

# 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.

# Variations in Wisconsin

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

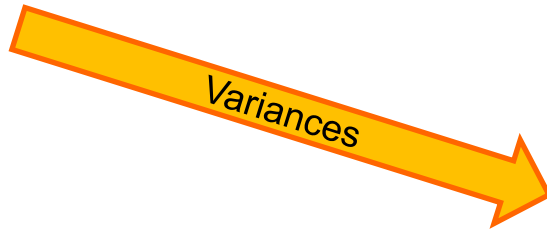


# Variance Processing

## Wisconsin Drafting

Permit Staff

Standards Staff



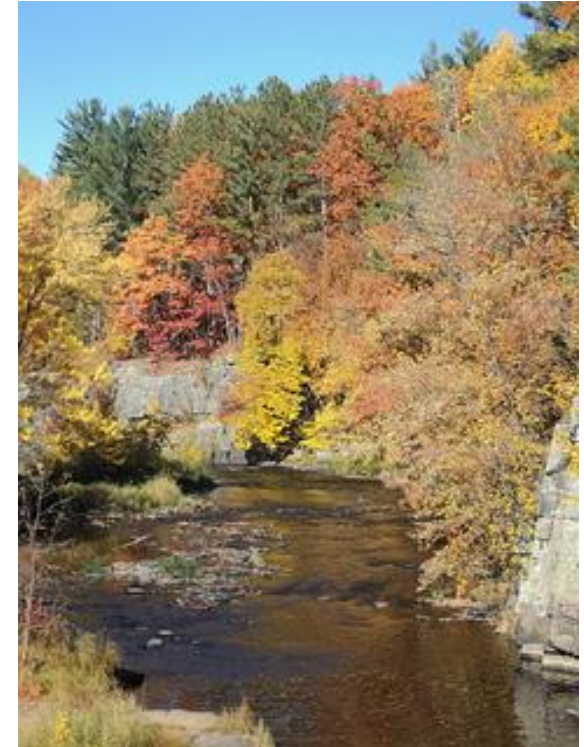
## EPA Review

Permit Staff

