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Department for Water

Integrated Water Resource Management in the South East of South Australia

Audit Report

October 2010



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1. Introduction

1.1 Project Title

The specific Project subject of this audit is titled “Integrated Water Resource Management in the South East of South Australia” managed by the Department for Water.

1.2 Background

The National Water Commission (NWC) administers the Water Smart Australia programme (‘the Programme’) on the Commonwealth’s behalf. Through the Programme, funding is allocated from the Australian Government Water Fund for activities that assist in implementing the National Water Initiative (NWI). The objectives, outcomes and actions of the NWI include national water reform in the areas of: water access entitlements and planning; water markets and trading; best practice water pricing; integrated management of water for the environment and other public benefit outcomes; water resource accounting; urban water reform; knowledge and capacity building and community partnerships and adjustment.

The objective of the Programme and the subject Project is to accelerate the development and uptake of smart technologies and practices in water use across Australia for purposes that include improving river flows, on-farm water efficiency, recycling and re-use of stormwater and ‘grey’ water, water storage, sewerage management, water desalination, irrigation infrastructure and water-efficient house design.

1.3 The Project

The Project involves a program of targeted investment in resource knowledge and resource monitoring and accounting systems, to support an Integrated Resource Management approach for the South East region. The aim of the program was, in collaboration with the community, to pilot new approaches to achieving sustainable water management, by enabling adaptive resource management that is responsive to evolving knowledge and management practice.

The Project proposal was approved for funding by the NWC in May 2006. The Funding Agreement for the Project was finalised in August 2006 and signed by the Minister for Environment and Conservation and the Chief Executive Officer of the NWC in October 2006.

In conducting the Project, the Department for Water agreed to perform the work and achieve the Milestones specified in the Funding Agreement.



2. Project Overview

The Project required the Department for Water to manage water resources in the South East of South Australia in a sustainable manner by:

- ▶ Improving knowledge of the quantity and quality of water resources in the region;
- ▶ Developing an accounting system for the allocation and use of the water resources in the region; and
- ▶ Developing adaptive water resource management arrangements based on resource condition monitoring.

2.1 Objectives

The specific objectives of the Project were to:

- ▶ Improve the understanding of water resources in the South East including recharge rates, use/response processes, stratigraphic controls on flow and groundwater/surface water interactions;
- ▶ Achieve a greater understanding of spatial and temporal variability of flows to key groundwater dependent ecosystems;
- ▶ Enable water access entitlements or allocations to be capable of being managed as a share of the resource as specified in the water allocation plan;
- ▶ Develop and implement water accounting system that enables the effective collection, storage and management of water meter data for input to integrated management models;
- ▶ Understand the impacts of irrigation on the groundwater resource and the development of best management practices in partnership with irrigators;
- ▶ Facilitate community involvement in the integrated resource management approach and the setting of management regimes; and
- ▶ Develop decision support tools to enable the adjustment of levels of use as required in response to changing resource conditions or community attitudes.

2.2 Project Activities

The Project required the Department for Water to undertake the following activities:

- ▶ Development of a comprehensive project plan that details the project structure, project activities, timings and milestones and include a communication plan and risk management plan. The communication plan for the project will detail the processes of communication between the project team, project management committee, project advisory committee and stakeholders;
- ▶ Achievement of 48 milestones which link the overall delivery of project objectives via a series of sub programs;
- ▶ The project plan will be monitored by the Project Management Committee. The Project Management Committee will report on project progress to funding partners through Project Milestone Reports; and
- ▶ The Project Advisory Committee, made up of landholders and other key stakeholders, will provide advice to the project and ensure that the communications plan is operating effectively and that project outcomes are practical and able to be implemented.



2.3 Project – Sub Programs

The Project consisted of three (3) sub programs. The sub programs and the key activities in each sub-program were:

Sub Program 1 - Resource sustainability will improve the knowledge base to define resource sustainability and constraints to development:

- ▶ 1.1 Improve estimates of groundwater recharge from rainfall.
- ▶ 1.2 Understand demands of key groundwater dependent ecosystems.
- ▶ 1.3 Improve knowledge of how the underlying geology controls groundwater flow and salinity, to determine a more reliable understanding of hydro geological behaviour for determining sustainability.
- ▶ 1.4 Develop regional management decision support tools.

