

# Demystifying WI Air Permitting Rules: Does My Wastewater Utility Need an Air Permit?

**Presented By Travis Anderson**  
**October 8, 2014**

# ■ Outline

- Overview of WI air permitting regulations
  - Permit types
  - Exemptions
  - Federal regulations
- Air permitting process
  - Calculating emissions
  - Permit applications
- Case Studies

# WI Air Permitting Program

- Administered by the WDNR
- Air permits limit the amount of hazardous air pollutants discharged to the atmosphere
- All air pollution sources require a permit unless they are determined to be exempt
  - There are many exemptions in the regulations



# ■ Types of Permits

- Type A Registration Permit
  - Easiest permit to obtain
  - Covers the entire facility
  - Allows both construction and operation
  - Must remain below an emission threshold
- Construction Permit
  - Covers installation of specific equipment
- Operation Permit
  - Covers entire facility
  - Can be complex

**Easy**

**Hard**

# ■ Easiest to Start with Exemptions

- Exemptions are outlined in NR 406 and NR 407
- WWTP is exempt if it consists only of emergency generators and heating equipment
  - Generator is emergency only
  - Natural gas or oil fired HVAC



- Facility may still be exempt...

# ■ More Detailed Exemptions

- WWTP is exempt if it meets all the following:



- Emissions below 10 ton/yr for NO<sub>x</sub>, SO<sub>x</sub>, VOC, PM, CO
- Cannot be subject to New Source Performance Standards (NSPS) requirements

# ■ Federal Regulations - NSPS

- What's subject to NSPS limits?
  - Diesel engines manufactured after April 1, 2006
  - Natural gas/biogas engines manufactured after ~ 2007/2008 (depends on HP)



- Bottom line: newer non-emergency engines require an air permit

# ■ Federal Regulations - NESHAP

- What about NESHAP (RICE) rules?
  - Much more complicated
  - Depends on engine type, size, and fuel
  - Rules were just finalized in early 2013
- Some items required by NESHAP
  - Performance testing
  - Air pollution control devices
- Older emergency generators can still be exempt from permitting





# ■ Exemptions – Follow Through

- Document your conclusions
  - List equipment at your facility
  - Include sizes, fuel type, year manufactured, run times
- Discuss with your engineer and/or the WDNR
- Send an optional exemption form to the WDNR

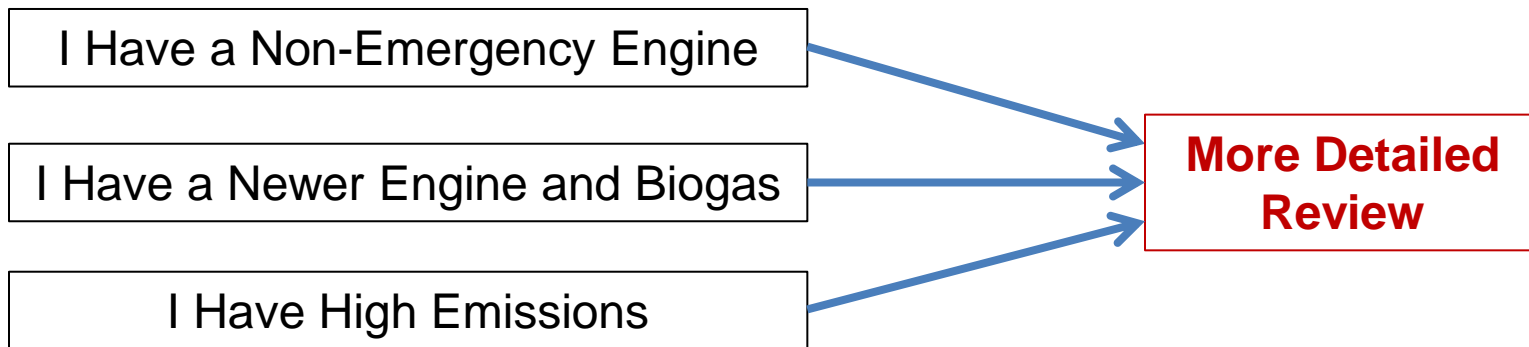
State of Wisconsin  
Department of Natural Resources  
P.O. Box 7921,  
Madison WI 53707-7921  
dnr.wi.gov

