



BANDERA ROAD GROUND WATER PLUME SUPERFUND SITE Community Advisory Group Meeting

December 14, 2023

Stakeholders



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



- ▶ U.S. Environmental Protection Agency
- ▶ City of Leon Valley
- ▶ Community Advisory Group
- ▶ Texas Commission on Environmental Quality
- ▶ United States Geological Survey
- ▶ Edwards Aquifer Authority
- ▶ Texas Department of State Health Services
- ▶ EA Engineering, Science, and Technology, Inc., PBC (EA)
- ▶ HydroGeoLogic, Inc. (HGL)

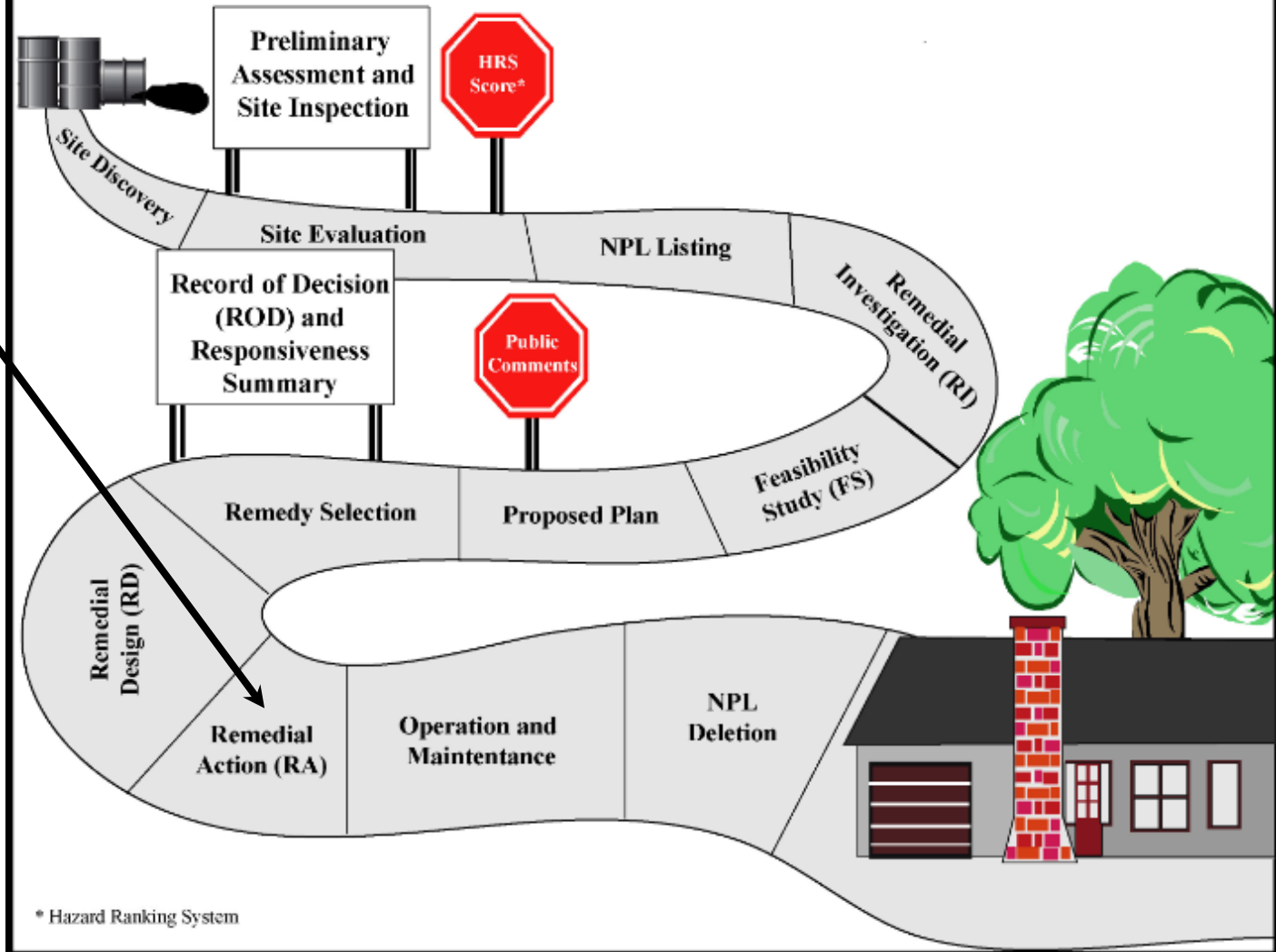


Texas Department of State Health Services

Meeting Agenda

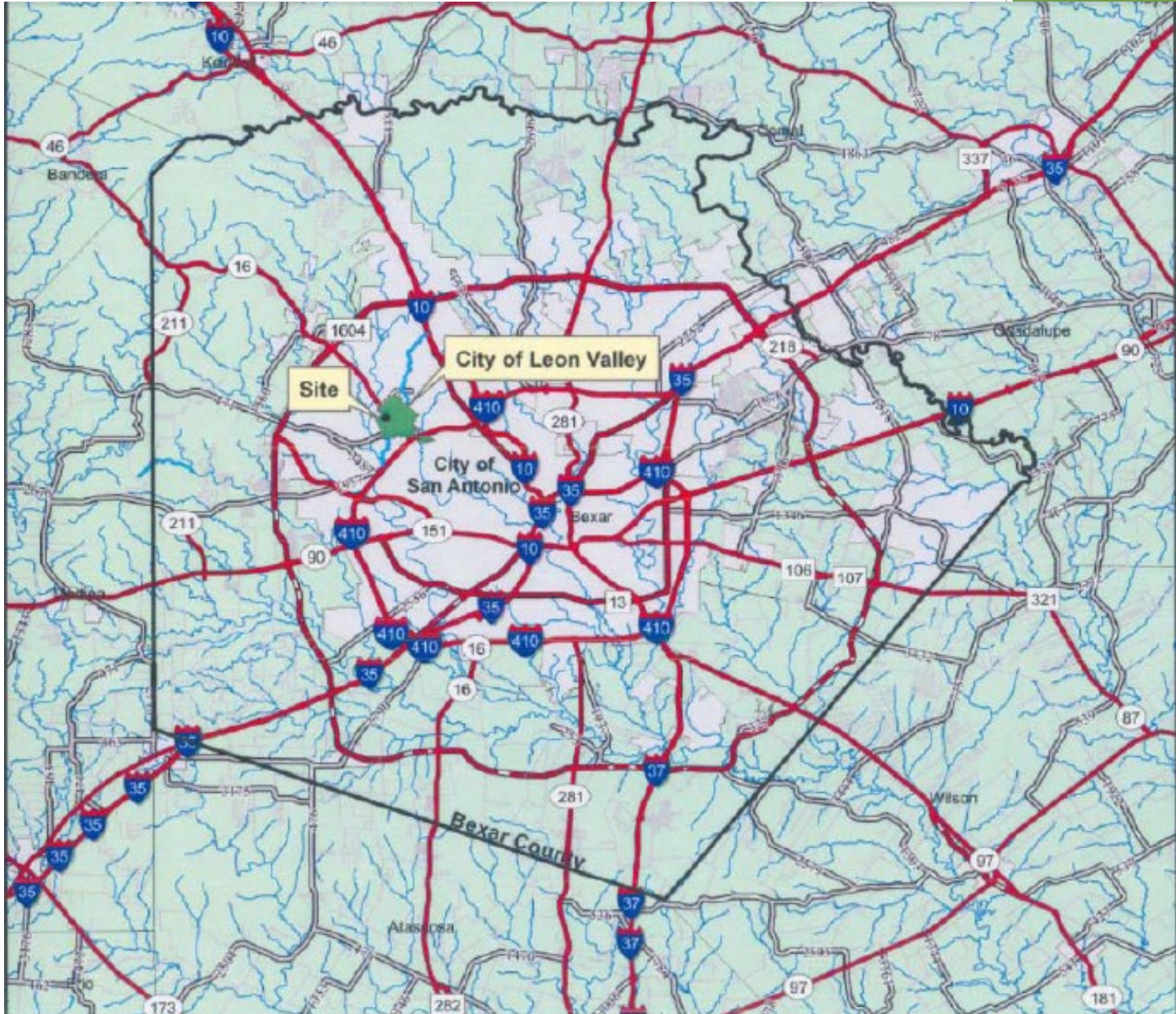
- ▶ **Introductions**
- ▶ **Site Overview**
- ▶ **Remedial Design & Sampling**
- ▶ **Remedial Action Status**
- ▶ **Path Forward**
- ▶ **Questions/Discussion**

The Superfund Process



Current Phase

Site Location



Site Location



Site Background

- ▶ 2004: Site identified from assessment activities by TCEQ Voluntary Clean-up Program.
- ▶ March 7, 2007: EPA lists site on the National Priorities List.
- ▶ 2007: Bandera Road Community Advisory Group formed.
- ▶ 2007: EPA Removal Action connecting six private water wells to public supply line.
- ▶ September 28, 2007: Agency for Toxic Substances and Disease Registry/TXDSHS completes Public Health Assessment.
