



BILL RICHARDSON  
GOVERNOR

State of New Mexico  
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau  
Harold Runnels Building  
1190 St. Francis Drive, P.O. Box 26110  
Santa Fe, New Mexico 87502-6110  
Telephone (505) 827-2918  
Fax (505) 827-2965



**CERTIFIED MAIL — RETURN RECEIPT REQUESTED**

April 27, 2005

Edwin Wilmott, Manager  
Office of Los Alamos Site Operations  
National Nuclear Security Administration  
U.S. Department of Energy  
528 35<sup>th</sup> Street  
Los Alamos, New Mexico 87544

Regents of the University of California  
Office of the Secretary of the Regents  
University of California  
1111 Franklin St., 12<sup>th</sup> Floor  
Oakland, California 94607

**RE: Re-issuance of Public Notice  
Draft Discharge Permit, DP-1132,  
Los Alamos National Laboratory Radioactive Liquid Waste Treatment Facility**

Dear Mr. Wilmott and the Regents of the University of California:

The New Mexico Environment Department (NMED) has received a request from the public for an extension of the public comment period on the above-referenced Discharge Permit. The NMED is granting the request and therefore is re-issuing public notice of draft Discharge Permit, DP-1132, as set out herein.

Notice is hereby given pursuant to 20.6.2.3108.G NMAC that Ground Water Discharge Permit DP-1132, Los Alamos National Laboratory (LANL) has been proposed for approval (copy enclosed). NMED will be re-publishing notice of the availability of the draft permit in the near future and will forward a copy of the notice to you. Prior to making a final ruling on the proposed permit, NMED will allow 60 days from the date the public notice is re-published during which written comments can be submitted and/or a public hearing requested. Requests for hearing shall set forth the reasons why a



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hearing is requested. A hearing will be held if NMED determines there is significant public interest. Requests for hearing must be submitted to the Ground Water Quality Bureau at the address above.

Please review the enclosed draft permit carefully for accuracy and completeness and to make sure you understand what it requires. If you have any comments, questions, or concerns, please contact me at (505) 827-2900 or Christopher Vick at (505) 827-0078. If written comments and/or a request for hearing are not received during the public comment period, the draft permit will become final. An invoice for the Discharge Permit Fee is being sent under separate cover. Thank you for your cooperation during the review process.

Sincerely,



William C. Olson  
Bureau Chief  
Ground Water Quality Bureau

enc: Draft Discharge Permit, DP-1132  
Water Quality Control Commission Regulations, 20.6.2 NMAC, dated September 15, 2002  
NMED Monitoring Well Construction and Abandonment Guidelines, dated June 6, 2000

cc (with enclosures):

James Bearzi, NMED Hazardous Waste Bureau, P.O. Box 26110, Santa Fe, NM 87502

Bret Lucas, NMED Surface Water Quality Bureau

Tim Michael, Staff Manager, NMED DOE Oversight Bureau, 2905 Rodeo Park Drive East,  
Bldg. 1, Santa Fe, NM 87505

Steve Yanicak, Point of Contact, NMED DOE Oversight Bureau, 134 SR 4, Suite A,  
Bldg. 001313, White Rock, NM 87544

Beverly Ramsey, Director, Risk Reduction and Environmental Stewardship Division,  
Los Alamos National Laboratory, P.O. Box 1663, MS-J591, Los Alamos, NM  
87545

Steven Rae, Group Leader, Water Quality & Hydrology Group, Risk Reduction &  
Environmental Stewardship Division, Los Alamos National Laboratory, MS K497  
Los Alamos, NM 87545

Bob Beers, Water Quality and Hydrology Group, Risk Reduction & Environmental  
Stewardship Division, Los Alamos National Laboratory, MS K497, Los Alamos,  
NM 87545

Dennis McLain, Facility Manager/Group Leader, Waste Facility Management Group,  
Facility & Waste Operations Division, Los Alamos National Laboratory,  
MS J593, Los Alamos, NM 87545

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Joni Arends, Concerned Citizens for Nuclear Safety, 107 Cienega, Santa Fe, NM 87501

Kathleen Sanchez, Tewa Women United, Rt. 5, Box 298, Santa Fe, NM, 87506

Peggy Prince, Peace Action New Mexico, 226 Fiesta Street, Santa Fe, NM 87501

George Rice, Concerned Citizens for Nuclear Safety, 414 East French Place, San Antonio,  
TX, 78212

Brian Shields, Amigos Bravos, P.O. Box 238, Taos, NM 87571

## GROUND WATER DISCHARGE PERMIT

Los Alamos National Laboratory, Radioactive Liquid Waste Treatment Facility (DP-1132)

### I. INTRODUCTION

The New Mexico Environment Department (NMED) issues this Discharge Permit, DP-1132 to the United States Department of Energy and the Regents of the University of California (collectively, the permittees) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

NMED's purpose in issuing this Discharge Permit, and in imposing the requirements and conditions specified herein, is to control the discharge of water contaminants from Los Alamos National Labs (LANL) operations to ground and surface water, so as to protect ground and surface water for present and potential future use as domestic and agricultural water supply and other uses and protect public health. In issuing this Discharge Permit, NMED has determined that the requirements of Section 20.6.2.3109.C NMAC have been met.

