



*Kirtland Air Force Base
DOD/DOE Semi Annual Public Meeting*



*Cesar Chavez Community Center
7505 Kathryn Avenue SE
Albuquerque, New Mexico 87108*

*April 17, 2012
6:00 – 8:00 p.m.*



Agenda



-
- **Introductory Remarks**
 - Mr. Wayne Bitner

 - **Natural Resources Program**
 - Mr. Dustin Akins

 - **EOD Range Closure**
 - Mr. Cole Crosgrove

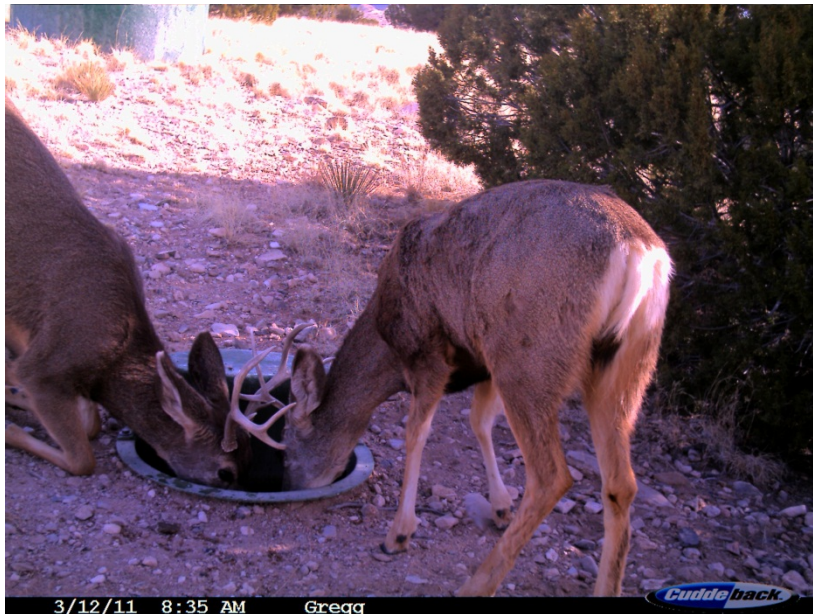
 - **Bulk Fuels Facility Update (Site SS-111)**
 - Colonel Don Conley
-



Kirtland Air Force Base Natural Resources Program



Dustin Akins Conservation Specialist

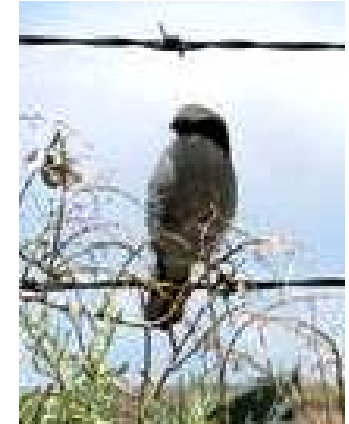




Natural Resource Program

Established to...

- Protect and conserve Kirtland's wildlife
- Mitigate construction and demolition activities affecting wildlife
- Make sure mission requirements are not adversely affected by wildlife of special interest



Species of Interest

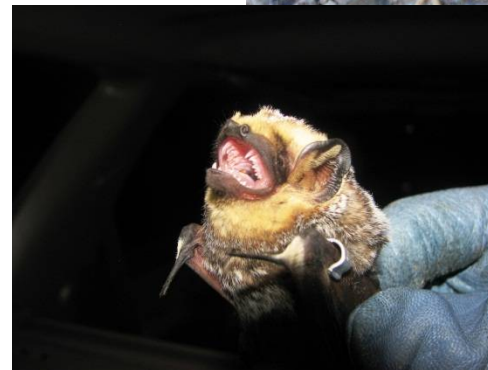
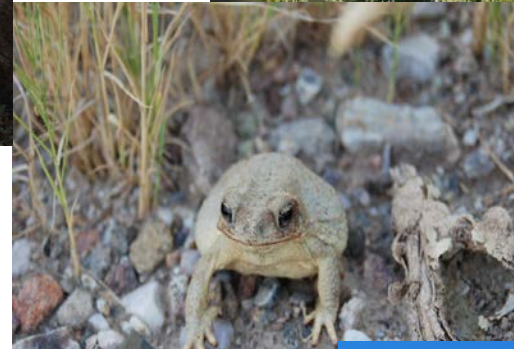
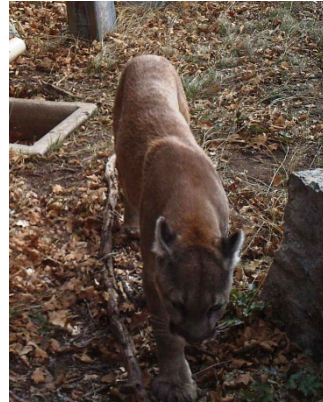
- Western Burrowing Owl
- Loggerhead Shrike
- Bats
- Rattlesnakes
- Gray Vireo





Projects in Process and Completed

1. Loggerhead Shrike
2. Burrowing Owl Productivity
3. Mountain Lion Monitoring
4. Desert Massasauga
5. Pinyon Jay Productivity
6. Bat Productivity
7. Gray Vireo
8. Wetland Restoration
9. Amphibian and Reptile (Rare)
10. Burrowing Owl Predator
11. Song Bird Monitoring Station





Animals Found on Base





Natural Resource Program

- Protect and conserve Kirtland's wildlife
- Mitigate construction and demolition activities affecting wildlife
- Make sure mission requirements are not adversely affected by wildlife of special interest

QUESTIONS?



EOD Range Closure



Cole Crosgrove

Project Manager



EOD Range Closure



- **Open Burn (OB) and Open Detonation (OD) historical background and current status.**
 - **Anticipated closure activities**
 - **Questions**
-



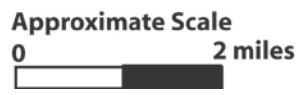
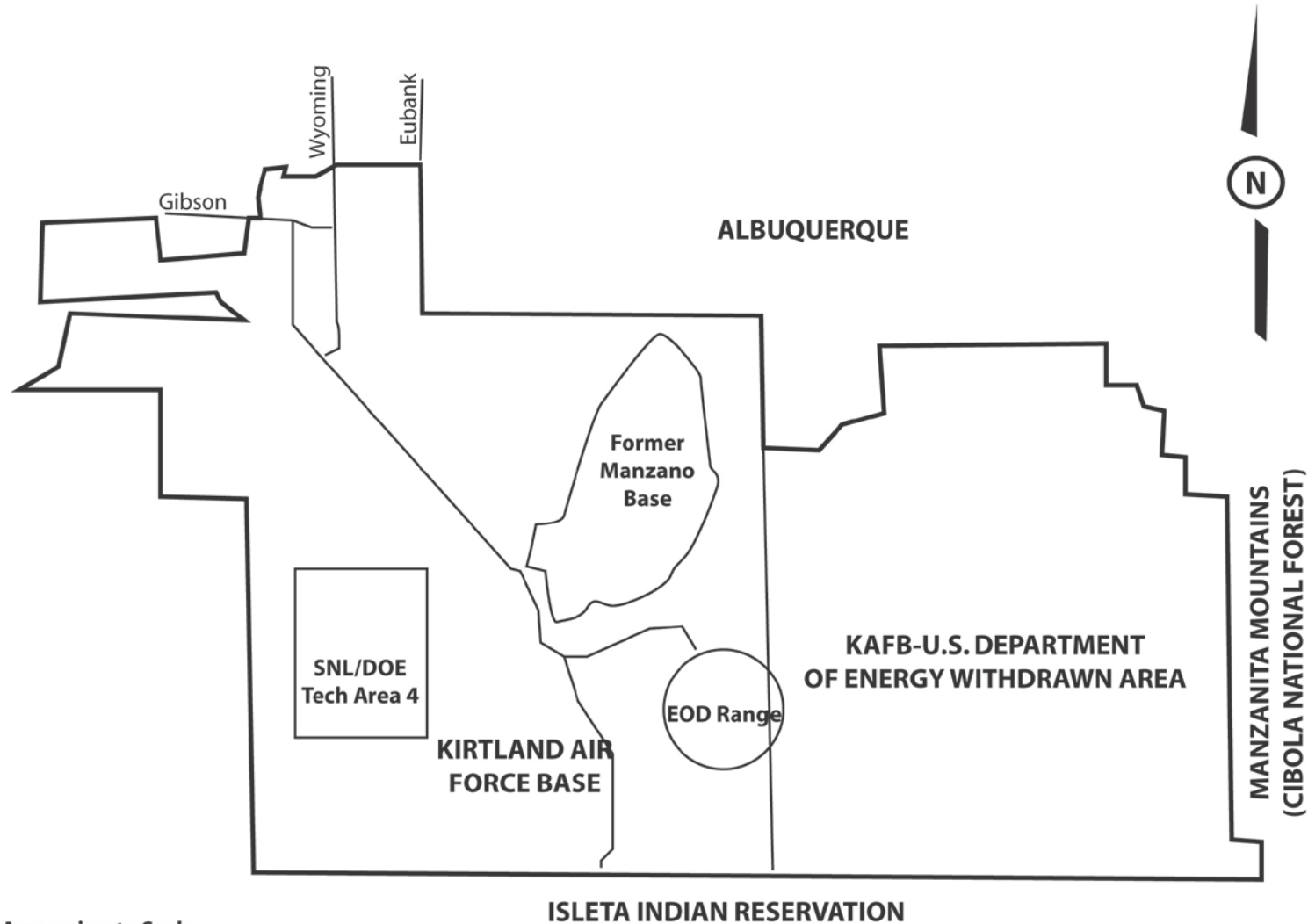
BACKGROUND



