



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

*Radioactive and Hazardous Materials Committee
September 2, 2025*

Ryan Wortman, Air Force Civil Engineer Center



Discussion Topics

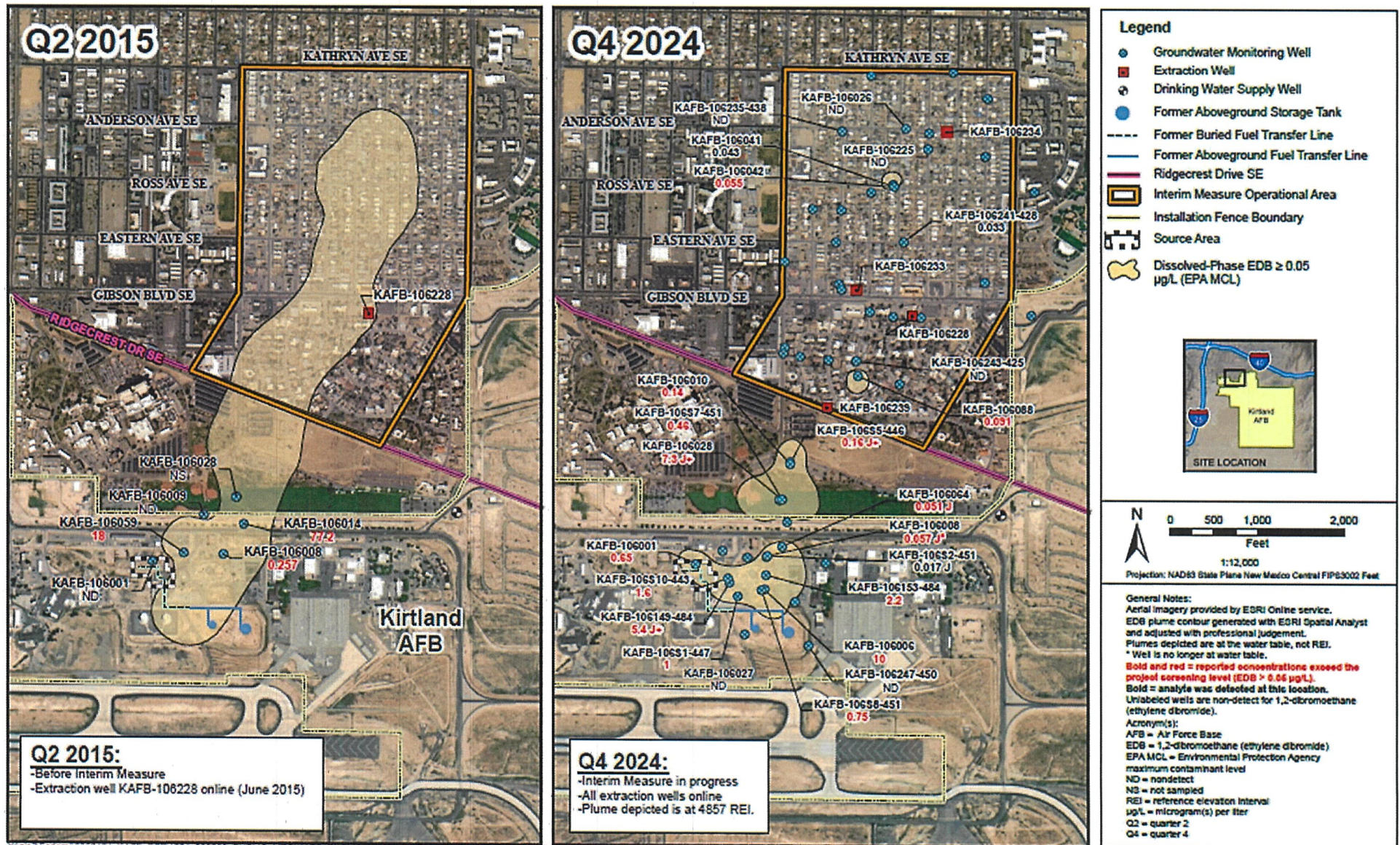


- Ethylene Dibromide (EDB) Interim Measure (over time)
- Benzene Plume Footprint (over time)
- 2023 Conceptual Site Model
- Soil Vapor Benzene Plume and LNAPL
- Resource Conservation and Recovery Act (RCRA) Corrective Action Process
- Submittal of the Phase II RCRA Facility Investigation (RFI) Report
- Path Forward to Corrective Measures Evaluation (CME)

