COMMUNITY ENGAGEMENT IN BIOSOLIDS MANAGEMENT
REPORT ON TOUR TO USA
10TH – 24TH OCTOBER, 2003

By Allen J Gale

1.0 Purpose

The purpose of this report is to report on the current situation in the USA with respect to community engagement, public perceptions and awareness of land application of biosolids, along with application of this situation to the Australian context.

2.0 Background

2.1 Current Position with Biosolids Recycling in Australia

Although the level of development of biosolids recycling in Australia varies quite widely from state to state, widespread management of biosolids in Australia is a relatively recent occurrence. In the past there have been individual instances of biosolids reuse for land application, landfill and incineration, but it is only in the recent years that there has been any attempt to get a coordinated approach across Australia. The current CSIRO-led National Biosolids Research Project (NBRP) is the first project where this nation-wide co-ordination has been undertaken.

Sydney Water and the Water Corporation of WA are good examples where land application of biosolids of various qualities has been undertaken quite successfully. Without offending other states that are also making progress, these two states are probably leading in the application of sustainable biosolids recycling.

Fragmented attempts have been made to get a coordinated approach across Australia and one of the key drivers for this report is to develop a process for getting a coordinated community engagement approach throughout Australia. This is likely to take some time to be able to achieve but, in my opinion, it is essential if the water industry wants to protect the long term land application of biosolids.

There are one or two examples of community nervousness with land application of biosolids that are reflective of the sorts of issues that could be expected to occur on a much wider basis as the recycling of biosolids increases throughout Australia. Two examples in Victoria are South West Region Water Authority and Barwon Water.

Both of these Authorities have developed processing and land application sites over the last few years. Both have experienced public objections to the works, particularly relating to processing. South West Water has spent several years coming up with a solution acceptable to the community and they appear to be now heading in the right direction. Barwon Water's issues occurred more recently and they are on the knife edge as to whether they have long term acceptance or rejection of their proposal.

I am sure there are many more examples across Australia but I refer to these two primarily by way of example.

Thus the Australian water industry is on the precipice of taking the jump into widespread land application of biosolids and it is a critical time at which to ensure that the community engagement process is undertaken in a coordinated and constructive manner to ensure the precipice does not lead us into a very deep pit with jagged rocks at the bottom.

2.2 Current Position with Biosolids Recycling in the USA

Land application of biosolids has been practiced for several decades in the USA, with the primary guideline being US EPA's Part 503 (40 CFR Part 503) which was promulgated in 1993. The requirements for land application have varied quite considerably across America and even from county to county. An example of this has been the long term project of transporting biosolids from New York City to Colorado for land application in the vicinity of Denver.

Although there have been some states that have not embraced land application, in general terms, where land application has been practiced the community has accepted the practices with little complaint and the beneficiaries of the nutrient and other values from the biosolids have continued to seek further applications. However, over the last 5-7 years there has been a shift in public acceptance of land application of biosolids and the rules governing its application established by the US EPA. Community concerns with the process have gathered significant momentum, particularly over the last 2 years. As a consequence I believe that the USA water industry has been caught out, both with respect to community engagement and with having sufficient science to be able to confidently address the concerns of the community.

As a result the USA industry has undertaken a significant amount of work to get a coordinated approach to community engagement across the USA. The industry also has been playing catch up in the scientific support for the US EPA rules.

2.3 Public Perception Issues in the USA

I will elaborate further on public perceptions issues in the USA in my following discussions. However, by way of introduction it is important to note that there are some 40-50 separate legal challenges and/or general public challenges to land application of biosolids across the USA. There are also some very well coordinated, educated and briefed proponents objecting to land application of biosolids on a very wide scale. Examples of these are:

- Dr. David Lewis, a former US EPA employee who has made national newspaper front page with his alarmist articles expressing concern with land based biosolids applications.

- Cornell University's Faculty of Waste Management.

- The Sierra Club

These individuals and organisations are representative of the many activists and advocates that appear to be better coordinated in reaching the community than the water industry. The messages they are giving may be extreme at times but they are such that they cause community concern which, in turn, is making life very difficult for the water industry. They are in the enviable position of not having to have a high degree of scientific justification for there claims and this only increases the pressure on the water industry to be able to substantiate that their claims are not correct. Unfortunately the water industry in not in a position to be able to put their hand on their hearts and say there are no issues of concern. Consequently I believe that the public perceptions are swinging more and more against the current land application practices.

These public perceptions are resulting in a flurry of activity within the water industry, along with many research projects being undertaken to better define the science of the processes and the characterisation of biosolids. It is driving the industry towards having to produce the highest quality biosolids regardless of the application and it is resulting in local and state authorities (but particularly local authorities) with little qualifications in determining what is appropriate) placing significant restrictions and/or bans on land application of biosolids. The potential outcome for the USA water industry is billions of dollars of extra expenditure on biosolids management that is not justified. However, the challenge is to be able to substantiate this before political and other events have taken over and the matters are out of the hands of the water industry.

If a similar direction eventuates in Australia then there is the potential for hundreds of millions of dollars to have to be spent by the Australian water industry. Thus, the issue of making sure public engagement is done in a coordinated and professional manner really is essential to ensure the water industry has appropriate biosolids management systems that not only satisfy environmental and public health requirements but also satisfy public perception requirements.

3.0 Meetings and Discussions Undertaken

3.1 General

The meetings and discussions were centered around the WEFTEC conference in Los Angeles followed by site visits to the east coast. The various meetings and discussions are discussed under separate headings below, but in general they revolved around:

- Attendance at a one day WEFTEC workshop;
- Attendance at WEFTEC technical sessions;
- Attendance at the WEF residuals and biosolids committee;
- Meetings with biosolids industry people in the USA.

3.2 WEFTEC Workshop

A workshop entitled "The Status of Biosolids Recycling in the United States", organised by WEF's Residuals and Biosolids Committee, was held on Sunday, 12th October, 2003. A copy of the agenda and the contact details for the key speakers are attached. I have a copy of the overheads for most of the presentations.

