

Former Tronox/Kerr-McGee Facility

Community Update

Springfield, Missouri

February 22, 2023



Meeting Agenda

- ✓ Introductions and Multistate Trust Overview
- ✓ Site Overview
- ✓ Overview of Past Investigations and Results
- ✓ Current Investigations, Ongoing Remedial Actions and Next Steps
- ✓ Opportunities for Community Input



Introductions and Multistate Trust Overview

Tasha Lewis, Multistate Trust



Introductions

- ✓ Multistate Trust
- ✓ Missouri Department of Natural Resources (MoDNR)
- ✓ Environmental Works Inc. (EWI)



Tronox Tort Claims Trust

The Multistate Trust Cannot Pay Personal Injury or Property Damage Claims

The Multistate Trust was created to own and clean up contamination at many former Tronox/Kerr-McGee sites, including the Facility in Springfield.

Multistate Trust funds can be used **only** for cleanup, Facility management, and property reuse planning activities.

Multistate Trust funds cannot be used to pay personal injury claims, such as health and medical bills, or property damage claims.

If you have questions about personal injury or property damage claims, you should contact the Tronox Tort Claims Trust at (800) 753-2480 or tronoxtrust@epiqglobal.com.
Visit www.tronoxtrust.com.



Introduction to the Multistate Trust

Multistate Trust is a Private Entity with a Public Purpose

- ✓ Protect human health and environment
- ✓ Proactively engage stakeholders on plans
- ✓ Contribute to community by striving for community-supported site reuses (jobs, taxes and community assets) and local contracting, where possible

Multistate Trust Responsibilities

- ✓ Take title to many former Tronox/Kerr-McGee sites
- ✓ Hold/manage funds earmarked for cleanup of each site
- ✓ Cost effectively and efficiently clean up sites pursuant to Lead Agency-approved budgets and cleanup plans, and in compliance with all laws and regulations
- ✓ Fulfill fiduciary duties to Multistate Trust Beneficiaries – United States and States
- ✓ Subject to Beneficiary approval, transfer/sell sites



MoDNR is the Lead Agency for the Site

- ✓ Responsibilities include:
 - Approving and overseeing Environmental Actions at the Site, including investigations and cleanup plans
 - Approving Multistate Trust-proposed annual Environmental Cost Account (ECA) Budgets
 - Approving environmental contractors recommended by the Multistate Trust
 - Approving Multistate Trust-proposed property sales, transfers, and dispositions



Site Overview

Tasha Lewis, Multistate Trust



Site Overview



Wood Treating Operations Timeline

- ✓ 1907 to 1964: American Creosote Corp.
- ✓ 1964: Kerr-McGee purchased property
- ✓ 2004: Facility decommissioned

Basic Information

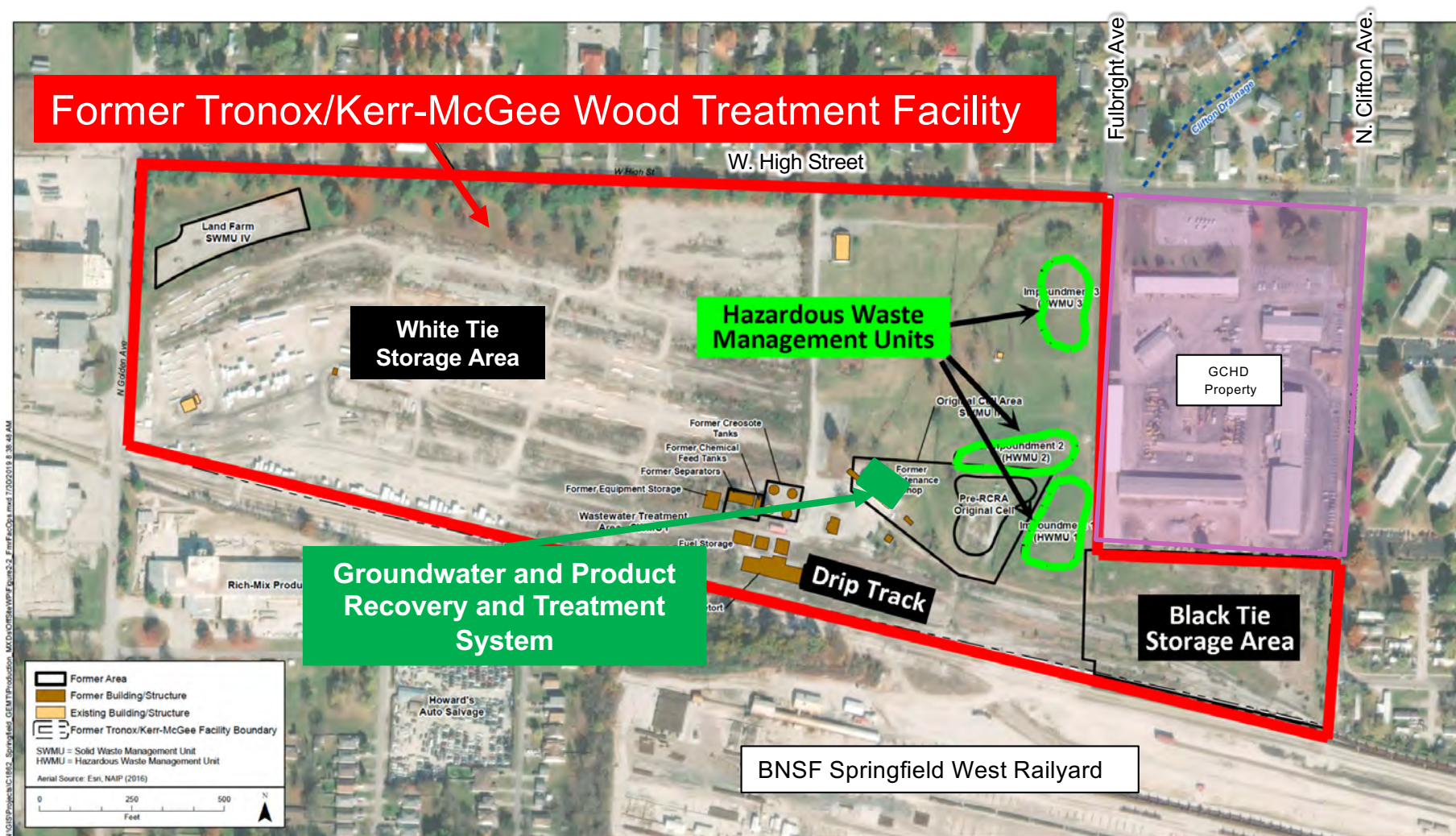
- ✓ 68 acres
- ✓ Contaminants:
 - Volatile Organic Compounds (VOCs) (Benzene, Toluene, Ethylene, Xylenes)
 - Semi-volatile Organic Compounds (SVOCs, including Naphthalene)
- ✓ Program: Resource Conservation and Recovery Act (RCRA) Post Closure Care (PCC)
- ✓ Permits:
 - Missouri Hazardous Waste Management Facility (MHWMF) Part I
 - Missouri State Operating Permit (MSOP)
 - Wastewater Contribution Permit

Funding

- ✓ Initial Funds (2011): \$2 million
- ✓ Additional Funds (2015/2016): \$22.7 million
- ✓ Total Cleanup Funds: \$24.7 million
- ✓ Estimated YE-2022: ±14 million



Historic Wood Treating Operations



Site Historical Aerial Photographs



Environmental Concerns

- ✓ Naphthalene in groundwater detected ± 0.4 -miles northeast of the Facility
- ✓ Woodlawn Spring shows periodic discharge of weathered creosote
- ✓ Golden Hills Detention Basin (near Woodlawn Spring) is a concern to the nearby residents and City of Springfield
- ✓ ± 50 residences located northeast of the Facility (i.e., Clifton Drainage area)
- ✓ Residential yards near the northeast portion of the Facility may have shallow contamination (investigation is ongoing)
- ✓ Surface Drainage Ditch (Clifton) conveys potentially groundwater mixed with surface water during major storm events
- ✓ Nearby subsurface soil may present a potentially unacceptable risk of exposure to off-Facility utility/construction (implement Utility Caution Protocol)
- ✓ Proximity of the contaminated groundwater to private/domestic water wells (± 0.5 mile from the Facility; samples have been collected to verify that Facility-related contamination **are not** above the groundwater protection standards)
- ✓ Potential to impact the public water supply due to highly complex geology



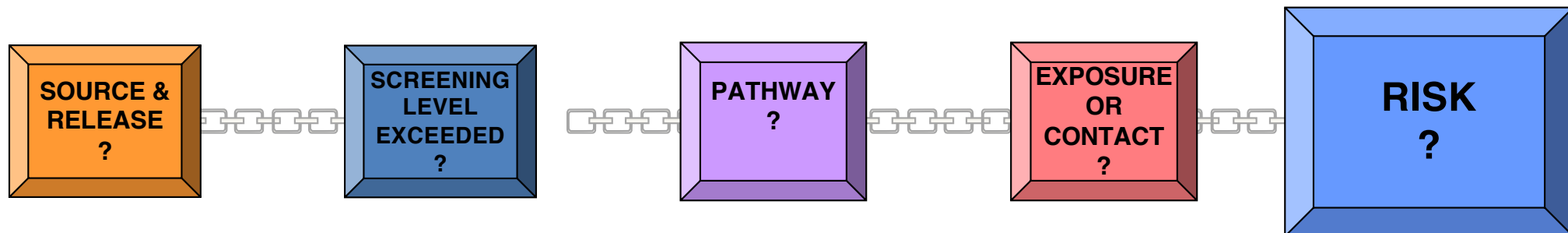
Priority is Protecting the Community

- ✓ Continued operation of a treatment system to capture contaminated groundwater and recover DNAPL (as creosote) (groundwater corrective action)
- ✓ Continued Post-Closure Care of hazardous waste management units (HWMUs) and Land Farm
- ✓ Continued routine groundwater sampling
- ✓ Focused investigations off-Facility



How Do We Identify Potential Risk?

