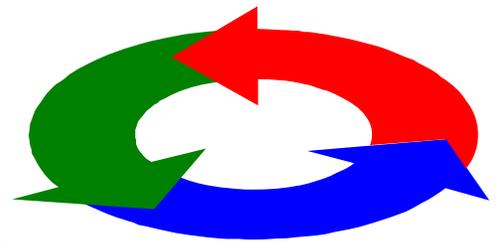


# Amendments



## Improving Awareness & Advocacy of the Michigan Biosolids Program

Volume 14, Second Quarter

May, 2010

### MBT News

#### MBT 2010 Biosolids Conference Recap

The Crowne Plaza of Grand Rapids was the site for the Michigan Biosolids Team's 2010 Biosolids Conference on March 16-17, 2010. The theme for the 2010 Conference was "**Going Green, Saving Green**". The tours and conference followed The Michigan State University Extension Biosolids Workshop by Dr. Lee Jacobs on March 15-16. Conference presentations are now on the MWEA Website: [www.mi-wea.org](http://www.mi-wea.org). About 35 people attended the Biosolids Workshop and about 80 people attended the conference. The Entertainment featured Mr. Graham Chapman of Delta Township being crowned the new Baron of Biosolids. The wide variety of topics and speakers enhanced the success of the conference. Thanks go to Ken Herman, Graham Chapman, Kim Hackbardt, Jeff Pugh, Scott Kafka, Glenn Hummell, Jim Johnson, and Steve Mahoney for planning the conference! For 2011, The Biosolids Committee will be partnering with the Industrial Pretreatment Program Committee for a Joint Conference in September. To bridge the gap, the Biosolids Committee will put on a one day seminar this fall or next spring. Stay Tuned.

### Michigan News



#### City of Wyoming, MI Clean Water Plant Receives NBP EMS Certification

The National Biosolids Partnership is pleased to recognize the City of Wyoming, MI Clean Water Plant as the 27th organization in the nation and second in Michigan to be certified and admitted to the Partnership's Environmental Management System (EMS) for biosolids program. The City of Wyoming, MI is one of 100 organizations currently participating in the NBP EMS program. The City of Wyoming's achievement recognizes that the agency has been independently verified as having an effective biosolids

environmental management system. The City of Wyoming, MI Clean Water Plant biosolids EMS was independently verified on December 27, 2009 by the audit firm, KEMA-Registered Quality, Inc.

#### SUMMARY OF AUDIT RESULTS

##### Strengths Observed

During this audit KEMA noted the following strengths in the City of Wyoming biosolids management system.

- Overall orderliness and housekeeping at the Clean Water Plant is excellent.
- Biosolids users and regulators are consistent in praising the City of Wyoming communications and information provided about biosolids.
- A strong teamwork culture is present throughout the wastewater treatment plant.
- Management provides commitment and support for the use of a systems approach.

##### Outcomes

The City of Wyoming biosolids program is improving through the use of their biosolids management system. The following improvement outcomes within the past two years were confirmed.

##### Interested Party Relations

- Feedback from Michigan Department of Environmental Quality (MDEQ) and EPA is positive about improved communications and response from City of Wyoming.
- Environmental Services Open House enabled farmers and industrial dischargers to communicate and understand each others problems.

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## Quality Practices

- Increased monitoring and measurement (sampling, testing) at the plant has improved product consistency, made agronomic loading more accurate and increased efficiency.
- Formation of an EMS Team including membership from different departments assisted in sharing common goals.

## Environmental Performance

- Introduction of fine bubble aeration treatment methods reduced energy costs and improved water quality.
- The fats, oil and grease (FOG) program has reduced sewer blockages and sanitary sewer overflows (SSOs), resulting in fewer service calls and fewer complaints.

## Regulatory Compliance

- The Amalgam Program initiated at Dental Offices has resulted on over 50% decrease in mercury levels in biosolids.

## ***New Kent County, MI Pilot Program Would See Farmers, Cities Working Together to Dispose of Sewage.***

***Grand Rapids, MI Press, 1-26-10.***

GRAND RAPIDS -- Kent County farmers would be able to participate in a new pilot program testing how cities and farmers can work together in disposing of sewage. It's a move proponents say could create significant cost savings for taxpayers, while benefiting agriculture. Part of the county's Purchase of Development Rights program, the pilot project would allow farmers to agree to have biosolids from Wyoming's wastewater treatment plant applied to their farms. Farmers would need approval from the Kent County Agriculture Board, which oversees the county's farmland preservation program, and the Grand Valley Regional BioSolids Authority.

