ERID-523360

NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

Harold Runnels Building
1190 St. Francis Drive
P.O. Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2918 Fax (505) 827-2965
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Cabinet Secretary-Designate
BUTCH TONGATE
Deputy Secretary

EP2013-5170

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

August 19, 2013

✓Ms. Alison Dorries, LANS-EP-RS
Los Alamos National Security, LLC
P.O. Box 1663 MS K404
Los Alamos, NM 87545

Mr. Gene Turner, DOE/AIP/POC
U.S. Department of Energy
Los Alamos Site Office, MS A316
528 35th Street
Los Alamos, NM 87545

U1301924

RE: Temporary Permission to Discharge, Treated Well Development and Pump Test Ground Water Discharge from Regional Monitoring Well CdV-16-4ip, DP-1793 (AI:856, PRD20130006)

Dear Mr. Turner and Ms. Dorries:

The New Mexico Environment Department (NMED) has reviewed your request for temporary permission, dated June 3, 2013 (copy enclosed) to discharge no more than 561,600 gallons of treated industrial wastewater generated from a proposed intermediate monitoring well CdV-16-4ip extended pump test. Ground water in the area of CdV-16-4ip has been determined to contain the "toxic pollutant" hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) as defined by Subsection WW of 20.6.2.7 NMAC of the Water Quality Control Commission's (WQCC's) regulations. The water generated during the pump test is to be stored in above ground tanks (frac tanks) and treated to remove RDX using a granular active carbon (GAC) treatment system. Treated water will be temporarily stored in 21,000 gallon frac tanks and then land applied within nine zones totaling 153 acres within Technical Area (TA) 16 as defined in the June 3, 2013 request for temporary permission. The proposed discharge is located approximately three miles southwest of Los Alamos in Sections 29, 30, 31, 32 and 36, Township 19N, Range 06E, within the boundaries of Los Alamos National Laboratory (LANL), Los Alamos County.

Temporary permission to discharge is hereby granted, for a duration not to exceed 120 days from the date discharge commences, pursuant to Subsection B of 20.6.2.3106 NMAC of the New

Mexico WQCC Regulations. This approval is contingent on your discharging and reporting as described in your February 28, 2013 request and upon the following conditions:

1. NMED shall be notified within five business days of the date discharge commences.
2. Water generated from the pump testing of monitoring well CdV-16-4ip shall be contained and treated to a RDX concentration equal to or less than 5.5 µg/L prior to discharge[1].
3. The total volume of treated water discharged shall be recorded and submitted to NMED with the final project report.
4. Land application of the treated water shall not occur in a watercourse or result in run-off to a watercourse.
5. Land application of the treated water shall not result in ponding.
6. Land application shall be conducted in a manner that minimizes potential impacts to ground water quality and maximizes evaporation.
7. Treatment of contaminated water and land application of the treated water is restricted to daylight hours and a maximum of 10 hours per day.
8. Land application of the treated water must be supervised at all times.
9. Land application of the treated water is prohibited while precipitation is occurring or during times when the ground is saturated or frozen to the extent that land applied water cannot be absorbed.
10. LANL shall collect representative samples of the treated water twice daily and analyze the samples for RDX using a method with a minimum detection limit (MDL) of 2 µg/L for RDX. All sample collection, preservation and analysis shall conform to the method identified in Subsection B of 20.6.2.3107 NMAC. All analytical results shall be submitted to NMED with the final project report.
11. Discharges from the frac tanks to the land application areas shall only commence following confirmation that the treated water analytical results for RDX concentrations do not exceed 5.5 µg/L.
12. Should a RDX sample analysis reveal the presence of RDX at a concentration of 5.5 µg/L or greater, discharge of treated water shall immediately cease and NMED shall be notified. Following replacement of the GAC treatment vessel and NMED authorization, discharge may resume.
13. Following final cessation of discharge, the treatment system and frac tanks shall be properly disposed of in accordance with all local, state and federal laws and regulations. A summary describing final disposition of treatment units and frac tanks shall be submitted to NMED in the final project report.
14. A final project report shall be submitted to NMED within 30 days of the final cessation of discharge. The report shall provide the total volume of treated water discharged and the analytical results of the RDX analyses for the project, and identify the locations that received the treated water.

[1]This value represents 90% of the EPA Regional Screening Level for RDX at the time Temporary Permission was granted

This temporary permission does not relieve LANL of the responsibility to comply with any other applicable federal, state, and/or local laws and regulations, such as zoning requirements and nuisance ordinances. Also, this approval does not relieve LANL of liability should operations result in actual pollution of surface or ground waters.

If you have any questions, please contact Jennifer Fullam of the Ground Water Pollution Prevention Section at 505-827-2909.