1. Identify potential sources and releases to environment
2. Sample soil, groundwater, surface water and air
 - Are chemicals present at concentrations above screening levels?
 - Is there a pathway for chemicals to move?
 - Can people come in contact with contaminated soil, groundwater or air?
3. There **is not** a potential risk unless all “links” of the chain are present.



Overview of Past Investigations and Results

Tasha Lewis, Multistate Trust



MoDNR and EPA Required Kerr-McGee (and later Tronox) to Perform Several Cleanup Actions

- ✓ Investigated on- and off-Facility soil and groundwater contamination, including Vich Spring and Woodlawn Spring
- ✓ Installation of groundwater monitoring wells and product recovery wells
- ✓ Excavated and disposed of contaminated soils
- ✓ Closed land farm treatment unit and 3 lagoons designated Hazardous Waste Management Units (HWMUs)



Treatment System Building

- ✓ Operation of a treatment system to capture contaminated groundwater and recover DNAPL (as creosote) (groundwater corrective action)
- ✓ Post-Closure Care of HWMUs and Land Farm
- ✓ Routine Groundwater Sampling

The Multistate Trust has continued these activities since 2011. As of December 2022:

- Recovered more than 6,000 gallons of creosote
- Treated/ discharged $\pm 81,000,000$ gallons of contaminated groundwater.

Environmental Actions Performed by Multistate Trust between 2013 and 2022

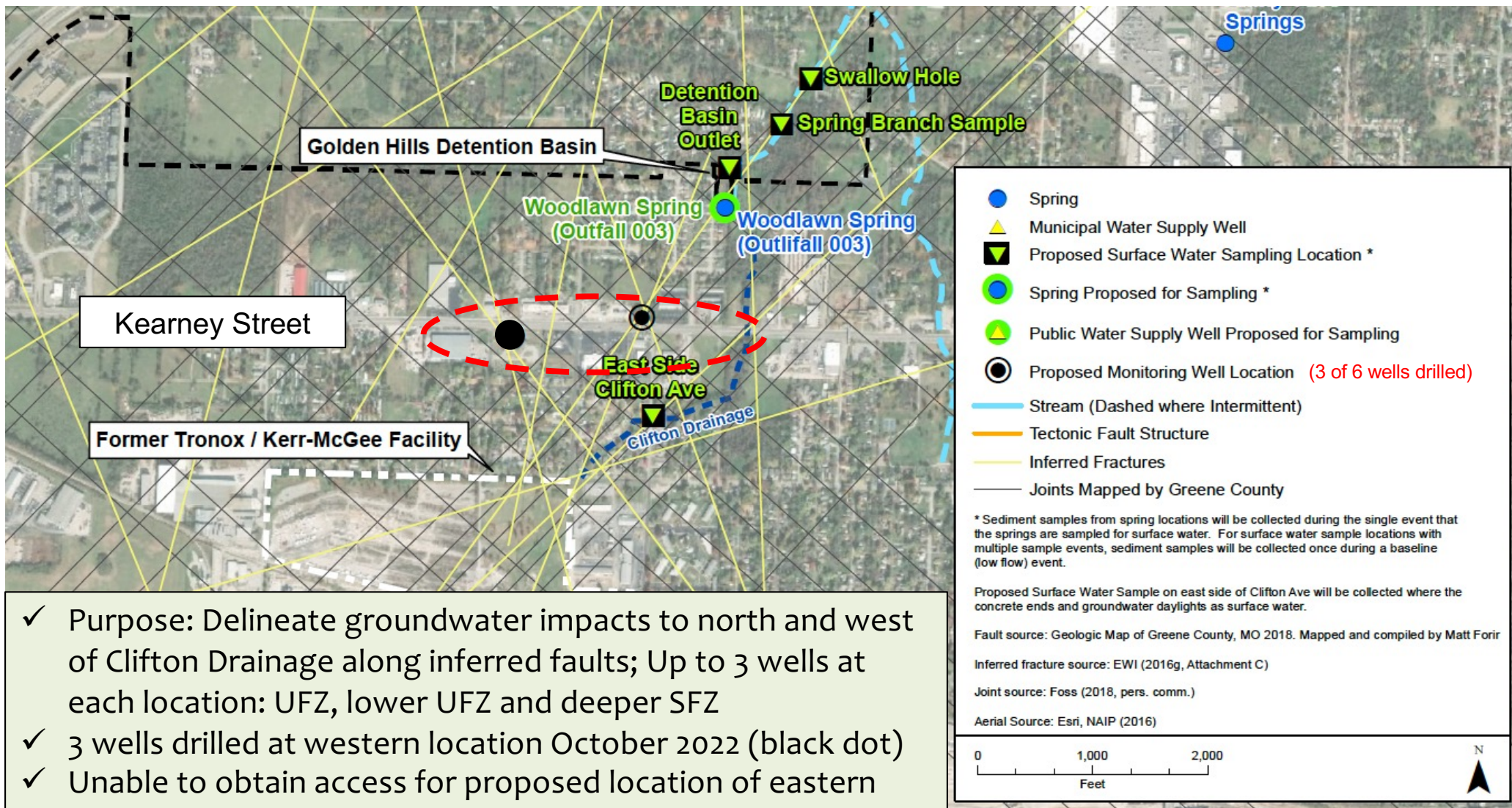
- ✓ 2013: Recovery Well Evaluation and Site-Wide Groundwater Monitoring Report
- ✓ 2016-2022: On- and Off-Facility site investigations (over 30 groundwater monitoring wells installed; 3 wells remain to be installed)
- ✓ 2017-Present: Residential property sampling (ongoing as requested by residents)
- ✓ 2017-Present: Vapor intrusion investigations (results shared with individual residents; sewer gas/water sampling ongoing)
- ✓ 2019-Present: Woodlawn Spring surface water sampling (ongoing)
- ✓ 2020-2021: Sewer Main Line and Facility Sewer Line Repairs
- ✓ 2020: Utility Caution Protocol
- ✓ 2021: Greene County Highway Department (GCHD) site investigation
- ✓ 2021: Domestic well sampling (results shared with individual residents)
- ✓ 2022: Public Water Supply Sampling (ongoing)
- ✓ 2022: Residential Soil ISM Work Plan Approval (implementation is in progress)

On- and Off-Facility Investigations

- ✓ Environmental investigations
 - Access agreements, planning, field work and reporting
 - Installation of on-Facility and off-Facility monitoring wells
 - Delineated on-Facility source material delineation
 - Initiated soil gas sampling and drove the development of Vapor Intrusion Investigation Work Plan
 - Installed over 30 wells
 - Collected more than 1000 samples



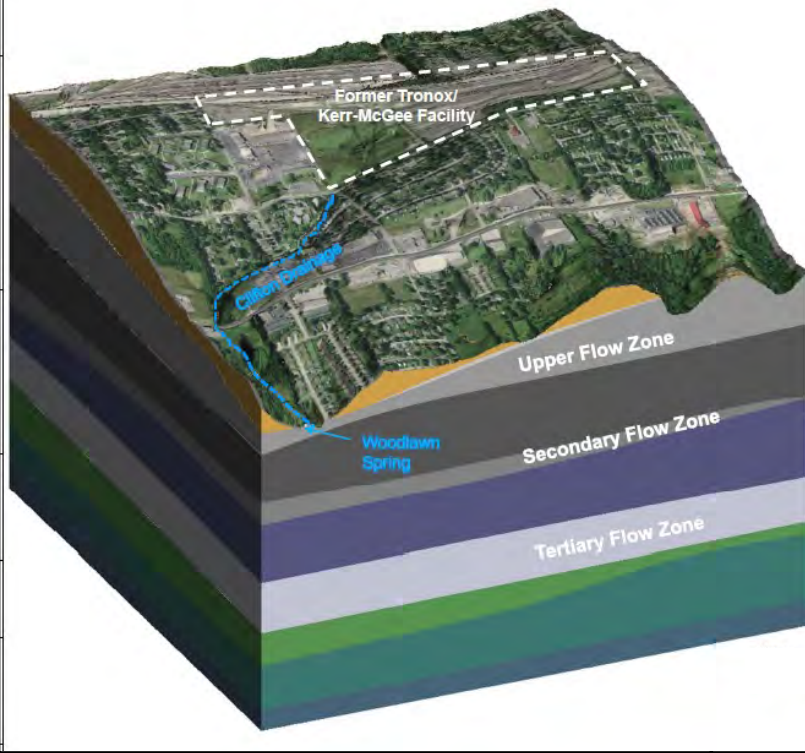
Groundwater Well Installation



- ✓ Purpose: Delineate groundwater impacts to north and west of Clifton Drainage along inferred faults; Up to 3 wells at each location: UFZ, lower UFZ and deeper SFZ
- ✓ 3 wells drilled at western location October 2022 (black dot)
- ✓ Unable to obtain access for proposed location of eastern wells; the team is currently considering other options



