

# MRBCA Cleanups in MO: Why Do They Take So Long?

# Pre-MRBCA Requirements

Off-site impact?	NO	15				YES	
<b>Subtotals</b>		45	20	15	0		
<b>Total Score:</b>							80

## Soil Cleanup Levels (ppm)

Total Score	195-150	149-120	119-80	79-50	49 or less
BTEX	4/20/100/100	2/10/50/50	1/5/10/10	0.5/1/2/2	B + T + E + X < 2
TPH	1000	500	200	100	50
MTBE		280	140		60



# A Client Asks, “How Long Will this Take To Clean This Up?”

- Our Answer:
- “There will be a period of time that we will be collecting soil and groundwater samples from the property to determine the extent of the impact from the gasoline release. Once that is done, we’ll use the data we have collected to prepare an evaluation of any risks to the environment and send to the Department for review. If there are no risks that require remediation, we will need to conduct periodic sampling of the groundwater. Ideally, we will be done in 2-4 years.”

# A Client Asks, “How Long Will this Take to Clean it Up?”

- A slightly more honest Answer:
- “There is a chance that your newborn child you just proudly showed me a photo of will be in college by the time we’re done. Oh, and we probably won’t actually clean anything up. We’ll just study it for a long, long time and then one day after lots of ‘Response to Comments’ letters and ‘Revised Risk Assessments’ and ‘Update to the Plume Stability Addendum’ the MoDNR will say No Further Action necessary.”

# Why Does It Take So Long

- Site Issues
  - Actual Risk that requires corrective action
  - Presence of LNAPL
  - A stubborn GW Plume
- Management Issues
  - Decisiveness
  - Communication
  - Consistency vs. Prof Judgement
  - Too much data
  - Too little data
  - Creating a Vision

# A Tale of Two Sites

- Site #1 Release Discovery
  - Approx. 2,800 gallons of gasoline released in **2019** from underground piping.
- Site #2 Release Discovery
  - A **2008** Phase 2 resulted in one soil sample containing benzene (0.633 mg/kg) over the DTL.

