

WASTE & MATERIALS MANAGEMENT STUDY GROUP – Notes: November 6, 2025

Location: Virtual - Teams

Member Attendance: Curry, Doverspike, DeMers, Reuter, Ketchum, Biermann, Rabideau, Michitsh Pellitteri, Sexton,
 Welch, Blaszowski, Guapp, Hutter, Vivas, O'Rourke, Oswald, Viso, Schuller

Guests:

DNR WA Attendance: Morris, Semrau, Strom Hiorns, Murray, Flesch, Grimm, Brester, Schmit,

Time/ Presenter	Topic	
9:00	Welcome/Agenda Review/Minutes	
9:10	DNR Updates	<p>Waste and Materials Management Program staffing</p> <ul style="list-style-type: none"> - Waste Mngt Engineer 2 started 10/6 in Fitchburg - E cycle WI coordinator interviews this month <p>State and federal budget updates</p> <ul style="list-style-type: none"> - Federal budget – 3-year grant agreement in place, still pulling from current federal grant that goes through fiscal year <p>Upcoming public meetings</p> <ul style="list-style-type: none"> - Council on Recycling Meeting 12/5 <p>Other business</p> <ul style="list-style-type: none"> - Landfill staff taking a special geotechnical training next week - Recycling Excellence Awards announced 11/14/25 - Upcoming reporting season - Bills introduced in legislature- senate bill 599/AV 605 – getting ready for upcoming hearing – owner of operator of MSW facility receives clean water fund program loan or wastewater treatment infrastructure, the owner or operator may retain environmental repair fees in an amount equal to the total principal and interest owned on the loan while in repayment <p>Comment: Proposing to use money from EM account to offset any payments a landfill would have to make for loans. EM account is where a lot of tipping fees to</p>

		<p>the state goes to, historically 40 mil has gone back to RUs and was cut to 19mil. State put 8 mil per year in debt service payments, used as forgivable loans towards upgrading wastewater treatment plants. Bit of a precedent to use that account for these types of funds.</p> <p>Rulemaking updates</p> <ul style="list-style-type: none"> - Landfill rule WA-11-22 effective 10/1/25 - Recycling Rule WA-13-21 effective 7/1/25 - Municipal Landfill Owner Financial Responsibility rule (WA-07-24 E, WA-08-24) emergency rule in effect, Natural Resources Board adopted permanent rule last month next on to legislature - Non-landfill and E-cycling rule language in drafting stage – public comment opportunities in 2026 -
<p>9:30</p>	<p>Landfill rule implementation updates</p>	<ul style="list-style-type: none"> - Two summary docs located on DNR webpage - Updating checklists and other guidance, feel free to reach out to test a checklist! - All new submittals going forward need to include code revisions - Hierarchy of regulation Statute → Wis. Adm Code → Conditions of Approval (unless approved by the department) - Go through current conditions of approval and see if there's any discrepancies between the conditions of approval and what is currently required in code - Review current conditions of approval – spreadsheet format template, discuss with assigned engineer any conflicting conditions and a timeline to correct the plan mod - DNR anticipates plan mods to occur over the next few years - Review annual reporting code requirements <p>Q: What section is the annual report section A: NR 506? Title should be MSW annual landfill report Q: When to do annual survey regarding snow cover? Not sure if April 30th deadline is feasible with a completed survey due to snow. A: Can figure it out as we go, there are growing pains with these code revisions. Q: Will be turning data over to engineer who has licensed surveyor on staff, is that</p>

