



SC DEPARTMENT *of*
**ENVIRONMENTAL
SERVICES**

Delavan Spray Technologies Site

February 5, 2026



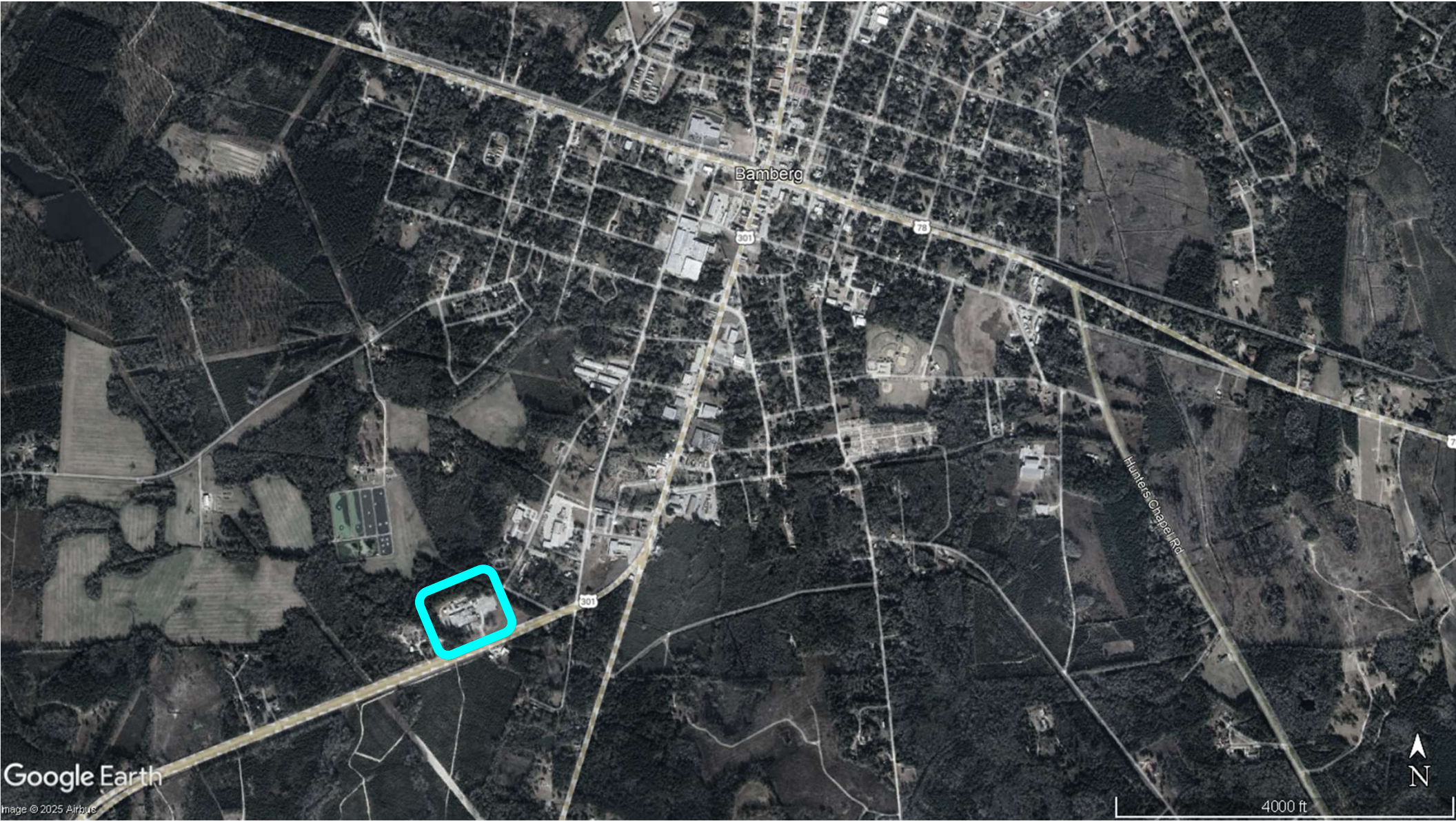
Agenda

- Site History
 - The Superfund Process
 - Interim Action
 - Remedial Action Objectives
 - Proposed Alternatives
 - Evaluation of Alternatives
 - SCDES's Preferred Alternative
 - Public Comment Period
-

Site History

A brief overview





Bamberg

301

78

301

Hunters Chapel Rd

Google Earth

Image © 2025 Airbus

4000 ft





Bamberg

301

78

33

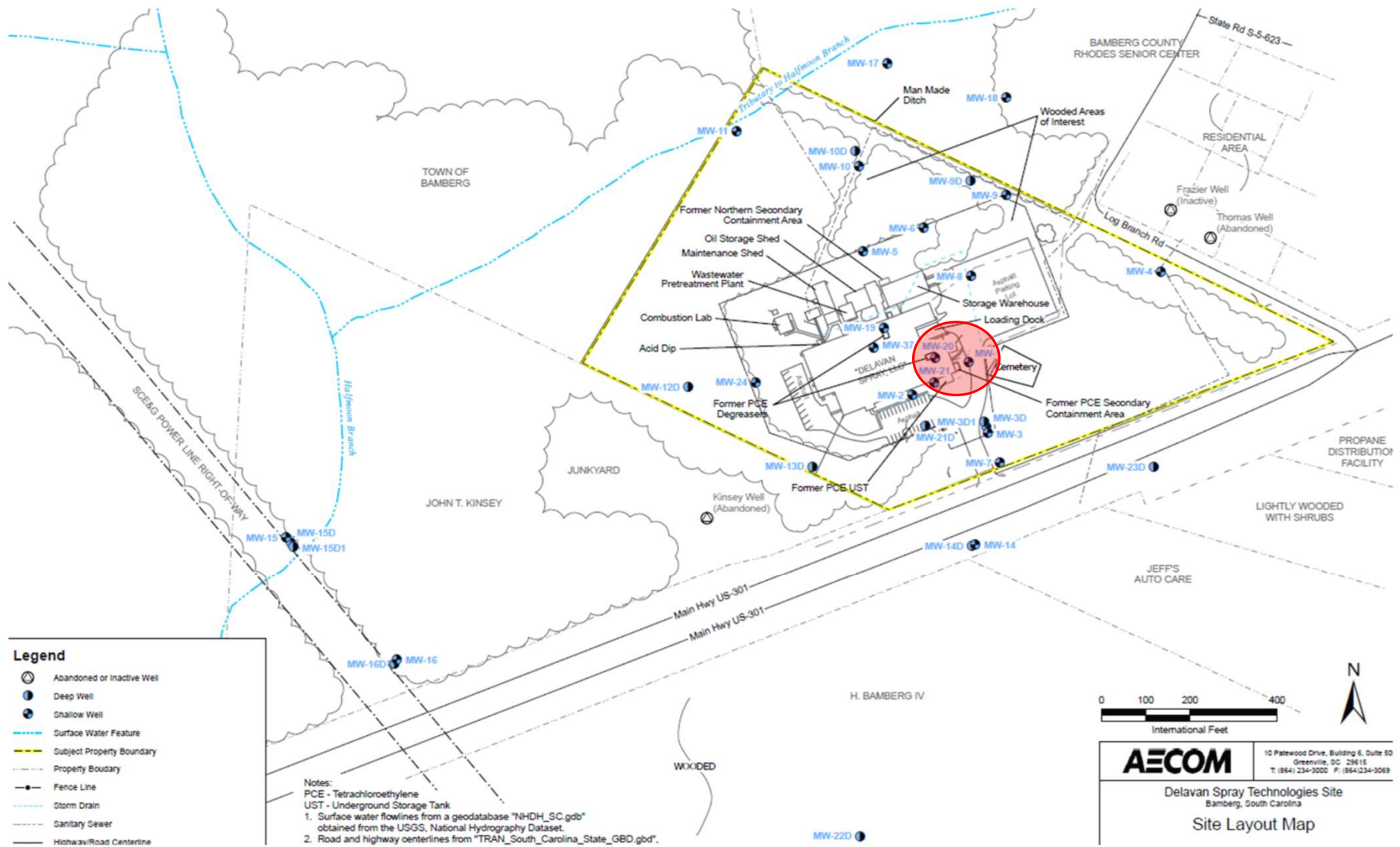
Hunters Chapel Rd

Google Earth

Image © 2025 Airbus

4000 ft





Legend

- ⊗ Abandoned or Inactive Well
- Deep Well
- Shallow Well
- Surface Water Feature
- Subject Property Boundary
- Property Boundary
- Fence Line
- - - Storm Drain
- - - Sanitary Sewer
- Highways/Road Centerline