- **Open Detonation/Open Burn units permitted as hazardous waste treatment units under RCRA**
 - **OD/OB units treated excess or expired munitions and explosive materials.**
 - **Open Detonation unit permitted on 20 December 1994 as permit # NM9570024423-OD.**
 - **Notified NMED of intent to close Open Detonation Unit on 13 August 2010 (not used since August 2010)**
 - **Open Burn unit permitted on 26 July 1995 as permit #NM9570024423-OB**
 - **Previously submitted intent to close Open Burn Unit under agreement with the NMED 30 October 2009 (not utilized since May 2008).**
-

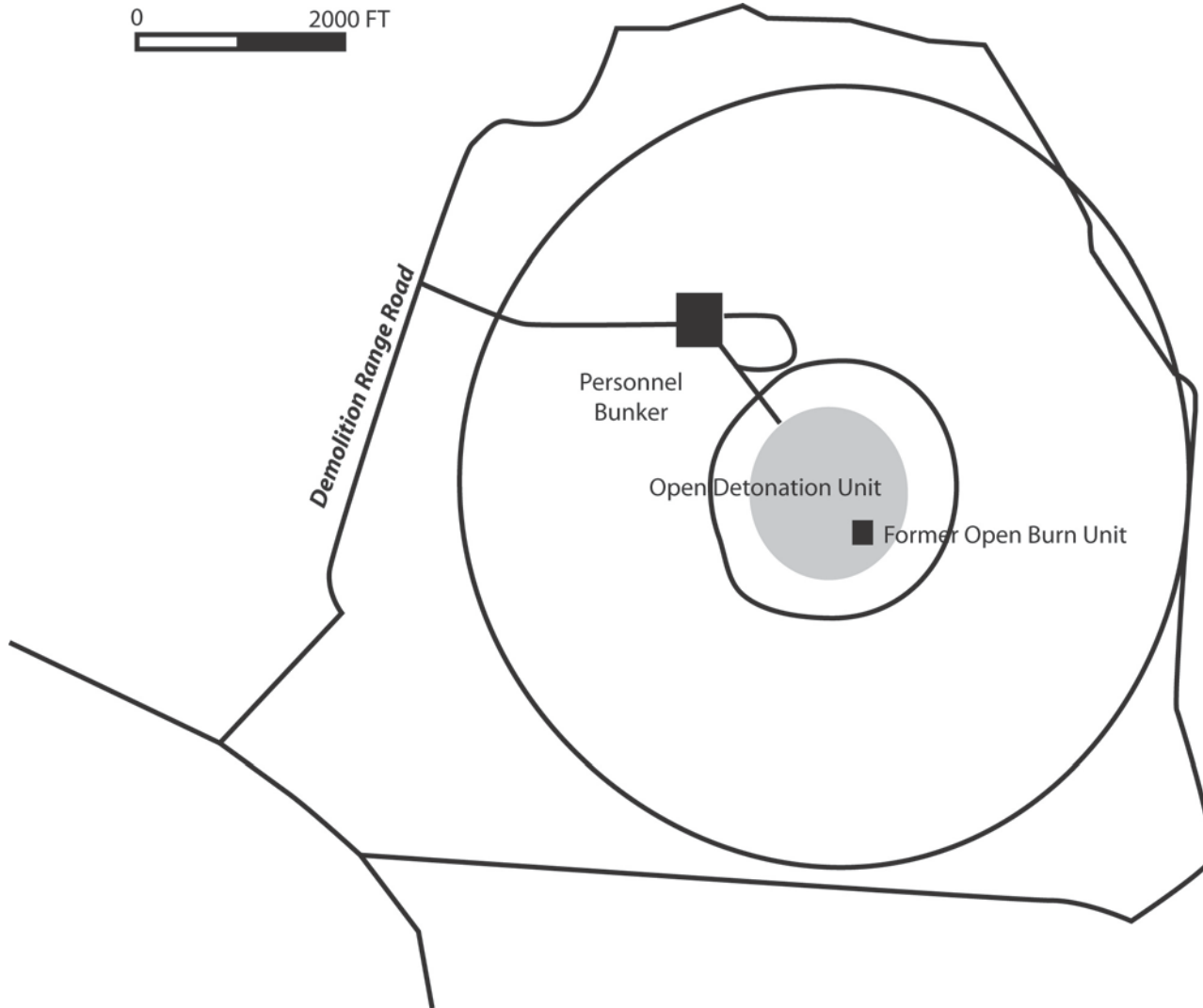


EOD Range





EOD Range





Current OB/OD Status



- **Performance Based Contract (PBC) awarded to CH2MHILL October 2011**
 - ***Work Plan to Support Closure of the Open Burn (OB) and Open Detonation (OD) Units* delivered to New Mexico Environmental Department Hazardous Waste Bureau 18 January 2012.**
-



Proposed Work Plan



- **Four wells (three downgradient and one upgradient) will be installed for groundwater monitoring for both the Open Burn unit and the Open Detonation units.**
 - **Wells will be sampled for eight quarters.**
- **Surface removal of Munitions and Explosives of Concerns (MEC) from the EOD range**
- **Digital Geophysical Mapping (DGM) of the OD unit (includes OB unit).**
 - **Results will help determine if excavation of certain areas of the OD unit are required**
- **Surface sampling of the entire OD unit (includes OB unit), to be screened against NMED residential Soil Screening Levels (SSL's)**
- **Sampling and demolition of the OB unit, sampling of soil beneath OB unit once demolition activities complete.**



OB/OD Closure Status



Questions?



Bulk Fuels Facility Overview



Colonel Donald Conley

377 Mission Support Group



Acronyms



-
- **BTEX – Benzene, toluene, ethylbenzene, xylene**
 - **EDB – Ethylene dibromide**
 - **FFOR – Former Fuel Offloading Rack**
 - **ICE – Internal combustion engine**
 - **DPT – Direct Push Technology**
 - **IM – Interim Measure**
 - **LNAPL – Light Non-Aqueous Phase Liquid**
 - **PBC – Performance Based Contract**
 - **ROI - Radius of influence**
 - **SWMU – Solid Waste Management Unit**
 - **SVE – Soil vapor extraction**
-



