

# **Community Update**

## **Former Tronox/Kerr-McGee Facility Springfield, MO**

**January 31, 2019**



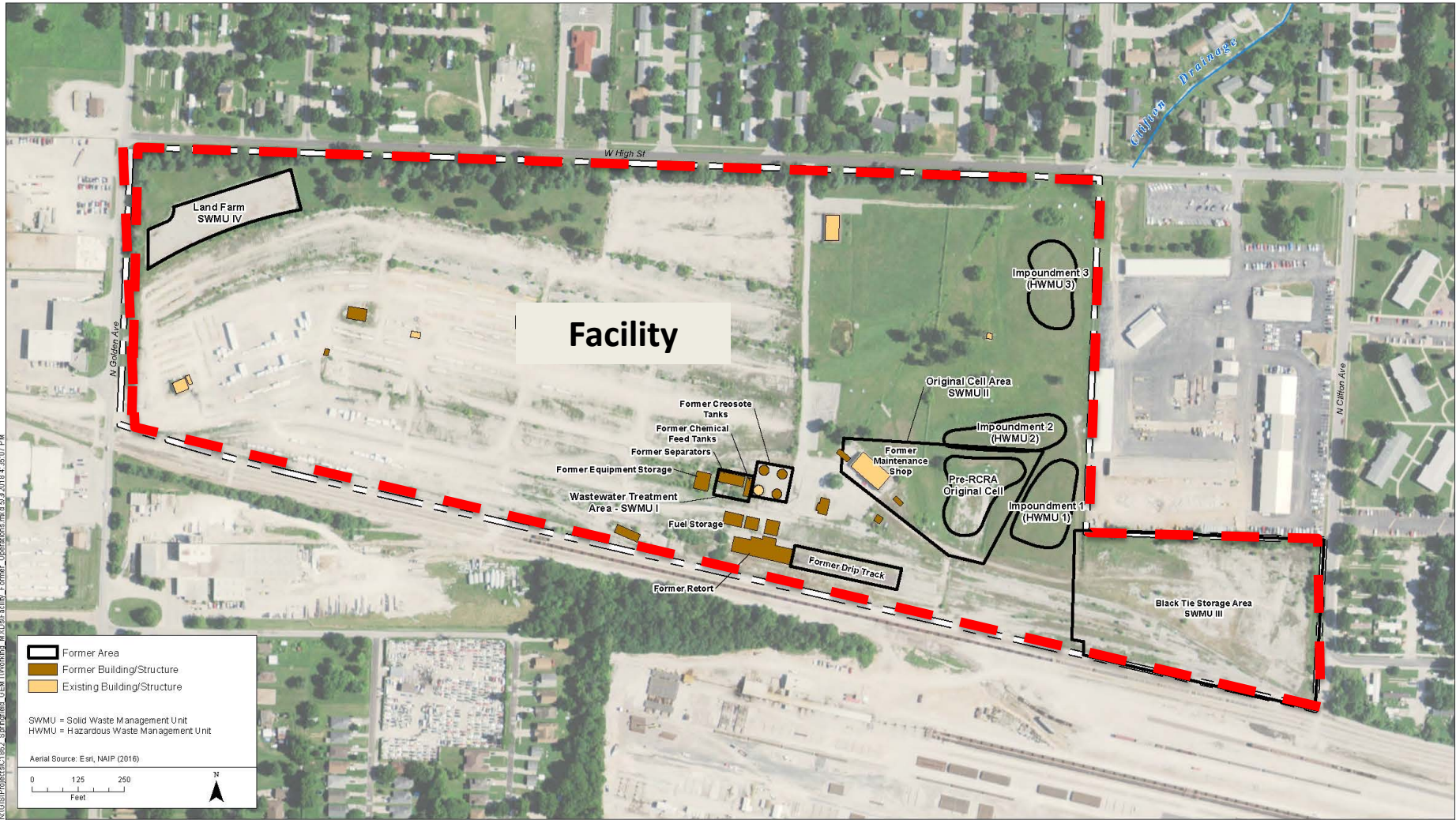
**Greenfield Environmental Multistate Trust, LLC  
Trustee of the Multistate Environmental Response Trust**

# Welcome!

- Introductions
- Tonight's Discussion
  - Brief Review
    - Facility Background
    - Investigations to Date
  - Update on Indoor and Outdoor Air Sampling Results
  - Work Planned for 2019
  - Questions and Discussion