- ▶ 2007: EPA Field Consent Order with Savings Square property owner to install indoor air mitigation system.
- ▶ 2009: EPA plugged and abandoned private wells drilled into the Edwards Aquifer: DW-30, DW-37, DW-43, DW-44, and USGS-44

Site Background

- ▶ 2011-2012: EPA completes Remedial Investigation Report, Feasibility Study Report, and Supplemental Remedial Investigation Report
 - Source Area 1/AOI 1: Area near the Savings Square Shopping Center (6707/6709 Bandera Road, San Antonio, TX 78238) where a previous dry-cleaning facility operated.
 - Source Area 2/AOI 2: Area near a defunct dry-cleaning facility (6600 Bandera Road, San Antonio, TX 78238)
- ▶ September 30, 2013: EPA issues Record of Decision (ROD).
 - Primary chemicals of concern: Tetrachloroethene (PCE) and its daughter products Trichloroethene (TCE), DCE (1,1- Dichloroethene and cis-1,2-Dichloroethene), vinyl chloride, and toluene.

Site Background

- ▶ 2013 Record of Decision:
 - Surface and Subsurface Soil: Alternative S-4 (Soil Vapor Extraction [SVE]) for Source Areas 1 and 2.
 - Vadose Zone Bedrock: Alternative B-3 (SVE) for source Areas 1 and 2.
 - Ground Water: Alternative GW-4 (In-situ bioremediation [ISB]) for Austin Chalk Northern Plume and Austin Chalk Southern Plume Alternative.
 - Indoor Air: Alternative VI-4 (Membrane Sealant with Vapor Vent) for Source Area 1 - Building B1.
- ▶ 2016: Remedial Design initiated.