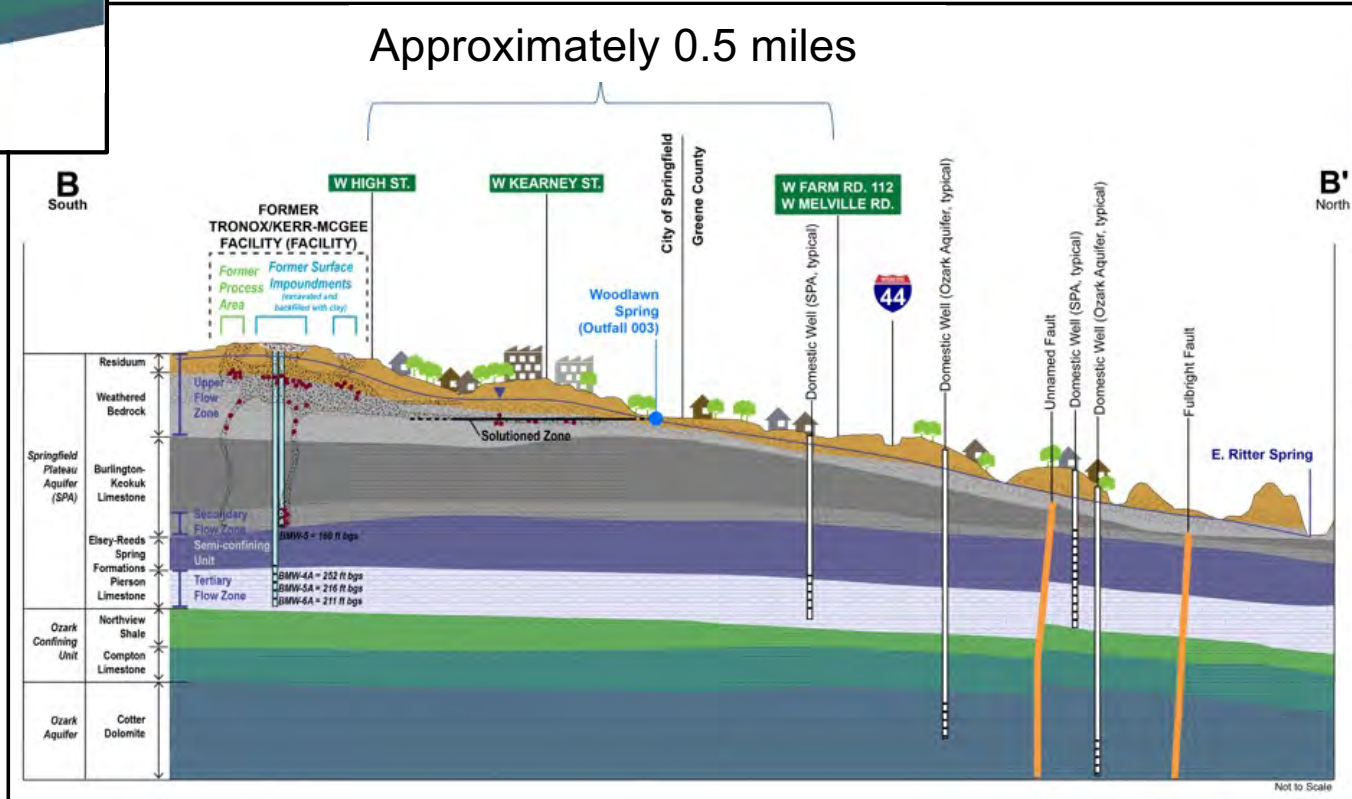
On- and Off-Facility Investigations



3-D Block Diagram showing regional geology

Regional Cross Section

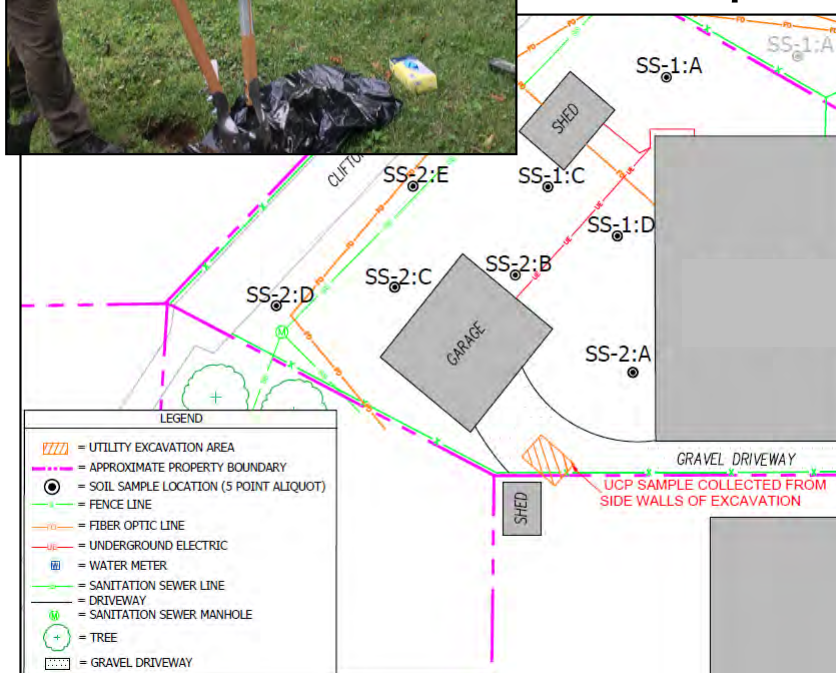
From Facility (on the right) to E. Ritter Spring (on the left).



Residential Property Sampling



- ✓ Conducted under MoDNR-approved *Residential Property Sampling Work Plan Version 3* (EWI, 2020)
- ✓ Work Plan provides a sampling and analysis approach to quickly mobilize a team to collect air, seep water and/or soil samples



Example diagram of soil sampling conducted in 2020

- ✓ Results compared to regulatory screening levels for residential use
 - Most sample results were non-detect or below screening levels
 - Some screening levels were exceeded for chemicals with other common sources such as BBQ/fire pits



Residential Property Sampling

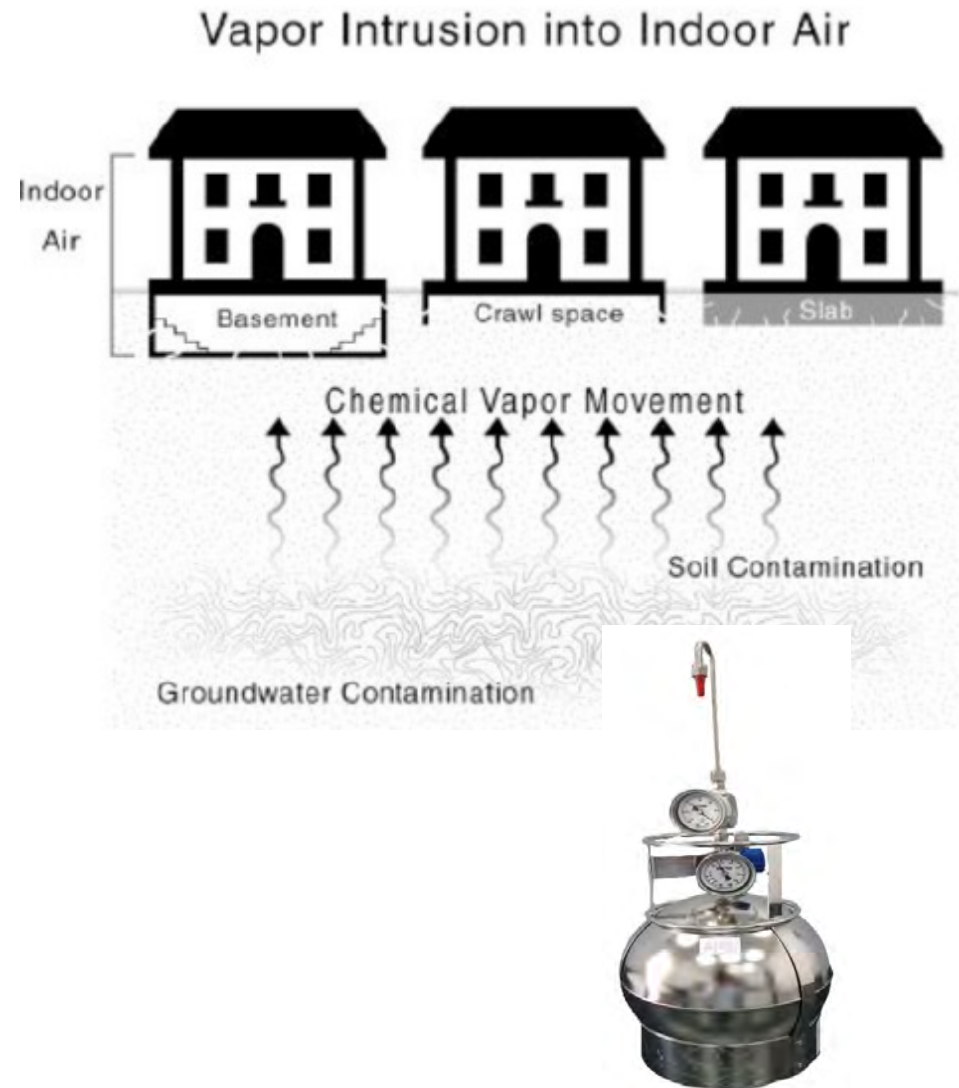
- ✓ Residents may contact the Multistate Trust for an evaluation to see if sampling is applicable
- ✓ You may report your odor concerns by using the MoDNR's online odor reporting form or by calling the Multistate Trust at [417-942-0190](tel:417-942-0190).

