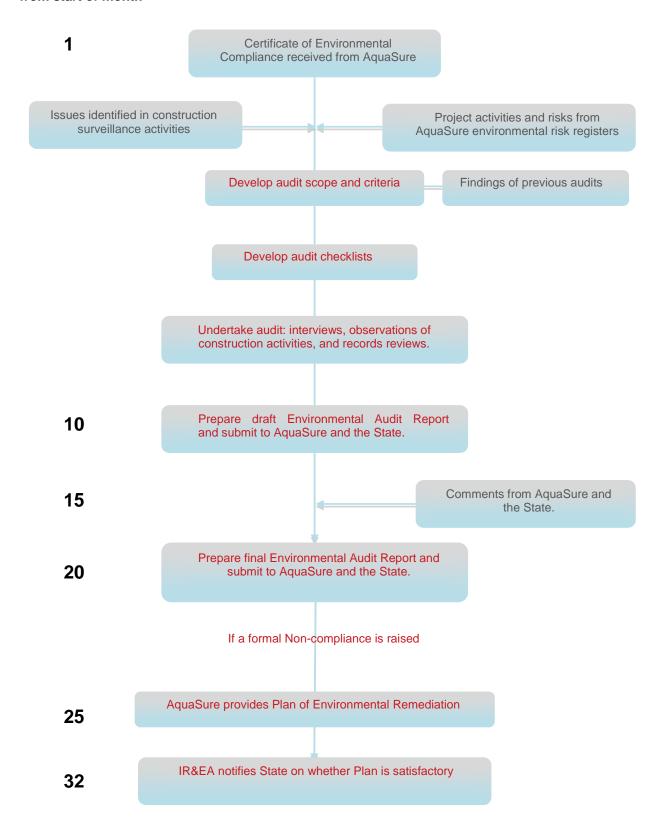
Observation: An audit finding which may relate to an incidental or isolated system discrepancy, which does not compromise the effectiveness of environmental management, or constitute an actual or potential environmental risk.





Figure 1. Overview of the environmental audit process

Business days from start of month







4 PROJECT ACTIVITIES AND ENVIRONMENTAL AUDITS

4.1 Project activities

4.1.1 Desalination plant site

Works during April - June 2010 included site establishment activities, such as the construction of temporary construction roads and facilities (offices, storage areas etc), bulk earthworks to excavate the building footprints and the box cut, and civil and building works. Views of these construction activities are shown below.

Figure 2. Overview of plant site construction. June 2010







Figure 3. Reverse Osmosis Building construction works, June 2010



4.1.2 Utilities corridor

Vegetation clearing, and construction of haul roads and Rights of Way (ROWs) continued along the utilities corridor. Trenching and pipe-laying continued, and the laying of the power cable conduit commenced in June 2010. Views of works in the utilities corridor are shown below.

Figure 4. Laying the power cable conduit.

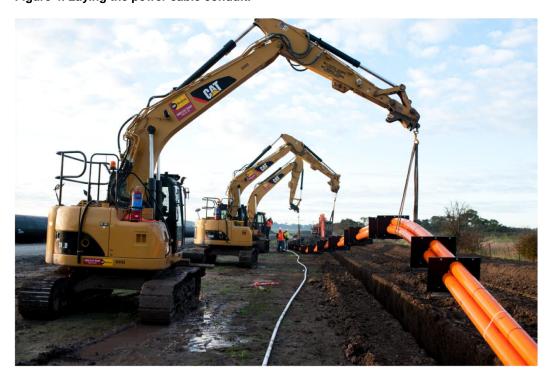






Figure 5. Clearing and grading the Right of Way, June 2010



4.2 Environmental audits

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

A 116 N.1 -	Dete	0
Audit No	Date	Scope
20	15 April	Field audit of the implementation of the D&C Plant and General Area
	2010	EMP; including audit of compliance with defined SEPPs and
		environmental guidelines referenced in the Performance
		Requirements.
21	13 April	Field audit of the implementation of the D&C Utilities Area EMP;
	2010	including audit of compliance with defined SEPPs and environmental
		guidelines referenced in the Performance Requirements.
22	14 April	Office audit of the pre-construction requirements of the D&C Marine
	2010	Area EMP; including audit of compliance with defined SEPPs and
		environmental Guidelines referenced in the Performance
		Requirements.
23	9 April	Office audit of the implementation of the Environmental Management
	2010	Representative's (EMR's) responsibilities and relevant requirements of
		the Project Deed





