



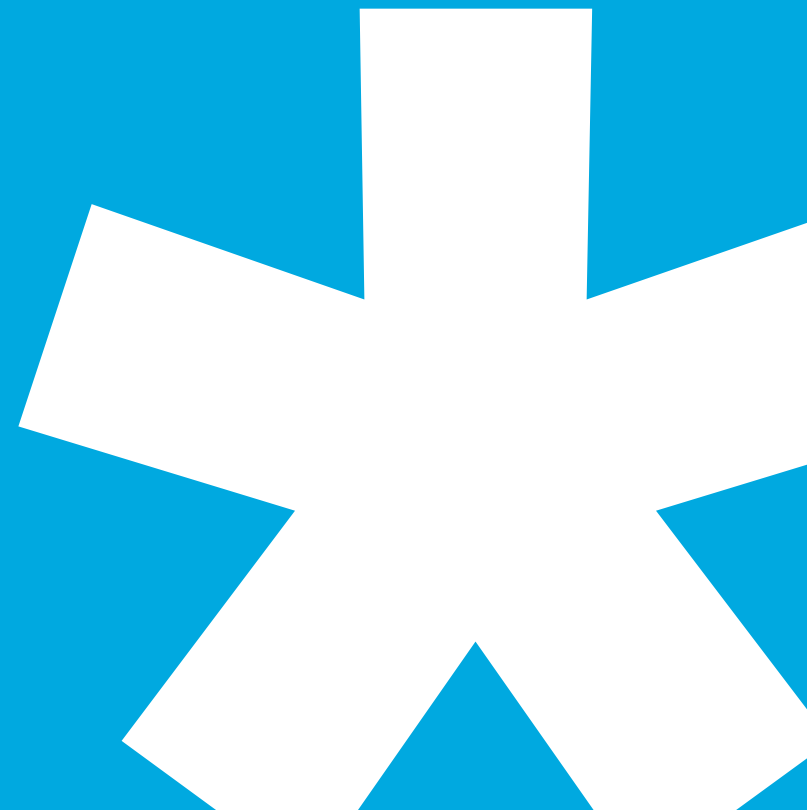
A Siemens Healthineers Company

Public Involvement Plan (PIP) Meeting

Phase IV Status Report

Former Varian Facility (Site 3-0485)
150 Sohier Road
Beverly, Massachusetts

Wednesday, September 30, 2026
Beverly Middle School



Presentation Objectives

- Introduce new Varian Environmental Program Manager
- Present information from the most recent status [report](#) (August 2026)
- Summarize progress of treatment systems installation & operation
- Receive feedback and answer questions from the public



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Status Update on Treatment System Operations, Monitoring, and Construction

Summary of Activities Since the May 2026 Public Meeting

➤ Building 3 Area Thermal Treatment System

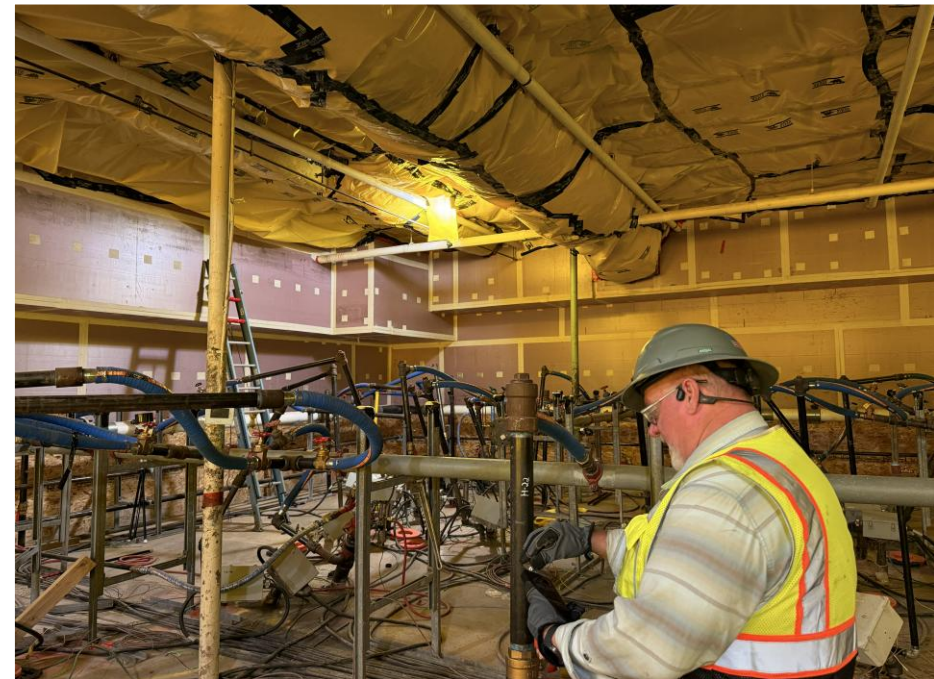
- Construction complete
- System activated

➤ Bedrock Treatment

- Performance monitoring (Stages 1 & 2)
- Stage 3 drilling and fracture testing complete

➤ Building 5 Area Treatment

- Stage 1 drilling and injections complete



Thermal treatment wells and piping inside Building 3

Summary of Activities Since the May 2026 Public Meeting

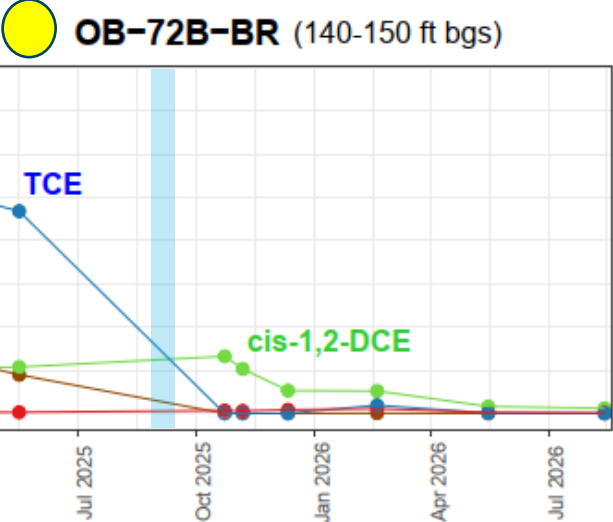
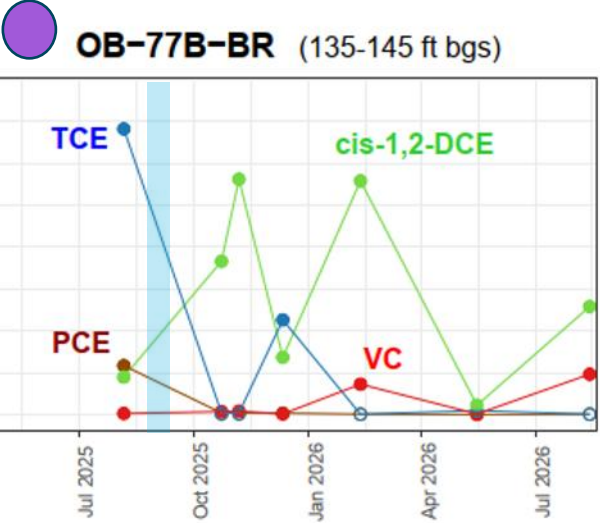
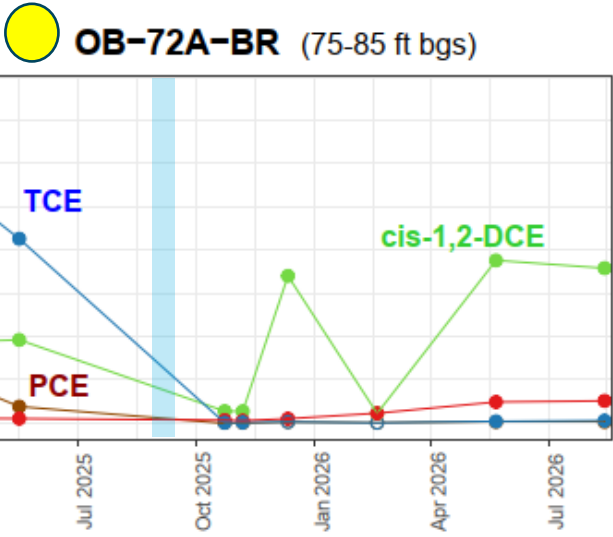
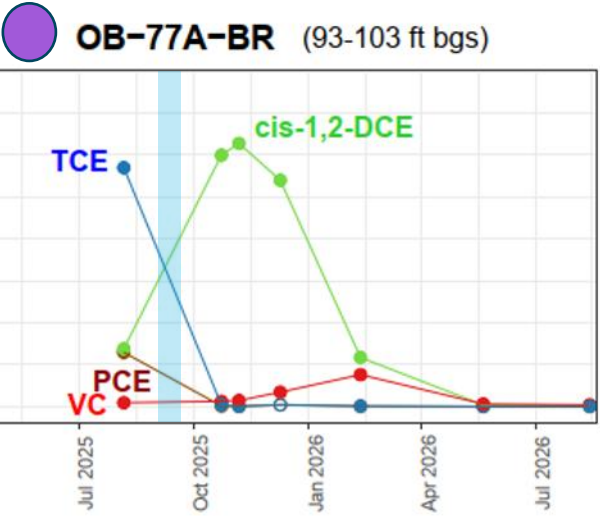
- **PSL-10 Subgrade Biogeochemical Reactor**
 - SBGR operation and monitoring continues
- **Stream A Reactive Core Mat**
 - Inspections continue with no issues observed
- **Site Monitoring**
 - Routine groundwater and indoor air testing continues

Monitoring thermal treatment system



Deploying sampling equipment into monitoring wells

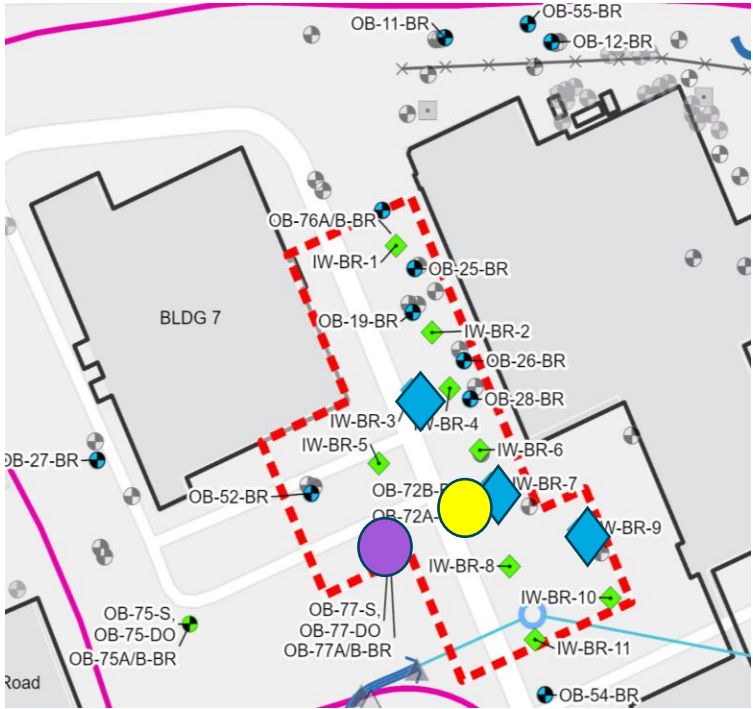
Bedrock Injection – Stage 1 Results (concentrations in $\mu\text{g/L}$)