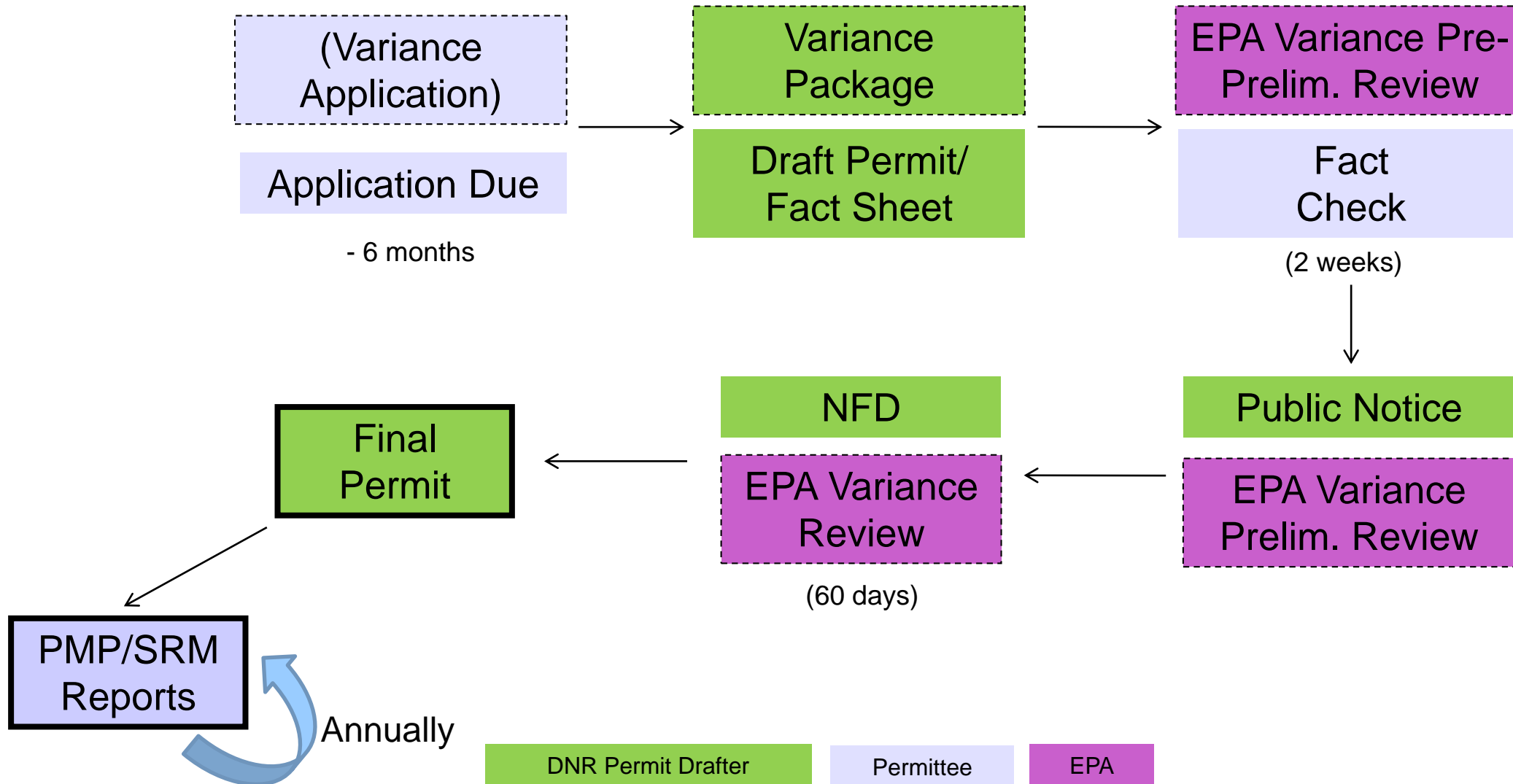
Standards Staff

# 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



# 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

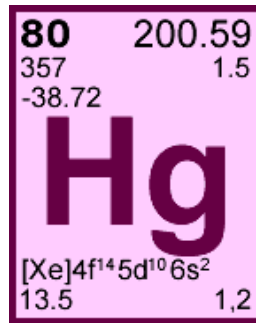
## Beyond the Basics: Highest Attainable Condition (HAC)

- (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.