Audit No	Date	Scope
24	9 April	Office audit of the implementation of the requirements of the D&C
	2010	EMP; including audit of compliance with defined SEPPs and
		environmental guidelines referenced in the Performance
		Requirements.
25	7 May	Field audit of the implementation of the D&C Plant and General Area
	2010	EMP; including audit of compliance with defined SEPPs and
		environmental guidelines referenced in the Performance Requiremen
26	10 May	Field audit of the implementation of the D&C Utilities Area EMP;
	2010	including audit of compliance with defined SEPPs and environmental
		guidelines referenced in the Performance Requirements
27	11 May	Office audit of the implementation of the Environmental Management
	2010	Representative's (EMR's) responsibilities and relevant requirements
		the Project Deed
28	5 May	Office audit of the implementation of the requirements of the D&C
	2010	EMP; including audit of compliance with defined SEPPs and
		environmental guidelines referenced in the Performance Requirement
29	11 May	Follow up of an open audit finding on the Marine Intake and Outlet
	2010	EMP; including audit of compliance with defined SEPPs and
		environmental guidelines referenced in the Performance
		Requirements.
30	9 June	Field audit of the implementation of the D&C Plant and General Area
	2010	EMP
31	7 June	Field audit of the implementation of the D&C Utilities Area EMP
	2010	
32	8 & 10	Office audit of the implementation of the EMR's responsibilities and
	June	relevant requirements of the Project Deed
	2010	
33	8 June	Office audit of the implementation of the requirements of the D&C EM
	2010	





5 AUDIT FINDINGS AND CONCLUSIONS

5.1 Audit findings

During the reporting period a total of 10 formal audit findings were raised. A list of these, and corrective and preventive actions to the end of June 2010 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 2010

Audit No.	Audit Date	No. NCs	No. Afls	No. Obs
20	15 April 2010	-	1	1
21	13 April 2010	-	1	1
22	14 April 2010	-	-	1
23	9 April 2010	-	-	-
24	9 April 2010	-	1	-
25	7 May 2010	-	-	-
26	10 May 2010	-	2	-
27	11 May 2010	-	-	-
28	5 May 2010	-	-	-
29	11 May 2010	-	-	-
30	9 June 2010	-	1	-
31	7 June 2010	-	-	-
32	8 & 10 June 2010	-	-	-
3	8 June 2010	1		-
	Totals	1	6	3

NC: Non-compliance Afl: Area for Improvement Obs: Observation

Five of the 13 audit findings open at the beginning of the reporting period were closed. During the reporting period, 10 new findings were added and five of these new findings closed, yielding a net 12 audit findings that remain open.

The findings were largely related to environmental management documentation, as in the previous reporting period. The approval by the Minister for Environment and Climate





change of revised environmental management documentation, should close out a number of these findings. However, several findings were directly related to environmental management practices, including environmental monitoring.

The most serious finding was on management of construction water (site stormwater drainage and groundwater) at the plant site where a lack of adequate planning for the discharge of this water was found. The EPA issued a statutory Pollution Abatement Notice on the same issue, and on acid sulfate soil (ASS) management, on 7 June 2010.

The photo below shows the plant site sediment pond, which retains water for either onsite reuse, or discharge off site after treatment.



Figure 6. Plant site construction water sediment pond, July 2010



Other topics identified were minor issues of litter and dust management along the utilities alignment.

Management of water generated from construction activates is also a major management priority along the utilities alignment. Water pumped from excavations is used on site (e.g. for dust suppression) if possible. Where reuse is not possible, water is discharged to farm dams (with the owner's consent), or to waterways (with EPA consent), after treatment to ensure appropriate water quality.

The utilities alignment crosses a number of waterways, using either an open trench or pipe-jacking technology. Figure 7 shows preparatory works for a pipe-jack crossing. This





method minimises the disturbance to sensitive waterways.

