REQUEST FOR ACTION FOR

NEW MEXICO LEGISLATIVE WATER AND NATURAL RESOURCES COMMITTEE

Due to:

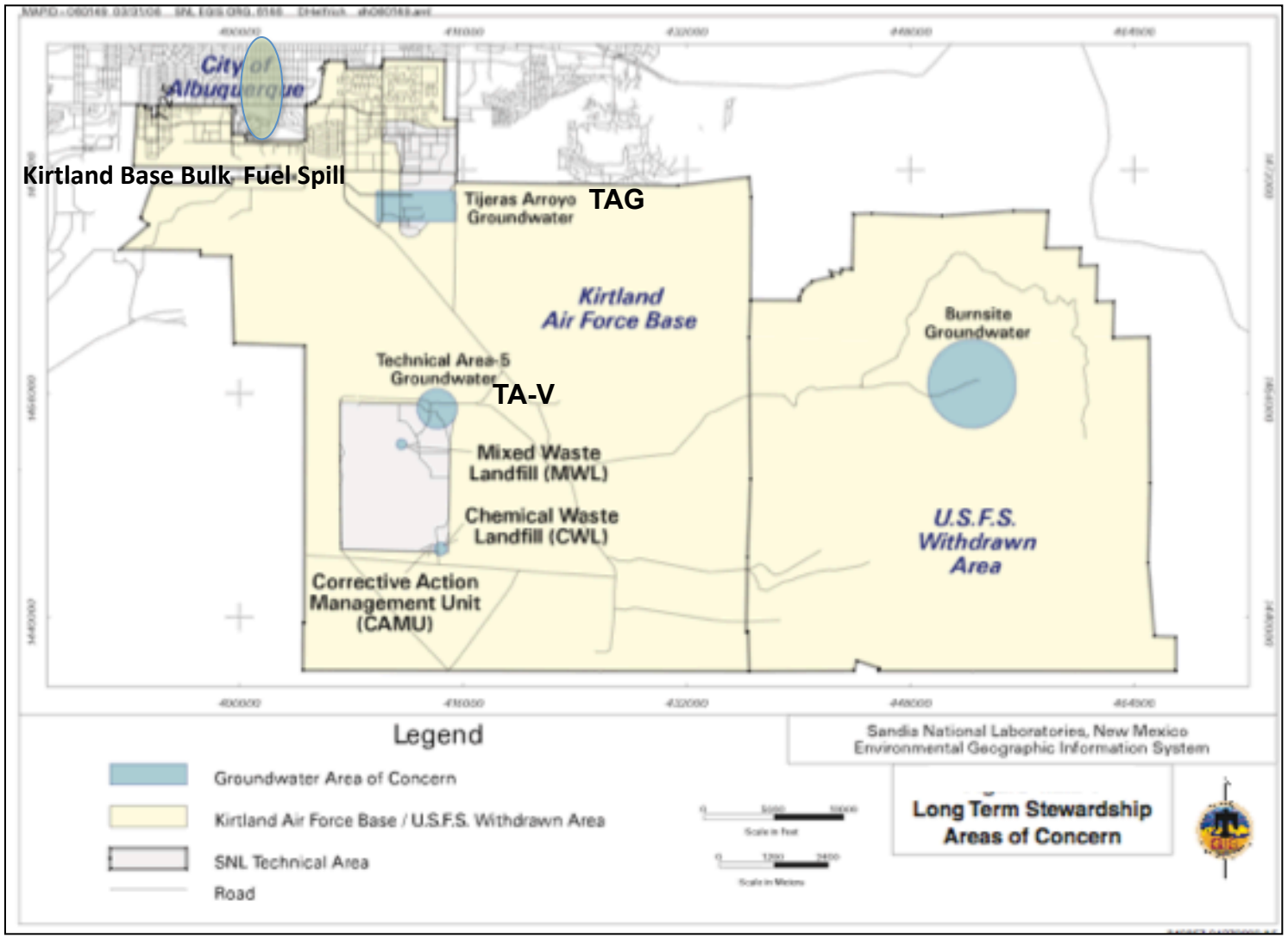
- threats to the Albuquerque area's drinking water aquifer from releases from Sandia National Laboratories (SNL) environmental restoration sites including the Tijeras Arroyo Groundwater (TAG) site, Technical Area V (TA-V), the Burn Site and the Mixed Waste Landfill and

- lack of SNL and Department of Energy (DOE) National Nuclear Security Administration (NNSA) funding to complete remediation of those releases,

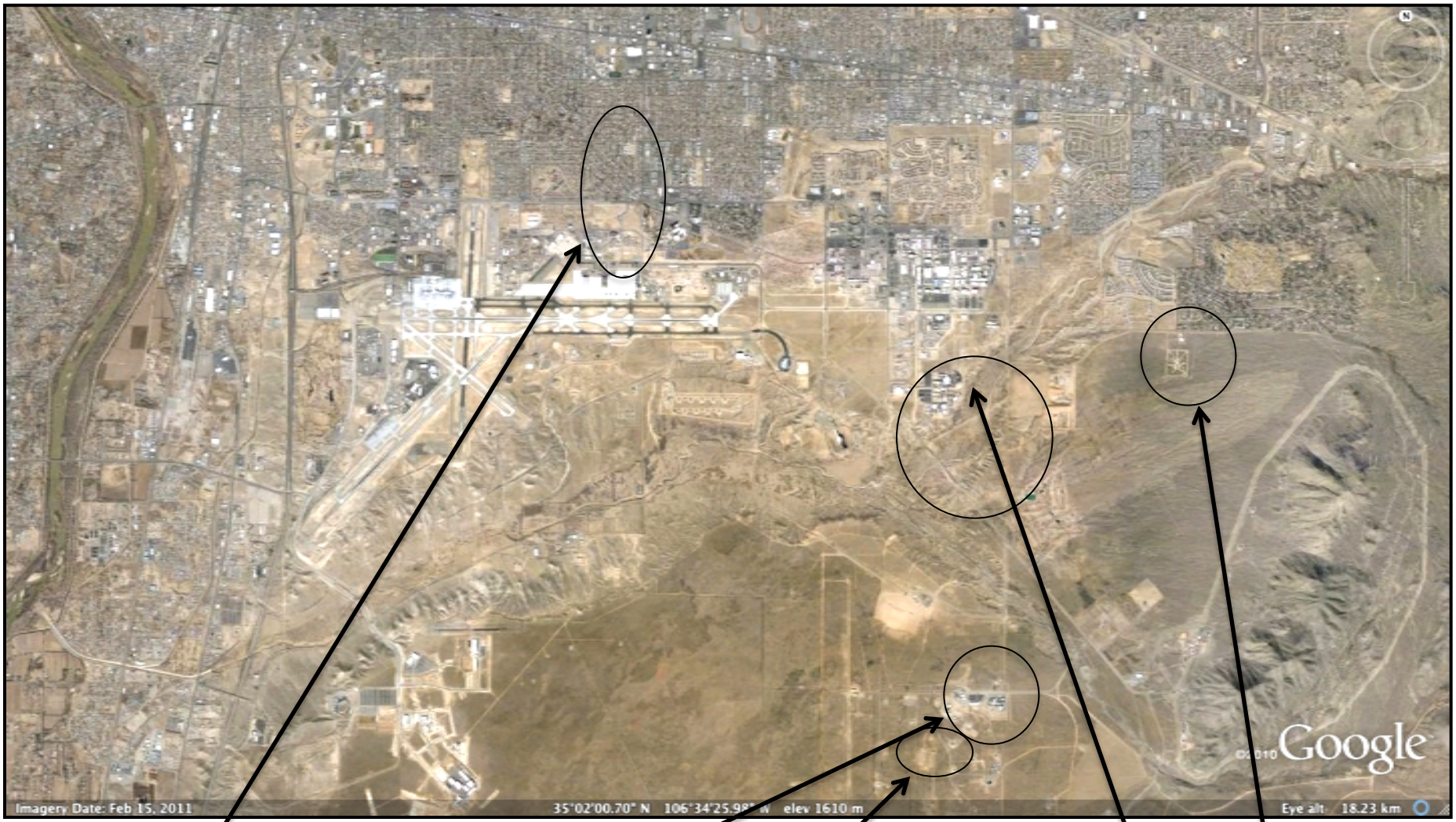
We request the Committee direct staff to draft a Memorial to support increased SNL and DOE NNSA funding for environmental restoration projects on Sandia National Laboratories (SNL's) property.