Sub Program 2 - Establish an effective water accounting system which addresses issues which are required for establishing water accounting:

- ▶ 2.1 Not applicable (was not approved for funding).
- ▶ 2.2 Develop pilot programme for a data collection, verification and management system.
- ▶ 2.3 Benchmarking irrigation practices to provide a basis for understanding current irrigation practices and identify how improvements can be made to reduce water use and impacts on the environment.
- ▶ 2.4 Develop a whole of catchment dataset.

Sub Program 3 - Adaptive groundwater management:

- ▶ 3.1 Establish a methodology and basic arrangements for adaptive management, including a web based demonstration site.
- ▶ 3.2 Not applicable (was not approved for funding).



3. Audit Methodology

3.1 Introduction

GHD was commissioned to undertake an audit of the performance of the Department for Water in meeting the specified Project objectives and pre-determined Project Milestones as agreed in the Funding Agreement between the Department for Water and the National Water Commission.

A key component of the review is to assess whether the Department for Water has performed all the things that were required in the Project Implementation Plan (PIP), this includes meeting the required Project Milestones, managing risks, community engagement and undertaking the technical work.

The scope of the audit was limited to:

- ▶ A review of key documents against the scope as defined in the Funding Agreement;
- ▶ Discussions with key Project staff in the Department for Water Adelaide and Mount Gambier offices;
- ▶ An assessment of the Project management/planning framework against the project business plans; and
- ▶ An assessment of what was delivered i.e. were the actual outputs those which were set out to be achieved.

Specifically excluded from the review was:

- ▶ Technical reviews and financial audits; and
- ▶ An evaluation of the community engagement process.

The audit was carried out through:

- ▶ A desktop study which included review of relevant reports and documentation available; and
- ▶ An assessment of the achievement of the Project Milestones stated in the Funding Agreement between the NWC and Department for Water.

3.2 Desktop Review

Copies of the following documentation have been provided to GHD from Department for Water as part of this review:

- ▶ Funding Agreement
- ▶ Project Implementation Plan (PIP)
- ▶ Milestone Reports
- ▶ Project Progress Reports
- ▶ Project Advisory Committee – Agenda and Minutes
- ▶ Project Management committee – Agenda and Minutes
- ▶ Project Communication Strategy – Information Sheets and Newsletters
- ▶ Effectiveness Of Community Engagement Processes – Dr Miriam Murphy



3.3 Site Visits

GHD undertook a site visit to the Mount Gambier on 20 and 21 September 2010. The purpose of the site visit was to:

- ▶ Conduct targeted interviews with key project staff with respect to specific issues relating to projects they were involved with to confirm issues addressed by the desktop review, and to further explore other issues as required; and
- ▶ Inspect on-ground works where possible.

3.4 Reporting

The key output required by the Department for Water is completion of an audit report assessing compliance with the requirements of the Funding Agreement and the Project Implementation Plan.

3.5 Limitations

This report has been prepared for the Department for Water. The purpose of the report is to provide an independent review of the completion of agreed milestones as part of Funding Agreement made between the NWC and the Department for Water.

This is not a technical audit. Technical aspects of the Project have been the subject of a separate peer review process.

It is not the intention of the review process to cover every element of a process or system, nor all aspects of those elements, but rather that a representative selection of the performance has been assessed to provide a basis for the report.

The findings of the review represent the issues apparent at the date and time of the review.

In conducting this audit and preparing the report, the Project Milestones within the Funding Agreement were referred to, along with information provided by the Department for Water in particular the Project Implementation Plan (PIP). This review has been conducted in good faith with GHD's understanding of the Department for Water brief and the generally accepted consulting practice.



4. Findings

4.1 General

The following Project staff has been interviewed as part of the audit process.

- ▶ Drew Laslett – Project Manager
- ▶ Nick McIntyre – Project Team Leader
- ▶ Cameron Wood – Project Officer
- ▶ Jeff Lawson – Project Officer
- ▶ Ian Schneider – Project Officer
- ▶ Tim Powell – Project Officer
- ▶ Paul O'Connor – GIS Analyst
- ▶ Dave Williamson NRM Board – Member of Project Advisory Committee

Discussions with these key Project staff were held in the Department for Water Adelaide and Mount Gambier offices.