Notes:
 PCE - Tetrachloroethylene
 UST - Underground Storage Tank
 1. Surface water flowlines from a geodatabase "NHDH_SC.gdb" obtained from the USGS, National Hydrography Dataset.
 2. Road and highway centerlines from "TRAN_South_Carolina_State_GBD.gdb".



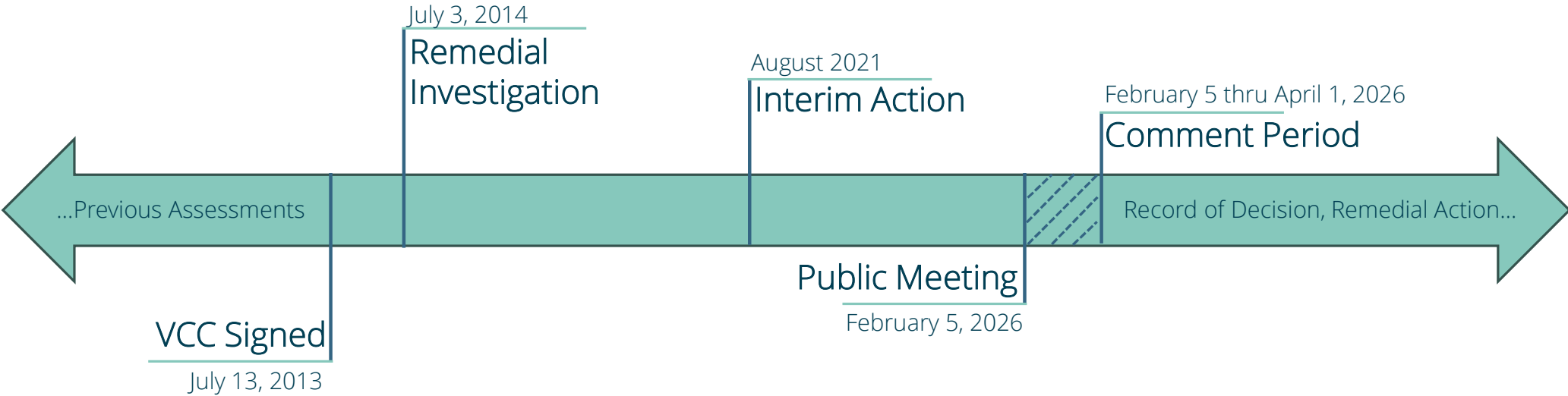
AECOM
 International Feet
 10 Patwood Drive, Building 6, Suite 50
 Greenville, SC 29615
 T: (864) 234-3000 F: (864) 234-3069

Delavan Spray Technologies Site
 Bamberg, South Carolina
Site Layout Map

The Superfund Process



A very rough timeline...



The Superfund Process





Remedial Investigation

- Submitted to the Department July, 2014
- Past and Present Assessments
 - Installed 8 additional monitoring wells.
 - Took 35 soil samples.
 - Installed 4 sub-slab vapor sampling points.

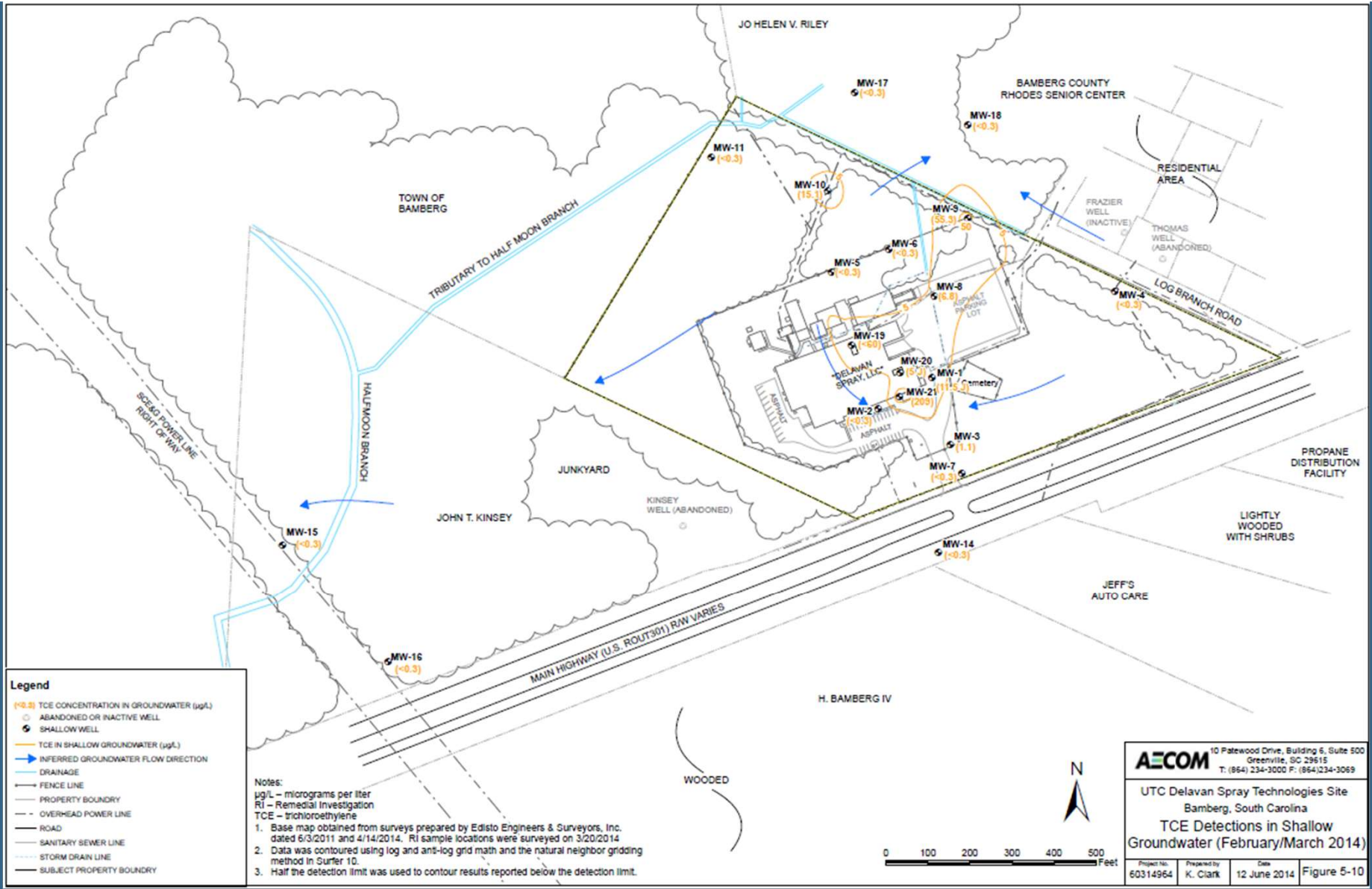
Remedial Investigation

- **Baseline Risk Assessment**
 - Human Health and the Environment
- **Primary CoC**
 - Tetrachloroethene (PCE)
- **Secondary CoCs**