# Historic Wood Treating Operations Have Contaminated Soil & Groundwater at and Near the Facility



# MoDNR Required Kerr-McGee to Perform Several Cleanup Actions

- Investigated on- and off-site soil and groundwater contamination
- Excavated and disposed of contaminated soils
- Closed Land Farm treatment unit
- 3 hazardous waste treatment ponds closed and in post-closure care
- Groundwater recovery and treatment system
- Groundwater monitoring

The Multistate  
Trust has  
continued these  
activities since  
2011



# Recent Multistate Trust Investigations Have Focused on 3 Main Areas



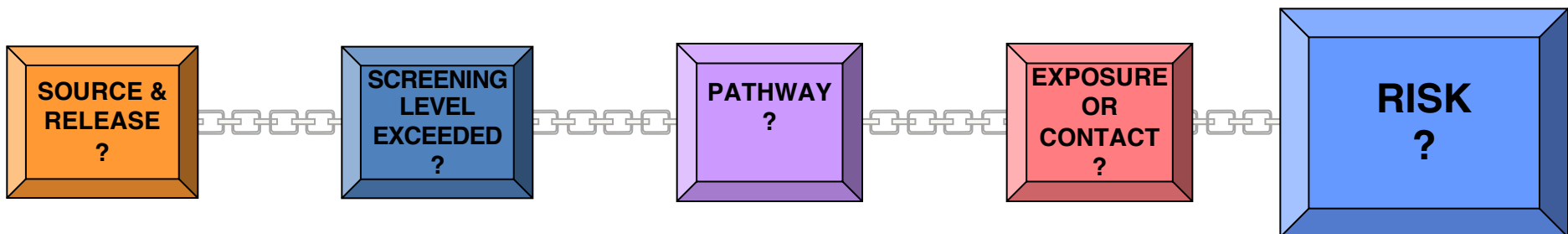
# Priority is Protecting the Community

- Investigations along the Clifton Drainage
  - ✓ Groundwater
  - ✓ Vapors (or gases) in soil
  - ✓ Air (or gases) in sewer
  - ✓ Indoor and outdoor air
  - ✓ Soil sampling (underway)
- Greene County facility evaluation (just to East)
- City of Springfield & Utilities

