Clean Water Action Council
OF NORTHEAST WISCONSIN

Celebrating 38 years of working to protect public health and the environment in Northeast Wisconsin

SUMMER 2023

What You Should Know About Biosolids

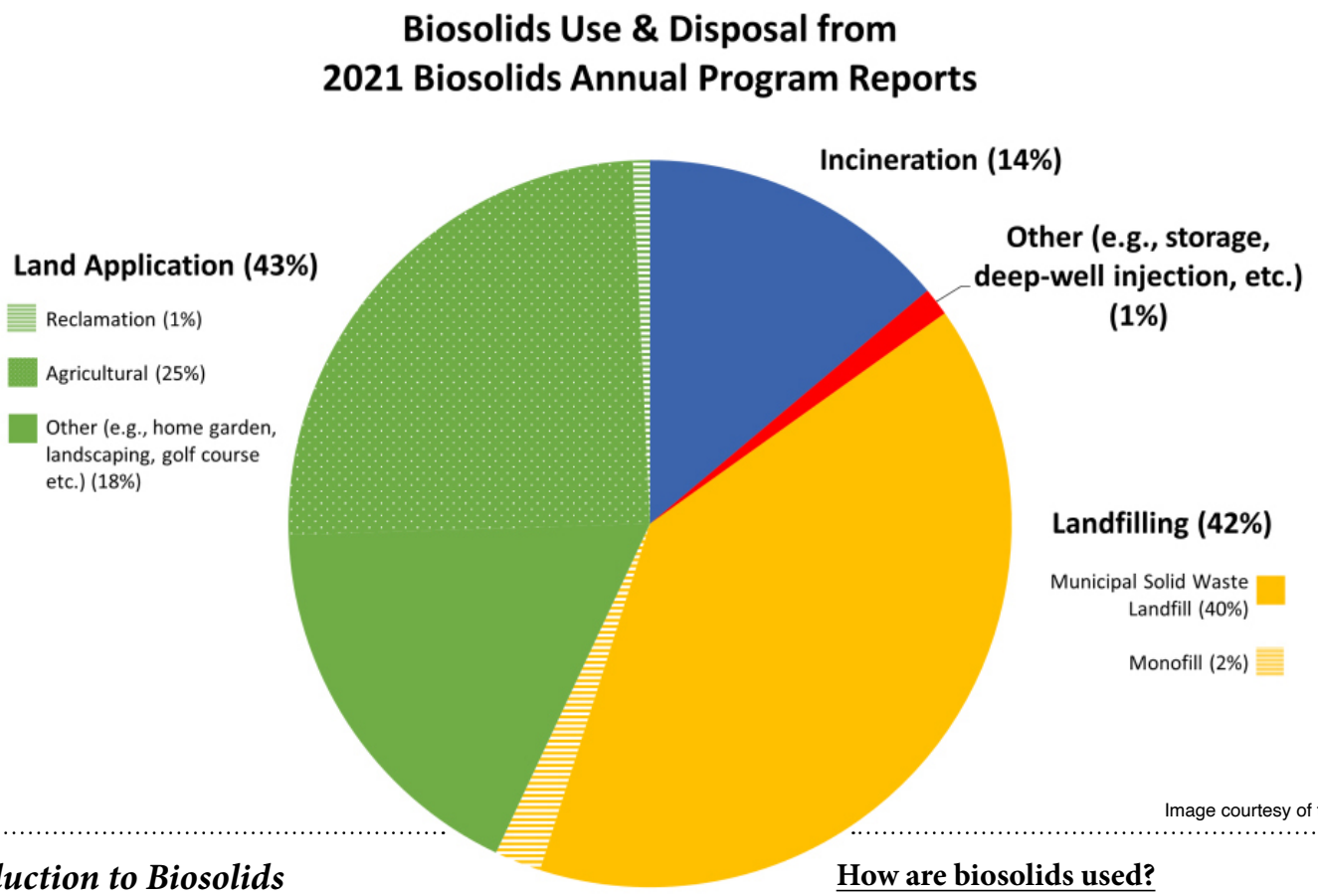


Image courtesy of the EPA.

Introduction to Biosolids

By Dean Hoegger, CWAC President

What are biosolids?

Biosolids, sometimes referred to as sewage sludge, are the byproduct of wastewater treatment at municipal or industrial sewage treatment plants. Municipal sewage treatment plants receive wastewater from multiple sources. The wastewater coming from households includes everything we flush down a toilet or pour down a drain including human waste, chemical cleaners, and even microplastics from different types of clothing. If you have a septic system or holding tank, your sludge will eventually go to a treatment facility. Many of the contaminants remain in the sewage sludge.

How are biosolids used?

Biosolids are classified by the EPA into two classes. Class A requires significant pathogen reduction including viruses. Class B requires less stringent pathogen reduction by delaying use for crops near harvest time to allow time for pathogen degradation. Both set limits for certain toxins. Spreading biosolids on agricultural fields, forests, reclamation sites, and even lawns and home gardens is a common practice because they contain an abundance of nutrients and organic matter. However, clearly biosolids contain many toxic chemicals that are not removed prior to land spreading and often remain in the soil for years. Some are taken up by crops fed to animals or humans. Farm animals can also intake the contaminated biosolids while grazing.

Bulk biosolids field stacking. Photo courtesy of the City of Appleton, WI.

What toxins are in biosolids and what harm can they cause?

Medical facilities, such as hospitals, clinics, and dental practices, and as well as industry, send wastewater to treatment plants. In the case of dental offices, removing dental fillings containing an amalgam of mercury, silver, tin, copper, zinc, and other metals have sent toxins down the drain. Even though recent rules have required dental practices keep these metals from going down the drain, some Wisconsin treatment plants have requested variances for the mercury they are allowed to send to surface waters. CWAC filed a complaint with the EPA regarding the City of Oconto Municipal Sewage Treatment Plant's request to nearly double its mercury exceedance. Many of these contaminants remain in the sewage sludge.

Both past and recent history of industry sending chemically contaminated wastewater to municipal treatment plants illustrates the degree of irresponsibility by some companies. Beginning in 1954 through 1971, 300 tons of PCBs were sent to municipal sewage plants along the Fox River who unknowingly sent PCBs into the river from the treated wastewater. In recent years, PFAS was sent by Tyco Fire Products to one or more sewage treatment plants, which then land-spread the sewage sludge containing the PFAS.

Some companies processed their own wastewater and therefore generated their own sludge. For instance, in 1985, the Oneida Tribe of Indians of Wisconsin held a special meeting to discuss concerns about the Fort Howard Paper Company sludge ponds near the reservation thought to be in existence since 1967. Meeting documents indicated that "the solids contain primarily clay with some paper fibers, the liquid is mostly water, but contains VOCs, PCBs, and other unknown chemicals. It is estimated that there are about 35 pounds of PCBs dumped at the site annually." The site was later listed as a Super Fund site by the EPA.

Another pollutant receiving greater attention is microplastics. (See *Preventing Microplastic Pollution* on our website under Resources.) In 2015 Wisconsin banned microbeads, a type of microplastic, in personal care products, which significantly reduced contamination of both water and biosolids. However, many microplastics and nano plastics enter sewage treatment facilities via washing machine discharge. Clothing made from synthetic fibers, such as acrylic, nylon, and polyester, shed tiny plastic particles, some of which are spread on agricultural fields.

The National Library of Medicine reports that these particles are known to enter both aquatic and land-based food chains. Recent research shows they can be taken up by plants and then move up the food chain when eaten by other animals or consumed directly by humans. Nano particles are pervasive in the environment with many avenues of exposure, including breathing dust from biosolids.

Another source of biosolids is the byproduct of liquid manure digesters and other types of biodigesters. More on that topic in "*Using Biodigestion to Treat Biosolids and Produce Energy.*" (see page 8)

The EPA found that one sample of biosolids contained 700 different pollutants. Of the greatest concern are some of the over 2000 PFAS family of forever chemicals and persistent organic chemicals such as polycyclic aromatic hydrocarbons, PCBs, dioxin, and organochlorine pesticides that are slow to break down in the environment. A cumulation of heavy metals can occur from land-spreading. The EPA regulates only 10 of these contaminants in sludge spread on farm fields that grow food crops (nine heavy metals and fecal coliform).

Writing for her award winning consumer activist website Mamavation, Leah Segedie divides contamination into ten categories and provides many links to studies and reports. Here are some key points from her work.

1. **Heavy metals.** EPA reported that thallium, cadmium, molybdenum, mercury, and lead were some of the metals found in sludge and that thallium was not regulated in sludge. Toxic metals and other chemicals could contaminate the food you eat. Several crops have been shown to accumulate toxic metals, such as lettuce, spinach, cabbage, Swiss chard, and carrots.
2. **Triclosan**, an antibacterial found in soaps, is an endocrine disruptor that was shown to be taken up by soybean plants. The FDA is taking another look at whether the risks outweigh the benefits.

3. **Pharmaceutical contamination** of sewage sludge is known to be increasing. However, there has been little research on the impact of the 23 drugs and 49 antibiotics the EPA reported can be found in sludge.
4. **Asbestos** is thought to be present in two-thirds of sewage sludge but is unregulated. Because sludge is often applied to the land dry, asbestos may be a real health danger to farmers, neighbors, and their children.
5. **Arsenic** is a known carcinogen and even at low levels in the long term can cause liver and kidney damage according to the American Cancer Society.
6. **Dioxin** levels have been decreasing in the environment and therefore in sewage sludge as well. However, as a persistent environmental pollutant, it is not known what the accumulative affect would be.
7. **Polychlorinated Biphenyls (PCBs)**, a known carcinogen and endocrine disruptor, have been found in sewage sludge. Fortunately, PCBs were banned in 1979.
8. Fifteen **hormones** have been detected in biosolids, some of which are believed to be taken up by cattle, either though consumption of plant material or direct ingestion of sludge in fields where it has been spread.
9. **Flame-Retardants** (and other household chemicals) are found in biosolids. These chemicals of emerging concern that are often present at high concentrations in biosolids and are generally unregulated.
10. **Steroids**, such as prednisone and hydrocortisone, and those found in inhalers and nasal spray, are finding their way through sewage treatment plants into sewage sludge. The EPA identified 10 steroids in biosolids. A study by the Science Daily group concluded that some anabolic steroids last longer than previously known.