EDB Plume Footprint (over time)



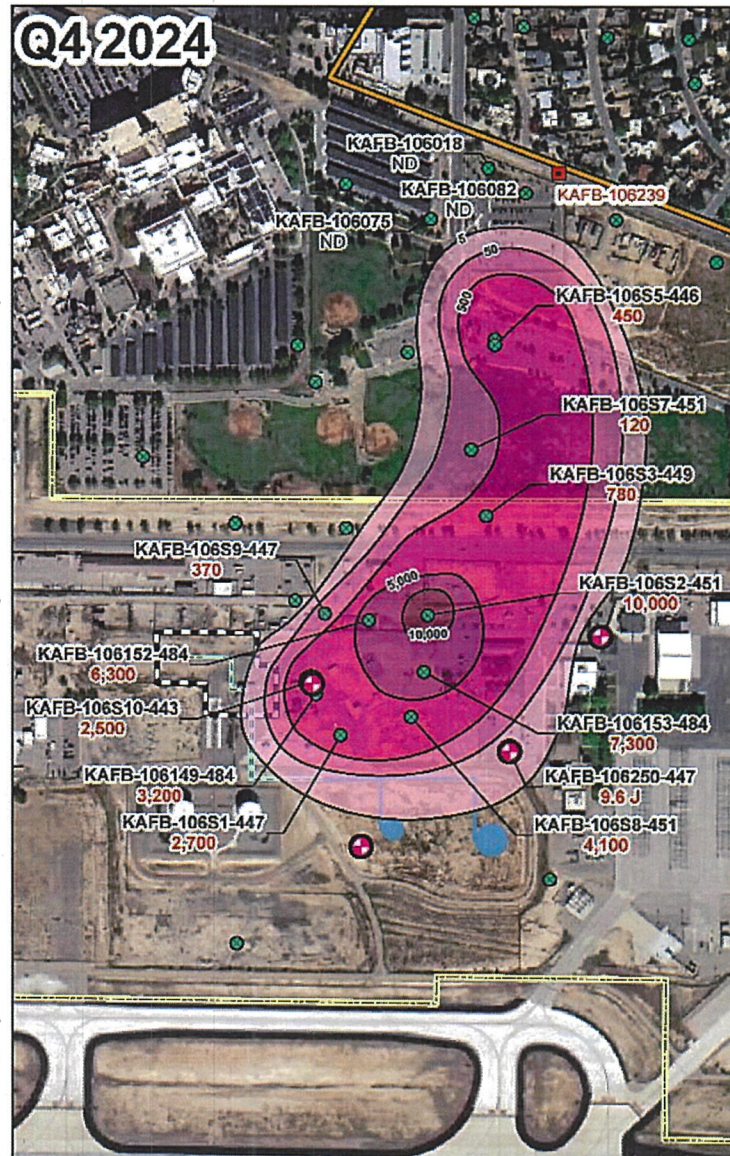
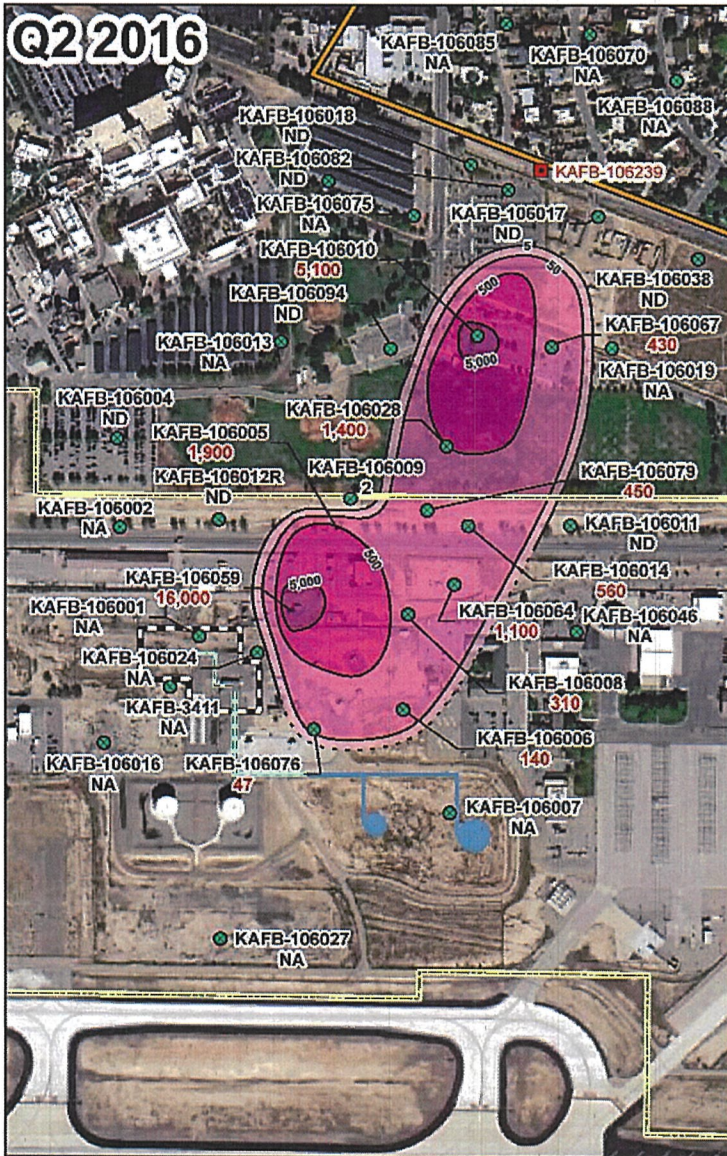
Comparison of Dissolved-Phase EDB in the Interim Measure Operational Area Between Q2 2015 and Q4 2024



