

Sandia National Laboratories

Long-Term Stewardship

Sue Collins, Program Lead
10/25/2016

*Exceptional service
in the national interest*



Sandia LTS Program

Albuquerque, New Mexico



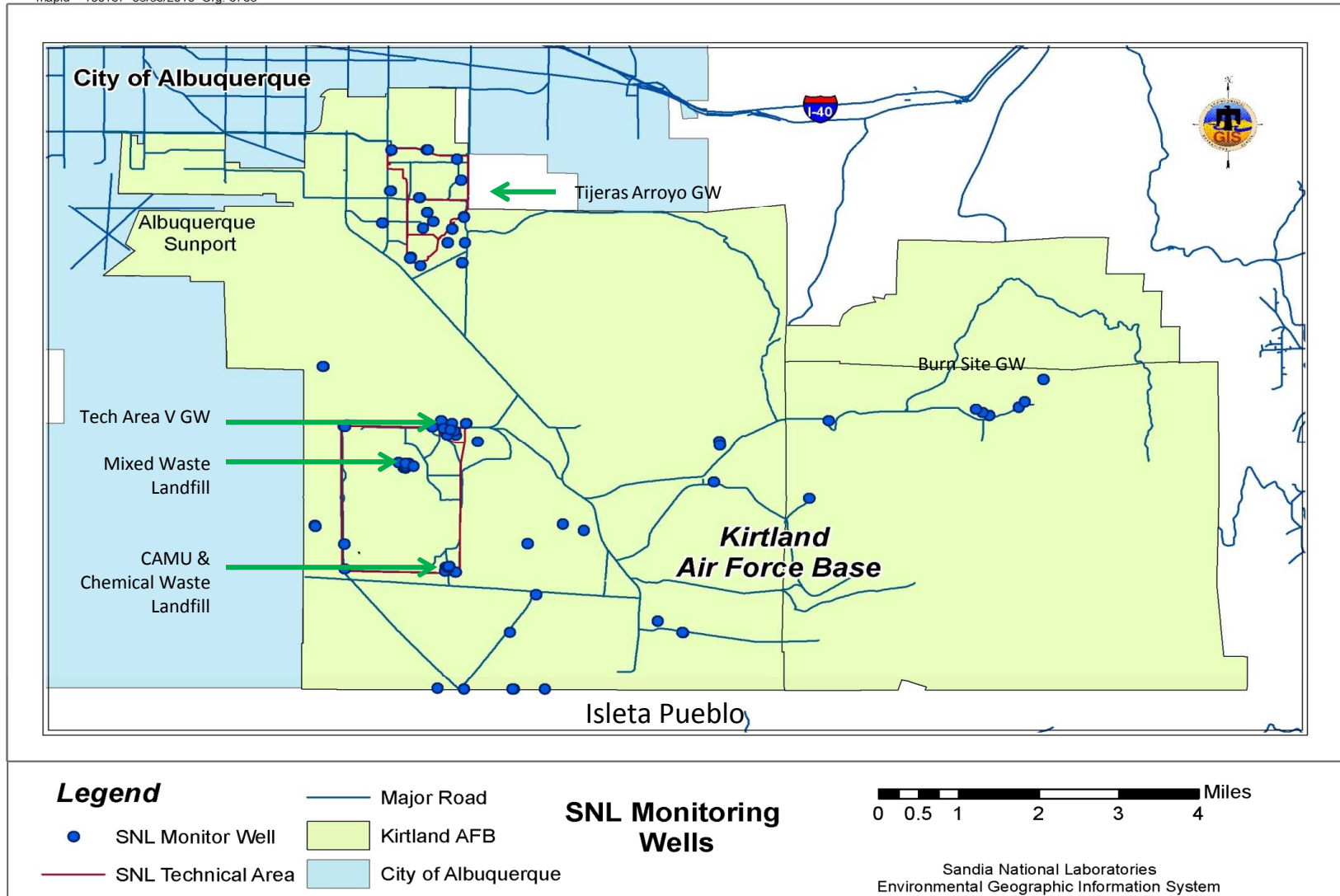
Livermore, California



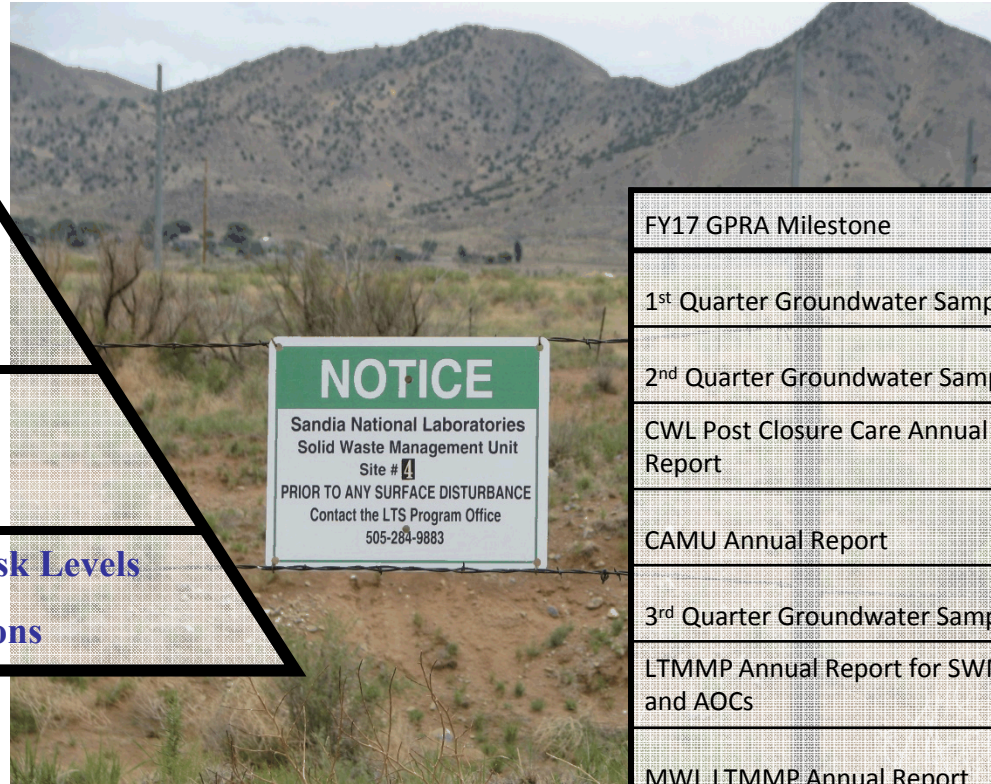
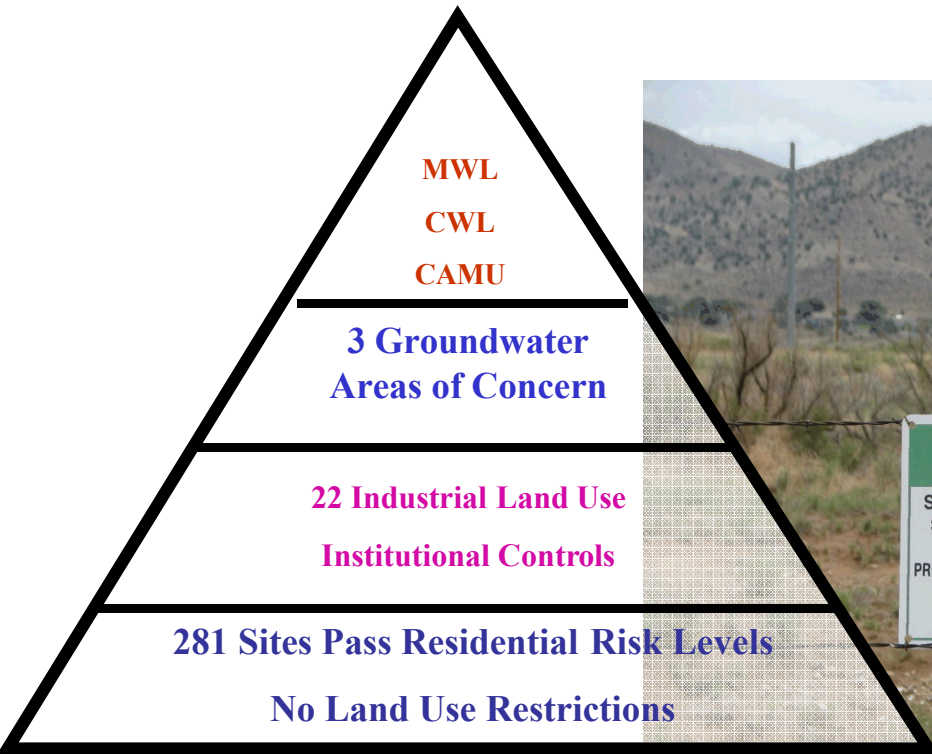
- NNSA Sandia Field Office is at the Sandia/NM Site
 - Karen Oden
- Sandia/CA is across East Ave
 - Robert Holland
- Sandia/NM is within Kirtland Air Force Base boundaries
 - Pam Puissant, Sue Collins

LTS at Sandia/NM

mapid = 100167 03/30/2010 Org. 6765



LTS Scope and Performance-NM



| FY17 GPRA Milestone | Plan Date |
|--|------------|
| 1 st Quarter Groundwater Sampling | 12/24/2016 |
| 2 nd Quarter Groundwater Sampling | 3/31/2017 |
| CWL Post Closure Care Annual Report | 3/31/2017 |
| CAMU Annual Report | 3/31/2017 |
| 3 rd Quarter Groundwater Sampling | 6/30/2017 |
| LTMMP Annual Report for SWMUs and AOCs | 3/31/2017 |
| MWL LTMMP Annual Report | 6/30/2017 |
| 4 th Quarter Groundwater Sampling | 9/30/2017 |

100% GPRA milestones met since 2007 start

GPRA: Government Performance and Results Act

3 Units in Tech Area III

Evapo-transpirative Covers

CWL Post Closure Care Permit

- Excavated 1997 to 2002; cover since 2005
- Vapor Extraction 1998
- Monitoring: Groundwater, Soil Gas, Cover Condition



CAMU Post Closure Care Plan

- Contains CWL treated soils and monitoring systems
- Monitoring: Leachate collection system, Soil Gas, Soil Temperature, Soil Moisture, Cover Condition



MWL Long Term Monitoring and Maintenance Plan

- Intrusion barrier & cover since 2009
- Monitoring: Groundwater, Soil Gas, Biota, Cover Condition



MWL
4/2016

Evapo-transpiration native vegetation is successfully established.