**Notice of Intent**  
**Under the Actual Emission Exemption**  
**ss. NR 406.04(1q) or NR 407.03(1m), Wis. Adm. Code.**  
Optional form (revised 9/07)

**Notice:** By submitting this form you are notifying the department of your intent to (1) construct or modify an emission unit under s. 406.04(1q), Wis. Adm. Code, or (2) operate a facility under s. NR 407.03(1m), Wis. Adm. Code.

# ■ Summary of WI Air Permitting

- Permits are administered by the WDNR
  - Required for all facilities unless exempt
- Several different ways to be exempt
  - Only emergency engines and typical heating equipment
  - Not subject to NSPS and < 10 ton/yr emissions



# Air Permitting Process

- Compile the emission sources
  - Include collection system
- Calculate emissions for all equipment
- Determine type of permit required
- Communicate with WDNR
- Complete air permit application



# ■ Data Needed for Emission Sources

- Compile list of all equipment with emissions
- Engines:
  - Size, year manufactured, fuel type, annual run time
- Boilers:
  - Size, fuel type, annual fuel used
- Waste gas burners:
  - Annual fuel used
- Heating equipment:
  - Size, annual natural gas use



# ■ Calculating Emissions

- Calculate actual and maximum theoretical emissions
  - Actual emissions – based on actual run times/fuel use
  - Maximum theoretical – 24/7, 365 days per year
- Use manufacturer's emissions rates when available
- Convert emissions into tons/year
- Example: calculate CO emissions from engine

$$(500 \text{ hp})(2.0 \text{ g/hp/hr})(10 \text{ hr/yr}) = 10,000 \text{ g CO/yr}$$

$$(10,000 \text{ g CO/yr})(1 \text{ lb}/454 \text{ g})(1 \text{ ton}/2,000 \text{ lb}) = 0.011 \text{ ton CO/yr}$$

