Adaptive Remedial Investigation Scope for Accelerated Vapor Intrusion Evaluation

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Lea and West Second Superfund Site, Roswell, NM

- NPL April 7, 2016
- 4 Separate Sites/Sources
- PCE Contamination
- Dry Cleaners are Source at Sites 1, 2, & 3
- Site 4 - Source Unknown
- Shallow Groundwater
- Clayey Vadose Zone
- Residential and Commercial Impacts
Prioritization of the Remedial Investigation

- **Incremental Funding**
  - Multiple Sites to Investigate
  - Prioritization of Sites and Remedial Investigation Sequencing

- **Stakeholders**
  - Met in the Early Stages to Provide Input

- **Conceptual Understanding of the Site**
  - Key to Prioritization
  - Reviewed Historical Data
  - Developed Data Gaps
  - Determined Exposure Pathways
Stakeholders and Community Team

• Stakeholders - EPA, NMED, ATSDR, City of Roswell

• First Site Visit – Meeting with City of Roswell and NMED

• Second Site Visit - Access – Quickly Obtained EPA/EA/NMED
  • Door to Door – completed in one day
  • ATSDR Fact Sheets on Vapor Intrusion

• Team Meetings With Stakeholders Ongoing
  • Frequent
  • Used to Update Team and Plan Public Information Meetings

• Public Information Meetings Ongoing
  • Early on, with follow-up meetings
Conceptual Understanding of the Site

Reviewed Historical Data

- NMED Data
- PSTB LUST Data
- GWQB Data
- Phase 2 ESA Data
- Zoning Maps
- Sensitive Receptors
- Sanborn Maps

Interpolation Method - Kriging using Envirolnsite

PCE (µg/L)
- 0.0 - 5.0
- 5.0 - 50.0
- 50.0 - 100.0
- 100.0 - 500.0
- 500.0 - 1000.0
- 1000.0 - 1500.0

Interpolated Map of Contaminant Concentrations

SITE 1
Lea and West 2nd Street Site

SITE 2
West 2nd and Montana Site

SITE 3

SITE 4
507 E 2nd

Scale: 1 inch = 1480 feet

2018 Design and Construction Issues at Hazardous Waste Sites
Conceptual Understanding of the Site

- Sanborn Maps – Key to locating Potential Sources
Data Gaps

• Vapor Intrusion Pathway had not been assessed at all 4 Sites.
• Extent of Soil Contamination – Limited soil samples from Sites 1, 2 and 3.
• Horizontal Extent of Ground Water Plumes – Although significant ground water data exists the plumes are not defined.
• Vertical Extent of Contamination - Aquifer is up to 300 feet thick.
• Source Areas
  • Additional sources for Sites 1, 2 and 3
  • Source Area for Site 4 unknown
• Impacts to Surface Water – Two intermittent streams are present near Sites 3 and 4.
Prioritization of Sites

- **First Priority Pathway** - Risk to Human Health from Vapor Intrusion Exposure
  - By Rank - Site 2, Site 1, Site 4, then Site 3
  - Full Vapor Intrusion Investigation—all 4 sites and Passive Soil Gas Survey 3 of the 4 sites

- **Second Priority Pathway** - Risk to Human Health from Soil and Ground Water Exposure
  - Site 2, Site 1, Site 3, then Site 4
  - Investigation of Site 2 and Site 1
Field Investigation First Steps Passive Soil Gas

- May 2017 – Passive Soil Gas Samplers Deployed at Sites 1, 2, and 3
- Data Evaluated and Additional Samplers Deployed to Further Delineate at Sites 1 and 2 – 90 Samplers Deployed in Total
- April 2018 – 110 Samplers Deployed at Site 4
RI Field Investigation
First Steps Vapor Intrusion Sampling Sites 1, 2, 3 & 4

• May 2017 - Vapor Intrusion Sampling Indoor Air, Sub-Slab/Crawl Space, and Outdoor Air Completed in 1 Week
• 13 Residential Properties
• 4 Commercial Properties
• Vapor Mitigation via Sewer Assessment
• Public Information Meeting
• Verification VI Sampling Followed in June 2017
• Winter VI Sampling January 2018
• Site 1 additional VI added in March 2018
Vapor Intrusion Results
Site 1 – VI Pathway Complete at Commercial Property
Sub Slab above EPA PCE RSLs – two residential properties

Site 2 – VI Sub-Slab Above EPA PCE RSLS – Winter Indoor Air Complete Pathway
Vapor Intrusion Results

Site 3 Below EPA RSLs
Site 4 Sub-Slab Above EPA PCE RSLs
PSG Results

- Passive Soil Gas
  - Guided Placement of Borings
  - Provided useful data regarding plume trajectory, centerline and width which assisted in refining the monitoring well network beforehand
  - Initial soil boring samples indicated that PSG data substantially delineated impacts to groundwater and minimal impacts to soil.
  - Use of PSG accelerated evaluation of VI pathways
VI Mitigation Site 1

The Goal - VI pathway can be mitigated while the RI and Feasibility Study are being conducted, providing timely elimination of a complete exposure pathway.

- Property Owner – canceled leases for two of the commercial spaces at Site 1 that had summer indoor air complete pathway.
- Added air purification.
- Winter VI results indicated other two commercial spaces had indoor air complete pathway.
- Property owner canceled other two leases. Building is empty.
- Removal Program was scheduled to install sub-slab depressurization system – Property owner declined and elected to leave building permanently empty.
Conclusion

• 4 Sites - incremental funding required prioritization.
• Conceptual Understanding of Site Key to effective prioritization of Sites and sequencing of initial investigation efforts
• Prioritization lead to expedient determination of complete VI pathway
• As VI is addressed and further investigated, soil and ground water investigation began Sites 1 and 2
• Mitigation – Site 1 commercial spaces permanently unoccupied until property remediated and VI threat addressed
• Stakeholders meet frequently to determine path forward – Priority of sites changes as new information obtained and CSM refined