Environmental Protection Division
Water Quality & RCRA Group (ENV-RCRA)
P.O. Box 1663, Mail Stop M704
Los Alamos, New Mexico 87545
(505) 667-0666/FAX: (505) 667-5224

Date: March 19, 2012
Refer To: ENV-RCRA-12-0068

Mr. Steve Pullen
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

Dear Mr. Pullen:

SUBJECT: IMPLEMENTATION OF GENERATOR CONTINGENCY PLAN AT LOS ALAMOS NATIONAL LABORATORY'S TECHNICAL AREA 21

On March 15, 2012, at 9:00 a.m., Mark Haagenstad of the Environmental Protection Division, Water Quality and RCRA Group (ENV-RCRA) contacted you and the 24-hour a day emergency notification line of the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB). The purpose of the call was regarding a chemical reaction and resulting occurrence at Technical Area (TA) 21 within Enclosure 12 at Material Disposal Area (MDA) B. As discussed during phone conversations with you and the on-call duty officer (Jaime Rodriguez, NMED-HWB), the event did not occur within a permitted treatment, storage, disposal facility covered under the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (Permit). However, given that there was an unanticipated reaction, contingency measures were activated as detailed in Attachment D (Contingency Plan) of the LANL Permit.

On March 13, 2012, Integrated Environmental Services (IES) was processing gas cylinders excavated from Material Disposal Area B (MDA B). This activity was being conducted in a fully contained enclosure (Enclosure 12) within MDA B. Enclosure 12 is equipped with a high-efficiency particulate air (HEPA) and activated carbon filtration system, which captures and processes any vapors from Laboratory processing operations through the filtration system. A cylinder containing liquid was tapped and determined to not be pressurized. A headspace gas sample was analyzed by gas chromatography / mass spectrometry (GC/MS) but only a trace amount of carbon monoxide (CO) in addition to the nitrogen (N2) gas flush was detected. Field screenings for pH (5-6), air reactivity (negative), water reactivity (negative) and radioactivity (negative) were also performed. The liquid was drained from the cylinder into three 1 liter plastic sample bottles. The bottles were secured and packaged with absorbent in a 5 gallon plastic pail with absorbents pending additional

sampling and analysis. None of the several attempts at headspace gas sampling provided sufficient data to identify the liquid.

On March 14, 2012, using a different method for obtaining a headspace gas sample, utilizing a plastic tedlar bag, TA-21 IES personnel continued to sample the gas inside one of the bottles of non-radioactive liquid. While obtaining a sample of the gas inside one of the bottles, a chemical reaction occurred that caused the sampling bag to burst and the contents to ignite briefly when exposed to air. The technician immediately exited the area and notified the TA-21 Operations Center. The reaction of the sampling bag self-extinguished within ten minutes when the material was fully consumed. The bottle that was being sampled remained open to the air and began to produce small flares. Workers immediately employed standard emergency response procedures and called in the Laboratory's Emergency Management and Response (EM&R) and Hazardous Materials (HAZMAT) personnel. As part of these procedures, Los Alamos County fire, environmental, and law enforcement officials also were contacted. Upon arrival, a LANL Incident Commander (IC) assumed control of the site and declared a non-emergency significant event.

HAZMAT personnel conducted air sampling inside the enclosure. Sampling analysis indicated very low levels of volatile organic compounds (VOCs) in the immediate area of the containers. Laboratory HAZMAT personnel supplemented the Industrial Hygiene (IH) monitoring inside the enclosure with monitoring of the ventilation system exhaust. HAZMAT personnel then utilized a remote controlled robot to enter the enclosure and obtain a sample from the open bottle. Manipulation of the sample bottle by the robot resulted in the liquid spontaneously reacting with air. The reaction consumed most of the liquid. Monitoring instruments inside the enclosure showed elevated levels of CO, VOCs and hydrogen sulfide (H_2S). LANL EM&R IC determined that the unknown liquid was not stable in the two remaining plastic bottles and that there was no safe way to transfer the liquid to another container. The robot was then used to pour the remaining liquid into a stainless steel bowl and the liquid was allowed to react with air. The liquid was completely consumed leaving only a black residue. The area was secured and monitoring of the enclosure exhaust continued throughout the night and the following day, resulting in very low (1 part per million [ppm] range) VOCs and no radiological release. There were no impacts to the workers, public safety/health, or the environment, as a result of this event.