<https://dnr.mo.gov/waste-recycling/sites-regulated-facilities/hazardous-waste-treatment-storage-disposal-tsd/mod007129406/odor-complaint-form>

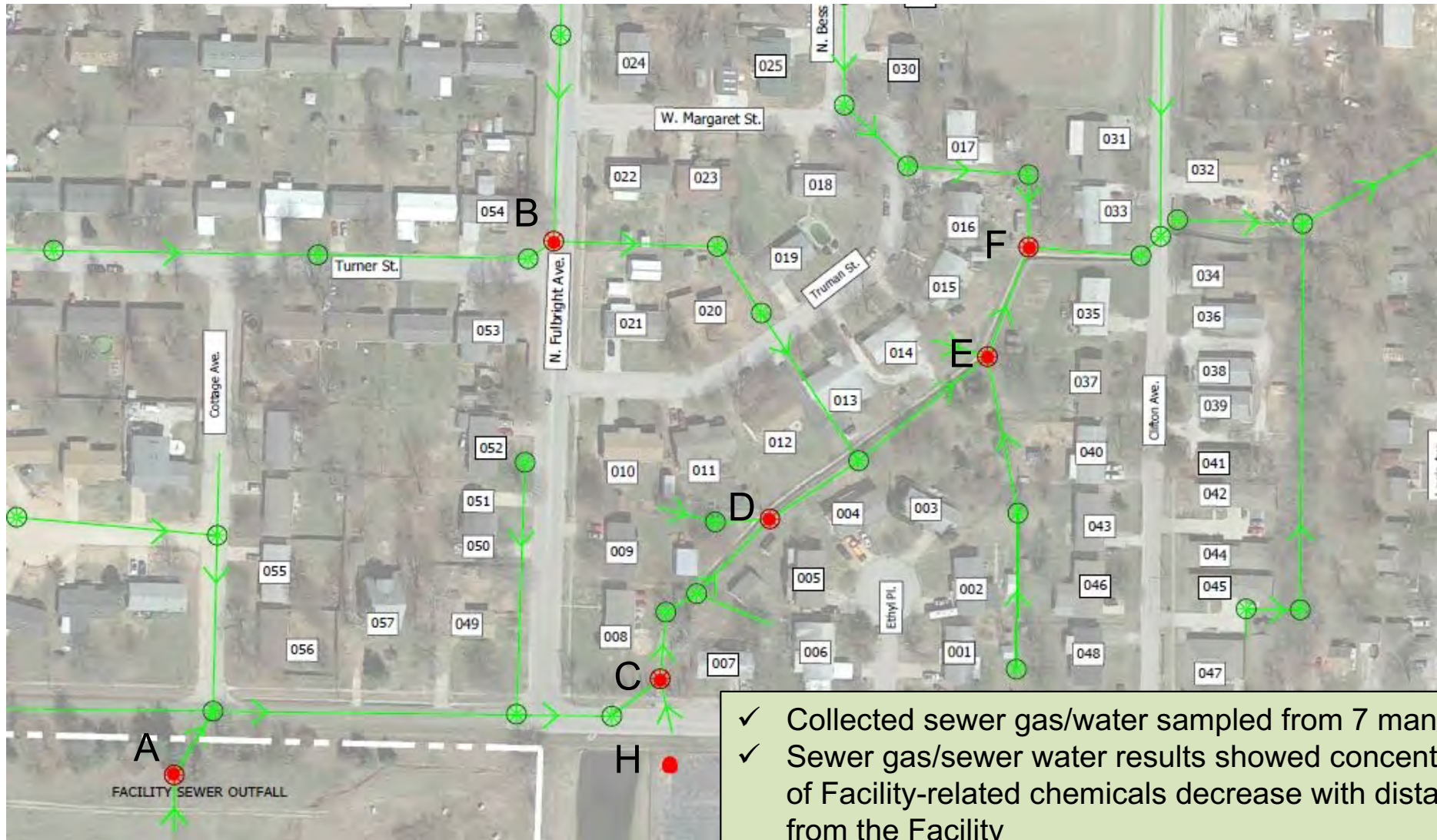


Vapor Intrusion Investigation

- ✓ Sampled homes located to the northeast of the Facility
- ✓ Collected air samples:
 - Below slabs, in crawlspaces and in sumps
 - Indoors, in garages, basements and main floors
 - Outside houses
- ✓ Evaluated seasonal differences (warm season, heating season, high water level)
- ✓ Results letters were provided to each property owner
- ✓ Results indicated that vapor intrusion was not occurring into the homes that were sampled

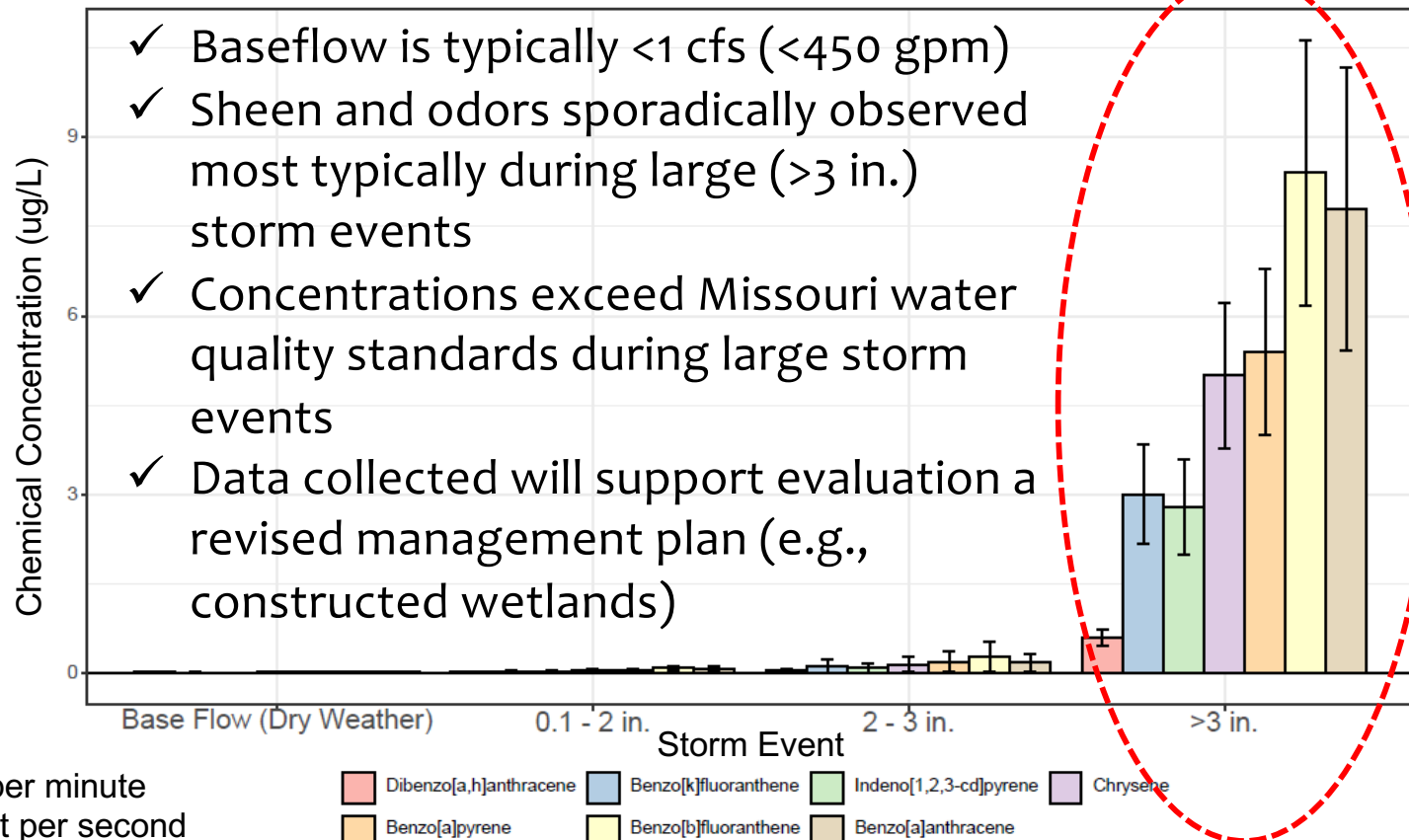


Vapor Intrusion Investigation (Sewer Gas/Sewer Water Sampling Locations)



