



ESHID-602410

***Environmental Compliance Programs
Los Alamos National Laboratory***

PO Box 1663, K490
Los Alamos, New Mexico 87545
(505) 667-0666

MAY 25 2017

Date:

Symbol: EPC-DO: 17-197

LA-UR: 17-23371

Locates Action No.: N/A

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

Subject: Transmittal of Additional Information Regarding Emergency Treatment at TA-55

Dear Mr. Kieling:

The purpose of this letter is to transmit additional information as requested via electronic mail (email) by the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB) on April 26, 2017. On April 19, 2017, Los Alamos National Security, LLC, (LANS), in coordination with the Department of Energy (DOE), requested approval from the NMED-HWB for an emergency permit under 40 CFR §270.61 to treat an unstable lanthanum nickel substance at Technical Area (TA) 55 by stabilization. On April 19, 2017, the NMED-HWB granted verbal approval to conduct treatment. On April 20, 2017, the NMED-HWB issued DOE and LANS ("Permittees") an Emergency Permit that authorized treatment, *Emergency Permit # 17-003*. On April 24, 2017, the Permittees provided NMED-HWB a five-day report for the emergency permit.

It should be noted that the Permittees identified a clerical error within the LANL letter (EPC-DO: 17-174) that was submitted to NMED on April 24, 2017, which stated that stabilization activities were completed on April 21, 2017 at 3:35 p.m. However, stabilization activities were actually completed on April 19, 2017 at 3:35 p.m., the same day of the incident.

This letter and enclosures responds to NMED-HWB's April 26, 2017 request for additional information related to the emergency permit and five-day report concerning the TA-55 incident and stabilization of the lanthanum nickel. Enclosure 1 responds to the requested information, and photographs associated with the treatment event are provided in Enclosure 2. This response, along with previously provided information related to the emergency permit, also contains the details specified under 40 CFR §265.56(i). The fire did

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Mr. John E. Kieling

- 2 -

not involve the release of hazardous waste or hazardous waste constituents to air, soil or surface water. The incident was managed under the LANL Emergency Plan.

Please contact Mark P. Haagenstad of the Environmental Compliance Programs Group (EPC-CP) at (505) 665-2014 if you have questions or need additional information.

Sincerely,



Anthony R. Grieggs
Group Leader

ARG/AME: am

Enclosure(s): Enclosure 1) Additional Information Regarding Emergency Treatment at TA-55
Enclosure 2) Post Treatment Photographs

Copy: Janine Kramer, NMED/HWB, Santa Fe, NM, (E-File)

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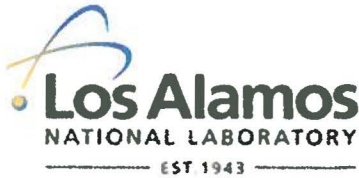
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Enclosure 1

Supplemental Report on Stabilization of Substance at TA-55 and Additional Information Regarding Emergency Treatment

This enclosure provides the additional information requested by NMED-HWB in an email dated April 26, 2017 pertaining to Emergency Permit #17-003 issued to the Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) (the Permittees). As described in the Emergency Permit, the incident resulted in a fire at TA-55, Building 4, Room 113 that occurred on April 19, 2017. The incident and detailed treatment activities were previously provided to NMED-HWB in prior correspondence in conjunction with the Emergency Permit. The fire did not involve the release of hazardous waste or hazardous waste constituents to the air, soil or surface water.

On April 24, 2017, the Permittees provided NMED-HWB a five-day report for the emergency permit (see: *Stabilization of Substance at TA-55, Los Alamos National Laboratory* (permalink: <http://barracuda.lanl.gov:8080/adore-disseminator/service/view?what=info:lanl-repo/eprr/ESHID-602329>). NMED-HWB's April 26, 2017 email requests additional information related to actions leading up to the TA-55 incident and the stabilization of the lanthanum nickel. This enclosure and supplemental report responds to NMED-HWB's request.

The information requested in the April 26, 2017 email from NMED-HWB is repeated verbatim below, along with the Permittees' response.