Remedial Design

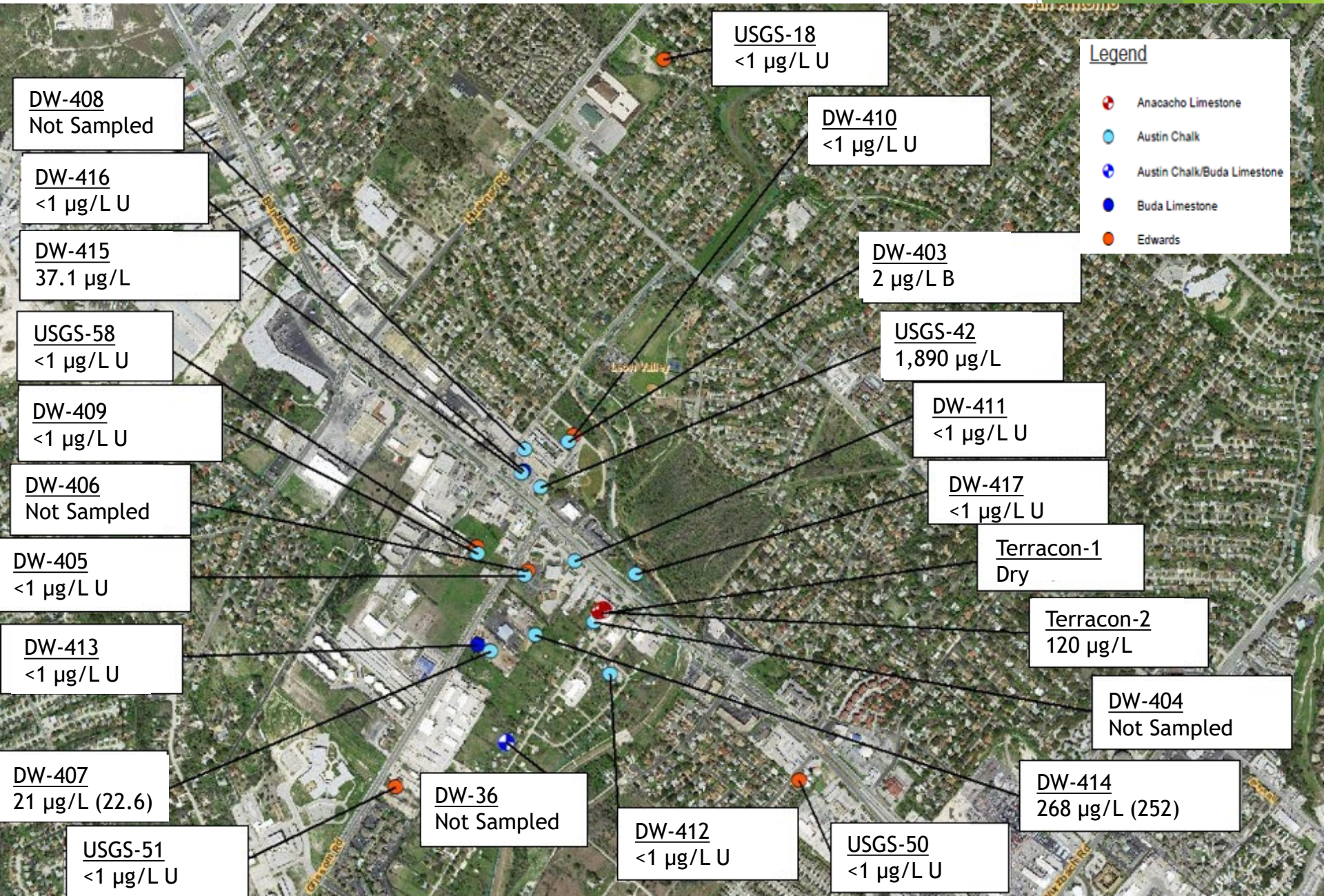
- ▶ Four Ground Water Sampling Events: December 2016, August 2017, February 2019, August 2019
- ▶ Five Air Sampling Events: January 2017, September 2017, February 2019, October 2019, March 2020
- ▶ Soil Gas Sampling:
 - ▶ Completed week of 30 January 2017
 - ▶ Installed soil gas ports and sampled week of 4 February 2019 at the commercial building (Doctors office).
- ▶ Abandoned 8 wells with Edwards Aquifer Authority.
- ▶ November 2020: Completed Final Design.

GROUNDWATER SAMPLING RESULTS

EPA Maximum Contaminant Level for PCE is 5 ug/L

Well	April 2015 µg/L (PCE)	December 2016 µg/L (PCE)	February 2019 µg/L (PCE)	August 2019 µg/L (PCE)	December 2022 µg/L (PCE)
DW-36	26.9	57	No Access	No Access	No Access
DW-403	5.3	2.3 (2.7)	3 (3)	2.7 J (2.7 J)	2 B
DW-404	1 U (1 U)	14	1 U	5 U	Well Damaged
DW-405	1 U	1 U	0.2 J	5 U	1 U
DW-406	1 U	1 U	1 U	5 U	Well Obstructed
DW-407	89.9	6.9	2	7.7	21 (22.6)
DW-408	65.4	190	83	180	Well Damaged
DW-409	1 U (1 U)	No Access	1 U	5 U	1 U
DW-410	1 U	1 U	1 U	5 U (5. U)	1 U
DW-411	1 U	1 U	1 U	5 U	1 U
DW-412	1 U	1 U	1 U	5 U	1 U
DW-413	1 U	1 U	1 U	5 U	1 U
DW-414	248 (264)	200 (200)	120 (120)	190 (180)	268 (252)
DW-415	163	110 (110)	55 (45)	92	37.1
DW-416	1 U	1 U	1 U	5 U	1 U
DW-417	1 U	1 U	1 U	5 U	1 U
TERRACON-1	133	Dry	43	Dry	Dry
TERRACON-2	1,250	530	250	280	120
USGS-18	1 U	1 U	1 U	5 U	1 U
USGS-42	3,400	2,500	4,000	2,700	1,890
USGS-50	1 U	1 U	1 U	5 U	1 U
USGS-51	1 U	1 U	1 U	5 U	1 U
USGS-58	1 U	No Access	1 U	5 U	1 U

