



VICTORIAN WATER
INDUSTRY ASSOCIATION INC.

"Innovation, Cooperation and Sustainability"

Victorian Biosolids Task Group

NEWSLETTER No.6

April 2010

Purpose of the Task Group

"To serve as a task group on all biosolids related issues, including (but not limited to) working with government on the development and implementation of biosolids related management frameworks, providing advice to industry on current practices and purposed initiatives, and co-ordinating comments from the water industry."

The Latest from the Australian and New Zealand Biosolids Partnership – Michael Naughton (Barwon Water)

Victorian Roadshow

The ANZBP held a Victorian Roadshow on Tuesday 16th February at EPA's new head offices at 200 Victoria St, Carlton. Around 30 people attended from across the biosolids industry including water authorities, consultancies, technology providers, research organisations, regulators and Government.

The Roadshow covered the following topics:

- Introduction to the ANZBP and how to become a member – provided by Andrew Speers (AWA)
- Overview of biosolids management in Victoria – firstly from a regulatory perspective covering State-wide volumes and management practices provided by Steve Lansdell (EPA), and then from differing water authorities' perspectives provided by Karen Campisano (Melbourne Water) and Michael Naughton (Barwon Water)
- Regulatory Review Project – provided by Paul Darvodelsky (PSD). See "Update on Key Projects" for more information on this
- Community Attitudinal Survey – provided by Andrew Speers (AWA).

• Project Management News

New Advisory Board Member – Karen Campisano

The ANZBP Advisory Board welcomes Karen Campisano (Melbourne Water, VicWater BTG) as the newest Board member.

New Project Manager – Greg Priest

Due to a restructure in the Australian Water Association (AWA) office day-to-day management of the Partnership has become the responsibility of Greg Priest who has recently joined the Australian Water Association's National Office in Sydney. As well as his responsibilities for the ANZBP, Greg manages the Industry Sustainability Program.

Update on Key Projects

• **Review of Biosolids Guidelines**

The Review of Biosolids Guidelines has been completed. This project, the product of a consortium led by Pollution Solutions and Design (PSD) and including Imperial College (London), TransPacific and MWH (New Zealand) has looked at regulations applying in all Australian states, federally and in New Zealand. In total the Review includes 14 critical recommendations for improvement. The ANZBP Advisory Board will now consider the best approach to drive these recommendations forward. Options include development of a 'model regulation' or a Best Practice Manual.

The full report is available on the subscribers section of the website while a summary of the review is available on the ANZBP public website

www.biosolids.com.au

• **Community Attitudinal Survey**

The Community Attitudinal Survey is intended to identify the attitudes held with regard to biosolids

by key stakeholders and the broader community. It is being carried out in two parts The Stage One report is available on the website. Recognising the changeable nature of community views, the second stage of the project involves a quantitative survey of the community comprising 50% of people who have, in some way, been affected by biosolids management, and 50% from the broader community who may or may not have been affected. This intentional bias toward affected communities will enable a more robust picture to be developed of the likely direction of debate once a biosolids issue emerges. Stage two interviews have now been completed.

The final project report is expected by the end of May and will be made available to all subscribers.

- **Legal Register**

DLA Phillips Fox, a pre-eminent legal firm in Australia and New Zealand, has produced a Legal Register for use by subscribers. This extensive database provides information on all legislation in Australia – State, Territory and Federal – relevant to the management of biosolids.

The Legal Register is available on the Subscriber’s section of the ANZBP, and will be formally launched at the Biosolids Speciality Conference V in Sydney in June.

- **Literature Compendium**

The ANZBP has engaged a consultant to compile a Literature Compendium. Importantly, the project covers research and developments undertaken in-house by key industry participants that would not usually be written up for publication in a peer reviewed journal. Thus, the consultant will be contacting a list of 14-16 organisations in Australia and overseas to gain a perspective of critical emerging developments.

The project includes a report on identified research gaps. This will be used as input to the ANZBP’s research agenda.

- **Teleconference for Research Agenda**

In December 2009 a series of teleconferences were held to provide the opportunity for all subscribers to have input to the future research agenda of the ANZBP, among other things. A list

of priority research areas have been subsequently identified and considered by the Advisory Board. These will be incorporated into the Partnership’s 2010-11 Business Plan, currently under development.

ANZBP Members should have received information on how to participate in a survey to refine this list of priorities to enable us to tailor our priorities to member needs. If you have not received the survey please contact Greg Priest.

For further information on the ANZBP or any of the above please visit www.biosolids.com.au or contact the ANZBP Program Manager, Greg Priest gpriest@awa.asn.au.