Benzene Plume Footprint (over time)



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



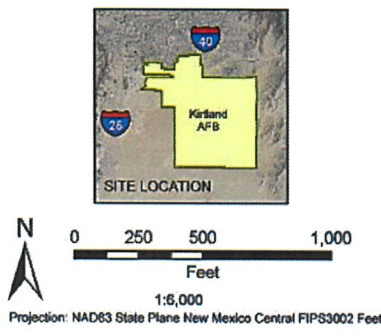
Legend

- Groundwater Monitoring Well (174 wells total)
- Extraction Well
- Newly Installed Well
- Former Aboveground Storage Tank
- Former Buried Fuel Transfer Line
- Former Aboveground Fuel Transfer Line
- Benzene Concentration Isocontour (µg/L) (dashed where inferred)
- ▭ Interim Measure Operational Area
- ▭ Installation Fence Boundary
- ▭ Source Area

Measured Benzene Concentration Range

5.0 (EPA MCL) - 50 µg/L
50 - 500 µg/L
500 - 5,000 µg/L
5,000 - 10,000 µg/L
> 10,000 µg/L

Notes:
 Bold and red = reported concentrations exceed the project screening level (Benzene > 5.0 µg/L).
 Bold = analysis was detected at this location. Plumes depicted are at the water table, not RLI.
 * Well is no longer at water table.
 J = denotes the analysis was positively identified, but the associated numerical value is estimated. Unlabeled wells are non-detect for benzene.
Acronyms:
 µg/L = micrograms per liter
 EPA MCL = United States Environmental Protection Agency maximum contaminant level
 ft = foot/feet
 NA = not analyzed
 ND = nondetect
 Q2 = quarter 2
 Q4 = quarter 4
 RFI = reference elevation interval



