

Los Alamos

NATIONAL LABORATORY

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Date: October 29, 1999
In Reply Refer To: ESH-18/WQ&H:99-0425
Mail Stop: K497
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Ms. Phyllis Bustamante
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

SUBJECT: RADIOACTIVE LIQUID WASTE TREATMENT FACILITY, GROUND WATER DISCHARGE PLAN (DP-1132), QUARTERLY REPORT, JULY-SEPTEMBER, 1999

Dear Ms. Bustamante:

This letter and the enclosed attachments are intended to serve as Los Alamos National Laboratory's quarterly Ground Water Discharge Plan (DP-1132) report for the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50 for the period from July 1 through September 30, 1999. In December 1998, the Laboratory proposed to submit quarterly reports to the New Mexico Environment Department's Ground Water Quality Bureau (NMED GWQB) on a voluntary basis. These quarterly reports include effluent and monitoring well analytical results as well as a progress report on the planned upgrades to the RLWTF.

Attachment 1.0 presents the analytical results from weekly monitoring of the RLWTF's effluent holding tank. The weekly samples are flow-proportioned composite samples prepared from each batch of effluent generated by the RLWTF during a 7-day period. All sample results shown for the third quarter of 1999 were below New Mexico Water Quality Control Commission (NM WQCC) Ground Water Standards for nitrate (NO₃-N), fluoride (F), and total dissolved solids (TDS) with the exception of two fluoride exceedances during the weeks of August 16-22 and August 23-29, 1999. During this two-week period the RLWTF began using the clarifiers for pre-treatment. As you are aware, the lime used during the clariflocculation treatment process contains fluoride. The RLWTF reformulated the treatment chemicals used during clariflocculation (reducing the lime dose, increasing the iron dose) in order to minimize the amount of lime added. Fluoride concentrations after reformulation (8/30/99-9/26/99) returned to below the NM WQCC Ground Water Standard of 1.6 mg/L.

In addition to weekly composite sampling, the RLWTF also conducts operational screening (using a HACH Kit) for nitrates (NO₃-N) in each batch of effluent. Operational screening of effluent samples collected during the third quarter of 1999 produced the following maximum, minimum, and average results for nitrate (NO₃-N), respectively: 9.4 mg/L, 0.9 mg/L, and 5.04 mg/L.



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Attachment 2.0 presents the analytical results from second and third quarter ground water sampling at the Laboratory's Mortandad Canyon alluvial monitoring wells. The Laboratory's objective is to closely track any trends that might develop as a result of the improvements made in the RLWTF's effluent quality since March 21, 1999, when nitrate restrictions were initiated. The Laboratory will continue to monitor the alluvial wells in Mortandad Canyon on a routine basis.

In an October 4, 1999, letter (ESH-18/WQ&H:99-0394), the Laboratory notified the NMED GWQB that a critical seal had failed in the tubular ultrafilter (TUF) treatment unit. In addition, the letter informed the NMED GWQB that until the TUF unit can be repaired and returned to service, primary treatment would be performed by the RLWTF's clarifiers and anthracite/sand filters. Repair work on the TUF unit is scheduled for completion in mid-November 1999, with the TUF and RO returning to service by mid-December 1999. The RLWTF will continue to use the clarifiers for pretreatment after the TUF and RO units return to service.

The Laboratory is continuing to make progress towards completion of two significant upgrades to the RLWTF: the electrodialysis reversal (EDR) treatment unit, and the interim volume reducing evaporator. The EDR has been operated using non-radioactive tap water and is currently undergoing a readiness assessment. Start-up is now scheduled for mid-December 1999. The interim evaporator is on-site and preparations are underway for its installation. The evaporator project is still on schedule to meet the projected ready-to-run completion date of February 28, 2000.

As you are aware, until the interim evaporator becomes operational the RLWTF must store all of the reject (concentrate) wastewater from the RO treatment unit. During late-October 1999, the RLWTF will be siting approximately 40,000 gallons of temporary storage capacity at TA-50 for storing RO reject/EDR concentrate wastewaters. All RO reject wastewater in temporary storage will be treated by the EDR and interim evaporator prior to discharge at NPDES Outfall 051 once those treatment units become operational.

