

Kirtland Air Force Base Fuel Leak Cleanup



**Kathryn Lynnes, Senior Advisor
Diane Agnew, NMED Hydrologist
Westside Coalition Meeting
August 3, 2016**



A Partnership for Success

A collaborative technical team is solving the complex hydrogeologic and engineering challenges posed by the fuel leak with support from Albuquerque's neighborhood groups



US Army Corps of Engineers



Sundance Consulting Inc.

Elder Homestead Neighborhood Assoc.

Siesta Hills Neighborhood Assoc.



ABQ City Council
District 6 Coalition of Neighborhood Assocs.

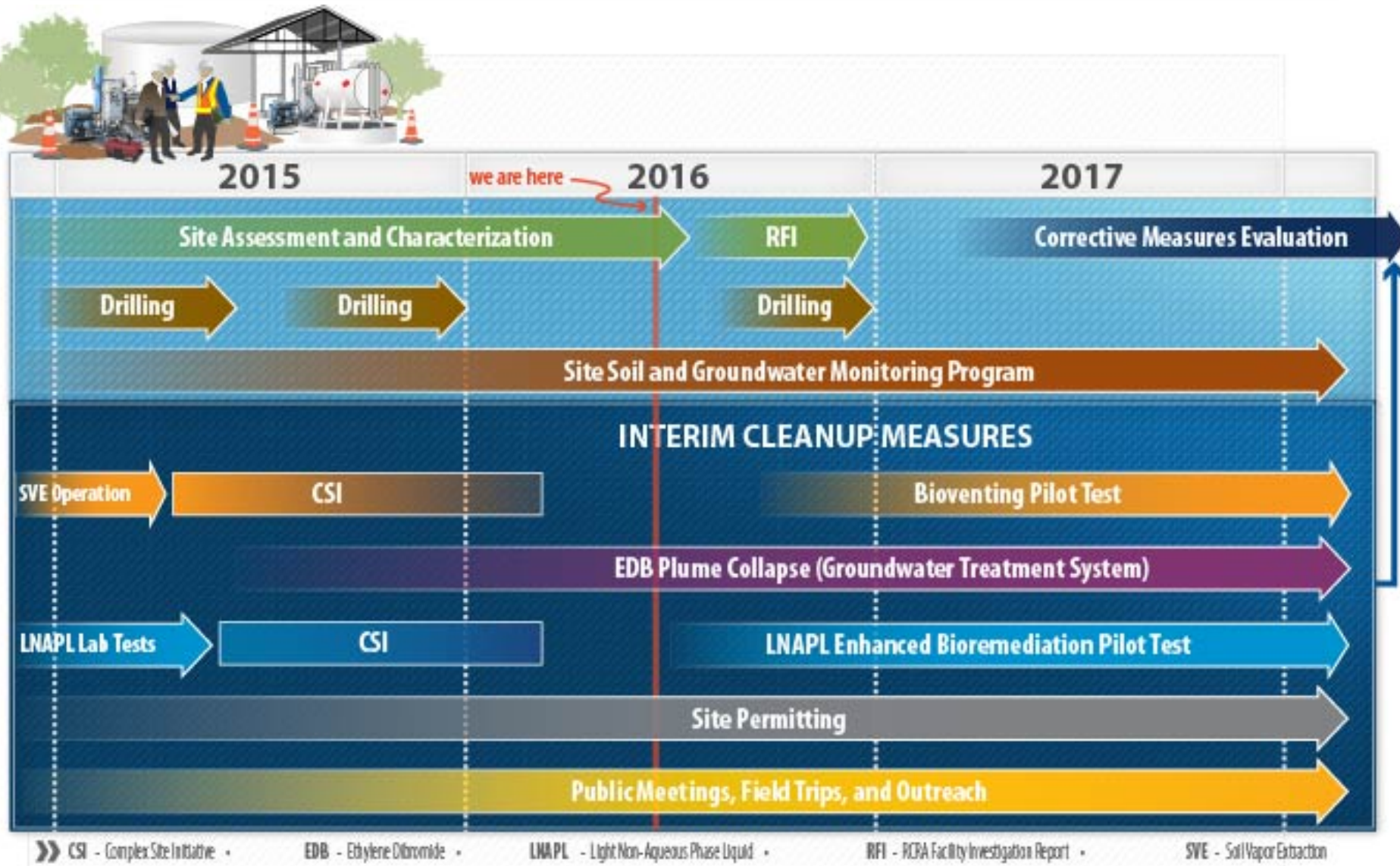


Christ United Methodist Church

HAWLEY GEOMATTERS

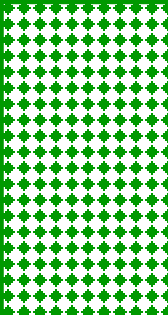
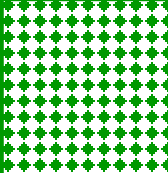
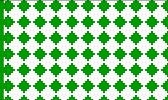
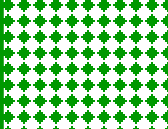
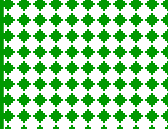
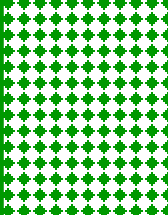
Thomson and Associates

Current RCRA Timeline



RCRA Facility Investigation Report

- The RCRA Facility Investigation (RFI) Report is a significant milestone in the RCRA process
- This report will:
 - Contain all data collected to date
 - Describe why these data support the conclusion that the nature and extent of contamination has been defined
 - Summarize progress made under the interim measures
 - Include a stand-alone risk assessment report
- RFI Report to be submitted to NMED
November 2016

Potential Exposure Pathway	Risk Level	Explanation
