

AGENDA



Welcome, Introductions, & Meeting Purpose
(10 min)



Project Overview
Objectives
Project Phases
Recommendations
(30 min)



Open Discussion, Q&A
(80 min)



INTRODUCTIONS

- **Patti McCall, Presenter**
 - Hydrogeologist with Tetra Tech
 - 18 years experience
- **Brian Steglitz, Presenter**
 - Water Treatment Services Manager, City of Ann Arbor
 - 22 years with City of Ann Arbor
- **Kayla Coleman, Facilitator**
 - Community Engagement Specialist
 - 9 years with City of Ann Arbor

WHY ARE WE HERE?



Graphic source: vecteezy.com

- Ensure the safety of the public drinking water supply through locating and installing sentinel monitoring wells



DISCUSSION GUIDELINES

- Be recognized to talk.
- Speak loudly and clearly so everyone can hear.
- One speaker and one point at a time.
- Allow everyone a chance to speak before a repeat speaker.
- Be respectful of other ideas and perspectives.



DEFINITIONS

- 1,4-Dioxane –
 - Groundwater contaminant
 - Industrial solvent disposal 1966 to 1986
- Gelman Plume –
 - Manufacturer of medical and environmental filters
 - 850,000 pounds of 1,4-dioxane between 1966 and 1986
- Sentinel well
 - Monitoring well strategically located
 - Early warning for contamination migrating toward Barton Pond



WHAT'S NOT ON TONIGHT'S AGENDA:

- Consent Judgment
- Near-surface Groundwater and Basement Sampling
- Superfund Discussion
- Impacts to Scio Township

OVERVIEW

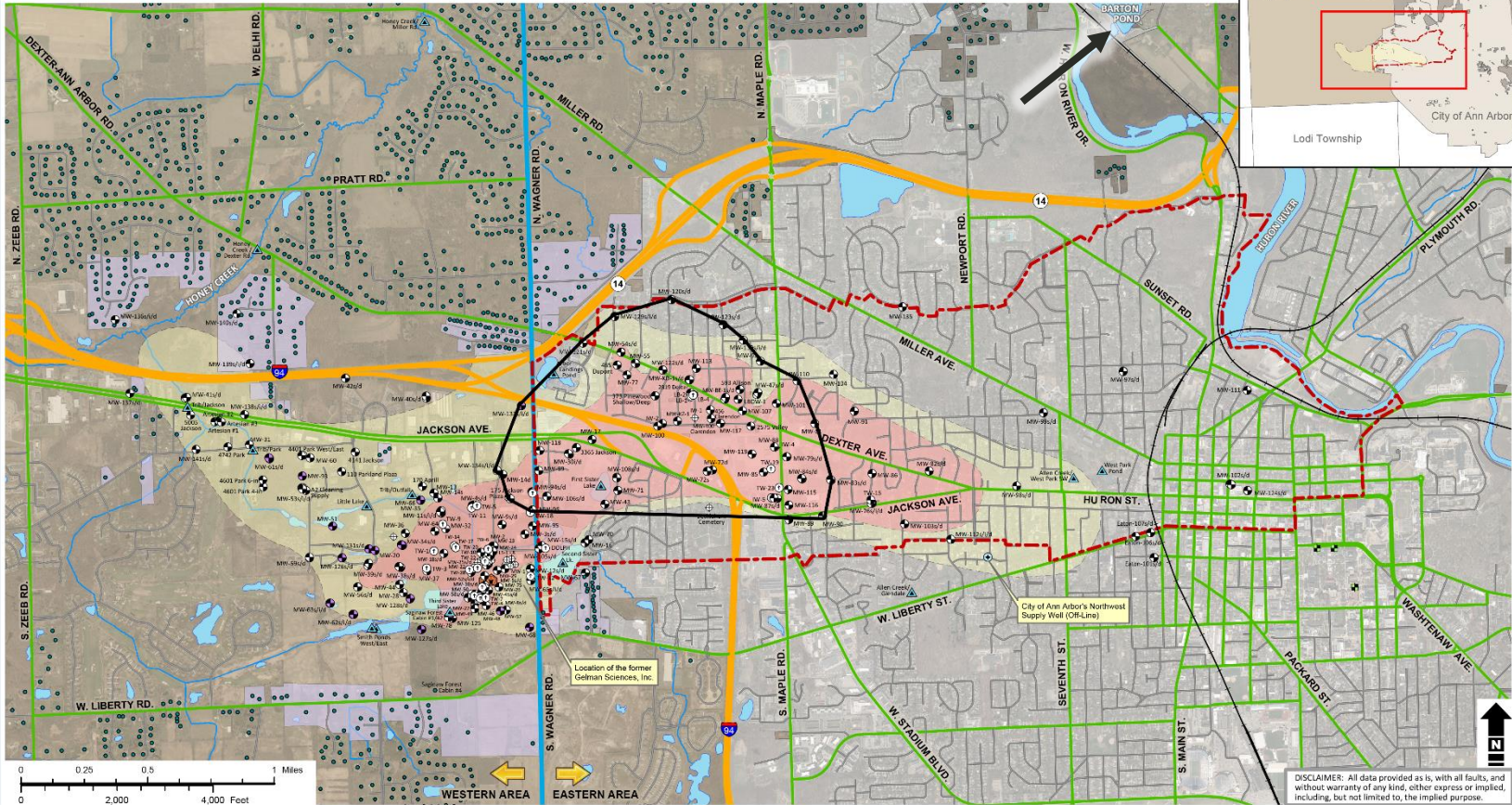
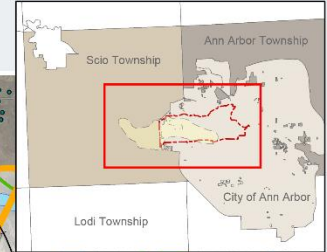
- Background Information
- Project Phases
- Recommendations
- Next Steps
- Questions