Upcoming Biosolids Specialty Conference V

Please do not forget that the ANZBP will be holding a specialty conference at the Mecure in Sydney on Thursday and Friday the 3rd and 4th June 2010.

For more information please click here [AWA Biosolids Specialty Conference](#) or contact Gregory Priest (gpriest@awa.asn.au) or Andrew Speers (aspeers@awa.asn.au)

Task Group Members

Member	Organisation
Michelle Carsen	South East Water
Karen Campisano	Melbourne Water
Luke Richards	DSE Office of Water
Hieu Dang	Yarra Valley Water
Doug Gardner	Wannon Water
Bruce Hammond	Goulburn Valley Water
Stephen Lansdell	EPA Victoria
Michael Naughton	Barwon Water
Steve Shinnors (Chair)	Gippsland Water
Sarah Johnston	VicWater

The 5 Key Issues – Current Status

- 1) **Sustainability Template** – Members are encouraged to utilise the Water Environment Research Foundation (WERF) tool, An

Economic Framework for Evaluating the Benefits and Costs of Biosolids Management Options as a template to determine the sustainability of biosolids management options under consideration. The electronic version of the tool was recently made freely available under WERF's open access policy. It can be downloaded at <http://tinyurl.com/yj2sumy>.

Paul Davodelsky of PSD Pty Ltd has contacted the group, to advise that the company has developed a model for the strategic evaluation of biosolids management options. Paul can be contacted on (02) 9449 8144, should you wish to obtain further details.

- 2) **Regulations & Reporting** – the aim is to establish consistent reporting requirements and measures across regulators. The task group has developed a reporting template, and is in the process of consulting with regulators about reporting needs and current KPI's to establish the base from which to develop improvements. Preliminary discussions have been held with WSAA regarding the definition of "biosolids" in the National Water Initiative performance indicators (adopted by ESC), and the discrepancy with the EPA definition of biosolids that the Victorian water industry works within.
- 3) **Strategies/Policies** – the aim is to raise the need for clear directions for biosolids management with government. The Australian and New Zealand Biosolids Partnership (ANZBP) have completed a review of Australian and New Zealand regulations relating to biosolids management (summary available at www.biosolids.com.au/aust-nz-guidelines.php). The outcomes of this review, along with key outcomes of the National Biosolids Research Program, will inform the review of Victorian strategies and policies. The Victorian review is about to commence, with the EPA engaging the Task Group as key stakeholders in the guideline review.
- 4) **Quality of Product/Risk** – the aim is to establish the risks with biosolids

management and the appropriate quality to ensure satisfactory management of these risks. A scope of work for this project is currently under development. The ANZBP review of biosolids regulations in Australia and New Zealand is considering the quality of product to be achieved to manage risks associated with biosolids management. A gap analysis will be undertaken by the Biosolids Task Group when the report is issued, to determine if additional quality issues need to be considered in Victoria. The Task Group will also consider sludge bed surveying and monitoring techniques, to develop guidance on appropriate techniques to adopt.

- 5) **Communications** – the aim is to develop communications guidelines to assist the biosolids management industry in Victoria to establish protocols that facilitate the beneficial reuse of biosolids in a safe and sustainable manner. The ANZBP has commenced a Community Attitudinal Survey, with the Biosolids Task Group contributing information and contact details relating to biosolids management in Victoria. The next stage of the survey will involve direct interviews with key community stakeholders identified through the survey.

Key Tasks for BTG

The key tasks for the BTG are:

- ◆ development and implementation of strategic advice on biosolids management for the Victorian water industry;
- ◆ identification and co-ordination of biosolids research activity in Victoria and input to national biosolids research programs;
- ◆ provision of links to the Australasian Biosolids Partnership;
- ◆ provision of links with regulators; and
- ◆ consider the implications of the findings of the National Biosolids Research Project and implications on EPA's Guidelines for Environmental Management-Biosolids Land Applications (Publication 943).

Rotorua District Council looks to gain value from biosolids

Rotorua District Council (RDC) and Crown Research Institute Scion are joining forces to demonstrate a new approach to the management of organic wastes.

The council has recently approved a proposal for Scion to build a pilot plant that will process biosolid wastes from Rotorua's municipal wastewater treatment plant (WWTP) into value-added products.

Scion's Group Manager of Sustainable Design, Dr Trevor Stuthridge, says this is an exciting regional initiative that could be applied in other centres.

"There is increasing pressure on local councils to seek new disposal options for WWTP wastes, which currently account for up to 15% of all landfilled wastes in New Zealand.

