Variance Implementation in Wisconsin
Agenda

• Variances in Wisconsin
• Mercury Trends
• Chloride Variances
  – Hurdles to Approval
  – What makes a good SRM
• Phosphorus
  – Multi-Discharger Variance
  – Individual Variances

Devil’s Lake, WI. 45 min NW of Madison.
## Variances in Wisconsin

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Standard(s)</th>
<th>Number of Variances</th>
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</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>1.3 ng/L</td>
<td>76</td>
</tr>
<tr>
<td>Chloride</td>
<td>395 mg/L (chronic)</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>757 mg/L (acute)</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>Variable (hardness)</td>
<td>19</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0.1 mg/L (River)</td>
<td>MDV 0 individual</td>
</tr>
<tr>
<td></td>
<td>0.075 mg/L (Stream)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.03-0.04 (Lakes)</td>
<td></td>
</tr>
</tbody>
</table>
Variance Package

• Variance Application (Permittee)
  – Application Form
  – Pollutant Minimization Plan (+ Annual Reports)

• Variance Package (DNR)
  – WQBEL Calculation
  – Substantial Compliance Determination
  – Data (graphed)
  – EPA Data Sheet
  – Map
  – Draft Permit, Fact Sheet, Public Notice, Comments, NFD, Proposed Permit
  – Cover Letter, Legal Certification
Variance Review Process

- Application Due - 6 months
- Draft Permit/Fact Sheet
- EPA Variance Prelim. Review
  - Fact Check (2 weeks)
  - Public Notice
- EPA Variance Review (60 days)
- NFD
- Final Permit

PMP/SRM Reports Annually

DNR Permit Drafter  Permittee  EPA
What goes in the Permit?

1. Site-Specific Interim Limit
2. Compliance Schedule for Annual Reports
3. Actions to Meet Highest Attainable Condition (HAC)
   – HAC defined in 2015 Variance Rule Update
Beyond the Basics:

**Highest Attainable Condition (HAC)**

1. The highest attainable interim criterion, or

2. The interim effluent condition that reflects the *greatest pollutant reduction achievable*, or

3. If no additional **feasible pollutant control technology** can be identified, the interim criterion or interim effluent condition that reflects the *greatest pollutant reduction achievable* with the pollutant control technologies installed at the time the State adopts the WQS variance, and the adoption and implementation of a **Pollutant Minimization Program**.
Agenda

- Variances in Wisconsin
- **Mercury Trends**
- Chloride Variances
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  - What makes a good SRM
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  - Individual Variances

Devil’s Lake, WI. 45 min NW of Madison.
Mercury PMP Results (Industrial)

Expera - Thilmany

Dairyland Alma Power Plant

Green Bay Packaging

Tyco Safety Products
Mercury PMP Results (Municipal)

Neenah-Menasha POTW

Madison Met POTW

Appleton POTW

Peshtigo POTW

Mercury Concentration (ng/L)
Common Mercury Source Reduction Measures (SRMs)

- Hg BMPs at Medical/Dental Facilities
  - Ordinances requiring Amalgam Separators
- Audit Pretreatment Industries
- Examine Additives
- Replace Elemental Mercury Switches & Thermometers
- Recycle HID & Fluorescent Light Bulbs

- Next Step: Mercury MDV?
Agenda

• Variances in Wisconsin
• Mercury Trends
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  – Hurdles to Approval
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How to get Variance Approval:

- Good Annual Reports
- Good SRM Plan
- HAC Justification
- Reductions

= Approval
Annual Reports

- Incomplete Report/Implementation = Permit Violation
- Documentation that SRMs are being completed according to plan
- Without completion of SRMs, no HAC/inconsistent with CWA.
- Analysis of data (influent/effluent).
In 2016, MMSD has implemented actions to minimize pollutant sources, focusing on incentive programs for various sectors.

**B. Actions to Minimize Pollutant Sources**

- **Pollutant Source Identification Efforts**
  - Industrial
  - Implement Incentive Programs – Commercial
  - Implement Incentive Programs – Residential
  - Pumping station monitoring
  - Salt use sector survey

**Attachment C: Weekly Average Concentrations for 2016**

Weekly average Cl concentration data for 2016, showing trends and average values.