BACKGROUND INFORMATION



GELMAN SCIENCES, INC. 1,4-DIOXANE GROUNDWATER PLUME, Well Locations, and Groundwater Use Prohibition Zone (PZ) Washtenaw County, Michigan



- KEY**
- Monitoring Well
 - Compliance Monitoring Well
 - Extraction Well
 - Miscellaneous Well
 - Surface Water Sampling Location
 - U of M Research Water Supply Well
 - Drinking Water Well Sampling, 2014-Present
 - Groundwater Use Prohibition Zone

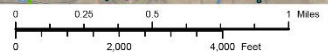
- Estimated Plume* (>85 ppb)
- Estimated Plume* (>1 ppb)
- Drinking Water Well
- Treatment System

* A plume is a 3-dimensional distribution of contaminants in groundwater. Plume shape is affected by source spreading, geology, hydrology, and biological activities. The estimated plume boundaries on this 2-dimensional map are unable to show the depth to contamination or thickness of the contaminated zone.

DISCLAIMER: All data provided as is, with all faults, and without warranty of any kind, other express or implied, including, but not limited to, the implied purpose.

MAP PRODUCED BY:
Washtenaw County Health Department
Environmental Health Division
Washtenaw County, Michigan
Revised 2019

SOURCES:
MIGDL, Michigan Dept. Env. Quality (MDEQ)
Database, Washtenaw County GIS



