



## Australasian Biosolids Partnership E-News

**The Australasian Biosolids Partnership (ABP) promoting the sustainable, beneficial reuse of biosolids in Australia and New Zealand**

We are pleased to send you the regular E-news covering significant issues, trends, events and resources in biosolids management as well as recent progress in the ABP project.

**As specialists working in biosolids management, you are invited to share information on biosolids developments within your locality, as well as resources and activities that may be valuable to other ABP subscribers. These contributions, plus your comments on this E-news or the ABP website [www.biosolids.com.au](http://www.biosolids.com.au) can be forwarded to the ABP Project Team- Andrew Speers [aspeers@awa.asn.au](mailto:aspeers@awa.asn.au) or Ann Hinchliffe [ahinchliffe@awa.asn.au](mailto:ahinchliffe@awa.asn.au).**

### Recent Progress - The ABP Project

Calls for Tenders are about to go to the market for provision of services in two key areas:

**Regulatory Review** is an examination of the regulatory framework for biosolids in Australia and New Zealand. Biosolids are regulated differently in Australian States and Territories and federally and in New Zealand. The multiplicity of regulatory environments causes inconsistency and uncertainty that has the potential to generate suspicion and community concern.

The ABP therefore wishes to identify gaps, overlaps and inappropriate or inefficient regulatory approaches that exist currently with a view to presenting a coherent case to governments for the reform of biosolids-related regulation.

This will complement the National Biosolids Research Project being undertaken by CSIRO. That project is researching the benefits and risks of land application of biosolids and other wastes. Data from this work will provide the scientific basis for implementing realistic guidelines for biosolids use in agriculture, taking into account Australia's diverse soil and environmental conditions.

**Community Attitudinal Survey** is intended to identify the attitudes held with regard to biosolids by key stakeholders and the broader community. It will be carried out in two parts. The first will be targeted at particular stakeholders of significant influence in any debate about biosolids use. These stakeholders might, for example, hold regulatory power, or they may be seen as credible and a source of unbiased information by the community generally.

Recognising the changeable nature of community views, the second stage of the project will involve a quantitative survey of a sample set 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 bias toward affected communities will enable a more robust picture to be developed of the likely direction of debate once a biosolids issue emerges.

**Briefs for both these projects will be released by the end of February.**

Additionally, a **comprehensive literature review** will be undertaken to develop an overview of all recent material related to biosolids management, regulation and research. The outcomes of this literature review will be available on the ABP website. Periodically, ABP Advisory Board member Mike McLaughlin will provide an update on recent research developments.

At its recent meeting, the Advisory Board of the ABP recommended the partnership seek to **expand its membership** by inviting subscribers from Utilities, Researchers, Consultants, Practitioners, Regulators, Government Departments, Composters, Biosolids Facility Constructors and Organisations representative of end-user groups. Invitations are being prepared for these groups.

### News from Australia, New Zealand and International

**Brighton, Tasmania says no to biosolid proposal**

Brighton Council in Southern Tasmania refused an application by Veolia Environmental Services to spread biosolids on part of its 400ha property in Tea Tree Valley, according to **reports** in early January. Veolia stated its intention was to rehabilitate the property to showcase the use of organic materials to landowners and farmers. Council's refusal was based upon the use being contrary to the purpose of the land's zoning. **Objections** included the impact of trucking and the land clearing proposed for the project.

### [Christchurch's energy reuse initiative proposal to run biosolid drying facility](#)

Christchurch City Council is applying for consent from Environment Canterbury to use renewable energy sources to run its new biosolids drying facility. **Council proposes** to use untreated wood supplemented by landfill gas, to run the Christchurch Wastewater Treatment Plant (CWTP) drying facility and produce biosolids for use in land and mine rehabilitation and as fertiliser. The drying facility will be part of the Council's innovative energy reuse programme, which has earned the Council \$4 million in carbon credits and the 2008 Award in the sustainability and clean technology category of the New Zealand Engineering Excellence Awards.

