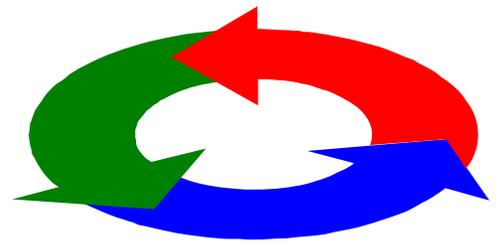


Amendments



Improving Awareness & Advocacy of the Michigan Biosolids Program

Volume 13, Third Quarter

September, 2009

MBT News

MBT 2010 Conference

The Michigan Biosolids Team is planning the 2010 Biosolids Conference scheduled for March 16-17, 2010. The theme for the 2009 Conference is **“Going Green, Saving Green”**. The tours and conference will follow The Michigan State University Extension Biosolids Workshop by Dr. Lee Jacobs, March 15-16. The Crowne Plaza of Grand Rapids will be hosting the event. We will have CEUs. We are working on a great line-up of speakers so mark your calendars!

MBT 2009 MSU Ag Expo Recap

The Michigan Biosolids Team displayed at the 2009 MSU Ag Expo, July 21-23. The booth featured our biosolids raised popcorn and City of Wyoming water along with balloons for the kids. The demonstration plot featured “Indian Corn” for decoration purposes. Biosolids for the Demonstration Plot was provided by the **Delhi Township WWTP**. Latest estimate is that over 1,000 people attended the three day expo. Three dozen farmers signed up interested in receiving biosolids. There are so many people who contributed to this effort to name them all. **Thank You!**



MDEQ News

KUDOS

... to Dr. Bahram Zamani for securing, in exchange for popcorn, Soybean oil for popping our biosolids raised popcorn. The soybeans oil is manufactured by Zeeland Farm Services (ZFS) and pops corn to promote their soybean oil and other soybean products. ZFS has provided us with a sign to use when ever we use their oil in exchange they will do the same.

From Jim Johnson, State Biosolids Coordinator

The 2009 biosolids annual report forms are available now under "Downloads" on our Biosolids web page at:

http://www.michigan.gov/deq/0,1607,7-135-3313_3683_3720---,00.html

This year paper copies of the Report form will not be mailed out to all generators. Instead we will be sending out a post card reminding everyone that the reports are due and providing download information. Paper copies will only be mailed to those that request one.

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From Mike Person, MDEQ Biosolids Staff, Saginaw Bay and Cadillac Districts...

The City of Alpena Clean Water Plant has begun operation of their new septage receiving station. Presently, they are treating approximately 120,000 gallons of septage a month, which is collected from all over northeastern Lower Michigan. The resulting biosolids are recycled on agricultural fields in and around Alpena County. Bob Hilla, Operations Supervisor believes that having a facility capable of treating this volume of septage and converting it into a recyclable product is the right thing to do for the environment and for area septage haulers and farmers. Hilla indicates that with the exception of a few minor problems during the initial start up, the entire wastewater plant is now operating extremely well with the addition of the septage receiving station.

Michigan News

Grand Rapids and Wyoming, MI Biosolids Partnership Turns Sewage into Energy.

Grand Rapids, MI Press, 8-16-09.

Flush a toilet in Grand Rapids and a light bulb glows in Zeeland. Flush a toilet in Wyoming and help a corn field grow in Allegan County. That's oversimplifying, but it is one way to describe how a 6-year-old partnership between the sewage-handling systems in Wyoming and Grand Rapids is finally coming together this summer. The Grand Valley Regional Biosolids Authority was created in 2003 when the two cities were wrestling with the challenge of modernizing their wastewater systems.

Most West Michigan residents may not think about biosolids after they flush, but the local effort has been noticed by the United Nations, as one of just eight U.S. operations listed in an atlas on handling sewage, subtitled "Moving Forward the Sustainable and Welcome Uses of a Global Resource." As Grand Rapids and Wyoming joined forces, they promised the merger of West Michigan's two largest sewage processors would create a business that produce pelletized fertilizer. That dream still lies in the future. But leaders of both cities say they are pleased to be putting the first pieces together.