Many landfills have liquid drainage systems. This waste is then sent to wastewater treatment plants which further adds to the amount and types of pollutants that end up in biosolids and are often spread on agricultural fields or turned into lawn and garden fertilizer.

Where do we go from here?

The U.S. Environmental Protection Agency Office of Inspector General found that the agency is unable to assess the impact of hundreds of unregulated pollutants in land-applied biosolids on human health and the environment. Even though 61 of these pollutants are designated as acutely hazardous, hazardous, or priority pollutants in other programs, the EPA lacks control over land-spreading. Congress needs to act to give the EPA the funding for research and the authority to require source investigation, mitigation, and spreading restrictions as needed.

Resources:

Report: EPA Unable to Assess the Impact of Hundreds of Unregulated Pollutants in Land-Applied Biosolids on Human Health and the Environment | US EPA

Nanoplastics and Human Health: Hazard Identification and Biointerface - PMC (nih.gov)

Land Application of Biosolids in Northeast Wisconsin

Gracyn Holcomb

Biosolids are a byproduct of wastewater treatment and are rich in nutrients like nitrogen and phosphorus. However, recent studies from the University of Wisconsin-Madison have found that PFAS can remain in biosolids. PFAS in wastewater undergo extensive processing, but since PFAS are not broken-down during sewage treatment, PFAS can later mobilize into the environment through land spreading of biosolids onto farm fields.

In Northeast Wisconsin, the two most common ways of disposal of biosolids is through landfill burial or land application, with land application becoming increasingly more popular among municipal wastewater treatment plants. Land application and incorporation of biosolids is used based on the understanding that the nutrients, especially nitrogen and phosphorus, can be used like fertilizer for the soils on farm fields. The high amounts of organic matter in biosolids are especially attractive to areas with sandy soils, to help build the soil's organic level.

Example of biosolid incorporation. Photo courtesy of AWWTP.

Biosolids can be applied through incorporation or surface application on sites permitted prior by the DNR. When Fond Du Lac incorporated biosolids into a field, the biosolids are injected into the soil at a depth of approximately 7 inches, with similar techniques being used by other municipalities.

Information in the table below *(see next page)* was found through direct communication with municipalities and information found on their website.

The Wisconsin Department of Natural Resources requires municipal wastewater treatment plants to test for heavy metals of cadmium, lead, copper, nickel, and zinc; and the testing of non-metals including nitrogen, phosphorus, and PCBs. Many of the treatment plants do test other heavy metals including arsenic, mercury, molybdenum, and selenium in addition to the previously stated requirements.

The WDNR does not require testing for PFAS chemicals within the current permits granted to the municipalities. However, Fond Du Lac, Madison, and Marinette have

		Biosolid Testing		
Location	**Land Application**	**Heavy Metals**	**Non-Metals**	**PFAS**
Appleton Wastewater Treatment Plant	Yes	Yes	Yes	No
Denmark Wastewater Treatment Plant	Yes	Yes	Yes	No
Fond du Lac Wastewater Treatment & Resource Recovery Facility	Yes	Yes	Yes	Yes
Kewaunee Sewage Utility	Yes	Yes	Yes	No
Madison Metropolitan Sewerage District	Yes	Yes	Yes	No
Manitowoc Waste Treatment Plant	Yes	Yes	Yes	No
Marinette Cty Wastewater Plant	Yes	Yes	Yes	Yes
New London Sewage Disposal Plant	Yes	Yes	Yes	No
Neenah-Menasha Sewerage Commission	Yes	Yes	Yes	No
Oconto Falls Municipal Utilities	Yes	Yes	Yes	No
Oshkosh Wastewater Control	Yes	Yes	Yes	No
Shawano Wolf Treatment Plant	No*	Yes	Yes	No
Sheboygan Wastewater Treatment	Yes**	Yes	Yes	No
Sturgeon Bay Utilities	Yes	Yes	Yes	No
Two Rivers Wastewater Treatment Facility	Yes	Yes	Yes	No

*As of 2018, Shawano no longer uses land application as a disposal method. **Sheboygan uses a third party for land application.

tested for PFAS within their biosolids prior to application. The findings from these tests have strengthened the DNR's proposal of a new strategy for land application of biosolids containing PFAS. Under the new regulations the thresholds would be as stated:

- Below 16 ug/kg (parts per billion/ppb), no action necessary prior to land application;
- 16-50 ppb, source investigation and reduction would be required/ PFAS analytical results must be provided to the landowner prior to application and application rates would be tracked;
- 50-150 ppb, immediate notification to DNR staff. Development of source reduction program would be required. Future land application rates must be reduced to no more than 1.5 dry tons per acre and analytical results must be provided to landowner and application rates tracked;
- Above 150 ppb, biosolids considered industrially impacted by PFAS and cannot be land applied.

Although sites are subject to regulations that account for soil type; maximum biosolid loading; setbacks from existing structures, waterways, wells; seasonal restrictions; and more, there are still concerns about environmental and human health along with water quality. Growing concern has stressed that a high quantity of chemicals, including those manmade, that are found within biosolids for which the government doesn't test for are not removed, exposing citizens to toxics that are unknown and unregulated.

Land application seems like the environmentally friendly way to dispose of biosolids, but without proper testing and regulations a variety of persistent and toxic chemicals can be entering our food supply and contaminate water sources. If municipalities in Northeast Wisconsin are to continue dispose of their leftover biosolids from wastewater treatment plants, changes are needed to protect the health of the environment and humans. More regulations and testing required by the EPA and WDNR could help protect our health.

Sources

Municipalities:

https://www.appleton.org/residents/utilities/wastewater-treatment/biosolids-program

https://denmark-wi.org/sewer-utility/

Cody Schoepke, Fond du Lac WTRRF, Superintendent
https://www.fdl.wi.gov/wastewater/biosolids-management/

https://dnr.wisconsin.gov/sites/default/files/topic/Groundwater/WorkgroupSensitiveAreasBMP/landApplicationinKewauneeCountySummary20150825.pdf

https://madsewerpfasinitiative.org/wp-content/uploads/2021/09/REPORT-PFAS-Sampling-Phase1-2021.pdf

https://www.marinette.wi.us/DocumentCenter/View/1926/Wastewater-PFAS-History

https://www.manitowoc.org/518/Wastewater-Treatment-Process

https://nmscwwtp.com/industrial-pretreatment-program/

https://cms4files.revize.com/newlondonwi/document_center/Meetings/Public_Works/agenda/2020/Public_Works_11-2-2020_attached.pdf

https://www.ofmu.org/wastewater-department

https://www.ci.oshkosh.wi.us/PublicWorks/Documents/CityOfOshkoshWastewaterUtility_2042FacilitiesPlan-November2022-Volume1.pdf

https://www.cityofshawano.com/DocumentCenter/View/2320/2022-CCR?bidId=

https://sheboygandpw.com/perch/resources/admin/plant-brochure-2020-final-version.pdf

https://www.sbunet.com/about-us

https://www.two-rivers.org/publicworks/page/public-works-waste-water-division

Other Resources:

https://docs.legis.wisconsin.gov/code/admin_code/nr/200/214/ii/18/4

https://dnr.wisconsin.gov/sites/default/files/topic/PFAS/PFAS_BiosolidsInterimStrategy.pdf

file:///Users/gracynholcomb/Downloads/J80493-1%20UDS%20Level%202%20Report%20Final%20Report.pdf

https://www.theguardian.com/environment/2019/oct/05/biosolids-toxic-chemicals-pollution

https://www.epa.gov/sites/default/files/2018-11/documents/_epaoig_20181115-19-p-0002.pdf

Biosolids & Resource Recovery. An Alternative to Land Application

Submitted by NEW Water

How does NEW Water deal with biosolids? By viewing it as a resource to be recovered, rather than something to dispose.

R2E2, or Resource Recovery and Electrical Energy, represents a change in philosophy for NEW Water, the brand of the Green Bay Metropolitan Sewerage District.

When the old solids' handling facility had reached the end of its useful life, the utility took the opportunity to factor in resource recovery. With R2E2, the new approach to solids handling harnesses resource recovery of nutrients and biogas for cost savings and environmental benefit. Due to the innovative design, the facility produces about 40% of the electricity needs for the Green Bay Facility, resulting in a reduced carbon footprint and significant cost savings.

R2E2's two anaerobic digesters, used to produce electricity for the facility, which can be seen while driving across the Leo Frigo Bridge.

R2E2 was designed to use fluid-bed incineration with anaerobic digestion to both recover and minimize the use of resources. Anaerobic digestion is used to break down biosolids in the absence of oxygen, after they are settled out during several phases in the liquids portion of the treatment process. Anaerobic digestion recovers energy from biosolids in the form of biogas.

Another resource recovery component to R2E2 is the High-Strength Hauled Waste Program. High-strength waste is typically industrial or commercial wastewater with a high biochemical oxygen demand (BOD) content, such as dairy, sugar, and food processing waste, which would otherwise be spread onto nearby fields or land-filled. Hauled in from area industries and businesses to NEW Water's Green Bay Facility, these wastes can increase digester biogas production, further offsetting NEW Water's energy costs, as well as reducing disposal costs for industries, and providing a consistent and environmentally friendly disposal outlet.

High-strength hauled waste is accepted and fed into the digestion process, which has increased gas production by 25% above what is generated by biosolids alone. Digester gas is used in internal combustion engine generators to produce electricity. Fluidized-bed technology blows hot air through a sand bed to dry and incinerate the biosolids. Air emissions are managed through a pollution control system to remove pollutants as set out by the Environmental Protection Agency and Wisconsin Department of Natural Resources, including particulate matter, mercury, nitrogen oxides, hydrochloric acid, sulfur dioxide, dioxins, furans, and metals.

R2E2's internal combustion engine generators use the digester gas to produce about 40% of the electricity needs and heat captured off the engine is used to heat processes at the Green Bay Facility.

Ash from the incinerator is sent to a landfill. When the incinerator is undergoing maintenance, biosolids are sent to a landfill. In 2022, about 33,570 tons of biosolids were processed by NEW Water, with about 2,900 tons hauled to a landfill; that amounts to about 9% of the total amount of biosolids sent to NEW Water from the community.

