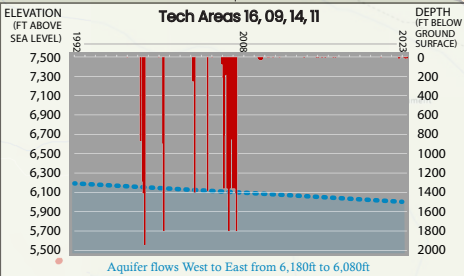
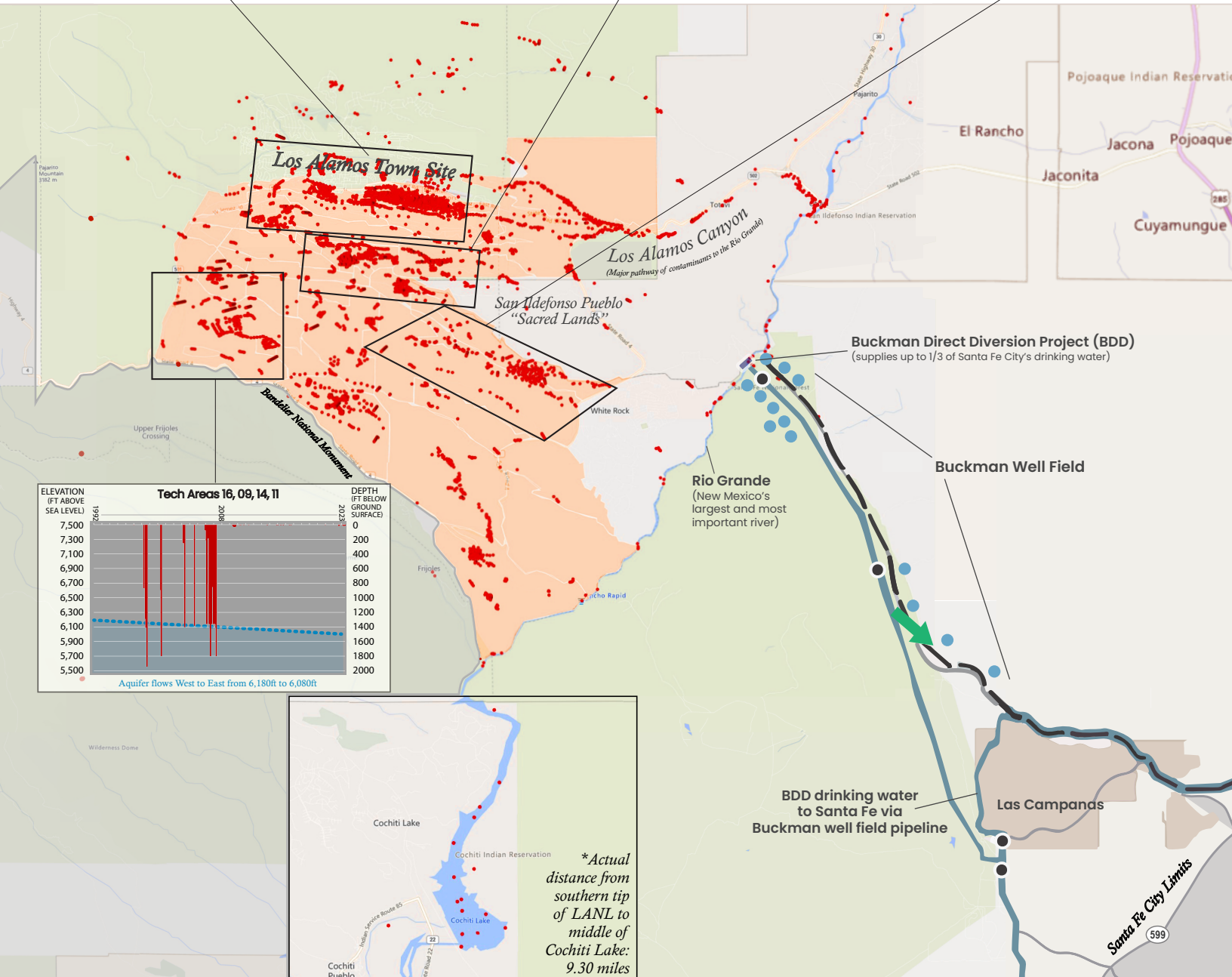
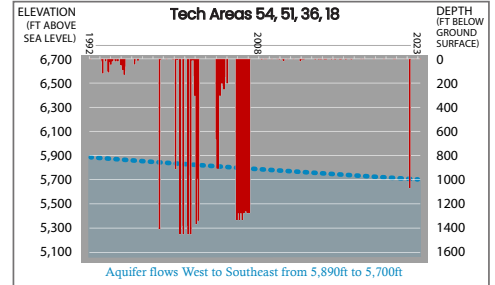
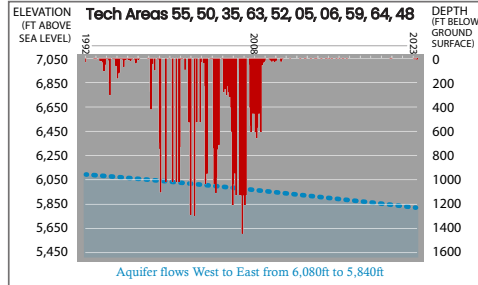
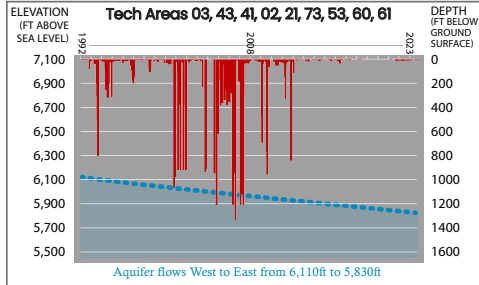