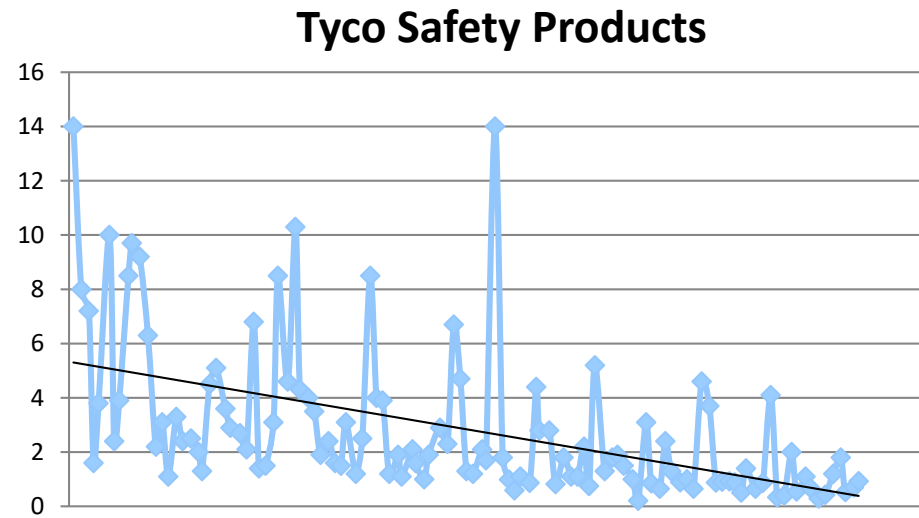
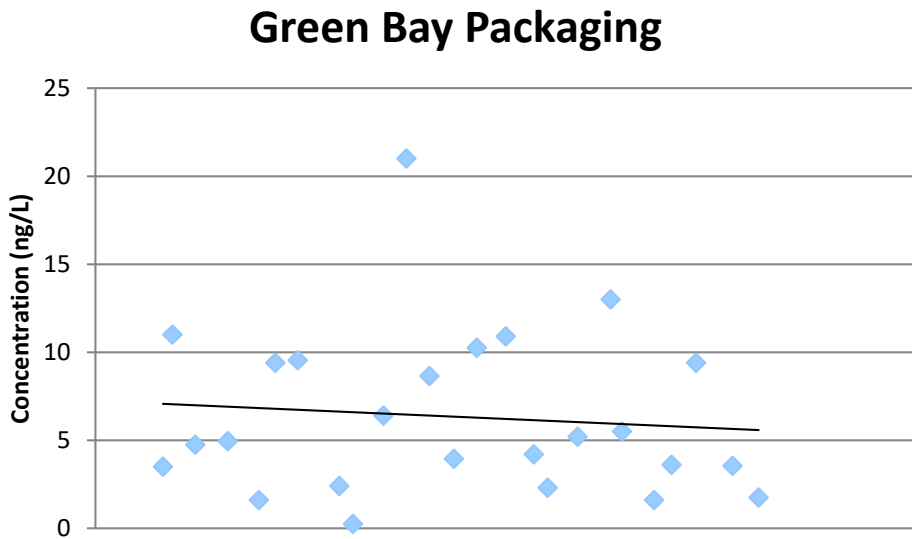
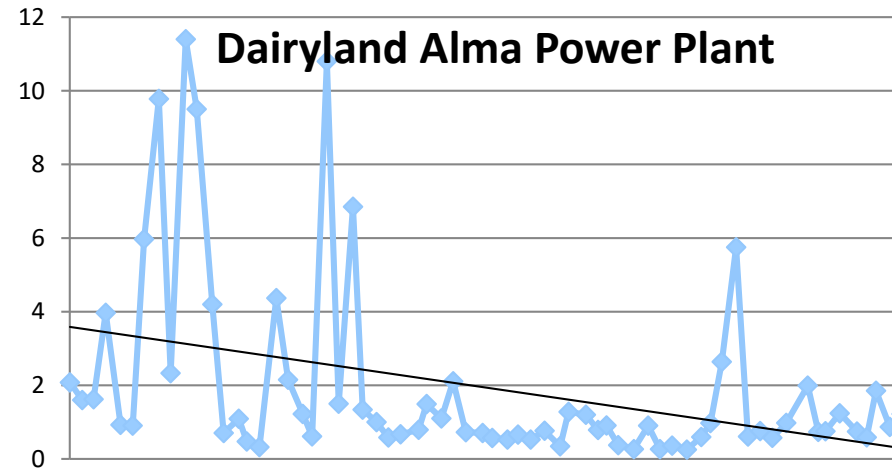
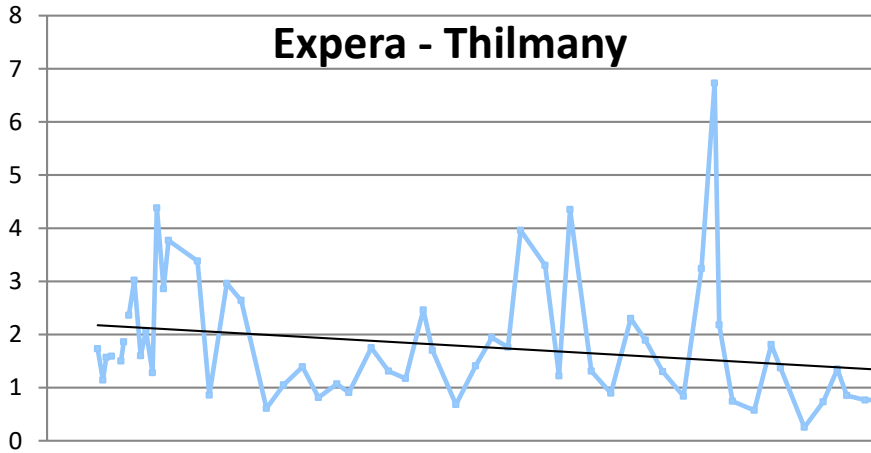
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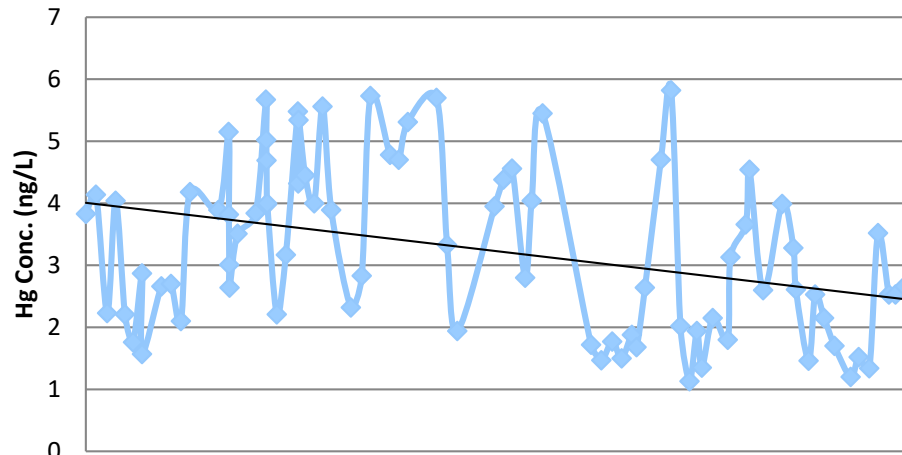
Devil's Lake, WI. 45 min NW of Madison.

