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Date: April 30, 2008  
Refer To: ENV-RCRA-08-081  
LA-UR: 08-2393

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, FIRST QUARTER 2008, 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 first quarter (January, February, March) of 2008. 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 first quarter of 2008. 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 January through March 2008. 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 first quarter of 2008 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 ( $\text{ClO}_4$ , by Method 314.0, Ion Chromatography), fluoride, and total dissolved solids for the first quarter of 2008. 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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**Table 1.0. Mortandad Canyon Alluvial Well Sampling, 1st Quarter, 2008.**

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>	3/5/2008	2.3	0.29	0.25J	0.14J-	243	0.29
MCO-4B	F	2/7/2008	16.9	1.18	0.92J	<0.05	249J	0.93
MCO-4B duplicate sample <sup>2</sup>	F	2/7/2008	16.2	1.13	0.34J	<0.05	248J	0.92
MCO-6	F	2/21/2008	16.7	1.38	0.24	<0.05	265	1.05
MCO-7	F	2/25/2008	30.5	2.6	<0.21	<0.5	305	1.24
<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.

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

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**Table 2.0. RLWTF Final Weekly Composite (FWC) Effluent Sampling, 1st Quarter, 2008.**

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)
Dec-07	12/24/2007	GU080100OTHE01	0.15J	0.24	0.23	321
Jan-08	1/7/2008	No Discharge <sup>2</sup>				
	1/14/2008	GU080100OTHE02	<0.05	0.19J	0.08J	137
	1/21/2008	No Discharge				
	1/28/2008	No Discharge				
Feb-08	2/4/2008	GU080200OTHE01	<0.05	0.43	0.52	713
	2/14/2008	GU080200OTHE02	<0.05	2.38	0.42	501
	2/11/2008	GU080200OTHE03	<0.05	2.27	0.45	550
	2/25/2008	No Discharge				
Mar-08	3/3/2008	GU080200OTHE04	0.22J	3.53	0.27	320
	3/11/2008	GU080300OTHE01	0.13J	0.98	0.20	199
	3/19/2008	GU080300OTHE02	0.16J	1.32	0.15	120
	3/24/2008	GU080300OTHE03	pending	pending	pending	pending
	3/31/2008	GU080300OTHE04	pending	pending	pending	pending
<b>1st Quarter 2008 Averages<sup>3</sup> (mg/L)</b>			<b>0.08</b>	<b>1.42</b>	<b>0.29</b>	<b>358</b>
<i>NM WQCC 3103 Ground Water Standards</i>			<i>10 mg/L<sup>4</sup></i>	<i>NA<sup>5</sup></i>	<i>1.6 mg/L</i>	<i>1000 mg/L</i>

**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>1st quarter 2008 averages include the results from December 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).

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**Table 3.0. RLWTF Final Monthly Composite (FMC) Effluent Sampling, 1st Quarter, 2008.**

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)
January 2008	0.13	<1	318	0.26
February 2008	0.16	<1	556	0.50
March 2008	0.10	<1	235	0.31
<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.