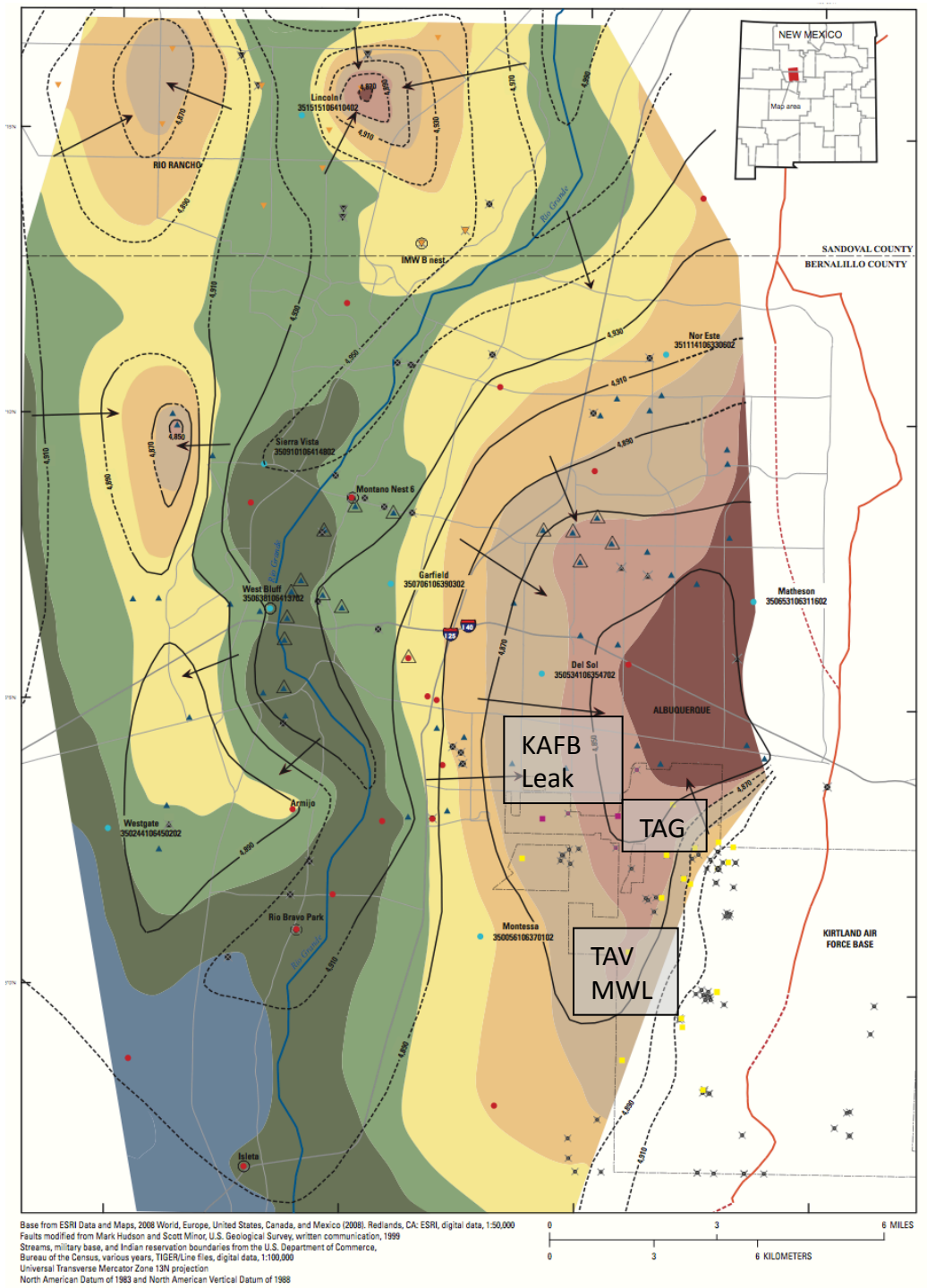
Presented on Behalf of
Our Endangered Aquifer Working Group
by
Paul Robinson, Research Director, Southwest Research and Information Center,
Albuquerque, Nm 87106 sricpaul@earthlink.net

Overview of Groundwater Contamination Sites at Sandia National Laboratories and Kirtland Air Force Base, For New Mexico Legislative Water and Natural Resources Committee, November 8, 2012

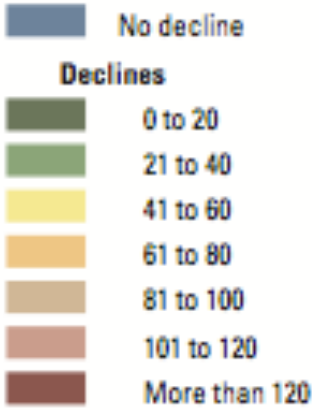


Compiled November 2012 by
Paul Robinson, Research Director, Southwest Research and Information Center sricpaul@earthlink.net


Kirtland Base Bulk Fuel Leak
TA-V
(Tech Area 5)
MWL
(Mixed Waste Landfill)
TAG
(Tijeras Arroyo Groundwater
Burn Site
Google
Imagery Date: Feb 15, 2011
35°02'00.70" N
elev 1610 m
Eye alt 18.23 km



Estimated Water-Level Change
Albuquerque Area through 2008



From:
"Estimated 2008 Groundwater Potentiometric Surface and Predevelopment to 2008 Water-Level Change in the Santa Fe Group Aquifer System in the Albuquerque Area, Central New Mexico"
By Sarah E. Falk, Laura M. Bexfield, and Scott K. Anderholm
USGS Scientific Investigation Map 3126, 2011
http://pubs.usgs.gov/sim/3162/

Our Endangered Aquifer Working Group's
Summary of Concerns for the
Sandia National Laboratory's (SNL) Environmental Restoration Activities –
As Summarized by Water Protection Advisory Board Staff

Background

• The National Nuclear Security Administration (NNSA) provides the funding necessary for completion of environmental management and remediation activities at SNL in Albuquerque as needed to achieve restoration of damaged areas of the irreplaceable Middle Rio Grande aquifer our community relies on for our drinking water.