Figure 7. Preparation for a pipe-jack waterway crossing



Demonstration of compliance with the EMS, EMPs and Project Environmental Performance Requirements is a key element of AquaSure's environmental management arrangements. This requires a documented compliance management system to:

- identify the requirements for compliance (i.e. what actions are required), and
- monitor and report on the progress of the identified requirements.

AquaSure and TDJV have been developing a compliance management tool for some time. Progress on completion of the compliance management system was not considered adequate, and the finding was elevated to a formal non-compliance.

The certification by the IR&EA of the Site Establishment Packages, which include details of construction requirements and methodologies, is contingent on evidence of compliance with the D&C EMP and the Environmental Performance Requirements. The pertinent parts of the relevant D&C Area EMP, and Site Environmental Plan are referenced in the Site Establishment Packages.





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

A major revision of the EMS Manual, the D&C EMP and the Area EMPs was provided to the State and the IR&EA for preliminary comment at the end of June 2010. AquaSure anticipate that a formal submission of the documentation for approval by the Minister for Environment and Climate Change will occur by the end of July. The revised documentation is being prepared with the aim to further align actual environmental management practices and environmental management documentation with changing operational requirements and the requirements of the Project Deed.

During the reporting period, TDJV revised their organisational structure for environmental management, so that the AquaSure EMR is directly involved in the development and review of all environmental documentation for the Project, and is directing TDJV staff on day to day environmental issues on a technical basis.. This provided direct accountability and responsibility for environmental management by AquaSure. This was particularly relevant during the major revision of the environmental management documentation due to the EMR's overall level of authority for environmental management across the Project.

5.2.2 Implementation of each component of the EMP

Documentation did not keep pace with on-ground practices for construction water management and acid sulfate soils management. In other areas audited, the Plant and General Area, and Utilities Area EMPs were generally appropriately implemented.

5.2.3 Other Environmental requirements

The State requested an audit of compliance with EPA statutory documents and Guidelines referenced in the Performance Requirements. An audit was undertaken of the project environmental management documentation, which demonstrated that the documentation complied with the referenced documents.

A Non-compliance was raised during the reporting period relating to the compliance management system. It identified that compliance criteria for some eleven of the over 200 Performance Requirements are not adequately defined, and that the processes for communicating and verifying compliance requirements are deficient.









Appendix 1. Environmental audit findings Q2 2010

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

		FINDING NO.	TYPE	FINDING	ACTION	CLOSED
2	Nov-09	2/01	AfI	The Project Deed, Appendix S3, clause 7 (a) requires that AquaSure is responsible for "[a]n organisational process defining the mechanism/structure of reporting must be developed to the satisfaction of the State to ensure that the Independent Reviewer & Environmental Auditor and the State receive all relevant environmental and monitoring and auditing reports and non-compliance, preventative and control actions." Evidence was available to demonstrate that the relevant information is, or will be, generated by AquaSure; however, there is no mechanism to ensure that the IR&EA and the State receive this information.	AquaSure response: The EMS should be updated in Section 6.1 to state that all environmental and monitoring and auditing reports and records of noncompliance will be forwarded to the State and the IR&EA through AquaSure within 5 working days of receipt from TDJV Environment Manager. The D&C EMP and Area EMPs should be updated in the appropriate sections to reflect that the TDJV Env Manager will forward all environmental and monitoring and auditing reports and records of noncompliance to the EMR within 5 days of receipt of final reports.	Remains oper
		advised that the EMS and EMPs were to be comprehensively revised, and this amendment will included in this revision. March 2010: The mechanism needs to be resolved incorporated into the revised EMS and EMPs. April 2010: the issue has been raised in the Environment of the comprehensively revised, and this amendment will included in this revision.	February 2010: Action still to be finalised. The EMR advised that the EMS and EMPs were to be comprehensively revised, and this amendment will be			
				April 2010: the issue has been raised in the Environmental Working Group, but there is no resolution of an appropriate		
					May 2010: This action has yet to be finalised. June 2010: The action is still to be finalised.	





