Public Involvement

Former Defense Supply Center Philadelphia (DSCP) Site

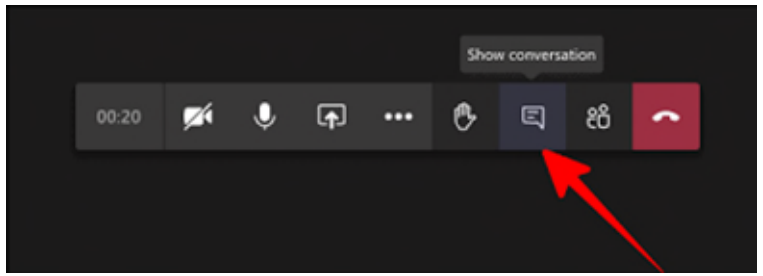
Teleconference Date: December 15, 2021 Time: 6:30-8:30 PM

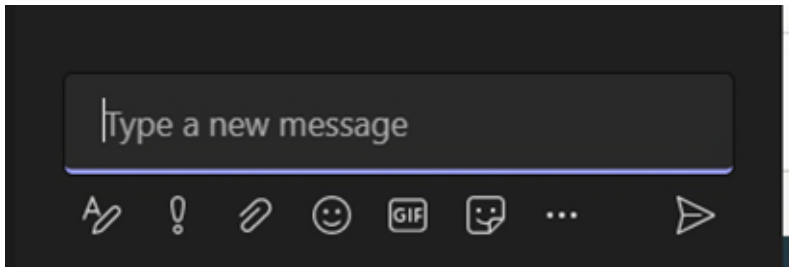
Purpose of this Teleconference

- Engage the public
- Assist the public with review of the Remedial Investigation Report and Cleanup Plan (RIR/CP)
- 90-day public comment period
- Present a summary of clean-up activities completed to date
- Provide a forum for the public to ask questions

How to Ask Questions

- This teleconference is being hosted on Microsoft Teams.





- To ask a question, open the meeting chat window by clicking the “Show conversation” button
- Enter question in the chat window that pops up where it says “type new message”, then click the arrow on the right to submit your question
- We will conduct our presentations first, but feel free to submit questions as we go. We will answer them at the end of the presentations.

Q&A session will be held at the end of our presentations.

Audio Only Guide

- If you are unable to provide an email or join via MS Teams, you can call in for audio only:

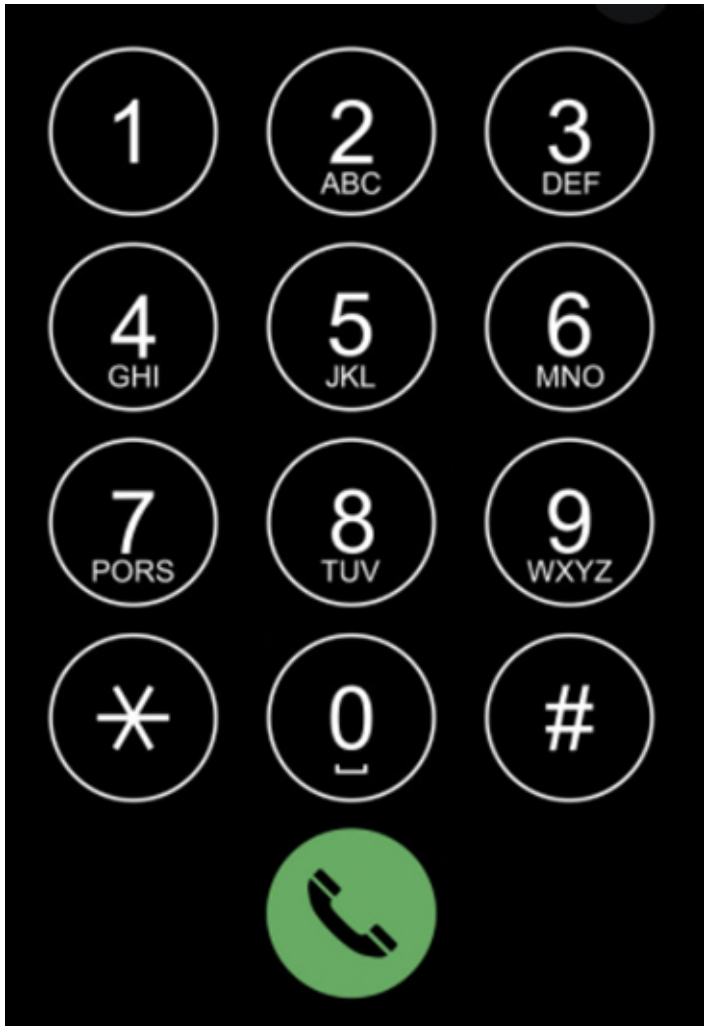
  Audio only

  +1 267-807-0624,,823996214#

  United States, Philadelphia

  Phone Conference ID: 823 996 214#

- ***Audio Only will not allow you to see our presentation.***
- To ask a question, Press *5 on your phone. This will raise your hand. The moderator will indicate when your microphone has been enabled.
- When you microphone is enabled, to speak your question, Press *6



Q&A session will be held at the end of our presentations.

Project Team Introduction

SERES Engineering & Services, LLC
ARCADIS
a joint venture

Project team members in Attendance:

Defense Logistics Agency (DLA)

- Bradley Clawson
- Stephen Porch

United States Army Corps of Engineers (USACE)

- Sterling Johnson
- Steve Langseder
- Vincent Grassi

Seres Arcadis Joint Venture (JV)

- Matt Lesley
- Meredith Braverman
- Carlo Di Tullio
- Jessica Travis

Montrose (PARS) Environmental Group

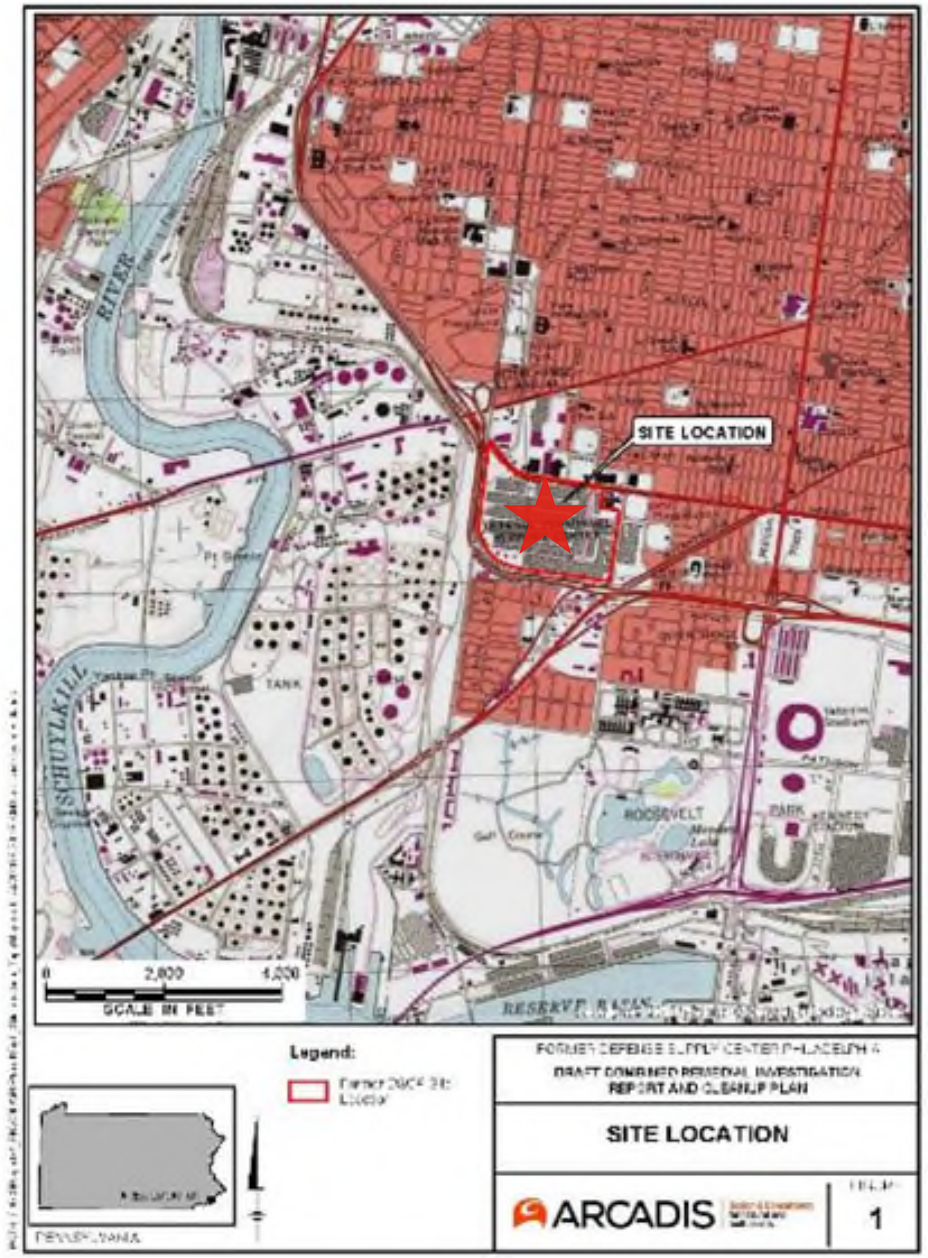
- Eric White

Agenda

- Presentation (approximately 1 hour)
  - Introduction
  - Location, Objectives, History of Public Involvement, Act 2 Process
  - Background, regulatory history, selection of standards, site characterization
  - Conceptual Site Model: Hydrogeology & Environmental Impacts
  - Cleanup Plan, Site Remedial Actions, Engineering Controls
  - Summary of Presentation
- Q&A Session (Approximately 45 minutes)

Q&A session will be held at the end of our presentations.

