

RESTORATION ADVISORY BOARD (RAB) MEETING

Former Fort Devens Army Installation
February 8, 2024



U.S. ARMY



US Army Corps
of Engineers
New England District



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WELCOME!



- This call is being recorded to help develop meeting minutes.
- Unless speaking, please remain on mute to reduce background noise.
- There is time for Q&A, but you can ask a question via the chat box or utilize the raise hand button at any time during the meeting and speakers will respond as time allows.
- If you need to leave the call, click “Leave.”



CHAT
BOX



RAISE
HAND



MUTE/
UNMUTE



Leave



WELCOME!



Thank you for joining us tonight.

U.S. Army and Support:

Thomas Lineer
U.S. Army HQDA/ODCS G-9
Base Realignment and Closure
(BRAC) Environmental Coordinator
(BEC)

Penelope Reddy
U.S. Army Corps of Engineers
(USACE) New England District

Andy Vitolins, Steve Perry, Mark
Pasquarello, and Amy Henschke,
SERES-Arcadis JV Team

**Regulatory and Other
Board Members:**

Michael Daly
Shawn Lowry
U.S. Environmental Protection
Agency (USEPA) Region 1

ZaNetta Purnell
USEPA Community
Involvement Coordinator

Joanne Dearden
Massachusetts Department of
Environmental Protection (MassDEP)

**Community
Board Members:**

Julie Corenzwit
Amy McCoy
Dave McCoy
Chris Mitchell
Laurie Nehring: Co-Chair
Alix Turner: Co-Chair

Guests:

Chadi El Mohtar, Ph.D., P.E
Professor Geotechnical Engineering
The University of Texas at Austin



WELCOME!



Tonight's topics



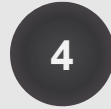
**ESTCP
Presentation**



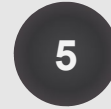
**Project
Updates &
Upcoming Work**



**Shepley's Hill
Landfill FFS**



**Community
Involvement
& RAB Update**



**Questions
& Answers**



1 | ENVIRONMENTAL SECURITY TECHNOLOGY CERTIFICATION PROGRAM (ESTCP) RESEARCH PROJECT AT DEVENS



ESTCP is a Department of Defense sponsored research program that evaluates innovative technologies to address challenging environmental problems including remediating PFAS. The next presentation by Principal Investigator, Dr. Chadi Mohtar of University of Texas – Austin, discusses an innovative technology to be tested at Moore Army Airfield at AOC 31, the Former Firefighting Training Area, where PFAS is present in soil.

Comprehensive Assessment of Applying Modified Clays using Jet Grouting for In Situ Isolation versus Stabilization of PFAS Source Zones

ER21-5229
Chadi El Mohtar
University of Texas at Austin



Project Team

Dr. Chadi El Mohtar

University of Texas at Austin

Specialist in ground improvement and flow through porous media.

Dr. Charles Werth

University of Texas at Austin

Specialist in mass transfer & reactive transport processes.

Dr. Kenneth Stokoe

University of Texas at Austin

Specialist in geophysical insitu and lab nondestructive testing.

Dr. Thomas Holsen

Clarkson University

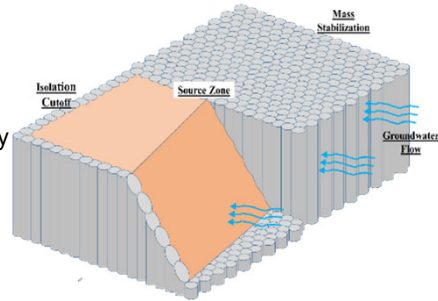
Specialist in Analytical testing and hydrophobic organic chemicals.

Project Overview and Goals

Stabilize PFAS source zone using modified clays (either through mixing or jet grouting) will provide site-specific adaptable solutions with optimized cost and waste treatment.