• The environmental remediation tasks remaining to be completed at identified in the FY 2013 Congressional Budget and regulated by the April 2004 Compliance Order on Consent issued under authority of the New Mexico Hazardous Waste Act include:

- **Three groundwater "areas of concern" – Technical Area-V (TA-V), Tijeras Arroyo Groundwater (TAG) and the Burn Site identified in the 2009 DOE Sandia Site Office of Environmental Restoration Summary;**

- Administrative regulatory closure of the Mixed Waste Landfill and 26 soil release sites; and

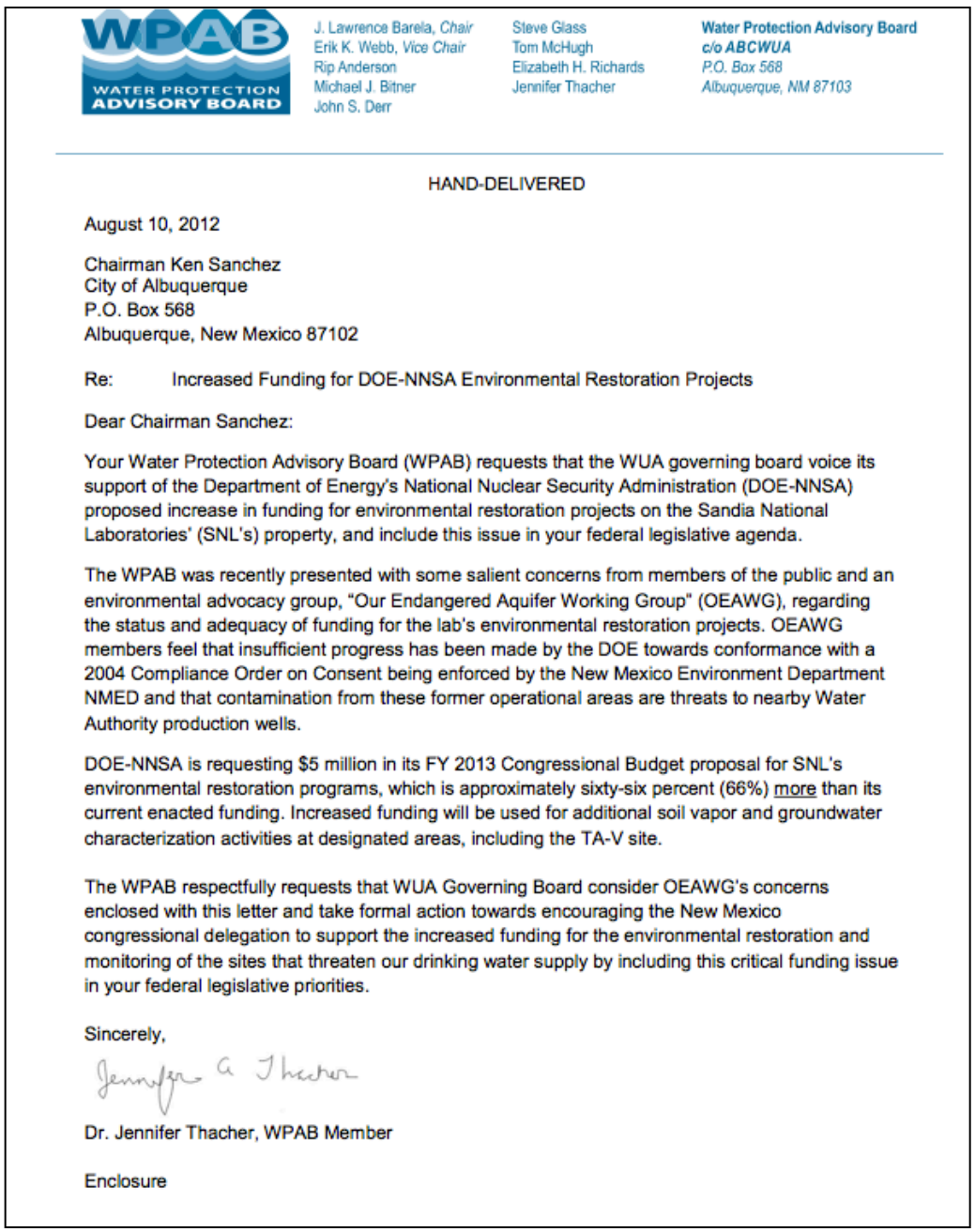
- Groundwater assessment/closure at five soil release sites identified by the New Mexico Environment Department.

Our Endangered Aquifer Working Group's
Summary of Concerns for the
Sandia National Laboratory's (SNL) Environmental Restoration Activities –
As Summarized by Water Protection Advisory Board Staff
Continued

• Contaminants released from these legacy sites within the boundaries of Sandia Laboratories and its host, Kirtland Air Force Base, has reached or threatens to reach the aquifer that provides Albuquerque its drinking water.

• Current and proposed (FY 2013) funding may not be sufficient to complete the needed activities as quickly as possible, however, increased Environmental Restoration funding by 65.9% is a step in the right direction.

• NNSA/Sandia Site Office and Sandia National Laboratories are not appropriating other funding streams appropriately towards necessary environmental management and remediation activities.



WPAB
WATER PROTECTION ADVISORY BOARD

Water Protection Advisory Board
c/o ABCWUA
P.O. Box 568
Albuquerque, NM 87103

HAND-DELIVERED

August 10, 2012

Chairman Ken Sanchez
City of Albuquerque
P.O. Box 568
Albuquerque, New Mexico 87102

Re: Increased Funding for DOE-NNSA Environmental Restoration Projects

Dear Chairman Sanchez:

Your Water Protection Advisory Board (WPAB) requests that the WUA governing board voice its support of the Department of Energy's National Nuclear Security Administration (DOE-NNSA) proposed increase in funding for environmental restoration projects on the Sandia National Laboratories' (SNL's) property, and include this issue in your federal legislative agenda.

The WPAB was recently presented with some salient concerns from members of the public and an environmental advocacy group, "Our Endangered Aquifer Working Group" (OEAWG), regarding the status and adequacy of funding for the lab's environmental restoration projects. OEAWG members feel that insufficient progress has been made by the DOE towards conformance with a 2004 Compliance Order on Consent being enforced by the New Mexico Environment Department NMED and that contamination from these former operational areas are threats to nearby Water Authority production wells.

DOE-NNSA is requesting $5 million in its FY 2013 Congressional Budget proposal for SNL's environmental restoration programs, which is approximately sixty-six percent (66%) more than its current enacted funding. Increased funding will be used for additional soil vapor and groundwater characterization activities at designated areas, including the TA-V site.

The WPAB respectfully requests that WUA Governing Board consider OEAWG's concerns enclosed with this letter and take formal action towards encouraging the New Mexico congressional delegation to support the increased funding for the environmental restoration and monitoring of the sites that threaten our drinking water supply by including this critical funding issue in your federal legislative priorities.

Sincerely,

Jennifer A Thacher

Dr. Jennifer Thacher, WPAB Member

Enclosure

Water Protection Advisory Board (WPAB) Recommends Albuquerque Bernalillo County Water Utility Authority (ABCWUA) support increased funding for completion of Environmental Restoration projects at Sandia National Laboratories Albuquerque by Sandia National Laboratories and National Nuclear Security Administration

LEGISLATIVE SUPPORT FOR INCREASED FUNDING FOR COMPLETION OF ENVIRONMENTAL RESTORATION PROJECTS AT SANDIA NATIONAL LABORATORIES NEEDED

Sandia National Laboratories –
Technical Area V (TA-V)
Groundwater contaminants include:
TCE and Nitrate

Site of SNL's
- Annular Core Research Reactor (ACRR);
- Sandia Pulse Reactor (SPR); and
- Hot Cell Facility (HCF)

View to southwest

SNL investigations have identified three Solid Waste Management Units (SWMUs) as the sources 50 -70 million gallons of wastewater releases as the primary source of groundwater contamination at TA-V. These SWMUs are:

-TA-V Seepage Pits, operated 1960s-1992, 30-50 million gallons estimated release;

- Liquid Waste Disposal System Drain Field; operated 1962-1967, 6.5 million gallons estimated release

- Liquid Waste Disposal System Surface Impoundments; operated 1967-1972; 12 million gallons estimated release

Tech Area – V Groundwater Contamination Area

Distribution of TCE in Groundwater
-Depth approx. 450 feet –
Beneath TA-V in 2009