Chemicals of Concern

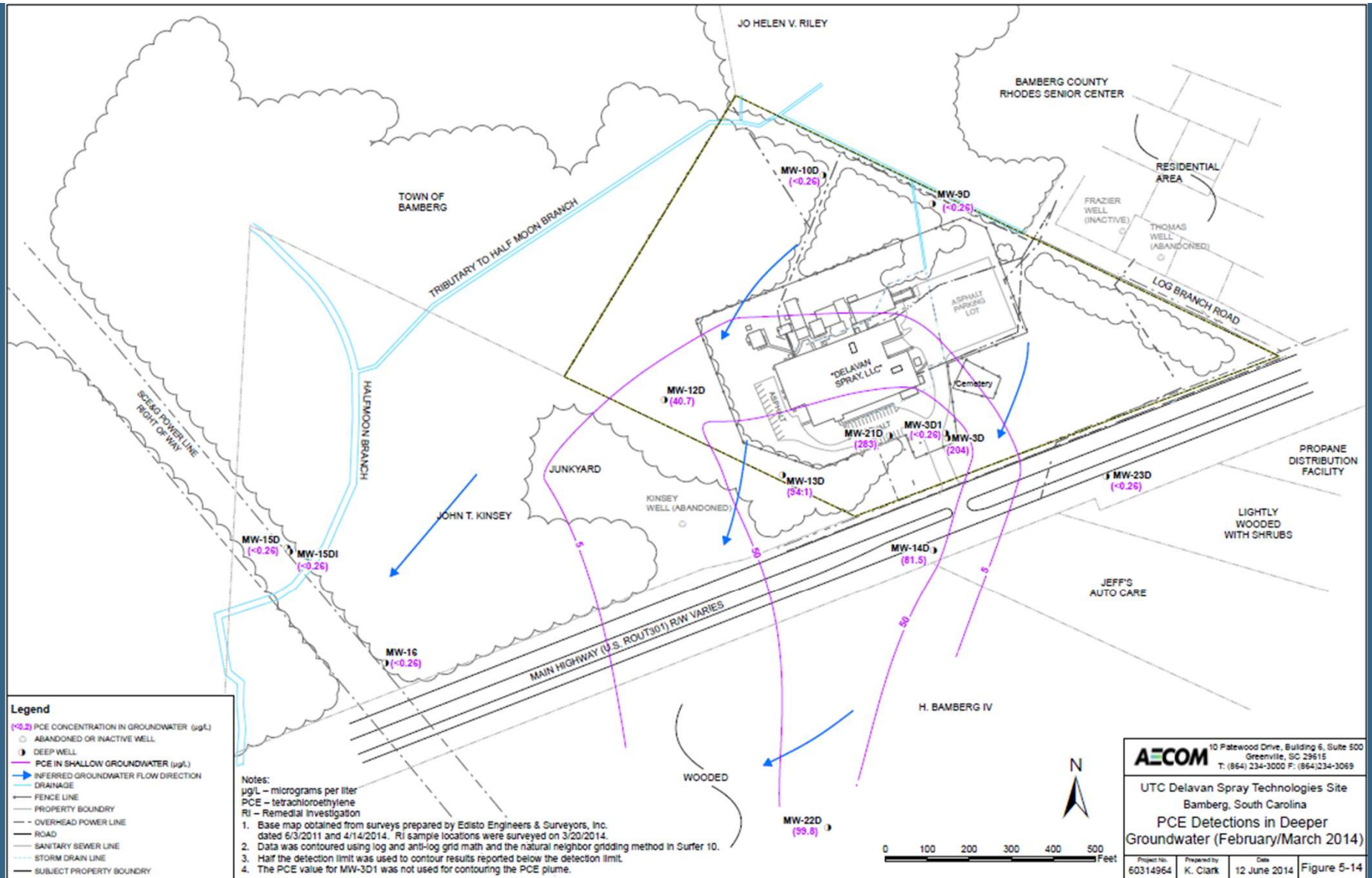
Chemicals of Concern (CoC)	Groundwater Maximum Contaminant Level (MCL)	Industrial Air Regional Screening Level (RSL)	MCL Based Soil Screening Level (SSL)
PCE (Tetrachloroethene)	5 µg/L	18 µg/m ³	2.3 µg/kg
TCE (Trichloroethene)	5 µg/L	0.88 µg/m ³	1.8 µg/kg
Cis-1,2 DCE (Cis-1,2-Dichloroethene)	70 µg/L	18 µg/m ³	21 µg/kg
VC (Vinyl Chloride)	2 µg/L	2.8 µg/m ³	0.69 µg/kg
1,1 DCE (1,1-Dichloroethene)	7 µg/L	1.7 µg/m ³	2.5 µg/kg
1,1,1 TCA (1,1,1 Trichloroethane)	200 µg/L	2200 µg/m ³	70 µg/kg
Chloroform	80 µg/L	0.53 µg/m ³	22 µg/kg
Methylene Chloride	5 µg/L	260 µg/m ³	3.1 µg/kg
Toluene	1000 µg/L	2200 µg/m ³	69 µg/kg
Benzene	5 µg/L	1.6 µg/m ³	2.6 µg/kg
Trans-1,2-DCE (Trans-1,2-Dichloroethene)	100 µg/L	18 µg/m ³	31 µg/kg



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UTC Delavan Spray Technologies Site
 Bamberg, South Carolina

**TCE Detections in Shallow
 Groundwater (February/March 2014)**



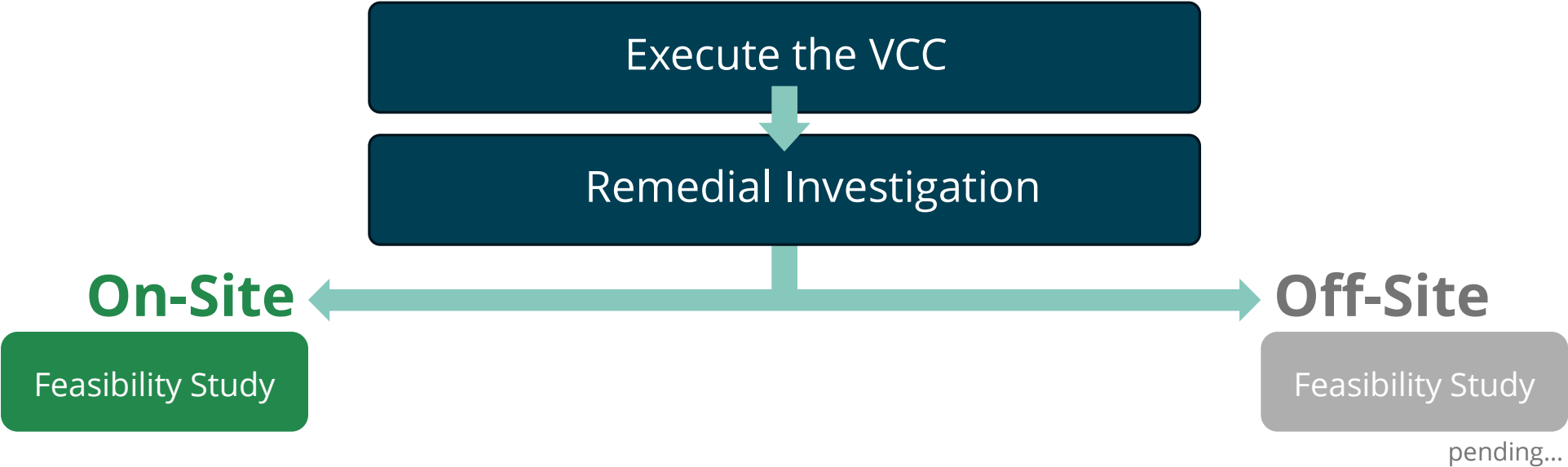
AECOM 10 Patewood Drive, Building 6, Suite 500
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UTC Delavan Spray Technologies Site
 Bamberg, South Carolina

