

Groundwater Management and Water Licensing

Quarterly Newsletter

August 2009

Minister visits new SOBN bore in Moe

On Tuesday 16 June, Tim Holding MP, Minister for Water, took the time to visit one of the new state observation bore network (SOBN) monitoring bores being drilled in the Moe Groundwater Management Area (GMA).

The Minister spent half an hour on site discussing the drilling process, groundwater management issues and the information that is gathered about groundwater's occurrence and movement by the monitoring program.

Four of the 12 monitoring bores being installed in the area as part of the state's SOBN Refurbishment Project



Minister for Water, Tim Holding discusses the SOBN Refurbishment Project with DSE Principal Hydrogeologist, Chris McAuley.

were inspected. Minister Holding used the time to meet with Chris McAuley, DSE principal hydrogeologist. He also spoke to Liam Murphy and Martin Caruthers from SRW, the water corporation responsible for managing the delivery of the drilling works in the region.

The Minister was particularly interested in the decision-making behind prioritising and selecting monitoring sites and identified the role of groundwater in planning for Victoria's water security.

The SOBN Refurbishment Project commenced in 2004, recognised the importance of monitoring for effective groundwater management.

Over \$10.6M has been invested in the project to install new bores in key management areas, and remove failed bores where there is an impending risk to the resource. This initial phase of the project will result in a total of up to 150 new observation bores being installed and 50 failed bores being removed, with works to be completed by June 2010.

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Published by the Victorian Government,
Department of Sustainability and
Environment

www.dse.vic.gov.au

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From Jennifer's desk

Welcome to the August edition of the *Groundwater Management and Water Licensing Newsletter*.

This month we've decided to look at our place within the national context. In Victoria we're very aware of the need to continually build our knowledge base and improve the sort of information we gather as well as the way we provide it.

In addition to explaining our intergovernmental relationships with Canberra under the National Water Initiative and National Groundwater Action Plan, this issue highlights the importance of the cross-border groundwater-sharing that occurs between Victoria and South Australia. It also looks at the building of a new Water Measurement Information Network (WMIN) which, when completed, will deliver key data across all our desks efficiently and seamlessly, and will assist the Bureau of Meteorology with its role in collecting water information.

While planning ahead, we're also responding to more immediate needs and at the time of publication, works will be well underway in the Anglesea borefield to progress the extraction of groundwater for supply to homes and businesses throughout the greater Geelong region. The Minister's



signing of a new Bulk Entitlement to enable this work is an important step towards securing supply to the region.

Recapping on an earlier story, more than 30 farmers whose farming businesses were adversely affected by falling groundwater levels in the Yarram Water Supply Protection Area and the Stratford Groundwater Management Area (see February 2009 newsletter) have now received government payments of financial assistance. The Latrobe Aquifer Financial Assistance Package was administered by Rural Finance Corporation and brings a close to several year's work between Victorian and Commonwealth Governments.

This month we also farewell one of our team members, Denis Bergan. Denis has worked closely with Manager, Groundwater Policy and Licensing, Patrick O'Halloran on a range of projects including the dairy wash licence transition program and research on the use of groundwater for domestic and stock purposes for the Sustainable Water Strategies. His new position as Policy Advisor for Infrastructure and Market Reform in the Water Policy Division will broaden his experience within the Office of Water. We wish him all the best in his new role.

I hope you enjoy this edition and find it informative. We have introduced a new email contact address should you wish to contact one of our team or wish to know more about any of the projects we have written about. Please contact us on groundwater@ourwater.vic.gov.au.

Jennifer

Financial assistance flows to Yarram and Stratford irrigators

More than 30 farmers whose businesses have been adversely affected by falling groundwater levels in the Yarram Water Supply Protection Area and the Stratford Groundwater Management Area have received payments of financial assistance.

Australian Government Parliamentary Secretary for Water, Dr Mike Kelly, and Victorian Parliamentary Secretary for Water, Michael Crutchfield said the payments were the result of several years' work between the Victorian and Australian Governments with participation from local farmers.

The Yarram WSPA and Stratford GMA provide significant volumes of water for irrigation.

