

# Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

Date: January 25, 2002  
In Reply Refer To: ESH-18/WQ&H:02-021  
Mail Stop: K497  
Telephone: (505) 667-7969



Ms. Phyllis Bustamante  
Ground Water Pollution Prevention Section  
Ground Water Quality Bureau  
New Mexico Environment Department  
P.O. Box 26110  
Santa Fe, New Mexico 87502

**SUBJECT: GROUND WATER DISCHARGE PLAN (DP-1132), QUARTERLY REPORT,  
FOURTH QUARTER, 2001**

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 October 1 through December 31, 2001. Since the first quarter of 1999, Los Alamos National Laboratory has provided your agency with voluntary quarterly reports containing analytical results from effluent and ground water monitoring.

Attachment 1.0, Table 1.0, presents the analytical results from sampling conducted at the Laboratory's Mortandad Canyon alluvial monitoring wells on November 16, 2001. All of the analytical results from MCO-3 and MCO-6 were below New Mexico Water Quality Control Commission (NM WQCC) Regulation 3103 standards for nitrate (NO<sub>3</sub>-N), fluoride (F), and total dissolved solids (TDS). No samples were collected from alluvial wells MCO-4B and MCO-7; there was not sufficient water in MCO-4B to prepare a sample (i.e., the well was dry) and the bladder pump at MCO-7 was malfunctioning.

Attachment 2.0, Table 2.0, 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 fourth quarter were below NM WQCC Regulation 3103 standards for nitrate (NO<sub>3</sub>-N), fluoride (F), and total dissolved solids (TDS) with the exception of two fluoride results (2.65 mg/L, 2.24 mg/L) in October 2001. The quarterly average for fluoride in the RLWTF's effluent was 1.06 mg/L, well below the NM WQCC Regulation 3103 standard of 1.6 mg/L. The quarterly average for nitrate/nitrite (NO<sub>3</sub>/NO<sub>2</sub>-N) in the RLWTF's effluent was 2.65 mg/L. General Engineering Laboratories, Charleston, SC, performed all analyses.

In addition to weekly composite sampling, the RLWTF also conducts operational screening for nitrates (NO<sub>3</sub>-N) in each batch of effluent. Prior to November 5, 2001, operational screening was conducted using a HACH™ test kit. Post November 5, 2001, ion chromatography (IC) has been used for nitrate (NO<sub>3</sub>-N) determination. This analytical method has a lower detection limit and places the results into the RLWTF's QA/QC program. Operational screening of effluent samples collected during the fourth quarter 2001 produced the following maximum, minimum, and average

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results for nitrate (NO<sub>3</sub>-N), respectively: 6.5 mg/L, 0.1 mg/L, and 2.13 mg/L. The low concentrations of nitrate (NO<sub>3</sub>-N) in the RLWTF's effluent during this quarter can be attributed to the frequent use of the reverse osmosis (RO) treatment unit which produces a low nitrate (NO<sub>3</sub>-N) permeate.

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

Sincerely,



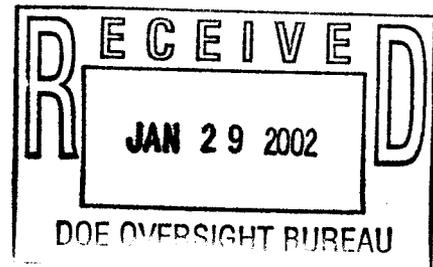
Bob Beers

Water Quality and Hydrology Group

BB/am

Enclosures: a/s

Cy: S. Wilson, USEPA, Region 6, Dallas, Texas, w/enc.  
E. Spencer, USEPA, Region 6, Dallas, Texas, w/enc.  
J. Bearzi, NMED/HRMB, Santa Fe, New Mexico, w/enc.  
J. Davis, NMED/SWQB, Santa Fe, New Mexico, w/enc.  
J. Parker, NMED/DOE/OB, Santa Fe, New Mexico, w/enc.  
R. Ford-Schmid, DOE/OB, Santa Fe, New Mexico, w/enc.  
J. Vozella, DOE/OLASO, w/enc., MS A316  
G. Turner, DOE/OLASO, w/enc., MS A316  
J. Holt, ADO, w/enc., MS A104  
T. Stanford, FWO-DO, w/enc., MS K492  
B. Ramsey, FWO-DO, w/enc., MS K492  
D. McLain, FWO-WFM, w/enc., MS J593  
R. Alexander, FWO-WFM, w/enc., MS E518  
D. Moss, FWO-WFM, w/enc., MS E518  
P. Worland, FWO-WFM, w/enc., MS E518  
L. McAtee, ESH-DO, w/enc., MS K491  
D. Stavert, ESH-DO, w/enc., MS K491  
P. Thullen, ESH-DO, w/enc., MS K491  
S. Rae, ESH-18, w/enc., MS K497  
D. Rogers, ESH-18, w/enc., MS K497  
M. Saladen, ESH-18, w/enc., MS K497  
WQ&H File, w/enc., MS K497  
IM-5, w/enc., MS A150



*Radioactive Liquid Waste Treatment Facility  
Ground Water Discharge Plan (DP-1132)  
Quarterly Report  
4th Quarter, 2001*

Table 1.0. Mortandad Canyon Alluvial Monitoring Wells Analytical Results (mg/L), 4th Quarter, 2001.

Sampling Location	Sample Date: November 16, 2001				
	NO3/NO2-N	TKN	NH3-N	TDS	F
MCO-3	3.87	0.620	<0.024	405	0.585
MCO-4B	NS	NS	NS	NS	NS
MCO-6	2.91	0.490	<0.024	329	1.24
MCO-7	OS	OS	OS	OS	OS
<i>NM WQCC Ground Water Standards</i>	<i>10</i>			<i>1000</i>	<i>1.6</i>

**Notes:**

NS means that no sample was collected at this well because there was not sufficient water in the well.

OS means that no sample was collected at this well because the well was out-of-service.

All units: mg/L

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Table 2.0. RLWTF Weekly Effluent Monitoring Analytical Results, 4th Quarter, 2001.

Monitoring Period	Sample Date	RLWTF Weekly Effluent Monitoring Analytical Results (mg/L)		
		NO3/NO2 (as-N)	Fluoride	TDS
<b>SEPTEMBER</b>	9/26/01	0.91	0.344	214
<b>OCTOBER</b>	10/3/01	2.64	0.69	421
	10/10/01	1.30	0.746	633
	10/17/01	2.28	1.48	503
	10/23/01	3.63	2.65	510
	10/30/01	2.28	2.24	477
<b>NOVEMBER</b>	11/7/01	0.74	1.26	257
	11/14/01	1.96	0.28	287
	11/20/01	2.66	0.014	188
	11/27/01	3.06	0.573	411
<b>DECEMBER</b>	12/5/01	2.38	0.828	398
	12/11/01	4.65	1.24	665
	12/18/01	6.00	1.49	688
<b>4th Quarter Averages (mg/L)</b>		<b>2.65</b>	<b>1.06</b>	<b>435</b>
<i>NM WQCC 3103 Ground Water Standards (mg/L)</i>		<i>10.00</i>	<i>1.6</i>	<i>1000</i>

**Notes:**

All analyses by the General Engineering Laboratory, Charleston, South Carolina.