Recent work: SNL reported in March 2012, that in response to an Administrative Order on Consent signed with NMED, SNL
- has submitted a report on installation of 4 new monitoring wells and 3 deep vapor in June, 2011 and
- conducts ongoing groundwater monitoring

Sandia National Laboratories Tijeras Arroyo Groundwater Contamination Area – TAG
Located beneath Technical Areas I, II and IV – Groundwater contaminants include TCE and Nitrate

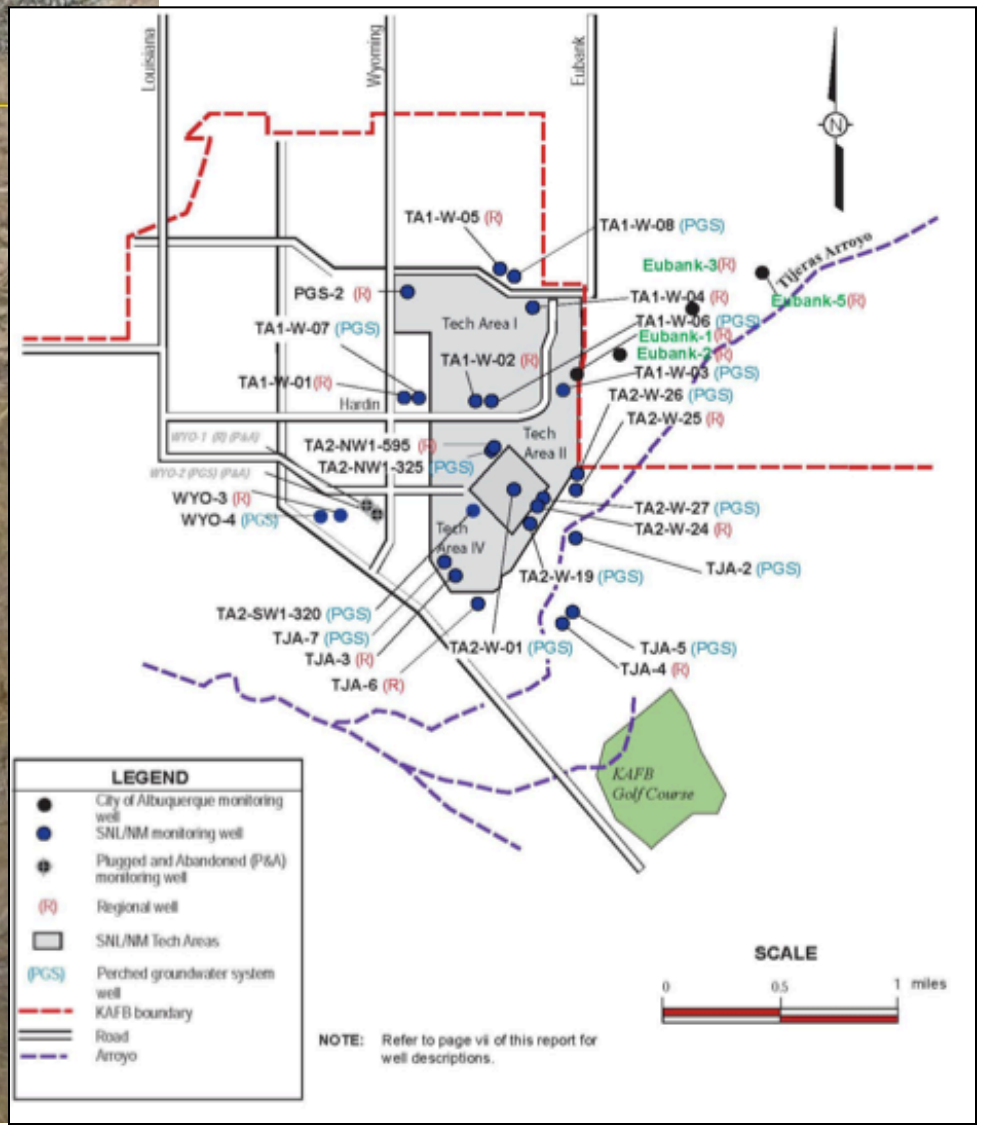
SNL investigations have identified three Solid Waste Management Units (SWMUs) as locations of "High Concern" as potential sources of releases of more than 1.3 billion gallons to groundwater at TAG. These sites include:

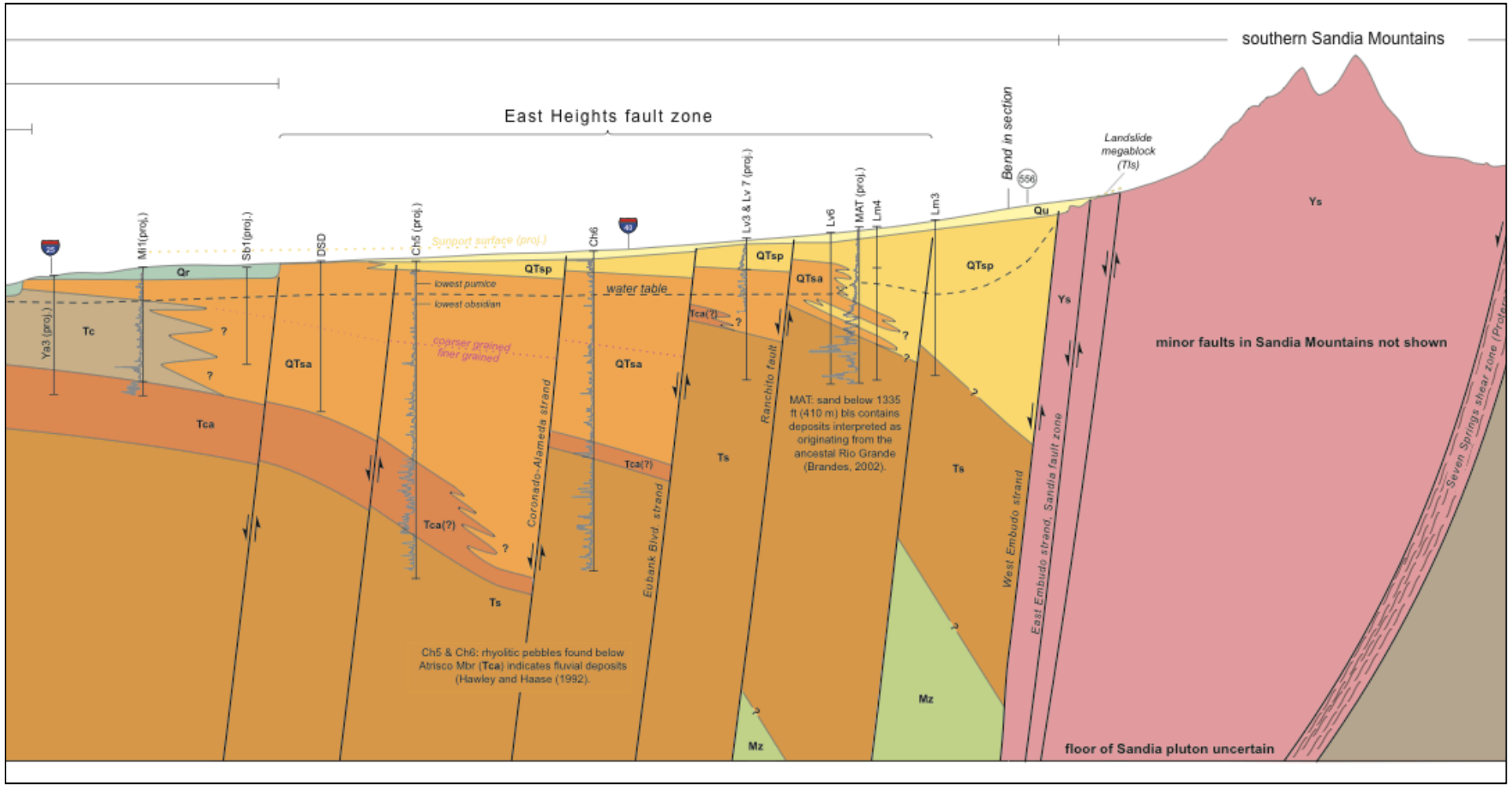
-TA-1 Old Acid Waste Line Outfall; operated 1948-1974, 1.3 billion gallons estimated release; source of TCE and Nitrate;

-TA-II Bldg. 901 Septic System; operated 1948-1992; no estimated volume of release; source of TCE and Nitrate;

-TA-I Sanitary Sewer; operated from 1948-2005 (at least); no estimated volume of release; source of TCE and Nitrate

TAG – SNL identified other potential sources of release to groundwater of 7 billions gallons or more including Kirtland sewers and drainfields, Tijeras Arroyo golf course and irrigation pond, South Eubank Landfills, among other sources.