Location and Background



- Historic military supply depot on the National Register of Historic Places
- Philadelphia Quartermaster Depot was constructed during World War I to expand the Schuylkill Arsenal
- Expanded to current footprint during World War II

Location and Background

- Textile manufacturing for the military, such as uniforms, shoes, coats, blankets, sleeping bags, etc.
- Expanded during World War II
  - Employed 15,000 people between1941 through 1945 at its peak
  - Maintained a work force of around 5,000 people after the end of WWII until closure in 1993
- Closed under Base Realignment and Closure (BRAC) in 1993 at which point environmental Investigation commenced

Objectives for Public Involvement

- Public Involvement Plan – March 2021
- Re-engage with our community stakeholders, which includes:
  - Residents and neighbors
  - Interested or involved agencies, property owners
  - Local businesses and environmental organizations
  - Your representatives in the City of Philadelphia
- Enable a two-way communication between stakeholders and the Defense Logistics Agency (DLA)
- Provide an update to stakeholders about past, ongoing and planned site environmental clean-up efforts

Where to find the report

The full Remedial Investigation Report and Cleanup Plan is available for review at the following website:

https://www.dla.mil/HQ/InstallationManagement/DoingBusinessWithInstallationManagement/EnvironmentalDocuments/

History of Public Involvement

- Restoration and Advisory Board (RAB) – 1996 – 2011
- 2004 Public Involvement Plan (PIP) created
- Regular meetings stopped when clean-up was implemented
- Community Involvement Evolution: Post RAB, interested stakeholders and property owners impacted by clean-up efforts received quarterly progress reports
- 2021 Updated PIP

Quarterly Progress Reports available at the PADEP Office

Act 2 Process

Notice of Intent to Remediate

- Selects Act 2 Standard
  - Site-specific standard pathway elimination approach selected
- Public Notice & Comments Period

Remedial Investigation Report / Cleanup Plan

- Site Characterization
  - Includes Human Health Risk Assessment
- Includes Cleanup Plan
  - Summary of clean-up activities
  - Description of engineering & institutional controls
- Public Notice & Comments Period

Final Report

- Summarize All Act 2 Activities and Post Remedial Care
- Demonstration of Attainment
- Institutional Controls
- Public Notice & Comments Period

Former DSCP RIR/CP Components

- Remedial Investigation Report
  - Executive Summary
  - List of Contacts
  - Site Maps
  - Site Description/Environmental Setting
  - Selection of Standards
  - Site Characterization and Conceptual Site Model
  - Contaminant Fate and Transport
  - Site-Specific Human Health Risk Assessment

RIR is the comprehensive report and problem statement for clean-up

Regulatory History

- 1996 Administrative Order (AO)
  - Remedial actions commenced for petroleum hydrocarbon Light Non-Aqueous Phase Liquid (LNAPL)
  - Interim Remedial Actions (IRA)
- 1999 AO
  - Remove LNAPL to maximum extent practicable
  - Act 2 - Remedial standards and path-to-closure
- Notice of Intent to Remediate – April 14, 2017
  - Site specific standard / pathway elimination
  - Strategy to stabilize residual LNAPL
- Remedial Investigation Report/Cleanup Plan (RIR/CP) Planned submittal date May 2022, after 90-day public comment period ends

What are we remediating at DSCP?

- Historic petroleum hydrocarbon contamination
- LNAPL = Light Non-Aqueous Phase Liquid
  - Less dense than water
  - Doesn't mix with water; remains a separate phase liquid, but adheres to soil
- LNAPL is a middle petroleum distillate
  - Density between gasoline and diesel
- **1,076,810 gallons recovered to date**

Image courtesy of Interstate Technology and Regulatory Counsel

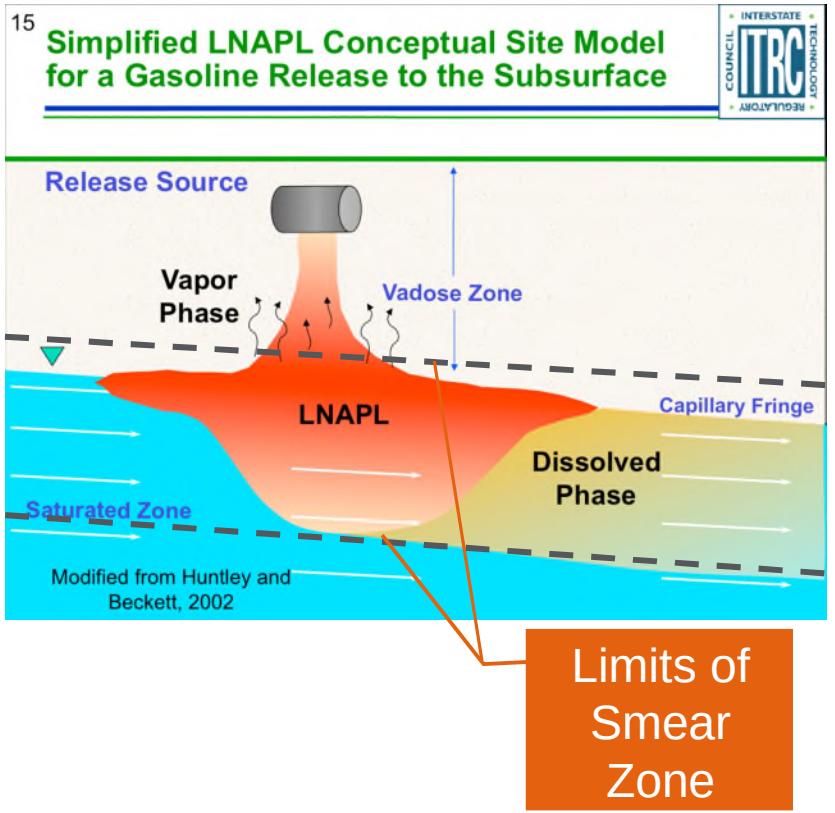
Image of LNAPL sample from DSCP

This project is about clean-up of Site LNAPL and eliminating risk.

Potential exposure risks from the LNAPL at DSCP

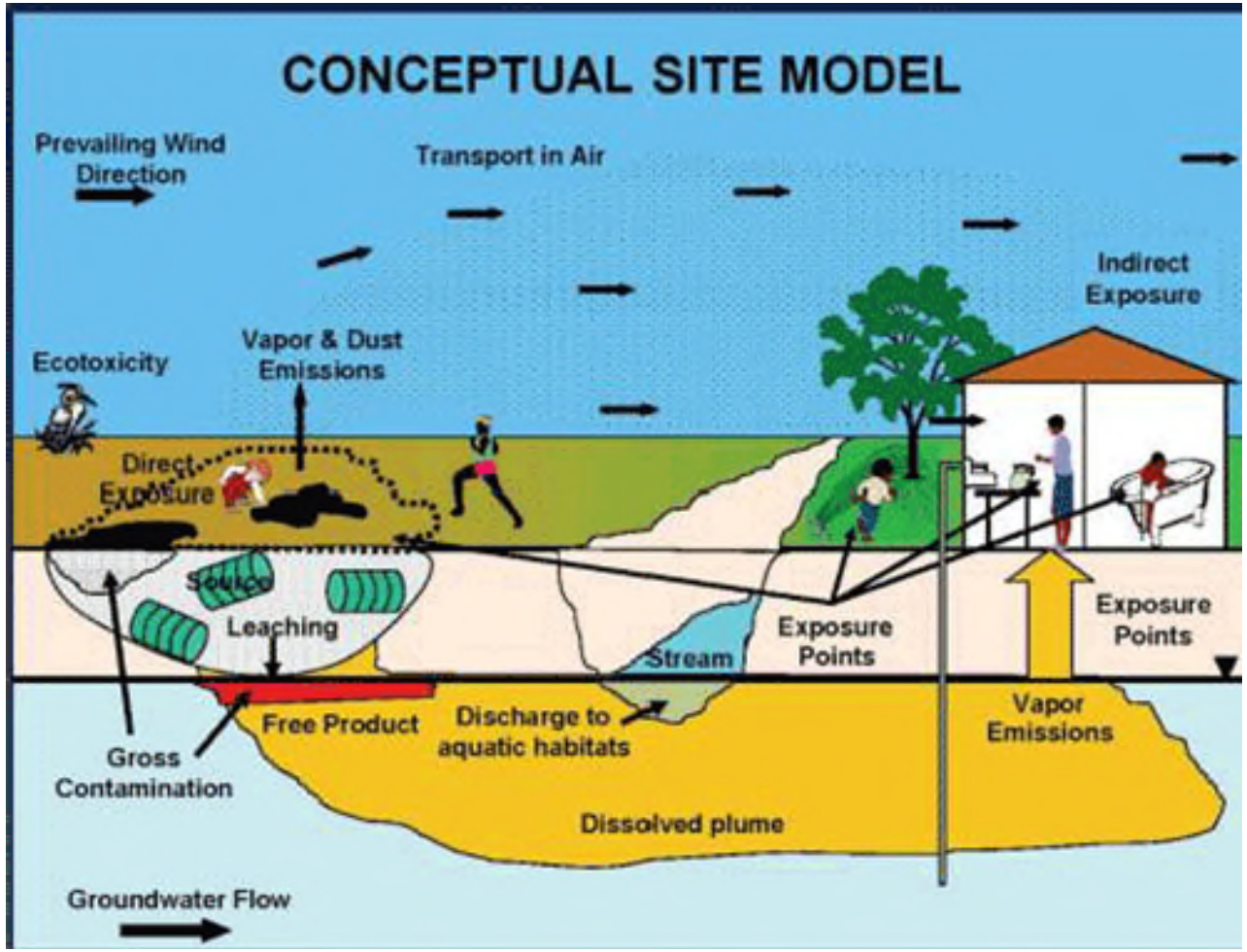
Constituent compounds from LNAPL in Site media:

- Dissolve into groundwater
  - Risk of exposure to impacted ground water
- Adhere to soil
  - Risk of absorption through the skin by direct contact for utility workers
- Volatilize into vapor
  - Potential for vapor intrusion into buildings posing an inhalation risk



Currently no known or anticipated impacts in project site.