The following is a summary of the key points from the presenters. I have not endeavored to discuss these in detail.

- **Mark Lang of the Sear Brown Group**

  Mark was the retiring chair of WEF's Residuals and Biosolids Committee. He believed there were three important points with biosolids management as follows:-

  1. Expanded research;
  2. Raising the bar in the quality and management of biosolids;
  3. Greater public education.

  Under public education he believed the following should be undertaken:

  - Be pro-active.
  - Get catch cries accepted throughout the community such as a term like 'buckle up' for seat belts has been introduced.
  - Advertising in mainstream publications – he is aiming for WEF to be placing ads in Time magazine on the virtues of biosolids by February, 2004.
  - Support education with educational packages.
  - Get funding from across the industry.
  - Advertise within the industry to make sure that our industry knows what is happening.
  - Set up specialist contacts on the web to respond to queries from objectors, etc. (the web is dominating the public communications interchange and it is something that the water industry needs to ensure we are in front on. Anybody can get almost anything off the web; the difficulty is discerning between that which is scientifically proven and that which is rubbish).

- **Panel on Bans, Litigation and Legislation**

  A panel of four discussed the issues that the Los Angeles and Orange Counties are facing with respect to land application of biosolids in Kern County. Kern County abuts LA and Orange County and has been used for application of Class B initially and currently Class A biosolids. There have been several protests from people surrounding the land application area and in the adjacent township. The effect has been two-fold: Kern Country essentially banned biosolids application and it resulted in the quality of the biosolids having to be improved. Los Angeles is now producing EQ (Exceptional Quality) biosolids by converting its digesters to thermophilic, which obviously comes at a considerable cost. Orange County has estimated that the cost for them to apply their 200,000 dry tonnes per year of biosolids would increase from the current $4M annually to $12M annually for "platinum quality" biosolids.

  A lot of the problems have been due to the local County Health Officer making a decision on the quality required and other conditions which go way beyond Federal and State requirements. This is a real danger where the decision is being made by someone who is not well qualified in all aspects.

- **Bob O'Dette of Synagro**

  Synagro is by the far the largest manager of biosolids in the USA, whether it be by land application or by incineration. Key points from Bob's presentations were:

  - Odours are the most significant issue.

  - Hawaii is banning land application regardless of the quality.

  - The activist issues relate to both Class A and Class B biosolids but there is more scope with Class A to be accepted.

  - The fertilising savings for farmers have been up to USD100 per acre.

  - Management of local communities is important. There is a need to communicate and educate at all levels.

  - Just a few examples of various litigation issues are:-

    (i) Bans Under Fire

    - Appomattox Country, VA – Federal trial and appellate courts have ruled in favor of farmers and blocked county's ban

    - Pennsylvania – Both Pennsylvania Supreme Court and Pennsylvania Federal Court are considering the legality of local bans

    - DeSoto County, FL – Federal trial court issued a preliminary injunction against county ban; case preparing for trial

    - Kern County, CA – Class B ban upheld by state trial court; under appeal

- Mojave, AZ – Local activists are seeking county restrictions on Southern California biosolids

(ii) Successful preemption actions brought in other state courts and in federal court

- State courts in Maryland, Georgia, New Jersey, and Pennsylvania
- Pending Cases: Virginia, Pennsylvania, California, Florida: *O'Brien v. Appomattox; Synagro v. Rush Township, Pa.; Hypropress v. Upper Mt Bethel Township; Orange Co. San. Dt. v. Kern Co.; Azurix v. DeSoto Co.*

(iii) Pending Biosolids Toxic Tort Suits

- *Pennock v. Lenzi* (Pennsylvania state court): alleged death from staphylococcus aureus infection
- *Erwin v. Jones* (Tennessee state court): alleged death from nocardia infection
- *Bowen v. American Water Services* (Florida state court): unspecified infections and irritant gases
- All of these cases are in early stages

• Dr Ian Pepper – University of Arizona

Ian spoke on the work they have been doing on bio-aerosols which is proving to be a most contentious issue in the US. One of the key issues that the University of Arizona has been evaluating is the presence or otherwise of staphylococcus aureus in land applied biosolids. The work has found no scientific evidence of staphylococcus aureus in biosolids from 14 sites across the USA and based on a wide range of stablisation processes. Their work has indicated that biosolids is not a source of staphylococcus aureus infection in humans (s.aureus was claimed as the cause of death in a couple of much publicised cases).

In further tests the University of Arizona found that a 70 metre buffer was sufficient to ensure greater than 99% viral inactivation and that the risk of infection in humans by enteric viruses is extremely low. They found that the risk of infection from bacteria at 20 metres from the application site was extremely low also.

- **Paul Chrostowski of CPF Associates Incorporated – Odour Perception and Health Effects**

  Paul indicated that odour was the primary issue for objectors and there were some real difficulties separating fact and fiction for this aspect. His work had indicated that there is little evidence to support the contention that odour itself is a health effect in the traditional context of environmental health. However, he believes there is a possible link between "sludge victims" syndrome and perception of odour. He said that any health claim related to biosolids should be formally investigated using tools in medicine, physiology, chemistry and psychology to understand the causes and the potential for therapeutic or public health intervention.

- **Local and Regional Responses and Strategy to Biosolids Recycling Issues**

  Three people spoke on this panel.

  1. Ron Sieger from CH_2MHill spoke on regulations in the Texas / Bible Belt Area. A summary is presented in the following table.

Location	Regulations
Texas	Incineration generally not allowed. Class B land application causes problems primarily due to County commissions intervention. Two public announcements are required to all adjacent land holders along with one public hearing. In addition all land holders within ¼ of a mile of the site must be notified. A nutrient management plan must be prepared and $1M insurance must be provided. No specific requirements for Class A. Small fees for land application of Class B (75c per dry tonne), nothing for Class A.
Arkansas	Prefer Class A but will permit either. Do not see public problem.
Louisiana	Movement towards Class A but currently no problems with either. Phosphorus becoming an issue. Requirements are based purely on Part 503.
Oaklahoma	All based on Part 503 rule. Class A is to have 1-2 years of extra monitoring over requirements of Part 503. Solids management plan required. Class B must be landfilled. There is a push for Class A but it is not a specific requirement.

