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Date: **MAR 08 2016**
Symbol: EPC-DO-16-054
LA-UR: 16-21206

Locates Action No.: U1600545

Mr. John E. Kieling
 Hazardous Waste Bureau
 New Mexico Environment Department
 2905 Rodeo Park Drive East, Building 1
 Santa Fe, NM 87505

Dear Mr. Kieling:

Subject: Response to Approval with Modifications Los Alamos National Laboratory Nitrate Salt-Bearing Waste Container Isolation Plan, Revision 4

This letter provides a response to a letter dated January 14, 2016 from the New Mexico Environment Department (NMED) to the U.S. Department of Energy (DOE) and the Los Alamos National Security, LLC (LANS), collectively the Permittees. On May 19, 2014, the NMED issued an Administrative Order requiring the Permittees to submit a Los Alamos National Laboratory (LANL) Nitrate Salt-Bearing Waste Container Isolation Plan (LANL Isolation Plan). The Administrative Order was modified subsequently on July 10, 2014; April 27, 2015; May 8, 2015; and August 12, 2015. The LANL Isolation Plan was revised on May 21, 2014; May 29, 2014; September 19, 2014; April 21, 2015; and December 18, 2015. The NMED approval with modifications for the LANL Isolation Plan, Revision 4 was received on January 14, 2016 and included a request for further information from the Permittees. This letter includes the information as requested by the NMED.

Within the LANL Isolation Plan, Revision 4, the Permittees added a sentence to Section VII, *Cemented Legacy and Newly Generated Cemented Nitrate Salt-Bearing Waste*, that stated "[t]he reactivity characteristic has never been observed regarding cement, and further, review of AK [acceptable knowledge] documentation processes involved in the waste stream do not indicate the potential for reactivity". The NMED requested that the Permittees provide a supplemental list of references of AK documentation reviewed by the Permittees which support the conclusion. The following provides further explanation for the statement.

It was not the intention of the Permittees to indicate that the "AK documentation" referenced by the LANL Isolation Plan, Revision 4 was new documentation that the Permittees recently reviewed. All of the overall

AK documentation for nitrate salt-bearing waste streams that was reviewed by the Permittees has been provided to the NMED through several submittals associated with the characterization for nitrate salt-bearing waste streams. The AK documentation referred to is reference to the analysis provided in the LANL Isolation Plan, Revision 4 that immediately follows the statement. Section VII, *Cemented Legacy and Newly Generated Cemented Nitrate Salt-Bearing Waste*, states:

The cement has never exhibited the following properties per 40 CFR 261.23: (1) it is normally unstable and readily undergoes violent change without detonating; (2) it reacts violently with water; (3) it forms potentially explosive mixtures with water; (4) when mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment; (5) it is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement; and (6) it is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

The basis for this determination has been established by direct personnel observations, the facility operating record, and the chemical nature of the Portland cement used in the LANL stabilization process. LANL staff has never observed any ignitable or reactive behavior associated with the cemented waste from the stabilization process. Facility records also confirm that no ignitable or reactive behavior was ever observed from the cemented waste. Lastly, Portland cement by its chemical nature will not react with oxidizers and has no available hydrogen, oxygen, and carbon molecules to help sustain a reaction. In addition, the stabilization process produces a solid monolith, which is an absorber of heat, further reducing any potential for reactive behavior within the cement matrix.

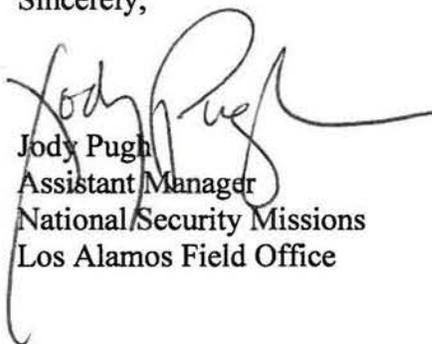
If you have comments/questions or would like to meet regarding this submittal, please contact Mark P. Haagenstad at (505) 665-2014 or David Nickless (505) 665-6448.

Sincerely,



John P. McCann
Acting Division Leader
Environmental Protection & Compliance Division
Los Alamos National Security, LLC

Sincerely,



Jody Pugh
Assistant Manager
National Security Missions
Los Alamos Field Office

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**NMED
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