So far, they have spent \$34 million to build a pipeline connecting the two municipal sewer plants as well as several 1-million-gallon storage tanks and centrifuges that will wring the water out of raw sewage to create biosolids residuals. "By taking the steps we have, it puts us in a great position for the future," said Randall Fisher, director of Grand Rapids Environmental Services Department. "We're excited about it," said Tom Kent, plant superintendent for

Wyoming's Clean Water Plant. "It opens up opportunities for us."

For the time being, the two cities will continue to use separate disposal methods. Wyoming will send about 25 percent of its sewage to a new facility in Grand Rapids. Grand Rapids, whose system serves about 265,000 residential and industrial customers, will use the three centrifuges to de-water the sewage and create the biosolids. The new centrifuges are replacing equipment owned by Synagro, a private firm that installed de-watering equipment in the late 1990s after the city's previous processing equipment failed, Fisher said. The new system will be operated by city employees, who won the bid, Fisher said.

After dewatering, about four or five truckloads of biosolids will be hauled each day to one of two landfills in Ottawa County. There, they will be mixed and buried with household trash and other waste materials to produce methane gas, which the landfill operators draw off and sell. Methane has slightly more than half the energy content of natural gas. At the Ottawa County Farms Landfill in Coopersville, the methane is burned in electrical generators, and the power is sold to the grid. The generators produce enough electricity to supply about 4,000 homes, according to Rob Carr, operations manager. The biosolids are key to methane production, Carr said. "It really makes sense for landfills to get a good blend of different wastes and enhances the breakdown. We think, over the years, we've got that blend down to a science." At the Autumn Hills Landfill south of Zeeland, the methane is sold to North American Natural Resources Inc., which compresses the gases for sale.

North American sends the gas over a 6-mile, 16-inch pipe to Zeeland Farm Services, which uses it to dry and process soybeans as well as generate power for sale to electrical distributors. Plant operator Rich Kunze said North American also is finishing its own generator and will sell power to Zeeland's Board of Public Works.

It's a slightly different story at Wyoming's Clean Water Plant, which serves about 140,000 residents of Wyoming, Grandville, Gaines and Byron townships. Synagro trucks about 75 percent of Wyoming's sewage residuals to West Michigan farmers, who use it to fertilize crops that are not being raised for human consumption, superintendent Kent said. The raw sewage is disinfected with lime, hauled in semi-tankers to the farms and injected into the soil. There still is a strong market for land application, Kent said, but winter weather can make it difficult and fields within trucking distance are getting harder to find. "Land application is just slightly cheaper," Kent said. "We'll be watching that and keeping an eye on it. It allows us to have a little more diversity in the overall program."

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Continued from page 2

The authority is hoping to keep the fertilizer option alive by committing \$40,000 to Kent County's farmland preservation program for purchasing biosolids easements from participating farmers, Kent said. "If we can keep that farm in a 25-mile radius, we're looking at a three-year return on our investment," Kent said. "It's a long-term investment and makes a great deal of sense"

WYANDOTTE: City considers creating plant that converts sludge into methane

Saturday, May 30, 2009

By Jim Kasuba

WYANDOTTE — Converting sewage sludge into energy is not as far-fetched as it seems, according to city officials. In fact, the city is seriously considering an operation that would help it meet government requirements for renewable energy usage while at the same time eliminate the cost of transporting sludge to a landfill. On March 9, American BioEnergy's request for a six-month option to determine the feasibility of a bioenergy plant at 4200 Eighth St. was approved by the City Council.

On April 2, the project was presented to the Downriver Wastewater Treatment Facility's Joint Management Committee and members recommended that the city proceed with a formal proposal. The proposal seems to be gaining momentum, so much so that a plant that processes sewage sludge in an anaerobic digester could become a reality in less than two years. The digester produces biomethane that is utilized to generate electricity. At the council's May 18 meeting, City Engineer Mark Kowalewski explained the potential of the plant and what it could mean to not only Wyandotte, but also to the 13 Downriver communities that send sewage to the plant. The idea probably would not have been pursued if it weren't for a state requirement that providers of electricity obtain 10 percent of their power through renewable energy by 2015. Earlier this year, Melanie McCoy, general manager of Wyandotte Municipal Services, laid out a plan that will allow the city to comply with Public Act 295, a law that requires electricity providers to establish renewable energy and energy optimization programs. McCoy said the city plans to install three wind turbines, has signed an agreement for the purchase of methane — or "landfill gas" as she put it — and was looking into the possibility of utilizing a biodigester. Of the three sources of renewable energy, the biodigester seemed to be the most "iffy," but since that time it has shown greater promise. "This is a unique opportunity," Kowalewski said. "Basically, you would take the sludge from the sewage treatment plant, pump it to our property on Eighth (Street),

