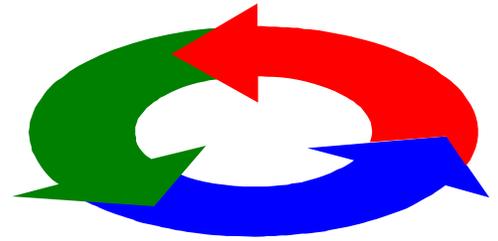


# Amendments



Improving Awareness & Advocacy of the Michigan Biosolids Program

Volume 14, 2nd Quarter

May 2009

## Biosolids Program News

I would like to follow up the March 2009 issue of this Newsletter. I want to keep this issue on the front burner because I feel it is very important that everyone is informed. The issue I am speaking of is the MDEQ Executive Office's management of the Sewage Sludge (Biosolids) Fund. This fiscal year and the previous fiscal year, the MDEQ Executive Office took and proposed to take a substantial amount of money from the Biosolids Fund to cover executive office expenses and significant overcharges to Michigan Department of Management Budget (DMB) for rent and the Michigan Department of Information Technology (DIT) for computer support. I have not currently heard a loud outcry from the fee paying community.

For the first six to seven years of the program there was a substantial fund carryover from one year to the next which kept the dry ton fee at a reasonable level. During the last two years, this carryover was being taken from the biosolids fund by the MDEQ Executive Office. That would have led to a substantial fee increase, however, the City of Detroit commenced their biosolids land application program which added more dry tons reported and thus kept the fee at a reasonable level. At this time, Detroit is not land applying biosolids so the total dry tons will fall back to pre Detroit numbers and along with no fund carryover, your **biosolids land application fees will increase**. This is why I feel it is necessary to contact your state legislators and the MDEQ Executive Office to voice your concerns.

Feel free to contact me at 517-241-2508 or [mahoneys@michigan.gov](mailto:mahoneys@michigan.gov) if you have any questions.

## Michigan News

### Chesaning Deals with Sewer Issues

Christina Guenther Argus-Press Staff Writer

CHESANING - The Village of Chesaning is struggling to separate its storm sewer from the sanitary sewer by the end of 2010. The deadline was set by the Michigan Department of Environmental Quality as part of an ongoing project that would greatly reduce the potential for sewage to overflow. "They are pushing us a little hard," Councilman Don Swartzmiller said. "I don't think we can get all of this done. We've got economic restraints as well as time limitations."

The project started in 2000 when the village was contacted by the DEQ about the frequency of its sewage system overflowing. The village signed an administrative consent order to avoid being fined by the DEQ. The original requirements by the DEQ included updates to sewer lines, updates to the sewage plant and the separation of one of the two lift stations the system has.

The original plans outlined by the DEQ did not include the separation of household footing drains from the sanitary sewer. That was a project the village decided to complete on their own. "Somewhere along the line they've (the DEQ) taken this on and added this to our list of requirements," Village President Joe Sedlar said. Along with the additional requirement came the deadline. "We wanted to do the separations on our time, not in a year, year-and-a-half period," he said. The project requires an inspection of every single home in the village to determine whether the home's footing drain runs into the sanitary sewer. If it does, it will have to be disconnected and tied into the storm

sewer at the homeowner's expense. The village is doing the inspections for free until the end of the year, but beginning in 2010 there will be a charge for the inspections. For the remainder of the year the village is also waving the \$500 it normally charges for a home to be tied into the storm sewer.

The results of the inspection will determine whether or not a homeowner will incur additional expenses. Swartzmiller said, generally speaking, homes without basements should not have any problems; a home with a septic tank is generally an easy fix, but homes without septic tanks could need the most work.

He said every home being inspected individually is going to take some time, but time limitations are only one issue - the village has more than \$2 million wrapped up in the other requirements from the DEQ and money is tight. "If we do everything the way they want it done it could be a \$5 to \$6 million project," Swartzmiller said. "We can't afford that."

