

Drinking Water and Groundwater Study Group Meeting

Madison
July 12, 2017





Welcome and Opening Remarks

Pat Stevens

Environmental Management

Division Administrator



- An Overview about the Drinking Water and Groundwater Program
- Introductions
- Review the Agenda and Charter

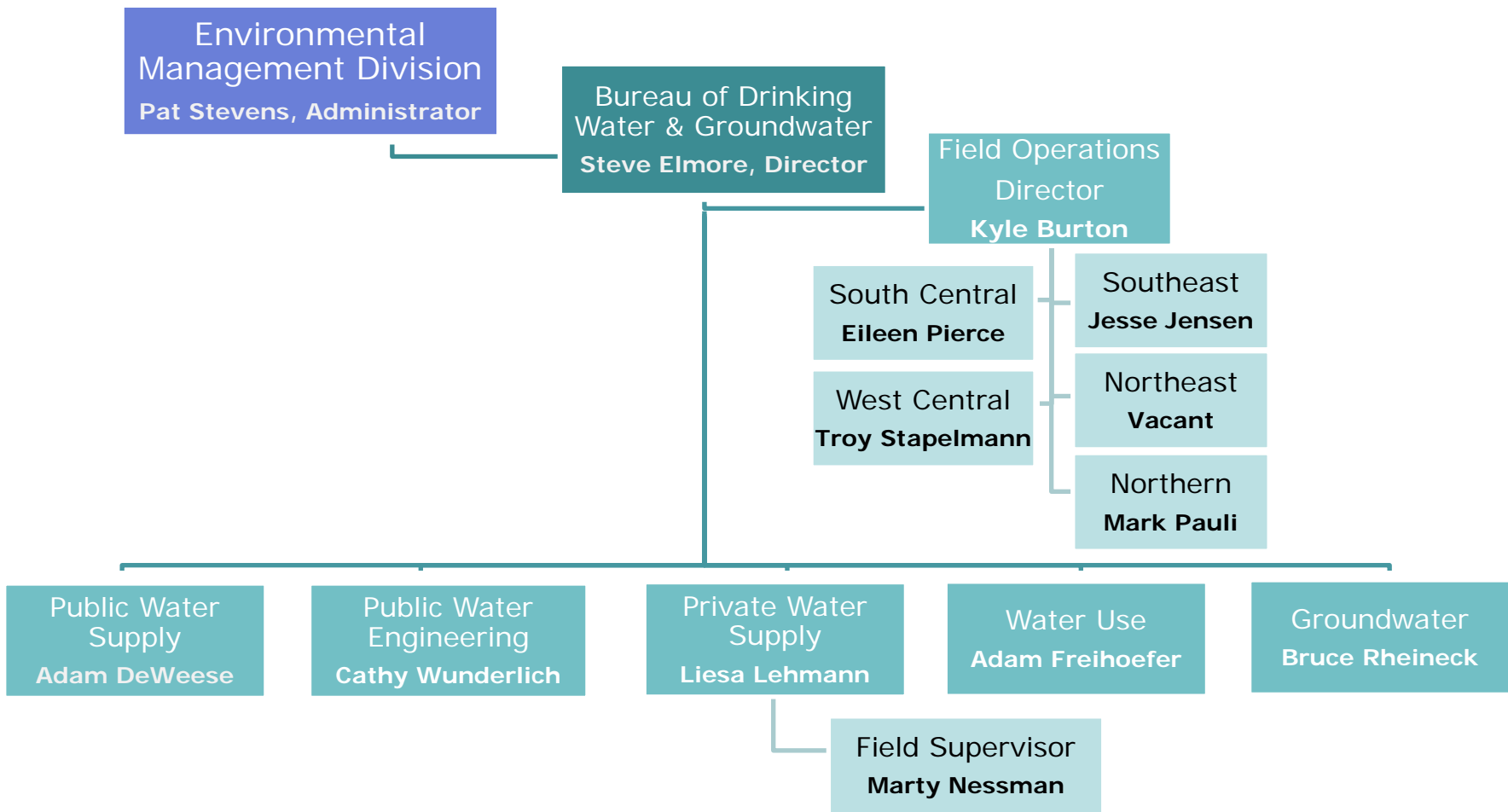
Steve Elmore
Program Director



Drinking Water and Groundwater Study Group Members

- **Susan Hedman** - Clean Wisconsin
- **Dave Lawrence** - Wisconsin Rural Water Association
- **David Webb** - Wisconsin State Laboratory of Hygiene
- **John Steinbrink** - American Water Works Association - Wisconsin Chapter
- **Lawrie Kobza** - Municipal Environmental Group
- **Lucas Vebber** - Wisconsin Manufacturers and Commerce
- **Paul Junio** - Northern Lake Service
- **Jeff Kramer** - Wisconsin Water Well Association
- **Roy Irving** - Department of Health Services
- **Paula Mugan** - Wisconsin Association of Local Health Departments and Boards
- **Rick Wietersen** - Wisconsin Association of Local Health Departments and Boards

Drinking Water and Groundwater Program Supervisors





Program Updates:
High Capacity Well Legislation

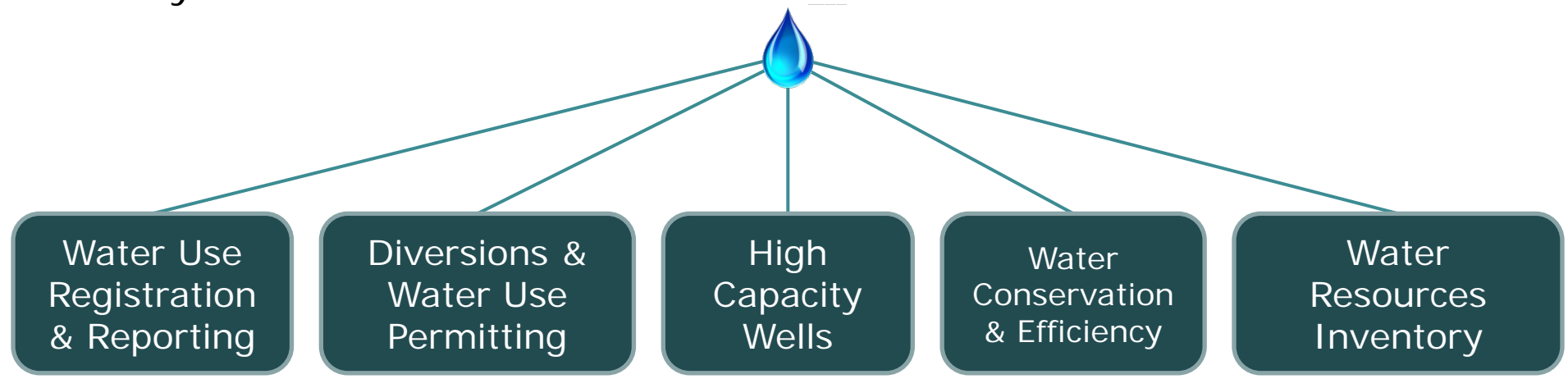
Adam Freihoefer
Water Use Section Chief



Water Use Program: What We Do

Mission:

Sustainably manage the quantity and quality of water in the state to ensure that water is available to be used to protect and improve our health, economy and environment now and into the future