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
2	DATE Nov-09	FINDING NO.	TYPE Afl	The roles and responsibilities of the Environmental Management Representative as defined in Appendix S3, Clause 2 of the PS&PR have not been implemented in the following areas: no system has been implemented for EMR's corrective actions and continuous improvements (subclause (vi));	AquaSure EMR is to use the Thiess HSE database as the tracking tool for the EMR's corrective actions and continuous improvements January 2010: the identified actions are still being implemented. February 2010: AquaSure is developing and implementing a Quality Management System, including a nonconformance management procedure and register. The EMR intends to use this system when it is implemented. March 2010: The AquaSure QMS is still in development and the EMR's action spreadsheet continues to be used for non-conformities. April 2010: An AquaSure Non-conformance management procedure is being developed with in the quality system (draft procedure AQS-SYS-PR003-1) sighted). This has not yet been implemented.	CLOSED Closed Audi No 32, June 2010
					May 2010: Actions not completed at the time of the audit. To be included in the revised EMP.	
				June 2010: The QMS NCR process is being used for EMS NCs. The procedure and NC Register were sighted. The draft revised EMS Manual includes a cross-reference to this procedure.		





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
2	Nov-09	2/03	Obs	The D&C EMP at section 4.3.1 and Attachment J defines broad training requirements, however there are no competency criteria defined in the supporting systems for essential environmental training, and no records are maintained of required competencies.	December 2009: Area Environmental Managers have been requested to identify required competencies (email from TDJV Environmental Manager to Area Environmental Managers sighted). Action is due 12 December. January 2010: a response from the Plant and General Area Environmental Manager, dated 6 January was sighted. Actions not complete at the time of the audit. February 2010: Actions not completed at the time of the audit. March 2010: Actions not completed at the time of the audit. April 2010: Actions not completed at the time of the audit. To be included in the revised EMP. May 2010: Review of the EMP is underway. Actions not completed at the time of the audit.	Remains open
2	Nov-09	2/04	Obs	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: the role of the EMR in environmental communication channels is not clearly defined (subclause (vii)). 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. January 2010: the identified action is still being implementedFebruary 2010: the identified action is still being implementedMarch 2010: the identified action is still being implementedApril 2010: the identified action is still being implementedApril 2010: the following draft documents are under preparation:• Draft protocol for communication with eternal agencies;• Draft protocol for communication with stakeholders on environment issues and complaints.• Draft revised CIP; including definition of EMR roles and responsibilitiesMay 2010: The role of the EMR in environmental	Remains open





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
					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.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.	
5	Dec-09	5/01	Obs	EMS Manual Legal and other requirements: The EMR has	AquaSure response: Section entitled "Legal and other	Closed Audit
				not yet established a mechanism to identify any new legal or	requirements" (page 30) of the current version of the EMS	No. 27, May 10
				other compliance requirements and ensure these are included	states that the TDJV Environment Manager and TDJV	
				in relevant registers, communicated to the AquaSure team and	Environment and Community Manager will be responsible	
				taken into account in environmental management	for ensuring that any "new obligations are recognised and	
				arrangements. The EMR was not aware of the requirement	captured". Currently, TDJV Environment Manager	
				from EPA to manage construction wastes in the marine	receives a monthly update through EnviroLaw and forwards	
				environment (letter from EPA to AquaSure dated 13	this information to Area Environmental Managers, to	
				September 2009).	update documentation/ approaches as appropriate. This	
					was checked with these Area Managers, and the EMR is	
					satisfied that this system is working (although no changes/	
					new obligations have been noted for the first three months	
					of the project). This system was checked as part of the	
					EMR December audit.	
					Verification: The response addresses the requirements for	
					legislative requirements, but not for the full scope of project	
					environmental requirements. The process outlined by the	
					EMR is not controlled through the EMS, but relies on the	
					D&C EMP and Area EMPs. Accordingly AquaSure cannot	
					demonstrate independent management of legal and other	
					requirements.	