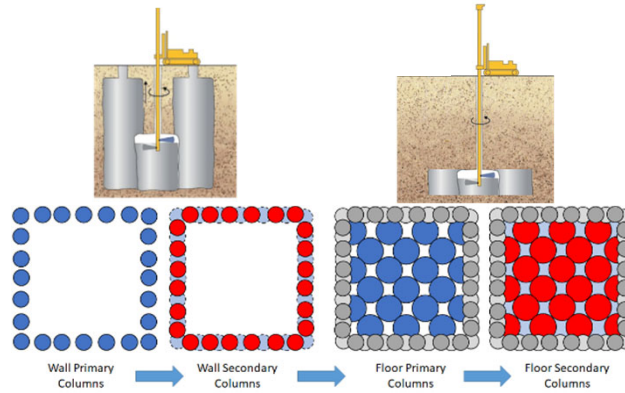
Project Goals

- Evaluate the performance of modified clay to stabilize PFAS using conventional soil mixing.
- Evaluate the performance of isolation cutoff elements as an alternative to soil mixing.
- Assess the stability of PFAS within the spoils.
- Provide DoD with a PFAS hot spot remediation technology for facilities with deep groundwater table.



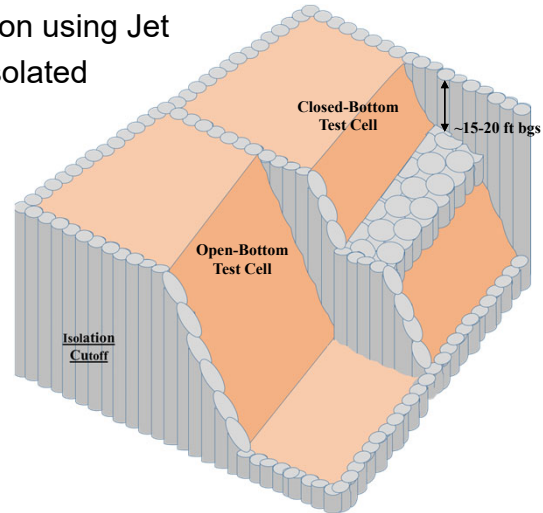
Result Highlights/Project Status

- Construct the Vertical Isolation elements using traditional ISS or Jet Grouting (use high pressure jets to mix soil and grout).
- Construct the Bottom Isolation using Jet Grouting within the isolated zone.



Final Proposed Demo Site Design

- Construct two isolated zones and install lysimeters to measure PFAS concentration under vertical infiltration.
- Construct the Bottom Isolation using Jet Grouting within one of the isolated zones.
- Measure change in PFAS concentration above and below the bottom cutoff compared to the side without bottom cutoff under induced vertical flow.



Schedule*

- Vertical Wall and Lysimeter Installation – Spring 2024
- Monitoring – Summer/Fall 2024
- Jet-Grouted Floor Installation – Fall/Winter 2024/2025

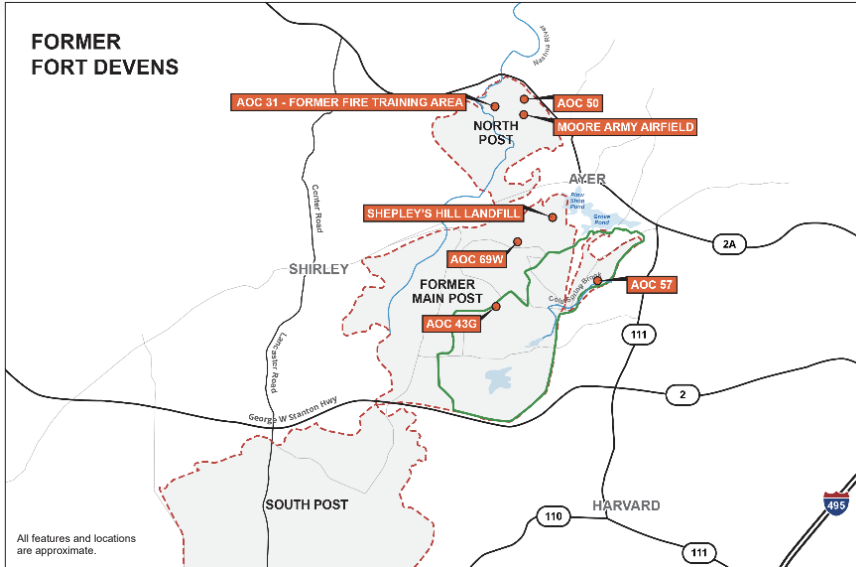
**Note: Each phase needs to be reviewed and approved by the technical advisory group at ESTCP, prior to proceeding with the next phase.*