**PCE Detections in Deeper
 Groundwater (February/March 2014)**

Project No: 60314964	Prepared by: K. Clark	Date: 12 June 2014	Figure 5-14
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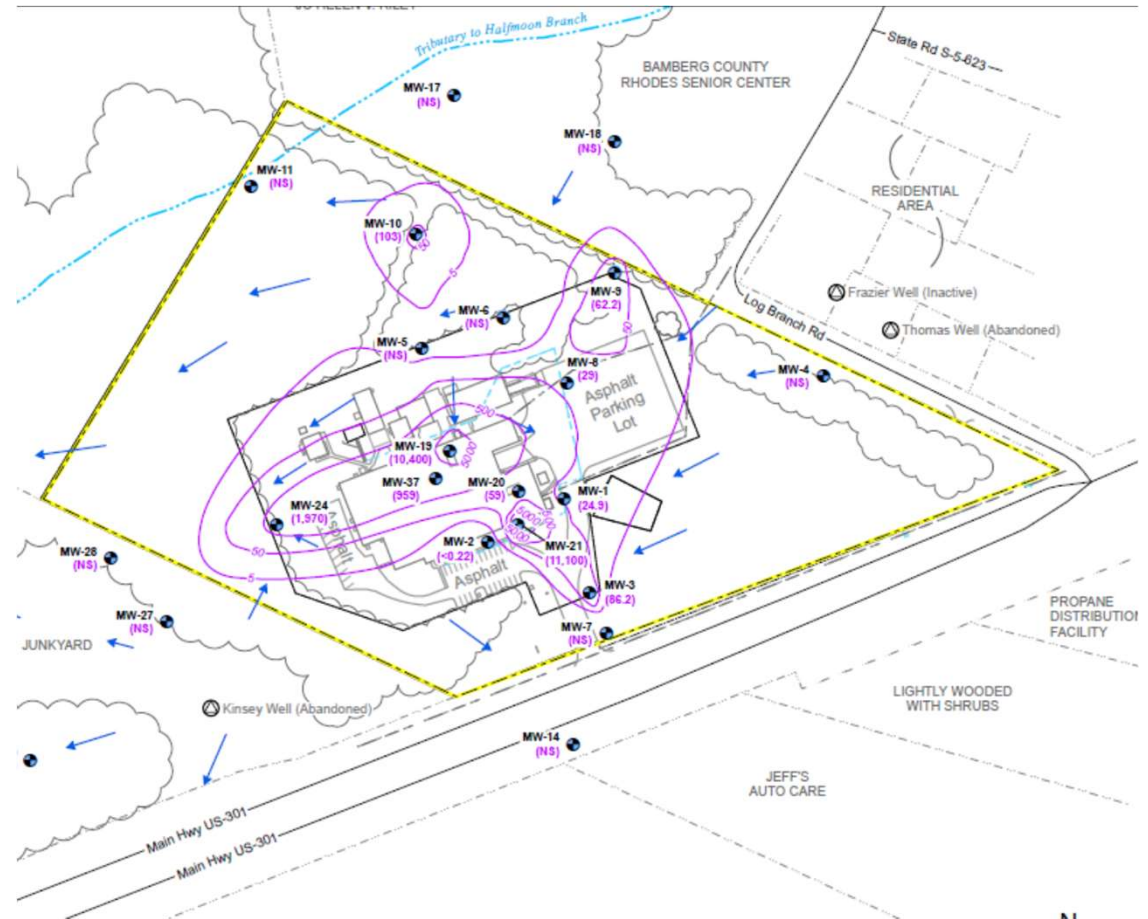
The Superfund Process



Feasibility Study

On-Site Versus Off-Site

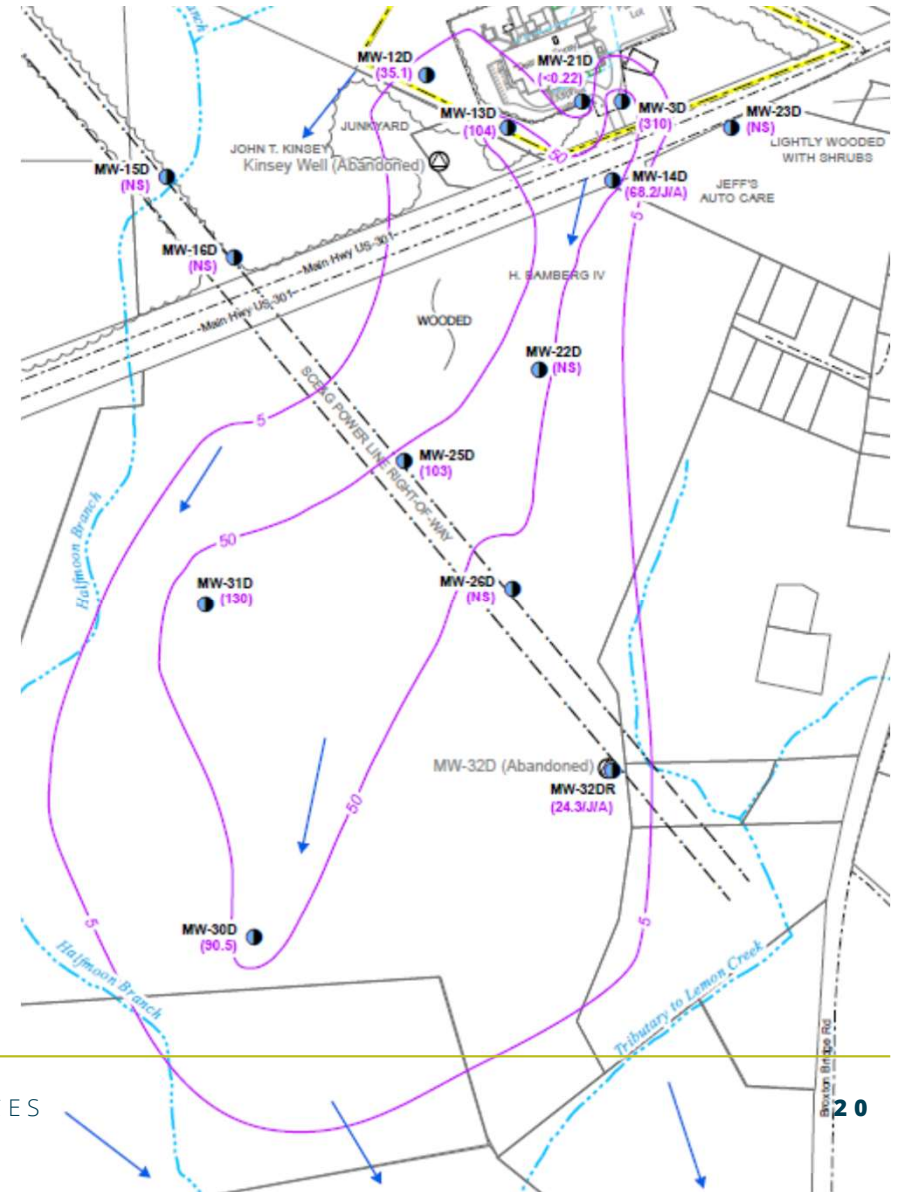
- On-Site
 - Delavan Spray Technologies Property
 - Source Area
 - Highest contamination