"The technology that we have been developing with RDC's support has the potential to slash biosolid volumes 30-fold and also substantially reduce greenhouse gas emissions and leachates that arise from this type of waste," Dr Stuthridge explains.

The pilot plant will use a thermal deconstruction process that 'cooks' the biosolids (sewage sludge) and breaks them down into re-usable nutrients and a range of other added-value chemicals. In addition, methane can be produced for electricity production.

Scion is delighted that Rotorua District Council is taking a strong lead by backing this research program for local and national benefit.

"Rotorua is a good model for many cities in New Zealand, with the same challenges regarding the disposal of biosolids and other municipal wastes. What works for the RDC can work for any other urban centre in the country, and not just for sewage sludge," says Dr Stuthridge.

Research shows that the same technology could also be used for managing organic wastes from food and industrial processors.

"The Bay of Plenty contains some of New Zealand's largest organic waste producers including pulp and paper, agriculture, dairy, meat and fruit processing.

"These waste streams represent a tremendous added-value resource for the region that can be tapped into by these types of environmental technologies. We are part of a trend that is rapidly growing throughout the world," he explains.

The council decision to fund the pilot plant, which is due to be operational by July 2010, is a bold response to the government's waste minimisation initiative.

If successful, a full-scale plant in Rotorua could remove up to 8500 tonnes of waste going to landfill per year, and ultimately achieve net benefits (in terms of cost reduction and value creation) of around \$4 million per year for the council and community.

The pilot plant project, which has a construction cost of \$850,000, will be partly funded from the council's share of the government's waste levy fund.

Council Works Manager Peter Dine says the project could provide a solution to council's single-largest waste disposal problem and even convert that waste stream into a revenue source.

"In addition, there is potential to utilise the technology for the wider organic waste generated within the district. This could significantly extend landfill life and provide major environmental and financial benefits," he says.ⁱ

Reporting Relationships

- ◆ The task group will report to the VicWater Board through the VicWater CEO.
- ◆ The task group will make recommendations on policy matters to the VicWater Board.
- ◆ The task group will report to the VicWater Council on activities considered and undertaken as appropriate.

Shrinking stockpiles grow a biosolids future

Every year, stockpiles of organic solids from water recycling grow larger, in line with demand for the water itself.

And each year waste disposal and energy bills go up as the water industry works to maximise the

recovery of precious reusable water from the waste stream, the industry is forced to find cost effective and sustainable ways of storing or reusing the solid organic waste that remains, particularly considering the fact biosolids as a soil conditioning product have no monetary value at present, unlike recycled water.

Of the seven recycled water plants Western Water operates, three are mechanical plants and the rest are lagoon based, producing about 14,000 cubic metres of biosolids with 15 per cent solids each year.

Melton RWP is a mechanical recycled water plant that historically disposed of its liquid biosolids at a controlled, isolated area on-site, which just happens to be nearby the Werribee River and an area of significant old growth grassy woodlands known as Pinkerton Forest.

After 30 years, groundwater was showing signs of adverse localised impact, which prompted Western Water to install a belt press-based mechanical dewatering system at Melton RWP.

Western Water has been successfully composting biosolids from its Sunbury RWP at a facility at Deer Park, from where the end product is used to cover a municipal landfill, and as a landscaping product. Gisborne RWP biosolids are applied to agricultural trials at a farm in Woodend.

Farmers are starting to recognise the benefit of biosolids application to the land as more and more data is collected by Western Water, building confidence and demand among the farming community.

The biosolids generated from Gisborne RWP, applied as a soil conditioner, have been nurturing crops during some of the driest and hardest times Victorian farming has known.

Considering the expenses associated with transporting wet biosolids from Gisborne and Sunbury RWPs, Western Water and its Melton operating staff explored ways of further reducing water content from the Melton biosolids, which comes out from the belt press at a 15 per cent solid content. About 2500 tonnes of wet biosolids are generated each year.

An area of 3.5 Ha has been isolated at Melton RWP for storing dewatered biosolids and, in consultation with the EPA, Western Water lined this storage area with clay and built a cement-stabilised road for vehicle movement around the site.

A stormwater collection system was also constructed to capture run-off from biosolids

storage area and a bund wall with soil excavated from the construction area was built around the biosolids storage. An old stockpile of biosolids from Sunbury RWP was used as top dressing for the soil mound and 4000 native trees were planted along the bunded area as a screen.

Then a small windrow-turning device was purchased and modified by the operations team to lay the biosolids out to dry, with excavating bucket also modified to ensure it did not damage the clay liner.

The biosolids windrows are turned at least once a week, which increases the solids content of the biosolids from 15 per cent to 30 per cent, thereby reducing the biosolids volume by half, within in a short period of time.