Corrective Action
Management Unit

Chemical
Waste Landfill

6926

6925

6920

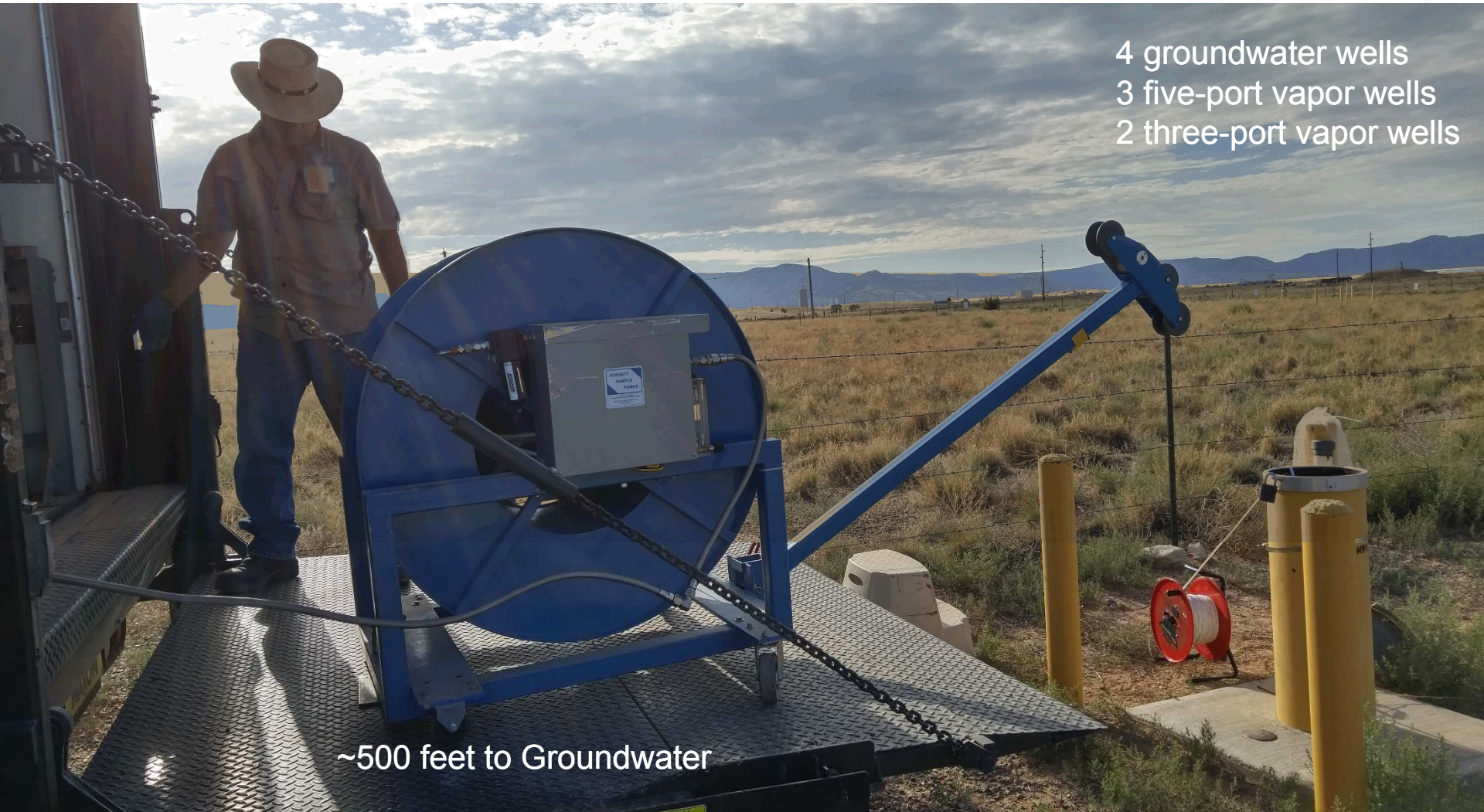
Corrective Action
Management Unit
(CAMU)

Chemical Waste
Landfill (CWL)
2002



Chemical Waste Landfill today

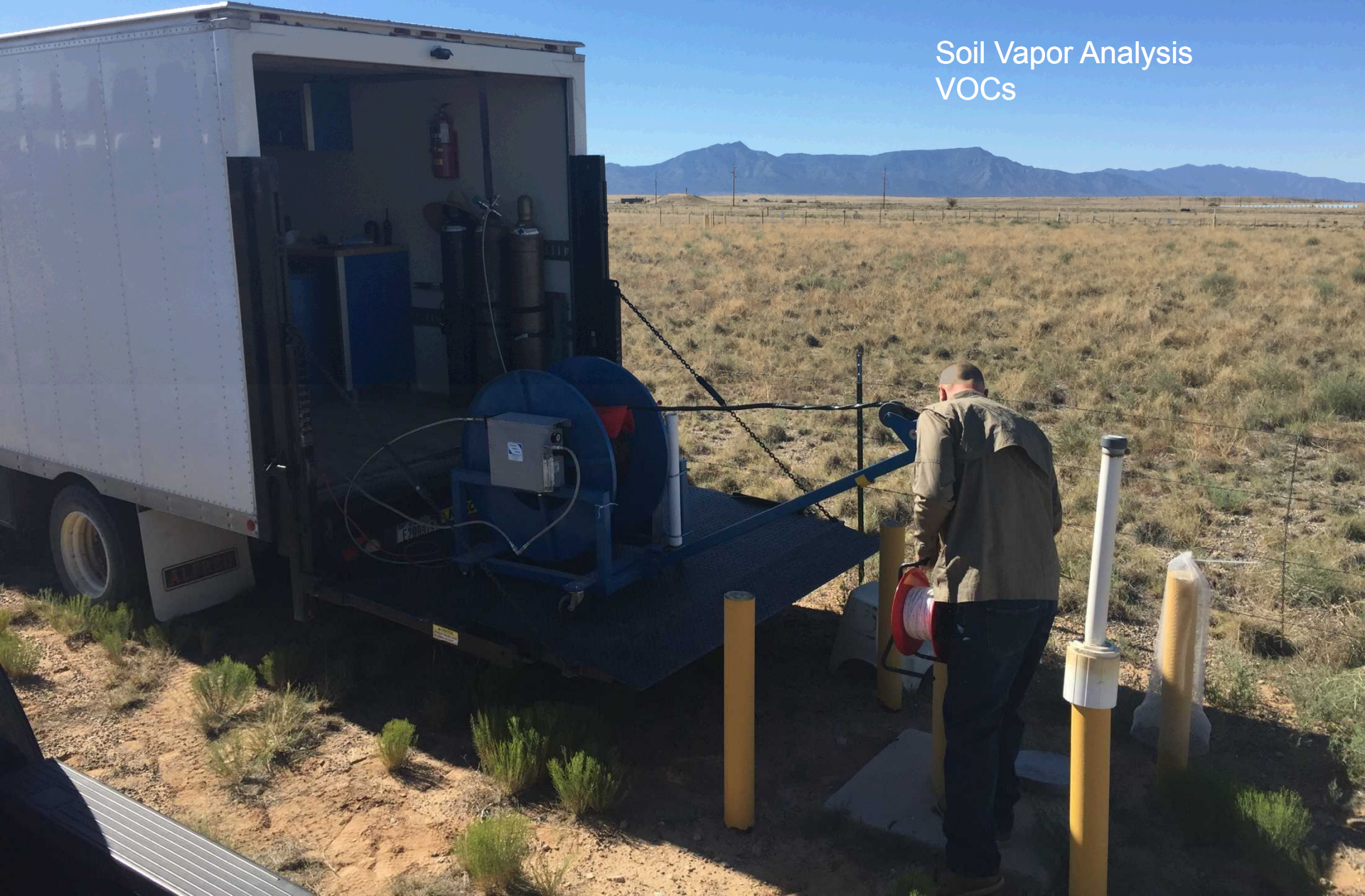
4 groundwater wells
3 five-port vapor wells
2 three-port vapor wells