"Groundwater levels in the Latrobe Aquifer have been falling by about one metre annually for the last 30 years," Dr Kelly said.

"This means that irrigators have had to drill new bores and lower their pumps, which has increased their costs.

"The assistance package recognises these increasing costs and will help to offset future costs. The money will help with replacing bores, replacing or lowering pumps and increased pumping expenses."

"This is a good outcome for local farmers," Mr Crutchfield said.

"It will help them continue operating in the area, supporting local businesses and communities."

The Victorian Government has groundwater management planning processes in place to minimise the impacts of ongoing declining water levels in the aquifer.

Farmers in the areas will still need to comply with existing caps on groundwater use.

The Latrobe Aquifer Financial Assistance Package was administered by the Rural Finance Corporation and comprised \$3.6 million from the Australian Government's Water for the Future plan and \$1.4 million from the Victorian Government.



More than 30 Yarram (above) and Stratford irrigators have received payments under the Latrobe Aquifer Financial Assistance Package.

Border Agreement continues to protect groundwater users in Victoria and South Australia

The importance of water security amid the impacts of climate change is now recognised as one of the key environmental issues we must face. In Australia, as in other parts of the world, water issues can span borders and need to be managed cooperatively for a common benefit.

Along the border between South Australia and Victoria, groundwater provides the only reliable water source. This means that groundwater supply for irrigation and for domestic and stock use is critical for the agricultural development and well-being.

Twenty four years ago, in 1985, South Australia and Victoria struck the Border Groundwaters Agreement to provide a framework for managing and sharing groundwater resources along the border. The Agreement established a Designated Area which extends 20 km either side of the border. The Designated Area is divided into 22 management zones (11 in each State). The volume of groundwater that can be extracted from each zone is managed under the Agreement.

Within the Designated Area there are approximately 1600 groundwater licences with a total licensed volume of 240,000 ML/year, plus an estimated 4000 stock and domestic bores. Much of the water extracted is used for irrigation although some towns - such as Mt Gambier and Murrayville - are also dependent on groundwater for their water needs.

The Agreement provides a realistic and equitable framework for inter-governmental co-operation in the development of long-term strategies for protecting and sustainably harvesting groundwater along the border. The Border Groundwaters Agreement Review Committee with membership from both states was established under the Agreement as the operating body for the effective implementation of the Agreement. The Review Committee generally meets four to six times a year.

Both Victoria and South Australia have undertaken considerable investigations into the status and use of groundwater in the border area. The co-operative arrangement was extended in 2005 when the Premiers of South Australia and Victoria entered into an Amendment Agreement to allow for

more precise management of different aquifers within the Designated Areas.

While water reserves will never align with state boundaries, initiatives such as the Border Groundwaters Agreement demonstrate that it is possible to manage shared limited water resources responsibly and equitably.

