

Update of Project 1007 and Summary of Near-Term Activities

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Project 1007 within the 3M Settlement

3M Settlement – Included in Priority 1:

“The MPCA shall conduct a source assessment and feasibility study regarding the role of the Valley Branch Watershed District's project known as Project 1007 in the conveyance of PFCs in the environment.”

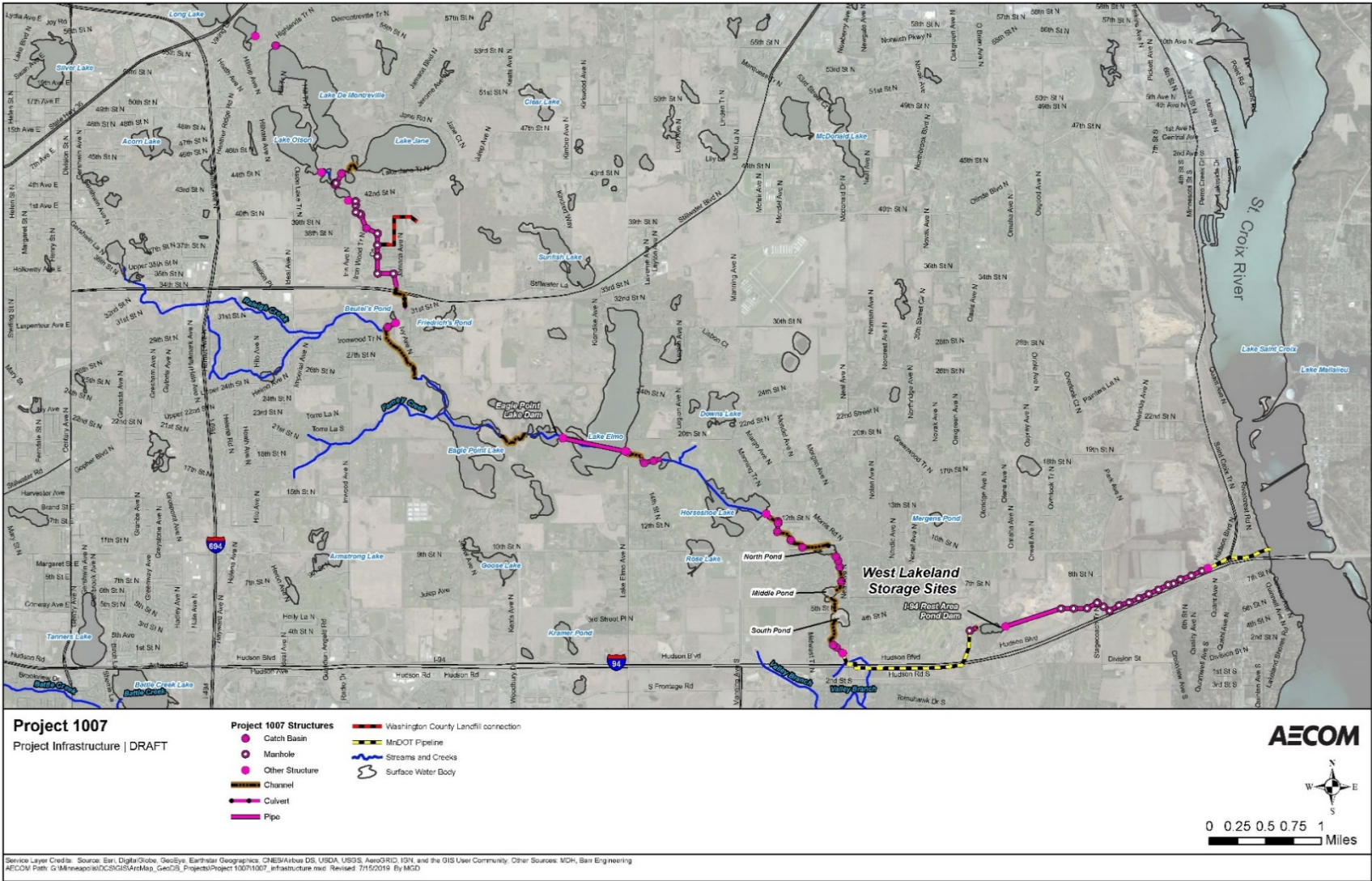
Agenda:

