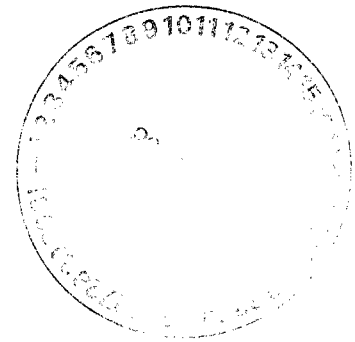


TASB

ENTERED

James



Environmental Protection Division
Water Quality & RCRA (ENV-RCRA)
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545
(505) 667-7969/FAX: (505) 665-9344

Date: July 30, 2008
Refer To: ENV-RCRA-08-149
LA-UR: 08-04521

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, SECOND 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 second quarter (April, May, June) of 2008. 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 second 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 (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 Laboratory's Water Quality Database (<http://wqdbworld.lanl.gov/>).



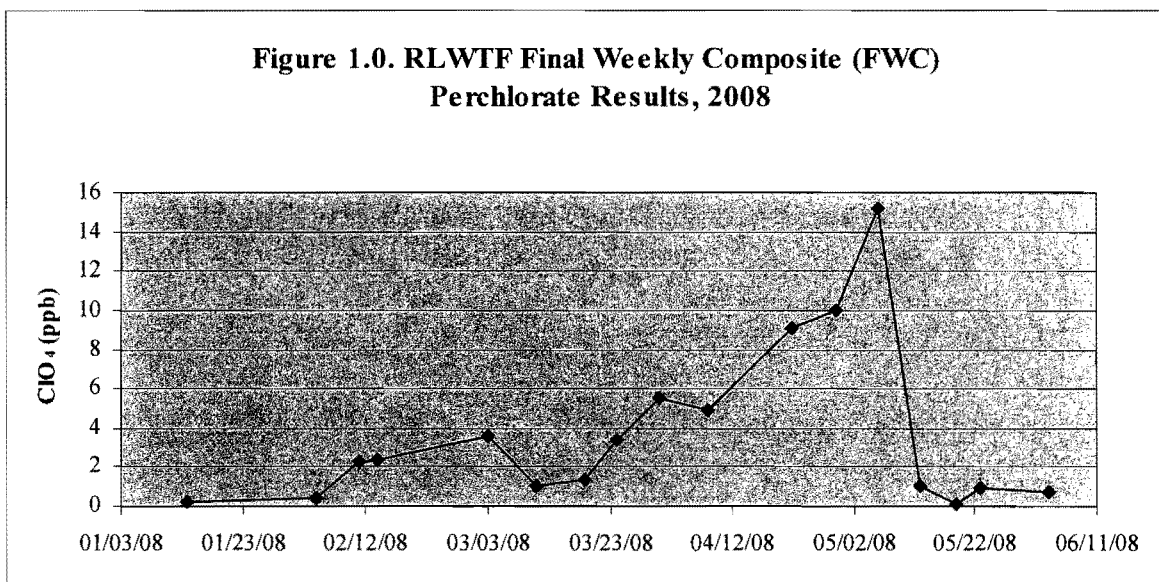
RLWTF Effluent Monitoring Results

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

All of the FWC results for the second quarter of 2008 were below the NM WQCC ground water standards for nitrate ($\text{NO}_3\text{-N}$), fluoride, and total dissolved solids. The combined $\text{NO}_3\text{+NO}_2\text{-N}$ concentration in the June 3, 2008, FWC sample was 10.6 mg/L. The NM WQCC ground water standard of 10 mg/L is for $\text{NO}_3\text{-N}$ only. Separate $\text{NO}_3\text{-N}$ and $\text{NO}_2\text{-N}$ analyses are not performed by GEL due to the short analytical hold-time (48 hrs). However, the analytical laboratory at the TA-50 RLWTF performs individual $\text{NO}_3\text{-N}$ and $\text{NO}_2\text{-N}$ analyses on duplicate FWC samples as part of their operational monitoring program.

Duplicate sample results from the TA-50 RLWTF analytical laboratory for June 3, 2008, show a $\text{NO}_3\text{-N}$ concentration of 7.25 mg/L and a $\text{NO}_2\text{-N}$ concentration of 2.57 mg/L. The sum of these, 9.82 mg/L, is consistent with (within 10% analytical uncertainty) GEL's combined $\text{NO}_3\text{+NO}_2\text{-N}$ result of 10.6 mg/L. Based upon these data, $\text{NO}_3\text{-N}$ concentrations for the second quarter of 2008 were below the NM WQCC ground water standard of 10 mg/L.