Woodlawn Spring/Outfall 003 Sampling and Key Findings

- ✓ Woodlawn Spring/Outfall 003 surface water sampling (based on rainfall) collected between April 2019 and January 2023 (ongoing)
 - 0.1 in. or less over a 24-hr. period (base flow)
 - 0.1 in. to 2 in. over a 24-hr. period
 - 2 in. to 3 in. over a 24-hr. period
 - >3 in. over a 24-hr. period



Surface Water, Springs and Sediment Sampling

✓ In addition to sampling at Woodlawn Spring/Outfall 003 and the GHDB Discharge, 6 additional surface water locations are targeted for sampling

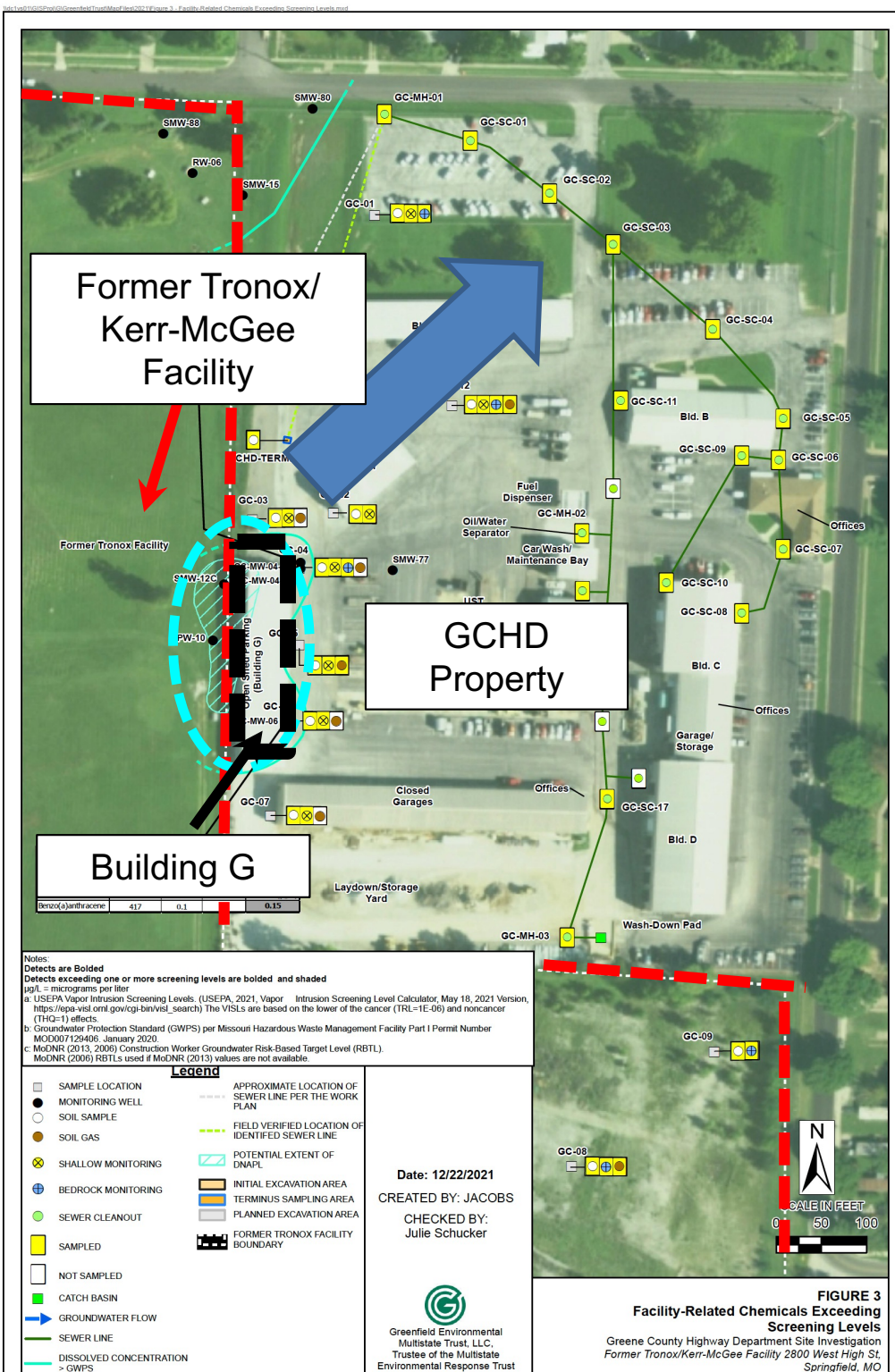
- Spring Branch (north of GHDB and south of “Swallow Hole” location off Melville Road)
- Clifton Drainage east of N. Clifton Ave (east of concrete portion of drainage feature)
- Swallow Hole (AKA West Fork Spring Branch)
- East Ritter Spring
- West Ritter Spring
- Ritter Park Spring

Access was obtained and initial sampling was conducted from all locations in 2022. COCs were not detected above applicable Missouri water quality standards in Swallow Hole location downstream of GHDB under baseflow conditions. Sampling will be continued in 2023.



Greene County Highway Department (GCHD) Site Investigation

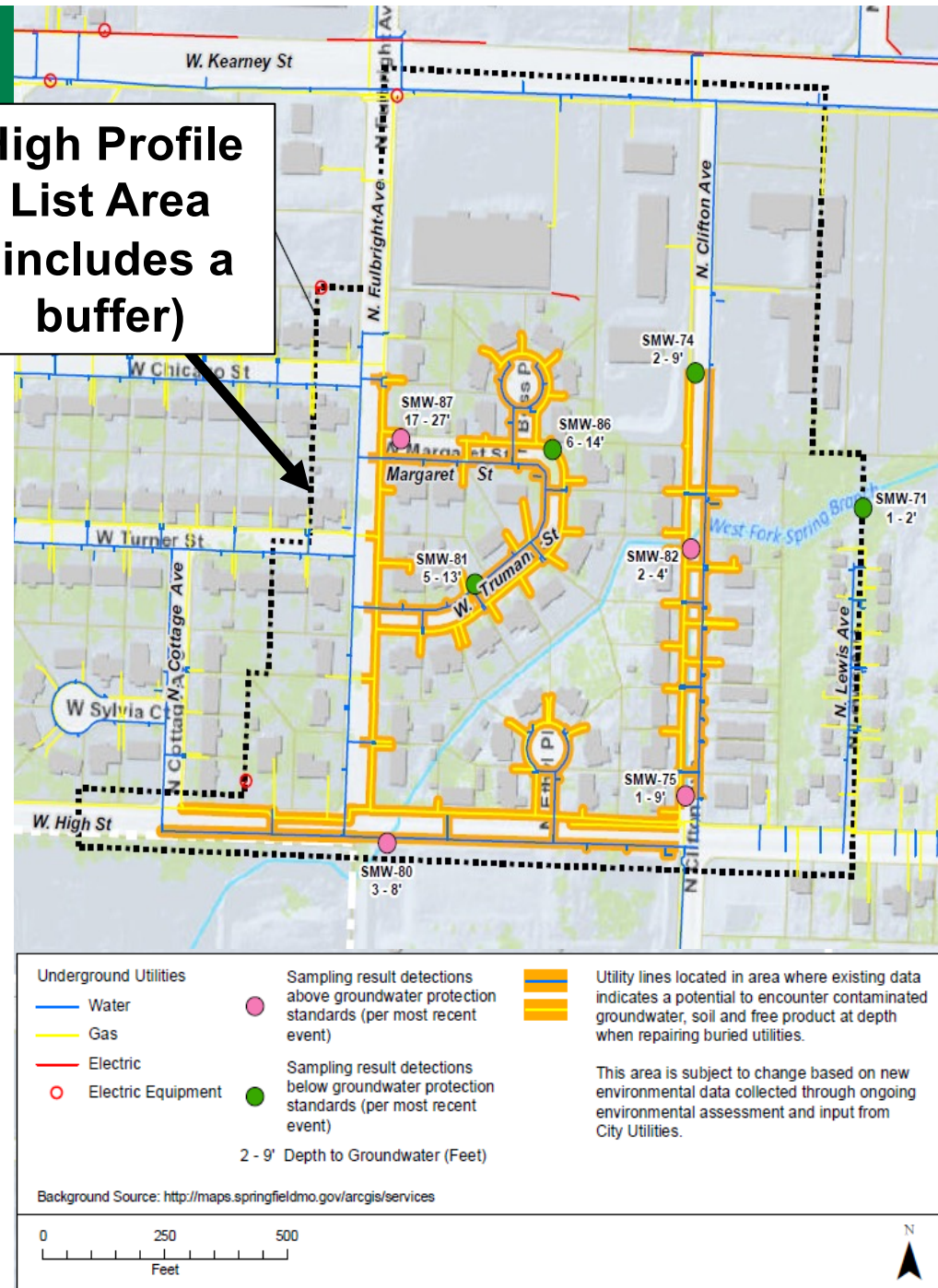
- ✓ 2021: Performed investigation activities
 - 13 wells installed
 - 35 soil and soil vapor samples collected
- ✓ Facility-related DNAPL (creosote) impacts beneath the GCHD Property are limited to directly beneath Building G along the Facility's eastern boundary
- ✓ No unacceptable risks to construction or GCHD workers identified
- ✓ Continue to sample groundwater