1. *Actions leading up to the incident:*

As part of Earth Day activities, the Los Alamos National Laboratory (LANL) implemented a site-wide housekeeping initiative. On April 19, 2017, as part of the initiative, chemical items were being evaluated in Technical Area (TA) 55, Building 4, Room 113. The housekeeping activities were focused on identifying nonradioactive or suspect radioactively-contaminated items that could be saved for continued use. Items that could not be reused would be dispositioned as waste. Three employees were involved in the housekeeping effort. The employees were collecting items on a cart, including a metal container with four (4) smaller containers inside. These items were never actually used in 113. They were brought over from CMR with the intent to be used. The smaller containers had brass caps on the ends, which the employees decided to remove as part of the item evaluation process.

2. *Cause of the incident:*

During the routine housekeeping effort, TA-55 personnel identified four metal containers which held a dark gray powder and a central ceramic tube. The employees assumed the powder was graphite and emptied the containers into a zip lock bag, closed the bag, and put it on top of the cart. One of the employees noticed that the bag was warm to the

touch, which was abnormal. The employee decided to place the bag in an empty pewter container on top of the cart when he noticed the powder start sparking. By the time the employee had the bag over the pewter container, the contents had started to burn. The first employee extinguished the fire with the Met-L-X extinguisher.

3. *Process for identifying the lanthanum nickel:*

TA-55 management personnel contacted a researcher familiar with conducting hydride experiments in Room 113. The researcher identified the likely contents of the four metal containers as lanthanum nickel. X-ray fluorescence (XRF) analysis confirmed that the contents of the metal containers were lanthanum nickel.

4. *Title of the individual involved in the incident:*

Operational Responsible Supervisor - Research Technologist.

5. *Injuries to the individual:*

The employee sustained second-degree burns to his right and left hands.

6. *Any hazardous waste management training documents for the individual:*

The employee's LANL training includes Waste Generation Overview. Waste Generation Overview is an introductory course that provides an overview of federal and state waste management regulations and Facility policies and procedures for waste management operations, and includes emergency response information.

7. *Details of the stabilization of the lanthanum nickel waste:*

The LANL Emergency Operations Center was notified and Hazmat personnel (a Hazmat Group Supervisor and a Hazmat safety expert) from the LANL Security and Emergency Operations - Emergency Management and Response organization (SEO-ER) arrived on scene. With knowledge that the material was an unknown pyrophoric material, Hazmat personnel prepared an entry plan to assess Room 113 and attempted to identify the powder. During the planning period, TA-55 process owners and management contacted the researcher as noted above, who was able to identify the powder as lanthanum nickel. A Lanthanum Nickel 5 SME from Ames Laboratory, a DOE National Laboratory in Ames, Iowa, was contacted to obtain additional information on the material. Based on input from the Ames Laboratory SME, stabilization was determined to be the best method to prevent further pyrophoric reactions. Ames Laboratory personnel recommended calcium carbonate lime as an appropriate material for stabilizing lanthanum nickel.

Hazmat personnel made an initial entry into the room and began visual assessments, collecting thermal imaging data, and taking photographs to aid in planning the next entry. Hazmat personnel did not identify significant thermal activity on the thermal imaging camera. Powder was observed on the cart and floor surrounding the cart (primarily the Met-L-X extinguishing agent; see photographs in Enclosure 2).

The Hazmat workers reentered the room, applied Chemstar Type-S lime, and mixed the material together using non-sparking tools on the cart to treat the pyrophoric metal. Four cartridges were removed and placed in a separate container of lime to ensure that the inner surfaces of those items were rendered inert and to prevent further reaction of any residual material. Bulk lime and residual material from the cart and floor were placed in a second container (see photograph in Enclosure 2).

Residual material was placed in the previously mentioned containers with lids placed loosely on top.

8. *Quantity of calcium hydrate (Type S Lime) used:*

12 lbs.

9. *Total amount of waste generated:*

Non-RCRA waste generated

- One 55 gallon container containing Type-S Lime, reacted lanthanum nickel residual, Met-L-X Extinguisher residue and associated debris – managed as non-hazardous low-level waste
- 8 brass caps – to be managed as metal for recycle

10. *Description of mixing processes (e.g. was the process in a hood, how was it mixed):*

The mixing processes occurred on the cart with non-sparking tools as discussed previously.