The activities that produce the discharge, the location of the discharge, and the quantity, quality and flow characteristics of the discharge are briefly described as follows:

The permittees are authorized to discharge up to 41,770 gallons per day of industrial effluent from the Radioactive Liquid Waste Treatment Facility (RLWTF) at Technical Area (TA)-50 within LANL. Liquid waste from Technical Areas TA-3, TA-35, TA-48, TA-50, TA-55, and TA-59 shall be pumped to the RLWTF through the Radioactive Liquid Waste Collection System (RLWCS) via double encased pipe. Liquid waste from Technical Areas TA-3, TA-15, TA-16, TA-21, TA-33, TA-50, and TA-54 shall be transported to the RLWTF by truck. Radioactive liquid waste from environmental restoration and decontamination & decommissioning activities shall be transported to the RLWTF by truck. The RLWTF shall not receive liquid waste from Technical Areas or activities at LANL other than specified above.

The influent to the RLWTF shall be treated using the following batch treatment process: raw and pretreated wastewater shall be collected in influent tanks. The wastewater shall then be passed through the clarifier. Clarified supernatant shall then be treated by filtration (sand and bag filters), followed by ion exchange. If the effluent meets the following criteria, it may be discharged to Mortandad Canyon:

Gross Alpha < 30 pCi/L;

Mercury < 0.77 ug/L;

Chemical Oxygen Demand < 125 mg/L;

Total Suspended Solids < 30 mg/L;

Tritium < 20 nCi/L;

Zinc < 4.37 mg/L;

Perchlorate < 4 ug/L; and

Groundwater quality standards at 20.6.2.3103 NMAC for all other contaminants.

If the effluent does not meet the criteria for discharge to Mortandad Canyon it shall receive further treatment by reverse osmosis (RO) until it meets the criteria required to discharge for Mortandad Canyon. Reject from the RO unit shall receive further treatment via clarification followed by

Electrodialysis Reversal (EDR). EDR product shall be routed to the RLWTF influent tanks where it reenters the treatment process, while EDR concentrate shall flow to an evaporator. Evaporator distillate is either discharged to Mortandad Canyon or held for further treatment. If evaporator distillate and RO permeate meet the criteria for discharge to Mortandad Canyon, it may be discharged to Mortandad Canyon. If it does not meet such criteria it shall be transported by truck to TA-53 for further treatment. Solids removed from the primary clarifier and the TUF unit shall be concentrated and dewatered prior to disposal at TA-54, while filtrate from the dewatering of solids shall be routed to the RLWTF influent tanks where it reenters the treatment process. Evaporator bottoms shall be stabilized by off-site treatment prior to disposal at TA-54 Area G per Department of Energy (DOE) regulations.

The discharge contains water contaminants or toxic pollutants that may be elevated above the standards of Section 20.6.2.3103 NMAC. The facility is located approximately 1 mile south of the Townsite of Los Alamos at Technical Area 50, in Section 22, T19N, R6E, Los Alamos County. The depth to alluvial ground water below the outfall in Mortandad Canyon is approximately 1 foot, and has a total dissolved solids concentration of approximately 320 milligrams per liter. The depth to regional ground water below the facility is approximately 970 feet, and has a total dissolved solids concentration of approximately 165 milligrams per liter.

The permittees' Discharge Plan consists of the following documents:

1. Ground Water Discharge Plan Application submitted by G. Thomas Todd dated August 16, 1996,
2. Supplemental information submitted by G. Thomas Todd dated June 23, 1997,
3. LANL's Workplan for Mortandad Canyon submitted by Bob Beers dated October 16, 1997,
4. Supplemental information submitted by Herman C. Le-Doux dated December 24, 1997,
5. Revisions to the Discharge Plan submitted by G. Thomas Todd dated December 30, 1997,
6. Supplemental information submitted by Steven Rae dated June 1, 1998,
7. Results of the Radioactive Liquid Waste Zero Discharge Project submitted by Dennis Erickson and Thomas Baca dated July 10, 1998,
8. Supplemental information submitted by Bob Beers dated August 25, 1998,
9. RLWTF Annual Reports for 1997 through 2002,
10. Revised RLWTF Operational Plan submitted by Dennis Erickson and Thomas Baca dated November 20, 1998,
11. Long-Term RLWTF Operational Plan submitted by Dennis Erickson and Thomas Baca dated December 23, 1998,
12. Supplemental information submitted by Dennis Erickson and Thomas Baca dated March 12, 1999,
13. Supplemental information submitted by Dennis Erickson and Thomas Baca dated April 14, 1999,
14. RLWTF process modification submitted by Bob Beers dated October 4, 1999,
15. Supplemental information submitted by Bob Beers dated February 4, 2002,
16. RLWTF Minor Modification submitted by Bob Beers dated December 10, 2002,
17. RLWTF Minor Modification submitted by Bob Beers dated June 27, 2003,
18. Supplemental information submitted by Bob Beers dated September 17, 2003,
19. Supplemental information submitted by Bob Beers dated September 8, 2004, and
20. Supplemental information submitted by Bob Beers dated April 1, 2005.

The discharge shall be managed in accordance with the Discharge Plan as conditioned by this Discharge Permit.

Pursuant to 20.6.2.3109 NMAC, NMED reserves the right to require a Discharge Permit Modification in the event NMED determines that the requirements of 20.6.2 NMAC are being or may be violated or the standards of 20.6.2.3103 NMAC are being or may be violated. This may include a determination that structural controls and/or management practices approved under this Discharge Permit are not protective of ground water quality, and that more stringent requirements to protect and/or remediate ground water quality may be required by NMED. These requirements may include, but are not limited to, changing waste management practices, expanding monitoring requirements, installing an advanced treatment system and/or implementing abatement of water pollution.

