



95 ABW

Reports from Environmental Program Managers

Environmental Restoration Program
Edwards AFB, CA

Paul Schiff, Rebecca Hobbs, Patrice Hallman, Bruce
Oshita, Tom Merendini, and Joe Dunwoody
18 November 2010

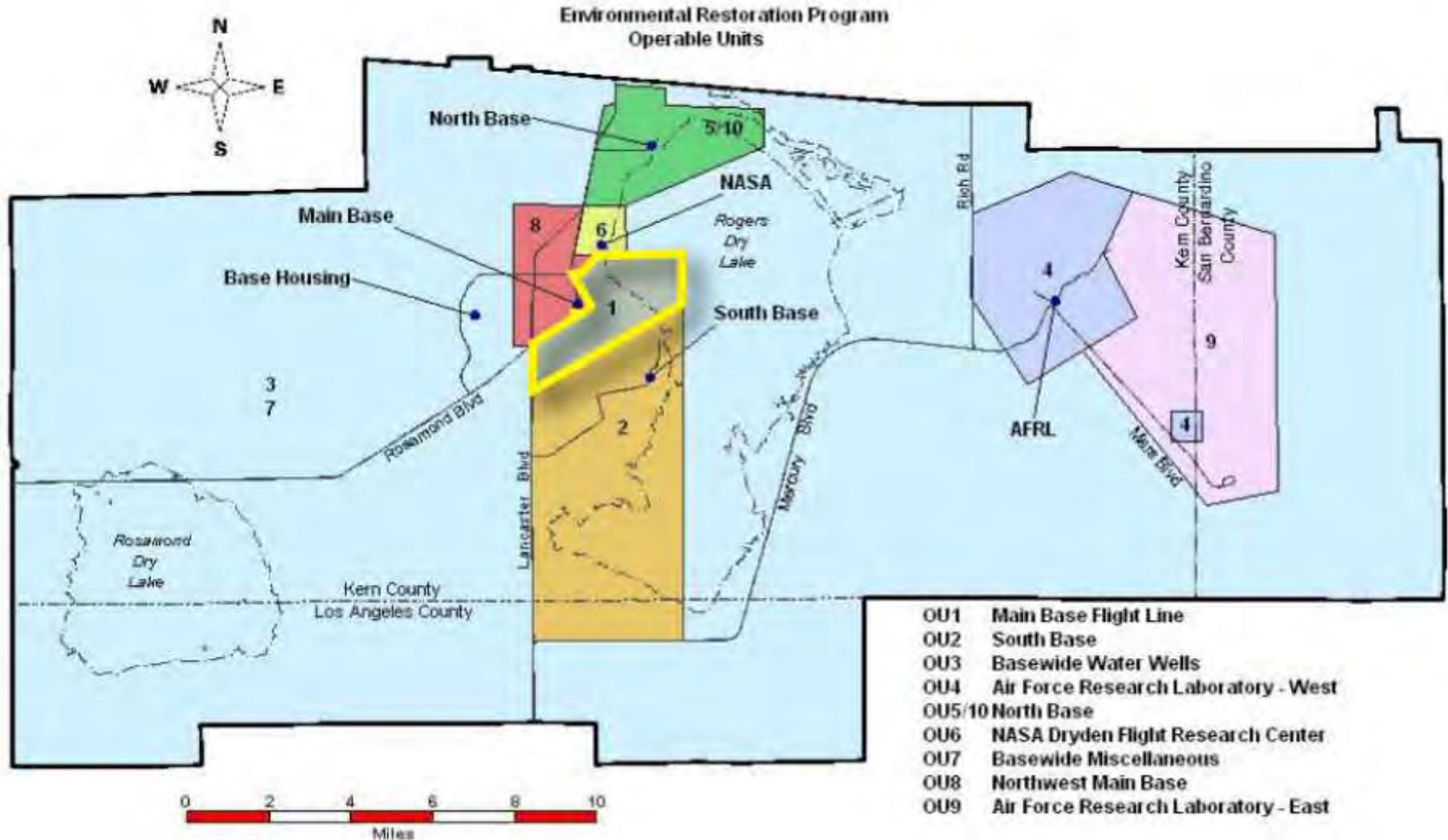




Operable Unit (OU) 1 Main Base Flightline

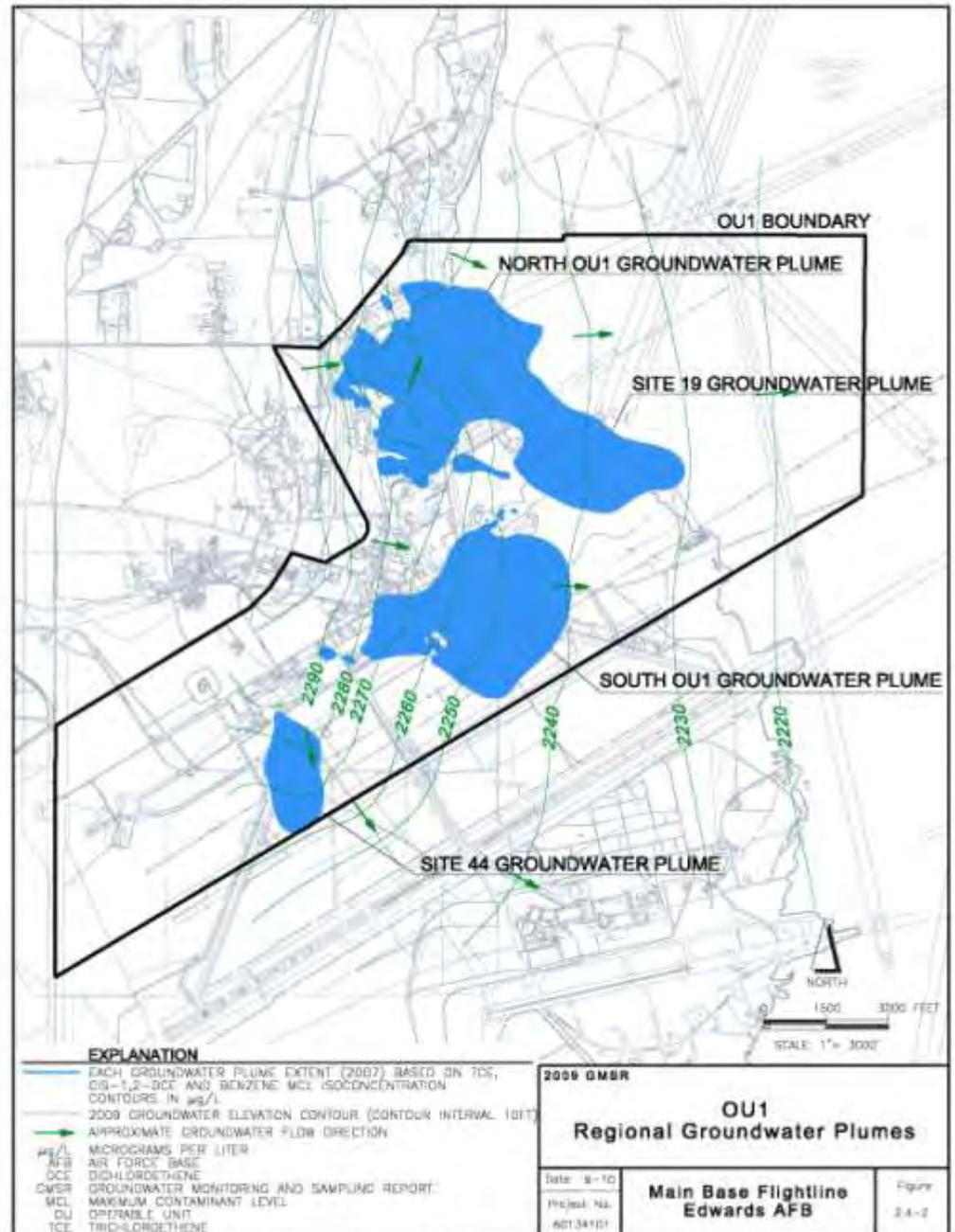


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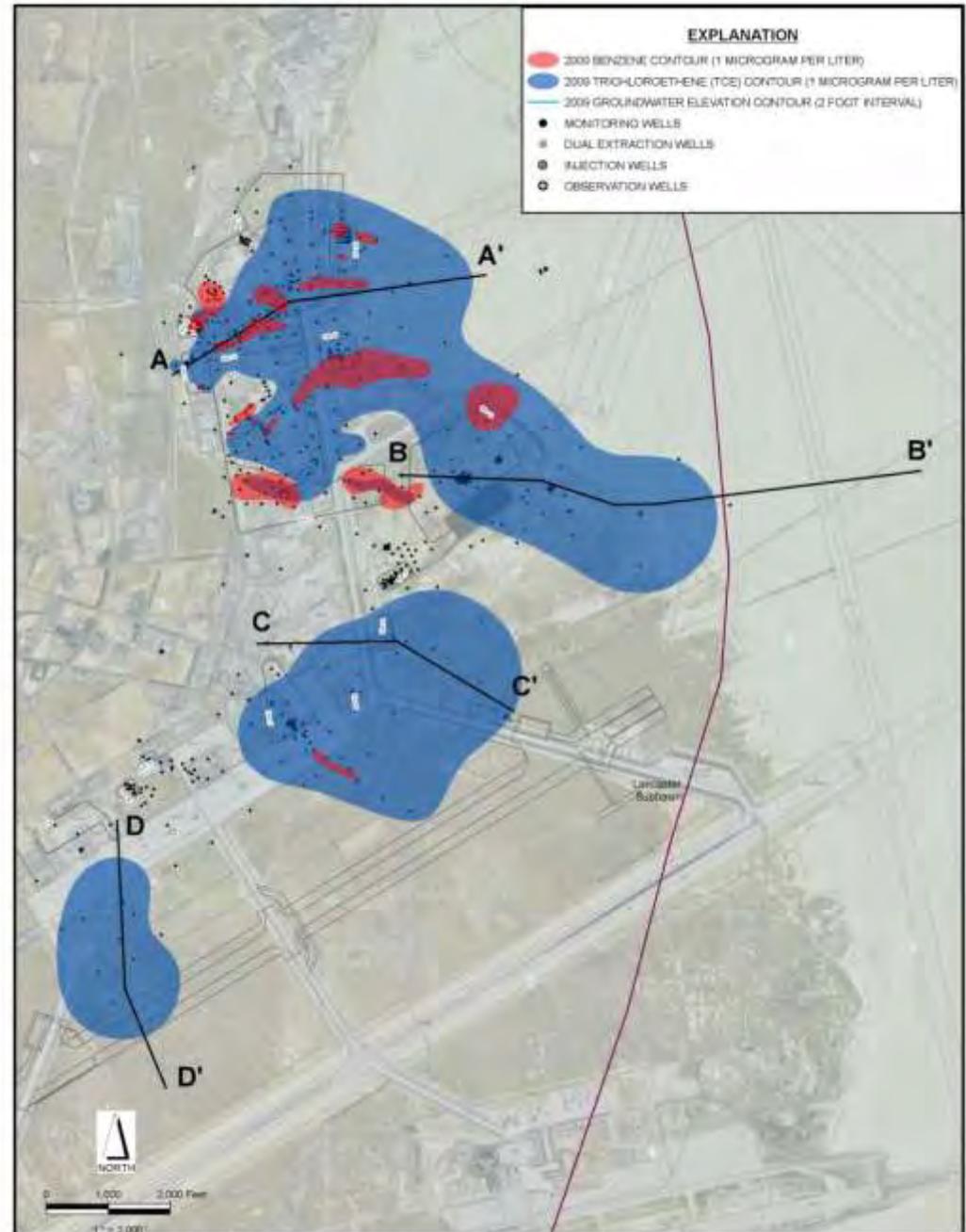