Cross-section of Albuquerque Aquifer between I-25 and the Sandia Mountains

(From: Connell, S. D., et al, 2006, NMBMMR OFR 496

http://geoinfo.nmt.edu/publications/openfile/downloads/OFR400-499/476-499/496/ReadMe.html)

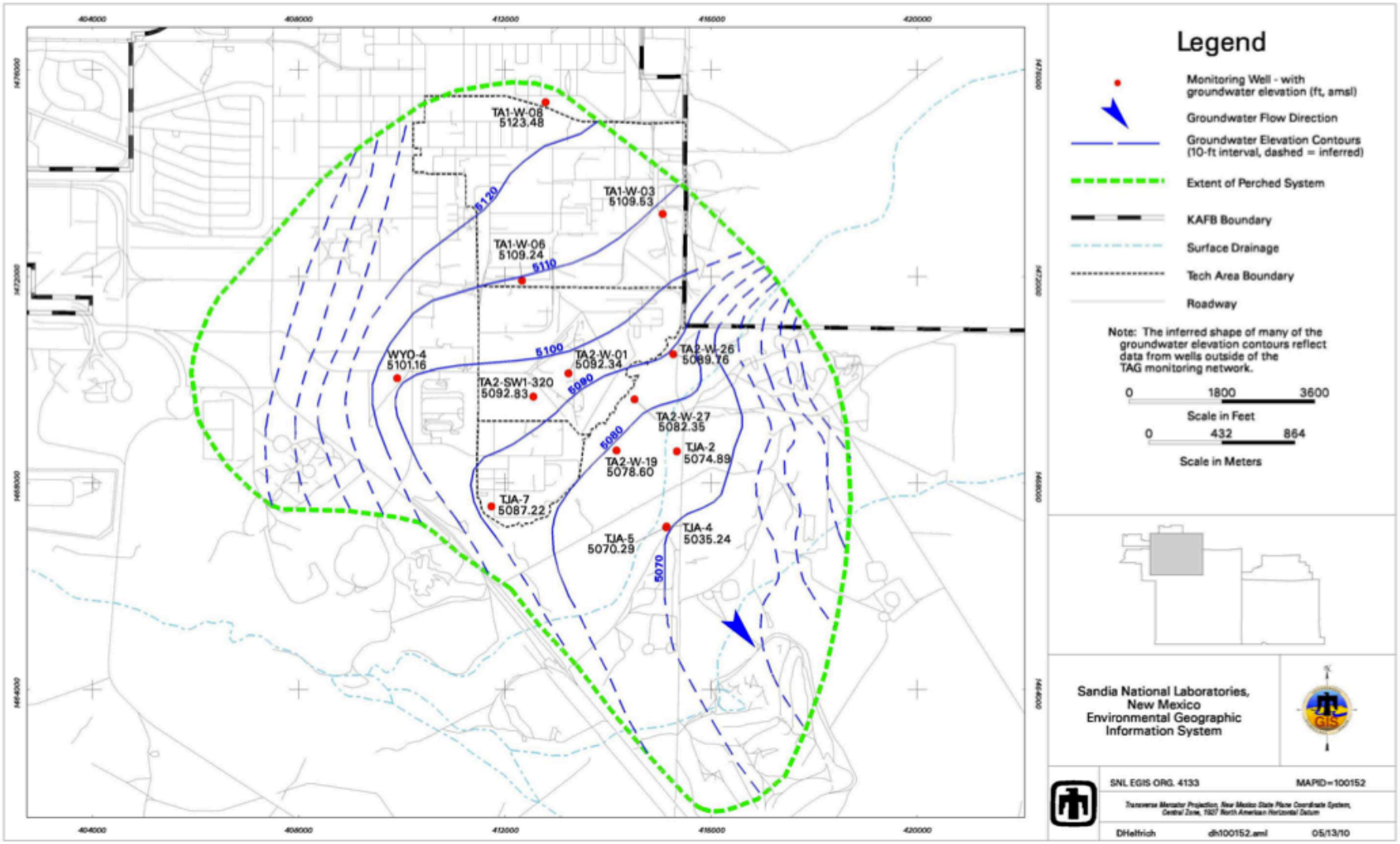
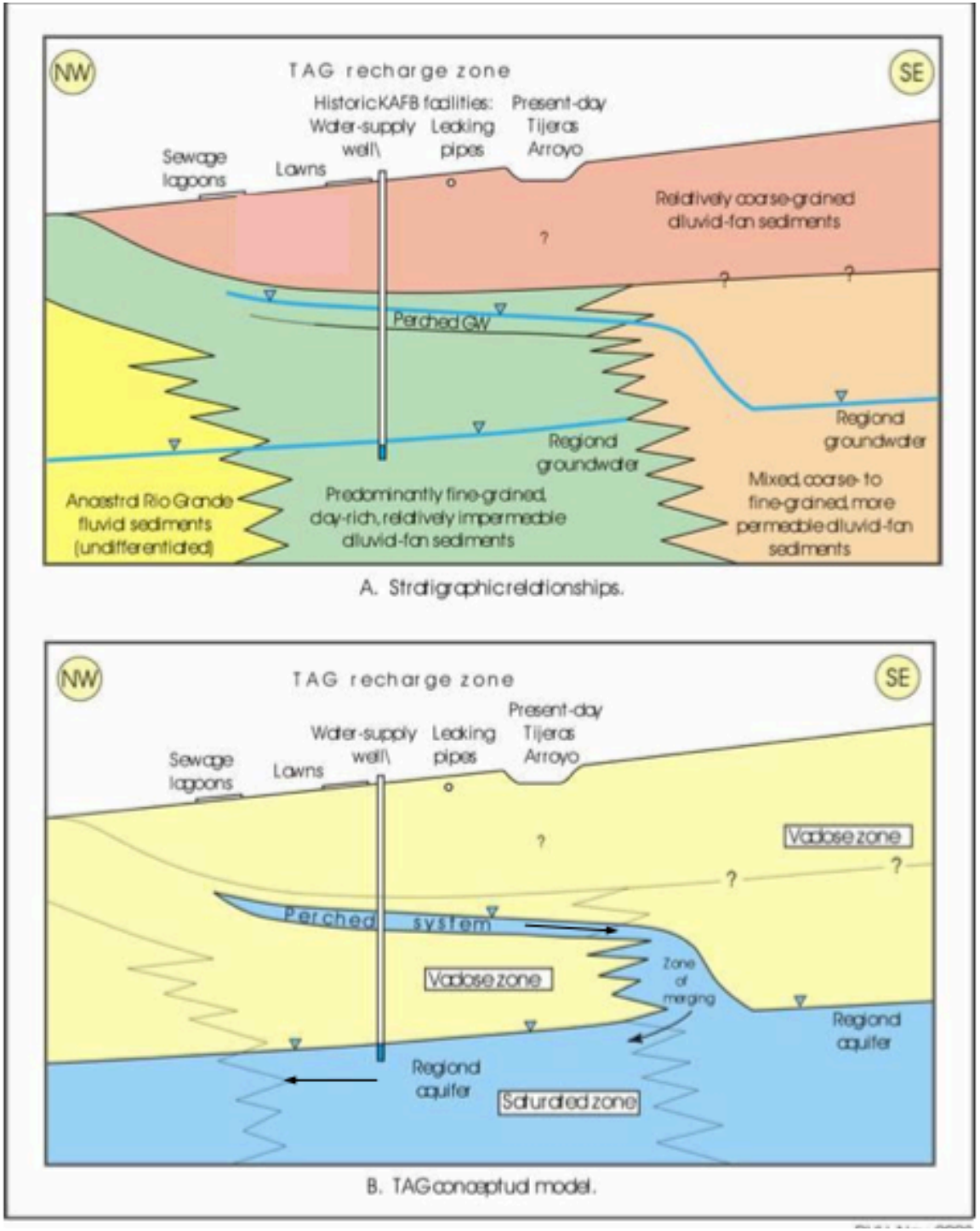