On June 30, 2008, Laboratory staff informed the NMED, Ground Water Quality Bureau, that perchlorate concentrations in the TA-50 RLWTF's effluent increased from approximately 1 ppb to over 15 ppb during a two-month period (personal communication, R. Beers and M. Saladen, ENV-RCRA, with G. Schuman, NMED). Figure 1.0 presents the FWC results for perchlorate during the first two quarters of 2008.



On May 7, 2008, after identifying the source of the elevated perchlorate, the Laboratory installed temporary ion-exchange (IX) columns until the permanent IX columns could be replaced. Immediately following their installation perchlorate concentrations in the RLWTF's effluent dropped back to about 1 ppb. Installation of the permanent IX columns is scheduled for July 2008. As you are aware, neither the federal government nor the State of New Mexico has established a standard for perchlorate in ground water or drinking water.

The final monthly composite (FMC) sample results from the TA-50 RLWTF's analytical laboratory for nitrate-nitrogen, fluoride, and total dissolved solids for the second quarter of 2008 were not available at the time this report was prepared. These results will be reported to your agency in the 3rd quarter 2008 discharge permit report for DP-1132.

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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IRM-RMMSO, w/enc., A150

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Table 1.0. Mortandad Canyon Alluvial Well Sampling, 2nd Quarter, 2008.

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	5/20/2008	2.3	2.39	0.34	<0.05	334	0.28
MCO-4B	F	5/21/2008	12.9	0.84	0.32	<0.05	281	0.76
MCO-6	F	5/21/2008	10.2	0.89	0.23	<0.05	276	1.00
MCO-7	F	5/21/2008	10.6	1.45	0.20	<0.05	220	1.48
<i>NM WQCC 3103 Ground Water Standards</i>			<i>NA</i> ³	<i>10 mg/L</i> ⁴	<i>NA</i> ³	<i>NA</i> ³	<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 NMWQCC Regulation 3103 Ground Water Standard is for NO₃-N.

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Table 2.0. RLWTF Final Weekly Composite (FWC) Effluent Sampling, 2nd Quarter, 2008.

Monitoring Period	Sample Composite Date	Sample ID#	RLWTF Final Weekly Composite Results			
			NO ₃ -NO ₂ -N (mg/L)	Perchlorate by LC/MS/MS (ug/L)	Fluoride (mg/L)	TDS (mg/L)
Mar-08	3/24/2008	GU080300OTHE03	0.43	3.33J	0.40	281
	3/31/2008	GU080300OTHE04	0.38	5.88J	0.51	361
Apr-08	4/8/2008	GU080400OTHE01	3.95	4.88J	0.47	351
	4/15/2008	No Discharge ²	NA	NA	NA	NA
	4/22/2008	GU080400OTHE02	3.60	9.05J	0.70	509
	4/22/08-Field Dupe	GU080400OTHE20	3.61	9.05J	0.70	525
	4/29/2008	GU080400OTHE03	0.92	10.00	0.81	659
May-08	5/6/2008	GU080500OTHE01	7.95	15.20	0.86	609
	5/13/2008	GU080500OTHE02	5.95	1.02	1.27	561
	5/19/2008	GU080500OTHE03	7.03	0.101J	1.22	523
	5/23/2008	GU080500OTHE04	0.93	0.96	0.83	473
Jun-08	6/3/2008	GU080600OTHE01	10.6	0.67	0.99	645
	6/10/2008	GU080600OTHE02	Results Pending	Results Pending	Results Pending	Results Pending
	6/16/2008	GU080600OTHE03	Results Pending	Results Pending	Results Pending	Results Pending
	6/24/2008	No Discharge ²	NA	NA	NA	NA
2nd Quarter 2008 Averages³ (mg/L)			4.17	5.11	0.81	499
NM WQCC 3103 Ground Water Standards			10 mg/L ⁴	NA ⁵	1.6 mg/L	1000 mg/L

Notes:

¹All analyses by General Engineering Laboratories, Inc. unless otherwise noted.

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

³2nd quarter 2008 averages include the results from March 2008.

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.

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