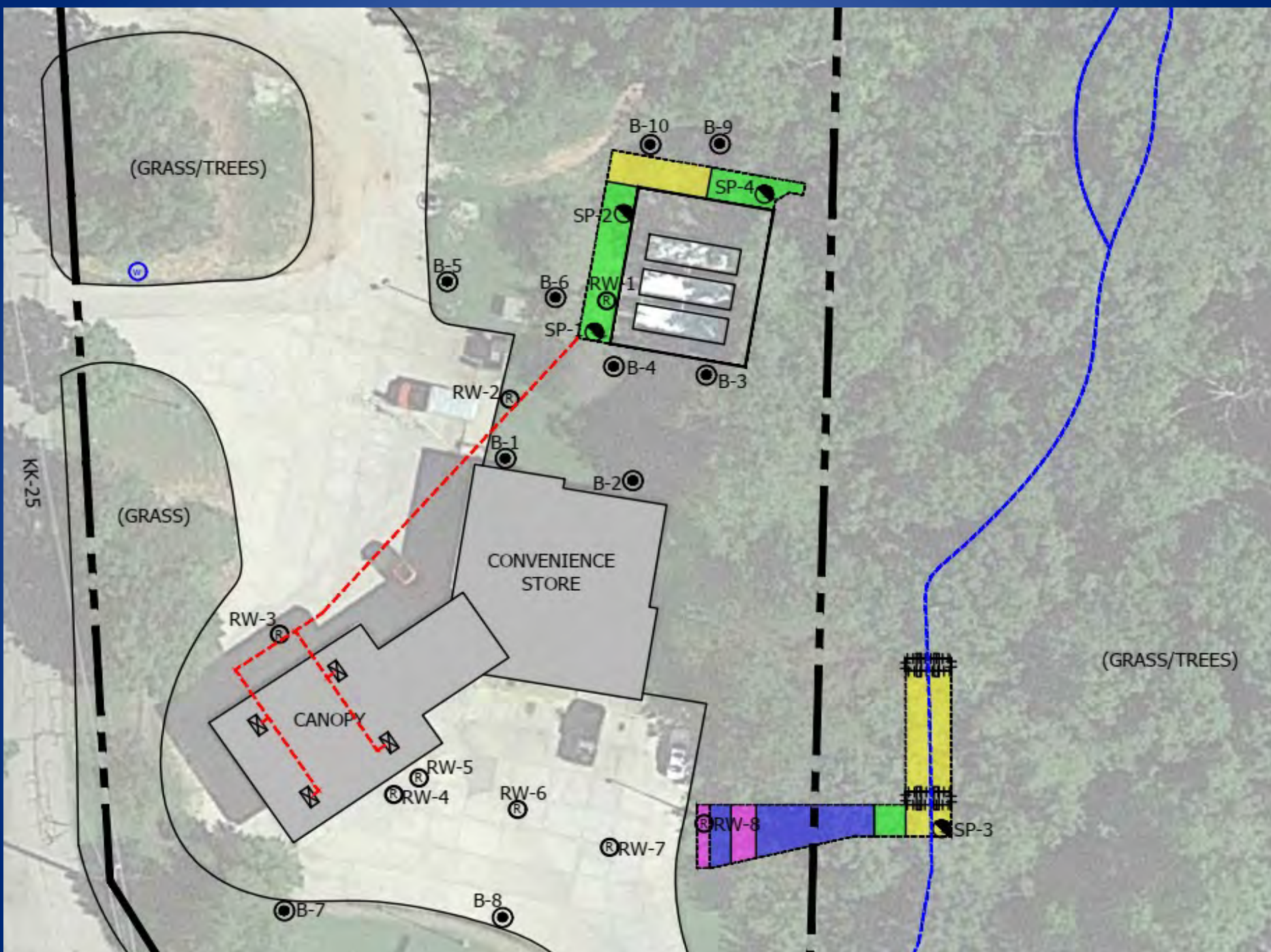
# A Tale of Two Sites

- Site #1 Site Setting
  - Located in a rural area.
  - Site on private well and neighboring properties on private wells
  - An on-site seep and nearby stream were impacted by the release.
- Site #2 Site Setting
  - Mixed land use area near Joplin, MO.
  - No current private water well usage in the area or sensitive receptors

# A Tale of Two Sites

- Site #1 LNAPL
  - LNAPL noted in multiple recovery wells up to 300 ft from the point of release.
  - LNAPL also detected in a nearby wet weather stream
- Site #2 LNAPL
  - LNAPL noted in two monitoring wells adjacent to the UST pit.