Drinking Water		<p>Drinking water provided by the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) continues to be free of any detectable fuel contamination and is safe for all uses.</p> <p>Public drinking water wells near the groundwater contamination plume are tested monthly, and show no detections of any fuel compounds. Sentinel wells, which are monitoring wells located between the drinking water wells and the contamination plume, are tested quarterly and show no detections.</p>
Surface Soil		<p>Surface soil contamination never migrated off of Kirtland.</p> <p>Surface soil contamination has only occurred at the Kirtland Air Force Base Bulk Fuels Facility (BFF) industrial area which is not accessible to the general public. <u>Contaminated soil has been excavated and removed for off-site disposal.</u></p>
Surface Water		<p>There is no pathway for contaminants to enter surface water.</p>
Vapor Intrusion		<p>Homes and businesses are not at risk for vapor contamination.</p> <p><u>There is no off-Base surface or near-surface soil contamination,</u> and groundwater contaminants are too deep, to allow vapors to enter homes and buildings.</p>
Garden Vegetables		<p>There is no risk of contamination to garden vegetables.</p> <p>ABCWUA water is safe for irrigation. <u>There is no off-Base surface soil contamination, and vapors from groundwater are too deep, for fuel to contaminate garden vegetables.</u></p>
Recreational Activities		<p>There is no risk of contamination to people enjoying recreational activities in Bullhead Park or in the Dog Park.</p> <p>Reclaimed ABCWUA water is used to irrigate the parks. There is <u>no off-Base surface soil contamination, and vapors from groundwater are too deep,</u> to pose a risk to people in the park areas.</p>

