



## Project 1007 – Progress Update

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# Agenda

Overview of Project Phases and Schedule

Review of Settlement Requirements & Location

A Complex Problem

Below Ground Investigation

Results of Above Ground Investigation

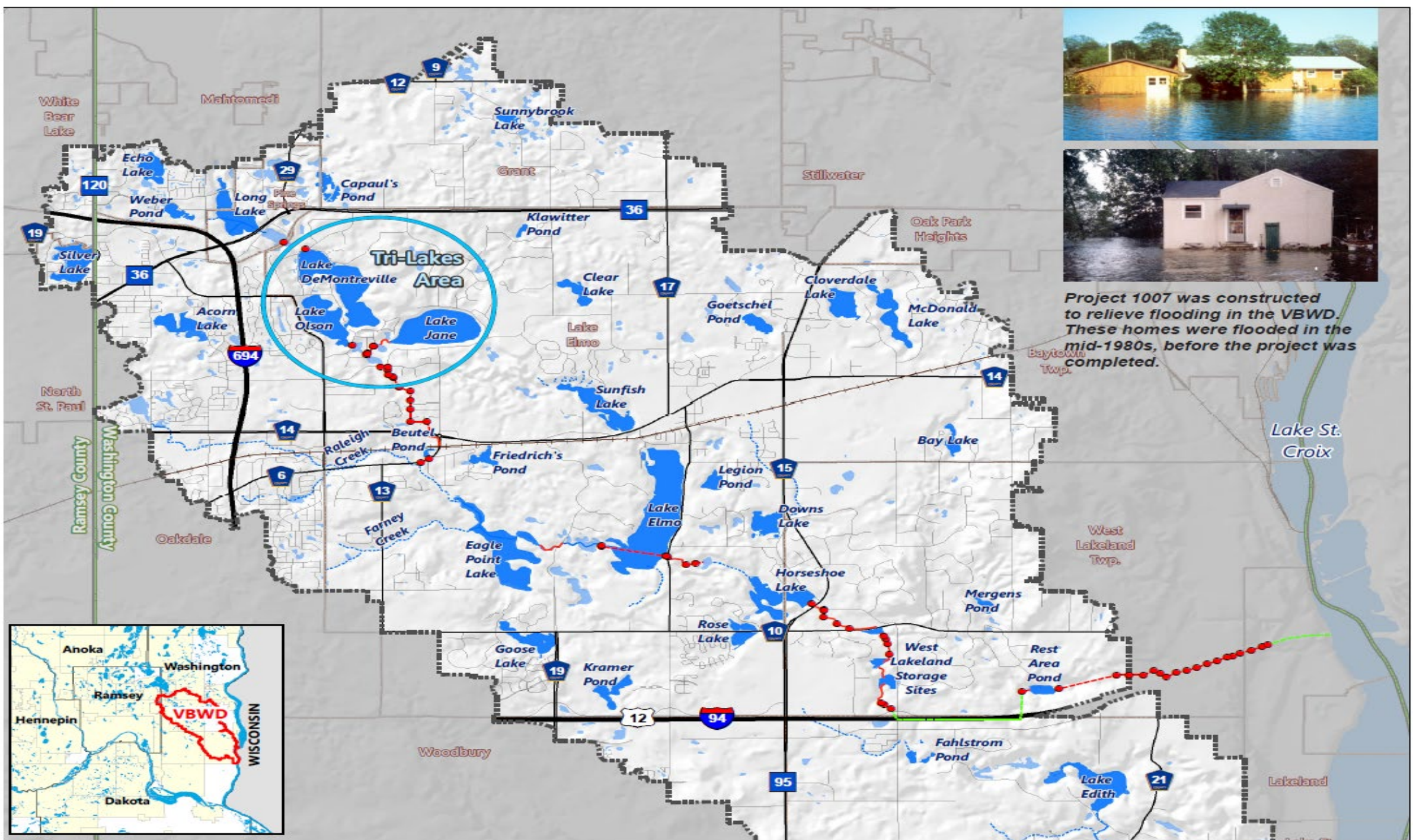
Health Risks

Conclusions and Next Steps

# 3M Settlement Language

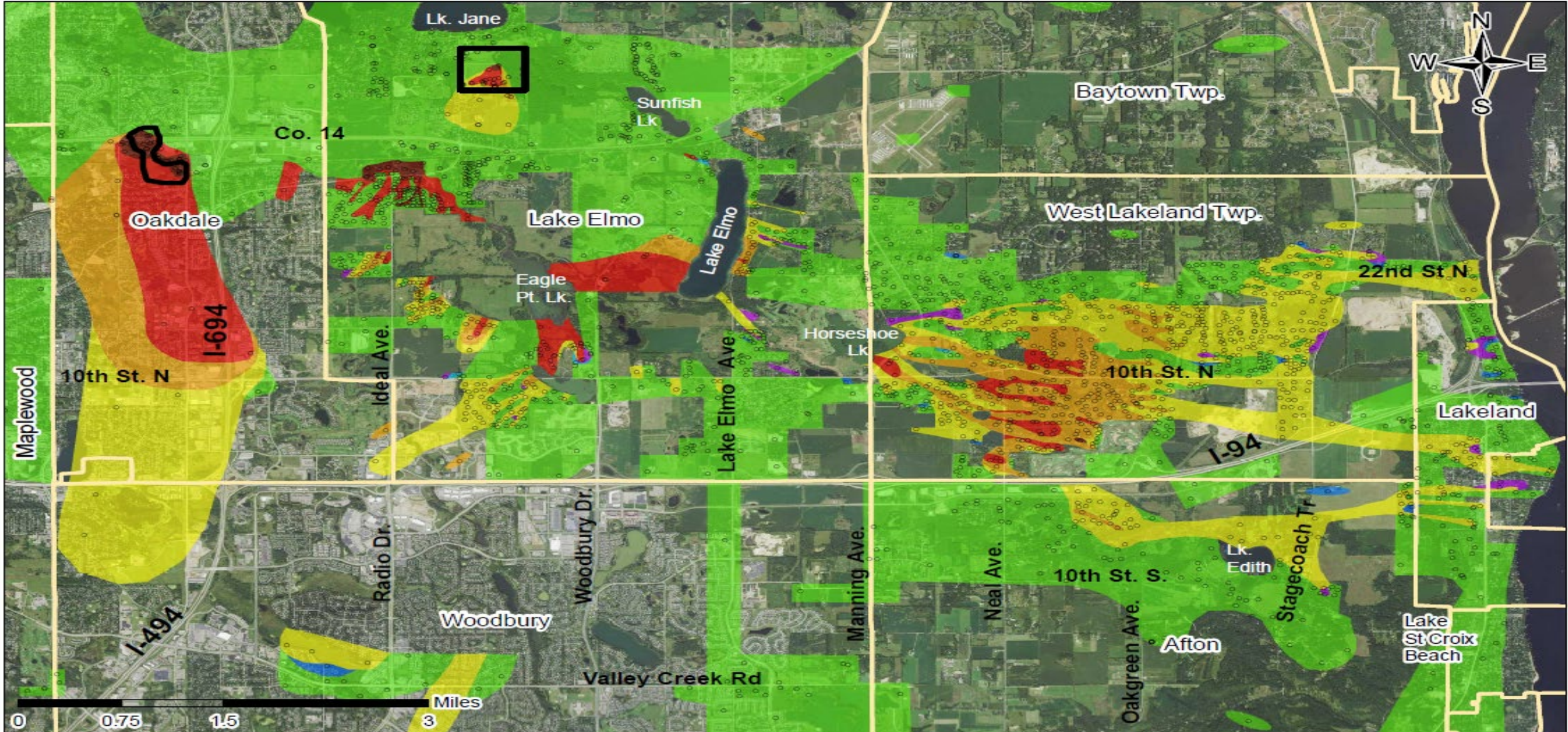
- As part of the 3M Agreement and Order, the MPCA is conducting “a source assessment and feasibility study regarding the role of the Valley Branch Water District’s project known as Project 1007 in the conveyance of PFCs in the environment.”