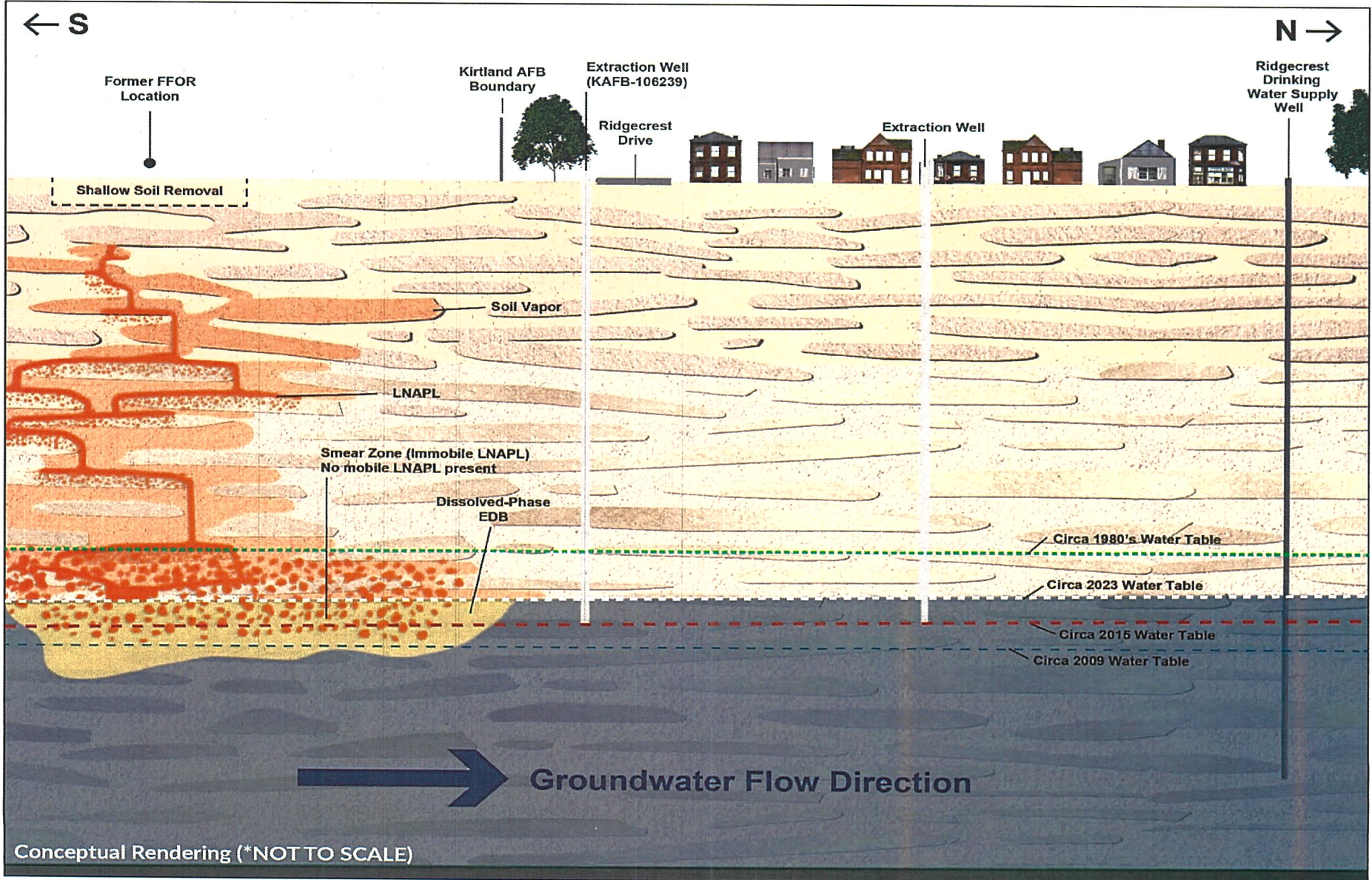
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2023 Conceptual Site Model