Location	Regulations
Summary/Bible Belt Regulation	Land application of Class B is generally acceptable. No major public issues but they see a growing public concern for land application.
National / Local Regulations	Problems continue to occur with biosolids for land application. Most bans involve Class B biosolids The problems are greater where County standards vary throughout the state. eg California. Class B with the higher pathogens are a surrogate for other issues of concern such as dust, noise etc. Public opinion supports "low or no pathogens" (food grade) The distinction Class A, Class B terminology implies that B is a poorer product.

Questions from the public that require ready answers by the water industry are:

- Can recycling biosolids affect food supply?
- If land application is safe why won't some food people use the product?
- Are the pathogens in animal manures different to those in biosolids?
- Why is it called a beneficial reuse rather than just beneficial use?

The national trends are:

- Regulations and ordinances are becoming more restrictive.
- Public agencies are taking control of destiny with biosolids, which is placing more pressure on the water industry.
- Public demands involvement.
- There is a general move to Class A biosolids.
- Biosolids are getting the same attention now as reclaimed water was getting 10 years ago.

The important messages the water industry must get out are:

- The water industry and the community must view biosolids as a resource.
- Biosolids are vital for the return of nutrients and organics.
- Protecting the environment is everybody's job.
- Biosolids use is sustainable.

2. Kim Zoltek, Gainesville Regional Utilities

Kim reported on the difficulties that are being found in DeSoto County, Florida with biosolids application. This is another example of how the community was not engaged soon enough and now it is resulting in some significant impacts.

Gainesville currently provides aerobic digestion followed by dewatering to produce about 3,300 dry tonnes per year of Class B biosolids. The County has estimated a capital cost of somewhere between USD7-15M to upgrade to Class A biosolids, representing a major increase in the cost of biosolids management. Additional operating cost would need to be added to these capital costs.

The main hot spot in Florida is DeSoto County, with a population of only 32,000 people and with 95% of the biosolids applied in the County being from other Counties. Very little community engagement has been undertaken in the past. In 2001 citizens began complaining about illnesses, serious medical conditions and deaths which they attributed to biosolids. The residents organised and demanded action, national media coverage ensued and land management practices and proximity to residents were cited as concerns.

In 2002 DeSoto County commission banned Class B biosolids. In 2003 a suit was filed against biosolids haulers and County farmers on behalf of 17 residents. As a result DeSoto passed 2 ordinances prohibiting biosolids application within 500 metres of a creek called Horse Creek. DeSoto tightened local regulation of biosolids and Sarasota County, adjacent to DeSoto, followed DeSoto's example. As a result several utilities announced planned to move to Class A biosolids.

It was only at this stage that the state government stepped in and organised workshops between citizens, government officials, utilities, residual management corporations and the media. One of the key outcomes was a call by several County officials and citizen groups for a ban on Class B biosolids and tightening of Class A requirements.

In addition to pathogen concerns, chemical irritants endotoxins and metals were cited as major concerns. Research by prominent EPA scientist, (Dr David Lewis), was presented to support the assertions of health impacts. Both sides agree that better enforcement was needed.

Possible outcomes from this exercise are:

- Separate permits for land application sites;
- Tougher enforcement funded by permit fees;
- Stricter monitoring and reporting requirements.

The other key thing is that Class B biosolids may be banned in the longer term.

Additional biosolids studies are now being initiated to determine the impacts of pathogens, metals, aerosols, etc.

DeSoto County is an example of how not to go about developing community engagement for biosolids management. It has been proven in Australia that if the community is not engaged prior to undertaking the operations there is a great potential for a big sting in the tail if and when the community has concerns about the operations.

Likely outcomes for the future in DeSoto County/Gainesville are:

- An insistence on the need for good science, accountability and adequate enforcement.
- Rural changes for the application of biosolids.
- The water industry will be required to make concessions and more stringent regulations may be necessary for public assurance regardless of whether they are needed for health or environmental means.
- This will all lead to much higher operating costs.

3. Maura Bonnarens – East Bay Municipal Utility District, Oakland, California

Maura presented a very similar story to that presented by Kim Zoltek that relates to land application of biosolids in Solano County in California. It is interesting to note that all 13 wastewater management facilities that land apply in Solano County are outside the County.

The initial directions for Solano County are very similar to those of DeSoto County in Florida. Biosolids were being land applied close to a town called Rio Vista. Winds blew odours into the town and a single activist looking for a cause raised the land application of biosolids to a state wide and even nation wide issue.

Once again there was little or no consultation with the community prior to commencing the operation. In addition, the choice of fields for land application was poor and the quality of material to be applied was inferior. There was little outreach to local citizens. In fact the water industry underestimated their commitment of the local citizens and the applier, who had a tarnished reputation, was the only voice for industry.

As a consequence the County ordinance was revised including restrictions on land application during higher wind periods, a **two mile** buffer and notification to neighbours when land application was to take place.

Issues first began in August 2001 but it took until January 2003 before a change in approach was made by wastewater management facilities operators. One on one meetings with a range of individuals and organisations and public meetings including tours of the local treatment plants, workshops and board of supervisors meetings where held in an endeavour to both lobby and educate the community.

As a result the Rio Vista Board voted in March, 2003 to preserve land application of Class B biosolids and it voted to revise existing ordinances to provide additional restrictions to minimise nuisance issues for the public.

Reasons why this turnaround resulted were:

- All wastewater management facility operators became involved in community education.

- Biosolids applied on non-food crop agriculture, at farmers request.

- A commitment was made to the quality of biosolids including development of an EMS which involved public participation; and

- A series of workshops and meetings with staff and the Board of Supervisors to broker compromises to enable a solution to be found.

  There is still a lot of work to do, including ongoing outreach to County supervisors and staff, outreach to mayors and development of a plan to outreach to counties where "everything is going well".