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
					February 2010: The EMR will develop a process to ensure	
					that AquaSure manages the identification and management	
					of compliance requirements. A correspondence register is	
					being implemented to track correspondence and actions	
					arising from this between AquaSure and TDJV.	
					March 2010: No further action.	
					April 2010: the EMR will receive and review updates on	
					environment legislation from EnviroLaw.	
					May 2010: The EMR is now registered as an independent	
					user of the Thiess registers of Environmental Law	
					publication. He will be receiving the publication from the	
					start of June 2010.	
8	Jan-10	8/02	Obs	D&C Utilities EMP, Flora and Fauna sub-plan. The depot at	Verification:	Remains ope
			Livestock Way was observed to have blackberries and other February 2010:Contra	February 2010:Contractor is to be appointed to carry out		
				weeds growing on the boundary of the property. A plan for	weed management. To be followed up at the next audit.	
				dealing with weeds at depots needs to be considered	March 2010: No further action has been taken.	
					April: A contractor is being engaged for weed management	
					along the alignment, and will include the depot.	
					May 2010: Spraying has not yet been conducted. It is	
					planned to be done during May.	
					June 2010: new contractor being engaged	





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
10	Jan-10	10/01	Obs	D&C EMP Environmental monitoring. The D&C EMP MIRA schedule has not been reviewed or updated since the EMP was approved. The EMP change register documents changes to the D&C Utilities EMP MIRA schedule in late November 2009 and to the D&C Plant and General Area EMP on 11 December 2009. These have not been consolidated into a project wide D&C EMP revised MIRA schedule, nor has the D&C EMP MIRA schedule been reviewed monthly as given in the D&C EMP. Accordingly, TDJV cannot demonstrate overall management of project environmental monitoring requirements.	February 2010: No progress. Revision of MIRA schedule is part of overall D&C EMP revision. March 2010: the TDJV Environment Manager advised that the MIRA Schedule is to be removed from the next revision of the D&C EMP. A discussion was held on the appropriate level of authority and responsibility for approving and conducting monitoring. April 2010: to be considered as part of the EMP revision. May 2010: Review of the EMP is underway. Actions not completed at the time of the audit. June 2010: as above	Remains open
11	Jan-10	11/02	Afl	D&C EMP, Legal and other requirements. While the Environmental Compliance Record identifies environmental obligations and compliance methodologies, compliance criteria, particularly for PRs, have generally not been defined. Compliance criteria are not always clear in many of the PRs and should be defined	February 2010: The compliance tool is still being developed March 2010: Good progress has been made in the development of compliance criteria for design-related PRs. These are still to be completed, and criteria developed for construction-related PRs. April 2010: compliance criteria are still under development for the imprecise PRs. A complete draft is due to be provided by 23 April 2010. This finding to be elevated to a Non-compliance if satisfactory progress is not demonstrated. A complete draft of compliance criteria was provided; however there remain compliance criteria which are still sufficiently ill-defined to allow effective audits to be completed at the appropriate time. May 2010: A draft of the compliance tool was provided on 23 April 2010 and is being reviewed for completeness of the performance targets. June 2010: :a completed draft of compliance criteria for all	Closed Audit No 33 June 2010, and replaced with NC 33/01





UDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
					PRs was reviewed. A number of the PRs still do not have	
					adequately defined compliance criteria, and there does not	
					appear to be a defined and documented process for	
					identifying compliance, including a process for	
					communicating compliance criteria and verifying	
					compliance in design approval. The D&C EMP and the	
					D&C Area EMPs cannot be finalised until this process is	
					developed.	
12	Feb-10	12/01	Obs	D&C Plant & General Area EMP. The SEP is currently being	March 2010: Action is still pending. The SEPs will be	Closed audit
				revised, however there is no documented and efficient process	issued through Incite, with the onus on the recipient to up-	no. 20, April
				for replacing hard copies of SEPs already issued with current	date relevant WAPs and WPs.	2010.
				Work Packs. This is part of a broader lack of clear and	April 2010: Action has been taken to load the latest	
				documented document control procedures for the project	authorised SEP on Incite.	
					dull-one-de de l'en moite.	
				environmental documentation.		
14	9-Feb-	14/01	AfI	environmental documentation. EMS Manual. Operational control. While on-ground	Verification	Remains open
14	9-Feb- 2010	14/01	AfI			Remains open
14		14/01	Afl	EMS Manual. Operational control. While on-ground	March 2010: The EMS and EMPs are under still review.	Remains open
14		14/01	AfI	EMS Manual. Operational control. While on-ground environmental management generally adequately address the	March 2010: The EMS and EMPs are under still review. April 2010: the EMS and EMPs are still under review.	Remains open
14		14/01	AfI	EMS Manual. Operational control. While on-ground environmental management generally adequately address the environmental risks, documentation of environmental	March 2010: The EMS and EMPs are under still review.	Remains open
14		14/01	Afl	EMS Manual. Operational control. While on-ground environmental management generally adequately address the environmental risks, documentation of environmental management requirements does not reflect current practice in	March 2010: The EMS and EMPs are under still review. April 2010: the EMS and EMPs are still under review.	Remains open