# Mercury PMP Results (Industrial)

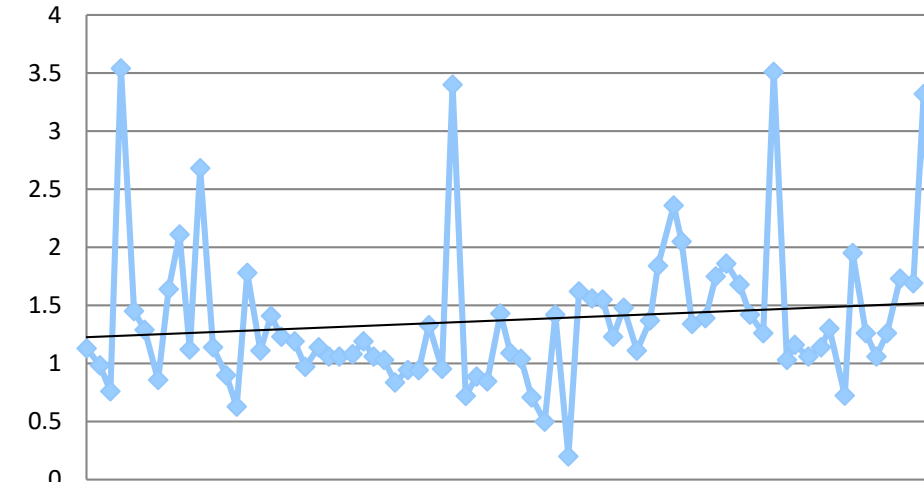


# Mercury PMP Results (Municipal)

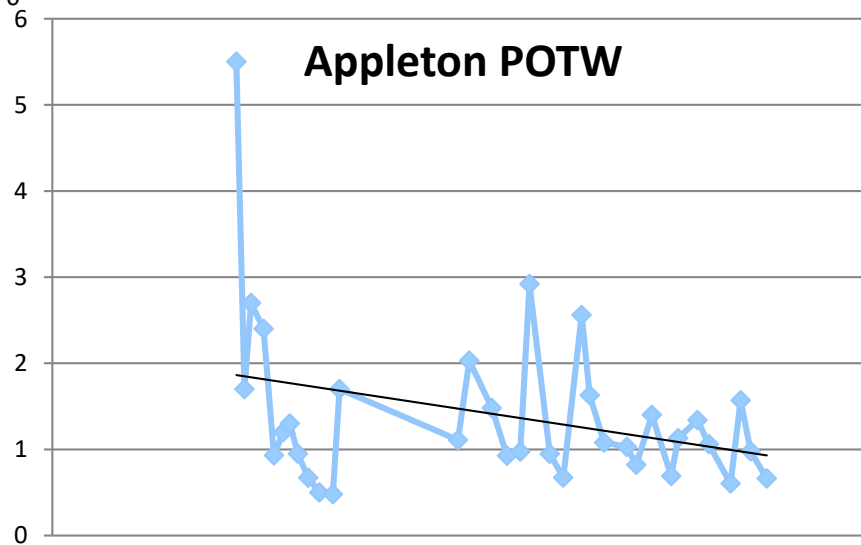
**Neenah-Menasha POTW**



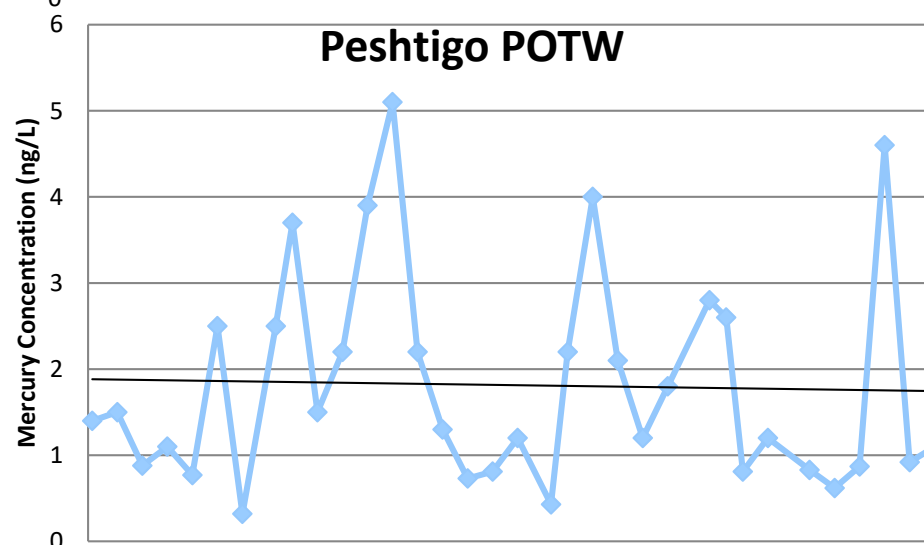
**Madison Met POTW**



**Appleton POTW**



**Peshtigo POTW**



## 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?

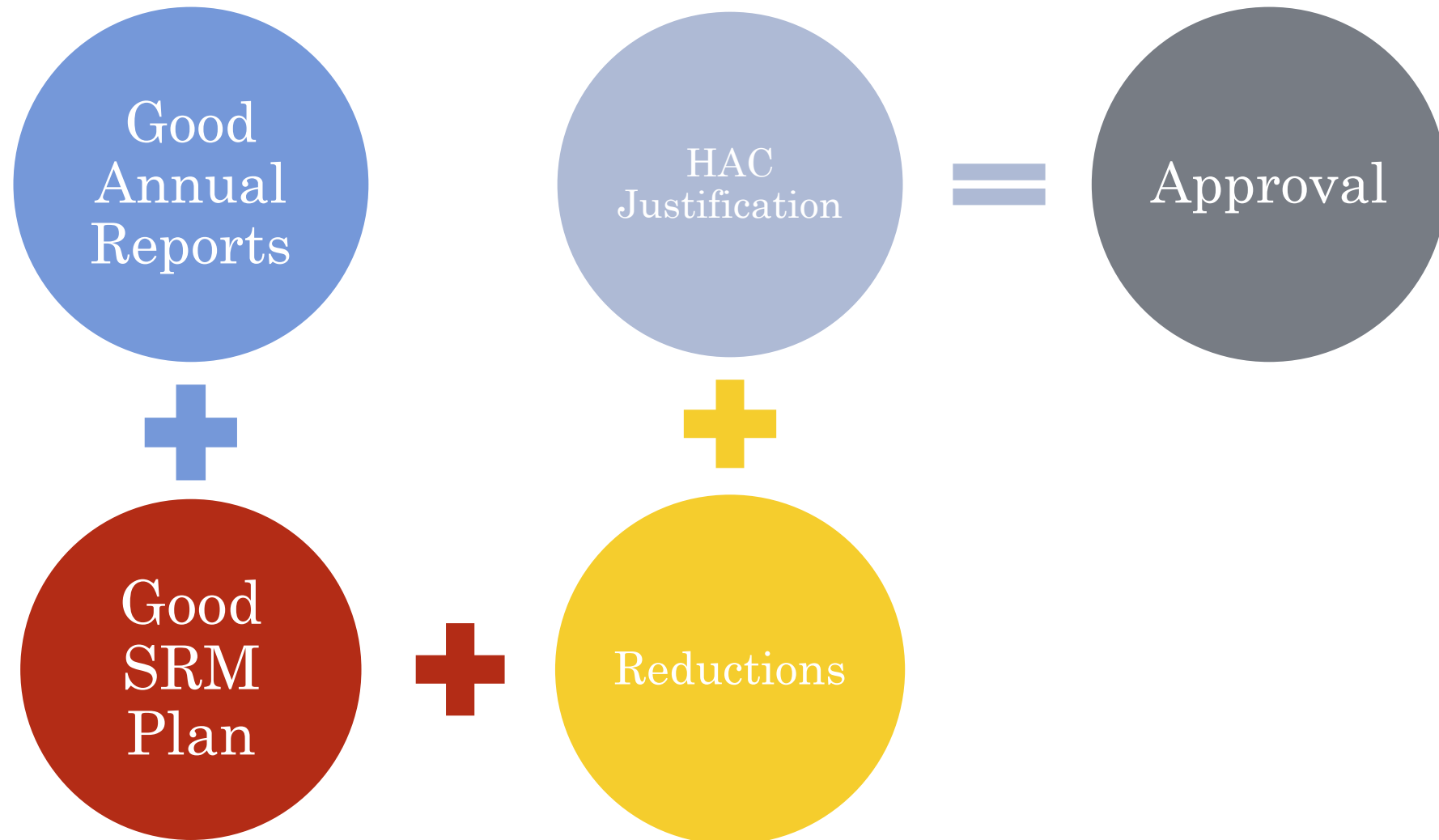


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# How to get Variance Approval:



# 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).

# THE GOOD



B. Actions to Minimize Pollutant Sources	Proposed Start Date	Responsible Party	Status/Comments
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## Section II - Summary

In 2016, MMSD has its first year chloride reduction program. This involves investment in training focused on both

### A. Pollutant Source Identification Efforts

Industrial monitoring

Pumping station monitoring (by basin contribution)

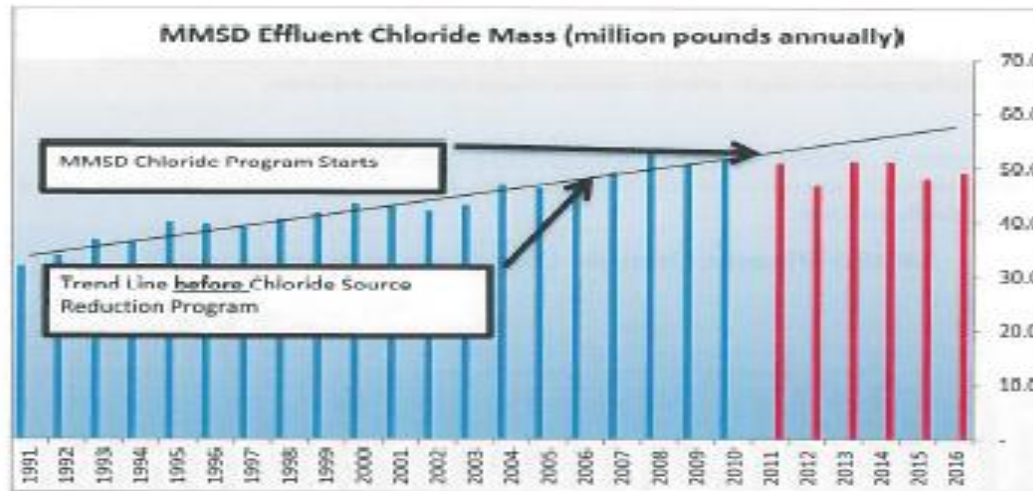
Salt use sector surveys

