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Environment Department Releases Report Showing Radiological Contamination in Rio Grande

(Santa Fe, N.M.) The New Mexico Environment Department released a report today that identifies and measures radiological contamination from past operations at Los Alamos National Laboratory in sediment along the Rio Grande.

The levels of radiological contaminants pose no immediate health risk. However, NMED Secretary Ron Curry and NMED scientists urge LANL to do more to stop radionuclides from continuing to wash down the river.

“The report shows something must be done now to protect New Mexicans and the environment from continued discharges of harmful contaminants to the Rio Grande,” Secretary Curry said. “Since the Cerro Grande fire, elevated levels of contaminants continue to flow from the Pajarito Plateau into the Rio Grande during floods. LANL must take actions to reduce and control the movement of contaminated sediments from lab boundaries.”

LANL released radionuclides — plutonium, strontium and cesium — into Los Alamos and Pueblo canyons during the early years of lab operations and some of those contaminants washed into the Rio Grande.

Since the Cerro Grande fire, NMED found elevated levels of those contaminants in storm water that suggest buried contaminants are eroding at a rate that has not been seen since contaminants were first deposited into the watersheds by the lab in the 1950s and 1960s.

NMED’s Department of Energy Oversight Bureau began a five-year study in 1998 to identify radionuclide contamination originating from LANL in abandoned channels, old flood plains and other deposits along the Rio Grande. Documenting effects from the fire on water quality held back the report until 2006. NMED finalized the report and sent it out for review this year.

NMED scientists collected soil core samples that showed sediments from early lab operations to those deposited in the 1970s and 1980s. Scientists sampled for radionuclides, including plutonium, uranium, americium, strontium, and cesium. In addition, LANL scientists analyzed NMED’s samples for plutonium using a method developed by the lab that can determine the percentage of plutonium in each sample attributable to LANL discharges.

During Cold War years the lab discharged industrial liquid wastes into the Los Alamos Canyon watershed. Until 1986, the lab discharged untreated and treated wastewaters into canyons at LANL, including radioactive materials, heavy metals, solvents, and other wastes associated with research.

During the early years of the lab, those wastes washed downstream into the Rio Grande by regular floods in the canyons on the Pajarito Plateau. Floods diminished by the 1970s which reduced the transport of contaminants downstream. Contaminants in the canyons and downstream were buried as additional clean sediment was deposited through normal fluvial processes. Additionally, some contaminants remained in normally dry stream channels that run through the lab.

After the Cerro Grande fire in 2000, flooding from barren watersheds caused erosion of stream banks at Pueblo and Los Alamos canyons, which exposed old LANL contaminants and carried them to the Rio Grande. The frequency and magnitude of floods has increased to more than 140 times those of the 1990s.

In 2001, NMED scientists documented that elevated levels of radionuclides were washing once again from Los Alamos and Pueblo canyons into the Rio Grande. NMED and LANL studies have shown that many of the contaminants of concern bind tightly to fine grain sediments. Therefore, if the lab controls the movement of sediment from Pajarito Plateau canyons, it can reduce the spread of contamination, according to NMED scientists Ralph Ford-Schmid and David Englert, who worked on the study.

Sediment control can be accomplished by installing additional weirs similar to one LANL installed at Los Alamos Canyon, which has been effective in capturing sediment. In addition, effective erosion control measures include stabilizing eroding banks, restoring damaged wetlands, and planting riparian vegetation.

NMED has also suggested changes to LANL's storm water monitoring program that would determine the effectiveness of sediment control measures. Those controls will not stop all contaminants from spreading, so the department recommends that LANL implement a notification system to alert Santa Fe water operators when Los Alamos Canyon is flowing so the city can temporarily stop drawing water from the Rio Grande.

NMED and the city of Santa Fe have been working collaboratively with LANL to determine appropriate mitigation and other measures to assure safety of downstream water supplies. If implemented appropriately, those measures should assure the safety of Santa Fe's water supply.

The report, Distribution of Radionuclides in Northern Rio Grande Fluvial Deposits near Los Alamos National Laboratory, New Mexico, is available at http://www.nmenv.state.nm.us/doe_oversight/pubs.htm

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