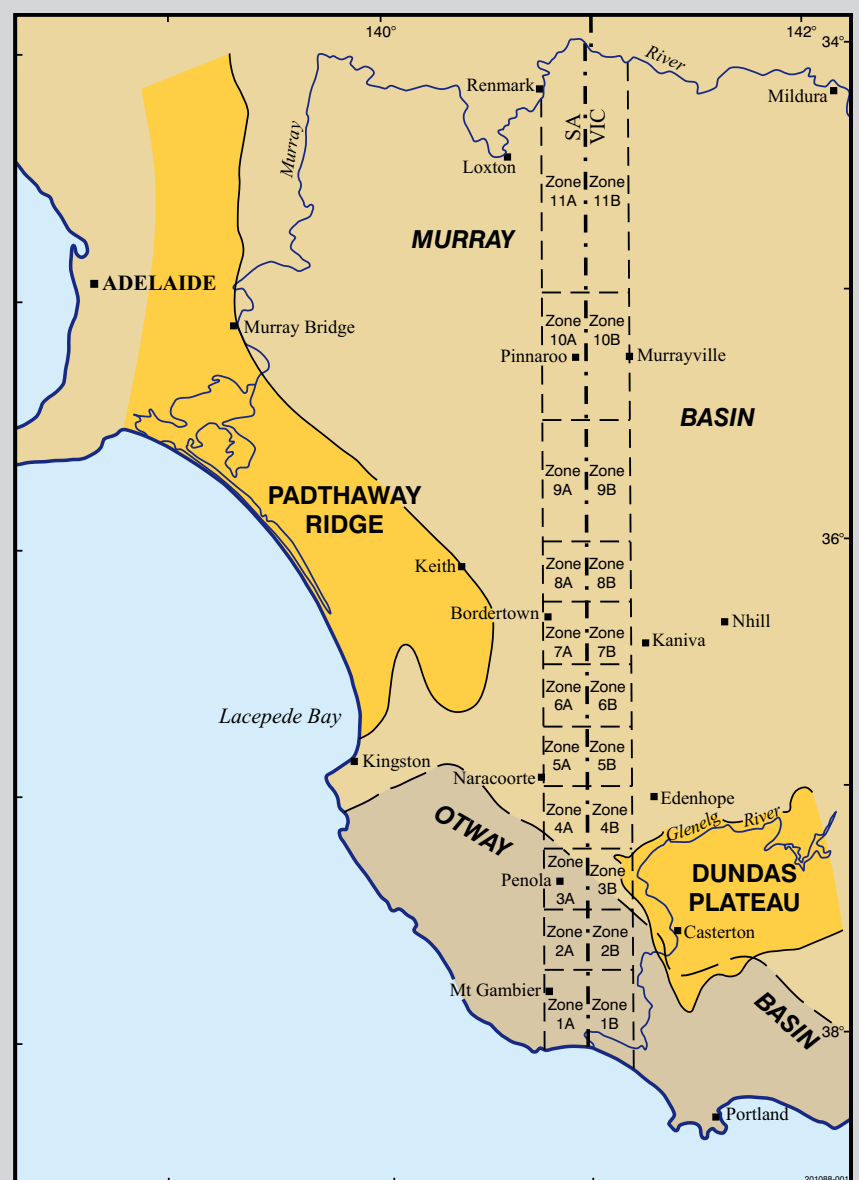


Figure 1 Zones of the designated area

Data Capture has never been easier

A new web-based data entry and validating system for bore completion reports (BCRs) has streamlined the process of licensing new bores.

Historically, the lodgement of a BCR has been a laborious and time-consuming task for water corporations. The new global 'Hub' that now networks rural water corporations with the Victorian Groundwater Management System (GMS), has a built-in validation capability. It has been well-received, alleviating some of the rural water corporations' workload.

Goulburn-Murray Water's Technical Manager, Water Use Licensing, Nick McKinley says the new 'Hub' has significantly reduced the amount of time required to input and check data.

"We estimate that it now takes approximately half of the time to enter BCR data and the validation function ensures that all data entered into the GMS is of a very high standard," he said.