He said the village is hoping some stimulus money could come its way for the upgrades, but in the mean time the funds will have to come from the village. Money is also needed for many other things, including road projects and dealing with the Parshallburg Bridge. "We have to live too," Swartzmiller said. "We have to do roads and all of the other things that keep a village going."

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### **Delhi Township Wastewater Treatment Plant Wins EPA Award**

**Contact:** Robert McCann (517) 241-7397

**Agency:** Environmental Quality

Department of Environmental Quality Director Steven E. Chester presented a national award to the Delhi Charter Township Wastewater Treatment Plant at the Township's board meeting in honor of the treatment plant's efforts to protect Michigan's environment. Each year, the U.S. Environmental Protection Agency recognizes achievements in outstanding performance and innovation that yield environmental improvements by awarding select facilities with the PISCES award.

"It is an honor for one of Michigan's wastewater treatment facilities to be recognized by the U.S. Environmental Protection Agency for innovative and effective protection of the environment," said Director Chester. "We are pleased to work collaboratively with the township and facility staff to find new and better ways to keep our environment and our families safe."

The Delhi Township Wastewater Treatment Plant serves more than 23,000 people in the township, two small portions of the city of Lansing, and a foster care facility located in Windsor Township. The plant discharges final treated effluent to the Grand River, while residuals, or "leftovers", of the wastewater treatment process are treated and stabilized so that they can be safely returned to the environment as nutrient-rich biosolids commonly used as a soil supplement.

In October 2007, construction began on an innovative first-of-a-kind digester project that incorporates heat recovery and electrical power generation while producing the highest quality biosolids. The heat and energy component of the system will reduce the demand for natural gas and electricity, yielding an annual cost savings of more than \$75,000. The new digesters should go online by this summer.

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### **Essexville could shutter wastewater plant**

Ryan J. Stanton-The Bay City Times

Essexville officials are considering shutting down the aging wastewater treatment plant at 1008 Burns St. After 60 years of operating its own wastewater treatment plant, the city of Essexville may get out of the business. City Manager Dale J. Majerczyk gave a presentation to the City Council this week, seeking direction on three options. The first option is to keep running the aging plant at 1008 Burns St., though that may be costly for the city, Majerczyk says. The core of the plant was built in 1949 and last upgraded in 1997.

"A good part of that plant is reaching or has reached the end of its useful life," Majerczyk said, pointing out it would take at least \$9.5 million worth of improvements to keep the plant running efficiently.

The two other options are to dismantle the plant and turn Essexville's pipes toward either Bay City's or Bay

County's wastewater treatment plants, and that may be the route Essexville ends up going.

Essexville already has an agreement with the county to become an owner of the West Bay County facility and has until Dec. 31 to exercise that option. In the meantime, Essexville is considering becoming a wholesale customer of the Bay City sewer utility.

Majerczyk said it would cost \$8.2 million for Essexville to dismantle the plant and turn its pipes to the West Bay County Wastewater Treatment Plant in Bangor Township. Under that scenario, Essexville would construct and operate a large combined sewage overflow pump station at its current site but it would send wastewater to 3933 Patterson Road. Majerczyk said it would cost Essexville either \$5.7 million or \$8.7 million to turn its pipes toward Bay City's Wastewater Treatment Plant, 2905 N. Water St., depending on two different connection options. Essexville still would dismantle its treatment plant and convert the site to a CSO pump station.

At the lowest possible cost, using a gravity line to transport wastewater, it would take \$1.5 million to connect to Bay City and \$4.2 million for site improvements in Essexville, according to Majerczyk. Majerczyk said he expects the Essexville City Council to make a decision before the end of the month. City officials are mailing resident's information on an April 28 meeting when the council could decide.

The Essexville plant treats about 205,000 gallons of sewage a day and serves about 1,500 residential customers, as well as 60 commercial, industrial and institutional customers. Majerczyk said aside from renovation costs there are other factors being taken into consideration, such as the substantially higher cost to treat wastewater at Bay City's plant versus the Bay County plant. He said the customer rates are higher with Bay City and that's important to consider.