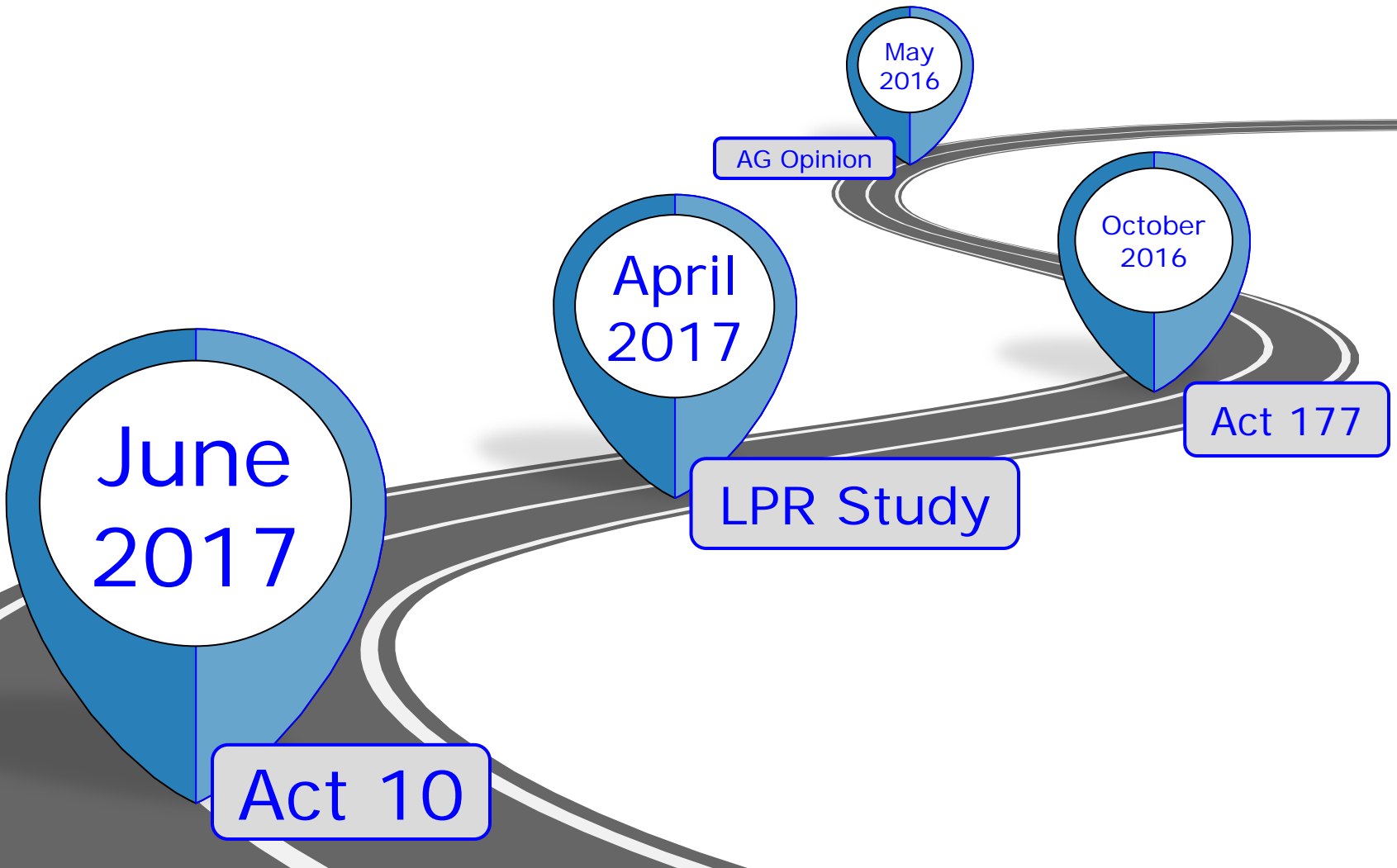


JournalTimes.com





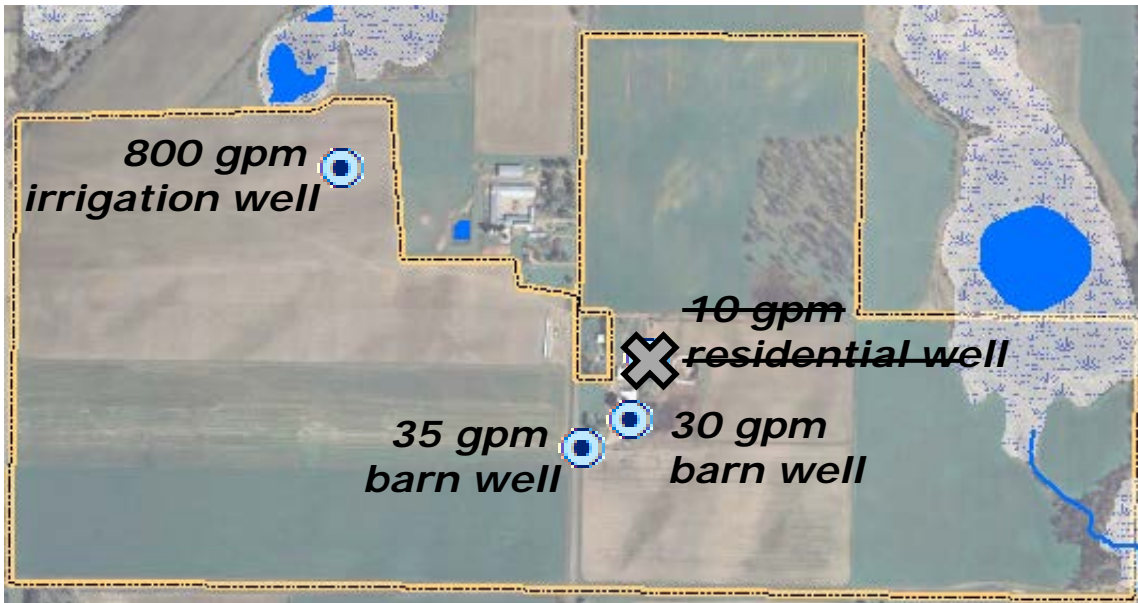
Roadmap of Recent High Capacity Events in WI





Act 177 – Definition of a High Capacity Well

High capacity means a well, except for a residential well or fire protection well, that, together with all other wells on the same **property**, except for residential wells and fire protection wells, has a capacity of more than 100,000 gallons per day (70 gpm).



High capacity well at land surface

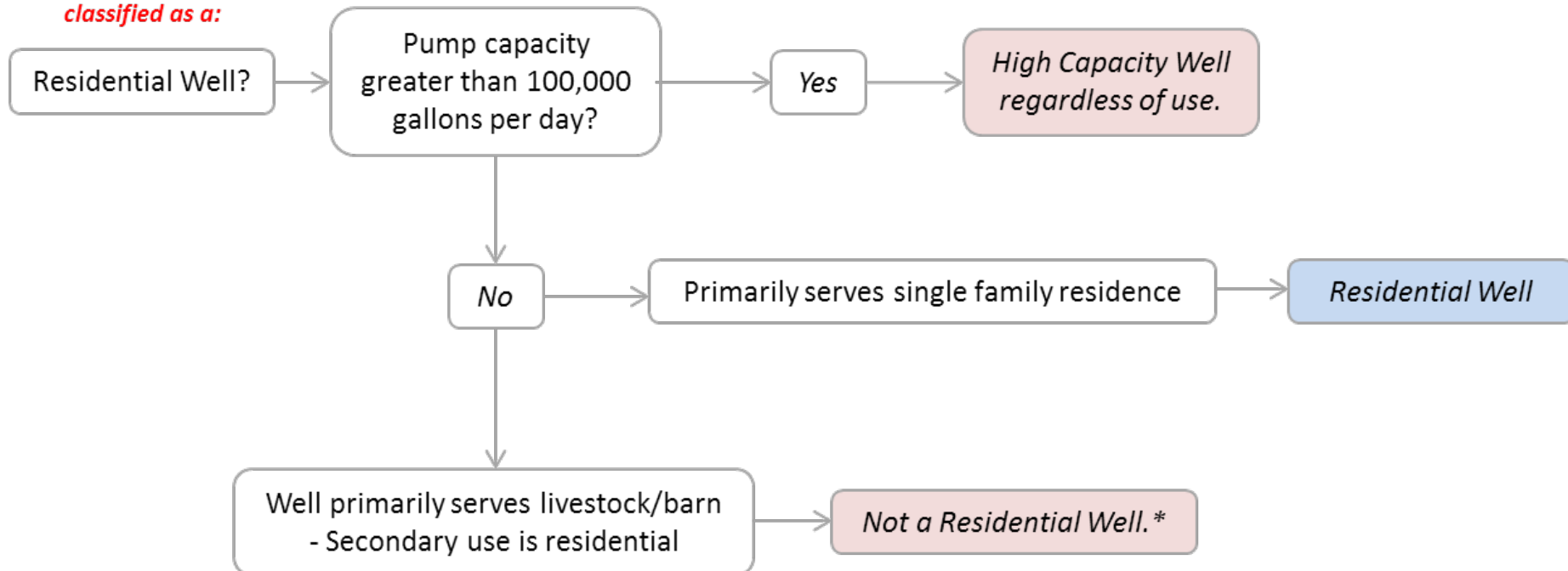


Act 177 – Definition of a High Capacity Well

DNR has provided guidance related to the determination of single family residential, multi-family residential, and fire suppression

Example of Act 177 Residential Well (Single Family) Determination Guidance

Can the well be classified as a:





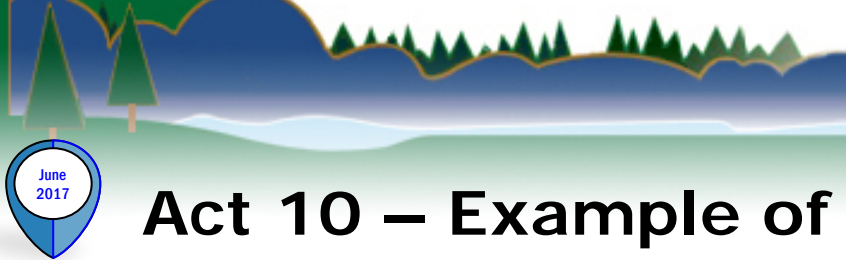
Act 10 – Overview

- Modified DNR’s authority associated with the replacement, reconstruction, and transfer of existing high capacity wells
- Required the DNR to model and evaluate the hydrology of specific water bodies in the Central Sands region to determine whether existing and potential groundwater withdrawals are causing or are likely to cause significant reduction of a navigable stream’s flow or lake’s level.
- Requires any well (new, replaced, reconstructed, or transferred) with the study area domain to provide readings to the DNR from a water meter
- Allows lake association to obtain high capacity well to fill lake or study lake