General feedback from the Project members was that the Project was a worthwhile positive experience both personally and professionally. Several common threads are as follows:

- ▶ There was a robust project management with regular reporting requirements that kept team members focused on the Project objectives.
- ▶ There was sufficient individual autonomy to develop and undertake specific tasks as required to provide ownership of the sub-projects provided the objectives were being achieved.
- ▶ There was a view that the Project Leadership was supportive throughout the Project. This was deemed to be the case through the positive actions and communication skills of the Team Leader and Project Manager at Mount Gambier.
- ▶ There was an awareness of issues around staff attraction and retention and a feeling that the Project Team Leader and Project Manager were doing what they could within the constraints of the Project and employment conditions to manage that risk issue.
- ▶ There was a general view that the Project was a success in that what was set out to be achieved was actually delivered on. All had found the Project to be a highly rewarding experience with most improving their individual knowledge base as a result.

During the interview process Project Officers were asked to produce documented evidence including that for the procurement processes where either tenders were called or consultants engaged. These were sighted and verified as meeting government procurement requirements.

Overall document management was considered to be robust with both hard copy and electronic evidence made available upon request. Copies of minutes and memos to various stakeholders either seeking approvals on certain matters or providing status reports were sighted.



4.2 Milestones Audit

The process undertaken to audit the Milestones was by referencing the Funding Agreement and verifying stated Milestones against actual deliverables. These were evidenced through presentation of documentation, inspection of groundwater monitoring sites and viewing resultant outputs including Reports, Web Sites, Data Bases and GIS material.

The Funding Agreement was drafted in a very prescriptive manner and specifically provided a schedule of Milestones and associated Deliverables. In total there were 48 Milestones across the 3 sub programs to be achieved over the four (4) years of the Project term.

Of the 48 Milestones, 47 were either completed by the required Milestone Date or by the Agreed Revised Due Date prior to the end of the Project Completion Date of 30 June 2010. There were 6 Milestones where there was a date adjustment sought. Of these, 5 were related to the delays associated with initiating the Project and Completion Target dates realigned from 1 December 2006 to 1 June 2007. This was formalised in writing and referenced in Milestone Report 3.

The only Milestone that was not met prior to 30 June 2010 (the Project end date) was the “*Report writing and preparation of materials for the website and DVD-disc*” which was a component of sub program 2.3 – Irrigation Benchmarking. However a Revised Due Date of 1 August 2010 was sought and approved. This work has now been completed.

A key requirement was the submission of Milestone Reports every 6 months. This deliverable was achieved with each Milestone report being a comprehensive summary of the status of the overall Project and provided the status of sub project and included a detailed Project Progress Report which discussed sub tasks being undertaken to meet the required objectives and outcomes.

A statement in regard to the financial performance of the Project was included with each Milestone Report. Whilst a financial audit is beyond the scope of this review, the Milestone Reports indicate that the Project remained within its designated budget for the duration of the Project. Re- assignment of Project budget savings were negotiated with the National Water Commission and applied to further developments over the life of the Project. Appendix A details the results of the audit against the Milestones.

4.3 Project Management Audit

Whilst a detailed audit of the project management/planning framework is beyond the scope of this Commission, the successful delivery of this Project can be attributed significantly to the Project Team having established, and working to, a robust project management system.

The first Milestone requirement of the Funding Agreement was to “*Development of a comprehensive Project Implementation Plan (PIP) that details the project structure, activities, timings and milestones, communication and risk management strategies, and detailed operating budgets for the three sub programs*”. This was undertaken with the PIP document including the references to the key elements of the Funding Agreement together with the Milestone Requirements as its core reference source.

An area of strength in the PIP is the Governance Framework for the Project. The project management structure was clearly defined with positions and individuals having specific roles and responsibilities. It is very evident that this governance structure was adhered to throughout the life of the Project. There is ample evidence of Minutes of the Meetings of the Project Management Committee and the Project Advisory Committee. These meetings were convened in accordance with the frequency established in the PIP. There is also evidence that other stakeholders such as the Chief Executive DWLBC, the Executive



Director NRM and the Director of Resource Allocation were communicated with regularly through internal memoranda.