 Safe	 Use Caution	 Unsafe
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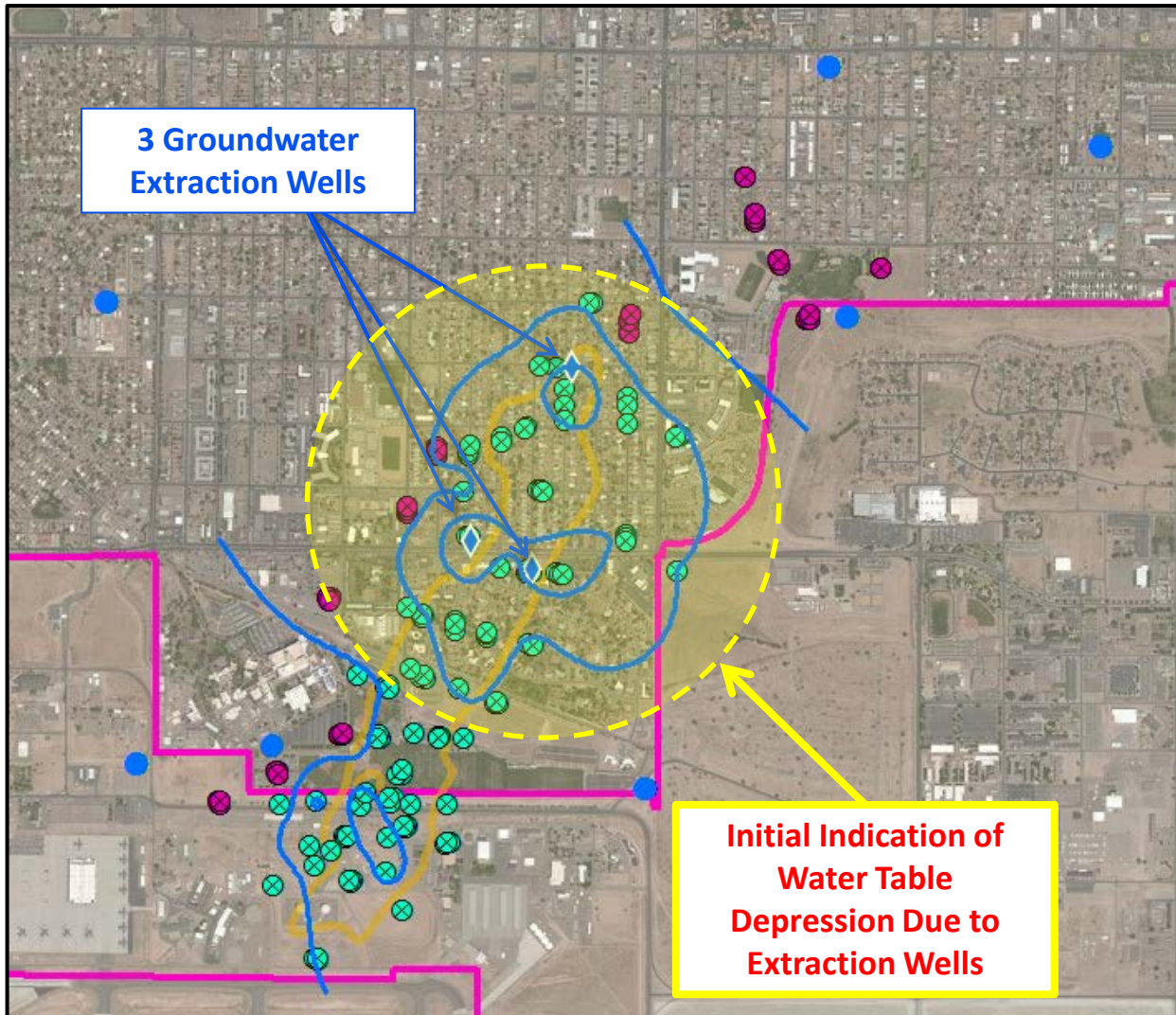
Reducing Project Cost to Taxpayers Without Compromising Public Health & Safety

- **Multiple monitoring wells in a single borehole**
 - Multiple well completion produces better data, is significantly less expensive, less disruptive to the neighborhood, and safer for workers
- **Optimization of groundwater monitoring**
 - With 4 years of robust monitoring data, it is no longer necessary to test every well for every chemical analyte on a quarterly basis
- **Passive diffusion bag (PDB) sampler validation study**
 - If validated, PDB sampling will be significantly less expensive, safer for workers, and produce less waste
- **Elimination of duplicative permitting**
 - Requiring both a RCRA Hazardous Waste Permit and a WQCC Groundwater Discharge Permit for the same cleanup approach was inefficient and wasteful

