SANDIA NATIONAL LABORATORIES GROUNDWATER AREAS OF CONCERN

Remedial Objective

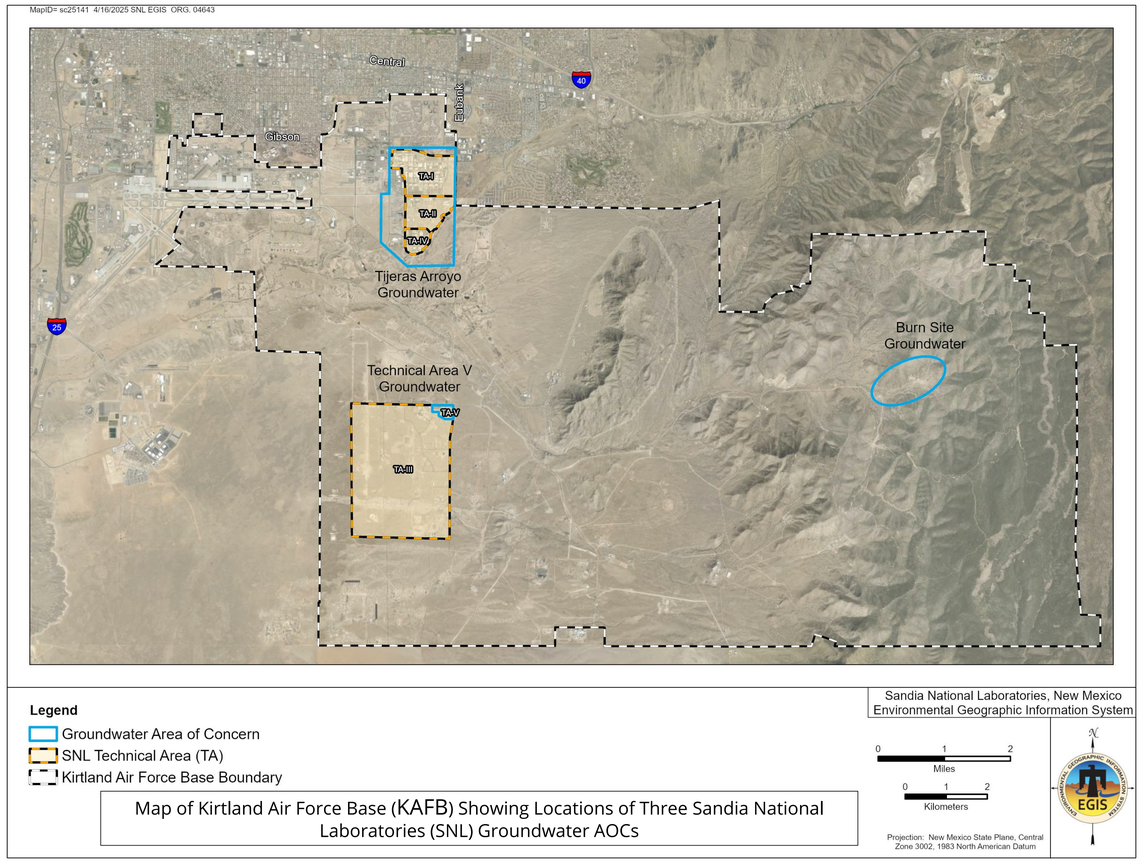
- Protect human health and the environment.

Current Status

- Three groundwater areas of concern (AOC) are undergoing cleanup efforts (called corrective action).
- Ongoing activities include groundwater monitoring, well maintenance, and land use control.
- Groundwater at the three AOCs is not used for any beneficial purpose.

Safe Drinking Water Standards

- Nitrate: 10 milligrams per liter (mg/L).
- Trichloroethene (TCE): 5 micrograms per liter (µg/L).



Map of Kirtland Air Force Base (KAFB) Showing Locations of Three Sandia National Laboratories (SNL) Groundwater AOCs

AOC	Acreage	Constituent of Concern
TAG	1,165 acres	Nitrate
BSG	360 acres	Nitrate
TAVG	35 acres	Nitrate and TCE

TAG = Tijeras Arroyo Groundwater; BSG = Burn Site Groundwater; TAVG = Technical Area V Groundwater

SNL Environmental Restoration & Stewardship
Project Lead**: Jun Li**
Program Leads: **Mike Barthel, Sue Collins**
Department Manager: **Mike Nagy**

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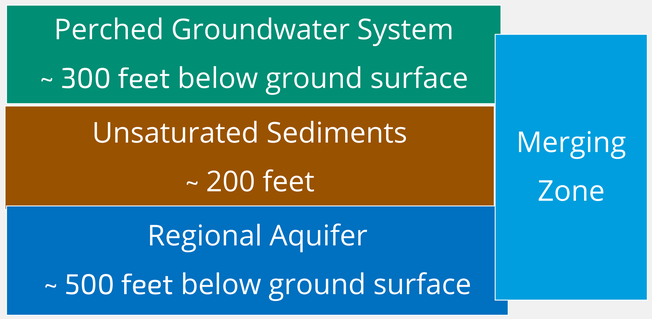
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TIJERAS ARROYO GROUNDWATER (TAG)

What is TAG?

