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Environmental Safety & Health
Environmental Protection Division
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National Nuclear Security Administration
Los Alamos Site Office, A316
3747 West Jemez Road
Los Alamos, New Mexico 87545
(505) 667-5794/FAX (505) 667-5948

Date: March 13, 2012
Refer To: ENV-DO-12-0009
LAUR: 12-10423

Mr. Jerry Schoeppner, Acting 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

Dear Mr. Schoeppner:

SUBJECT: SUPPLEMENTAL INFORMATION, DISCHARGE PERMIT DP-1793, ON-SITE TREATMENT AND LAND APPLICATION OF PUMPING TEST WATER

The US Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are in receipt of your January 13, 2012, letter (Enclosure 1) requesting supplemental information for Discharge Permit DP-1793 by March 13, 2012. Per your request, Enclosure 2 contains a broad but detailed process for managing groundwater produced during activities that are outside the scope of the New Mexico Environment Department (NMED)-approved Decision Tree (Enclosure 3). Activities covered by DP-1793 would include, but not be limited to, pumping tests, aquifer tests and well rehabilitation. The scope of DP-1973 will include both groundwater that meets regulatory standards for discharge without treatment and groundwater that will require on-site treatment to meet regulatory standards prior to discharge. All groundwater discharged under DP-1793 will comply with the regulatory standards of §20.6.2.3103 NMAC and the Environmental Protection Agency's Regional Tap Water Screening Levels for all §20.6.2.7 NMAC Toxic Pollutants. Further, each planned discharge will be preceded by the submission of a work plan for NMED Ground Water Quality Bureau approval.

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Please contact Bob Beers at (505) 667-7969 of the Water Quality and RCRA Group (ENV-RCRA) if you have questions.

Sincerely,

Scotty Wilson For

Alison M. Dorries
Division Leader
Environmental Protection Division
Los Alamos National Laboratory

Sincerely,

Gene E. Turner

Gene E. Turner
Environmental Permitting Manager
Environmental Projects Division
Los Alamos Site Office
Department of Energy

AMD:GET:BB/lm

Enclosures: a/s

Cy: James Bearzi, NMED/SWQB, Santa Fe, NM, w/enc.
John Kieling, NMED/HWB, Santa Fe, NM, w/enc.
Hai Shen, LASO-EO, w/enc., A316
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Carl A. Beard, PADOPS, w/o enc., A102
Michael T. Brandt, ADESH, w/o enc., K491, (E-File)
Alison M. Dorries, ENV-DO, w/o enc., K49, (E-File)
Scotty Jones, ENV-DO, w/o enc., K491, (E-File)
Michael Graham, ADEP, w/o enc., M991, (E-File)
Tori George, REG-DO, w/o enc., M991, (E-File)
Kate Lynnes, REG-DO, w/enc., M992, (E-File)
Danny Katzman, ET-EI, w/enc., M992, (E-File)
Ted Ball, MNGRCT-DO, w/enc., M996, (E-File)
Mike Saladen, ENV-RCRA, w/enc., K490, (E-File)
Bob Beers, ENV-RCRA, w/enc., K490
ENV-RCRA File, (12-0061) w/enc., M704
IRM-RMMSO, (U1200114), w/enc., A150, (E-File)

NEW MEXICO
ENVIRONMENT DEPARTMENT

Resource Protection Division

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Cabinet Secretary
BUTCH TONGATE
Deputy Secretary
JAMES H. DAVIS, Ph.D.
Division Director

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

January 13, 2012

Michael Graham
Associate Director, Environmental Programs
Los Alamos National Laboratory
PO Box 1663, MS-K490
Los Alamos, NM 87544

Chris Cantwell
Associate Director ESH & Q,
Los Alamos National Laboratory
PO Box 1663, MS-K490
Los Alamos, NM 87544

RE: Temporary Permission to Discharge, Treated Well Development and Pump Test Ground Water Discharge at Regional Monitoring Well R-28, DP-1793

Dear Messrs. Graham and Cantwell:

The New Mexico Environment Department has reviewed your application dated December 22, 2011, and request for temporary permission to discharge no more than 400,000 gallons of treated industrial wastewater generated from a proposed regional monitoring well R-28 pump test. Ground water in the area of R-28 has been determined to contain chromium at levels in exceedance the Water Quality Control Commissions (WQCC) standards. The pump test and development water is to be treated for chromium using an ion exchange treatment system. Treated water is proposed to be land applied on approximately 83 acres via water trucks along approximately three miles of dirt road in the vicinity of regional monitoring well R-28. The proposed discharge is located in Mortandad Canyon, approximately three miles southeast of Los Alamos in Section 24, Township 19N, Range 06E, within the boundaries of Los Alamos National Laboratory, Los Alamos County.

Temporary permission to discharge is hereby granted until May 5, 2012, pursuant to Subsection B of 20.6.2.3106 NMAC of the New Mexico Water Quality Control Commission Regulations. This approval is contingent on your discharging and reporting as described in your December 22, 2011 request and upon the following conditions:

1. Water generated from the pump testing of monitoring well R-28 shall be contained and treated to a chromium concentration of less than 0.05 mg/L prior to discharge.
2. The total volume of treated water discharged shall be recorded.
3. Land application of the treated water shall not occur in a watercourse or result in run-off to a watercourse.
4. Land application of the treated water shall not result in ponding.
5. Land application shall be conducted in a manner that minimizes potential impacts to ground water quality and maximizes evaporation.
6. Land application is restricted to daylight hours and a maximum of 10 hours per day.
7. Land application must be supervised at all times.
8. 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.
9. LANL shall collect representative samples of the treated water twice daily and analyze the samples for chromium using a method with a minimum detection limit below the required discharge limit of 0.05 mg/L. All sample collection, preservation and analysis shall conform to the methods identified in Subsection B of 20.6.2.3107 NMAC of the WQCC Regulations.
10. Should a chromium sample analysis reveal the presence of chromium at a concentration of 0.05 mg/L or greater, discharge of treated water shall immediately cease and NMED shall be notified. Following the implementation of corrective actions to ensure that chromium concentrations of the treated water meet less than 0.05 mg/L and NMED's approval, discharge may resume.
11. All ion exchange treatment vessels used in the treatment system shall be properly disposed of in accordance with all local, state and federal laws and regulations.
12. 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 chromium analyses for the project, and identify the locations that received the treated water.

Although NMED is granting temporary permission for the proposed discharge, the application which was submitted on December 22, 2011, contains insufficient information to proceed with the issuance of a Discharge Permit. NMED has requested several times in writing (letters dated December 16, 2010 and November 9, 2011) and during several recent teleconference calls (November 16 and December 7, 2011) that LANL submit a single application for a ground water Discharge Permit to cover all potential such temporary on-site treatment and discharge activities associated with contaminated ground water which is intended to be land applied. NMED is seeking supplemental information regarding such discharges in accordance with the required elements under Subsection C of 20.6.2.3106 NMAC. NMED is aware that the timelines and volumes of each event may be variable and therefore recommends using a conservative approach in estimating volumes and locations in the supplemental information. The supplemental information is required to be submitted by NMED **within 60 days of the date of this letter (by February 10, 2012).**

This temporary permission does not relieve you 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 you of liability should your operation 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,

James H. Davis, Ph.D.
Director, Resource Protection Division

JD:JF

cc: Robert Italiano, District Manager, NMED District II
NMED Santa Fe Field Office
County File
James Bearzi, NMED SWQB
Richard Powell, NMED SWQB
John Kieling, NMED HWB
Steven Yanicak, NMED-DOE-Oversight Bureau
Gene Turner, LASO-EO, Los Alamos National Laboratory, A316, Los Alamos, NM 87545
Hai Shen, LASO-EO, Los Alamos National Laboratory, A316, Los Alamos, NM 87545
Carl Beard, PADOPS, Los Alamos National Laboratory, A102, Los Alamos, NM 87545
Victoria George, REG-DO, Los Alamos National Laboratory, M991, Los Alamos, NM 87545
Kate Lynnes, REG-COM, Los Alamos National Laboratory, M991, Los Alamos, NM 87545
Steve Veenis, PMFS-DO, Los Alamos National Laboratory, M997, Los Alamos, NM 87545
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Mark Everett, 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