Another resource recovery process occurs as heat from the engines and incinerator are captured and used for building heat, biosolids drying, and digester heating.

Background

Construction of R2E2 launched in 2015, and the facility went online in 2018. NEW Water began processing biosolids using incineration when the 1974 solids handling facility went online, on the heels of the Clean Water Act, which funded wastewater upgrades across the United States. The old system used multiple-hearth incineration, which required significant supplemental fuel to operate. NEW Water replaced its old solids handling facility to meet stricter environmental regulations, address the needs for increased capacity, and to replace aging infrastructure.

Learn more about R2E2, watch R2E2: A New Era in Resource Recovery video.

About NEW Water

Established in 1931, NEW Water is a clean water utility serving about 238,000 people in Northeast Wisconsin. In 2022, NEW Water cleaned about 15 billion gallons of water. NEW Water staff work 24-7-365, so Northeastern Wisconsin families, business, and industries can flush the toilet, do their dishes, and operate their businesses whenever they want.

Learn more about NEW Water

Should Milorganite Really Be Called Organic?

By Maya Hearden

Gardeners using fertilizers derived from sewage biosolids may be unknowingly spreading PFAS and other harmful chemicals. Home fertilizers made from sewage biosolids, such as Milorganite, are often labeled organic because they do not have an inorganic version of nitrogen, phosphorus and potassium, but rather these nutrients come from human waste. However, they have been found to contain an abundance of harmful forever chemicals. These home fertilizers are often labeled as "organic," "eco," or "natural," thus misleading consumers.

A recent study done by the Sierra Club and the Ecology Center in 2021 found high levels of toxic PFAS chemicals in home fertilizers containing biosolids, including Milorganite. Other fertilizers included Menards Premium Natural Fertilizer, Cured Bloom, TAGRO Mic, Pro Care Natural Fertilizer, EcoScraps Slow-Release Fertilizer, GreenEdge Slow release Fertilizer, Earthlife Natural Fertilizer, and Synagro Granulite Fertilizer Pellets.

Pathogens and heavy metals in biosolids are currently regulated by the EPA, but they do not set limits for other chemicals that accumulate in sewage and wastewater, such as PFAS. The Sierra Club study used screening limits set by Maine, the state with the most vigorous action on PFAS in biosolids. Eight of the nine tested fertilizers exceeded these limits.

Product Name	PFOA	PFOS
Cured BLOOM	23.8	22.1
Earthlife Natural Fertilizer	2.75	17.3
Ecoscraps Slow Release Fertilizer	1.2	16.9
GreenEdge Slow Release Fertilizer	1.39	13.5
GreenEdge Slow Release Fertilizer	1.66	12.9
Menards Premium Natural Fertilizer	1.01	9.05
Milorganite 6-4-0 Fertilizer	0.67	8.66
Pro Care All Natural Fertilizer	0.94	14.9
Synagro Granulite Fertilizer Pellets	0.95	3.71
TAGRO Mix	7.51	7.92

PFOA and PFOS Levels in the 9 tested fertilizers. Maine Biosolid Screening Limits: PFOA 2.5, PFOS 5.2. Photo Courtesy of Sierra Club.

The study found total PFAS concentrations ranging from 38 to 233 parts per billion. This is thousands of times higher than the amount regulated in drinking water, and similar to concentrations found in fish collected in highly polluted areas. The study also found two to eight fold higher concentration of PFAS precursors. Additionally, the study found about 150 to 6,000 times greater mass of unknown fluorochemicals in the fertilizers.

Consumers typically opt for Milorganite and other biosolid derived fertilizers due to their "organic," "eco," or "natural" labels. While trying to be environmentally conscious, they may be inadvertently increasing negative consequences to the environment, and their own health.

Exposure to PFAS chemicals is linked to cancer, kidney disease, and other adverse health impacts. Additionally, PFAS can move through soils contaminating water sources and bioaccumulate in fish and other wildlife. These "forever chemicals" do not break down in the environment and remain in the body over time.

According to an EPA report from 2021, other contaminants commonly found in biosolids include dioxins and furans, PCBs, volatile hydrocarbons, pharmaceutical drugs, PAHs, pesticides, parabens, heavy metals, and fragrance additives. These chemicals persist through wastewater treatment processes and concentrate in biosolids.

Milorganite, a brand that has been "trusted for over 90 years," is manufactured by the Milwaukee Metropolitan Sewerage District. According to the Milorganite website, the fertilizer, which is produced from heat-dried sewage sludge, is "one of the nation's oldest recycling efforts," and "complies with [the EPA's] most stringent requirements."

CWAC photo

In order to keep PFAS and other contaminants out of biosolids, their production and use should be limited. Additionally, federal and state governments, as well as industry and wastewater treatment plants, must take action to more thoroughly test these biosolids for toxins.

To reduce risk to your health and the environment, skip fertilizers derived from biosolids. When determining

whether a fertilizer is biosolid based, check the "Guaranteed Analysis" label. If not explicitly labeled, terms like "residuals" and "municipal waste" may indicate that some level of biosolids are present.

References:

Is Milorganite fertilizer safe? What to know about forever chemicals. (jsonline.com)

Sludge in the Garden: Toxic PFAS in home fertilizers made from sewage sludge | Sierra Club

What is Milorganite Fertilizer?

Sewage Sludge Contaminates Farm Fields in Marinette County with PFAS

By Dean Hoegger

As previously mentioned in the introduction, sewage sludge contains many toxins of which only 11 are tested for, and currently that does not include federal or state restrictions for the family of PFAS chemicals. Yet PFAS is showing up in the sewage sludge, also referred to as biosolids. A case in point is the PFAS contamination found at the Marinette Wastewater Treatment Facility (MWTF).

MWTF first detected PFAS in wastewater in 2018, but was not equipped to remove PFAS from wastewater, so it was able to pass through the facility into the biosolids. Follow up testing showed that the biosolids contained high levels of PFAS.

Beginning in July of 2019, the DNR directed Johnson Controls, the parent company of Tyco Fire Products to begin testing soil in areas where sewage sludge was spread on 61 farm fields in the area. Tyco was believed to be the key source of PFAS as they were testing firefighting foam and directing some of the foam to three of the five intake lines of the sewage treatment plant. As of April 2023, Tyco has not complied with site testing, so the DNR sent a letter of non-compliance. Fortunately, by 2018 MWTF began storing the contaminated sludge with the idea that Tyco would treat and dispose of the stored sludge.

Map of locations where biosolids from MWTF were spread. Courtesy of WDNR.

But it was not until September of 2019 that the general pubic became aware of the extensive contamination. That is when the DNR began holding listening sessions to hear citizen concerns about well water and soil contamination, and how the soil contamination might impact crops and wildlife. It is apparent that wildlife was impacted. In September of 2020 the DNR issued a Do Not Eat Advisory for the liver of white-tailed deer in the Marinette area. Safely Eating Wild Game | | Wisconsin DNR.

While there are no state or federal standards for PFOS, the Michigan Department of Agriculture and Rural Development and Health and Hunan Services jointly advised consumers that beef from one cattle farm may contain PFOS. It was believed that the PFOS originated from biosolids used by the farm as fertilizer. The plants took up the PFOS from the fertilizer, and the cattle ate the plants. It is feared that the same contamination can happen in Wisconsin. Watch Toxic Farmland - VICE Video: Documentaries, Films, News Videos.

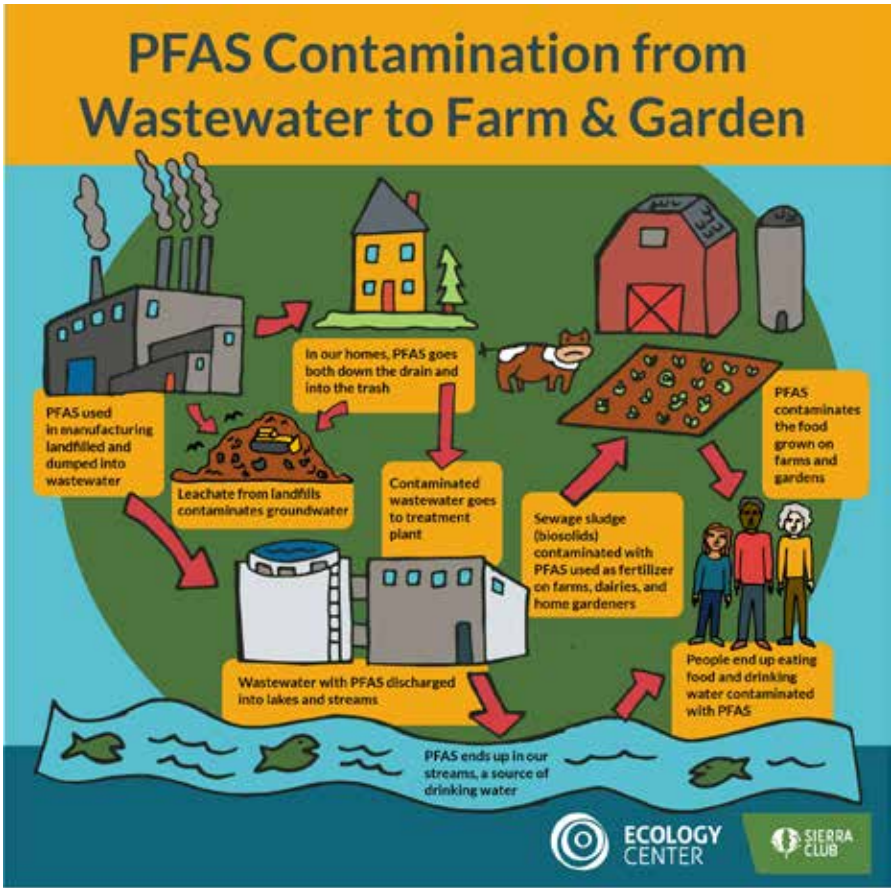


Image courtesy of the Sierra Club.

