

A SUCCESSFUL BROWNFIELD CLEANUP SITE

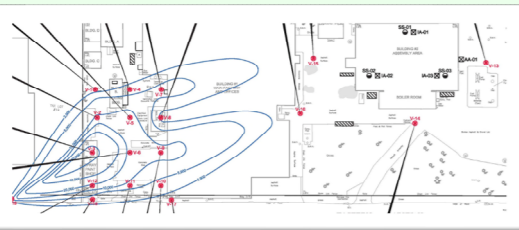
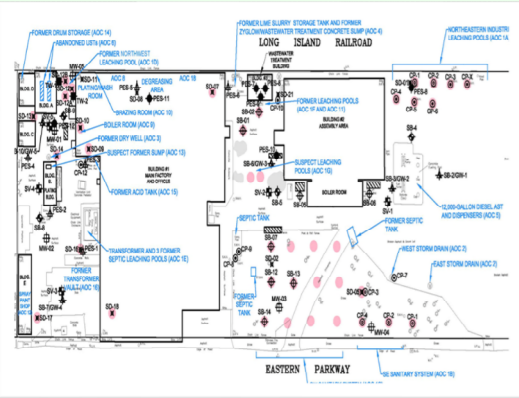
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Abstract#: 40
GROUP 2

OBJECTIVE & BACKGROUND

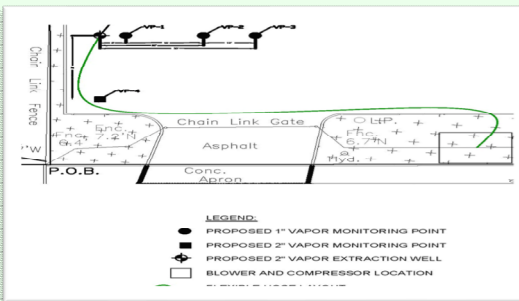
Objective

- Complete remediation on fast track to avail maximum tax credits under NY State Brownfield Cleanup Program (BCP)
- Incorporate sustainable remediation practices through design and construction



Challenges

- Complete remediation quickly to claim tax credits
- Meet regulatory obligations in tight timeframe
- Control extensive soil vapor contamination without identification of source contamination
- Prevent off-site migration of soil vapors
- Implement sustainable remediation practices



Background

- Industrial facility since 1929, including: aircraft engine, machine shop, wastewater treatment building
- Operations: metal fabrication, press, paint spraying
- AOCs identified: cesspools, leachate pools, industrial buildings
- VOCs SVOC, PCBs, TAL metals detected in soil and groundwater samples at 20+ feet
- Drywells/leaching pools and possible historic fill attributed contamination
- High levels of VOCs detected in Soil Vapor samples

Soil gas samples results:

- TCE: 64,000 µg/m³; PCE: 4,750 µg/m³; Carbon Tetrachloride 1,840 µg/m³
- Low levels of VOCs in sub-slab and indoor air samples
- Former spray paint booth attributed to CVOCs in soil vapor

Remedial Design

- Residual contamination to remain on Site under impervious surface
- MNA as a means of groundwater contamination reduction
- SVE system to remediate VOC contamination in soil vapors and prevent off-site migration

SVE Pilot Study

- A pilot study was conducted to develop the design parameters for full-scale system are summarized below:
 - ROI of 30 ft.
 - Operating flow of 220 CFM
 - Five SVE wells to cover an area of 14,000 sq.ft.

REMEDIATION



Pre-remediation demolition of structures



Excavation of contaminated soil to the extent feasible



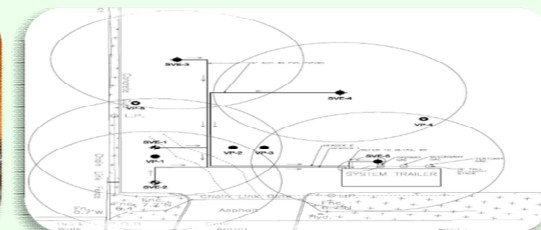
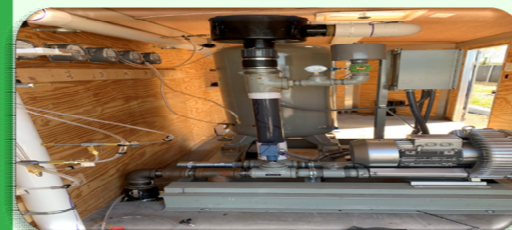
Removal of contaminated leaching pool/drywell



Removal of contaminated from drywell



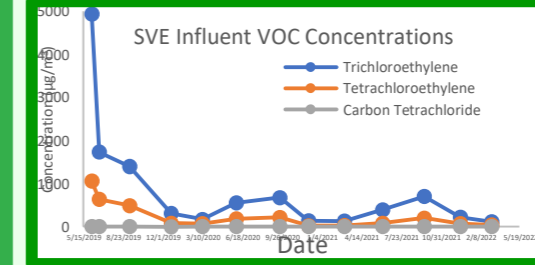
Backfilling and grading



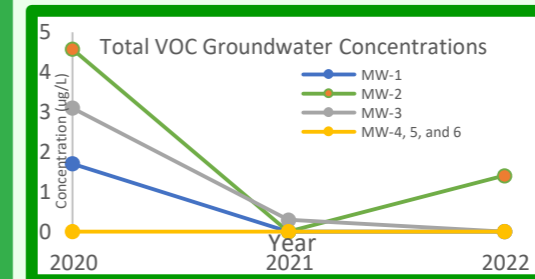
SVE system trailer built in-house, using salvaged materials and equipment no longer needed at other sites
Full-scale SVE system captures vapors from a target area of approximately 14,000 square feet

RESULTS & CONCLUSION

Results



- SVE system operated for 3 years:
 - ✓ Removed approximately 10 lbs. of VOCs from 246,000,000 ft³ of air
 - ✓ Mann-Kendall test of PCE and TCE in soil vapor indicates stable conditions asymptotic levels



- MNA monitoring for 2 years:
 - ✓ TCE and PCE was not detected above Ambient Water Quality Standards (AWQS)
 - ✓ Attributed to off-site sources
 - ✓ Groundwater results indicate anaerobic conditions

Conclusions

- Remediation of leaching pools completed under IRM to allow future construction
- Engineering controls:
 - ✓ Controlling off-site soil vapor migration
 - ✓ Reducing soil vapor concentrations
 - ✓ Preventing leaching of residual contamination from soil into groundwater
- All potential tax credits were awarded
- Client earned tax credits to offset development cost

Post-Remediation



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