2 | PROJECT UPDATES & UPCOMING WORK



FORMER FORT DEVENS



All features and locations are approximate.

- Discussion Areas
- PFAS Area 1
- Former Fort Devens Boundary



2 | PROJECT UPDATES & UPCOMING WORK



Area 1 Phase 2 Per- and Polyfluoroalkyl Substances (PFAS) Remedial Investigation (RI)

In progress

- Right of Entry (ROE) agreements

Initial Phase Sampling: Spring 2024

- Soil sampling: 228 samples from 57 locations
- Vertical Aquifer Profile (VAP) sampling: 112 samples from 14 locations
- Seismic survey

Adaptive Phase Sampling: Summer 2024

- Overburden and bedrock monitoring well installation
 - 29 overburden monitoring wells
 - 15 bedrock monitoring wells
- Surface water and sediment sampling
 - 54 surface water samples from 23 locations
 - 8 samples from 8 locations
- Fish tissue sampling
 - Grove Pond, Plow Shop Pond, Cold Spring Brook, Cold Spring Brook Pond, Mirror Lake, Robbins Pond, Nashua River
- Groundwater sampling (first round)

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2 | PROJECT UPDATES & UPCOMING WORK

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Shepley's Hill Landfill Remedy - Current Status

- **Landfill Cap**
 - In-place; maintenance continues
- **Groundwater Extraction System Operation and Maintenance**
 - Arsenic Treatment Plant (ATP) modifications in place and start-up testing is on-going
 - Third extraction well operation part of startup testing
 - Water level monitoring for hydraulic capture evaluation is ongoing
- **Barrier Wall**
 - Plow Shop Pond surface water, sediment, and pore water sampling completed first week of December 2023
 - Laboratory analyses on-going



Features and locations are approximate.

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2 | PROJECT UPDATES & UPCOMING WORK



- **Supplemental Post-Record of Decision (ROD) Remedial Investigations (RIs) for Areas of Contamination (AOCs) 69W, 57, and 43G**
 - Second quarterly groundwater monitoring event completed in November 2023
 - Two groundwater monitoring events remaining (February 2024 and May 2024)
- **Moore Army Airfield (MAAF) Former Fire Training Area (FFTA) PFAS Pre-RI Data Collection Treatability Study**
 - Lysimeter samples collected in November and December 2023 – data pending
 - Next lysimeter sampling events to be conducted February 2024, May 2024, and August 2024
 - Soil treatability testing results in spring 2024
- **Nashua River Military Munitions Update**
 - Army continues to move forward with the analog method for the geophysical survey in spring 2024, dependent on approval of the addendum to the Munitions Response-Quality Assurance Project Plan (MR-QAPP).



