

# Drinking Water and Groundwater Study Group Meeting

Madison  
January 31, 2018





# Beyond the Lead and Copper Rule: Department Initiatives to Get the Lead Out

**Bridget Kelly** – DNR  
**William Erikson** - DNR

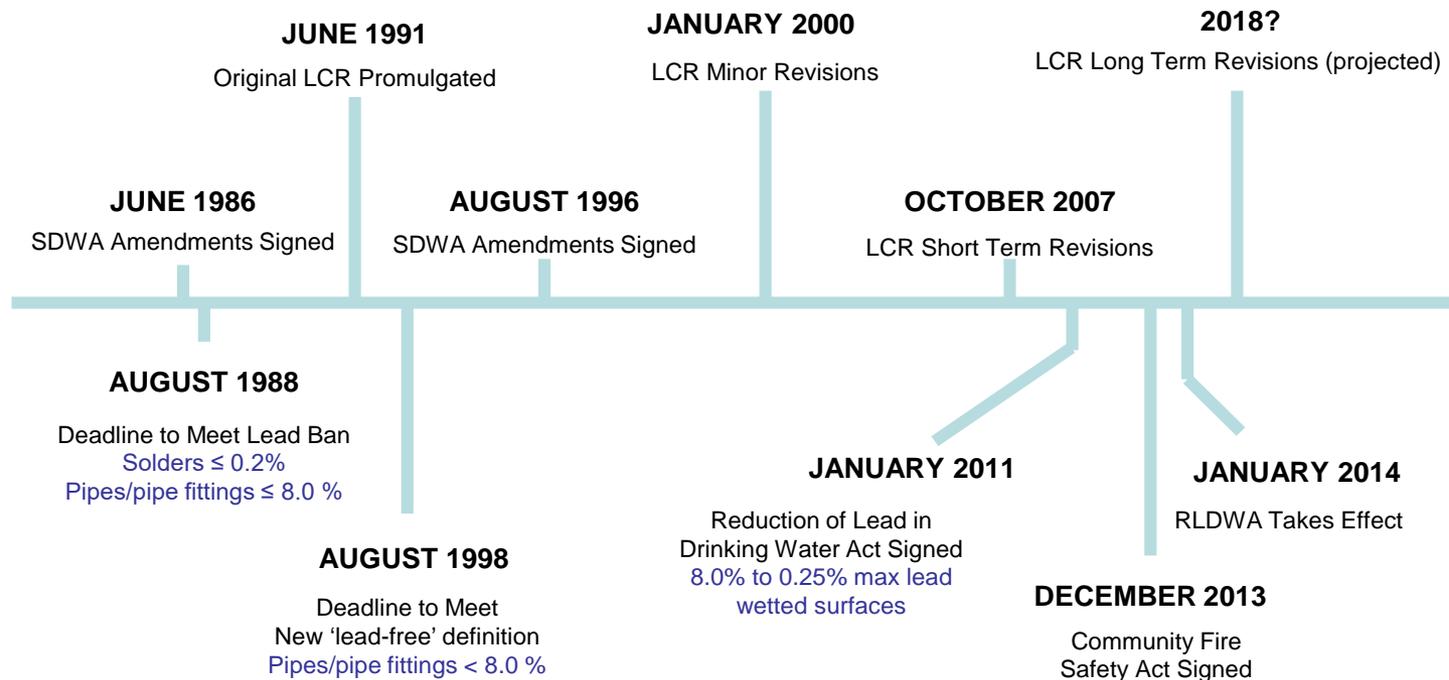


## **Beyond the Lead and Copper Rule: Department Initiatives to Get the Lead Out**

1. Status of Lead and Copper under the Lead and Copper Rule
2. What's happened in the last several years – things we've learned
3. Moving forward – incentivizing lead removal
4. Wrap-up and comments