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
				(weed management). It is noted that the EMR is conducting a review of environmental management documentation that should bring into line the on-ground practices and associated documentation.		
15	1-Feb- 2010	15/01	Afl	D&C EMP 4.5 Control of EMS Manual documentation. The process for the authorisation, issue and control of D&C EMP documentation (and subordinate D&C Area EMP documentation) is not defined or documented.	March 2010: definition of document control requirements is part of the overall revision of the EMPs. April 2010: No further action. May 2010: The EMS is being redrafted and will specify requirements for document control. June 2010: documentation still being revised, and an authorization process included is in the draft documentation	Remains open
16	12-Mar- 2010	16/01	AfI	D&C Plant and General Area EMP, 5.1 Monitoring & Measurement. Water quality monitoring:. The D&C Plant and General Area MIRA schedule and the Water Quality and Erosion Management sub-plan require water quality monitoring within 12 hours of substantial rainfall. Following rain on Saturday 6/3 and Sunday 7/3, water quality monitoring was undertaken on the following Tuesday in the Wonthaggi Drain, i.e approximately 48 hours after the rainfall 'Substantial rainfall' has not been adequately defined either in terms of an absolute amount of rain, or in terms of site conditions and the potential for discharge from the site.	April 2010: substantial rainfall has been defined as 30 mm in a rolling 24 hour period. This figure was based on recorded peak rainfall and the number of rain days. Thiess Services, which collects water quality monitoring data, have been notified of the definition, and it is to be included in the revised EMP.	Closed Audit No 20 April 2010.





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
17	10-Mar- 2010	17/01	Afl	D&C Utilities EMP, 5.1Monitoring & Measurement. The D&C Utilities EMP requires water quality monitoring for pipe-jacked waterways for one month prior to works. The EPBC Management Plan has a similar requirement. Water quality monitoring commenced on 2/2/2010, however no data are available from the subcontractors. It was advised that continuous turbidity monitoring had not been conducted as required in the D&C Utilities Water Quality and Erosion Control Sub-plan.	April 2010: Continuous turbidity monitoring is now available as required in the monitoring plan. Real time alerts will be available for creek crossing works. This part closed.April 2010:	This part closed Audit No 21 April 2010.
				It was noted that the D&C Utilities Water Quality and Erosion Control Sub-plan, the MIRA schedule (Att L1 to the D&C Utilities EMP) and the EPBC Management plan are not consistent. It was further noted that the terms 'works' or 'construction' used in the motoring plans are not adequately defined	A draft report has been received from the consultant on water quality monitoring. The current EMP revision will include a reconciliation of conflicting monitoring requirements. May 2010: To be included in the revised EMP. June 2010: to be included in the revised EMP.	Remains open
20	15-Apr- 2010	20/01	Obs	D&C Plant and General Area EMP, 5.1 Monitoring & measurement. Water quality monitoring. The field water quality monitoring sheets showed some abnormally high dissolved oxygen readings (> 15 ppm, with some readings over 20 ppm) for the Wonthaggi Drain and the wetland on site, without adequate explanation for the levels measured.	May 2010: The Area Environmental Manager has discussed the high DO results with the monitoring consultant and has had contact with EPA regarding this matter. The monitoring consultant has been asked to provide comment in their report when such unusual results have been recorded.	Closed Audit No 25, May 10