The authority, along with Grand Rapids and Wyoming, since last summer has been cooperating on another project under which bio-solids are trucked to landfills where they help create methane gas, which is then burned to generate electricity. This latest effort linking farmland preservation and the long-time practice of

applying biosolids could become a model for the rest of the country. "We don't know of any other place in the country that's doing this," said Kendra Wills, land use educator for MSU Extension. "We think it has huge impact for sewage treatment plants and farmland preservation around the country. It's an infrastructure improvement in our sewage treatment system."

Kim Hackbardt, project manager for the Grand Valley Regional Biosolids Authority, said the city of Wyoming spends upwards of \$1 million trucking away some 30 million gallons of biosolids yearly to increasingly distant farms. While the savings depend on how much land can be included in the program, Hackbardt hopes the pilot program will draw at least 100 acres. "We figure we'll get a payback in about five years because we can keep the trucks closer to town," Hackbardt said. "If we don't have farms, we don't have a land application program."

Wyoming has been land applying biosolids since 1979, said Hackbardt, who still works at the city's wastewater treatment plant. He said the plant produces a sludge of 95 percent water and 5 percent solids which are then injected into the ground, on fields of crops not intended for human consumption. Each acre of land can accommodate between 10,000 and 15,000 gallons of sludge depending on the nutrient demands of various crops. Soils are monitored closely so as not to exceed fertilizer recommendations.

Land applying is generally accepted as the most environmentally-friendly of the methods for disposing of bio-solids, Hackbardt said. Other than carting them to a landfill, incineration pumps pollutants into the air. The Kent County Commission is slated to consider new selection criteria for the farmland preservation program on Thursday, which includes a March 1 through April 30 window during which farmers can apply for the pilot program.

**Editors Note [SJH]:** The City of Grand Rapids and City of Wyoming Clean Water Plant are NBP EMS certified agencies.

## **Hamburg may ban salt in water softeners**

**By Frank Konkel • DAILY PRESS & ARGUS •**  
March 9, 2010

Hamburg Township is considering the possibility of banning the use of sodium chloride in water softeners across the township.

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The discussion comes in the wake of continued elevated sodium-chloride levels in Hamburg Township Wastewater Treatment Plant groundwater discharge.

With sodium-chloride levels at 270 parts per million, more than double the state's "acceptable" level of 120 parts per million, Supervisor Pat Hohl said the township has to do something to correct the issue.

The township is working on an ordinance that would institute at least a temporary ban on residents using sodium chloride in their water softeners. Instead, residents would have to use potassium chloride, which is more expensive.

"It's obvious to me we have to do something; this is a very serious problem," Hohl said.

The Michigan Department of Natural Resources and Environment can levy fines up to \$250,000 for continued violations, and can take control of wastewater facilities.

"It's been going on for years," Hohl said. "Sodium is regulated, and potassium is not. Whatever we do, we're going to help people out the best we can."

At last week's township Board of Trustees meeting, there was discussion on the possibility of banning sodium chloride but providing coupons to township residents to help offset the higher price of potassium chloride. Hohl said the township is "working on many ideas," but likely won't have a plan ready for possible board approval for a month or two.

In the meantime, several shallow wells near the treatment plant — in the Buck Lake area — may need to be deepened because they show elevated sodium-chloride levels.

Hohl said one or two wells will have to be extended past the naturally occurring clay barrier to get below groundwater with high sodium-chloride levels.

To ease the concerns of residents unsure of how to handle a potential sodium-chloride ban, Culligan of Ann Arbor sales supervisor Karen Wood said it's an easy switch.

"All of our softeners can use potassium chloride, and Culligan delivers it on route to Hamburg," said Wood. "We offer a free inspection and check for any existing Culligan or non-Culligan softener, and would be happy to advise any consumer as to the options available to be in compliance with the regulation."

Contact Daily Press & Argus reporter Frank Konkel at (517) 552-2835 or at [fkonkel@gannett.com](mailto:fkonkel@gannett.com).