Media Description



Hawaii State Department of Health

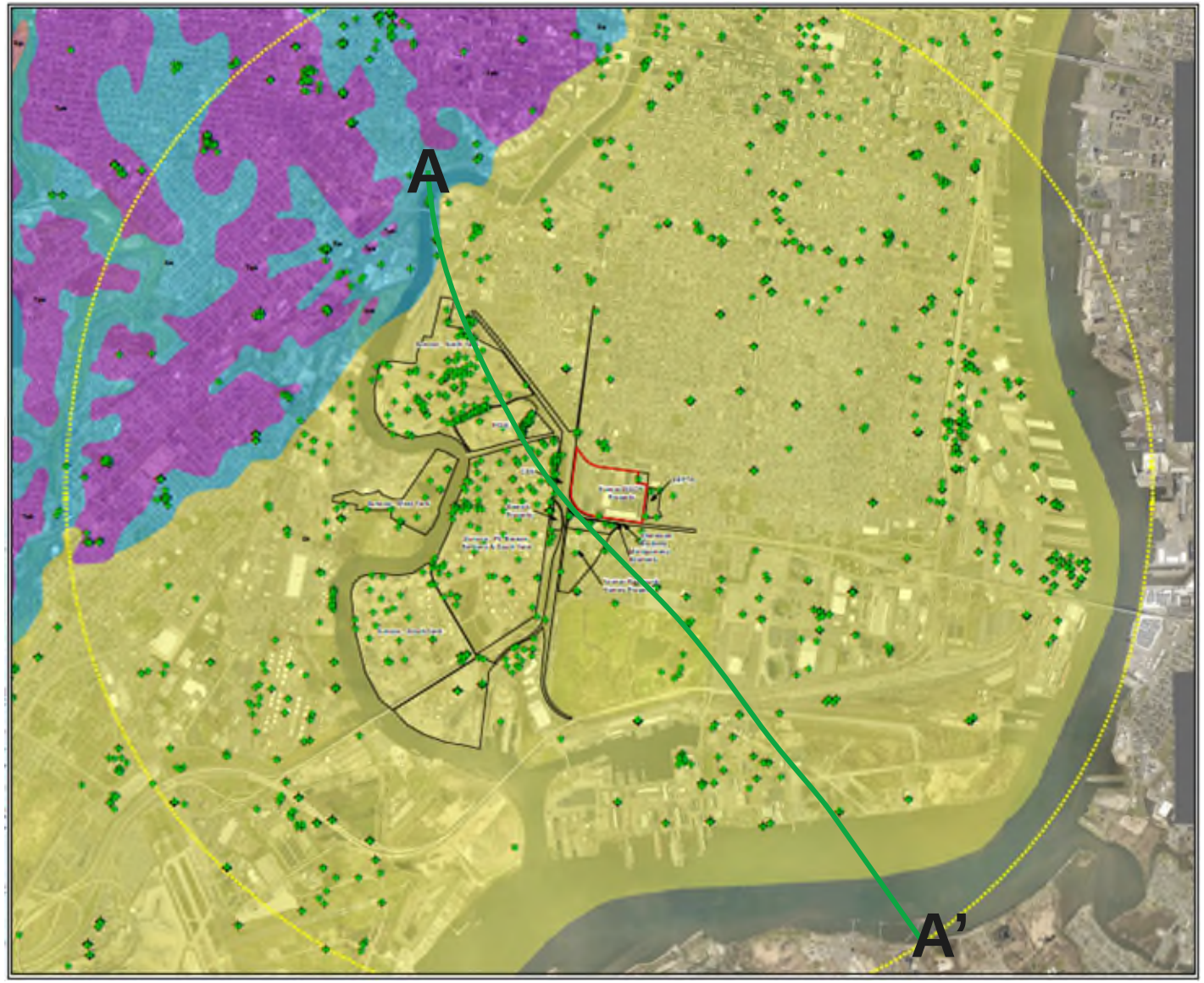
Currently no known or anticipated impacts in project site.

Site Characterization/Conceptual Site Model (CSM)

- What is a Conceptual Site Model (CSM)?
  - PADEP defines a CSM as "*a written and [/or] graphical representation of the site environmental system and the processes that control the transport and movement of regulated substances through the environmental media and how they interact*."
  - Developed using:
    - **Site historical information** (maps, documents, infrastructure plans, etc.)
    - **Site investigation-derived data** (drilling and well construction logs, survey data, groundwater measurements, sampling data, O&M data, etc.
  - **"Living Model"**- constantly updated with new information

CSM purpose is to define the impacted media, identify exposure routes, guide risk assessment, and inform mitigation approach(es)

Regional Geology and Hydrogeology



Legend

- Former DSCP Property Boundary
- Surrounding Properties Boundary
- 3-Mile Radius of Site
- PAGWIS Indicated Well Location

Geologic Unit

- Qt - Fill deposits, Holocene marsh/alluvial Deposits, and Trenton Gravel (Pleistocene) Formation
- Tpb -Pensauken and Bridgeton Formation, undifferentiated
- Xw - Wissahickon Formation
- Xgr- Granitic Gneiss and Granite Formation
- Xmgh - Mafic Gneiss, Hornblende-Bearing

North

Regional Geology and Hydrogeology

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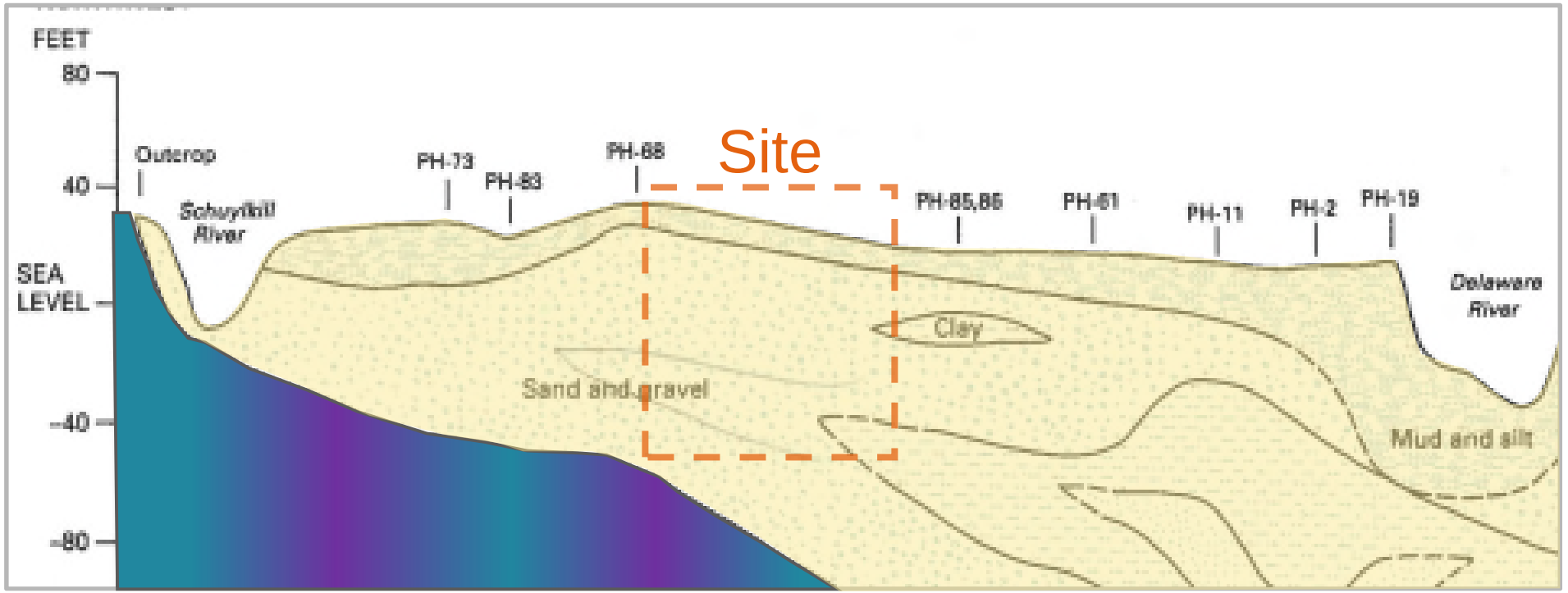