Figure 6-4. Tijeras Arroyo Groundwater Investigation Potentiometric Surface Map for the Perched Groundwater System (October and November 2009)

2009 Annual Groundwater Monitoring Report, SAND 2010-7245P, p. 6-15



Tijeras Arroyo Groundwater Contamination Site Conceptual Model

From: 2009 Annual Groundwater Monitoring Report, SAND 2010-7245P, p. 6.10

SNL reports that, as of March 2012:

- NMED has approved a Groundwater investigation Report on the TAG site in February 2010 (after more than five years of review and revision)

- NMED is continuing to review a Corrective Measures Evaluation Report submitted in 2005 and

-conducts ongoing groundwater monitoring

Mixed Waste Landfill

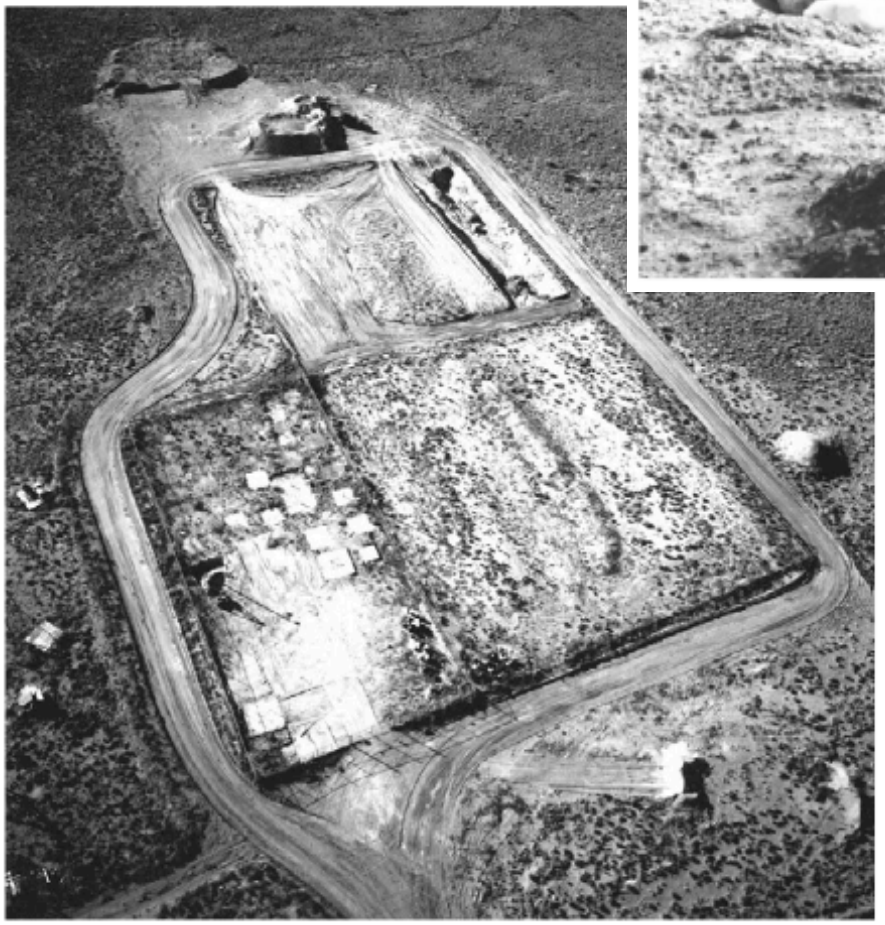
Operated 1959-1988, more than 100,000 cubic yards of waste dumped in unlined pits
Covered in place 2009

Soil contamination from PCE to at least 50 feet below surface; Deficiencies in ground water monitoring wells obscure likely groundwater contamination

SNL Reports:
-NMED approved Corrective Measures Implementation Report in October, 2011

- SNL submitted revised Long-Term Monitoring and Maintenance Plan for the cover to NMED (March 2012) and

-Conducts on-going soil and groundwater monitoring



Aerial and Ground Views of Sandia Mixed Waste Landfill (MWL) in operation in 1987

Sandia Mixed Waste Landfill

New Mexico Environment Department Secretary's Final Order of May 26, 2005 contains final remedy decision that requires:

- Vegetative (ET) cover with bio-intrusion barrier
- Long-term monitoring and maintenance plan
- Report on remedy and feasibility of excavation every 5years
- Prepare fate and transport model
- Establish monitoring "triggers" for future actions
- Additional public participation requirements

What about Long-Term Monitoring and Maintenance?

- Long-term monitoring and maintenance (LTMM) to be addressed under a stand-alone plan
- Original LTMM Plan to be revised
- NMED will issue a notice establishing a public comment period for the revised LTMM Plan
- NMED will hold a public informational meeting on the revised LTMM Plan
- 5-year reevaluation of effectiveness of the remedy

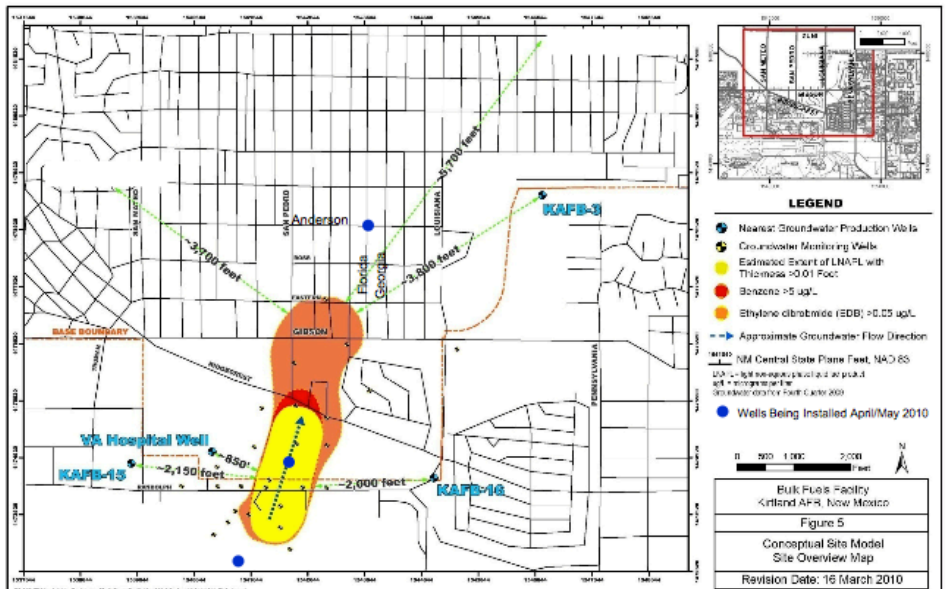
REPORT ON EFFECTIVENESS OF INTERIM REMEDY AND FEASIBILITY OF EXCAVATION REQUIRED IN 2005 MWL LICENSE ALREADY TWO YEARS OVERDUE