		<p>good? A: Read code requirement for surveyor, added code definition and see if that meets definition. Q: Is this only applicable to active landfills? A: Intent of survey is only for active landfills.</p> <p>Spill/file notifications</p> <ul style="list-style-type: none"> - New web-based notification process and webpage - Spill – In leachate is outside limits of waste, report to spills hotline and submit notification requirement - Subsurface fire or elevate temperatures - Surface fire – any smolder/file large enough action needs to be taken to put out the smolder/file – data will be kept for potential use for battery management <p>Q: How do the rule updates apply to closed sites? A: Send comments and questions and we can address them together</p>
<p>9:45</p>	<p>DNR organics management updates</p>	<ul style="list-style-type: none"> - Wisconsin Food Waste Evaluation final report expected by the end of the year - Finalizing contracts with city of Milwaukee and Dane County to provide non-regulatory technical assistance to foodservice in Brown, Dane, and Milwaukee counties - New Staff member: Erik Flesch - Potential additional SWIFR funding next year - Non-landfill rule includes compost code updates to facilities food waste composting - Enhanced outreach efforts - New webpages with food waste reduction and landfill diversion tips for different sectors - Monthly Organics Management News and featured topics in DNR Outdoor Report, plus social media - Annual holiday waste media briefing

<p>10:00</p>	<p>Update on Wisconsin chapter of US Composting Council</p>	<ul style="list-style-type: none"> - Applying to be a member with US Composting Council – hope to be formally recognized by the end of the year - RU rule changes, WCC and municipalities can collaborate - Food program with Dane County had 2,000 households and some commercial accounts will join soon, up to 400 yards of landfill diversion <p>Q: LA sanitation makes compost with Zoo manure, called Zoo Doo! A: Was thinking of Zoo Poo. Zoo has been great, having a pumpkin drive as well where people can drop off pumpkins and will have education present at the event. National organic program doesn't accept compostable packaged items, however, working with Dane County to allow/test compostable liners.</p>
<p>10:15</p>	<p>WM organics efforts</p>	<ul style="list-style-type: none"> - Core features efficiency (18- 20 ton per hour processing rates) - Currently 4 Core facilities in operation - Fully enclosed operations, fully odor controlled - Handles pre- and post-consumer source separated food wastes - Removes 98% of physical contaminants to manufacture a product for the circular economy - Creates EBS, an organic engineered slurry for conversion to renewable fuel - “Turbo charges” renewable energy production at anaerobic digestion facilities - Pre-consumer food wastes → clean source separated solid and liquid food waste and organics (SSO) Typically, 1-8% contamination - Packaged food material (PFM) such as pallets of expired product, recalls, excess product, discards - Acceptable liquid streams such as grease trap food wastes, alcohol, sodas & juice, manufacturing liquid, rinse of product tanks and washing lines - There are several modes of managing and receiving food waste → FEL/REL trucks, roll off trucks, compactors, toter trucks, trailer trucks, tanker trucks - Fully characterized pre-cleaned product: Quality control is critical, Consistent and easily pumpable, De minimus levels of physical inerts - High Energy Value, resulting in significant increases in biogas production (- 4 mmbtus/ton) - Minimal impact/increase to fished product volume (compost/sludge) as EBS will disappear through digestion process <p>WM Public Private Partner WRRF Customers</p>

- Greater Lawrence SD (MA)
- Newtown Creek WWTP (NYC)
- Rahway Valley SD (NJ)

Greater Lawrence Sanitary District → 52 MGD POTW, serving 6 municipalities in eastern MA

- Recognized leader in the US designed a water resource recovery facility of the future by USEPA
- Responded to MA Food Waste Ban by developing “Organics to Energy Program” to co-digest up to 90,000 tons/year of food waste
- GLSD invested \$27M in new facilities, including EBS receiving and storage tankage, a 4th digester, biogas cleaning and a 3.2 MW combined heat & power generation plant
- GLSD now generates 100% of its own electricity with excess sold to the grid, excess biogas is used to dry biosolids

WM Core Solution Project Delivery Approach

- WM Core Development
- Co-digestion Partner WWTP
- Share benefits

Q: Is there a charge to credit given for the product supplying to the wastewater treatment plant?