- Project 1007 Background and History
- PFAS Inventory Near Project 1007
- Project 1007 Source Assessment Approach
- Source Assessment Description

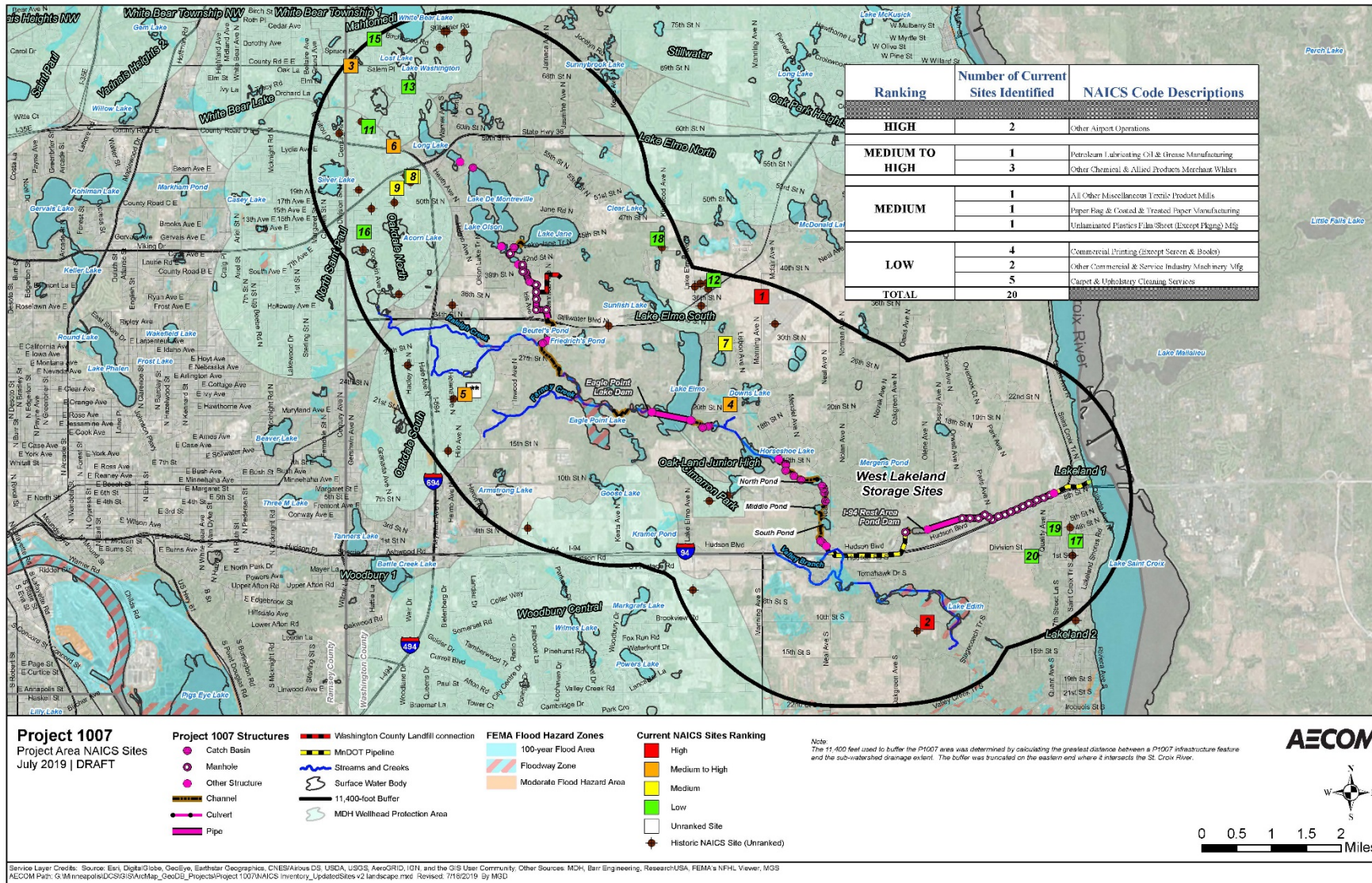
Project 1007 Background and History

- Completed in 1987 as a Flood Control System for the Tri-Lakes Area (Lakes Jane, Olson, and DeMontreville) of the Valley Branch Watershed District
- System of Storm Water Pipes, Open Channels, Catchbasins, and 2 Dams to Direct Water Flow from Tri-Lakes to St. Croix River
- Project 1007 Also Utilizes a Number of Surface Water Bodies (Lakes and Creeks) to Connect to provide an outlet of Tri-Lakes Surface Water to the St. Croix River
- From 1988 to the Early 1990s, Untreated Water from a Gradient Control Well at the Washington County Landfill Discharged to Project 1007
- Raleigh Creek, which Flows Through the Former 3M Oakdale Disposal Site is Used to Direct Tri-Lakes Surface Water Flow as Part of Project 1007

Project 1007 Configuration