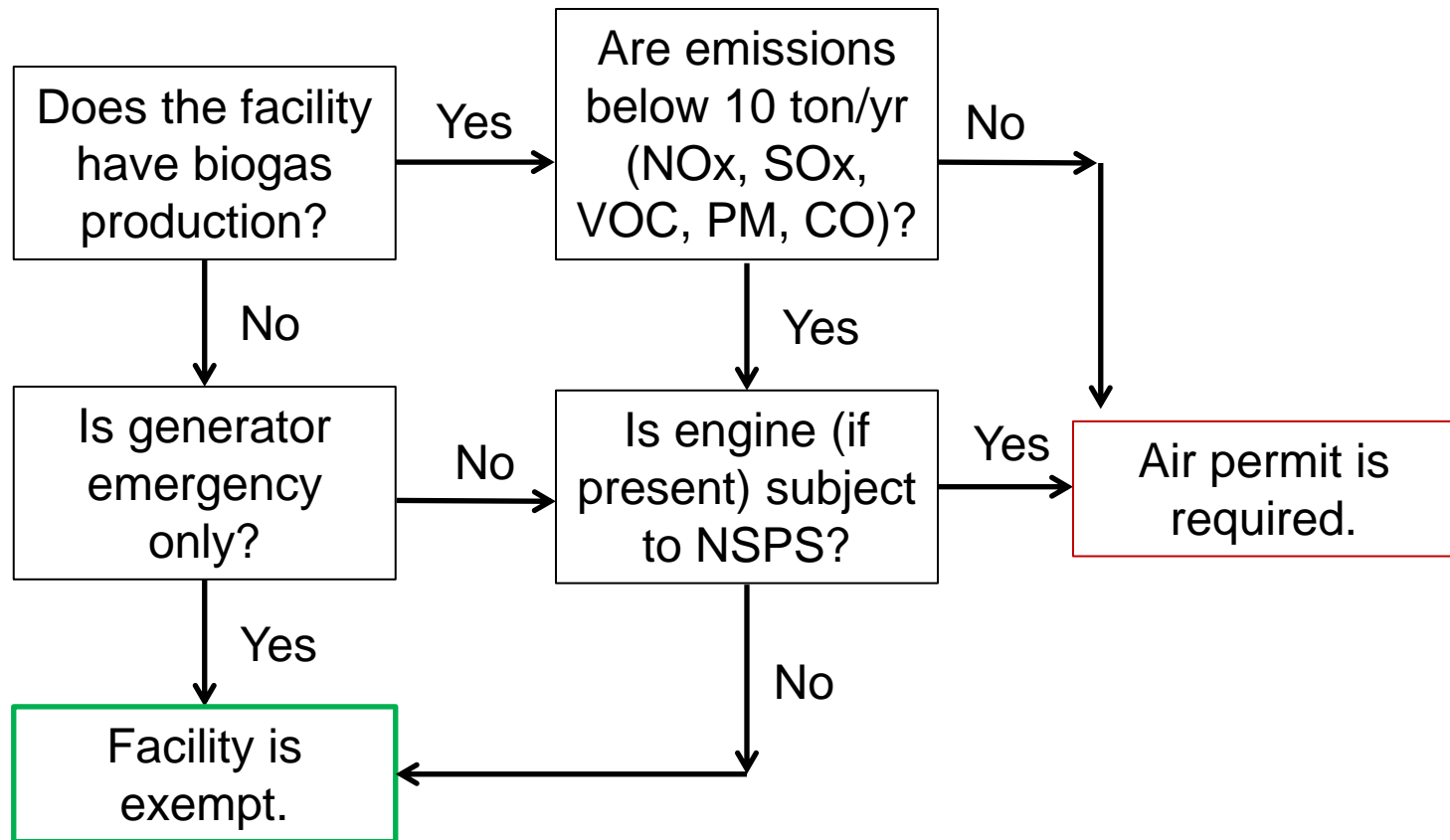
# ■ Using AP-42 Emission Factors

- AP-42 emission factors are available on EPA's website
  - Use when manufacturer data not available
- Example:

Table 3.3-1. EMISSION FACTORS FOR UNCONTROLLED GASOLINE AND DIESEL INDUSTRIAL ENGINES<sup>a</sup>

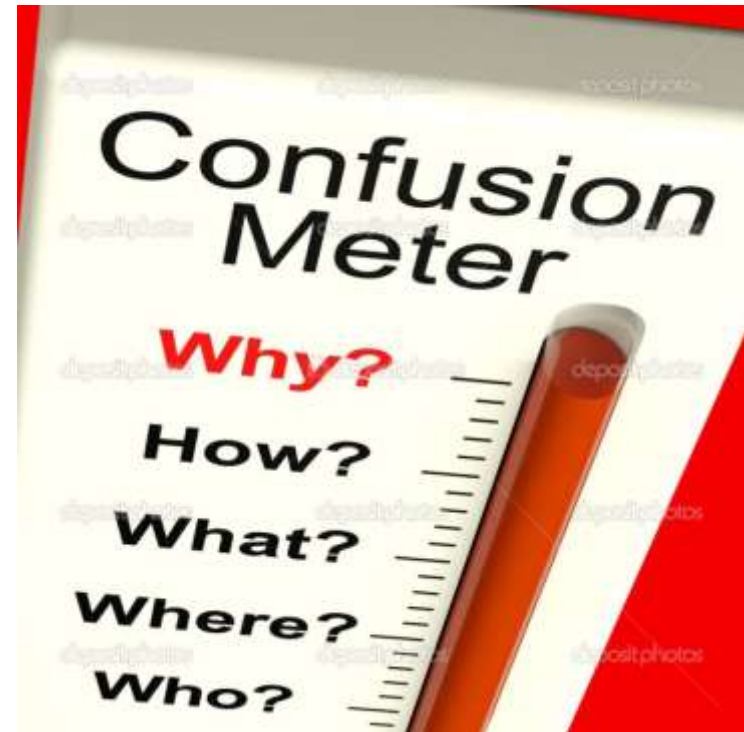
Pollutant	Gasoline Fuel (SCC 2-02-003-01, 2-03-003-01)		Diesel Fuel (SCC 2-02-001-02, 2-03-001-01)		EMISSION FACTOR RATING
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	
NO <sub>x</sub>	0.011	1.63	0.031	4.41	D
CO	6.96 E-03 <sup>d</sup>	0.99 <sup>d</sup>	6.68 E-03	0.95	D
SO <sub>x</sub>	5.91 E-04	0.084	2.05 E-03	0.29	D
PM-10 <sup>b</sup>	7.21 E-04	0.10	2.20 E-03	0.31	D