Interviews with Project team members reinforce the effectiveness of having a Project Management Framework to continually refer to as they believe it kept them focussed. In addition to the formal established meetings team members referred to regular informal meetings that were invaluable in maintaining communication between the individuals working on sub-projects. The Project Team Leader also provided Minutes of these informal meetings to staff in most cases.

4.3.1 Risk Management

The PIP included a Risk Management Plan which addressed a number of relevant risks including that of staff attraction and retention. It was evident through references in the various Milestone Reports, the updated Risk Management Plan and discussions with the Project Team Leader and other Project staff that this issue required management throughout the Project term. Whilst there were issues with attracting and retaining Project staff mitigating strategies were implemented such as spreading the work load across other Project members where capacity allowed or engaging Consultants to undertake appropriate tasks. Retention of staff has also been an issue however during Project close out which is symptomatic of projects that have defined outcomes and budgets and staff that a variety of personal motivators that they seek to satisfy.

4.3.2 Communication Management

The Communication Plan established identified all stakeholders to the Project and addressed the Objectives, the Key Messages, and Evaluation Criteria for the Plan. A significant component of the Communication Plan was the importance of Community engagement. There is substantial evidence that this plan was adhered to throughout the Project. The Communication Plan was also the subject of a separate independent audit. Dr Miriam Murphy was engaged to complete this assessment and concluded that a strong sense of partnership existed between Department for Water and the community during the delivery of the Project along with a high level of confidence in the Departments ability to deliver both scientific and community programs. Dr Miriam Murphy concluded that the key outcomes of the communication approach were:

- ▶ The achievement of adaptive management objectives;
- ▶ The proof that adaptive management and learning as you manage is possible, and
- ▶ That an exceptional team of people with facilitative management style will achieve their objectives.

4.3.3 Quality Management

Quality of deliverables was identified in the PIP as an issue and the quality framework established was that of a “peer review” process. *“Peer review of the technical quality of work undertaken will be sought from agencies such as the CRC for Irrigation Futures, the CSIRO and PIRSA / SARDI where appropriate”.*

During the interview phase copies of peer review documents were sought and provided. As such it was evident that this process had been followed and a transparent document chain exists in regard to quality and version control of reports etc. and the Project Team Leader kept a well structured electronic filing structure.



4.3.4 Handover Plan & Training Strategy

For a project of this nature it would be prudent for the Project Team to have developed a Hand Over Plan and a Training Strategy Plan. This is required to ensure that all outputs are successfully handed over to the ultimate Business Owner(s) and to ensure that the ultimate Business user(s) have the requisite skills to utilise the Project outputs. There is a gap in the Project Management Framework in the absence of these plans which may increase the risk that the outputs from the Project do not become part of “normal business”.

4.4 Project Closure and Implementation of Outcomes

Whilst it is outside the parameters of the Funding Agreement, it was stated in the PIP that on Project and sub-program closure, outcomes will be implemented as follows:

- 1. Outcomes linked to Water Allocation Plans will be implemented through the current review of Water Allocation Plans where possible (adaptive management re setting of announced allocations) or through the next review of Water Allocation Plans scheduled for 2012.*
- 2. Software, monitoring networks, decision support tools, websites and other outputs that have been developed through this project associated with sub-programs 1.2.2 and 3.1 will be handed over to DWLBC, SENRMB (where applicable) and other related agencies and industry groups for future maintenance and operation with training provided where required.*
- 3. Seek to retain the skills and knowledge gained through the project through the retention of staff within the organisation.*
- 4. Technical reports will be registered and forwarded to major libraries as per Departmental guidelines to ensure that project outcomes are available to the broader community across Australia.*

Given that the Project has been completed and has met all the Milestones, Outcome 1 has been achieved in that the outputs from the Project will be available for the Water Allocation Plan development scheduled for 2012. It has been minuted by the Department for Water that “.....on 1 February 2010, due to the number of complex issues currently being progressed in the water allocation plan review..... that it was agreed that there was still currency with the existing level of information used for this process”.