Reductive Dechlorination Degradation
PCE -> **TCE** -> **cis-1,2-DCE** -> **VC** -> **ethene**
As progresses, degradation products can temporarily increase in concentration
Beta-Pathway Degradation
PCE -> **acetylene** -> **ethene**
TCE -> **acetylene** -> **ethene**
Degradation products (such as cis-1,2-DCE and VC, do not accumulate)

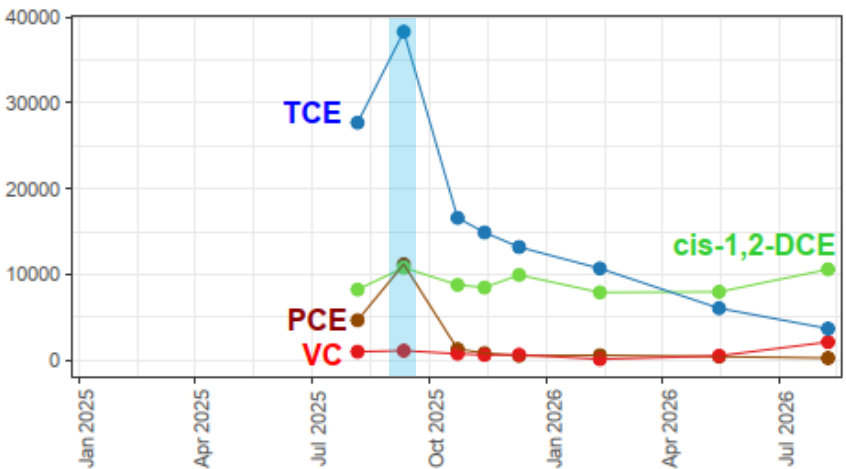
Stage 1 Injection Event (Sept 4-18, 2025)

Stage 1 Bedrock Injection Locations

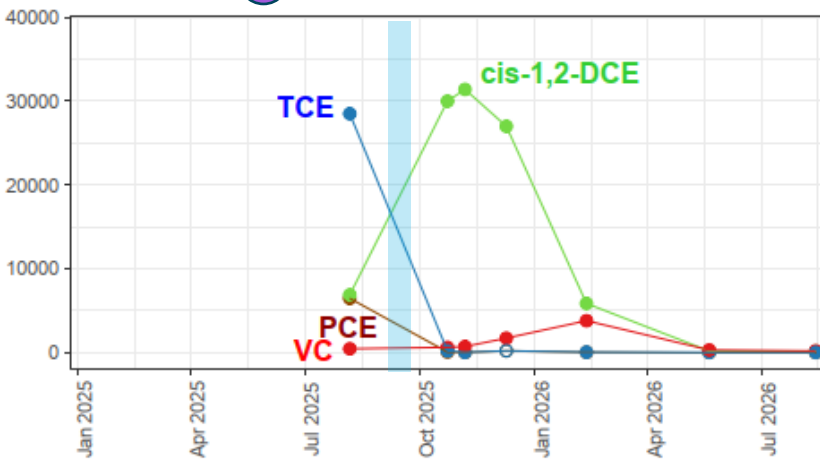


Bedrock Injection – Stage 1 Results (concentrations in $\mu\text{g/L}$)

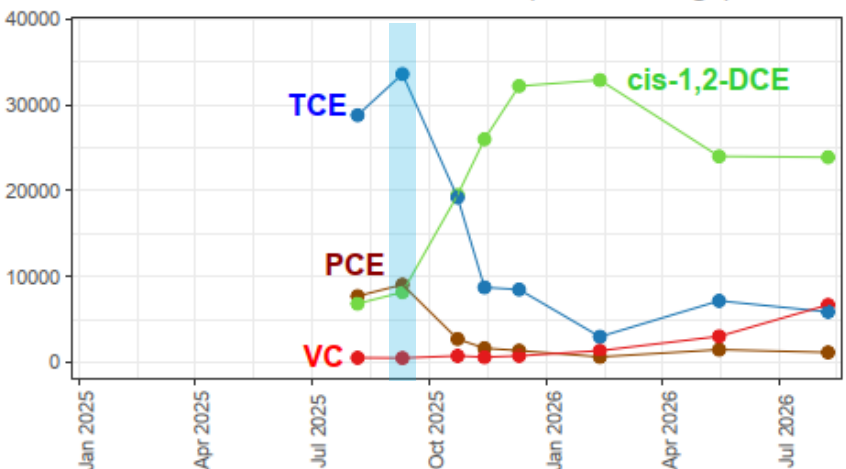
OB-75A-BR (88-98 ft bgs)



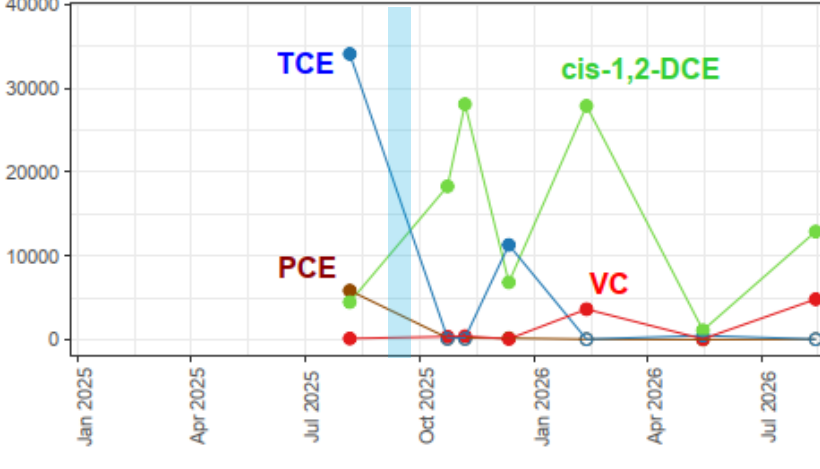
OB-77A-BR (93-103 ft bgs)



OB-75B-BR (118-128 ft bgs)

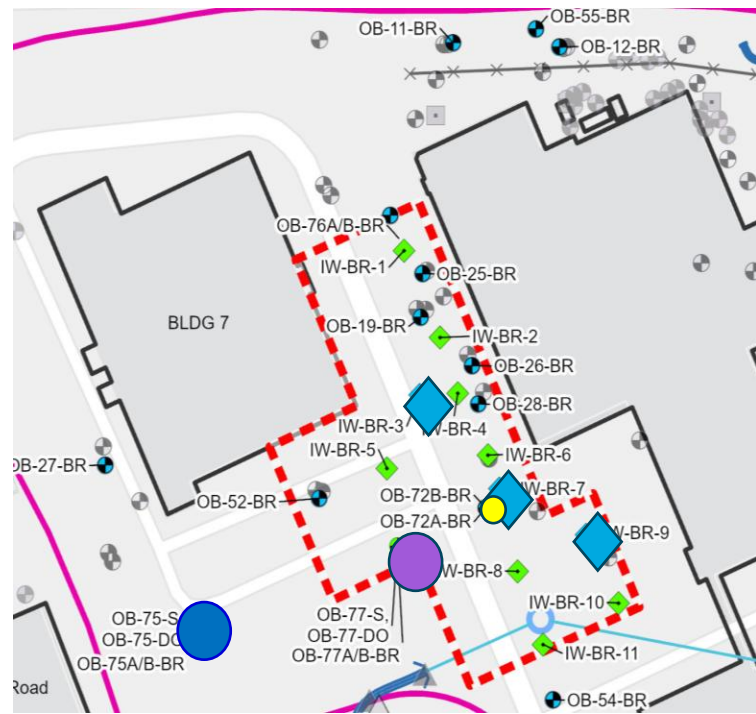


OB-77B-BR (135-145 ft bgs)

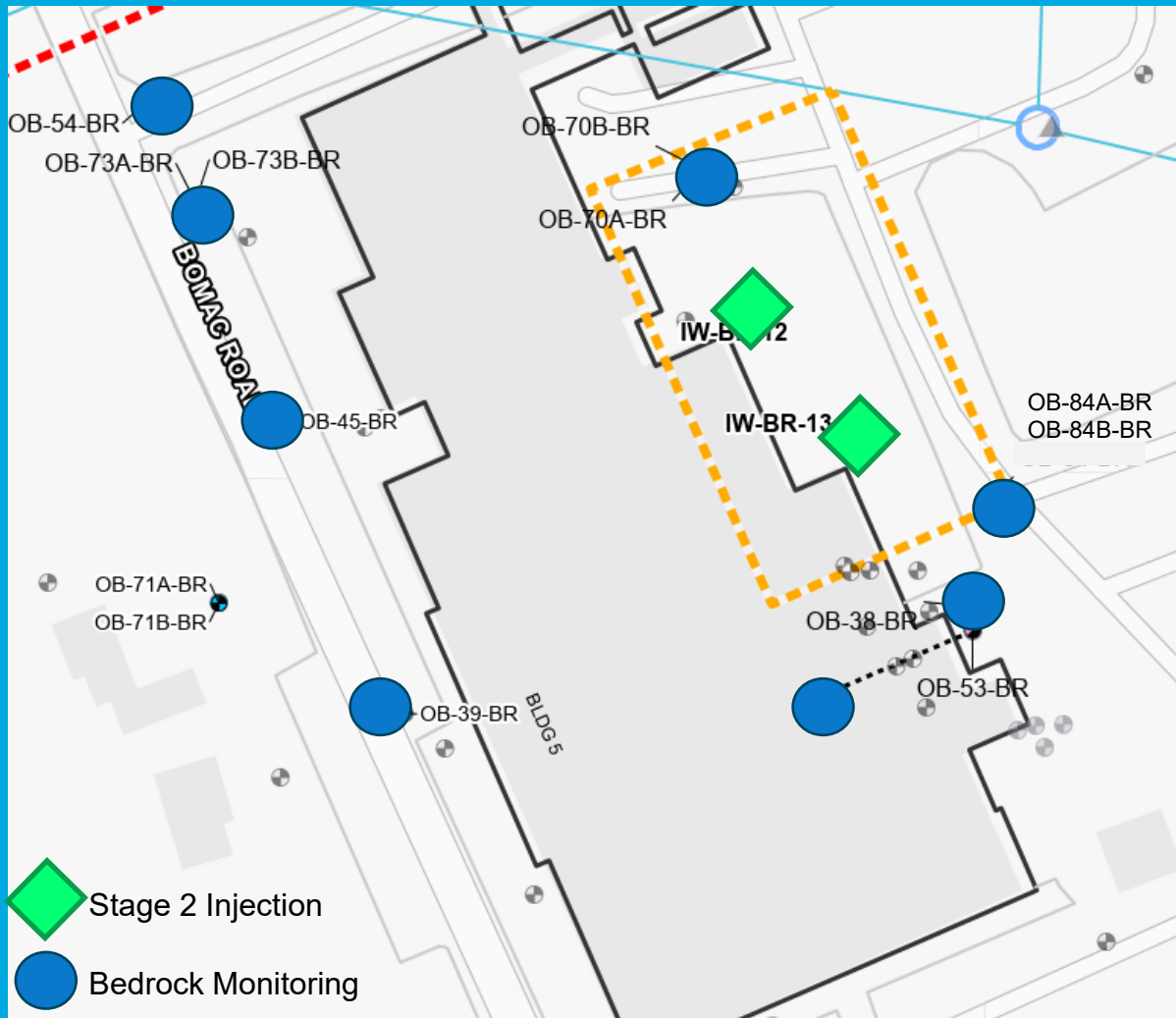


Stage 1 Injection Event (Sept 4-18, 2025)