*Project 1007 was constructed to relieve flooding in the VBWD. These homes were flooded in the mid-1980s, before the project was completed.*





PFOS – East Metro PFAS Area – North of I-94

# Investigation Progress



## Baseline Sampling Event

*Fall 2019*



## Beta Phase Investigation

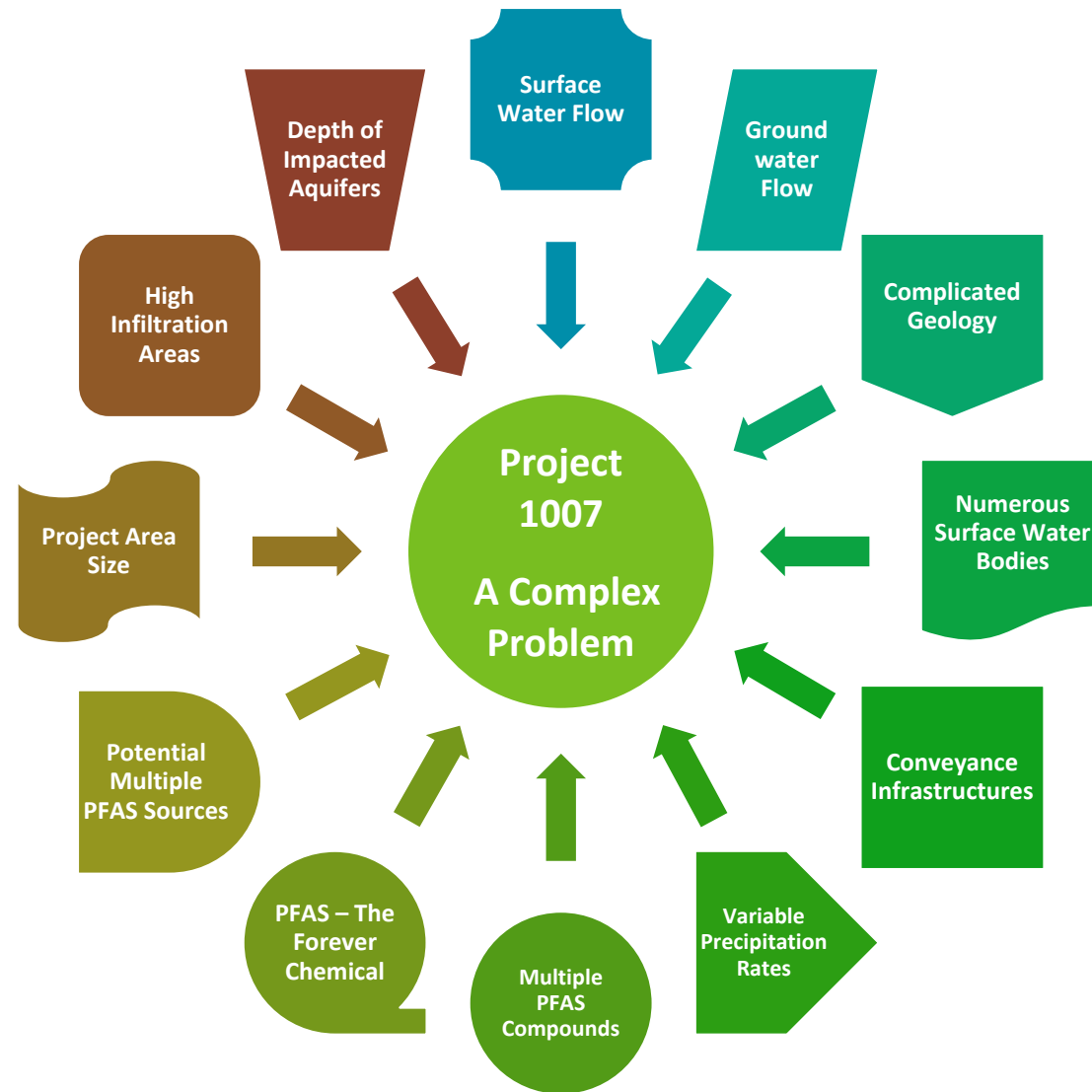
*Fall 2019 – Summer 2020*

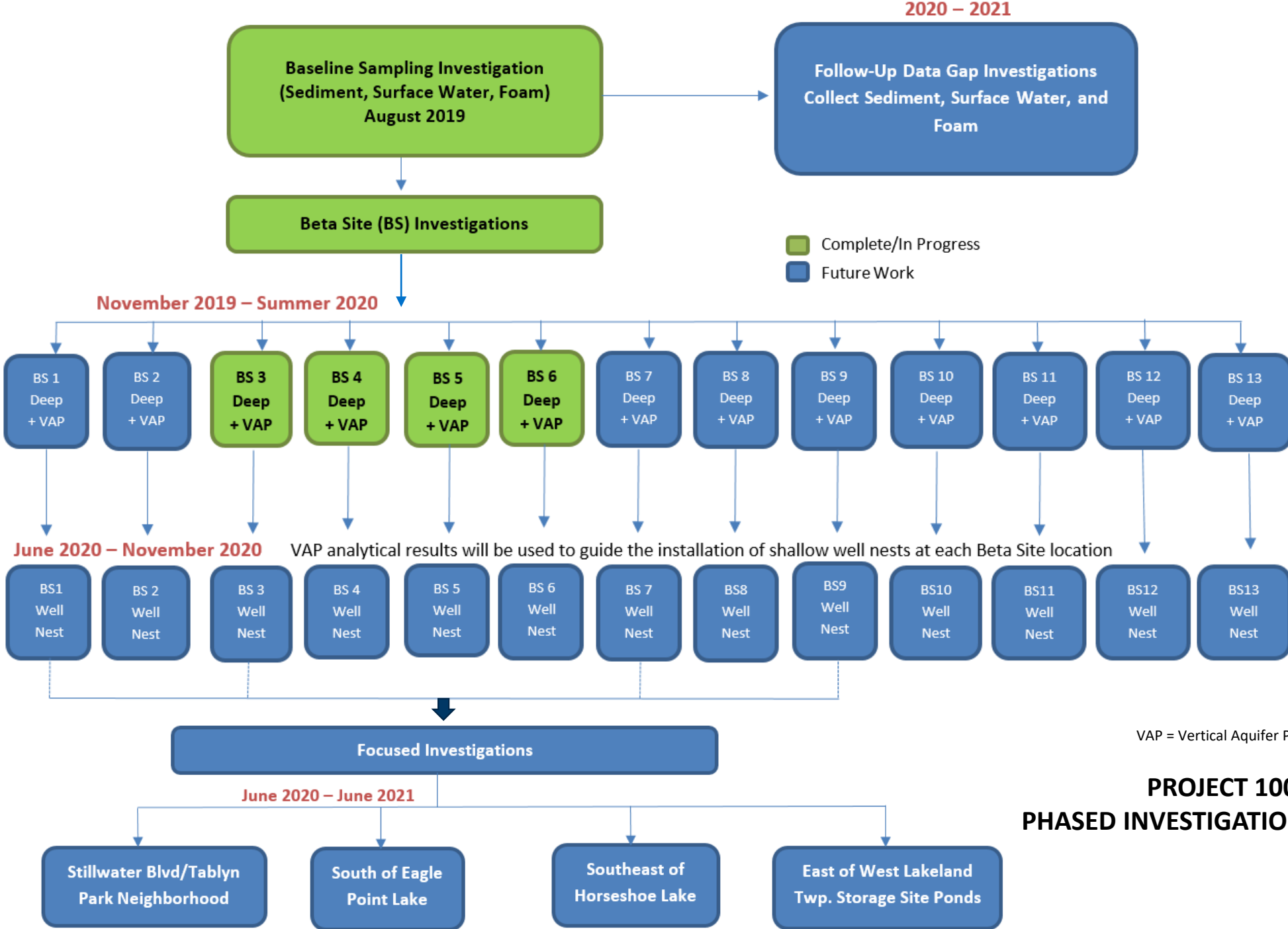


## Focused Investigation

*Summer 2020 - 2021*

# What Do We Need to Consider?





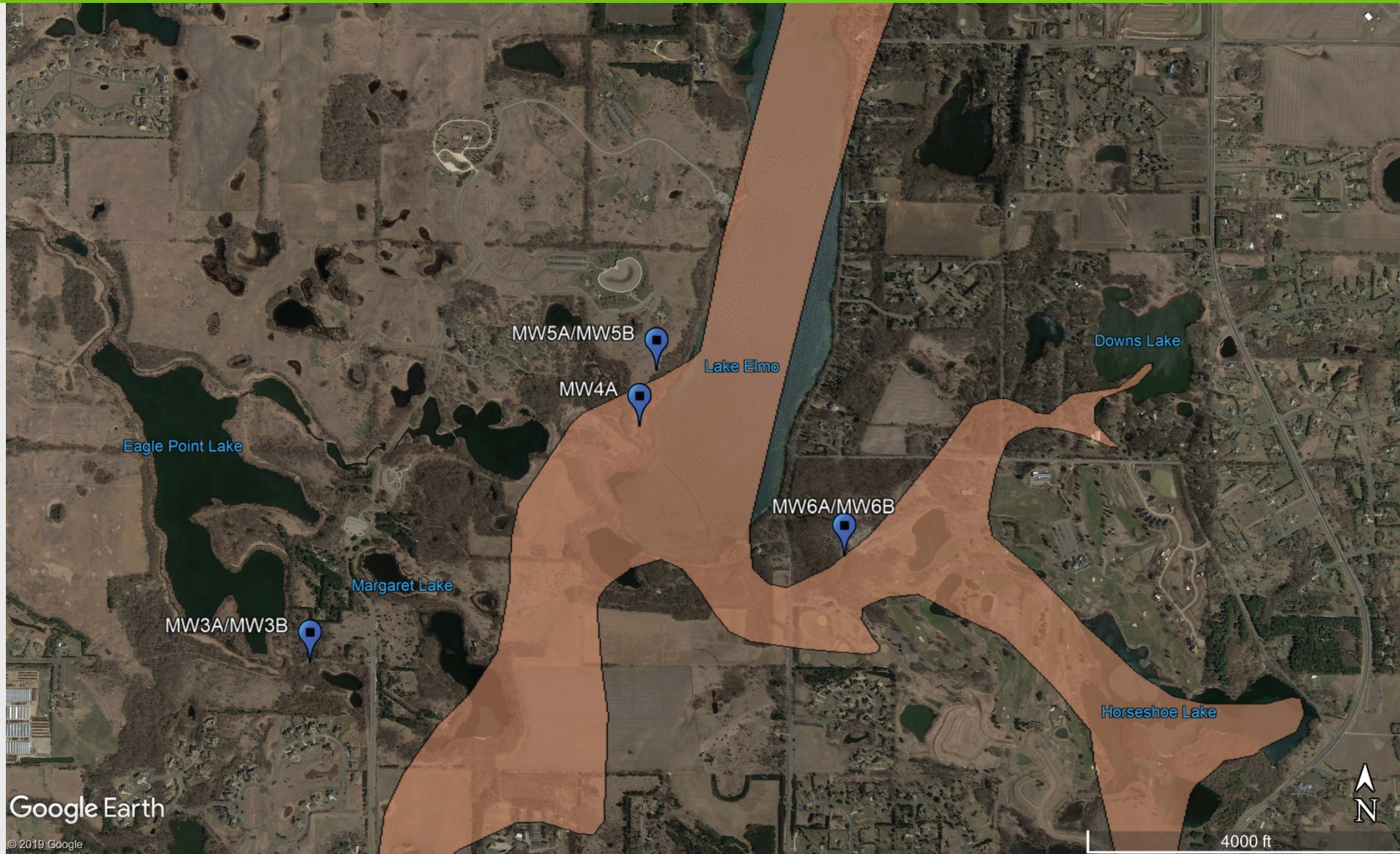