Issuance of this Discharge Permit does not relieve the permittees of their responsibility to comply with the WQA, WQCC Regulations, any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

The following abbreviations may be used in this Discharge Permit:

Abbreviation	Explanation	Abbreviation	Explanation
CFR	Code of Federal Regulations	NMED	New Mexico Environment Department
CFU	colony forming units	NMSA	New Mexico Statutes Annotated
Cl	Chloride	NO <sub>3</sub> -N	nitrate-nitrogen
LADS	land application data sheet(s)	TDS	total dissolved solids
mg/L	milligrams per liter	TKN	total Kjeldahl nitrogen
mL	Milliliters	TN	Total nitrogen TKN+NO <sub>3</sub> -N
NMAC	New Mexico Administrative Code	WQCC	Water Quality Control Commission

## II. FINDINGS

In issuing this Discharge Permit, NMED finds:

1. The permittees are discharging effluent or leachate so that such effluent or leachate may move directly or indirectly into ground water within the meaning of Section 20.6.2.3104 NMAC.
2. The permittees are discharging effluent or leachate so that such effluent or leachate may move into ground water of the State of New Mexico which has an existing concentration of 10,000 milligrams per liter or less of total dissolved solids within the meaning of Section 20.6.2.3101.A NMAC.
3. The discharge from the permittees is not subject to any of the exemptions of Section 20.6.2.3105 NMAC.

### III. CONDITIONS

The following conditions shall be complied with by the permittees and are enforceable by NMED. The permittees are permitted to discharge water contaminants subject to the following conditions:

#### OPERATIONAL PLAN

1. The permittees shall implement the following operational plan (Conditions 2-6) to ensure compliance with Title 20, Chapter 6, Parts 1 and 2 NMAC. [20.6.2.3106.C NMAC][20.6.2.3107 NMAC]
2. The permittees shall operate in a manner such that the standards and requirements of Section 20.6.2.3103 NMAC, including human health and other domestic water supply and irrigation standards, are not violated. [20.6.2.3103 NMAC]
3. The permittees are authorized to discharge up to 41,770 gallons per day of industrial effluent from the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50 within LANL. Liquid waste from Technical Areas TA-3, TA-35, TA-48, TA-50, TA-55, and TA-59 shall be pumped to the RLWTF through the Radioactive Liquid Waste Collection System (RLWCS) via double encased pipe. Liquid waste from Technical Areas TA-3, TA-15, TA-16, TA-21, TA-33, TA-50, and TA-54 shall be transported to the RLWTF by truck. Radioactive liquid waste from environmental restoration and decontamination & decommissioning activities shall be transported to the RLWTF by truck. The RLWTF shall not receive liquid waste from Technical Areas or activities at LANL other than specified above.

The influent to the RLWTF shall be treated using the following batch treatment process: raw and pretreated wastewater shall be collected in influent tanks. The wastewater shall then be passed through the clarifier. Clarified supernatant shall then be treated by filtration (sand and bag filters), followed by ion exchange. If the effluent meets the following criteria, it may be discharged to Mortandad Canyon:

Gross Alpha < 30 pCi/L;

Mercury < 0.77 ug/L;

Chemical Oxygen Demand < 125 mg/L;

Total Suspended Solids < 30 mg/L;

Tritium < 20 nCi/L;

Zinc < 4.37 mg/L;

Perchlorate < 4 ug/L; and

Groundwater quality standards at 20.6.2.3103 NMAC for all other contaminants.

If the effluent does not meet the criteria for discharge to Mortandad Canyon it shall receive further treatment by reverse osmosis (RO) until it meets the criteria required for discharge for Mortandad Canyon. Reject from the RO unit shall receive further treatment via clarification followed by Electrodialysis Reversal (EDR). EDR product shall be routed to the RLWTF

influent tanks where it reenters the treatment process, while EDR concentrate shall flow to an evaporator. Evaporator distillate is either discharged to Mortandad Canyon or held for further treatment. If evaporator distillate and RO permeate meet the criteria for discharge to Mortandad Canyon, it may be discharged to Mortandad Canyon. If it does not meet such criteria it shall be transported by truck to TA-53 for further treatment. Solids removed from the primary clarifier and the TUF unit shall be concentrated and dewatered prior to disposal at TA-54, while filtrate from the dewatering of solids shall be routed to the RLWTF influent tanks where it reenters the treatment process. Evaporator bottoms shall be stabilized by off-site treatment prior to disposal at TA-54.

4. Treated effluent that is discharged from the RLWTF shall not exceed the numerical standards listed under Section 20.6.2.3103 NMAC. [20.6.2.3109 NMAC]
5. The permittees shall maintain the liquid waste collection system and associated monitoring system in a manner such that a release to the environment does not occur. The collection system consists of double-encased polyethylene pipe connected to a series of 75 leak detection vaults which are equipped with continuously monitored conductivity probes. The system is designed to alarm when liquid is present in any of the 75 leak detection sumps. Alarms are received at the utilities Central Alarm Station, which shall be manned by operators 24 hours a day. [20.6.2.3107 NMAC]
6. The permittees shall remove solids from the RLWTF as required. Solids removed from the RLWTF shall be characterized, contained, transported, and disposed of in accordance with all applicable local, state, and federal regulations. The permittees shall maintain a record of solids removal and disposal at the facility, which shall be made available for NMED and public review upon request and maintained for 20 years after cessation of permitted activities. [20.6.2.3109 NMAC]