Sincerely,

Jerry Schoeppner, Chief
Ground Water Quality Bureau

JS:JF

Enc: Request for Temporary Permission dated June 3, 2013

cc: Robert Italiano, District Manager, NMED District II
NMED Santa Fe Field Office
County File
James Hogan, NMED SWQB
Erin Trujillo, NMED SWQB
John Kieling, NMED HWB
Dave Cobrain, NMED HWB
Steven Yanicak, NMED-DOE-Oversight Bureau
Hai Shen, LASO-EO, Los Alamos National Laboratory, A316, Los Alamos, NM 87545
Pete Maggiore, NA-OO-LA, Los Alamos National Laboratory, A316, Los Alamos, NM 87545
Carl Beard, PADOPS, Los Alamos National Laboratory, A102, Los Alamos, NM 87545
Michael T. Brandt, ADESH, Los Alamos National Laboratory, K491, Los Alamos, NM 87545
David J. McInroy, CAP, Los Alamos National Laboratory, M996, Los Alamos, NM 87545
Victoria George, REG-DO, Los Alamos National Laboratory, M991, Los Alamos, NM 87545
Danny Katzman, ET-EI, Los Alamos National Laboratory, M992, Los Alamos, NM 87545
Michael Saladen ENV-RCRA, Los Alamos National Laboratory, K490, Los Alamos, NM 87545
Bob Beers, ENV-RCRA, Los Alamos National Laboratory, K490, Los Alamos NM, 87545

GROUND WATER
JUN 03 2013
BUREAU

Los Alamos
NATIONAL LABORATORY

Environmental Protection Division
Water Quality & RCRA Group (ENV-RCRA)
PO Box 1663, K490
Los Alamos, New Mexico 87545
505-667-0666

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: JUN 03 2013
Symbol: ENV-RCRA-13-0101
LAUR: 13-23122

Mr. Jerry Schoeppner, 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

U1301924

Dear Mr. Schoeppner:

SUBJECT: REQUEST FOR TEMPORARY PERMISSION TO DISCHARGE TREATED GROUNDWATER FROM SOURCE REMOVAL TESTING AT WELL CdV-16-4ip, DP-1793

In December 2011, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) submitted to the New Mexico Environment Department (NMED) a discharge permit application (DP-1793) for the land application of treated groundwater from a pumping test at monitoring well R-28 (ENV-RCRA-11-0284). In March 2012, at the recommendation of the NMED, DOE/LANS submitted additional information concerning the above-referenced permit application to broaden its scope to include, but not be limited to, pumping tests, aquifer tests, and well rehabilitation. The expanded scope of DP-1793 was to include both groundwater that meets the regulatory standards for discharge without treatment and groundwater requiring on-site treatment to meet discharge standards. DOE/LANS believe that the proposed source removal testing at CdV-16-4ip is an appropriate activity to conduct under DP-1793. Accordingly, DOE/LANS request temporary permission to discharge treated groundwater from source removal testing at CdV-16-4ip.

Pursuant to DP-1793, all requests to discharge shall be initiated by the submittal of a work plan to the NMED Ground Water Quality Bureau. On March 22, 2013, DOE/LANS submitted the *Interim Measures Work Plan for Source Removal Testing at Well CdV-16-4ip* to the NMED Hazardous Waste Bureau. Enclosure 1 provides a copy of this work plan.

The principal objective of the work plan is to conduct an extended pumping test at well CdV-16-4ip to determine the potential for effective removal of hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) and volatile organic compounds (VOCs) from within the complex perched-intermediate zone beneath Cañon de Valle. RDX concentrations at screen 1 (upper screen) at CdV-16-4ip ranged between approximately 120 µg/L and 165 µg/L in 2012 and 2013. The work plan proposes pumping screen 1 for up to 60 days at 6.5 gallons per minute (gpm). Results from the test will help determine if long-term pumping in the perched-intermediate zone is a viable source removal option.

The proposed source removal testing at CdV-16-4ip will be consistent with the following two documents submitted by DOE/LANS to the NMED Ground Water Quality Bureau: *Discharge Permit Application for the Land Application of Treated Groundwater from Monitoring Well R-28* (December 2011) and *Supplemental Information, Discharge Permit DP-1793, On-Site Treatment and Land Application of Pumping Test Water* (March 2012). Project-specific information on the proposed pumping test is described below.

1. **Location**. Monitoring well CdV-16-4ip is located in Cañon de Valle (Township/Range/Section: T19N/R06E/S29). Enclosure 2 provides a location map.

2. **Expected Pumping Test Rate, Duration, and Volume**. The initial study design has established the following pumping test parameters.

   - Rate: ~6.5 gpm
   - Duration: 24 hr/day, 7 days/wk , up to 60 days
   - Daily Volume: ~9,360 gal/day
   - Total Volume: up to ~561,600 gal

3. **Expected Contaminants**. The primary contaminant expected from monitoring well CdV-16-4ip is RDX (~200 µg/L). Water quality data from 2012 and 2013 (Enclosure 3) demonstrate that no contaminants other than RDX exceed land application criteria. Trace concentrations of the following VOCs were detected in 2012/2013 samples from CdV-16-4ip at concentrations below land application criteria: methyl tert-butyl ether (0.8 µg/L), tetrachloroethene (1.1 µg/L), and trichloroethene (0.77 µg/L). No samples for Ra-226/228 were collected from CdV-16-4ip in 2012 or 2013.