Groundwater Conceptual Model 2023

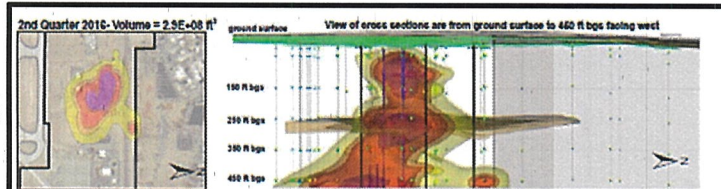




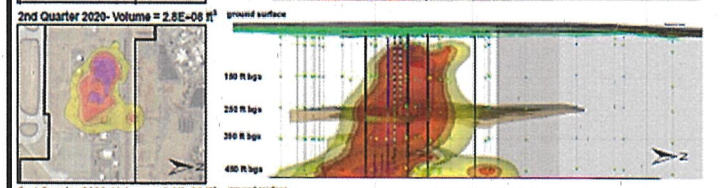
Soil Vapor Benzene Plume and LNAPL



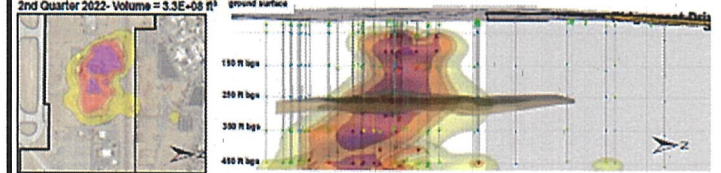
Q2 2016



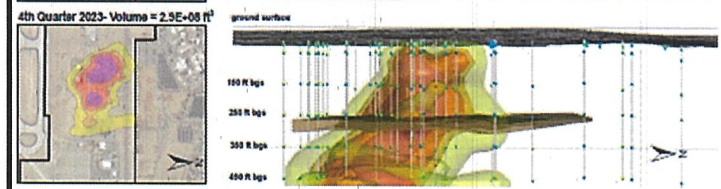
Q2 2020



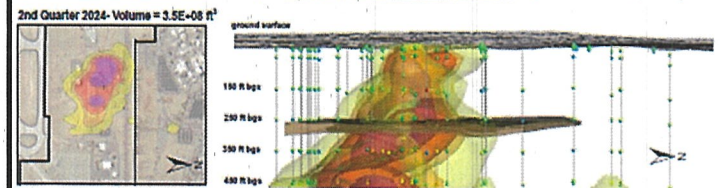
Q2 2022



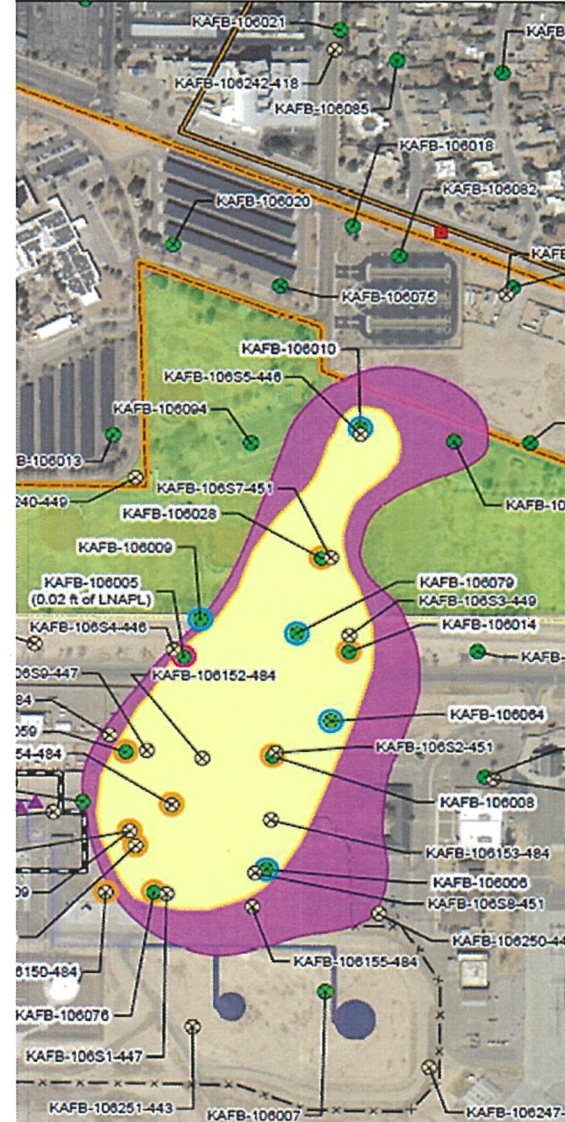
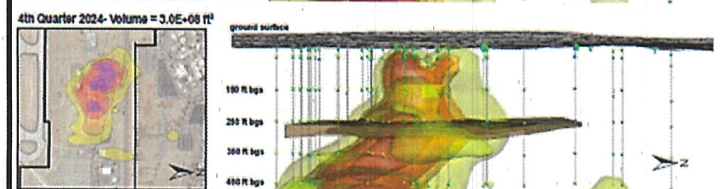
Q4 2023



Q2 2024



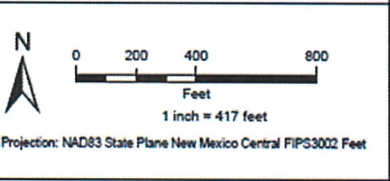
Q4 2024



Legend

- Monitoring Well with Confirmed LNAPL in Q4 2023
- Wells with LNAPL last measured between 2020 and 2023
- Wells with LNAPL last measured between 2010 and 2019
- REI 4857 MW (Screen not submerged)
- REI 4857 and 4857/4838 MW (Screen Submerged)
- Extraction Wells
- Soil Vapor Monitoring Location
- Kirtland Air Force Base Installation
- VA Boundary
- Interim Measure Operational Area
- City of Albuquerque Park
- Source Area
- Bulk Fuels Facility Area
- Approximate LNAPL Footprint (Benzene concentration greater than effective solubility of benzene, 1.43 mg/L)
- Benzene Plume, Q4 2023 > 5 µg/L (EPA MCL)
- Former Buried Fuel Transfer Line
- Former Aboveground Fuel Transfer
- Former Aboveground Storage Tank