Act 10 – Reconstruction, Replacement, & Transfer

Type of Well	Requirements
Replacement	<ol style="list-style-type: none">1. Fill and seal existing well2. Meet one of the following<ul style="list-style-type: none">• The replacement well’s purpose is to prevent contamination; or• The replacement well is constructed to substantially the same depth as the existing well and either within a 75-foot radius of the existing well <u>or</u> farther away from the nearest groundwater protection area than the existing well.3. Adhere to all other conditions of existing high capacity well approval4. DNR must be notified within 90 days
Reconstruction	<ol style="list-style-type: none">1. Maintain same depth and specifications of existing well2. Adhere to all conditions of existing high capacity well approval3. DNR must be notified within 90 days
Transfer	<ol style="list-style-type: none">1. Adhere to all conditions of existing high capacity well approval2. DNR must be notified within 90 days



Act 10 – Example of Replacement Well Process

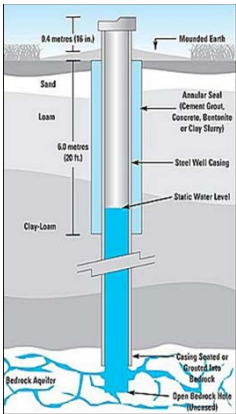
If a replacement well criteria is met, the owner must complete the following:



24 hour notification to DNR private water specialist prior to drilling

Owner must:

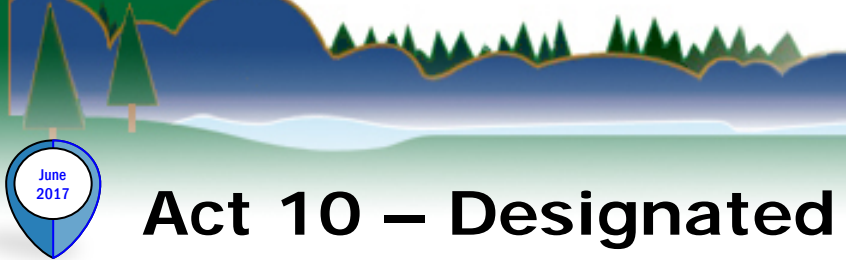
- ✓ be consistent with the existing approval
- ✓ drill well to +/- 20-feet of what was originally approved to meet definition of “substantially the same depth”.
- ✓ adhere to well construction standards specified in NR 812 & 811
- ✓ provide notification within 90 days (via WCR)
 - replacement gets new WUWN and high capacity well number



Fill and seal existing high capacity well

- ✓ Provide notification within 90 days (via Fill and Seal Report)
- ✓ Include the high capacity well number for the well that is filled and sealed as well as the WI unique well number for the replacement high capacity well so that the DNR can link between the existing and new well





Act 10 – Designated Study Area

Time

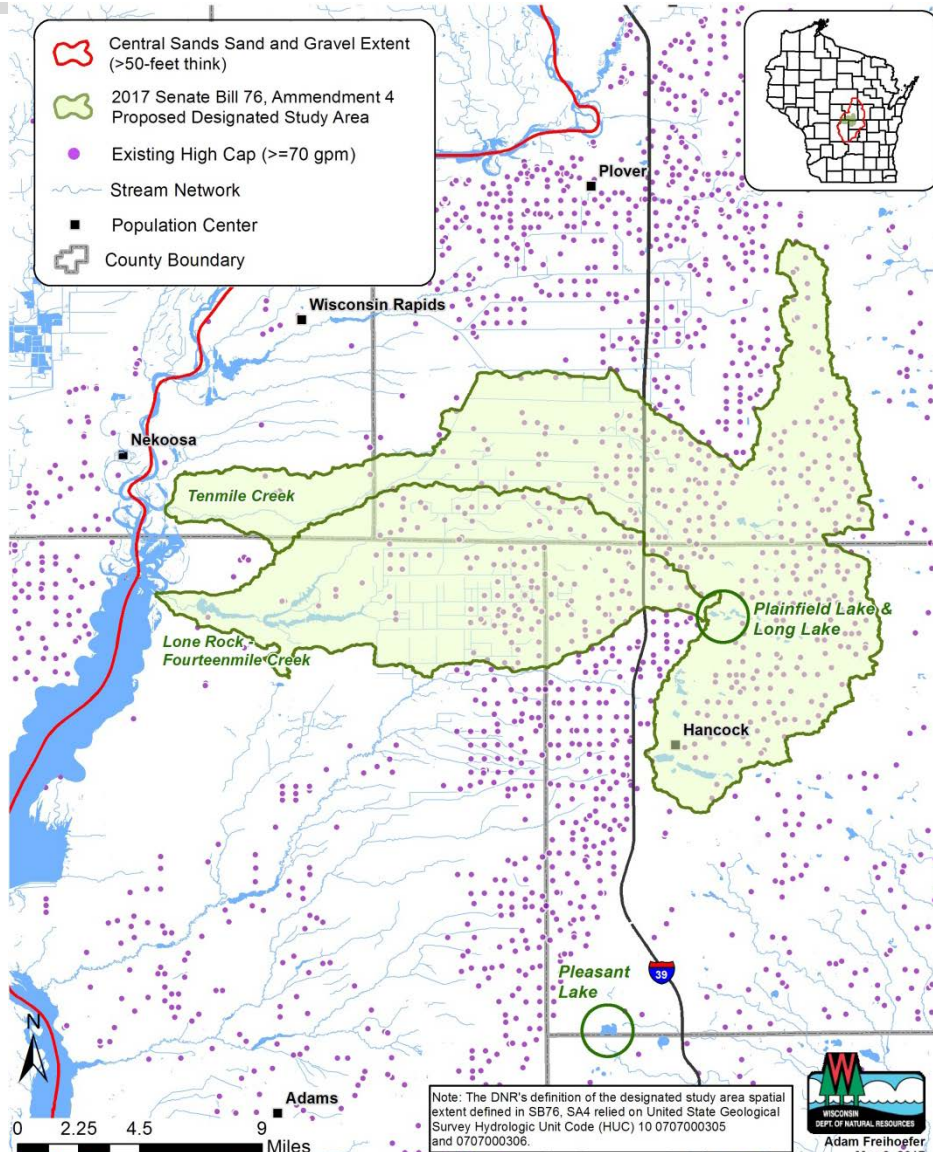
- (1 year prep, 3 year study)

Water Bodies

- Pleasant Lake, Plainfield Lake, and Long Lakes
- DNR may seek to evaluate and model any navigable waterbody within Fourteenmile Creek, Ten Mile Creek, and Lone-Rock Fourteenmile Creek Watersheds

Objective

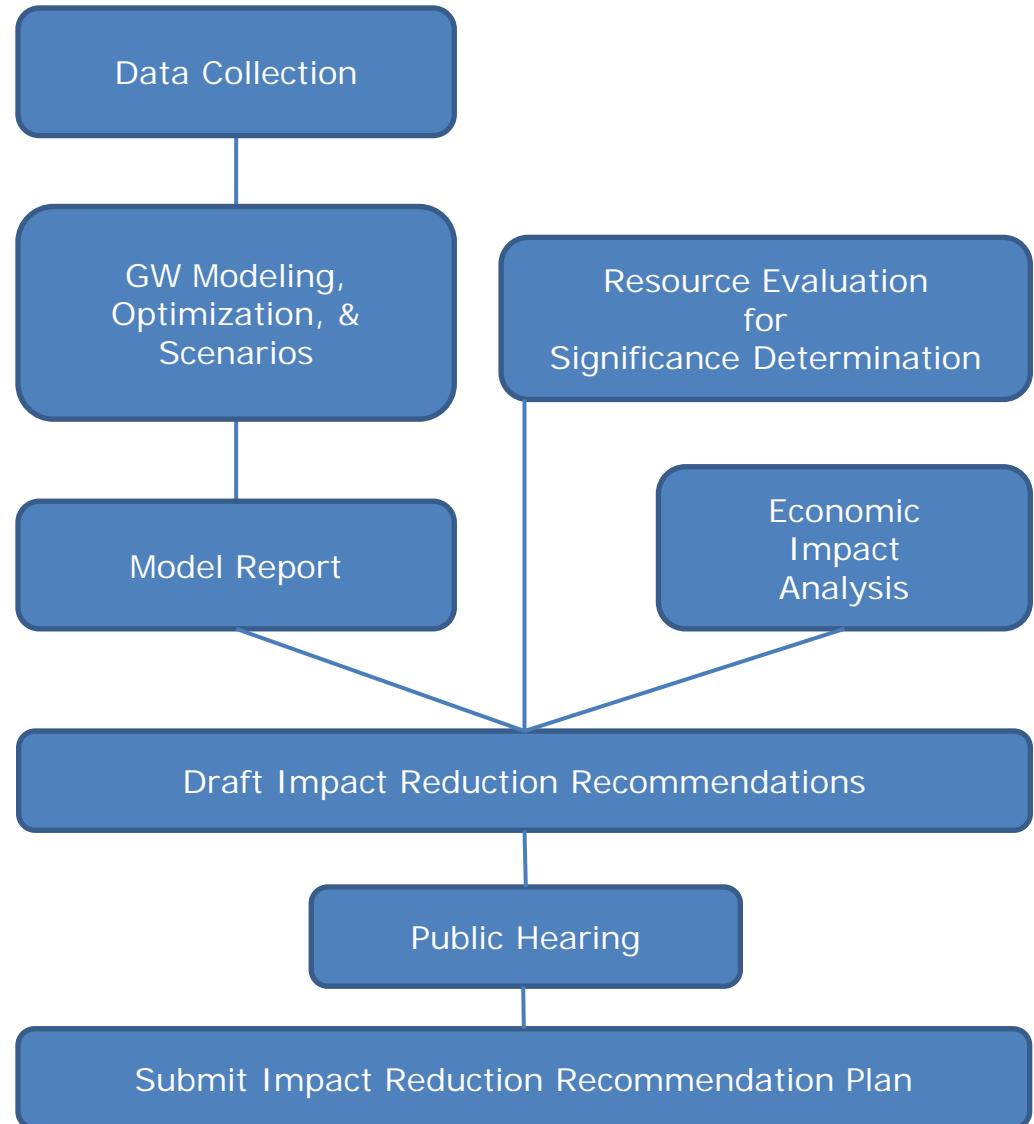
- Determine if pumping causing significant reduction of stream or lakes' rate of flow or water level below its average seasonal levels





