

# Kirtland Air Force Base Fuel Leak Cleanup



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Kirtland Partnership Committee  
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# 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.



West Side Coalition



ABQ City Council  
District 6 Coalition of  
Neighborhood Assocs.



Christ United Methodist Church

HAWLEY GEOMATTERS

Thomson and Associates

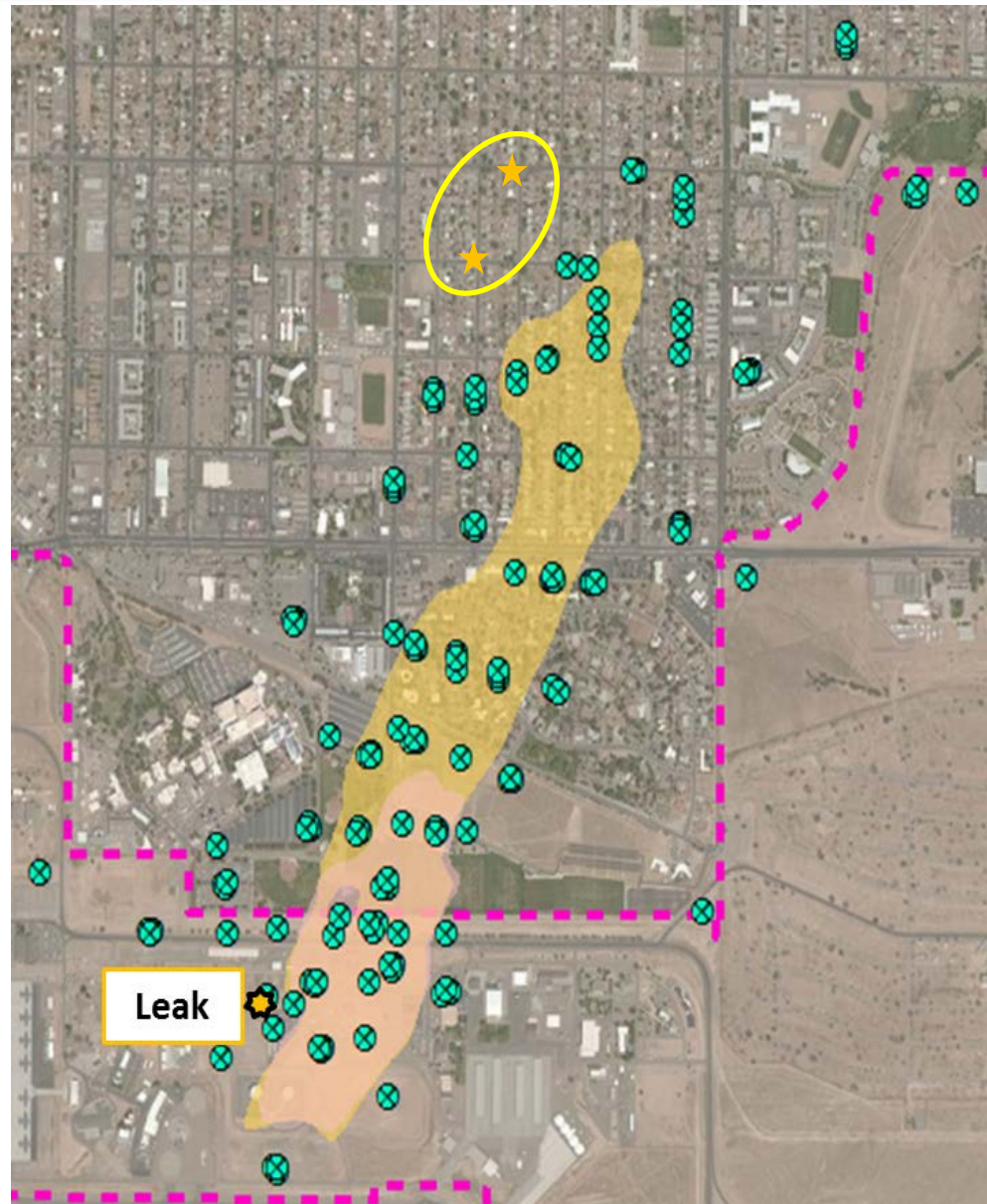
# Bulk Fuels Facility Update

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- Status of the site investigation
- Risk highlights
- Status of groundwater cleanup
- What's in store for late 2016
- Project optimization and improvements