Stage 1 Bedrock Injection Locations



Bedrock Stage 2 Injections



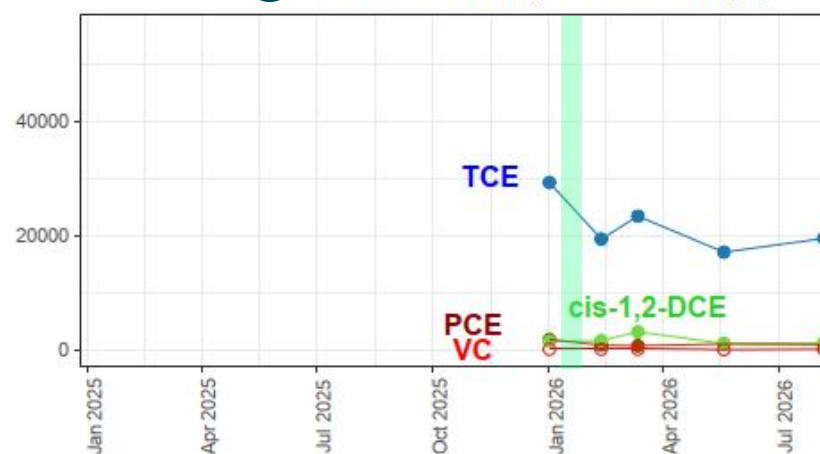
- Bedrock is less transmissive in this area compared to the Stage 1 area
- Injections at two locations were completed in January 2026
 - IW-BR-12 – 3,900 gallons total (5 intervals); well screens 51-61 and 106-111 feet deep
 - IW-BR-13 – 1,700 gallons total (3 intervals, decreasing transmissivity with depth); well screen 64-74 feet deep
- Three rounds of post-injection data

Bedrock Injection – Stage 2 Results (concentrations in $\mu\text{g/L}$)

OB-70A-BR (56.5-61.5 ft bgs)



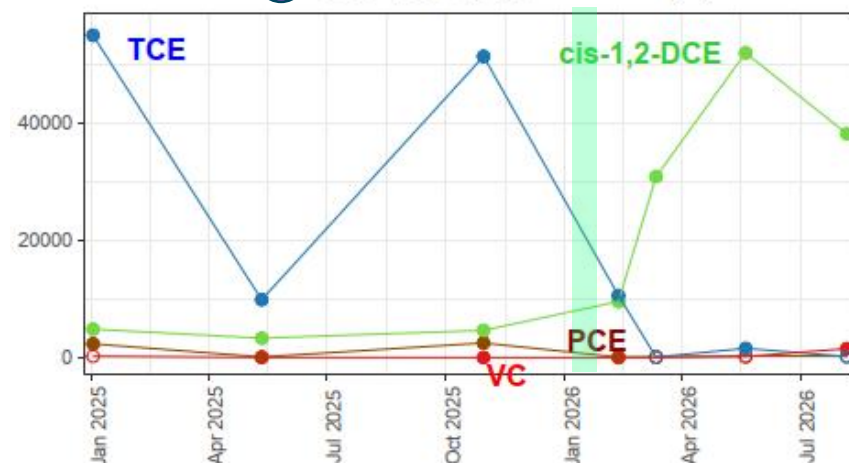
OB-84A-BR (92.5-102.5 ft bgs)



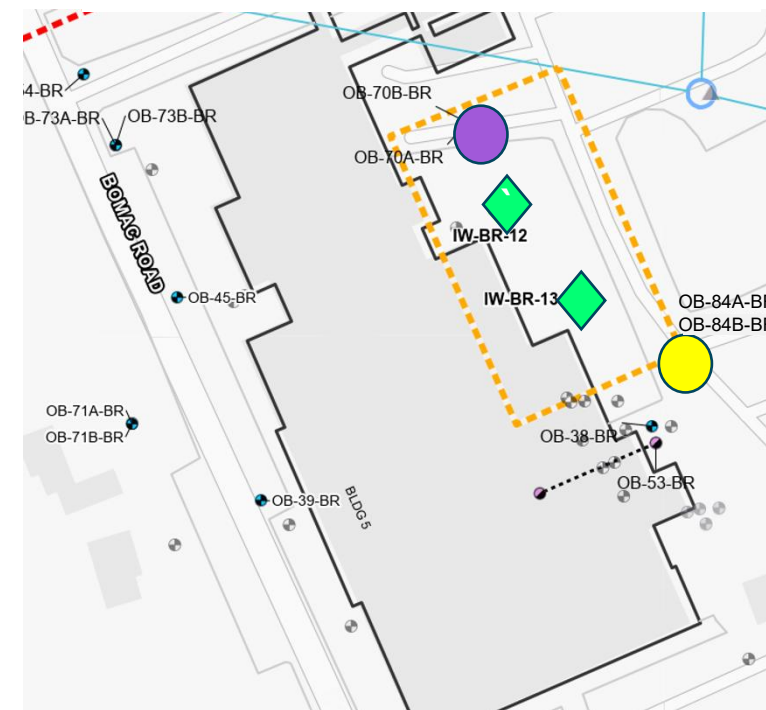
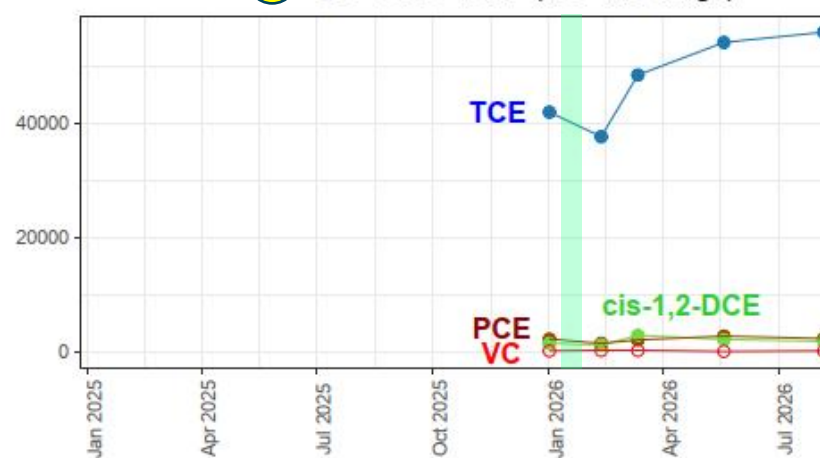
Stage 2 Injection Event (Jan 12-22, 2025)

Stage 2 Bedrock Injection Locations

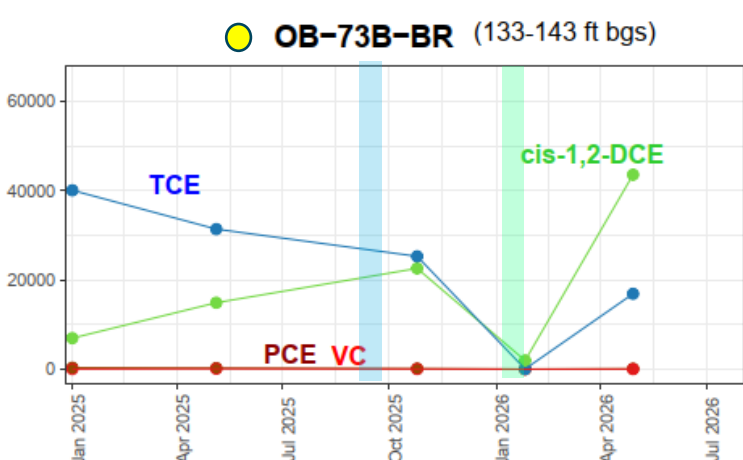
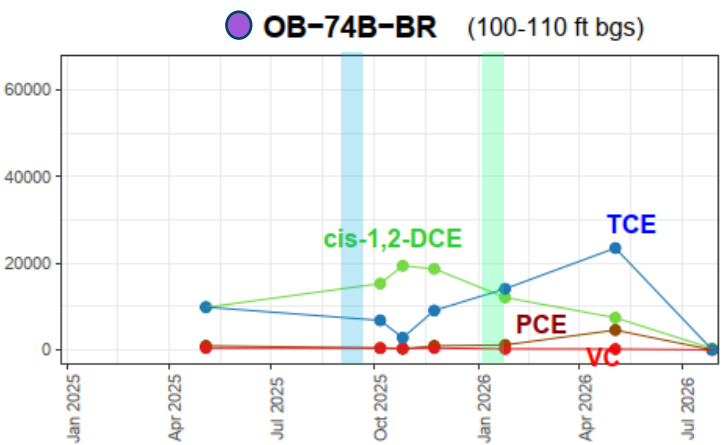
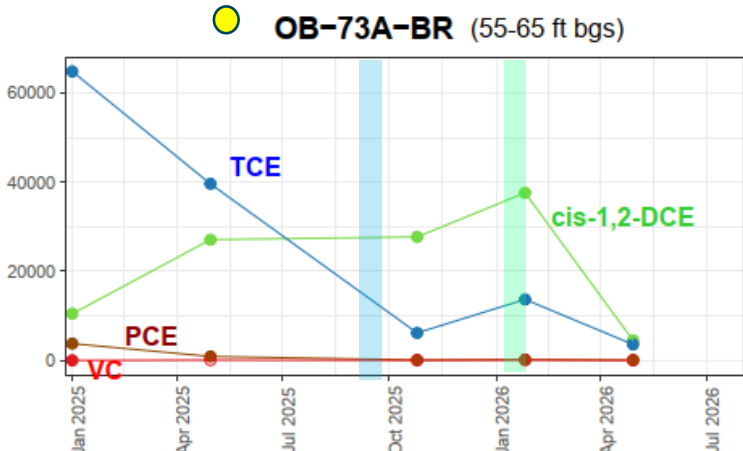
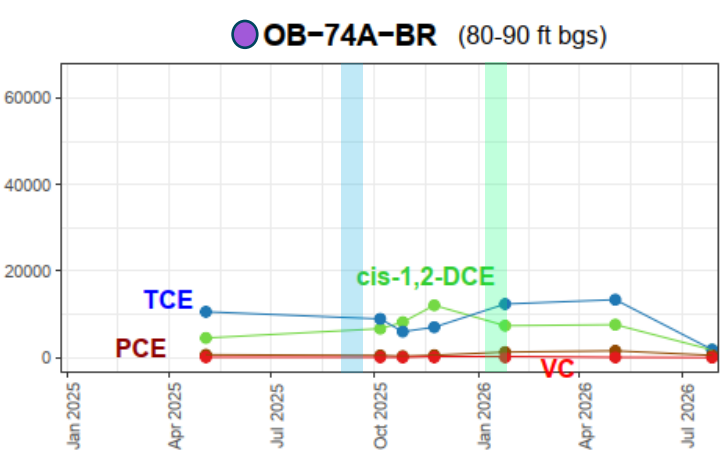
OB-70B-BR (66-76 ft bgs)