11. *Amount of time for the process:*

The stabilization process was completed in 30 minutes; however, temperatures continued to be monitored to ensure that no residual reactions continued to occur. As a result, the lanthanum nickel hydrate ignitability characteristic had been treated rendering the material non-hazardous.

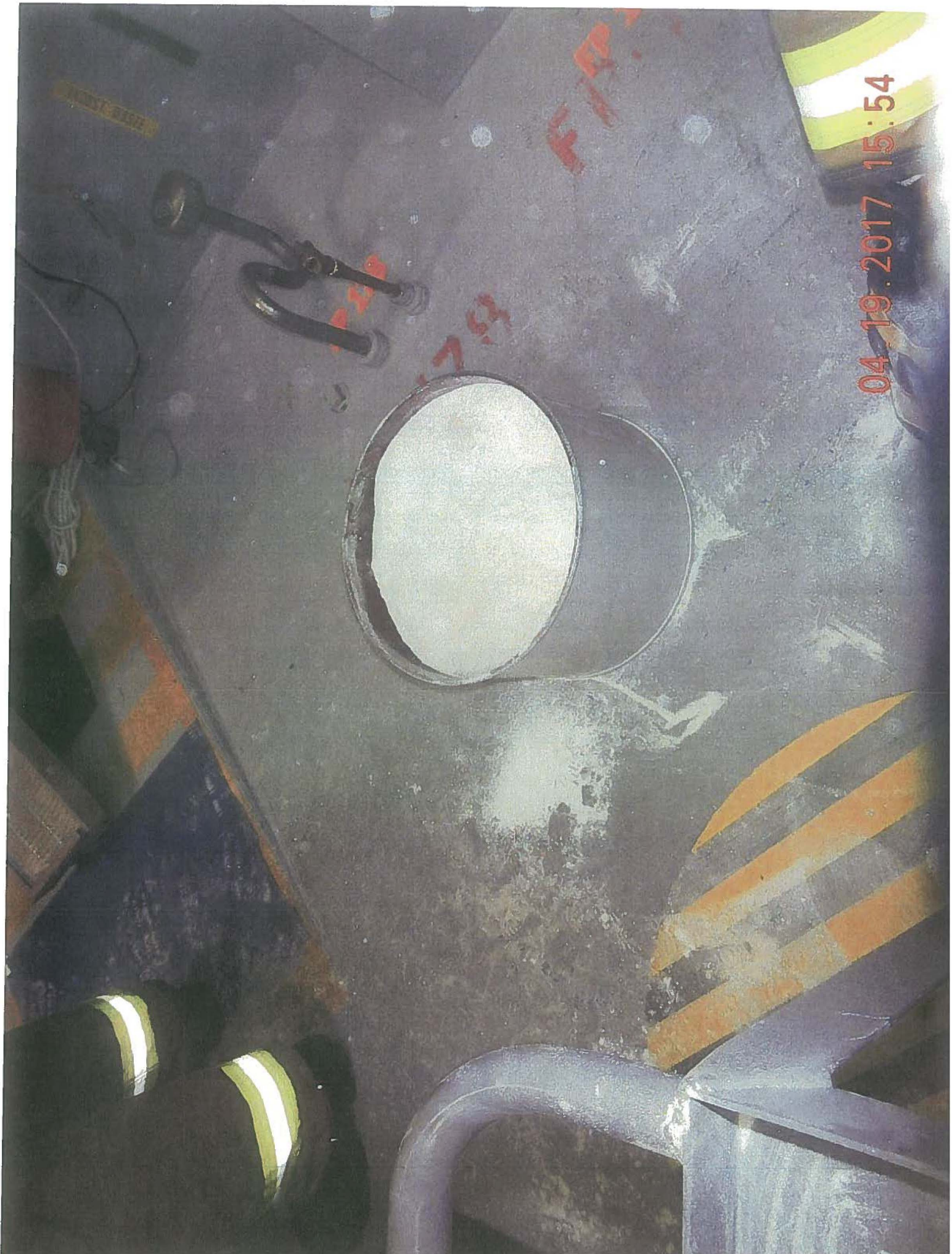
12. *Any gas releases during the process or other release:*

There were no observed gas releases or any other releases during the process.

NITROGEN
REFRIGERATED LIQUID
USE 1977

04.19.2017 12:42





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