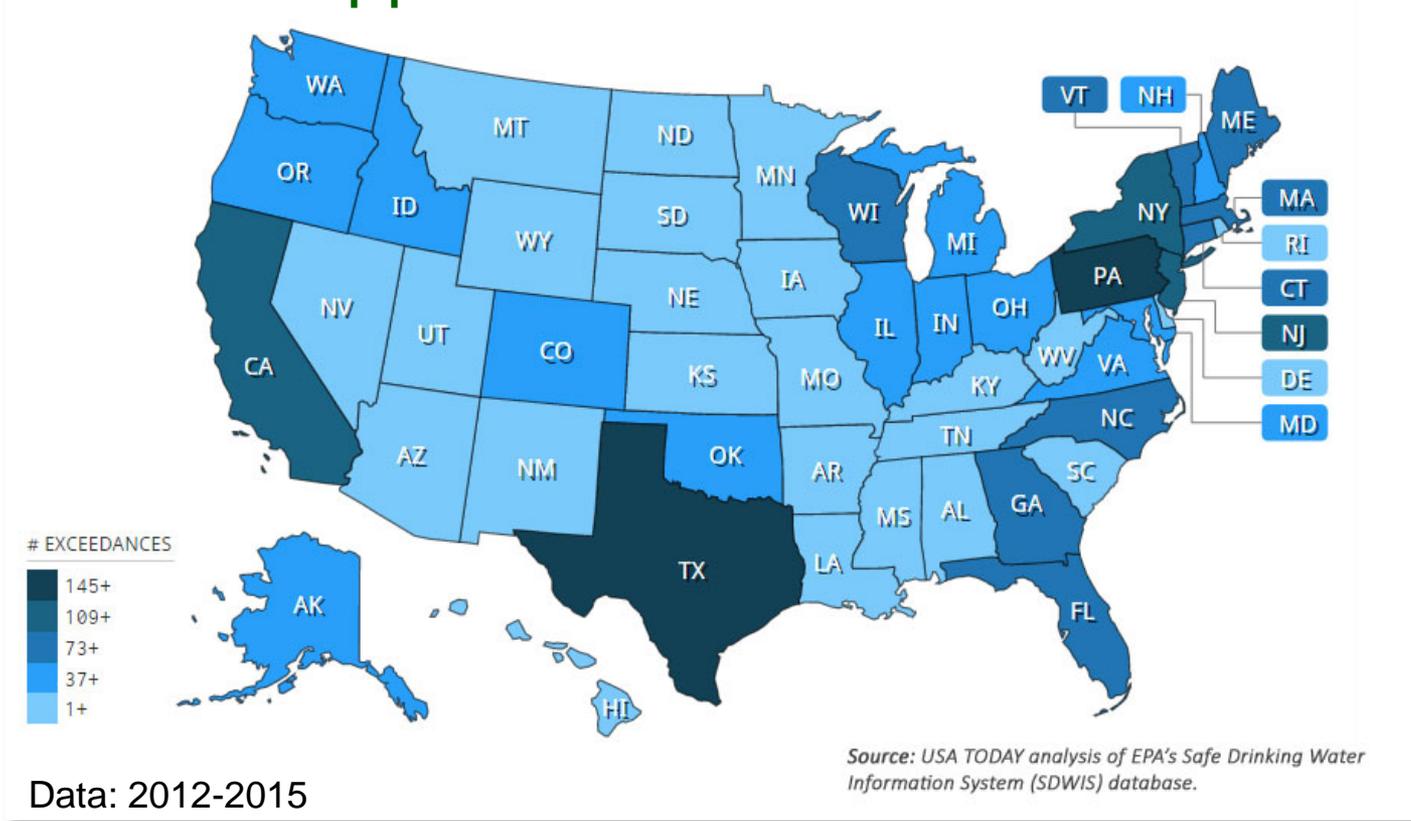
# 1. STATUS OF LEAD AND COPPER

## Lead and Copper Rule



# 1. STATUS OF LEAD AND COPPER

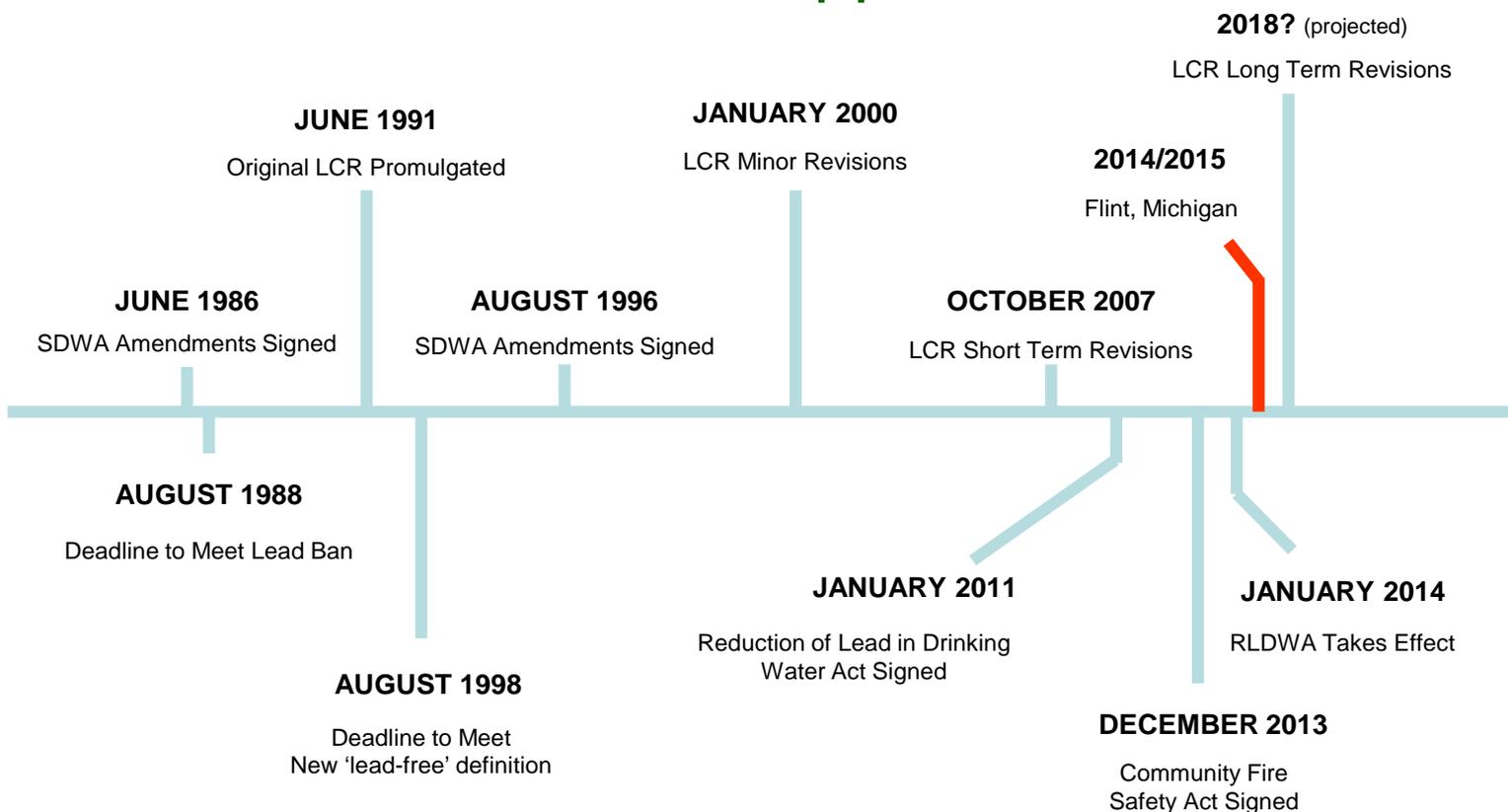
## Lead and Copper Rule Action Level Exceedances





# 1. STATUS OF LEAD AND COPPER

## Lead and Copper Rule





## 2. WHAT'S HAPPENED IN THE LAST SEVERAL YEARS?

*Great Challenges in Managing PWS under the existing rule:*

- Lead and Copper Rule offers two pathways for reduction of lead and copper in drinking water.....neither are easy solutions.

Two Paths to Reduce/Remove Lead Under LCR	
1. Optimize Treatment	2. Remove Sources of Lead

## 2. WHAT'S HAPPENED IN THE LAST SEVERAL YEARS?

*What we've learned about Sampling Site Selection:*

- Intent of sample site selection is to capture worst-case sites (i.e. sites expected to yield highest lead levels)
  - Tier 2 and Tier 3 sites chosen over Tier 1 sites
  - Inadequate records of LSL infrastructure

PSC Annual Report			No. of Monitoring Sites			
PWS	No. LSLs	Req No Samples	Tier 1	Tier 2	Tier 3	Tier E
PWS A	600	30	10	1	26	9
PWS B	2000	30	4	0	11	1
PWS C	2000	20	12	3	6	0
PWS D	2500	20	0	21	0	0
PWS E	111	10	0	0	10	0

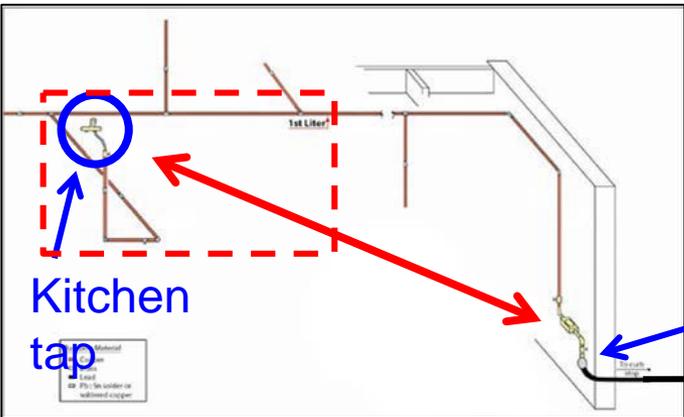
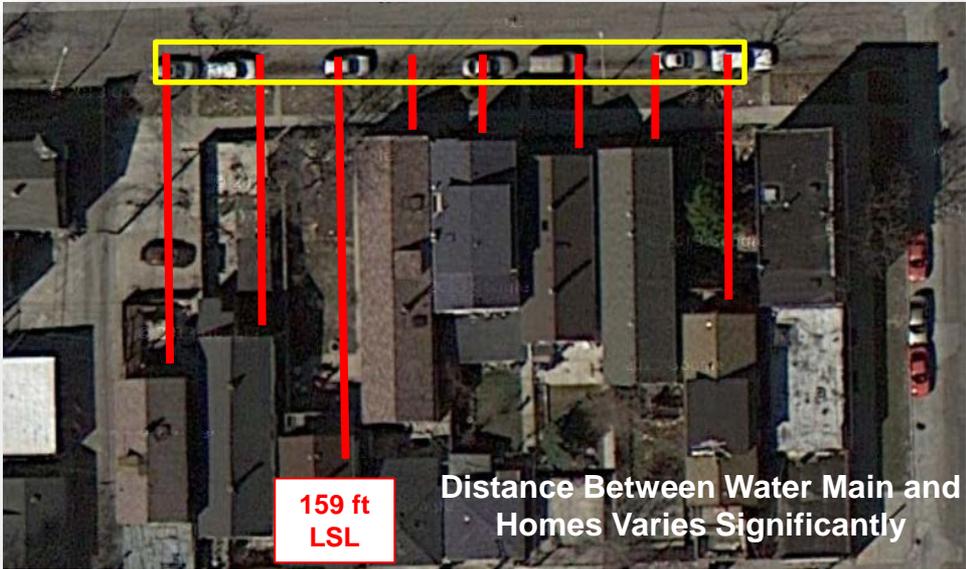
*Lead and Copper Rule Sample Site Criteria:*

Tier 1 Site: Single Family Structures with:	Tier 2 Site: Multi-family Structures or other buildings with:	Tier 3 Site: Single Family Structure with:	Exceptional Site: Sites where plumbing materials are representative of water system:
i) Full or partial lead service lines; or ii) Lead gooseneck; or iii) Lead plumbing within the home; or iv) Copper plumbing with lead solder; constructed between Jan 1983 and Sept 1984	i) Full or partial lead service lines; or ii) Lead gooseneck; or iii) Lead plumbing within the home; or iv) Copper plumbing with lead solder; constructed between Jan 1983 and Sept 1984	i) Copper Plumbing with lead solder; constructed before January 1983	i) Copper plumbing without lead solder; constructed after 1984 ii) Tier 1, 2, or 3 sites with whole-house water softeners iii) Other, non-metallic plumbing materials (PVC, galvanized)

## 2. WHAT'S HAPPENED IN THE LAST SEVERAL YEARS?

*What we have learned about Sampling Procedures:*

- Testing programs under LCR lead to variable results
  - First draw sampling inadequate in assessing lead
- Site selection for LCR sampling
  - Tier 2 and Tier 3 sites chosen over Tier 1 sites
  - Inadequate records of LSL infrastructure