OB-84B-BR (109-119 ft bgs)



Bedrock Injection – Combined Effects of Stage 1 and 2 Injections (concentrations in $\mu\text{g/L}$)

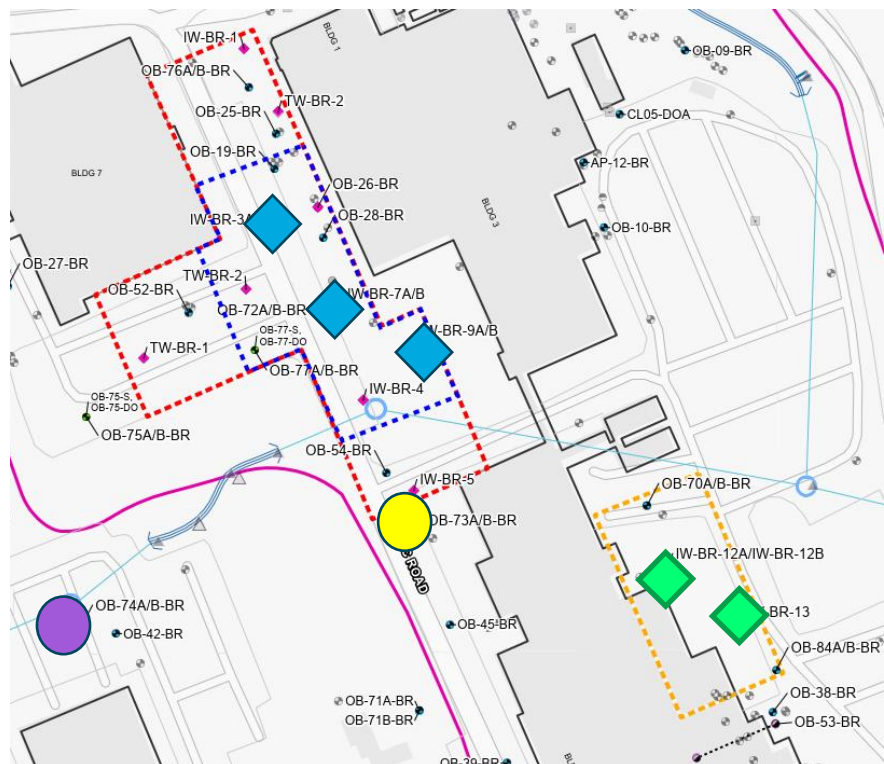


Stage 1 Injection Event (Sept 4-18, 2025)

Stage 2 Injection Event (Jan 12-22, 2025)

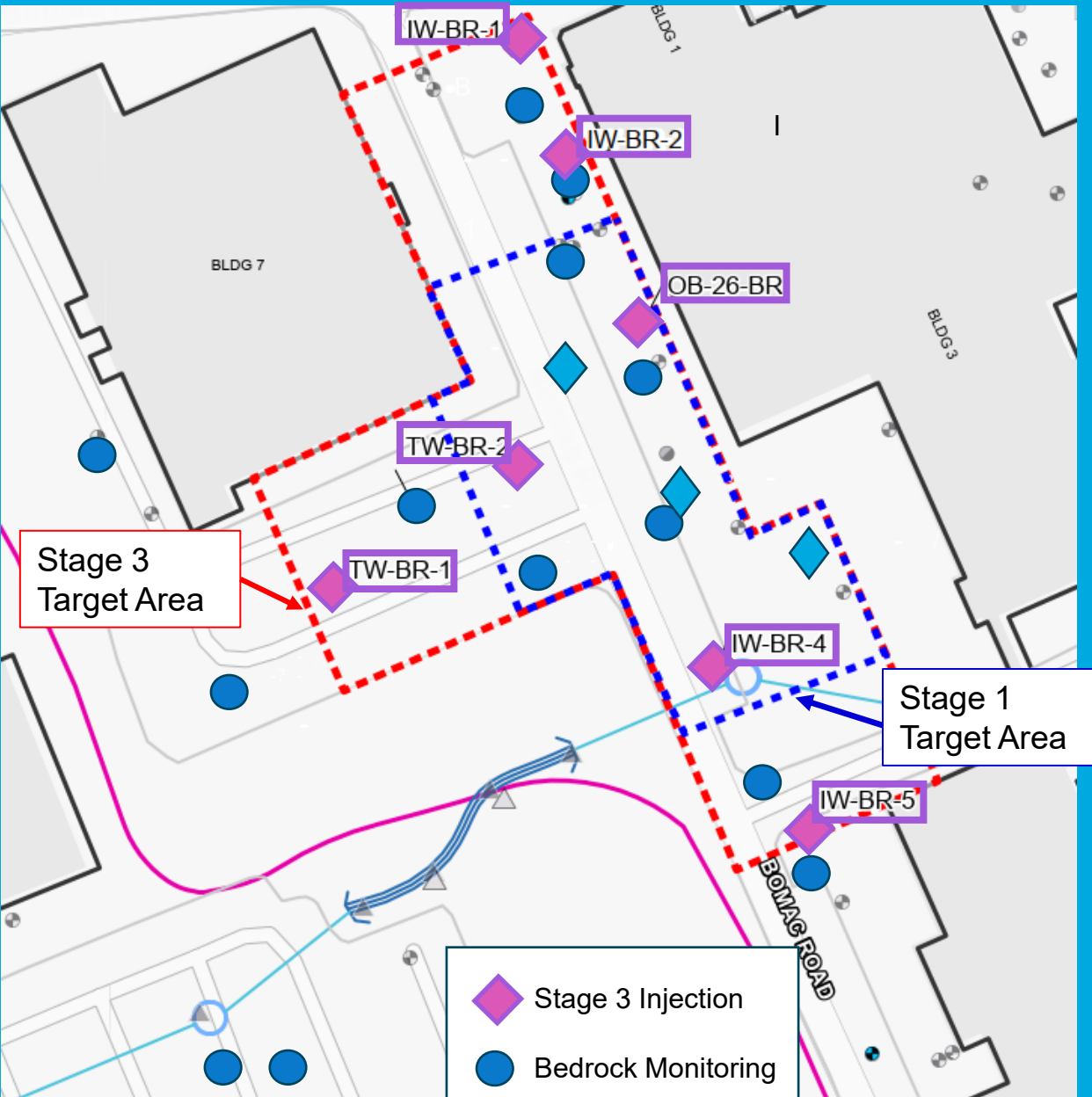
Stage 1 Injection

Stage 2 Injection

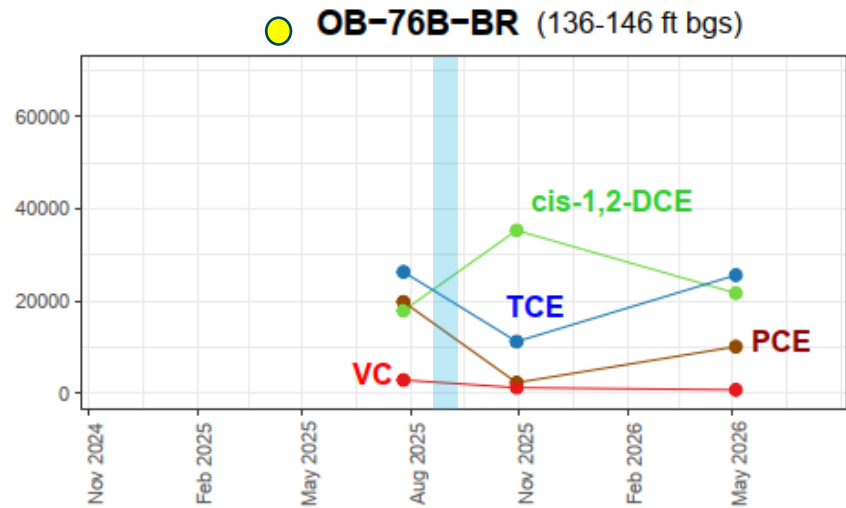
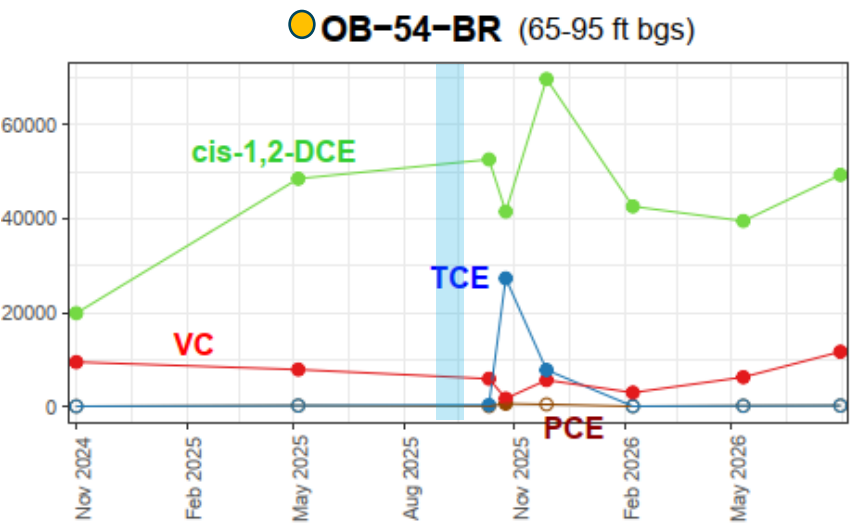
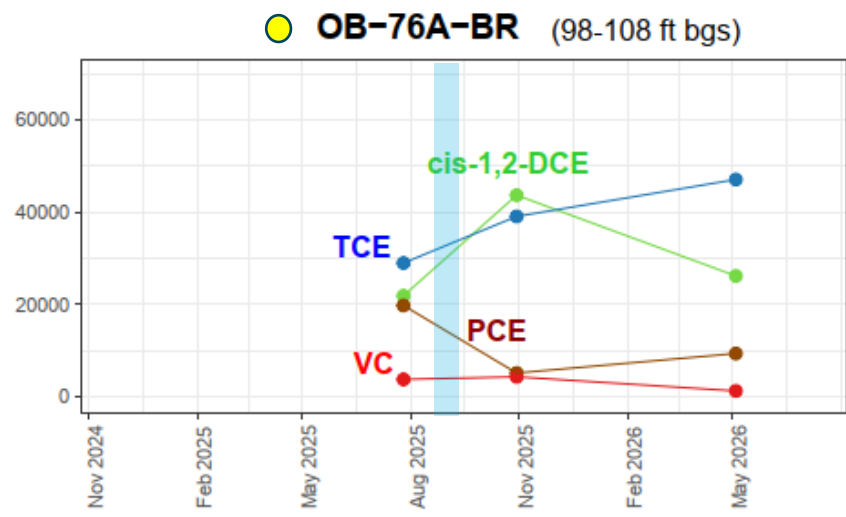
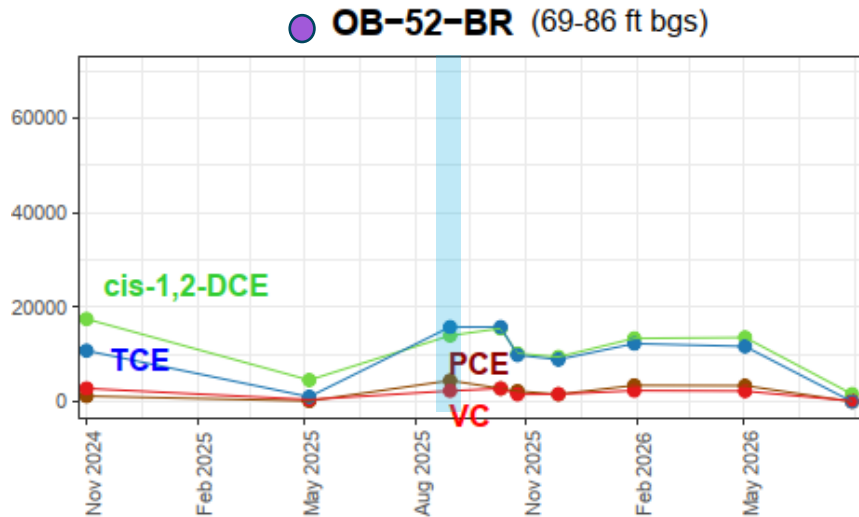