On March 15, 2012, the site remained under the IC. HAZMAT personnel re-entered the enclosure to obtain samples of the remaining residue and the air within the enclosure. The samples were submitted to an internal analytical laboratory for analysis. HAZMAT also completed mitigation of the impact area. Waste from mitigation activities was secured and placed in a 90-day hazardous waste storage area pending further characterization and disposal.

Please contact Mark Haagenstad of my staff at (505) 665-2014 if additional information would be helpful.

Sincerely,

Anthony R. Grieggs
Group Leader
Water Quality & RCRA Group (ENV-RCRA)

ARG/td

Cy: John Kieling, NMED-HWB, Santa Fe (E-File)
Dave Cobrain, NMED-HWB, Santa Fe (E-File)
Carl A. Beard, PADOPS, A102 (E-File)
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Michael J. Graham, ADEP, M991 (E-File)
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ENV-RCRA File, M704 (E-File)
IRM-RMMSO File, A150 (E-File)

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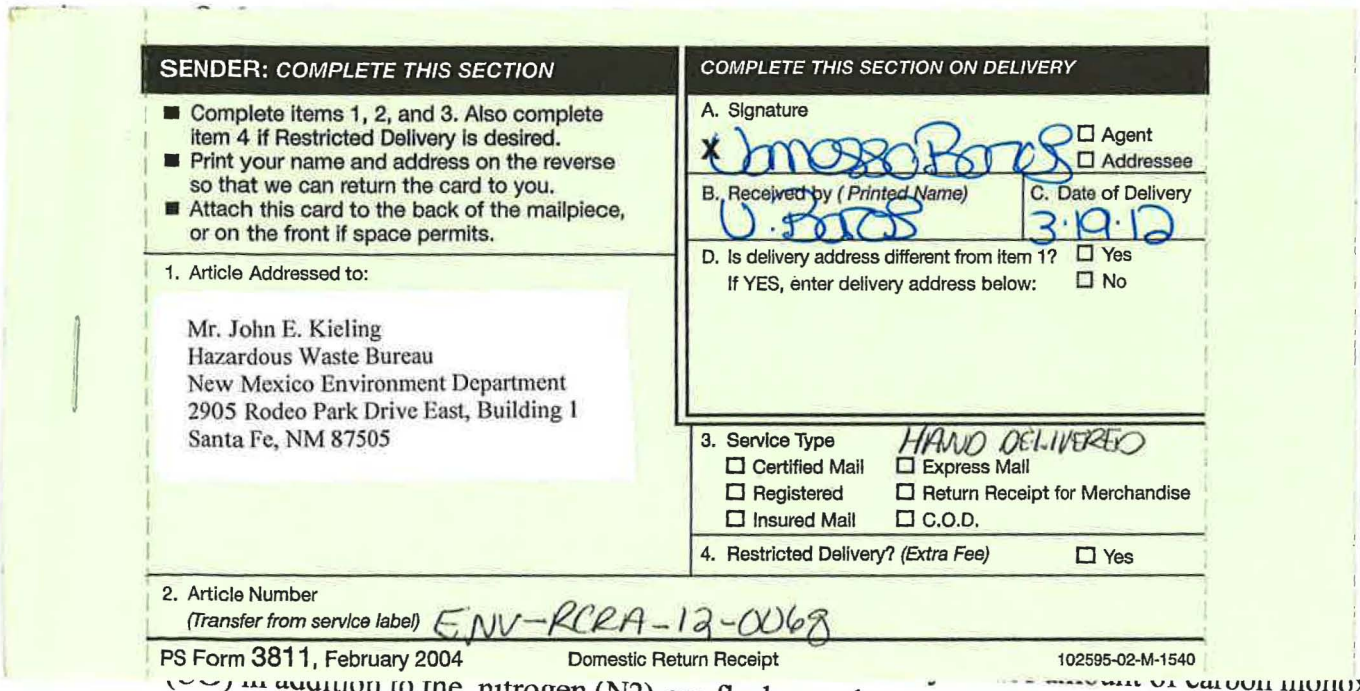

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1. Article Addressed to:

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

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