#### **MONITORING, REPORTING, AND OTHER REQUIREMENTS**

7. The permittees shall conduct the monitoring, reporting, and other requirements listed below. [20.6.2.3107 NMAC]
8. **METHODOLOGY** - Unless otherwise approved in writing by NMED, the permittees shall conduct sampling and analysis in accordance with the most recent edition of the following documents:
  - A. American Public Health Association, Standard Methods for the Examination of Water and Wastewater;
  - B. U.S. Environmental Protection Agency, Methods for Chemical Analysis of Water and Waste;
  - C. U.S. Geological Survey, Techniques for Water Resources Investigations of the U.S. Geological Survey;
  - D. American Society for Testing and Materials, Annual Book of ASTM Standards, Part 31. Water;
  - E. U.S. Geological Survey, et al., National Handbook of Recommended Methods for Water Data Acquisition; and
  - F. Methods of Soil Analysis: Part I Physical and Mineralogical Methods, and Part 2

Chemical and Microbiological Properties, Second Edition, American Society of  
Agronomy.

[20.6.2.3107(B) NMAC]

9. The permittees shall submit quarterly monitoring reports to NMED by:

January 28<sup>th</sup>, April 28<sup>th</sup>, July 28<sup>th</sup>, and October 28<sup>th</sup> of each year.

As detailed in other conditions in this Discharge Permit, the reports shall include the monthly wastewater influent and effluent volumes, analytical results from effluent and ground water sampling, results of the annual inspection of the collection system and associated monitoring devices, and results of the annual inspection and evaluation of all tanks and treatment units. These requirements are summarized on the attached sheet. Any inadvertent omissions from this summary of a monitoring or reporting requirement shall not relieve the permittees of responsibility for compliance with that requirement. [20.6.2.3107 NMAC]

10. The permittees shall measure the monthly volume of wastewater discharged to the collection system from each of the primary waste generator sites, and the monthly volume of treated effluent that is discharged to Mortandad Canyon from the RLWTF. The discharge volumes shall be measured using a totalizing flowmeter or other method subject to NMED approval. The monthly meter readings and discharge volumes shall be submitted to NMED in the quarterly monitoring reports. Flow monitoring devices shall be kept operational at all times.  
[20.6.2.3107(A)1 NMAC]
11. The permittees shall inspect the collection system and associated monitoring system on an annual basis. Permittees shall submit a summary report of the inspection findings and a proposed schedule for any necessary corrective actions with the quarterly monitoring report due by January 28<sup>th</sup> of each year. Any acute failures observed shall be corrected and reported as per Condition 16. [20.6.2.3107 NMAC]
12. The permittees shall inspect and evaluate the integrity of all tanks, treatment units, pipelines, trucks and all associated equipment associated with the RLWTF on an annual basis. Permittees shall submit a summary report of the inspection findings and a proposed schedule for any necessary corrective actions with the quarterly monitoring report due by January 28<sup>th</sup> of each year. Any acute failures observed shall be corrected and reported as per Condition 16.  
[20.6.2.3107 NMAC]
13. The permittees shall perform monitoring of effluent quality for each effluent batch to be discharged from the RLWTF. Grab samples shall be obtained from each batch of effluent generated from the RLWTF. The effluent samples shall be analyzed for all Section 20.6.2.3103 NMAC standards, TKN, volatile organic compounds, semi-volatile organic compounds, gross alpha, tritium, chemical oxygen demand, and perchlorate. Analytical results shall be submitted to NMED in the quarterly monitoring reports due by the 28<sup>th</sup> of January, April, July, and October of each year. [20.6.2.3107 NMAC]
14. The permittees shall perform quarterly ground water sampling at the following wells:  
MCO-3, MCO-4B, MCO-5, MCO-6, MCO-7, MCO-9, MCOBT-4.4, R-1, R-11, R-13, R-14, R-15, R-33, R-34 and TW-8.

The ground water sampling shall be performed according to the following procedure:

- (1) Measure the depth to ground water to the nearest hundredth of a foot;
- (2) Purge three well volumes of water from the well prior to sample collection (alternative sample collection methods maybe proposed to NMED for approval); and
- (3) Obtain samples from the well to be analyzed for all Section 20.6.2.3103 NMAC standards, TKN, volatile organic compounds, semi-volatile organic compounds, gross alpha, tritium, chemical oxygen demand, and perchlorate.

Depth-to-water measurements and analytical results shall be submitted to NMED in the quarterly reports due by the due by the 28<sup>th</sup> of January, April, July, and October of each year.

In the event that any of the wells listed above are abandoned and replaced, this monitoring requirement shall apply to the replacement well. The permittees shall survey all new monitoring wells to a common permanent benchmark. Survey data shall include northing, easting and elevation to the nearest hundredth of a foot. New monitoring wells construction and lithologic logs, and survey data shall be submitted to NMED in the monitoring report immediately following the well's installation. The permittees shall notify NMED of all new monitoring wells installed in Mortandad Canyon during the term of this Discharge Permit in the monitoring report immediately following the new well's installation. [20.6.2.3107 NMAC]