Operable Unit (OU) 1 Main Base Flightline





Operable Unit (OU) 1 Main Base Flightline

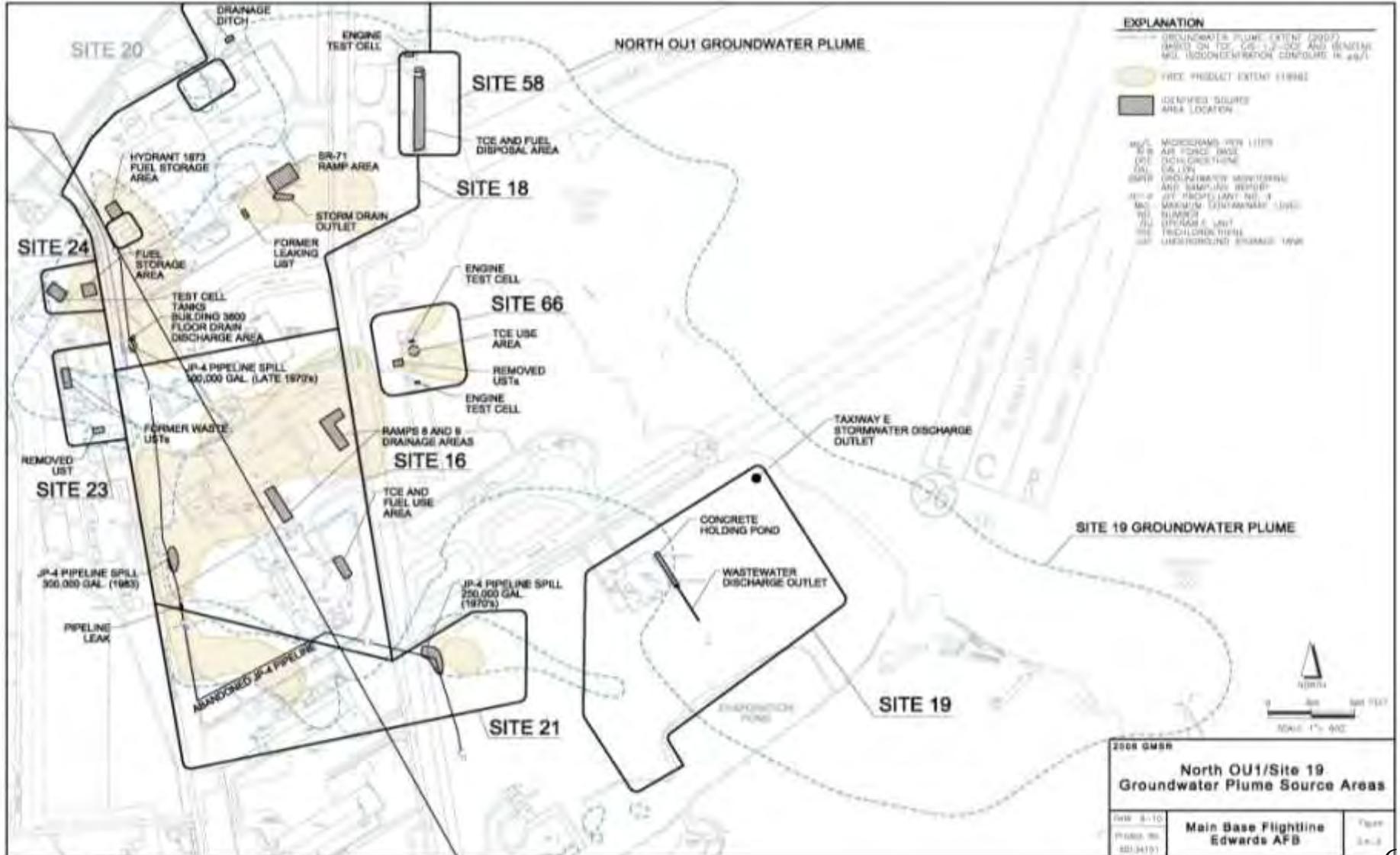




North OU1 Plume Source Areas



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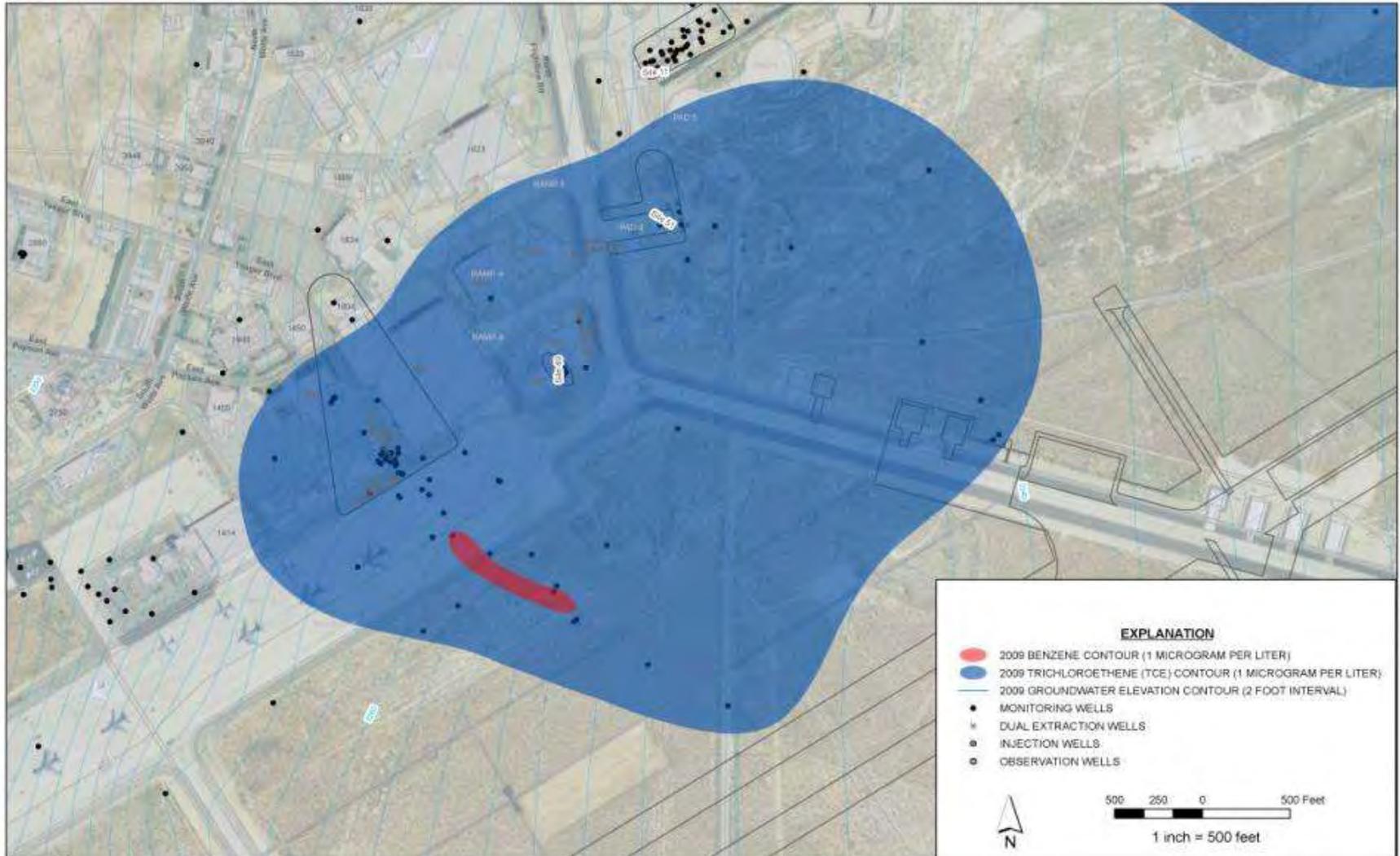




OU1 Main Base Flightline South OU1 Plume



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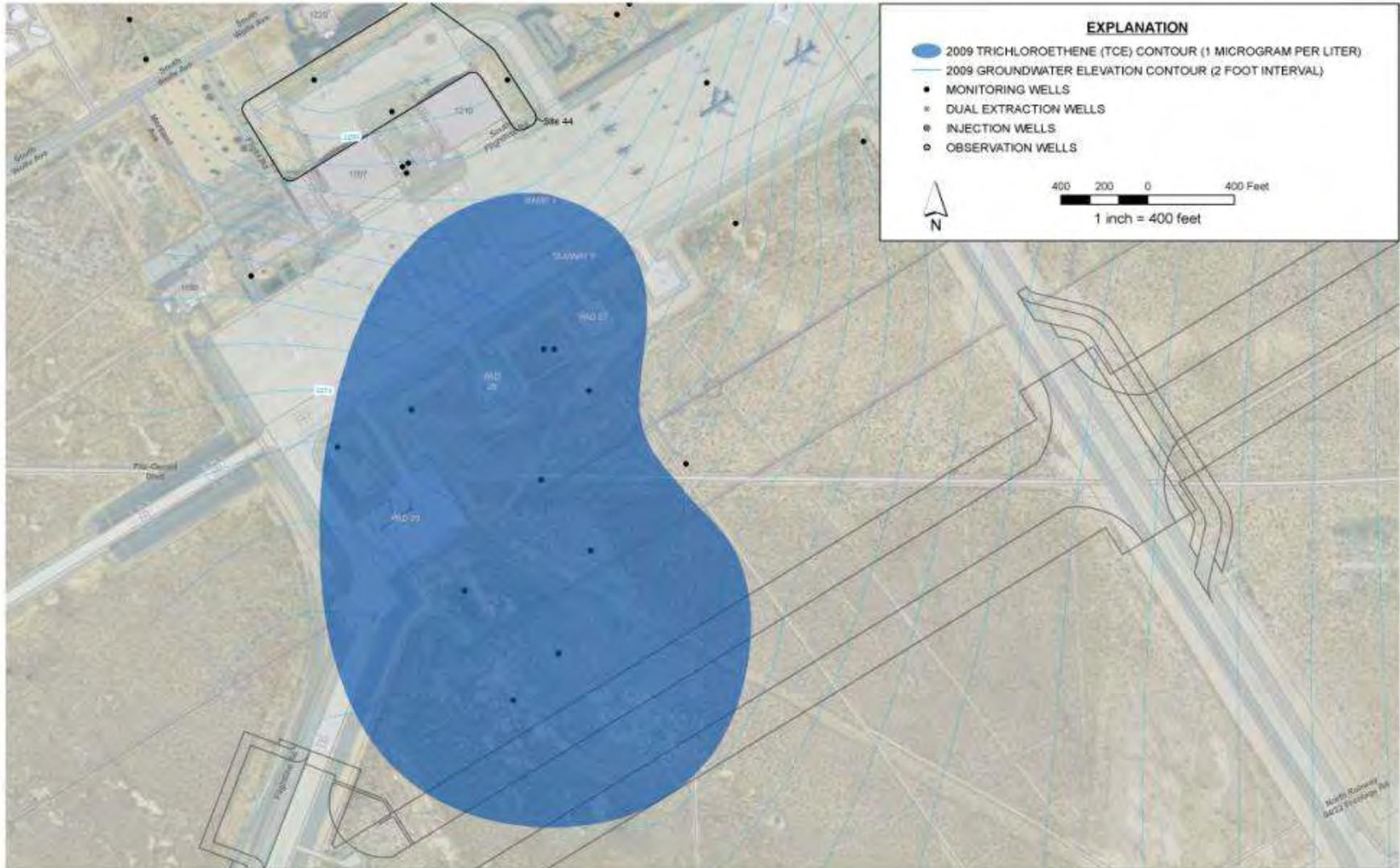




