

# Environmental Restoration

## Groundwater Units

SAND2011-5690P



Field Workers Conducting Environmental Monitoring

### **Tijeras Arroyo Groundwater (TAG)**

In 1992, the Sandia National Laboratories/New Mexico (SNL/NM) Environmental Restoration (ER) Project began conducting groundwater studies at Technical Area-II (TA-II). The TA-II studies along with other Solid Waste Management Unit (SWMU) related investigations eventually were incorporated into the Tijeras Arroyo Groundwater (TAG) Investigation. In addition to work conducted by the ER Project, the TAG Investigation has incorporated groundwater investigations conducted by the Kirtland Air Force Base (KAFB) Installation Restoration Program and the City of Albuquerque (COA) Environmental Health Department.

Trichloroethylene (TCE) and nitrate have been identified as the contaminants of concern (COCs) for the TAG study area with perched groundwater being the only exposure pathway applicable to the TAG Investigation. There is no threat to drinking water in the regional aquifer (approximately 200 feet below perched groundwater). TCE is a chlorinated solvent

typically used for degreasing operations. Nitrate is principally a byproduct of septic waste. The TAG study area is currently defined as an approximately eight-square mile, rectangular area that is centered in the north-central portion of KAFB.

The potential release sites of TCE and/or nitrate in the TAG study area include sewage lagoons, waste-water outfalls, septic systems, landfills, sewer lines, and the Tijeras Arroyo Golf Course. Based upon the historical use and disposal of chlorinated solvents, the extent of TCE in groundwater is probably associated with multiple aqueous releases of solvents and subsequent vapor-phase transport through the vadose zone. Nitrate in groundwater is probably derived from the release of sanitary waste and the application of fertilizers.

The types of studies conducted in the TAG study area include groundwater sampling, soil-vapor sampling, borehole soil sampling, aquifer testing, colloidal borescope surveys, borehole geophysical surveys, seismic surveys, and site-specific soil sampling. Process knowledge has been acquired by the review of engineering drawings, historical aerial photography, utility plans, and various documents.

Currently, SNL/NM regularly samples 21 groundwater monitoring wells in the TAG study area. In addition, KAFB has over 30 groundwater monitoring wells and the COA has 5 groundwater monitoring wells in the TAG study area. The DOE and SNL have proposed monitored natural attenuation in a Corrective Measures Evaluation Report.



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TAG Monitoring Well Sampling

## Technical Area V (TA - V)

The TA-V study area underlies TA-V and the area immediately adjacent to the northeast corner of TA-III. The area contains several experimental reactors that historically disposed of water into seepage pits and a liquid waste disposal system. Groundwater monitoring at TA-V began in October 1992. TCE and nitrate concentrations in several wells have exceeded regulatory standards. There are 17 wells in the TA-V monitoring network used to monitor water quality and/or water levels. Based on SNL/NM studies, there is no threat to drinking water because the plume is small and the nearest drinking water well is several miles away. The DOE and Sandia have proposed monitored natural attenuation in a Corrective Measures Evaluation Report.

## Burn Site Groundwater Study Area

The Burn Site Groundwater Study Area centers around the active Burn Site Facility in Lurance Canyon. This facility is used to conduct thermal testing using JP-4 fuel. Large burns are performed in lined pools on various components, such as very large shipping containers. Nitrate concentrations in several wells have exceeded regulatory standards, and perchlorate has exceeded an NMED action level.

There are ten groundwater monitoring wells completed in a bedrock aquifer.



Sandia Hydrologist Evaluating Ground Surface

## Environmental Restoration Groundwater Units Data

Annual data can be found in the Annual Groundwater Report, at the following webpage:

[http://www.sandia.gov/news/publications/  
environmental](http://www.sandia.gov/news/publications/environmental)

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