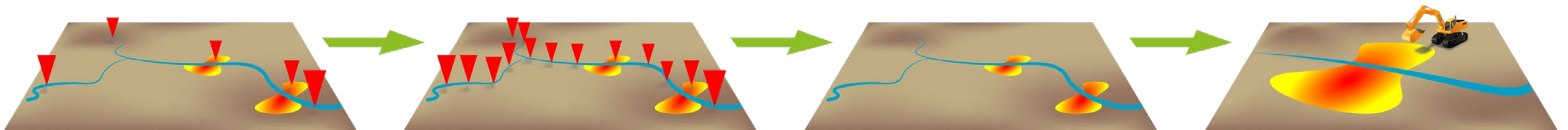


PFAS Inventory Near Project 1007



Source Assessment Approach

- Systematically Obtain/Assess/Evaluate Field Data as the Foundation for Future Remedy
 - Strong evidence of PFAS impacts in drinking water aquifer and public and private wells
 - Lack of evidence of how and where PFAS migrated to the drinking water aquifers – Key to Remedy Selection/Implementation
- Establish How, Where, and Why Surface Water is Interacting with Groundwater – Step-wise Approach
 - Baseline & Follow-up SW and Sediment Sampling
 - Beta Test Site Investigation
 - Focused Investigations using Tools/Methods Refined during Beta Test Site Activities
 - 3-D Environmental Visualization System (3D EVS)
 - GW-Surface Water Interaction Model (GSI Model)
- Investigation Results and Predictive Models Will Be Used to Evaluate Remedies
 - Use predictive modeling in conjunction with and in place of sample/data collection to fill-in data gaps