VAP = Vertical Aquifer Profiling

**PROJECT 1007  
PHASED INVESTIGATION APPROACH**

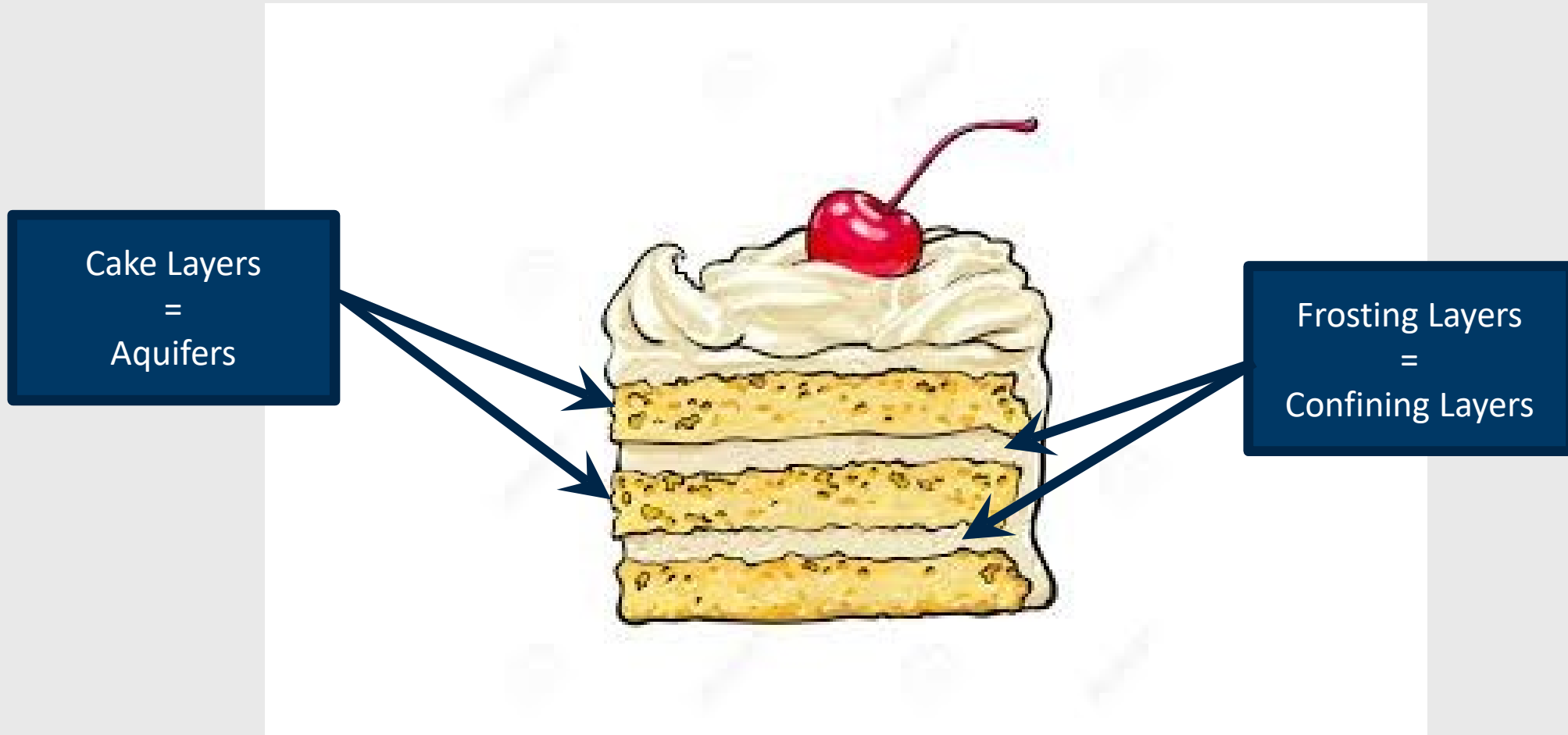




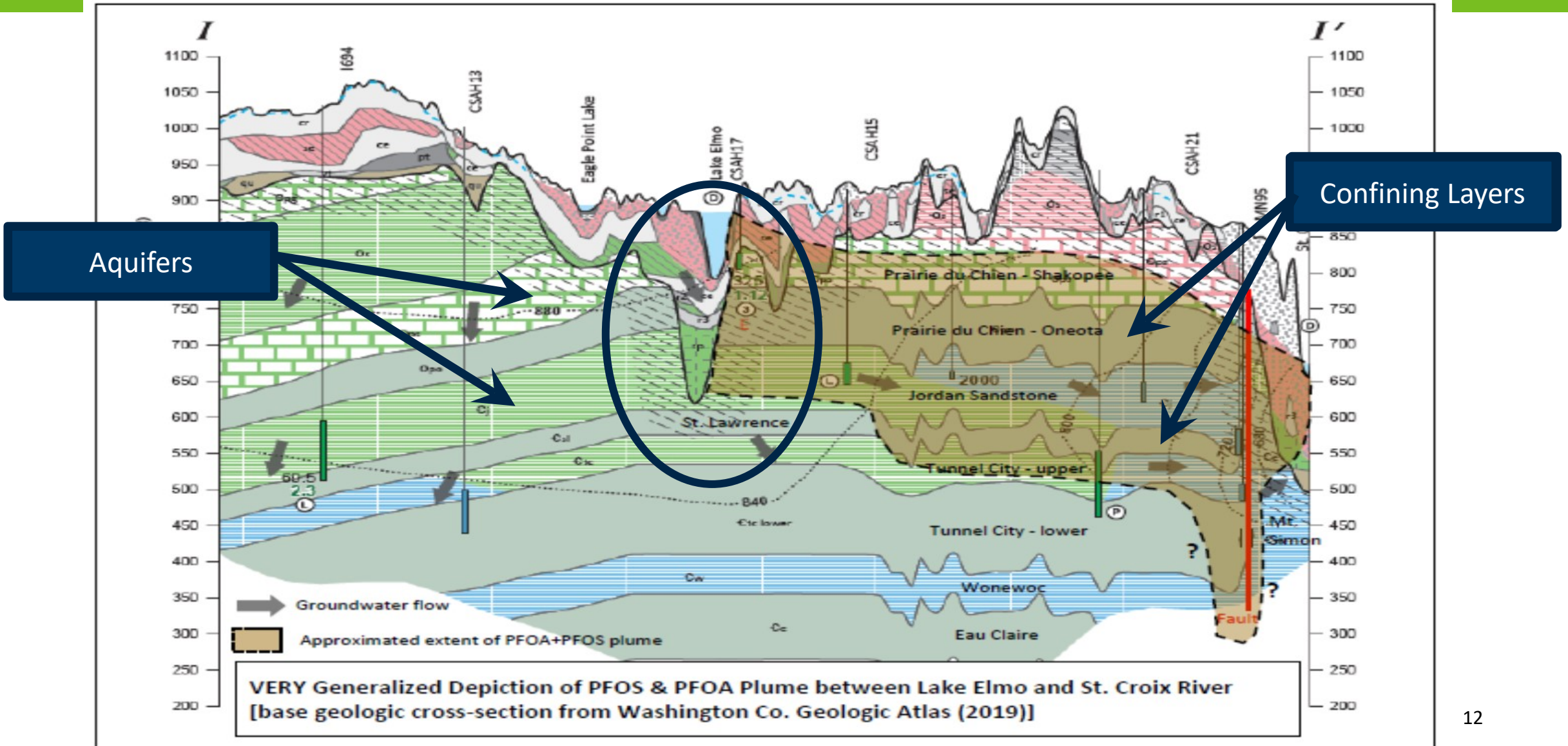
# Beta Phase Drilling Locations



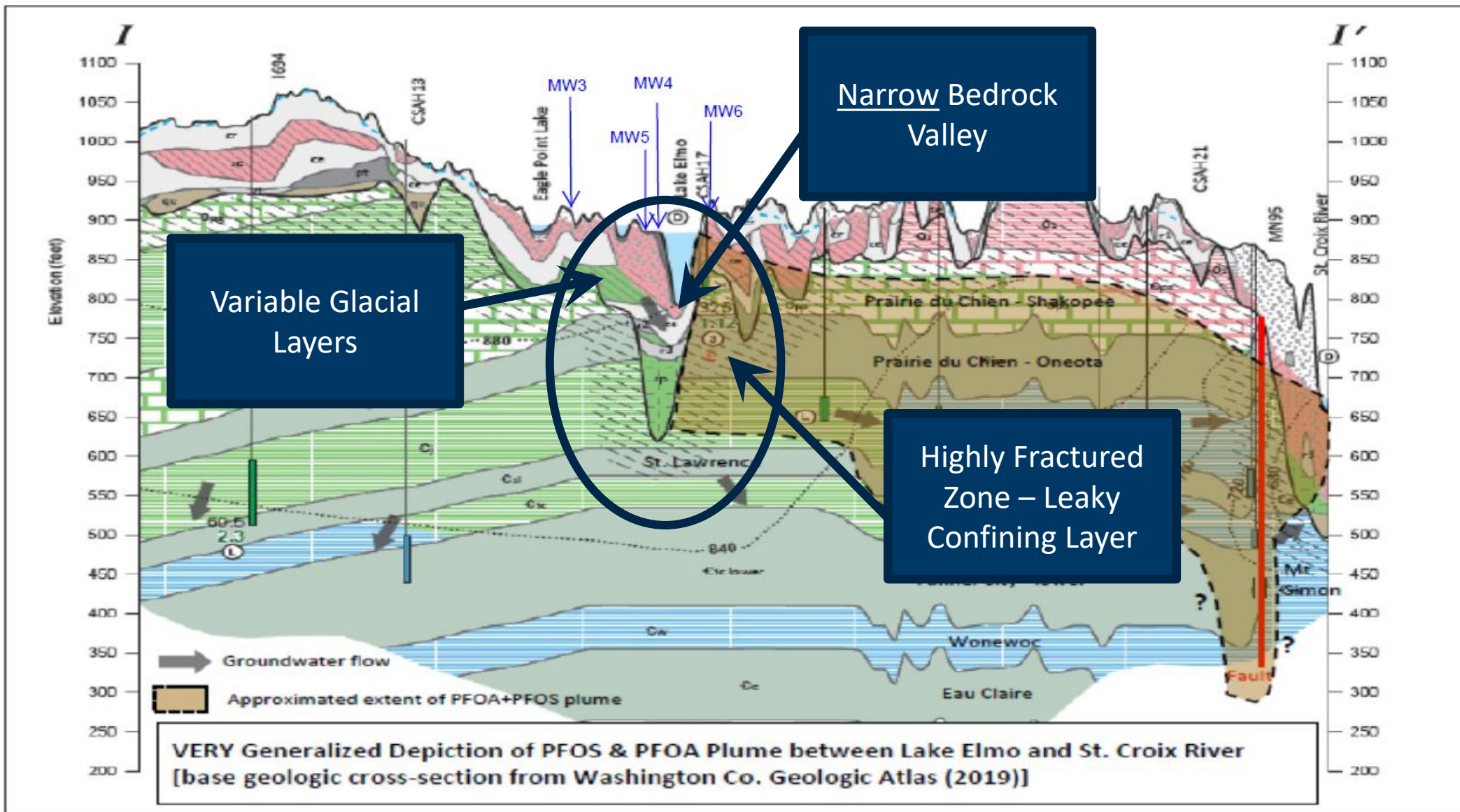
# What Is the Bedrock Valley?