WESTERN AREA EASTERN AREA



PROJECT PHASES

Data Collection

Public Engagement
July-December

PHASE ONE



July

Public Engagement

Sample Collection

3-D Modeling

PHASE TWO



August

Public Engagement

Sample Collection

Independent Review

PHASE THREE



September

Public Engagement

Sample Collection

Sample Collection

PHASE FOUR



July-November

Public Engagement

Well Location Recommendations

PHASE FIVE



December

Public Engagement

Public Engagement

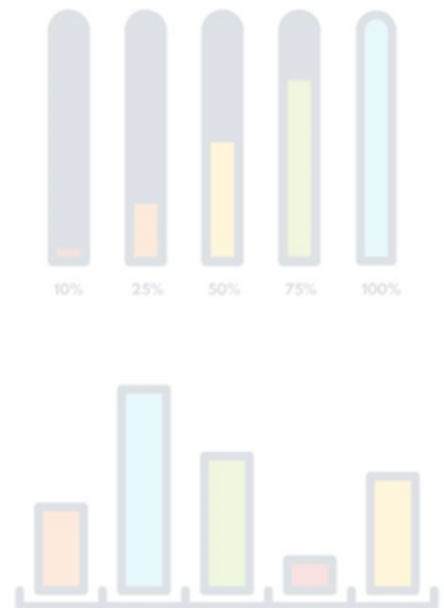
PHASE SIX



July-December

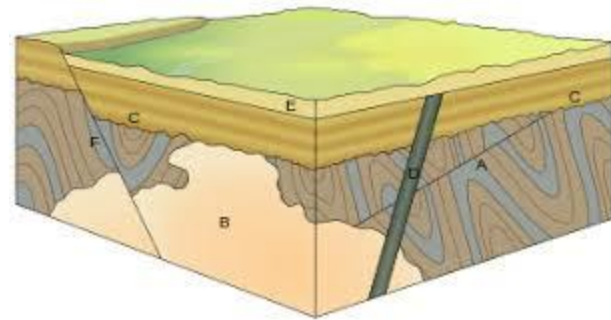
PHASE 1: Data Collection

- Determine spatial parameters
- Monitoring well network
- Geology
- Elevation data
 - Wells
 - Surface topography
- 1,4-dioxane concentration data
- Stakeholder engagement for data
 - Roger Rayle - Coalition for Action on Remediation of Dioxane (CARD); Scio Residents for Safe Water (SRSW)
 - Michigan Department of Environment, Great Lakes and Energy (EGLE)
 - Fleis and Vanderbrink



PHASE 2: 3-Dimensional Model

- 3-Dimensional Model Features
 - ✓ Deterministic
 - ✓ Snapshot in time
 - ✓ Cross-sectional views
 - ✓ Kriging