Essexville's current sewer rate of \$5.25 per 100 cubic feet - or \$25 to \$30 a month for the average resident - could double, according to Majerczyk. "I think no matter what we do there's going to be an impact on rates," he said.

Under no scenario will Essexville residents be asked to pay increased taxes, Majerczyk said. "We're looking at the customer and what's good for the community as a whole, long-term, and part of what we're trying to accomplish with this project is provide some long-term rate stability for our customers," he said. "And also to

put us in a position to more efficiently manage our wastewater and further reduce the amount of CSOs that leave our sites. All that comes into play."

As of Wednesday, Essexville had 20.2 million gallons worth of combined sewage overflows into the Saginaw River this year. Mark Bowker, wastewater plant operator, said a plant like Essexville's has an average life expectancy of 30 to 40 years. He said the plant is old, but it's still doing its job and operating at 100 percent efficiency.

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### **Kalamazoo, MI to Send Sewage Plant Solids to Fabius Township Landfill.**

Kalamazoo, MI Gazette

KALAMAZOO -- An estimated 150 to 180 tons of treated waste from Kalamazoo's sewer operation will go to a Three Rivers-area landfill every day, beginning May 1. The Kalamazoo City Commission on Monday approved a one-year, \$1,322,000 contract with Waste Management of Michigan, owner of the Fabius Township landfill, to have the treated end-products trucked from the Kalamazoo Water Reclamation Plant and buried in the Class A landfill.

According to Bruce Merchant, city Public Services director, landfill disposal has become less expensive than the city's former alternative of applying the treated biosolids to area farmland. Merchant said Kalamazoo's waste has been trucked to a Marshall landfill under a previous contract. The biosolids are the sludge that remains at the end of the wastewater treatment process. The material is chemically treated, and water is removed. Kalamazoo completed a new solids-handling facility in 2003 to produce a biosolids that would meet or exceed state and federal standards to allow it to be applied to certain farmland. That disposal method was used for several years.

But the city returned to landfill disposal in 2007 as regulations and costs of land application increased. "Until more land application sites are developed and new state regulations favoring increased land application of biosolids are enacted, placing these biosolids in a secure, approved landfill is the most economical and environmentally viable solution," Thomas Smith, reclamation plant operator, said in a memo to commissioners.

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## Mt. Clemens Contemplates Sludge Plan

MOUNT CLEMENS, Mich.

It's unsightly to look at and smells foul, but sewage sludge in Mount Clemens could be sweet music to the ears of leaders in the cash-strapped city. The city is considering a plan to renovate equipment at its wastewater treatment plant that would make it a waste-to-energy facility.

According to city commissioners, the new plant would convert sludge into methane gas and it's estimated there would be enough gas to power the plant and sell the excess to DTE Energy. The gas could save the city more than \$300,000 a year in utility costs.

"We believe this project could provide enough energy to run the wastewater treatment plant and have enough left over to sell to a utility company," said Chuck Bellmore, the city's utilities director. Brighton-based CTI and Associates is working with Mount Clemens on the project, which would require the city to spend between \$3.5 and \$4 million to add the equipment needed for the energy conversion. CTI and Associates is also working with the St. Clair County Board of Commissioners on a similar plan to funnel methane gas created at the Smiths Creek Landfill into electricity that will be added to the energy grid.

DTE Biomass, part of DTE Energy Co., would pay the county for the use of the gas, which could bring in up to \$400,000 a year to the county. The gas naturally created at the landfill is currently piped away and burned off. Mount Clemens processes about 3 million gallons of sewage sludge it receives from the sewer system and septic haulers. The sludge is made into fertilizer to be applied at area farms.

Jack Patel, senior project coordinator for CTI, said the U.S. Department of Energy has provided the state of Michigan with \$86 million to improve energy efficiency and to promote alternative energy such as solar panels and windmills. Patel said Mount Clemens could qualify for low-interest loans or federal grants for the project. "There will be a lot of money available to the communities for these types of projects," Patel said. The deadline for applying for the project is July 1, so commissioners must decide in the next few weeks whether to pursue the plan.