OU1 Main Base Flightline Site 44 Plume

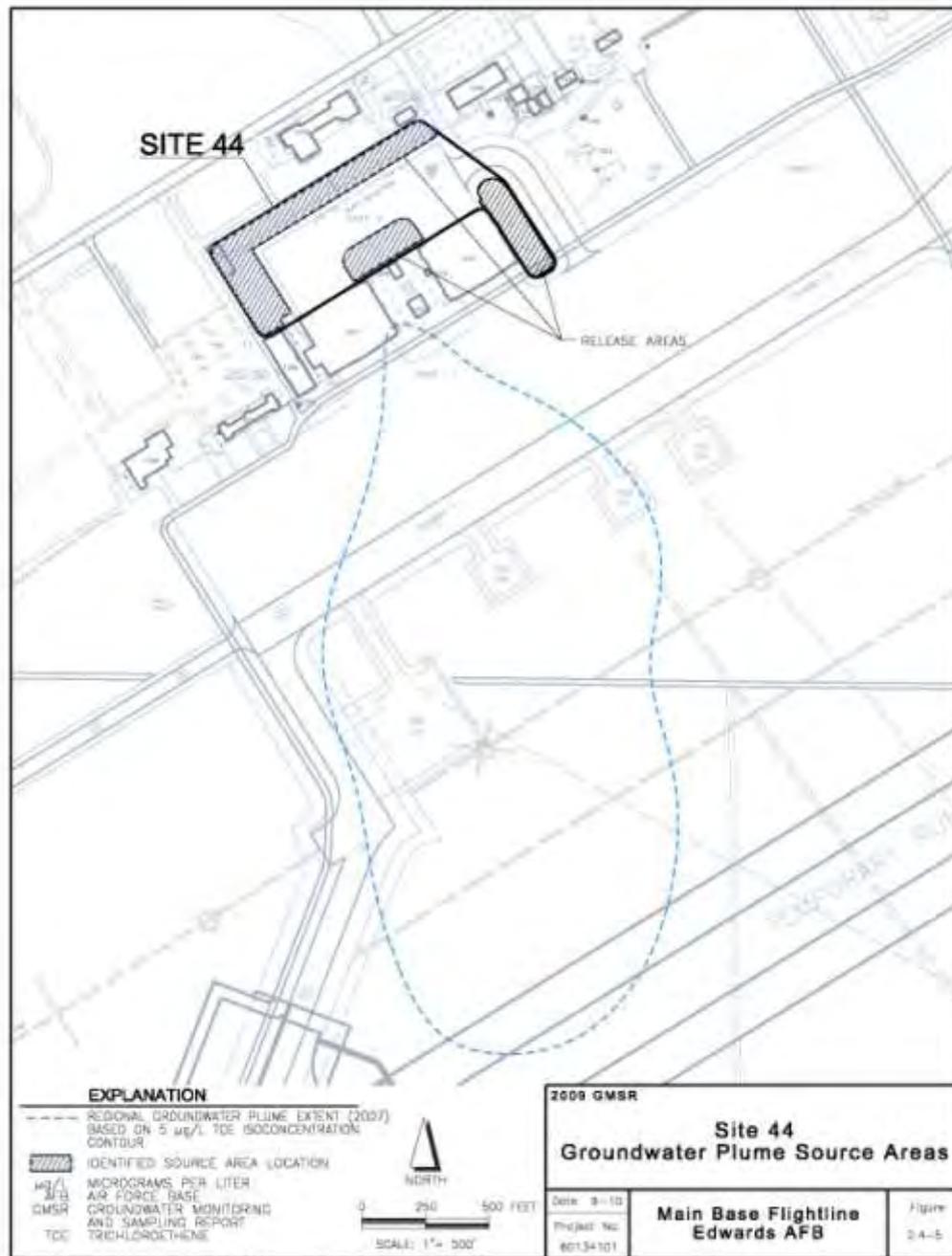


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Site 44 Plume Source Areas





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Main Base Flightline



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- **OU1 Proposed Plan (PP)**
 - Revised Draft Final PP to be issued Spring 2011
 - Air Force is completing revised groundwater modeling to support remedy selection
 - OU1 Groundwater Modeling Report to be issued approximately January-February 2011
 - OU1 2009 Groundwater Monitoring Report issued in October 2010
 - U.S. EPA Region IX must still formally respond to the U.S. EPA National Remedy Review Board (NRRRB) prior to Air Force issuance of Final OU1 PP
- **OU1 public comment period Spring 2011**
- **Final OU1 Record of Decision (ROD) approximately November 2013**



OU1

Main Base Flightline



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- **OU1 Comprehensive Environmental Response, Compensation, and Liability Act of 1990 (CERCLA) Interim Treatment Systems Status**
 - Site 16 *In Situ* Bioremediation Study
 - Continue to monitor study area wells
 - *In situ* approach promising for source area treatment
 - Site 18 dual extraction system (DES) operating
 - Includes soil vapor extraction (SVE) and treatment
 - Includes groundwater extraction and treatment
 - Site 58 SVE treatment system operating

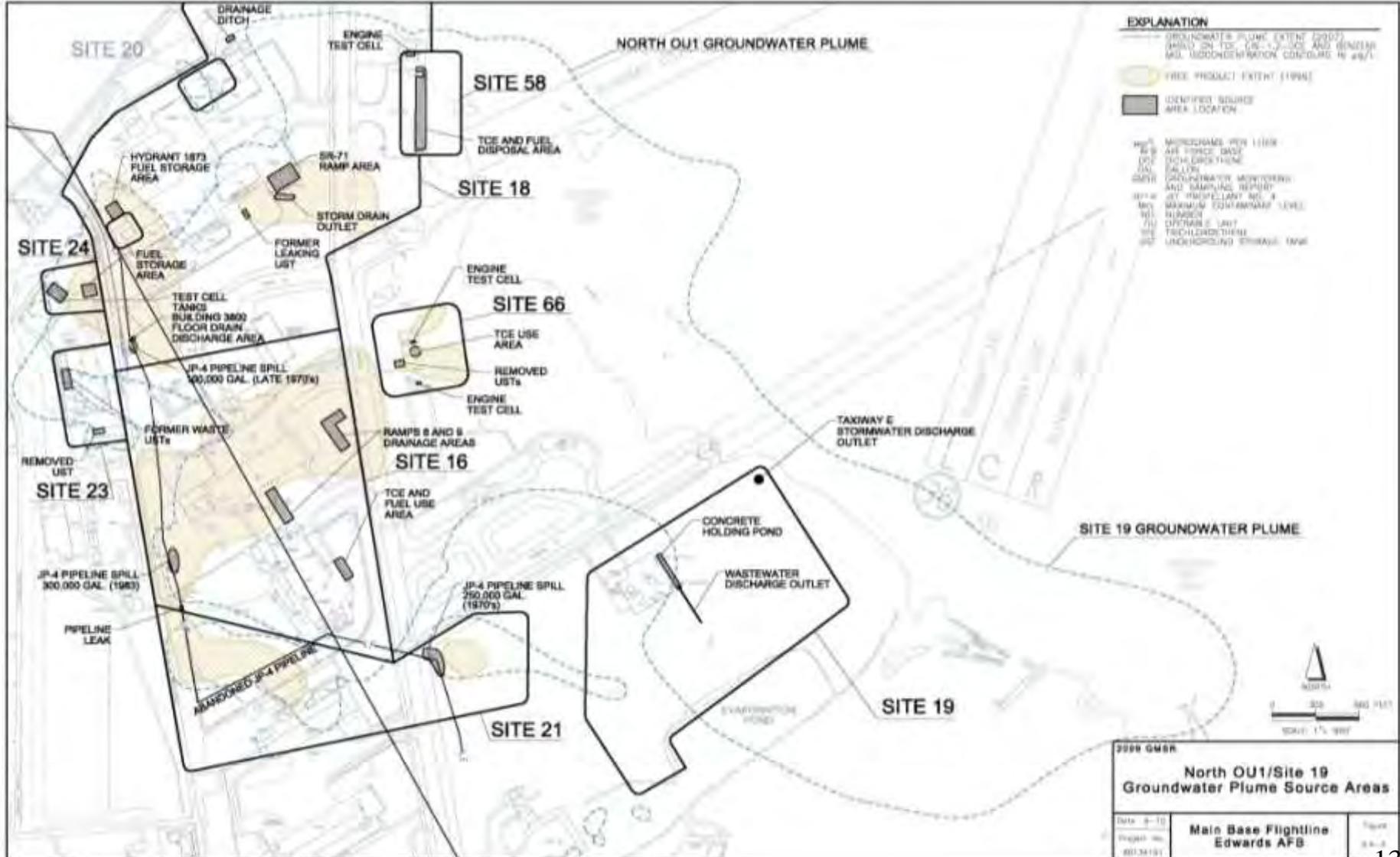


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Main Base Flightline



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OU1

Main Base Flightline



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- **Vapor Intrusion Pathway (VIP) Assessments**
 - Final VI Sampling Plan for Bldgs 1807 and 1830 to be issued in November 2010
 - Bldg 1830 sampling scheduled in November 2010
 - Bldg 1807 sampling was completed in December 2009
 - Draft VIP Assessment Report anticipated Spring 2011
 - Additional buildings within OU1 planned for 2011
 - VIP assessments necessary to establish VIP requirements in OU1 ROD



OU1

Main Base Flightline



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- **OU1 Groundwater Monitoring Well Installations**
 - 21 new wells
 - Final Work Plan issued in May 2010
 - Installation of shallow wells (~60-80 feet) completed in August 2010
 - Installation of deep wells (~180-280 feet) began 1 November 2010



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Questions or Comments?



Military Munitions Response Program (MMRP)



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- **Supplemental Comprehensive Site Evaluation (CSE) Phase II investigation necessary for Munitions Response Areas (MRAs) AL505-3 and AL505-5:**
 - Preliminary Work Plan preparation is in progress
 - Field effort (i.e., visual survey transects) anticipated to begin in Spring 2011



Military Munitions Response Program (MMRP)



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- **Non-Time Critical Removal Action (NTCRA) – Surface Clearance for Munitions Response Sites (MRSs) AL504, AL505-2, and AL505-4**
 - Final Engineering Evaluation/Cost Analysis (EE/CA) to be issued in December 2010
 - EE/CA public comment period dates to be determined
 - DOD-required Explosives Safety Submission (ESS) document currently in Air Force review, anticipated Final in December 2010
 - Any public comments will be incorporated into the Action Memorandum (AM), which documents the selected removal action
 - Draft AM and a draft work plan will be issued for regulatory 60-day review after the EE/CA public comment period, approximately mid-January 2011
 - Right of Entry (ROE) requests in progress for landowners in off-base MRSs
 - Field effort anticipated to begin in Spring 2011



Military Munitions Response Program (MMRP)



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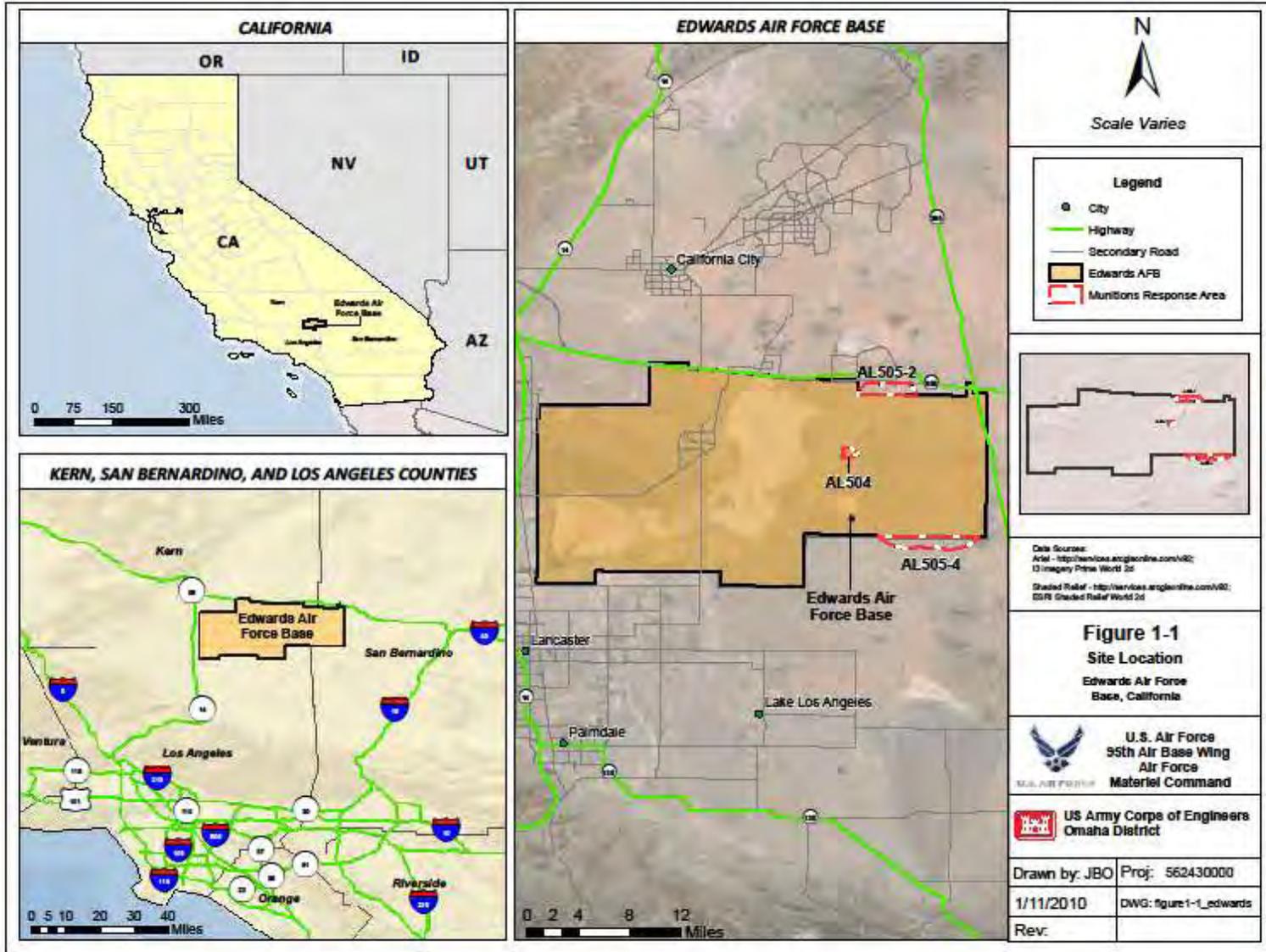
- **Remedial Investigation (RI) for Edwards MMRP MRSs AL501a (Pistol Range), AL504, AL505-2, AL505-3, AL505-4, and AL505-5**
 - On contract with Bay West Inc. and AECOM Inc., through the U.S. Army Corps of Engineers (COE), Omaha District
 - RI at Edwards MMRP MRSs AL505-3 and AL505-5 is contingent upon outcome of Supplemental CSE Phase II
 - ROE will be requested of landowners in off-base MRSs
- **Feasibility Study (FS)**
 - Currently programmed for 2012, contingent upon Supplemental CSE Phase II, NTCRA, and RI
 - May be pushed to 2013