Advice from the Department for Water is that Outcome 2 has also been achieved. Whilst it is understood that monitoring networks, decision support tools etc have been “handed over” to the relevant agencies it is beyond the scope of this review to ascertain whether or not those agencies have the necessary ongoing resources to manage and maintain those activities. This may be a risk issue going forward.

As a result of the interview process it is considered that Outcome 3 was partially achieved. Whilst several staff remain within employment of the Department for Water, several others have not. Contributing to this is there not being a suitable project or similar work within the Department for Water for several of the staff for there to be continuity of employment. As such several staff secured alternate employment before the end of the Project or reduced their involvement to part time. The regional nature of the Project being located in Mount Gambier contributed to difficulties in staff retention as well. Whilst several of the personnel were unable to be retained for the duration of the Project, the knowledge retention issue has been managed through having staff cross over on sub Projects for knowledge sharing and through the production of reports and other technical publications throughout the Project.



Outcome 4 can be considered to be not achieved to date as all reports are currently in Draft. Whilst it is understood that some of the content is being used by agency staff and other industry, the lack of publication has restricted the circulation and arguably the full value of the reports is not being achieved. Advice received from the Department for Water is that publication of all reports was pending Project completion. The intent is to publish all reports as soon as possible. A summary of Project Reports produced is provided in Appendix B.



5. Conclusions and Recommendations

The following conclusions and recommendations are made:

- ▶ As a result of the interviews with project staff and documentation obtained, it is evident the outputs of the project have delivered on the original Program objective stated in the Funding Agreement.
- ▶ The Project can be considered a success having achieved all the Project objectives and Milestones as established in the Funding Agreement.
- ▶ There was a significant element of community engagement throughout the Project. The independent audit of the level of effectiveness of the community involvement by Dr Miriam Murphy that the consultative approach achieved the adaptive management objectives.
- ▶ All Project Team members have taken an active role in achieving the program Milestones, and in doing so raising the profile in the community regarding long term sustainability of the regions extensive groundwater resource.
- ▶ Whilst there were a number of Reports delivered for the Project, with the content being used internally, they remain in Draft form. It is recommended that these Reports are published and made available as soon as practical to ensure that a wider audience can avail themselves to the research findings of the Project.
- ▶ Continuity of staff involved with the Project was identified as an initial risk. This risk was well managed within the established constraints of the Project to ensure all Milestones and deliverables were achieved. There is an ongoing risk that further reduction in human resource commitment at the Project close out phase could result in final Project transition tasks being delayed or incomplete; for example the publication of the Reports. It is recommended that risk mitigation strategies be assessed for these tasks and appropriate actions implemented.
- ▶ In regard to outputs that have been handed over to relevant agencies to manage it is recommended that the Department for Water more formally document their handover activities and strategies to ensure that the 2010/2011 business plan goals for the handover of monitoring assets and informing future policy can be further quantified should a future need arise. Whilst it is evident that this has been raised in internal business planning, a more formal approach will assign priority and resources based on value and risk. It is further recommended that staff that have worked on the project be involved in the transition phase to maximise knowledge and skill transfer.



