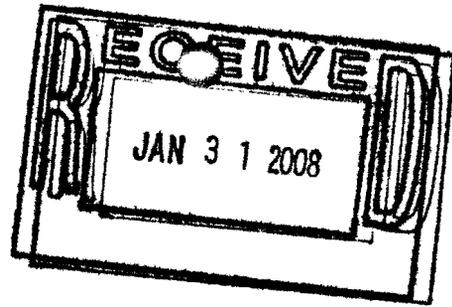




TA 50



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Date: January 25, 2008  
Refer To: ENV-RCRA-08-015  
LA-UR: 08-0328

Mr. William Olson, Bureau 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. Olson:

**SUBJECT: GROUND WATER DISCHARGE PLAN QUARTERLY REPORT, FOURTH QUARTER 2007, TA-50 RADIOACTIVE LIQUID WASTE TREATMENT FACILITY (DP-1132)**

This letter is intended to serve as Los Alamos National Laboratory's quarterly Ground Water Discharge Plan (DP-1132) Report for the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF) for the fourth quarter (October, November, December) of 2007. 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.

Quarterly Monitoring Results, Mortandad Canyon Alluvial Ground Water Wells

Table 1.0 presents the analytical results from sampling conducted at four Mortandad Canyon alluvial wells, MCO-3, MCO-4B, MCO-6, and MCO-7, during the fourth quarter of 2007 (Please note that data missing from the third quarter 2007 report, the analytical results for MCO-4B, are also included in Table 1.0). Samples are submitted to General Engineering Laboratories (GEL), Charleston, SC, for analysis. All of the analytical results were below the New Mexico Water Quality Control Commission (NM WQCC) Regulation 3103 standards for nitrate-nitrogen (NO<sub>3</sub>-N), fluoride (F), and total dissolved solids (TDS).

Analytical results from the sampling of intermediate and regional aquifer wells in Mortandad Canyon can be accessed online at the Laboratory's Water Quality Database (<http://wqdbworld.lanl.gov/>).



RLWTF Effluent Monitoring Results

Table 2.0 presents the analytical results from the weekly composite sampling of the RLWTF's effluent for the period October through December, 2007. The final weekly composite (FWC) samples are flow-proportioned composite samples prepared from each tank of effluent generated by the RLWTF during a 7-day period. Samples are submitted to GEL for analysis. All of the FWC results for the fourth quarter of 2007 were below the NM WQCC ground water standards for nitrate-nitrogen, fluoride, and total dissolved solids.

Table 3.0 presents the final monthly composite (FMC) sample results for nitrate-nitrogen, perchlorate (ClO<sub>4</sub>, by Method 314.0, Ion Chromatography), fluoride, and total dissolved solids for the third quarter of 2007. The FMC samples are flow-proportioned composite samples prepared from each tank of effluent generated by the RLWTF during the month. Analysis is by the TA-50 RLWTF analytical laboratory. All of the analytical results were below the NM WQCC Regulation 3103 standards for nitrate-nitrogen, fluoride, and total dissolved solids.

Please contact me at (505) 667-7969 if you would like additional information regarding this quarterly report.

Sincerely,



Bob Beers  
Water Quality & RCRA Group (ENV-RCRA)

BB/lm

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**Radioactive Liquid Waste Treatment Facility  
Ground Water Discharge Plan (DP-1132) Quarterly Report  
4th Quarter, 2007**

**Table 1.0. Mortandad Canyon Alluvial Well Sampling, 4th Quarter, 2007.**

Sampling Location	Sample Field Prep (F/UF) <sup>3</sup>	Sample Date	Perchlorate by LC/MS/MS <sup>1</sup> (ug/L)	NO <sub>3</sub> +NO <sub>2</sub> -N (mg/L)	TKN (mg/L)	NH <sub>3</sub> -N (mg/L)	TDS (mg/L)	F (mg/L)
MCO-3	F <sup>3</sup>	12/10/2007	3.95	0.67	0.20	<0.05	217	0.33
MCO-4B	F	8/13/2007	13.3	1.78H	0.28H	<0.03H	378	0.72
MCO-4B	F	12/14/2007	11.1	5.57	0.53	0.41	248	0.88
MCO-6	F	12/14/2007	19.0	1.89	0.08J	<0.05	308	0.98
MCO-7	F	12/14/2007	23.9	10.0	0.06J	<0.05	300	1.23
MCO-7 field duplicate <sup>2</sup>	F	12/14/2007	24.2	9.77	0.07J	<0.05	296	1.23
<i>NM WQCC 3103 Ground Water Standards</i>			<i>NA<sup>4</sup></i>	<i>10 mg/L<sup>5</sup></i>	<i>NA<sup>4</sup></i>	<i>NA<sup>4</sup></i>	<i>1000 mg/L</i>	<i>1.6 mg/L</i>

**Notes:**

<sup>1</sup>LC/MS/MS means perchlorate analysis by Liquid Chromatography/Mass Spectrometry/Mass Spectrometry.