Utility Caution Protocol

- ✓ Provides information and guidelines for utility workers or others performing subsurface work in the designated area
- ✓ Identifies procedures for conducting emergency response/unplanned maintenance and planned maintenance/repairs
- ✓ Used to support soil management for utility excavations
- ✓ Revised as new information is available

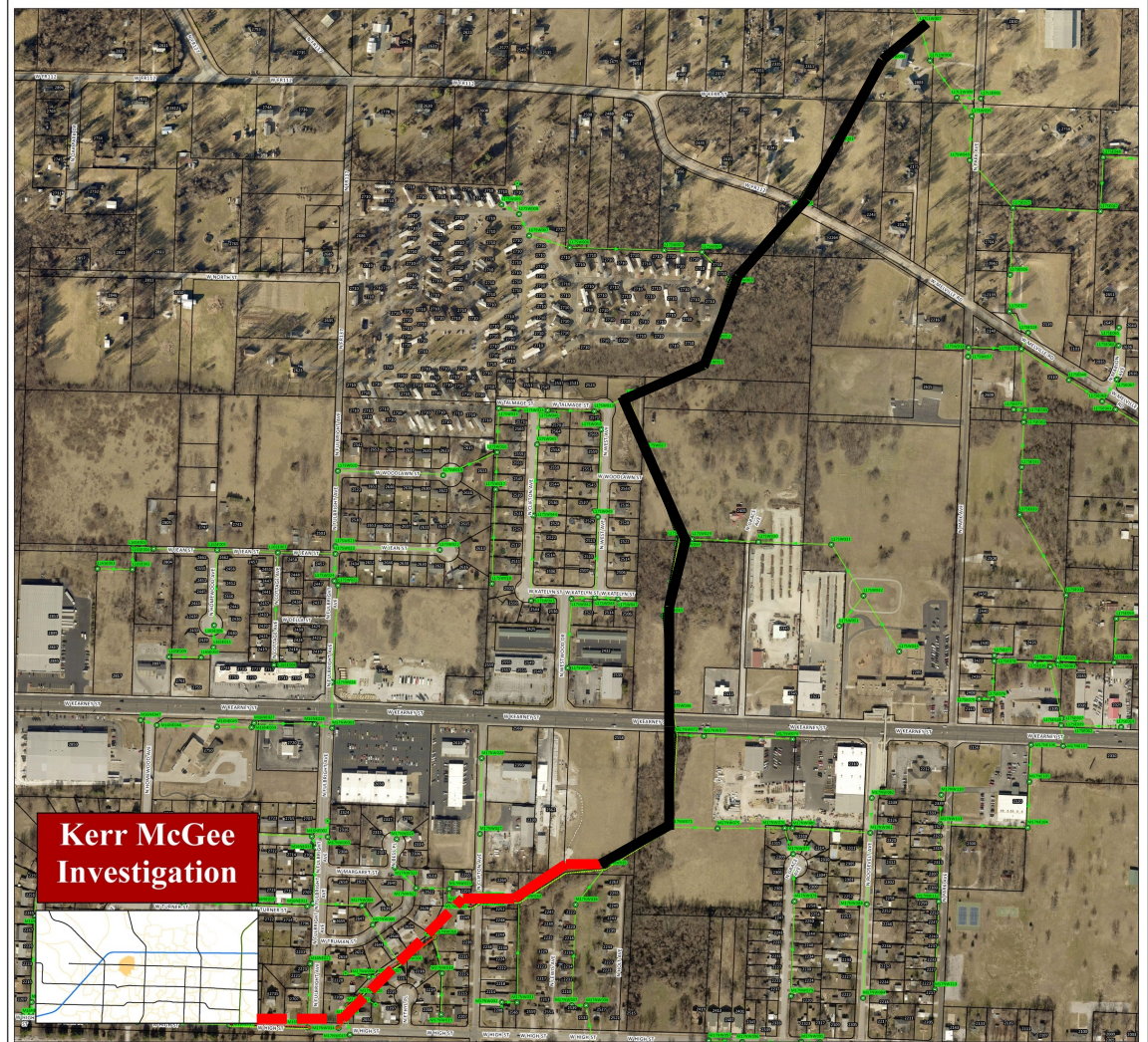
High Profile List Area (includes a buffer)



City of Springfield Sewer Main Pipe

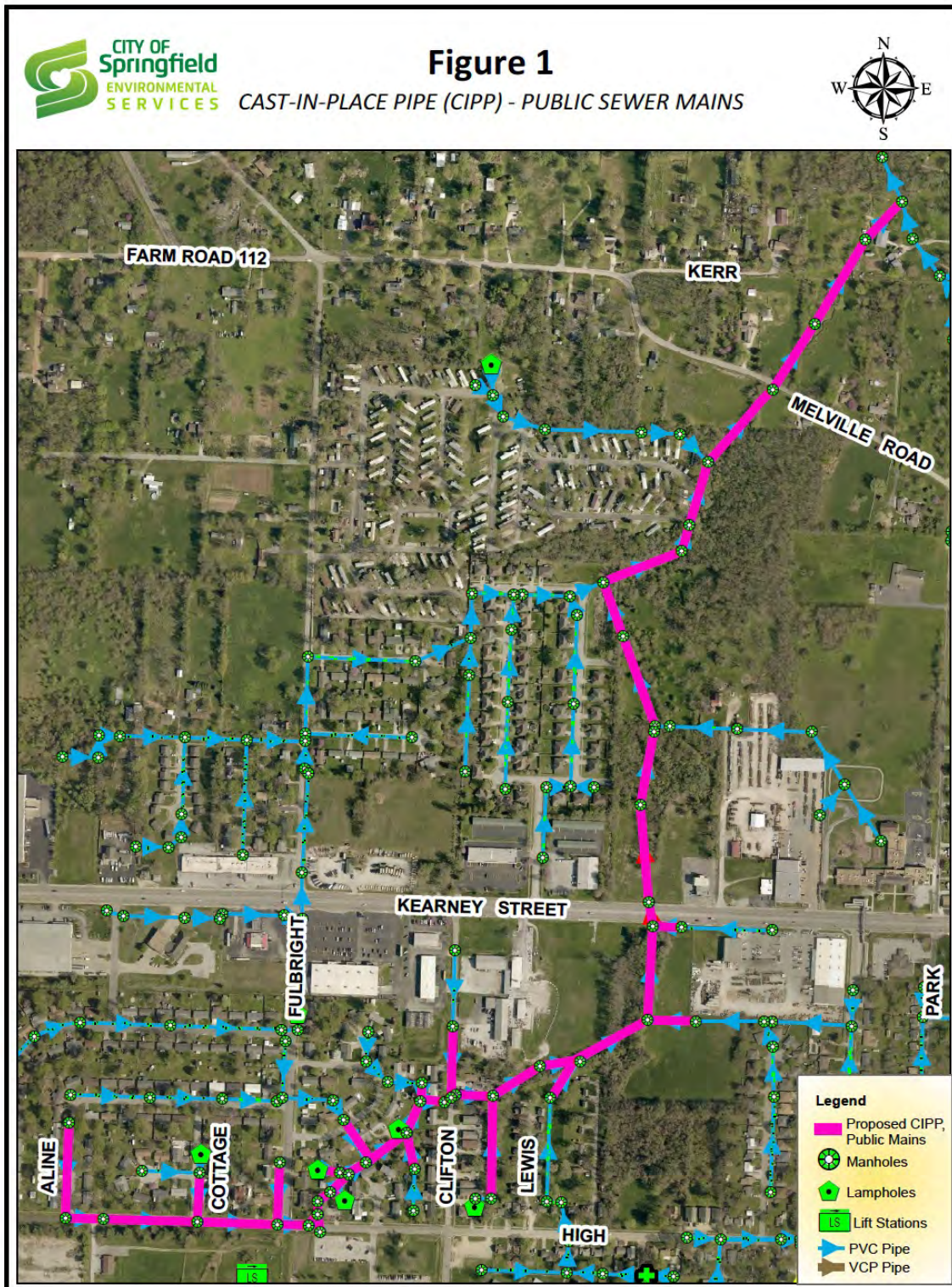
- ✓ Initially, City of Springfield used a video camera to evaluate 6,064 feet of sewer pipe
- ✓ Known discharges of creosote by Kerr-McGee in 2004
- ✓ Sewer pipe is \pm 4–5 feet below ground surface in Clifton Drainage
- ✓ Depth to groundwater in Clifton Drainage ranges from 0 to 5 feet below ground surface

- Blackened Pipe with Cracks (699 LF)
 - Blackened Pipe (1,074 LF)
 - Mostly Black at Flow Line (4,291 LF)
- LF = linear feet