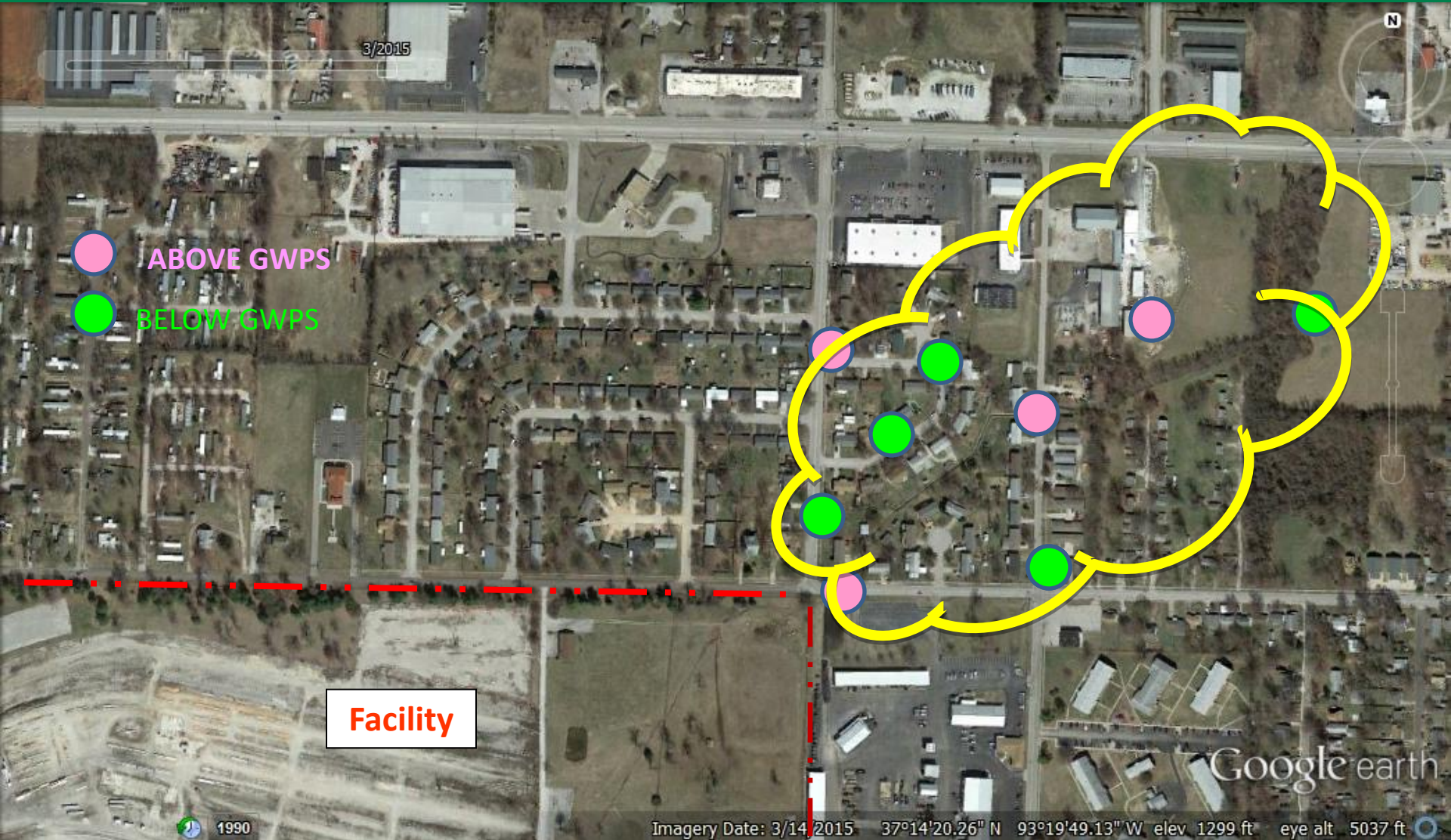


# How Do We Identify Potential Risk?

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.



# Off-Site Monitoring Wells Show Areas Where Health-Based Standards are Exceeded in Groundwater





# Air Sampling Events Designed to Evaluate Potential for Vapor Intrusion

- Soil Vapor (December 2016 – January 2017)
- Sewer Manhole Air Sampling
- Indoor Building Surveys and Air Sampling
- Outdoor Air Sampling
  - Background Outdoor Air Sampling (December 2017)
  - Background Outdoor Air Sampling (August 2018)



# Summary of Sewer Air Sampling

- Air samples collected from select manholes
  - same time houses were sampled
  - when Facility groundwater treatment system was discharging and when no discharge was occurring
- Concentrations of Facility-related chemicals decrease significantly with distance from the Facility
- Chemical concentrations in the air in nearby sewer manholes were elevated



# Location of Manholes Sampled



# Indoor Air Sampled At Houses With Owners' Permission

- Sampling looked for possible seasonal differences:
  - “warm season” (August 2017)
  - “heating season” (February/March 2018)
  - “high water” (May 2018)
  - “warm season” (July/August 2018)
- Building surveys check for typical potential household sources (such as paint, cleaning chemicals, etc.)
- Air samples collected
  - Below slabs, in crawlspaces and in sumps
  - Indoors, in garages, basements and main floors
  - Outside houses



# Preliminary Indoor Air Sampling Did Not Indicate Vapors Coming Into Houses From Ground

- Vapor Intrusion Screening Levels were not exceeded
- Some indoor air Action Levels were exceeded, but information indicates other potential sources:
  - Similar to outdoor air concentrations
  - Highest concentrations seen in indoor air
- Crawlspace air sampling results were similar to or less than indoor air concentrations.
- Sump water and sump air results either
  - Not detected or
  - Seen at very low concentrations, below Action Levels
- MoDNR is currently reviewing the Multistate Trust's report