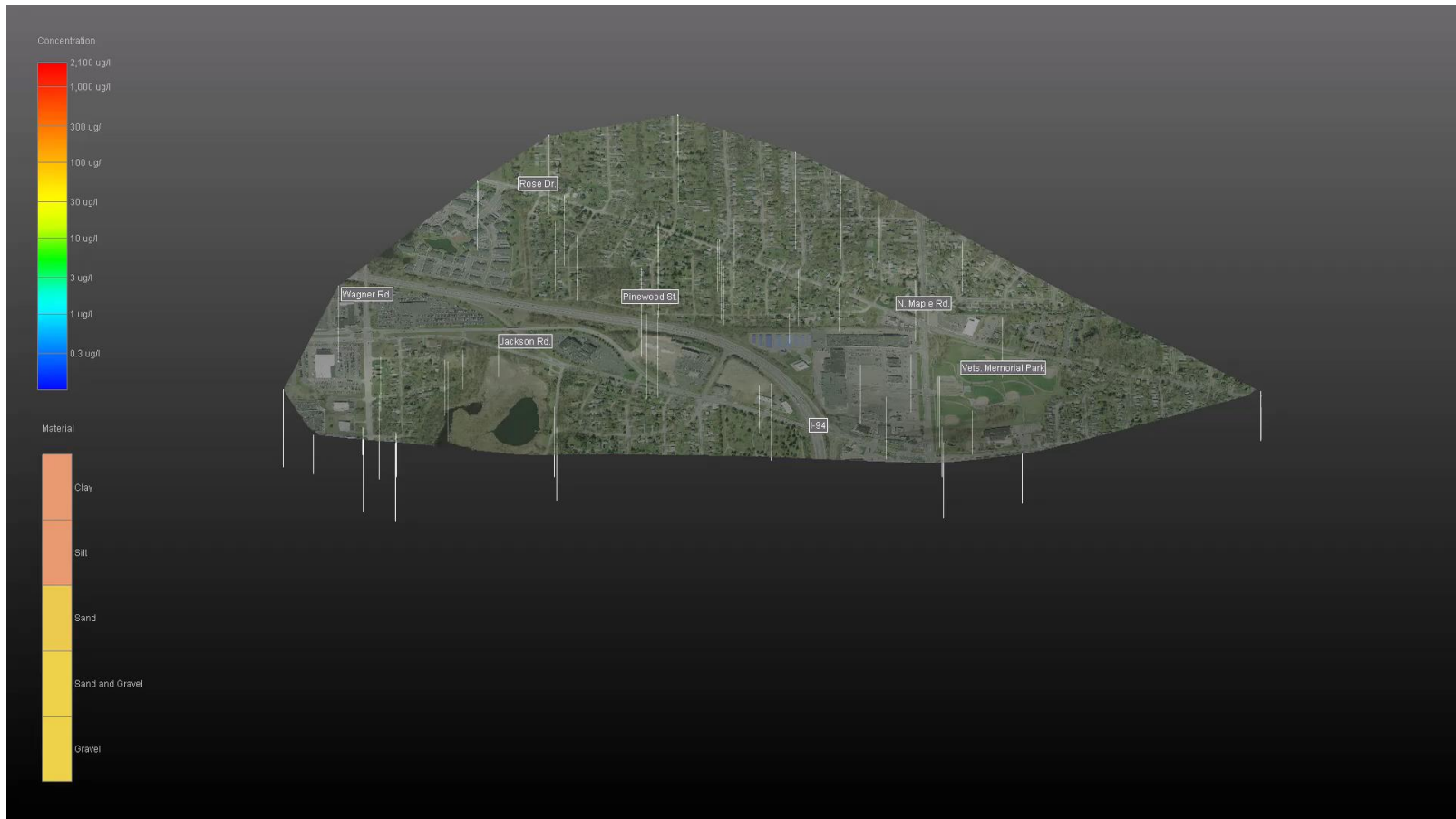


PHASE 2: 3-Dimensional Model

- Model restraints
 - Geology is generalized by kriging
 - Large gaps in physical space
 - No data to the north to extrapolate



PHASE 2: 3-Dimensional Model





PHASE 3: Independent Review

- Dr. Larry Lemke – Hydrogeologist and Environmental Engineer
- Current Department Chair of Earth & Atmospheric Sciences Institute for Great Lakes Research at Central Michigan University
- Institutional Knowledge
 - Modeling
 - Graduate Students

PHASE 4: Sample Collection – NOT COMPLETED

- Split sample request for 10 monitoring wells

- MW-54d
- MW-120s/d
- MW-121s
- MW-123s/d
- MW-129i/d
- MW-130i/d



- Method 522 Analysis – low level
- Did not impact ability to determine well locations

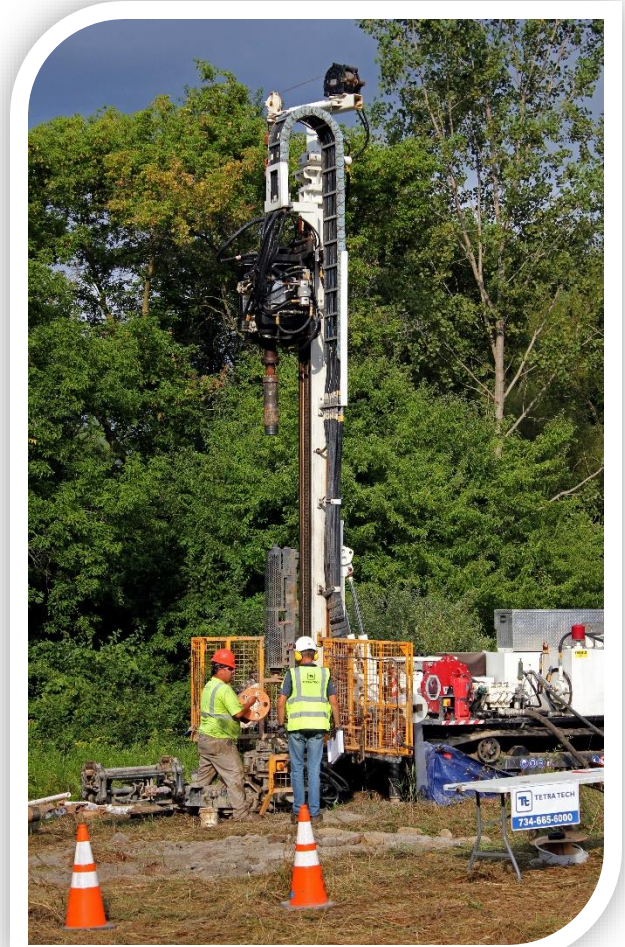


PHASE 5: Well Location Recommendations

- Considerations for well locations
 - Geology
 - Groundwater flow
 - Surface topography
 - 1,4-dioxane concentrations

PHASE 5: Well Location Recommendations

- Final locations will consider
 - City right-of-way
 - City owned property
 - Adaptability based on information during installation