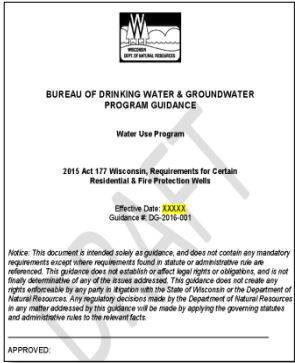
Act 10 – Designated Study Area

- Quantitative and geographic extent of cumulative impacts
- Using field work / field study verify connection and causal relationship between flow / level and pumping
- Determine if pumping causing significant reduction of stream or lakes' rate of flow or water level below its average seasonal levels
- Mitigation recommendations to prevent significant reductions below the average seasonal level
- Economic impact analysis

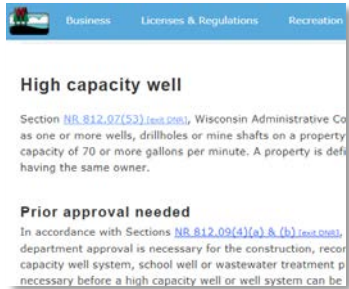




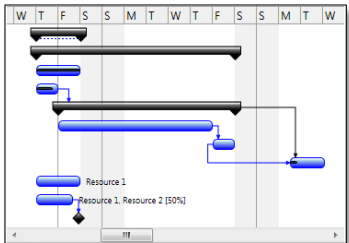
Act 10 – What’s Next?



Guidance for Reconstruction, Replacement, and Transfer



Update DNR’s high capacity well website



Begin project scope and timeline for Central Sands Study



Other DNR High Capacity Well Developments

High Capacity Well Viewer & Query Tool

Application search



Search for pending or past high capacity well and surface water withdrawal applications. View approval request letters and approval letters.

[Search for applications.](#)

High capacity well or surface water withdrawal search



Search for high capacity wells or surface water withdrawal sources. Summary statistics are also available, such as water use by county and type 2012 to present.

[Search for sources.](#)

Water use map viewer



View the locations and volumes of high capacity well and surface water withdrawals on an interactive map. View pending high capacity well applications and approved wells.

[Water Use Map Viewer](#)

→ Visit <http://dnr.wi.gov/> and Search “Water Use, Select “View Data and Maps”



Contact Information

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(608) 267-7638



Program Updates: NR 812 Rule Revisions

Liesa Lehmann
Private Water Section Chief




NR 812 Rule Revisions

- Why?
- What? Scope & objectives
- How? Rulemaking process
- Who? Stakeholder involvement
- When? Tentative timeline
- Staying informed



Why revise NR 812?

- Errors from past rulemaking
 - Unclear language / inefficient procedures
- 
- Construction standards not updated for 25+ years
 - Out-of-sync with recent law changes – e.g. High Capacity Well statutes, Revised Total Coliform Rule



What? Scope and Objectives

Primary objectives:

1. **Correct and clarify** errors and unclear language
2. **Streamline** processes and requirements
3. **Update** construction standards
4. **Be consistent** with federal and state law



Scope and Objectives

"Correct and clarify"

- errors from past rulemaking
- definitions and terms
- license applicability
- laboratory certification requirements
- organization, figures and diagrams





Scope and Objectives

"Streamline"

- Approval process – NR 812.09, NR 812.44
- Water treatment – NR 812.37
- Sampling frequency (nitrate and arsenic)

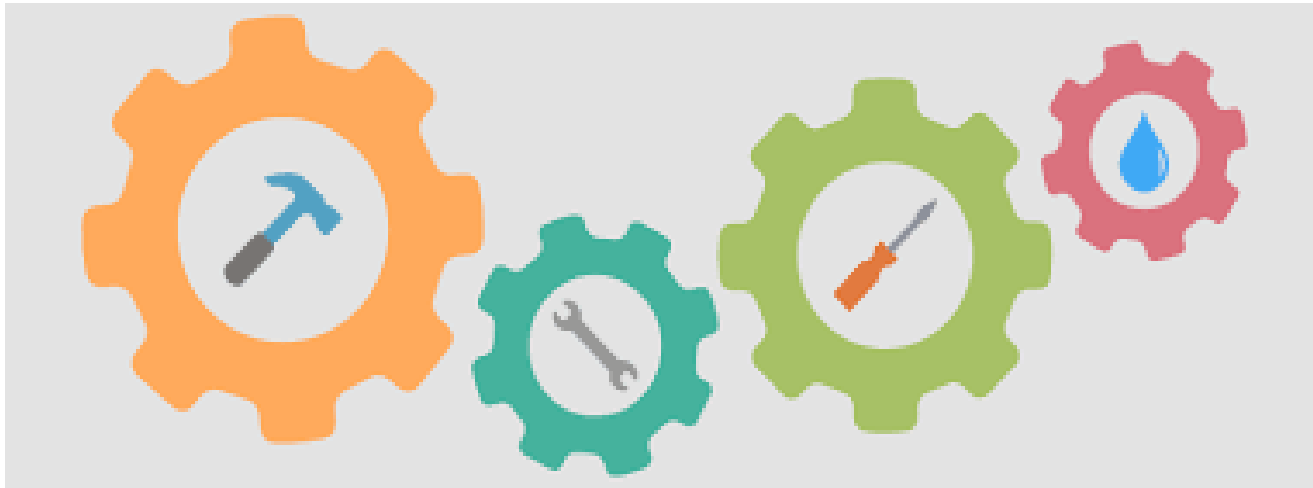




Scope and Objectives

"Update"

- Update construction standards to reflect current industry methods, equipment and materials – NR 812, Subchapter II





Scope and Objectives

"Be consistent"

- Align with current laws –
 - chapters 280 and 281, Wis. Stats.
 - NR 809, Wis. Adm. Code
 - Others as needed