MMRP Munitions Response Areas



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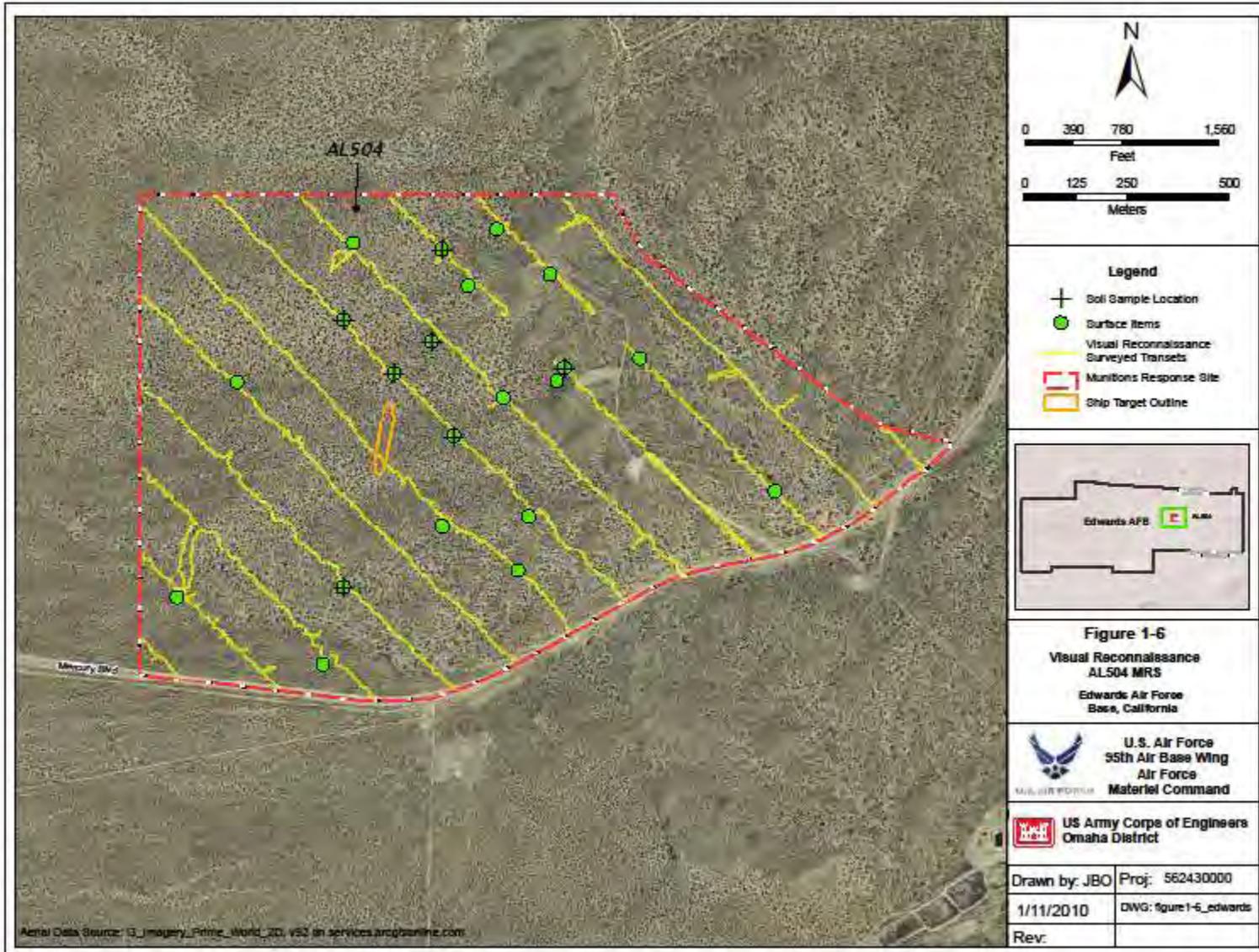




Further Action – Battleship Target area of AL504 near AFRL



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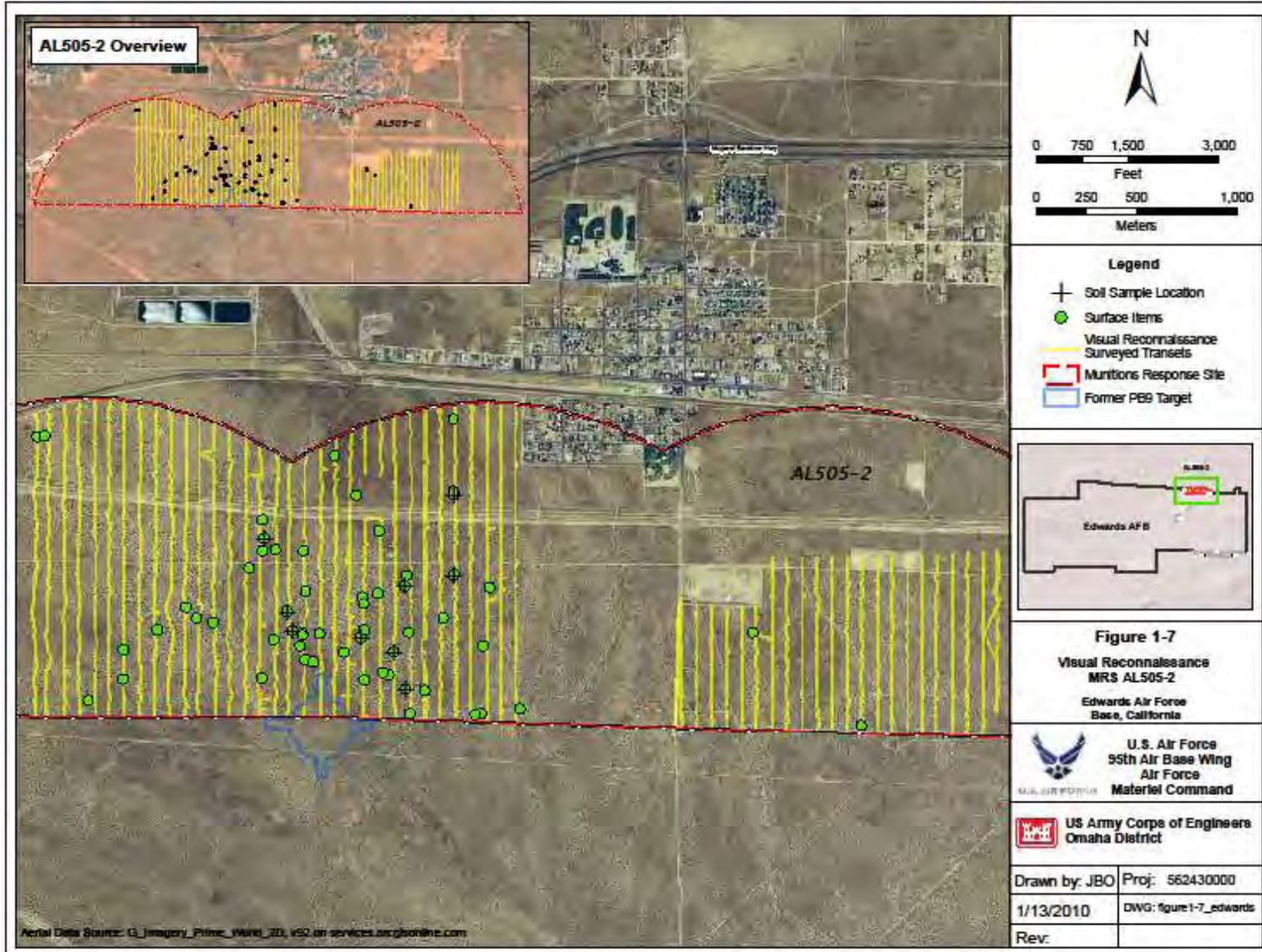




Further Action – Portion of AL505-2 near Boron



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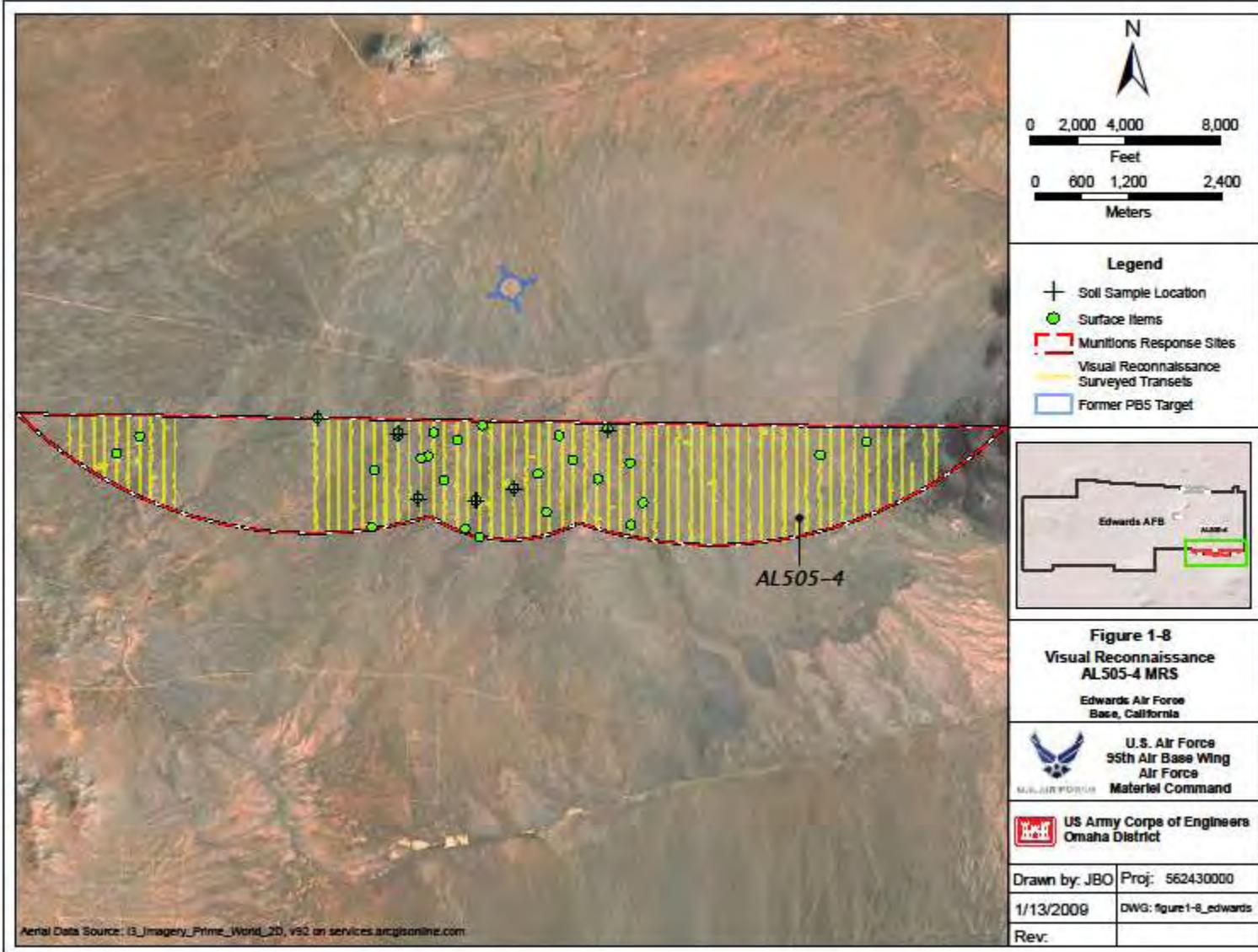