Bedrock Stage 3 Activities

- Stage 1 injections improved conditions, but additional treatment will be beneficial
- 6 bedrock boreholes advanced to a depth of 150 feet (May to August 2026)
- Data being evaluated to design injections
- Injections (Fall 2026) – 6 borings and 1 existing well
- 4 boreholes to be completed as injection wells
- 2 boreholes to be abandoned following injections
- Performance monitoring following injections
- Results of Stage 3 activities will be provided in the February 2027 Status Report



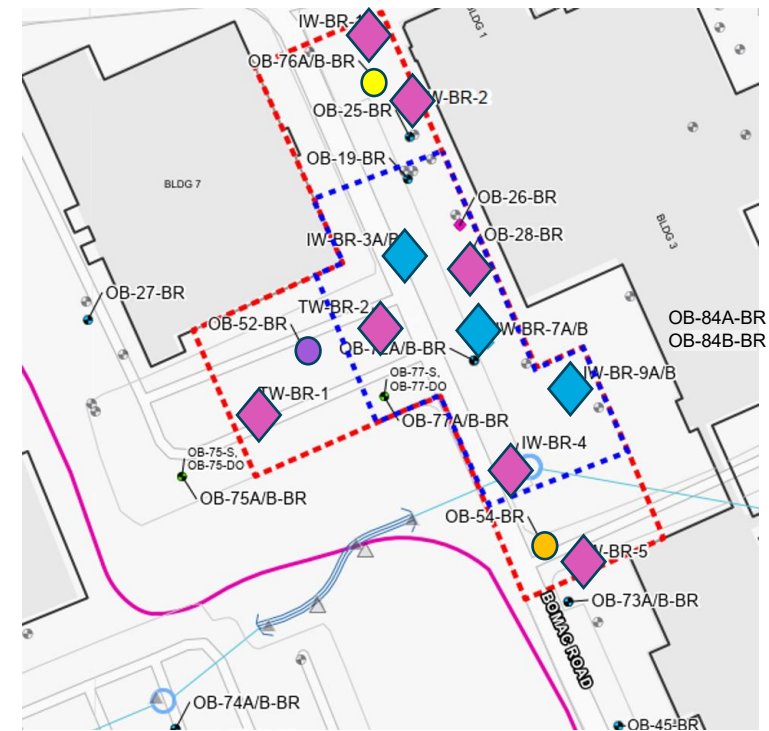
Bedrock Injection – Stage 3 Planning (concentrations in $\mu\text{g/L}$)



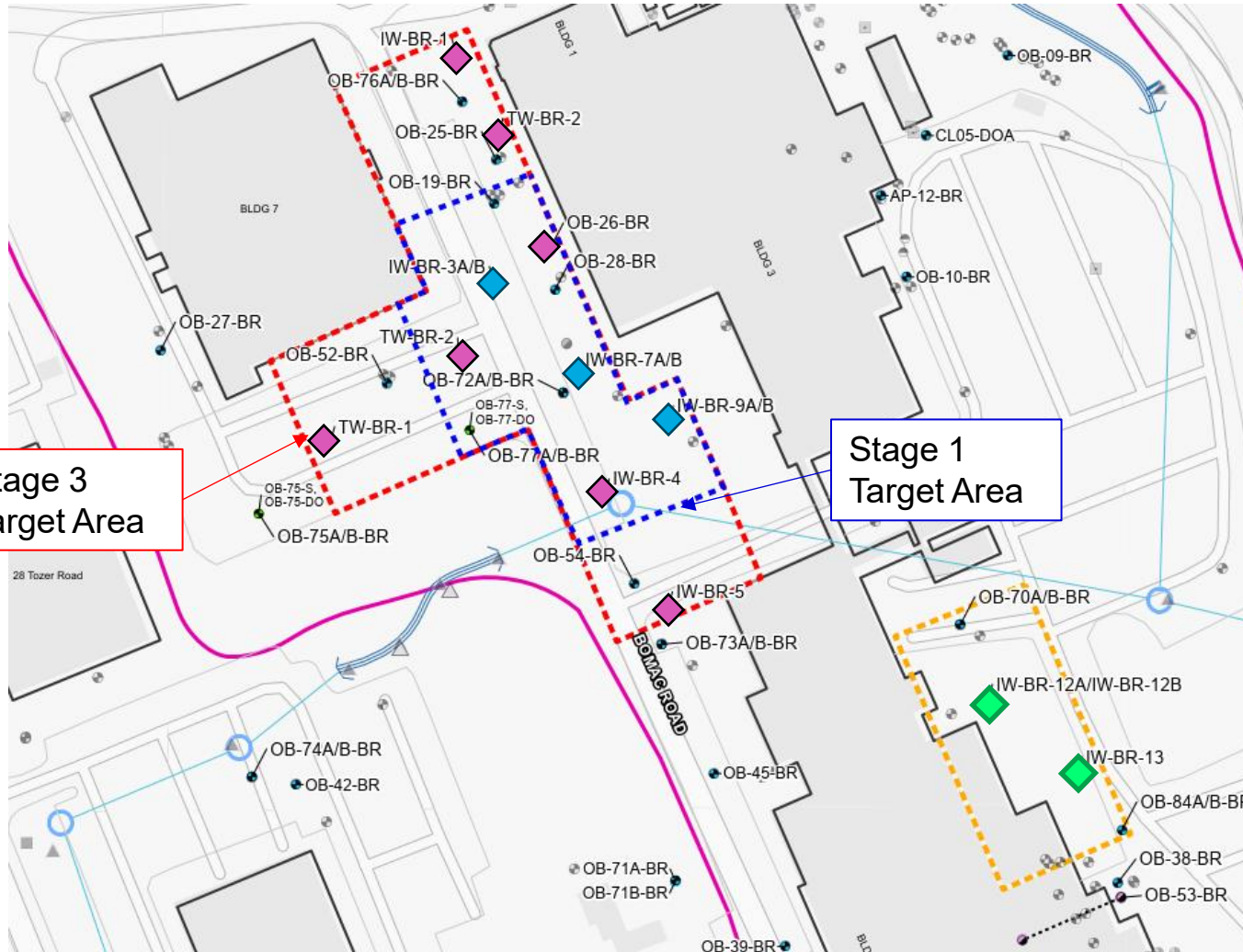
Stage 1 Injection Event (Sep 4-18, 2025)

Stage 1 Bedrock Injection Locations

Stage 3 Bedrock Planned Injection Locations



Bedrock – Next Steps



- ◆ Stage 1 Injection
- ◆ Stage 2 Injection
- ◆ Stage 3 Injection

- Stage 1 + 2 performance monitoring (Aug, Nov, Feb)
- Stage 3 treatment in Fall 2026 (6 new borings and 1 existing well)
- Construction of Stage 3 injection wells (4 locations)
- Stage 3 performance monitoring followed by overall bedrock performance monitoring

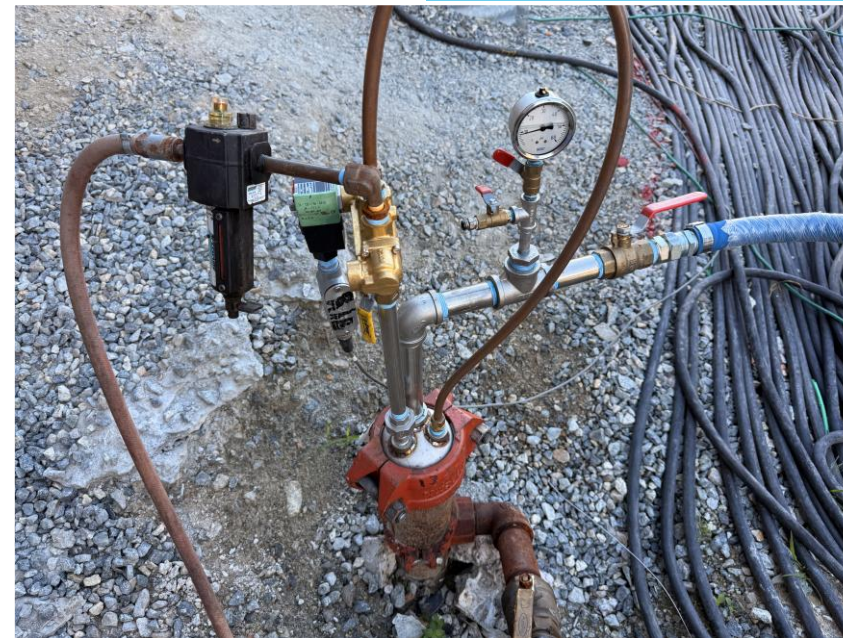
Building 3 Source Area

- ❖ In situ thermal treatment
- ❖ In situ bioremediation polish
- ❖ Continued soil vapor extraction (SVE)