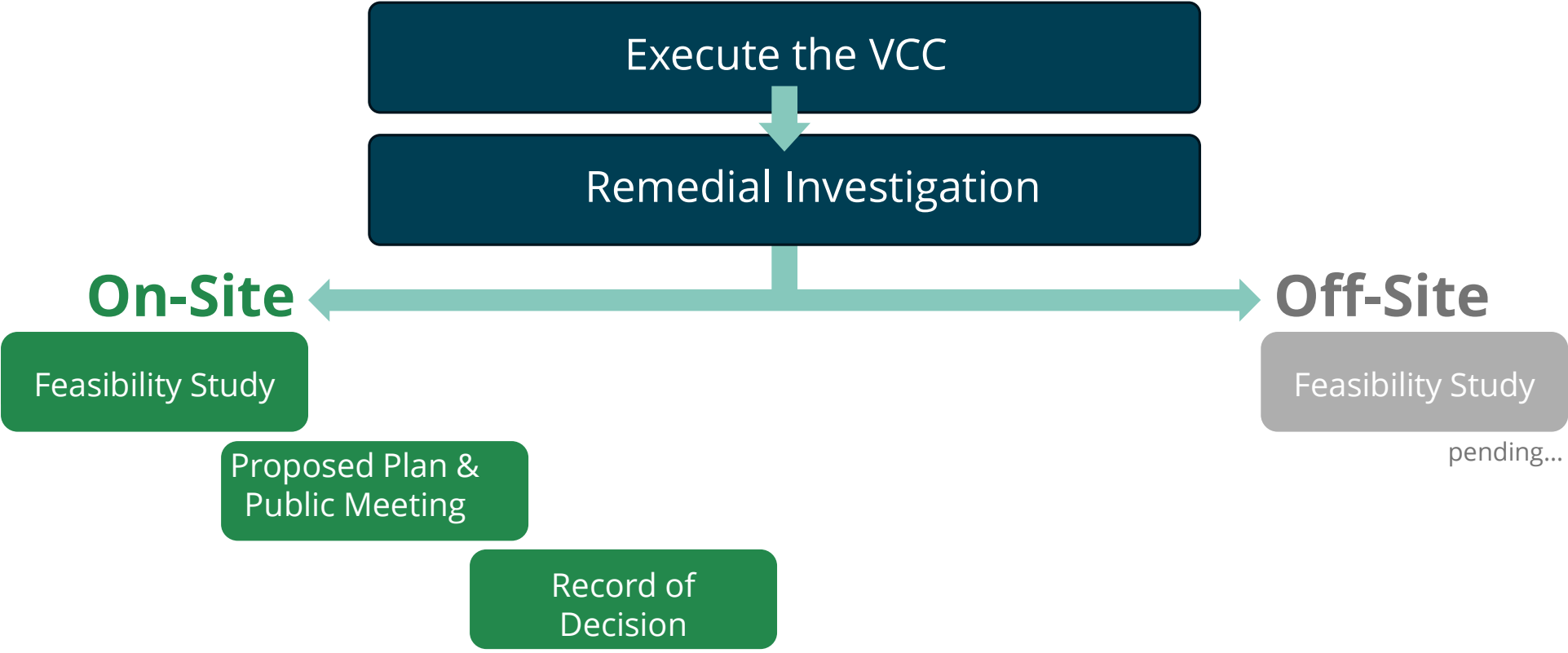
Feasibility Study

On-Site Versus Off-Site

- On-Site
 - Delavan Spray Technologies Property
 - Source Area
 - Highest contamination
- Off-Site
 - Private Properties
 - Downgradient
 - Lower contamination



The Superfund Process



Interim Action



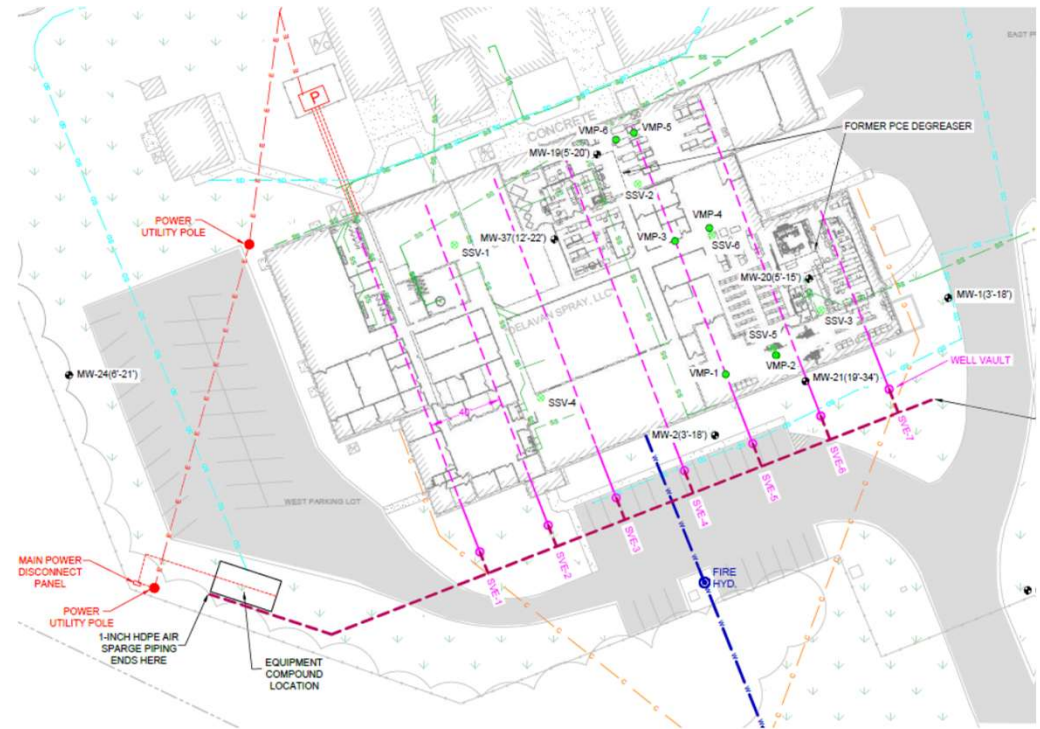
Interim Action

Soil Vapor Extraction (SVE) System

June 2021 – Discussions opened

August 2021 – Construction began

June 2022 – Construction completed, system operational.