# Air Permit Flow Chart



# ■ I Need a Permit, Now What?

- Determine what type of permit will be applied for
- Recall different types of permits
  - Registration permit
  - Construction permit
  - Operation permit





# ■ Registration Permits

- Type A Registration Permit
  - Places a cap on emissions at 25 ton/yr NO<sub>x</sub>, SO<sub>x</sub>, VOC, PM, CO
  - Facility can't be subject to a Best Available Control Technology (BACT) review
  - Stacks must be vertical and unobstructed
- Many benefits
  - Construct/replace equipment
  - Simplified permit application with less cost
  - DNR decisions in < 15 days



# ■ Construction Permits

- Construction Permit
  - Required for construction/modification when a Type A Registration Permit cannot be used
  - Valid for 18 months
- Initial \$7,500 fee applied to application
  - Processing, emission testing, modeling, etc.
- An operation permit is required following construction

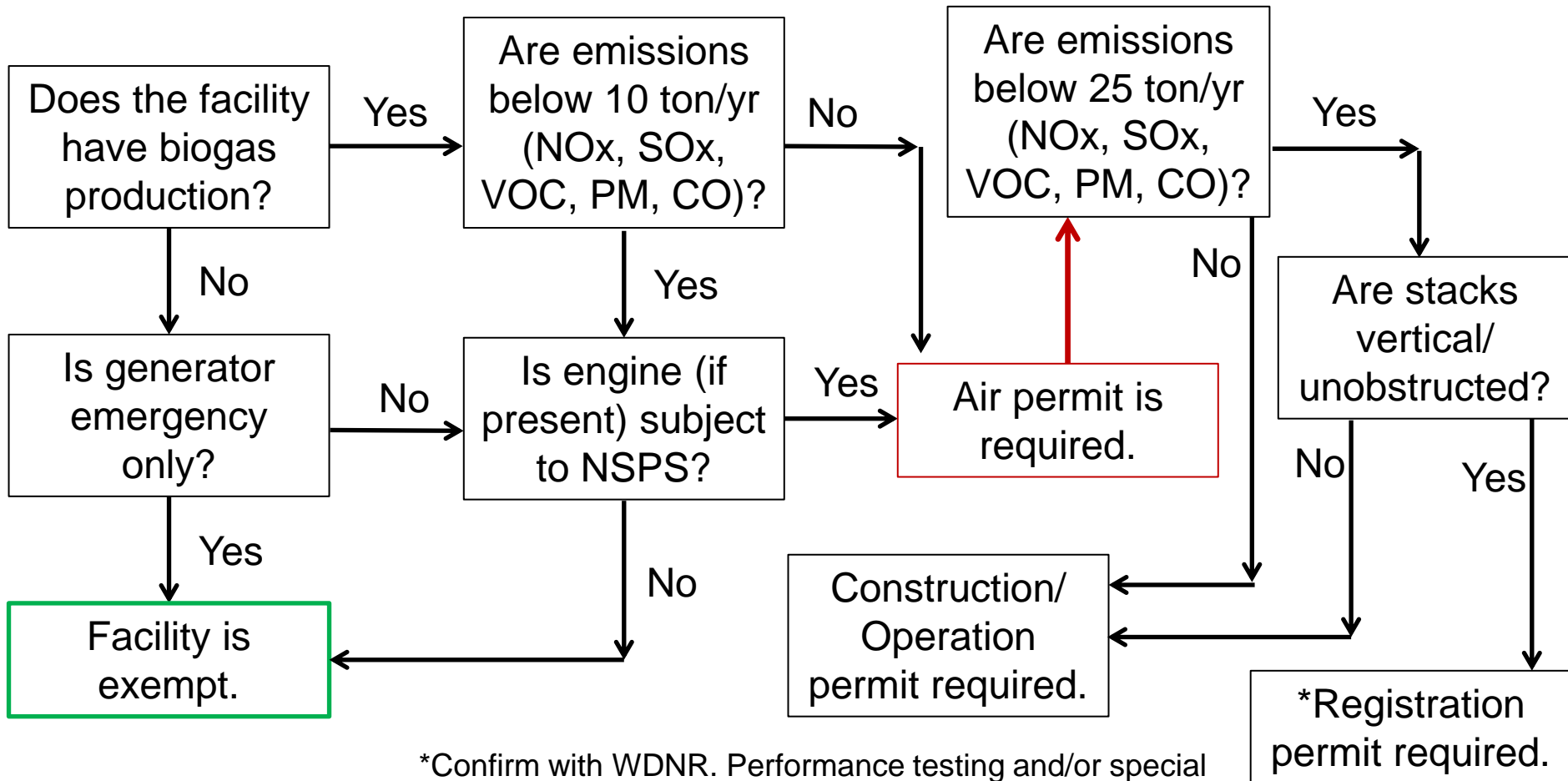


# ■ Operation Permits

- Operation Permit
  - Required when a Type A Registration Permit cannot be used
- Must be renewed every 5 years
- Covers operation of all equipment at facility



# Air Permit Flow Chart - Expanded



\*Confirm with WDNR. Performance testing and/or special review for new engines may not allow registration permit.

# Discussion with the WDNR



- Many fact sheets are available online
- Communicate with WDNR throughout process
- Each facility is unique
- Discuss before starting the application process

**Fact Sheet 1**  
**Type A Registration Permits**  
April 2010

**WHAT IS A REGISTRATION PERMIT?**

A Registration Permit is a standardized operation permit for use by facilities with low actual air pollution emissions. This type of permit is drafted, undergoes public comment, and is issued to cover a category of air pollution sources. Upon issuance, eligible facilities may apply for coverage under the Registration Permit.

