

Environment Department Confirms High Levels of Radionuclides in LANL Storm Water and Suspended Sediment

Elements Observed Do Not Pose Immediate Health Threat but do Indicate Importance of Clean Up

(Santa Fe, N.M.) -- The New Mexico Environment Department has confirmed that sediment and storm water within a Los Alamos National Laboratory watershed last year during a flooding event contained plutonium²³⁸, plutonium^{239/240}, americium²⁴¹ and strontium⁹⁰ at elevated levels. Department investigators measured elevated radionuclides resulting from one large potable water spill as well as several storm events that occurred in Los Alamos/Pueblo Canyon during July and August.

A water line break last summer on July 5 at Los Alamos National Laboratory Technical Area 21 (TA-21) triggered automated storm water sampling equipment maintained by NMED in Los Alamos Canyon. Approximately 4 million gallons of potable water released over a 26 hour period eroded soil and carried contaminants into Los Alamos Canyon and beyond laboratory boundaries. Staff from NMED's Department of Energy Oversight Bureau collected five samples of water during the event and radiological analysis of those samples showed high levels of plutonium in the suspended sediment. Concentrations of plutonium^{239/240} (Pu^{239/240}) ranged from 89 to 160 picocuries per gram (pCi/g) and averaged 114 pCi/g. These levels are 100 times the levels detected during normal storm events from 2005 to 2007. The flows from the water line break did not reach the Rio Grande.

"Our study again shows that LANL must focus greater efforts on measures to protect the environment, the watershed and the drinking water supplies of Northern New Mexico. This will mean measures to prevent the movement of contaminants into the canyon and downstream as required in the clean up order. We also support the installation of an early warning system to detect the flow of contaminants into the Buckman Diversion," said NMED Secretary Ron Curry. "The department's scientists will continue to monitor the environment to ensure the health of New Mexico residents is protected."

These high levels indicate that flooding resulting from the water line break mobilized contaminants in soils at and below TA-21. Facilities at TA-21 were historically used by LANL to process plutonium and are known sites of contamination. This site is the location of old drain lines from a building that was part of the "DP West" plutonium processing facility at TA-21. In addition to radionuclides, chemical contaminants such as heavy metals and organic compounds are present at the site. NMED has ordered additional work at several sites at TA-21 -- including the one inundated by the water line break. All are being addressed in the fence-to-fence clean-up order signed in 2005 by DOE, LANL and NMED.

The department also collected a water sample on July 26 from the Rio Grande at Buckman Landing -- the location of the Buckman Direct Diversion -- following a rainstorm in northern New Mexico. The department collected that sample to reflect what might happen in the future during normal storm water flows in the Rio Grande. Plutonium was not detected in that sample although americium was found at levels that might reflect contributions from atmospheric fallout.

Plutonium-239 is a manmade radioactive element produced since the 1940s as a result of nuclear weapons research. It has a radioactive half-life of 24,000 years and is particularly harmful to lung tissue and internal organs if inhaled.

The department continues to work with LANL, the City of Santa Fe, Buckman Direct Diversion Board and staff, and local communities to investigate and implement efforts to reduce the flow of contaminants washed with storm water from LANL property. In addition, the department is working with agencies to increase surface water monitoring efforts along the Rio Grande.

NMED is reviewing LANL's most recent proposal for arresting contaminated sediment flows within the Los Alamos/Pueblo Canyon system, and expects to issue a decision within the next 30 days. "I expect DOE and the Laboratory to move quickly to execute the work we order," added Curry.

An earlier report (<http://www.nmenv.state.nm.us/OOTS/documents/PRBuckmanReport9-26-08revbyDE.pdf>) concluded that contaminant levels from legacy waste are low where construction will occur in the channel at the Buckman Direct Diversion site.

Note: a Curie is a unit of radioactivity. A picocurie is one trillionth of a Curie.
For more information, call Marissa Stone at (505) 827-0314.

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Marissa Stone
Communications Director
New Mexico Environment Department
(505) 827.0314 (o)
(505) 231.0475 (c)