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Date: April 30, 2009
Refer To: ENV-RCRA-09-074
LA-UR: 09-02389

Mr. William C. 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 2009, 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, and March) of 2009. Since the first quarter of 1999, Los Alamos National Laboratory (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 2009. 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 (NO₃-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 Risk Analysis, Communication, Evaluation and Reduction (RACER) Web site (www.racernm.com).



RLWTF Effluent Monitoring Results

Table 2.0 presents the analytical results from the weekly composite sampling of the RLWTF's effluent for the first quarter of 2009. 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. In addition, the TA-50 RLWTF analytical laboratory analyzes duplicate FWC samples as part of the Laboratory's compliance monitoring program.

All of the FWC results presented in Table 2.0 are below the NM WQCC ground water standards for NO₃-N, F, and TDS. The combined nitrate-nitrogen (NO₃-N) and nitrite-nitrogen (NO₂-N) concentrations in two FWC samples—12/15/08, and 12/29/08—were greater than 10 mg/L. The NM WQCC ground water standard of 10 mg/L is for NO₃-N only. Separate NO₃-N and NO₂-N analyses are not performed by GEL due to the short analytical hold-time (48 hrs). However, the TA-50 RLWTF analytical laboratory performs individual NO₃-N and NO₂-N analyses on duplicate FWC samples. Duplicate sample results from the TA-50 RLWTF analytical laboratory show that all NO₃-N concentrations were below the NM WQCC ground water standard of 10 mg/L.

Table 3.0 presents the final monthly composite (FMC) sample results for NO₃-N, perchlorate (ClO₄), F, and TDS for the first quarter of 2009. 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 presented in Table 3.0 were below the NM WQCC Regulation 3103 standards for NO₃-N, F, and TDS.

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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Cy (continued):

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Radioactive Liquid Waste Treatment Facility
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1st Quarter, 2009

Table 1.0. Mortandad Canyon Alluvial Well Sampling, 1st Quarter, 2009.

Sampling Location	Sample Field Prep (F/UF) ²	Sample Date	Perchlorate by LC/MS/MS ¹ (ug/L)	NO ₃ +NO ₂ -N (mg/L)	TKN ² (mg/L)	NH ₃ -N (mg/L)	TDS (mg/L)	F (mg/L)
MCO-3	F	2/11/2009	2.14J	4.62	0.53J	<0.05	404	0.27
MCO-4B	F	2/4/2009	5.68	1.49	0.45J+	<0.05	281	0.68
MCO-6	F	2/4/2009	7.82	1.16	<0.11	<0.05	286	0.90
MCO-7	F	2/3/2009	10.4	1.13	0.06J	<0.05	269	1.1
<i>NM WQCC 3103 Ground Water Standards</i>			<i>NA³</i>	<i>10 mg/L⁴</i>	<i>NA³</i>	<i>NA³</i>	<i>1000 mg/L</i>	<i>1.6 mg/L</i>

Notes:

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

²All samples filtered with the exception of TKN.

³NA means that there is no NM WQCC 3103 standard for this analyte.

⁴The NM WQCC 3103 Ground Water Standard is for NO₃-N.

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

J+ means that the reported value is expected to be more uncertain than usual with a potential positive bias.

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Table 2.0. RLWTF Final Weekly Composite (FWC) Effluent Sampling, 1st Quarter, 2009.

Monitoring Period	Sample Composite Date	Sample ID#	Analysis by RLWTF ¹		Analysis by General Engineering Laboratories, Inc.			
			NO ₃ -N (mg/L)	NO ₂ -N (mg/L)	NO ₃ +NO ₂ -N (mg/L)	Perchlorate by LC/MS/MS (ug/L)	Fluoride (mg/L)	TDS (mg/L)
December	12/15/08	GU081200OHE02	7.6	Invalid	14.9	0.11J	0.27	261
	12/22/08	GU081200OHE03	9.0	Invalid	9.35	<0.05	0.23	223
	12/29/08	50FWC-09-2798	9.9	Invalid	10.5	<0.05	0.27	313
January	01/05/09	No Discharge						
	01/12/09	No Discharge						
	01/19/09	No Discharge						
	01/26/09	50FWC-09-2799	5.3	0.82	5.39	<0.05	0.23	283
February	02/02/09	50FWC-09-2800	5.7	0.09	6.00	<0.05	0.16	141
	02/09/09	50FWC-09-2801	5.4	3.8	8.15	<0.05	0.25	271
	02/17/09	50FWC-09-2802	4.0	1.8	4.35	0.06J	0.16	138
	02/23/09	No Discharge						
March	03/02/09	50FWC-09-2803	4.7	6.1	7.78	1.95	0.17	370H
	03/09/09	50FWC-09-2804	4.2	7.2	6.58	<0.05	0.09J	514H
	03/16/09	50FWC-09-2805	5.7	6.0	7.98	<0.05	0.07J	365
	03/23/09	50FWC-09-2806	5.6	1.1	Pending	Pending	Pending	Pending
	03/30/09	50FWC-09-2807	5.9	4.4	Pending	Pending	Pending	Pending
1st Quarter 2009 Averages³ (mg/L)			6.1	2.6	8.1	0.25	0.19	288
<i>NM WQCC 3103 Ground Water Standards</i>			<i>10 mg/L</i>	<i>NA⁵</i>	<i>10 mg/L⁴</i>	<i>NA⁵</i>	<i>1.6 mg/L</i>	<i>1000 mg/L</i>

Notes:

¹Analysis by the TA-50 Radioactive Liquid Waste Treatment Facility's analytical laboratory.

²No Discharge means that the RLWTF did not discharge any effluent during the 7-day period preceding the composite date.

³1st quarter 2009 averages include the results from December 2008, if applicable.

⁴The NM WQCC Regulation 3103 Ground Water Standard is for nitrate (NO₃-N).

⁵NA means that there is no NM WQCC 3103 standard for this analyte.

⁶Pending means that the analytical results were pending at the time this report was prepared.

Invalid means that no analytical results are available due to quality control issues.

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 hold time was exceeded.

*Radioactive Liquid Waste Treatment Facility
Ground Water Discharge Plan (DP-1132) Quarterly Report
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Table 3.0. RLWTF Final Monthly Composite (FMC) Effluent Sampling, 1st Quarter, 2009.

Monitoring Period	RLWTF FMC Results ¹			
	NO ₃ -N (mg/L)	Perchlorate by IC ² (ug/L)	TDS (mg/L)	F (mg/L)
January	5.3	<1	246	1.5
February	6.6	<1	186	1.1
March	5.2	<1	325	0.1
<i>NM WQCC 3103 Ground Water Standards</i>	<i>10 mg/L</i>	<i>NA³</i>	<i>1000 mg/L</i>	<i>1.6 mg/L</i>

Notes:

¹Analysis by the TA-50 Radioactive Liquid Waste Treatment Facility's analytical laboratory.

²IC means EPA Method 314.0, perchlorate analysis by Ion Chromatography.

³NA means that there is no NM WQCC 3103 standard for this analyte.