EDB Plume Characterization

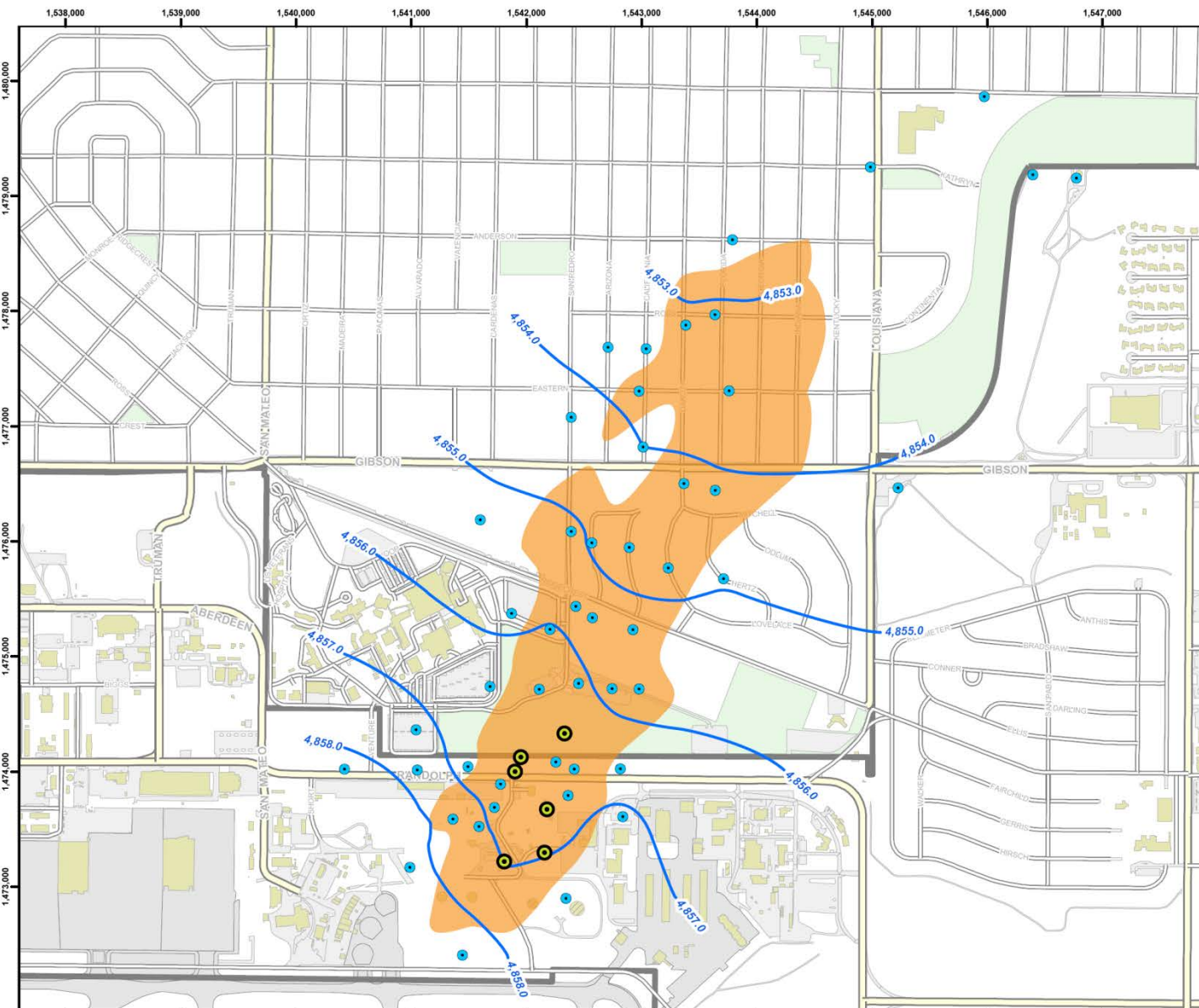


- **Completed installation of 78 groundwater monitoring wells (shallow, intermediate, and deep)**
 - **Approved Groundwater Investigation Work Plan (March 2011)**
- **Results of Fourth Quarter 2011 groundwater monitoring provides most complete picture to date of COC plume extents**
- **Biodegradation apparent for BTEX compounds**
- **Data Gap exists in downgradient EDB plume characterization**
- **Received NMED letter on 13 April 2012 directing the installation of 11 groundwater clusters (shallow/intermediate/deep)**











Shallow Wells

October – December 2011




 EDB (0.05 - 190 µg/L)

-  Monitor Well with NAPL
-  Groundwater Level Contour (ft msl)
-  Major Road
-  Road
-  Structure
-  Runway
-  Park
-  Installation Boundary



Revision Date: 03/05/12

 0 450 900 1,800

Feet
1 inch = 900 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

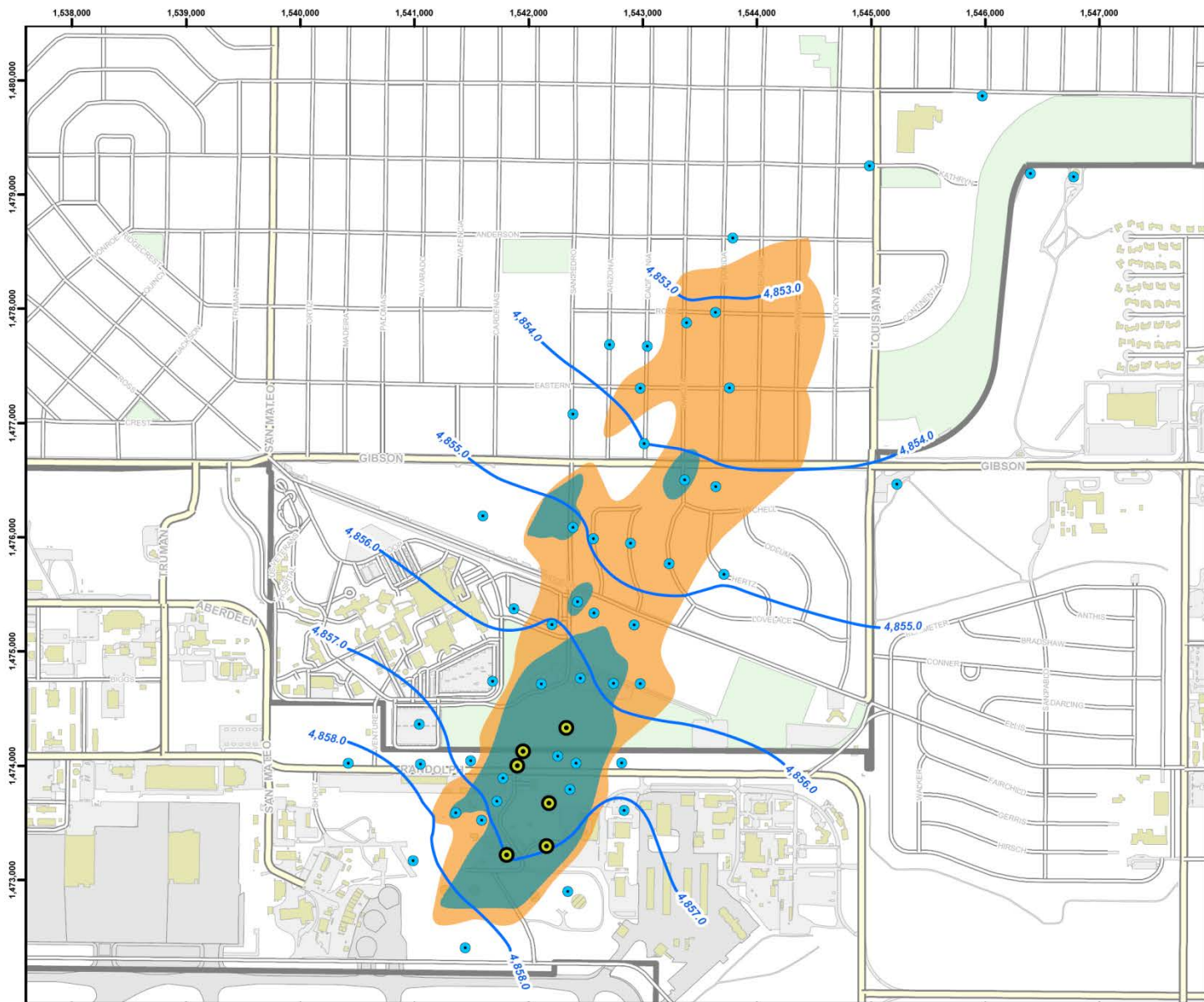
2011 QUARTERLY REPORT 04
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

SUMMARY OF CONCENTRATIONS IN SHALLOW GROUNDWATER QUARTER 04 2011



Shallow Wells

October – December 2011



- EDB (0.05 - 190 µg/L)
- BENZENE (5 - 10 µg/L)

- Monitor Well with NAPL
- Groundwater Level Contour (ft msl)
- Major Road
- Road
- Structure
- Runway
- Park
- Installation Boundary



