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Environmental Protection & Compliance Division
Environmental Compliance Programs
PO Box 1663, K490
Los Alamos, New Mexico 87545

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Ms. Michelle Hunter, Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2261
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Dear Ms. Hunter:

SUBJECT: Notification of Pre-Start Surrogate Water Test, Radioactive Liquid Waste Treatment Facility Upgrade Project, DP-1132

In April 2014, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) submitted to the New Mexico Environment Department (NMED) the 90% design plans and specifications for the Radioactive Liquid Waste Treatment Facility Upgrade Project (RLWTF UP). The RLWTF UP is the replacement of the low-level radioactive liquid waste treatment capability currently provided in the existing RLWTF (TA-50-001). As such, the RLWTF UP will not result in any change to the (1) location of the discharge, (2) quantity or quality of the discharge, or (3) the character of water contaminants received, treated, or discharged. With construction of the RLWTF UP essentially complete, the next activity leading towards startup is a surrogate test of the RLWTF UP treatment units. This letter provides NMED with notification of the planned surrogate test within the next 45 days.

Approximately ten thousand gallons of tapwater containing non-radioactive salts will be introduced to the RLWTF UP. The concentration of salts will be formulated in such quantities as to imitate the constituents in the design basis influent stream. Enclosure 1 provided a list of the 15 constituents that will be monitored during the surrogate test. Neodymium, samarium and cerium—non-radioactive metals—will be used as surrogate elements for plutonium, americium and uranium.

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The surrogate test water will be fed to each RLWTF UP treatment process. Samples will be collected from the process streams and analyzed for each of the 15 constituents listed in Enclosure 1. Chemical analyses of these samples will determine if the treatment process removes contaminants as per the design requirements.

The performance of the surrogate test will take approximately 7 days. Each daily activity is identified below.

- Day 1: Development of surrogate water.
- Day 2: Pre-filling and pre-dosing operational tanks.
- Day 3: Feed surrogate water to the RLWTF UP and collect/analyze samples.
- Day 4: Operate the low pressure / low temperature evaporator and produce a drum of evaporator concentrate.
- Day 5: Operate the rotary filter press and produce a drum of sludge.
- Day 6: Analyze analytical data.
- Day 7: Prepare written surrogate test report.

Following completion of the test, the surrogate water will be stored in the 75,000-gal. influent tank, blended with low-level influent to the RLWTF, treated, and discharged to the mechanical evaporator system (MES).

Please contact Robert S. Beers by telephone at (505) 667-7969 or by email at bbeers@lanl.gov if you have questions regarding this notification.

Sincerely,

Taunia Van Valkenburg
Group Leader

TVV:KEA:MTS:RSB:kr

Enclosure: 1) Surrogate Test Water Quality Parameters

Cy: Shelly Lemon, NMED/SWQB, Santa Fe, NM, (E-File)
John E. Kieling, NMED/HWB, Santa Fe, NM, (E-File)
Jody M. Pugh, NA-LA, (E-File)
Karen E. Armijo, NA-LA, (E-File)
Darlene Rodriguez, NA-LA, (E-File)
Craig S. Leasure, PADOPS, (E-File)
William R. Mairson, ADESH, (E-File)
John C. Bretzke, ADESH, (E-File)
Enrique Torres, EPC-DO, (E-File)
Denise C. Gelston, TA-55-RLW, (E-File)
Alvin M. Aragon, TA-55-RLW, (E-File)
John C. Del Signore, TA-55-RLW, (E-File)
Vincent P. Worland, TA-55-RLW, (E-File)
Randal S. Johnson, DESHF-TA55, (E-File)
Taunia Van Valkenburg, EPC-CP, (E-File)
Michael T. Saladen, EPC-CP, (E-File)
Robert S. Beers, EPC-CP, (E-File)
Ellena I. Martinez, EPC-CP, (E-File)
adesh-records@lanl.gov, (E-File)
locatesteam@lanl.gov, U1700075, (E-File)
epc-correspondence@lanl.gov, (E-File)

ENCLOSURE 1

Surrogate Test Water Quality Parameters

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SURROGATE TEST WATER QUALITY PARAMETERS

Fifteen non-radioactive water quality parameters will be monitored during the surrogate test. The criteria for success of the surrogate test will be judged by determining both the overall removal of constituents by the entire process and by determining of the removal of constituents by each of the TA-50-LLW treatment units. The pH of the solutions will be monitored; it is not a parameter that is removed by treatment.

Cerium and Samarium will serve as non-radioactive surrogate constituents for Plutonium and Americium; Neodymium will serve as a non-radioactive surrogate for Uranium.

The fifteen water quality parameters are listed below:

1. pH
2. Nitrate-Nitrogen, NO_3-N
3. Nitrite-Nitrogen, NO_2-N
4. Ammonia-Nitrogen, NH_3-N
5. Perchlorate, ClO_4
6. Fluoride, F
7. Copper, Cu
8. Zinc, Zn
9. Silica, SiO_2
10. Total Dissolved Solids, TDS
11. Total Suspended Solids, TSS
12. Chemical Oxygen Demand, COD
13. Cerium, Ce
14. Samarium, Sm
15. Neodymium, Nd