There are currently no established federal rules for PFAS chemicals in biosolids. The EPA is in the process of evaluating risk-based exposures to PFAS in biosolids. However, it is likely that final rules will not be established for many years. This is primarily due to the value placed on land spreading biosolids and the EPA's responsibility to prove harm versus industry being required to prove the chemicals are safe. In the interim, Wisconsinites

will need to depend on the DNR to "…prevent further land application of municipal biosolids that have been industrially impacted by PFAS," as stated in Wisconsin's *Interim Strategy for Land Application of Biosolids Containing PFAS*, September 22, 2021.

Additional Resources

https://dnr.wi.gov/topic/Contaminants/documents/jci/Presentation20200415.pdf

PFAS_BiosolidsInterimStrategy.pdf

Sludge in the Garden: Toxic PFAS in home fertilizers made from sewage sludge | Sierra Club

Using Biodigestion to Treat Biosolids and Produce Energy

By David Verhagen

A common way to treat sludge and similar wastes is to break them down biologically in a digester. Anaerobic digesters are the most common. In them, waste is treated in the absence of oxygen. Microbes are used to break down organic matter producing a biogas and nutrient rich residuals we refer to as biosolids.

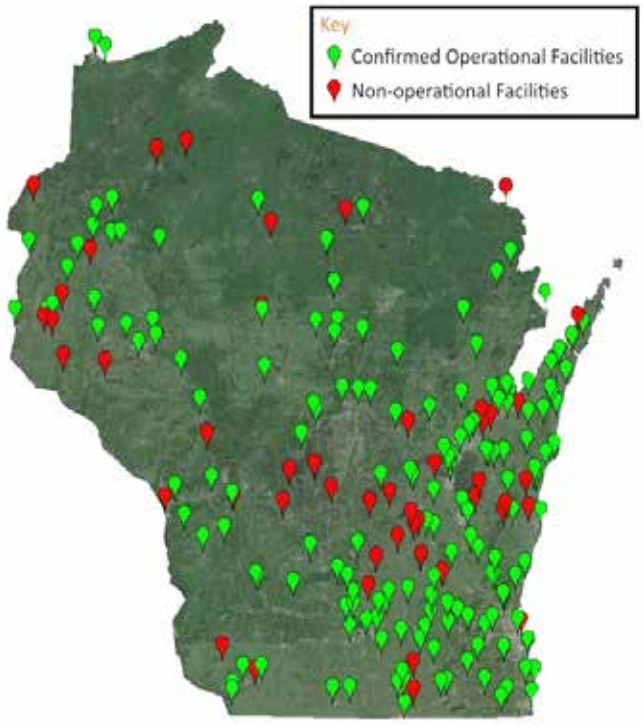
The biogas produced is primarily methane, which had often been burned on-site in generators to produce electricity and produced heat for warmth. Maintenance expenses and low prices paid for electricity has resulted in most digesters being retrofitted to upgrade the quality of the methane produced. They are now able to sell the upgraded gas to local natural gas suppliers. Their biogas is being pumped into existing gas pipelines, mixing in with fossil gas coming from drilled wells, and is sold to residential and industrial customers connected to the pipeline.

In an effort to fight climate change, use of biogas is being offset against the use of fossil "natural" gas. The exchange is governed by a system of carbon credits linked to each gas source. Biogas is being sold at a premium to industries that use gas in their operations. Some of the value of that biogas gets paid to the digester operators who produced it. So, in theory, biogas produced in Wisconsin is being consumed by companies in California via the common network of pipelines carrying fossil natural gas and biogas across the country.

Wisconsin had 318 methane digesters as of 2022 according to the state Public Service Commission. U.S. Environmental Protection Agency data show Wisconsin has more methane digesters than any other state.

What is left behind after gas removal is a residue called biosolids. To get an idea of what is in the biosolids it helps to consider the waste streams feeding into the digesters:

Sewage treatment utilities operate more digesters than any other industry. Their biosolids include fecal matter, residual prescription drugs, and all manner of compounds poured down the drain. The exact amount of each of these varies with the source of the wastewater. And in our area, NEW Water treats both residential and industrial



Anaerobic Digesters in Wisconsin.
Map courtesy of Wisconsin Public Service Commission.

wastewater in the same system. Biosolids remaining from sewage treatment plants are often burned using biogas to drive the incinerators. The resulting high temperatures consume most compounds with the remaining ash being buried in landfills where problematic compounds can accumulate.

Toxins in the ash can include heavy metals originating in household products and industrial processes. These may include lead, mercury, chromium and so on, as well as organic compounds such as polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) and about 3,000 varieties of PFAS chemicals. Many pharmaceutical and personal care product residues can also remain in the ash and make it into landfills.

Agriculture is the industry operating the next largest number of digesters. Farm digesters have feedstock made up primarily of manure and livestock bedding. Anaerobic digestion is effective at reducing pathogens in most farm wastes. Its high temperature process combined with microbes destroy or deactivate bacteria, viruses, and parasites. It also stabilizes organic matter, reduces odors, and breaks down complex organic compounds.

The U.S. Environmental Protection Agency standards for biosolids allows most of them to be spread upon farmland. They are considered to improve soil fertility and soil structure. Solids not returned to the soil are often dried and used as livestock bedding, and thus cycle through the digester process repeatedly.

Extensive use of herbicides, pesticides and pharmaceuticals in farming contaminates the feedstock going into digesters and often persists in the finished

biosolids. When applied to fields these compounds can be taken up into crops or be washed into streams and even groundwaters. Nutrient management plans and strict guidelines are intended to minimize these risks, but compliance varies from one farm to the next.

Food processing creates much waste especially from animal remains (by-products). The parts of animals not used for human consumption are most often rendered using steam heat. Fats and oils are drawn off the waste and separated from the solids. Solids are ground into a protein powder that is added to feed for many kinds of livestock. Remaining biosolids are composted and sold as fertilizer.

Anaerobic digestion is being pursued as a more energy efficient and greenhouse gas friendly way of handling animal by-products. Steam rendering is energy intensive. Anaerobic digestion is more efficient but can be difficult to manage.

Digesting animal by-products can be made more effective by incorporating organic wastes from sewage sludge and other sources. Added to a digester in the right proportions more methane gas is produced and higher operating temperatures result, which is better for destroying pathogens, virus and parasites.

Greater varieties of organic feedstocks reduce ammonia production, promote a suitable alkalinity within the digester, and increases the capacity of the system. After drawing off the biogas for sale, the biosolids that remain are spread on croplands as fertilizer.

Anaerobic Digestion may become a keystone technology for building sustainability. Early adopters had mixed results both economically and with the biosolids left over following digestion. Current research is advancing the technology, but reducing and eliminating use of toxic and persistent chemicals will be necessary for anaerobic digesters to fulfill their promise.

Federal and State Laws Regarding Biosolids

By Lauren Felder

Biosolids, by legal definition, are the solid, semi-solid, or liquid residues generated during wastewater treatment of domestic sewage. In Wisconsin, biosolids (more commonly referred to as "sludge" or "sewage sludge" in legislation), are regulated by Department of Natural Resources (NR) Chapter 204. NR 204.04 allows "exceptional quality sludge" to be applied to lawns, home gardens, and other sites as a fertilizer because it does not create a public health hazard or pose any threat to the environment.

Exceptional quality sludge as a fertilizer is not managed by a permit system unless the WI DNR determines that the product is being misused, but a management plan is required for bulk importation of exceptional sludge. However, treatment facilities that generate sludge must apply for a discharge permit under the Wisconsin Pollutant Discharge Elimination System (WPDES).

Federal law regulates biosolids through the Clean Water Act (CWA). Section 405 of the CWA requires the US Environmental Protection Agency (EPA) to establish numeric limits and management practices for chemical and microbial pollutants that may be present in sewage sludge and may also affect environmental and human health.

In addition, regulations must be reviewed every two years to identify other pollutants that may be present in discharged sludge and create additional standards if those pollutants may harm human health or the environment. The specific standards for pollutant limits, management, monitoring, and recordkeeping are contained in part 503 in the CWA.

Wisconsin law is very similar to federal law and allows biosolids to be disposed of through landfilling, incineration, or other forms of surface disposal.. Biosolids which meet certain standards may be applied to land as fertilizer. NR 204 outlines the standards the treatment facility must meet for each disposal method.

The treatment facility or permit holder must create a report on the physical, chemical, and biological makeup of the sludge they discharge. The DNR requires these reports to include what other substances are present in the sludge, including but not limited to: percentages of total solids, oxygen levels, heavy metals, pesticides, viruses and bacteria, nitrogen, phosphorous, potassium and "any other parameters the department determines may be present in the sludge which may result in detrimental effects to public health or the environment" (NR 204.06(2)(9)).

One group of pollutants that is not specifically regulated but would likely fall under this "other parameters" requirement are polyfluoroalkyl substances (PFAS). The EPA has yet to establish safe standards for PFAS in the environment, namely drinking water, but its evaluation is set to finish in 2024.

On August 1, 2022, Wisconsin amended its safe water drinking code (NR 809) to include standards for perfluorooctanoic acid (PFOA) and perfluorooctanoic sulfonic acid (PFOS), two compounds which are commonly lumped together under the umbrella of PFAS. The maximum contaminant level allowed for each compound is 70 parts per trillion individually or combined. If this level is exceeded in drinking water, a remedial action plan must be instituted.

Tangentially related to this is the "Spills Law," Wis. Stat. § 292.11, which requires a person who discharges a hazardous substance without a permit to notify the DNR about the spill immediately. A remedial action plan must be created, and the discharger must clean up the spill or reimburse the DNR for doing so. This covers biosolids that are discharged without a permit, including those contaminated with PFAS.

CWAC is submitting briefs supporting the DNR in Wisconsin Manufacturers and Commerce, Inc. v. Wisconsin Department of Natural Resources, (WMC v. DNR) which

alleges that the DNR does not have the authority to regulate PFAS as a hazardous substance because the exact nature of the harm it can cause is not completely known and thus the DNR cannot claim it falls under the definition of "hazardous substance" under Wisconsin law.

If WMC wins the suit, the DNR could lose the authority to regulate sites that have been contaminated with any chemical whose effects have not been thoroughly studied, including PFAS. The amended safe water drinking code for PFAS of August 2022 may affect the outcome of this case.

If you are interested in learning more about environmental cleanup and brownfield redevelopment in Wisconsin, the DNR maintains a database of known contamination sites and their remediation status.