Revision Date: 03/05/12

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

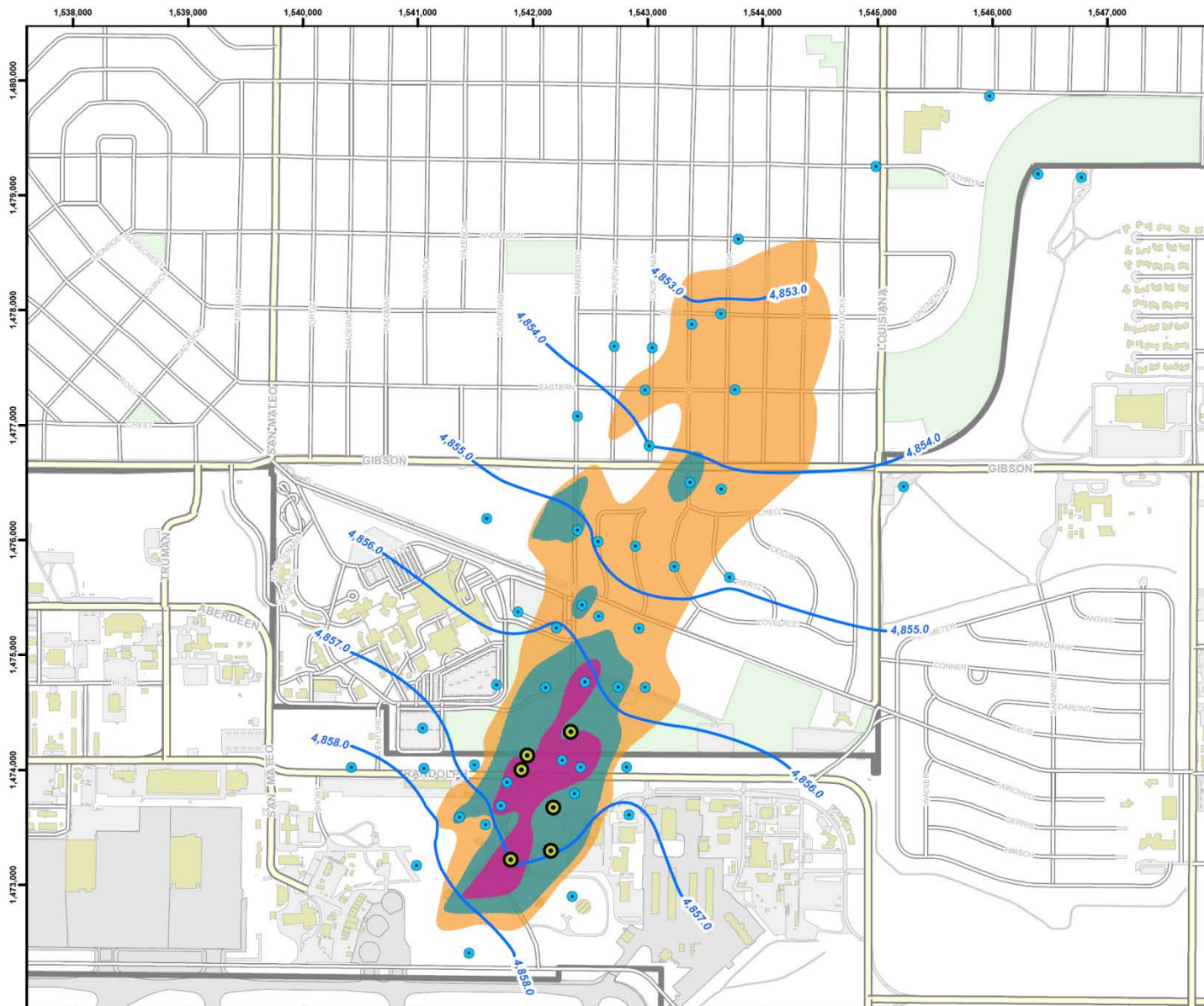
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SUMMARY OF CONCENTRATIONS IN SHALLOW GROUNDWATER QUARTER 04 2011



Shallow Wells

October – December 2011



- EDB (0.05 - 190 µg/L)
- BENZENE (5 - 10 µg/L)
- TOLUENE (750 - 1,000 µg/L)

- Monitor Well with NAPL
- Groundwater Level Contour (ft msl)
- Major Road
- Road
- Structure
- Runway
- Park
- Installation Boundary



Revision Date: 03/05/12

0 450 900 1,800
Feet
1 inch = 900 feet

Projection : NAD83 Slate Plane New Mexico Central FIPS3002 Feet

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KIRTLAND AIR FORCE BASE, NEW MEXICO

**SUMMARY OF CONCENTRATIONS
IN SHALLOW GROUNDWATER
QUARTER 04 2011**



Shallow Wells

October – December 2011



- EDB (0.05 - 190 µg/L)
- BENZENE (5 - 10 µg/L)
- TOLUENE (750 - 1,000 µg/L)
- NAPHTHALENE (30 - 100 µg/L)

- Monitor Well with NAPL
- Groundwater Level Contour (ft msl)
- Major Road
- Road
- Structure
- Runway
- Park
- Installation Boundary



Revision Date: 03/05/12

0 450 900 1,800
Feet
1 inch = 900 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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SUMMARY OF CONCENTRATIONS IN SHALLOW GROUNDWATER QUARTER 04 2011



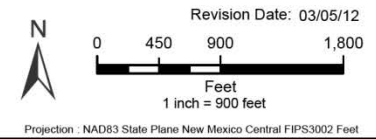
Shallow Wells

October – December 2011



- EDB (0.05 - 190 µg/L)
- BENZENE (5 - 10 µg/L)
- TOLUENE (750 - 1,000 µg/L)
- NAPHTHALENE (30 - 100 µg/L)
- 1,2,4-TRIMETHYLBENZENE (35 - 100 µg/L)

- Monitor Well with NAPL
- Groundwater Level Contour (ft msl)
- Major Road
- Road
- Structure
- Runway
- Park
- Installation Boundary



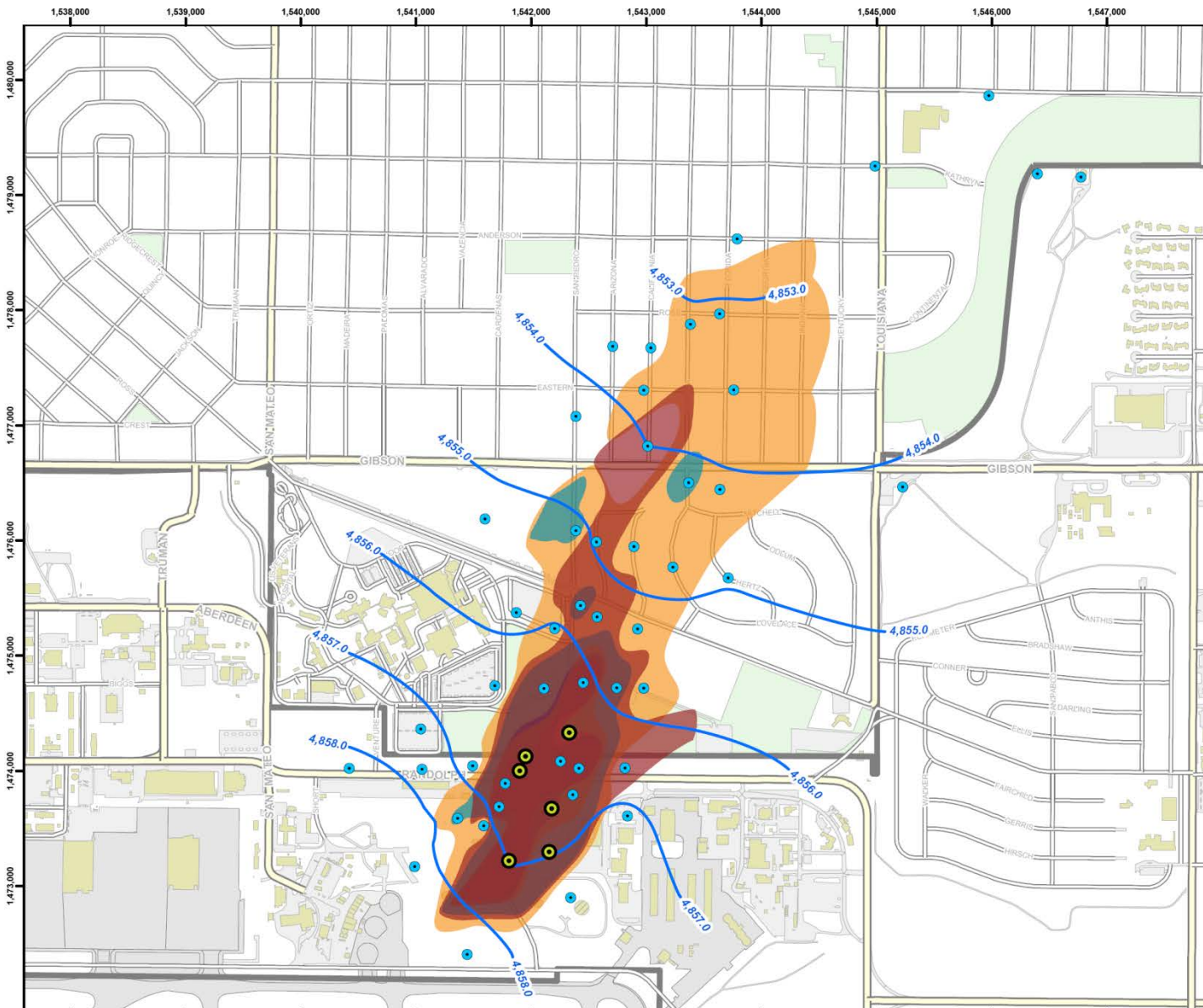
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 KIRTLAND AIR FORCE BASE, NEW MEXICO