Plutonium Sampling at the Los Alamos Lab Demonstrating Contaminant Migration to the Rio Grande and Groundwater

ALL DATA FROM LANL'S INTELLUS DATABASE www.intellusnm.com

Legend

- REGIONAL WATER TABLE
- DEPTH OF PU CONTAMINATION (FEET BELOW GROUND SURFACE)
- *Elevation on charts for map insets is averaged across tech areas
- PU-238 or -239/240 SAMPLE ("DETECT" OR "NON-DETECT")



*Actual distance from southern tip of LANL to middle of Cochiti Lake: 9.30 miles

Plutonium Contamination at the Los Alamos Lab

The Need for Comprehensive Cleanup: Each red dot in the map on the opposite page represents environmental sampling for the plutonium isotopes 238 and/or 239/240 recorded in [Intellus](#), a Los Alamos National Laboratory (LANL) environmental database that lists raw data and locations. Nuclear Watch has compiled the data to produce this map showing approximately 58,100 samples taken during 1992 to 2023, including down the Rio Grande to Cochiti Lake. Of crucial importance, we have graphed the depths from ground surface where plutonium has been found, demonstrating contaminant migration to the deep groundwater aquifer which northern New Mexicans rely upon for drinking water. LANL use to claim that groundwater contamination was impossible, even formally requesting a waiver from the New Mexico Environment Department from having to monitor for it (which NMED fortunately denied).

LANL now proposes to “cap and cover” its major waste dumps, leaving more than 200,000 cubic yards of toxic and radioactive wastes permanently buried in unlined pits and trenches. The Department of Energy is cutting funding for cleanup at the Lab, even though its budget for nuclear weapons production has more than doubled over the last decade, leading to more contamination and radioactive and toxic wastes. A current case in point is the “Area C” waste dump, which LANL estimates will cost \$12 million to “cleanup” on the cheap through cap and cover. Contrary to that, NMED has issued a draft order for full cleanup, estimated to cost \$805 million.

Nuclear Watch New Mexico believes that plutonium contaminant migration forcefully demonstrates the urgent need for genuine cleanup that will protect generations to come. New Mexicans don’t need more nuclear weapons. Instead, we need to permanently protect precious, irreplaceable groundwater and the Rio Grande while providing high-paying cleanup jobs for decades.

Some Technical Details: Intellus is a huge, difficult to navigate database. It lacks explanations, recommended action levels, status of cleanup (if any) and data verification (which can be a huge issue when it comes to “detections” versus “non-detections”). It does not distinguish between plutonium fallout from nuclear weapons testing and contamination from Lab operations. Accordingly, our plutonium migration map is filtered to generally rule out fallout using two Lab criteria: samples below 0.054 picocuries per gram and less than six inches deep in soil are excluded (a picocurie equals 2.2 atomic disintegrations per minute).

Migration of contaminants offsite and to deep groundwater is common. The hottest sample found in Intellus was 10,100 picocuries per gram in 2021 a half-mile north of the Los Alamos High School (see sampling data [here](#)). The four inset graphs depict the deepest samples taken during the years 1992 through 2023. The sparsity of data after 2008 is because little or no samples were taken, which we argue should be resumed.

The red dots in Los Alamos Canyon on San Ildefonso Pueblo land vividly demonstrate the main contaminant pathway to the Rio Grande. Of particular concern are contaminants near the Buckman Direct Diversion Project from which the City of Santa Fe draws approximately one-third of its drinking water. In 2013 a severe storm destroyed a monitoring station that alerted the Diversion Project to close its gates to prevent potential contamination. Despite repeated requests, DOE refused to replace the monitoring station until required to do so by Nuclear Watch’s cleanup lawsuit in March 2023. That said, the Diversion Project’s final product of pure drinking water has never been known to be compromised by LANL contaminants.

A crucial issue is “detections” versus so-called “non-detections.” Out of ~58,100 samples, LANL has designated 17,483 as “Detects” (30.1%) and 40,661 as “Non-Detects” (69.9%) that are technically below a detection limit. But that doesn’t mean that nothing is there. There may be plutonium, but the quantity can’t be accurately measured because the detection instruments are not sensitive enough. A [technical study](#) for a *LANL Natural Resource Damage Assessment* by the New Mexico Natural Resources Trustee recommended using half of the detection limit for quantifying “non-detections.”

The overriding point is that this body of sampling, detects and non-detects alike, dramatically demonstrate plutonium contaminant migration, both by surface water as far downstream as Cochiti Lake and vertically to the deep groundwater aquifer. As a final matter, LANL’s detection methodologies are suspect to begin with, as our independent consultant, chemist Dr. Michael Ketterer, demonstrates [here](#). April 2024