just north of Central. The sludge would go into large tanks through biodigesters." The city engineer said that as the sludge decomposes, it produces methane in enclosed tanks. The methane is then taken off the tanks and placed into engines, where it generates electricity. Location is a key component to making the project feasible and because the city has a substation just two blocks away, Kowalewski said Municipal Services could extend service lines to the plant without extraordinary expense.

The reason the proposal is picking up traction has to do with federal grants that are available to private investors who build this type of plant. Kowalewski said the grants cover up to 30 percent of the cost, but the opportunity to obtain those grants ends in February. He said that Ronald and Michelle Haarer of Michigan-based American BioEnergy are partners in a company in Denmark, where the technology has been around for a long time. Kowalewski said Europe has 8,000 of these types of plants while the United States has only about 100, and just 10 of those are producing electricity. "The United States is definitely behind the times when it comes to producing electricity from biodigesters or from sewage treatment plants," Kowalewski said. Such plants have worked well on dairy farms. Kowalewski said he visited one in Canada and farmers there are delighted with profits they make from cow manure, even though they are in the business of selling milk. One farmer said that by the end of next year he would make more money selling electricity than dairy products, in large part because of a Canadian law that will buy renewable energy for twice the cost it takes to produce it. The city is conducting its due diligence with the company and Wayne County, which operates the wastewater treatment facility. If this is such a great idea, why hasn't it been implemented before now?

Kowalewski said the science behind it is relatively simple, but it has not been tried until now because the cost of fuel generated either by nuclear power or coal has been relatively inexpensive. As a comparison, Wyandotte generates electricity from its coal plant at 4.8 cents a kilowatt-hour. It is estimated that electricity can be generated from the biodigester system at 6 cents a kwh. Although wind turbines have been talked about locally as one of the best and most feasible renewable energy sources, it costs between 10 cents and 12 cents per kwh to generate electricity using wind power.



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Waste water treatment plant hosts grand opening

Jeannie Gregory
Editor

The North Kent Sewer Authority hosted a grand opening for the PARCC Side Waste Water Treatment Plant, located at 4775 Coit, Ave. The event featured speeches by Rockford City Manager Michael Young, who serves as the chairman of the authority and Larry Campbell, director of the PARCC side plant. It was also highlighted by a ribbon cutting ceremony and a picnic.

Visitors were also given guided tours of the sprawling facility and were allowed to have their questions answered by experts on waste water treatment. The plant actually started operation on October 28, 2008, but the grand opening was a celebration of years of research, and planning by the North Kent Sewer Authority. The authority, which consists of the Northern Kent County municipalities of the City of Rockford and the townships of Alpine, Cannon, Courtland and Plainfield, was founded in 1997.

It was at that time that the board looked into ways to save their communities money in treating its waste water. A contract with the City of Grand Rapids was in effect from 1968-2008 and the authority wanted to make sure it was in the residents' best interests to continue with the Grand Rapids authority. After much discussion, time in federal court, bond proposals and voting, the NKSA moved forward with their plans.

Young, along with other board members, made a trip to Georgia to visit and learn about membrane bioreactor (MBR) technology at one of the country's premier waste water treatment plants. The result was that all involved thought it would be advantageous to build a state-of-the-art facility featuring MBR for the municipalities to use.

Construction began in 2006, with the conclusion in 2008. The facility came in with a price tag of \$47 million and is one of just a few in the country.