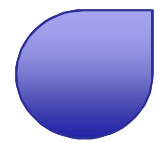


~500 feet to Groundwater

Groundwater Analyses
TCE, chromium, and nickel
Plus additional VOCs annually

Soil Vapor Analysis
VOCs





Dedicated Sampling Truck

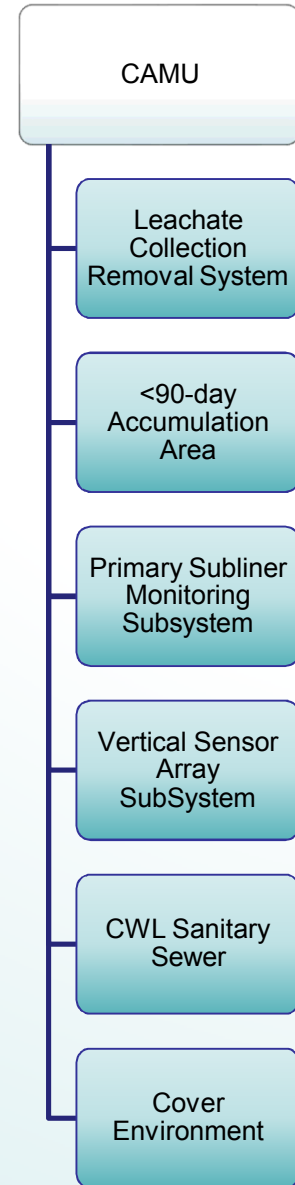
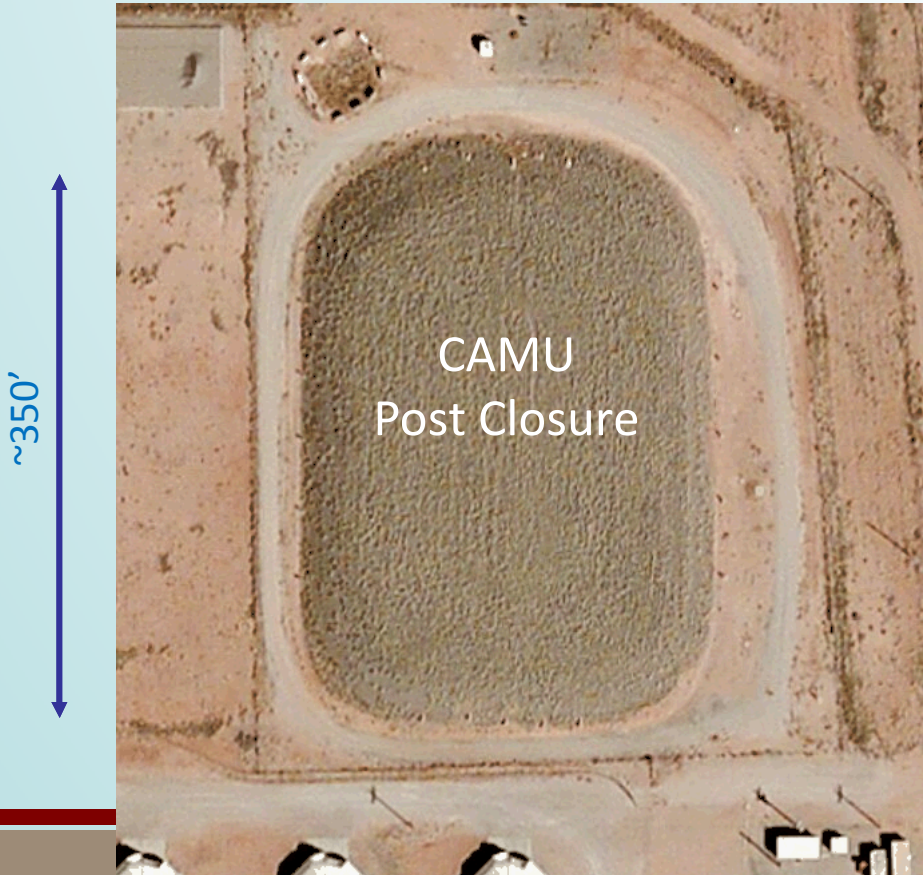




