

# Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

Date: February 18, 2000  
In Reply Refer To: ESH-18/WQ&H:00-0049  
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Ms. Barbara Hoditschek  
Surface Water Quality Bureau  
New Mexico Environment Department  
1190 St. Francis Drive, P.O. Box 26110  
Santa Fe, New Mexico 87502

**SUBJECT: MONTHLY STATUS REPORT, RLWTF AT TA-50**

Dear Ms. Hoditschek:

At a December 2, 1999, meeting with Los Alamos National Laboratory (Laboratory), NMED Surface Water Quality Bureau (SWQB), and EPA Region 6, the Laboratory volunteered to provide the SWQB with a monthly report on the status of treatment operations and upgrades at Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50. As you are aware, the Laboratory currently submits a quarterly status report on RLWTF operations to the NMED Ground Water Quality Bureau (GWQB). In an effort to avoid redundant reporting, the Laboratory proposes to copy the SWQB on all GWQB quarterly reports, and provide your agency with monthly reports during the remaining eight (8) months. On January 25, 2000, you were sent a copy of the Laboratory's fourth quarter 1999 report for the RLWTF (ESH-18/WQ&H:00-0020). This report addresses operations at the RLWTF for January 2000.

## Operational Changes

At the December 2, 1999, meeting referenced above, the Laboratory made a commitment to your agency to reduce the rate which effluent is discharged into Mortandad Canyon at NPDES Outfall 051. Since December 3, 1999, the RLWTF has been discharging from the effluent holding tanks using only one (1) pump. As a result, the rate of discharge has been reduced from approximately 725 gallons per minute (two pumps) to approximately 475 gallons per minute (one pump). Accordingly, the time required to complete a discharge event has increased from approximately 29 minutes (two pumps) to approximately 47 minutes (one pump).

On November 18, 1999, work on the TUF treatment unit was completed and it was returned to service. In addition, new membranes were installed in the reverse osmosis (RO) treatment unit in late-November 1999 and that unit was returned to service on December 10, 1999. The RLWTF is continuing to use the clarifiers for pretreatment for silica and suspended solids removal. Since the RO treatment unit returned to service on December 10, 1999, the RLWTF's effluent has consistently met the U.S. Department of Energy's Derived Concentration Guide (DCG) for gross alpha particle activity of 30 pCi/L. During January 2000, the sum of the fractions for radionuclides in the RLWTF's effluent has been less than the DCG value of 1.



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### Facility Upgrades

In January 2000, the Electrodialysis Reversal (EDR) treatment unit completed its start-up phase and was placed into permanent service. The EDR houses a series of charge-sensitive membranes sandwiched between plates that produce an electric field. The electric field drives ions through the membranes. As a result, the EDR is capable of achieving a 5-6 fold concentration of the RO reject stream. The feed water to the EDR will be the reject stream from the RO treatment unit. The product (permeate) water from the EDR will be transferred to storage for analysis and subsequent discharge if of acceptable quality. The reject stream from the EDR will be transferred to storage for eventual treatment by the interim mechanical evaporator.

On January 31, 2000, the interim mechanical evaporator at the RLWTF was placed into service. The evaporator is treating reject (concentrate) water from the RLWTF's EDR treatment unit. The distillate from the evaporator is being stored in the two new 20,000-gallon temporary storage tanks recently installed. The distillate will be stored pending further analysis to determine if it meets the requirements for discharge or if it requires retreatment.

With the completion of the interim mechanical evaporator, the RLWTF has finished the second phase of a two-phased project to upgrade the facility's treatment units. Phase I, installation of the Tubular Ultrafiltration and Reverse Osmosis treatment units, was completed in December 1999. The Phase I upgrades were critical steps towards compliance with U.S. Department of Energy DCG limits. The Phase II upgrades, installation of the interim mechanical evaporator, is a critical step towards compliance with New Mexico Water Quality Control Commission Regulation 3103 ground water standards and the Laboratory's future goal of zero liquid discharge.

Please contact me at 667-7969 if you would like additional information regarding this report.



Sincerely,

Bob Beers  
Water Quality and Hydrology Group

BB/rm

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