### B. Actions to Minimize Pollutant Sources

Implement Incentive Programs – Industrial

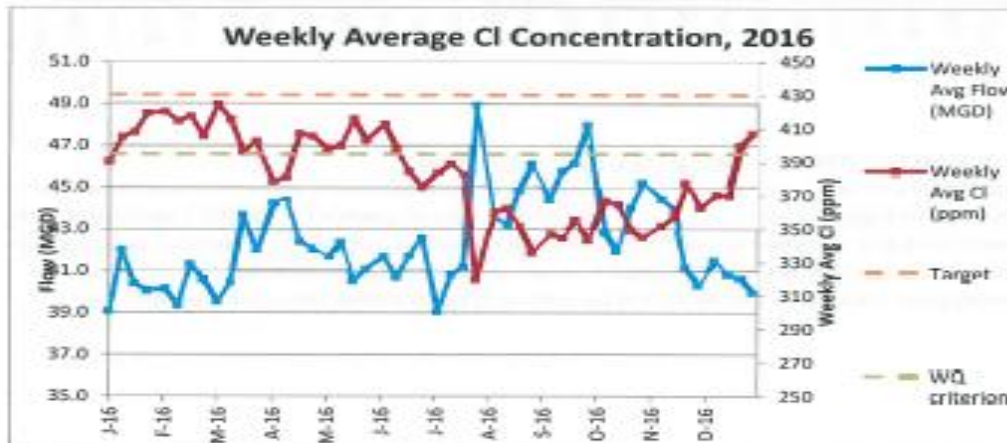
Implement Incentive Programs – Commercial

Implement Incentive Programs – Residential



### Attachment C - Weekly Average Concentrations for 2016

When flows are high, concentrations are generally reduced. Throughout 2016, concentrations remain below the target. The winter of 2015-2016 was uncommonly warm with a low amount of snow and diminished application of deicing material.



article in Clean Lakes Alliance blog: <http://cleanlakesalliance.org/keep-water-ways-cut-salt-pollution/>.

First Salt Wise Soft Water Training program was developed and presented by MMSD in 2016. This training was attended by many people, including DNR and DSSPS staff. The training video is available through Fitchburg's website. Five of the organizations represented at the training later applied for MMSD salt reduction rebates. 19 class attendees filled out a class evaluation, and all respondents indicated that the training was helpful to them.