#### CONTINGENCY PLAN

15. In the event that monitoring indicates ground water standards are violated during the term of this Discharge Permit, upon closure of the facility or during post-closure monitoring, the permittees shall collect a confirmatory sample from the monitoring well(s) within 15 days to confirm the initial sampling results. Within 30 days of confirmation of ground water contamination, the permittees shall submit a plan to NMED to abate water pollution that includes a site investigation to define the source, nature and extent of contamination; a proposed abatement option; and a schedule for its implementation. The site investigation and abatement option shall be consistent with the requirements and provisions of Sections 20.6.2.4101, 4103, 4106, 4107, and 4112 NMAC. The abatement plan shall be implemented within 30 days of NMED approval. [20.6.2.3107(A)10 NMAC]
16. In the event of a spill or release that is not prescribed under this Discharge Permit, the permittees shall initiate the notifications and corrective actions as required in Section 20.6.2.1203 NMAC. The permittees shall take immediate corrective action to contain and remove or mitigate the damage caused by the discharge. Within 24 hours after discovery of the discharge, the permittees shall verbally notify NMED and provide the information required by Section 20.6.2.1203.A.1 NMAC. Within 7 days of discovering the discharge, the permittees shall submit a written report to NMED verifying the oral notification and providing any additional information or changes. The permittees shall submit a corrective action report within 15 days after discovery of the discharge. [20.6.2.1203 NMAC]

17. In the event that analytical results from a RLWTF effluent grab sample exceed the limitation set in Conditions 3 and 4 of this Discharge Permit, the permittees shall enact the following contingency plan:
- A. NMED shall be notified of the exceedence immediately.
  - B. The permittees shall retreat the batch until treated effluent does not exceed the numerical standards listed under Section 20.6.2.3103 NMAC.
  - C. The permittees shall examine the operation and maintenance log, required under the Record Keeping section of this Discharge Permit, for improper operational procedures. The permittees shall also conduct a physical inspection of the treatment system to detect any abnormalities. Any abnormalities discovered shall be corrected.
  - D. The permittees shall investigate the source of the constituent which caused the exceedence, and determine if the source is in compliance with LANL's RLWTF Waste Acceptance Criteria.
  - E. If analytical results from subsequent wastewater sampling still exceed the limitation, the permittees shall submit a corrective action plan for NMED approval to modify operational procedures and/or upgrade the treatment process to achieve the effluent limit. This plan shall be submitted within 60 days of the second exceedence of the effluent limitation. The corrective action plan shall be implemented immediately upon NMED approval.

[20.6.2.3107(A)10 NMAC]

18. In the event that liquid is detected in any of the leak detection vaults connected to the RLWTF collection system, the liquid shall be removed, sampled, and characterized to determine the source of the liquid. Based on the analysis of the sample, if the liquid appears to be the result of a leak in the RLWTF collection system, the permittees shall investigate the source of the leak and submit a corrective action plan within 30 days of discovery. All analytical results of liquid samples shall be provided to NMED for review and approval. [20.6.2.1203 NMAC]
19. If NMED or the permittees identify any other failures of the discharge plan or system not specifically noted herein, NMED may require the permittees to develop for NMED approval contingency plans and schedules to cope with the failures. [20.6.2.3107(A)10 NMAC]

### CLOSURE PLAN

20. If operations at the RLWTF should cease and the facility is decommissioned or converted for use by other operations, then the permittees shall perform the following closure measures:
- A. The collection system shall be decontaminated, and removed or plugged so that a discharge to the RLWTF can no longer occur.
  - B. Liquids and solids shall be removed from all piping, tanks, and treatment units and disposed in accordance with all local, state, and federal regulations.
  - C. All piping, tanks, and treatment units shall be decontaminated and removed from the site.
  - D. In the event that evidence of leakage from piping, tanks, or treatment units is discovered during closure activities, the permittees shall implement the contingency plan described in Condition #16 of this Discharge Permit.

- E. The permittees shall continue ground water monitoring as described in Condition 14 of this Discharge Permit for a minimum of 5 years after closure to confirm the absence of ground water contamination. If monitoring results indicate that Section 20.6.2.3103 NMAC ground water standards are being exceeded, the permittees shall implement the contingency plan described in Condition 15 of this Discharge Permit.
- F. Following notification from NMED that post-closure monitoring may cease, the permittees shall plug and abandon the monitoring wells in accordance with *NMED Monitoring Well Construction and Abandonment Guidelines dated June 6, 2000* (copy enclosed), unless the monitoring wells are required under another regulatory program.
- G. When all post-closure requirements have been met, the permittees may request to terminate the Discharge Permit.

[20.6.2.3107(A)11 NMAC]

### GENERAL TERMS AND CONDITIONS

21. RECORD KEEPING - The permittees shall maintain at its facility a written record of all data and information related to field measurements, sampling, and analysis conducted pursuant to this Discharge Permit. The following information shall be recorded and shall be made available to the NMED upon request:
- A. The dates, exact place and times of sampling or field measurements;
  - B. The name and job title of the individuals who performed each sample collection or field measurement;
  - C. The date of the analysis of each sample;
  - D. The name and address of the laboratory and the name and job title of the person that performed the analysis of each sample;
  - E. The analytical technique or method used to analyze each sample or take each field measurement;
  - F. The results of each analysis or field measurement, including raw data;
  - G. The results of any split sampling, spikes or repeat sampling; and
  - H. A description of the quality assurance and quality control procedures used.

[20.6.2.3107(A) NMAC]

22. RECORD KEEPING - The permittees shall maintain a written record of any spills, seeps, and/or leaks of effluent, and of leachate and/or process fluids not authorized by this Discharge Permit.