Maura's moral to the story was communicate, communicate, communicate and never give up. The initial problem was due to a lack of communication and the costs to get the ground back have been extremely high.

- **Pete Machno of National Biosolids Partnership (NBP) and Mike Moore of Orange County – the Role of the EMS**

Peter Machno is heading development of the national EMS approach for biosolids in the USA. He indicated that the EMS is a voluntary commitment by biosolids managers to go beyond the regulations in a pro-active rather than reactive approach to biosolids management. There are currently 53 agencies signed up and he is aiming for 100 by the end of 2004. Communications with the public is a key component of the EMS.

Mike spoke as the representative of the first County to have an EMS for biosolids accredited in the USA. Mike said he learnt the hard way that you not only must make yourself available to the community and talk with them but you also must listen. He believes there is a change to the "old school" way of thinking required.

Templates for Orange County's EMS are on the NBP website and they can be downloaded and amended to suit.

- **Al Rubin – EPA Regulatory Update and Outlook**

Al indicated that the Part 503 program is to undergo significant changes in the near future. He commented that EPA's position on dioxins would be made public in the following week (which has occurred and EPA has maintained the same position regarding dioxins). He also indicated that EPA is currently responding to a national land council request for provision / audit of the technical basis of Part 503. He said there are 5 overarching recommendations

1. Get a better basis for public health issues and develop systematic analysis.

2. New survey of biosolids pollutants

3. Study land application issues, including impacts of direct exposure

4. Re-evaluate risk assessment for metals and develop risk assessment approach for pathogens

5. EPA needs to invest more resources in the biosolids program (after Part 503 was issued EPA reduced resources for biosolids management because they believed they had all things under control. However, these reductions created poor public perceptions).

In addition to these five overarching recommendations there are 57 secondary recommendations.

The costs to undertake the recommendations would be astronomical, with the survey alone estimated at USD 20-25M over 5 years. Thus, EPA had to prioritise as follows:-

1. Human health
2. Finish microbes analytical procedures
3. Screen testing parameters
4. Undertake field studies

The aim is to publish the outcomes in January, 2004.

Another recent issue is the submission by Food Safety of a petition to EPA requesting banning land application after an initial moratorium. Al said that EPA did not believe that land application practices should be stopped but EPA would be developing a position on this in the near future.

3.3 Meeting with Mike Scharp, Director Biosolids Management Incorporated and Steve Frank, Public Information Officer for Denver Metro Wastewater Reclamation District

I first met with Mike and Steve in 2000 when visiting Denver. Since then I invited Mike to visit Australia to speak at the AWA's first Biosolids Specialty Conference in Sydney in June, 2002. Both Mike and Steve have considerable experience in public engagement with biosolids land application and have very successful operations in Colorado, including transportation of New York biosolids to Colorado. I believe Mike and Steve are the best examples I have seen in how to engage the public in a timely and efficient manner.

They have demonstrated the benefits of conditioning both the clientele and the community in that Colorado has not suffered too badly from the national objection campaign. This is because the Colorado community trusts what Mike and Steve are doing and because they have undertaken a long term education / awareness campaign.

Steve expressed a view that the US media puts people into camps – "the white hats" (the goods) and "the black hats" (the bads) and there are no in betweens. He said that industry and authorities currently are the black hats and are not believed; activists and non-government organisations are the white hats and are supported. Consequently, don't rely on the media to get your message through.

Both agreed that a personalised campaign is the best approach. These include information bulletins, newsletters and face to face discussion. Although it is expensive it is the insurance for the future. They both believe that the campaign must be ongoing as the message needs constant reinforcement. Steve said that he has found that when calmness is apparent there is a need to planning for the next outbreak as gaps in communication result in reactions from the community.

Steve said that you need to recognise that objectors will be intelligent and well prepared and we should never assume that they will be pushovers even if they don't understand the issues fully. He said that the information from water industry needs to be simple and logical, backed up by technical details as required. We should be prepared for the "ten most commonly asked questions" and have a credible person to provide the communication.

Mike and Steve have both found that there is a need to educate the water industry so that we understand biosolids management in a consistent fashion. This cries out for a national approach in Australia. Steve said that it is important to get non-technical educators on the Biosolids Public Engagement Committee as they are better tuned to community wants and needs and at getting the message through than technical people.

Steve related the approach that Denver Metro has taken where they organised for a key protagonist to attend the national biosolids summit last June at their cost to enable the protagonist to get a better understanding of all the issues. He said it did not convert her but it improved her understanding. Denver Metro's communication approach is centered around being part of the community, understanding the wants and needs and making sure they are addressed. He said they initially started out with the approach of "it's our land and we will do as we wish" and that "people should appreciate what we are doing for you". They learnt quickly that approach did not work and they have gone much more towards a community based approach. He emphasised the point of getting "gate keepers" in place and using them as the community educators and as our supporters.

Both strongly supported a third party audit, with the auditor selected jointly by the utility and the community but paid for by the utility and reporting directly to the community. He said that it has been a key to getting acceptance by the community. They shied away from the idea of having the auditor report to Denver Metro. Although there was a risk in reporting directly to the community. Steve believed they must be able to demonstrate that they are being open with the community. He said Denver Metro now has an excellent relationship with the community and there is good acceptance of the biosolids application process.

A final point made by Steve which was made by a couple of other speakers was that the website is a source of lots of information but it is both accurate and inaccurate and it does not differentiate. Thus it is a constant battle to ensure that the more inflammatory but somewhat unsubstantiated data by objectors does not dominate over the dollar and more accurate data from the utilities.

3.4 Bill Toffey and Doug Cowley of Philadelphia Water Department

Philadelphia Water Department has centralised biosolids facility for 3 large wastewater treatment plants in Philadelphia and surrounds. They apply Class B (at best) biosolids to mine reclamation, Class B biosolids to land and Class A to compost. About 80% of their total biosolids are Class B. There biggest potential issue is odours from the aerated static pile composting operation. They started with composting way back, but it has been expensive to produce and thus have shifted to land application. They cart 60-90 miles for farm land and normally 100-120 miles for mine reclamation although they have gone as far as 250 miles at times. Community acceptance currently is good and they do not have any litigation. However, there have been issues in the past and CBS evening news reported on 3rd November, 2003 of problems in the Pennsylvania area. A copy of this news item is attached.

