Kirtland Air Force Base (KAFB) Bulk Fuels Facility Leak Cleanup

Public Meeting
April 17, 2025

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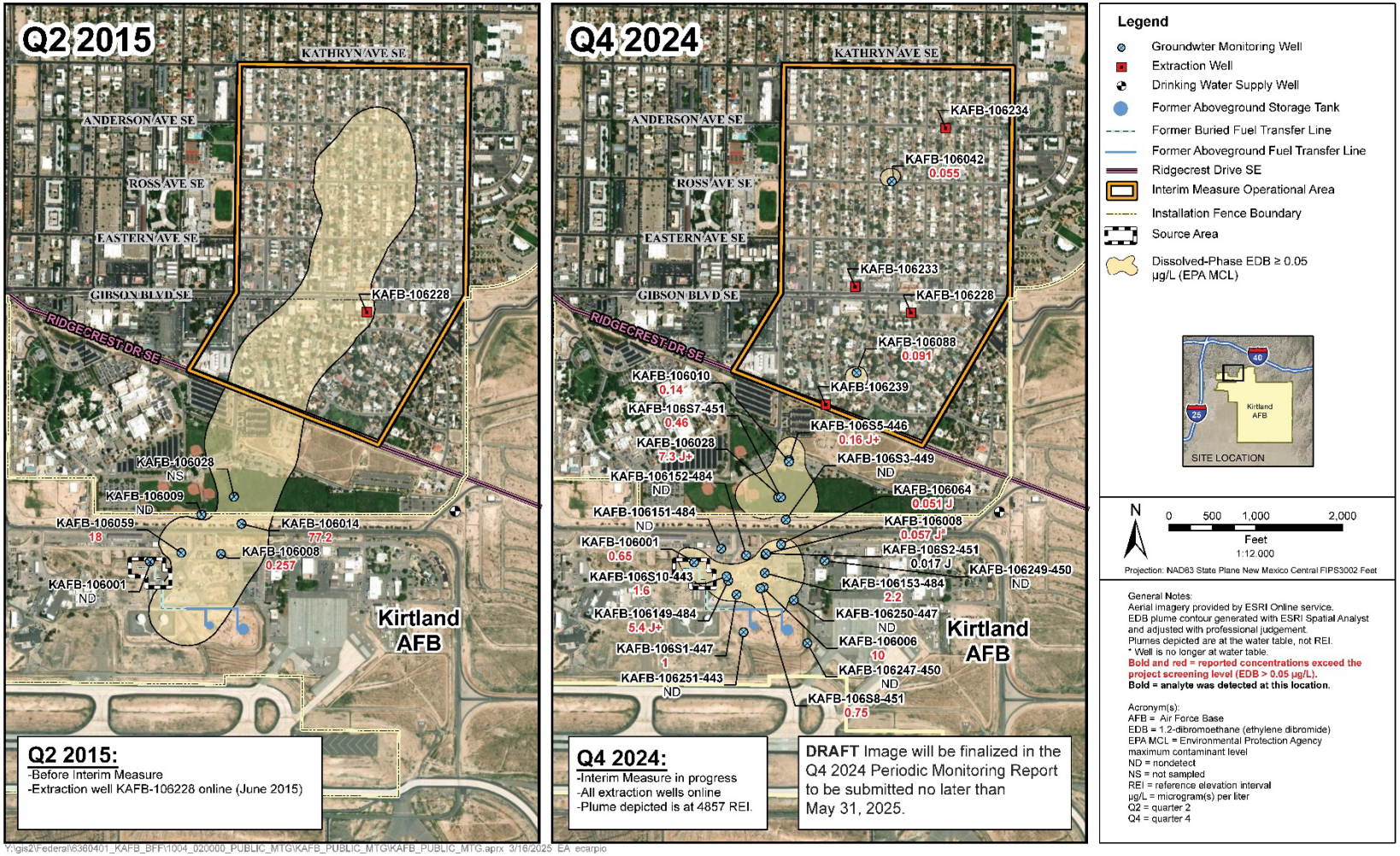
Discussion Topics

- Ethylene Dibromide (EDB) Plume
  - 2015 vs 2024
  - Interim Measure (IM) Status
- Site Conceptual Model
- Benzene Plume Stability
- Work Plan Updates
  - Well Installation and Monitoring
- Phase II Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report Update

EDB Plume – 2015 vs 2024

Comparison of Dissolved Phase EDB in the Interim Measure Operational Area Between Q2 2015 and Q4 2024