The red dashed box approximates what is captured by one 1-liter sample

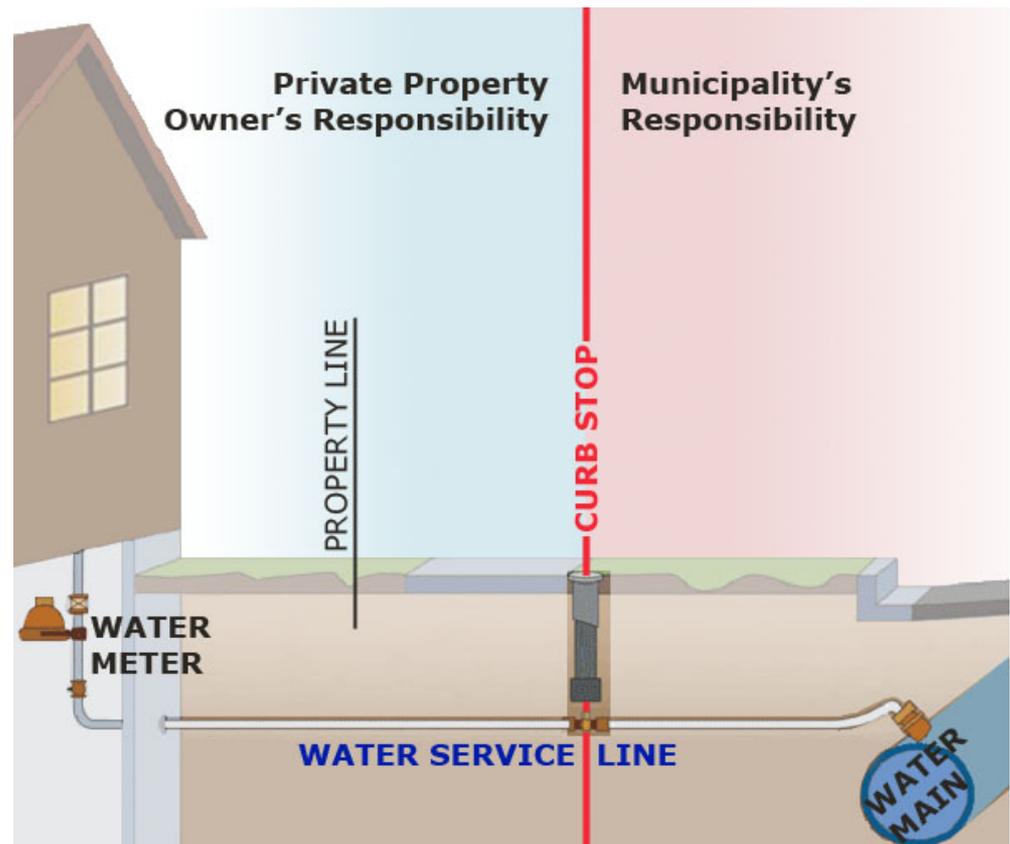
Lead Service Line



## 2. WHAT'S HAPPENED IN THE LAST SEVERAL YEARS?

*What we have learned about Partial Lead Service Line Replacement:*

- Rule requirement only requires a partial replacement - significant legal and financial impediments to replacement on the private side
- Partial LSL replacement can increase exposure to lead
  - Disturbance of pipe scales containing lead
  - Galvanic corrosion
- CDC - Partial lead service line replacements correlate to increased BLLs in children



## 2. WHAT'S HAPPENED IN THE LAST SEVERAL YEARS?

*Great Challenges in Managing PWS under the existing rule:*

- Lead and Copper Rule offers two pathways for reduction of lead and copper in drinking water.....neither are easy solutions.

Two Paths to Reduce/Remove Lead Under LCR	
1. Optimize Treatment	2. Remove Sources of Lead
Lead sources typically not system-wide; difficult to ascertain degree of lead/copper in water systems <b>(low levels CCT inhibitors)</b>	Unknown location of buried infrastructure
Difficult to optimize alongside other treatments <b>(fluoride – pH - orthophosphate)</b>	Significant numbers of LSLs = significant time frames for removals <b>(decades in some instances)</b>
Phosphate based CCT inhibitors: Phosphorous discharge - WWT	Private side LSLs = private property owner's responsibility (ordinance + funding required)
Lead results can be highly variable and unpredictable – is vulnerable population protected? <b>(optimized treatment levels can be difficult to pinpoint)</b>	Expensive –limited funding – difficult to manage under the current rule <b>(7% annually)</b> (rule doesn't account for proactive measures that communities are doing to remove lead)

**\*Best practice to ensure lead exposure is minimized is removal of lead!**



### **3. MOVING FORWARD – INCENTIVIZING LEAD REMOVAL**

I. DNR Private Lead Service Replacement Program

II. LCR Variance – DNR.EPA.PWS Agreements

III. DNR Green Tier Charters – Legacy Communities Charter



### 3. MOVING FORWARD – INCENTIVIZING LEAD REMOVAL

#### *1. Private Lead Service Line Replacement:*

- Get communities committed to getting the lead out
- Assist municipalities in replacing lead service lines on private property for projects that result in full lead service line (LSL) replacements.
- Addresses partial lead service line replacement – not allowed under this program
- SFY 2017 and SFY 2018
- ~38 PWS each year ( \$30 Ma over two years)

So where does that leave us....

- Still PWS under existing LCR that can conduct partial LSLs
- Legislation moving – doesn't solve all problems



### 3. MOVING FORWARD – INCENTIVIZING LEAD REMOVAL

## *II. Lead Copper Rule Variance:*

- Agreement between PWS – DNR – EPA where the PWS would no longer be regulated under LCR, but instead would have a separate regulatory framework
- Most basic framework: reduction in phosphate based treatment along with simultaneous removal of lead services
  - Full lead service line replacements
  - Lead service line replacement system-wide

Why? Addresses challenges discussed earlier....

- Most CWS do not have universal lead service lines, yet treatment must be applied centrally - *Variance would allow systems to decide what course of action is best*
- Provides *adequate time* for systems to fully remove the largest sources of lead in water
- Eliminates many complexities associated with *compliance across all drinking water regulations*
- Provides more immediate public health protection – *targeted protection - filters*



### 3. MOVING FORWARD – INCENTIVIZING LEAD REMOVAL

#### *III. Green Tier:*



**GREEN TIER**



### 3. MOVING FORWARD – INCENTIVIZING LEAD REMOVAL

#### *Highlights:*

#### **LCR Variance**

1. Agreement between EPA – DNR – **Single PWS**
2. Plan for removal of all lead service lines within utilities distribution system
3. **Enforceable Practices** as defined in each Variance Agreement
4. Plan for reduction in phosphate based treatments
5. Provide filters with residents with LSLs during removal periods
6. Transparency – identify location of LSLs
7. Applicability – **systems with relatively small # of LSLs**

#### **Green Tier Charters**

1. Agreement EPA – DNR and **any number of PWS** (still under rule)
2. Plan to **minimize lead exposure** through highlighting entities efforts to remove lead and through public education
3. **Best Management Practices** as defined in Charter Documents
4. Working towards health based standards for water quality (HIAP)
5. Partnerships – between PWS and schools to remove sources of lead
6. Transparency – disclose locations of LSLs (real estate)
7. Applicability - **PWS and WWT, and any other community organization**



## 4. WRAP-UP

Questions? Comments?





# Contact Information

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# Lead and Copper Updates

**Steve Elmore** – Program Director

**Adam DeWeese** – Public Water Supply Section Chief

**Cathy Wunderlich** – Public Water Engineering Section Chief



# Lead and Copper Rule Update

- LCR consultation period open 1/8/18
- 60 day comment period
- 5 areas of input identified by EPA
  - Lead Service Line Replacement
  - Corrosion Control Treatment
  - Transparency and Public Education
  - Tap sampling
  - Copper



# Lead Service Line Replacement

- LSL inventory
- Limit partial replacement
- Temporary filters
- Replacement schedule (e.g., 10, 15, 25, 35 years)



# Corrosion Control Treatment

- Corrosion control treatment required for more systems, not just large systems
- POU treatment for homes with LSL
- Prescribed level of CCT
- CCT regulatory evaluations
- Find and fix approach for CCT



# Transparency and Public Education

- Ongoing education requirements
- 24 hour notification of homeowners
- All results available (tap and WQP)



# Tap Sampling Procedures

- Change where samples are collected
- Change number of samples
- Change how collected
- Household action level that would involve health department



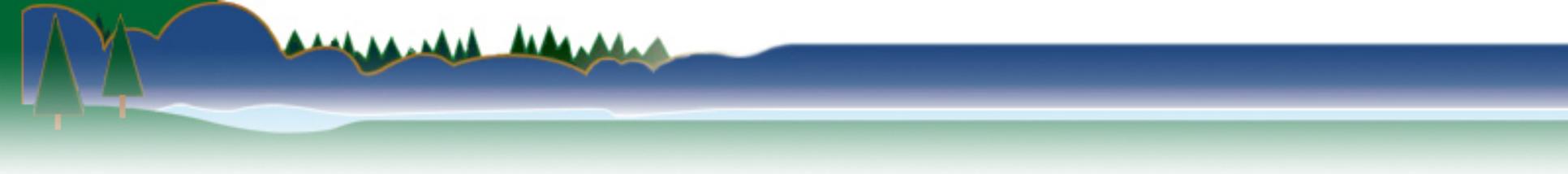
# Copper

- Copper corrosiveness screening
- Additional CCT for copper
- Separate copper sampling sites