[20.6.2.3107(A) NMAC]

23. RECORD KEEPING - The permittees shall maintain a written record of the operation, maintenance, and repair of all facilities/equipment used to treat, store or dispose of wastewater; to measure flow rates, to monitor water quality, or to collect other data required by this Discharge Permit. This record shall include repair, replacement or calibration of any monitoring equipment and repair or replacement of any equipment used in the permittees' waste or wastewater treatment and disposal system. [20.6.2.3107(A) NMAC]

24. RECORD KEEPING - The permittees shall maintain a written record of the amount of effluent that is discharged from the RLWTF. [20.6.2.3107(A) NMAC]

25. **RECORD KEEPING** - The permittees shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Discharge Permit, and records of all data used to complete the application for this Discharge Permit for a period of at least five years from the date of the sample collection, measurement, report or application. This period may be extended by request of the Secretary at any time. [20.6.2.3107(A) NMAC]
26. **INSPECTION and ENTRY** - The permittees shall allow the Secretary or an authorized representative, upon the presentation of credentials, to:
  - A. Enter at regular business hours or at other reasonable times upon the permittees' premises or other location where records must be kept under the conditions of this Discharge Permit, or under any federal or WQCC regulation.
  - B. Inspect and copy, during regular business hours or at other reasonable times, any records required to be kept under the conditions of this Discharge Permit, or under any federal or WQCC regulation.
  - C. Inspect, at regular business hours or at other reasonable times, any facility, equipment (including monitoring and control equipment or treatment works), practices or operations regulated or required under this Discharge Permit, or under any federal or WQCC regulation.
  - D. Sample or monitor, at reasonable times for the purpose of assuring compliance with this Discharge Permit or as otherwise authorized by the New Mexico Water Quality Act, any effluent, water contaminant, or receiving water at any location before or after discharge. [20.6.2.3107(D) NMAC][74-6-9.B & E WQA]
27. **INSPECTION and ENTRY** - Nothing in this Discharge Permit shall be construed as limiting in any way the inspection and entry authority of NMED under the WQA, the WQCC Regulations, or any other applicable law or regulation. [20.6.2.3107 NMAC]
28. **DUTY to PROVIDE INFORMATION** – The permittees shall furnish to the NMED, within a reasonable time, any documents or other information that it may request to determine whether cause exists for modifying, terminating and/or renewing this Discharge Permit or to determine compliance with this Discharge Permit. The permittees shall also furnish to the NMED, upon request, copies of documents required by this Discharge Permit. [20.6.2.3107(D) NMAC][74-6-9.B & E WQA]
29. **SPILLS, LEAKS, and OTHER UNAUTHORIZED DISCHARGES** - This Discharge Permit authorizes only those discharges specified herein. Any unauthorized discharges violate 20.6.2.3104 NMAC, and must be reported to the NMED and remediated as required by 20.6.2.1203 NMAC. This requirement applies to all seeps, spills, and/or leaks discovered from the RLWTF collection, storage and treatment system. [20.6.2.1203 NMAC]
30. **MODIFICATIONS and/or AMENDMENTS** - The permittees shall notify NMED of any changes to the permittees' wastewater treatment and disposal system, including any changes in the wastewater flow rate or the volume of wastewater storage, or of any other changes to operations or processes that would result in any significant change in the discharge of water contaminants. The permittees shall obtain NMED's approval, as a modification to this Discharge Permit

pursuant to 20.6.2.3109.E, F, or G NMAC, prior to any increase in the quantity discharged, or any increase in the concentration of water contaminants discharged, above those levels approved in this Discharge Permit. [20.6.2.3107(C) NMAC]

31. ENFORCEMENT - Any violation of the requirements and conditions of this Discharge Permit, including any failure to allow NMED staff to enter and inspect records or facilities, or any refusal or failure to provide NMED with records or information, may subject the permittees to an enforcement action. Pursuant to WQA 74-6-10.A and B, such action may include a compliance order requiring compliance immediately or in a specified time, assessing a civil penalty, modifying or terminating the Discharge Permit, or any combination of the foregoing; or an action in district court seeking injunctive relief, civil penalties, or both. Pursuant to WQA 74-6-10.C and 74-6-10.1, civil penalties of up to \$15,000 per day of noncompliance may be assessed for each violation of the WQA 74-6-5, the WQCC regulations, or this Discharge Permit, and civil penalties of up to \$10,000 per day of noncompliance may be assessed for each violation of any other provision of the WQA, or any regulation, standard, or order adopted pursuant to such other provision. For certain violations specified in WQA 74-6-10.2, criminal penalties may also apply. In any action to enforce this Discharge Permit, the permittees waives any objection to the admissibility as evidence of any data generated pursuant to this Discharge Permit.  
[74-6 Water Quality Act]
32. COMPLIANCE WITH OTHER LAWS - Nothing in this Discharge Permit shall be construed in any way as relieving the permittees of its obligation to comply with all applicable federal, state, and local laws, regulations, permits or orders. [20.6.2 NMAC]
33. RIGHT to APPEAL - The permittees may file a petition for hearing before the WQCC on this Discharge Permit. Such petition shall be in writing to the WQCC within thirty (30) days of the receipt of this Discharge Permit. Unless a timely petition for hearing is made, the decision of NMED shall be final. [74-6-5.N Water Quality Act]
34. TRANSFER of DISCHARGE PERMIT - Prior to the transfer of any ownership, control, or possession of this permitted facility or any portion thereof, the permittees shall notify the proposed transferee in writing of the existence of this Discharge Permit and include a copy of this Discharge Permit with the notice. The permittees shall deliver or send by certified mail to NMED a copy of the notification and proof that the proposed transferee has received such notification. [20.6.2.3111 NMAC]
35. TERM - Pursuant to the WQA 74-6-5.H, and 20.6.2.3109.H NMAC, the term of this Discharge Permit is five (5) years, and the Discharge Permit will automatically terminate five (5) years from the date it is issued. To renew this Discharge Permit, the permittees must submit an application for renewal at least 180 days before the termination date.  
[20.6.2.3109.H NMAC][74-6-5.H WQA]