Purge Water Collection at Site

Decon – Soap Step





Leachate Collection and Removal System

<70 gallons per quarter today



Primary Sub-liner Monitoring System



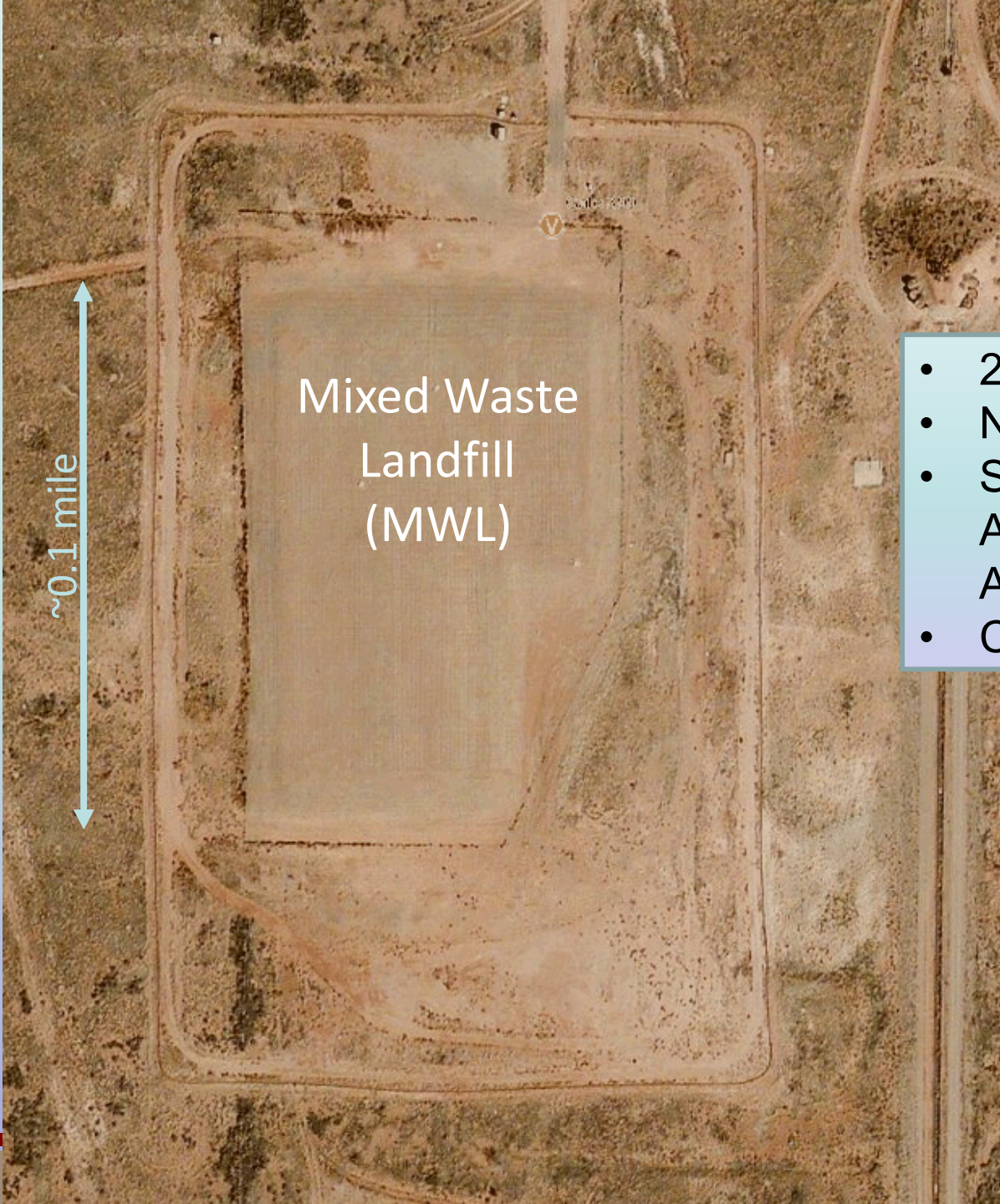
Vertical Sensor Array

CWL Sanitary Sewer Monitoring



Evapo-Transpiration Cover System Established





Mixed Waste
Landfill
(MWL)

~0.1 mile

- 2.6 acres
- Not excavated
- Sandia Technical Area III, on Kirtland AFB
- Cover since 2009

Long Term Monitoring and Maintenance Plan

- 4 Groundwater Wells
- 3 five-port soil vapor wells; 2 single-port soil vapor wells
- 3 200-foot angled soil moisture tubes
- 17 radon detector locations
- Surface Soil and vegetation sampling



Cover design highlights:
Native grasses for evapo-transpiration
Rock bio-intrusion layer

NOTICE
SANDIA NATIONAL LABORATORIES
ENVIRONMENTAL RESTORATION PROGRAM
SITE# **76**
DO NOT DIG OR REMOVE ANY MATERIAL
WITHOUT WRITTEN APPROVAL
CONTACT:
844-6515

The native community vegetation is successfully established.



Soil Vapor
VOCs



Soil Vapor
Split Samples



Groundwater Well

Soil Moisture
Monitoring Tube

NOTICE
76
844-6515

Groundwater Analyses
VOCs
Metals: total uranium, total chromium,
cadmium, nickel
Tritium
Radon
Gamma Spectroscopy (short list)
Gross Alpha/Beta Activity



Radon Monitoring

DANGER
**UNAUTHORIZED
PERSONNEL
KEEP OUT**

PELIGRO
**SE PROHIBE LA ENTRADA
A PERSONAS
NO AUTORIZADAS**

Active Interest in MWL will continue Sandia National Laboratories



12 • December 2, 2015 • ABQ FREE PRESS

NEWS

State, Sandia: Just Cover Up Nuke Waste at KAFB

BY REBECCA

Sandia National Laboratories and New Mexico environmental officials have intentionally misled the public for years about the contents of a radioactive landfill at the south end of Kirtland Air Force Base, government documents show.