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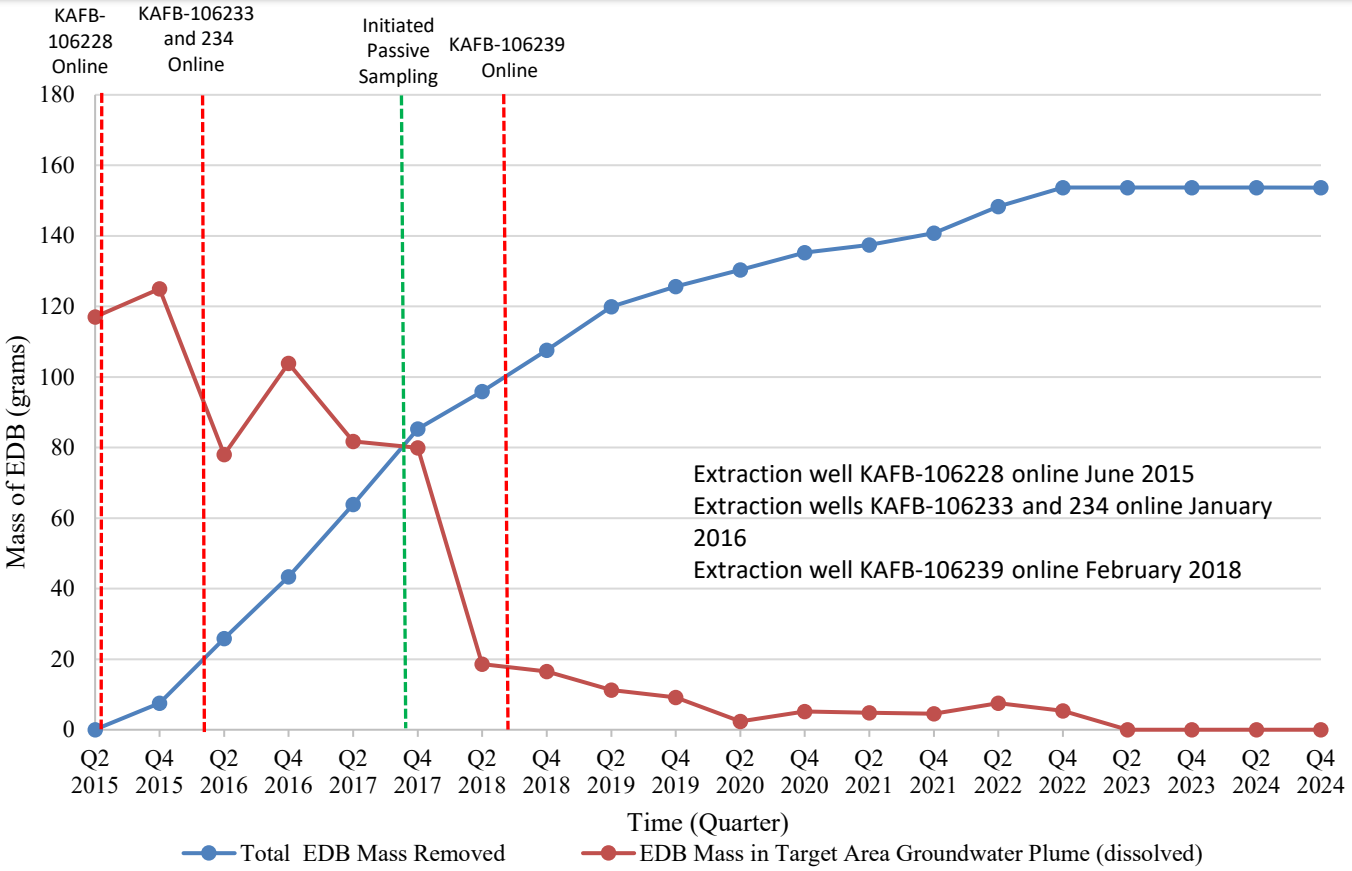
Status Update: EDB Interim Measure

EDB Mass in Groundwater vs. Time



Pump and treat interim measure has achieved an estimated 95.8% reduction in the interim measure operational area of the dissolved EDB mass since 2016. EDB was not detected in Q4 2024, indicating no mass was removed during the quarter.

The Kirtland Bulk Fuels Facility Leak: A Conceptual Model

N 0 250 500 1,000 Feet

Legend

- Sentinel Wells
- Monitoring Wells
- Extraction Wells (KAFB-106239 & KAFB-106228)
- Ethylene Dibromide (EDB) Q4 2024 Plume (at reference elevation interval 4857)
- Kirtland AFB