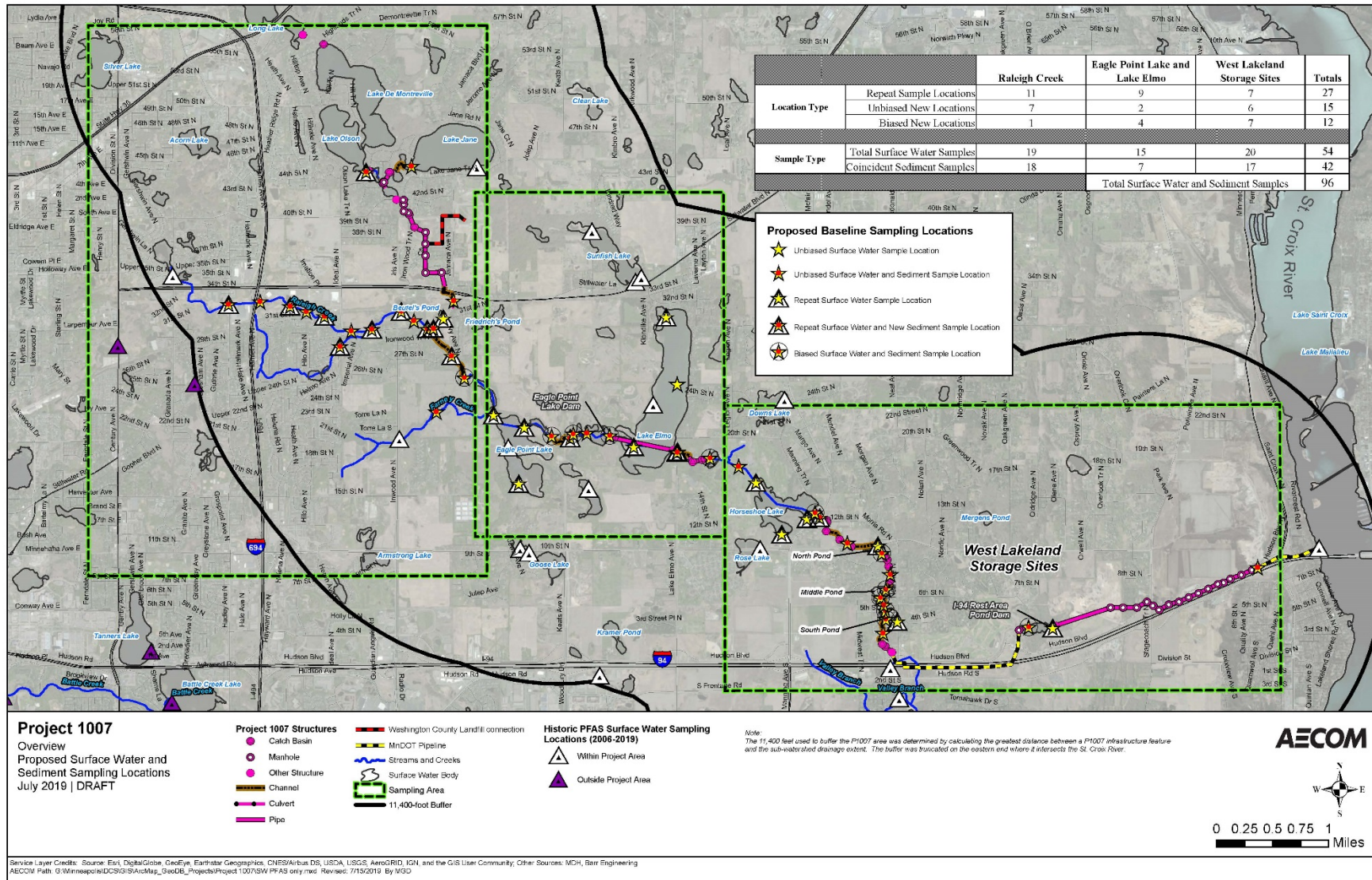
Conceptual Schedule

	CY2019 Q3	CY2019 Q4	CY2020 Q1	CY2020 Q2	CY2020 Q3	CY2020 Q4
Baseline Sampling - Planning	■					
Baseline Sampling - Implementation	■					
Baseline Sampling - Followup Sampling		■	■	■		
Beta Test Site - Planning	■					
Beta Test Site - Implementation		■				
Beta Test Site - Data and Methods Eval		■	■			
Focused Investigations - Planning			■			
Focused Investigations - Implementation				■	■	
Focused Investigations - Data Evaluation				■	■	
GSI Model Development		■	■	■	■	■

Baseline SW and Sediment Sampling

- Start this Summer with Follow-up Events as Needed
- Initial Event
 - Complete over a 1-Week Span to Address Temporal Variation
 - Biased (MDH Locations/Other Key Locations) and Unbiased (Good Spread) Locations
 - Parameters: PFAS, Remediation-Based Water Quality Parameters, Flow,
- Follow-up Events
 - Sediment from Lakes this Winter
 - Different Seasons and Flow Conditions