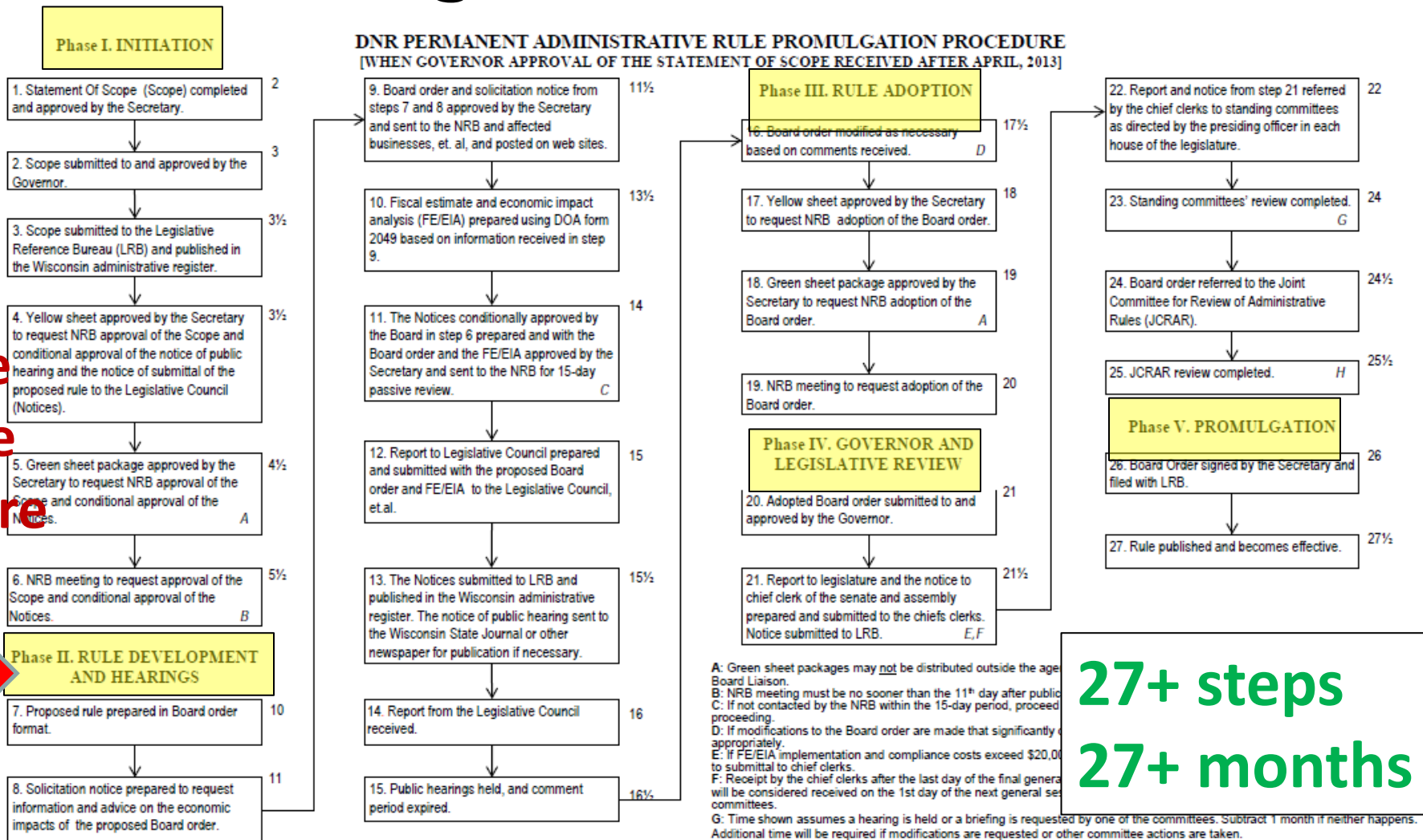




How? Rulemaking Process

1. Initiation
2. Rule Development and Hearings
3. Rule Adoption
4. Governor and Legislative Review
5. Promulgation

Rulemaking Process



We Are Here



27+ steps
27+ months

A: Green sheet packages may not be distributed outside the age Board Liaison.
B: NRB meeting must be no sooner than the 11th day after public C: If not contacted by the NRB within the 15-day period, proceed proceeding.
D: If modifications to the Board order are made that significantly C: If not contacted by the NRB within the 15-day period, proceed proceeding.
E: If FE/EIA implementation and compliance costs exceed \$20,000 to submittal to chief clerks.
F: Receipt by the chief clerks after the last day of the final general will be considered received on the 1st day of the next general set committees.
G: Time shown assumes a hearing is held or a briefing is requested by one of the committees. Subtract 1 month if neither happens. Additional time will be required if modifications are requested or other committee actions are taken.
H: Time shown assumes no hearing is held and no briefing is requested by the committee. Add 1 month if either happens. Additional time could be required if the committee takes action other than approval.

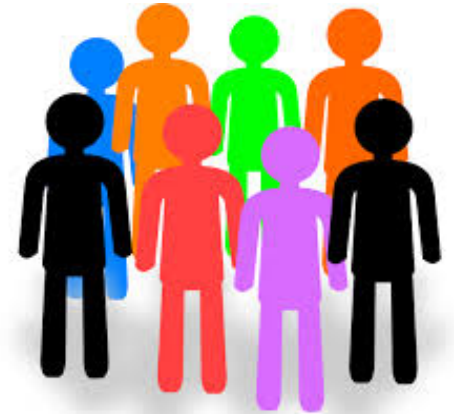
Numbers to right of boxes indicate approximate cumulative month. Time required may differ significantly for complex or controversial proposals or to a lesser degree for limited minor changes.



Who? Stakeholder Involvement

We have many, including...

- Private well owners
- Licensed drillers and installers
- Noncommunity public water system owners
- Certified laboratories
- Local and public health officials
- Wisconsin Water Well Association
- Wisconsin Geothermal Association
- Wisconsin Department of Health Services
- Wisconsin Department of Safety and Prof. Services
- Wisconsin Geologic and Natural History Survey
- DNR staff





Stakeholder Involvement

- **Formal workgroup**
 - Focus on Construction Standards
 - Well contractors with diverse experience
- **Stakeholder contacts**
 - Other agencies - DSPS
 - Treatment suppliers/installers
 - Laboratories
 - Others...
- **DNR staff reviewers**

When? Tentative Timeline

- Now to Fall 2017 – Rule drafting, stakeholder involvement, internal reviews
- Fall/Winter 2017 – Economic Impact Analysis
- Winter 2017/2018 – Public Hearings
- Summer 2018 – NRB Rule Adoption, Governor's Review
- Winter 2018/2019 – Legislative Review
- **Revised rule effective 2019**



Staying informed



- NR 812 Rule Changes web page
<http://dnr.wi.gov/topic/Wells/nr812.html>
- GovDelivery
- Public Hearings



Questions?



Contact Information

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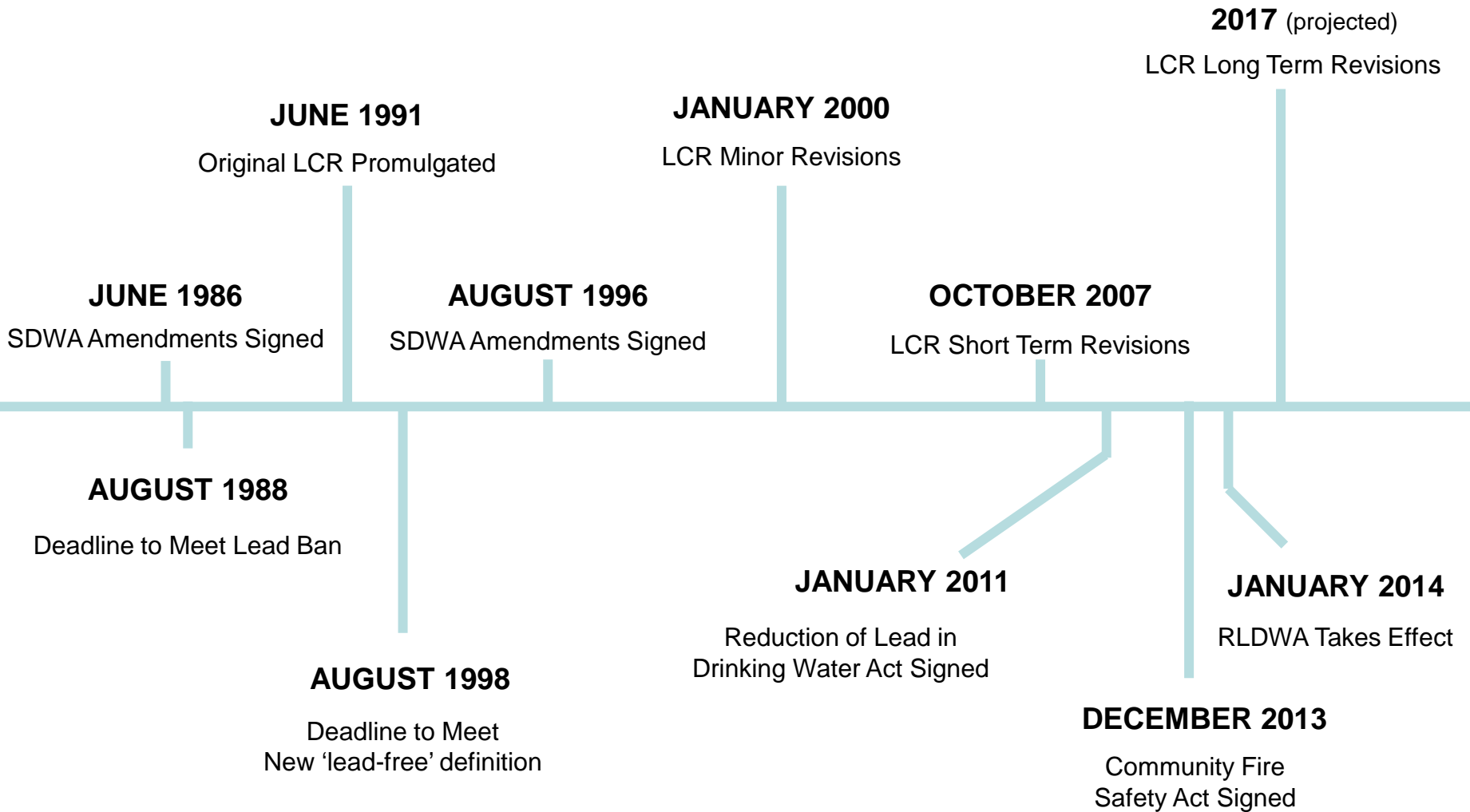
Program Updates: Water Quality Parameters