- Thermal treatment operations ongoing
 - Vapor extraction began late July 2026
 - Gentle heating underway
 - Active monitoring in progress
- Analytical measurements confirm
 - Treated vapor meet discharge standards
 - Treated liquid meet sewer requirements
- Stockroom vapor barrier upgrades
- Indoor vapor recovery piping completed



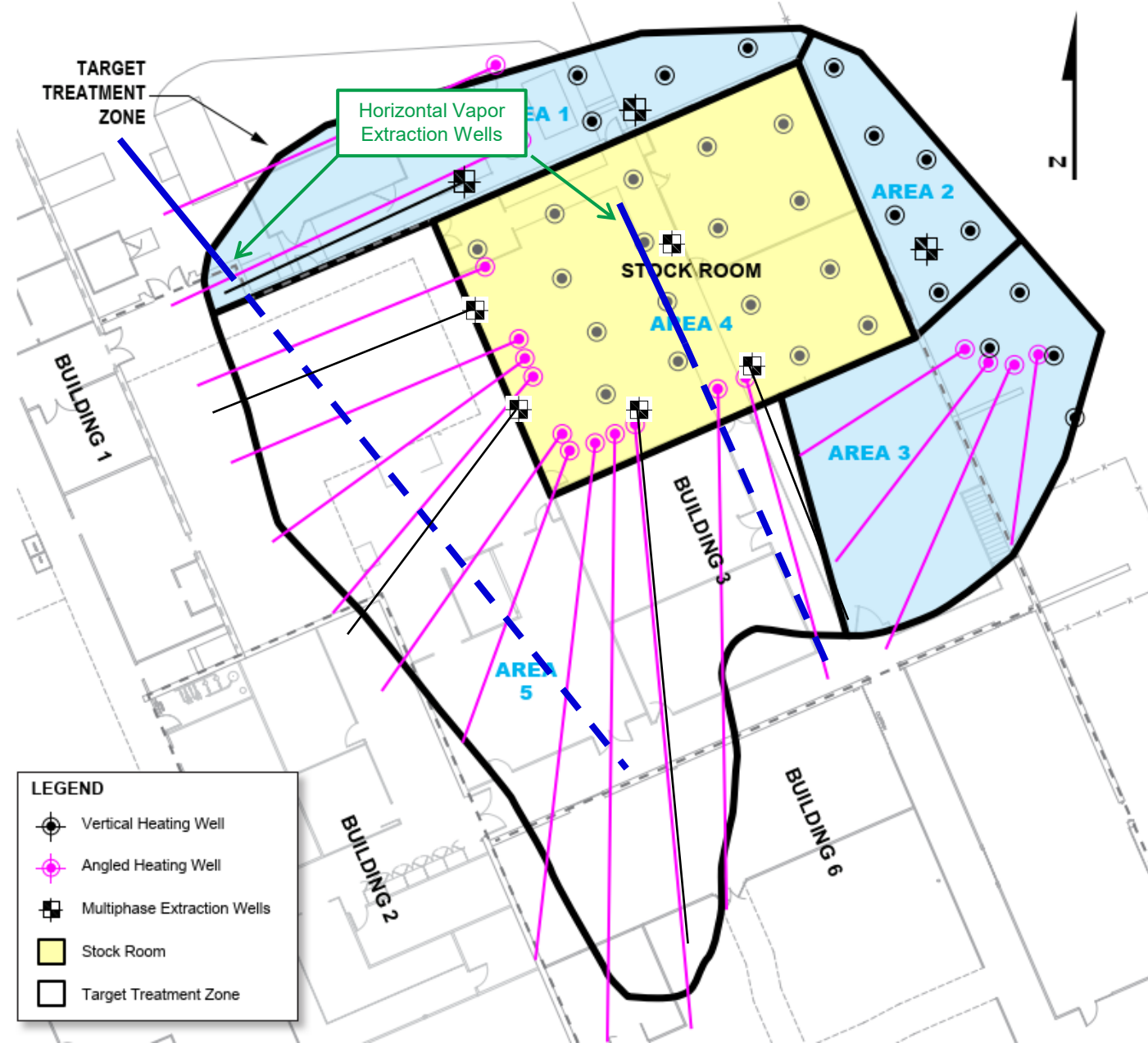
Thermal System
Control Panel



Vapor and Liquid
Extraction Well

Building 3 Treatment

- Subsurface heating mobilizes VOCs from soil and water
- Vapor extraction captures steam and VOCs
 - Recovery wells co-located with select heaters
 - Horizontal wells installed beneath building floor
- Groundwater extraction
 - Provides hydraulic containment
 - Supplements VOC extraction
- Extracted water and vapor containing VOCs treated at surface