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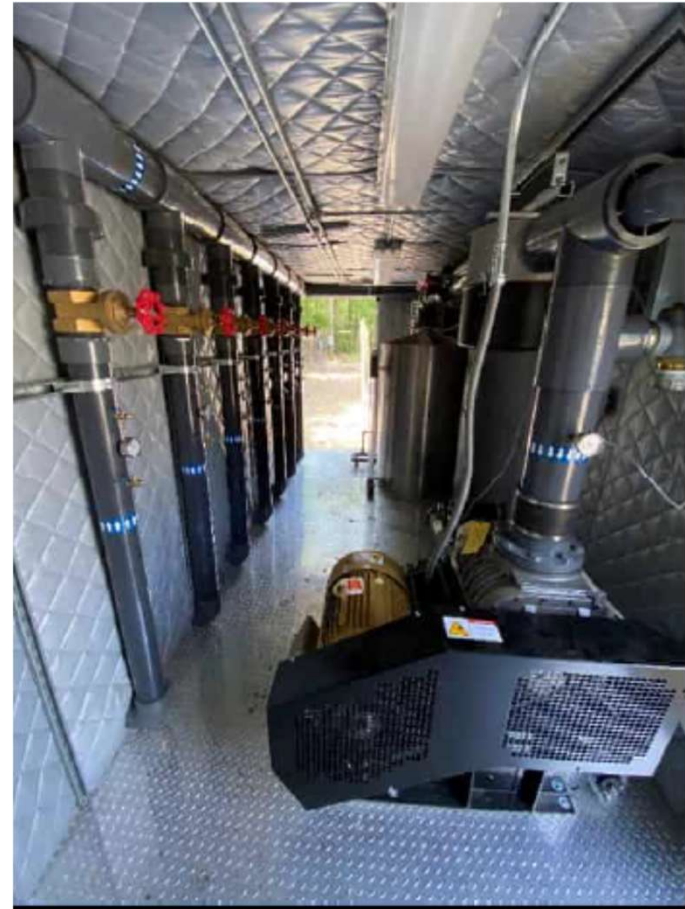
Interim Action

Soil Vapor Extraction (SVE) System

June 2021 – Discussions opened

August 2021 – Construction began

June 2022 – Construction completed, system operational.



Remedial Action Objectives





Remedial Action Objectives (RAOs)

- Short-term
 - Reducing further migration of contaminated groundwater and release into the environment by substantially reducing CoC impacts in source areas where the most COC mass is present.
 - Prevent soil vapor exposure by mitigating CoC levels in these areas, thereby minimizing continued leaching to groundwater and reduce the future risk potential of direct exposure via vapor intrusion to on-Site workers.
- Long Term
 - Prevent the ingestion of contaminated drinking water by restoring groundwater to drinking water standards.

Proposed Alternatives



Proposed Alternatives

5 Alternatives

- 1 Passive, 4 Active
- All are theoretical.
- After a remedy is selected, a Remedial Design Work Plan will be submitted to SCDES for *review and approval*.



Alternative 1

No Action

- Required by the National Contingency Plan
- This alternative maintains the site as-is.
- Passive Alternative.
- Cost: \$0

Remediation Technologies

Active

Vapor Mitigation

Time

Remediation Technologies

Active

Vapor Mitigation

Time

	Soil Vapor Extraction System			
Abbreviation:	SVE			
What does it do?	<ul style="list-style-type: none">• Creates a vacuum to extract harmful vapors from soils.• Deeper, but not into the water table.			
Challenges:	<ul style="list-style-type: none">• A very large system, expensive to install/expand/maintain			

Remediation Technologies

Active

Vapor Mitigation

Time

	Soil Vapor Extraction System	Sub-Slab Depressurization		
Abbreviation:	SVE	SSD		
What does it do?	<ul style="list-style-type: none">• Creates a vacuum to extract harmful vapors from soils.• Deeper, but not into the water table.	<ul style="list-style-type: none">• Creates a small vacuum to prevent harmful vapors from intruding into buildings.• Shallower.		
Challenges:	<ul style="list-style-type: none">• A very large system, expensive to install/expand/maintain	<ul style="list-style-type: none">• Smaller system, targeted locations.• Less expensive to maintain.		

Remediation Technologies

Active

Vapor Mitigation

Time

	Soil Vapor Extraction System	Sub-Slab Depressurization	Monitored Natural Attenuation	
Abbreviation:	SVE	SSD	MNA	
What does it do?	<ul style="list-style-type: none"> Creates a vacuum to extract harmful vapors from soils. Deeper, but not into the water table. 	<ul style="list-style-type: none"> Creates a small vacuum to prevent harmful vapors from intruding into buildings. Shallower. 	<ul style="list-style-type: none"> Natural Degradation Process Use of well network Parameters show degradation Passive 	
Challenges:	<ul style="list-style-type: none"> A very large system, expensive to install/expand/maintain 	<ul style="list-style-type: none"> Smaller system, targeted locations. Less expensive to maintain. 	<ul style="list-style-type: none"> Takes a long time as a sole remediation Only for low levels Polishing step 	

Remediation Technologies

Active

Vapor Mitigation

Time

	Soil Vapor Extraction System	Sub-Slab Depressurization	Monitored Natural Attenuation	Institutional Controls
Abbreviation:	SVE	SSD	MNA	ICs
What does it do?	<ul style="list-style-type: none"> Creates a vacuum to extract harmful vapors from soils. Deeper, but not into the water table. 	<ul style="list-style-type: none"> Creates a small vacuum to prevent harmful vapors from intruding into buildings. Shallower. 	<ul style="list-style-type: none"> Natural Degradation Process Use of well network Parameters show degradation Passive 	<ul style="list-style-type: none"> Deed Restrictions Groundwater and Land Use Engineered Restrictions Passive
Challenges:	<ul style="list-style-type: none"> A very large system, expensive to install/expand/maintain 	<ul style="list-style-type: none"> Smaller system, targeted locations. Less expensive to maintain. 	<ul style="list-style-type: none"> Takes a long time as a sole remediation Only for low levels Polishing step 	Restrictions are voluntary. Humans are creative.

Alternative 2

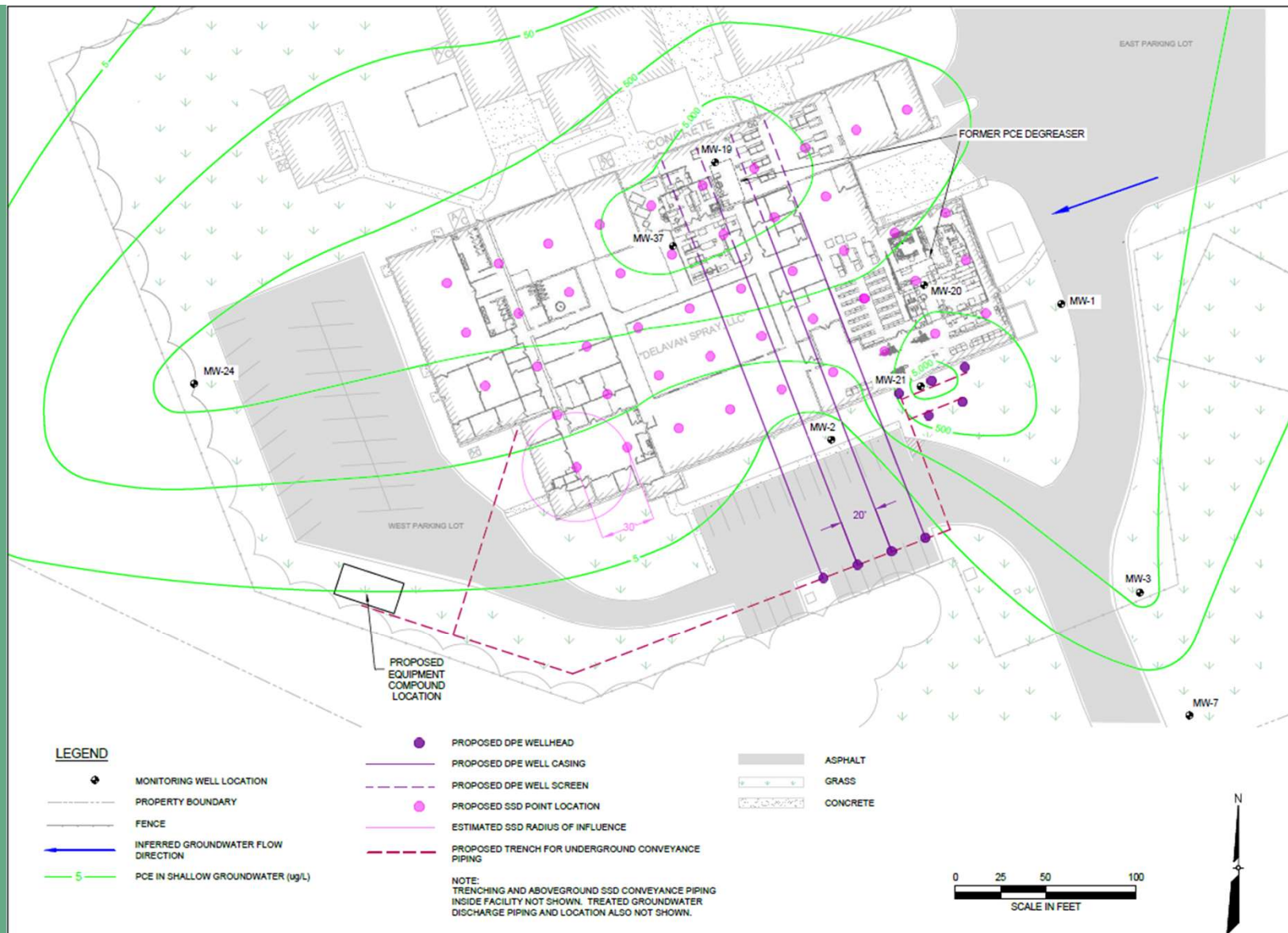
Excavation, Groundwater Capture and Recovery, Sub-Slab Depressurization (SSD), Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)