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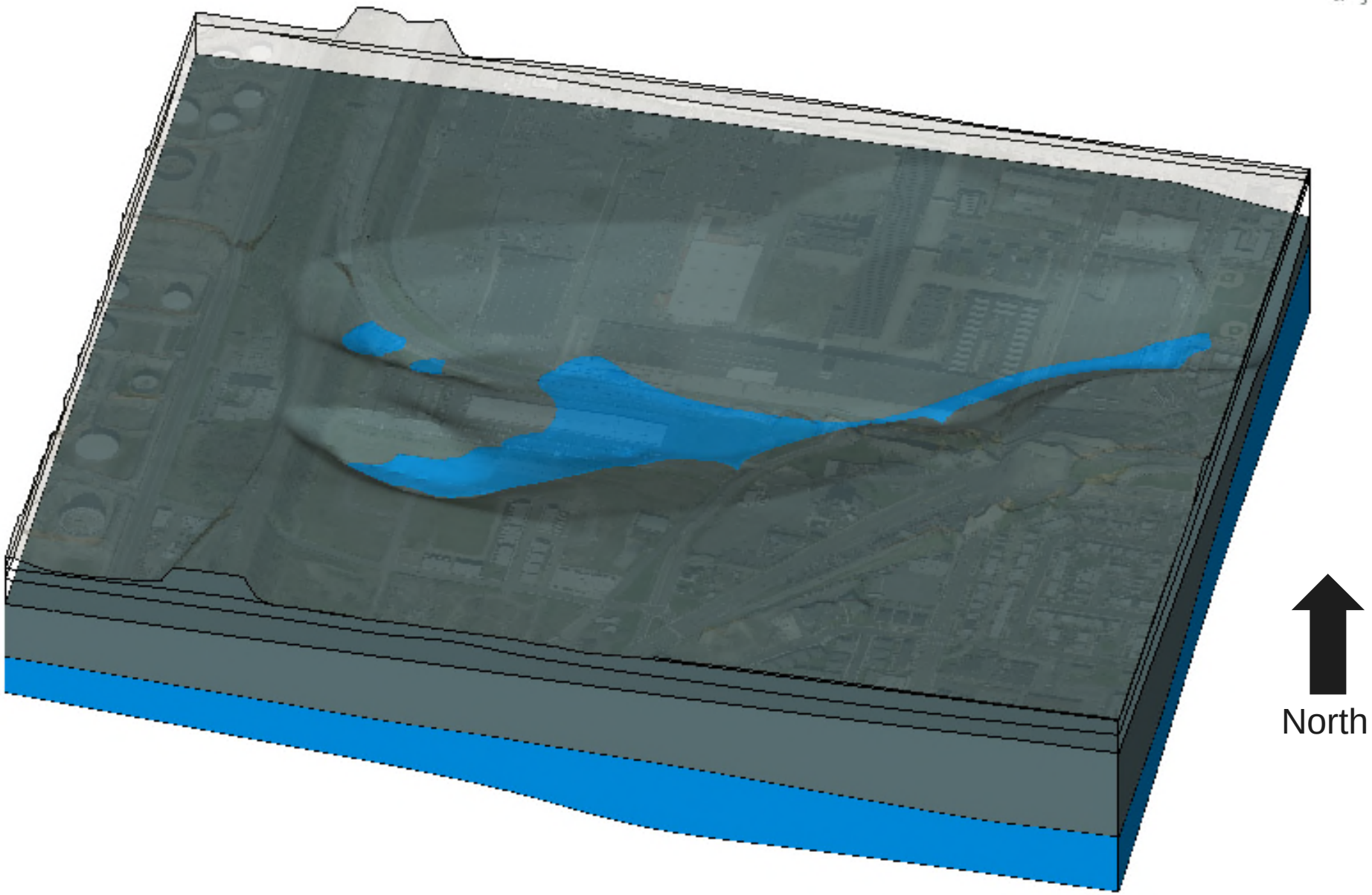
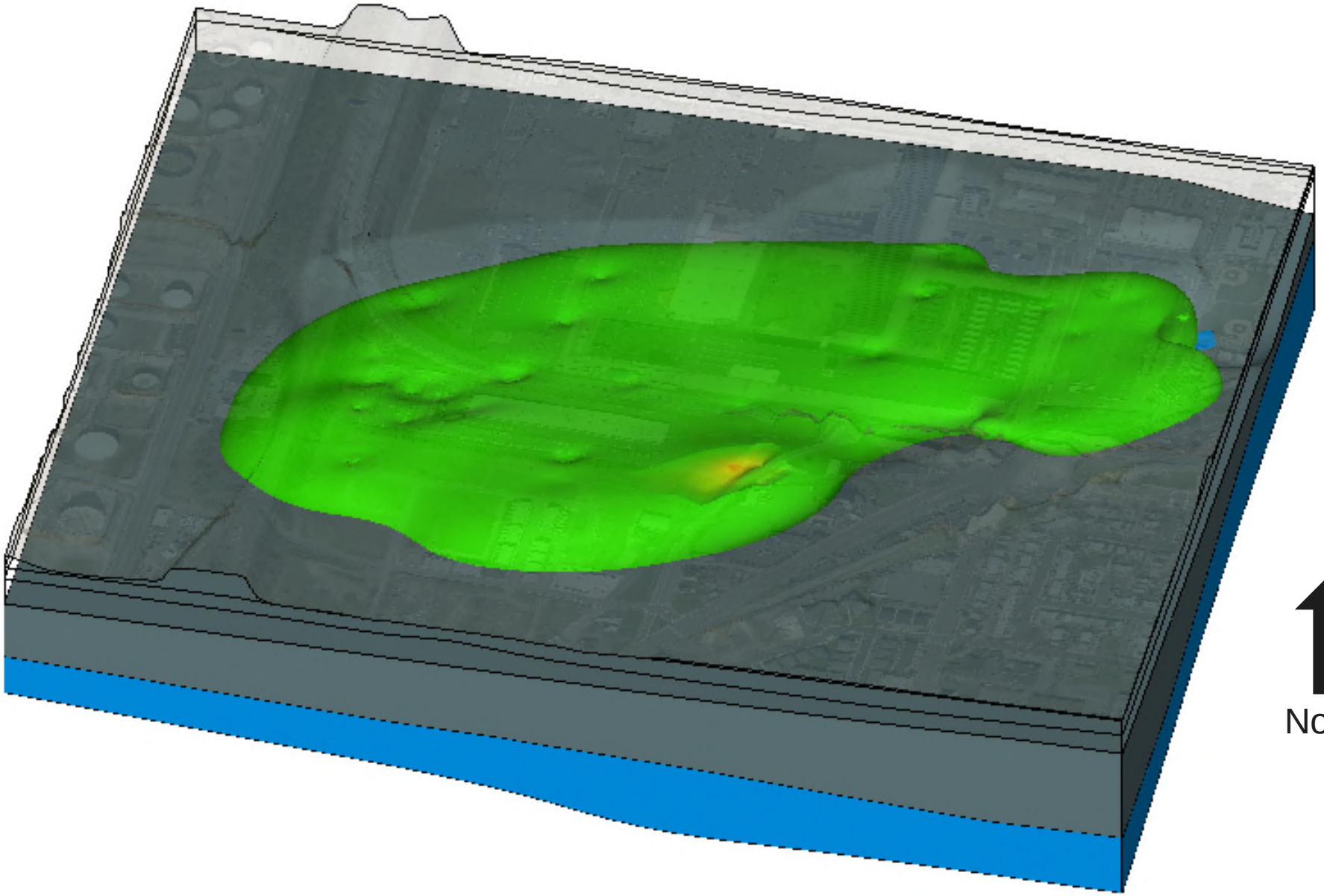
from USGS, 1991

- Sediment Wedge is like a giant cake
- Cake separated by frosting (sands separated by clays)
- Groundwater occurs in multiple separate layers
- Frosting (clay) is not present everywhere

Site Geology and Hydrogeology



Extent of Affected Media

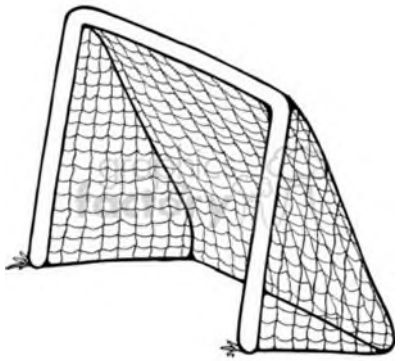


Distribution of Petroleum Hydrocarbon-Related Impacts

- LNAPL
  - Initial source of resultant impacted media (soil, groundwater vapor), and resulting Act 2 Site are controlled by hydrogeology
- Groundwater
  - Primarily in shallow aquifer
  - Deep aquifer impacts due to local absence of separating clay layers, extends beyond LNAPL footprint to the southwest
- Soil
  - Coincident with historical LNAPL footprint
  - Thickness due to fluctuations in GW with time (smear zone)
- Vapor
  - Limited to areas above historical extent LNAPL
  - Primarily coincident with disturbance/historical and recent construction (utility trenches, excavations > 10 feet)
- Clean-up and risk mitigation goals focused on stabilizing residual LNAPL and managing impacted media

Former DSCP Site Goals

- Goal #1 – Remediate to maximum extent practical by stabilizing residual LNAPL
- Goal #2 – Eliminate potential groundwater exposure pathways using institutional controls
- Goal #3 - Eliminate potential soil exposure pathway using institutional controls
- Goal #4 - Eliminate potential soil vapor exposure pathways



Engineering and Institutional Controls

- An **Engineering Control** is a physical modification to a structure or property that prevents risk of exposure to contamination
  - Example: vapor mitigation system
- **Institutional controls** are administrative and legal controls that help minimize the potential risk of exposure to contamination
  - Example: deed restriction

Engineering and Institution Controls remove risk and keep people safe

Goal #1 – Remediate LNAPL to Maximum Extent Practical

- Stabilize LNAPL through recovery and in situ degradation
- LNAPL stability criteria proposed:
  1. **Change in composition** of LNAPL (reduce volatility / solubility)
  2. **Decrease LNAPL transmissivity** to below Interstate Technology and Regulatory Council (ITRC) guidance of 0.8 ft/day
  3. **Decreasing trend** of dissolved constituents of concern (COC, such as benzene) in site groundwater

ITRC Source https://lnapl-3.itrcweb.org/

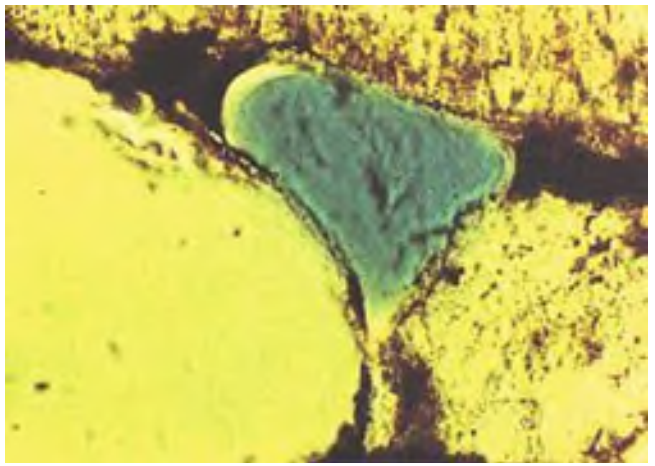
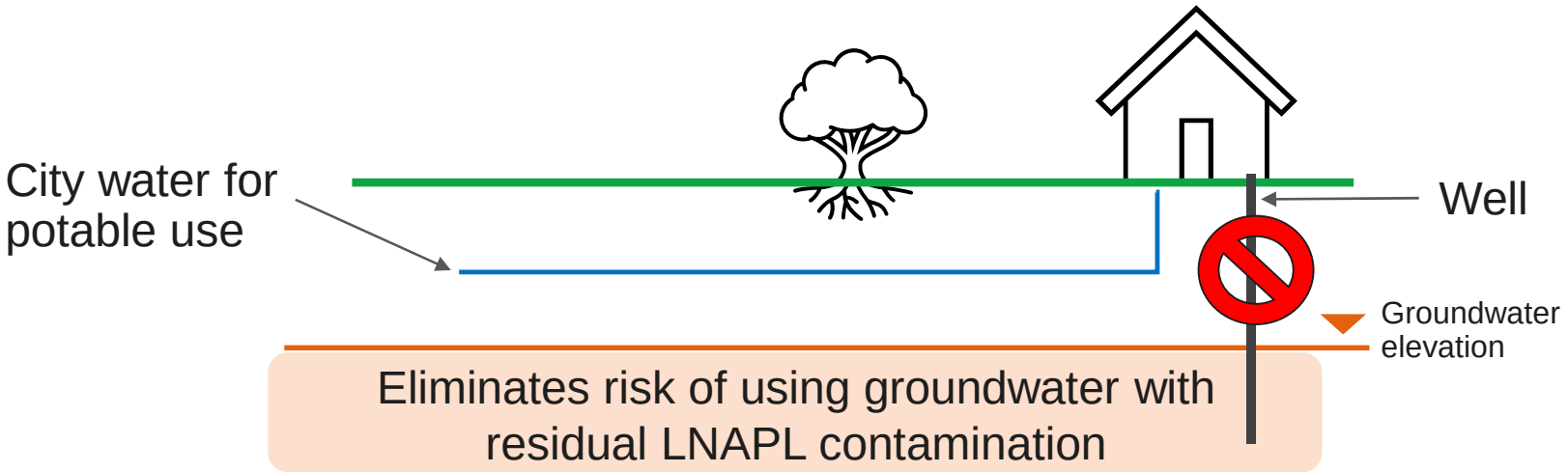