- TAG is an AOC at SNL where past industrial and septic wastewater discharges (1948–1992) have affected groundwater.
- Two water-bearing zones exist at TAG: the Perched Groundwater System (PGWS) and the Regional Aquifer.



What is the remedy?

- Monitored Natural Attenuation.
- Measure nitrate concentrations, monitor extent of contamination, and prevent exposure.
- Let the PGWS dry up naturally.

Monitoring Network

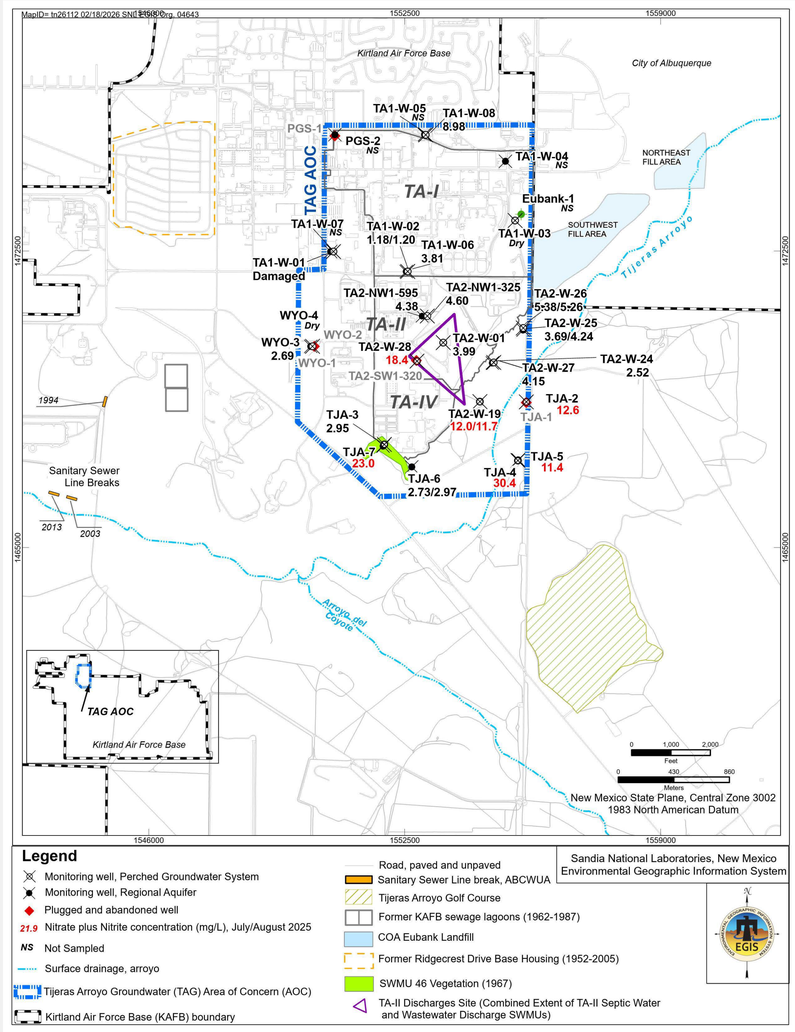
- Monitoring began in 1992.
- 27 monitoring wells: 14 in PGWS, 13 in Regional Aquifer (1 in Merging Zone).
- Quarterly groundwater level measurements.
- Regular groundwater sampling to track contamination.

How did contamination occur?

- Nitrate in the PGWS is derived from septic wastewater discharges.
- Nitrate may also occur naturally.

Key facts for 2025:

- PGWS is dewatering naturally: 11 PGWS wells predicted to go dry by 2069.
- Nitrate maximum concentration in PGWS: 23.0 mg/L.
- Nitrate concentration in Merging Zone: 30.4 mg/L.
- No contamination in Regional Aquifer.
- Nearest potable production well is 1 mile to the west and is not affected by TAG contamination .



Distribution of Nitrate in the TAG AOC, July/August 2025

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BURN SITE GROUNDWATER (BSG)

What is BSG?