Visit the database online at https://apps.dnr.wi.gov/botw/.

Selected sources:

Spills Law: https://docs.legis.wisconsin.gov/statutes/statutes/292/ii/11

CWA Part 503 guide: https://19january2017snapshot.epa.gov/sites/production/files/2015-05/documents/a_plain_english_guide_to_the_epa_part_503_biosolids_rule.pdf

NR Ch. 204: https://docs.legis.wisconsin.gov/code/admin_code/nr/200/204.pdf

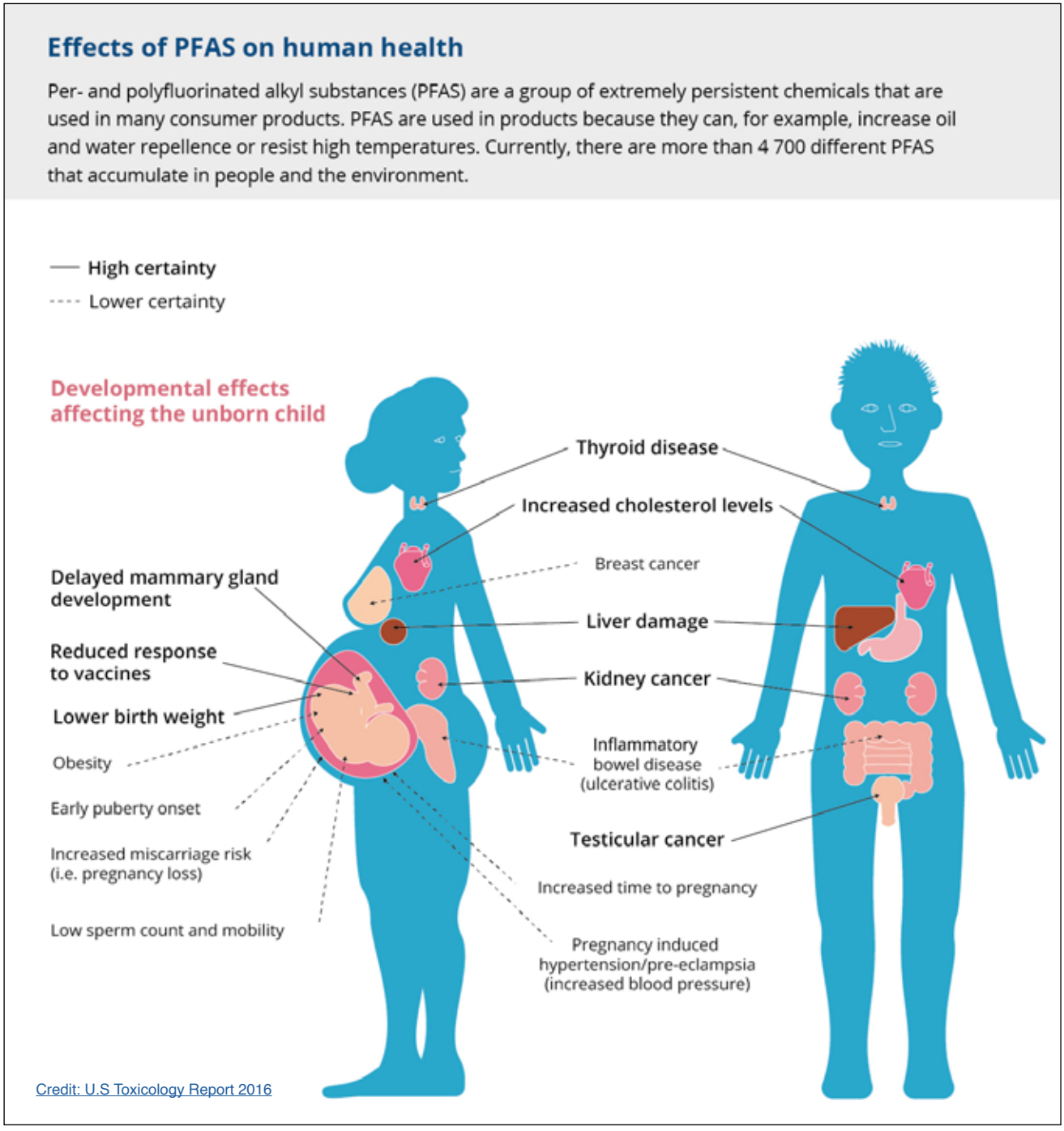
https://dnr.wisconsin.gov/wnrmag/2018/Fall/spills#:~:text=The%20Spill%20Law%20requires%20anyone,to%20old%20contamination%20newly%20discovered.

Additional sources:

Federal Water Pollution Control Act: https://www.epa.gov/sites/default/files/2017-08/documents/federal-water-pollution-control-act-508full.pdf

https://dnr.wisconsin.gov/topic/DrinkingWater/NR809.html

https://midwestadvocates.org/assets/news/WMC-v-DNR_-Summons-and-Complaint.pdf



PFAS and Biosolids Legislation. Are We There Yet?

Lori Palmeri, WI State Representative, District 54

One of the topics I try to follow as much as possible is water protection. One of the emerging issues, relative to PFAS, is biosolids. While biosolids have beneficial re-use, not enough is known about potential contamination levels in the State of Wisconsin, as applied to agricultural uses and the impact on the environment and food production.

I started following the topic of PFAS while I served in local government, trying to wrap my head around lead water lines and more recently PFAS in biosolids. While I served on the Common Council and as Mayor of Oshkosh, I learned that our wastewater treatment plant was disposing of biosolids to nearby farms as a way of minimizing expense alternatively to landfill fees. What I've come to understand is that we need good data on testing biosolids, new alternatives for disposal, clean-up, and preventing more PFAS (through biosolids and other means) from contaminating the land and water which we rely upon for agriculture.

According to a 2021 recommendation from the Wisconsin DNR, Interim Strategy for Land Application of Biosolids Containing PFAS (wisconsin.gov), states in part, "In Wisconsin, approximately 85 percent of biosolids generated are beneficially reused. Widespread use of PFAS in consumer products and manufacturing/industrial processes…have resulted in the presence of PFAS in municipal wastewater and biosolids."

It should be emphasized that WWTFs are not the source of PFAS. They are central to collection and could control/mitigate release into the environment. "To date, PFOS has been identified to be the main regulatory driver for municipal WWTFs with elevated PFAS concentrations in the biosolids/sludge from WWTFs with known significant industrial sources…"

The strategy went on to reference Michigan data, "… short-chain PFAS are more frequently correlated with aqueous WWTF process flows, while long-chain PFAS were strongly associated with solids process flows. This indicates that long-chain PFAS, such as PFOS, are expected to accumulate in the biosolids/sludge and, if land applied at excessive concentrations, will likely accumulate in soils to some degree.

Until a risk-based assessment is completed for PFAS in biosolids, DNR is implementing an interim strategy to help WWTFs and landowners/farmers who make decisions relating to land application of biosolids with detectable concentrations of PFAS. Numerous recommendations for interim implementation are included in the document. (WI DNR: INTERIM STRATEGY FOR LAND APPLICATION OF BIOSOLIDS CONTAINING PFAS, September 22, 2021)

What is the legislature doing about biosolids?

Governor Evers' budget proposed $106 million to address PFAS; it was removed from the budget by GOP action in the Joint Finance Committee (JFC) last month. The Senate Committee on Natural Resources is scheduled to take up the bill on Monday June 5. Eventually, it will make it's way to the Assembly, and could change more between now (June 2, 2023) and then. We have seen many last-minute amendments coming through on bills as of late, with very little time to review. Let us hope that agreement on a commonsense way of addressing this concern includes appropriate changes.

Wisconsin Legislature: SB312: Bill Text $125 million, proposed by the State Senate, was heard in Joint Finance Committee last month. Many legislators, me included, are hopeful this will be the beginning of acting on PFAS, including biosolids. However, there are some concerning elements. The bill does not go far enough towards addressing the deviling problem of PFAS in biosolids. Some of my concerns in the bill include the following:

- Grants to municipalities to dispose of PFAS-containing biosolids at facilities that accept such biosolids. These grants require matching funds of up to 20 percent from the applicant.
- Last week, several motions were made in Joint Finance Committee (JFC) - "…the GOP motion creates a new segregated PFAS Trust Fund at $125 million ($110 million GPR and $15 million environmental management SEG). The trust fund requires a bill to be enacted to authorize spending from the fund, or 13.10 action by Joint Finance Committee. Earlier this week Sen. Wimberger & Rep. Mursau introduced a "policy only" bill on PFAS. This is a continuation of a trend this session of separating policy and funding to avoid gubernatorial line-item veto authority. The GOP motion did not address testing/standards for PFAS or authority for additional staff.
- JFC Democrats matched the increased funding amount of $125 million for PFAS contamination. However, the funding in the Democratic motion would be **available immediately** upon passage of the budget; it would not be dependent on future legislative action that may or may not happen." (Rep. Evan Goyke, Joint Finance update 5/28/23)

Republicans approve $125 million for PFAS mitigation without specifying how to use it - *Wisconsin Examiner*

Why should cities be concerned with the current SB 312?

I checked in with our city Public Works Department to ask more detail about what kind of impact this bill might have and in part, received the following response: "At this time, the City of Oshkosh is paying $150,000 - $200,000 per year to dispose of biosolids through land application. I know the rate we pay is approximately one half the typical landfill tipping fee for "normal" waste," said James Rabe, Director Oshkosh Public Works in an email.