### [Carbon levies of more than \\$13 per tonne of waste to landfill possible in Australia](#)

In the recently released White Paper on the Australian Government's Carbon Pollution Reduction Scheme (CPRS), it was revealed that the threshold for inclusion in the Scheme for landfill operations will be 10 kilotonnes of CO<sub>2</sub>; emission or equivalent rather than the 25kt CO<sub>2</sub>-e that applies at all other industrial facilities. The justification for this decision is that by creating a price for carbon, the CPRS provides an incentive for landfill operators to establish more, smaller facilities in order to avoid carbon liabilities as waste is easily and economically diverted to smaller sites. Analysis by Hyder Consulting suggests that it would be cost-effective to transport waste up to 82 kilometres (return) at a carbon price of \$20/tonne CO<sub>2</sub>-e meaning that it may be financially feasible for a plethora of sub-threshold facilities to develop over time.

The newsletter Carbon + Environment Daily recently reported that a soon to be released report prepared for the Department of Climate Change suggests that landfill operators should already be imposing carbon levies of up to \$13.74 per tonne to cover future carbon liabilities. It is not completely clear why this should be the case, as legacy emissions are specifically excluded from the CPRS until 2018 and the CPRS itself does not commence for another 18 months. However, companies who are currently disposing of biosolids or residuals to landfill might expect a significant increase in costs in the near future if landfill operators opt to collect this levy now. Even if they delay, liabilities are likely to increase upon commencement of the Scheme in 2010.

### [Expert Panel in Virginia, US, concludes land application of biosolids represents little risk](#)

An Expert Panel created by the Virginia General Assembly has **concluded** that the application of biosolids to farmland and forests in that state represents little risk to human health or the environment and that biosolids should be viewed as a "resource," rather than a waste product. The Expert Panel's **Full Report** is also available.

## [News and Developments from ABP subscribers](#)

**The following articles were provided by Nancy Penney (Water Corporation) Paul Darvodelsky (PSD) and Karen Campisano (Melbourne Water). Contributions are warmly welcomed from all our subscribers.**

### [Melbourne Water Strategy Provides Input to new EPA Guidelines](#)

Melbourne water treats 92% of Melbourne's sewage at the Eastern and Western Treatment Plants. Biosolids historically produced at both treatment plants are atypical in composition, rendering the existing stockpiles unsuitable to the traditional reuse option of agronomic application.

Biosolids stockpiled at the Eastern Treatment Plant (ETP) have considerable clay content, as a result of past over excavation from the clay-lined sludge drying pans and its geotechnical properties are similar to other fill materials used in civil construction processes. The material is of lower agronomic value than other biosolids products due low nutrient levels.

A study of the geotechnical properties of ETP stockpiled biosolids investigated the potential for use of biosolids in road construction projects or other civil projects. The study determined that the material meets Vic Roads quality requirements for non-structural fill and for structural fill with stabilisation additives such as cement. The clay rich biosolids stockpiled at ETP could thus be used to offset the use of clean fill in roads.

The determination of the suitability of the clay-rich material for use in roads resulted in discussions between Melbourne Water, Vic Roads and EPA Victoria for the use of clay-rich biosolids in large scale road projects.

In Victoria, beneficial use options not specifically considered in EPA Victoria publication 943 Guidelines for Environmental Management: Biosolids Land Application have historically required a Works Approval. The need for guidance for all parties involved in road projects (particularly design and construction contractors), in addition to the need to streamline the application process led to the development of the draft Guidelines for Environmental Management: Use of Biosolids as a Geotechnical Fill. The draft Guidelines were developed with input from Melbourne Water, Vic Roads and Golder Associates, and released for public comment in December of 2008, with the consultation period closing on 13th February 2009.

*Further information on Melbourne Water's activities is available from Karen Campisano at Melbourne Water at [Karen.campisano@melbournewater.com.au](mailto:Karen.campisano@melbournewater.com.au). A copy of the Guidelines is available at <http://epanote2.epa.vic.gov.au/EPA/publications.nsf/PubDocsLU/1263?OpenDocument>*

## Odour Quandary

Recent research into centrifuge dewatering of biosolids suggests that such processes are more likely than other commonly used technologies - such as belt filter presses - to produce potentially odorous dewatered products.