A: Each project is unique in terms of EBS delivery to the sites, on the waste side there is a tip fee. Once EBS is produced, some elements need to be considered on whether to capitalize on the assets. In New York, we capitalize on the receiving station and pay a modest fee to the city. Transferring EBS about 35 miles to wastewater plant, there are significant transportation fees included and need to pay a tipping fee to GLSD. The energy benefit is completely for GLSD, GLSD gets to capitalize off assets. Each project is a little bit different, but that’s the general process.

Q: As you’re looking at future project development, are you starting to move towards electric generation vs RNG?

A: There has been a push towards RNG, for example at the Rahway Valley SD. The electricity generated is used on site, so there’s an offset to their electrical

purchase. Renewable energy credits gained from excess energy produced. Moving over to RNG significantly increased the value of biogas being produced, probably would be a 10x benefit to the overall project because able to clean the gas and get it to the pipeline.

WM Organics Overview

- Specialized Environmental Technologies (SET) developed in the late 1990s
- 4 compost processing locations and 2 transfer stations
- WM acquired SET in March of 2023
- Acquisitions fit with WM MN resources and sustainability plan
- Partnerships with cities and counties to help obtain sustainability goals
- WI Orchard Ridge composting facility – Purple cow organics

Organic Network Facilities

- MN Empire OG & Food Waste Processing
- MN Burnsville OG
- MN Shakopee OG
- MN Minnetrista OG
- MN St Louis Park Transfer (SLP)
- MN Malcolm Transfer
- MN Empire Transfer

Volumes

- Inbound: 95,000 Yds Brush, Greenwaste 240,000 yds, Other 50,000 yds
- Outbound: 115,000 yds soil, 28,000 yds Mulch

Empire SET/WM Rosemount MN

- Phase I Expansion of WM Empire Organics facility
- Expected Outcomes: increased capacity, growth in yard waste & brush, SSOM storage & processing, sustainability & leadership

Q: Curious about any market outlet in WI and thoughts on the future?

A: In MN, there are a lot of regulatory drivers that are moving the state in the direction of organics management. There was tipping point in MN where WM looked at SAT, have been back and forth for years on whether to acquire SET or not. There has come a point to go forward because this is the regulatory environment with a 75% recycling goal. You can't get to that percent without organics, in addition the support and interest at the community level. All of that

suggested to move forward with organics. In WI there needs to be more regulatory drivers to make organics management happen at a larger scale. Hoping to grow the organics business in WI.

Q: What is the first step to getting a Core system or getting additional/larger compost systems?

Any recommendations?

A: Part of it is looking at recycling definition in code, MN changed definition to include organics. Then came organics requirements. Now MN has anerobic digesters popping up and interest of adding Core technology to a wastewater treatment facility because of gas generation. The first step includes goals and looking at incubators in the state (i.e. Milwaukee, Green Bay, Madison).

US & Canadian Biosolids Management Methods

Current Management Trends

- Market Pressure: Reduced capacity and stricter regulations continue to drive pricing challenges
- Reliability priority: Outlet reliability remains the top concern for biosolids generators
- Regulatory Shifts: Evolving policies create long term challenges for traditional management methods

EPA Update: biosolids risk assessment released on Jan 14 2025- potential changes ahead

State Actions: Bans-ME, CT, Testing & Screening: MD, WI, NH, NY, MN, WI and others

WM's Biosolids Customer Solution:

- Proactive Approach: WM formed a cross-functional team to develop innovative alternatives for municipal wastewater needs
- Strategic synergies: Landfill sites offer co-development opportunities- energy, water management, space, staffing, and infrastructure
- Market Deployment: Introducing "Dry & Dispose" strategy in select markets

Biosolid Market Challenges

- 2017-2019: landfill stability issues emerged
- 2019: wet waste volume acceptance limitations imposed to landfills

- 2020-present: emerging contaminants of concern challenge beneficial reuse pathways
- Resulting pressures: potential threat to traditional beneficial reuse outlets, limited disposal capacity, variable disposal costs, facilities exploring major capital investments