Image courtesy of the American Petroleum Institute

Goal #2 - Eliminate Potential Groundwater Exposure Pathway

- No current public usage of groundwater for consumption
  - Public water is provided from the Philadelphia Water Department
- Prohibit future groundwater usage by institutional control
  - Prevent groundwater exposure
  - Institutional controls prevent future use of groundwater



Goal #3 - Eliminate Potential Soil Exposure Pathway

- Soil contamination is below 11ft
- Institutional controls to protect workers
  - Controls such as a soil management plan keep utility workers safe from exposure for excavations below 11ft
  - Restricting use of soil below 11ft to prevent potential direct contact exposure to residual soil contamination

Sewer trench construction
Image courtesy of Tetra Tech

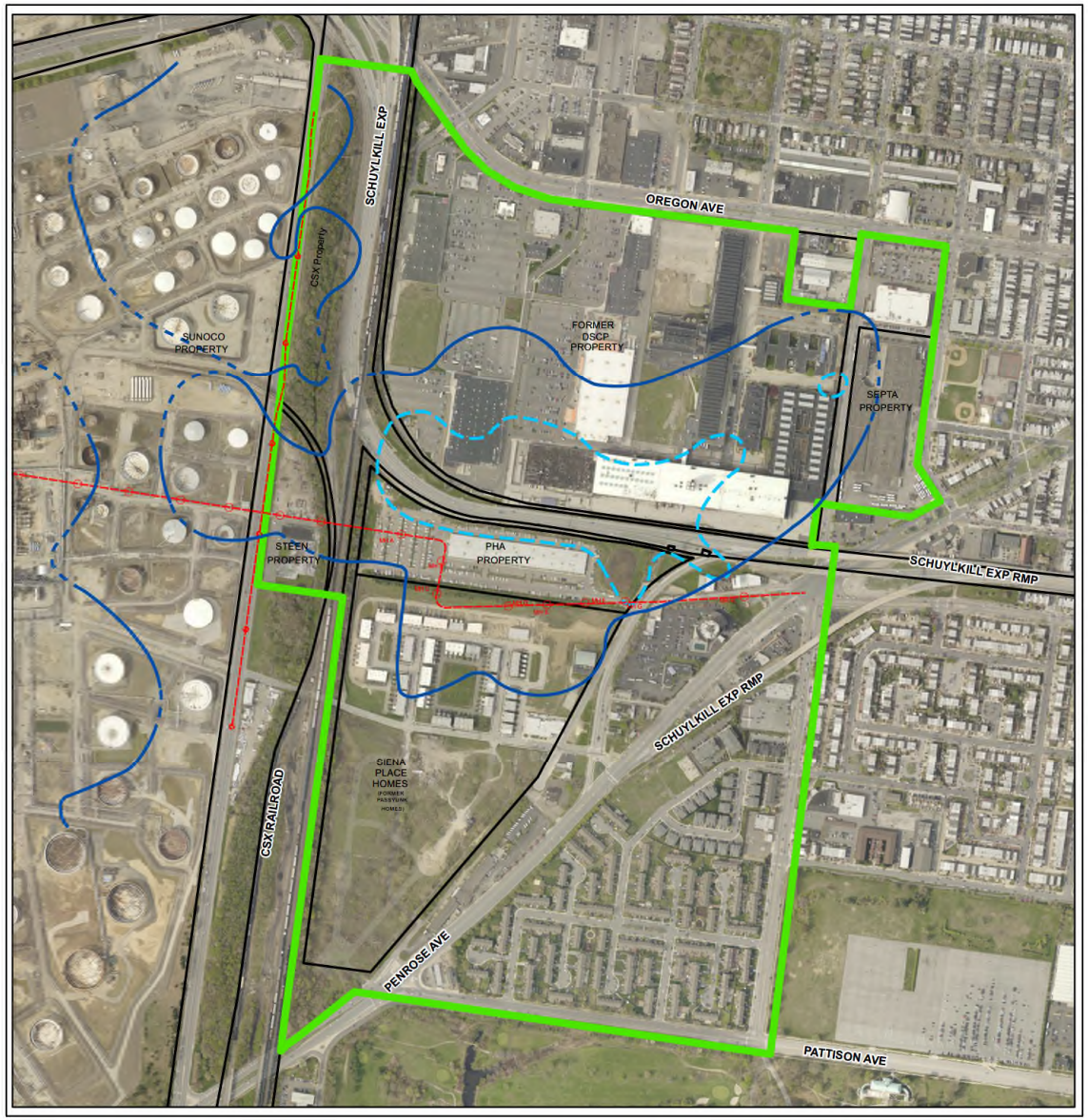
Goal #4 - Eliminate Potential Soil Vapor Exposure Pathway

- Vapor intrusion assessment to determine engineering and institutional control needs in commercial and residential structures
  - Document existing engineering controls present in many Site buildings such as in Quartermaster Plaza and Siena Place
  - Assess risk in structures within the proximity boundary of the historic extent of Site LNAPL
  - Engineering controls such as vapor mitigation systems will be implemented where required

Industrial building with active vapor mitigation system

Example of a passive vapor barrier

Act 2 Site Boundaries



Legend:

- Sewer Line
- Manhole
- Act 2 Site Boundary
- Historic Extent of LNAPL (dashed where inferred)
- Current Extent of LNAPL (September 2019)

North

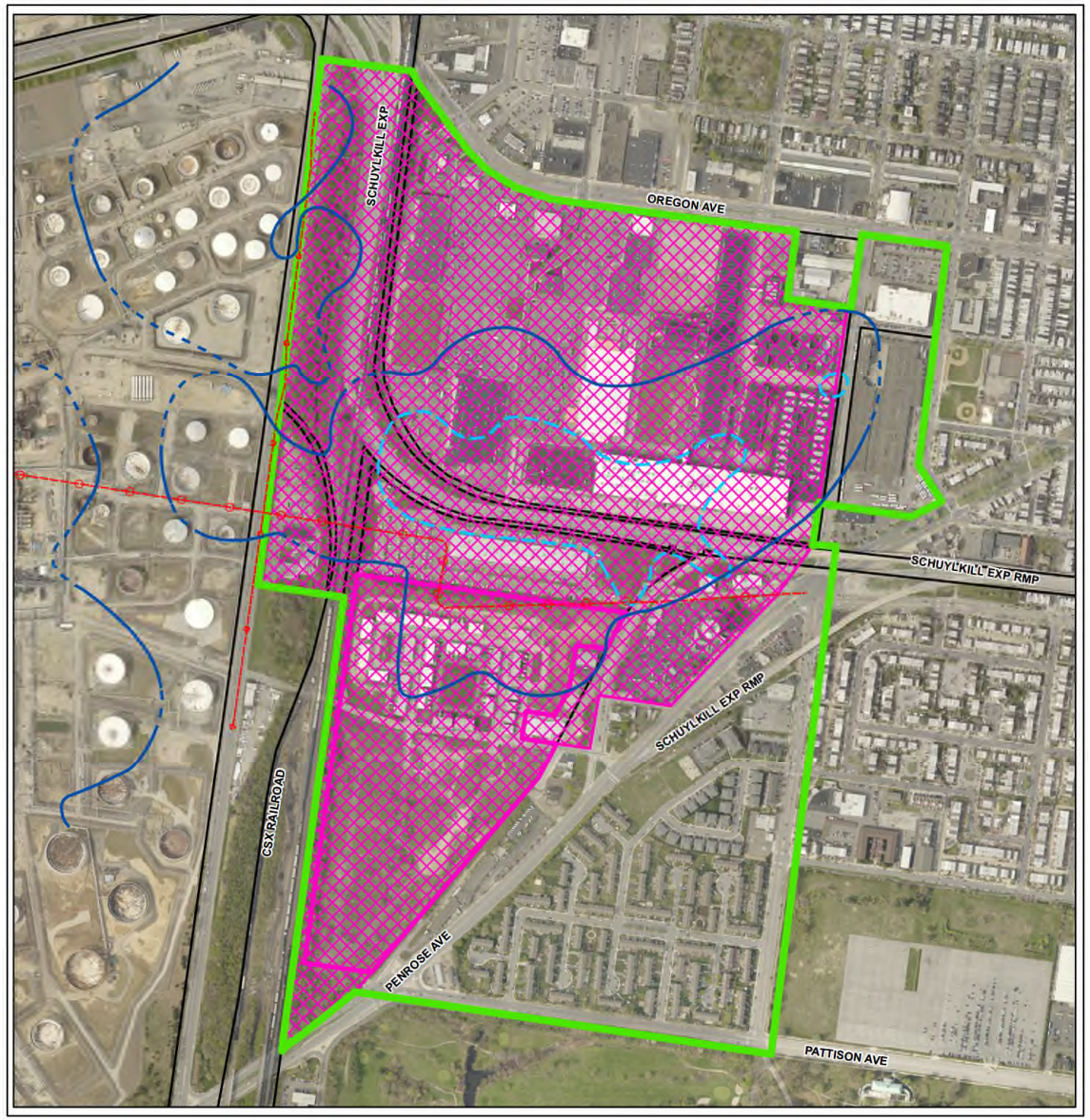
Act 2 Site Boundaries

Legend:

- Sewer Line
- Manhole
- Act 2 Site Boundary
- Vapor Intrusion Assessment Only; Not Currently Part of Act 2 Site.
- Historic Extent of LNAPL (dashed where inferred)
- Current Extent of LNAPL (3Q 2019)

North

Act 2 Site Boundaries



Legend:

- Sewer Line
- Manhole
- Act 2 Site Boundary
- Act 2 Site Shallow Groundwater, Deep Groundwater and Vapor
- Historic Extent of LNAPL (dashed where inferred)
- Current Extent of LNAPL (September 2019)

North

Act 2 Site Boundaries

Legend:

- Sewer Line
- Manhole
- Anticipated Former DSCP Act 2 Site Location
- Act 2 Site Deep Groundwater Area
- Inferred Extent of Product (October 2002, dashed where inferred)
- Inferred Extent of Product (3Q 2018)

North

Former DSCP RIR/CP Components

- Cleanup Plan
  - Clean-up Summary and Remedial Alternatives
  - Remedial Design and Construction
  - Remedial Operations
  - Clean-up and Engineering and Institutional Controls
  - Post Remedial Care Plan
  - Cooperation of Third Party
  - Public Comments

Adjudicated public comments will be included in final report to PADEP.