Cathy Wunderlich

Public Water Engineering Section Chief



Lead and Copper Rule





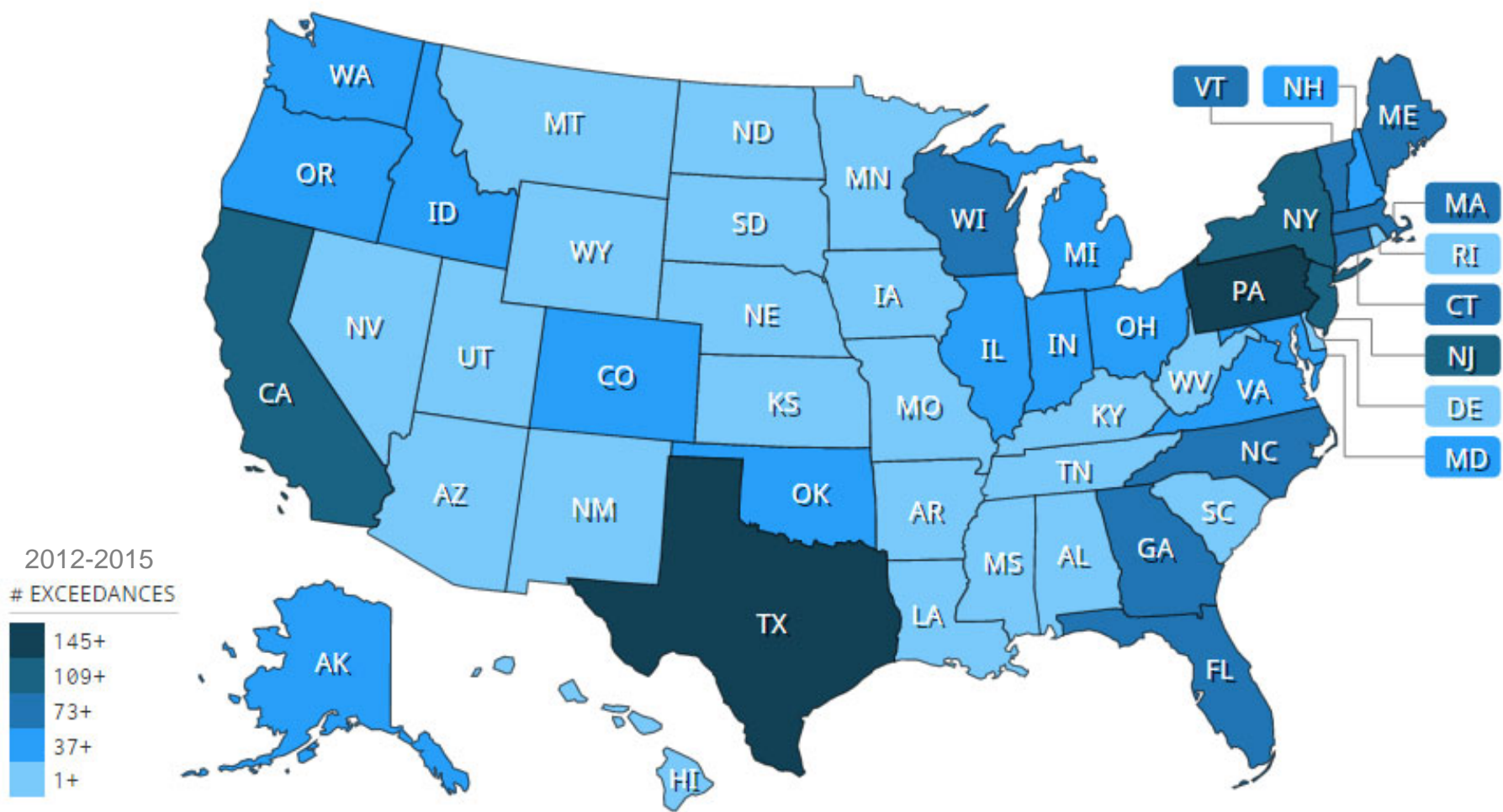
Optimal Corrosion Control Treatment

Corrosion control treatment that minimizes the lead and copper concentrations at user's taps while ensuring that the treatment does not cause the water system to violate any national primary drinking water standard.

- 1) Initial testing to determine
 - a) Source water PbCu levels
 - b) Distribution system PbCu levels
- 2) Large systems
 - a) CCT Steps
 - b) Install CCT OR equivalent steps
- 3) Department determinations:
 - a) OCCT
 - b) Establish OWQPs
- 4) Monitoring to ensure CCT remains optimized

Then what.....

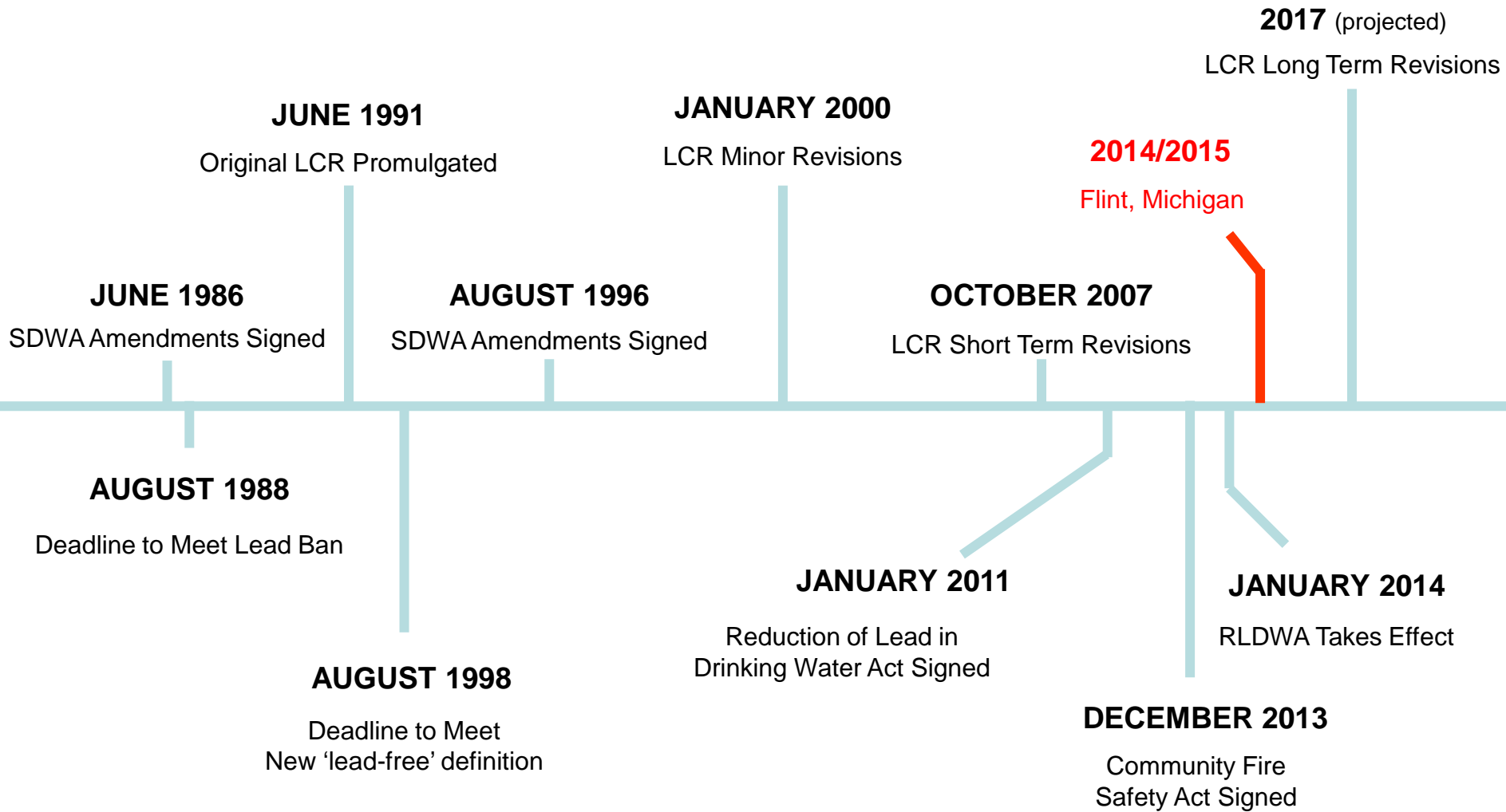
Lead Action Level Exceedances



Source: USA TODAY analysis of EPA's Safe Drinking Water Information System (SDWIS) database.



Lead and Copper Rule





Lead and Copper Rule

EPA Communications/ Recommendations

- Nov 2015 – CCT Large Systems
- Feb 2016 Letter – LCR Protocol
- Feb 2016 Memo – Sampling
- March 2016 - OCCT Guidance
- Sept 2016 – States Training on OCCT
- Oct 2016 – Reduced Sampling
- May 2017 – Revised Residential Sampling Guide



DNR Communications/ Improved Processes

- MSPs
- Revised Sampling and Compliance Guide
- Availability of materials on the web
- PWS Letter - recommendations
- LSL Replacement (SRF Loans)
- More.....



Lead and Copper Rule

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Lead and Copper Rule

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- LSL Replacement (SRF Loans)
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LCR and Corrosion Control

- LCR is concerned with controlling **metals release** into water.
The release of metals into water is affected by **corrosion**.....