## Elsewhere

### WERF Research Report - Fate of Estrogenic Compounds During Municipal Sludge

Alan Hais

#### Stabilization and Dewatering.

Researchers over the past several years have been assessing the fate of estrogenic compounds in the liquid phase of wastewater treatment. Water Environmental Research Foundation (WERF) wanted to look to the solids treatment phase, to see if it acts as a sink for these compounds. As we increase usage of biosolids in landscaping, land reclamation, and agriculture, it is important that we improve our understanding of the fate of these compounds during solids treatment. In short, do biosolids have the potential to transport estrogenic compounds into the environment? The results of research project "Fate" of Estrogenic Compounds during Municipal Sludge Stabilization and Dewatering (no. 04HHE6) will be available on the WERF website in April, but the research team is able to share some of their findings now.

WERF convened a team of experts in environmental engineering, environmental chemistry and hydrogeology to evaluate the estrogenicity of sludge and biosolids in wastewater treatment processes. Led by Edward Furlong of the U.S. Geological Survey, Beverley Stinson of AECOM (formerly Metcalf & Eddy), and David Quanrud of the University of Arizona, the project developed a better understanding of concentrations of individual estrogenic compounds and cumulative estrogenicity activity in solids samples. The research also identifies the solids treatment processes that have an effect on concentrations of individual estrogenic compounds and cumulative estrogenic activity.

#### Solids treatment reduces some, sinks others

The team observed that concentrations of most estrogenic compounds decrease through the solids treatment train. However, the team did detect some estrogenic compounds in the solids not commonly found in plant effluent. In previous studies focusing on wastewater effluent, the bulk of estrogenicity results from relatively few compounds, such as steroidal estrogens (e.g., those naturally produced in humans; the birth control pill). The contribution of other non-steroidal estrogens (e.g., alkylphenol surfactants) to total estrogenic activity in effluent is relatively minimal. This is not the case, however, with solids samples

analyzed in this study, especially with respect to the alkylphenols (compounds common in industrial detergents and some pesticides), which are more hydrophobic than the steroidal estrogens. The alkylphenols were present at much higher concentrations in solids samples and will likely make a more significant contribution to the estrogenicity measured in some biosolids.

### **Chemical analysis**

The project team analyzed samples collected through the solids treatment train of four full-scale wastewater treatment plants operating a range of solids processing, treatment, and disposal options commonly used in the United States. For each sample collected, the team conducted chemical analysis and in vitro bioassay measurements to measure estrogenic compounds and estrogenic activity. When these analytical techniques are used together, they can indicate the relevance, in terms of estrogenic potency, of the presence of the microconstituents that have been detected.

In addition to estrogenic compounds, samples were analyzed for other microconstituents, including chemicals used in a wide range of household and industrial products, pharmaceuticals, personal care products, flame retardants, plasticizers, detergents, and pesticides. The final report addresses these results in more detail.

### **Understanding the risks**

This research provides key baseline information concerning the concentrations of individual microconstituents, as well as the estrogenic activity in some solids in wastewater treatment. In focusing on estrogenicity, the team took an important first step in making a connection between detection and implications for end users of treated biosolids. This information will expand the scientific basis from which regulators, engineers, and environmentalists can evaluate potential risks, identify effective treatment technologies, and evaluate current best management practices. Future Water Environment Research Foundation (WERF) research efforts will look at the fate of microconstituents, including estrogenic compounds, in biosolids that are land applied.

### **New Research to Investigate Trace Organics in Biosolids.**

WERF is expanding its research program on trace organics in biosolids this year. The organization is accelerating research efforts following the release of the U.S. Environmental Protection Agency's Targeted National Sewage Sludge Survey, which indicates that a

number of pharmaceuticals, steroids, and flame retardants are found in a high percentage of biosolids. WERF research will expeditiously determine whether the presence of these compounds in biosolids presents a problem.