# Site Investigation Status

- Data gap monitoring wells will be installed this fall
- The Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report will be submitted to NMED in November – a significant project milestone
- A Risk Assessment Report will be included with the RFI Report



# Conceptual Site Model Animation

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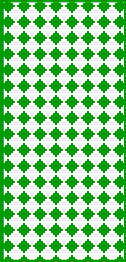
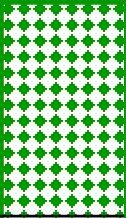

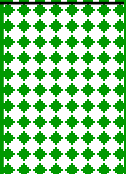
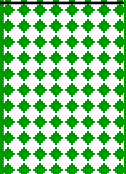
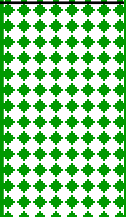
<https://www.env.nm.gov/NMED/Issues/KirtlandFuelPlume/KAFBProjectImages.html>

# Risk Highlights

Potential risk occurs when a human or ecological receptor is exposed to contamination



No exposure pathways or risks from BFF fuel contamination are present

Potential Exposure Pathway	Risk Level	Explanation
Drinking Water		<p><b>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.</b></p> <p>Public drinking water wells near the groundwater contamination <u>plume are tested monthly, and show no detections of any fuel compounds.</u> 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><b>Surface soil contamination never migrated off of Kirtland.</b></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><b>There is no pathway for contaminants to enter surface water.</b></p>
Vapor Intrusion		<p><b>Homes and businesses are not at risk for vapor contamination.</b></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><b>There is no risk of contamination to garden vegetables.</b></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><b>There is no risk of contamination to people enjoying recreational activities in Bullhead Park or in the Dog Park.</b></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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# Status of Groundwater Treatment System