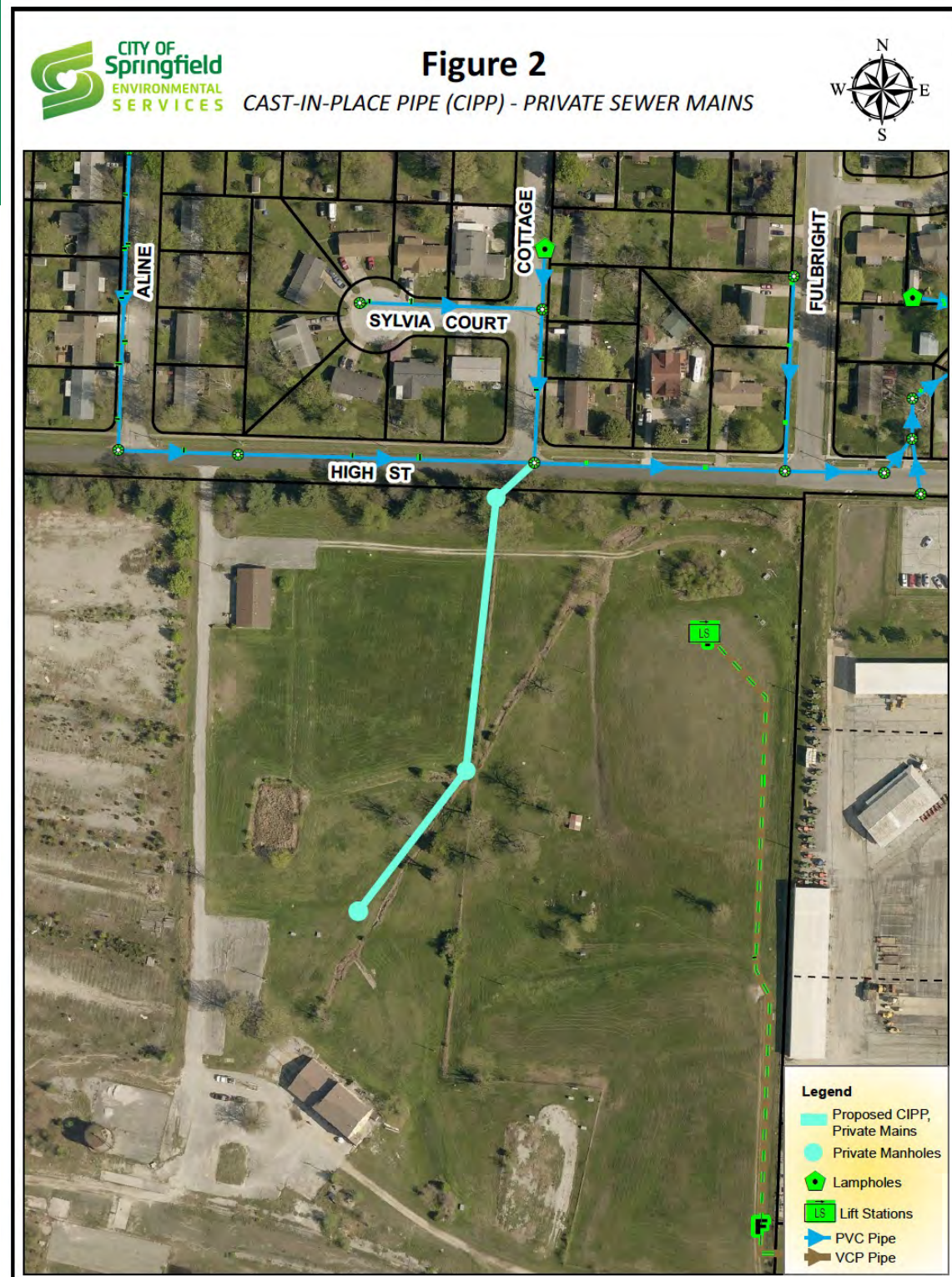
Main Sewer Line Cast-In-Place Pipe (CIPP)

- ✓ 9,572 feet of City of Springfield's Main (public) sewer pipe was repaired by CIPP methods
- ✓ Repairs to main sewer pipe will prevent contaminated groundwater from migrating via cracked and/or damaged sewer line
- ✓ Multistate Trust reimbursed City of Springfield for this Environmental Action

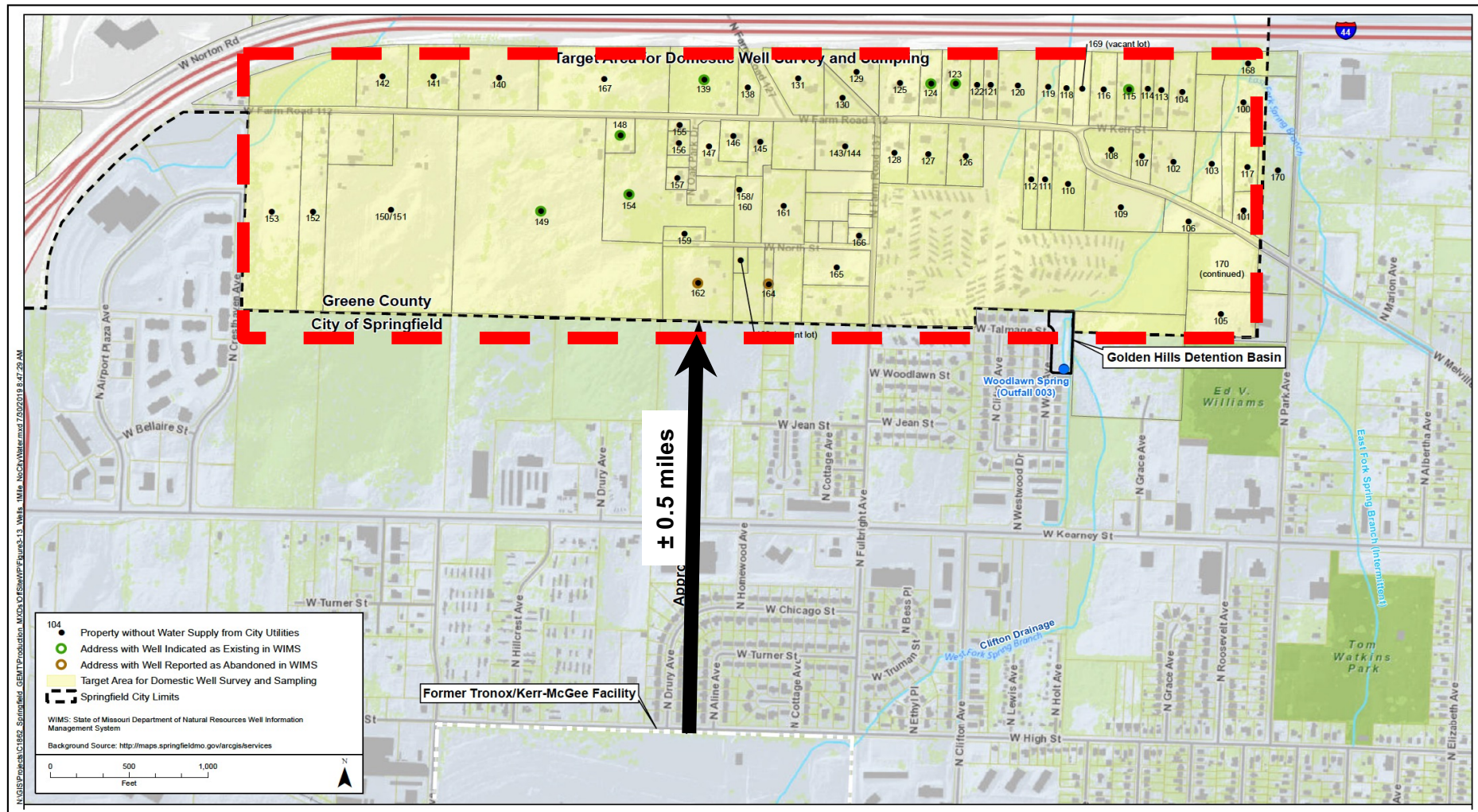


Facility Sewer Line Cast-In-Place Pipe (CIPP)

- ✓ 667 feet of the Facility sewer pipe that connects to the Main sewer line was repaired by City of Springfield for public's benefit
- ✓ Sewer line was repaired by CIPP methods
- ✓ Repairs to Facility sewer pipe will prevent contaminated groundwater from migrating via cracks or damaged sewer line
- ✓ Multistate Trust reimbursed City of Springfield for this Environmental Action



Domestic Well Survey and Sampling



- ✓ Of 65 properties identified, 42 were sampled in June-July 2021 (due to access)
- ✓ Multistate Trust **did not find** Facility-related contaminants in private wells that exceeded groundwater protection standards (GWPS)
- ✓ Results were provided to residents and stakeholders in October 2021

Public Water Supply Sampling

- ✓ Fulbright Spring and Fulbright Well #1
 - Approximately 2.5 miles northeast of Facility
 - Public water supply source
- ✓ Quarterly SVOC collection began in 2022
 - Laboratory analytical results have been submitted to City Utilities, with copy to MoDNR, City of Springfield and Greene County
- ✓ Drinking water **meets** all regulatory requirements
- ✓ Quarterly sampling will continue in 2023



Residential Soil Incremental Soil Methodology (ISM) Work Plan

- ✓ During sewer maintenance excavation black-stained soil was observed at about 3 feet below ground surface
- ✓ 7 properties were identified for surface soil sampling to evaluate risk to human health
- ✓ Results will be used to determine if soils need to be removed from yards
- ✓ Field work began in late-December 2022 (1 property was sampled)