**SUMMARY OF CONCENTRATIONS
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 QUARTER 04 2011**



Shallow Wells

October – December 2011



- EDB (0.05 - 190 µg/L)
- BENZENE (5 - 10 µg/L)
- TOLUENE (750 - 1,000 µg/L)
- NAPHTHALENE (30 - 100 µg/L)
- 1,2,4-TRIMETHYLBENZENE (35 - 100 µg/L)
- TPH GRO (150 - 500 µg/L)

- Monitor Well with NAPL
 - Groundwater Level Contour (ft msl)
 - Major Road
 - Road
 - Structure
 - Runway
 - Park
 - Installation Boundary
-
- SITE LOCATION**

Revision Date: 03/05/12

0 450 900 1,800
Feet
1 inch = 900 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

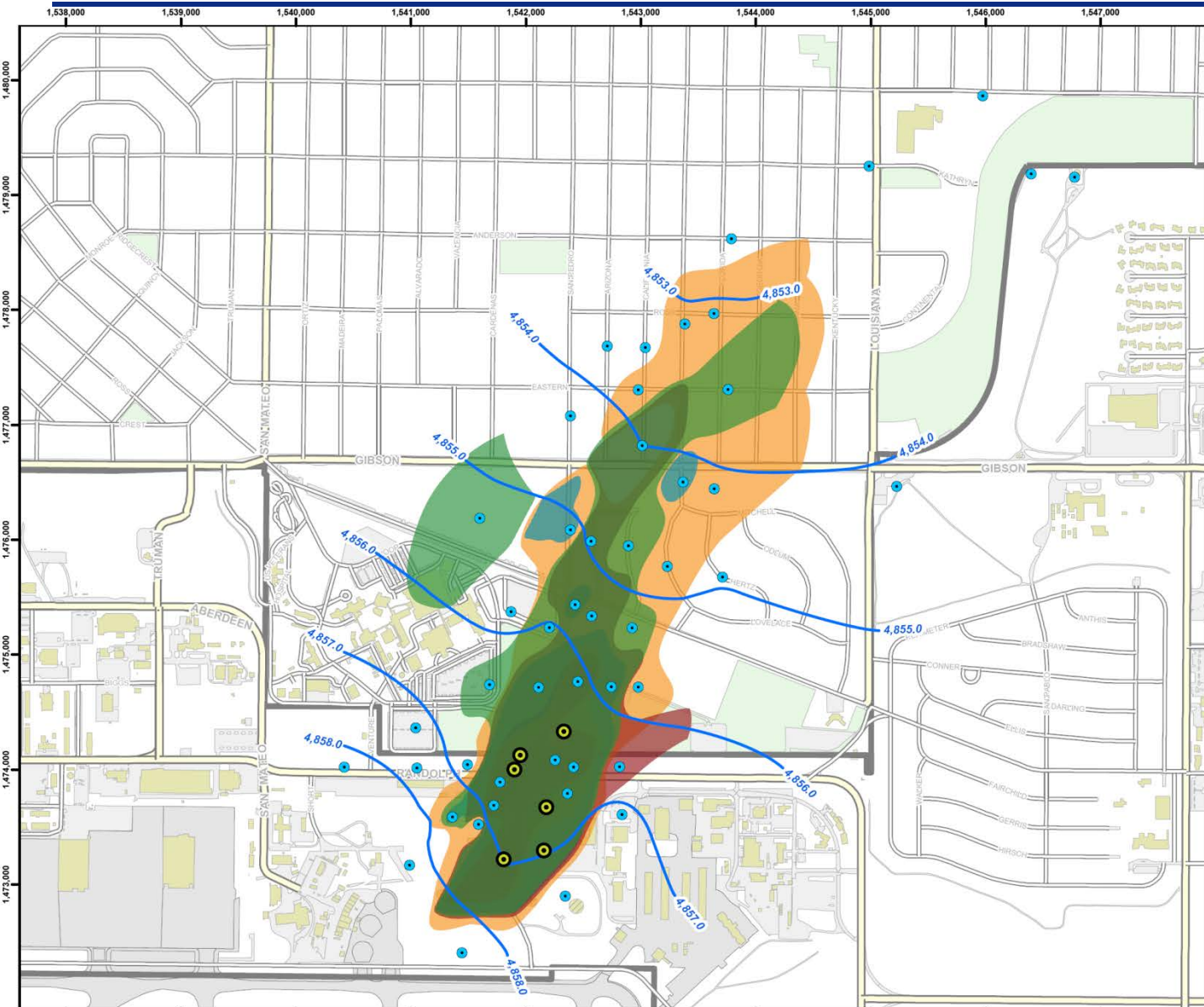
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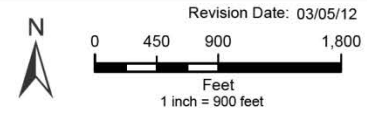
Shallow Wells

October – December 2011



- EDB (0.05 - 190 µg/L)
- BENZENE (5 - 10 µg/L)
- TOLUENE (750 - 1,000 µg/L)
- NAPHTHALENE (30 - 100 µg/L)
- 1,2,4-TRIMETHYLBENZENE (35 - 100 µg/L)
- TPH GRO (150 - 500 µg/L)
- TPH DRO (150 - 500 µg/L)

- Monitor Well with NAPL
- Groundwater Level Contour (ft msl)
- Major Road
- Road
- Structure
- Runway
- Park
- Installation Boundary



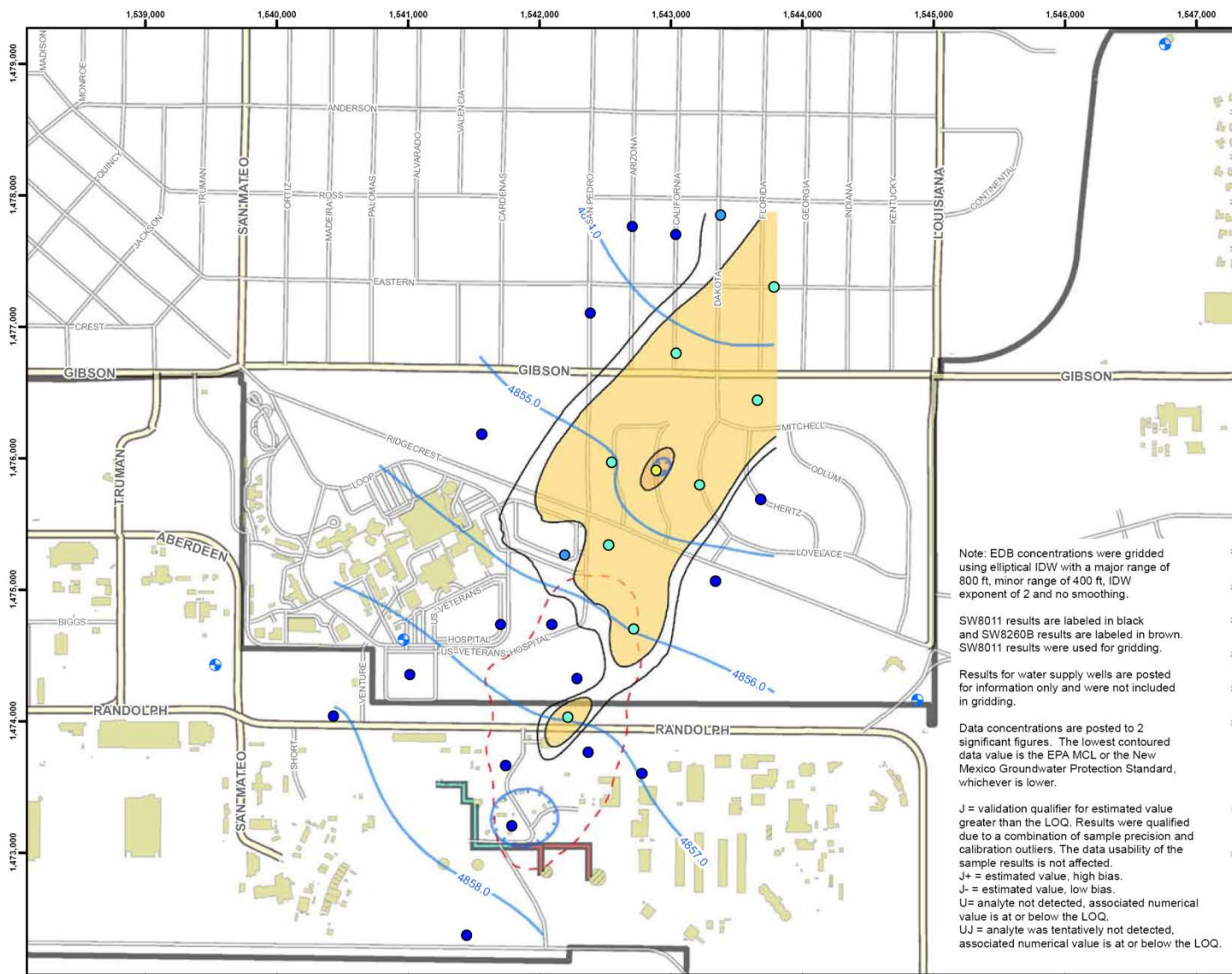
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SUMMARY OF CONCENTRATIONS IN SHALLOW GROUNDWATER QUARTER 04 2011