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# Bedrock Findings Preferential Pathways



# Beta Phase Investigation Methods of Investigation



Projected sales of main products in 2013

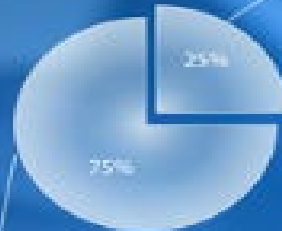


Distribution of market share among the major industry players



Distribution of market share among the major industry players: B, C and D are 7, 10% and 23% percent respectively. A further change in the economic situation in the market will be characterized by a more equal distribution of market share among players.

Share of market activity

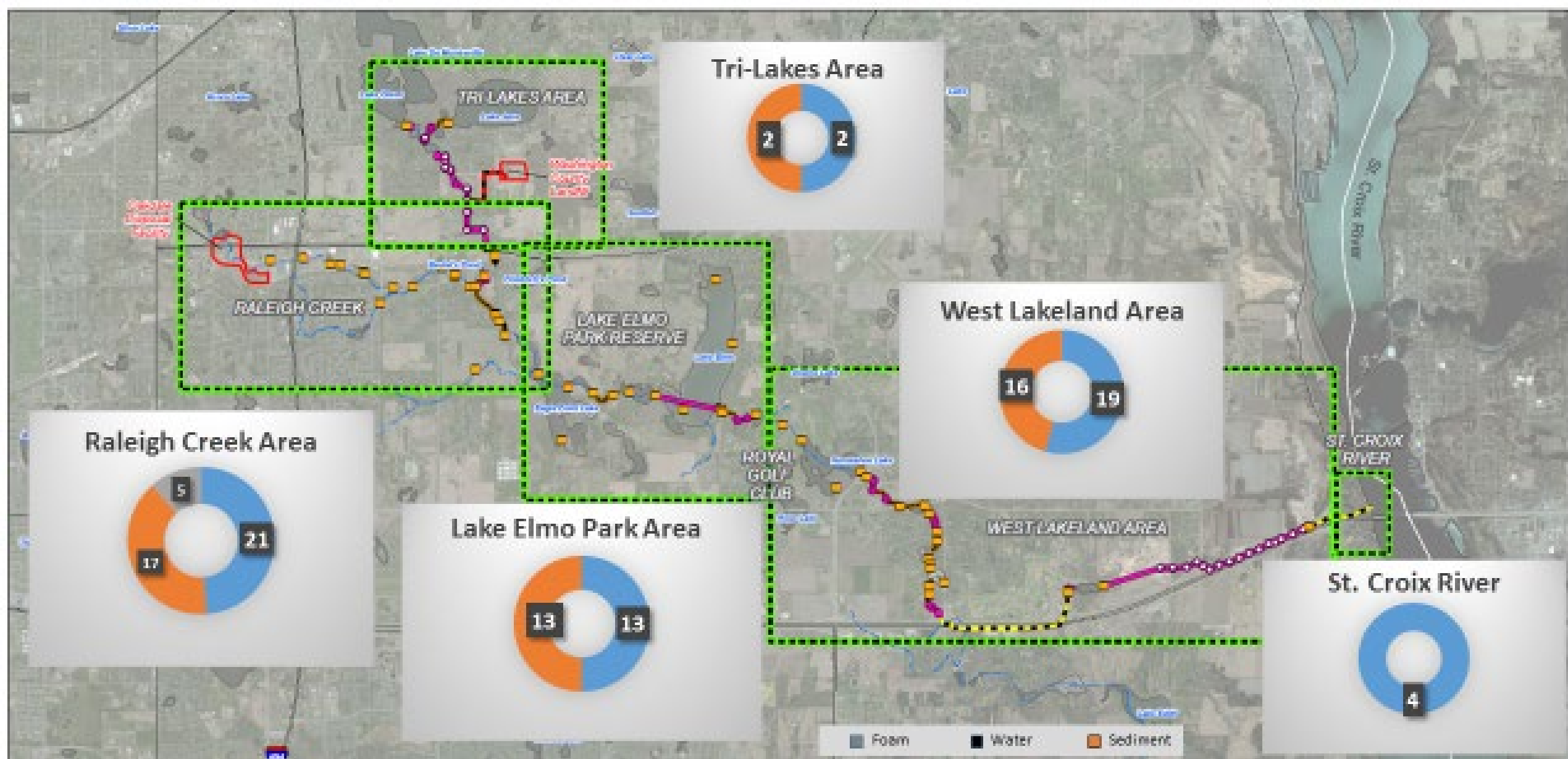


Changes in the activity of the active and passive market is uncertain. Established positive trends in various market segments.

Projected sales of main products in 2013



# Baseline Sampling Analytical Results



Project 1007 Overview Map  
 Sampling Areas and Sample Counts - Baseline Investigation