## National News

From **WERF Progress Newsletter**. **The Buzz Over Trace Organics in Biosolids**. In January 2009, the U.S. Environmental Protection Agency (EPA) released its Targeted National Sewage Sludge Survey Report, in which it published the sampling results for 145 trace organic compounds from 74 municipal wastewater treatment plants. Although trace organic compounds had been on the minds of those responsible for managing biosolids, the EPA study found some compounds in concentrations as high as hundreds of parts per million levels high enough to warrant additional investigation of biosolids as a potential source of trace organic compounds to the environment and to surface and groundwater.

A recently completed Water Environment Research Foundation (WERF) [project](#), **Fate of Estrogenic Compounds During Municipal Sludge Stabilization and Dewatering (04HHE6)**, convened a team of experts in the fields of environmental engineering, environmental chemistry, and hydrogeology to evaluate the occurrence, fate, and transport of estrogens in biosolids resulting from wastewater treatment. Initial findings were encouraging. The research team found that concentrations of most trace organic compounds decrease through the solids portion of the plant.

### Sampling Shows Reduction of Some Compounds

Trace organics is a term that encompasses several different types of household and industrial compounds, including pharmaceuticals, personal care products, flame retardants, plasticizers, detergents, and pesticides. Some of these compounds have been shown to disrupt the reproductive systems of mammals and aquatic organisms, and thus the concern over their potential presence in biosolids.

The research team, led by researchers from AECOM, the U.S. Geological Survey, and the University of Arizona, collected samples throughout the treatment

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process, at four full-scale wastewater treatment plants over the course of two years. For each sample, the research team made chemical analysis and bioassay measurements to quantify estrogenic compounds and estrogenic activity. (Bioassays use test organisms to evaluate the effects of substances being studied). In addition to estrogenic compounds, team members measured the concentrations of more than 100 trace organic compounds.

The researchers then calculated the amounts of trace organics and estrogenic activity for each sample point. This enabled them to understand the relevance of trace organic concentrations and estrogenic activity of solids as they moved through the study plants. The research team found that concentrations of most trace organic compounds decrease through the solids portion of the plant. However, some trace organics not commonly found in plant effluents were detected in solids samples. This is because many estrogenic compounds are more attracted to solids than to liquids.

### **What's Next**

This research begins to make a connection between detection and implications for users of treated biosolids. The next phase of research will use laboratory and field studies to determine potential human and ecological exposure to trace organics in biosolids-amended soils. This information can be used by EPA and others to assess any risks associated with trace organics found in biosolids. The results of this research will be published in a WERF report this spring. An effort to initiate additional research that builds on these initial results and considers an even broader range of trace organic compounds is already underway. The future research will be funded entirely or in large part by interested wastewater utilities and commercial entities. For more information, please contact [Alan Hais](mailto:ahais@werf.org) at [ahais@werf.org](mailto:ahais@werf.org).

### **Illinois EPA Lets Joliet Continue Sludge Program.**

*From **Joliet, IL Herald News, 3-3-10.***

State regulators said Tuesday that Joliet will be permitted to continue its sludge program as it has in the past. The decision was a partial victory for the city, which had faced the possibility of tighter restrictions that could have ended a 20-year practice of spreading wastewater sludge onto farm fields as fertilizer. But the state also turned down Joliet's attempt to increase the allowable levels of radium in sludge from what has been permitted in the past.

Illinois is in the process of reviewing state standards for radium, a naturally occurring radioactive material, allowed in sludge, which is often shipped out of municipal wastewater treatment systems to be applied on farm fields as fertilizer. Joliet Utility Director James Eggen said the state decision will have an impact on the city's sludge program, even though it allows the past practice to continue. Joliet had sought a permit allowing a radioactivity standard of 1.0 picocuries per gram for radium in its sludge. Eggen said the 1.0 standard would make it possible for the city to make its sludge available for a particular farm field for 10 years. Instead, the Illinois Environmental Protection Agency issued a permit allowing 0.4 picocuries per gram, which, Eggen said, would allow Joliet sludge to be spread on a farm field for four or five years. Under the lower standard, he said, "When we contract with the farmers to place the biosolids on the field, it's not going to be as attractive to the farmers."