Comments due to EPA March 8, 2018

Submit to: [LCRConsultation@epa.gov](mailto:LCRConsultation@epa.gov)



# Contact Information

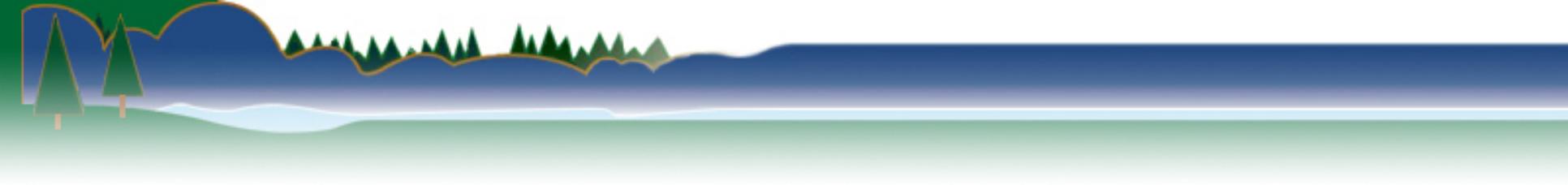
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Break



# Well Driller Viewer Overview and Demo

**Liesa Lehmann** – Private Water Section Chief



# Well Driller Viewer

## What is it?

- Map-based tool
- Current data from various DNR sources
- Available online via internet – computer, tablet, smartphone...



# Well Driller Viewer

## Why?

- Assist drillers in planning construction projects
- Replace outdated Well CD technology
- Reduce agency costs
- Provide most current data

# Well Driller Viewer - Welcome



## WELL DRILLER VIEWER

Tools

Measuring & Drawing



Home



Layers



Legend



Full Extent



Pan



Zoom In



Zoom Out

Basic Tools

Navigation



Identify



Plot Coordinates



Print



Export



Share



Feedback

Other Tools & Actions

Well Driller Viewer



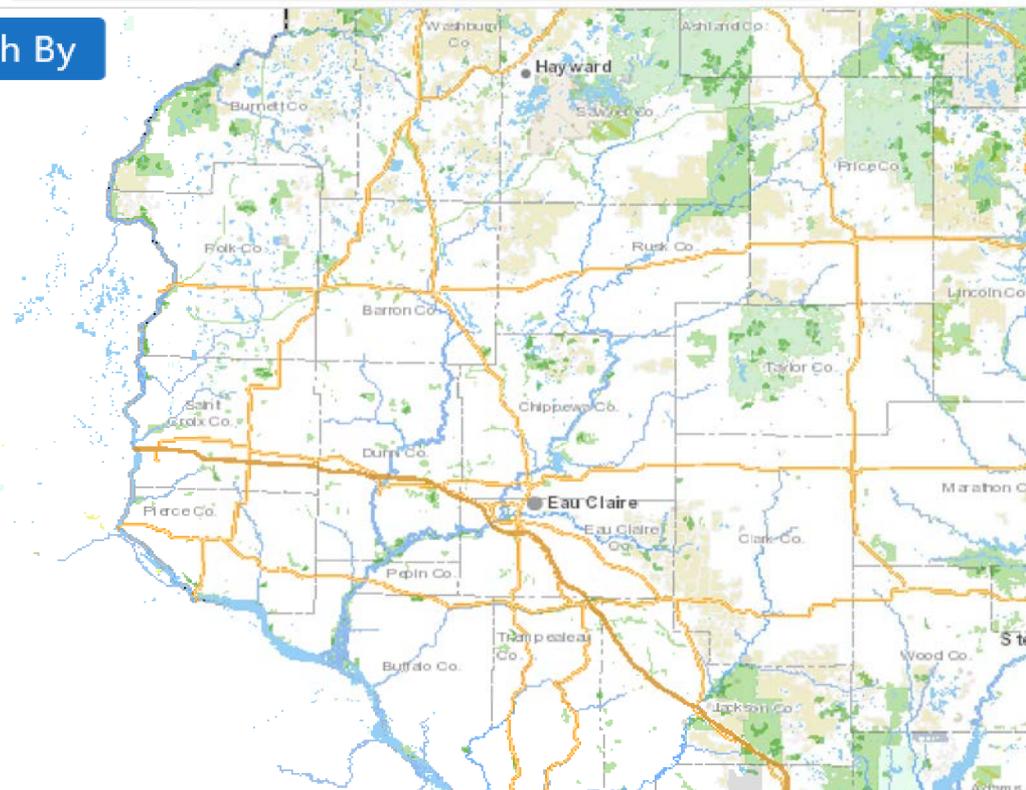
Search By



## Welcome to the Well Driller Viewer

The Well Driller Viewer provides a visual map view of specific setback, construction and approval information to assist well drillers in planning projects and meeting requirements of NR 812, Wis. Adm. Code.

1. Zoom in to your specific location of interest by any of the following methods:
  - Double-click on the map OR
  - Click on the blue Search By button OR
  - Choose the Zoom In+ tool bar button and draw a box OR
  - Zoom in with your fingers on a tablet or phone.
2. Learn about potential issues such as nearby landfills, remediation sites, dual aquifer or special casing areas. Read the results that pop-up in the middle of the screen to understand construction requirements, and click on links to get application forms or more information



# Well Driller Viewer - Zoom In



## WELL DRILLER VIEWER

Tools

Measuring & Drawing



Home



Layers



Legend



Full Extent



Pan



Zoom In



Zoom Out



Identify



Plot Coordinates



Print



Export



Share



Feedback

Basic Tools

Navigation

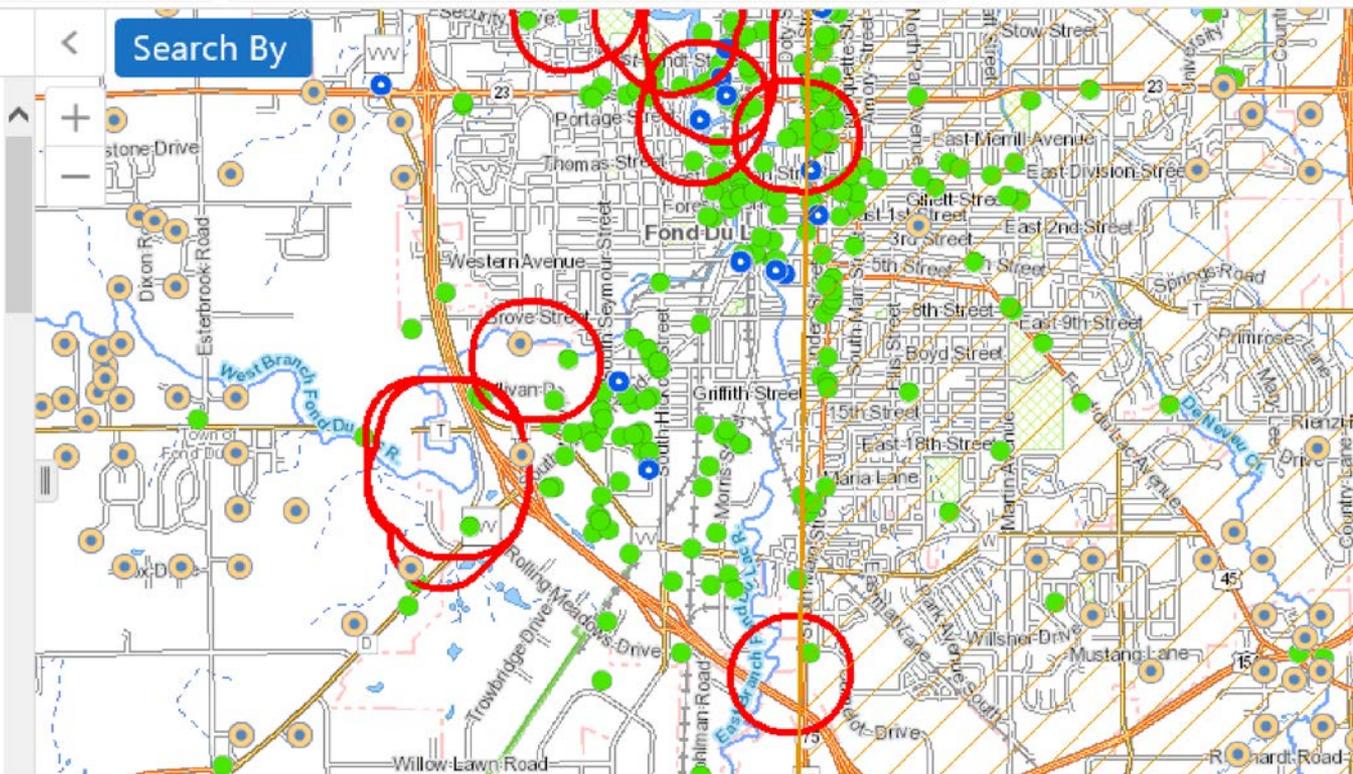
Other Tools & Actions

### Well Driller Viewer

#### Welcome to the Well Driller Viewer

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# Well Driller Viewer - Results



## WELL DRILLER VIEWER

Tools

Measuring & Drawing



Home



Layers



Legend



Full Extent



Pan



Zoom In



Zoom Out



Identify



Enable buffering



Identifiable  
Layers



Plot Coordinates



Print



Export



Share



Feedback

Basic Tools

Navigation

Other Tools & Actions

Identify Results (3)



### Dual Aquifer

Location is in area of dual aquifers – well must meet casing and grouting requirements of NR 812.14(1)(j).