# Surface Water PFOS Results

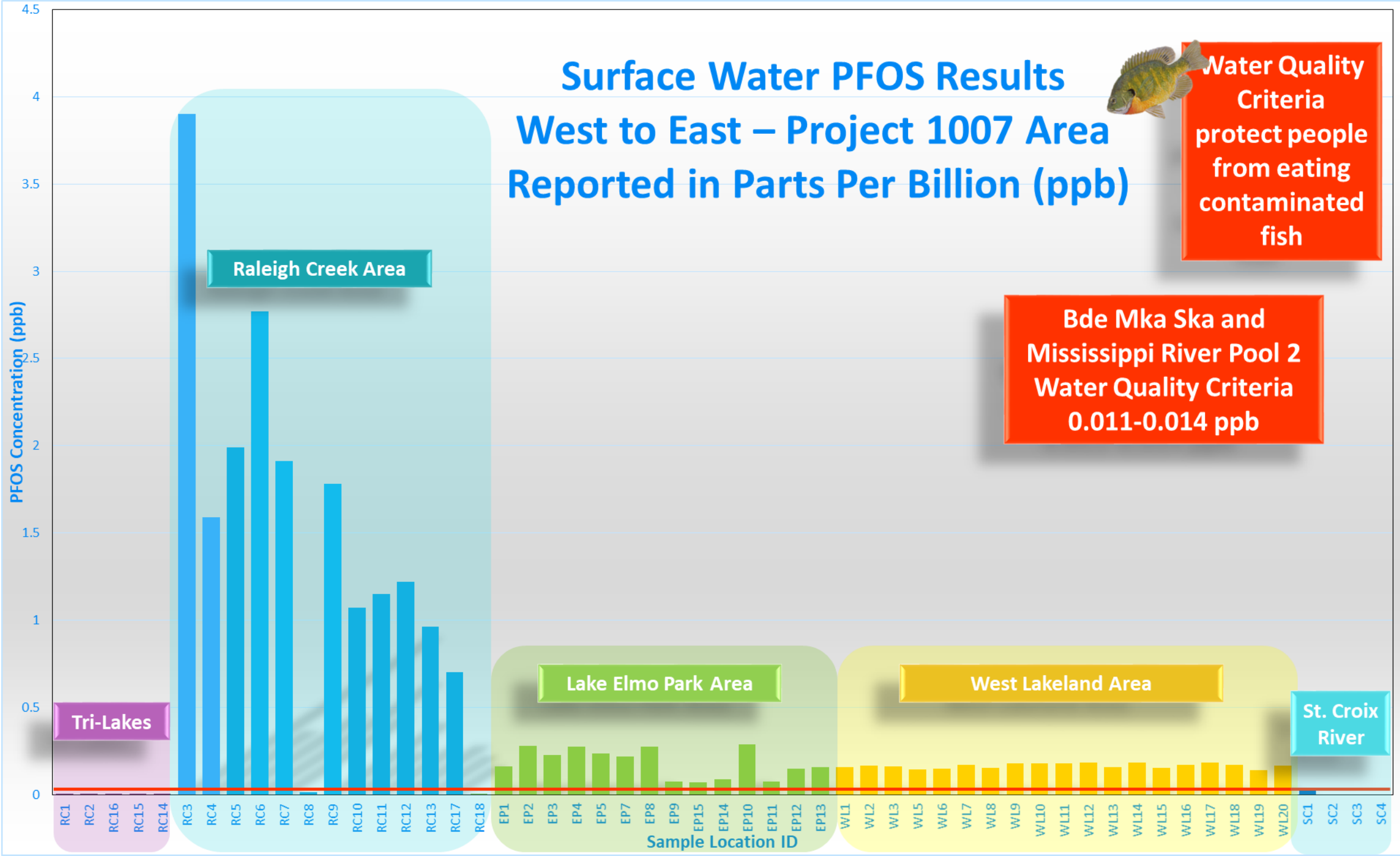
## West to East – Project 1007 Area

### Reported in Parts Per Billion (ppb)



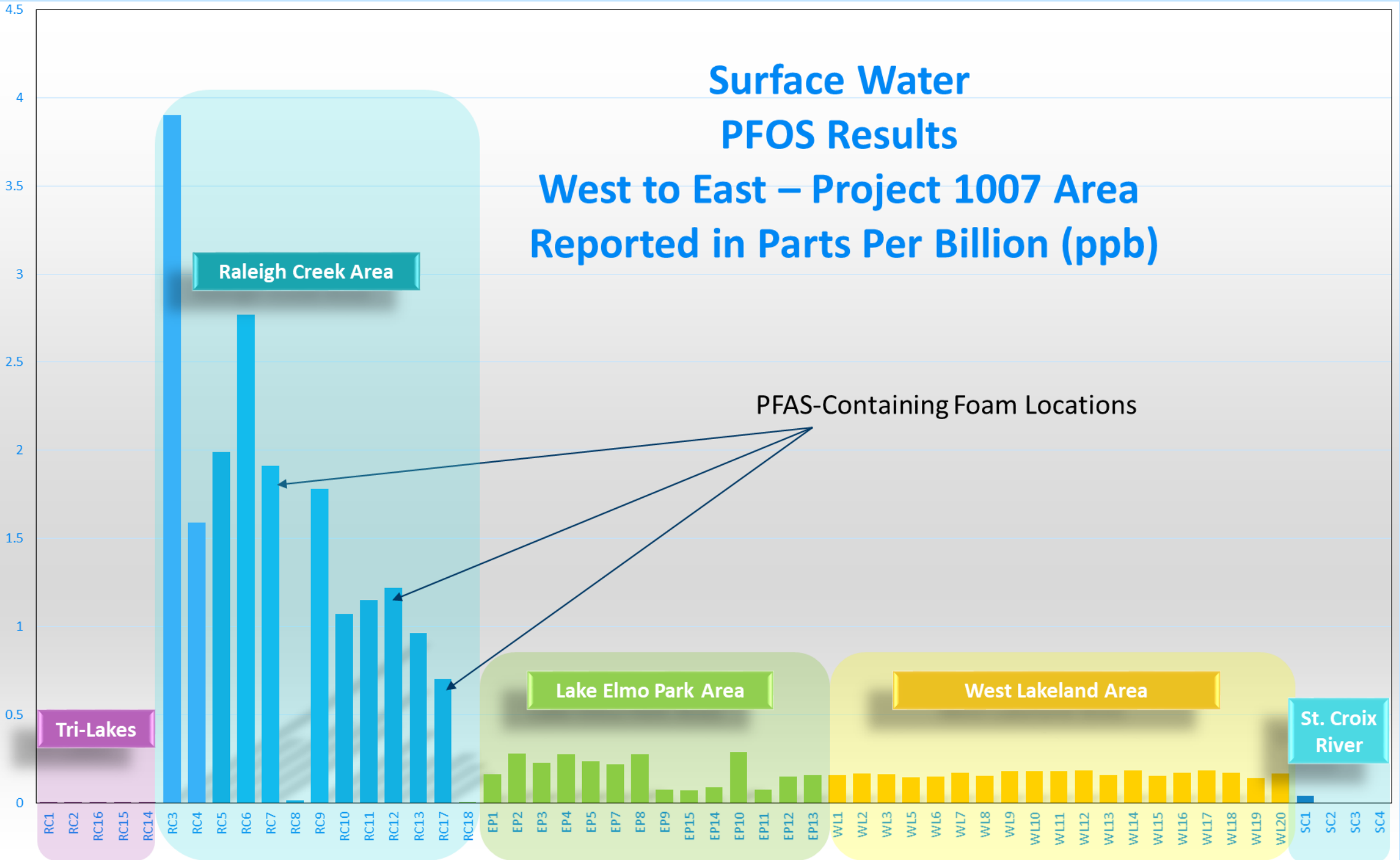
**Water Quality Criteria**  
protect people  
from eating  
contaminated  
fish