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
20	15-Apr-	20/02	Afl	D&C Plant and General Area EMP, water quality and	May 2010: The finalised report "Groundwater and Surface	Remains open
	2010			erosion management sub-plan (Table 5) and Waterways	Water Management Report" has been received from	
				and wetland sub-plan (Section 6.1). Plant site water	Bonacci Water. The sedimentation ponds have been	
				management. The plant site generates water from surface	constructed as described in the report. A copy of the report	
				drainage, and from groundwater intercepted at the box cut	is to be appended to Area EMP Sub Plan I9 and submitted	
				excavation. Surface drainage is directed to central sediment	as part of the revised EMP. A copy of the report is also to	
				ponds. Water in these ponds has low pH arising from the	be sent to EPA in response to the Minor Works Pollution	
				proximity of ASS. Hydrated lime is added for pH adjustment,	Abatement Notice. Ongoing.	
				and water is pumped from the pond to the swale leading under	June 2010: Letter and supporting documents as required in	
				Access Road 3. Additional pH adjustment is carried out if	the MWPAN submitted to EPA on 31 May. Letter and	
				required, and the swale is treated with hydrated lime. The	reports sighted. Finding to remain open until MWPAN	
				water is then pumped to a grassed area and infiltrates the	withdrawn.	
				subsurface before (presumably) discharging to the on-site		
				wetland. pH monitoring is conducted, with results showing		
				varying pH due to variable mixing. While this water		
				management arrangement is consistent with the sub-plans, it is		
				resource intensive, and may not be sustainable, particularly		
				during periods of high rainfall. In addition, there is no		
				agreement with EPA for discharge off-site, if this is		
				required.Bonacci Water has provided a design for		
				management and treatment of surface drainage from		
				construction areas, including the low pH water from ASS		
				affected areas. It was advised that this has been approved as		
				temporary works by TDJV. At the time of the audit the design		
				had not been certified by the IR&EA. Furthermore, there is no		
				agreement with the EPA for management groundwater		
				intercepted at the box cut excavation.It is noted that the EPA		
				has issued a Minor Works Pollution Abatement Notice in		
				relation to site water management.		





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
21	13-Apr-	21/01	Obs	D&C Utilities EMP, 4.4.1 Internal communication. Weekly		Closed audit
21	13-Apr- 2010	21/01	Obs	tool box meetings have not been held since late March due to staff constraints.	May 2010: Weekly tool box meetings have been restarted. The Area Environmental Manager will prepare a tool box briefing sheet, which will be placed in pigeon holes of all supervisors. He will rotate visits to weekly restart meetings of the various field crews. Progress of these actions is to be verified during the next audit. June 2010: toolbox talks being done on relevant topics. E.g. GGE talk to Bass River Austral pipe jack crew. Materials sighted, attendance records held with pre-start	No 30 June 2010
21	13-Apr- 2010	21/02	Afl	D&C Utilities EMP, Waterways and Wetlands sub-plan. The completed crossing at Cardinia Creek was inspected. The crossing was undertaken in accordance with the MW permit, and MW has inspected the works. A continuous turbidity meter had been installed downstream of the works, however real-time data were not available during the works, accordingly PLJV was not able to respond to any significant increases in turbidity. Further, no trigger values had been set to guide decisions on any required mitigation measures.	records. Toolbox talk register sighted May 2010: There is a continuous on-line turbidity monitor installed at McDonalds Drain. At the time of the audit, it was reading 92 NTU, with the alarm set at 500 NTU.Operation of the monitor and appropriate alarm and trigger levels are to be reviewed by the new environmental officer to be starting on 24 May. June 2010: see above.	Closed Audit No 31 June 2010
22	14-Apr- 2010	22/01	Obs	D&C Marine Area EMP, 4.3 Competence, awareness and training. The monitoring consultants have not been inducted into the project requirements, and the training as identified on the Training Matrix has not been conducted.	May 2010: The training matrix has been updated. A sub- contractor induction sheet that outlines obligations and performance requirements is to be assembled.	Remains oper
24	9-Apr- 2010	24/01	Afl	D&C EMP, 4.4.1 Internal communication. No regular formal meetings have been held between the TDJV Environment Manager and the Area Environment Managers. Communication occurs on an as-needs basis, and is not	May 2010: The environmental management structure is being modified and will include a procedure for internal communications. The EMR is also implementing new communications processes in parallel with the EMS	Closed Audit No 33, June 2010.