- Excavation under the building
- Groundwater capture, treatment, and disposal
- Remove SVE system, replace with SSD.
- Cost: \$5,344,000

Alternative 3

Dual Phase Extraction (DPE), Sub-Slab Depressurization (SSD),
Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)

- Groundwater and vapor recovery under the building
- Groundwater and vapor capture, treatment, and disposal
- Remove SVE system, replace with SSD.
- Cost: \$3,546,000



Alternative 4

In Situ Chemical Oxidation (ISCO), Sub-Slab Depressurization (SSD), Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)

- In place oxidant injection events.
- Remove SVE system, replace with SSD.
- Cost: \$2,706,000



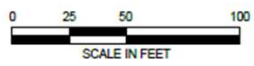
LEGEND

- MONITORING WELL LOCATION
- - - PROPERTY BOUNDARY
- FENCE
- ← INFERRED GROUNDWATER FLOW DIRECTION
- 5 PCE IN SHALLOW GROUNDWATER (ug/L)

- PROPOSED SSD POINT LOCATION
- ESTIMATED SSD RADIUS OF INFLUENCE
- PROPOSED ISCO INJECTION WELLHEAD
- PROPOSED ISCO INJECTION WELL CASING
- - - PROPOSED ISCO INJECTION WELL SCREEN
- - - PROPOSED TRENCH FOR UNDERGROUND CONVEYANCE PIPING

- ASPHALT
- GRASS
- CONCRETE

NOTE:
 TRENCHING AND ABOVEGROUND SSD CONVEYANCE PIPING INSIDE FACILITY NOT SHOWN.



DATE
 FEBRUARY 2023

PROJECT NUMBER
 60650133

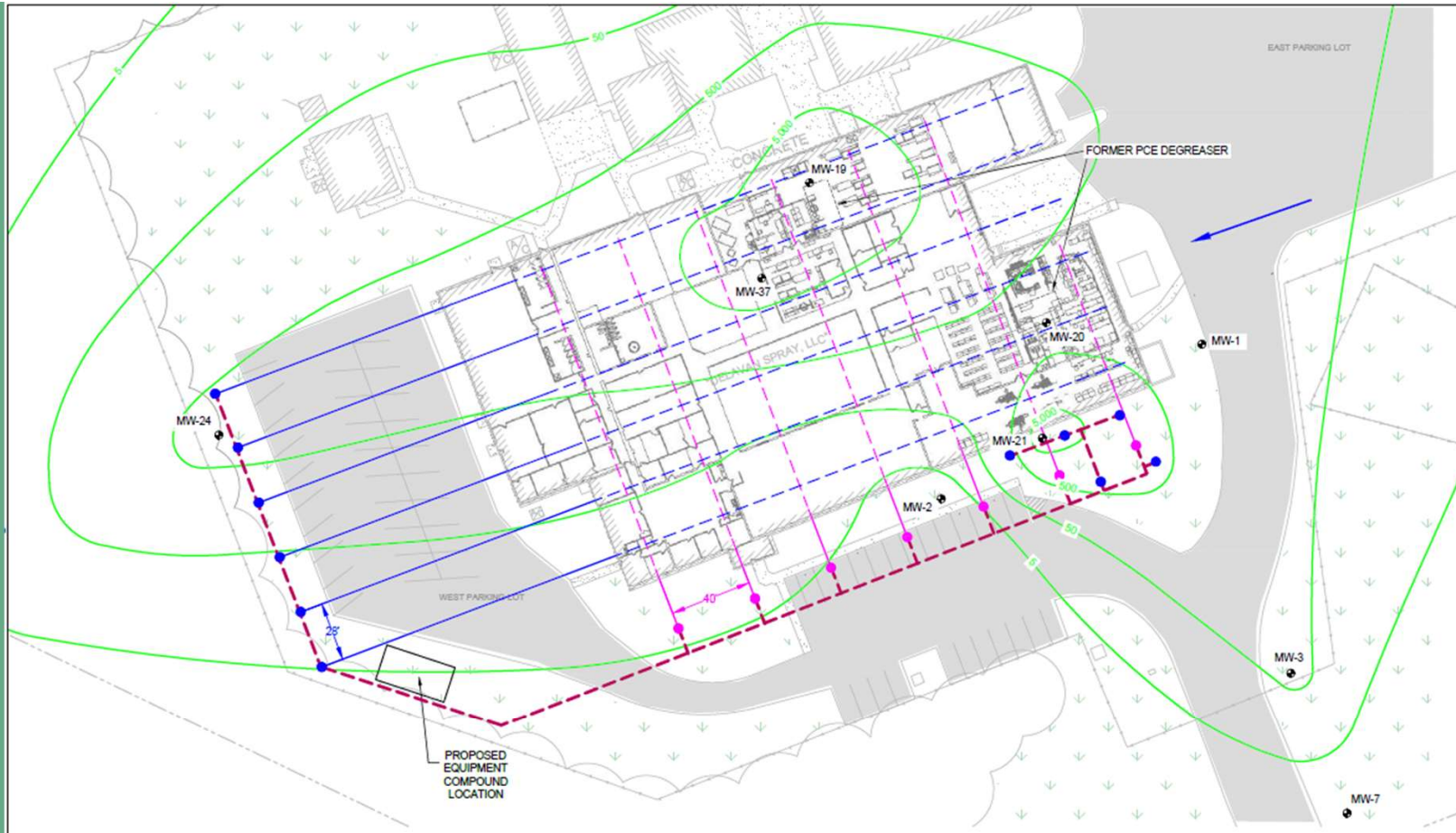
SHEET TITLE
 REMEDIAL ALTERNATIVE 4
 CONCEPTUAL LAYOUT

FIGURE NUMBER
 15

Alternative 5

Air Sparging (AS), Soil Vapor Extraction (SVE),
Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)

- Continuous air injections to increase volatilization in aquifer.
- Expand SVE system and capture network.
- Cost: \$2,962,000



LEGEND

- ◆ MONITORING WELL LOCATION
- - - PROPERTY BOUNDARY
- FENCE
- INFERRED GROUNDWATER FLOW DIRECTION
- 5 PCE IN SHALLOW GROUNDWATER (ug/L)
- SVE WELLHEAD
- SVE WELL CASING
- - - SVE WELL SCREEN
- PROPOSED AS WELLHEAD
- PROPOSED AS WELL CASING
- - - PROPOSED AS WELL SCREEN
- - - PROPOSED TRENCH FOR UNDERGROUND CONVEYANCE PIPING

- ASPHALT
- ▨ GRASS
- ▨ CONCRETE



DATE
FEBRUARY 2023

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60650133

SHEET TITLE
REMEDIAL ALTERNATIVE 5
CONCEPTUAL LAYOUT

FIGURE NUMBER
16

Evaluation of Alternatives



Threshold Criteria

Overall protection of human health and the environment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

- Staying compliant with federal and state environmental statutes and regulations. Any permits needed to implement the remedy.