LNAPL Clean-up Timeline

1996	Active clean-up commenced IRAs
	Vacuum truck extraction and skimming
1999	Fixed skimming systems installed DSCP, Former Passyunk Homes, and modular systems
2001	Vacuum Enhanced Skimming Pilot Study Internal combustion engine vapor treatment
2005	Vacuum enhanced skimming commenced
	Enhanced LNAPL recovery using low applied vacuum
2011	Optimization of Vacuum Enhanced Skimming
	Focused Higher Vacuum Extraction and Bioventing
2019	Biovent-Biosparge pilot system installed
	Accelerated in-situ biodegradation of LNAPL

Vacuum truck at DSCP

ICE pilot system at DSCP, image courtesy of Tetra Tech

Expanded Skimming Systems

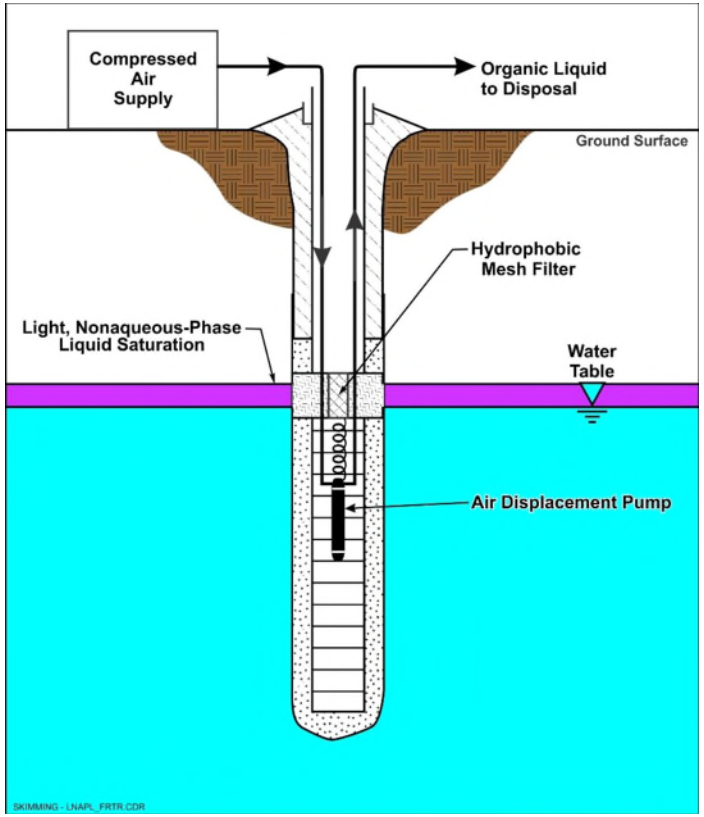
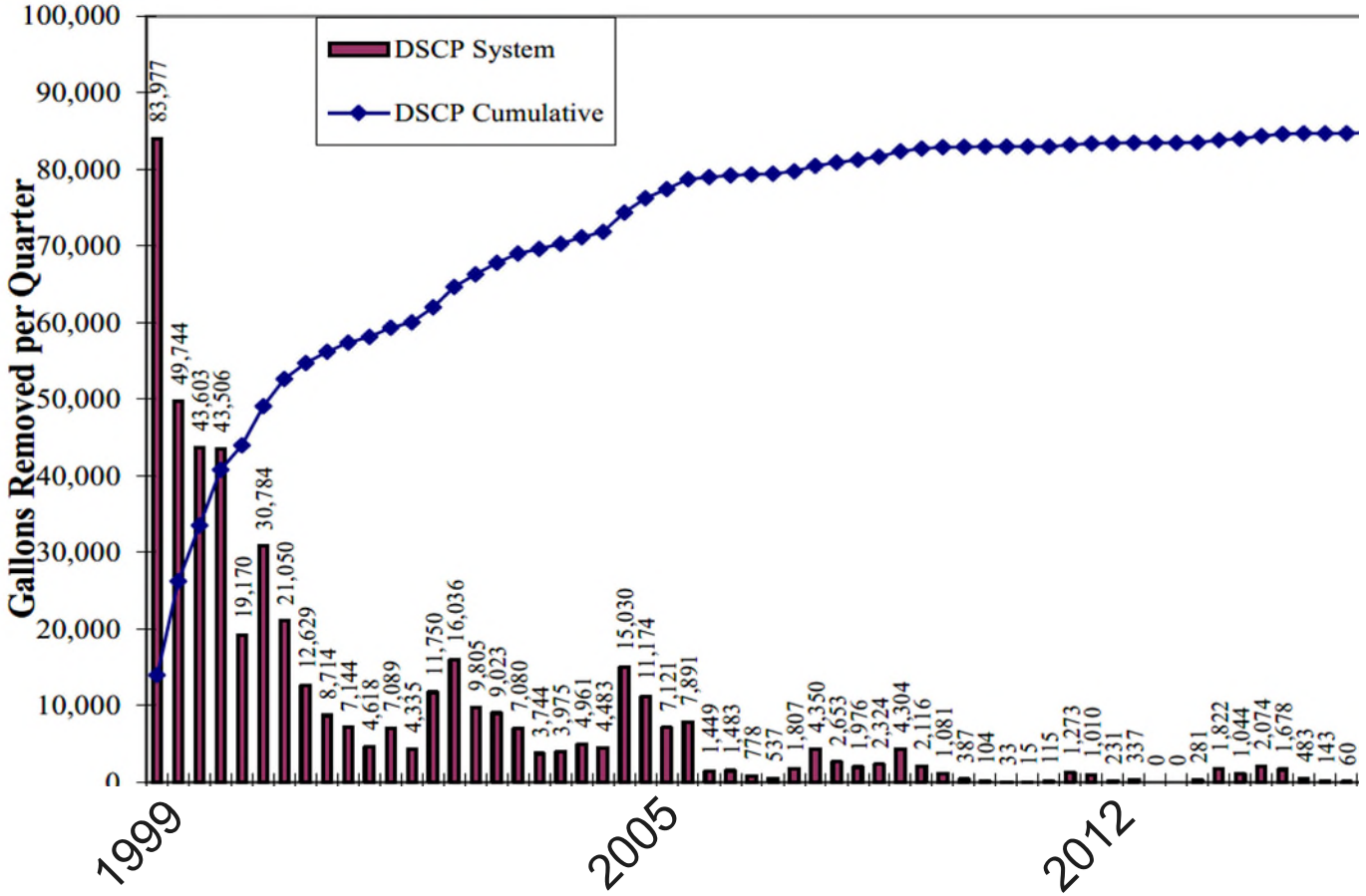


Image courtesy of Federal Remediation Roundtable, FTR.org

- Installed in 1999
- 49 recovery wells
- Skimmer pumps with floating intakes
- Periodic use of Solar-powered modular skimmers

Skimmer pumps and solar powered modular skimmer at DSCP

Skimming Operations



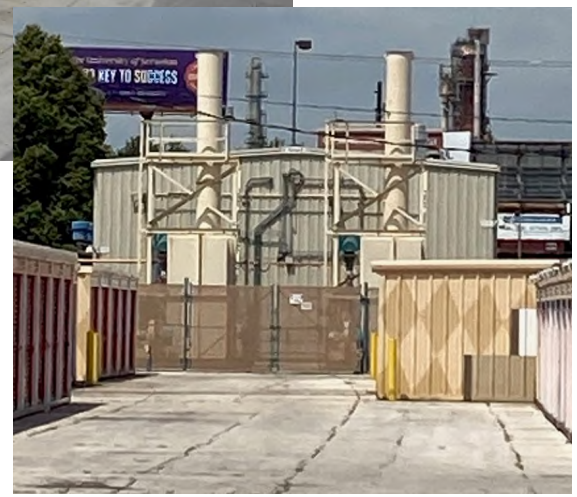
- Majority of recoverable LNAPL was recovered from 1999 to 2005
- Decreasing LNAPL recovery led to the ***clean-up alternative evaluation***

Skimming yields diminishing results

Clean-up Alternatives

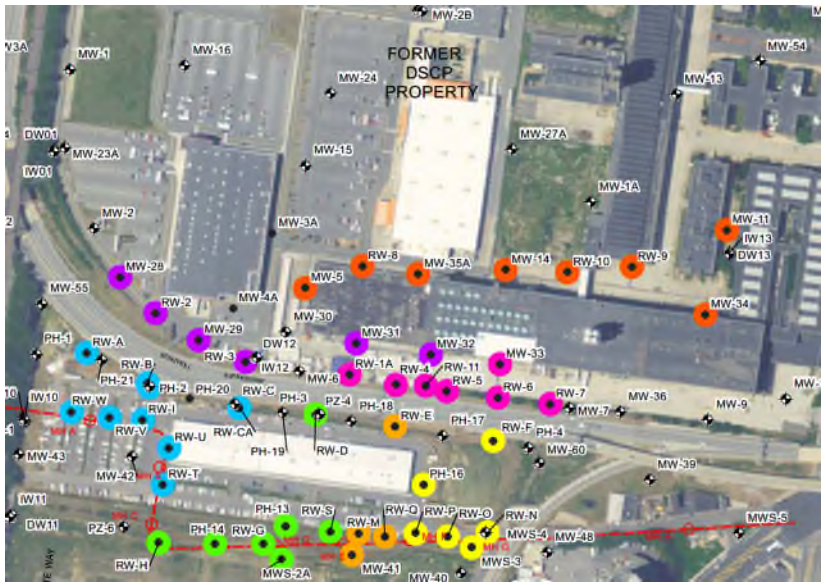
- Vacuum enhanced skimming
- Biovent / Biosparge
- Expansion of skimming network
- Bioslurping or multi-phase extraction
- Groundwater pump and treat