**Status/Comments**

- rst Salt Wise Soft Water Training program was developed and presented by D in 2016. This training was attended by D, including DNR and DSPS staff. The video is available through Fitchburg's YouTube channel. Five of the organizations represented training later applied for MMSD saltation rebates. 19 class attendees filled out a survey, and all respondents noted that the training was helpful to them.

- rst reporting period occurred in 2016. This period is a baseline to which future years/ actions are compared. MMSD customer communities have been working to reduce intake and infiltration. As a result, municipalities began tracking drinking water for chloride: wells in service area range from non-detect to over 40 mg/L. The stormwater permits did not yet require deicing information in 2016 but will begin reporting in 2017. MMSD continues to monitor chloride from the five influent pumping stations and has been tracking concentrations.
Mr. Timothy Thompson  
2300 N Martin Luther King Jr Drive  
Milwaukee, WI  53212  

Subject: 2014 Final Chloride Report  

Dear Mr. Thompson:

The Department of Natural Resources requested a Final Chloride Report by December 31, 2014. I have enclosed my Excel spreadsheet showing mass balancing of chlorides leaving the WWTF. Our highest chloride levels for the last five years occurred in July 2012, which was 605 mg/l monthly average. This monthly average was caused by the drought of 2012. The mass balance spreadsheet clearly shows the high pounds of salt used at the water plant for backing washing the Zeolite filters. This has to be done to protect the drinking water being supplied to the homeowner’s of the Village of Bloomfield. I have enclosed a newsletter from WI Rural Water Association.

The Utility Department (BUD) has no plans for any changes in the wastewater plant flow. The BUD will continue to send new home owners our chlorides brochures and letters in an effort to achieve further source reduction of chlorides in our wastewater facility plant effluent. Based on the mass balance sheets, it shows that the majority of our chlorides come from backwashing our Zeolite water softeners at our water facility, not from homeowner’s water softeners.

Any questions or comments please feel free to call me at

• Vague  
• No Progress  
• No defined plan to address primary source(s)  
• Incomplete source ID (Road Salt?)
Annual Chloride Progress Report.

The biggest contributor of chloride. They used salt out in there pickles vat. Barry the superintendent of utilities, Tim plant manager of wastewater sat down with personal, talk about how to reduce there chloride. They put in six tanks to collect there brine. They were going to bleed it back to us at 14gpm. It drop there chloride down. Plus we are still looking at different option on how to use there pickle brine.

<table>
<thead>
<tr>
<th>MONTH/yr</th>
<th>AVG. MGD FLOW/MTH</th>
<th>CHLORIDE MONTHLY MG/L</th>
<th>8.34</th>
<th>LBS/DAY</th>
<th>DAYS IN MTH</th>
<th>LBS/MONTH</th>
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<tbody>
<tr>
<td>Jan-15</td>
<td>0.3341</td>
<td>405</td>
<td>8.34</td>
<td>1375</td>
<td>31</td>
<td>42830</td>
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<tr>
<td>Feb-15</td>
<td>0.3349</td>
<td>780</td>
<td>8.34</td>
<td>2170</td>
<td>29</td>
<td>60482</td>
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<tr>
<td>Mar-15</td>
<td>0.3349</td>
<td>893</td>
<td>8.34</td>
<td>1837</td>
<td>31</td>
<td>55066</td>
</tr>
<tr>
<td>Apr-15</td>
<td>0.4240</td>
<td>855</td>
<td>8.34</td>
<td>3023</td>
<td>30</td>
<td>90703</td>
</tr>
<tr>
<td>May-15</td>
<td>0.3769</td>
<td>873</td>
<td>8.34</td>
<td>2115</td>
<td>31</td>
<td>85562</td>
</tr>
<tr>
<td>Jun-15</td>
<td>0.3845</td>
<td>848</td>
<td>8.34</td>
<td>2790</td>
<td>30</td>
<td>85761</td>
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<tr>
<td>Jul-15</td>
<td>0.3777</td>
<td>765</td>
<td>8.34</td>
<td>2378</td>
<td>31</td>
<td>70728</td>
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<tr>
<td>Aug-15</td>
<td>0.3541</td>
<td>800</td>
<td>8.34</td>
<td>2363</td>
<td>31</td>
<td>75239</td>
</tr>
<tr>
<td>Sep-15</td>
<td>0.4028</td>
<td>1055</td>
<td>8.34</td>
<td>3541</td>
<td>30</td>
<td>106244</td>
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<td>Oct-15</td>
<td>0.3843</td>
<td>723</td>
<td>8.34</td>
<td>2317</td>
<td>31</td>
<td>71035</td>
</tr>
<tr>
<td>Nov-15</td>
<td>0.4099</td>
<td>820</td>
<td>8.34</td>
<td>2120</td>
<td>30</td>
<td>63085</td>
</tr>
<tr>
<td>Dec-15</td>
<td>0.4810</td>
<td>520</td>
<td>8.34</td>
<td>2120</td>
<td>31</td>
<td>80010</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4.6165</td>
<td>6765</td>
<td>8.34</td>
<td>26167</td>
<td>365</td>
<td>856175</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>0.3846</td>
<td>761</td>
<td></td>
<td>2347</td>
<td>30</td>
<td>71742</td>
</tr>
</tbody>
</table>
A Good SRM Plan:

• Reviewed to ensure highest attainable condition

• Want to see previous SRMs were completed and future SRMs make sense for the facility.
  – Don’t include things that aren’t working or not going to work
  – BENEFICIAL TO FACILITY

• Especially after a variance cycle, sources should be known and SRMs should be tailored to sources and the facility.

• Best ideas come from facility staff
Good, quality annual reports and SRMs are the foundation for quality variance re-application packages.

- Need to show (prove) that SRMs are being implemented.
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Devil’s Lake, WI. 45 min NW of Madison.
Phosphorus Compliance Options

- Facility Upgrade
- Adaptive Management
- Water Quality Trading
- Multi-discharger Variance (MDV)
- Individual Variance
Phosphorus Multi-Discharger Variance

- EPA Pre-approved for a set of dischargers
- During variance term, pay funds toward NPS BMPs
- Stepped-down Interim Limits
- 10-year Variance Term
## Economic Eligibility Criteria

<table>
<thead>
<tr>
<th>Category of Discharge</th>
<th>Primary Screener</th>
<th>Secondary Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>MHI&gt;2%</td>
<td>Secondary score must be 2 or higher</td>
</tr>
<tr>
<td></td>
<td>1%&lt;MHI&lt;2%</td>
<td>Secondary score must be 3 or higher</td>
</tr>
</tbody>
</table>
| Industrial            | Must be in the top 75% of dischargers incurring costs within that category | • If both are met, a secondary score of at least 2 is needed to qualify  
                                           • If only one met, a secondary score of at least 3 is needed to qualify  
                                           Must be located in a county that is within the top 75% of counties incurring costs for that category |
# Industrial Primary Screener

## Industrial Category

<table>
<thead>
<tr>
<th>Industrial Category</th>
<th>75% Threshold for Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese Manufacturing</td>
<td>$1,510,000</td>
</tr>
<tr>
<td>Food Processing</td>
<td>$1,890,000</td>
</tr>
<tr>
<td>Paper</td>
<td>$11,200,000</td>
</tr>
<tr>
<td>Aquaculture</td>
<td>$2,600,000</td>
</tr>
<tr>
<td>NCCW</td>
<td>$1,350,000</td>
</tr>
<tr>
<td>Other Industrial Discharges</td>
<td>$943,000</td>
</tr>
</tbody>
</table>
MDV Overview

• **Reduce phosphorus discharge:** reduce phosphorus load each permit term of MDV coverage

AND

• **Implement a watershed project that reduces nonpoint source phosphorus pollution:**
  – Implement watershed project directly;
  – Work with a third party to implement a watershed project; or
  – Make payments to County LCDs to implement ag practices (cost sharing + NR 151 compliance)
Overview of MDV Permit Conditions

Annual Offset = Previous Annual Phosphorus Load – Target Annual Load

Point Source

• Comply with interim limits
  – P99 or 0.8 mg/L
  – then 0.6 mg/L, 0.5 mg/L
  – WQBEL

• Optimize

• Reporting
  – Effluent data
  – Cost verification form

Watershed Project

• County payment option
  – Annual payments of $50/lb P + inflation
  – $640,000/year cap

• Direct offset
  OR

• Third-party offset
Interim Limit Determination

DNR shall determine the appropriate interim limitations at time of permit reissuance