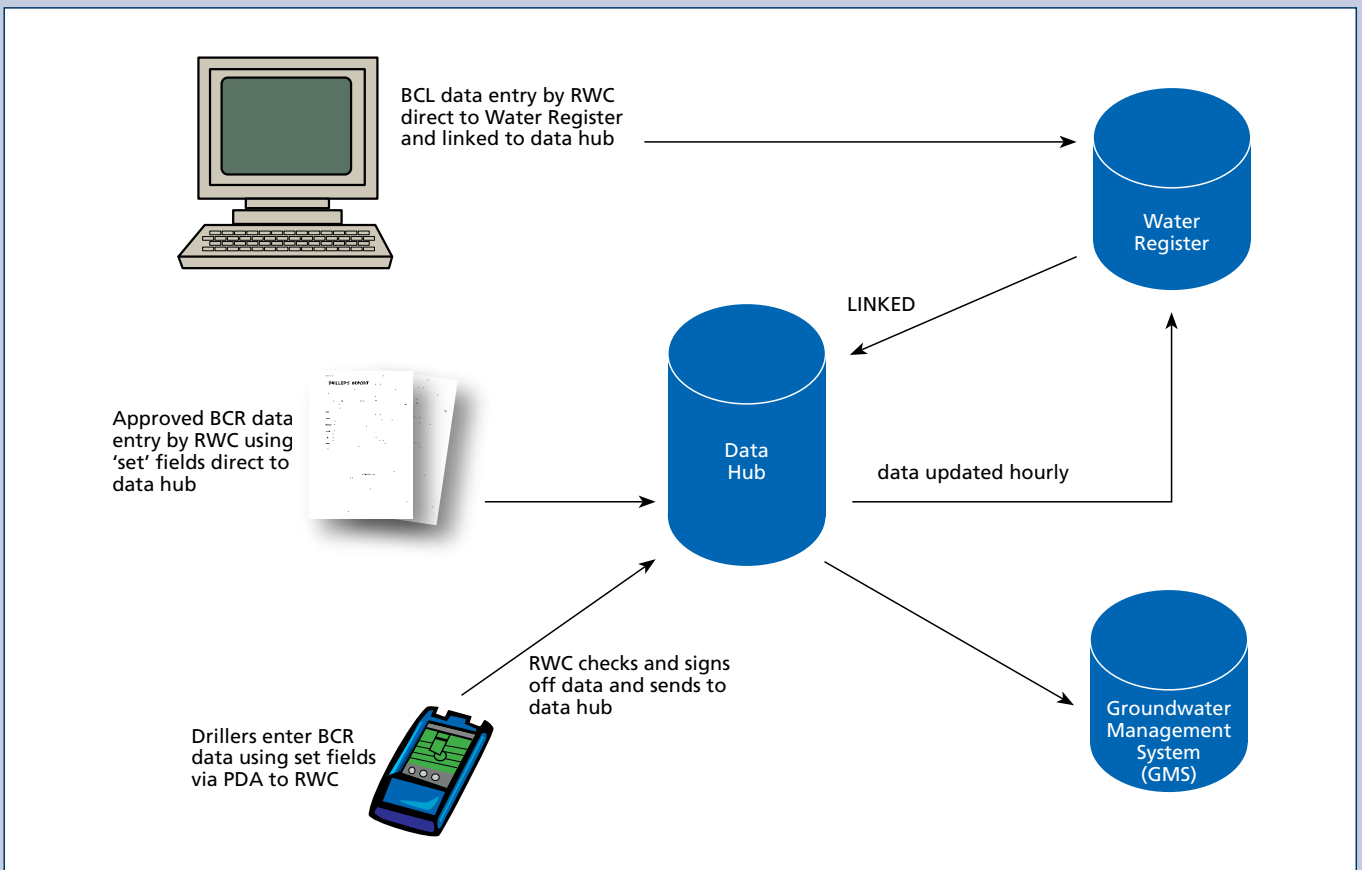
Under the *Water Act (1989)*, a condition of a Section 67 licence to construct a new bore is that the applicant/driller completes a BCR. A BCR contains essential information on newly constructed bores including its location and depth and the lithology (soil/rock) intersected during its installation. It is this information that underpins the understanding of the extent of the state's groundwater resources, and supports management and policy decisions. The GMS contains records for over 160,000 bores constructed across the state.

In consultation with rural water corporations, DSE has worked toward improving the capture of data relating to newly constructed bores and the new system is now being used.

While making it easier to record data, the new system 'checks' information to ensure it is entered in the correct fields and there is a series of mandatory sections that must be completed. These two functions help to eliminate errors whilst improving the completeness and accuracy of the data that is lodged and held on the GMS. In the future it will also link to the Victorian Water Register enabling pre-population of key licensing data which will further minimise the chance of data entry error.

Additional time-saving initiatives such as enabling drillers to input reports directly to the 'Hub' from their own computers or via hand-held computers (PDAs) are currently being trialled. If successful this could mean that all data captured will be sent to the respective rural water corporations for a simple validation and approval.

All validated data is passed to the GMS daily via an automated data transfer process.



New data entry options improve the efficiency of the licensing process.

Minister grants bulk entitlement to secure greater Geelong's water supplies

The Minister for Water has granted Barwon Water a bulk entitlement under the *Water Act (1989)*, giving the water corporation the go-ahead to extract groundwater from the Anglesea borefield as part of its long-term plan to secure the Geelong region's water supplies.

The Minister signed the Bulk Entitlement (Anglesea Groundwater) on 30 June 2009. The entitlement allows Barwon Water to extract an average of 7000 million litres of groundwater over any five year period and a maximum of 10,000 million litres in any one year from the borefield.