- BSG is an AOC at SNL where past explosives tests and burn tests have affected groundwater.
- Groundwater occurs in fractured bedrock, intermittently recharged by precipitation.
- Depth to groundwater varies from ~45 to 360 feet below ground surface.

How did contamination occur?

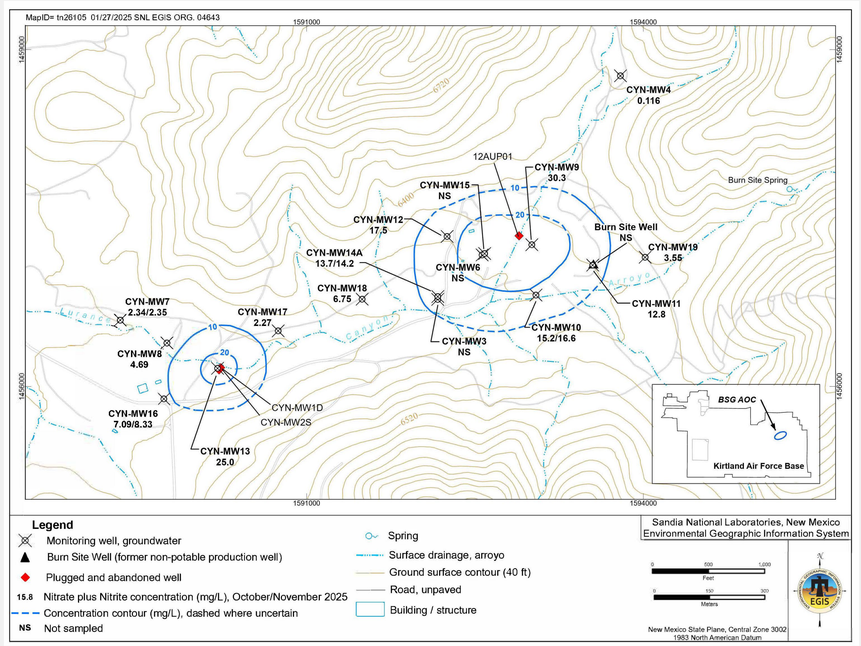
- Nitrate is derived from manmade sources, including ammonium nitrate slurry, degraded explosives, and wastewater discharges.
- Nitrate may also occur naturally.

What is the remedy?

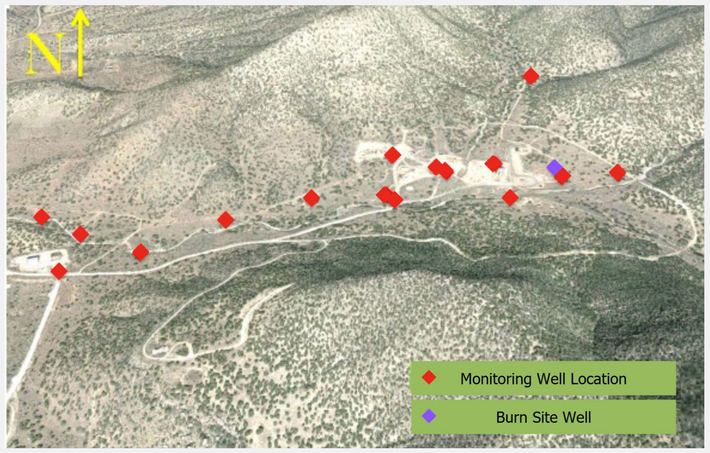
- Long-Term Monitoring.
- Measure nitrate concentrations, monitor extent of contamination, and prevent exposure.

Monitoring Network

- Monitoring began in 1996.
- 17 monitoring wells.
- Quarterly groundwater level measurements.
- Regular groundwater sampling to track contamination.



Distribution of Nitrate in the BSG AOC, October/November 2025



Key facts for 2025:

- Nitrate maximum concentration: 39.5 mg/L.
- Plume area: 53 acres (two plumes combined).
- Nearest potable production well is 8.4 miles to the west and is not affected by BSG contamination.