6 • February 10, 2016 • ABQ FREE PRESS

NEWS

A Conspiracy of Silence over Sandia's Nuke Dump

BY REBECCA

A secret arrangement between two government agencies led to

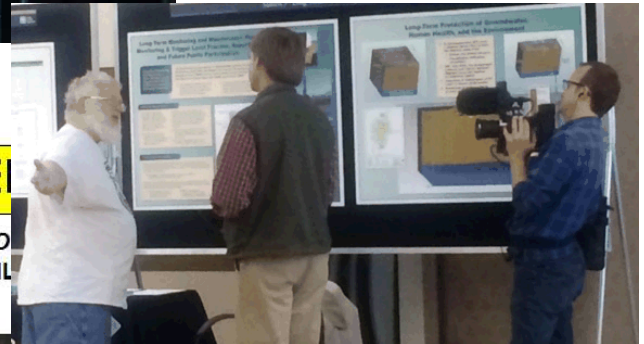
violations of EPA policies, and evidence that EPA regional officials had been pressured by Sandia to conclude that Sandia's proposed solution to the land fill—a sludge dump cover—was best. The EPA CEO was especially critical of the EPA regional office's and Sandia's reliance on the data from the defective groundwater monitoring wells. Independent reports say the

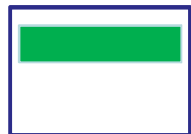
This public hearing was 4 days long



IMMEDIATE ACTION NEEDED

SANDIA NATIONAL LABS AND THE NEW MEXICO ENVIRONMENT DEPARTMENT HOPE YOU'LL STAY SILENT ABOUT DRINKING NUCLEAR WASTE





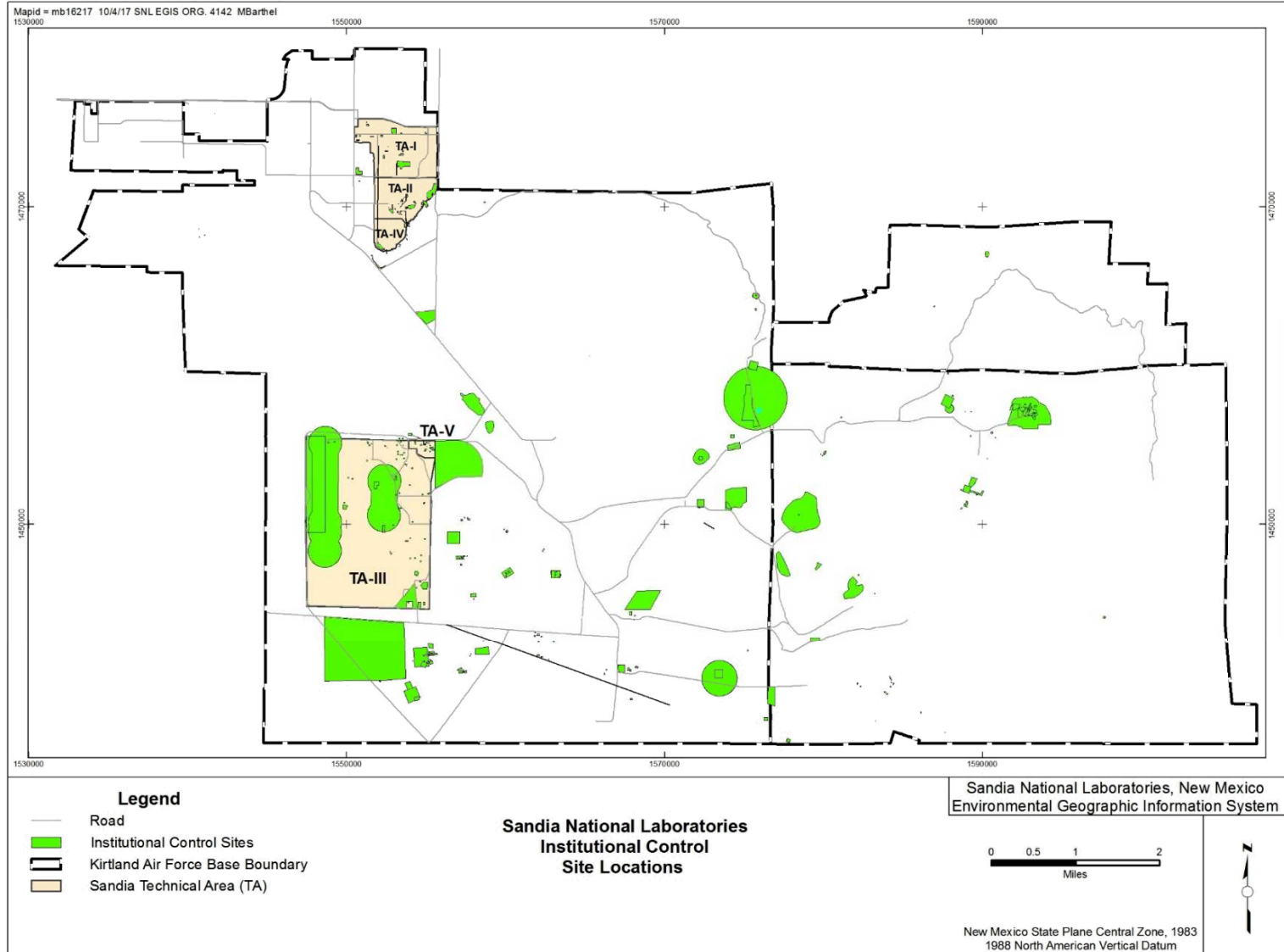
Institutional Controls Project

- 315 total areas on SNL/KAFB.
 - Administrative Controls: Information Management; Evaluate Use Plans within ½ mile (eg., NEPA; Land Use Permit)
- 22 are industrial use areas
 - Annual site inspections of Physical Controls: Signs, Fences
 - Submit annual report about the inspections





315 Sites





Annual Inspections



View from the hill east of Bldg. 9990. View to the west.