2 | PROJECT UPDATES & UPCOMING WORK



- **Draft Documents Submitted to USEPA and MassDEP Since Last RAB Meeting**
 - SHL Groundwater Arsenic Background Study
- **Response to Comments/Revised Documents Submitted to USEPA and MassDEP Since Last RAB Meeting**
 - Draft Focused Feasibility Study – Shepley’s Hill Landfill Groundwater Remedy
- **Draft Final Documents Sent to RAB for Review Since Last RAB Meeting**
 - Draft Final Focused Feasibility Study – Shepley’s Hill Landfill Groundwater Remedy
- **Documents Posted to Website Since Last RAB Meeting**
 - Memorandum for Record – Devens Consolidated Landfill (DCL) Contributor Sites Land Use Controls
 - Final Area 1 Phase 2 PFAS Remedial Investigation Workplan
 - Debris Removal Activities Summary Report – Debris Pile C - AOC 50
 - Evaluation of Site-Specific Background Levels for Arsenic in Groundwater Shepley’s Hill Landfill



3 | SHEPLEY'S HILL LANDFILL - FFS

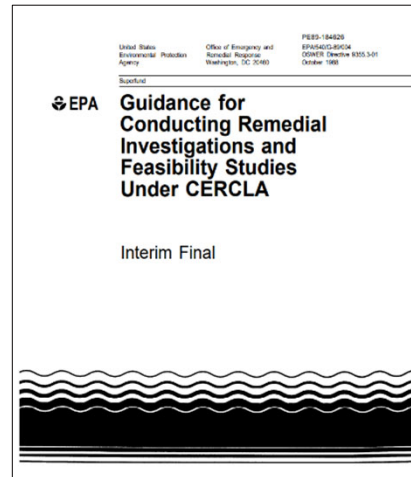
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Shepley's Hill Landfill – Focused Feasibility Study for Groundwater Remedy

Evaluate potential groundwater cleanup options in accordance with USEPA CERCLA guidance

- Threshold Criteria:
 1. Overall protection of human health and the environment
 2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) (regulations)
- Balancing Criteria:
 1. Long-term effectiveness
 2. Reduction of toxicity, mobility, and volume
 3. Short-term effectiveness
 4. Implementability
 5. Cost
- Modifying Criteria:
 1. State acceptance
 2. Community acceptance



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Remedial Alternatives Evaluated

1. No Action
2. Current Remedy (Groundwater Extraction and Treatment)
3. Land Use Controls*
4. In-Situ Air Sparging at the northern SHL boundary
5. Modified Groundwater Extraction and Treatment
 - A. Three Extraction Wells instead of two
 - B. Three Extraction Wells and ReInjection of Groundwater
6. Modified Groundwater Extraction plus In-Situ Air Sparging
7. Partial Landfill Removal plus Active Aquifer Treatment

**Note: MassDEP has stated that Alternative 3: Land Use Controls is not a viable alternative because the site does not meet the criteria for reclassification of groundwater use.*

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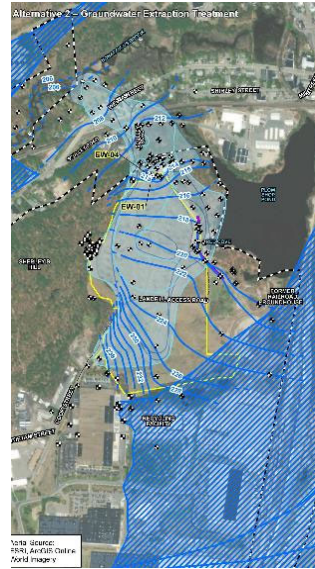


1. No Action

- Required by National Contingency Plan (NCP) and associated CERCLA implementing regulations as a baseline for comparison with other remedial alternatives
- Shut down and decommission groundwater extraction and treatment system (ATP)
- Discontinue groundwater monitoring (LTM)
- Discontinue implementation of Land Use Controls

2. Current Remedy (Groundwater Extraction and Treatment)

- Operate and maintain existing groundwater extraction and treatment system
- Continue groundwater monitoring (LTM)
- Continue implementation of Land Use Controls