Bill engaged a journalist to write on the biosolids issue in 1998, to put the general public's perceptions on biosolids. A copy of the paper "when Biosolids Hits the Fan" by John Franklin is attached.

Bill suggested the following as key points for public engagement:

- Their local water association has booths at township meetings to publicise the actions with biosolids;
- The local association is supporting research at a more local level, in addition to the work being done nationally, to get specific issues addressed more quickly;
- A researcher is seen as an excellent spokesperson with credibility. A water industry spokesman does not have the same credibility or public acceptance.
- They are working with other associations (coal, foundry and animal) on how to deliver a common message in getting faith in science and regulations. It is important to support the agricultural residual business rather than use them as a competitor to criticise;

- He believes that public perceptions of compost (Class A) may force them eventually to have Class A throughout.

- Getting an environmental group on side as a partner would be a good move (could NBP be that partner for Australia?).

3.5 Mike Moore – Orange County Sanitation District

As reported in the workshop notes, Orange County Sanitation District is the first in the USA to receive NBP EMS accreditation. Mike indicated that he went into the exercise believing that they had done the job on the EMS extremely well and he was shocked by some of the points that the independent auditor suggested needing improvement. After getting over that shock he now believes that an independent auditor is essential, both at the time of accreditation and throughout the ongoing project to give credibility to the process being followed. He also had gone from a proponent believing that he didn't need to talk closely with the community to one who now sees it as critical to have early and ongoing communications with a wide cross section of the community.

The background to Orange County's issues are discussed in the previous report on the biosolids workshop.

3.6 Sam Hadeed and Pete Machno of the National Biosolids Partnership

Sam is the Technical Communications Director and Pete is the Director responsible for the EMS program.

NBP is a national group set up by the water industry to get a coordinated approach across the USA. The NBP gets $1M a year from the Federal Government for resourcing and it has four full time staff. It provides credibility for the biosolids industry including certification via the EMS, and independence (although it has WEF / EPA / AMSA commitment). Pete and Sam are keen to get the NBP worldwide and it may be an opportunity for Australia to link into the NBP to enable us to get our national coordination group. If Australia was to do something similar the water industry would need to provide sufficient funding to enable it to be effective.

Pete and Sam indicated that there has been an exponential increase in activist and resistance to land application of biosolids in the USA. They found that the greater the variability in County ordinances across the State the higher the negative images and poor profile of biosolids management. Most of the local ordinances have been established without scientific justification to satisfy an uninformed public perception and they are proposing more stringent requirements than Federal and State legislation.

NBP is not a lobby group. Its role is to be the "honest broker" presenting balanced information on biosolids management throughout the United States.

A final key point that Pete and Sam made is that it is important to have a schools education program in a public engagement strategy.

The NBP provides an excellent central source for information on biosolids, including links to several other sites in the USA and internationally and is one that all in the Australian water industry should use as a reference.

3.7 Ned Beecher, Executive Director New England Biosolids Residuals Association

I met with Ned in New Hampshire and attended a state biosolids / sludge commission meeting in Concord, New Hampshire (reported on later) and also visited the Greater Lawrence Sanitary District Wastewater Treatment Plant in Lawrence in Massachusetts (reported on later).

Ned was referred to in glowing terms by a number of the people I spoke with. He has played a leading role in having national coordinated surveys and other assessments done on public engagement.

Ned said that it was 1995/96 when the negative issues of land application of biosolids started in New England. The New England Biosolids Association was formed in 1997 and he has been involved since then in working on developing the right images for land application of biosolids. He said that 35 towns in New Hampshire have banned land application; some are for Class B only others have banned everything. He believes a lot of the problems were due to New Hampshire not setting management regulations when Part 503 was introduced in 1993, so there were other states in New England dumping their biosolids in New Hampshire. As a consequence, in 1998 New Hampshire set new legislation to control which, although the regulations are good it has resulted in significantly more monitoring and testing. It was Ned's view that EPA has not monitored nor enforced the Part 503 rule closely enough throughout the nation which has resulted in poor public perceptions, both of EPA and of the water industry. (I referred earlier to EPA dropping its close attention to biosolids a few years ago when it believed it was a non-issue).

Ned said that the public perception in the USA is an underlying and real uncertainty about practices for land application of biosolids to be able to definitely say it is not an issue. The nationwide survey, which I have a confidential copy of at this stage, indicated that people were environmentally aware enough to have doubts and uncertainties about the practices.

Ned is leading a WERF study on public perceptions, of which the survey formed the initial part. He hopes to have the draft finished shortly with publication hopefully by early next year.

Ned is also working to get public partnering into WERF's research program to improve the credibility and acceptance by the public.

Ned is pushing both in New England and nation wide to have the community made aware before biosolids application starts rather than the previous approach of trying to get "under the radar". This was painful at the start because of the lack of understanding by the community, but he believes the process of education is now starting to bear fruit and they are getting a much better understanding by the community. An example of this is an air borne emissions project that Ned has been involved with. Ellen Harrison, a Cornell University activist, has been included on the project with a view that it is better to have an activist directly involved and part of the team rather than have the activist working outside the team. The general public involvement process has been a tough one but it is now much stronger as a result. He said that if he started any work again he would get the public involved straight away. He said don't dismiss the activists as being wrong or unknowledgeable. The best thing he has done has been to develop a relationship with stakeholders in a program called "Take Another Look at Biosolids".

3.8 Greater Lawrence Sanitary District Biosolids Management

I visited the Lawrence Wastewater Treatment Plant in Massachusetts with Ned Beecher. The plant handles the wastewater from 5 towns around Lawrence and until 1987 used incinerators to burn the sludge. Once this ceased the sludge was trucked all around the country as far as Ohio in both a liquid (4% DS) and cake (20% DS) form for 10 years. The sludge was not always well processed, it was a dirty operation and it resulted in significant objections and uncertainties with land application of biosolids. It has taken the Greater Lawrence Sanitary District several years to recover from this situation, and they still have a way to go. The trucking was a significantly expensive exercise; the total operating costs of the plant was $10M per year and $5M a year of that was required for sludge treatment and disposal.