Intermediate Wells

October-December 2011



Legend

- Water Supply Well
- 0.021 - 0.050
- 0.051 - 0.10
- 0.11 - 1.0
- 1.1
- EDB Concentration Contour (ug/L)
- 0.01 - 0.1
- 0.1 - 1.0
- 1.0 - 1.1
- Historical Area of Observed NAPL (July 2009)
- Groundwater Level Contour (ft msl)
- Groundwater Depression
- Major Road
- Road
- Aboveground Fuel Transfer Line
- Aboveground Fuel Transfer Line
- Existing Structure
- Previously Existing Structure
- Installation Boundary

Note: EDB concentrations were gridded using elliptical IDW with a major range of 800 ft, minor range of 400 ft, IDW exponent of 2 and no smoothing.

SW8011 results are labeled in black and SW8260B results are labeled in brown. SW8011 results were used for gridding.

Results for water supply wells are posted for information only and were not included in gridding.

Data concentrations are posted to 2 significant figures. The lowest contoured data value is the EPA MCL or the New Mexico Groundwater Protection Standard, whichever is lower.

J = validation qualifier for estimated value greater than the LOQ. Results were qualified due to a combination of sample precision and calibration outliers. The data usability of the sample results is not affected.
 J+ = estimated value, high bias.
 J- = estimated value, low bias.
 U = analyte not detected, associated numerical value is at or below the LOQ.
 UJ = analyte was tentatively not detected, associated numerical value is at or below the LOQ.



Revision Date: 03/16/12

0 400 800 1,600
Feet
1 inch = 800 feet

Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

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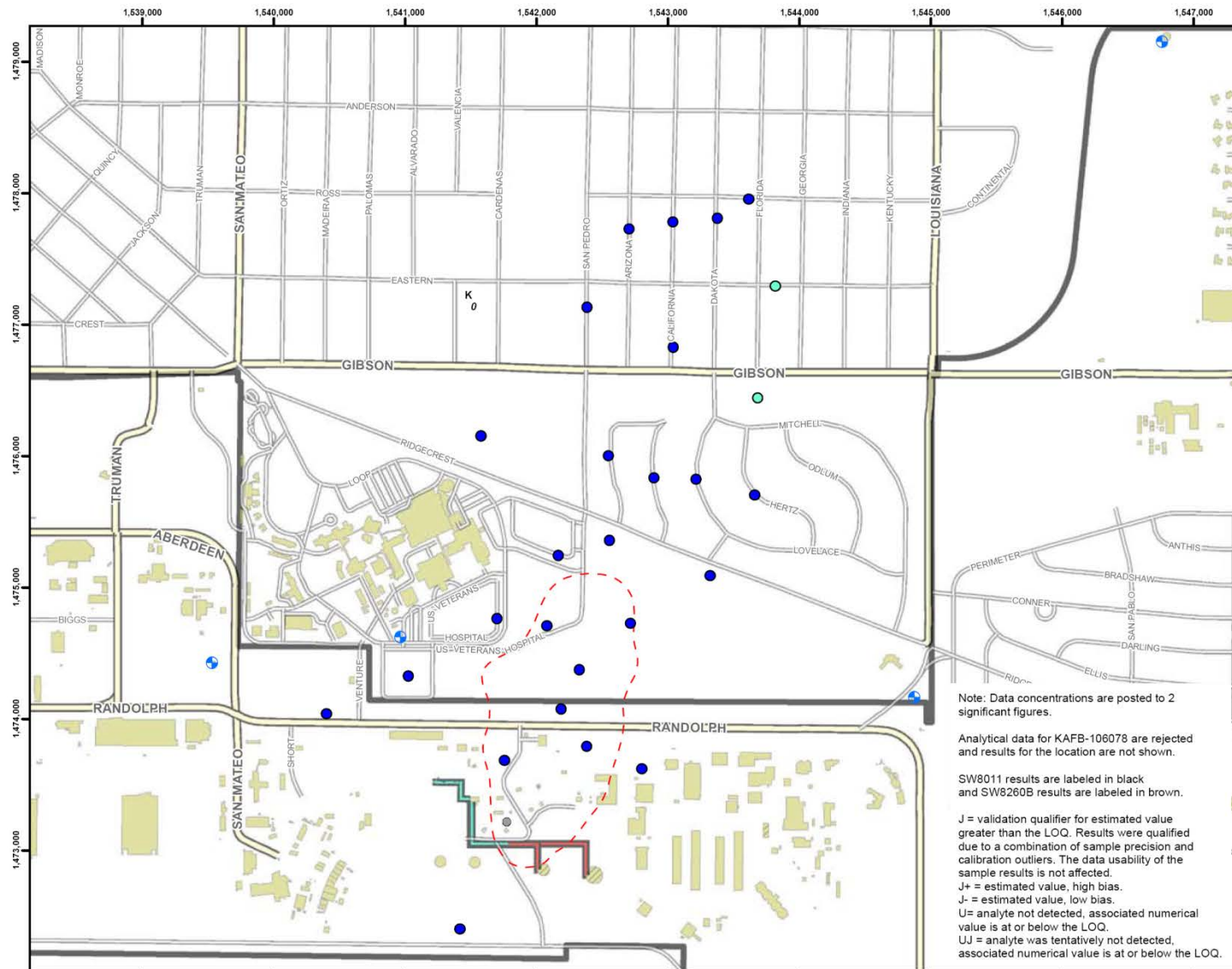
FIGURE 5-22

1,2-DIBROMOETHANE
CONCENTRATIONS IN
INTERMEDIATE GROUNDWATER



Deep Wells

October-December 2011



Legend

- Water Supply Well
- EDB Result (ug/L)**
- 0.028 - 0.050
- 0.051 - 0.10
- 0.11 - 0.57
- Analytical Results Were Rejected
- Historical Area of Observed NAPL (July 2009)
- Major Road
- Road
- Aboveground Fuel Transfer Lines
- Underground Fuel Transfer Lines
- Structure
- Previously Existing Structure
- Installation Boundary

SITE LOCATION

Note: Data concentrations are posted to 2 significant figures.

Analytical data for KAFB-106078 are rejected and results for the location are not shown.

SW8011 results are labeled in black and SW8260B results are labeled in brown.

J = validation qualifier for estimated value greater than the LOQ. Results were qualified due to a combination of sample precision and calibration outliers. The data usability of the sample results is not affected.

J+ = estimated value, high bias.

J- = estimated value, low bias.

U = analyte not detected, associated numerical value is at or below the LOQ.

UJ = analyte was tentatively not detected, associated numerical value is at or below the LOQ.