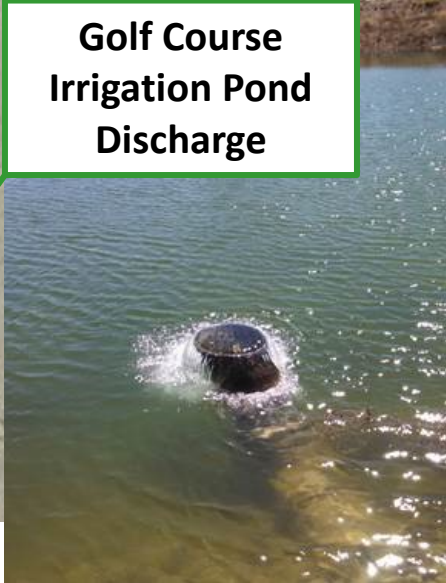
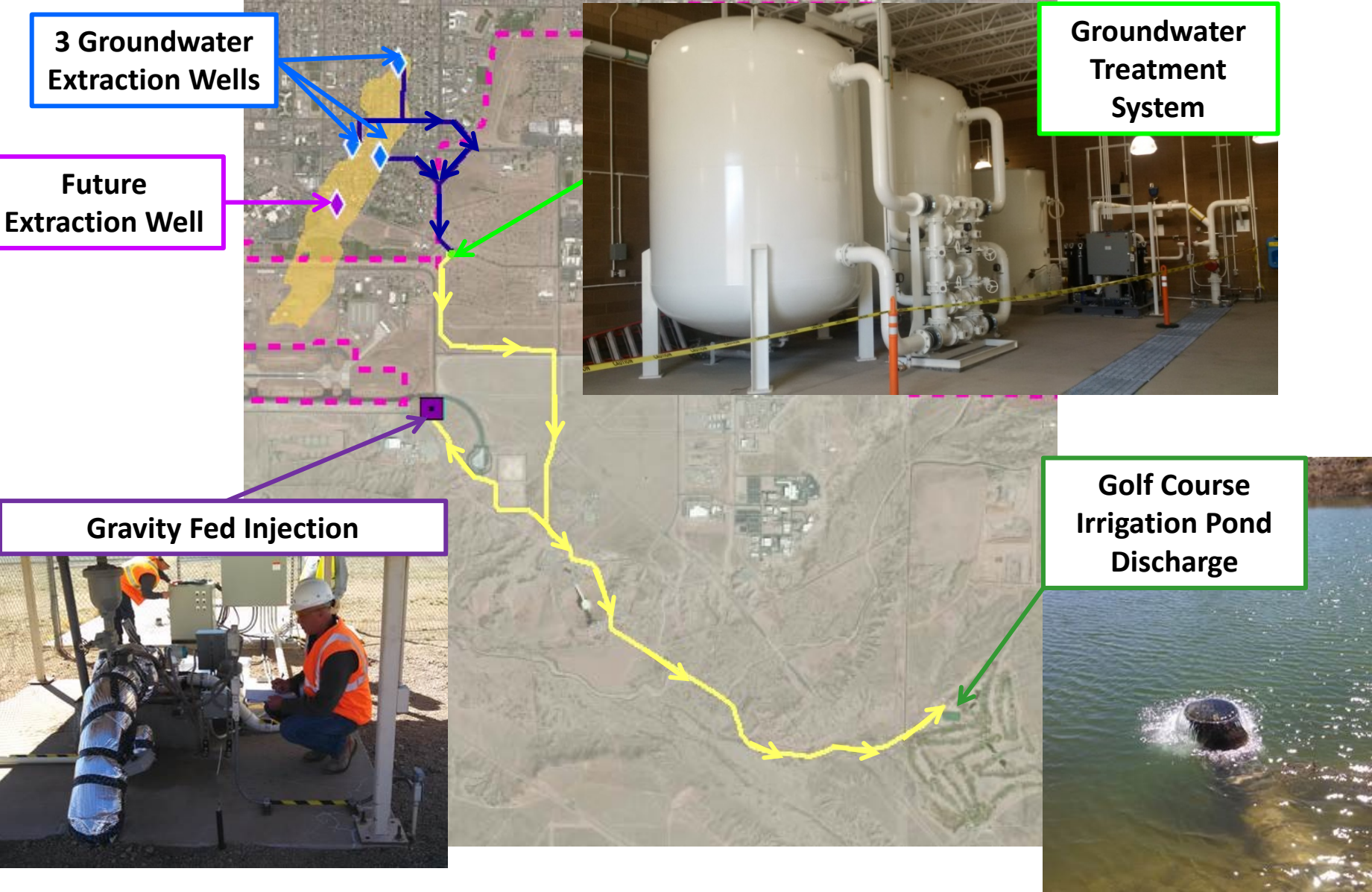
3 Groundwater Extraction Wells