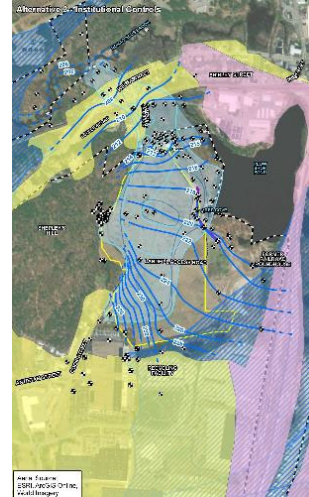
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3. Institutional Controls

- Reclassify groundwater at, and immediately downgradient from, SHL as a Non-Potential Drinking Water Source Area (NPDWSA) under MassDEP Policy WSC-97-701*
 - Change the current arsenic cleanup goal of 10 $\mu\text{g/L}$, which is based upon drinking water risk, to a higher cleanup goal based on ecological risk and/or background concentrations
- Reclassify SHL from “grassland” to “landfill” (currently listed as grassland in MassDEP database)
- Shut down and decommission groundwater extraction and treatment system (ATP)
- Continue long-term groundwater monitoring (LTM)
- Continue implementation of Land Use Controls



* Note: MassDEP has determined that Policy WSC-97-701 cannot be used to reclassify the groundwater at SHL as SHL does not meet any of the requirements, as outlined in Massachusetts regulation (310 CMR 40.0006) or MassDEP Policy WSC-97-701 to be classified as a Non-Potential Drinking Water Source Area (NPDWSA).

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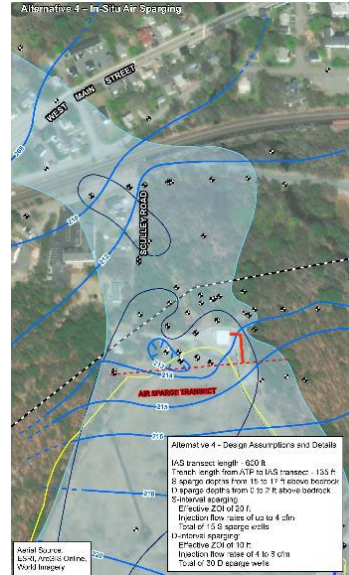


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4. In-Situ Air Sparging

- Install, operate, and maintain air sparging system at the SHL boundary
 - Prevent migration of dissolved arsenic through oxidation and precipitation
 - Pilot study conducted in 2021-2022
 - Would entail installation of ~45 air injection wells along the SHL boundary
- Shut down and decommission groundwater extraction and treatment system (ATP)
- Continue long-term groundwater monitoring (LTM)
- Continue implementation of Land Use Controls





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5. A: Modified Groundwater Extraction And Treatment

- Operate and maintain existing groundwater extraction and treatment system with an additional extraction well east of the original extraction wells (total of three wells)
 - Extract the same amount of water as before
 - Currently being tested
- Continue groundwater monitoring (LTM)
- Continue implementation of Land Use Controls



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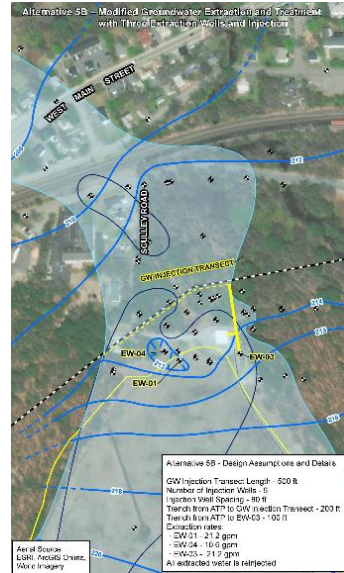
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5. B: Modified Groundwater Extraction And Treatment With Reinjection of Groundwater

- Operate and maintain existing groundwater extraction and treatment system with an additional extraction well (total of three wells)
- Reinject treated/oxygenated groundwater downgradient of ATP to help reduce arsenic concentrations in groundwater through in-situ oxidation and precipitation
- Continue groundwater monitoring (LTM)
- Continue implementation of Land Use Controls