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### **Biosolids and Human Health.**

New York Times

Biosolids are a constantly changing brew of human, commercial, hospital and industrial wastes otherwise known as sludge. Proponents say it makes a useful fertilizer. Critics worry about the metals and pathogens that remain. On May 3-6, business executives, agronomists and hydrologists are expected to gather for the Residuals and Biosolids 2009 conference at Portland's Oregon Convention Center, where awkward jokes about squeezing profits from human excreta-based crop fertilizer are an inevitability. But the business is no joke. In 2009 alone, American farmers will likely fertilize their fields with 4 million dry tons of biosolids, a polite term for specially processed sludge much of it originating in municipal sewage plants in New York, Los Angeles and other major cities, according to the National Association of Clean Water Agencies, a wastewater treatment trade group.

Farmers see it as a free source of fertilizer, while municipalities pay a tiny fraction of what they did for sludge removal and less liquid waste ends up in waterways. Still, not everyone likes the idea of biosolids. Legislators in rural Colbert County, Alabama, are angling to amend the state constitution to curb biosolids use. Some Burlington City, N.C., residents have attributed their illnesses to farmers use of biosolids. The Sierra Club and other environmental groups have recommended stricter standards for or even prohibitions on using biosolids as fertilizer.

What's in biosolids that makes opponents squirm? Pharmaceuticals, steroids, flame-retardants, metals, hormones and human pathogens, among other things. Whether or not these present health hazards when used as fertilizer, however, is a question that remains unresolved. The Environmental Protection Agency found more than 100 toxins in its January 2009 Targeted National Sewage Sludge Survey. But the agency concluded that, it is not appropriate to speculate on the significance of the results until a proper evaluation has been completed and reviewed..

Indeed, research on the long-term health effects of biosolids is sparse. The organizer of the Biosolids 2009 conference, the Water Environment Federation, has

pointed to a 2002 statement by the National Academy of Sciences, which concluded that there is no documented scientific evidence that the EPA's standards for the use and disposal of sewage sludge have failed to protect public health.

Dr. Alan B. Rubin, a principal author of key E.P.A. biosolids regulations and a staunch biosolids proponent, said that while more long-term research needed to be done, he was convinced that biosolids including those containing the compounds recently listed by the EPA pose no serious health risk. "That's how I sleep well at night," he said, "knowing that they're not impairing human health." Dr. Rubin does say, though, that living in proximity to biosolids may be uncomfortable, particularly for health-sensitive individuals. I'm not saying that this causes illnesses like cancer, emphysema or cirrhosis or any other horrible disease, he said. But it is causing an impact on the quality of life.

Nonetheless, the Water Environment Research Foundation which is partly funded by the EPA is beginning new research into the health effects of biosolids. The foundation is also conducting an 18-month pilot study of residents who live near biosolids sites.

### **EPA Administrator Reinstates Full TRI Reporting Requirements**

Suzanne Ackerman

EPA Administrator Lisa Jackson signed a final rule on April 21 to reinstate stricter reporting requirements for industrial and federal facilities that release toxic substances that threaten human health and the environment. The final rule reinstates Toxics Release Inventory (TRI) reporting requirements that were replaced by the TRI Burden Reduction Rule in December 2006. The 2009 Omnibus Appropriations Act, signed by President Obama on March 11, 2009, mandated that prior TRI reporting requirements be reestablished. These changes will apply to all TRI reports due July 1, 2009.

The December 2006 TRI Burden Reduction Final Rule expanded Form A eligibility for non-Persistent, Bioaccumulative, Toxic (non-PBT) chemicals to 5,000 pounds and allowed use of Form A for the first time for PBT chemicals under limited circumstances. This rule was met with concern over the availability of required data under the Emergency Planning and Community Right-to-Know Act (EPCRA) and resulted in a lawsuit by 13 states to restore the TRI Form A thresholds and

usage to what they were prior to the 2006 rule. Following the rule signature, all reports on PBT chemicals must be submitted on the more detailed Form R. For all other chemicals, the shorter Form A may only be used if the annual reporting amount is 500 pounds or less and less than 1 million pounds of the chemical was manufactured, processed or otherwise used during the reporting year. For more information on TRI, visit: <http://www.epa.gov/TRI/>. For questions on reporting requirements, visit: <http://www.epa.gov/tri/contacts/contacts.htm>.