Further Action – Portion of AL505-4 south of PIRA



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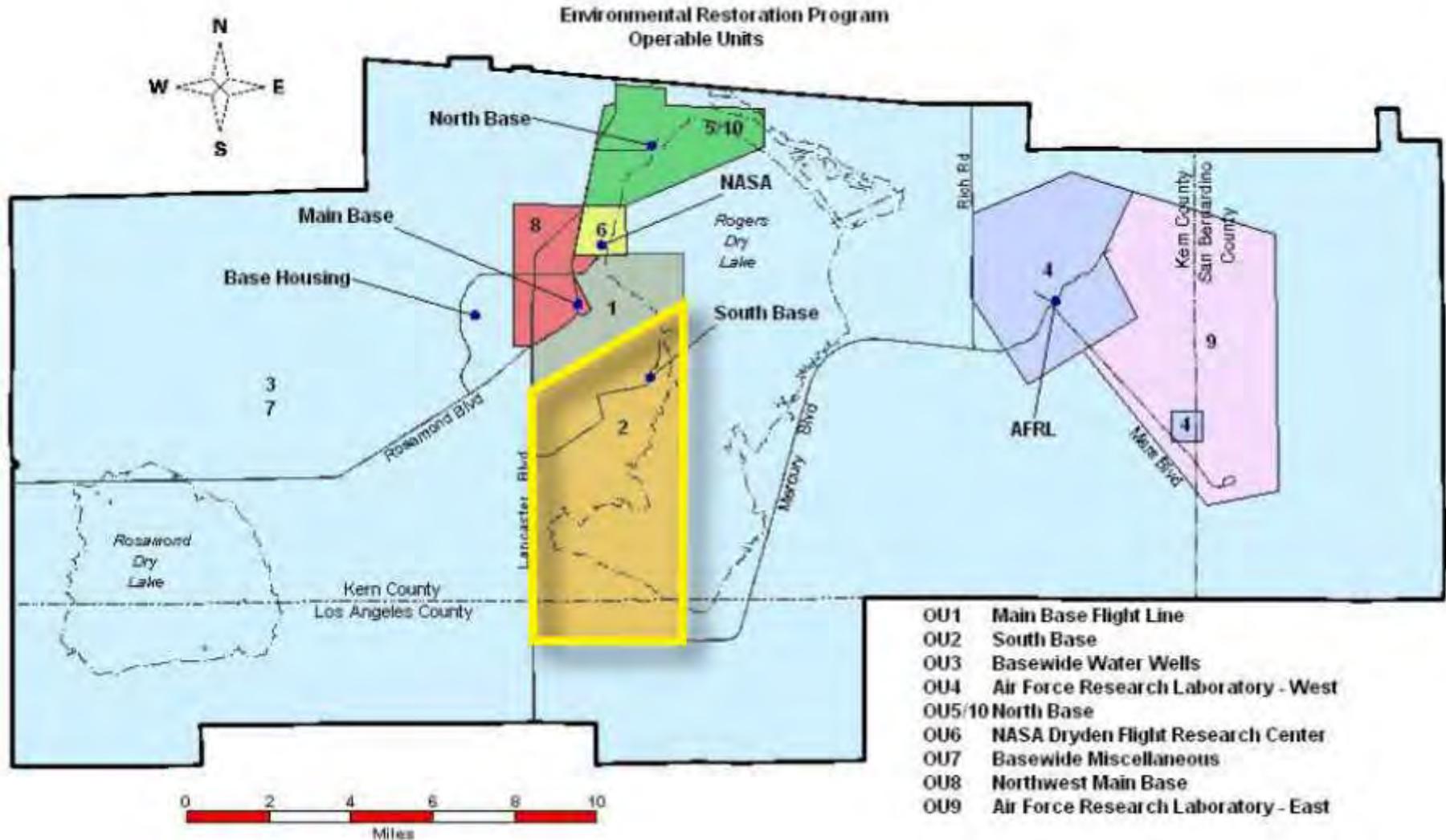
Questions or Comments?



OU2 South Base



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OU2 South Base



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OU2

South Base



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- **Final Remedial Action Work Plans (RAWPs)**
 - Sites 5/14 RAWP submitted 30 September 2010
 - Site 76 RAWP submitted 13 October 2010
 - Site 86 RAWP submitted 9 November 2010



OU2

South Base



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- **Final Site 29 Subsurface Debris Investigation and Feasibility Study Addendum submitted 18 October 2010**
- **Draft Site 29 Proposed Plan (Revised) in remedial project manager (RPM) review**
 - Proposes clean closure of the landfill
 - Test pit results indicate only 21,700 cubic yards of debris remain buried at the site
 - RPM comments are due 20 December 2010



OU2

South Base



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- **Draft Final Sites 81 and 102 Remedial Investigation Work Plan Addendum and Draft Final Sites 81 and 102 Unified Federal Program – Sampling and Analysis Plan in RPM Review**
 - The skeet target debris and lead shot will be weighed and counted, and the soil will be sampled to determine if contaminants are present
 - RPM comments are due on 22 November 2010



OU7 Site 3



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OU7 Site 3 Landfill



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- **Draft Final Site 3 Record of Decision in RPM Review**
 - RPM comments are due on 6 December 2010



OU7 Chemical Warfare Materiel



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OU7

Chemical Warfare Materiel



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- **Final Site 442 Remedial Action Work Plan submitted 9 November 2010**
- **Field work to begin after Thanksgiving**



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Questions or Comments?

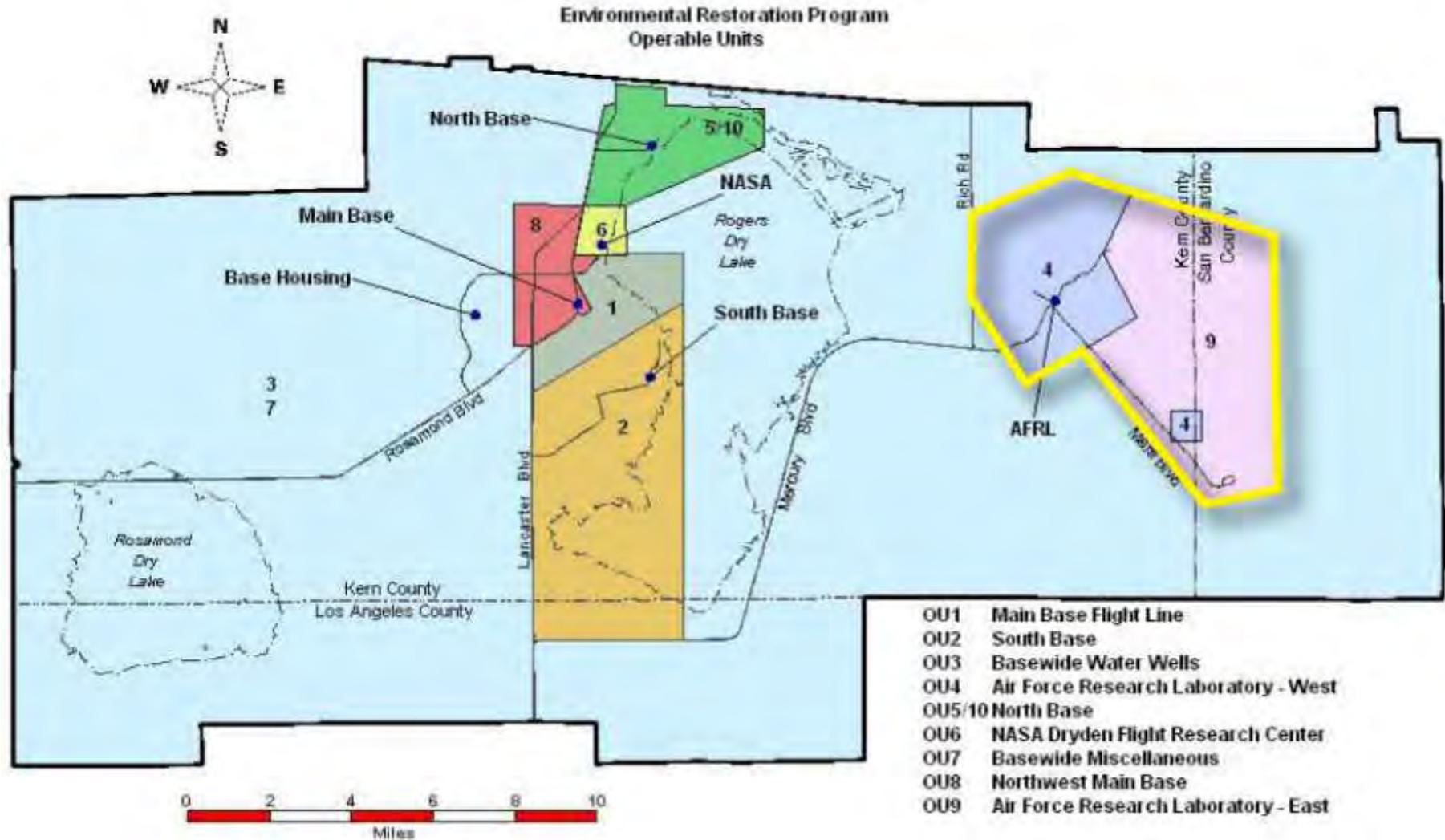


OUs 4 & 9

Air Force Research Laboratory



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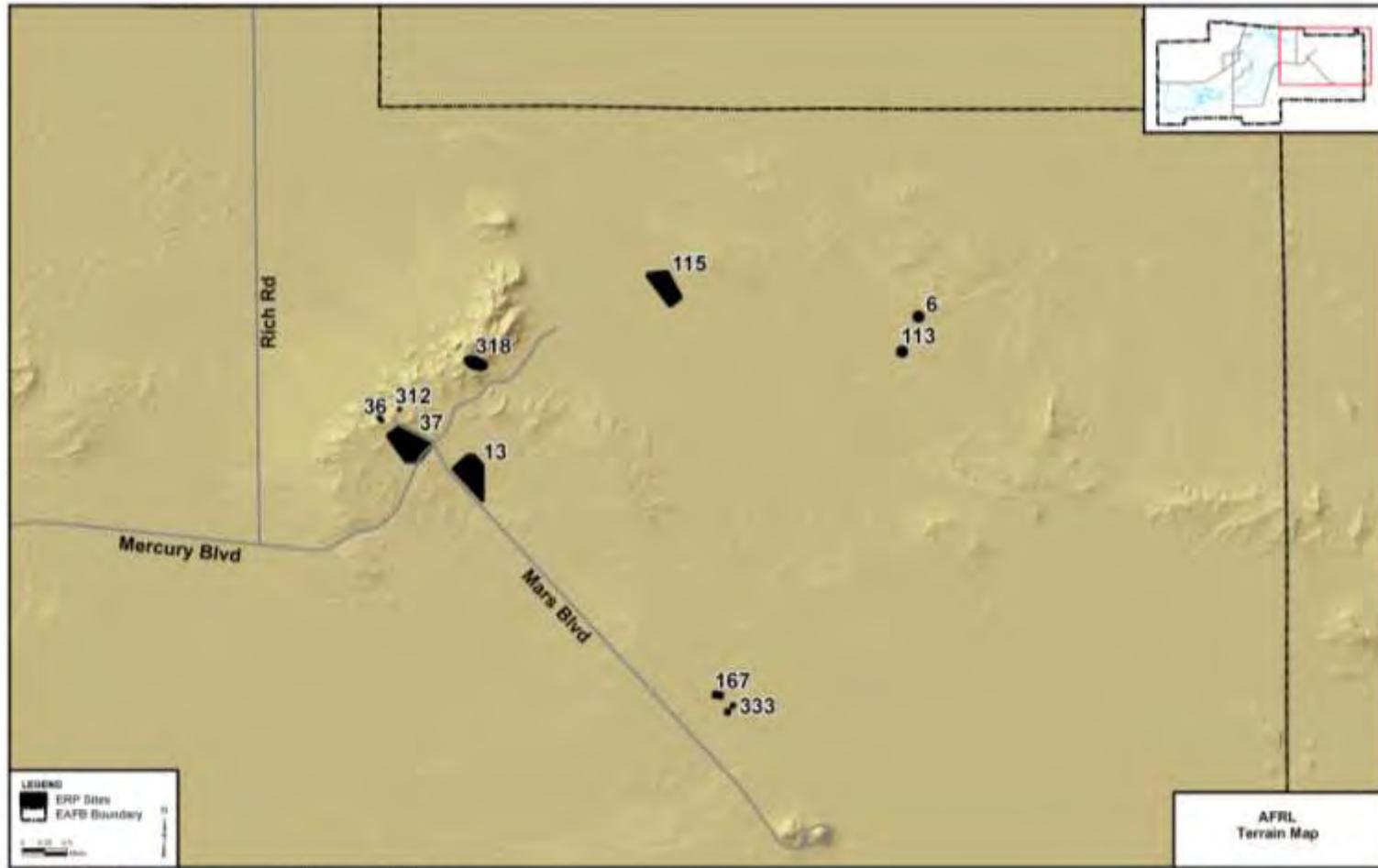