### Status/Comments

The first reporting period occurred in 2016. This data sets a baseline to which future years/actions can be compared. MMSD customer communities are working to reduce inflow and infiltration. In response to this request, municipalities began monitoring drinking water for chloride: wells in the service area range from no-detect to over 1000 mg/l. The stormwater permits did not yet require deicing information in 2016 but municipalities will be supplying the information in 2017.

wastewater monitoring	On-going	MMSD staff	MMSD continues to monitor chloride from the five influent pumping stations and has been
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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 spread sheet showing mass balancing of chlorides leaving the WWTF. Our highest chloride levels for 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 spread sheet 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.

is are biggest contributor of chloride. They used salt out in there pickles vat. Barry the superintendent of utilities, Tim plant manger 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.



## CHLORIDE MONTHLY SAMPLE REPORT 2015

MONTH/YR	AVG. MGD FLOW / MTH	CHLORIDE MONTHLY MG/L	8.34	LBS/DAY	DAYS IN MTH	LBS / MONTH
Jan-15	0.3311	498	8.34	1375	31	42630
Feb-15	0.3348	780	8.34	2178	28	60982
Mar-15	0.3348	658	8.34	1837	31	56956
Apr-15	0.4240	855	8.34	3023	30	90703
May-15	0.3768	673	8.34	2115	31	65562
Jun-15	0.3945	848	8.34	2790	30	83701
Jul-15	0.3777	755	8.34	2378	31	73728
Aug-15	0.3541	800	8.34	2363	31	73239
Sep-15	0.4025	1055	8.34	3541	30	106244
Oct-15	0.3843	723	8.34	2317	31	71835
Nov-15	0.4099	620	8.34	2120	30	63685
Dec-15	0.4910	520	8.34	2129	31	66010
<b>TOTAL</b>	<b>4.6155</b>	<b>8785</b>		<b>28167</b>	<b>365</b>	<b>855175</b>
<b>AVG/YEAR</b>	<b>0.3846</b>	<b>751</b>		<b>2347</b>	<b>30</b>	<b>71742</b>

## 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

## Take-Away:

- 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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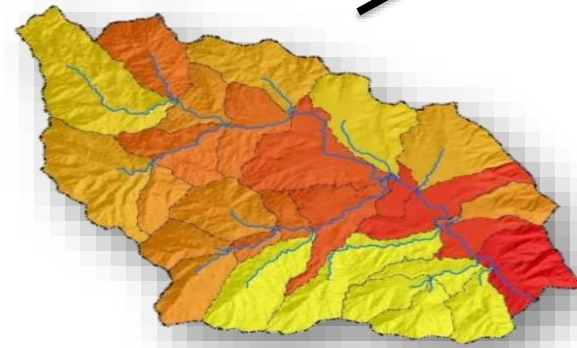
# Phosphorus Compliance Options



- 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

Category of Discharge	Primary Screener	Secondary Score
Municipal	MHI>2%	Secondary score must be 2 or higher
Municipal	1%<MHI<2%	Secondary score must be 3 or higher
Industrial	Must be in the top 75% of dischargers incurring costs within that category	<ul style="list-style-type: none"> <li>• If both are met, a secondary score of at least 2 is needed to qualify</li> <li>• If only one met, a secondary score of at least 3 is needed to qualify</li> </ul>
	Must be located in a county that is within the top 75% of counties incurring costs for that category	



# Industrial Primary Screener

<b>Industrial Category</b>	<b>75% Threshold for Discharges</b>
<b>Cheese Manufacturing</b>	\$1,510,000
<b>Food Processing</b>	\$1,890,000
<b>Paper</b>	\$11,200,000
<b>Aquaculture</b>	\$2,600,000
<b>NCCW</b>	\$1,350,000
<b>Other Industrial Discharges</b>	\$943,000