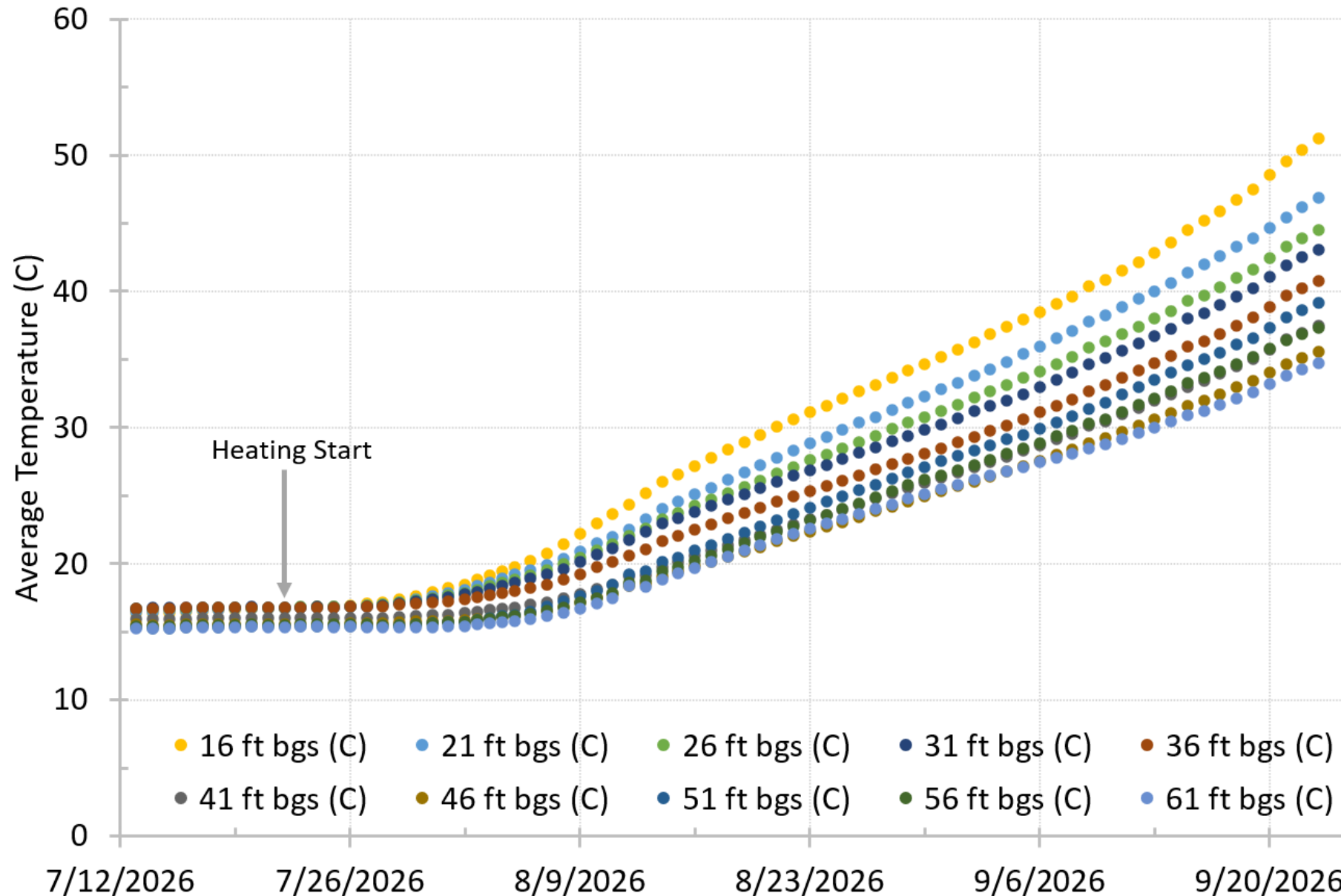




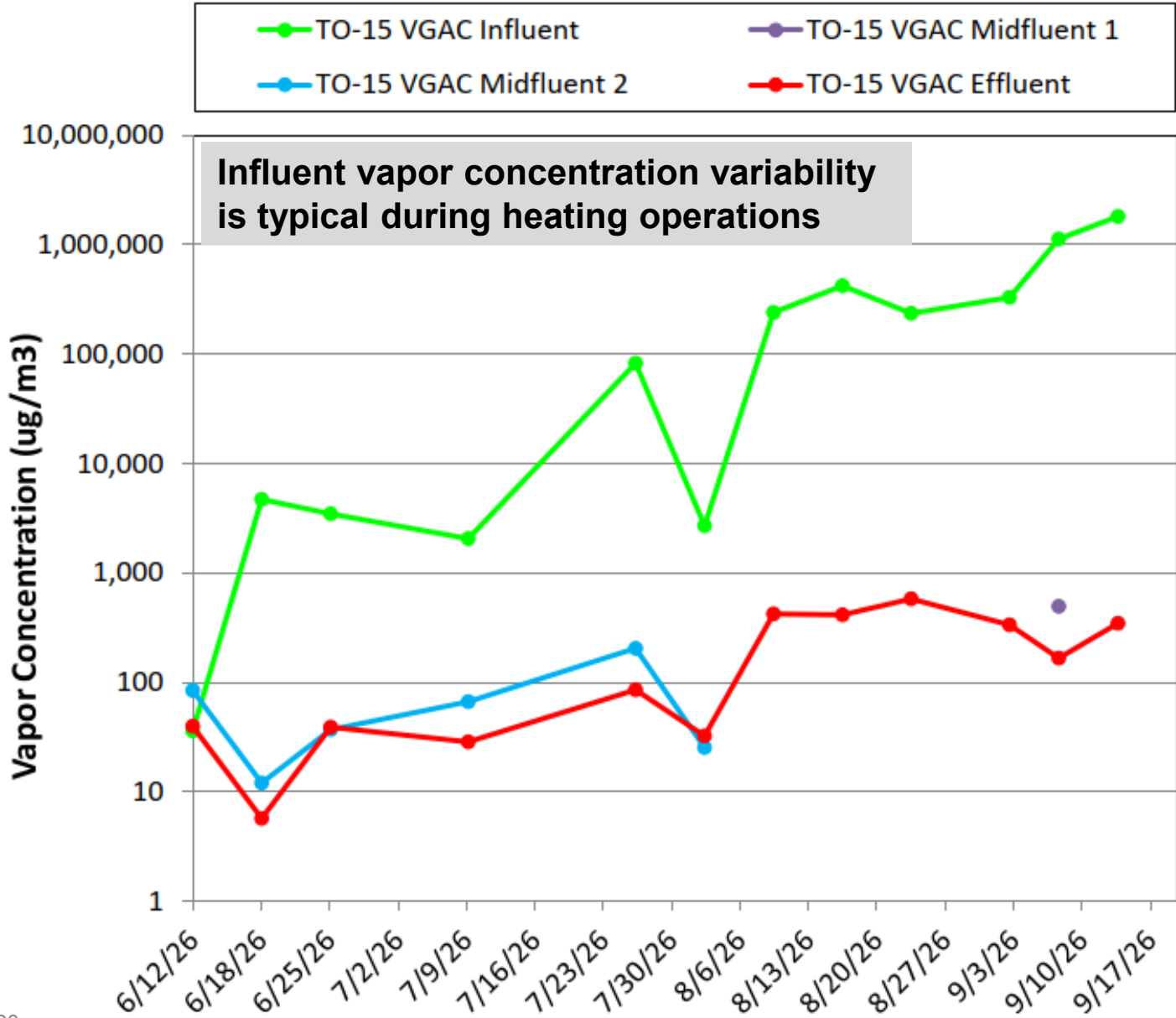
**Completed
Stockroom
Installation**

Stockroom Vapor Barrier Improvements Underway

Subsurface Heating Observations



System Monitoring Observations



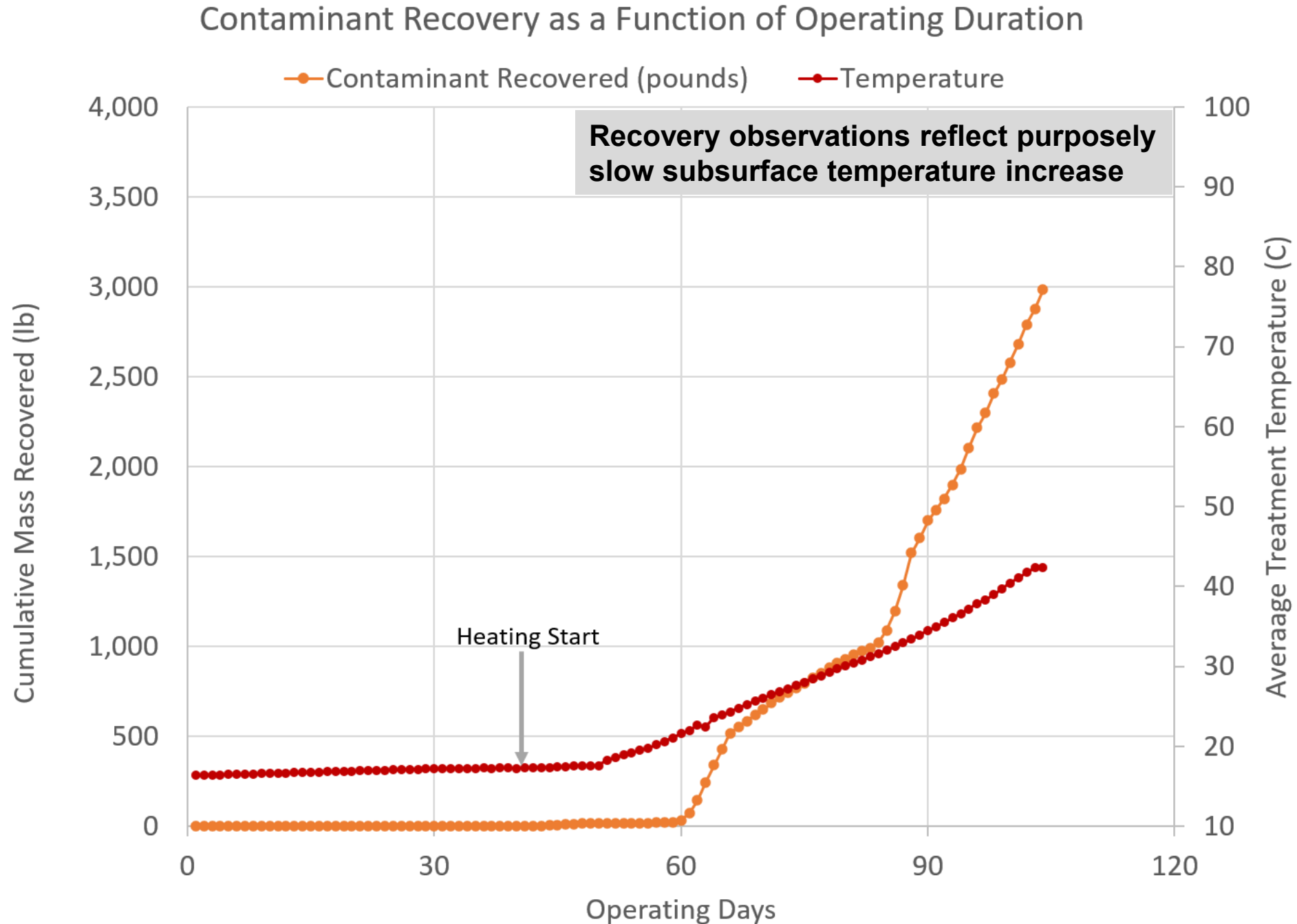
Treatment Process Monitoring



Process Vapor Sampling

Looking Ahead

System Monitoring Writes the Story



Building 5

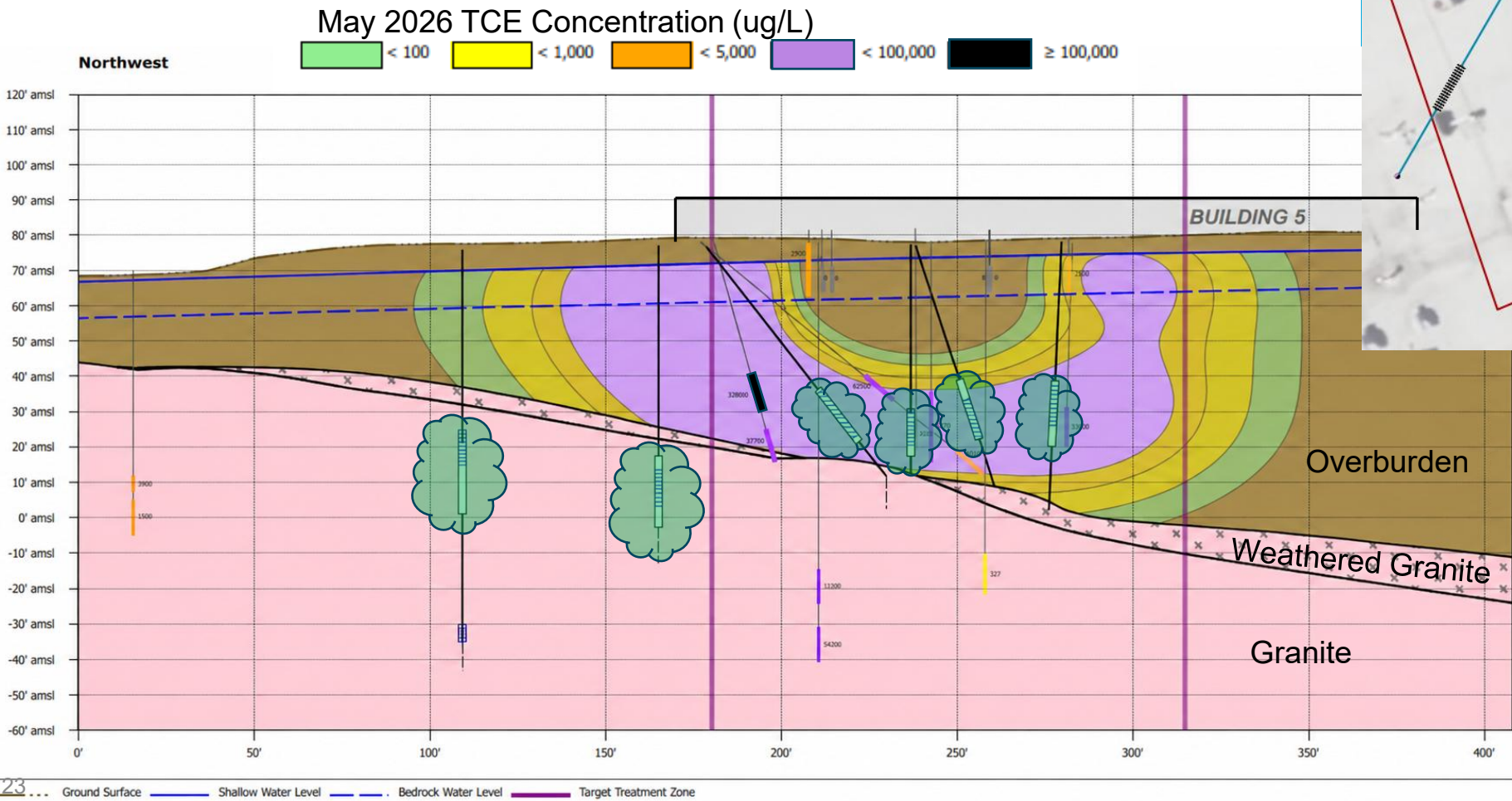
- ❖ In situ bioremediation
- ❖ Continued soil vapor extraction

- Angled wells reach beneath the building to assess soil type and VOCs levels
- Used pressure to extend reach of injection amendments



Building 5 Treatment

- What does treatment look like from above and in cross section



PSL-10 – Overview

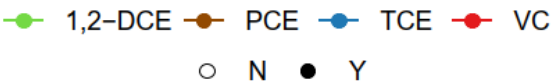
❖ Subgrade biogeochemical reactor (SBGR)