Moreover, in advance of SB 312 being heard next week, my office received several emails from concerned citizens

this week, "A bill worth supporting has to be equitable and work for the communities…In order to support SB 312, we need to ensure that communities have the necessary tools to effectively deal with PFAS contamination. Specifically, we would like to see SB 312 strengthened to:

1. Remove limitations on the DNR. SB 312…
2. Broaden the Definition of "PFAS" – The Municipal PFAS Grant Program…SB 312 should be amended to include eligibility based on any PFAS for which a health advisory has been issued by the Wisconsin DHS or the EPA.
3. Remove Burdensome Match Requirements. The most helpful parts of this bill would provide grants to municipalities or people on private wells, but the bill currently could require grant recipients to match 20 percent of the funds. This would limit access for many impacted…SB 312 should be amended to remove these requirements, or at the very least cap them at 5 percent." (Deb Martin, Oshkosh Resident email 6/2/23)

Lori Palmeri is the current Assembly Representative for District 54 (mostly Oshkosh) and the former Mayor and City Councilmember from 2016 through 2023. She lives in Oshkosh with her husband and family. Her interests include water protection and urban forestry. She received her Master's in Urban Planning from UW Milwaukee in 2013. She can be reached at rep.palmeri@legis.wisconsin.gov

~~~~~~~~

Kinnard Farms. Is the solution to their pollution the Varcor manure processing system? Who will benefit? CAFOs? The Environment? People?

By Debra Noel

Sedron Technologies previously called Janicki Bio-engineering was commissioned by Bill & Melinda Gates Foundation in 2014 to develop and construct **The Janicki Omni Processor (J-OP)** pilot project to process sewage for the dire situation in the city of Dacar, Senegal. This humanitarian effort was made to address the high level of pathogen disease deaths caused by poor sanitation leaching into drinking water. The J-OP system is designed to process sewage wastewater into pathogen free clean drinking water. It also produced electricity by burning the solids to create steam generated power. The remaining high phosphorus and potassium ash is used for fertilizer or building material.

The J-OP prototype system took three years to become fully operational in 2018 with adjustments and upgrades to increase capacity and lower costs. The system can now produce approx. 86,000 Liters of safe drinking water and 250 kw of electricity per day. Talks and plans for additional systems throughout Senegal and West Africa are in early stages.

The world took notice when Bill Gates drank a glass of water on TV that was sewage before being treated by this process. Dairy farmers called Sedron and asked if this system could be used in treating manure on their farms. This spurred the company to develop a system to process a higher water content material like liquid manure to recover nutrients for commercial use, while producing clean water. Thus the beginning of Sedron's Varcor system. By 2019 the Varcor system was first used to treat manure at a Dairy farm in Texas, and in 2023 in Washington state. for a sewage plant.

The Varcor system uses mechanical vapor recompression (MVR) to separate manure into dry solids (~NPK 3-3-3), ~ 20% aqueous ammonia and water. 100% of pathogens are killed off during this thermal process and the process is about 30 times more efficient than direct boiling. The Aqueous ammonia can be used as fertilizer on site and trucked to other farms. This system addresses odor control, energy efficiency, resource recovery, time management, and better pollution control with claims of a 33% reduction in environmental footprint by the DeJung Natural Prairie Dairy in Indiana.

In our area of Kewaunee County, WI, The Kinnard Farms CAFO (concentrated animal feeding operation) current operation consists of about 7950 cows and generates approximately 103 million gals of manure and wastewater processed through an anaerobic digester per year. Kinnard's approved Nutrient Management Plan includes over 16,000 acres of owned and rented land to spread liquid manure. Much of this land is on the shallow soil over bedrock karst area in northern Kewaunee County and Southern Door County.

This karst geology makes it easy for manure to leach into groundwater and causes unsafe levels of contamination

CWAC photos.
~~~~~~~~

in the area wells and the runoff pollutes tributaries to lakes and streams. Kinnard Farms was involved in years of lawsuits and counter suits over their alleged pollution of area wells. In a negotiated settlement, Kinnard and all parties involved including the DNR, reached a settlement. Sedron was to build a Varcor system on the Kinnard site to process the manure rather than spread liquid manure on farm fields.

According to the permit applications the Varcor system must be operating by 2027. That gives Kinnard Farms four years to continue operation under a modified permit until 2027. If the Varcor system is not operational by that deadline, then Kinnard must comply with new DNR requirements including putting in monitoring wells. In a separate settlement with the Wisconsin Department of Justice Kinnard, must pay $215,000 for improper spreading which caused ground water contamination between 2018 and 2020.

The Varcor system will produce products including liquid ammonia, dry solids (NPK 3-3-3), and approximately 300,000-400,000 GL of water per day, which will be discharged to Casco Creek and eventually flow to Lake Michigan. The produced fertilizers will be used on the land for Kinnard's crops and some may be sold.

The Varcor system appears to be an innovative solution to water pollution caused by CAFOs but not everyone is convinced. There are many unanswered questions.

- Do we really need all this dairy production?
- What about the methane cows produce and the impact on climate change?
- What will the impact on the soil be without cow manure adding organic matter?
- With processed water flowing to Lake Michigan rather than the watershed, will Kinnard Farms draw down the water table with their high-capacity wells?
- Will this new technology cause more CAFO expansions?
- Will land that Kinnard Farms owns and rents become available to other farms spreading liquid manure when they stop land spreading?

References:

Varcor System | Sedron Technologies

The Omni Processor: Turning Sewage Into Drinking Water in Senegal (and Beyond?) – Digital for Good | RESET.ORG

A New Circular Economy Example: Closing The Loop For Poop (forbes.com)

Generate Upcycle and Sedron Technologies Deploy Innovative Liquid Waste Treatment System, Delivering Cost Savings and Greenhouse Gas Emissions (GHG) Reductions to Wastewater Treatment Plants | Business Wire

Kinnard Farms lawsuit: Farm reaches settlement with regulators (wisconsinwatch.org) 2023.05.11-Kinnard-Farms-CCH-Settlement-Agreement.pdf (midwestadvocates.org)

Wisconsin environmental regulators settle wastewater lawsuit with large dairy farm | AP News

Opinion | Settlement a step toward solving Wisconsin's factory farm problem | Guest Columns | captimes.com Kinnard_Permit.pdf (wisconsin.gov)

Wisconsin CAFO Kinnard Farms reaches settlement with state (jsonline.com) Resources & Guides | Midwest Environmental Advocates (midwestadvocates.org) What Manure Digesters Can And Can't Do | WisContext

The Action in Clean Water Action Council

By Dean Hoegger, CWAC President and Executive Director

Have you renewed your membership?

Please renew your membership for 2023. Memberships are for a calendar year. We keep your membership active even when you renew later in the year.

To check your membership status, look at your address label which shows your last renewal year. Emailed newsletters include the last renewal year in the body of the email and a personal request for your renewal, if needed. Please consider a more generous gift if you forgot to renew in 2022. **Membership donations are critical as they account for nearly half of our operational funds. Employee salaries are paid from a trust fund and our Packers' concession stands, not from donations.**

You can mail your membership donation with the enclosed form or go online to http://www.cleanwateractioncouncil.org/membership/. If we have your current membership information, then all you need to do is click on the "Donate" button on our website's home page or in our email signature block. Please know that you do not need a PayPal account to pay with a credit card, and a monthly donation is an option.

We are thankful for members who wish to sponsor any of the following starting at the $250 level: Newsletter ($800), intern ($500), rent ($2500).

We would like to thank the members who have volunteered to help with our Packers' concession stands, water sampling at Bairds Creek, and mailing the newsletter. There are many volunteer opportunities with CWAC. Contact us to discuss the ways you can volunteer to help us protect human health and the environment.

Below are the actions that member donations supported in the last three months.

Be sure to contact us if an environmental issue arises in your community. CWAC is here to support citizen action.

Legal Actions

As a citizen organization, an important function of CWAC is to take legal actions on behalf of our members to protect human health and the environment. Here is an update on ongoing actions.

The Judge in WMC vs DNR in Waukesha Circuit Court Case Ruled Against DNR and the Public but stayed his decision.

This case is now before the state court of appeals. See the *CWAC Fall 2022 Newsletter* for a detailed review of the case. We are currently supporting the DNR's role in protecting the public from PFAS and other chemicals under the spills with friend of the court briefs.

We thank donors who helped with legal fees, and we continue to seek donations which should be noted as "for legal fees" on your check or online payment.

CWAC Alerts Readers about Pollution Permits Hearings and files comments.

We monitor notices for new water pollution permits and renewals, and then alert over 1,200 readers via our emailed Weekly Update. Email us at contact@cleanwateractioncouncil.org to receive the privacy protected emailed update sent once a week.

The Petitions to the EPA for The Safe Drinking Water Act and the Clean Water.

The EPA took no action on these ongoing petitions. It is likely that meetings with EPA will be held this fall.

Green Bay Coal Dust Complaint Further Investigated

Work on this complaint stalled when the resident who recently brought it to us indicated that she was moving out of the area. We worked with MEA to create a record sheet for citizens to record observations of the coal piles and the weather, and then monitor C. Reiss Coal Company's compliance with their dust control plan. A review of the City of Green Bay documents confirms that it is unlikely the coal piles will be moved soon. A coal pile observation on June 5 showed most of the piles to be properly covered.

Please contact us if you are experiencing problems with coal dust and would like to work with us.

Our Effort to Ban High PAH and Coal Tar Pavement Sealants Continues

This sealant contains polycyclic aromatic hydrocarbons (PAHs), which are known to be a serious health threat. According to the Army Corps of Engineers, children living near surfaces treated with this sealant have a 13-fold increased risk of developing certain cancers; a lifetime exposure can result in a 38-fold higher risk of cancer.

We gave three presentations this spring and are seeking more presentation opportunities. According to Representative Joel Kitchens, the state will not act to ban the product in the near future. He encouraged us to seek local bans through village and town ordinances.

Contact us to help get an ordinance passed in your community. Click this link for a slide presentation on the topic: https://www.youtube.com/watch?v=0xjvi-leDHg&feature=youtu.be

Educational Efforts in the Community

CWAC Banquet Featured DNR Secretary Adam Payne

Secretary Payne spoke to guests about DNR priorities for protecting the waters of Wisconsin. CWAC president Dean Hoegger gave an update on the organizations efforts to protect human health and the environment. Jill Mitchler was presented our 2023 Environmental Citizens Award for her efforts to educate the community about taking action on climate change.

CWAC Exhibits at Egg Harbor Earth Day Celebration

Visitors were provided with information about CWAC's work on banning high PAH sealants. Literature and newsletters were offered to guests.

CWAC Cosponsors Bus to Conservation Lobby Day

A bus to the state capitol, with stops throughout NE Wisconsin, was provided by CWAC and cosponsors, Brown County Conservation Alliance, and the Fox Valley Chapter of the Sierra Club. Board members John Hermanson and Dave Verhagen, and member Jill Mitchler, were some of the participants. PFAS was a high priority at the event that placed participants at the offices of their elected officials to express their concerns.