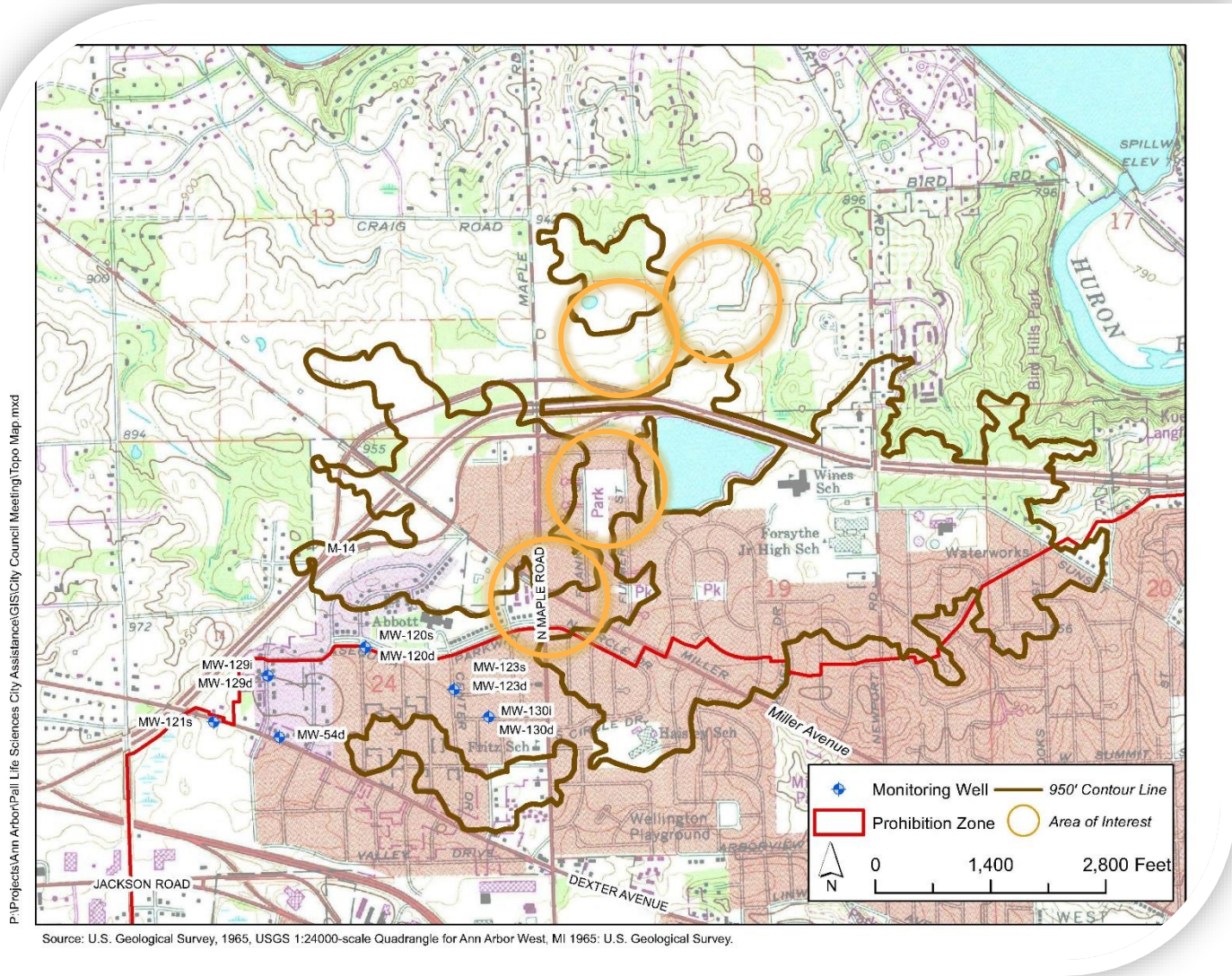


PHASE 5: RECOMMENDATIONS



- Installation of 3 or 4 Nested monitoring well sets
- Elevation data
- Static water levels
- Sampling with lower detection
 - Current detection: 1 ppb
 - Method 522: 0.07 ppb
- Complete aquifer analyses
 - Speed limit
 - Gradient
 - Direction
- Time Estimates

PHASE 5: Well Location Recommendations



PHASE 6: Public Engagement



Graphic source: vecteezy.com

- City of Ann Arbor Water Treatment Plant monthly submittals of 2019
Timeline: Monitoring Well Location Study for the Gelman Plume
- CARD monthly meeting attendance
- CARD Quarterly meeting presentation November 5th
- EGLE communication



NEXT STEPS

- Present recommendations to City Council
- Cost for model development and monitoring well location recommendations: \$29K
- Estimated cost for well installations: \$400K
- Schedule: Construct wells in 2021 – 2022

QUESTIONS



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