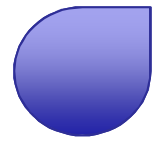


Photo 2. View from the same location as photo #1. View to the northwest.



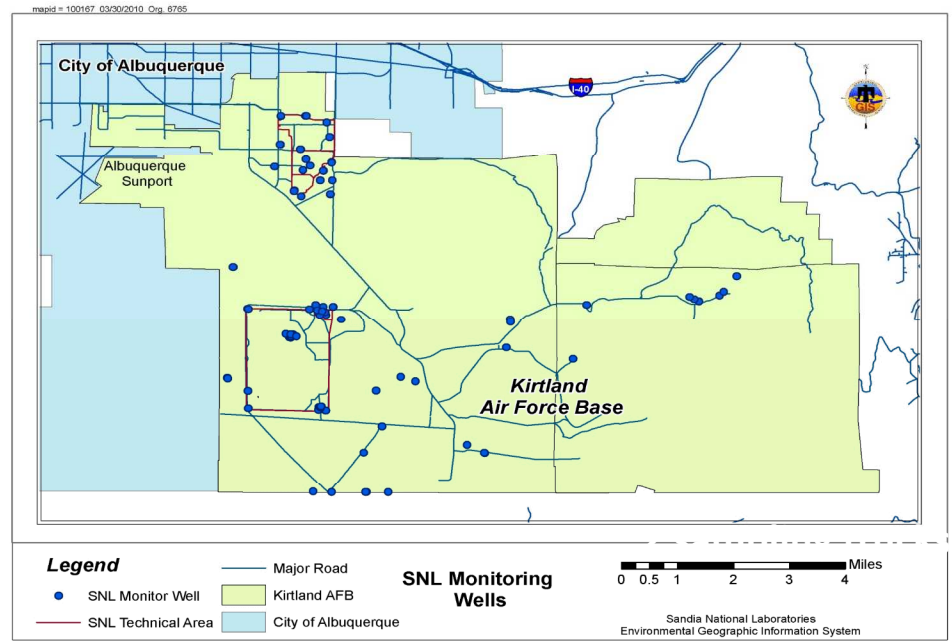
Photo 1. View to the east showing both signs. Signs are located on the perimeter of a circle formed by the signs.





Groundwater NM

- Sample 83 wells, each 1 – 4 times per year
- Water level measurements at 100 wells quarterly

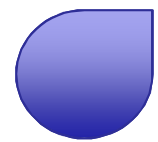


- Annual Groundwater Monitoring Report supports and contributes to multiple reports and requirements
- Well Replacement: 0 - 3/yr



Well Maintenance





Technical Area V Groundwater

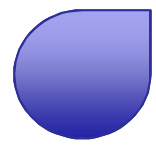
- Jun Li, Environmental Restoration
- Treatability Study Field Work starts this month
- Bio-remediation with Bio-Augmentation

Burn Site Groundwater

- Mike Skelly, Environmental Restoration
- Continuing Investigation
- Monitored Natural Attenuation or Pump & Beneficial Use with Monitoring