**Bde Mka Ska and  
Mississippi River Pool 2  
Water Quality Criteria**  
0.011-0.014 ppb

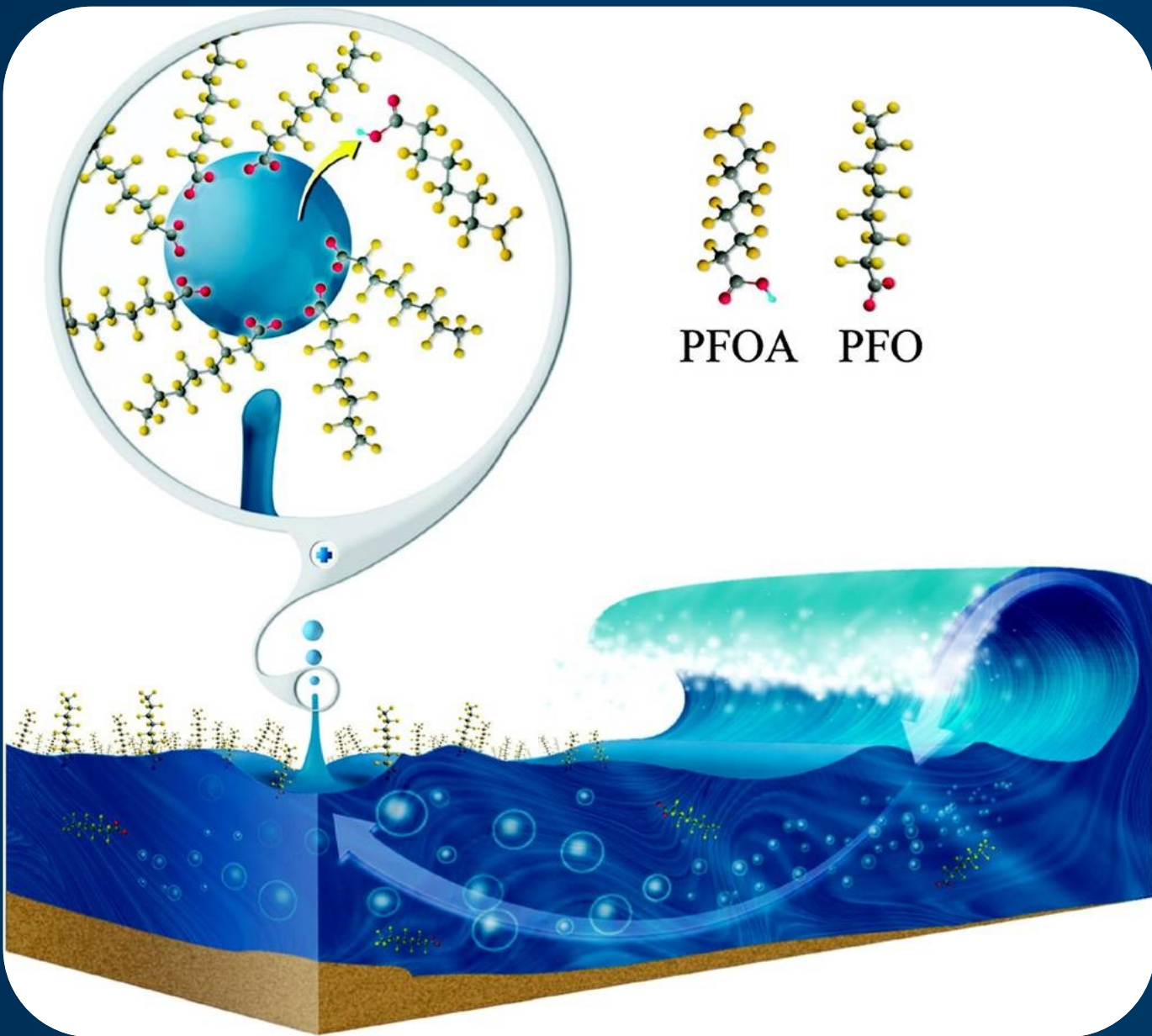


# Surface Water PFOS Results

## West to East – Project 1007 Area Reported in Parts Per Billion (ppb)



# Surface Micro Layer (SML)



Approximately 50  $\mu\text{m}$  (0.05mm) thick.

An interface of gaseous exchange. High carbon content.

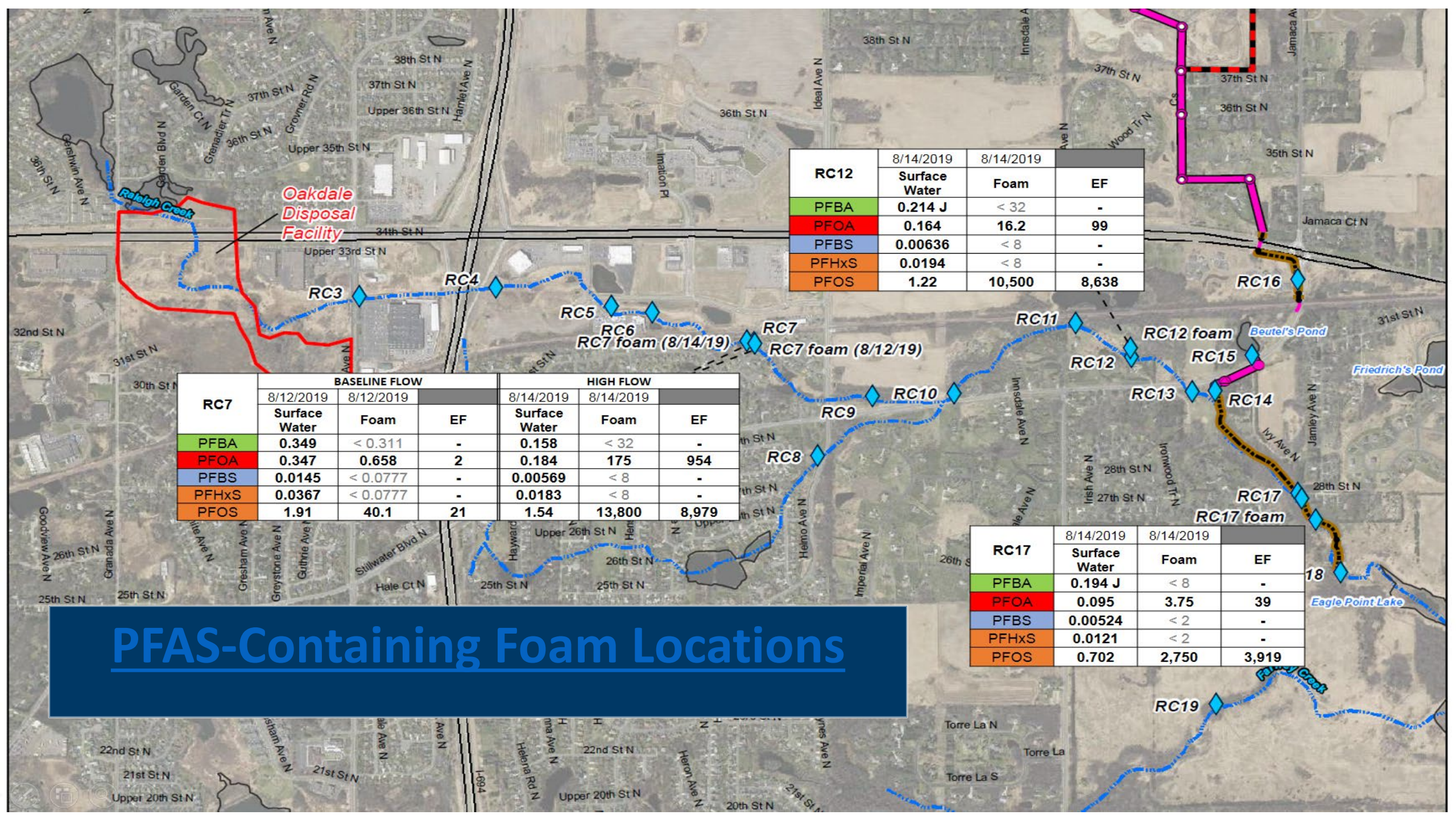
Documented reservoir of surface-active chemicals, including fatty acids, surfactants, PFAS and other compounds.

# PFAS-Containing Foam Appearance



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RC12	8/14/2019	8/14/2019	
	Surface Water	Foam	EF
PFBA	0.214 J	< 32	-
PFOA	0.164	16.2	99
PFBS	0.00636	< 8	-
PFHxS	0.0194	< 8	-
PFOS	1.22	10,500	8,638

RC7	BASELINE FLOW			HIGH FLOW		
	8/12/2019	8/12/2019		8/14/2019	8/14/2019	
	Surface Water	Foam	EF	Surface Water	Foam	EF
PFBA	0.349	< 0.311	-	0.158	< 32	-
PFOA	0.347	0.658	2	0.184	175	954
PFBS	0.0145	< 0.0777	-	0.00569	< 8	-
PFHxS	0.0367	< 0.0777	-	0.0183	< 8	-
PFOS	1.91	40.1	21	1.54	13,800	8,979

RC17	8/14/2019	8/14/2019	
	Surface Water	Foam	EF
PFBA	0.194 J	< 8	-
PFOA	0.095	3.75	39
PFBS	0.00524	< 2	-
PFHxS	0.0121	< 2	-
PFOS	0.702	2,750	3,919

# PFAS-Containing Foam Locations

# Wisconsin's PFAS Foam Experience



PFAS foam  
on a large creek



PFAS foam  
on a large creek



PFAS foam in a  
drainage ditch



River with previously low  
level PFAS

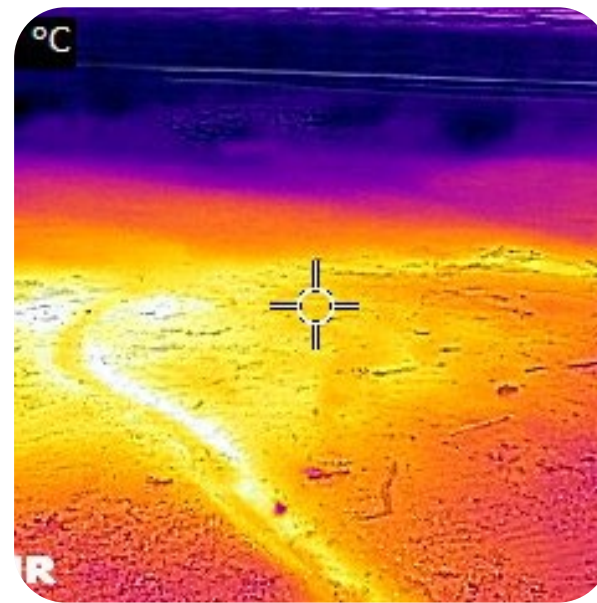
# Michigan's PFAS Foam Experience



Dock on a lake with nearby sources.