ISSUED: <APPROVAL DATE>

EXPIRES: <FIVE YEARS AFTER APPROVAL DATE>

WILLIAM C. OLSON  
Chief, Ground Water Quality Bureau  
New Mexico Environment Department

draft



**New Mexico Environment Department Ground Water Quality Bureau**  
**Discharge Permit Summary**  
**Page 1 of 1**

**Facility Information**

**Facility Name** Los Alamos National Laboratory  
 Radioactive Liquid Waste Treatment Facility

**Discharge Permit Number** DP-1132

**Legally Responsible Party** Regents of the University of California  
 Office of the Secretary of the Regents  
 University of California  
 1111 Franklin St., 12<sup>th</sup> Floor  
 Oakland, CA 94607

and

Edwin Wilmott, Manager  
 Office of Los Alamos Site Operations  
 National Nuclear Security Administration  
 U.S. Department of Energy  
 528 35<sup>th</sup> Street  
 Los Alamos, New Mexico 87544

**Treatment, Disposal and Site Information**

**Primary Waste Type** Industrial  
**Facility Type** FED-DOE

**Treatment Methods**

<b>Treatment Type</b>	<b>Designation</b>	<b>Description &amp; Comments</b>
Equalization Basin/Tank	100K Influent Tank	100,000 gallon Influent Tank
Clarifier	Clarifier #2	25,000 gallon Gravity Clarifier
Sand Filter	SF-1	Sand Filter
Bag Filter	BF-1	Bag filter
TUF Feed Tank	TUF Tank-1	20,000 gallon TUF Feed Tank
TUF Unit	TUF-1	Tubular Ultra Filtration
RO Feed Tank	RO Tank-1	9,000 gallon RO Feed Tank
Ion Exchange	IE-1 (Perchlorate)	Ion Exchange Unit
Cartridge Filter	CF-1	10 micron Cartridge Filter
Reverse Osmosis	RO-1	Reverse Osmosis Unit
Clarifier	Clarifier #1	25,000 gallon Gravity Clarifier
CUF Feed Tank	CUF Tank-1	CUF Feed Tank
Centrifugal Ultra Filtration	CUF-1	Centrifugal Ultra Filtration
Rotary Vacuum Filter	RVF-1	Rotary Vacuum Filter
Electrodialysis Reversal	EDR-1	Electrodialysis Reversal Unit
Evaporator	EVAP-1	Evaporation Unit
Tank Farm	NW/NE/SW/SE	4-20,000 gallon Tanks

**Discharge Locations**

<b>Discharge Type</b>	<b>Designation</b>	<b>Description &amp; Comments</b>
Watercourse	Outfall 051 (NPDES)	Outfall to Mortandad Canyon



New Mexico Environment Department Ground Water Quality Bureau  
**Discharge Permit Summary**  
**Page 2 of 2**

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**Depth to Ground Water** 1 ft. (alluvial) / 970 ft. (regional)  
**Total Dissolved Solids (TDS)** 320 mg/L (alluvial) / 165 mg/L (regional)

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**Permit Information**

**Application Received** August 16, 1996  
**Public Notice Published** PN-2 Date  
**Discharge Permit Approved** <APPROVAL DATE>  
**Discharge Permit Expires** <FIVE YEARS AFTER APPROVAL DATE>  
**Permitted Discharge Volume** 41,770 gallons per day

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**NMED Contact Information**

**Mailing Address** Ground Water Quality Bureau  
PO Box 26110  
Santa Fe, New Mexico 87502  
**Telephone Number** (505) 827-2900  
**NMED Lead Staff** Christopher Vick  
**Lead Staff Telephone Number** (505) 827-0078  
**Lead Staff E-Mail** Chris\_Vick@nmenv.state.nm.us

**Public Notice DP-1132**  
Reviewer – Christopher Vick

DP-1132, Los Alamos National Laboratory (LANL), Edwin Wilmott and the Regents of the University of California propose to continue the discharge of up to 41,770 gallons per day of industrial effluent from the Radioactive Liquid Waste Treatment Facility (RLWTF) at Technical Area (TA)-50 within LANL. Liquid waste from Technical Areas TA-3, TA-35, TA-48, TA-50, TA-55, and TA-59 shall be pumped to the RLWTF through the Radioactive Liquid Waste Collection System (RLWCS) via double encased pipe. Liquid waste from Technical Areas TA-3, TA-15, TA-16, TA-21, TA-33, TA-50, and TA-54 shall be transported to the RLWTF by truck. Radioactive liquid waste from environmental restoration and decontamination & decommissioning activities shall be transported to the RLWTF by truck. The RLWTF shall not receive liquid waste from Technical Areas or activities at LANL other than specified above.