Food Waste Composting Education to Reduce Organics in Our Landfills.

We have composters available for $60 and will provide individual or group instruction on how to compost food waste.

These Presentations Are Available from CWAC

Here is a list of current presentations that can be given in-person or via Zoom. Call or email us for scheduling. The presentations can be tailored to your group's geographic location, age, and available time. Also, contact us if you would like us to promote or co-sponsor your event or presentation.

- Citizen Action to Protect the Waters of Northeast Wisconsin
- Using Local, State, and Federal Laws to Protect the Waters of Northeast Wisconsin
- Communities on the Road to Zero Waste
- The Health Hazards of Burn Barrels
- The Health and Quality of Life Hazards from Manure Spraying
- The Health Threat from Coal Tar Pavement Sealants
- Micro-plastic Pollution from Clothing
- Food Waste Composting Made Easy

Newsletter Outreach

The *Spring 2023 newsletter* was sent to 550 members in March. There are a limited number of printed newsletters remaining if you would like to distribute them to a friend, group, or organization. Newsletters are also available on our website at: https://www.cleanwateractioncouncil.org/newsletter/

Get Our Weekly Update by Email

Each Tuesday we email the *CWAC Weekly Update* with Actions, Permits, Jobs, Events, In the News Updates, and Resources. Send us your information by Monday evening for posting the following day. If you are a member with an email address and you are not getting the *CWAC Weekly Update*, check your spam folder before emailing us to request to be put on the mailing list. If you are a member and getting more than one *Weekly Update*, let us know so we can fix that.

If you are reading this newsletter as a non-member, email us at contact@cleanwateractioncouncil.org to be placed on the free *Weekly Update* mailing list. Emails are sent via BCC to protect your privacy.

Outreach through Newspaper and Radio

CWAC sends press releases to local media, and we are often contacted to comment on developing environmental issues. Dean Hoegger spoke on Door County Daily News radio and WDOR radio about pavement sealants and other issues.

Website Updates

Past newsletter issues can be found on the website as well as updated articles and additional resources at https://www.cleanwateractioncouncil.org/

CWAC Provides College Students with Valuable Learning Experiences.

We provide our interns with valuable experiences and strategies for managing a non-profit organization. Andrew Kennard, a Drake University student will work with us this summer, and UW-Green Bay student Rachel Weber will be joining us in the fall. We also hired a former intern, Gracyn Holcomb, as our administrative assistant last November.

Other Actions

Water Sampling, Stream Monitoring, and Verifying Manure Spreading

We began water sampling at Bairds Creek in May. We will be doing follow up investigation of potential violations of plowing setbacks that we observed this winter and spring while monitoring for manure spreading on frozen fields. Several members and board members made up the team of monitors who verified satellite imagery of fields in Brown and Manitowoc counties.

Monitoring for Phosphorus in Lawn Fertilizer

Every spring we monitor for compliance of the phosphorus ban in the sale of lawn fertilizer. We checked about a dozen stores for compliance. We again found that the Door County Cooperative True Value and Country Store was in violation, if not the letter of the law, certainly the spirit. According to the Department of Trade and Consumer Protection, they are not violating the law because the fertilizer with phosphorus is labelled Fertilizer, not lawn fertilizer.

The law states, "Retailers cannot display turf fertilizers with phosphorous or available phosphate." Because the fertilizer is clearly on display, the uninformed customer is likely to purchase it for a lawn. Another aspect of the law is, "Retailers cannot sell turf fertilizers containing phosphorous to a purchaser they know will violate the restriction..." No effort was made to inform our "staged" customer about the phosphorus ban. Nor was signage added that helped the customer buy the appropriate product.

Fertilizer with phosphorus on display. The only non-phosphorus fertilizer present was in the center stack in the back row. After several complaints, signs were added saying Lawn and Garden Fertilizer 23-0-10.

Fundraising at our Packers Concession Stand

We are seeking volunteers to help at our concession stand at Green Bay Packers games. The stand provides a significant contribution to our budget. Please volunteer! Contact us if you can help or want more information.

CWAC Attends Meetings with Other Environmental Groups

We attended many of the monthly meetings with directors of other state environmental groups and network with other state and national organizations.

CWAC Staff to Attend Lake Michigan Day Conference

Interns and staff members benefit from the opportunity to meet representatives from other organizations and learn about protecting Lake Michigan at this conference.

Citizen Complaints

Many of our more extensive actions, some requiring legal work, resulted from a follow-up of citizen complaints. Keep us in mind if you have an environmental concern, and our support is needed.

CWAC's Non-Profit Status

To learn more about our non-profit status and financials, go to the Wisconsin Department of Financial Institutions, Credential Lookup, and then go to Credential Search for Clean Water Action Council (https://www.wdfi.org/ice/berg/Registration/Financials.aspx?chid=933009&h=1122515367)

Please follow us on Facebook.
Click here for our page: ***Facebook***

https://www.facebook.com/cleanwateractioncouncil

Have you renewed your membership for 2023?

See your newsletter label or email notice which indicates the last year that you renewed.

MARK YOUR CALENDAR! Meetings, Events and Happenings

HEARINGS:

Thursday, August 3, 9:30 AM – 12:30 PM
Drinking Water and Groundwater Study Group Meeting
State Natural Resources Building, Room G09, 101 S Webster St, Madison, WI or via Zoom

Contact Natalia B. Hernández at natalia.hernandez@wisconsin.gov or 262-838-1567 for more information, or join the Zoom meeting here. For more information visit: https://dnr.wisconsin.gov/calendar

EVENTS:

Sunday, June 26, 8:30 AM – 12:30 PM
Shawano Brunch on the Farm
Synergy Family Dairy, County Hwy S, Pulaski, WI

Enjoy a country-style brunch, wagon rides and farm tours, petting zoo, children's activities, and live music while experiencing a modern dairy farm and learning about agriculture. For more information visit: https://www.shawanofarmbureau.com/brunch-on-the-farm

Saturday, July 8, 10:00 AM – 12:00 PM
Reptiles and Amphibians of Wisconsin
High Cliff State Park, N7630 State Park Rd, Sherwood, WI

Join Randy Hetzel, Wildlife Ecologist and Master Naturalist, to learn about the natural history, habits, biology and conservation and care of some of our cold-blooded wildlife.
For more information visit here or contact 920-989-1106.

Tuesday, July 18, 12:30-2:30
Conservation Tour by Brown County Land & Water Conservation
Meet at the STEM Innovation Center, 2019 Technology Way, UWGB

A presentation will focus on conservation efforts and initiatives, applicable standards and ordinances, and where additional water quality gains can be made. The tour will highlight Demo Farms initiatives (conservation field practices), ordinance implementation (riparian buffers and field erosion) along with water quality partner collaboration. Carpooling will leave from the STEM Center.

Thursday, August 3, 9:30 – 10:30 AM
Land and Water Conservation Committee Meeting
USDA Service Center, 1627 4th Ave West, Monroe, WI

Meetings are held monthly on the first Thursday of the month, after the first Wednesday. They are open to the public. Discuss current issues with the Green County LWCD. For more information visit:
https://greencountylwcd.com/event/land-and-water-conservation-committee-monthly-meeting/?instance_id=278

Monday, August 7, 5:00 – 8:00 PM
Feast with the Beasts
New Zoo, 4378 Reforestation Rd, Green Bay, WI, 54313

Enjoy food, music, and fun at this popular annual event! Additional details will be provided as the event approaches, and special tickets will be required. For more information visit: https://newzoo.org/event/feast-with-the-beasts

Friday, August 11, TBD
Lake Michigan Day
Wisconsin Maritime Museum, 75 Maritime Dr, Manitowoc, WI

Learn about innovative initiatives and celebrate the annual Lake Michigan Champions of Conservation at the 10th annual Lake Michigan Day! For more information visit:
http://www.lakemichiganstakeholders.org/lake-michigan-day

Saturday, August 26, 1:00 – 2:00 PM
Wild About Wildlife
High Cliff State Park, N7630 State Park Rd, Sherwood, WI

Join rehabilitators from the Bay Beach Wildlife Sanctuary and their live animal ambassadors. Learn about Wisconsin animals and how wildlife rehabilitators take care of them. This is a "hands-on" program with live animals suitable for all ages.For more information visit here or contact 920-989-1106.

Saturday, September 16, 12:00 – 7:00 PM
Back 40 Mine Coalition Annual Water Celebration
Great Lakes Memorial Marina Park, Menominee, MI

Join the Coalition to Save the Menominee River for their annual Water Celebration. The event will feature speakers, bands, games, foods, vendors, and more. For more information visit here or contact Nancy Stencil at nstencil7983@gmail.com.

Wednesday, September 20, 4:30 – 8:30 PM
Climate Change Coalition 10th Anniversary Dinner
About Thyme Farm, 8425 County F, Baileys Harbor, WI

Join Climate Change Coalition of Door County to celebrate 10 years of raising awareness about Earth's warming climate and the hope we have of arresting and reversing climate change. The keynote speaker this year is Jo Handelsman, former White House Science Advisor from 2014-2017. For more information visit here or contact Jeff Lutsey at jeff@lnrp.org or 920-217-4304.

Saturday, September 23, 8:30 AM – 12:30 PM
National Public Lands Clean Up Event
Baird Creek Greenway, 500 Beverly Rd, Green Bay, WI

Join Baird Creek Preservation Foundation for their National Public Lands Day clean up including invasive removal, trash pickup, creek cleaning, and possible seed planting. For more information visit: https://givebutter.com/PSszXZ

Thank you!...to the many donors who made the spring banquet and fundraiser a success!