RESIDENTIAL YARDS INCREMENTAL SAMPLING METHODOLOGY WORK PLAN

Greenfield Environmental Multistate Trust LLC –
Springfield Facility
Former Tronox/Kerr-McGee Facility
2800 West High Street, Springfield, Missouri
MHWMF Part I Permit No. MOD007129406

Submitted by



Greenfield Environmental Multistate Trust, LLC
Trustee of the Multistate Environmental Response Trust

Approved by
MoDNR
October 2022

August 29, 2022



Current Investigations, Ongoing Remedial Actions and Next Steps

Tasha Lewis, Multistate Trust



Current Investigations, Ongoing Remedial Actions and Next Steps

- ✓ Routine HWMU/Land Farm PCC and groundwater corrective actions
- ✓ Quarterly public water supply sampling
- ✓ Collect sewer gas/water at 7 manholes
- ✓ Install 3 remaining monitoring wells
- ✓ Sediment, surface water and spring sampling
- ✓ Resample domestic wells
- ✓ Collect ISM surface soil samples from 6 remaining residential properties
- ✓ Replace certain residential sewer laterals
- ✓ Complete site/pre-design investigations to assess feasibility of constructed treatment wetlands for GHDB



ISM Surface Soil Sampling in Residential Yards



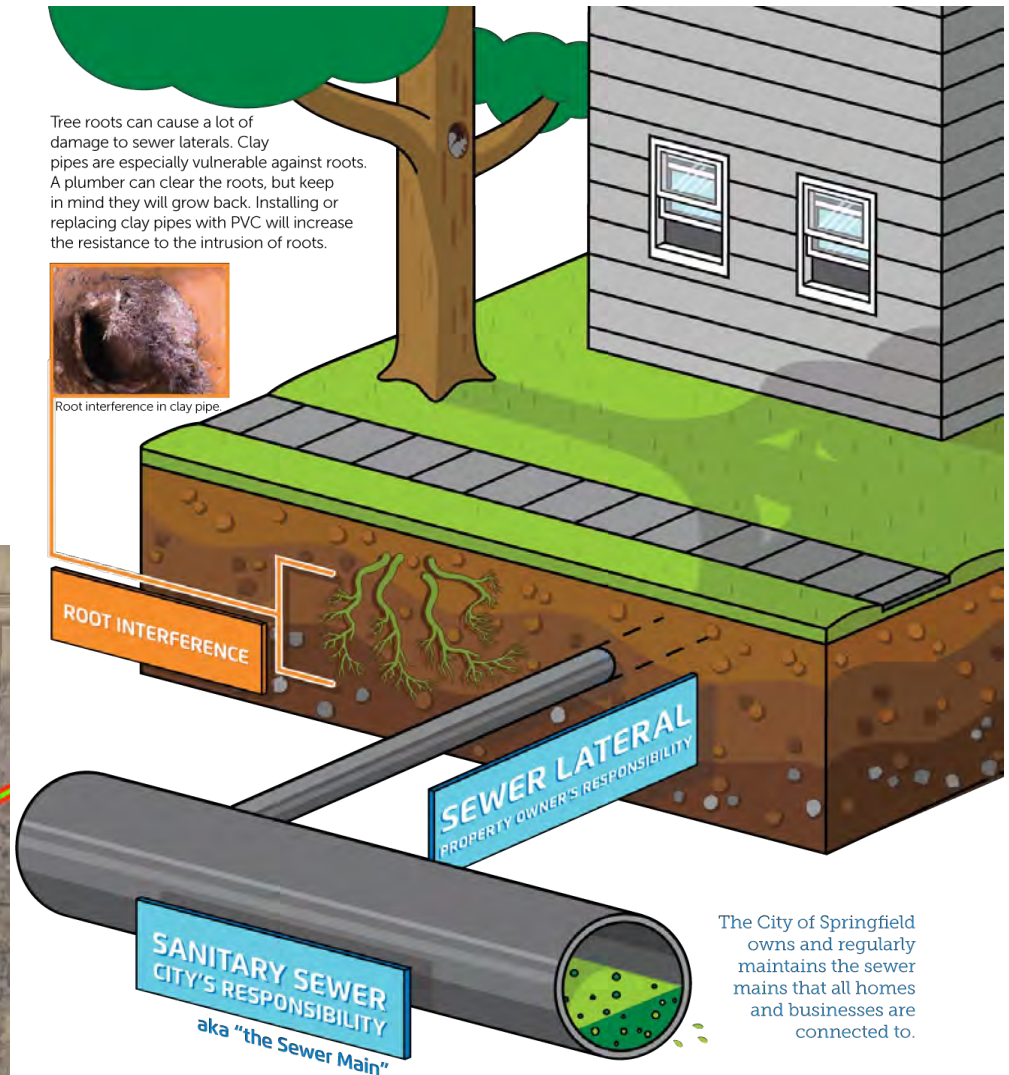
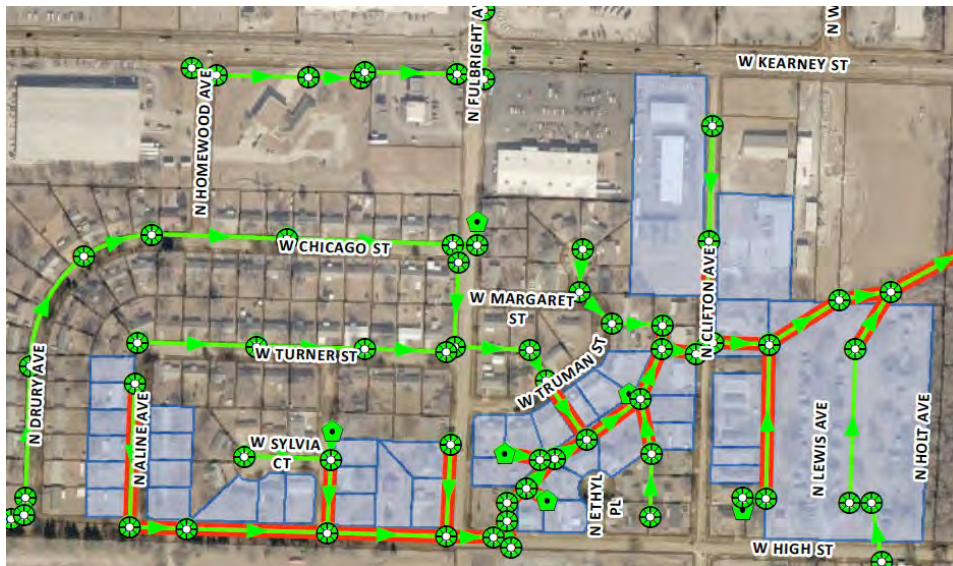
Use of small drilling rig to minimize damage to yards

Next Steps: If results are above levels considered protective of human health, work with property owners to remove soils and restore yards



Replacement of Residential Sewer Laterals

- ✓ Initiation of ±30 residential sewer lateral replacements
- ✓ Open cut and replace private laterals and lateral connection



<https://www.springfieldmo.gov/5641/Environmental-Services>



Greenfield Environmental Multistate Trust LLC
Trustee of the Multistate Environmental Response Trust

Replacement of Residential Sewer Laterals Next Steps

- ✓ Continued discussions with City of Springfield and MoDNR
- ✓ Finalization of approach and contracting
 - Update/review of Utility Caution Protocol
- ✓ Community outreach
- ✓ Obtain access agreements from property owners
 - Work performed at **no cost to residents**
 - Landscape considerations



Golden Hills Detention Basin (GHDB)



Existing stormwater basin conditions
(April 2018)



Constructed Treatment Wetlands
(Concept)

- ✓ Constructed Treatment Wetland identified as potential revised management plan for GHDB
- ✓ Prepare site characterization/pre-design investigation work plan for review and approval by MoDNR



Opportunities for Community Input

Tasha Lewis, Multistate Trust



Involving the Community in Remediation and Reuse Planning

- ✓ Multistate Trust – together with the MoDNR – is committed to working in partnership with community stakeholders on remediation and future use planning at the Facility
- ✓ With our beneficiaries, the Multistate Trust is dedicated to:
 - sharing information and seeking community input as the Multistate Trust investigates and remediates the Facility and facilitates its safe, beneficial reuse; and
 - working with the local community and governmental agencies to turn the Facility into a community asset.
- ✓ We want to hear your ideas and what is important to you
- ✓ Please complete our community survey to share your ideas



This illustration depicts how we work with our beneficiaries, neighbors, and other stakeholders.



Website



[Home](#) [Overview](#) [Cleanup](#) [Community](#) [Documents](#) [News & Events](#) [Contact](#)



Former Tronox/Kerr-McGee Wood Treatment Facility, Springfield, Missouri

<https://springfield.greenfieldenvironmental.com/>



Greenfield Environmental Multistate Trust LLC
Trustee of the Multistate Environmental Response Trust

Information Repository

**The public can access Site documents
in two locations:**

- ✓ Online at <https://springfield.greenfieldenvironmental.com/>. Select “Documents” and choose from over 70 key environmental documents, annual submittals, permits, fact sheets, notices and presentations.
- ✓ Permit-related documents can also be found at [the Library Station](#), 2535 N. Kansas Expressway, Springfield, MO 65803.

**For additional information,
visit the Multistate Trust’s website:**

<https://springfield.greenfieldenvironmental.com/>



Contact Information

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Questions and Discussion