The project will supply water to homes and businesses in the greater Geelong region. This region includes Geelong, the Bellarine Peninsula, Torquay, Anglesea, Winchelsea, Lara and Bannockburn.

Barwon Water Managing Director Michael Malouf has described the project as "crucial" to securing regional water supplies.

"Anglesea is strategically important to our water future. Combined with recycling, conservation, rain-dependent surface storages and access to the state water grid, groundwater gives us enormous flexibility to meet future demand," he said.

Barwon Water began extensive investigations into assessing groundwater reserves near Anglesea in 2007, finding that the groundwater is contained in two aquifers, an upper and a lower aquifer, with a layer of clay up to 60 metres thick separating them.

The water corporation plans to pump water from the lower



(From left) Terry Emond (Anglesea Borefield Co-ordinator), Adam Cunningham (Project Manager) and Len Rochford (Lead System Operator) at the Anglesea Borefield site.

aquifer. This aquifer ranges in depth from 350 to 750 metres below ground and covers an area of approximately 25 square kilometres from the eastern edge of the Otway Ranges deep under Anglesea to the sea and beyond.

Seven to 10 bores will be constructed at two borefields. The northern borefield is on Forest Road near Barwon Water's Anglesea basin. The second borefield is adjacent to the southern boundary of the Alcoa coal mine.

A pre-treatment plant will be built near the northern borefield. After the pH, temperature, iron and manganese levels of the raw groundwater are adjusted, the water will be piped 20 kilometres to the Wurdee Boluc Reservoir. There it will mix with water from West Barwon Reservoir and groundwater from Barwon Downs borefield, before being treated and piped to customers in the greater Geelong water supply region.

Groundwater licences on the Victorian Water Register

Groundwater licences for the Southern Rural Water (SRW) and Goulburn-Murray Water (G-MW) regions will be included on the Victorian Water Register from 31 August 2009.

This is another step towards the government's whole-of-water approach to water management. It means that groundwater and surface water licensing will be administered on a common platform.

The Water Register has been operating successfully since July 2007 recording and facilitating the trade of water entitlements on regulated surface water systems in Victoria. The Water Register has significantly enhanced water accounting in Victoria, improved registration of water entitlements, and enabled more open water trading.

The latest move will improve consistency for surface water and groundwater licensing. Standardisation of licence conditions will make resource management easier. It will be easier for potential water users to find out what licences are available and trade to secure their water needs.

Manager Groundwater Policy and Licensing, Patrick O'Halloran said the step to add groundwater licences to the Water Register was a logical one but the preparatory work that was undertaken revealed that some discrepancies existed.

"Groundwater licensing practices are generally consistent across the state, but the audit that was conducted to collect all licence conditions before adding them to the Water Register showed that there was significant variation in the conditions imposed.

"From 31 August, all new groundwater licences for Southern Rural Water and Goulburn Murray Water will be issued from the Water Register. Standardisation of existing licences into the new format will be 'triggered' when applications for renewal, alteration or transfer are made," he said.

Playing our part on the national stage

Work with our Canberra counterparts provides opportunities for DSE's Groundwater management projects to deliver the 'big' picture.

DSE is managing projects co-funded by the Federal Government to deliver the requirements of the National Water Initiative. Projects undertaken by DSE are concerned with advancing knowledge in key areas of Victoria, along with providing approaches and methods that may have wider application.

What is the National Water Initiative?

The National Water Initiative (NWI 2004), is Australia's water reform blueprint. Through it, governments across Australia have agreed on actions to achieve a more cohesive national approach to the way Australia manages, measures, plans for, prices, and trades water.

In relation to Victoria's groundwater, NWI co-funding has supported resource appraisals for priority areas, groundwater quality sampling and analysis, and investigations into the needs of the environment. Some of these projects are outlined here.

Resource appraisals

State-Commonwealth funding of resource appraisals under NWI has been important in identifying key issues for managing a number of Victorian aquifers. A key example is the work done in relation to the Latrobe aquifer in the Gippsland Basin in response to the needs of Yarram landowners concerned about the impacts of off-shore drilling (see February 2009 newsletter).

