Los Alamos NATIONAL LABORATORY

Environmental Programs
P.O. Box 1663, MS M991
Los Alamos, New Mexico 87545
(505) 606-2337/FAX (505) 665-1812

National Nuclear Security Administration
Los Alamos Field Office, MS A316
Environmental Projects Office
Los Alamos, New Mexico 87544
(505) 667-4255/FAX (505) 606-2132

RECEIVED
SEP 2013
NMED Hazardous Waste Bureau

Date: SEP 23 2013
Refer To: EP2013-0207

John Kieling, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Response to Review of the Periodic Monitoring Report for White Rock Canyon and Rio Grande Watershed General Surveillance Monitoring Group, September 24–October 3, 2012, Los Alamos National Laboratory

Dear Mr. Kieling:

The New Mexico Environment Department (NMED) provided comments on May 17, 2013, on the Periodic Monitoring Report for White Rock Canyon and Rio Grande Watershed General Surveillance Monitoring Group, September 24–October 3, 2012, submitted in February 2013 by the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) (collectively, the Permittees). To facilitate review of the Permittees's responses, NMED's comments are included verbatim, followed by the Permittees's responses.

NMED Comment:

Several of the pH results exceeded the required extraction or analysis holding time. Also, CAWR-12-23405, CAWR-12-23461, CAW-12-23462, and CAWR-12-23406 potassium measurements all exceeded the range of analysis. The Permittees must meet all quality assurance criteria and must discuss all samples that do not meet the required criteria and propose practical solutions for future sampling events that will provide the ability to meet all quality assurance requirements for all samples in the next report for this site.

LANL Response:

Table C-2 in Appendix C, titled White Rock Canyon General Surveillance Monitoring Group Analytical Results and Results from the Four Previous Monitoring Events if Available, contains 135 pH measurements. All but six of the measurements have an analytical laboratory qualifier of "H," indicating "The required extraction or analysis holding time for this result was exceeded." Of the remaining six, two were analyzed by another contract analytical laboratory, and four are legacy results from 1996 and 1998, which were not validated.

The U.S. Geological Survey National Field Manual for the Collection of Water-Quality Data, Chapter A6, Field Measurements, provides the following guidance:

> The pH of sample water is to be measured as soon as possible after removal of the sample from its environmental source. The pH of a water sample can change substantially within hours or even minutes after sample collection as a result of temperature change; degassing (loss of sample oxygen, carbon dioxide, hydrogen sulfide, ammonia); in-gassing (gain of sample oxygen, carbon dioxide, hydrogen sulfide, ammonia); mineral precipitation (formation of calcium carbonate, iron hydroxides); metabolic respiration by microorganisms; and other chemical, physical, and biological reactions.

The pH of a water sample may be altered during sample preservation activities (e.g., for metals) and following sample collection. Thus, the pH of a sample measured after it arrives at the analytical laboratory may not be representative of the groundwater sample. A pH measurement is made in the field when samples are collected. These results are representative of groundwater samples and presented in Appendix A of the periodic monitoring report.

NMED noted that some potassium measurements exceeded the range of analysis. The referenced potassium measurements have an analytical laboratory qualifier of "E," indicating "Metals–the % difference of sample and SD [serial dilution] is >10%. Sample concentration must meet flagging criteria." These data fully meet Los Alamos National Laboratory's (LANL's) data-quality objectives. For metals, the analytical laboratory qualifier "E" means that difference between the sample result and the SD of the same sample is more than 10%. The "E" qualifier is an analytical laboratory data qualifier and is not a LANL reporting qualifier. LANL's data-quality objectives do not require less than 10% difference between results for the sample and the SD, and these results are reported as having no additional qualifiers.

NMED Comment:

NMED noted that Spring 9B was not sampled this year (FY 2012) due to restricted access from poison ivy. For future monitoring events, the Permittees must plan to sample in late fall or winter seasons when poison ivy is less of an issue. The Permittees must also plan to remove enough of the poison ivy, to ensure that samples can be collected from Spring 9B.

LANL Response:

Poison ivy continues to be a hazard year round at Spring 9B, even when the plants are dormant. Because of health and safety concerns associated with trying to eradicate poison ivy from wildland areas, LANL has removed Spring 9B from the 2014 Interim Facility-wide Groundwater Monitoring Plan.

NMED Comment:

NMED also noted an increase in magnesium to slightly above the groundwater standard at Spring 2. The Permittees must evaluate the representativeness of water-quality data obtained from Spring 2. The redox conditions within the wetlands above Spring 2 may have created conditions which render the water quality as non-representative of formation water. In the next report the

Permittees must discuss the increasing magnesium concentrations and provide an explanation of the change.

LANL Response:

LANL assumes NMED's comment intended to reference "manganese," not "magnesium." The most recent manganese result at the spring, located on San Ildefonso Pueblo lands, was above the 200 µg/L groundwater standard for the first time. The values since 2008 have steadily increased from nondetect (less than 10 µg/L) to 203 µg/L, just above the New Mexico Water Quality Control Commission groundwater standard. LANL will continue to evaluate changes in manganese concentrations at Spring 2.

If you have any questions, please contact Steve Paris at (505) 606-0915 (smparis@lanl.gov) or Hai Shen at (505) 665-5046 (hai.shen@nnsa.doe.gov).

Sincerely,

for JM

Jeff Mousseau, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

Peter Maggiore, Assistant Manager
Environmental Projects Office
Los Alamos Field Office

JM/PM/CD/SM:sm

Cy: Laurie King, EPA Region 6, Dallas, TX
Steven Rydeen, San Ildefonso Pueblo
Joe Chavarria, Santa Clara Pueblo
Steve Yanicak, NMED-DOE-OB, MS M894
Tom Skibitski, NMED-DOE-OB (date-stamped letter emailed)
lasomailbox@nnsa.doe.gov
Annette Russell, DOE-NA-00-LA (date-stamped letter emailed)
David Rhodes, DOE-NA-00-LA (date-stamped letter emailed)
Hai Shen, DOE-NA-00-LA (date-stamped letter emailed)
Steve Paris, EP-CAP (date-stamped letter emailed)
Craig Douglass, EP-CAP (date-stamped letter emailed)
Jeff Mousseau, ADEP (date-stamped letter emailed)
Wendy Staples, EP-REG (date-stamped letter emailed)
Public Reading Room (hard copy)
RPF (electronic copy)