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Date: April 28, 2010
Refer To: ENV-RCRA-10-078
LAUR: 10-02559

Mr. William C. Olson, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2250
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Dear Mr. Olson:

SUBJECT: GROUNDWATER DISCHARGE PLAN QUARTERLY REPORT, FIRST QUARTER 2009, TA-50 RADIOACTIVE LIQUID WASTE TREATMENT FACILITY (DP-1132)

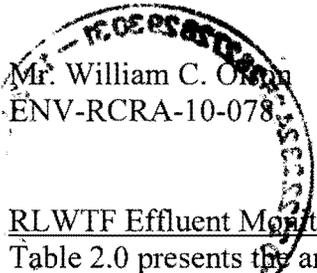
This letter is intended to serve as Los Alamos National Laboratory's quarterly Groundwater Discharge Plan (DP-1132) Report for the TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF) for the first quarter (January, February, and March) of 2010. Since the first quarter of 1999, Los Alamos National Laboratory (Laboratory) has provided your agency with voluntary quarterly reports containing analytical results from effluent and groundwater monitoring.

Quarterly Monitoring Results, Mortandad Canyon Alluvial Groundwater 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 2010. 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) 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 2010. 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 equal to or less than the NMWQCC 3103 standards for NO₃-N, F, and TDS, with the exception of a March 15, 2010, NO₃-N result reported by the TA-50 RLWTF analytical laboratory of 10.1 mg/L. A duplicate sample result from GEL showed a concentration of nitrate-nitrogen plus nitrite-nitrogen (NO₃+NO₂-N) of 10.0 mg/L.

As required by procedure, the RLWTF collects a screening sample from each effluent tank prior to discharge to verify compliance with water quality parameters. Only one effluent tank was discharged during the 7-day composite period preceding March 15, 2010; an effluent screening sample from this tank showed NO₃-N and NO₂-N concentrations of 7.4 mg/L and 3.4 mg/L, respectively. All analytical results associated with effluent discharged during the March 15, 2010, composite period are presented in the table below.

Sample Type	Sample Date	Analytical Laboratory	NO ₃ -N (mg/L)	NO ₂ -N (mg/L)	NO ₃ +NO ₂ -N (mg/L)
FWC	3/15/10	GEL	NA	NA	10.0
FWC	3/15/10	TA-50 RLWTF	10.1	<0.01	10.1 ^a
Screening Sample ^b	2/25/10	TA-50 RLWTF	7.4	3.4	10.8 ^a

^a Calculated value, sum of NO₃-N and NO₂-N.

^b Collected prior to discharge.

The NO₃+NO₂-N result reported by GEL—10.0 mg/L—is consistent with the calculated NO₃+NO₂-N results—10.1 mg/L and 10.8 mg/L—reported by the TA-50 RLWTF analytical laboratory, considering analytical error. The increase in the NO₃-N concentration from the screening sample (7.4 mg/L) and the RLWTF's FWC sample (10.1 mg/L) can be attributed to oxidation of NO₂-N.

Table 3.0 presents the final monthly composite (FMC) sample results for NO₃-N, ClO₄, F, and TDS for the first quarter of 2010. 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 NMWQCC 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,

A handwritten signature in black ink, appearing to read 'R. Beers', with a horizontal line extending to the right.

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

BB/lm

Enclosures: a/s

Cy: Glenn Saums, NMED/SWQB, Santa Fe, NM
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J. Chris Cantwell, ADESHQ, K491
Randy Johnson, ENV-EAQ, E500
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Robert C. Mason, TA55-DO, E583
Hugh McGovern, TA-55 RLW, E518
Pete Worland, TA-55-RLW, E518
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ENV-RCRA File, K490
IRM-RMMSO, A150

Radioactive Liquid Waste Treatment Facility
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1st Quarter, 2010

Table 1.0. Mortandad Canyon Alluvial Well Sampling, 1st Quarter, 2010.

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	02/02/10	0.977	2.67	<0.10	<0.029	369	0.21
MCO-4B	F	02/03/10	3.30J	1.08	<0.10	<0.062	265	0.73
MCO-6	F	01/27/10	6.04	1.04J+	0.06J-	0.046J-	293	0.94
MCO-7	F	01/28/10	7.26J	1.26	<0.10	0.031J-	292	0.96J-
<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 that the reported value is expected to be more uncertain than usual with a potential negative bias.

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

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 2.0. RLWTF Final Weekly Composite (FWC) Effluent Sampling, 1st Quarter, 2010.

Monitoring Period	Sample Composite Date	Sample ID#	Analysis by RLWTF		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	12/28/09	50FWC-09-2844	3.9	<0.01	3.84	<0.05	0.046J	70
January	1/4/10	No discharge ²						
	1/11/10	50FWC-10-9939	3.5	0.28	3.44	0.068J	<0.033	74
	1/19/10	50FWC-10-9940	1.5	0.64	2.22	<0.05	<0.033	61
	1/25/10	No discharge ²						
February	2/1/10	50FWC-10-9941	1.0	0.32	1.56	<0.05	0.089J	128
	2/8/10	50FWC-10-9942	1.9	0.07	1.84	<0.05	<0.33	56
	2/16/10	50FWC-10-9943	1.6	0.21	<0.10	<0.05	<0.033	137
	2/22/10	No discharge ²						
March	3/1/10	50FWC-10-9944	2.3	0.70	3.17	0.054J	0.22	134J-
	3/8/10	No discharge ²						
	3/15/10	50FWC-10-9945	10.1	<0.01	10.0H	<0.05H	0.418H	341H
	3/22/10	No discharge ²						
	3/29/10	50FWC-10-9946	2.20	0.05	3.14	0.182J	0.055J	63H
1st Quarter 2010 Averages³			3.0	0.3	3.26	0.07	0.14	118
<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.

³4th quarter 2009 averages include the results from September 2009, 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.

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.

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

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

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1st Quarter, 2010*

Table 3.0. RLWTF Final Monthly Composite (FMC) Effluent Sampling, 1st Quarter, 2010.

Monitoring Period	RLWTF FMC Results ¹			
	NO ₃ -N (mg/L)	Perchlorate by IC ² (ug/L)	TDS (mg/L)	F (mg/L)
January	2.2	<1	80	0.02
February	1.9	<1	159	0.06
March	6.5	<1	185	0.20
<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.