5th and J Coffee House
Ahnapee Brewery
AMO Gallery & Framery
Ann Ratsch
Ann Senn Real Estate Group
Alaska Golf Club
Appleton Beer Factory
Art Street Artists
Associated Bank
Automobile Gallery
Badger Sports Park
Badger State Brewery
Bay Area Yoga
Bonnie Dennis
Beach Harbor Resort
Bev Watkins
Bike Hub, De Pere
Black Sheep Pub & Grill
Brian Hansen
Buffalo Wild Wings
Caffe Tlazo
Captain's Walk Winery
Casco Mobile
Chalet Supper Club
Charlotte Fung Miller
Charlie & Kathy Frisk
Cherry Lanes Arcade & Bar
Children's Museum of Green Bay
Clay on Steele
Community First Credit Union
Curt Andersen
Dancing Bear Toys
Dan Eisenschink, Builder
David Verhagen & Sher Brandl
Deb Noel
Door County Candy
Door County Coffee and Tea
Door County Music
Dos Caminos
Dr. Brock Robinson
Elaine Jones-Passion about Hair
Emily Ropsom
Family Nutrition Center
Fair Trade
Festival Foods
Fleet Farm
Florence and Don Banaszak
Fox Communities Credit Union
Foxy Pedaler
Fresh Thyme
George Ouimette
Green Bay Packers
Green Bay Rockers
Healthy Way Market
The Hairapist
Hinterland Brewery and Restaurant
Hoegger Pottery
HuHot Mongolian Grill
Huron Automotive
Jerry Maroelle
John Gosling
John Hermanson
Julie Hoegger
Kavarna Coffee House
Kevin's Automotive
Kim Wallander
Kitz and Pfeil Hardware Store
Kocken Chiropractic, De Pere
Lake Michigan Wind and Sun
Ledgestone Vineyards & Gnarly Cedar Brewery
Linda Swanson
Luxemburg Pharmacy
Mackinaws Grill & Spirits
Madison Avenue Market
Marge and Ken Bukowski
Mary Cramm
Meyer Theater
Mick Sagrillo
Milwaukee Admirals
Milwaukee Brewers
Monica McElroy-Denissen
Monitecello on Jefferson
Murphy's Barber, Appleton
Nick and Judy Lom
Nicolet Bank
Novell Bay Books
Off the Hook
Olson Dental
On Deck
Other World's Books
PMI
Parallel 44 Winery & Vineyard
PCM Credit Union
Pembrooke Inn, Sturgeon Bay
Peninsula Players
Phil & Barbara Nelson
Philip Chaudoir
Popelka/Trenchard Glass
Riesa Liebergen
Rose's Family Restaurant
Sah's Auto
Seroogy's Chocolates
Sonny's Pizzeria
Starboard Brewing Company
Starbucks, West De Pere
Starbucks, Sturgeon Bay
Steve Smith
Stillmank Brewery
Sister Claudette
Stone Cellar of Appleton
Sue Pike
The Tattoo Shop, Pulaski
Terry Auger
Third Avenue Playhouse
Titletown Brewery
True Value Hardware, De Pere
Von Stiel Winery
Victoria's Restaurant
Village Kitchen
Wander Springs Golf
Waterfront Mary's Bar & Grill
Wave Pointe Marina & Resort
White Lace Inn
Wilson's Restaurant
Yardstick Books
Yipes - Joyce Fritz
YMCA, Sturgeon Bay

Debra Noel Joins the CWAC Board of Directors

As a lifelong lover of nature and animals, I try to find ways to connect, protect and enjoy the diverse ecosystem with all its creatures and plant life. My life took many twists in education and employment, mostly in the science fields. I retired from being a physical therapist assistant, running soil testing business for 22 years, being a radiochemical technician at a nuclear power plant, and a lab tech in an environmental lab. I feel the need to do my part to advocate for the precious resources and ecosystems in NE Wisconsin. Living and enjoying the outdoor opportunities in rural Kewaunee County with my husband, I enjoy visiting wildlife areas and parks, bicycling, horseback riding, hiking, camping, swimming and gardening-especially with native plants and prairie restoration.

Gracyn Holcomb Becomes Our Administrative Assistant

Gracyn Holcomb joined the CWAC staff as the administrative assistant in late 2022. She was a former intern with CWAC and oversees day-to-day general office operations, produces the emailed Weekly Update, and writes for the quarterly newsletter. She has a double major in Democracy and Justice Studies with an emphasis in Criminal Justice, and Political Science and plans to graduate at the end of 2023. Her passion for environmental sustainability, climate change, and other environmental issues sparked interest in possibly pursuing a career in environmental law.

Conservation Tour

by Brown County Land & Water Conservation

Tuesday, July 18, 12:30-2:30

A presentation will focus on conservation efforts and initiatives, applicable standards and ordinances, and where additional water quality gains can be made. The tour will highlight Demo Farms initiatives (conservation field practices), ordinance implementation (riparian buffers and field erosion) along with water quality partner collaboration.

~~

Meet at the STEM Innovation Center
2019 Technology Way, UWGB
Carpooling will leave from the STEM Center.

Food and Yard Waste Composters Available

The composter features a locking lid, two doors for removing compost, and comes in two sections plus the lid for easy transport, set up, and take down. It can easily be moved to a new garden location. Made from a sturdy sun absorbing plastic, they have been in operation in Northeast Wisconsin for over a decade.

A limited number of composters will be available from CWAC this spring. Help the environment and produce your own soil amendment by composting your food and yard waste.

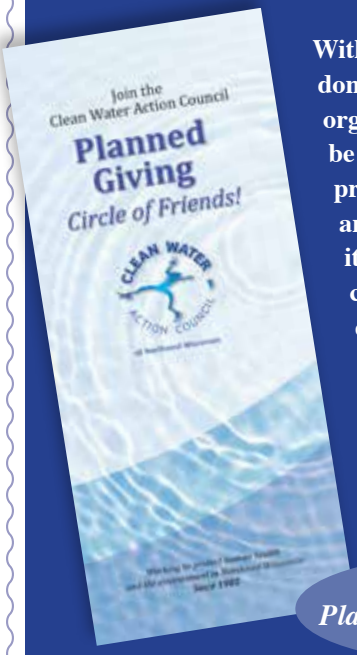
Food and Yard Waste Composters
can be purchased for $60 by contacting us at
contact@cleanwateractioncouncil.org
or call 920-421-8885

Thank you!

100+ WOMEN WHO CARE OF DOOR COUNTY

for funding to protect citizens from coal tar pavement sealants in Door County.

Join Our Planned Giving Circle of Friends



Without planned giving donations or legacies, our organization would not be able to do the work of protecting human health and the environment at its current level. Please consider supporting our endowment fund at the Greater Green Bay Community Foundation with a gift in your will or bequest.

Contact us for a Planned Giving Brochure

BE PART OF THE PACKERS GAME DAY EXCITEMENT!

We are seeking volunteers for our Packers' game day concession stand for all home games.

We end sales when the fourth quarter starts and leave by the end of the game.

Last season we had lots of fun, connected with fans about our work, and earned $13,000!

Email us with Packers' Concessions in the subject line for more information.

Join or Renew Your Membership to Clean Water Action Council for 2023!

☐ Renewal ☐ New Member Date_____

( ) $25 Individual ( ) $50 Sustaining **(this amount would really help)**

( ) $35 Family ( ) $100 Donor ( ) $500 Benefactor

( ) Non-member donation of $ _____for_____

( ) Other $_____

( ) Please send me information about making a planned gift to CWAC

Name(s)_____

Address _____

City _____State _____ Zip _____

Phone _____

E-mail _____

Receive FREE newsletters with each membership.

Please choose one... ☐ Printed version ☐ E-mailed version

Send check or money order to:

Clean Water Action Council
P.O. Box 9144
Green Bay, WI 54308

To pay with a credit card or to make a monthly contribution, please go to:
https://www.cleanwateractioncouncil.org/membership/

CWAC is a registered non-profit organization.
Your contributions may be tax-deductible. ***Thank you!***

.....

PLEASE VOLUNTEER!
(BE SURE TO PROVIDE PHONE NUMBER ABOVE)

☐ the newsletter ☐ events ☐ work at office ☐ mailings

☐ joining or leading one of the committees ☐ other

Office location:
A307 MAC Hall, UW-Green Bay
2420 Nicolet Drive
Green Bay, WI 54311

www.cleanwateractioncouncil.org

Find us on Facebook or updates on hearings and current or upcoming events.

The newsletter, "Clean Water Action Council of N.E.WI" is published quarterly by the Clean Water Action Council of Northeast Wisconsin, Inc., P.O. Box 9144, Green Bay, WI 54308, a registered non-profit charitable, educational organization.
Contributions may be tax-deductible.

STAFF MEMBERS

Dean Hoegger
President & Executive Director
Door County
920-495-5127

Gracyn Holcomb
Administrative Assistant

BOARD MEMBERS

Charlie Frisk, Vice President
Brown County
920-406-6572

John Hermanson, Treasurer
Door County
920-615-5978

Lauren Felder, Secretary
Jefferson County

Kari Fehling
Brown County

John Gosling
Outagamie County

Maya Hearden
Brown County

Debra Noel
Kewaunee County

David Verhagen
Brown County

.....

NEWSLETTER

Dean Hoegger, Editor

Bev Watkins, Graphic Design
https://www.beverlyjanedesign.com

CONTACT US

By phone: 920-421-8885
If you leave us a message, we will try to get back to you within 24 hours.

By mail:
Clean Water Action Council
P.O. Box 9144, Green Bay, WI 54308

By e-mail:
contact@cleanwateractioncouncil.org

Clean Water Action Council
of Northeast Wisconsin
P. O. Box 9144
Green Bay, WI 54308

TIME TO RENEW for 2023!

in this issue...

What You Should Know About Biosolids

Page 1:
- **What You Should Know About Biosolids**

Page 3:
- **Land Application of Biosolids in Northeast Wisconsin**

Page 5:
- **Biosolids & Resource Recovery. An Alternative to Land Application**

Page 6:
- **Should Milorganite Really Be Called Organic?**

Page 7:
- **Sewage Sludge Contaminates Farm Fields in Marinette County with PFAS**

Page 8:
- **Using Biodigestion to Treat Biosolids and Produce Energy**

Page 9:
- **Federal and State Laws Regarding Biosolids**

Page 11:
- **PFAS and Biosolids Legislation. Are We There Yet?**

Page 12:
- **Kinnard Farms. Is the solution ot their pollution the Varcor manure processing system? Who will benefit? CAFOs? The Environment? People?**

Page 13:
- **The Action in Clean Water Action Council**

Page 16:
- **Mark Your Calendar**

Page 17:
- **Spring Banquet Donor's List**

For previous newsletters, go to: www.cleanwateractioncouncil.org/newsletter/