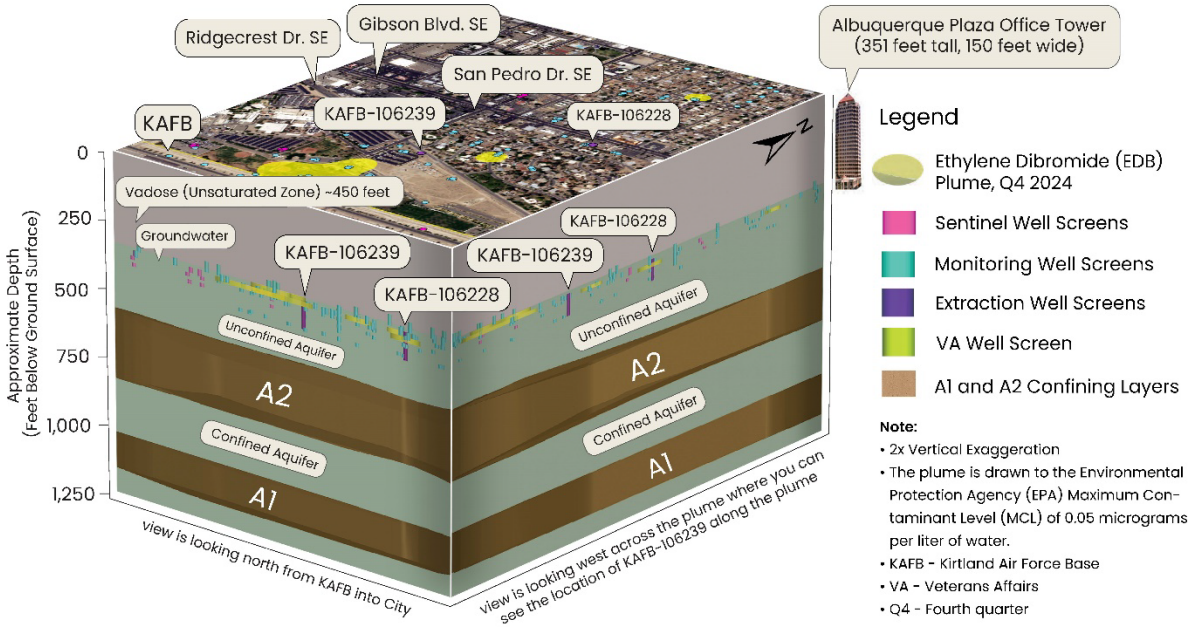
Note:

- VA Well location not shown.
- The plume is drawn to the Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) of 0.05 micrograms per liter of water. Plume data from Q4 2024

Key Elements to Monitor and Protect Our Water Supply

- VA drinking water is sampled on a monthly basis since March 2006 to present. No EDB contamination has been detected in any monthly drinking water sample. All sample results have met drinking water standards.
- Sentinel wells, installed between 2014 – 2016, are located between the plume and the VA drinking water well to provide an "early warning system." No EDB contamination has been detected in any quarterly water sample. All sample results have met drinking water standards.
- Monitoring wells between the plume and the VA drinking water well are sampled multiple times each year and are used to identify horizontal and vertical plume boundaries.
- Groundwater flow is generally to the east, away from the VA drinking water well.
- A2 and A1 are "confining layers" of soil in deep groundwater. These layers provide a natural barrier for drinking water wells that are screened below these non-permeable layers.

Note: Block diagram (below) is represented in 2x exaggeration to help show plume thickness.



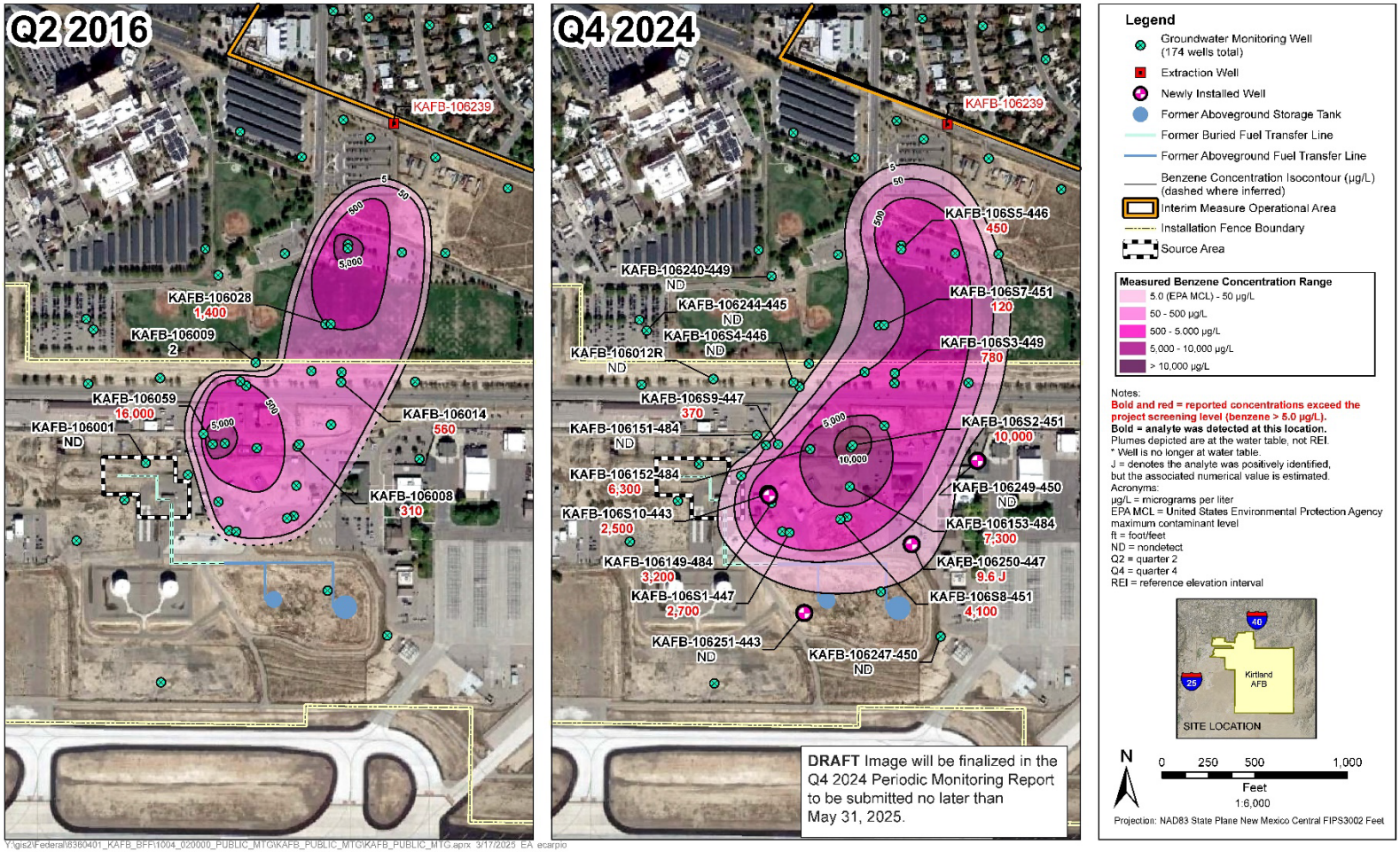
Note:

- 2x Vertical Exaggeration
- The plume is drawn to the Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) of 0.05 micrograms per liter of water.
- KAFB - Kirtland Air Force Base
- VA - Veterans Affairs
- Q4 - Fourth quarter

• Draft image will be finalized in the Q4 2024 Periodic Monitoring Report to be submitted no later than May 31, 2025.

Benzene Plume Footprint (over time) Projected at the Water Table

Comparison of Benzene in the Interim Measure Operational Area Between Q2 2015 and Q4 2024



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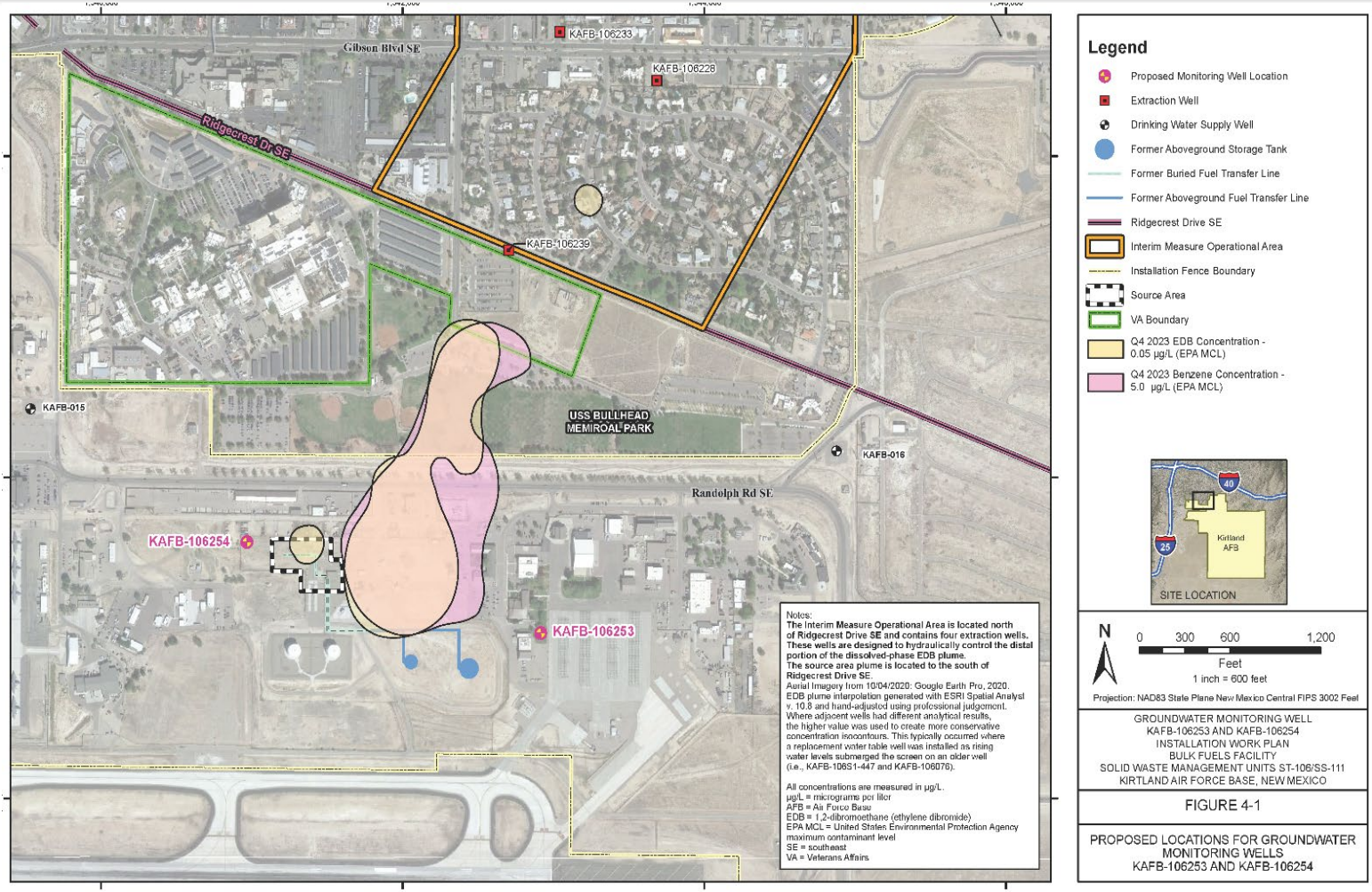
New Groundwater Monitoring Well Installation Work Plans