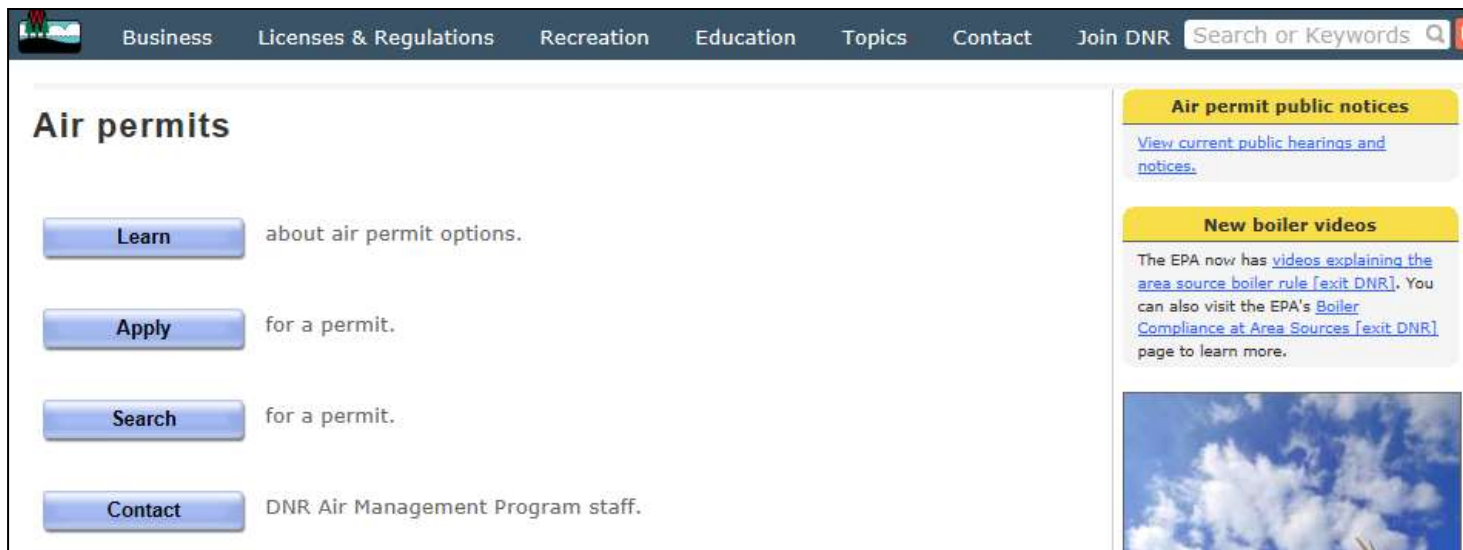
 **Clean Air Facts**

How do I get a Registration Permit for my Wastewater Treatment Facility? AM-488 2012  
November 2012

The air registration permit allows small wastewater treatment facilities to quickly register themselves for a permit in return for keeping air emissions low.

# Air Permit Application Process

- Registration permit applications
  - Downloadable PDF form
  - Submit to WDNR
  - Response within 15 days
- Construction/operation permit applications
  - Multiple forms required
  - May be submitted in one application



The screenshot shows the DNR website's "Air permits" page. The navigation bar includes links for Business, Licenses & Regulations, Recreation, Education, Topics, Contact, and Join DNR, along with a search bar. The main content area features four blue buttons: "Learn" (about air permit options), "Apply" (for a permit), "Search" (for a permit), and "Contact" (DNR Air Management Program staff). On the right, there are two yellow-highlighted sections: "Air permit public notices" with a link to "View current public hearings and notices," and "New boiler videos" with text about EPA videos explaining the area source boiler rule and a link to the EPA's Boiler Compliance page. A small image of a blue sky with white clouds is visible at the bottom right of the page.

# ■ Example – Exempt Facility

- Small treatment plant with oxidation ditch
  - No anaerobic digestion
  - Emergency generator
  - Natural gas heating equipment
- Facility consists of only an emergency generator and heating equipment



# ■ Example

- Watertown WWTP
  - Newer emergency generator (subject to NSPS)
  - Facility also has flare, boiler, etc.
  - Well under 25 ton/yr
- Qualified for Registration Permit



Air Pollution Control Permit Number: ROP-A03  
Air Pollution Control Permit Number RCP-A03

**AIR POLLUTION CONTROL  
TYPE A  
REGISTRATION OPERATION PERMIT (ROP)**



# ■ Example

- Fond du Lac WWTP
  - New biogas generator
  - Formaldehyde emissions were a concern, requiring a BACT review
- Required a standard Operation Permit application
  - Fairly complicated, > 100 pages



Fond du Lac biogas engine.

# ■ Conclusions

- Begin process looking at exemptions
- Determine whether NSPS/NESHAP has an effect
- Compile list of equipment & calculate emissions
- Determine type of permit to apply for
- Discuss with WDNR before starting the application
- Complete application & submit to WDNR

# ■ Acknowledgments

- Wisconsin DNR – Kristin Hart
- Waukesha WWTP
- Watertown WWTP
- Fond du Lac WWTP