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

Sincerely,



Bob Beers
Water Quality and Hydrology Group

BB/rm

Enclosures: a/s

Cy: S. Wilson, USEPA, Region 6, Dallas, Texas
E. Spencer, USEPA, Region 6, Dallas, Texas
J. Davis, NMED SWQB, Santa Fe, New Mexico
J. Bearzi, NMED HRMB, Santa Fe, New Mexico
J. Vozella, DOE LAAO, MS A316
B. Enz, DOE/CON, MS A316
S. Yanicak, NMED DOE/OB, MS J993
T. Gunderson, DLD-OPS, MS A100
S. Gibbs, NW-MM, MS A102
B. Stine, ALDNW, MS F629
S. Yarbrow, NMT-2, MS E511
T. Stanford, FWO/DO, MS K492
S. Hanson, FWO-RLW, MS E518
D. Moss, FWO-RLW, MS E518
R. Alexander, FWO-WFM, MS E518
P. Worland, FWO-RLW, MS E518
D. Erickson, ESH-DO, MS K491
S. Rae, ESH-18, MS K497
M. Saladen, ESH-18, MS K497
D. Woitte, LC/GL, MS A187
P. Wardwell, LC/GL, MS A187
WQ&H File, MS K497
CIC-10, MS A150



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*Radioactive Liquid Waste Treatment Facility
Ground Water Discharge Plan (DP-1132) Quarterly Report
Third Quarter, 1999*

Table 1.0. RLWTF Weekly Effluent Monitoring Analytical Results, July-September, 1999.

Monitoring Period	RLWTF Weekly Effluent Monitoring Analytical Results		
	NO3-N (mg/L)	F (mg/L)	TDS (mg/L)
6/28-7/4	5.82	1.32	1000
7/5-7/11	2.84	0.74	398
7/12-7/18	2.34	0.80	286
7/19-7/25	1.08	0.28	134
7/26-8/1	0.69	0.39	104
8/2-8/8	0.82	0.29	156
8/9-8/15	1.32	0.26	108
8/16-8/22	8.43	3.49	792
8/23-8/29	8.42	4.51	782
8/30-9/5	4.08	1.39	710
9/6-9/12	3.48	0.73	510
9/13-9/19	2.59	0.73	564
9/20-9/26	3.95	0.68	636
Quarterly Average (mg/L)	3.53	1.20	475
<i>NM WQCC 3103 Ground Water Standards (mg/L)</i>	<i>10</i>	<i>1.6</i>	<i>1000</i>

Radioactive Liquid Waste Treatment Facility
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Table 2.0 Analytical Results from Sampling of Mortandad Canyon Alluvial Monitoring Wells (mg/L), April-August, 1999.

Sampling Location	Sample Date: April 13, 1999					Sample Date: June 24, 1999					Sample Date: August 19, 1999				
	NO3-N	TKN	NH3	TDS	F	NO3-N	TKN	NH3	TDS	F	NO3-N	TKN	NH3	TDS	F
MCO-3	8.2	0.4	<0.2	302	1.0	2.1	0.5	<0.2	259	1.0	2.2	0.3	<0.2	310	0.8
MCO-4B	NS	NS	NS	NS	NS	28.5	0.3	<0.2	494	1.0	16.9	0.3	<0.2	392	1.0
MCO-4B duplicate	NS	NS	NS	NS	NS	30.5	0.3	<0.2	487	1.0	16.9	0.2	<0.2	392	1.0
MCO-6	NA	NA	NA	NA	NA	30.8	0.6	<0.2	509	1.2	26.8	0.4	<0.2	492	1.1
MCO-6B*	32.2	0.3	<0.2	494	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCO-7	14.7	0.3	<0.2	351	1.7	24.2	0.4	<0.2	399	1.4	29.4	0.5	<0.2	468	1.3
MCO-7 duplicate	14.6	0.3	<0.2	355	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<i>NM WQCC Ground Water Standards</i>	<i>10</i>			<i>1000</i>	<i>1.6</i>	<i>10</i>			<i>1000</i>	<i>1.6</i>	<i>10</i>			<i>1000</i>	<i>1.6</i>

Notes:

*Monitoring well MCO-6B, located in the immediate vicinity of MCO-6, was substituted for MCO-6 during the April 1999 sampling round.

NA means that no sample was collected during this sampling event.

NS means that no sample was collected at this well due to insufficient water.

All units: mg/L