## 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

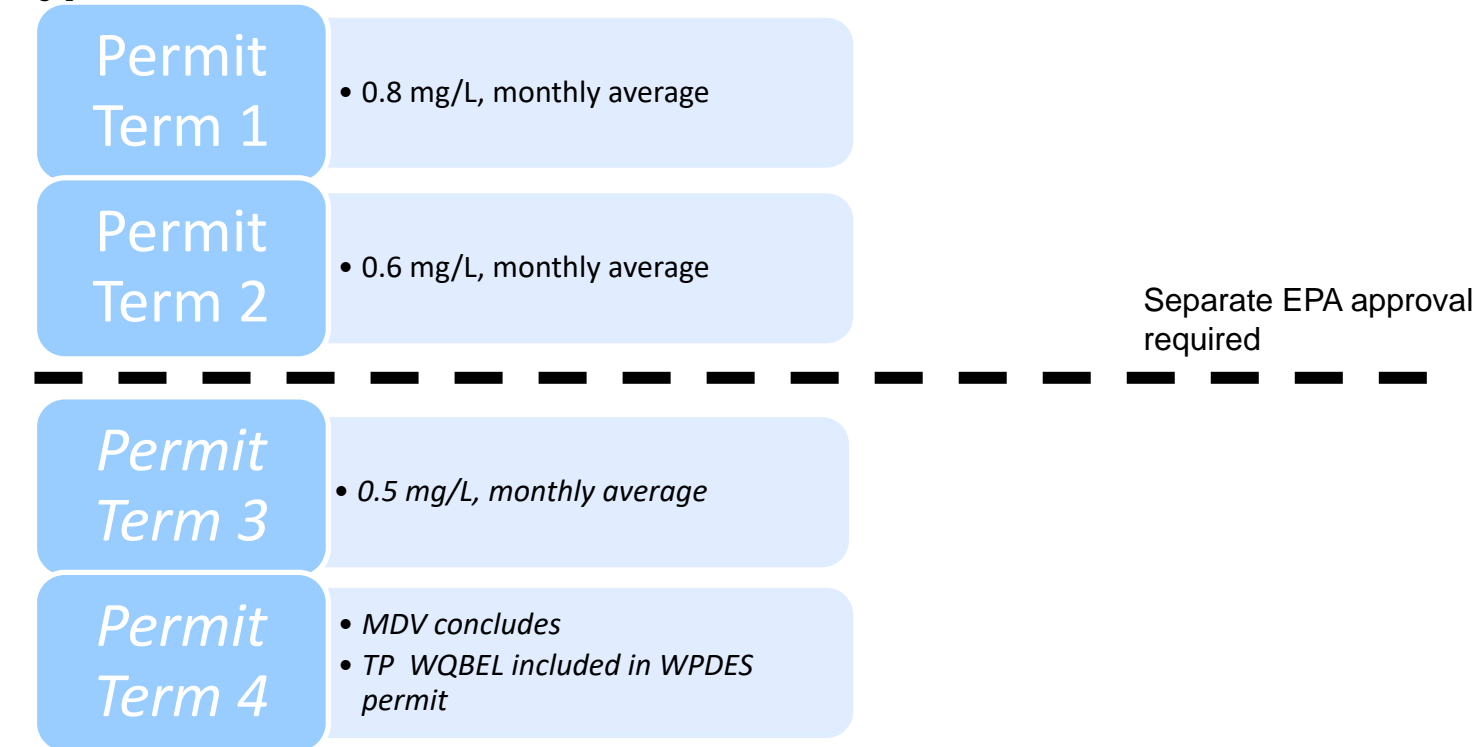
**Less Restrictive:**

- 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

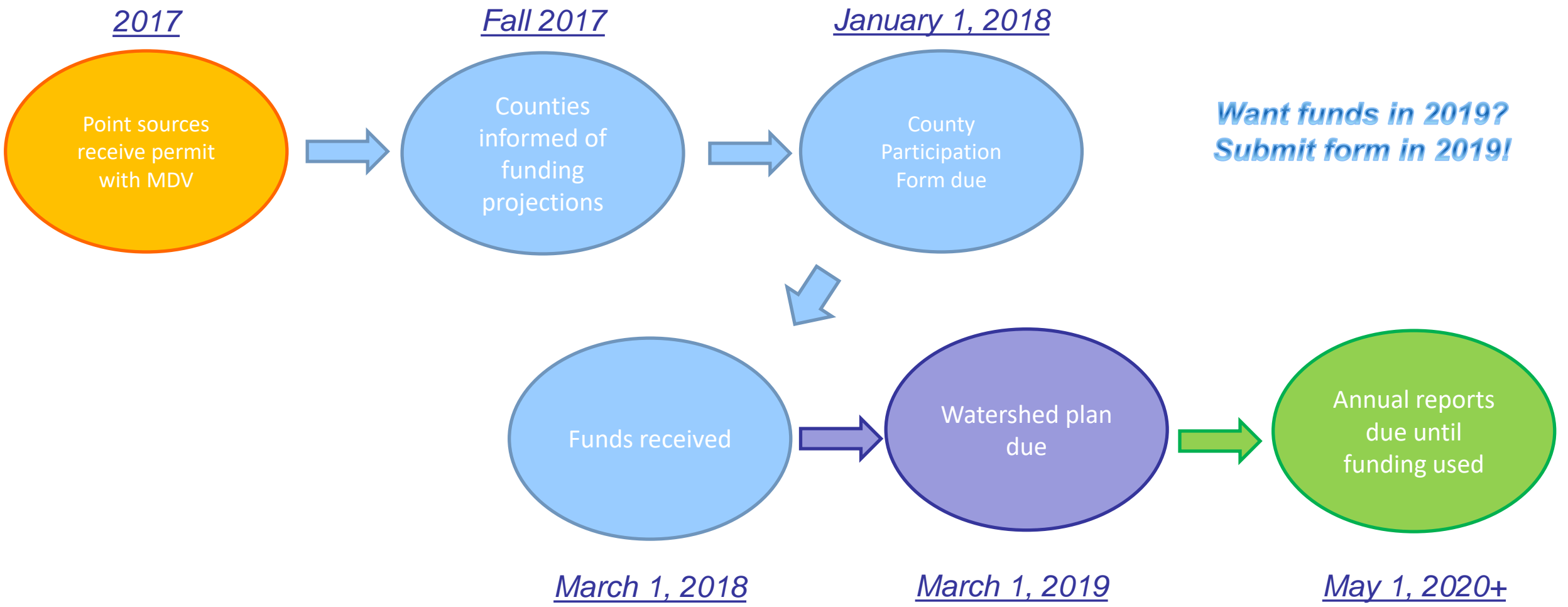
**Typical interim limits:**



## 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)
  - $800 \text{ lbs/yr} - 200 \text{ lbs/yr} = 600 \text{ lbs/yr}$
3. Multiply by \$50 lb (+inflation)
  - $600 \text{ lbs/yr} * 51.10 = \$30,700$  in 2020