VES System Compound at DSCP



The Vacuum Enhanced Skimming (VES) System

- Network of 54 recovery wells
- Vacuum from 40Hp blowers draw vapor from wells to a common manifold.
- Increases LNAPL recovery; volatilizes LNAPL, recovered as vapor
- Promotes bioremediation by soil venting
- Vapor treated by thermal oxidizer



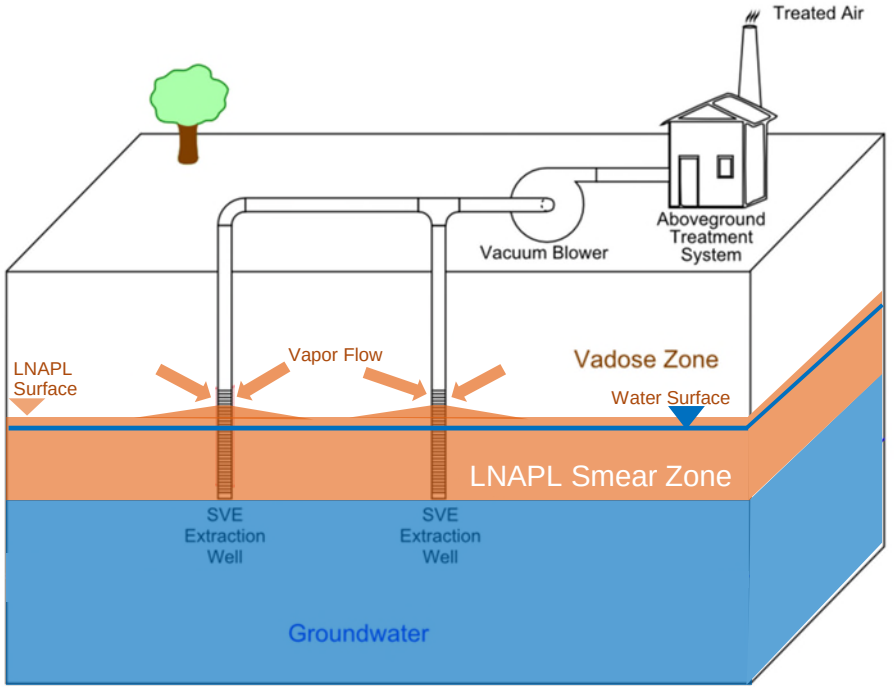
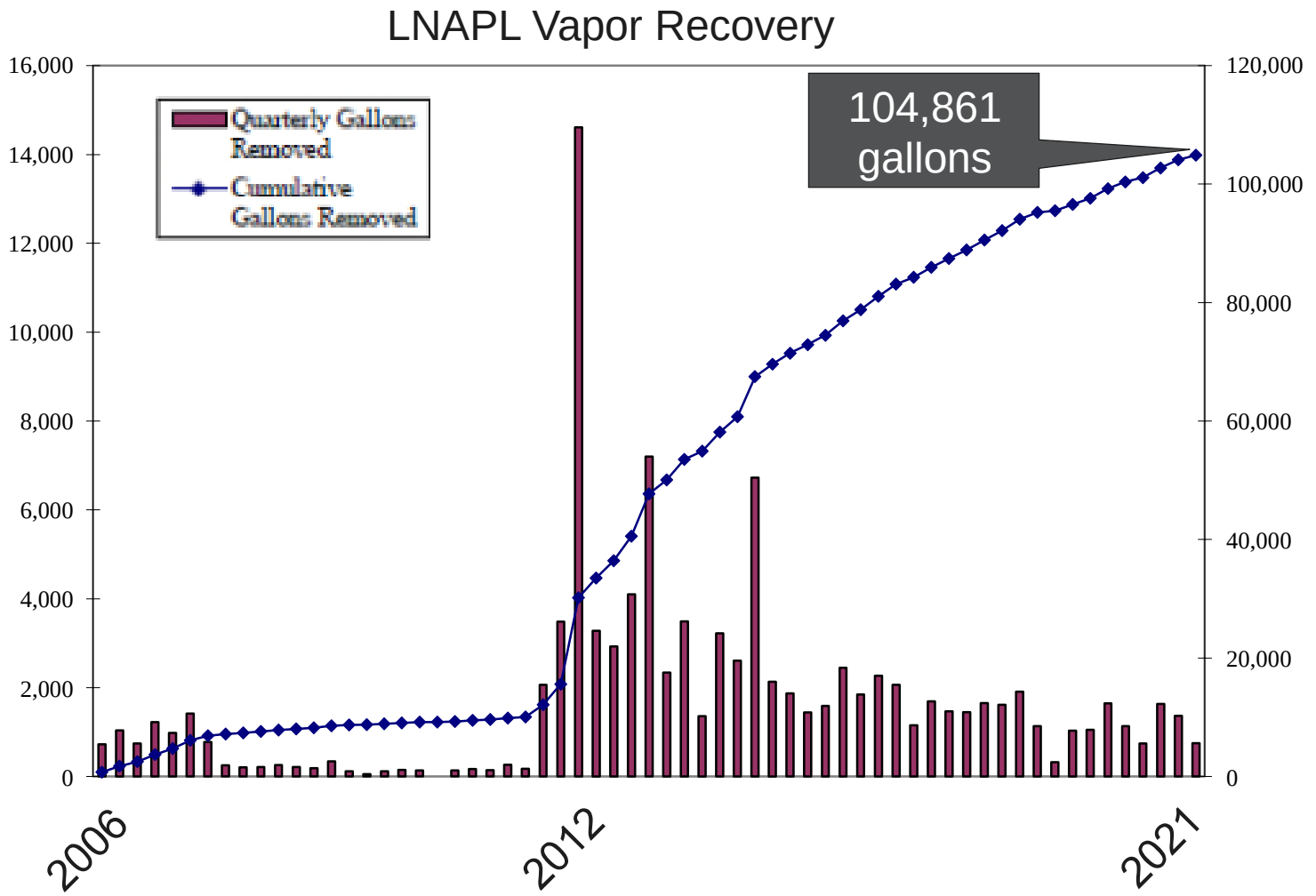


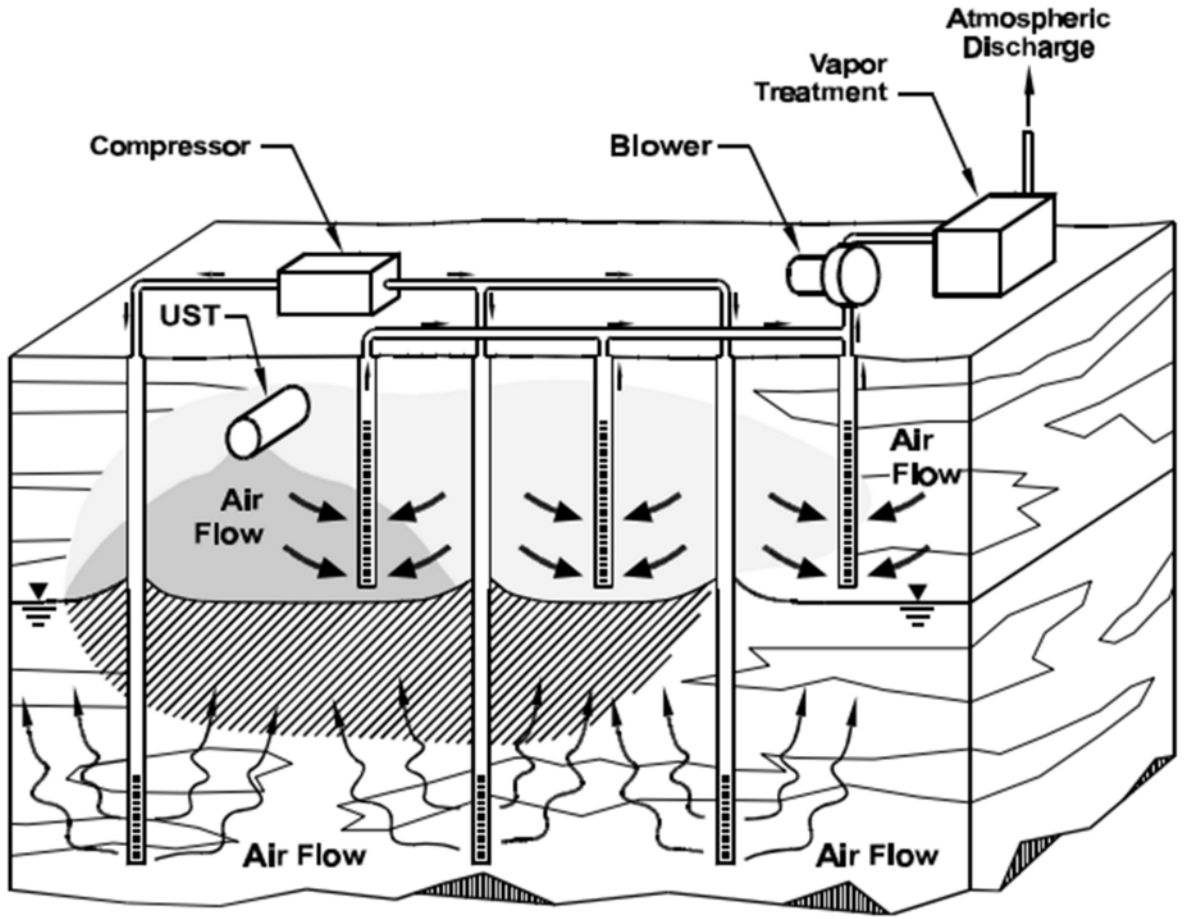
Figure modified from EPA

Clean-up: Vacuum Enhanced Skimming (VES)



System enhancements generate greater results.