Lansing could pursue wastewater treatment plant improvements

Susan Vela
suvela@lsj.com

July 1, 2009

Lansing now can pursue \$16 million in improvements to the city's wastewater treatment plant and could be forgiven for up to 40 percent -- or \$6 million -- of the proposed project costs. Lansing City Council agreed Monday to amend a

long-term sewer separation plan, which will permit council to decide at a later date whether to take on more debt to make the desired repairs.

Administrators say they may ask council to OK in September the issuance of up to \$16 million in bonds to finance work that would include major rehabilitation to a filtering system and replacement of the heating, ventilation and air conditioning. While it could mean a sewer rate increase for taxpayers, officials said any increase should be kept at a minimum because the federal American Reinvestment and Recovery Act presents an opportunity for nearly half of the debt to be forgiven, city officials say.

"We felt that this was a wonderful opportunity to receive free money, which is very rare these days," said Chad Gamble, the city's public service director.

"It's really an awesome opportunity for the city to make a huge leap in improvements in our plant, which helps the environment." City documents lay out some of the wastewater treatment plant's filtering challenges: limited capacity, broken equipment, uneven backwash flow and excessive backwash volumes. Proposed building improvements such as repairing an exterior brick system, installing exterior insulation, and providing new high efficiency lighting and the HVAC system have the potential to reduce by more than 40 percent the lighting, heating and cooling costs, those documents state.

"This is a major capital improvement," said Jerry Ambrose, the city's finance director. "It's one that would be difficult for us to do without financial assistance." Council members agreed unanimously to amend the city's sewer separation plan. Councilwoman Sandy Allen said she was supportive because of the opportunity for the city to do major improvements at a good price.

"We're going to get some assistance," she said.

Biosolid dumping matter of concern Goodland Twp. to refine new ordinance

by Tom Wearing, Source: Tri City Times

August 19, 2009

GOODLAND TWP. - With the help of a resolute resident, township officials hope to enforce a newly-adopted ordinance regarding the dumping of biosolid waste on local farm fields. Township Supervisor Ron Cischke says he appreciates the efforts of Sisson Road resident Linda Baker, who opposes the general practice of dumping biosolids. Baker alleges that Bio-Tech Agronomics of Beulah, Michigan recently defied the township's ordinance when the

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company surface-dumped biosolid waste on a neighbor's farm. She says her concerns are primarily health-related, though the stench from the most recent dumping of waste adds to her disdain for the process.

"You can't even be outside, because it makes your eyes burn," says Baker. "There is supposedly a benefit in that it acts as a fertilizer and puts nitrogen and potassium into the soil. "To me this is a health issue and it is kind of kept under the radar," she says. "I question how closely MDEQ (Michigan Dept. of Environmental Quality) monitors this."

Bio-Tech representative Phil Hoyt says every effort is made to ensure the public health when it comes to disposing of biosolids. He points out that laboratory testing on fecal coliform includes measuring for metals such as copper, lead, zinc and lithium; among others. "Everything is subject to testing and we follow the guidelines of the Michigan Dept. of Environmental Quality," says Hoyt. "There are rules we have to follow or it cannot be land applied. "When we get the tests back, the allowable standards are set by the federal government. The State of Michigan has even stricter standards. The biosolids program is very safe and it's beneficial to the farmer."

Cischke says the township enacted its ordinance pertaining to biosolid dumping last February, with assistance from township attorney Gary Howell. The ordinance now states that any dumping of "septage" must either be injected into the soil or plowed under within hours of delivery.

Township Clerk Mavis Roy says the township is in the process of changing the ordinance's language from the word "septage" to "biosolids," to more specifically address its concern. In the interim, Cischke hopes to stave off any further dumping in the township. "We're going forward with enforcement of our ordinance," says Cischke. "The problem is the DEQ doesn't respond to our concerns. They claim the process is protected by the Right to Farm Act." Cischke says the most recent solid waste delivery came from the Romeo wastewater treatment, adding that the material was dumped on the surface rather than injected into the soil. "They usually `knife' it into the ground," says Cischke. "Right now it's being dumped right on the surface and it stinks." Cischke says he has mailed out letters to MDEQ and local and state officials, outlining the township's concerns and its position related to the ordinance. Baker fears that any amount of correspondence could fall on deaf ears in Lansing.

