VICTORIAN WATER
INDUSTRY ASSOCIATION INC.
"Innovation, Cooperation and Sustainability"

Victorian Biosolids Task Group

NEWSLETTER NO.3

July 2009

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 ABP – Allen Gale

The ABP Advisory Board met in Adelaide on Friday 12 June. Two new members were welcomed – Kevin Conna from Sydney Water and Brendan Hanigan from Southern Water in Tasmania. The contributions from retiring members, Phil Broad and Mark Beaufoy, were acknowledged. Nancy Penney from the Water Corporation of WA has taken over the Chair's role from Allen Gale.

The consultancy for review of regulations for biosolids across Australia and New Zealand is being undertaken by a consortium led by PSD Pty Ltd, on program for completion in August. A brainstorming workshop in early June gained inputs from across Australia New Zealand and Europe. The document will be based on sustainable biosolids management principles, using the Natural Step process.

The consultancy for an attitudinal survey across Australia and New Zealand is likely to have been awarded by the time this newsletter goes to press, with an expected completion time of late September.

The Board discussed a project to identify the research done locally and internationally on biosolids over the last five years and to identify upcoming research. The resultant compendium will assist in establishing future research needs as well as enabling the background work required in undertaking future research to be minimized. **How valuable do you think this compendium would be?** Contact the ABP's program manager, Andrew Speers, at aspeers@awa.asn.au and let him know.

The ABP is looking for case studies for a range of biosolids management projects to include on the ABP's website and to assist others with their biosolids management. If you have a project to include please contact Andrew Speers aspeers@awa.asn.au and ask him for a copy of the template. Don't hold back – your experiences are most valuable to others.

Look for a note from the ABP on the significance of odours from biosolids on public perceptions and the need to manage this aspect very carefully. Management of odours is one important future research issue.

Task Group Members

Member	Organisation
Michelle Carsen	South East Water
Karen Campisano	Melbourne Water
Luke Richards	Office of Water
Hieu Dang	Yarra Valley Water
Allen Gale	Goulburn Valley Water
Doug Gardner	Wannon Water
Win Laing	Sustainability Victoria
Stephen Lansdell	EPA Victoria
Michael Naughton	Barwon Water
Steve Shinners (Chair)	Gippsland Water
Sam Wilkinson	VicWater

The 5 Key Issues – Current Status

The Biosolids Task Group investigated 5 key issues for biosolids management. The issues and current status are:

1) **Sustainability Template** – the task group undertook to develop a sustainability template for assessing biosolids management projects. In the meantime, WERF produced an extensive document that appears to meet all our needs. Click here for details on the WERF tool.

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. The Task Group's DSE representative has gone on maternity leave and we are currently in the process of getting her replacement up to date with the issues.

3) **Strategies/Policies** – the aim is to raise the need for clear directions for biosolids management with government. As a first step a letter has been sent to EPA by VicWater raising the urgent need for a review of Victoria's biosolids management guidelines and offering to provide industry support. EPA's Chair, Mick Bourke, has responded, indicating that he supports industry input to the guidelines review and that EPA will work closely with appointed industry representatives.

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 Australasian Biosolids Partnership (ABP) is currently undertaking a review of biosolids regulations in Australia and New Zealand, with a planned completion in September. No further work will be done on developing the scope until the ABP regulations review is complete and then a gap analysis will be undertaken to determine the final scope of the project.

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. It was resolved that this will be led by the ABP, with the Biosolids Task Group contributing to the Victorian and local situations.

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).

2009 Victorian Biosolids Survey – Heiu Dang

In 1997 and again in 2001, surveys were conducted to obtain data and information concerning the status of biosolids management across the Victorian urban water industry. Based on the 2001 survey, it was estimated that 66,700 dry tonnes per annum are produced from the 175 wastewater treatment plants managed by the Water Authorities in Victoria. It was also estimated that there were

approximately 1,839,620 dry tonnes of biosolids being stockpiled.

Since the formation of the Victorian Biosolids Task Group it was identified that an update of this survey would be beneficial to assist the Task Group in developing and prioritising its activities to assist the water industry further improve its biosolids management. The result of this update is summarised below.

The recent survey indicates that approximately 82,300 dry tonnes per annum (~ +23% increase) of biosolids are currently being produced from 188 wastewater treatment plants in Victoria with an existing stockpile of approximately 3,000,000 dry tonnes (~ +64% increase). It is felt that these increases are not real but rather the result of improved reporting. Additionally the survey also indicates that approximately 34% of biosolids produced annually is being beneficially reused as compared to less than 5% (~ >400% increase) in 2001 (Note that the reused percentage will vary slightly from year to year depending on when sludge from lagoons are de-sludged and reused). Where the biosolids are being reused, in the majority of instances it is for the purpose of land application. The survey indicates that other reuse applications are currently being investigated including energy generation and as a structure fill for road manufacturing.

Participants to the survey identified the existing barriers for greater biosolids reuse as including:

- Not enough local demand to make business case viable
- Location and near proximity of some plants to urban settings inhibits development of local biosolids processing and storage facilities
- Quality issues for some biosolids
- Low biosolids volumes for some corporations makes it difficult to develop viable schemes
- Knowledge gaps in the understanding of risks associated with biosolids reuse from the end user perspective and also from the Water Corporation's perspective

The survey has also highlighted areas for improvement relating to collection of data for the survey. Improvement opportunities for the next survey include:

- Clear and consistent methods for estimating quantities of sludge and biosolids produced, recycled and disposed
- Clear and consistent guidelines on how to measure biosolids stored in lagoons
- Alignment of reporting definitions to current regulatory reporting requirements (DSE, ESC..etc) to make reporting more efficient and consistent

As mentioned earlier the Task Group intends to use the result of this survey to input into developing work plans and initiatives to assist the Victorian Water Industry further improve its biosolids management.