- Air Force submitted a work plan that proposes installation of two additional GWM wells on November 22, 2024:
  - GWM Well KAFB-106253 (east of well KAFB-106250) to further refine the EDB plume
  - GWM Well KAFB-106254 (west of the source area) to further refine the TPH and benzene plumes
  - Wells will be designed and data collected to further address changing site conditions (i.e. rising water table)

New Groundwater Monitoring Well Installation Map



Monitoring Work Plans Update

- Updated existing monitoring work plans; 2023 Soil Vapor Monitoring Work Plan and 2024 Groundwater Monitoring Work Plan:
  - Approved Soil Vapor Monitoring Work Plan implemented in the Q2 2024
  - Approved Groundwater Monitoring Work Plan implemented in the Q1 2025
- Groundwater Sampling Method Comparison Study Supplemental Investigation Work Plan
  - NMED required a study to compare passive and low-flow groundwater sampling methods
    - NMED's February 3, 2025, letter provided specific comparison techniques
  - Air Force prepared a work plan meeting NMED's requirements that was submitted for NMED review on March 31, 2025

Phase II RFI Report Update

- Phase II RCRA Facility Investigation (RFI) Report defines nature and extent of contamination to the degree necessary to conclude the investigation phase
- Phase II RFI addresses data gaps identified in the Phase I RFI
- Phase II RFI Report includes the following:
  - The 2016 to 2023 monitoring and investigation data collected under NMED-approved work plans
  - Data was reported in Periodic Monitoring Reports or Investigation Reports (approximately 4,800 soil vapor samples and 2,800 groundwater samples)
  - Delineation of soil vapor, LNAPL, and groundwater contamination
  - Updated the conceptual site model for all impacted media

Phase II RFI Report Update (Cont.)

- Air Force requested clarification on September 24, 2024, regarding approximately 4,800 soil vapor samples
- NMED provided clarification to the Air Force on February 3, 2025, within a letter
  - The letter directed the Air Force to include all current soil vapor data within the Phase II RFI
  - *"If data shows comparability between the old sampling method and new sampling method with the limited data set that currently exists, the old data may be considered representative…"*
  - The Phase II RFI Report will be submitted to NMED by April 30, 2025