Appendix A

Milestone Audit Results

Department for Water - Milestone Audit Results

						Milestone Reports (MR) - Due Dates / Progress Percentage								
		Funding Agreement - Milestones	Due Date	Agreed Revised Date	Completed	Evidence	MR1	MR2	MR3	MR4	MR5	MR6	MR7	MR8
							1/12/2006	1/06/2007	1/12/2007	1/06/2008	1/12/2008	1/06/2009	1/12/2009	1/06/2010
1		Development of a comprehensive project implementation plan that details the project structure, activities, timings and milestones, communication and risk management strategies, and detailed operating budgets for the three sub programs.	1/12/2006		1/12/2006	A copy of the PIP Provided	100%							
2	1.1.1	Review and assess available methods for estimating groundwater recharge rates to unconfined and confined aquifers	1/12/2006	1/06/2007	1/06/2007	Reported in MR1/MR2	20%	100%						
3	1.1.2	Identification of up to 24 new research sites for estimating unconfined aquifer recharge rates across the region	1/12/2006	1/06/2007	1/06/2007	Reported in MR1/MR2	20%	100%						
4	2.3.2	Installation of water quality monitoring equipment, lysimeters and water balance monitoring equipment at 25 representative sites, and establishment of data collection network (e.g., manual monitoring, telemetry system, etc.).	1/12/2006	1/06/2007	1/06/2007	Reported in MR1/MR2	40%	100%						
5	3.1.2	Determination of options for adaptive management arrangements including Ground-water Level Response Management and other approaches and associated software applications, and document in first Project Progress Report (PPR 3.1).	1/12/2006	1/06/2007	1/06/2007	Reported in MR1/MR2	20%	100%						
6		Provision of Your first Milestone Report (MR1) to Us that meets Our reasonable satisfaction	1/12/2006		1/12/2006	Report Delivered	100%							
7	1.3.1	Review existing evidence of the impacts of structure and stratigraphy on groundwater flow and/or quality - map changes in watertable, potentiometric surface and groundwater chemistry across known fault zones. Document in Project Progress Report	1/06/2007		1/12/2007	Reported in MR2/MR3		60%	100%					
8	2.2.3	Consultancy tendered to scope and provide recommendations for pilot data logging and telemetry system.	1/06/2007		1/12/2007	Reported in MR2/MR3		95%	100%					
9	2.3.3	Collection of preliminary data including water balance, nutrient balance data, irrigation and production management related data. Document in first Project Progress Report (PPR 2.3).	1/06/2007		1/06/2007	Reported in MR2		100%						
10	2.4.0	Preliminary studies to develop whole of catchment database - update progress in MR2.	1/06/2007		1/06/2007	Reported in MR2		100%						
11	3.1.3	Provision of an update on establishment of adaptive management arrangements to link groundwater monitoring data, groundwater use and allocation data for sustainable management of resource units. Document in Project Progress Report (PPR 3.1).	1/06/2007		1/06/2008	Reported in MR2		90%		100%				
12		Provide a draft budget for the 2007/2008 financial year as referred to, and consistent with Item 4.2, which meets our reasonable satisfaction.	1/06/2007		1/06/2007	Provided in MR2		100%						
13		Provision of Your second Milestone Report (MR2) to Us that meets Our reasonable satisfaction	1/06/2007		1/06/2007	Report Delivered		100%						

Department for Water - Milestone Audit Results

						Milestone Reports (MR) - Due Dates / Progress Percentage								
		Funding Agreement - Milestones	Due Date	Agreed Revised Date	Completed	Evidence	MR1	MR2	MR3	MR4	MR5	MR6	MR7	MR8
							1/12/2006	1/06/2007	1/12/2007	1/06/2008	1/12/2008	1/06/2009	1/12/2009	1/06/2010
14	1.1.3	Field and laboratory testing program which will involve the installation of up to 24 piezometers at research sites and commence determination of hydrogeochemical and hydraulic properties. Establish ongoing monitoring program.	1/12/2007		1/12/2007	Reported in MR3			100%					
15	2.2.4	A final consultancy report to design and cost data collection system, and provide recommendation for pilot data logging and telemetry system. Document in Project Progress Report (PPR 2.2).	1/12/2007		2/12/2007	Reported in MR3			100%					
16	2.2.5	Contract tendered for the supply and installation of telemetry system for meters.	1/12/2007		1/12/2007	Reported in MR3			100%					
17		Provision of Your third Milestone Report (MR3) to Us that meets Our reasonable satisfaction	1/12/2007		1/12/2007	Report Delivered			100%					
18	1.1.4	Final Project Report (FPR 1.1) documenting point estimates of ground-water recharge rates across the region and maps of adopted sub-catchment scale recharge.	1/06/2008		1/06/2008	Draft Report Prepared Dated June 2008				100%				
19	1.2.1	Measurement and evaluation of six key groundwater discharge sites in the lower SE. Document in Project Progress Report (PPR) for 1.2	1/06/2008		1/06/2008	Reported in MR4				100%				
20	1.3.2	Geophysical survey including literature review and discussions with specialists to identify most appropriate method. Preparation of maps, and document in Project Progress Report (PPR 1.3).	1/06/2008		1/12/2008	Reported in MR5					100%			
21	1.3.3	Drilling of stratigraphic test holes and production of 3-D hydro stratigraphic model.	1/06/2008		1/06/2008	Reported in MR4				100%				
22	1.3.4	Final project report (FPR 1.3) including 3 D models of hydrostratigraphy and (where relevant) groundwater salinity.	1/06/2008		1/12/2008	Reported in MR5 - Draft Report Produced - Dated June 2010					100%			
23	2.2.6	Installations of telemetry system completed by contractor, data logging and telemetry system operational with data returned to a central repository.	1/06/2008		1/06/2008	Reported in MR4				100%				
24	2.2.7	Consultancy tendered for development of pilot data management system, and production of a fully scoped and costed pilot data management system.	1/06/2008		1/06/2008	Reported in MR4				100%				
25	2.3.3	Collection of final data including water/ nutrient balance data, irrigation management and production of related data and provide update in second Project Progress Report (PPR 2.3).	1/06/2008		1/06/2008	Reported in MR4				100%				
26	2.4.1	Verification and documentation of existing water affecting activities, and production of a GIS dataset for the whole catchment management area; produce Final Project Report (FPR 2.4.)	1/06/2008		1/06/2008	Reported in MR4 - Draft Report dated December 2008				100%				