Criterion	Alternative 1 No Action	Alternative 2 Excavation, Groundwater Capture, SSD, MNA & ICs	Alternative 3 DPE, SSD, MNA & ICs	Alternative 4 ISCO, SSD, MNA & ICs	Alternative 5 AS, SVE, MNA & ICs
Protection Human Health and the Environment	Does not protect human health nor the environment.	Treats some source area contamination. Provides protection of human health and the environment throughout the remedial process.	Treats source area contamination. Provides protection of human health and the environment throughout the remedial process.	Treats source area contamination. Provides protection of human health and the environment throughout the remedial process.	Treats the largest area of source contamination. Provides protection of human health and the environment throughout the remedial process.
	1	2	3	2	4
Compliance with ARARs	Does not comply with ARARs.	Complies with ARARs in a longer time frame. Discharge permit and licensed operator would be required.	Complies with ARARs in a reasonable timeframe. Discharge permit and licensed operator would be required.	Complies with ARARs in a reasonable timeframe. Injection permit would be required.	Complies with ARARs in a reasonable timeframe. Injection permit would be required.
	0	2	3	3	3

Balancing Criteria

Short-term effectiveness

- Risks to on-site workers, the community, or the environment during implementation.

Long-term effectiveness and permanence

- How permanent the remediation is, and what are the long-term risks.

Reduction of toxicity, mobility & volume through treatment

- Does the remedy address the toxicity, mobility, and volume, especially in the source areas.

Implementability

- Is the remedy feasible.

Costs

Criterion	Alternative 1 No Action	Alternative 2 Excavation, Groundwater Capture, SSD, MNA & ICs	Alternative 3 DPE, SSD, MNA & ICs	Alternative 4 ISCO, SSD, MNA & ICs	Alternative 5 AS, SVE, MNA & ICs
Short-Term Effectiveness	Do not provide short-term effectiveness. Increased risk from shutting down SVE system.	Provides short-term effectiveness with IC and SSD but brings a large risk to on-site workers and nearby residents with removal.	Provides short-term effectiveness with IC, SSD and DPE but brings a moderate risk to on-site workers with installation.	Provides short-term effectiveness with IC, SSD and ISCO but brings a moderate risk to on-site workers with installation.	Provides short-term effectiveness with IC and AS. An SVE system has already been installed, and modifications would be minor.
	1	3	3	3	4
Long-Term Effectiveness and Permanence	Does not provide long term effectiveness and permanence.	Provides some long-term effectiveness through excavation, groundwater capture and SSD by removing subsurface CoCs. Timeframe to reach remediation goals is much longer than other alternatives.	Provides long-term effectiveness through DPE and SSD by removing subsurface CoCs. Timeframe to reach remediation goals is moderate.	Provides long-term effectiveness through ISCO and SSD by removing subsurface CoCs. Soil composition may affect the target area effectiveness. Timeframe to reach remediation goals is longer than other alternatives.	Provides long-term effectiveness through AS and SVE by removing CoCs from subsurface soils and groundwater. Timeframe to reach remediation goals is moderate.
	1	2	3	2	3

Criterion	Alternative 1 No Action	Alternative 2 Excavation, Groundwater Capture, SSD, MNA & ICs	Alternative 3 DPE, SSD, MNA & ICs	Alternative 4 ISCO, SSD, MNA & ICs	Alternative 5 AS, SVE, MNA & ICs
Reduction of toxicity, mobility, & volume through treatment	Does not actively reduce toxicity, mobility nor volume by active treatment.	Reduction in volume through excavation. Mobility is addressed with groundwater capture and recovery and SSD. Residual source area is expected to remain in saturated soils.	Reduction in volume through DPE. Vapor mobility is addressed with DPE and SSD. Some residual source area is expected to remain.	Reduction in toxicity and volume through ISCO. Vapor Mobility is addressed with SSD. Some residual source area is expected to remain.	Reduction in toxicity and volume through AS and SVE. SVE is more effective than SSD. Some residual source area is expected to remain.
	1	3	3	3	4
Implementability	No issues to be implemented.	Facility operations may need to cease for excavation. Facility equipment would need to be moved, some permanently. SSD system would need to be installed in the building	Facility equipment would need to be moved and major interruptions to facility operations would be expected. SSD system would need to be installed in the building	Facility equipment would need to be moved and interruptions to facility operations would be expected. SSD system would need to be installed in the building	Resources are readily available. Implementation not expected to hinder facility operation. Outside of building footprint and minimal disruptions.
	4	1	2	2	4
Costs	\$0	\$5,344,000	\$3,546,000	\$2,706,000	\$2,962,000
	4	1	2	3	3

Criterion	Alternative 1 No Action	Alternative 2 Excavation, Groundwater Capture, SSD, MNA & ICs	Alternative 3 DPE, SSD, MNA & ICs	Alternative 4 ISCO, SSD, MNA & ICs	Alternative 5 AS, SVE, MNA & ICs
Reduction of toxicity, mobility, & volume through treatment	Does not actively reduce toxicity, mobility nor volume by active treatment.	Reduction in volume through excavation. Mobility is addressed with groundwater capture and recovery and SSD. Residual source area is expected to remain in saturated soils.	Reduction in volume through DPE. Vapor mobility is addressed with DPE and SSD. Some residual source area is expected to remain.	Reduction in toxicity and volume through ISCO. Vapor Mobility is addressed with SSD. Some residual source area is expected to remain.	Reduction in toxicity and volume through AS and SVE. SVE is more effective than SSD. Some residual source area is expected to remain.
	1	3	3	3	4
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	4	1	2	2	4
Costs	\$0	\$5,344,000	\$3,546,000	\$2,706,000	\$2,962,000
	4	1	2	3	3
TOTAL	8	14	19	19	24

SCDES's Preferred Alternative



Alternative 5

Air Sparging (AS), Soil Vapor Extraction (SVE), Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)

- Protective of human health and the environment. Complies with ARARs.
- Does not add excessive risk to on-site workers.
- Remediation is considered reasonably priced, implementable, and a permanent change to the contamination.

Public Comment Period



SCDES will accept written comments on the Proposed Plan during the public comment period. Please submit your written comments to:

Genevieve Keller-Milliken //

Project Manager

SCDES, Bureau of Land & Waste Management
2600 Bull Street, Columbia, SC 29201

genevieve.kellermilliken@des.sc.gov

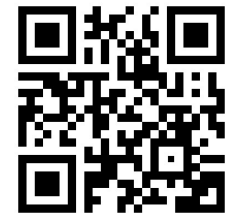
803.898.0722

des.sc.gov

Public Comment Period

February 5, 2026 -

April 1, 2026



des.sc.gov/DelavanSprayTechnologies



SC DEPARTMENT *of*
**ENVIRONMENTAL
SERVICES**

Get in touch

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