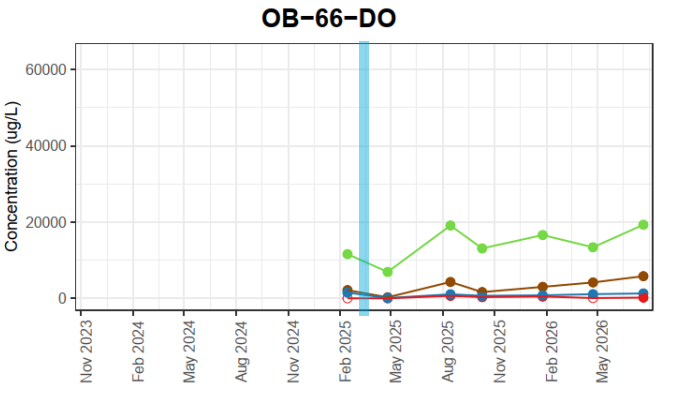
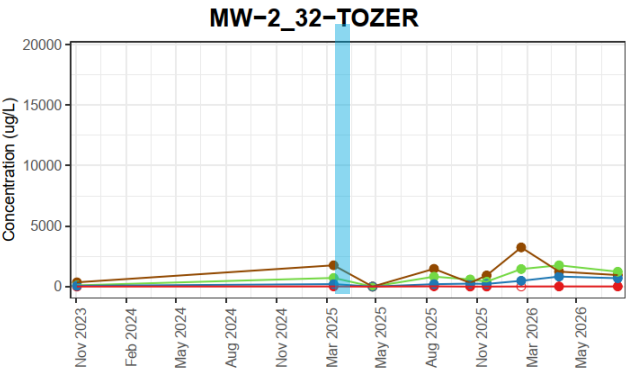
- SBGR continues to operate
 - System is actively pumping and circulating water
- Sampling was completed in February and May 2025
 - Results continue to demonstrate lower PCE and TCE concentrations next to the cell
 - Additional sampling was conducted in August and will occur again in November
 - Results will be provided in the February 2027 status report

PSL-10 – Results

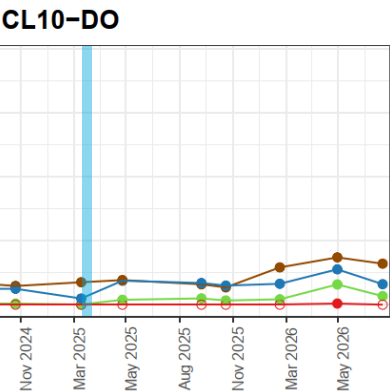
Results (µg/L)



Nov. 2012
PCE – 16,000 µg/L
TCE – 4,300 µg/L

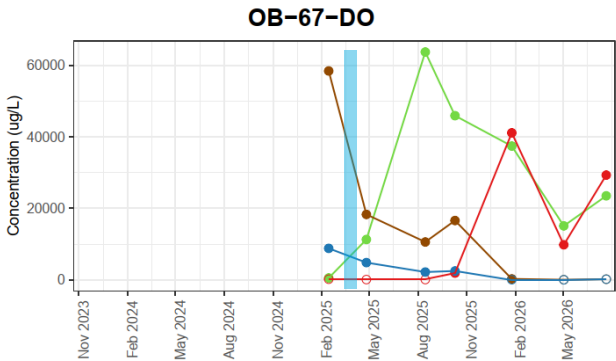
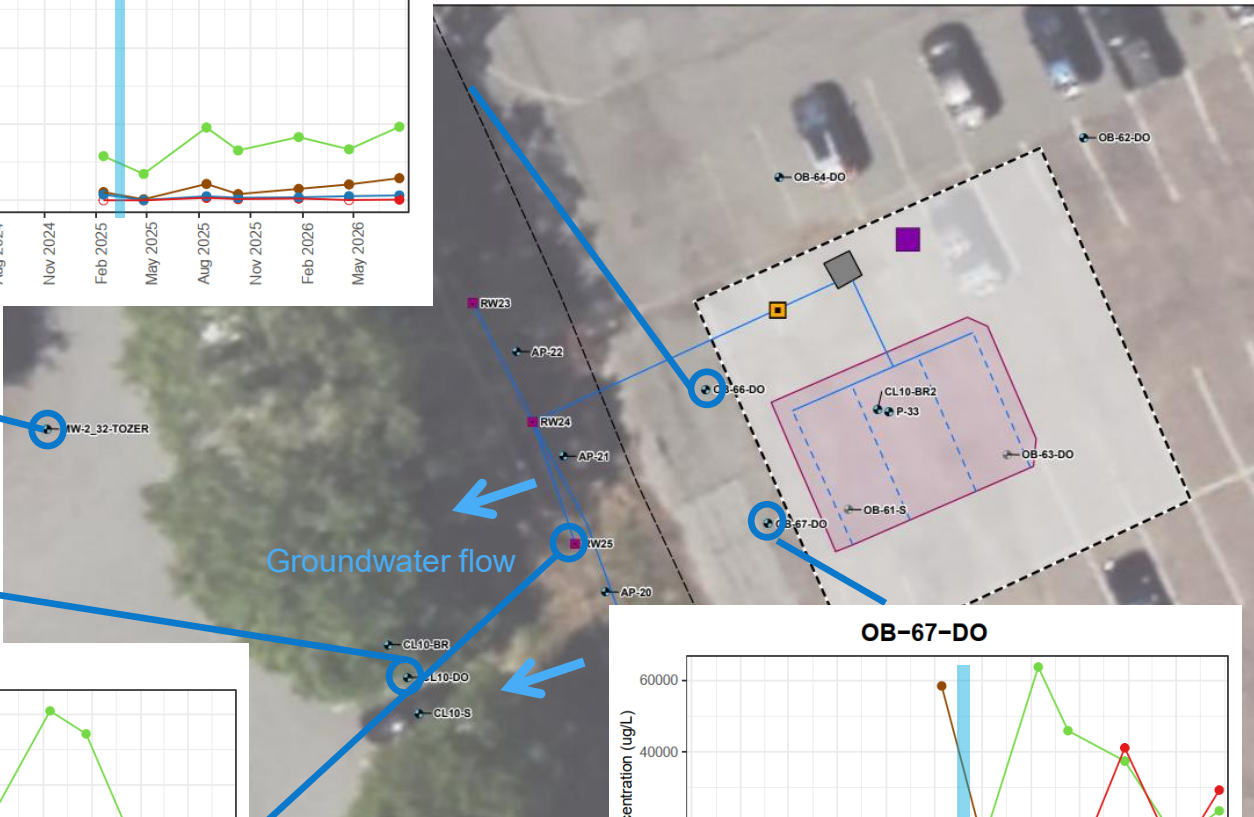
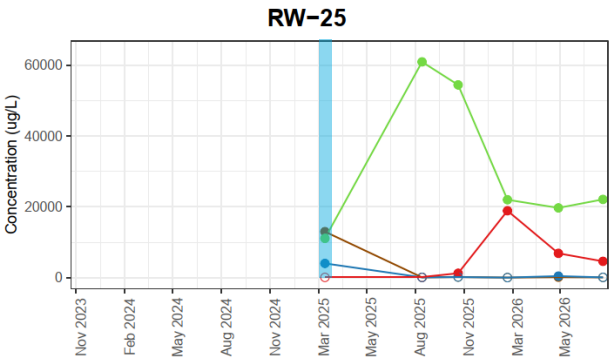


Start of Treatment



Apr. 2004
PCE – 10,000 µg/L
TCE – 10,000 µg/L

* Downgradient concentration fluctuations related to localized rebound/seasonal fluctuations



System Installation Schedule*

Treatment Area	System Design	System Installation	Treatment	Monitoring
Building 3 (Thermal)	Complete	Complete	Started July 2026	Ongoing
PSL-10 (SBGR)	Complete	Complete	Started April 2025	Ongoing
Building 5 (Bio)	Complete	Complete	Started Feb 2026	Ongoing
Bedrock (ISCR)	Complete	Stage 1 Complete Stage 2 Complete Stage 3 Complete	Started Sept 2025 Started Jan 2026 Planned fall 2026	Ongoing
Stream A (Mat)	Complete	Complete	Oct 2023	Ongoing

NOTES:

* = Estimated schedule, subject to change

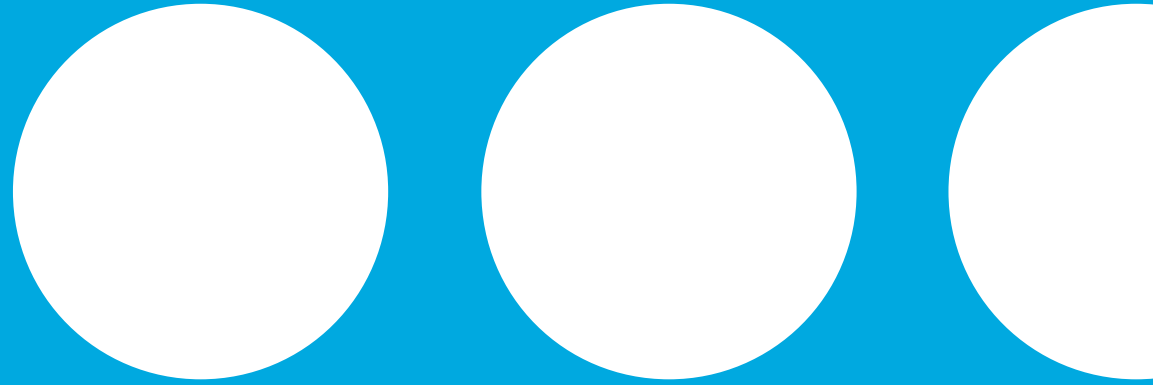
Bio = Bioremediation

ISCR = In situ chemical reduction

Mat = Reactive core mats

SBGR = Subgrade Biogeochemical Reactor

Upcoming Submittals and Public Involvement



Upcoming Submittals and Public Involvement Opportunities

Next Deliverables

- Phase IV/Temporary Solution Status Report (Feb 2027) – semiannual status report

Upcoming Meetings

- Quarterly – alternating PIP and TAG meetings
 - Winter TAG (Jan or Feb 2027)

Monthly Updates

- Sign the mailing list with your email address if you would like to receive updates by email only (no more paper mail)
- Website homepage updated first week of the month



[Sign-up Link](#)



Reports Available

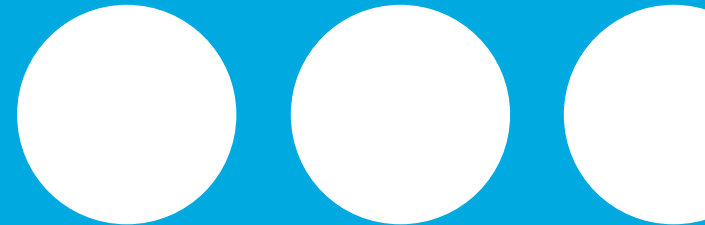
➤ Prior reports available here:

- Hard copy
Beverly Public Library Reference Desk
- Or online
<https://eeaonline.eea.state.ma.us/portal/dep/wastesite/viewer/3-0000485>

For More Information

- Website: <https://beverlysitecleanup.com/>
 - Homepage updated monthly
 - Public meeting videos
 - Presentation slides
 - Overview of environmental investigation and treatment to date
 - Links to MassDEP and EPA fact sheets on cleanup process and technologies
 - Forms to submit comments or sign up for emailed site mailing list
- Email: beverlysitecleanup@jacobs.com

Questions



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