Department for Water - Milestone Audit Results

						Milestone Reports (MR) - Due Dates / Progress Percentage								
		Funding Agreement - Milestones	Due Date	Agreed Revised Date	Completed	Evidence	MR1	MR2	MR3	MR4	MR5	MR6	MR7	MR8
							1/12/2006	1/06/2007	1/12/2007	1/06/2008	1/12/2008	1/06/2009	1/12/2009	1/06/2010
27	3.1.3	Establishment of final adaptive management arrangements to link groundwater monitoring data, groundwater use and allocation data for sustainable management of resource units and produce a second Project Progress Report (PPR 3.1).	1/06/2008		1/06/2008	Reported in MR4				100%				
28		Provide a draft budget for the 2008/2009 financial year as referred to, and consistent with Item 4.2, which meets our reasonable satisfaction.	1/06/2008		1/06/2008	Provided in MR4				100%				
29		Provision of Your fourth Milestone Report (MR4) to Us that meets Our reasonable satisfaction	1/06/2008		1/06/2008	Report Provided				100%				
30	1.4.1	Design and construction of regional groundwater flow model, document in Project Progress Report (PPR 1.4)	1/12/2008		1/12/2008	Reported in MR5					100%			
31	3.1.4	Development of software and testing adaptive management methodology on a pilot sub-catchment and produce a third Project Progress Report (PPR 3.1).	1/12/2008		1/12/2008	Reported in MR5/MR6					100%			
32		Provision of Your fifth Milestone Report (MR5) to Us that meets Our reasonable satisfaction	1/12/2008		1/12/2008						100%			
33	1.2.2	Development and implementation of wetland monitoring strategy including determination of baseline water quality of significant wetland GDEs; produce Final Project Report (FPR 1.2).	1/06/2009		1/06/2009	Reported in MR6 - Draft Report dated January 2010						100%		
34	1.4.2	Calibration of groundwater flow model and examples of predictive numerical flow simulations; produce Final Project Report (FPR 1.4).	1/06/2009		1/12/2009	Reported in MR6/MR7 - Draft Report Produced Dated May 2010						90%	100%	
35	2.2.8	Implementation of integrated data collection and management system	1/06/2009		1/06/2009	Reported in MR6						100%		
36	2.3.4	Development of water/salt/nutrient balances for each site with the use of contemporary nutrient/salt balance models and production of Project Progress Report (PPR 2.3).	1/06/2009		1/06/2009	Reported in MR6						100%		
37	2.3.5	Quantification of the impacts of irrigation systems and irrigation management practices on groundwater quality and quantity at each site and include in Project Progress Report (PPR 2.3).	1/06/2009		1/06/2009	Reported in MR6						100%		
38	3.1.5	Establishment of web-based demonstration site including all aspects of integrated resource management methodology for a representative sub-catchment.	1/06/2009	1/12/2009	1/12/2009	Reported in MR6/MR7						45%	100%	
39		Provide a draft budget for the 2009/2010 financial year as referred to, and consistent with Item 4.2, which meets our reasonable satisfaction.	1/06/2009		1/06/2009	Provided in MR6						100%		