**Less Restrictive:**
- Interim limits may not go above 1 mg/L *(283.16(6)(am))*

**More Restrictive:**
- Only applicable for point sources that have consistently achieved an effluent quality below interim limits

**Typical interim limits:**

<table>
<thead>
<tr>
<th>Permit Term</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td>0.8 mg/L, monthly average</td>
</tr>
<tr>
<td>Term 2</td>
<td>0.6 mg/L, monthly average</td>
</tr>
<tr>
<td>Term 3</td>
<td>0.5 mg/L, monthly average</td>
</tr>
<tr>
<td>Term 4</td>
<td>MDV concludes, TP WQBEL included in WPDES permit</td>
</tr>
</tbody>
</table>

Separate EPA approval required
EXAMPLE: Calculating Annual Offset

1. Determine annual TP loading
   - Facility A discharges 800 lbs in 2019

2. Subtract the target value
   - (0.2 mg/L or TMDL target)
   - 800 lbs/yr – 200 lbs/yr = 600 lbs/yr

3. Multiply by $50 lb (+inflation)
   - 600 lbs/yr * 51.10 = $30,700 in 2020
Example Timeline

2017

Point sources receive permit with MDV

Fall 2017

Counties informed of funding projections

January 1, 2018

County Participation Form due

Funds received

Watershed plan due

March 1, 2018
March 1, 2019

Annual reports due until funding used

May 1, 2020+

Want funds in 2019? Submit form in 2019!
MDV Funding Distribution

Hypothetical Example

Total MDV dollars available in 2020: $1.2 M

- Dodge = $948,000
- Washington = $168,000
- Waukesha = $84,000

Facility A payment in 2020: $30,700

- Dodge = $24,250
- Washington = $4,300
- Waukesha = $2,150
County Expectations

- Participation is voluntary
- At least 65% of funding needs to be spent on nonpoint source practices
  - Remainder can be used for staffing, monitoring, and other funding needs
- Funding will be distributed to participating counties within the watershed (HUC-8)
- Documentation requirements

Example HUC 8 Watershed
MDV Funds – 2019 Projection

• 30 MDV Applications received this year
• 24 Facilities have been approved for MDV
  – 1 under review
  – 3 request more info
  – 2 applications withdrawn
• 2 facilities have had permits re-issued in 2017
  – Total estimated MDV funds available in 2018 = $33,000
• 26 facilities will have permits re-issued in 2018 with MDV requirements
  • Total estimated MDV funds = $1,080,000
### MDV – 2019 Projection

(Assumes 9-12 months TP discharge in 2018)

<table>
<thead>
<tr>
<th>WPDES Facility</th>
<th>HUC 8</th>
<th>Total Lbs</th>
<th>Total $$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbotsford</td>
<td>7070002</td>
<td>26.86009097</td>
<td>$1,372.55</td>
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<tr>
<td>Appleton Co</td>
<td>4030204</td>
<td>2346.125591</td>
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<td>Auburndale</td>
<td>7070002</td>
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<td>Bagley</td>
<td>7060003</td>
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<td>Barneveld</td>
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<td>Benton</td>
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<td>Black River Falls</td>
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<td>Blue River</td>
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<td>Cadott</td>
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<td>Colby</td>
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<td>FFUSA-Chilton</td>
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<td>Fond du Lac</td>
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<td>Hillshire</td>
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<td>Linden</td>
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<td>Milan</td>
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<td>Patch Grove</td>
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<td>Phillips City</td>
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<td>Viroqua</td>
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</table>
When to Consider an Individual TP Variance

1. Point source is not in an MDV eligible area

2. Point source cannot comply with a limit of 1.0 mg/L (esp. w/o spending >2% MHI)

3. $50/lb is economically infeasible & cannot do a self-directed/third party project
Highest Attainable Condition

(1) The highest attainable interim criterion, or
(2) The interim effluent condition that reflects the greatest pollutant reduction achievable, or
(3) If no additional feasible pollutant control technology can be identified, the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance, and the adoption and implementation of a Pollutant Minimization Program.
Overview of Permit Requirements

– Site-Specific Interim Limit
– Annual Reports
– Actions to meet highest attainable condition “HAC”
  • Partial Upgrade
  • Source Reduction Measures (SRM) Plan
Questions?

Jason Knutson
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Madison, WI 53707-7921

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