[NR 812.14\(1\)\(j\), Wisconsin Administrative Code](#)



### Remediation Site: FONDY FUEL MART

Location is on a property that is listed on the GIS Registry of closed remediation sites – NR 812 approval required prior to well construction or reconstruction.

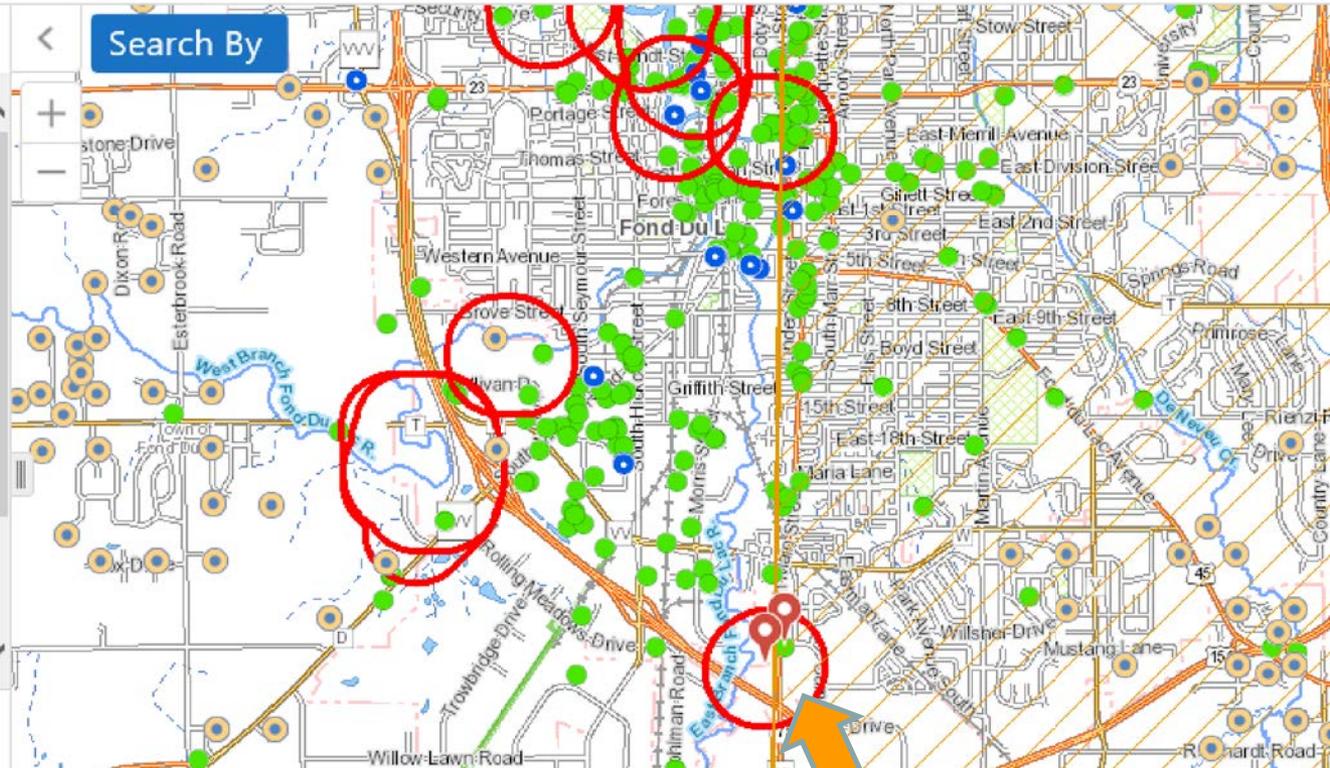
[GIS Registry Site Well Approval Application](#)



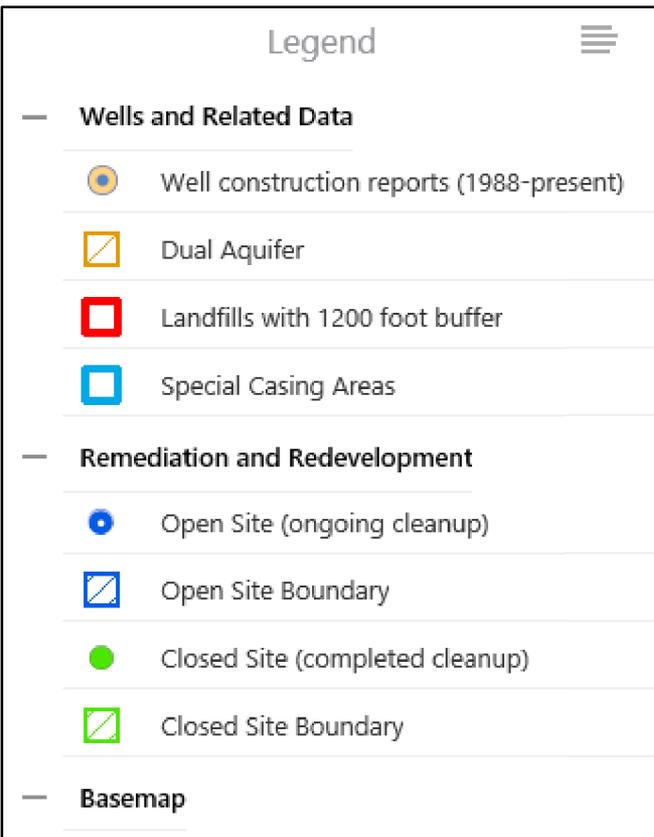
### Landfill: TOM BAKER PROPERTY

Location is within 1200 feet of a landfill boundary

Displaying 1 - 3 (Total: 3)



# Well Driller Viewer – Data Layers



The legend panel is titled "Legend" and contains three main sections: "Wells and Related Data", "Remediation and Redevelopment", and "Basemap". Each section lists data layers with corresponding symbols and colors.

Section	Symbol	Layer Name
Wells and Related Data	Orange circle with dot	Well construction reports (1988-present)
	Orange square with diagonal line	Dual Aquifer
	Red square	Landfills with 1200 foot buffer
	Blue square	Special Casing Areas
Remediation and Redevelopment	Blue circle with dot	Open Site (ongoing cleanup)
	Blue square with diagonal line	Open Site Boundary
	Green circle	Closed Site (completed cleanup)
	Green square with diagonal line	Closed Site Boundary
Basemap		

- Special Well Casing Depth Areas
- Landfills + 1200 buffer
- Dual Aquifer Areas
- RR Contaminated Sites
- Private Well Construction Reports (*1988 to present*)



# Well Driller Viewer – Demonstration

dnr.wi.gov

search [Well Driller Viewer](#)



# Well Driller Viewer



## Status

- January 18 Launch
  - annual Water Well Association conference
  - email to all drillers and installers



# Well Driller Viewer

## Next steps

- Evaluate
  - Feedback
  - Survey
- Enhance
  - More data layers
  - Additional functions
  - Similar tools for different audiences



**WHAT DO YOU THINK?**

Two overlapping thought bubbles, one pink and one light blue, with the text "WHAT DO YOU THINK?" in bold purple capital letters centered over them.