Centrifugal dewatering is one of the most common forms of dewatering among major utilities nationwide (See Resources section, below) as this process typically produces a higher dewatered solids content than other common mechanical methodologies. High solids content is desirable as the move to more advanced sewage treatment processes has resulted in more biosolids being produced. If more effective dewatering can be achieved, there will be smaller volumes of biosolids to be transported and managed, reducing costs.

Biosolids dewatered using belt filter presses generally produce less odour. However, the concentration of solids derived from belt filter presses is typically less than that produced from centrifuges, meaning that there is a balance to be struck between odour generation potential and the volume of biosolids to be transported and beneficially used.

The research shows there is a very distinct curve in odour potential which peaks at about 3-7 days, after which the odour potential reduces. There appears to be little difference between high speed and conventional centrifuges. The lower odour generation potential of belt filter presses is attributed to the low shear of the process.

The metabolism of proteins released during centrifugal dewatering - at the point of mechanical lysis and whilst in storage - appears to be the cause of odours. These proteins form a range of sulphides, with methyl and dimethyl sulphide causing some of the most offensive odours. That said, anecdotally, there are a large number of centrifuge plants which operate around the world without producing an odorous biosolids. It appears, therefore, that there must also be an upstream process cause or possibly even other causes which finally result in more odorous biosolids.

So far the research has not defined the mechanisms for increased odour potential, nor identified solutions. The choice of dewatering equipment must therefore include a careful assessment of the solids feed, storage conditions and end use to determine the impacts, if any, of a more odorous biosolids product.

More information is available from Nancy Penney (Water Corporation) at [nancy.penney@watercorporation.com.au](mailto:nancy.penney@watercorporation.com.au) or Paul Darvodelsky at [pd@psd.net.au](mailto:pd@psd.net.au)

## Electro-Dewatering Shows Promise

Recent trials of electro-dewatering at the Ilsan STP in Seoul have proved very promising. Using technology installed by Flo-Dry Engineering from Auckland the electro-dewatering (ED) unit is a modular unit which is used to pre-treat solids before dewatering, in this case on a centrifuge. The ED unit applies a low voltage of about 10 volts DC to the solids and uses about 15-50 kWhr/tonne of dry solids. At Ilsan STP waste activated sludge was dewatered to around 21% on average before installation of the ED unit. During the ED trials the average solids content was increased to around 33%. These results are very promising as the input costs claimed to achieve the improved solids content are relatively low compared to typical polymer costs. The results achieved give a 35% reduction in mass of solids, which will give a direct saving in any beneficial use or disposal costs.

Further information is available from Paul Darvodelsky at PSD at [pd@psd.net.au](mailto:pd@psd.net.au). PSD is a specialised firm offering services in the field of biosolids management in Australia and South-East Asia.

## Research Corner

### Update on the National Biosolids Research Program

In December 2007 the Draft Position Paper arising from the National Biosolids Research Program (NBRP) was released, followed by a series of workshops around many of the state capitals. The authors subsequently received a number of submissions on the Position Paper. The key scientific comment raised in the submissions questioned the relative bioavailability of Cu and Zn in biosolids and in metal salts that had been determined. It was also requested that two further independent referees review the Position Paper and the supporting technical papers.

As a result of this the members of the NBRP have conducted a range of additional analyses of the data. The results of these additional analyses have been incorporated into a paper on the relative bioavailability of Cu and Zn. This paper along with a paper on the framework used to derive the proposed biosolids guidelines for contaminants have been completed and submitted to international peer reviewed science journals. The paper on the framework has been approved by Science of the Total Environment and is now in press. At this stage the authors have not yet heard from the journal regarding the relative bioavailability paper. But, the reviews are expected shortly.

Once NBRP members receive the journal reviewers' comments and have addressed them, the Position Paper and the supporting technical papers will be sent to the additional two referees as requested. It is hoped that comments will be received from these referees by the end of March 2009 at which point the reviews and the NBRP response will be made available and the Position Paper finalised.

Further information is available from Dr Michael Warne of CSIRO at [Michael.Warne@csiro.au](mailto:Michael.Warne@csiro.au)

## Resources

Water UK produces benchmarking / case study materials on a yearly basis. Sustainability08 provides an overview of Biosolids management in the UK.