Revision Date: 03/12/12

0 400 800 1,600
Feet
1 inch = 800 feet

Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

2011 QUARTERLY REPORT 04
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 5-23

1,2-DIBROMOETHANE
CONCENTRATIONS IN
DEEP GROUNDWATER

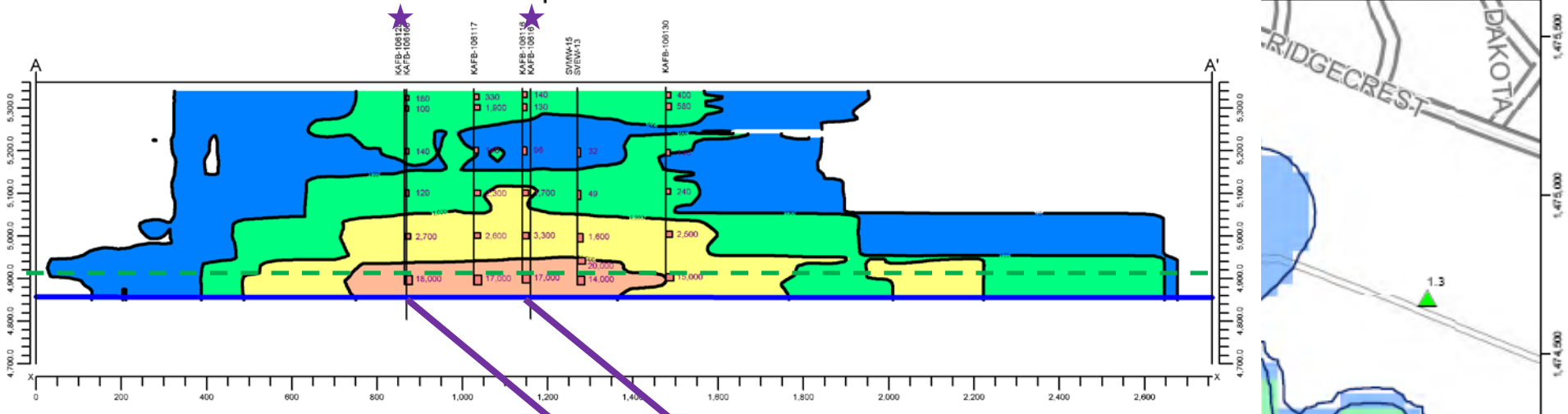


Phase II Interim Measure



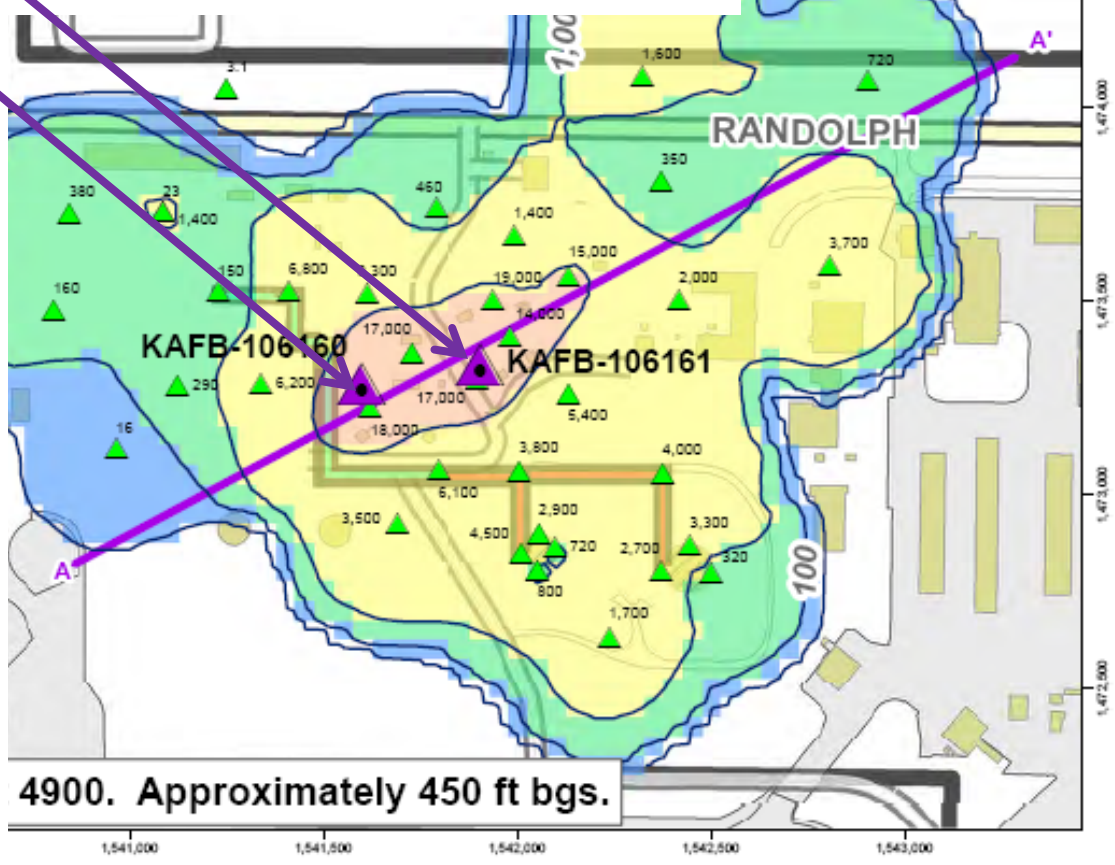
- **Installed two SVE wells to address vadose zone source area**
- **Working with NMED to obtain approval of partial system design to expedite ordering of long lead time components**
- **Successfully used a fast-track approach using letter work plan addendums to previously approved work plans**
- **Will continue collecting and evaluating data to determine need/location of additional SVE systems**
- **Iterative approach**

VOC Vapor Cross-Section A-A'



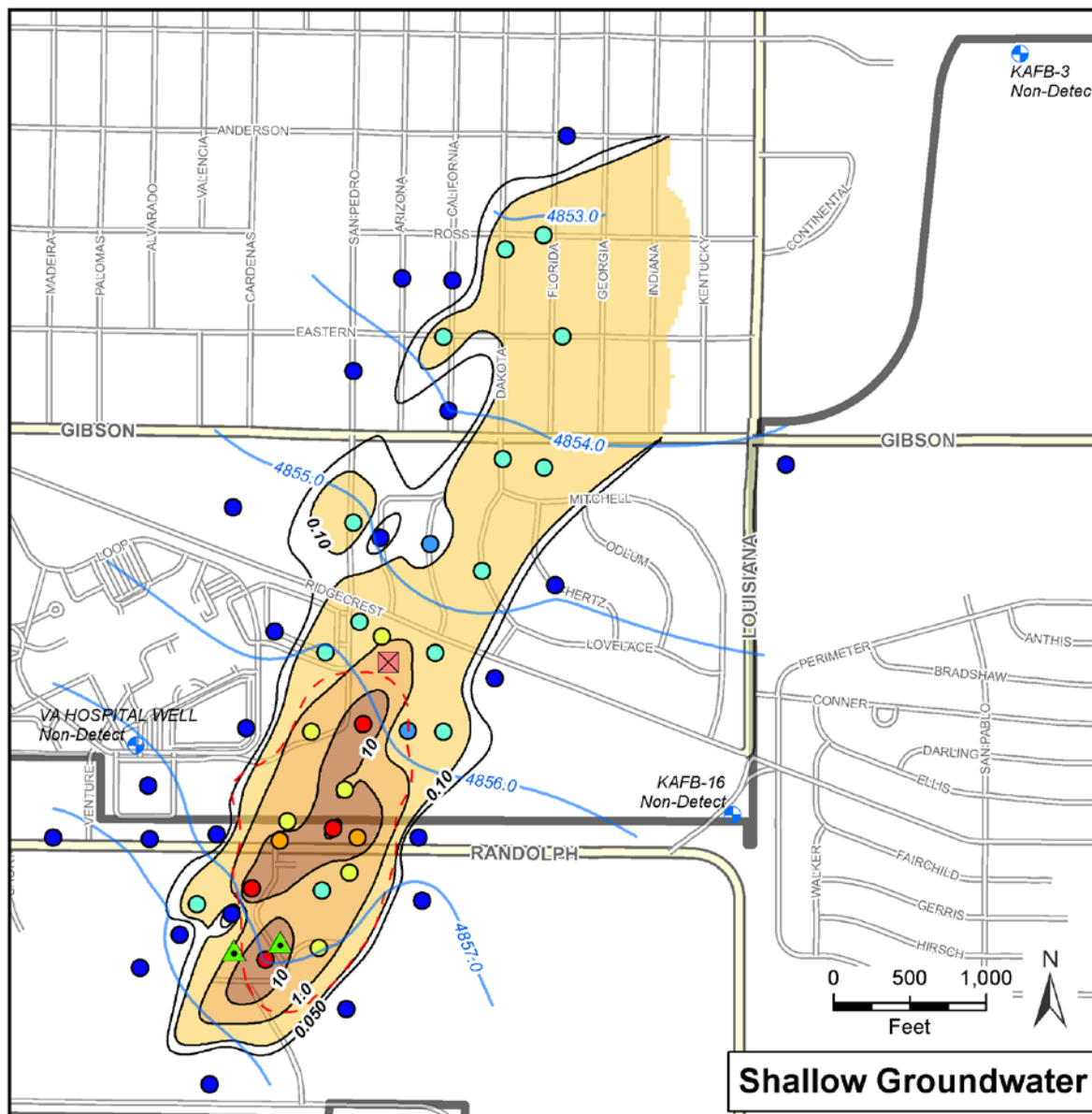
Legend

- ▲ Soil Vapor Extraction Well (Phase II)
 - ▲ SVE/SVM Well with Vapor VOC Concentration (ppmv)
 - Cross-Section Line
 - VOC Concentration Contour (ppmv)
- VOC Concentration (ppmv)
- 10 - 100
 - 100 - 1000
 - 1000 - 10,000
 - >10,000
- Installation Boundary
 - Aboveground Fuel Transfer Lines
 - Underground Fuel Transfer Lines
 - Highway
 - Major Road
 - Road
 - Existing Structure
 - Previously Existing Structure
 - Runway