Soil Vapor plume volumes from 2016 through 2024 – EDB

Q2 2016 – Volume = 4.1E+08 ft^3

Q2 2020 – Volume = 3.1E+08 ft^3

Q2 2022 – Volume = 6.8E+07 ft^3

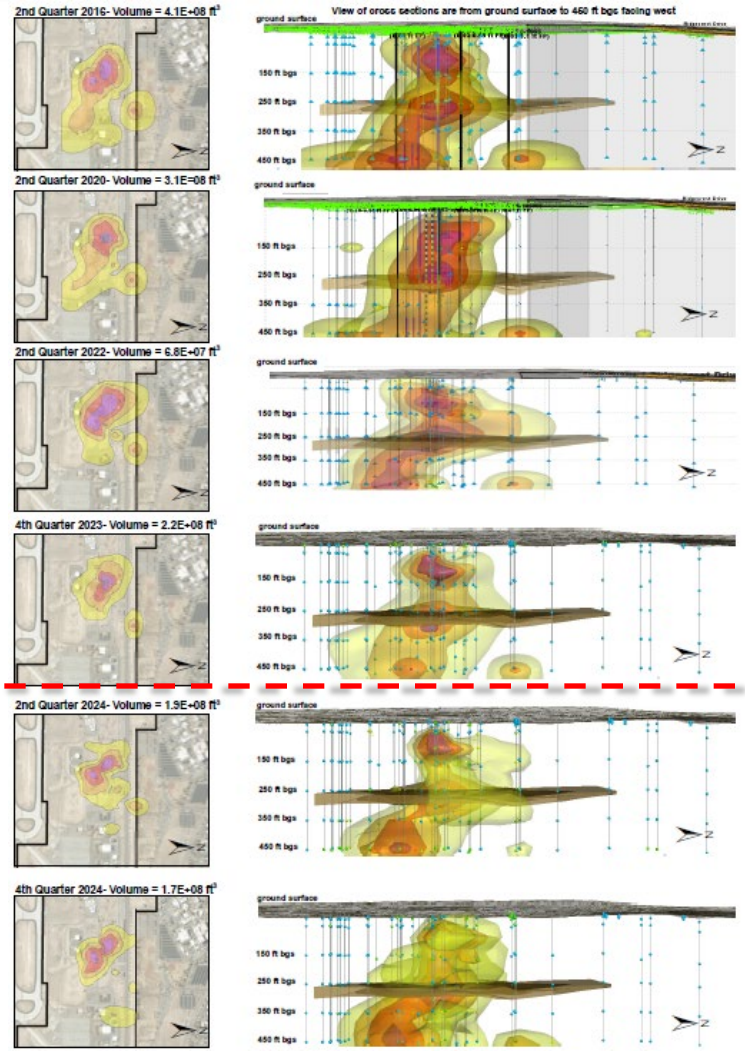
Q4 2023 – Volume = 2.2E+08 ft^3

Old Sampling Method

New Sampling Method

Q2 2024 – Volume = 1.9E+08 ft^3

Q4 2024 – Volume = 1.7E+08 ft^3



DRAFT Image will be finalized in the Phase II RFI Report to be submitted no later than April 30, 2025