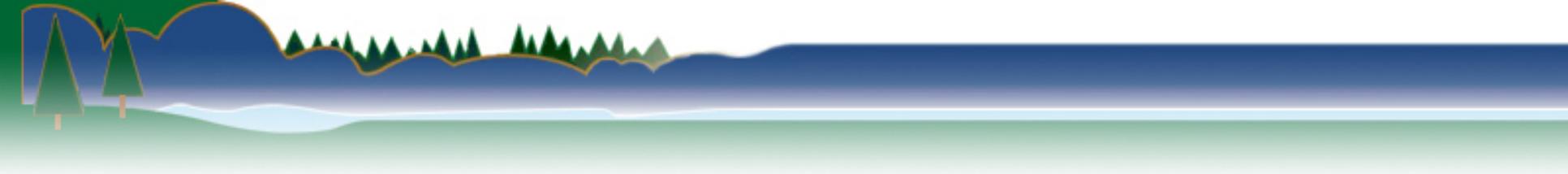


# Contact Information

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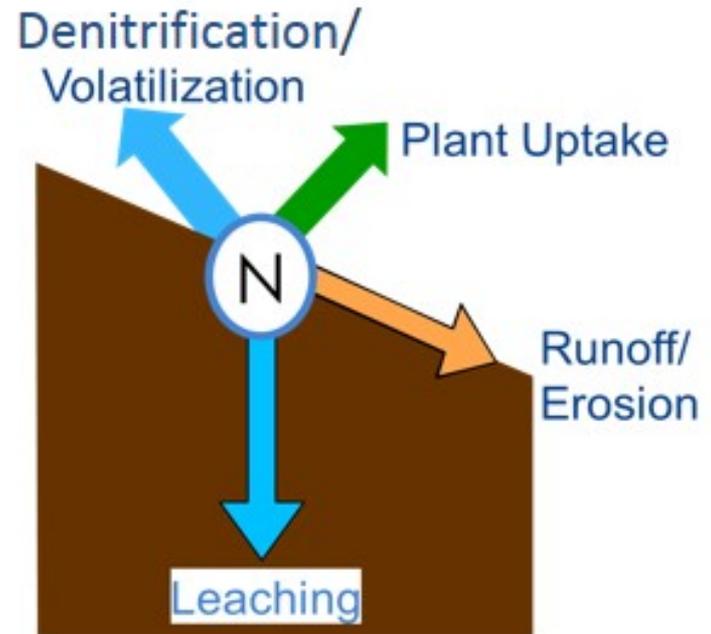
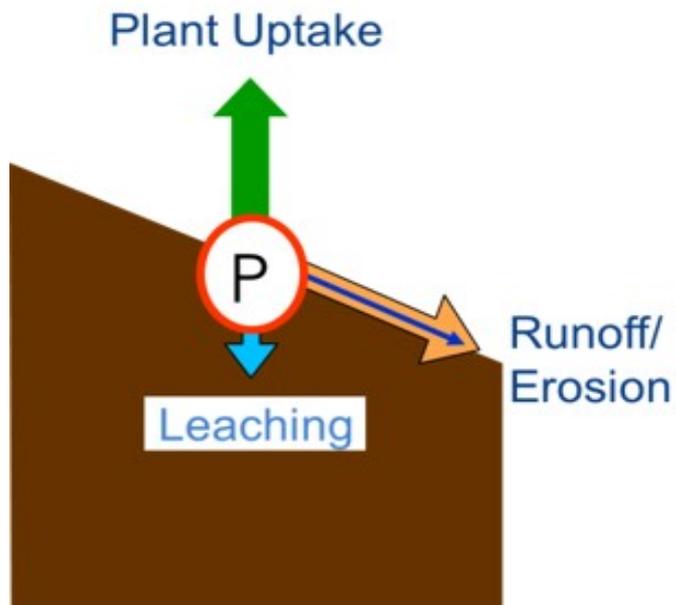
(608) 267-7649



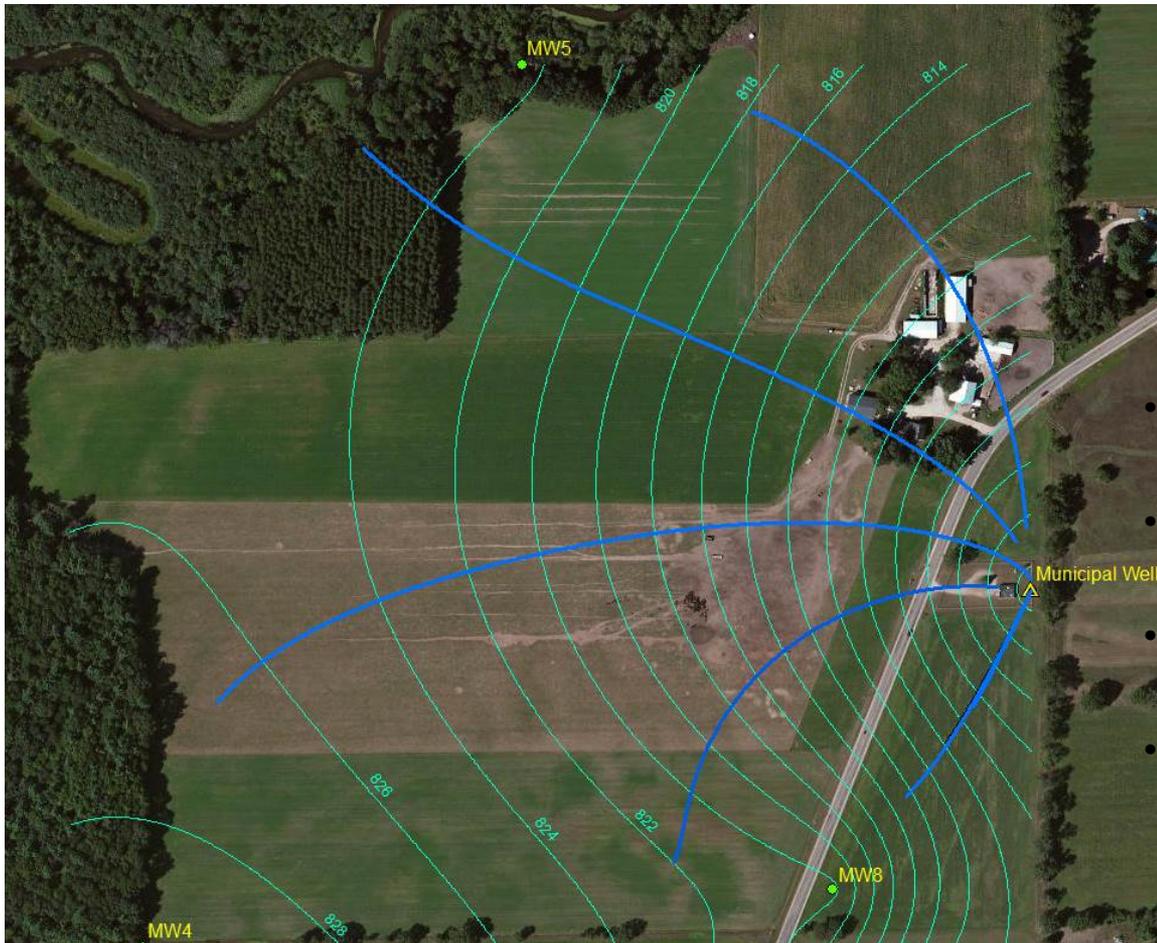
# WI Nitrate Initiative – Developing Decision Support Tools