Operable Units 4 & 9 (AFRL)



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- Remedial Action Completion Report (RACR) for Sites 6, 36, 113, 115, 167, 312 and 318 sent to the U.S. EPA





Site 115



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Operable Units 4 & 9 (AFRL)



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- **Reports**

- Draft Record of Decision for AFRL Arroyos: Response to RPM comments by the Air Force
- Groundwater Modeling Report for Northeast (NE) AFRL: Preview draft
- South AFRL Post-ROD Monitoring for Vapor Intrusion: Draft under RPM review
- 2010-2015 Well Sampling Strategy for Long-Term Monitoring of Groundwater Contaminant Plume: Draft under RPM review
- Work Plan for the Aquifer Performance Testing at Northeast AFRL: Draft under RPM review



Operable Units 4 & 9 (AFRL)



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- **Field Activities (September-October 2010)**
 - Drilling/Installing one telescopic* and five standard groundwater monitoring wells at AFRL Arroyos area (complete)
 - Drilling/Installing three standard groundwater monitoring wells at South AFRL area (complete)
 - Drilling/Installing four standard monitoring wells at NE AFRL area (ongoing)
 - Excavation and disposal of polychlorinated biphenyl (PCB)-contaminated soils from Site 312 (excavation complete)

* Completed as a standard well because of technical difficulties



Excavation & Removal of PCB-Contaminated Soil at Site 312



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Excavation & Removal of PCB-Contaminated Soil at Site 312



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Excavation & Removal of PCB-Contaminated Soil at Site 312



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Excavation & Removal of PCB-Contaminated Soil at Site 312



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Removed Concrete



Excavation & Removal of PCB-Contaminated Soil at Site 312



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Operable Units 4 & 9 (AFRL)



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- **Field Activities (September-October 2010)**
 - Annual GW sampling event for selected OU4/9 sites (ongoing)
 - AFRL water table measurement (complete)
 - Site 125 (Area 1-42) Test Cell B shaft water pumping and disposal (ongoing)
 - Granular activated carbon (GAC) operation at Site 461 to treat seep water at Test Stand 1-A (ongoing)



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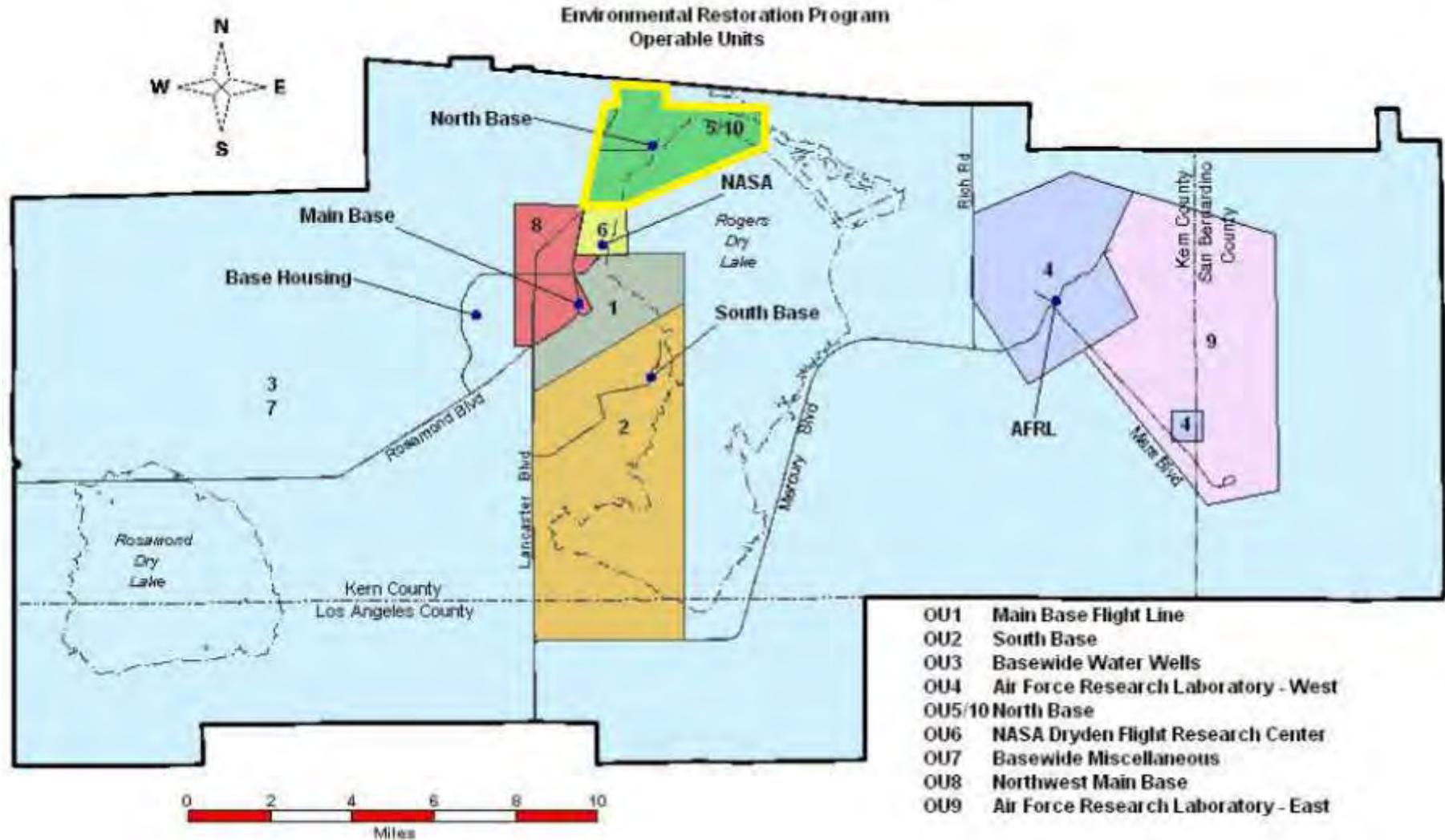
Questions or Comments?



OU5/10 North Base



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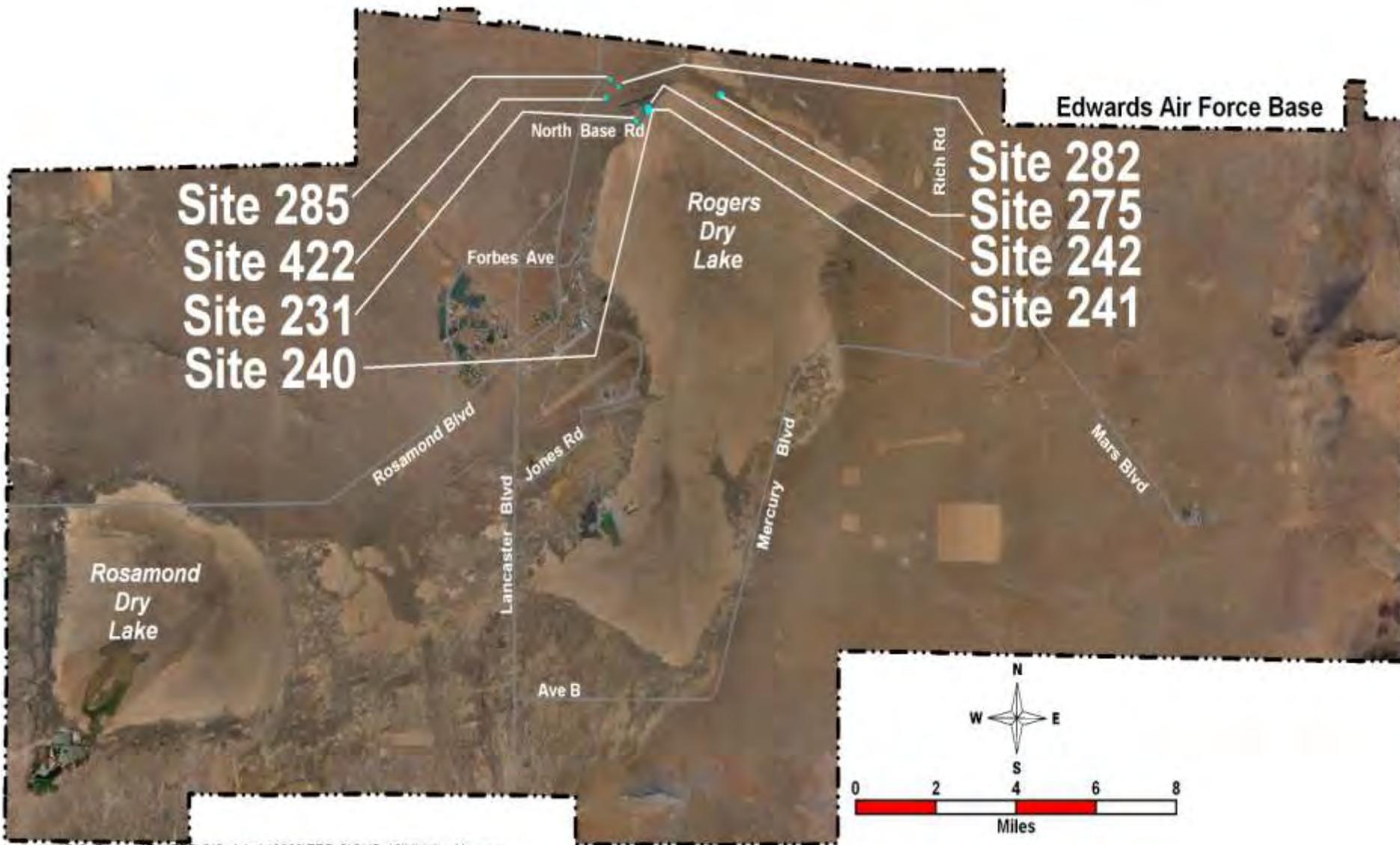




OU5/10 Site Location Map



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OU5/10 Current FFA Schedule



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- **Draft Final Feasibility Study (FS)
5 January 2011**
 - Additional plume delineation required (underway at Site 231); other sites to follow-on
- **Final FS 13 August 2014**
- **Final Proposed Plan 4 November 2015**
- **Final Record of Decision 24 November 2016**



OU5/10 Soil Excavation Status



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- **Site 231 Soil Excavation under Time Critical Removal Action (TCRA)**
 - Soil excavation completed 8 October 2010
 - Cal/EPA Department of Toxic Substances Control (DTSC) on-site 4-5 October 2010 taking duplicate soil readings for lead
 - 47 lab samples, 150 soil readings (screening)
 - All soil removed to 8 mg/kg or lower; RPM conference call on 14 October 2010 covered soil testing results, backfill material
 - Backfill excavation completed 2-5 November 2010