To overcome these significant issues a 38 dry tonnes per day heat drying facility has been installed at a cost of about USD13M. The plant commenced operation in December, 2002 and, although there have been significant costs the operating costs have reduced significantly compared to the costs of trucking very dilute sludge all around the country. Thus the Greater Lawrence Sanitary District believes it is in front with the heat drying process. I don't necessarily believe this is correct; I think the issue is that they are starting from a very low base. Consequently, anything would have been an improvement over the previously uncoordinated and highly unacceptable practices. The pellets produced from the drying process are quite inoffensive both in appearance and odours and they now have an excellent product that they can market and sell. The Greater Lawrence Sanitary District has done some marketing and public engagement but they still have a considerable amount to do.

3.9 New Hampshire Commission for Setbacks from Rivers

I attended this Commission meeting with Ned Beecher of the New England Biosolids Association. The commission consisted of about 17 members of which Ned was one of the representatives. The commission was set up in early 2003 to address a number of Bills on biosolids that had been raised in the New Hampshire Parliament. This particular issue related to the setback from "designated rivers" in New Hampshire where the discussion is whether the current 250 feet (80 metres) setback can be reduced and by how much. The Commission has no deadline for the final report but an interim report is proposed in November, 2003. The membership is composed of politicians, concerned persons, agricultural representatives, government department representatives and conservation commissioners. They are likely to have 10-12 fortnightly meetings and are more than half way through this process.

Although the Commission was set up to address setbacks from designated rivers, the scope has been much wider and has regularly covered the broader aspects of land application of biosolids and the issues that result.

I found the Commission meeting most valuable in that:

- It helped me to realise the problems that the Australian industry is facing with wastewater management are the same that are being faced by the USA; and

- The level of activists' expertise and credibility was clearly represented as being high.

Dr Carolyn Snyder, a long term anti-biosolids activist, gave a 30 minute presentation to the Commission and she was extremely lucid and credible in presenting the uncertainty with the argument for land application of biosolids. She made reference to the work done by the Cornell Waste Management Facility Institute, Dr David Lewis, the National Farmers Association and National Sierra Club. Her concerns related to the long term agricultural sustainability and ground water contamination with land application of biosolids. It was her view that Class B biosolids will be gone in 5 years and that she would not oppose a Class A product that had been properly stabilised and was low in metals.

The New Hampshire Department of Environmental Services reported on an extensive monitoring program for biosolids that has been undertaken over the last 2 years. The work has involved statistical analysis of 177 different analytes covering chemical compounds (particularly organics), microbiological indicators and general chemistry taken from 18 municipal treatment plants throughout New Hampshire. The significant points from this work are:

- The range of analytes covered are significantly higher than work being undertaken in Australia and the activists are still saying there are some compounds that should have been tested that have not been.

- Of the 177 analytes tested, 111 were below the detection limit at all times, 7 were detected all of the time and 59 were detected only part of the time. No PCB's were detected in any of the samples and many of the volatile organic analytes and acid based neutral extractable analytes were not being detected. However, copper, lead, mercury, molybdenum and zinc exceeded regulatory limits on some occasions. Molybdenum was the highest with an 8% probability, primarily due to lower trade waste regulations in some of the towns.

The conclusion from the monitoring and analysis was that, in general, biosolids from all towns were acceptable for land application but there was an issue with consistency from some individual towns. There is no discernable difference between Class A or Class B solids.

3.10 WEF Residuals and Biosolids Committee

While attending WEFTEC I sat in on WEF's Residuals and Biosolids committee. The committee has about 30 members and I have made application to become a member of this committee. The function of the committee is to look at coordination of residuals and biosolids matters throughout the United States. The committee does not warrant detailed discussion here but a couple of items of significance are:

1. Biosolids Summit. This summit was held on the 28th – 30th July, 2003 at Alexandria, Virginia. There were 70 attendees. The summit focused on science rather than policy and identified 31 different issues that warranted investigation. The six top issues were:

    - Rapid incident response study (eg outbreak and retrospective case studies, case control studies and pilots);

    - Targeted characterisation of pathogens in sludges and biosolids, variation in treatment; what pathogens are in Class A vs Class B and ultimate fate in the field.

    - National survey of constituents of concern in biosolids;

- Characterisation of bio-aerosols associated with land applied solids;

- Identify the odour complaints emitted by sludge in the various stages from generation to end use and specified as sensory potencies and mechanisms of generation and release;

- Cost benefit analysis of management options for sludge / biosolids use and disposal.

These top six research issues where identified by a range of water industry and community representatives at the summit.

Bob Adamski, who is the leader of the outreach / education sub committee reported on actions for WEF to establish an outreach person to liaise with the media. A position description has been developed ready for advertising. The aim here is to appoint a spokesperson to represent the industry and more particularly WEF with statements on biosolids management.

3.11 WEFTEC Conference Technical Sessions

There were several papers on residuals and biosolids management at the conference. The most relevant one for setting the overall seen in the USA was one by Bob O'Dette from Synagro entitled "Biosolids Recycling Issues Communications and Sustainability".

The papers are on a CD I have for the conference and I can provide details on these other papers on request.

4.0 Key Findings

The following are the key findings from the tour:

1. The USA water industry is losing the public perception battle with respect to biosolids management. There is a loss of credibility for EPA in not having continued to maintain a public profile in the biosolids area and the practices that have been in place for many years are now being seriously questioned. This is not dissimilar with what is happening in various countries in Europe.

2. The USA water industry is now making a concerted effort to gain the high moral ground with biosolids management and they are working at a national level to have this happen. The key organisation is the National Biosolids Partnership which acts as a coordinator for the many regional biosolids management groups that are being established.