GROUNDWATER SAMPLING RESULTS DECEMBER 2022



AIR SAMPLING RESULTS

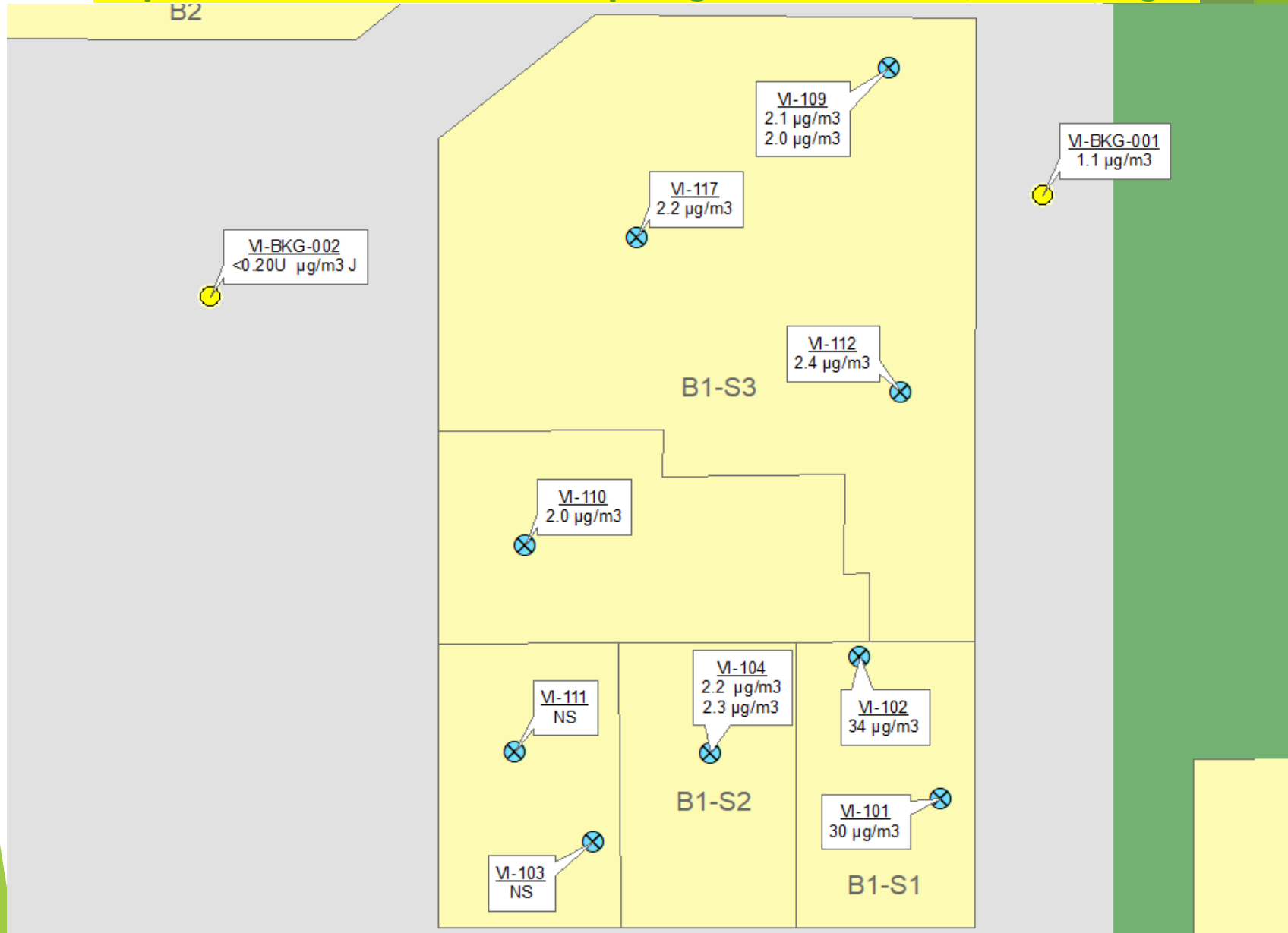
EPA Commercial/Industrial Air Risk Screening Level is 47 $\mu\text{g}/\text{m}^3$

Location	Jan-17 $\mu\text{g}/\text{m}^3$ (PCE)	Aug-17 $\mu\text{g}/\text{m}^3$ (PCE)	Feb-19 $\mu\text{g}/\text{m}^3$ (PCE)	Oct-19 $\mu\text{g}/\text{m}^3$ (PCE)	Dec-22 $\mu\text{g}/\text{m}^3$ (PCE)	Sep-23 $\mu\text{g}/\text{m}^3$ (PCE) ¹
VI-101	110	110	110 (110)	44 (44)	53	30
VI-102	93	55.7	110	41	58	34
VI-103	12	3.6	22	22	1.6	NS
VI-104	100	18.8	100	35	74.6 (74.6)	2.2 (2.3)
VI-107	10	6.93	7.8	5.5	1.4	ND
VI-108	8.1	5.71	9	5	1.3	ND
VI-109	12	9.58	13	12	2.9 (2.4)	2.0
VI-110	22	22.3	43	19	2.4	2.0
VI-111	22	23.9	38	19	1.4	NS
VI-112	12	40.4	16	13	3.9	2.4
VI-117	15	45.1	16	14	2.8	2.2
VI-118	64	ND	7.1	6.1	1	ND
VI-210	0.77	ND	0.51 (0.51)	1.4 (1.5)	1.1 (1.2)	3.4 (3.3)
VI-230	0.72	9.29	0.47	1.5	1	3.9
VI-BKG-001	NS	ND	ND	ND	0.88	1.1
VI-BKG-002	NS	36.8	ND	ND	0.26 J	ND
VI-BKG-003	NS	ND	ND	ND	0.27 U	ND
VI-BKG-03	0.85	NS	NS	NS	NS	NS
VI-BKG-05	0.56	NS	NS	NS	NS	NS
VI-BKG-06	ND	NS	NS	NS	NS	NS