Soil Vapor plume volumes from 2016 through 2024 – Benzene

Q2 2016 – Volume = 2.9E+08 ft^3

Q2 2020 – Volume = 2.8E+08 ft^3

Q2 2022 – Volume = 3.3E+08 ft^3

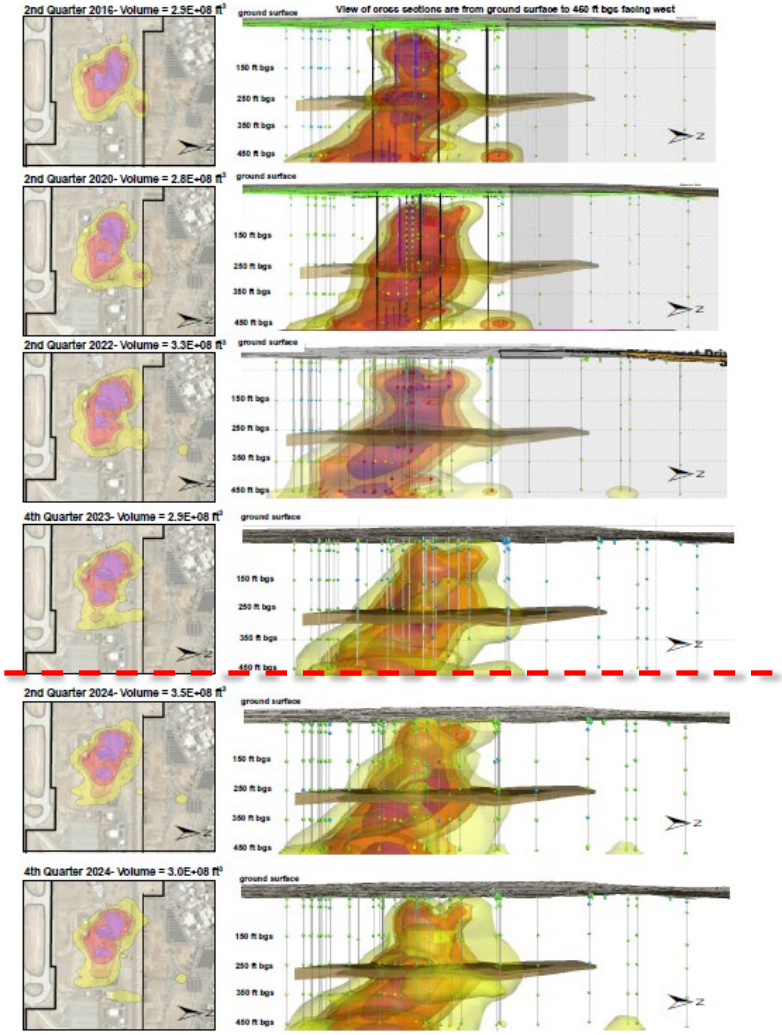
Q4 2023 – Volume = 2.9E+08 ft^3

Old Sampling Method

New Sampling Method

Q2 2024 – Volume = 3.5E+08 ft^3

Q4 2024 – Volume = 3.0E+08 ft^3

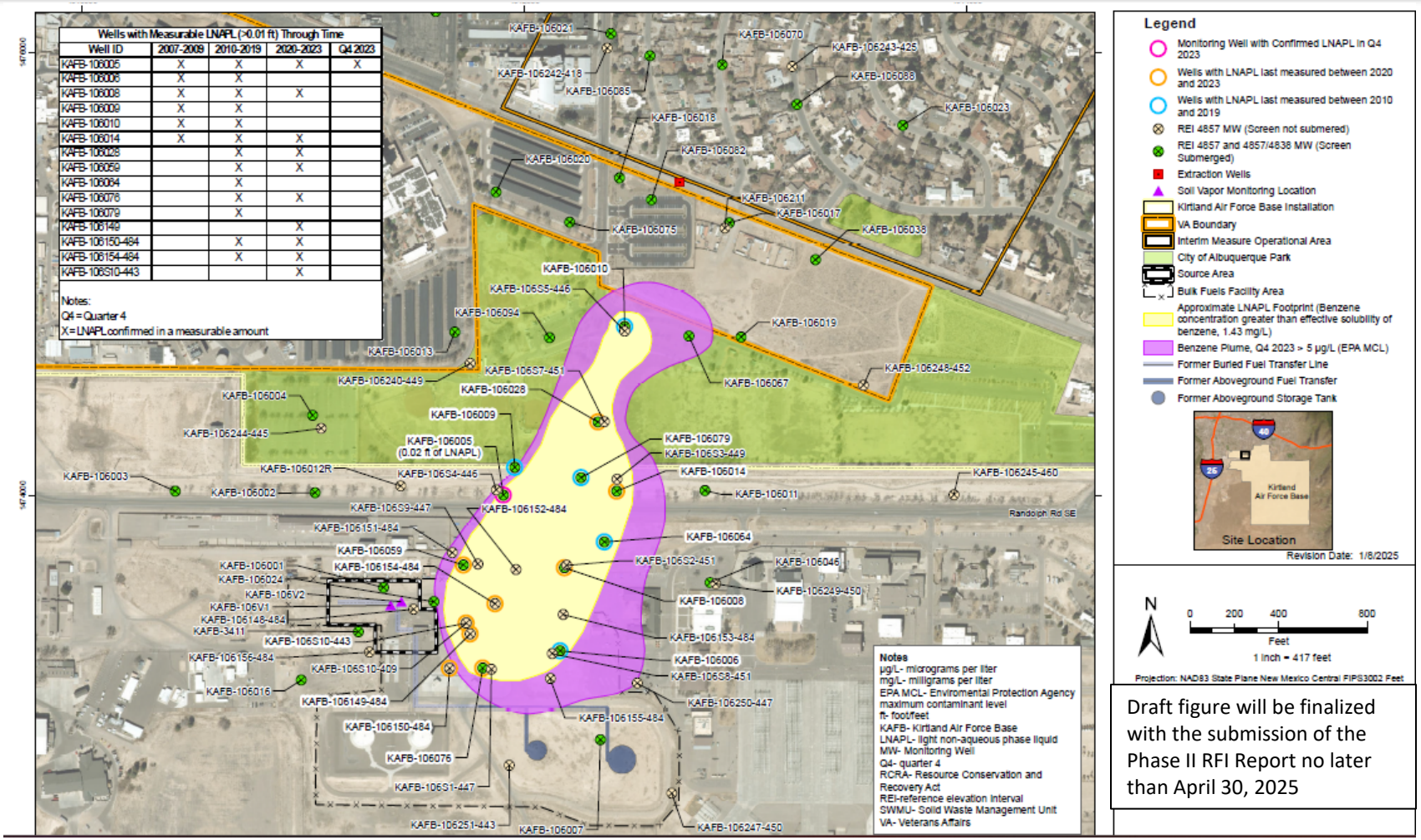


DRAFT Image will be finalized in the Phase II RFI Report to be submitted no later than April 30, 2025