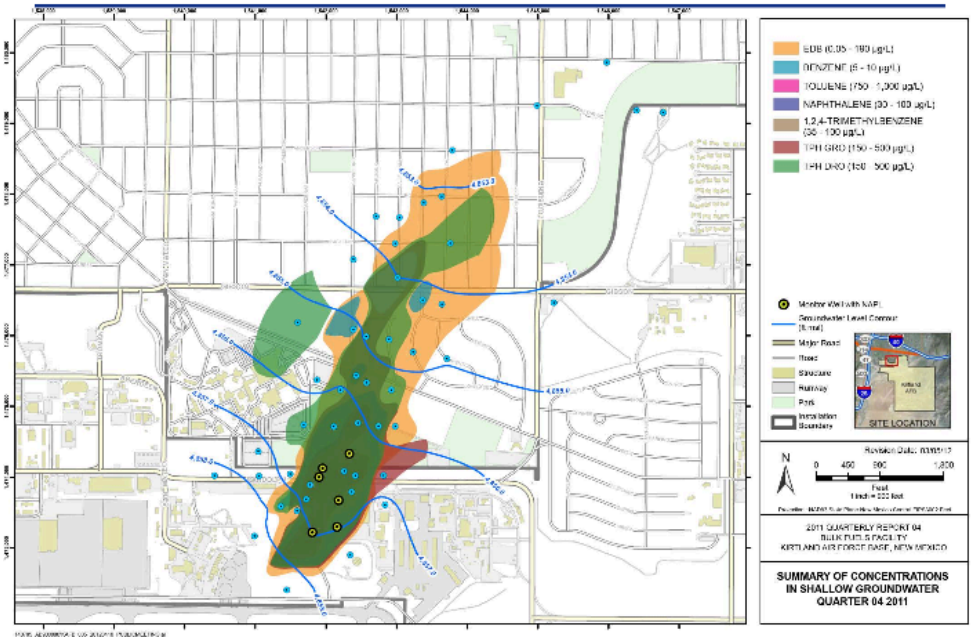
Kirtland Air Force Base Bulk Fuels Facility (BFF) Spill

KAFB bulk fuel storage and distribution facility located south of Bullhead Park operated beginning in 1951 has been identified as source of aviation, jet, diesel and gasoline leaks into soil and groundwater.

BFF is estimated by NMED to have released at least 24 million gallons to soil and groundwater. Contaminants have affected soil and groundwater at least one-mile north-northeast of former BFF approaching City of Albuquerque drinking water supply well.

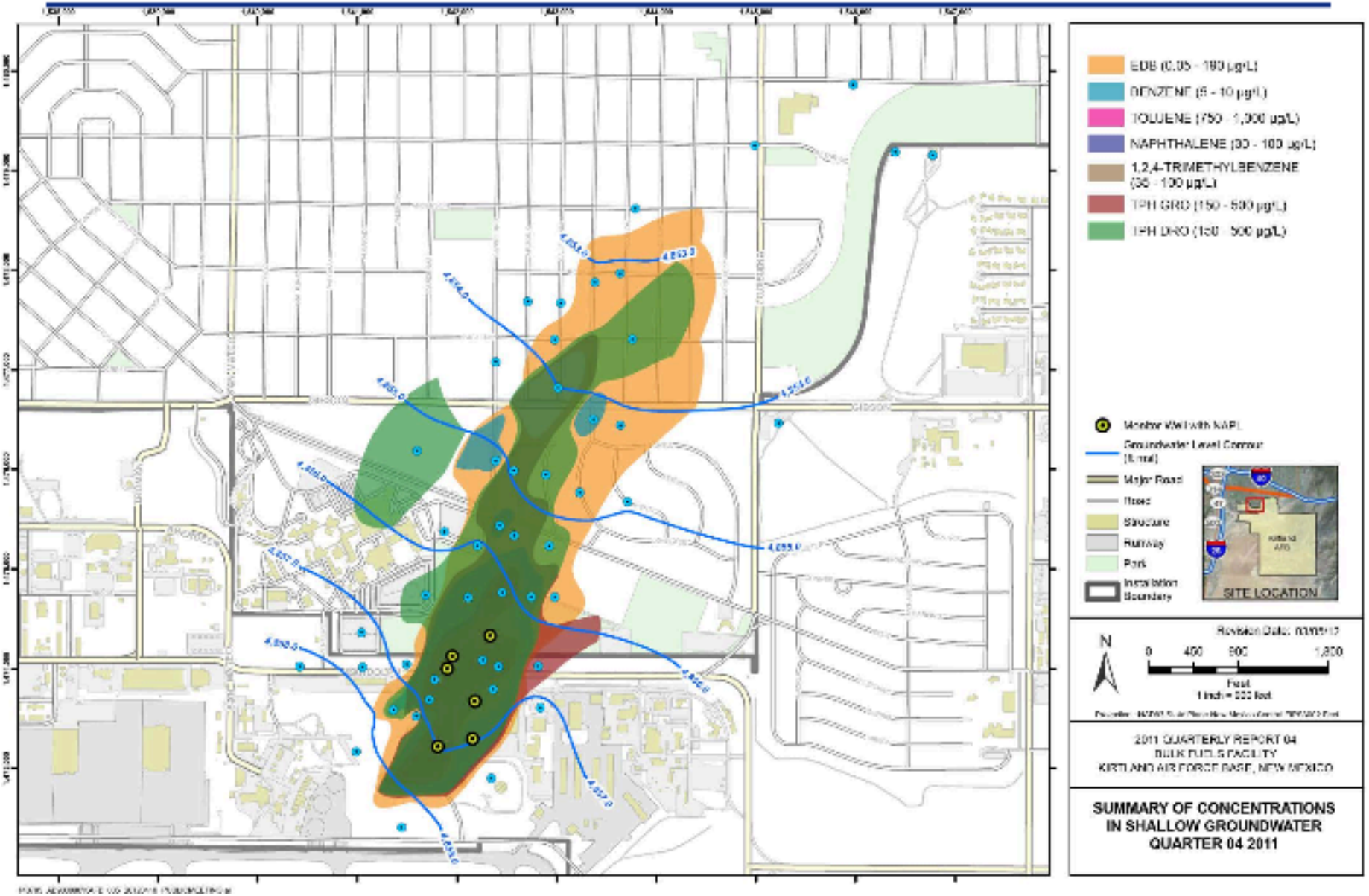
Contaminants in soil and ground water include: Ethylene dibromide (EDB), benzene, toluene, naphthalene 1,2,4-Trimethylbenzene, and petroleum hydrocarbons derived from gasoline and diesel fuels).