Market Overview

- Production: ~600K wet tons per year biosolids generated, >400 WWTP facilities, >80% land application as primary outlet
- Potential threat to beneficial reuse outlets:
- Interim strategy focuses on enhanced COC testing at WWTP and prior to land application to identify upstream sources
- WI supreme court recently ruled that farmers who discover contamination from biosolids land app may be required to immediately report it to the state's DNR and to undertake remediation efforts
- Marinette as suspended biosolids land application and must landfill

Case Study: Crossroads Landfill

Customer priority identified by WM

- Outlet security: Reliable, uninterrupted disposal options
- Pricing certainty: stable, predictable cost structures
- Risk management: compliance with evolving regulations and environmental protection
- WM solution: Deploy proven drying tech to meet demand and expand biosolids services in N New England

Q: If customers for some reason move away from land application, how much of that do you see facilities building their own drying facilities vs finding better going to WM? And are you landfilling the dry biosolids?

A: A lot of wastewater treatment plants decide to outsource due to resource/size/risk restrictions. Yes, landfilling biosolids.

Q: In terms of sequestration, is that based off leachate tests or actual leachate that comes out of the sites?

A: Both, waiting for crossroads to come online to get some real-world testing done and then will publicize results. Have done some rigorous testing on leachability of the dry volume.

Q: Subtitle D landfill? A: Yes.

		<p>Q: Why was the ban? A: Result of PFAS contamination in farm fields where long-term landfill application sites.</p>
<p>11:15</p>	<p>Landfill leachate pre-treatment systems</p>	<p>Only current PFAS standards in WI are for PFOA and PFOS in surface water</p> <ul style="list-style-type: none"> - PFOA 95 ng/1; 20 ng/1 in drinking water sources - PFOS 8 ng/1 - <p>WI Interim Land spreading strategy for PFOA + PFOS in municipal/industrial biosolids</p> <ul style="list-style-type: none"> - <20 ug/kg (ppb): land application is allowed per normal - 50 ≤ x < 150 ug/kg (ppb): land application is allowed but restricted to a max application rate of 1.5 dry tons per acre. Permittees must also notify DNR, investigate sources, develop reduction program - ≥150 ug/kg (ppb): land application is prohibited. Permittees must also notify the DNR and use alternative disposal methods <p>Leachate pre-treatment options: Separation (RO/Foam Frac) and destructions</p> <ul style="list-style-type: none"> - Reverse osmosis and foam fractionation produce concentrate which will typically be returned to landfill - Destruction technologies will greatly reduce PFAS in concentrate, but no technology can currently guarantee 100% removal or destruction - Methods are not economically feasible for closed landfills due to costs and are not required by regulation <p>Costs</p> <ul style="list-style-type: none"> - 100,000 gallons/month max flow, 2.3 gpm treatment system will cost between \$75,000 and \$350,000. Higher cost would be if new storage with containment is required or treated leachate - Annual O&M cost will be between \$30,000 and \$60,000 with greatest costs being new GAC, labor and spent GAC disposal - Pretreatment to remove iron and other competing elements/compounds will increase capital and O&M costs by at least a factor of 2. Waste products will increase by at least 3-fold - Any leachate pre-treatment costs are not included in current LTC calculations. <p>Q: When talking about disposal, what does a 500 lbs GAC filter look like?</p>

		<p>A: 1 cubic foot of GAC is 28 lbs, 500 lbs GAC filter is going to be about 2/3 of a cubic yard.</p> <p>Q: How does the use of GAC compare to fractionation for larger landfills, which technology would you lean towards?</p> <p>A: All still very new and nuanced, would have to sit and think out it.</p> <p>Q: For an active landfill to do foam fractionation, you're looking at over 1M?</p> <p>A: Yes, about a number that that's 2 years old. Might be more or less.</p>
11:45	Topics for next meeting, Adjourn	<ul style="list-style-type: none"> - Bart Sexton retiring end of 2025, will be present in Feb 2026 meeting - Food waste evaluation - Metals and groundwater study

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