<sup>2</sup>LANL collects duplicate samples as part of its QC program.

<sup>3</sup>F means the sample was filtered, UF means the sample was not filtered.

<sup>4</sup>NA means that there is no NM WQCC 3103 standard for this analyte.

<sup>5</sup>The NMWQCC Regulation 3103 Ground Water Standard is for NO<sub>3</sub>-N.

J means that the analyte is classified as detected but the reported value is expected to be more uncertain than usual.

H means that the analytical holding time was exceeded.

Radioactive Liquid Waste Treatment Facility  
 Ground Water Discharge Plan (DP-1132) Quarterly Report  
 4th Quarter, 2007

Table 2.0. RLWTF Final Weekly Composite (FWC) Effluent Sampling, 4th Quarter, 2007.

Monitoring Period	Sample Composite Date	Sample ID#	RLWTF Final Weekly Composite Results <sup>1</sup>			
			NO <sub>3</sub> +NO <sub>2</sub> -N (mg/L)	Perchlorate by LC/MS/MS (ug/L)	Fluoride (mg/L)	TDS (mg/L)
Sept, 2007	9/24/2007	GU070900OTHE04	2.34	0.24	<0.033	70
Oct, 2007	10/1/2007	GU071000OTHE01	0.86	0.33	<0.033	51
	10/8/2007	GU071000OTHE02	0.03J	<0.05	<0.033	103H
	10/15/2007	GU071000OTHE03	<0.01	<0.05	0.18	53
	10/22/2007	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>
	10/29/2007	GU071000OTHE04	<0.08J	0.17	0.18	50
Nov, 2007	11/5/2007	GU071000OTHE05	<0.05	<0.05	0.12	68H
	11/12/2007	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>
	11/19/2007	GU071000OTHE06	<0.05	<0.05	0.11	68
	11/26/2007	GU071100OTHE01	<0.25	<0.05	0.07J	85
Dec, 2007	12/3/2007	GU071200OTHE01	<0.5	0.06J	0.06J	76
	12/10/2007	GU071200OTHE02	<0.5	0.06J	0.07J	91
	12/17/2007	GU071200OTHE03	<0.05	0.07J	0.09J	75
	12/24/2007	GU080100OTHE01	pending	pending	pending	pending
	12/31/2007	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>	No Discharge <sup>2</sup>
4th Quarter 2007 Averages <sup>3</sup> (mg/L)			0.41	0.11	0.09	72
NM WQCC 3103 Ground Water Standards			10 mg/L <sup>4</sup>	NA <sup>5</sup>	1.6 mg/L	1000 mg/L

Notes:

<sup>1</sup>All analyses by General Engineering Laboratories, Inc. unless otherwise noted.

<sup>2</sup>No Discharges means that the RLWTF did not discharge any effluent during the 7-day period preceding the composite date.

<sup>3</sup>4th quarter 2007 averages include the results from September 2007.

<sup>4</sup>The NM WQCC Regulation 3103 Ground Water Standard is for nitrate (NO<sub>3</sub>-N).

<sup>5</sup>NA means that there is no NM WQCC 3103 standard for this analyte.

J means the reported value is greater than the Method Detection Limit (MDL) but less than the Reporting Limit (RL).

H means that the analytical holding time was exceeded.

**Radioactive Liquid Waste Treatment Facility  
Ground Water Discharge Plan (DP-1132) Quarterly Report  
4th Quarter, 2007**

**Table 3.0. RLWTF Final Monthly Composite (FMC) Effluent Sampling, 4th Quarter, 2007.**

Monitoring Period	RLWTF FMC Results <sup>1</sup>			
	NO <sub>3</sub> -N (mg/L)	Perchlorate by IC <sup>2</sup> (ug/L)	TDS (mg/L)	F (mg/L)
October, 2007	0.08	<1	78	0.17
November, 2007	0.07	<1	66	0.17
December, 2007	<0.02	<1	90	<0.01
<i>NM WQCC 3103 Ground Water Standards</i>	<i>10 mg/L</i>	<i>NA<sup>3</sup></i>	<i>1000 mg/L</i>	<i>1.6 mg/L</i>

**Notes:**

<sup>1</sup>Analyses by the Laboratory's TA-50 RLWTF analytical laboratory.

<sup>2</sup>IC means EPA Method 314.0, perchlorate analysis by Ion Chromatography.

<sup>3</sup>NA means that there is no NM WQCC 3103 standard for this analyte.