"Some of these government agencies are so big they are very hard to fight," Baker says. "Exposing things to the public is our only option. "They violated our ordinance," she says. "The ordinance is there to protect our community. My focus

is to avoid health risks to me, my husband, my neighbors and the residents."

Cischke says he is worried that the most recent surface-dumping occurred near a ditch that carries rain water through portions of the township. "Nobody really knows what's in that stuff," he says. "We want it proven that this is safe and it's not getting into our wells and water supplies." Cischke says he is also concerned about the possible introduction of pharmaceuticals or pathogens into the soil that may not be subject to testing. "They tell us it's safe," Cischke says, "but I say prove it."

Mike Person, an environmental quality analyst for MDEQ, says the proof has already been presented. "Unfortunately, this program suffers from public perception issues," says Person. "First and foremost, we are here to ensure that the rules are followed. If you look at the big picture, the alternatives to this situation are land fills and incineration." Person notes that regardless of the language in Goodland Township's ordinance, the state maintains authority over the legality of dumping biosolids. "There is a provision about how townships can preempt the state," says Person. "It sets forth a formal process if a township wishes to regulate differently than what state law permits. "They would have to petition the department (MDEQ) and provide justification. The state is the governing authority."

Elsewhere

City turns human waste into fertilizer for city trees

By Matt Campbell/McClatchy Newspapers
2009-08-20 15:51:41

Kansas City, Mo., is turning black into green: black as in sewage and green as in leafy trees.

The city is using "biosolids" - yes, they are what they sound like - as a high-power fertilizer to nourish hundreds of saplings destined to shade the city's streets and grace its parks. But the benefits go beyond aesthetics. The city saves money on trees, the trees improve air quality, and something distasteful gets turned into something useful.

"We're trying to do the full circle here," said Forest Decker, manager of forestry and conservation in the Kansas City Parks and Recreation Department. Decker looked out recently on two acres of young trees planted in rows on the grounds of the city's Birmingham sewage treatment plant in the bottoms on the north side of the Missouri River. Behind

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him on the hill were large lagoons storing human byproducts that used to be incinerated.

For several years, Tim Walters, agronomist for the Kansas City Water Services Department, has been using biosolids to fertilize trees and crops on the roughly 1,300-acre property. Last fall, Decker's crew and volunteers also began planting young trees here for later transplantation throughout the city. Kansas City receives the trees, of a variety of species, for free from a nonprofit organization called Forest ReLeaf of Missouri. By the time they are transplanted, the city will have spent about \$80 a tree, roughly a third of the cost to buy from a commercial nursery. That will be a great help as the city aims toward a goal of planting 120,000 additional trees in the coming decade. Decker can plant about 625 trees an acre, and he has 40 acres of room to expand. The first saplings will be big enough to transplant by fall 2010. That's a quick turnaround. "In normal conditions, it would probably take them four years to reach the size that we need them to be," Decker said. "We're going to cut that time in half."

That is because of the rich nitrogen content and other nutrients in the biosolids. Elsewhere on the water department property, cottonwoods planted just four years ago and fertilized with biosolids soar 50 feet or higher. The department also grows corn and soybeans with the stuff and got \$680,000 by selling last year's crop for animal feed or biodiesel fuel. All that is gravy for the water department, which also saves about \$20,000 a month by not incinerating the biosolids, Walters said. "We're getting rid of something that used to be considered a waste and used to cost us a lot of money to deal with," he said. "Now we're making money on the deal."

The Birmingham sewage plant takes in waste and, after initial treatment to remove most of the liquids, what's left gets pumped under the river to the Blue River plant. There the solids from Birmingham and other treatment plants in the city are further processed, or "cooked," before being pumped back to the lagoons at Birmingham. Walters' operation handles about 8,000 dry tons of biosolids a year and could use even more. The material contains about 250,000 pounds of nitrogen. By spraying it on the soil, Walters estimates he also is sequestering about 1,125 tons of carbon that otherwise would go into the atmosphere.

Such operations are not unique to Kansas City. The Environmental Protection Agency, which regulates the use of biosolids, estimates about half of them produced in the country are returned to the land. But Decker said he is not aware of many other places where biosolids are used to nurture trees for transplanting on public property.