A 14,000 litre tanker used in the disposal of liquid biosolids was converted as a water tanker and modified to water the vegetation planted around the new biosolids storage area and also for watering plants used in the rehabilitation of the former disposal area.

One interesting finding is that the large storage area that allows windrows to be placed as a thin layer (less than 0.5 m in height) does not require any external bulking material, such as green waste or mulch, to achieve an efficient moisture reduction. Such a large area also provided the opportunity to dewater biosolids at the belt press with the minimum solid content, which is resulting in a considerable savings on the use of polymer for mechanical dewatering.

The end result has stopped the disposal of liquid biosolids on land at Melton and removed the potential risk for contamination of soils or groundwater

Operations staff developed enormous experience managing biosolids on site without causing any adverse impact to the neighbourhood, increasing Western Water's growing knowledge bank as an industry leader in recycling and avoiding waste.

Managing biosolids by locally developed, simple techniques has not only resulted in cost savings and environmental protection in the recycling process. Adopting an appropriate inexpensive mechanical technique to harness the nature to evaporate the water reduced the volume of biosolids leading to reduced transport requirement for end use such as farm application which will eventually lead to a net reduction in green house gas emissions and a sustainable outcome all round.

And another plus for the local landscape has been the decision to rehabilitate the area previously used for disposing of liquid biosolids – after its native revegetation and rehabilitation; it will join Pinkerton Forest as part of the grey box grassy woodlands of Melbourne's western plains. Revegetation eventually will exhaust the nutrient build-up over many years caused by the controlled disposal of liquid biosolids.

Western Water is happy to share its experiences into the brave new world of discovering renewable resources.

Author: William Rajendrum, Senior Environmental Engineer at Western Water.



Melton RWP biosolids windrow tractor with modified grader blade.

How do you survey your sludge beds?

Surveying and sampling of lagoon sludge beds is an integral component of biosolids management, but discussions within our group have revealed that there is a variety of techniques adopted. We'd like to invite you to share your knowledge and experiences of sludge bed profiling, depth surveying and sampling for quality analysis. Details need only be brief, and can include:

- Techniques used?
- In-house or outsourced?
- Frequency?
- References?
- Recommendations/experiences/pitfalls to avoid?

Please email your response to sarah.johnston@vicwater.org.au and we'll consolidate your responses (anonymously, of course) in a future Newsletter.

VicWater Biosolids Webpage

The Biosolids Task Group webpage on the VicWater website (www.vicwater.org.au) has recently been upgraded to better serve the biosolids working community. The purpose of the new webpage is to provide information regarding the Biosolids Task Group and its members, provide a list of biosolids contacts across water businesses and to serve as central reference repository for key biosolids documents.

To access the Biosolids Task Group, select 'Biosolids Working Group' under the 'Task and Working Groups' drop down menu on the VicWater homepage. Alternatively, click on the following link:

[VicWater Biosolids Task Group Webpage](#)

Do you have any biosolids news to share?

If you have articles for inclusions in future editions of the VicWater Biosolids Newsletter please contact VicWater at vicwater@vicwater.org.au

Key Contacts

The following are key biosolids contacts for utilities and regulators across the Victorian water industry. If you have a query regarding biosolids these people should be your first point of contact.

Organisation	Contact	Organisation	Contact
Barwon Water	Michael Naughton	Lower Murray Water	Keith Neaves
Central Highlands Water	Jason McGregor	Melbourne Water	Karen Campisano
City West Water	Martin Thurlow	North East Water	Tim Clune
Coliban Water	Ross Johnson	South East Water	Terry Anderson
Dept Primary Industries	David Nash	South East Water	Pam Kerry
DSE	Luke Richards	South Gippsland Water	Lale Rogeon
East Gippsland Water	Gary Pini	VicWater	Sarah Johnston
EPA Victoria	Stephen Lansdell	Wannon Water	Doug Gardner
Gippsland Water	Steve Shinnars	Western Water	William Rajendran
Goulburn Valley Water	Bruce Hammond	Westernport Water	Geoff Harris
Goulburn Valley Water	Stuart Harris	Yarra Valley Water	Chris Brace
GWMWater	Debra Watson		

ⁱ Westwick-Farrow Pty Ltd, Sustainability Matters, "Rotorua District Council looks to gain value from Biosolids", http://www.sustainabilitymatters.net.au/articles/39060?utm_medium=email&utm_source=Emailmarketingsoftware&utm_content=423959744&utm_campaign=sm_1003a+_+ojujdy&utm_term=RotoruaDistrictCouncillookstogainvaluefrombiosolids, accessed 19th April 2010