3. The EMS program being driven by the NBP is seen as a way to establish a consistent high quality approach to biosolids management throughout the USA. This has been considered necessary to offset the many poor practices that were used in the past and which have helped to drag down the public's perception of biosolids being applied to land.

4. It has been recognised by way of many examples across the USA that public engagement must commence well in advance of undertaking biosolids processing and/or land application. Even though some operations had not had any issues it is a sleeping giant that could raise its head at any time in the future if it has not been properly managed.

5. The fact that some operations had not been to a satisfactory standard places the whole biosolids management operations throughout the country at risk as the water industry in total will be linked to the lowest common denominator.

6. It needs to be recognised that activists and advocates are both knowledgeable and determined and any public engagement needs to take this into account. The biggest danger is assuming that we know more than they do.

7. A significant number of research projects are being undertaken across the USA covering most aspects of land application of biosolids. These include impacts of metals, groundwater contamination, bio-aerosols and impacts of pathogens on public health. The big shift in thinking has been from concerns with metals causing long term site contamination to pathogens and potential impact on public health.

8. Involvement of activists and advocates in the public engagement process and in the ongoing scientific work that is being undertaken is considered better than trying to set up two separate camps that go head to head at one another.

9. A common theme from protagonists against land application of biosolids and from some members in the water industry was that the quality of biosolids for land application should be as high as possible. This in effect is leading to banning of Class B quality and is encouraging Exceptional Quality biosolids wherever possible. This may not be justified on technical grounds but it has become very much a public perception issue. If this did eventuate it would cost the US industry billions of dollars.

10. Strong enforcement by regulators was seen as a real positive to give the public confidence that there is good control over biosolids management.

11. Public engagement needs to be via a clearly developed coordinated strategy giving the same message from all localities and using various means of getting the messages through. The engagement program also needs to be ongoing, even when it seems there are no issues. It is important to keep the message simple and reassuring but to have the scientific back up to justify the simple messages where required. It is also important to have a credible spokesperson to deliver the message. That is not an established water industry person; it needs to be someone outside of the direct industry.

5.0 Future Directions for Australia

I perceive that Australia (and particularly the Victorian) water industry is heading down the same path as the USA where we lack a coordinated industry-wide approach to public engagement for biosolids management. However, I believe we still have time to get this approach in place before wholesale biosolids application becomes the norm and before we risk losing the public on the issue. The following are my perceptions on where we should head:-

1. The Australian water industry establishes a nationwide coordination group along the lines of the NBP in the USA. The Australian industry should investigate the possibility of either extending the NBP to Australia or having an associated organisation that can benefit from the work already being done in the USA and the experiences in establishing the organisation.

2. In view of the interest in this matter in Victoria the recently established Biosolids Communications Working Group needs to develop a communications strategy and framework in line with Action 5 of the joint government / industry document developed by the Victorian Biosolids Task Force.

3. The Victorian Biosolids Communications Working Group needs to communicate with similar groups throughout Australia.

4. The Victorian Working Group establishes an estimate of the costs to implement the Communications Working Group program, along with an estimate of the potential costs for loss of public support, to substantiate the value in undertaking the recommended communications program.

5. Once the information is developed by the Victorian Working Group then the water industry is to be engaged via AWA, WSAA and VicWater to get the national organisation in place.

6. There is a degree of urgency in getting these actions implemented, before wide spread biosolids application is under way.

WEFTEC 2003

Pre-Conference Workshop
Sunday, October 12, 2003, Los Angeles, CA

THE STATUS OF BIOSOLIDS RECYCLING IN THE UNITED STATES

Agenda

TIME	TOPIC	SPEAKER(S)
8:30 - 8:40	Welcome & Workshop Overview	Bob O'Dette
8:40 - 9:00	Keynote	Mark Lang
9:00 – 10:00	Bans, Litigation and Legislation	Ray Kearney David Price III Layne Baroldi Alvin L. Thomas II
10:00 - 10:30	**BREAK**	**All**
10:30 - 11:15	Biosolids Research at the National Science Foundation's Water Quality Center (Arizona)	Dr. Ian Pepper (Director)
11:15 – 12:00	Odor Perception and Health Effects	Dr. Paul Chrostowski
12:00 - 1:30	**LUNCH**	**All**
1:30 – 2:30	Local and Regional Responses and Strategies to Biosolids Recycling Issues	Ron Sieger Maura Bonnarens Kimberly Zoltek
~~2:30 – 3:00~~	~~Media Coverage and Response Strategies~~	~~Tim Williams~~ ~~George Clarke~~
3:00 – 3:30	**BREAK**	**All**
3:30 - 4:00	The Role of the EMS	Dr. Peter Machno Mike Moore
~~4:00 - 4:30~~	~~Overview of Research and Research Needs~~	~~Dr. Terry Logan~~
4:30 – 5:00	Regulatory Update and Outlook	Dr. Alan B. Rubin
5:00	Adjourn	

W112 THE STATUS OF BIOSOLIDS RECYCLING IN THE UNITED STATES

Organizer: WEF Residuals and Biosolids Committee

LIST OF PARTICIPANTS

Robert G. O'Dette **Workshop Chair**	**SYNAGRO, Houston, TX** **Tel: 713-369-1731; Fax: 713-369-1750** **e-mail:bodette@synagro.com**
Alan B. Rubin **Workshop Vice Chair**	**U.S. Environmental Protection Agency, Washington, DC** **Tel: 202-566-1125; Fax 202-564-0653** **e-mail: rubin.alan@epa.gov**
Mark Lang	**The Sear Brown Group, Rochester, NY** **Tel: 800-724-4131; Fax: 716-272-1814** **e-mail: mark.lang@searbrown.com**
Mike Moore	**Orange County Sanitation District, Fountain Valley, CA** **Tel: 714-593-7450; Fax 714-962-2591** **e-mail: mmoore@ocsd.com**
Raymond Kearney	**City of Los Angeles, Playa Del Ray, CA** **Tel; 310-648-5360; Fax: 310: 624-4319** **e-mail: rjk@san.ci.la.ca.us**
Alvin L. Thomas, II	**SYNAGRO, Houston, TX** **Tel: 713-369-1703; Fax: 713-369-1750** **e-mail: athomas@synagro.com**
Ian Pepper	**University of Arizona, Tucson, AZ** **Tel: 520-626-3328; Fax: 520-573-0852** **e-mail: ipepper@ag.arizona.edu**
Terry Logan	**N-Viro, Toledo, OH** **Tel: 614-487-9521; Fax 614-487-9539** **e-mail logan.4@osu.edu**
Ronald Sieger	**CH2M HILL, Dallas, TX** **Tel: 972-980-2170; Fax 972-385-0846** **e-mail: rsieger@ch2m.com**
Maura A. Bonnarens	**East Bay MUD, Oakland, CA** **Tel: 510-287-1141; Fax: 510-287-1530**

