***Environmental Protection Division***
***Environmental Compliance Programs (ENV-CP)***
PO Box 1663, K490
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***National Nuclear Security Administration***
***Los Alamos Field Office, A316***
3747 West Jemez Road
Los Alamos, New Mexico, 87545
(505) 667-5794/Fax (505) 667-5948

*Date*: FEB 19 2015
*Symbol*: ENV-DO-15-0043
*LAUR*: 15-20872
*Locates Action No.*: Not Applicable

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: Transmittal of LA-CIN01.001 Cemented Can Information in Response to New Mexico Environment Department Information Requests from December 1, 2014 Teleconference**

The purpose of this letter is to formally transmit responses to questions raised by the New Mexico Environment Department (NMED) during a December 1, 2014 teleconference. The Los Alamos National Security, LLC (LANS) and the U.S. Department of Energy (DOE), the Permittees, sent the enclosed responses via electronic mail to the NMED on February 3, 2015.

If you have comments or questions regarding this submittal, please contact Mark P. Haagenstad at (505) 665-2014 or Gene E. Turner at (505) 667-5794.

Sincerely,

Alison M. Dorries
Division Leader
Environmental Protection Division
Los Alamos National Security LLC

Sincerely,

Gene E. Turner
Environmental Permitting Manager
Environmental Projects Office
Los Alamos Field Office
U.S. Department of Energy

AMD:GET:MPH:LVH/kt

Enclosures: (1) Email: Transmittal of LA-CIN01.001 Cemented Can Information in Response to New Mexico Environment Department Information Requests from December 1, 2014 Teleconference

Cy: Ryan Flynn, NMED, Santa Fe, NM, (E-File)
Kathryn M. Roberts, NMED, Santa Fe, NM, (E-File)
Steve Pullen, NMED/HWB, Santa Fe, NM, (E-File)
Timothy Hall, NMED/HWB, Santa Fe, NM, (E-File)
Peter Maggiore, NA-LA, (E-File)
Lisa Cummings, NA-LA, (E-File)
Gene E. Turner, NA-LA, (E-File)
Kirsten M. Laskey, NA-LA, (E-File)
Michael A. Lansing, PADOPS, (E-File)
Amy E. De Palma, PADOPS, (E-File)
Randall M. Erickson, ADEP, (E-File)
Enrique Torres, ADEP, (E-File)
Cheryl D. Cabbil, ADNHHO, (E-File)
Michael T. Brandt, ADESH, (E-File)
Raeanna R. Sharp-Geiger, ADESH, (E-File)
Alison M. Dorries, ENV-DO, (E-File)
James S. Clemmons, LTP, (E-File)
Rick A. Alexander, EWMO-DO, (E-File)
Andrew R. Baumer, EWMO-DO, (E-File)
Donald L. Allen, LTP, (E-File)
Scott A. Miller, LTP-SSS, (E-File)
David E. Frederici, LTP-SSS, (E-File)
Selena Z. Sauer, LC-ESH, (E-File)
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RECEIVED
FEB 19 2015
NMED
Hazardous Waste Bureau

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Hazardous Waste Bureau
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2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Dear Mr. Kieling:

**Subject: Transmittal of LA-CIN01.001 Cemented Can Information in Response to New Mexico Environment Department Information Requests from December 1, 2014 Teleconference**

The purpose of this letter is to formally transmit responses to questions raised by the New Mexico Environment Department (NMED) during a December 1, 2014 teleconference. The Los Alamos National Security, LLC (LANS) and the U.S. Department of Energy (DOE), the Permittees, sent the enclosed responses via electronic mail to the NMED on February 3, 2015.

If you have comments or questions regarding this submittal, please contact Mark P. Haagenstad at (505) 665-2014 or Gene E. Turner at (505) 667-5794.

Sincerely,

Alison M. Dorries
Division Leader
Environmental Protection Division
Los Alamos National Security LLC

Sincerely,

Gene E. Turner
Environmental Permitting Manager
Environmental Projects Office
Los Alamos Field Office
U.S. Department of Energy

# ENCLOSURE 1

Email: Transmittal of LA-CIN01.001 Cemented Can Information in Response to New Mexico Environment Department Information Requests from December 1, 2014 Teleconference

ENV-DO-15-0043

LA-UR-15-20872

Date: FEB 19 2015

| | |
|---|---|
| **From:** | Haagenstad, Mark P |
| **Sent:** | Tuesday, February 03, 2015 4:42 PM |
| **To:** | John Kieling; Timothy.Hall@state.nm.us; siona.briley@state.nm.us; coleman.smith@state.nm.us; steve.holmes@state.nm.us; ricardo.maestas@state.nm.us |
| **Cc:** | Brandt, Michael Thomas; Erickson, Randy; Sharp-Geiger, Raeanna Racine; Dorries, Alison Marie; Grieggs, Tony; Pete Maggiore; Nickless, David J; Turner, Gene E; Torres, Enrique; Christensen, Davis V; Vigil-Holterman, Luciana R; Schumann, Paul B |
| **Subject:** | Transmittal of LA-CIN01.001 Cemented Can Information in Response to New Mexico Environment Department Information Requests from December 1, 2014 Teleconference |

Dear Mr. Kieling:

Subject: Transmittal of LA-CIN01.001 Cemented Can Information in Response to New Mexico Environment Department Information Requests from December 1, 2014 Teleconference

The purpose of this email is to transmit information requested by New Mexico Environment Department (NMED) representatives during a December 1, 2014 teleconference with representatives of the U.S. Department of Energy (DOE)/ National Nuclear Security Administration (NNSA) and the Los Alamos National Security, LLC (LANS) (the Permittees). During that teleconference, NMED representatives asked questions related to the LA-CIN01.001 cemented-cans waste stream, specifically regarding 81 drums that had been remediated to remove liquids derived from dewatering of the 1-gallon cement cans in the 81 drums. The enclosed information is provided to respond to NMED's December 1, 2014 questions, as well as to a follow-up question asked by NMED during a January 21, 2015 teleconference.