ROAD

1

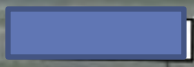


SITE

3

4

500' RADIUS

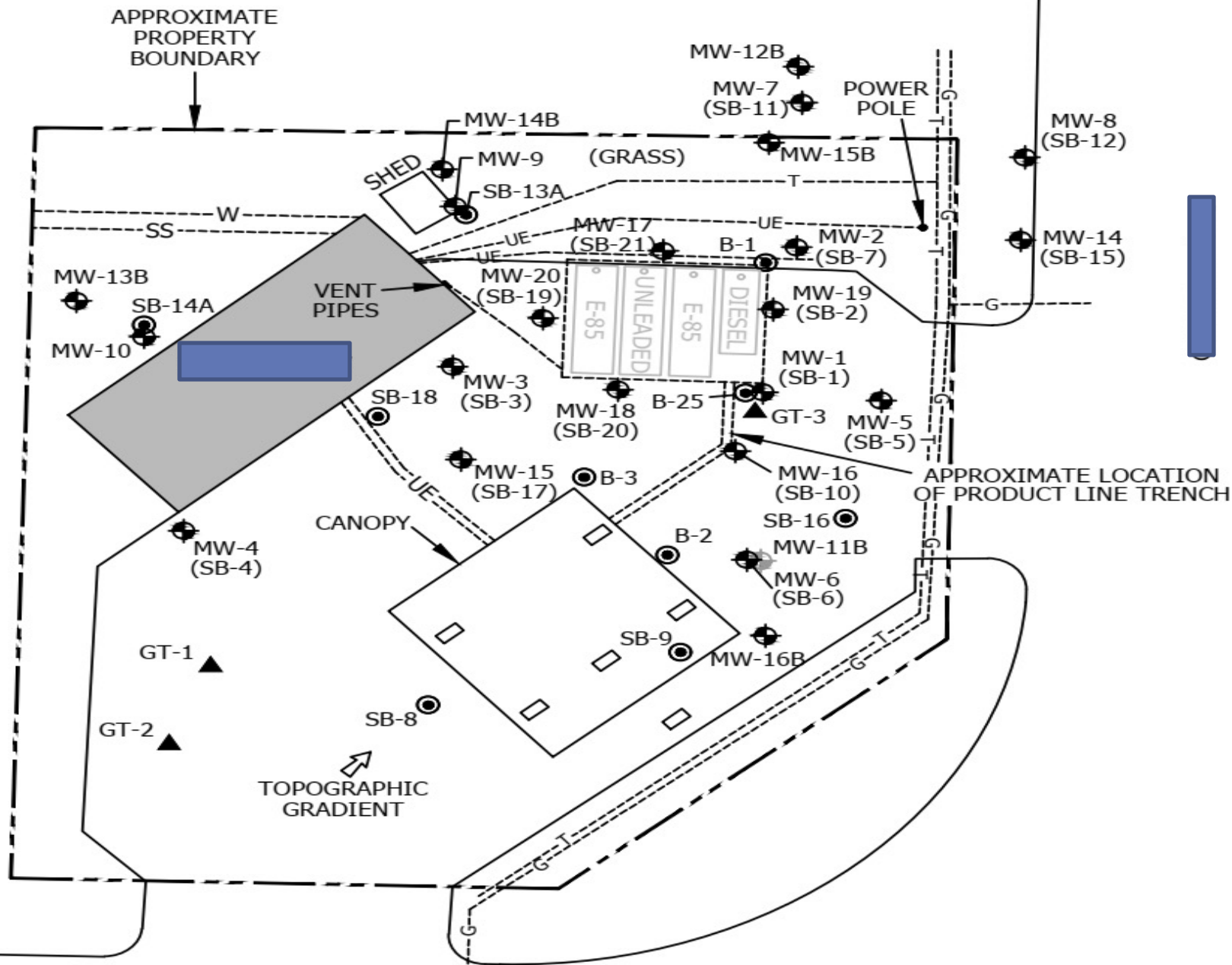


R

6

5

7



# A Tale of Two Sites

- Site # 1 Groundwater
  - Groundwater above bedrock limited to perched water in fill material
  - Underlying bedrock part of the Ozark Aquifer – is a good groundwater resource
- Site #2 Groundwater
  - Groundwater above bedrock limited to discontinuous perched water
  - Underlying bedrock part of the Springfield Aquifer – is a limited groundwater resource

# A Tale of Two Sites

- Site # 1 Contaminant Removal
  - Approx. 80% of released gasoline recovered within 30 days of release
    - ~2,350 gallons from soil excavation
    - ~75 gallons from vac-enhanced recovery
- Site #2 Contaminant Removal
  - Less than seven gallons of gasoline recovered using vac-enhanced recovery in 2013-14. This was five years after release discovery.

# A Tale of Two Sites

- Site # 1 Reports Submitted
  - Seven total reports submitted between 2019 and 2021
- Site #2 Reports Submitted
  - Over 20 reports submitted between 2008 and 2021

# A Tale of Two Sites

- Site # 1 2021 Status
  - NFA issued less than two years following the release!
- Site #2 2021 Status
  - Three new shallow bedrock wells installed to continue plume stability monitoring.
  - “Cleanup” continues 14 years after first discovery.

# A Tale of Two Sites (Lessons Learned)

- Why is cleanup of new releases commonly so much faster than legacy pollution sites?
  - Remediation often occurs during the initial response
  - Free product recovery is much more effective
  - Site delineation may occur without submission of work plans and approval of budgets
  - Contaminant delineation completed during emergency status results in much faster characterization & less redundant reporting



# A Tale of Two Sites (Lessons Learned)

- What slows us down?
  - Too much reporting & arriving at conclusions based on incomplete site characterizations (example)
  - Rushed conceptual site models
  - Indecisiveness
  - Lack of rapport between stakeholders
  - Lack of understanding of other stakeholder's objectives
  - Too many lengthy letters
  - Valuing small amounts of money over long periods of time

# A Tale of Two Sites (Lessons Learned)

- How can we complete cleanups faster (consultant tips)?
  - Quit writing lengthy reports when we know we are not done characterizing
  - Follow the CSM – update frequently, ensure buy-in among stakeholders
  - Spend more time talking & less time writing letters
  - Create a vision/plan for getting to an NFA and share it with everyone involved
  - Never send a report or work plan that will leave the other stakeholders mystified

# A Tale of Two Sites (Lessons Learned)

- How can we complete cleanups faster (MoDNR tips)?
  - Conduct site visits when field work is occurring
  - If you're sending a multiple page comment letter, a call or meeting is likely needed
  - Spend more time talking & less time writing letters
  - Balancing professional judgement with consistency

# Final Thoughts

- How Much Does Consistency Matter?
- When does it matter the least?
- The desire to be perfectly consistent leads to bureaucracy
- Bureaucracy leads to slow decision-making which drags out cleanups
- “I can make two completely contradicting statements and be right about both of them.”  
Jason Smith