Baseline Sampling Map

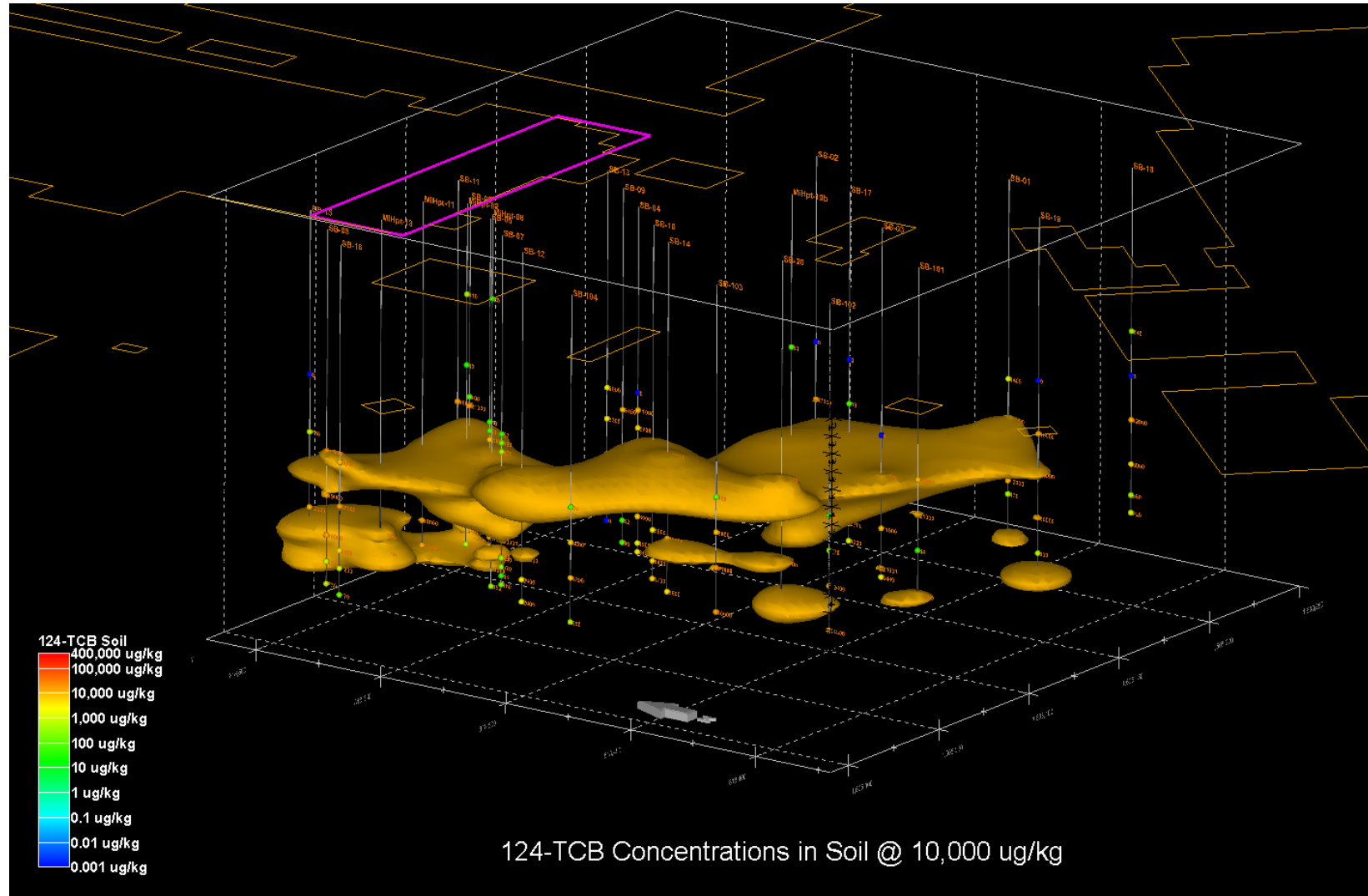


Beta Test Site Investigation

- Select a Area Where Investigation Tools and Methods can be Tested
 - A high interest area where PFAS GW impacts have been previously detected
- High Density Data Collection
- Employ a Variety of Investigation Techniques
 - Evaluate which tools and methods are most effective for the focused investigations
 - Eliminate testing methods that proved unnecessary

3D-Environmental Visualization System – 3D EVS

- High Quality Visual Representation of PFAS Distribution
- Communicate Complex Data in Easily Understood Format
- Assist in Focusing Efforts for Future Sampling
- Assist in Future Remediation Decisions



- Develop Conceptual Understanding of
 - Water Budget
 - Potential Preferential Flow Paths
 - Identify High-Value Sampling Areas
 - Assist in Identifying:
 - Surface Water → Shallow GW → Deep GW → Bedrock Aquifers
- Assist in Focusing Future Sampling Locations
- Assist in Future Remediation Decisions
- Predictive Modeling Component

Feasibility Study

- Detailed Evaluation Alternative Remedial Actions, Typically Includes:
 - Developing list of alternatives
 - Screening the alternatives
 - Treatability Testing: Bench-scale and field pilot scale
 - Tool used to analyze and select preferred alternative
 - Criteria used in the alternative selection process:
 - Overall protection for public health and the environment
 - Long-term effectiveness
 - Implementability
 - Short-term risks
 - Total costs
 - Community acceptance

Questions?