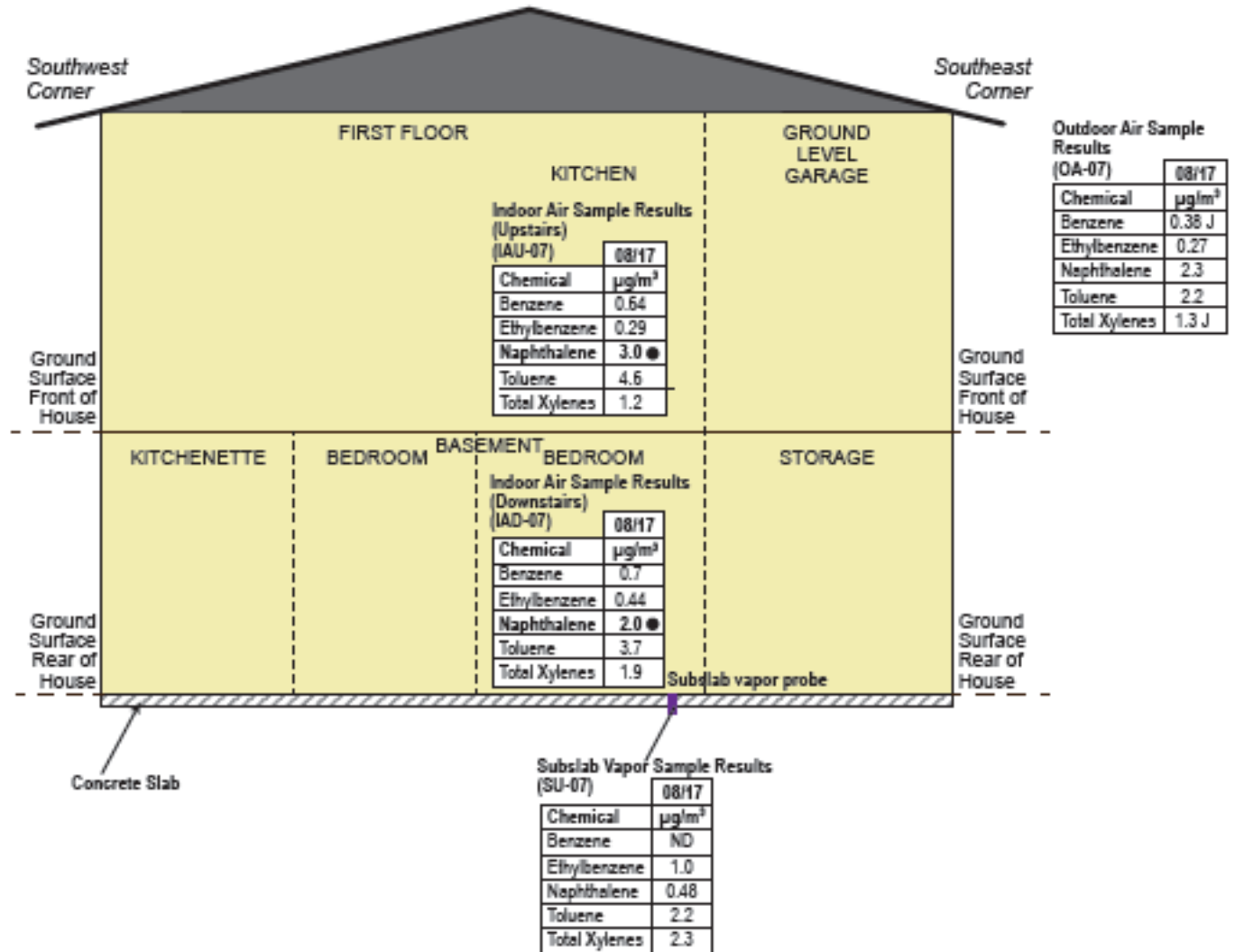


# Example Indoor Air Results

View from front of house, looking north.