The work carried out in this region has provided important information about the extent of the aquifer, its relationships with other aquifers and the interaction with waterways in part of the basin. The appraisal showed:

- that the Latrobe aquifer underlies, and is connected to, the Balook aquifer, an important source of groundwater in the Yarram Water Supply Protection Area (WEPA). This means that the Balook aquifer is likely to show similar rates of decline as the Latrobe aquifer over time;
- that the risk of saline intrusion into the heavily used Boisdale formation from the decline in Latrobe aquifer is limited in the western section of the Gippsland Lakes but may be greater in the eastern area;
- the extent of groundwater-surface water interaction in the Tarra River flowing through Yarram township.

Groundwater resource appraisals have also been undertaken over the last two years in the Goulburn-Murray Water area, concentrating on the Loddon, Goulburn-Broken and Ovens groundwater systems. The Loddon appraisal provided important information for the development of the recently



Bore logging of geological layers (above) is an important aspect of data collection in the resource appraisal process.

released "local management rules" for the mid-Loddon WSPA. Development of management plans and management rules for the Goulburn-Broken and the Ovens will follow.

Groundwater quality sampling

NWI funding has assisted with DSE's 2008 'groundwater snapshot' sampling project which recorded water quality across the state and now provides important baseline information for future sampling. Over time, this data will help track groundwater availability and movement to support ongoing planning and management for the resource.

Index of Groundwater Condition

The Index of Groundwater Condition (IGC) is an integrated measure of aquifer health. The IGC is a tool to assist management of aquifers in Victoria. It provides a mechanism to benchmark the condition of aquifers, prioritise management responses, set management objectives and measure the effectiveness of long term management programs for groundwater. The index measures groundwater quantity, quality, environmental values and environmental hazards.

Determining how much groundwater is used by the environment

High value ecosystems that depend on groundwater should be protected as part of the management regime, but unlike surface water systems, a share of water in an aquifer cannot be put aside for the environment. The first stage of this project developed a methodology to determine where groundwater dependent ecosystems (GDEs) were under stress from direct groundwater pumping. This methodology was trialled in the Condah WSPA and the North Central Catchment Management Authority region. The outcomes of this project are being used to develop policy on GDEs for the Sustainable Water Strategies.

Victoria and the National Groundwater Action Plan

Victoria has secured a major project under the National Groundwater Action Plan (NGAP) to revise groundwater management boundaries for the entire state over the next 2 years. The initiative will be known as the Sustainable Allocation, Future Yield (SAFE) Project.

The SAFE project is part of the \$82 million NGAP, a plan initiated by the National Water Commission (NWC), the Australian Government's lead agency for driving national water reform. The NGAP provides funding for projects that improve knowledge and understanding of groundwater.

The SAFE project will develop an approach to define groundwater management areas that cover the entire state, and progressively determine permissible consumptive volumes (PCVs) for each area. This project is complemented by ongoing work which will look at how environmental water requirements for ecosystems can be accounted for in ongoing resource management.

In addition to SAFE, ground and surface water connectivity in the Lower Ovens Valley has led to NGAP involvement in a study into the movement and availability of groundwater

in the area. It is also assessing the connection between groundwater and surface water systems in the Ovens and King Rivers. The work will help to determine the best approaches for managing the integrated nature of these systems.

Similar work looking at how limestone and underlying sands and gravels interact in the southern part of the border between South Australia and Victoria has also attracted NGAP funding.

The knowledge created by these projects assists Victoria directly by improving the information available for making resource use decisions. It also contributes thinking and ideas into the national program that may be used as models or assist in the development of management approaches in other states.

Changes coming for water measurement information

Much needed improvement to the way water data is held and accessed is now underway at DSE.

A new system to replace the Groundwater Management System and Victorian Water Data Warehouse is being built and should be up and running by 2011.

Leading the project is DSE Office of Water's Brett Miller who says that the new Water Measurement Information Network (WMIN) will transform the way water measurement data is held and accessed by DSE and water industry stakeholders.

While users will still have access to the data they currently need, the new system will improve the way organisations search, browse, use and extract water information.

Data updates will become easier and business-to-business functions will be possible.