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
				documented. There is no formal mechanism in place for	modification.	
				communication of environmental information across the TDJV	June 2010: regular communication now occurring between	
				environment team.	the AquaSure EMR and AEMs	
26	10-May-	26/01	Afl	D&C Utilities EMP, Attachment I4. Air Quality Sub Plan	June 2010: The immediate dust issue was resolved on the	Closed Audit
	2010			Table 5, Dust Emissions Visible dust was leaving the works	day. An audit schedule is being established for major	No 30, June
				area in Zone 7A during loading of haul trucks with spoil at a	subcontractors to minimise the risk of a recurrence.	2010
				pipeline easement cutting and when tipping the spoil onto a		
				stockpile in the depot. The dust was blowing towards sensitive		
				receptor No. 25 (a residence).		
26	10-May-	26/02	Afl	D&C Utilities EMP, Attachment I6. Resource Efficiency Sub	June 2010: the immediate issue was resolved at the time.	Closed Audit
	2010			Plan Table 5, Management Measures. Windblown litter was	An audit schedule is being established for major	No 30, June
				present in the Armstrong Contractor works compound in Zone	subcontractors.	2010
				7A, near the corner of Pound Road, Berwick-Cranbourne Road		
				and Grices Road.		
30	9-Jun-	30/01	AfI	D&C Plant and General Area EMP, 4.4.1 Internal		
	2010			communication. The last tool box talk was given to site		
				personnel on 29 March 2010. While additional tool box talks		
				have been planned, none have yet been conducted. The		
				construction workforce is expanding to an expected 1500		
				personnel over the next few months, and regular and effective		
				communication on environmental issues is required. It is noted		
				that the daily site bulletin, Desal Daily, regularly includes		
				environmental information, and is formally included in the daily		
				pre-start meeting of all construction personnel		
33	10-Jun-	33/01	NC	D&C EMP, Legal and other requirements A compliance		
	2010			tracker, with compliance criteria for each PR, has been under		
				development since late 2009. There has been an Area For		
				Improvement open on this topic since January 2010 (see		





AUDIT NO. **CLOSED** DATE FINDING NO. **TYPE FINDING ACTION** previous finding no 1/02) reflecting a lack of adequate progress on defining compliance criteria and ensuring these are used to guide design and construction environmental management decisions. A number of the PRs still do not have adequately defined compliance criteria, and there does not appear to be a defined and documented process for identifying compliance, including a process for communicating compliance criteria and verifying compliance in design approval. The D&C EMP and the D&C Area EMPs cannot be finalised until this process is developed. The following PRs do not have adequate definition of compliance criteria:-1002 (minimise nocturnal light spill beyond the site boundary). A statement has been included to provide a reference to using minimum light levels as defined in AS/NZS 4282, however these values are not provided in the referenced Design Package at its current status. 7060 & 7065 (waterways and wetlands: no significant impact on Western Port Ramsar site, maintain the environmental values of waterways and wetlands.) No water quality or control criteria are provided as a basis for the approval to discharge to the environment, which may impact on the design of pipeline structures such as scour valves. Construction water discharge trigger values, or methods for calculating these, are included in the referenced Area EMP sub-plans. 12089 and 12090 (minimise adverse effects of chemicals on the receiving environment; minimise chemical use). No chemical use or discharge objectives





AUDIT NO.	DATE	FINDING NO.	TYPE	FINDING	ACTION	CLOSED
				have been provided as a basis for construction		
				management and design of the treatment plant		
				14098 (minimise impacts on groundwater). No criteria or		
				action triggers for groundwater level or quality are		
				provided in the compliance tracker or included in the		
				referenced draft AEMP sub-plans.		
				14098 (minimise impacts on groundwater). No criteria or		
				action triggers for groundwater level or quality are		
				provided in the compliance tracker or included in the		
				referenced draft AEMP sub-plans.		
				• 14100 (Groundwater: minimise any reduction of		
				existing groundwater recharge to wetlands resulting from		
				operation of the DWSS). No design criteria are		
				provided or referenced		
				• 15103 (minimise impacts on surface water quality.) No		
				stormwater design criteria are provided or referenced.		
				20130 and 20132 (Minimise waste). No quantitative		
				construction or operation waste management targets are		
				provided or referenced. It was noted that the Plant Site		
				induction and awareness materials include an 85%		
				construction waste recycling target which is not included		
				in the Resource Efficiency sub-plan or the compliance		
				tracker. No waste management design criteria are		
				provided or referenced.		