Phase I RFI Data Gaps Addressed

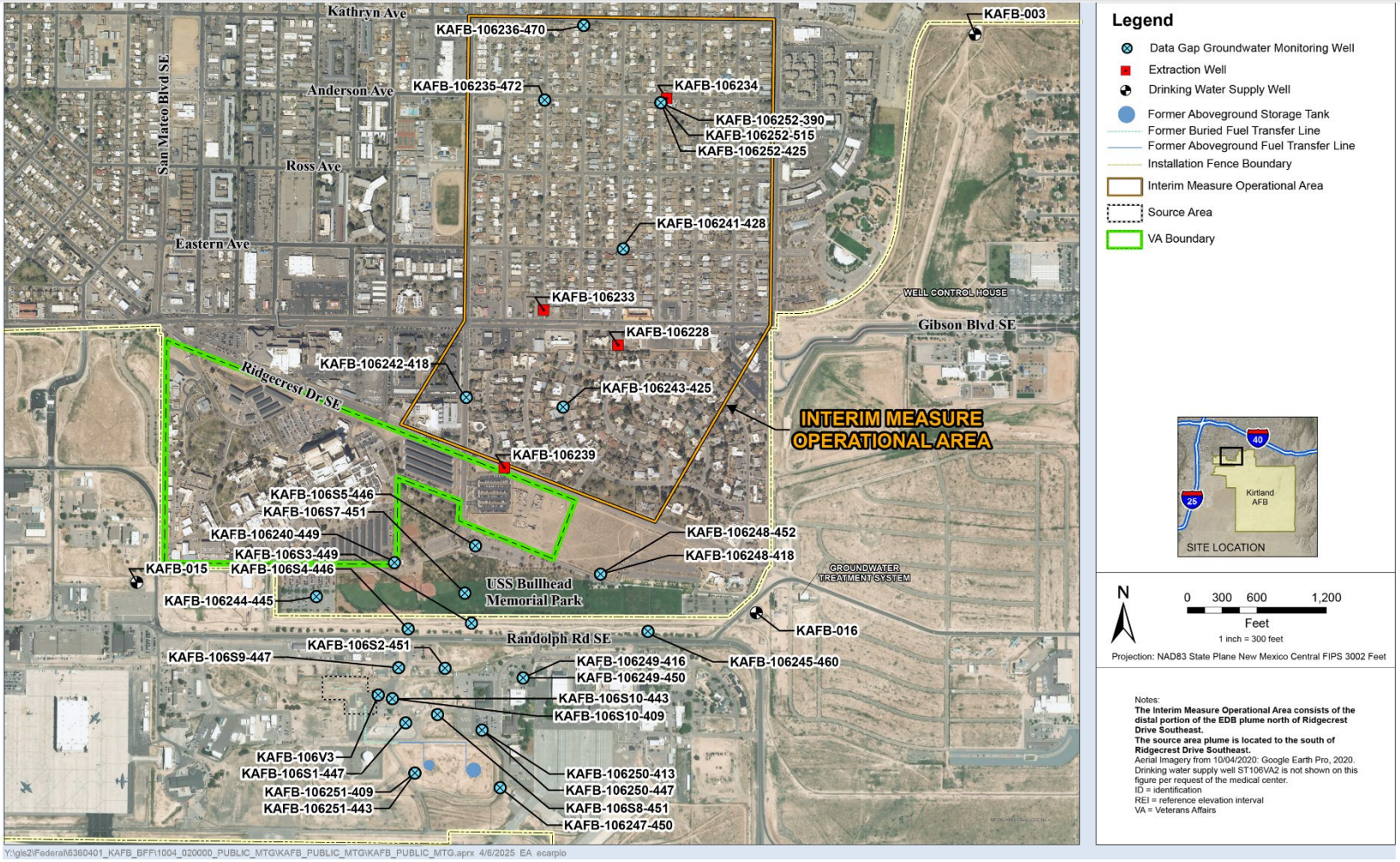
- Phase I RFI Data Gaps:
  - LNAPL: Due to rising groundwater levels, it is unclear how much and where the LNAPL remains vertically smeared beneath the water table, how weathered the existing LNAPL is, and how that may be contributing to the dissolved contamination in the groundwater.
  - Groundwater: Changes in dissolved-phase concentrations and apparent plume configuration could be influenced by the rising water table.
- Phase II RFI Refinement:
  - LNAPL: Refined with 10 soil coring's in source area and 32 LNAPL gauging events
  - Groundwater: Refined with 22 shallow groundwater monitoring wells installed; continued refinement with 2 additional proposed monitoring wells

Light Non-Aqueous Phase Liquid (LNAPL) Data Gap Addressed



Draft figure will be finalized with the submission of the Phase II RFI Report no later than April 30, 2025

Rising Water Table Data Gap Addressed



Phase II RFI Key Findings

The nature and extent of LNAPL, soil vapor, and groundwater have been refined to the degree necessary to evaluate remedies in the CME.

Phase II RFI supports the Phase I RFI evaluations/conclusions. Phase I delineation of contamination was verified/refined through 8 years of additional investigation and monitoring

Questions?

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Additional information:

Online at https://www.kirtland.af.mil/Home/BFF/ and https://ar.afcec-cloud.af.mil/ or visit our New Information Station at the New Mexico Veterans Memorial at 1100 Louisiana Blvd SE, Albuquerque, NM

Upcoming 2025 Public Events:

- July Groundwater Treatment System Open House
- November Public Meeting