Conceptual Site Model Animation

<https://www.env.nm.gov/NMED/Issues/KirtlandFuelPlume/KAFBProjectImages.html>

EDB Plume Collapse

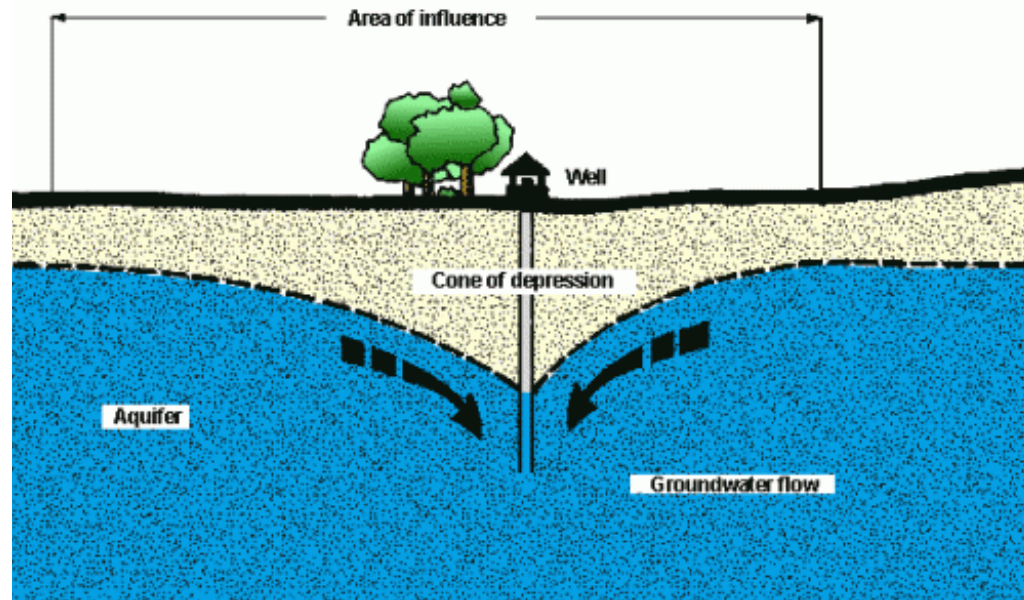


- The “cone of depression” from the first three extraction wells indicates successful removal of EDB-contaminated groundwater
- Plume collapse will be confirmed with EDB concentration trends

Legend

- ◆ Extraction Well
- Groundwater Monitoring Well
- Sentinel Well or Well Nest
- Drinking Water Well
- Q2 2016 Shallow GW Contours (04-20-16)
- Q4 2015 EDB Plume
- KAFB Base Boundary

What is a “Cone of Depression”?



- Forms in the water table when groundwater is extracted in all directions by a pumping well
- Measured water levels in groundwater monitoring wells near the extraction well define the area of influence and capture zone
- One method used to determine if an extraction well is capturing the EDB plume

EDB Plume Collapse

Extracted and treated 86 million gallons of EDB-contaminated groundwater and removed 28.6 grams of EDB