The Birmingham lagoons have a noticeable odor up close, but the operation is in a relatively isolated area. Monitoring wells on site and at the river allow officials to make sure they are not discharging excessive amounts of nitrogen or other chemicals or heavy metals into the water table or the river. The Missouri Department of Natural Resources also watches the results.

These biosolids are not processed enough to allow for use on human food crops, and they are not available to the public. Decker and Walters were recently recognized for their work by the Kansas City Environmental Management Commission.

Calendar of Events

MBT Meetings

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

Location: Frankenmuth

Theme: Holiday Party

2010 Meeting Schedule

Thursday, January 14, 2010

Thursday, April 15, 2010

Thursday, June 17, 2010

Thursday, July 22, 2010

MBT Biosolids Demo Plot Booth

MSU Ag Expo

Thursday, September 16, 2010

Thursday, November 18, 2010

Holiday Party

Other Events

WEFTEC

October 10-14, 2009

Orange County Convention Center

Orlando, Florida

MSUE Biosolids Workshop

March 15-16, 2010, Grand Rapids

MBT Biosolids Conference

March 16-17, 2010, Grand Rapids

Creating High Value Potting Media from Composts Made with Biosolids and Carbon-Rich Organic Wastes

By Rita Hummel, Craig Cogger, Andy Bary, and Bob Riley, Washington State University-Puyallup

The market for potting mixes in the Northwest is large and growing, and biosolids composts have the potential to be a major ingredient in locally produced potting mixes. A large volume of carbon-rich materials are available in Washington State, and these could be composted with Class B biosolids to make a Class A product suitable for use in potting mixes. Woody construction debris, land-clearing debris, and horse manure are abundant in urban areas of western Washington, such as King County. The objective of this study was to determine suitability of composts and blends made with biosolids and urban organic carbon sources as high value potting mixes.

We made experimental composts in aerobic reactors providing similar conditions to full scale static aerobic piles. Composts were made from King County biosolids (1 part by volume) blended with construction debris, land clearing debris, or horse manure (3 parts by volume). All composts met PFRP pathogen reduction requirements and were 8 months old at the time they were prepared as potting mixes.



Potting marigolds in experimental potting mix

The experimental composts were screened (7/16 in.) and blended 1:1 (v:v) with aged Douglas-fir bark to produce potting mixes. They were compared with standard King County biosolids compost (Groco) blended with Douglas-fir bark, the commercial Tagro

potting mix, and an industry standard peat-perlite mix.

We transplanted marigold and sweet pepper seedlings into 4-inch pots filled with the different potting mixes, using 8 replicate plants per treatment. Plants were grown using drip irrigation under standard greenhouse conditions, and received all nutrients needed. Two

levels of nitrogen were compared: the industry standard and one-half the industry standard. We measured shoot growth index, visual quality, color, flower and bud number, and then harvested the plants and measured dry weight.

Results

- The experimental biosolids composts with horse manure, construction debris, and land clearing debris mixed with Douglas-fir bark performed as well as peat-perlite and Tagro for growing marigold and sweet pepper, based on plant growth and quality, but the potting mix made from Groco did not perform as well.
- Higher nitrogen rates improved plant growth and quality across all potting mixes in pepper (a plant with higher N demand), but had fewer effects for marigold (a plant with lower N demand).
- Experimental composts were coarser textured than peat-perlite and Tagro potting mix, resulting in high aeration porosity and low water holding capacity, but performed well nonetheless under the drip irrigation used in this study.

This study demonstrated the feasibility of producing potting mixes made from biosolids composted with locally available carbon sources. These potting mixes can meet the demand for mixes made from local, renewable resources. Barriers and challenges to potting mix production include the need to have consistent high quality to gain and maintain customer satisfaction, and the collection of suitable carbon rich waste streams from decentralized sources. Although the mixes in this study performed well using drip irrigation, they may be too coarse for some other management systems. Additional study may be needed to improve the quality and consistency of the products from this study through custom grinding or screening of the woody feedstocks.

This project was funded by the Department of Ecology Zero-Waste program and King County.

