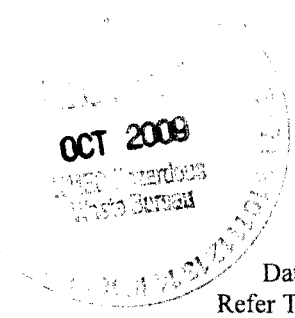


TASO



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

Date: October 28, 2009
Refer To: ENV-RCRA-09-190
LA-UR: 09-06578

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:

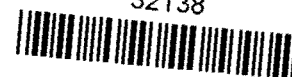
SUBJECT: GROUNDWATER DISCHARGE PLAN QUARTERLY REPORT, THIRD QUARTER 2009, TA-50 RADIOACTIVE LIQUID WASTE TREATMENT FACILITY (DP-1132)

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 third quarter (July, August, and September) 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 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 third 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) 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 third 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 3103 standards for NO₃-N, F, and TDS. The combined nitrate-nitrogen (NO₃-N) and nitrite-nitrogen (NO₂-N) concentrations in four FWC samples—6/23/09, 6/29/09, 9/8/09, and 9/15/09—were greater than 10 mg/L. The NM WQCC 3103 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 3103 standard of 10 mg/L. No sample results were available for perchlorate(ClO₄), F, and TDS from the 9/15/09 FWC sample; the sample was incorrectly preserved in the field and these analyses were cancelled by GEL.

Table 3.0 presents the final monthly composite (FMC) sample results for NO₃-N, ClO₄, F, and TDS for the third 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 3103 standards for NO₃-N, F, and TDS. No sample result was available for NO₃-N from the September FMC sample; the results were rejected following a determination that the sample was contaminated in the RLWTF laboratory.

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

Cy: Glenn Saums, NMED/SWQB, Santa Fe, NM
James Bearzi, NMED/HWB, Santa Fe, NM
Steve Yanicak, LASO-GOV, M894
Hai Shen, LASO-EO, A316
Gene Turner, LASO-EO, A316

Cy (continued):

Michael Mallory, PADOPS, A102
Chris Cantwell, ADESHQ, K491
Robert C. Mason, TA55-DO, E583
Pete Worland, PMT-2, E518
Chris Del Signore, PMT-2, E518
Steve Hanson, PMT-2, E518
Mike Saladen, ENV-RCRA, K490
Harvey Decker, ENV-EAQ, E500
ENV-DO File, J978
ENV-RCRA File, K490
IRM-RMMSO, A150

Radioactive Liquid Waste Treatment Facility
Ground Water Discharge Plan (DP-1132) Quarterly Report
3rd Quarter, 2009

Table 1.0. Mortandad Canyon Alluvial Well Sampling, 3rd Quarter, 2009.

| Sampling Location | Sample Field Prep (F/UF) ² | Sample Date | Perchlorate by LC/MS/MS ¹ (ug/L) | NO ₃ -N (mg/L) | TKN ³ (mg/L) | NH ₃ -N (mg/L) | BDS (mg/L) | F (mg/L) |
|--|---------------------------------------|-------------|---|----------------------------|-------------------------|---------------------------|------------------|-----------------|
| MCO-3 | F | 08/12/09 | 0.421 | 1.07 | 0.90J- | <0.034 | 212 | 0.47 |
| MCO-4B | F | 08/18/09 | 9.23 | 1.51 | 0.77J- | 0.098J- | 290J | 0.72 |
| MCO-6 | F | 08/12/09 | 7.26 | 2.06 | <0.14 | <0.022 | 274 | 0.88 |
| MCO-7 | F | 08/13/09 | 12.0 | 1.30J | <0.22 | 0.016J | 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 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).

Radioactive Liquid Waste Treatment Facility
Ground Water Discharge Plan (DP-1132) Quarterly Report
3rd Quarter, 2009

Table 2.0. RLWTF Final Weekly Composite (FWC) Effluent Sampling, 3rd 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) |
| June | 06/23/09 | 50FWC-09-2819 | 9.0 | 4.8 | 13.9J | <0.2 | 0.41J- | 558 |
| | 06/29/09 | 50FWC-09-2820 | 7.3 | 4.0 | 11.8J | <0.2 | 0.21 | 427 |
| July | 07/07/09 | 50FWC-09-2821 | 4.0 | 1.7 | 5.9 | <0.2 | 0.08J | 154 |
| | 07/15/09 | 50FWC-09-2822 | 4.4 | 1.9 | 7.6J | 0.07J | 0.26 | 342 |
| | 07/20/09 | 50FWC-09-2823 | 6.7 | 2.9 | 9.8 | <0.2 | 0.27 | 327 |
| | 07/27/09 | 50FWC-09-2824 | 3.8 | 1.7 | <6.3 | <0.2 | 0.01J- | 157 |
| August | 08/03/09 | 50FWC-09-2825 | 3.7 | 9.1 | 6.3J | <0.2 | 0.28J- | 558 |
| | 08/10/09 | 50FWC-09-2826 | 5.7 | 3.9 | 9.9 | <0.2 | 0.15 | 188HJ |
| | 08/18/09 | 50FWC-09-2827 | 1.6 | 1.3 | 3.1 | <0.2 | 0.06J | 67HJ |
| | 08/24/09 | 50FWC-09-2828 | 2.5 | 1.7 | 3.6 | <0.2 | 0.13 | 147J |
| September | 09/01/09 | 50FWC-09-2829 | 2.4 | 8.5 | 8.9 | <0.2 | 0.20J- | 257 |
| | 09/08/09 | 50FWC-09-2830 | 5.7 | 6.0 | 10.1J | <0.2 | 0.29 | 215HJ- |
| | 09/15/09 | 50FWC-09-2831 | 4.2 | 3.6 | 14.5J | No Result ⁷ | No Result ⁷ | No Result ⁷ |
| | 09/21/09 | 50FWC-09-2832 | 9.3 | 0.3 | 7.55J | <0.2 | 0.32 | 180 |
| | 09/28/09 | 50FWC-09-2833 | 9.3 | 0.1 | 9.2 | <0.2 | 0.55J- | 406 |
| 3rd Quarter 2009 Averages³ (mg/L) | | | 5.3 | 3.4 | 8.6 | 0.19 | 0.24 | 285 |
| <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.

³3rd quarter 2009 averages include the results from June 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.

⁷No Result means that no result was available for this analyte. The F+ClO₄+TDS container received by GEL was incorrectly preserved and the analyses were canceled.

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.

**Radioactive Liquid Waste Treatment Facility
Ground Water Discharge Plan (DP-1132) Quarterly Report
3rd Quarter, 2009**

Table 3.0. RLWTF Final Monthly Composite (FMC) Effluent Sampling, 3rd Quarter, 2009.

| Monitoring Period | RLWTF FMC Results | | | |
|--|------------------------------|--|------------------|-----------------|
| | NO ₃ -N (mg/L) | Perchlorate by IC ² (mg/L) | TDS (mg/L) | U (mg/L) |
| July | 5.2 | <1 | 244 | 0.13 |
| August | 2.7 | <1 | 225 | 0.10 |
| September | No Result ⁴ | <1 | 278 | 0.30 |
| <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.

⁴No result is available, the FMC sample was contaminated in the RLWTF laboratory.