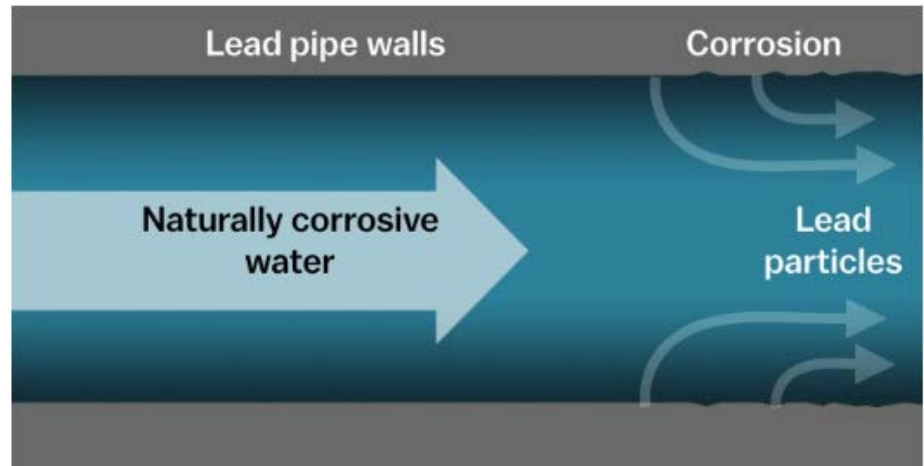
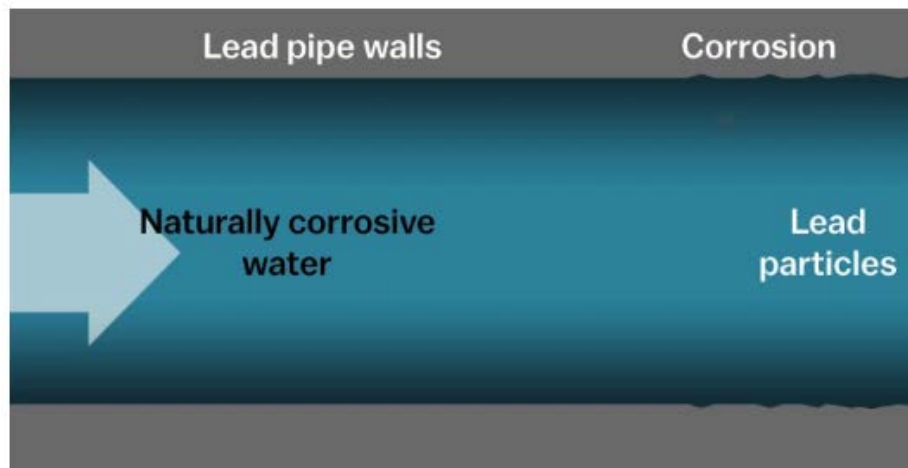
Is the quality of water in a given system corrosive?





What is Corrosion?

- **Corrosion** can be defined as the electrochemical interaction between a metal surface (such as pipe wall or solder) and water.
 - During this interaction, metal is oxidized and transferred to the water





LCR and Corrosion Control

- LCR is concerned with controlling **metals release** into water.
The release of metals into water is affected by **corrosion**.....***as well as the physical, chemical, and biological characteristics of the water and the metal surface (scales).***
- Understanding the **water quality conditions that impact the release of lead and copper** in drinking water provides a foundation for making effective treatment decisions.





EPA's OCCT Guidance

- Influence of oxidation-reduction potential (ORP) on lead and copper release, and importance of Pb(IV) compounds for systems with lead service lines (LSLs).
- Importance of aluminum, manganese, and other metals on formation of lead scales and lead release.
- Impact of physical disturbances on lead release.
- Impacts of treatment changes, particularly disinfectant changes, on corrosion and corrosion control.
- Mechanisms and limitations of using blended phosphates for corrosion control.
- Target water quality parameters (WQPs) for controlling copper corrosion.



Lead and Copper Rule

- Influence of oxidation-reduction potential (ORP) on lead and copper release, and importance of Pb(IV) compounds for systems with lead service lines (LSLs).

NEED A MORE SOPHISTICATED

- Importance of calcium, iron, manganese, and other metals on formation of lead scales and lead release.
- Impacts of physical disturbances on lead release.

MODEL...

- Impacts of treatment changes, particularly disinfectant changes, on corrosion and corrosion control.

NEED TO LOOK AT AN

- Advantages and limitations of using blended water for corrosion control.

EXPANDED LIST OF WQPS

- Target water quality parameters (WQPs) for controlling copper corrosion.



Water Quality Factors Affecting Release of Lead and Copper

- pH
- Alkalinity
- Dissolved inorganic carbon (DIC)
- Temperature
- Hardness, calcium and magnesium
- Conductivity
- Ammonia, chloride, and sulfate
- Iron, aluminum, and manganese
- Corrosion Control Inhibitors
- Chlorine, chloramines
- Oxidation reduction potential (ORP)
- Buffer intensity
- Dissolved oxygen
- Natural organic matter
- Others (fluoride, sequestration)

Alkalinity, pH, DIC, corrosion inhibitors, and ORP (in certain types of waters) remain critical parameters that directly impact lead release.

Corrosion and LCR Challenges



- Corrosion
 - Scale composition and structure
 - Water quality
 - Release of lead and copper
- **Water systems should collect water quality and lead copper data throughout the year to determine their own trends**



Enhanced WQP Testing and Monitoring

Lab ¹ Analyzed Parameters	
Alkalinity	Lab
Conductivity	Lab
Hardness	Lab
Chloride	Lab
Sulfate	Lab
Aluminum	Lab
Iron	Lab
Manganese	Lab
Calcium	Lab
Total Phosphorous	Lab

Field Analyzed Parameters	
pH	Field
Orthophosphate	Field or Lab
Silica	Field or Lab
Free Chlorine	Field or Lab
Total Chlorine	Field or Lab
**Field parameters analyzed at a lab must consider preservation methodology and holding times.	

¹ Lab must be certified for analyte as required under NR 809.113, Wis. Adm. Code

Enhanced WQP Testing and Monitoring

- 1) Collect WQP Data – baseline
- 2) Examine PbCu data in combination with WQP data
- 3) Determine ranges for WQPs that represent optimized corrosion control – OWQPs
- 4) Monitor OWQPs – operational monitoring





Enhanced WQP Testing and Monitoring

1) Collect WQP Data

- at taps and entry points
- with lead and copper monitoring

2) Examine PbCu data in combination with WQP data

- ongoing effort to monitor any changes from baseline
 - i. If changes are occurring - why?
 - ii. Do changes impact PBCU levels?



Enhanced WQP Testing and Monitoring

3) Determine ranges for WQPs

- represent optimized corrosion control (OWQPs)
- examining trends in baseline data

4) Monitor OWQPs via operational monitoring

- Is system maintaining optimization?
- Can OWQP ranges help to predict or prevent ALEs?






Contact Information

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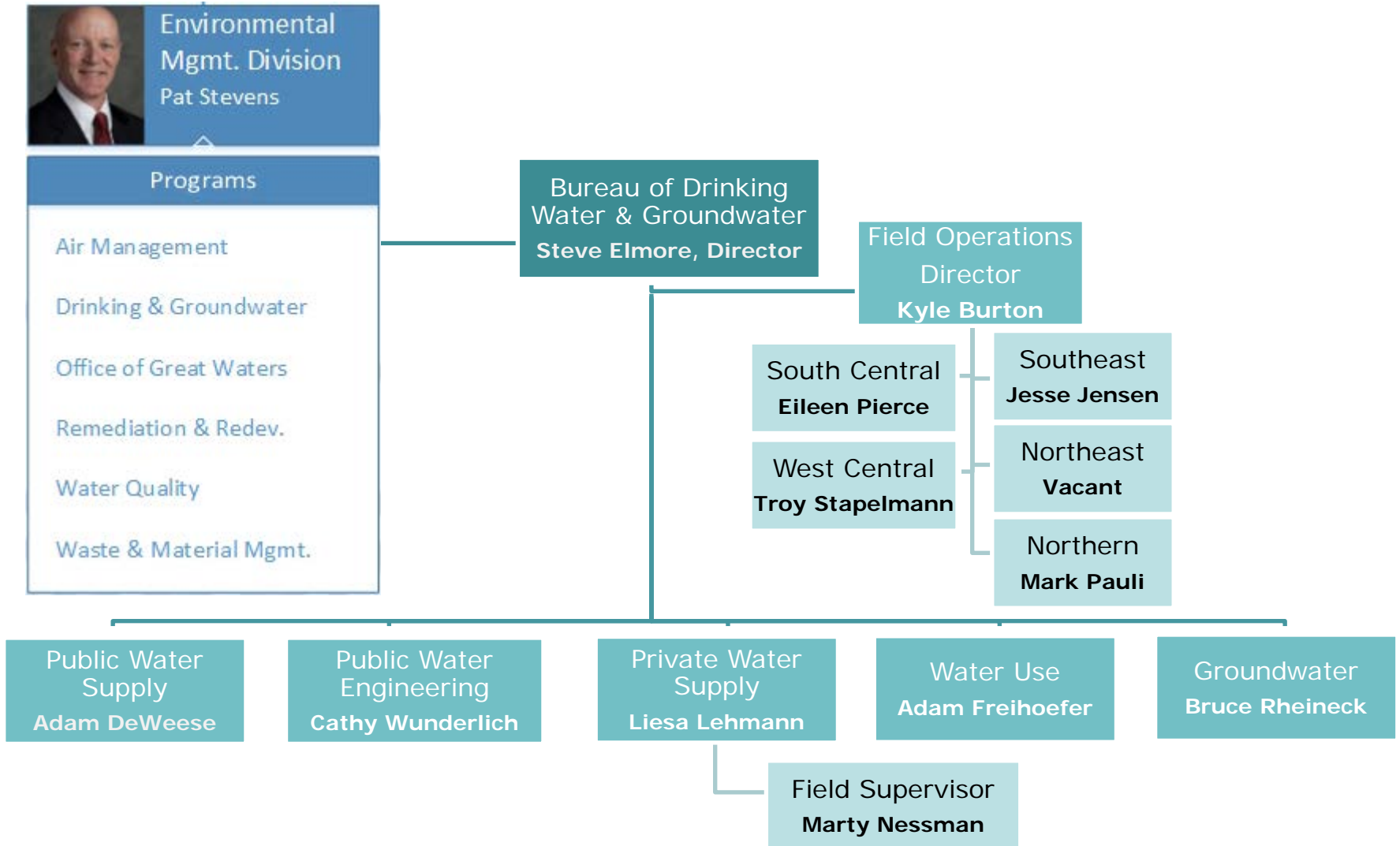
(608) 266-0857