**Brian Austin - DNR**

# Purpose and Applications



# Purpose and Applications

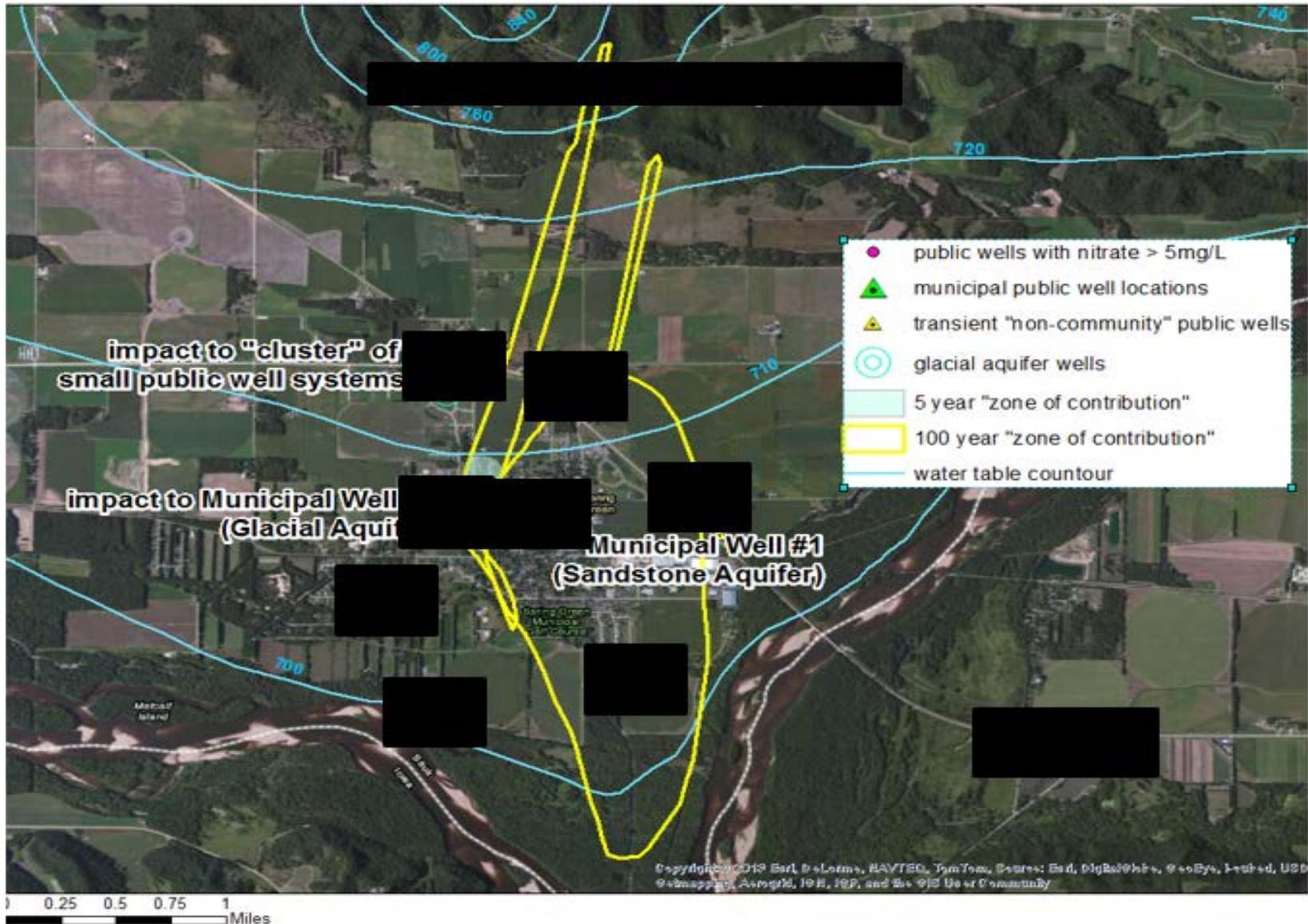


## Calculation of Achievable Reductions at a Public Well

Area Contributing recharge: 1000 acres (the 5 YR “zone of capture” ZOC)

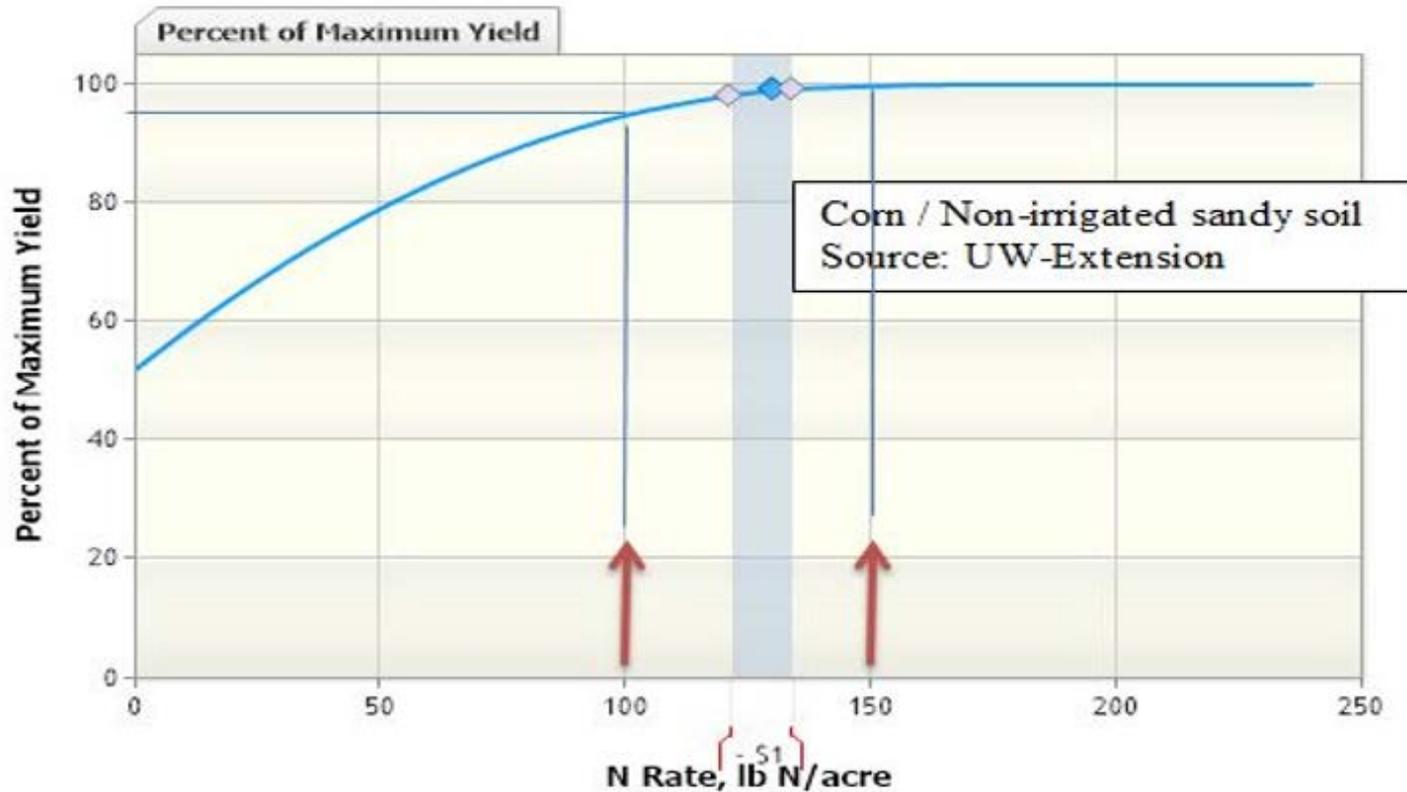
- Well pumps 900k gallons/day or 324M gallons/year
- Average Nitrate Concentration produced at well: 8.0 mg/L
- Annual Nitrate Mass Flux captured by well is 21,600 lbs. nitrate-N
- Wellhead Protection Strategy: based on land use, the highest potential nitrogen loading areas are the 200 acres closest to the well (1 yr “zone of capture”)

# Purpose and Applications



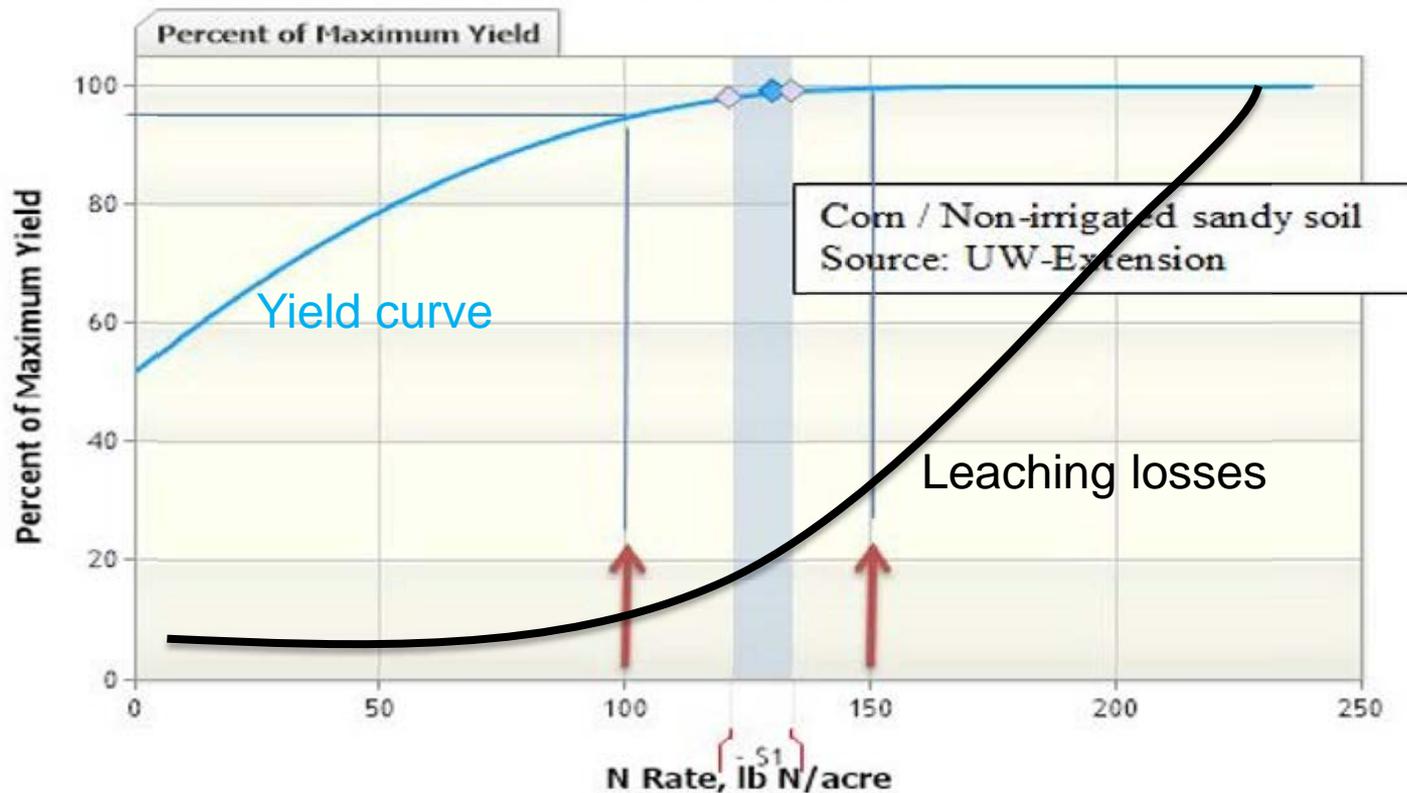
# Purpose and Applications

- Based on the applicable Corn Yield vs. N Rate curve:



# Purpose and Applications

- Based on the applicable Corn Yield vs. N Rate curve:



Approx. 25 lbs lost to groundwater vs. 50 lbs



# Purpose and Applications



## County Land and Water Resource Management Plans and the 9 Key Elements

*Watershed scale planning to help focus efforts and increase funding opportunities*

A way for communities to implement SWP for small water systems or private wells

Integrating GW into watershed plans

Opens up CWA funding opportunities

### What are 9 Key Element Plans?

The EPA has identified nine key planning elements that are critical for protecting and improving water quality. Plans that reflect the nine key elements help assess the contributing causes and sources of nonpoint source pollution within a defined watershed area and then prioritize pollutant reduction strategies to restore or protect water quality. Nine key element watershed plans can be used to restore impaired waters or help protect unimpaired waters. In order to be eligible for Clean Water Act (CWA) Section 319 and Great Lakes Restoration Initiative (GLRI) funding from US EPA, the following nine elements must be addressed in a watershed plan:

- |   |   |
|---|---|
| <b>1</b> <b>Identify the causes and sources</b> that need to be controlled to achieve pollutant load reductions. This includes quantifying significant sources and background levels using maps and tables. | <b>5</b> <b>Develop an information &amp; education component</b> to encourage participation and Plan implementation.  |
| <b>2</b> <b>Estimate the pollutant load reductions</b> expected from selected management measures.  | <b>6</b> <b>Develop a schedule</b> for implementing the management measures identified in the Plan.   |
| <b>3</b> <b>Describe management measures</b> that need to be implemented to achieve load reductions. Map priority areas for implementing practices.   | <b>7</b> <b>Describe interim, measurable milestones</b> to assess if the Plan is being implemented.   |
| <b>4</b> <b>Estimate amounts of technical and financial assistance needed</b> , associated costs, and/or the sources and authorities that will be relied upon, to implement the Plan.                       | <b>8</b> <b>Identify a set of criteria</b> to determine whether Plan objectives are or are not being achieved over time. Outline how and when the Plan will be revised if progress is not being made. |
|   | <b>9</b> <b>Develop a monitoring component</b> to evaluate the effectiveness of the implementation efforts over time using criteria from elements 6, 7 and 8.   |

*Many LWRM Plan requirements are consistent with the nine key elements. See Page 4 for a comparison of LWRM Plan components to the nine key elements.*



# Decision Support Tool

## Development Partners

- UW Agronomy
- UW Nutrient and Pest Management
- UW Soils
- DATCP
- USGS
- WGNHS
- WDNR (cross program support)



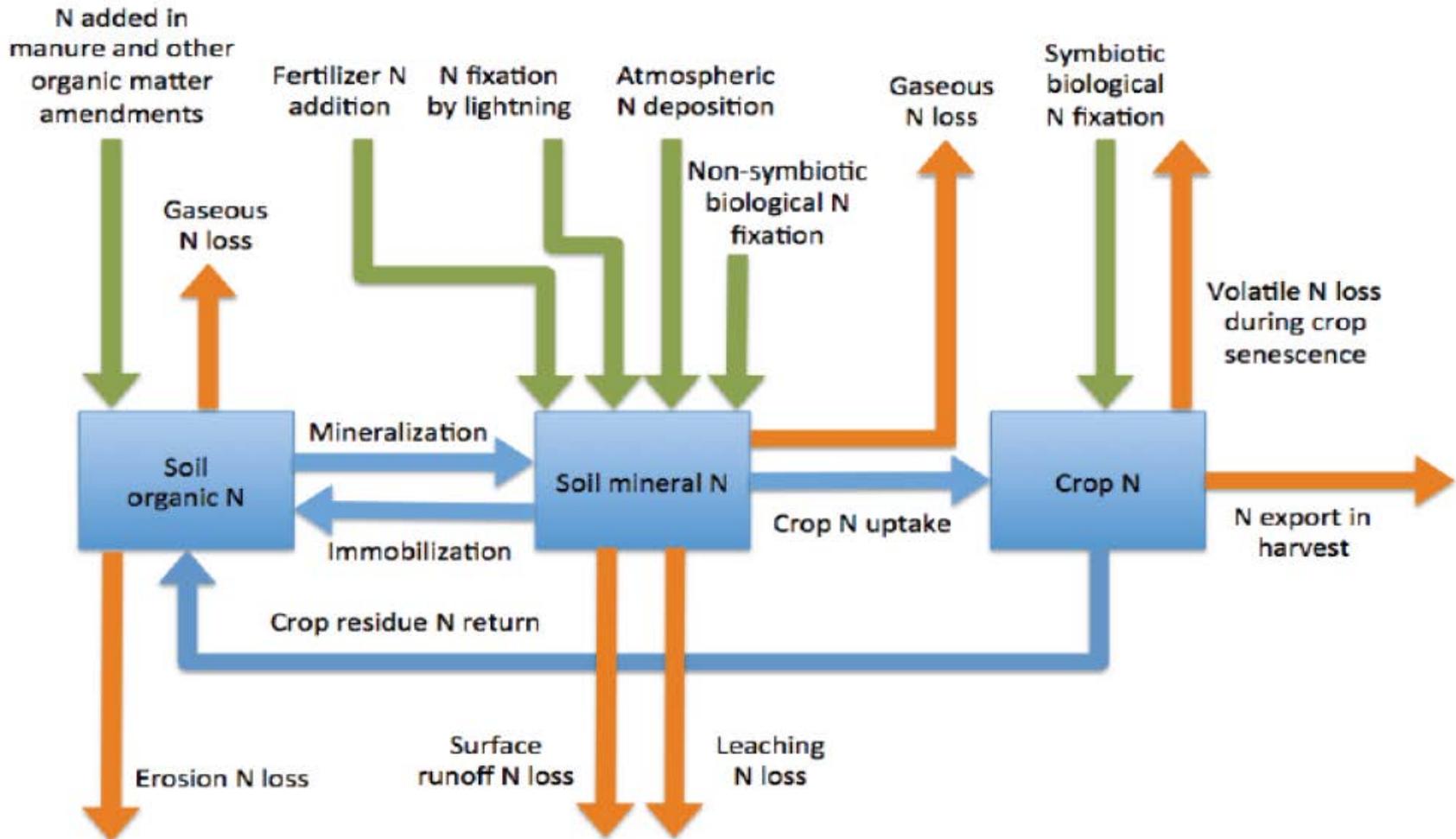
# Decision Support Tool

## Design Objectives

- Leverage Existing Tools and Data
- Accessibility for intended users
- Continuous Improvement Process
- Updatable Geospatial Database
- Modularity (options to apply alternative models and subroutines)
- Connection to transport models (estimate water quality improvements at wells, including timeframe)

# Decision Support Tool

- Modularity (options to apply alternative models and subroutines)







# Questions?

## Contact Information

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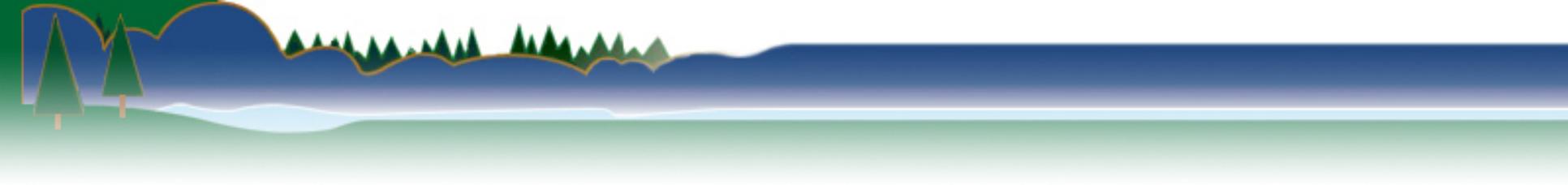
Elizabeth Finzer

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Hot topics



Wrap – up and adjourn



## Adjourn

Next Meeting Date:

April 5, 2018

GEF 2, State Natural Resources Building,  
Madison, 9:30a.m. – 12:30 p.m.

Meeting minutes will be posted on the Drinking  
Water & Groundwater Study Group website