¹. September 2023 data is preliminary as it has not been validated.

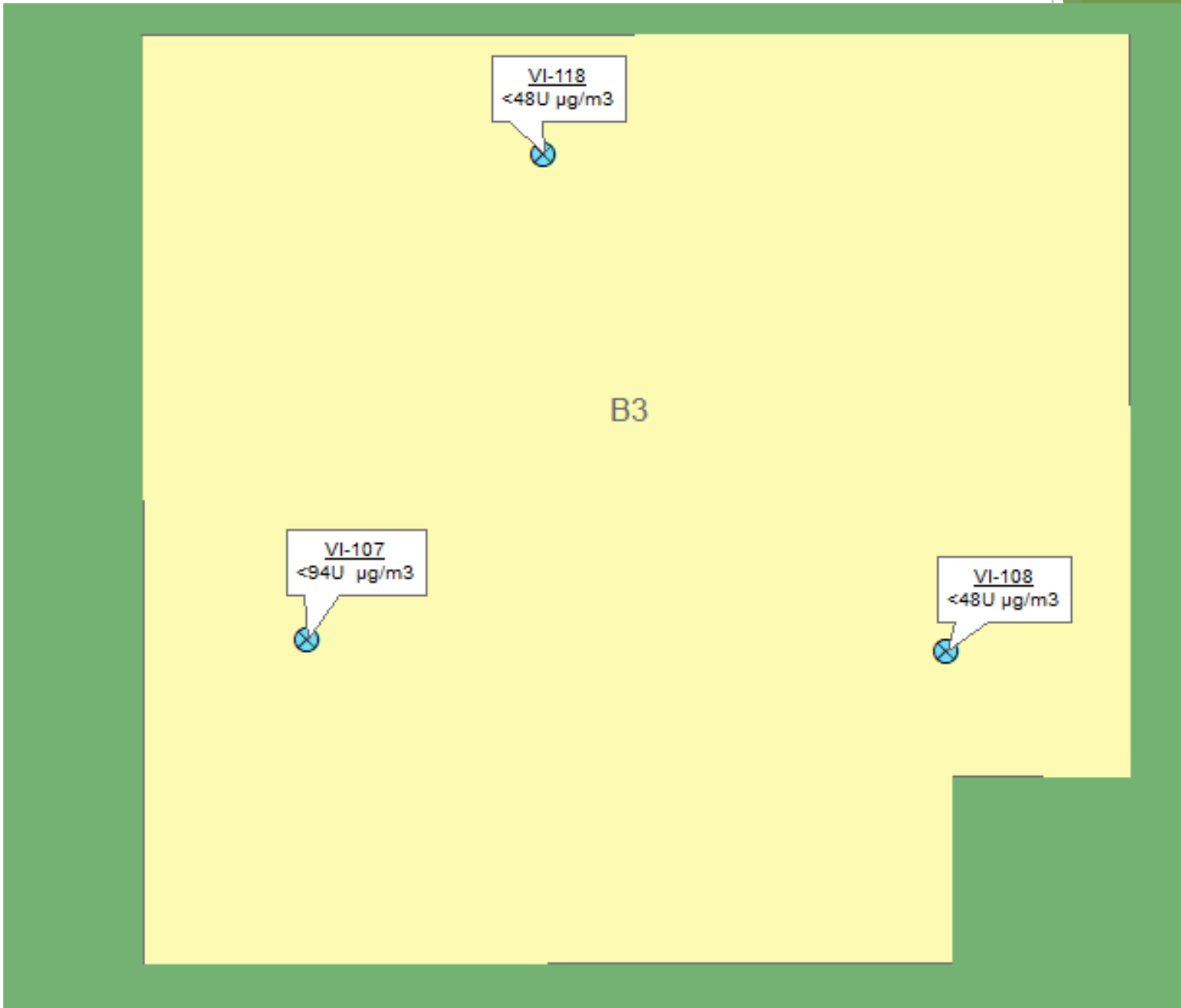
AOI 1 - Savings Square

September 2023 Air Sampling PCE Results, Building 1



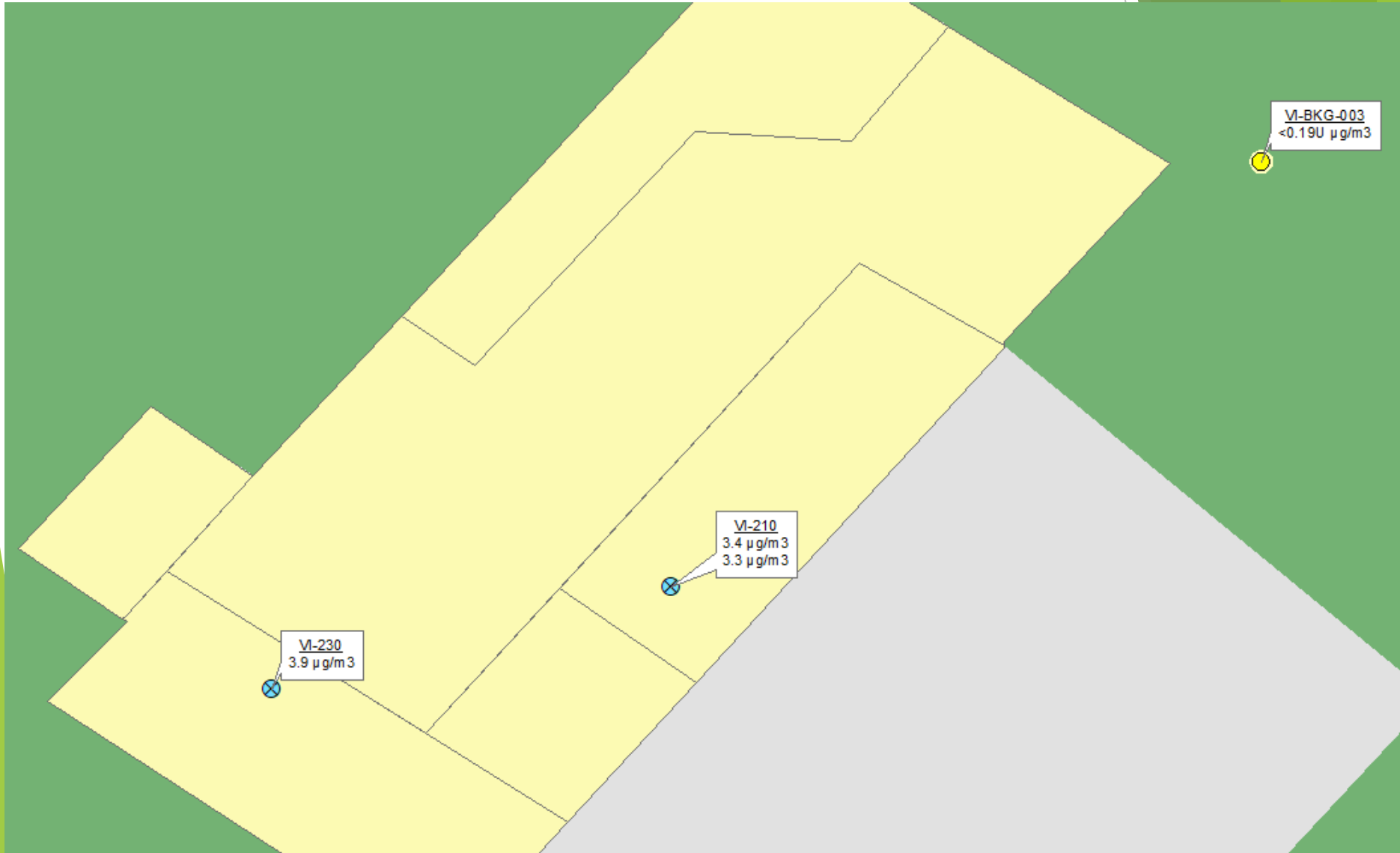
AOI 1 - Savings Square

September 2023 Air Sampling PCE Results, AOI 1 - Building 3



AOI 2 -

September 2023 Air Sampling PCE Results AOI 2 - Building C



AOI 2 - Air Sampling Results AOI 2 - Pilgrim Dry Cleaner Building

- ▶ September 2023 (preliminary):
 - Three indoor air samples

EPA Commercial/Industrial Air Risk Screening Level is 47 $\mu\text{g}/\text{m}^3$

Sample Location	PCE Result ($\mu\text{g}/\text{m}^3$)
VI-237-CIA	1.1
VI-238-CIA	1.1
VI-239-CIA	0.94
VI-BKG-01	1.1

Remedial Action

- ▶ Remedial Action Construction Objectives
- ▶ Construction Progress
- ▶ Updated *Anticipated* Progression of Work & Construction Milestones
- ▶ Communications

HGL's Remedial Action Construction Objectives

- ▶ Construct EPA's remedial design with safety of the public, property owners, staff, and subcontractors in mind.
- ▶ Complete work in a timely and responsive manner with limited disruptions.
- ▶ Communicate effectively with EPA & Stakeholders on schedule.
- ▶ Operate remedies with focus on remedial action objectives and optimization framework; long-term presence with intent of getting done as quickly as possible.

Construction Progress

- Contract Duration: ~6 years (2022 - 2028)
- Tasks:
 - Planning - Completed
 - Project plans (e.g., site management plan, quality assurance project plan, waste management plan, health and safety, etc.), access agreements
 - Mobilization - Completed
 - Perform utility locates, pre-construction field survey, pre-construction schedule communications, set up field office (6401 El Verde Road)

Construction Progress (Cont'd)

- Contract Duration: ~6 years (2022 - 2028)
- ISB Construction - Completed
 - Installation of 13 injection wells, well development, baseline sampling, hydraulic testing
- ISB Injections
 - Baseline sampling - Completed
 - Clean water injection testing - Completed
 - First injection in January 2024
 - 2nd injection potentially in 2025 or 2026