Revision Date: 1/8/2025



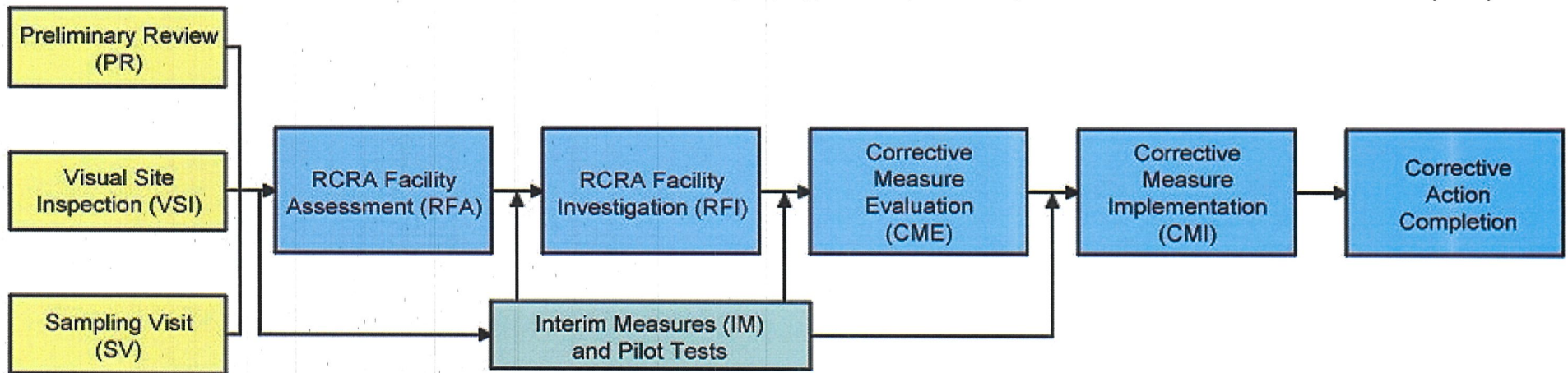
GROUNDWATER MONITORING WELLS WITH MEASURABLE LIGHT NON-AQUEOUS PHASE LIQUID 2007-2023



RCRA Corrective Action Process



*Image adapted from California Department of Toxic Substances Control (<https://dtsc-topock.com/resource-conservation-and-recovery-act>)



- Pace of cleanup is driven by the iterative corrective action (CA) process in KAFB's RCRA permit
- IMs are allowed under the permit when actions necessary to minimize or prevent the further migration of contaminants and limit actual or potential human and environmental exposure to contaminants before the CME and corrective measures implementation plan.
- All activities in the RCRA CA process inform the CME: IMs, pilot studies, RCRA Facility Investigation (RFI) I and II, and ongoing monitoring results



Submittal of the Phase II RFI Report



- Air Force submitted the Phase II RCRA Facility Investigation (RFI) on April 29, 2025
- Phase II RFI confirms the nature and extent proposed in the 2015 Phase I RFI:
 - Light non-aqueous phase liquid (LNAPL) extent confirmed with 10 soil coring's in source area and 32 LNAPL gauging events
 - Groundwater extent confirmed with 22 shallow groundwater monitoring wells installed and 32 monitoring events



Path Forward to Corrective Measures Evaluation (CME)



- Continued focus on getting the CME by concluding the investigation phase by NMED and Air Force
- Air Force submitted Phase II RCRA Facility Investigation (RFI) and will submit an Update to the Risk Assessment (RA)
 - Phase II RFI is geared toward summarizing and concluding the investigation phase.
 - Updated RA will include the same methods as the approved 2017 RA while utilizing the additional shallow soil vapor data to strengthen the soil gas human health RA
- Air Force anticipates direction to move to CME based on NMED approval of the Phase II RFI and submission of the updated RA
- Moving to CME does not mean additional data will not be collected as data needs arise the Air Force will plan, program, and execute the necessary steps to address those needs



Questions?



Point of Contact:

Ryan Wortman, Physical Scientist, - ryan.wortman.3@us.af.mil
Kirtland AFB Public Affairs, (505) 846-5991 - 377ABW.PA@us.af.mil

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:

- November 20, 2025, Public Meeting