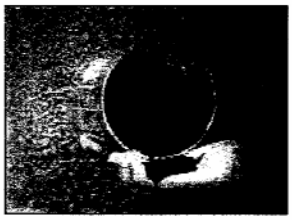
	e-mail: mbonnare@ebmud.com
Kimberly Zoltek	**Gainesville Regional Utilities, Gainesville, FL** **Tel: 352-334-3400 x1637; Fax: 352-334-2752** **e-mail:zoltekko@gru.com**
Tim Williams	**Water Environment Federation, Alexandria, VA** **Tel: 703-684-2437; Fax: 703-684-2492** **e-mail: twilliams@wef.org**
George Clarke	**SYNAGRO, Houston, TX** **Tel: 713-369-1700; Fax: 713-369-1750** **e-mail: gclarke@synagro.com**
Peter Machno	**National Biosolids Partnership, Seattle, WA** **Tel: 206-783-7490; Fax 603-794-2578** **e-mail: peterm7@prodigy.net**
Paul Chrostowski	**CPF Associates, Takoma Park, MD** **Tel: 301-585-8062; Fax: 301-585-2117** **e-mail: cpfassociates.com**
Dave Price, III	**County of Kearn Resource Management Agency, Bakersfield, CA** **Tel: 661-862-8802; Fax: 661-862-8801** **e-mail dave@co.kern.ca.us**
Layne Baroldi	**Orange County Sanitation District, Fountain Valley, CA** **Tel: 714-593-7456; Fax: 714-962-0356** **e-mail: lbaroldi@ocsd.com**

Sewage Fertilizer Under Fire

ROBESONIA, Penn., Oct. 29, 2003

VIDEO

'A Toxic Soup'



(Photo: CBS)

AUDIO

"It's like a toxic soup."
Russell Pennock

(CBS) When Danny Pennock, a healthy 17-year-old, grew critically ill with a mysterious staph infection both his parents and his doctors were at a loss.

"I knew. I knew right away the day I took him into the hospital. I knew he wasn't coming home. I just knew it," said Danny's mother, Antoinette Pennock.

Eight years later, the Pennocks say they believe what killed their son came from the farmer's field across the street.

"What gave him the staph?" asked **CBS News Correspondent Mika Brzezinski**.

"The sludge that was put on this property over here," Antoinette said.

Class B sludge is a powerful agricultural fertilizer that includes treated sewage and human waste.

It's perfectly legal, but the Pennocks are among the growing numbers who believe it is lethal, too.

"It's like a toxic soup," said Russell Pennock, Danny's father.

And did he believe the sludge killed his son?

"I know it did. I'll stand behind that 'til the day I die," he said.

The use of sewage sludge has been in practice for years. The government promotes it as not only safe, but a huge improvement over the old system of dumping raw sewage into rivers and the ocean.

"I think we've been using it for about 10 years," said David Taliaferro.

The Virginia farmer says treated sludge boosts crop production, saves him money because farmers get it for free, and is backed by the government.

"I am operating on the assumption that the government is doing its job and that the product that I have is a safe product to use," said Taliaferro.

"I can't answer it's perfectly safe. I can't answer it's not safe," said Paul Gilman.

The EPA Deputy Administrator says the government has new questions and is now reexamining the use of treated sludge.

"At this point the agency has taken the position that the material is safe, but because there's significant uncertainty about that, we've got to revisit that

- **CBS Evening News Video**
- **Consumer Alert**
- **Everybody Has A Story**
- **Making Ends Meet**
- **Program Facts**
- **Bios**
- **Contact Info**
- **Up Next, Weekdays**
- **Up Next, Saturday**
- **Up Next, Sunday**
- **Email: evening@cbsnews.com**

INTERACTIVE

Eye On Health

ENTER

Explore health issues including AIDS, cancer and antibiotics.

MULTIMEDIA

Video

Farmers have used sludge — treated sewage — as fertilizer for about 10 years. The practice is legal, but some say it can have dangerous, and sometimes deadly, effects. Mika Brzezinski reports.

RELATED STORIES & LINKS

Story

Microbes Love That Dirty Water

question," Gilman said. "There's no doubt we have to be more sure about this than we are today."

At thousands of sewage treatment plants across the country separating the waste from the water is how sludge -- also called "biosolids"-- is created. For industry executive Bill Toffey there's absolutely no doubt about its safety.

"I have no concern with holding this in my hand," Toffey said. "We have not known of any situation where disease has been transmitted in biosolids."

The EPA will issue a new report on sludge early next year. Meanwhile some local governments are trying to ban it. And the Pennocks?

They're suing the state of Pennsylvania, the farmer across the street *and* the local sewage plant -- a crusade they say could save lives.

MORE INSIDE THIS SECTION

- **More Rescue Squad Tire Troubles**
- **Consumers Beef Over Meat Prices**
- **A Reservist's Reward -- Bankruptcy**
- **Can Iraq's 'Marsh Arabs' Rebound?**
- **Pentagon: Send In The Marines**
- **Fast Food Embracing Animal Welfare**
- **Too Many Kids Left Behind**
- **Where The Wounded Go**

Back To Top

• Help • Advertise • Feedback • Terms of Service • Privacy • CBS News Bios

cbsnews.com