OU5/10 Site 231 Excavation Site



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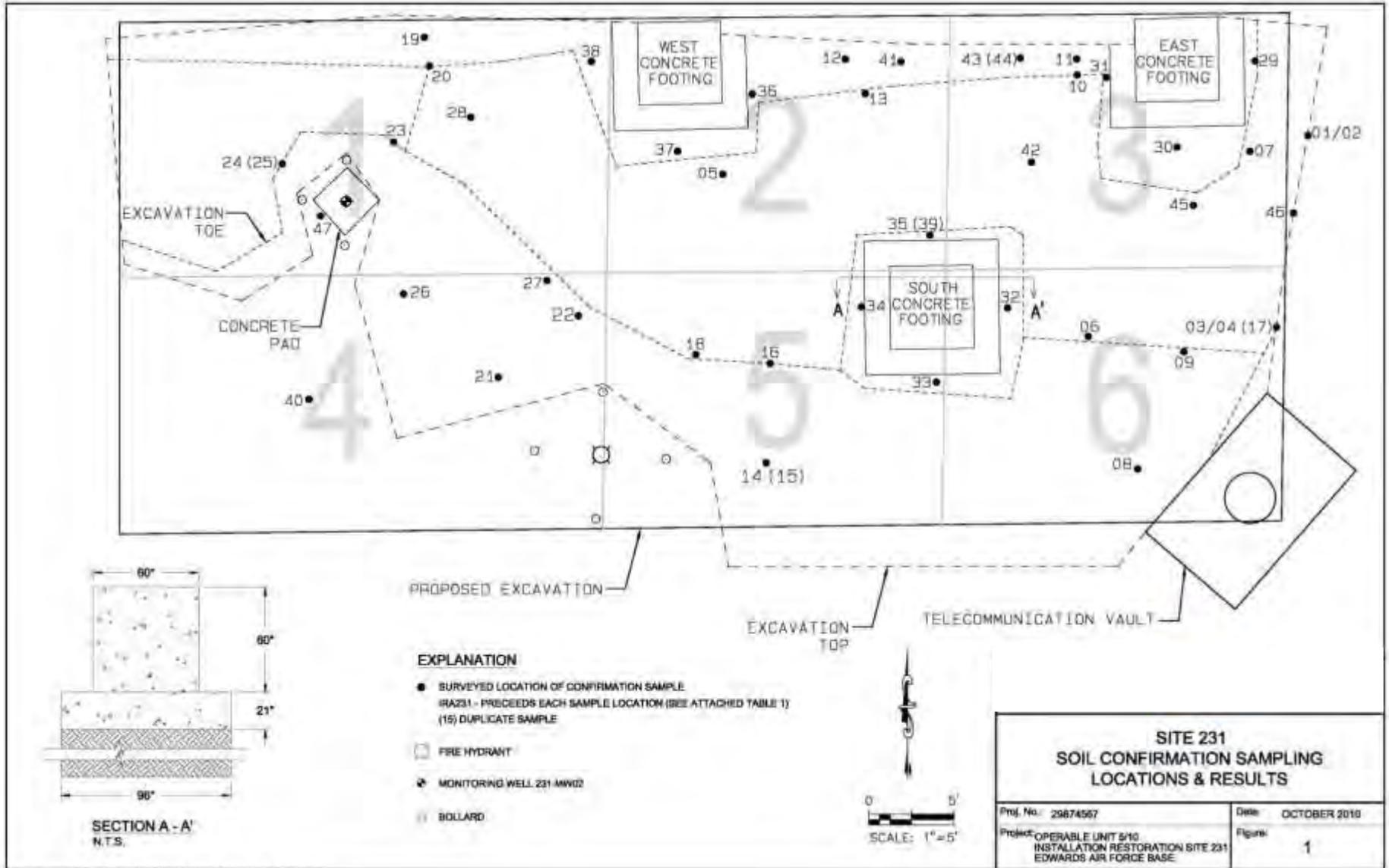




OU5/10 Site 231 Excavation



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OU5/10 Site 231 Excavation



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OU5/10 Site 231 Completed



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OU5/10 Plume Delineation Status



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- **Site 231 Plume Delineation – Soil Gas Sampling (Hangars 4400 and 4401)**
 - Investigated potential areas of contamination around Bldg 4318, and Hangars 4400 and 4401
 - 64 locations (128 samples); detections of tetrachloroethene (PCE) and benzene at 10 locations
 - Additional samples required at vapor well 64 (Hangar 4401) due to elevated readings of PCE (180 ppb)
 - Second round of soil/gas samples 8-10 November 2010
 - Remaining vapor wells no longer needed and will be decommissioned (50); 14 to remain



OU5/10 Site 231 Soil/Gas Results



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Site 231
Excavation

CHHSL

NOTES

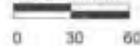
1. All concentrations in ppbv.
2. Residential CHHSL = 26.6 ppbv.
3. Commercial/Industrial CHHSL = 88.9 ppbv.
4. Nondetects are plotted at one-half the RL.
5. For well locations where a duplicate sample was collected, the higher detected value was used to plot the concentration contours.

EXPLANATIONS

6. All vapor well locations are approximate and have not been surveyed.
7. *ND denotes non-detect, however, the sample was diluted 10 times resulting in an elevated RL. One-half the RL (11 ppbv) was used for isoconcentration contouring.

CHHSL = California Human Health Screening Level
 ppbv = parts per billion by volume of air
 RL = reporting limit
 ND = non-detect

Scale in Feet



PCE Concentration Contours
 Sampling Depth at
 5.5 Feet Below Ground Surface

Date 10-2010	Site 231 Soil Gas Investigation Edwards AFB	Figure 2
Project No. 8016281		



OU5/10 Vapor Well Head



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OU5/10 Soil/Gas Sampling



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OU5/10 Soil Excavation



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- **Site 242 Soil Excavation under Non-Time Critical Removal Action (NTCRA)**
 - Final EE/CA completed 30 April 2010
 - Draft Final Action Memo to RPMs 12 November 2010
 - Removal Action (PCB-soil excavation) May 2011
 - Electrical Design for transformer relocation
 - Requires power shutdown with weekend work
 - Work area and buildings inside secured area will require escort during construction
 - Met with Civil Engineering Electrical Department 9 November 2010



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Questions or Comments?

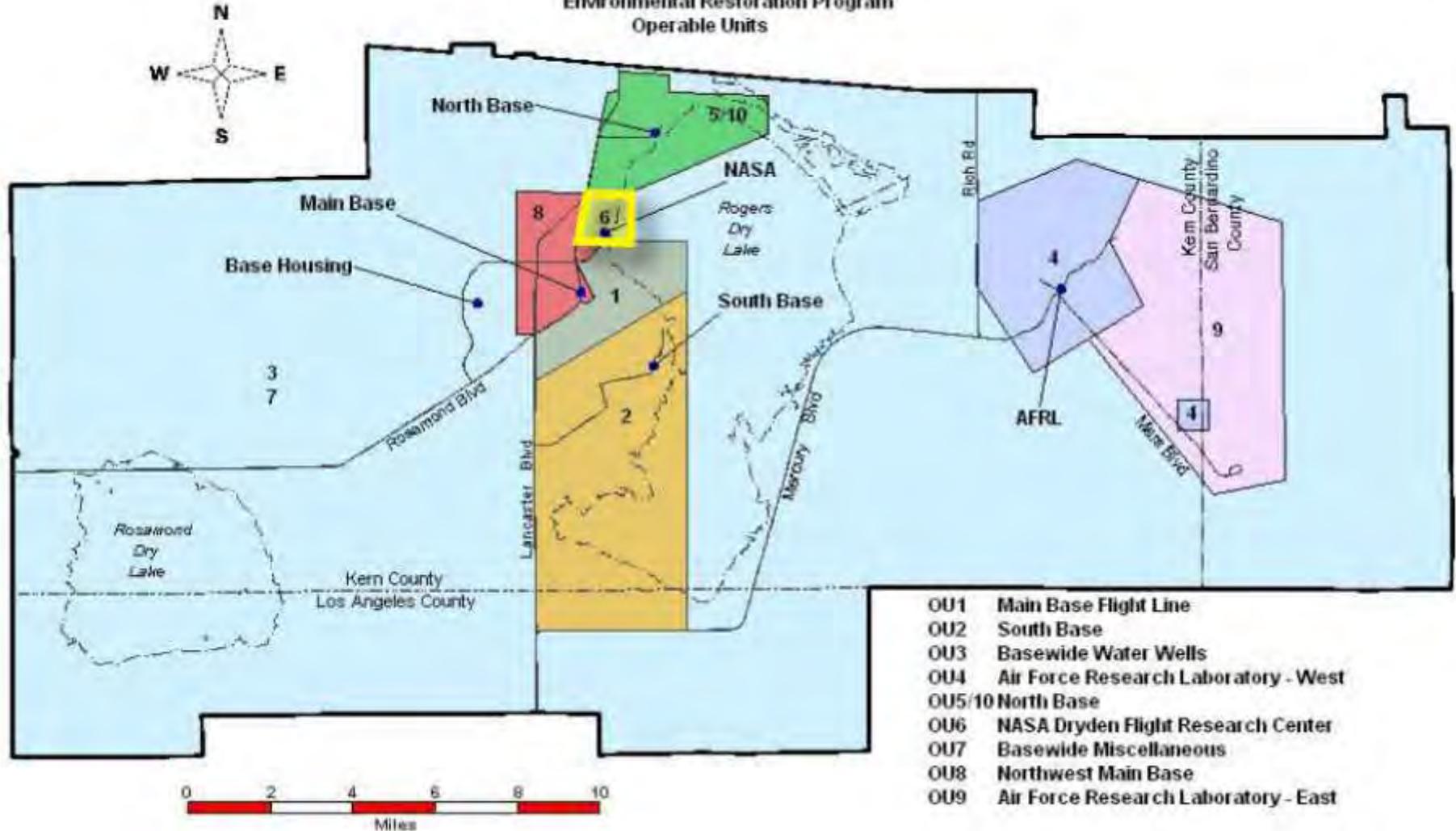


OU6 NASA Dryden



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Environmental Restoration Program Operable Units





OU6

NASA Dryden



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- **Post-ROD**

- Conducted Injection Event II of the Remedial Action in August 2010
 - Injected approximately 4,950 gallons of a 4% sodium permanganate solution into 10 wells
- Measured groundwater levels in 42 wells in October 2010



OU6 NASA Dryden



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- **Post-ROD**
 - Future Plans
 - Install two additional groundwater monitoring wells in November 2010
 - Groundwater sampling of 60 wells in December 2010
 - Five-Year Review – September 2011



OU6

NASA Dryden



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- **Five-Year Review**

- Review and analysis of ongoing remedy in place conducted at five-year intervals starting five years following ROD signature
 - a. Is the remedy working?
 - b. Should the remedy be adjusted?
 - c. Have cleanup goals been met?
 - d. Is the remedy protective of human health and the environment?



OU6

NASA Dryden



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- **Five-Year Review (continued)**
 - Elements
 - Document review
 - Update review of applicable laws
 - Interview local population/workers
 - Conduct a site inspection
 - Is the remedy working, on-track to meet cleanup goals, up-to-date with the latest laws and regulations, and ultimately protective of human health and the environment?



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NASA Dryden



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- **Five-Year Review (concluded)**
 - Schedule
 - December 2010 – Conduct on-site worker interviews
 - January 2011 – Conduct site inspection
 - February 2011 – Draft outline
 - June 2011 – Draft Final to RPMs
 - September 2011 – Final Report Due



OU6 NASA Dryden



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Questions or Comments?

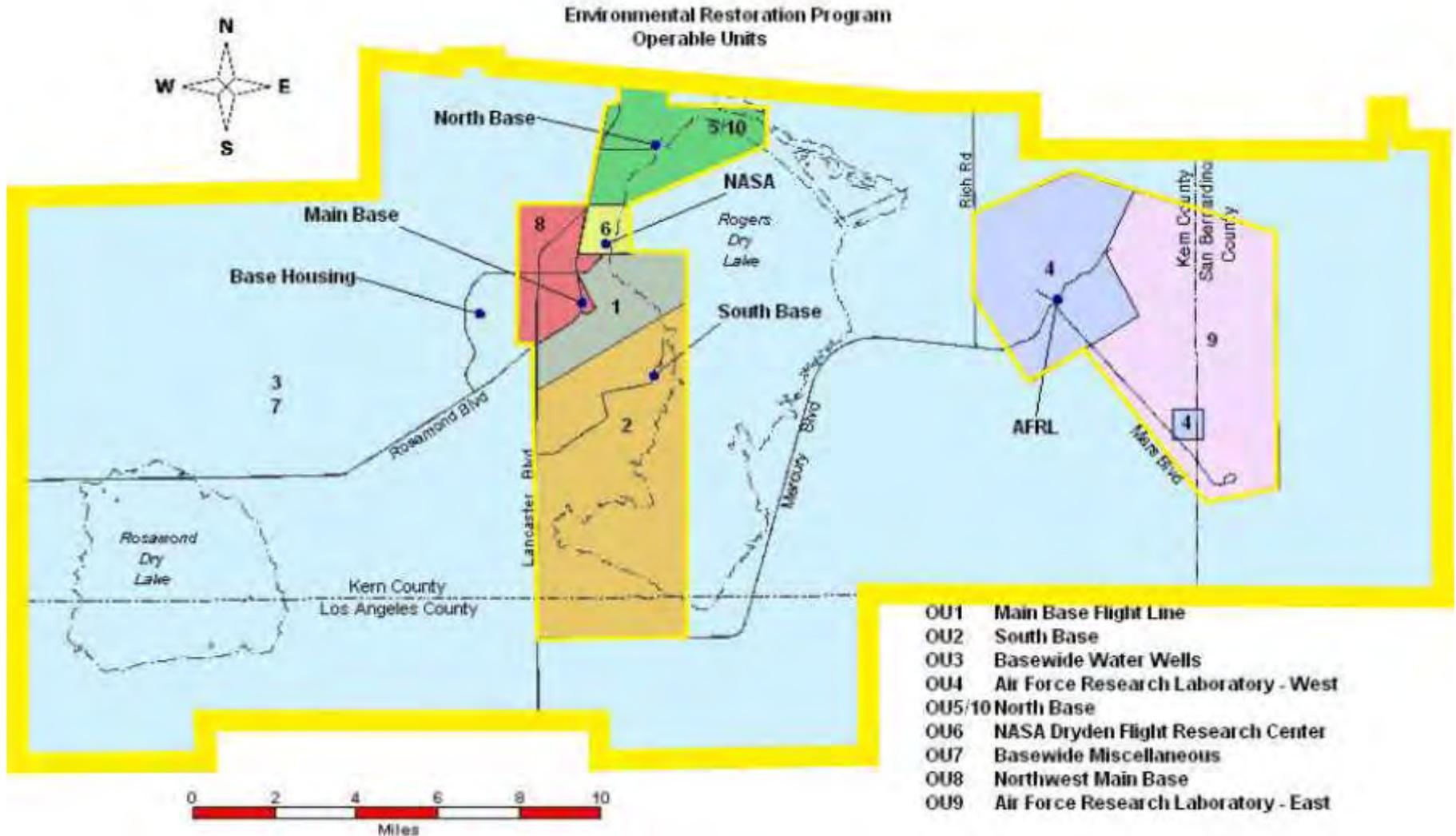


OU7

Basewide Miscellaneous



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OU7

Basewide Miscellaneous



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OU7

Basewide Miscellaneous



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- **Proposed Plan**
 - Draft Final for RPM review June 2012
- **Engineering Evaluation/Cost Analysis (EE/CA)**
 - Non-Time Critical Removal Actions – Soil Only – Sites 280, 294 and 339



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Questions or Comments?