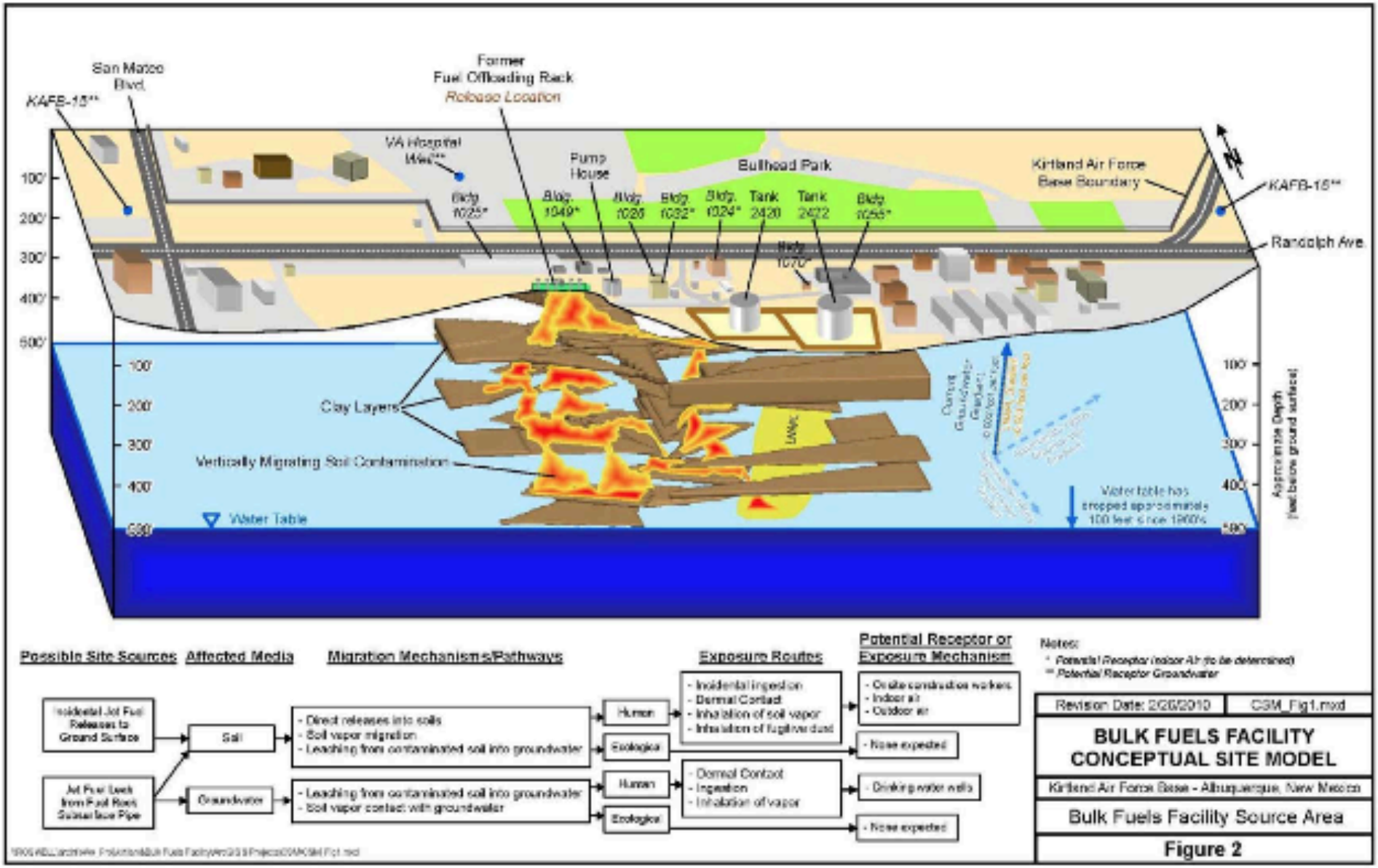


Growth in the known extent of KAFB BFF groundwater contamination plume between March 2010 and December 2011

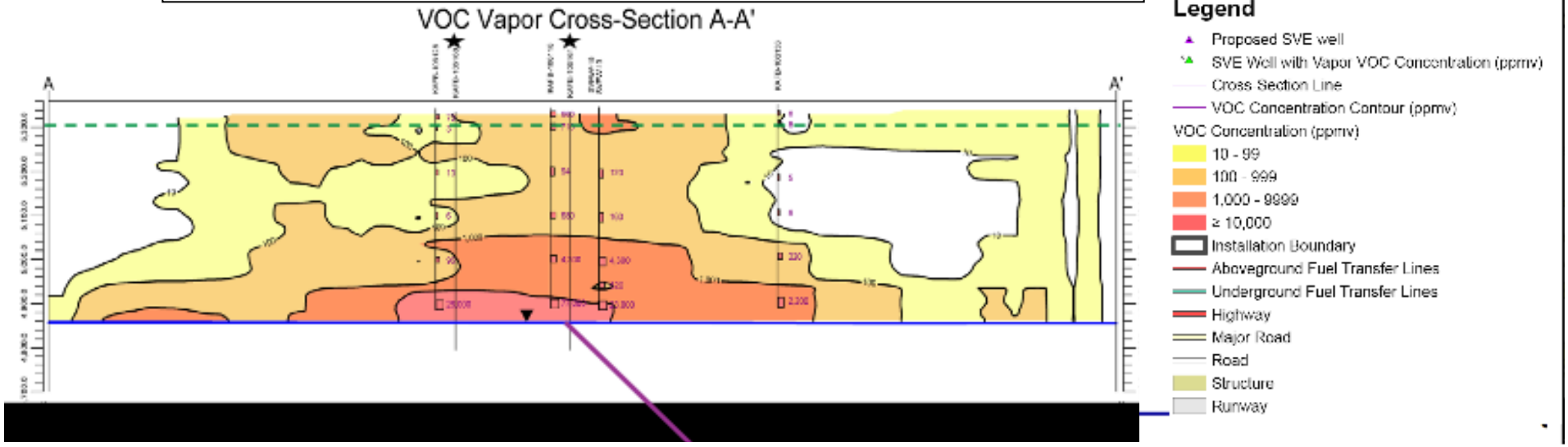
Shallow Wells
October – December 2011



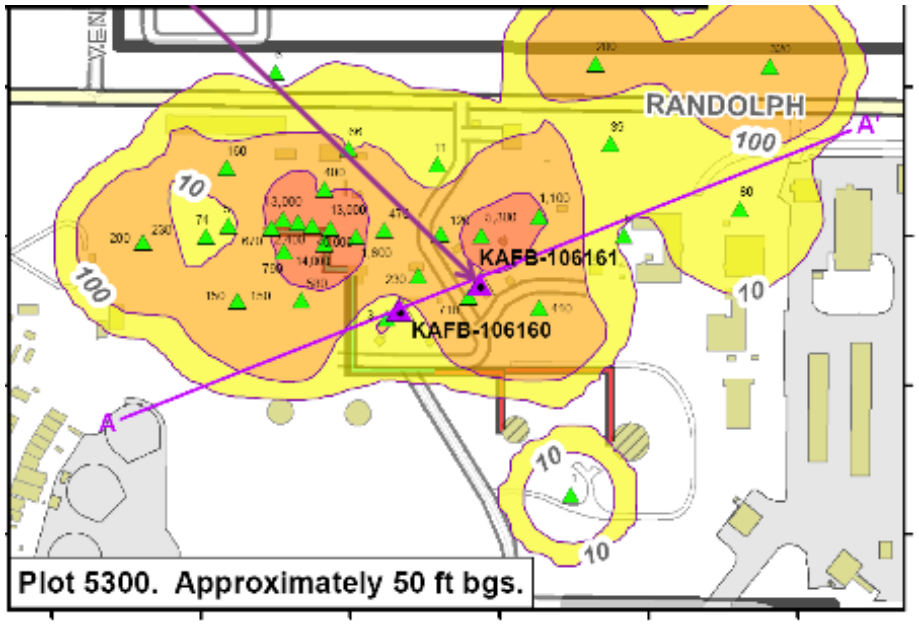
BFF Conceptual Site Model 2010



VERTICAL SPREAD OF KAFB BULK FUELS SPILL



Spread of Volatile Organic Compounds *50* feet below ground surface



Spread of Volatile Organic Compounds *450* feet below ground surface