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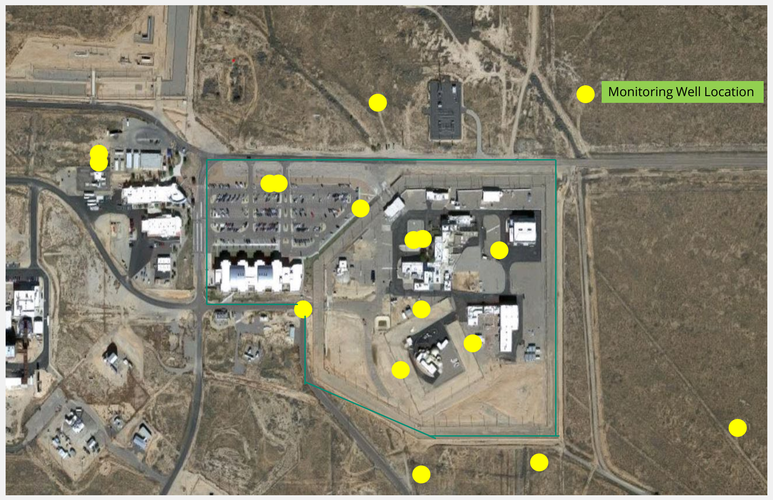
TECHNICAL AREA V GROUNDWATER (TAVG)

What is TAVG?

- TAVG is an AOC at SNL where past industrial and septic wastewater discharges (1960s–1992) have affected groundwater.
- Groundwater occurs in the Regional Aquifer, composed of fine, clay-rich sediments deposited by streams spreading out from nearby mountains (called alluvial fans).
- Groundwater is ~ 500 feet below ground surface.

How did contamination occur?

- TCE is derived from industrial wastewater discharges.
- Nitrate is derived from septic wastewater discharges and may also occur naturally.



What is the remedy?

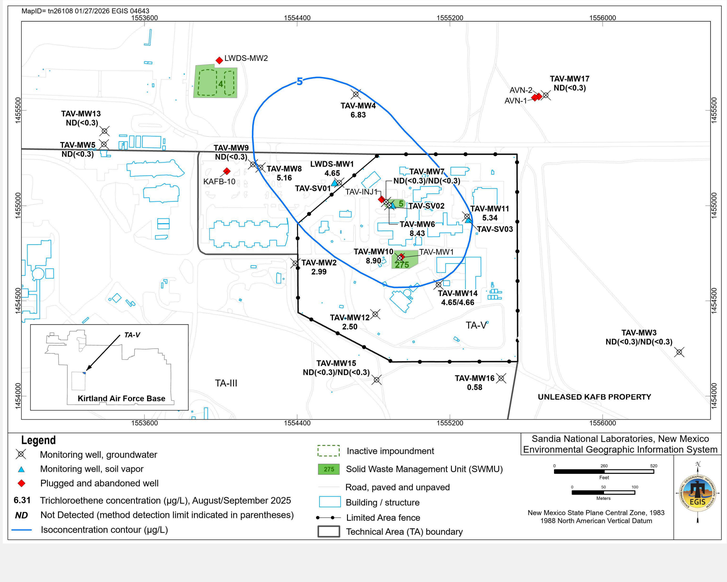
- Long-Term Monitoring.
- Measure TCE and nitrate concentrations, monitor extent of contamination, and prevent exposure.

Monitoring Network

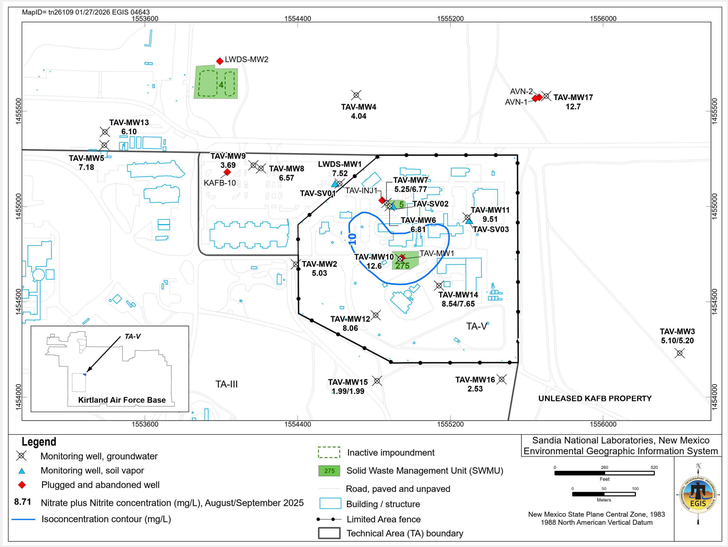
- Monitoring began in 1992.
- 17 monitoring wells.
- Quarterly groundwater level measurements.
- Regular groundwater sampling to track contamination.

Key facts for 2025:

- TCE maximum concentration: 9.24 µg/L.
- Nitrate maximum concentration: 12.9 mg/L.
- Plume areas: TCE (17 acres), nitrate (3 acres).
- Nearest potable production well is 2.8 miles to the northwest and is not affected by TAVG contamination.



Distribution of TCE (**top**) and Nitrate (**bottom**) in the TAVG AOC, August/September 2025



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