Frozen Foam



Infrared Camera imaging for source area seeps.



Frozen foam islands





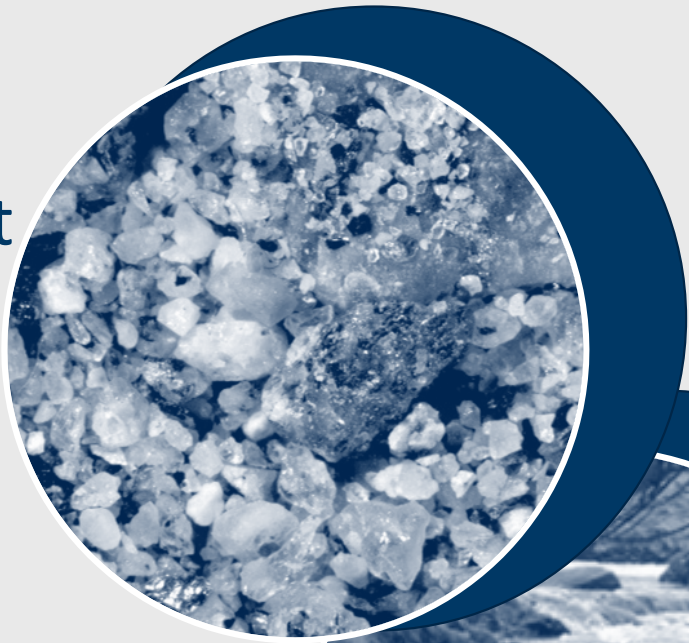
# PFAS Risk Assessment Values

# Human Health Concerns

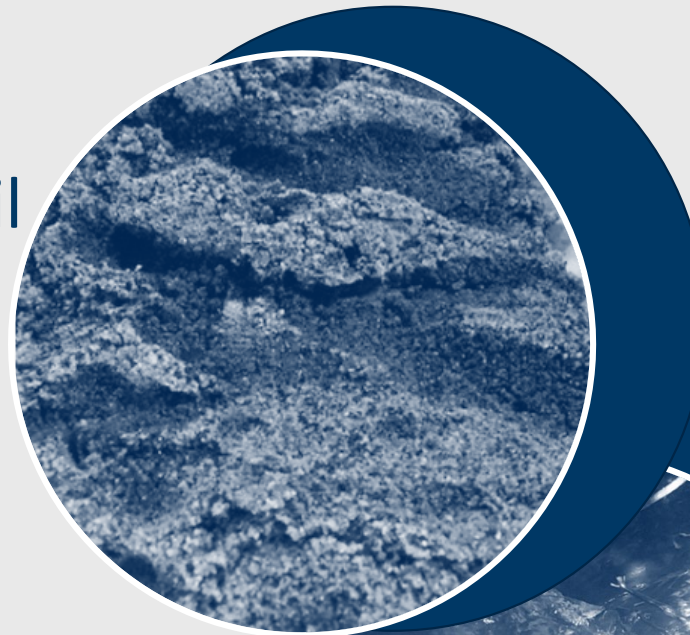
- People and pets should avoid contact with foam
- Wash skin/fur that has come into contact with suspected PFAS-containing foam with soap and water
- Surface water concentrations of PFAS are *much* lower, indicating water is safe for recreation
- Additional data will be collected
- MDH will conduct additional recreational risk assessment to verify these conclusions

# Non-Drinking Water Health Risk Values

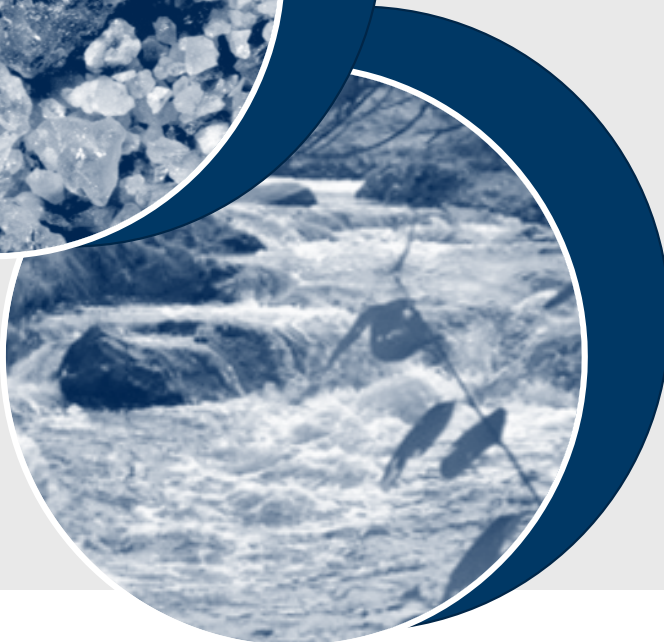
Sediment



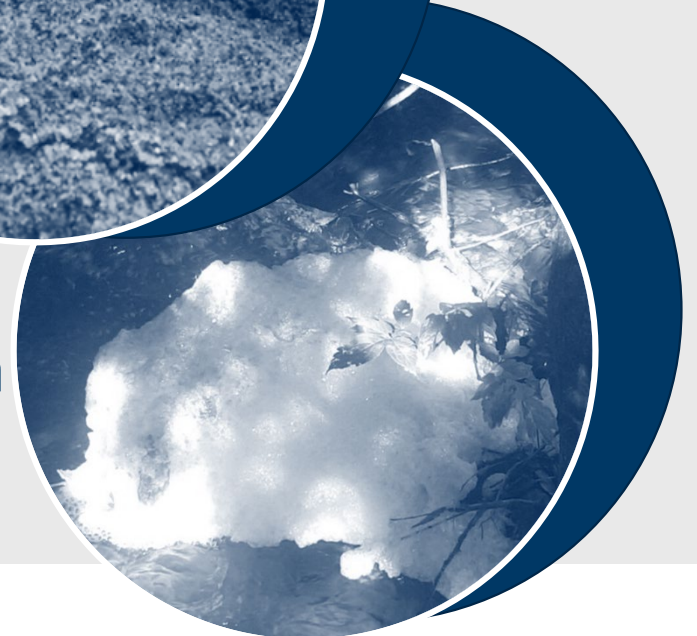
Soil



Surface Water



Foam



# NEXT STEPS

Investigating

Communicating

Coordinating

- Across programs/Agencies
- Appropriate Response Actions

Evaluating

- Oakdale Disposal Controls
- Health and Environmental Risks
  - Drinking Water, Groundwater, Ecosystem Receptors



# Conclusions

What has been completed in 1 year?

- ✓ Road Map for Comprehensive Investigation
- ✓ First Phase Complete
- ✓ Second Phase In-Progress

Investigation continues through 2021

Complex problem – no easy fix to forever chemicals

PFAS-containing foam can be found in PFAS-impacted surface water

People and pets should avoid foam

# Thank you

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