4. **Raw Water Storage.** Groundwater produced from CdV-16-4ip will be discharged to 21,000-gallon frac tanks prior to treatment. Additional frac tanks will be staged on-site to provide adequate storage capacity for the duration of the test.

5. **Treatment System.** Groundwater produced during the source removal test will be treated with granular active carbon (GAC) prior to discharge. Enclosure 4 provides a schematic and technical specifications of the GAC treatment system. The GAC treatment system will remove RDX to less than 90% of the U.S. Environmental Protection Agency (EPA) regional screening level (RSL) of 6.1 µg/L, as required by the NMED-approved *Decision Tree for the Land Application of Drilling, Development, Rehabilitation, and Sampling Purge Water* (March 2010).

6. **Treated Water Storage.** Treated water (product) from GAC treatment system will be discharged to 21,000-gallon frac tanks prior to sampling and land application. Additional frac tanks will be staged on-site to provide adequate storage capacity for the duration of the test.

7. **Sampling Plan.** As a contingency against the discharge of constituents in excess of land application criteria, representative samples of treated water will be analyzed daily for RDX throughout the test for comparison with the land application criteria of 5.5 µg/L (90% of the EPA RSL). Samples will be analyzed for RDX by analytical laboratories at Los Alamos National Laboratory. Sampling techniques and analytical methods will conform to the requirements of 20.6.2.3107 New Mexico Administrative Code. If RDX concentrations exceed 5.5 µg/L then the following contingency plan will be implemented: (1) the upstream GAC vessel will be replaced by the downstream vessel, (2) a new downstream GAC vessel will be installed, (3) the frac tank water exceeding land application criteria will retreated, and (4) aliquots of the treated water will be collected and composited for analysis, as described in this section, for comparison with land application criteria.

8. **Land Application.** Enclosure 5 provides a map showing approved land application sites.

   Treated groundwater will be land applied using a 5000-gal water wagon equipped with a high-pressure water sprayer. As a contingency against the discharge of treated groundwater into waters of the state, the land application of treated groundwater from CdV-16-4ip will be conducted in accordance with the terms and conditions of Los Alamos National Laboratory's Standard Operating Procedure ENV-RCRA-QP-010.3, *Land Application of Groundwater*. Criteria for land application include, but are not limited to, the following:

   - land application site cannot be located in a watercourse
   - land application cannot result in runoff to a watercourse
   - land application cannot create ponds or pools
   - land application must be conducted in a manner that maximizes infiltration and evaporation
   - land application is restricted to daylight hours and for a maximum of 10 hrs/day
   - land application must be supervised at all times
   - land application is prohibited while precipitation is occurring

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

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
Department of Energy

U1301924

AMD:GET:RSB/ms

Enclosures:

1. Interim Measures Work Plan for Source Removal Testing at Well CdV-16-4ip
2. Location map, CdV-16-4ip
3. Analytical results from the sampling of groundwater from CdV-16-4ip screen 1
4. Schematic and technical specifications of the GAC treatment system
5. Map of approved land application sites

Cy: James Hogan, NMED/SWQB, Santa Fe, NM, w/enc.
John E. Kieling, NMED/HWB, Santa Fe, NM, w/enc.
Steven M. Yanicak, NMED/DOE/OB, w/enc., (E-File)
Hai Shen, NA-OO-LA, w/enc., (E-File)
Gene E. Turner, NA-OO-LA, w/enc., (E-File)
Carl A. Beard, PADOPS, w/o enc., A102
Michael T. Brandt, ADESH, w/o enc., (E-File)
Alison M. Dorries, ENV-DO, w/o enc., (E-File)
Jeffrey D. Mousseau, ADEP, w/o enc., (E-File)
David J. McInroy, CAP, w/o enc., (E-File)
Victoria George, REG-DO, w/o enc., (E-File)
Joe English, REG-SP, w/enc., (E-File)
John McCann, CAP, w/enc., (E-File)
Michael T. Saladen, ENV-RCRA, w/o enc., (E-File)
Robert S. Beers, ENV-RCRA, w/enc., K490
LASOmailbox@nnsa.doe.gov, w/enc., (E-File)
locatesteam@lanl.gov, w/enc., (E-File)
ENV-RCRA Correspondence File, w/enc., K490

NAME Elaine Rice
Z# 113017
DATE 8.21.13

08-21-13P12:20 RCVD

U1301924

NMED / GROUND WATER BUREAU
HAROLD RUNNELS BLDG.
1190 ST. FRANCIS DRIVE
PO BOX 5469
SANTA FE, NEW MEXICO 87502-5469

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Ms. Alison Dorries, LANS-EP-RS
Los Alamos National Security, LLC
PO Box 1663 ~~MS K404~~
Los Alamos, NM 87545 A-150