# Example Timeline



# MDV Funding Distribution

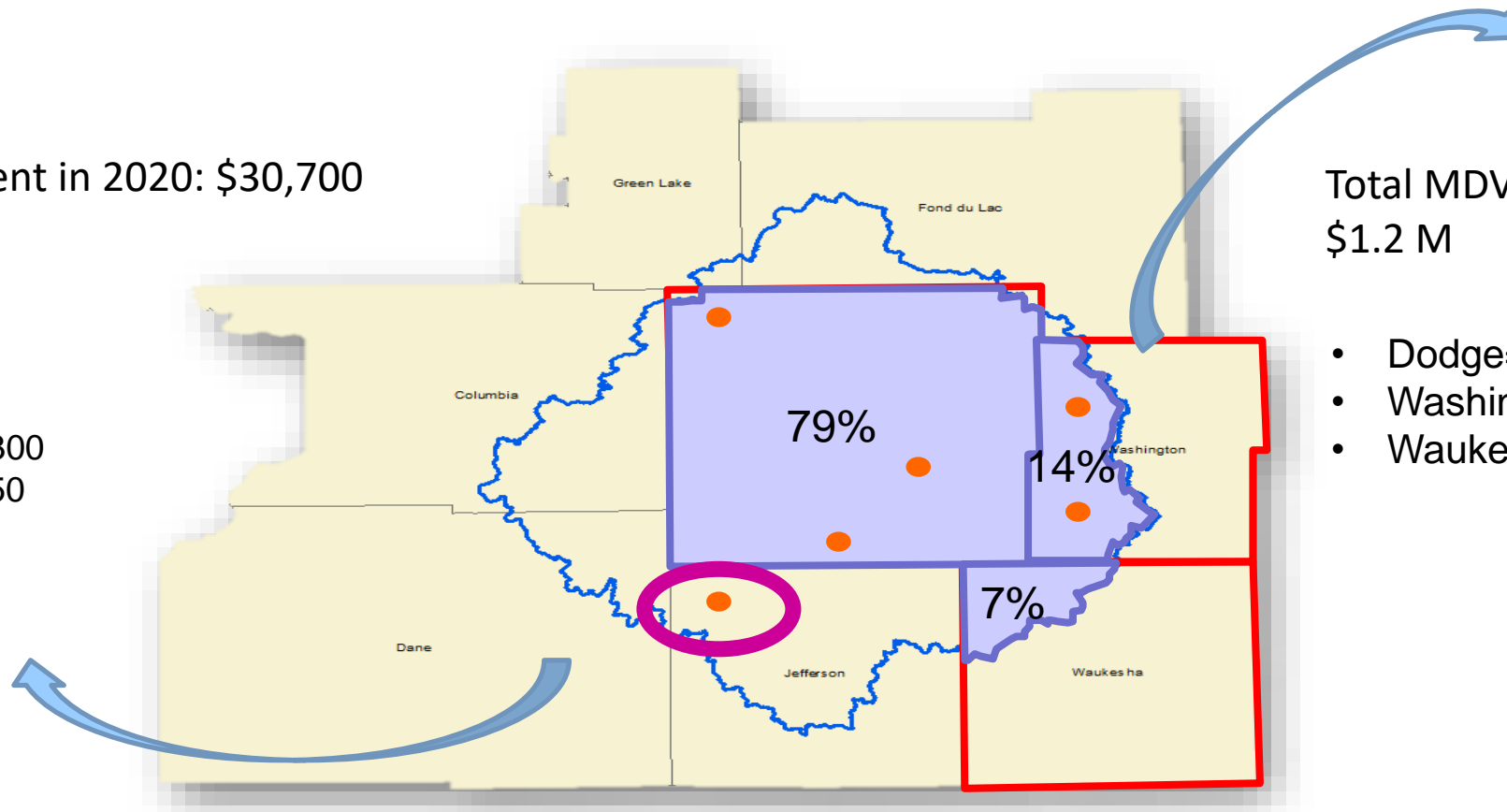
## *Hypothetical Example*

Facility A payment in 2020: \$30,700

Total MDV dollars available in 2020:  
\$1.2 M

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

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



# 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)**

WPDES Facility	HUC 8	Total Lbs	Total \$\$
Abbotsford	7070002	26.86009097	\$1,372.55
Appleton Co	4030204	2346.125591	\$119,887.02
Auburndale	7070002	779.1249985	\$39,813.29
Bagley	7060003	296.8572891	\$15,169.41
Barneveld	7090003	1213.60654	\$62,015.29
Benton	7060005	471.9579844	\$24,117.05
Black River Falls	7040007	887.1731091	\$45,334.55
Blue River	7070005	124.1803576	\$6,345.62
Cadott	7050005	75.03867205	\$3,834.48
Colby	7070002	53.65558143	\$2,741.80
Domtar	7070003	3708.83136	\$189,521.28
Ellsworth	7040001	424.3916415	\$21,686.41
FFUSA-Chilton	4030101	245.1265591	\$12,525.97
Fond du Lac	4030203	6800.880267	\$347,524.98
Hillshire	4030202	301.8021886	\$15,422.09
Linden	7090003	106.1612465	\$5,424.84
Livingston	7060003	190.8391257	\$9,751.88
Milan	7070002	364.7396526	\$18,638.20
Patch Grove	7060003	204.282412	\$10,438.83
Phillips City	7050003	98.0816402	\$5,011.97
Reedsburg	7070004	1893.719247	\$96,769.05
Rewey	7090003	151.3087986	\$7,731.88
Twin Lakes	7120006	271.8368065	\$13,890.86
Viroqua	7060001	124.5842986	\$6,366.26

# 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



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