Phase II Interim Measure



Legend

- Water Supply Well
- LNAPL Containment Well
- SVE Extraction Well
- NAPL Area

EDB Result (ug/L)

- Non-Detect
- 0.051 - 0.10
- 0.11 - 1.0
- 1.1 - 10
- 11 - 100
- 110 - 190

Groundwater Level Contour (ft msl)

EDB Concentration (ug/L)

- 0.01 - 0.1
- 0.1 - 1.0
- 1.0 - 10
- 10 - 100
- 100 - 190

Shallow Groundwater



Overview of Progress

December 2011 – April 2012



- **Held 3 Tiger Team work groups**
 - **Submitted letter addendum for additional monitoring wells (*Groundwater Investigation RFI*)**
 - **Drilled and installed the LNAPL containment well (*LNAPL Containment Interim Measure*)**
 - **Completed Radius of Influence testing (*Phase I Interim Measures*)**
 - **Completed characterization sample and first round of step out sampling along former pipeline (*Phase I Interim Measures*)**
 - **Drilled and installed 2 SVE wells (*Phase II Interim Measure*)**
 - **Submitted work plan and received approval to conduct Indoor Air sampling**
-

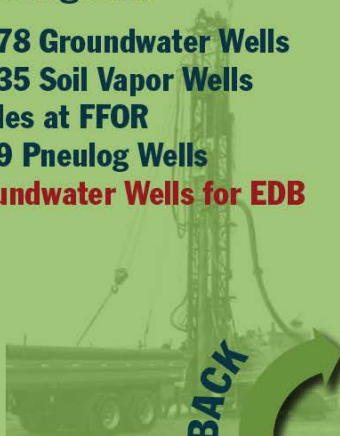


Path Forward

CHARACTERIZATION

RCRA Facility Investigation

- ✓ Installation of 78 Groundwater Wells
- ✓ Installation of 35 Soil Vapor Wells
- ✓ DPT Soil Samples at FFOR
- ✓ Installation of 9 Pneulog Wells
 - **Additional Groundwater Wells for EDB**



EVALUATION

Corrective Measures Evaluations

- ✓ Baildown Testing
- ✓ ROI Testing
 - Quarterly Monitoring
 - Pneulog Well Testing
 - Slug Testing
 - **Use Phase II IM to Conduct Extended ROI Testing**
 - **Continue to Evaluate Early Treatment**



Interim Measures

- ICE Unit Operation - Pre-Remedy O&M
- LNAPL Containment
 - Soil Removal at FFOR - Phase I Interim Measures
- SVE Treatment System - Phase II Interim Measures
 - **Move ICE Units to New SVE Wells**
 - **Continue Design of Centralized SVE Treatment System**



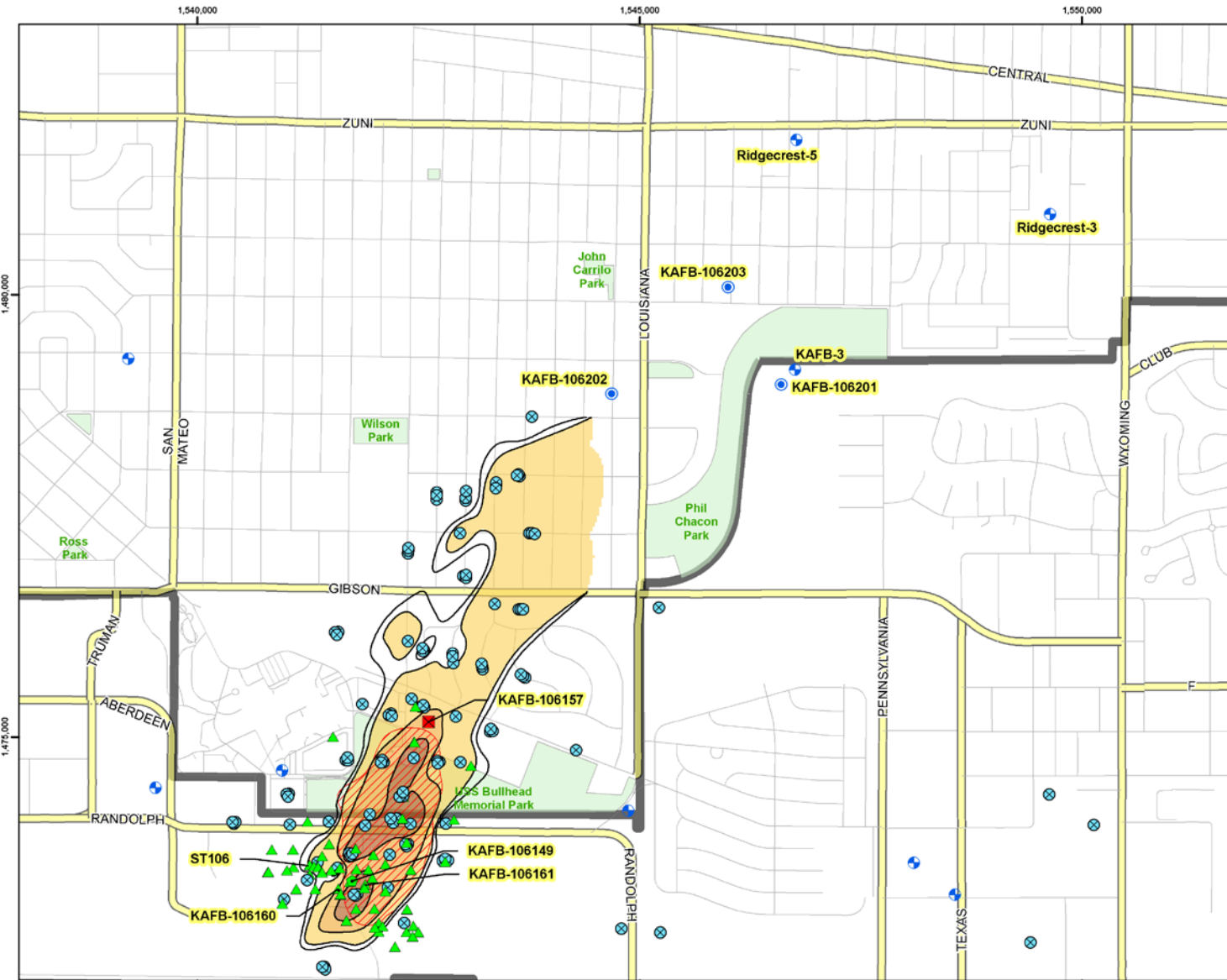
EARLY/INITIAL TREATMENT

FINAL REMEDY

REMEDY IN PLACE

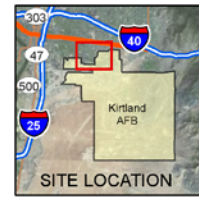


Path Forward



Legend

- Containment Well
 - SVE Extraction Well
 - Pneu Log
 - Monitor Well
 - SVE Monitor Well
 - Water Supply Well
 - Detection Piezometer
 - NAPL Area
- EDB Concentration (ug/L)
- 0.01 - 0.1
 - 0.1 - 1.0
 - 1.0 - 10
 - 10 - 100
 - 100 - 190
- Major Road
 - Road
 - Park
 - Installation Boundary



Revision Date: 04/10/12

0 600 1,200 2,400
Feet
1 inch = 1,200 feet

Projection: NAD83 State Plane New Mexico Central FIPS3002 Feet

BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 1

PROPOSED DETECTION
PIEZOMETERS



Path Forward



	Estimated/Actual Start Date	Notes on Schedule
Installation of Additional Monitoring Wells	18 June 2012	
Resume SVE ICE Unit Operations at Optimized Locations	23 April 2012	
SVE Unit Installation	Early Fall 2012	Design is in progress; pending approval partial and final design plans and part availability
Soil Excavation at FFOR	Summer 2012	Pending completion of sampling



Questions?



POINTS OF CONTACT



Col. Donald Conley

377 ABW.pa@kirtland.af.mil

(505) 846-5991

Citizens may review Air Force Environmental Restoration Program (ERP) documents at the Kirtland AFB Information Repository (IR) located at the Central New Mexico (CNM) Community College-Montoya Campus Library, 4700 Morris NE, (505) 224-5721

or

by visiting the Kirtland AFB website at <http://www.kirtland.af.mil> in the Environmental Issues section for Public Records.