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### **Milorganite is going Green!**

Don Behm, The Journal Sentinel

On Monday the Milwaukee Metropolitan Sewerage District moved another step closer to its goal of reducing utility bills by burning landfill gas in sewage sludge dryers at the Milorganite fertilizer plant on Jones Island.

The district's governing commission awarded a \$3.98 million contract to Veolia Water Milwaukee LLC to design both the 17-mile pipeline from the Emerald Park landfill in Muskego to Jones Island and the conversion of dryers to burn landfill gas instead of natural gas. The estimated cost of the pipeline is \$22 million, and it is scheduled to begin operating in January 2011. The project will save the district, its customers and property tax payers \$113 million in the next two decades, district officials have said. The cost of landfill gas will be about 48% of the price of natural gas. The price will be based on energy content, not volume.

Veolia Water Milwaukee is the private operator of the district's regional sewers, deep tunnels, wastewater treatment plants and Milorganite fertilizer factory. Veolia Water North America is a division of Veolia Environment of Paris. A separate division, Veolia Environmental Services, owns Emerald Park and provides trash collection services in southeastern Wisconsin. Landfill gas is between 50% and 55% methane. Veolia would remove water vapor and contaminants before pumping the gas into the pipeline to Jones Island.

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### **Research Short Story- Biosolids Restore Mine Sites**

Andrew Trlica, University of Washington

The goal of my research is to establish how much carbon can be absorbed by the soil on reclaimed mine lands. I have specifically focused on disturbed lands

reclaimed with biosolids, and I am comparing the soil organic carbon content of biosolids sites to those reclaimed using conventional fertilizer.

I have sampled reclaimed sites at Highland Valley's copper mine in British Columbia, as well as reclaimed mine sites in central Washington, coastal British Columbia and central Pennsylvania. These sites represent reclamation contexts typical for coal, sand and gravel and hard rock mineral mining. My sites include areas reclaimed to mowed pasture, timber plantation and native vegetation. I have also been lucky enough to find sites of a variety of ages since reclamation was completed, some even going back to the late seventies.

Analysis of the samples is ongoing, but preliminary data so far indicate that biosolids significantly raise the level of organic carbon stored in the soil compared to similar sites without biosolids; it is possible our numbers will also show that this effect remains even decades after reclamation. Most of the carbon changes seem to be taking place in the upper 6 inches of the soil profile. From my own casual observations in the field, biosolids-amended sites seemed to have a more developed soil profile and a richer, loamier topsoil, though it may be difficult to see obvious differences in vegetation on top several years after reclamation. I would speculate that part of the reason that biosolids-reclaimed mine sites have higher soil carbon over time has to do with the "jump-start" biosolids give to soil development and plant growth - carbon cycling starts up faster and earlier compared to conventional sites. Some of the older biosolids sites, left alone now for decades, are looking very good. Seeing large swaths of once-disturbed areas returning to life has encouraged me that humanity's prospect for sustainability and rebuilding damaged ecosystems might just be achievable.



(Highland Valley mine before (left) and after (right) biosolids applied)



(Highland Valley mine site soils prior to biosolids amendment (left), and after biosolids amendment (right)).

## Calendar of Events

### MBT Meetings

Thursday, June 18, 2009 10:00 a.m.

Location: Grandville Fire Station, Grandville Michigan

Thursday, July 23, 2009 10:00 a.m.

Location: MSU Ag Expo Grounds, Biosolids Tent

Thursday, September 17, 2009 10:00 a.m.

Location: Johnson Wildlife Center, Cadillac Michigan

Thursday, November 19, 2009 10:00 a.m.

Location: Frankenmuth Michigan Holiday Party

### Other Events

July 21-23, 2009: MSU Ag Expo

Michigan State University

October 10-14, 2009:

WEFTEC, Orlando Florida