Water measurement information includes data collected from field instruments (including groundwater and surface water monitoring data), technical reports and maps.

"The new WMIN will provide a robust and easily-integrated backbone for this information and data support for the water industry and those enterprises involved in the business of water resource management.

The network will support two basic functions: information delivery and content building.

It will improve the Office of Water's ability to deliver water measurement information including groundwater monitoring data, surface water quality information and water allocation information. It will also have a built-in capacity to validate information before it is loaded onto the network thereby reducing the risk of inaccurate data finding its way into the system.

The WMIN will offer participating organisations access to the range of information held by DSE and other organisations in the network via the Internet. The system is also being developed as a 'node' that can be built upon to develop new products or datasets as needs change in the future.

With the first phase of consultation now complete, the draft 'business requirements' for the system will be distributed for comment by the end of August 2009.

The push for improvements in the way this, and other water information, is held and accessed is coming from across the industry.

DSE is working with all sectors of the industry including the Australian Bureau of Meteorology to minimise duplication of effort wherever possible and to identify synergies and complementary improvements that can be put into place now for shared benefit and ease of use in the future.

The first technical system specifications will then be developed and the system will be built and tested. For more information please contact brett.u.miller@dse.vic.gov.au.

Who's who in Groundwater?

Matthew Potter is shedding more light on groundwater

The chance to help drive the government's investment in improving groundwater knowledge and understanding was one of the main attractions that drew Matthew Potter away from his corporate career and into his current role as Manager of Groundwater Resource Monitoring and Reporting at DSE.

Matthew joined DSE's Groundwater and Licensing Branch in January 2008.

Today he and his team of four: Hydrogeologists Jill McNamara and Julia Campbell; Metering Officer Daniel Leaver; and Project Officer Clare Harris, are hard at work rolling-out the SOBN Refurbishment Project and Metering Program across the state, improving the groundwater monitoring practices and reforming the Victorian Groundwater Management System (GMS). The team also coordinates the groundwater component of the weekly and monthly water report, and Victorian Water Accounts.

Matthew commenced his career at SKM in 1996 before moving to Hydro Environmental where he worked on a range of water resource management projects. This included managing the state's surface water monitoring contracts on behalf of DSE.

"Drought has brought groundwater to the fore. Finally money is being invested to improve our understanding of the resource.

"We're making sure that the historical data that has been collected in the past is compiled and being made available as a benchmark for future work, and providing new ways of capturing and providing current groundwater information. By taking these steps we will be better-equipped to plan for future groundwater management and use," he said.



Manager, Groundwater Resource Monitoring and Reporting, Matthew Potter.

SOBN Refurbishment Project 100th new bore constructed

In July 2009, a key milestone was reached in relation to the number of new state observation bores constructed as part of the SOBN Refurbishment Project, with the 100th new bore drilled.

This is a significant achievement for the project, and reflects the joint commitment of DSE and rural water corporations towards improving understanding of the state's groundwater resources.

Drilling works are now complete in the Spring Hill WSPA, Upper Loddon WSPA, Condah WSPA, Hawkesdale GMA, Moe GMA and Avoca area. THIESS Services will commence monthly monitoring of these bores in August 2009.

Project Update - August

GWMWater is continuing with the construction of new bores across the West Wimmera region, and G-MW has commenced work in the Wombat area. DSE is in the process of securing funding for drilling in the Latrobe region. It is hoped that this work will commence before the end of the year.

Area	New Bores (No.)	Other Works (No.)	Completed Works (No.) Aug '09
Upper Loddon WSPA / Spring Hill WSPA	46	-	46 (complete)
Condah WSPA	1	-	1 (complete)
Hawkesdale GMA	13	-	13 (complete)
Moe GMA	12	-	12 (complete)
Wombat	13	-	4
Avoca	12	-	12 (complete)
West Wimmera	33	3	25
Gippsland (Latrobe Region)	22	6	-

The bore construction reports for all newly constructed bores will begin to be made available on the Our Water website from September www.ourwater.vic.gov.au.

Further information

Published by the Victorian Government, Department of Sustainability and Environment, Melbourne, August 2009

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Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

ISSN 1836-9170

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