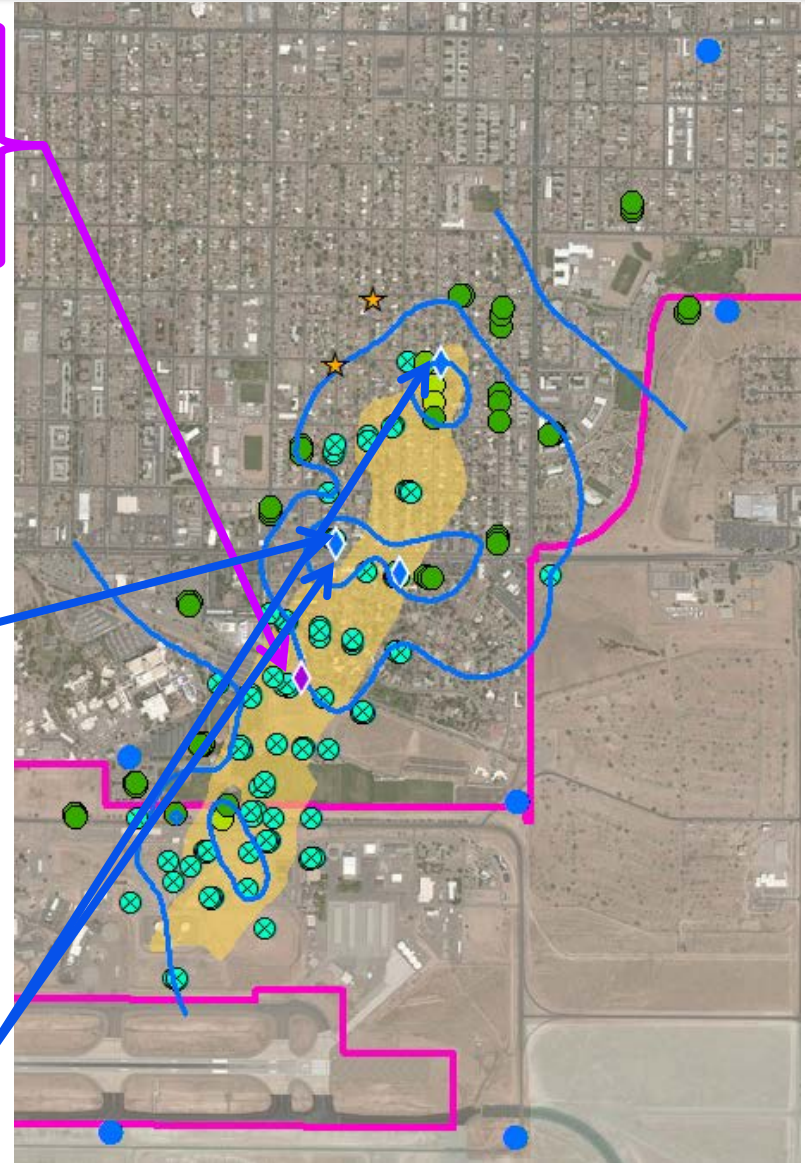
- Average plume concentration is 0.11 parts per billion (ppb) off-Base
- Drinking water standard for EDB is 0.05 ppb

1 Part Per Billion = 1/2 Teaspoon
in an Olympic Sized Swimming Pool



EDB Plume Collapse

- Drill and install 4th extraction well south of Ridgecrest
- Design expansion of GWTS for increased treatment capacity
- Redevelop KAFB-106233
- Install sand filters to address GWTS fouling
- Conduct aquifer testing of extraction wells



Currently Scheduled Public Outreach

Date	Description	Location
August 13, 2016	Community Conversation About the Kirtland Air Force Base Jet Fuel Spill 12:30 – 2:30 p.m.	Cesar Chavez Community Center 7505 Kathryn Ave SE
August 15, 2016	Rotary Club of Albuquerque 12:00 – 1:00 p.m.	Hotel Albuquerque, 800 Rio Grande Blvd. NW
August 30, 2016	Kirtland Partnership Committee 7:30 a.m.	African American Performing Arts Center 310 San Pedro Dr. NE
September 12, 2016	American Institute of Petroleum Geologists	Santa Fe, NM
September 15-16, 2016	New Mexico Water Law Conference TBD	Santa Fe, NM
September 24, 2016	Albuquerque International District Fair 10:00 – 5:00 p.m.	Veterans Memorial Park, 1100 Louisiana Blvd SE
November 10, 2016	Regular Public Meeting with Poster Session 5:00 – 8:30 p.m.	African American Performing Arts Center 310 San Pedro Dr. NE
November 2016	Public Technical Workshop TBD	Location TBD

Recap

- Drinking water supply wells continue to show no contamination
- 2nd Quarter 2016 groundwater data indicate first major milestone in plume collapse → lowering of water table at extraction well locations, or cone of depression
- On-going extraction and treatment of EDB-contaminated groundwater with a 4th extraction well coming soon
- Work plans submittals; begin implementation of two interim measures/pilot tests in source area
- Continued public outreach



How do I get more information?

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Air Force Bulk Fuels Facility website: www.kirtlandjetfuelremediation.com

Kirtland AFB website: www.kirtland.af.mil in the Environmental Issues section for Public Records