Program Updates:
Alignment and
Permit/Approval Streamlining

Steve Elmore
Program Director

DNR Alignment

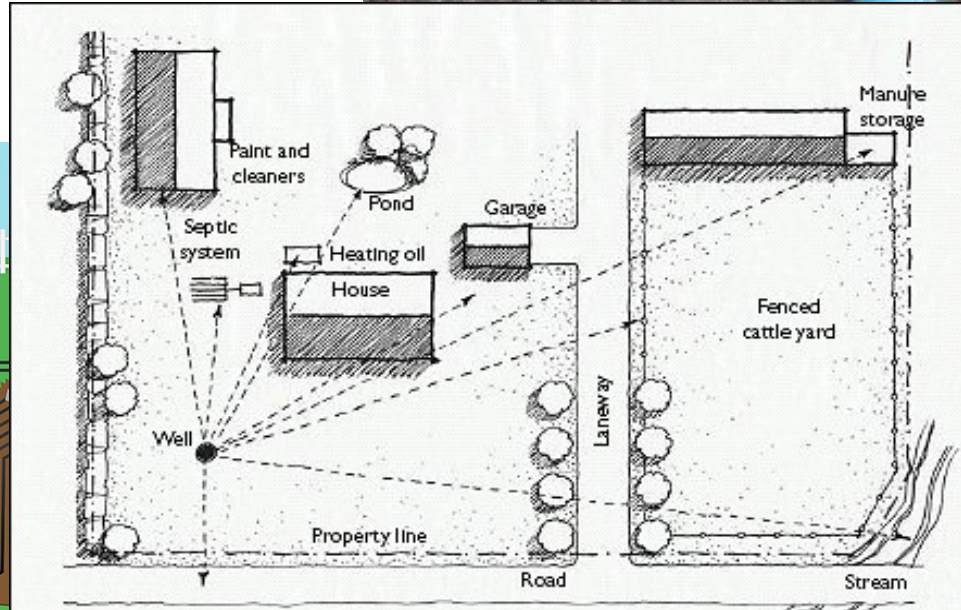
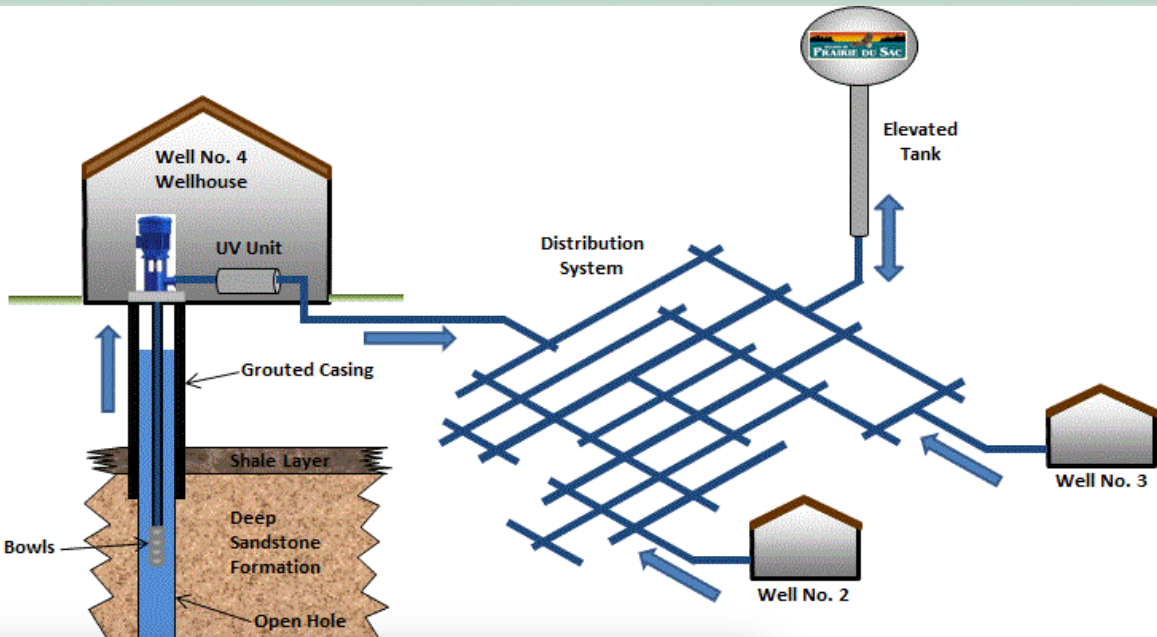




Approval Streamlining

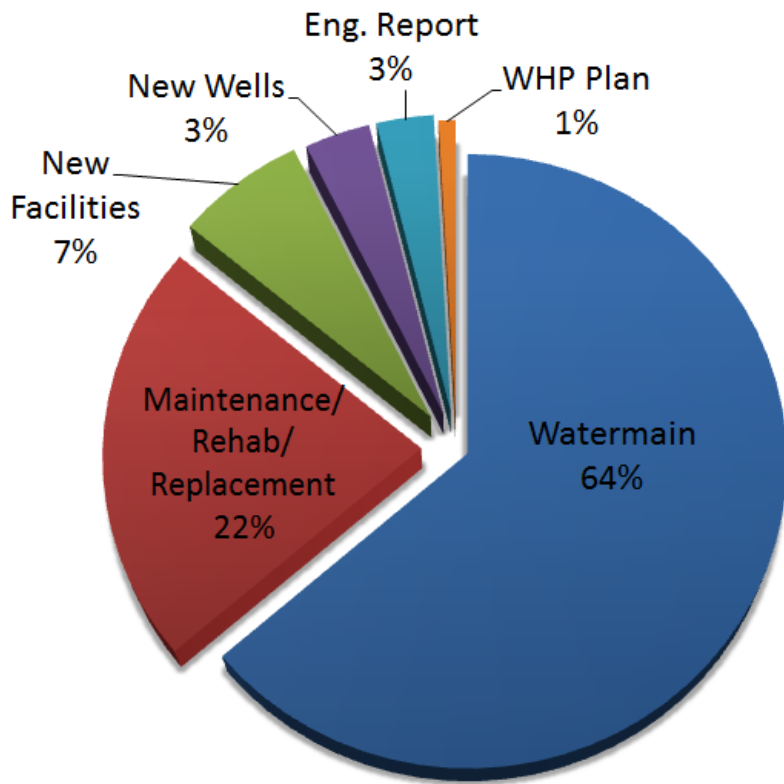
- **Goals:**

- Enhance customer service
- Decrease staff workload
- Decrease permit backlog
- Maintain regulatory oversight



COMMUNITY PUBLIC WATER SYSTEMS

905 applications in 2016





Process

- Defined proposed concepts
- Solicited input from diverse stakeholders
- Determined which concepts to pursue
- Worked with stakeholders to finalize
- ➔ • Develop implementation schedule
- Implement and monitor progress



Plan elements

1. Establish GovDelivery for engineering consultants & utility engineers
2. Public water data tracking & plan approval letter writing improvements
3. Webinars and recorded 'how to' presentation on approval submittal requirements
4. Electronic storage of documents
5. Online/Electronic submittals
6. Application tracking/notification system



Contact Information

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Discuss topic ideas for the next meeting



Adjourn

Next Meeting Date:

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