The influent to the RLWTF shall be treated using the following batch treatment process: raw and pretreated wastewater shall be collected in influent tanks. The wastewater shall then be passed through the clarifier. Clarified supernatant shall then be treated by filtration (sand and bag filters), followed by ion exchange. If the effluent meets the following criteria, it may be discharged to Mortandad Canyon:

Gross Alpha < 30 pCi/L;  
Mercury < 0.77 ug/L;  
Chemical Oxygen Demand < 125 mg/L;  
Total Suspended Solids < 30 mg/L;  
Tritium < 20 nCi/L;  
Zinc < 4.37 mg/L;  
Perchlorate < 4 ug/L; and  
Groundwater quality standards at 20.6.2.3103 NMAC for all other contaminants.

If the effluent does not meet the criteria for discharge to Mortandad Canyon it shall receive further treatment by reverse osmosis (RO) until it meets the criteria required to discharge for Mortandad Canyon. Reject from the RO unit shall receive further treatment via clarification followed by Electrodialysis Reversal (EDR). EDR product shall be routed to the RLWTF influent tanks where it reenters the treatment process, while EDR concentrate shall flow to an evaporator. Evaporator distillate is either discharged to Mortandad Canyon or held for further treatment. If evaporator distillate and RO permeate meet the criteria for discharge to Mortandad Canyon, it may be discharged to Mortandad Canyon. If it does not meet such criteria it shall be transported by truck to Technical Area 53 for further treatment. Solids removed from the primary clarifier and the TUF unit shall be concentrated and dewatered prior to disposal at Technical Area 54 (TA-54), while filtrate from the dewatering of solids shall be routed to the RLWTF influent tanks where it reenters the treatment process. Evaporator bottoms shall be stabilized by off-site treatment prior to disposal at TA-54.

The discharge contains water contaminants or toxic pollutants that may be elevated above the standards of Section 20.6.2.3103 NMAC. The facility is located approximately 1 mile south of the Townsite of Los Alamos at Technical Area 50, in Section 22, T19N, R6E, Los Alamos County. The depth to alluvial ground water below the outfall in Mortandad Canyon is approximately 1 foot, and has a total dissolved solids concentration of approximately 320 milligrams per liter. The depth to regional ground water below the facility is approximately 970 feet, and has a total dissolved solids concentration of approximately 165 milligrams per liter.

Edwin Wilmott, Manager  
Office of Los Alamos Site Operations  
National Nuclear Security Administration  
U.S. Department of Energy  
528 35<sup>th</sup> Street  
Los Alamos, New Mexico 87544

Regents of the University of California  
Office of the Secretary of the Regents  
University of California  
1111 Franklin St., 12<sup>th</sup> Floor  
Oakland, CA 94607

Draft



**New Mexico Environment Department Ground Water Quality Bureau  
Discharge Permit Submittal and Monitoring Summary**

**DP-1132, Los Alamos National Laboratory  
Radioactive Liquid Waste Treatment Facility**

**Submittal Due Dates: 28th of January, April, July, and October**

The following summarizes the submittal requirements for this facility:

#	Submittal Description	Due Date
1.	<p>Submit quarterly monitoring reports to NMED.</p> <p>Items to be reported quarterly are due by: January 28<sup>th</sup>, April 28<sup>th</sup>, July 28<sup>th</sup>, and October 28<sup>th</sup> of each year.</p> <p>Items to be reported annually are due by: January 28<sup>th</sup> of each year. [20.6.2.3107 NMAC]</p>	<p>Quarterly by the 28<sup>th</sup> of January, April, July, and October of each year.</p>

**Monitoring Due Dates: 28<sup>th</sup> of January, April, July, and October**

The following specifies the items to be included in monitoring reports for this facility:

#	Monitoring Description	Annual Reporting Frequency
1.	<p>Submit to NMED the monthly meter readings and discharge volumes of wastewater discharged to the collection system from each of the primary waste generator sites, and the monthly volume of treated effluent that is discharged to Mortandad Canyon from the RLWTF. [20.6.2.3107(A)1 NMAC]</p>	Quarterly
2.	<p>Submit to NMED results of the annual inspection of the collection system and associated monitoring system. [20.6.2.3107 NMAC]</p>	Annually
3.	<p>Submit to NMED results of the annual inspection and evaluation of all tanks and treatment units associated with the RLWTF. [20.6.2.3107 NMAC]</p>	Annually
4.	<p>Submit to NMED analytical results of effluent sampling from each batch of effluent generated at the RLWTF facility for all Section 20.6.2.3103 NMAC standards, in addition to TKN, perchlorate (ClO<sub>4</sub>), volatile organic compounds, semi-volatile organic compounds, gross alpha, tritium and chemical oxygen demand. [20.6.2.3107 NMAC]</p>	Quarterly
5.	<p>Submit to NMED analytical results of quarterly ground water sampling at the following wells: MCO-3, MCO-4B, MCO-5, MCO-6, MCO-7, MCO-9, MCOBT-4.4, R-1, R-11, R-13, R-14, R-15, R-33, R-34 and TW-8. The ground water samples shall be analyzed for all Section 20.6.2.3103 NMAC standards, in addition to TKN, perchlorate (ClO<sub>4</sub>), volatile organic compounds, semi-volatile organic compounds, gross alpha, tritium and chemical oxygen demand. [20.6.2.3107 NMAC]</p>	Quarterly

**NOTE:** See Discharge Permit for full requirement details.

**Submit all reports to:**

Ground Water Quality Bureau  
P.O. Box 26110  
Santa Fe, New Mexico 87502