Biovent/Biosparge System

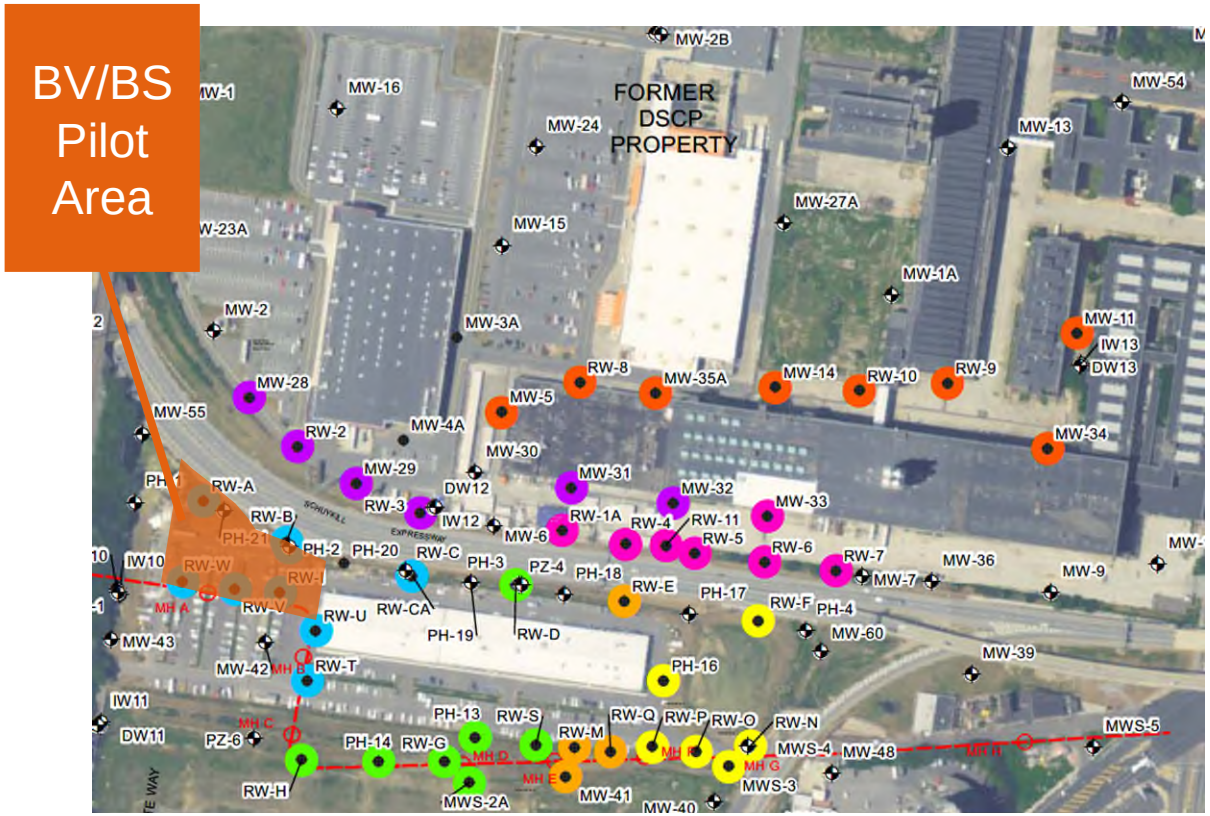


US EPA 510-B-17-003 October 2017

The Biovent/Biosparge injects air above and below the water table to add oxygen and promote bioremediation.

Biovent/Biosparge System

- Pilot BV/BS System operating since 2019
- Performance monitoring show bioremediation accelerating in the pilot area



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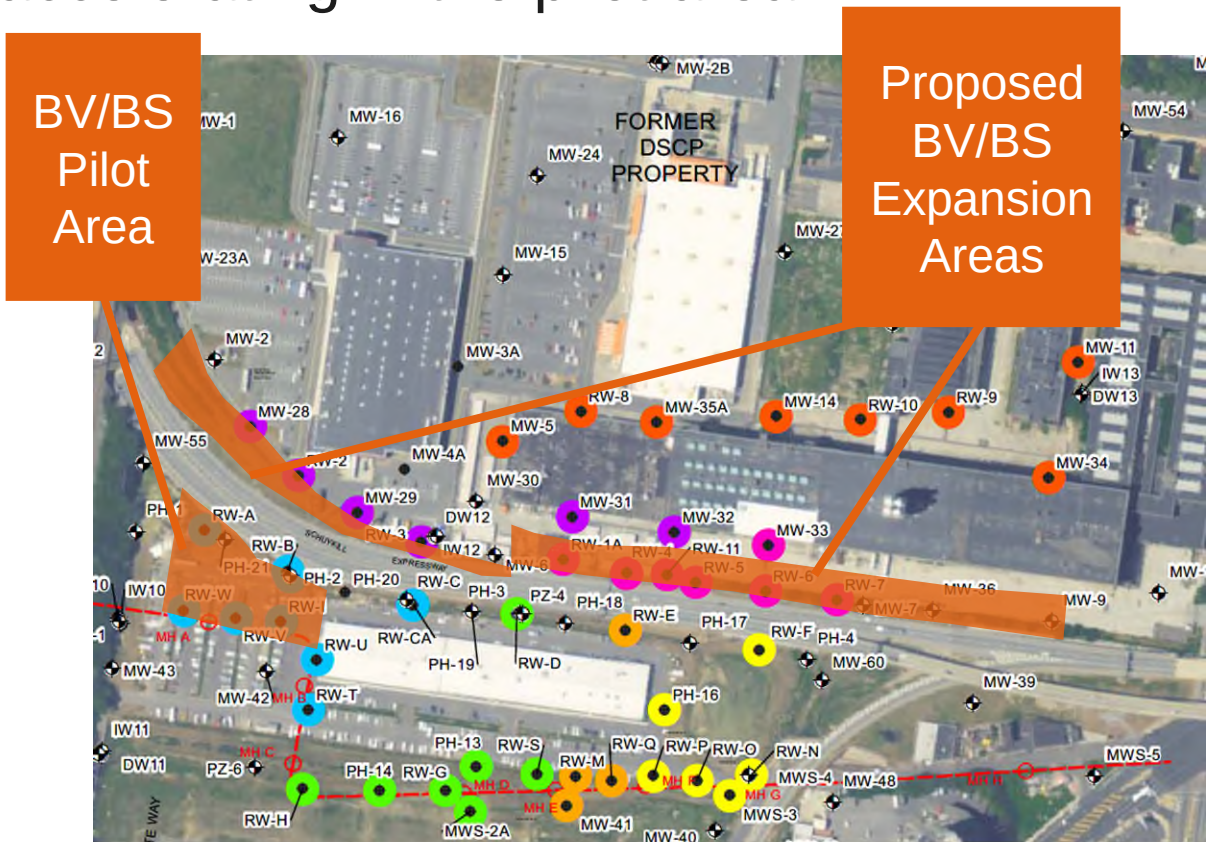


Engineering and Institutional Controls

- **Vapor mitigation systems**
  - Passive vapor barriers
    - Quartermaster Plaza buildings and Siena Place Homes
  - Active Sub-Slab Depressurization Systems (SSDS)
    - Similar to radon mitigation systems
    - Planned for large commercial buildings
  - Pollack Packer Avenue Sewer Venting System
- **Deed restrictions for properties over historic LNAPL plume**:
  - Restrict use of groundwater and soil below 11ft
  - Maintain vapor mitigation systems where needed

Clean-up Goals per Media Impacted

Site Specific Standard - Media & Pathway Elimination Approach

For the LNAPL affected media:

- LNAPL – Demonstrate stability
- Shallow Groundwater – Prohibit use
- Deep Groundwater – Prohibit use
- Soil – Soil Management Plan
- Soil Vapor
  - Risk Assessment – Pathway elimination
  - Engineering Controls

Summary Slide

Major points of the Former DSCP presentation

Remedial Investigation Report

- Project contacts and project information
- History
- Conceptual site model

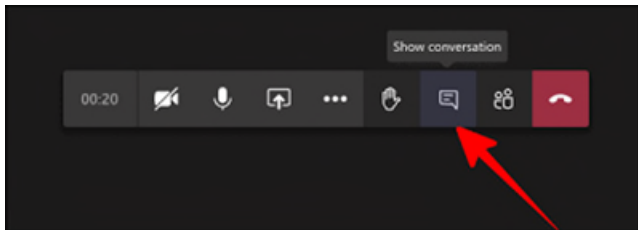
Cleanup Plan

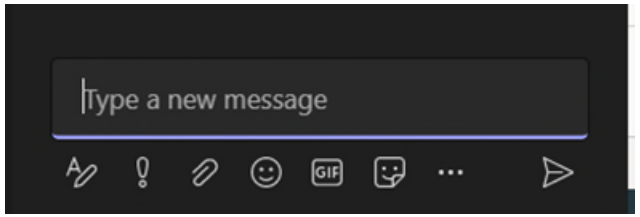
- Goals and clean up progress
- Activities to enable clean up and site closure

No known or suspected public health impacts

Question and Answer Session

- Questions or comments for the project team?
- Can type questions or comments in the chat window now, or email them to: DLAEnvPC@dla.mil.
- We will respond to questions as time allows now, or by email
- Comments will be compiled and provided to Pennsylvania DEP case manager along with the RIR/CP.
- Public review period is 90 days, ending March 16, 2022.





AUDIO ONLY:
To ask a question, Press *5 on your phone. This will raise your hand. The moderator will indicate when your microphone has been enabled.

Thank You for Your Participation

- We appreciate you taking the time to participate in this public forum
- A copy of the minutes and presentation will be made available on the administrative record website:
  - https://www.dla.mil/HQ/InstallationManagement/DoingBusinessWithInstallationManagement/EnvironmentalDocuments/
- Updates to the clean-up efforts at DSCP and the Act 2 process will be posted at this website