Aquifer tests (or pumping tests) are typically conducted to evaluate an aquifer by "stimulating" the aquifer through constant pumping, and observing the aquifer's "response" in observation wells. At Los Alamos National Laboratory (the Laboratory), developing conceptual models on the nature and extent of groundwater contamination may require aquifer testing to better define aquifer parameters. In addition, concerns about the reliability or representativeness of groundwater quality data obtained from a well may necessitate well rehabilitation. Both activities, aquifer testing and well rehabilitation, produce groundwater requiring management and disposal. There are 61 regional aquifer wells and 38 intermediate-perched aquifer wells at the Laboratory that may be candidates for aquifer testing and/or rehabilitation. In addition, new wells may be constructed during the term of this Discharge Permit. Groundwater produced during an aquifer test or well rehabilitation within the Laboratory is eligible for discharge by land application if it meets the conditions of this Discharge Permit.

This supplemental information is intended to propose a process for implementing a broad-scope Discharge Permit for the land application of groundwater within the boundaries of the Laboratory. This process is for managing groundwater produced during activities that are outside the scope of the New Mexico Environment Department (NMED)-approved Decision Tree (Revised, 03/12/2010) and includes, but is not limited to, pumping tests, aquifer tests, and well rehabilitation. The scope of this Discharge Permit will include both groundwater that meets regulatory standards for discharge without treatment and groundwater that requires on-site treatment to meet regulatory standards prior to discharge. The Laboratory will comply with the following five conditions prior to discharging groundwater under this Discharge Permit.

1. **All groundwater discharged under this Discharge Permit will comply with the following regulatory standards:**

    - Groundwater quality standards listed under §20.6.2.3103 NMAC
    - Environmental Protection Agency Regional Screening Levels for Tap Water (at a 10^{-5} risk level for carcinogens) for the Toxic Pollutants listed under §20.6.2.7 NMAC

2. **The maximum daily discharge will not exceed 80,000 gallons per day.** A maximum daily discharge volume of 80,000 gallons per day will allow the Laboratory to conduct two pumping test simultaneously at an average pumping rate of 55 gallons per minute. Previous pumping tests conducted at monitoring wells CdV-16-4ip, R-66, and R-28 were conducted at pumping rates between 2.5 and 30 gallons per minute.

3. **The maximum annual discharge volume will not exceed 800,000 gallons per year.** A maximum annual volume of 800,000 gallons per year will allow the Laboratory to conduct two large-scale pumping tests—equivalent to the recently completed CdV-16-4ip and R-28 pumping tests—in one year.

4. **The process for discharging groundwater that meets regulatory standards without treatment is as follows.**
    - Los Alamos National Security (LANS) and the US Department of Energy (DOE) will submit a Work Plan 60 days prior to the commencement of the activity that will result in a discharge. This Work Plan will contain the following information, as applicable to the project:

- Map showing the well and proposed land application area locations
- Detailed description of activity, including statement of purpose
- Maximum daily discharge volume
- Total volume of proposed discharge
- Existing water quality data documenting that the groundwater meets regulatory standards
- Water quality sampling plan
- Land application procedures
- Project schedule
- Submission of a final report within 60 days of completing the discharge. Final report shall include the following information:

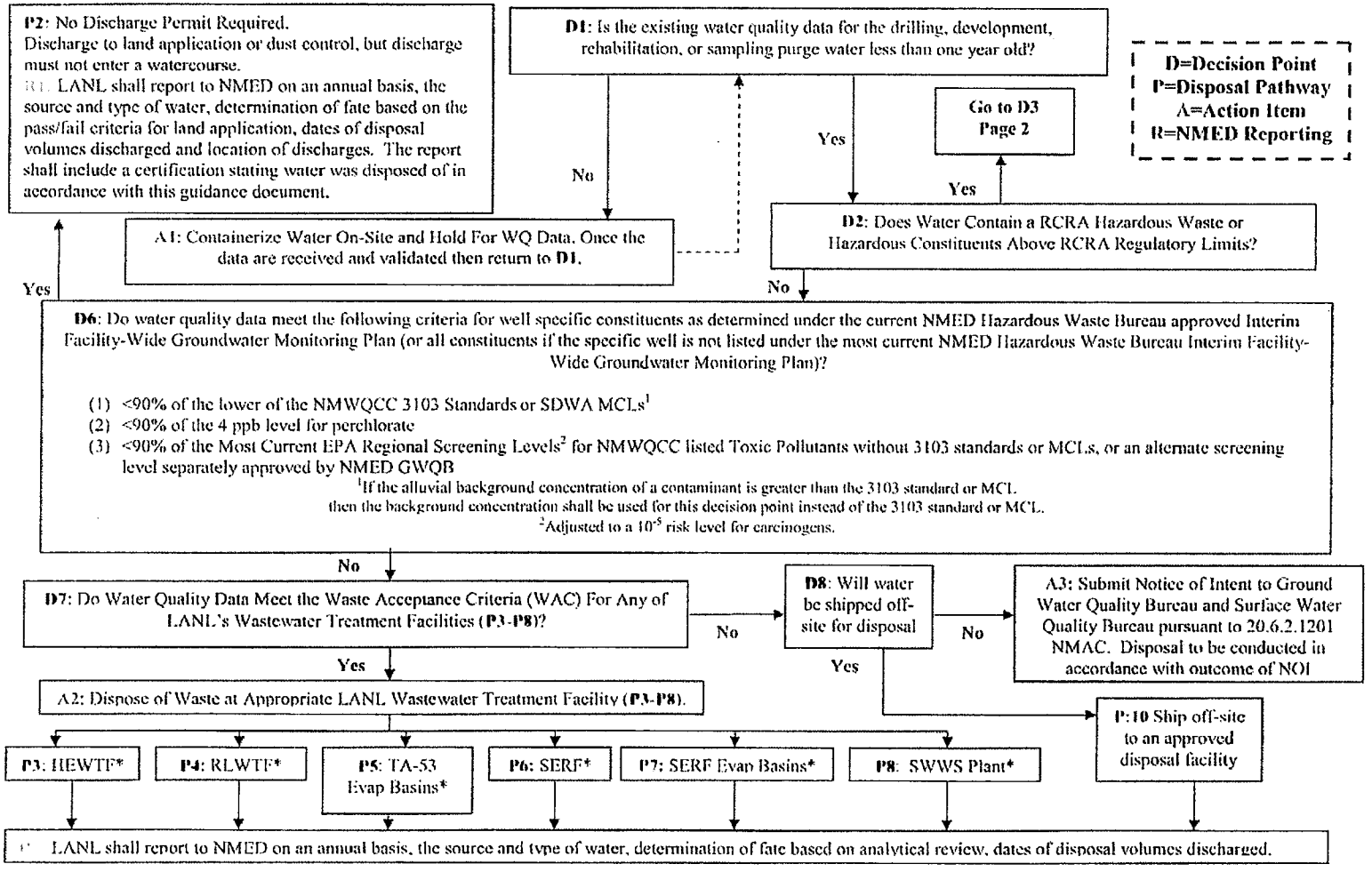
    - Total volume of groundwater discharged
    - Analytical results from samples collected under the water quality sampling plan
    - Locations that received land applied groundwater

5. **The process for discharging groundwater that requires on-site treatment to meet regulatory standards is as follows.**
    - Los Alamos National Security (LANS) and the US Department of Energy (DOE) will submit a Work Plan 60 days prior to the commencement of the activity that will result in a discharge. This Work Plan will contain the following information, as applicable to the project:

        - Map showing the well and proposed land application area locations
        - Detailed description of activity, including statement of purpose
        - Existing water quality data identify concentrations of contaminants exceeding regulatory standards
        - Detailed description of the on-site treatment system to remove contaminants of concern, including schematic of treatment system and treatment unit specifications.
        - Detailed description of the containment systems (ie, containerization)
        - Maximum daily discharge volume
        - Total volume of proposed discharge
        - Proposed sampling plan to demonstrate treatment unit efficiency and compliance with regulatory standards for contaminants of concern
        - Land application procedures
        - Project schedule
        - Submission of a final report within 60 days of completing the discharge. Final report shall include the following information:

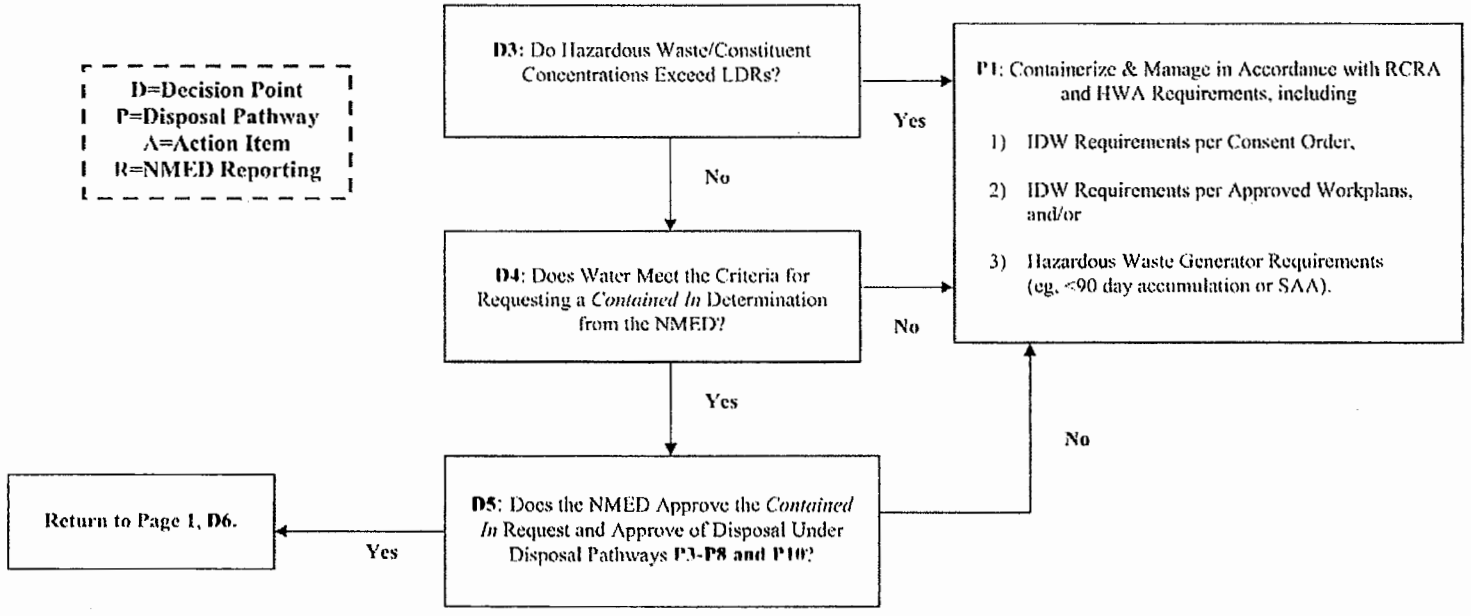
            - Total volume of groundwater discharged
            - Analytical results from samples collected under the water quality sampling plan
            - Locations that received land applied groundwater

Los Alamos National Laboratory Drilling, Development, Rehabilitation and Sampling Purge Water Decision Tree—Revised 03/12/2010



***Nothing in this guidance document shall be construed as relieving the United States Department of Energy or the Los Alamos National Security, LLC, of its obligation to comply with all other applicable federal, state, and local laws, regulations, permits or orders.**

Los Alamos National Laboratory Drilling, Development, Rehabilitation and Sampling Purge Water Decision Tree—Revised 03/12/2010



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