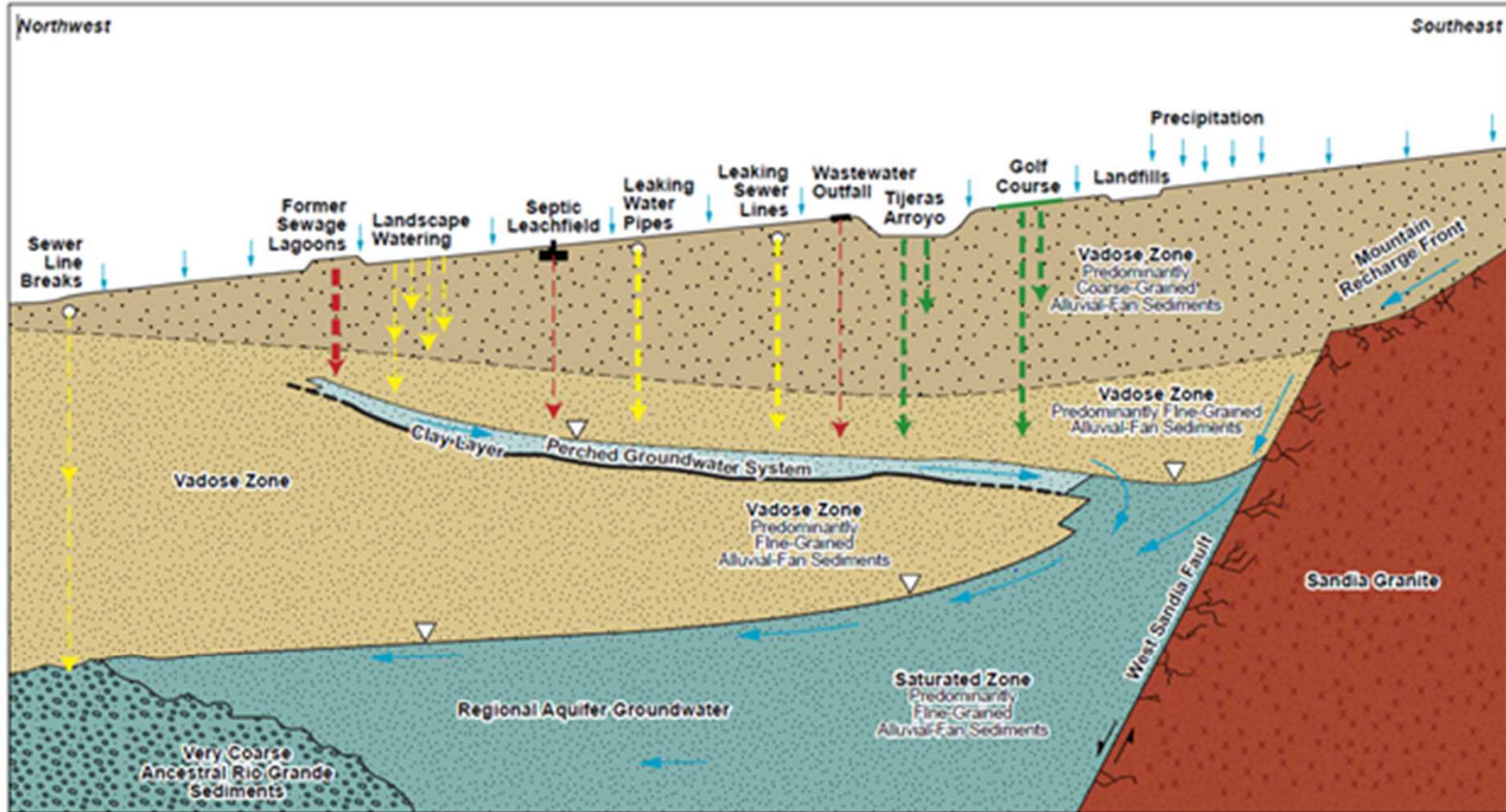
Tijeras Arroyo Groundwater

- Conceptual Model & Corrective Measures Study to NMED December 2016
- Recommended Alternative: Monitored Natural Attenuation



Conceptual Model

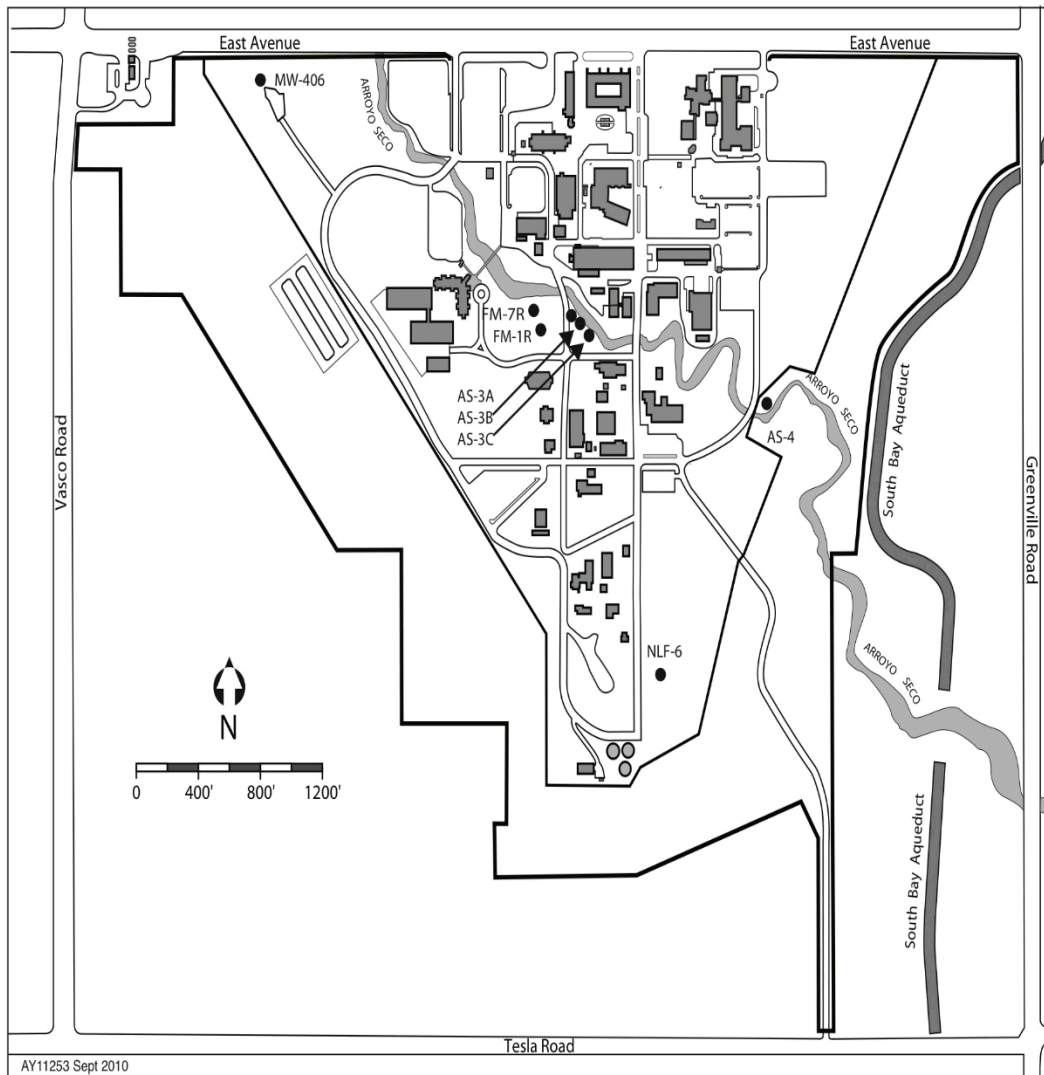
Tijeras Arroyo Groundwater Project



1462269_03015000_A3_TAG_SIMPLE

Groundwater Flow Model for TAG Area Showing Principal Recharge Features, View to Northeast, Not to Scale. Width of a recharge arrow signifies relative volume. Color signifies the duration: green arrow denotes ongoing recharge, yellow arrow denotes a reduced rate of discharge, red arrow signifies that recharge has stopped.

Sandia/California GW Monitoring



- Three Areas
- Six wells
- 1-2 time per year

Questions?