Future Extraction Well

Groundwater Treatment System

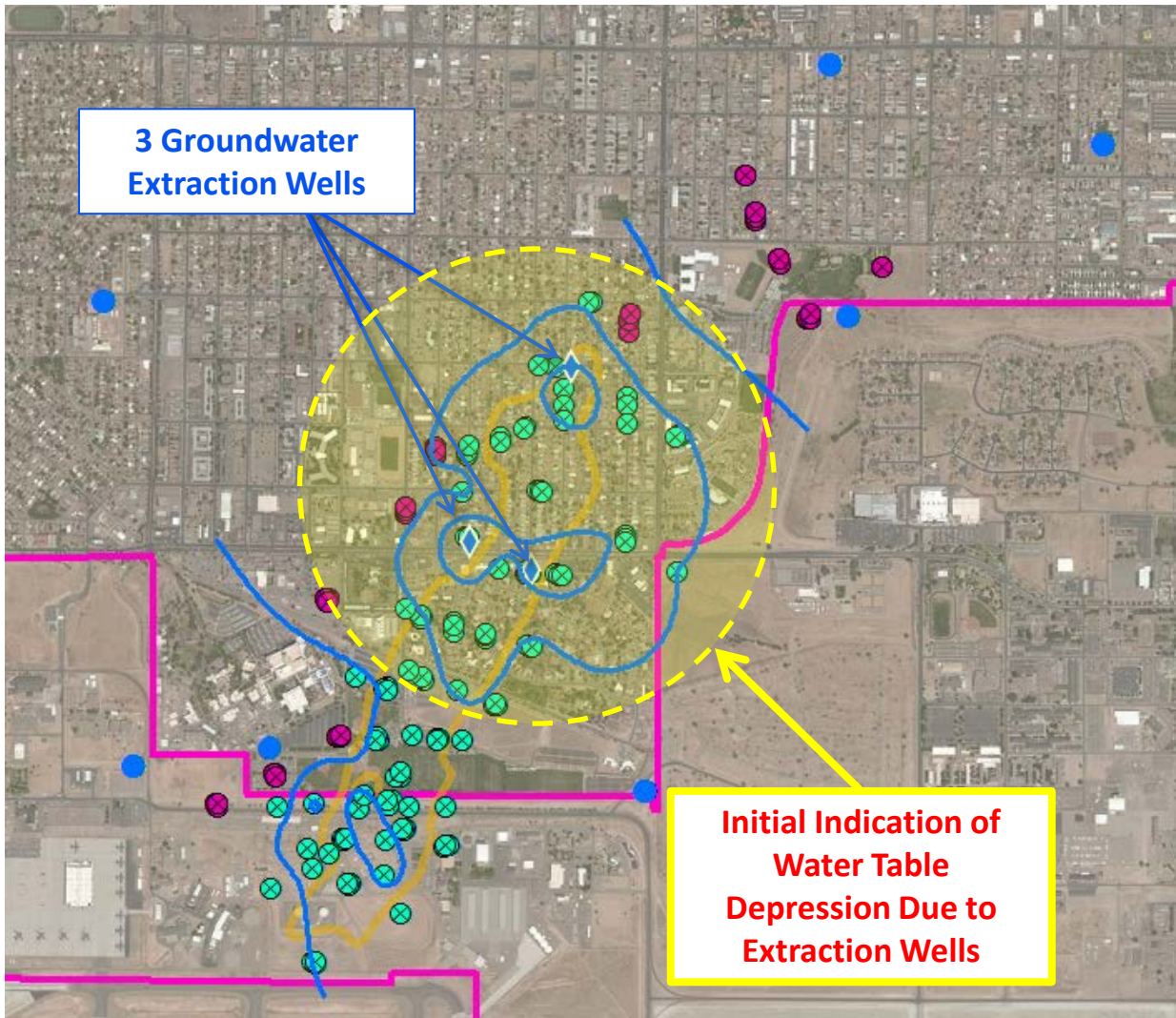
Gravity Fed Injection

Golf Course Irrigation Pond Discharge





# EDB Capture

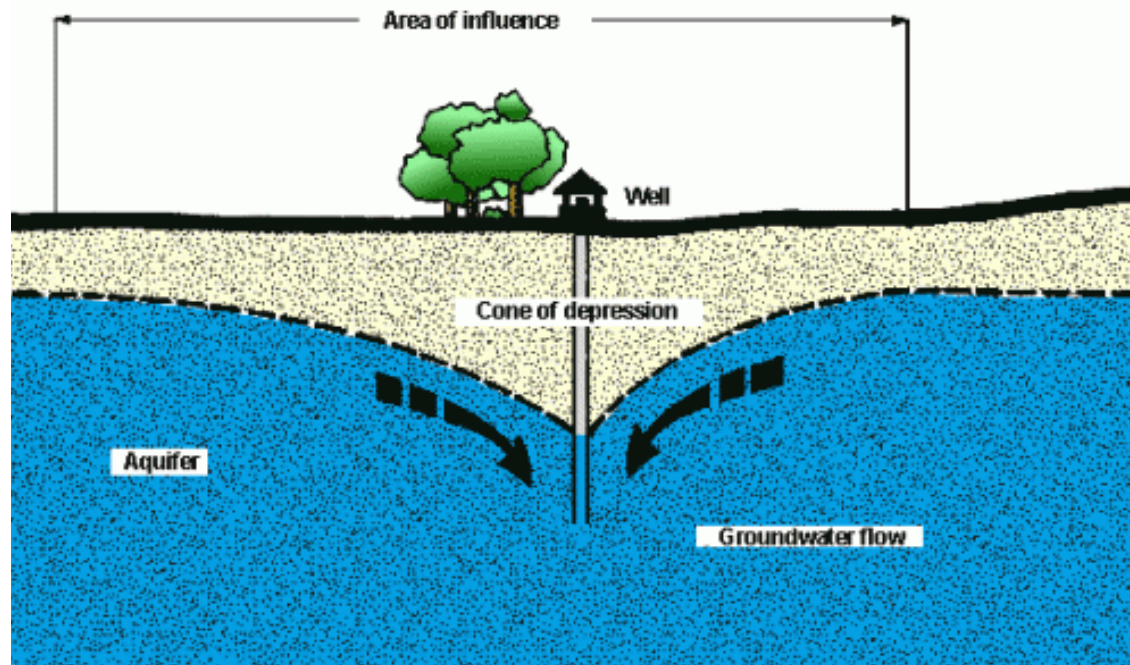


- The “cone of depression” from the first three extraction wells demonstrates that the extraction wells are in the right location
- Plume reduction will be confirmed with EDB concentration trends

## 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

# Why is the mass of EDB removed so small?

Extracted and treated 93 million gallons of EDB-contaminated groundwater and removed 30.7 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



# What's in Store for 2016?

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- Drill, install, develop, and test 4<sup>th</sup> extraction well, south of Gibson (Fall 2016)
- Drill, install, and develop data gap groundwater monitoring wells (Fall 2016)
- Begin on-Base field work for Anaerobic In Situ Bioremediation Pilot Test (Fall 2016)
- Conduct aquifer testing of 2<sup>nd</sup> and 3<sup>rd</sup> extraction wells (Winter 2016)

# What's in Store for 2016?

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- Expand groundwater treatment system to increase treatment capacity (Winter 2016)
- Prepare Bioventing Pilot Test Work Plan (Winter 2016)
- Prepare Continuous Soil Coring Work Plan (Winter 2016)
- November 10<sup>th</sup> public meeting and November 12<sup>th</sup> public technical workshop

# Reducing Project Cost to Taxpayers Without Compromising Public Health & Safety

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- **Groundwater monitoring wells in a single location**
  - This approach produces better data, is significantly less expensive, less disruptive to neighborhoods, and safer for workers
- **Optimization of groundwater monitoring**
  - Four years of robust monitoring data enable the project to reduce the frequency and the number of chemicals tested for
- **Passive diffusion bag (PDB) sampler validation study**
  - If successful, 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 Water Quality Control Commission Groundwater Discharge Permit for the same cleanup approach was inefficient and wasteful

# How do I get more information?

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## **Contact NMED:**

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**Air Force Bulk Fuels Facility website:** [www.kirtlandjetfuelremediation.com](http://www.kirtlandjetfuelremediation.com)

**Kirtland AFB website:** [www.kirtland.af.mil](http://www.kirtland.af.mil) in the Environmental Issues section for Public Records