Screening Levels

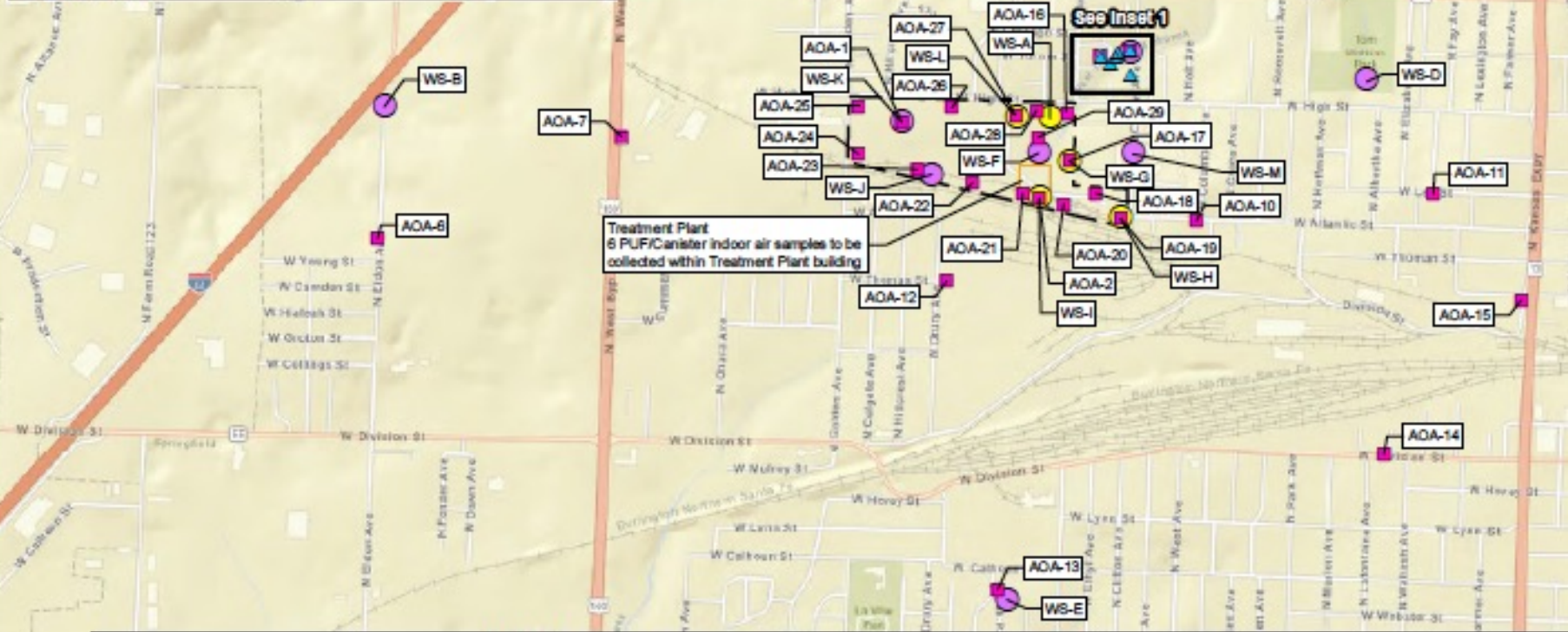
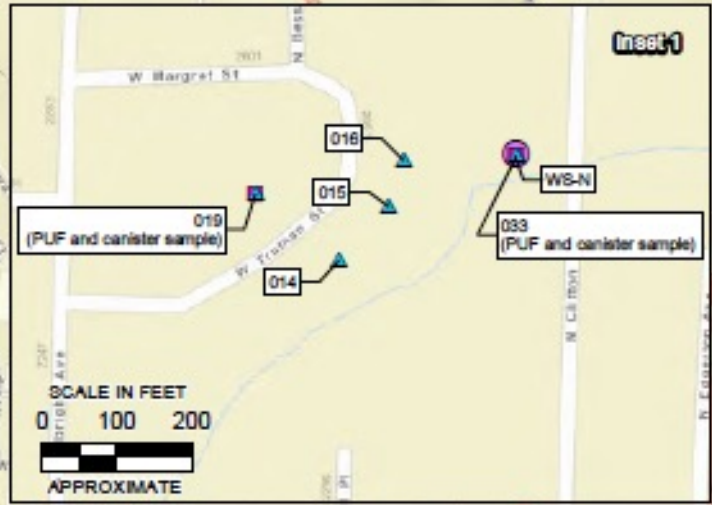
Chemical	Indoor Air Action Level ( $\mu\text{g}/\text{m}^3$ )	Subslab - Vapor Intrusion Screening Level ( $\mu\text{g}/\text{m}^3$ )
Benzene	3.6	12
Ethylbenzene	11	37
Naphthalene	0.83	2.8
Toluene	5,200	170,000
Total Xylenes	100	3,500



# Outdoor Air Sampled to Look for Possible Sources of Odor & Chemicals

- 2 Outdoor Air Sampling Events:
  - December 2017
  - August 2018
- Samples collected on the Facility property and surrounding off-Facility properties including residential area
- A total of 167 samples collected either during 24-hour period or for shorter collection periods (approximately 1 minute)
- Wind direction information collected at same time from weather stations on- and off-Facility





**Legend**

- FORMER TRONOX FACILITY BOUNDARY
- TREATMENT PLANT
- POLY URETHANE FOAM (PUF) AND CANISTER OUTDOOR AIR SAMPLE
- INDOOR AIR SAMPLING
- WEATHER STATION
- TEMPORARY WEATHER STATION