If you have any queries regarding this survey please contact Sam Wilkinson on 9639 8868.

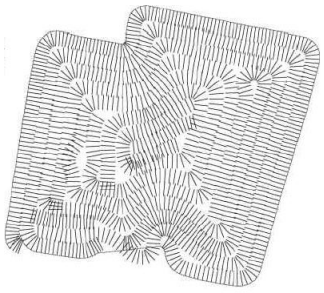
Biosolids Reuse for Agriculture – Doug Gardner

Wannon Water has used biosolids for land application for the past seven years. To initiate the process Wannon Water called for expressions of interest, generating responses from a wide range of enterprises and scales of operation. From these expressions of interest, an initial group was selected based on land use, location, genuine interest and land area available in that order.

The use of biosolids by organisations will most certainly never have full cost recovery. Although valuable benefits have been found in using biosolids, it is a low-density source of nutrients. For this reason transport distances are critical. There is an imperative for water corporations to reuse all their sludge and the use of biosolids for agriculture is of value to both sectors. As it has a legitimate value, a charge for biosolids is equally legitimate.

Sludge Drying

Spreading biosolids onto agricultural land is undertaken using conventional GPS controlled equipment. This is achieved by having a material that is dried to greater than 75% and screened to 20mm. The usable recovery rate is 97% and this is expected to improve further when newly laid drying bed surfaces are put into operation.



Example of GPS spreading data log showing consistent application rate and area covered.

Wannon Water operates under a regional environmental improvement plan and has a site specific addendum for each paddock/year combination. These documents assess site suitability, such as soil test results for the paddock, the intended land use, the biosolids nutrient levels and any physical or topographical limitations of the site (these could be characteristics such as surface water bodies, high groundwater recharge areas and even low soil pH that can change toxicity levels of micro nutrients). The source of the sludge has the biggest impact on what, if any, contaminants are in the final biosolids.

As a rule, the natural fertility level of the basalt plans is high, with high buffering capacity because of the soil's clay content. This generally limits the application rates to less than ten tonnes per hectare either based on phosphorus or nitrogen. Both these nutrients can have a carryover benefit in subsequent years if application rates are higher than maintenance levels.

A paddock with a low Olsen phosphorus, low potassium level and high crop need for nitrogen was spread with biosolids at a rate of 28 dry tonnes per hectare. This supplied all the available nitrogen requirements and most of the phosphorus. On this paddock zinc, copper and molybdenum all became limiting elements along with the macronutrient nitrogen. Phosphorus and Potassium were limiting production (Table 1) but the following year all macronutrients were at valuable productive levels.

Element	Test	Unit	Top Soil 10cm. '08	Top Soil 10cm. '07
Phosphorus	(Olsen)	mg/kg	48.2	11.7
Potassium	(Colwell)	mg/kg	435.0	170.0
Sulphur	(KCl 40)	mg/kg	21.6	10.5
pH	(1:5 water)		6.2	5.5
Salinity (EC)	(1:5 water)	dS/m	0.14	0.14
Soil Texture			Clay loam	Clay loam
Organic Carbon		%	3.55	2.89

Table 1

Recent applications at lower rates have had a less dramatic impact but have been a valuable nutrient substitute for commercially available fertilizers that have increased significantly in price in the past two years. The paddock detailed above produced high quality oaten hay for the livestock industry in what was a very dry year in the region. The increase in organic carbon levels (Table 1) contribute to moisture retention in a dry season.

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 an undertaking as appropriate.

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

Farewell to Allen Gale

The Biosolids Task Group (BTG) is disappointed to be losing the services of its Chairman, Allen Gale. Allen will soon be moving to New York to pursue career opportunities after 10 years of service as General Manager - Technical Services at Goulburn Valley Water, and a further 30 years of prior service to the water industry. During this time, Allen was awarded a life membership of the Australian Water Association (AWA) for outstanding service in a number of roles, including Federal President.

Allen has been one of the Australian water industry's strongest advocates for the sustainable reuse of biosolids. In addition to chairing the VicWater Biosolids Task Group since its inception in January 2008, Allen has served on the AWA Biosolids Specialist Network Committee, and chaired the Advisory Board of the Australasian Biosolids Partnership.

Whilst the BTG will miss Allen's drive and enthusiasm for engaging the community on the opportunities for biosolids reuse, we wish him our support and best wishes for the career and lifestyle endeavours ahead.

Steve Shinners (Manager Environmental Governance, Gippsland Water) has accepted the role of BTG Chairman following Allen's resignation.

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	Michelle Carsen
DSE	Luke Richards	South Gippsland Water	Lale Rogeon
East Gippsland Water	Gary Pini	Sustainability Victoria	Win Laing
EPA Victoria	Stephen Lansdell	VicWater	Sam Wilkinson
Gippsland Water	Steve Shinners	Wannon Water	Doug Gardner
Goulburn Valley Water	Allen Gale	Western Water	William Rajendran
Goulburn Valley Water	Stuart Harris	Westernport Water	Geoff Harris
GWMWater	Debra Watson	Yarra Valley Water	Chris Brace