Construction Progress Photos

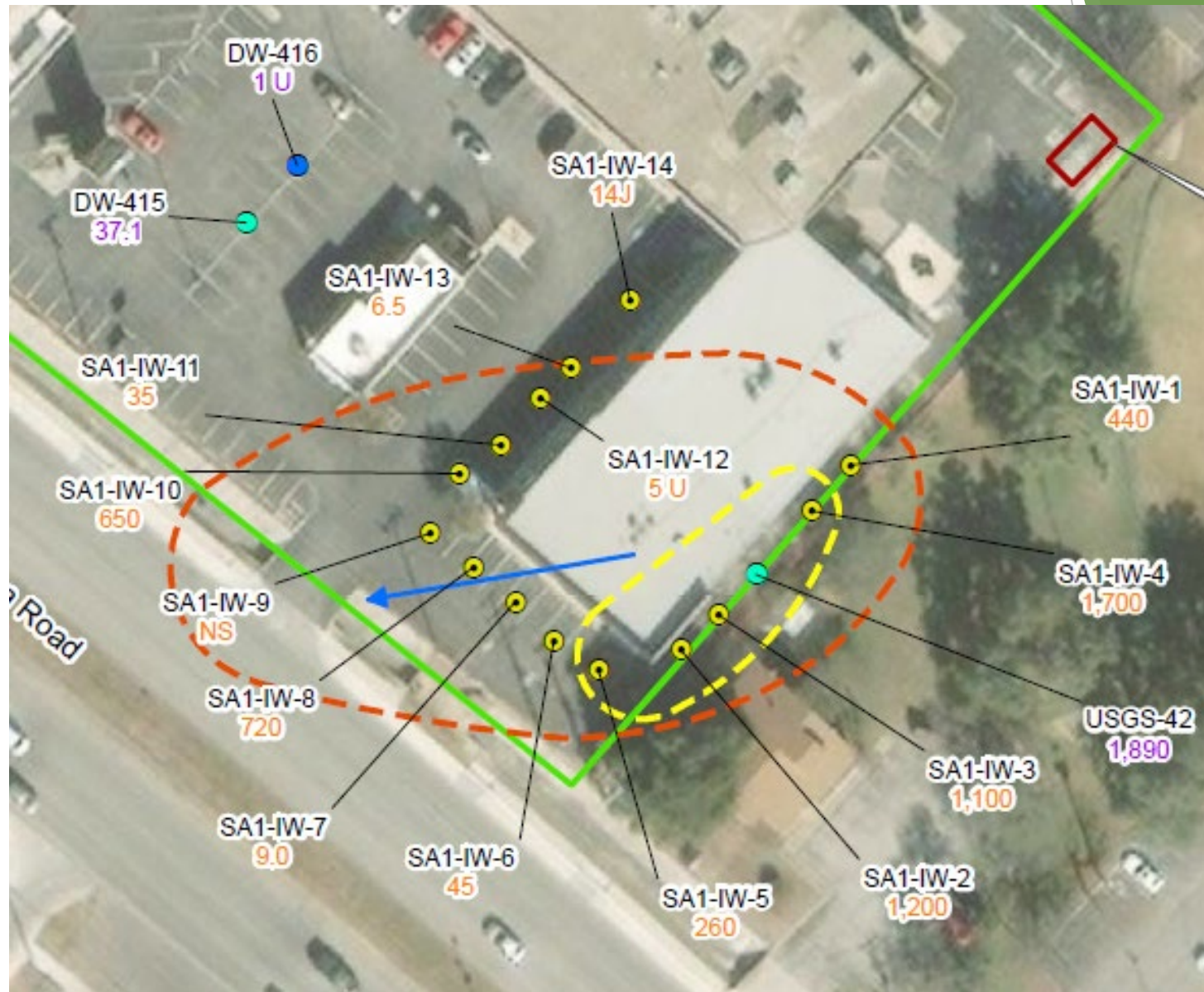


Construction Progress Photos



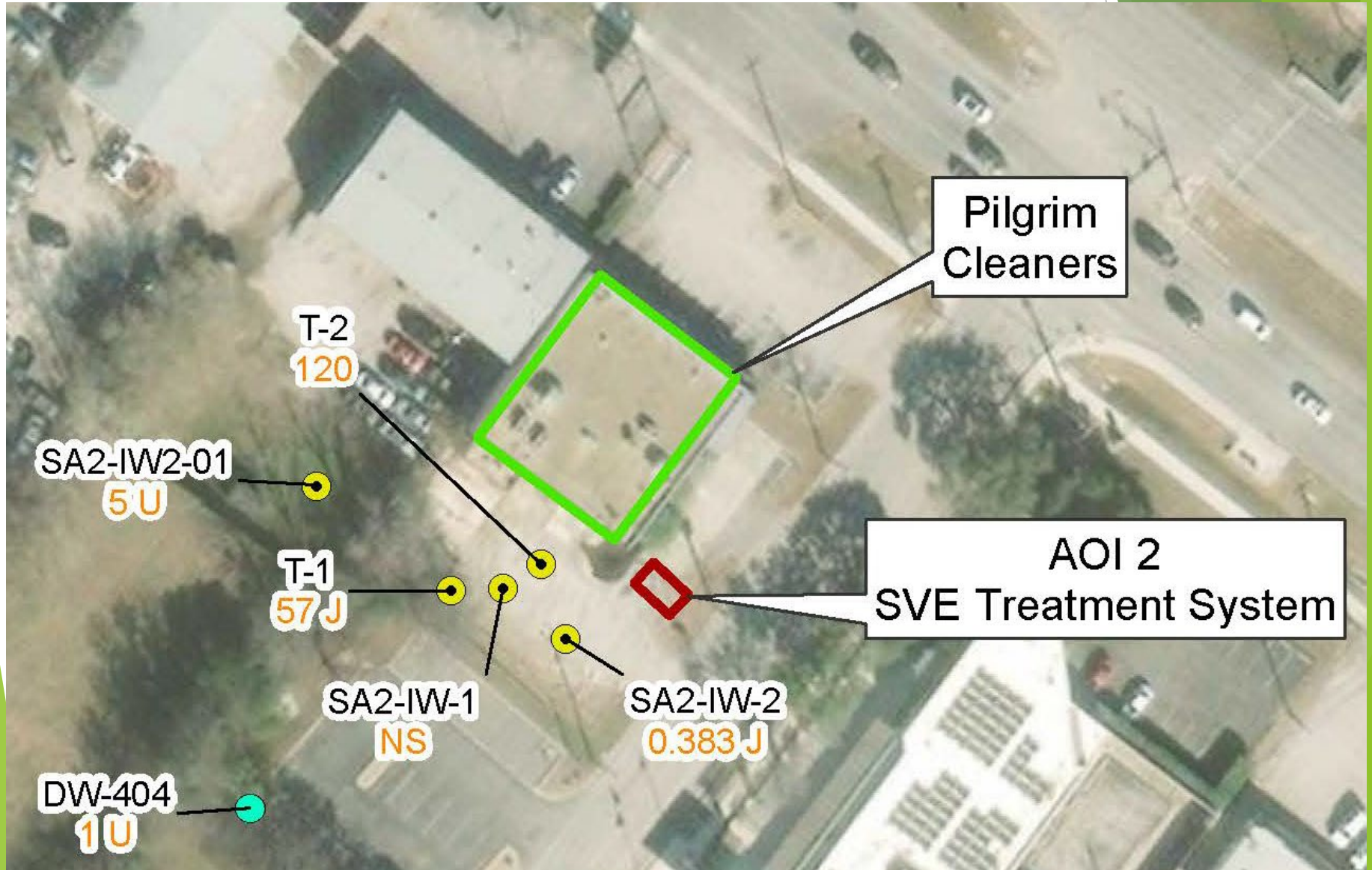
AOI 1

Proposed ISB Plan



AOI 2

Baseline PCE Sample Results



Construction Progress Photos



Construction Progress (Cont'd)

- ISB Clean Water Injection Testing
 - Testing performed in November 2023
 - Clean water injection testing performed on select new injection wells, based on contaminant concentrations
 - 2 injection wells were tested during the RD and were determined to be suitable for injection, these were not retested
 - 5 injection wells were tested in November 2023 during RA Construction
 - 2 of the injection wells determined to be suitable for injection
 - 3 of the injection wells took water too slowly and are not good candidates for injection, but can be used for monitoring

Construction Progress (Cont'd)

- SVE System Construction
 - Offsite fabrication of SVE system (long lead, critical path) - Completed
 - Installation of horizontal SVE wells - Completed
 - Construction of subsurface piping to connect new and existing SVE wells to the SVE systems - Completed
 - Installation of SVE systems - Completed
 - SVE System Startup Testing - This week
 - Pre-Final site inspection - Next week
 - Reporting

Construction Progress Photos



Apr 20, 2023 at 12:45:42
345° N
6721 Bandera Rd
Leon Valley TX 78238
United States

Construction Progress Photos



Construction Progress Photos



06/09/2023 09:14

Construction Progress Photos



Construction Progress Photos



Nov 20, 2023 at 14:45:39
+29.492730,-98.616682
19° N
6600 Bandera Rd
Leon Valley TX 78238

Construction Progress Photos



Nov 20, 2023 at 11:11:56
+29.496359,-98.618421
200° S
6721 Bandera Rd
Leon Valley TX 78238

Construction Progress Photos



Construction Progress Photos