1. NMED (C. Smith): Before Swheat was used, what absorbent was used?

Response: Waste Lock® 770 was used prior to Swheat.

2. NMED (C. Smith): Are you concerned about reactions of that organic polymer?

Response: No. The primary ingredient, a cross-linked, long chain sodium polyacrylate (CAS Number: 09003-04-7), is a stable polymer. According to the manufacturer, M2 Polymer Technologies, Inc., Waste Lock 770 is stable and hazardous polymerization does not occur. Use of Waste Lock 770 was discontinued due to a significant reduction in absorption efficiency when used for the low pH and/or high ionic strength liquids that were encountered in the nitrate salts containers.

3. NMED (R. Maestas): We are also concerned about incompatibility issues with WasteLock 770. Will you evaluate the compatibility of the liquid with WasteLock 770?

Response: According to the manufacturer, Waste Lock 770 is stable and there are no known incompatibilities. The Permittees are still evaluating whether or not additional information obtained

by testing using a surrogate would add value to the analysis. However, the Permittees are conducting sampling and analyses of unremediated LA-CIN01.001 cemented can waste containers in order to gain information on the liquids present. The information gained from these analyses will be used to further understand potential compatibility issues.

4. NMED (C. Smith): What neutralizer(s) were used? What was the additive used to adjust the pH prior to making the original concrete? The ones we know about all contained organics.

Response: Two neutralizers, PIG® brand Base Encapsulating/Neutralizing Absorbent and Spilfyter Products Kolorsafe Dry Base Neutralizer, were available for use at TA-50-69 and TA-54, Domes 231 and 412. They would have been used if neutralization occurred there. With regard to the initial cementation process at TA-55 that generated the parent waste containers during the 1980s, sodium hydroxide was used to adjust the pH. The Permittees are continuing to evaluate information related to remediation of dewatered liquids from the LA-MIN03 cemented waste stream, including the neutralizers used. This information will be provided to the NMED in a separate transmittal.

5. NMED (S. Holmes) Where in Panel 6 are the referenced drums?

Response: This information is available from and should be provided to the Department by CBFO.

6. NMED (C. Smith): How did 81 parent drums multiply into 229 daughters?

Response: The parent drums contained high activity waste that often exceeded the WIPP Waste Acceptance Criteria. Several factors including fissile gram quantity, dose rate, and wattage affect the number of daughter containers generated by a high activity parent container. To meet the WIPP WAC, the parent waste (and therefore its activity) was typically divided into either several new 55 gal. drums or several Pipe Overpack Containers (POCs) to meet WIPP WAC requirements. A POC only holds 1.8 ft3 of waste, has a weight limit of 225 pounds, and only one is allowed per drum. These factors caused a parent waste volume contained in 81 drums to be divided among 229 daughter drums.

7. NMED (S. Pullen): If these drums all contain cement monoliths, we do not understand how that [parent: daughters ratio] would [result]. Could free liquids be generated from cans and collect at the bottom of the 55-gal drum?

Response: The only LA-CIN-01.001 drums processed at WCRRF were those containing cemented cans. Drums containing cement monoliths could not be processed at WCRRF due to the physical limitations of the glovebox. Free liquids generated from the cans during years of storage did collect in the bottoms of the 55-gallon drums. Specific details of the remediation of these dewatered liquids from the LA-CIN-01.001 cemented cans, including the parent:daughter ratios, are still being evaluated by the Permittees, and will be provided to the NMED in a separate transmittal.

8. NMED (T. Kliphuis): What about treatment of MIN-03? Was Swheat ever used for that waste stream?

Response: The Permittees are continuing to evaluate information related to remediation of dewatered liquids from the LA-MIN03 cemented waste stream, including the absorbents used. This information will be provided to the NMED in a separate transmittal.

9. NMED (T. Hall): What form was the CIN01 waste stream of interest in, monoliths, cans, both? What kind of cement was used, Portland, gypsum?

LANL Response: The CIN-01 waste stream included both monoliths and cans. Only cans were processed at WCRRF (see response to question #7). Both gypsum and Portland cement were used at various times in the process. Cementation was started in 1980 using Portland cement. In 1983 the process was changed to use gypsum cement. In 1998 the process reverted back to using Portland cement, which remains in use today.

10. NMED (T. Hall, January 21, 2015): Was the addition of the organic kitty litter in compliance with the exemption for adding absorbent at 40 CFR 264.1(g)(10)?

LANL Response: The Permittees are continuing to evaluate past remediation operations at WCRRF at this time, and will notify the NMED upon discovery and confirmation of any additional instances of noncompliance with the Permit.

If you have comments or questions regarding this submittal, please contact me at (505) 665-2014.

Mark Haagenstad
Environmental Protection Division
RCRA Compliance and Permitting
Office: (505) 665-2014
Mobile: (505) 699-1733