The city argued that the 0.4 level is unnecessarily restrictive and that a 1.0 level was justified by research on radium, which can cause cancer at high levels. The current state standard is 0.1 picocuries per gram. But the EPA permit exempts Joliet as had been done in the past. Jeff Hutton at Illinois EPA said regulators currently are proposing a 0.4 picocuries standard that if approved by the state legislature would apply to all municipal sludge programs.

### **Study - Sewage Sludge Builds Organic Matter in Depleted Soils.**

*From **Environmental Protection, 3-15-10.***

A team of researchers analyzed these types of tropical soils in Brazil: Typic Eutrorthox (clayey) soil (left) and a Typic Haplorthox (sandy) soil (right). Photo courtesy of Ladislau Martin-Neto. Researchers lead by Ladislau Martin-Neto, from the Brazilian Agricultural Research Corporation- Embrapa, have analyzed the impacts of sewage sludge applications on soil organic matter in a long-term experiment, conducted by Professor Wanderley Melo, from the State University of Sao Paulo-UNESP, using chemical and spectroscopic approaches.

Specifically, they evaluated changes in total soil organic carbon and in the chemical characteristics of the soil organic matter and its main constituents known as humic substances (from humus origin). [Results were published](#) in the January-February issue of the

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*Soil Science Society of America Journal*. The sewage sludge applications to two soils classes (clay and sandy soils, from tropical areas of Brazil) during seven consecutive years caused an increase in organic content in both soils, but with higher relative increase in sandy soils. This is an important result for tropical soils where it is hard to maintain and/or increase soil organic matter, due to very intense microbial activity, generally stimulated by combination of high temperature and humidity.

Spectroscopic analysis detected chemical modifications in soil organic matter and humic acids, likely due to incorporation of less transformed organic compounds from sewage sludge to the indigenous organic matter. Instead of becoming an organic material that could easily convert to carbon dioxide (CO<sub>2</sub>) and augment greenhouse gas emission, the sewage sludge incorporated as humic substances, a more recalcitrant class of soil chemical compound with a longer lifetime in soils.

These findings support the humic substance model of relatively small molecules held together by weak forces, such as hydrogen and hydrophobic bonds, with a pseudo high molecular weight, instead of the traditional macromolecule model. Additional field and laboratory experiments are fundamental to improve the understanding of soil organic matter dynamics and tentative to carbon management in soils, including support to desired soil carbon sequestration conditions. Funding was provided by the Sao Paulo Research Foundation, the Brazilian National Council for Scientific and Technological Development, and the Optics and Photonics Research Center.

## Calendar of Events

### MBT Meetings

Thursday, June 17, 2010

Holland WWTP, 10:00 a.m. to 12:00 p.m.

Thursday, July 22, 2010

MBT Biosolids Demo Plot Booth  
MSU Ag Expo

Thursday, September 16, 2010

Johnson Wildlife Center, Cadillac, MI  
10:00 a.m. to 12:00 p.m.

Thursday, November 18, 2010

Location TBD, 10:00 a.m. to 12:00 p.m.

Holiday Party

### Other Events

#### MSU Ag Expo

July 20-22, 2010, Michigan State University  
MBT Display and Demo Plot

#### MWEA/AWWA Joint Conference

August 10-13, 2010

Soaring Eagle Resort, Mt. Pleasant, MI

### CONFERENCE HIGHLIGHTS

- Online registration at [www.mi-wea.org](http://www.mi-wea.org)
- Pre-Conference Seminars (August 10)
- Full Conference pricing includes 3 meals this year
  - Dinner (Tuesday) - Awards Luncheon (Wed) - Continental Breakfast (Wed)
  - (hotel room does not include any meals)
- 2-days of Exhibits
- Water AND Wastewater Technical Sessions
- Women's Networking / Social Hour (for Women Conference Attendees Only – sorry, not a spouse event)
- AWWA Young Professionals and MWEA New Professionals Networking / Social Event
- Keynote Guest Speaker - Jim Sygo, Deputy Director - MDNRE
- Featured Speaker – John McCulloch, Water Resources Commissioner - Oakland County
- Special Guest Speaker and Picture Opportunity with Lloyd Carr, Former U of M Football Coach
- Attendee and Guest Activities (Bike Ride, Golf Outing, Canoe Trip)
- Awards Luncheon
- Annual Banquet