Nov 21, 2023 at 12:22:06
+29.492795,-98.616586
336° NW
6600 Bandera Rd
Leon Valley TX 78238

Construction Progress Photos



Construction Progress (Cont'd)

- SVE System Operation - starting in January 2024
 - Weekly inspections and air sampling to evaluate condition of GAC filters and changeout schedule
 - GAC changeout and recycling/regeneration
 - Optimization (evaluate operation cycle(s) - pulsed/intermittent operations likely)

Monitoring Activities

- Groundwater Monitoring
 - Monitoring of current plumes - next annual groundwater sampling event is scheduled next week, December 18th
- Soil Vapor/Indoor Air Monitoring
 - Evaluate effectiveness of SVE system
- Injection Well Monitoring
 - Future monitoring to evaluate injected amendment at creating conditions leading to biodegradation of solvent contamination

Anticipated Remaining Construction Milestones for Current Contract

- ▶ Remedy: In-Situ Bioremediation
 - ▶ Injections:
 - ▶ Initial phase of injections: January/February 2024
 - ▶ Follow-up injections: anticipated 2025 or 2026
 - ▶ Year 1 of operations: January - December 2024
 - ▶ Years 2-5 operations: January 2025 - September 2028
- ▶ Remedy: Soil Vapor Extraction
 - ▶ Construction:
 - ▶ Finish remaining construction activities: December 2023
 - ▶ SVE system testing/startup: December 2023 - January 2024
 - ▶ SVE system start full time operation: January 2024
 - ▶ Years 1-5 operations: January 2024 - September 2028

PATH FORWARD

- ▶ **December 2023: Finish SVE Construction**
- ▶ **January 2024: SVE Startup and Initial ISB Injections**
- ▶ **January 2024: Tentative Ribbon Cutting**
- ▶ **Community Advisory Group Updates**
- ▶ **Questions/Discussion**

EPA WEBSITE:

<https://www.epa.gov/superfund/bandera-road>

CAG WEBSITE:

<https://www.leonvalleytexas.gov/bc-cag>