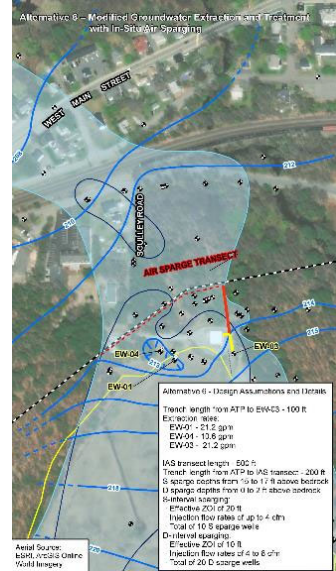


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6. Modified Groundwater Extraction Plus In-Situ Air Sparging

- Operate and maintain existing groundwater extraction and treatment system with an additional extraction well (total of three wells)
- Install and operate air sparging system downgradient of ATP to reduce arsenic concentrations in groundwater through in-situ oxidation and precipitation
- Continue groundwater monitoring (LTM)
- Continue implementation of Land Use Controls



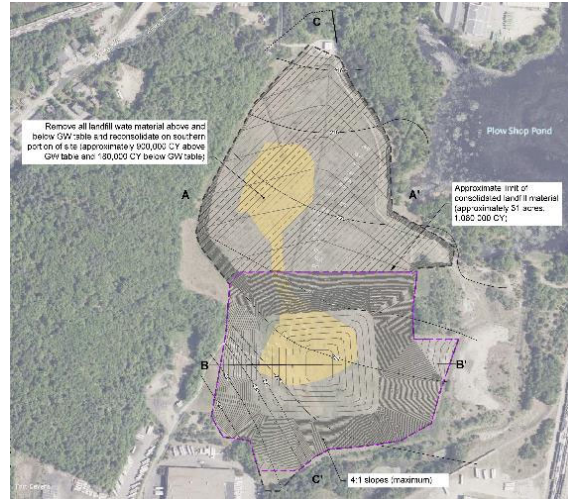


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7. Partial Landfill Removal plus Active Aquifer Treatment

- Excavate landfill waste material located within and above the groundwater table in the northern half of the landfill (approximately 29 acres)
 - Estimated total volume of 1,080,000 cubic yards.
- Transport waste for disposal at a permitted waste management facility.
- Backfill excavated northern portion of the landfill with clean fill materials to 1 foot above the groundwater table.
- Install and operate air sparging system along the Devens property boundary to reduce downgradient arsenic concentrations.





3 | SHEPLEY'S HILL LANDFILL - FFS



Next Steps

- Complete reviews of Draft Final FFS (Winter/Spring 2024)
 - EPA
 - MassDEP
 - RAB
- Respond to Comments and Prepare Final FFS (Spring/Summer 2024)
- Develop and Finalize Proposed Plan with Agency and Community Input (2025/2026)
- Issue Record of Decision (2026/2027)
- Implement Selected Remedy



4 | COMMUNITY INVOLVEMENT & RAB UPDATE

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Increased RAB public outreach efforts to raise awareness of meetings and activities



Next community update fact sheet – spring 2024



Digital AR continues to be populated with project documents; website updates are in progress



The next quarterly RAB meeting will be May 9, 2024 **(hybrid)**

The Community Involvement Plan (CIP) and other information is available on the Fort Devens Environmental Cleanup website at:

<https://www.nae.usace.army.mil/missions/projects-topics/former-fort-devens-environmental-cleanup/>

Digital AR link is now live and initial documents are available at:

<https://www.nae.usace.army.mil/Missions/Projects-Topics/Former-Fort-Devens-Environmental-Cleanup/Administrative-Record/>

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5 | QUESTIONS & ANSWERS

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THANK YOU!
YOUR PARTICIPATION IS APPRECIATED!

NEXT RAB MEETING IS:
MAY 9, 2024

(Second Thursday of the month)