Department for Water - Milestone Audit Results

						Milestone Reports (MR) - Due Dates / Progress Percentage								
		Funding Agreement - Milestones	Due Date	Agreed Revised Date	Completed	Evidence	MR1	MR2	MR3	MR4	MR5	MR6	MR7	MR8
							1/12/2006	1/06/2007	1/12/2007	1/06/2008	1/12/2008	1/06/2009	1/12/2009	1/06/2010
40		Provision of Your sixth Milestone Report (MR6) to Us that meets Our reasonable satisfaction	1/06/2009		1/06/2009	Report Delivered						100%		
41	2.2.9	Evaluation of data collection and management system through State and National peer review and production of Final Project Report (PPR 2.2) including any recommended changes.	1/12/2009		1/06/2009	Reported in MR7 - Draft Report Produced - Dated Dec 2009						100%		
42	2.3.6	Determination of regional/sub-catchment/ point source implications of impacts, and production of Project Progress Report (PPR 2.3).	1/12/2009		1/06/2009	Reported in MR7						100%		
43	2.3.7	Development of on-farm criteria and targets to minimise irrigation impacts on groundwater and provide update in PPR 2.3.	1/12/2009		1/06/2009	Reported in MR7						100%		
44	2.3.8	Establishment of benchmark irrigation practices that will enable the long-term groundwater quality targets defined in the NRM Plan to be met. Community consultation, production and community release of Project Progress Report (PPR 2.3).	1/12/2009		1/06/2009	Reported in MR7						100%		
45		Provision of Your seventh Milestone Report to Us that meets Our reasonable satisfaction	1/12/2009		1/12/2009	Report Delivered							100%	
46	2.3.9	The use of agreed processes such as policy and regulation, extension and education, to achieve the groundwater quality targets identified in the NRM Plan.	1/06/2010	1/08/2010	1/08/2010	Reported in MR7/MR8							10%	95%
47	3.1.6	Implementation of adaptive management methodology commencing with priority areas and produce management scenarios for key risk areas.	1/06/2010		1/06/2010	Reported in MR8								100%
48		Provision of Your Final Milestone Report	1/06/2010		1/06/2010	Report Delivered								100%

Legend	
	Milestone Completed in Full by Due Date
	Milestone Partially Completed by Due Date
	Milestone not met by Due Date



Appendix B
Project Report Schedule

SCHEDULE OF REPORTS DELIVERED

Program	Research	Report title	Author	Status
1.1	Update groundwater recharge rates	Improved estimates of groundwater recharge in the South East of South Australia – DWLBC	Wood, C	Draft
1.2	Understanding demands key groundwater dependent ecosystems	Measurement and evaluation of key groundwater discharge sites in the lower South East of South Australia	Wood, C	Draft
1.3	Improve knowledge of how underlying geology controls groundwater flow/salinity	Field investigations into influence of faulting on the groundwater flow and recharge of tertiary limestone aquifer, lower South East, South Australia	Lawson, J Mustafa, S	Draft
1.4	Develop regional management decision support tools	Groundwater flow modelling in the Tatiara Prescribed Wells Area	Wood, C	Draft
2.2	Water accounting develop pilot data collection, verification & management system	Develop a pilot programme for a data collection, verification and management system	Schneider, I	Draft
2.3	Benchmarking irrigation practices	Irrigation benchmarking site summaries	Powell, T	Draft
2.4	Develop a catchment data set	Catchment Data Set for Priority Water Affecting Activities in the South East of South Australia.	Carey, E McIntyre, N	Draft
3.1	Establish methodology & basic arrangements for adaptive management.	Developing adaptive groundwater management arrangements for the south east of south Australia.	McIntyre, N Wood, C	Draft





GHD

Level 4 211 Victoria Square Adelaide SA 5000
GPO Box 2052 Adelaide SA 5001 Australia
T: 61 8 8111 6600 F: 61 8 8111 6699 E: adlmail@ghd.com

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	P Keys	K Madis		T Beumer		22/10/2010