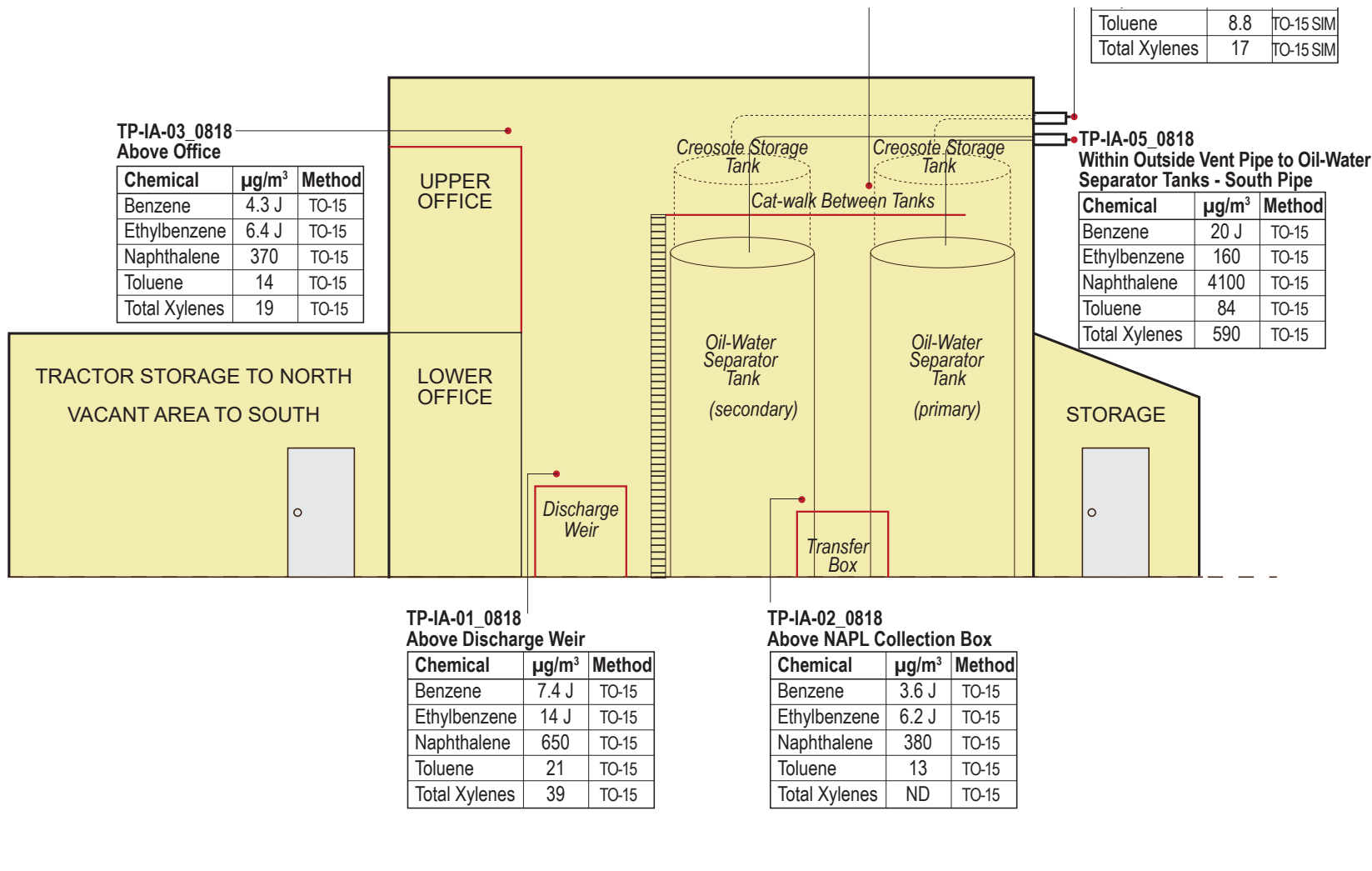


Greenfield Environmental  
Multistate Trust, LLC,  
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Environmental Response Trust

Date: 8/8/2018  
CREATED BY: JACOBS  
CHECKED BY:  
Mike Bedan



# Sampled Air at Facility Groundwater Treatment Building



# Summary of Air Sampling Results (Preliminary Until Approved by MoDNR)

- Conservative Indoor Air Action Levels were exceeded at 7 houses sampled
- Results do not indicate a vapor source below the houses
- Air sampling detected Facility-related chemicals in manholes, but indoor air results do not indicate chemicals are coming into houses
- Chemicals detected in outdoor air are common to many sources, including the Facility



# 2019 Plans

- MoDNR reviewing Air Sampling Report
- Draft work plans provided to the City of Springfield and Greene County
  - Investigations planned to address City & County questions
  - Private well sampling north of Facility
- Surface soil sampling near the Clifton Drainage, if residents provide access



# Thank You For Your Time

## Questions?



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