IN Australia, a broad review of biosolids management practices by PSD Pty Ltd shows a strong trend for beneficial use in Australia's biggest cities. Australia-wide PSD estimates about 75% of biosolids is beneficially used, mostly in agriculture. Based on quantity processed, the predominant stabilisation process is anaerobic digestion and centrifuges the most commonly used dewatering process. The approaches used for biosolids management for each major city (>1m population) are summarised overleaf.

City	Stabilisation	Dewatering	End Use
Sydney	50% anaerobic digestion 40% aerobic digestion 10% undigested	Mostly centrifuge	75% broad acre agriculture 25% composting
Melbourne	80% anaerobic digestion (includes covered lagoons) 10% aerobic digestion	85% drying pans 15% belt filter press	85% stockpiling 15% rehabilitation
Adelaide	100% anaerobic digestion	80% evaporation ponds 20% mechanical dewatering with air drying	90% broad acre agriculture 10% others
Brisbane	75% anaerobic digestion 25% thermal hydrolysis	Centrifuge and belt filter press	70% mine rehabilitation 30% agriculture
Perth	100% anaerobic digestion	Centrifuge and belt press	75% broad acre agriculture 20% composting 5% forestry

This summary gives a natural bias to processes such as anaerobic digestion, which are more cost effective at larger scale. Many major regional plants around Australia use storage lagoons or aerobic digestion, which are the most common stabilisation processes for small to medium sized plants. Two large regional plants, Geelong's Black Rock and North Ballarat have or are building thermal dryers.

## Legal Update

As part of its contribution to the Australasian Biosolids Partnership, DLA Phillips Fox is preparing a Legal Register which will assist ABP members to identify general legal obligations relating to the production, supply and application of biosolids and a summary of recent litigation concerning biosolids overseas and in Australia.

A Legal Helpline will also be established through which legal questions could be raised. This service is only available to ABP subscribers within the terms and conditions of the service.

## Biosolids.com.au Website Statistics

Since ABP's website [Biosolids.com.au](http://Biosolids.com.au) went live in April 2008 there has been a constant and consistent growth in the number of unique visitors to the site, visits and pages visited. Here is a selection of web statistics covering the second half of 2008.

- In November 2008 there were nearly 1,952 unique visitors to the site each month compared to 799 in August.
- During this time the number of pages visited per visitor rose from 3.5 - 4.4 pages.
- Traffic rose steadily during November with a large increase in visits and pages visited late November, coinciding with the E-news distribution.
- The traffic is strong through the week rather than the weekend.
- Prior to November, the US was, overwhelmingly, the source of most traffic. In November, Australia began to catch up and by the

first weeks of December, Australia was even with the US. Other top countries are Canada, Great Britain & India.

- The Average length of visit is over 3 minutes. Over 250 visits (10% of all visits) in November were over 5 minutes- so the content is capturing these visitors.
- Other than the home page, the vast majority of pages visited are the member's pages. And members are visiting a broad cross-section of the member's pages. The public section of the website is not attracting significant visitation.
- 37% of those who connect to the site do so through direct address (typing the web address, link, bookmark, favourite). The remaining 62% come from a search engine.
- An estimated 45% of visitors to the site have added it to their favourites. This is very high and suggests the site is considered useful by a significant proportion of those that visit it.

**From the ABP Team**

Andrew Speers, Project Manager, [aspeers@awa.asn.au](mailto:aspeers@awa.asn.au), Tel: (02) 9467 8426  
Ann Hinchliffe, [ahinchliffe@awa.asn.au](mailto:ahinchliffe@awa.asn.au), Tel: (02) 9467 8418.

---

The email has been sent on behalf of:

**AUSTRALIAN WATER ASSOCIATION**

ABN: 78 096 035 773

Level 6, 655 Pacific Highway, St Leonards, NSW, 2065  
+61 2 9436 0055 +61 2 9436 0055 , Fax +61 2 9436 0155

[www.awa.asn.au](http://www.awa.asn.au)