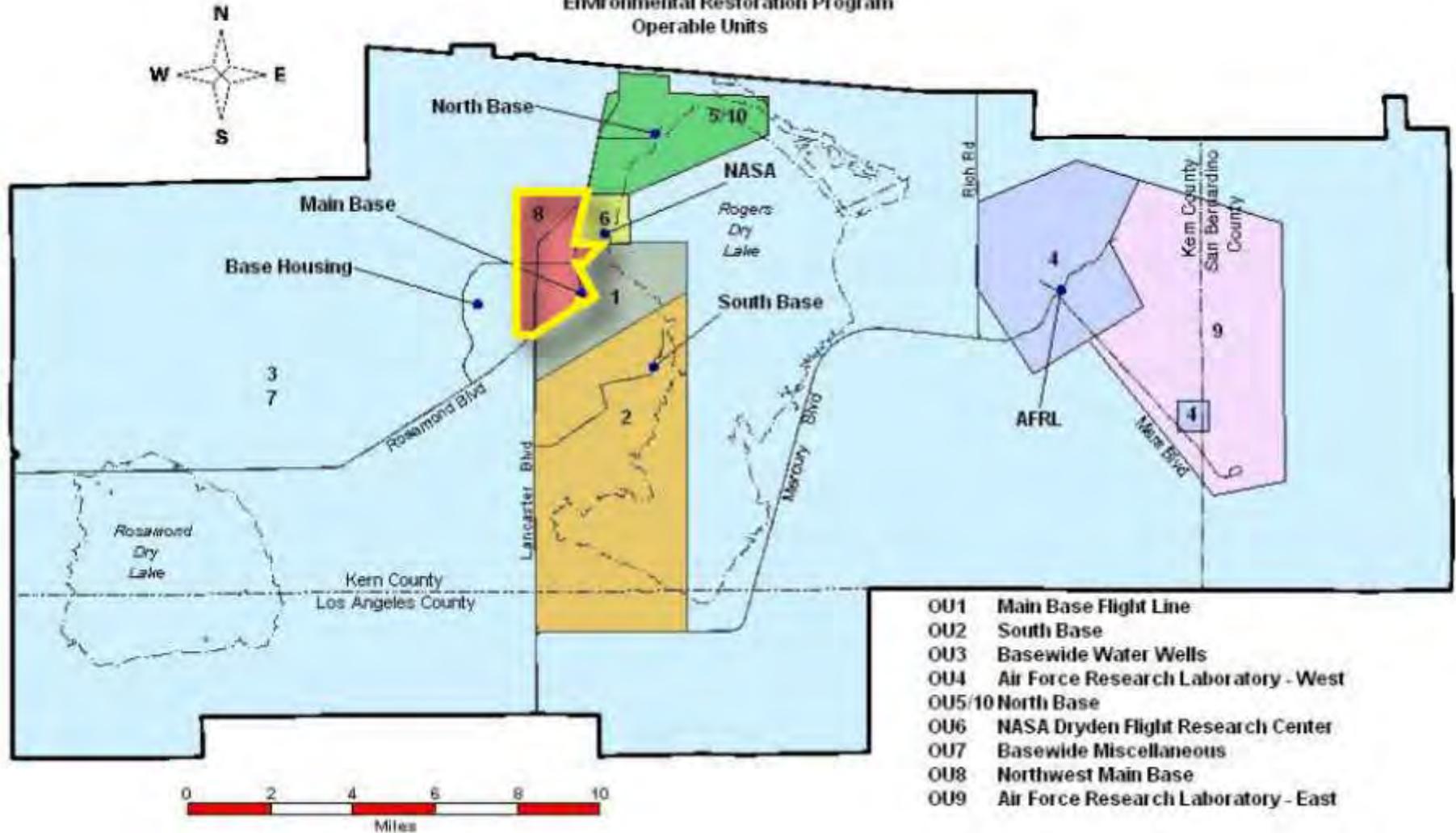
OU8

Northwest Main Base



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Environmental Restoration Program Operable Units



- OU1 Main Base Flight Line
- OU2 South Base
- OU3 Basewide Water Wells
- OU4 Air Force Research Laboratory - West
- OU5/10 North Base
- OU6 NASA Dryden Flight Research Center
- OU7 Basewide Miscellaneous
- OU8 Northwest Main Base
- OU9 Air Force Research Laboratory - East



OU8

Northwest Main Base



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- **Draft OU8 Proposed Plan**
 - In RPM comment resolution
 - Draft Final for RPM review 30 January 2012
- **Data Gap Project to be awarded January 2011**
 - For Sites 61, 301 and 299



OU8

Northwest Main Base



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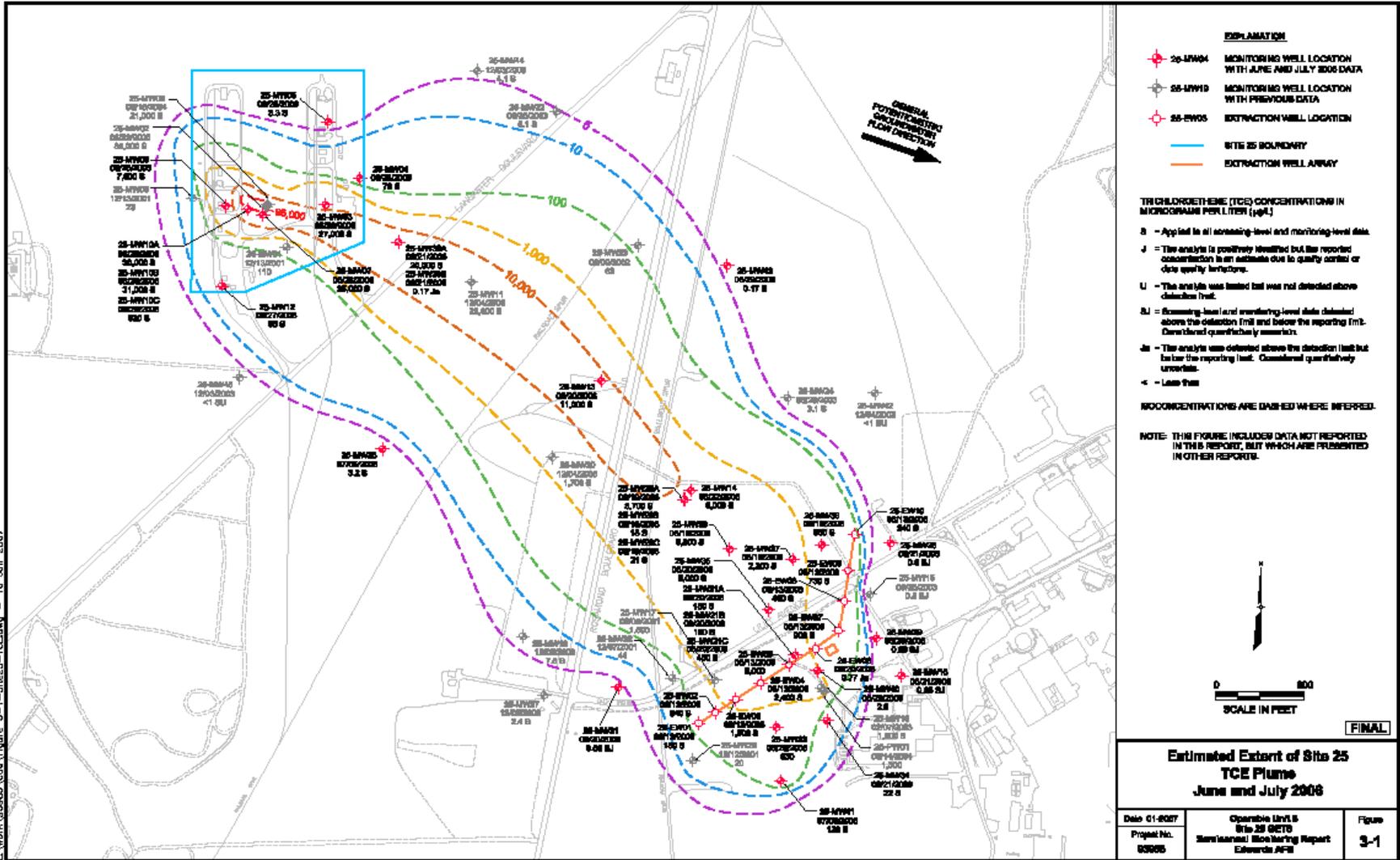
- **Interim Action Sites 257, 299, and 300**
 - Excavation of shallow contaminated soil
 - Draft EE/CA under RPM review
- **Pre-Design Investigation Work is underway**
 - Site 226: 12 new borings to define arsenic
 - Site 299: Five new wells to define solvents
 - Site 257: Three new wells to define nitrite



OU8 Site 25 GW Plume



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OU8 Site 25



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- **Draft OU8 Site 25 Feasibility Study**
 - Technical Impracticability (TI) waiver
 - In RPM comment resolution
 - Extension for Draft Final submittal to March 2011
 - New plume delineation project
 - 40 – 50 wells plus bedrock fracture analysis
- ***In Situ* Chemical Oxidation Treatability Study**
 - Trench delivery for treatment of shallow groundwater in fractured bedrock is underway



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Questions or Comments?



Petroleum Sites Program



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- **Petroleum sites include:**
 - Current petroleum sites
 - Sites identified by the Compliance Restoration Program (CRP)
 - Current Defense Energy Support Center (DESC) sites



Petroleum Sites Location Map



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Site Status



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Site Status



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Site Status



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Site 534 – Aboveground Storage Tank/
Surface Spill Assessment

Site 539 – Oil Water Separator
Assessment

Site 541 – Oil Water Separator
Carbon Tetrachloride
Moved into OU2



Site Status



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Site Status



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Petroleum Sites



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- **Site 20**
 - Contract was awarded for the annual groundwater monitoring (GWM)
- **Site 21**
 - Continue free product removal
 - Total removed this year is 224 gallons
- **Site 24**
 - Continue free product removal
 - Total removed this year is nine gallons



Petroleum Sites



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- **Site 63**
 - 2010 Remedial Action Report submitted to Kern County Environmental Health Services Department (KCEHSD)
- **Site 297**
 - *In Situ* Chemical Oxidation Pilot Study Report submitted to KCEHSD



Compliance Restoration Program



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- **Phase 1 CRP Evaluation was conducted in 2009**
 - Identified seven eligible sites for the CRP
- **Phase 2 CRP Evaluation is currently underway**
 - Evaluating oil water separators (OWS) for eligibility
 - Other petroleum sites not previously captured
 - Total of 117 OWS were listed in the Edwards database
 - 39 OWS are currently active
 - 78 OWS have been removed



Compliance Restoration Program



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- Fifty OWS sites identified as potentially eligible for the CRP
 - Additional review of records and site inspections are being performed to verify site eligibility
- One new petroleum site has been identified for CRP eligibility
 - Site 461 located at the AFRL



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