

# Los Alamos

NATIONAL LABORATORY

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Los Alamos, New Mexico 87545



Date: May 6, 1999  
In Reply Refer To: ESH-18/WQ&H:99-0161  
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Ms. Phyllis Bustamante  
Ground Water Quality Bureau  
Pollution Prevention Section  
New Mexico Environment Department  
P.O. Box 26110  
Santa Fe, New Mexico 87502

**SUBJECT: RADIOACTIVE LIQUID WASTE TREATMENT FACILITY,  
GROUND WATER DISCHARGE PLAN (DP-1132),  
QUARTERLY REPORT, JANUARY 1-MARCH 31, 1999**

Dear Ms. Bustamante:

This letter and the enclosed attachments are intended to serve as Los Alamos National Laboratory's quarterly Ground Water Discharge Plan (DP-1132) report for the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50 for the period from January 1 through March 31, 1999. In December 1998, the Laboratory proposed to submit quarterly reports to the N.M. Environment Department's Ground Water Quality Bureau on a voluntary basis. These quarterly reports include effluent and monitoring well analytical results as well as progress reports on the planned upgrades to the RLWTF.

Attachment 1.0 presents the analytical results from weekly monitoring of the RLWTF's effluent holding tank. The weekly samples are flow-proportioned composite samples prepared from each batch of effluent generated by the RLWTF during a 7-day period. All sample results shown in Attachment 1.0 for the monitoring period March 22, 1999, through April 18, 1999, were below N.M. Water Quality Control Commission (NM WQCC) Regulations, Section 3103 Ground Water Standards for nitrates (NO<sub>3</sub>-N), fluoride (F), and total dissolved solids (TDS).

In addition to the weekly composite sampling, the RLWTF also conducts operational screening (using a HACH Kit) for nitrates (NO<sub>3</sub>-N) in each batch of effluent. Operational screening from March 22, 1999, through April 22, 1999, showed the average nitrate (NO<sub>3</sub>-N) concentration in the effluent to be 7.3 mg/L for those samples collected upstream of the effluent holding tank and 5.1 mg/L for those samples collected at the effluent holding tank.

Attachment 2.0 presents the analytical results from the bimonthly sampling of Mortandad Canyon alluvial monitoring wells from October through April, 1999. The Laboratory's objective is to track any trends that might develop as a result of the improvements made in the RLWTF's effluent quality since March 21, 1999, when nitrate restrictions were initiated. The Laboratory will continue to monitor the alluvial wells in Mortandad Canyon on a bimonthly basis.



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During the week of April 7, 1999, the RLWTF began treating radioactive liquid waste with the Phase I treatment upgrades (tubular ultrafiltration and reverse osmosis). As a result, the clarifiers are no longer being used as the primary treatment units at the RLWTF. The reverse osmosis treatment unit is being used only when the permeate from the tubular ultrafilter unit fails to meet NM WQCC, and NPDES Permit requirements.

On April 14, 1999, the Laboratory submitted to you a detailed project schedule and an estimated completion date for installation and start-up of the proposed mechanical evaporator for the RLWTF (ESH-DO:99-058). This information and schedule are correct at this time and the Laboratory will continue to provide you with updates on this project in future quarterly reports.

If you would like additional information, please contact me at 667-7969.

Sincerely,



Bob Beers  
Water Quality and Hydrology Group

BB/mm

Attachments: a/s

Cy: M. Leavitt, NMED GWQB, Santa Fe, New Mexico, w/att.  
J. Davis, NMED SWQB, Santa Fe, New Mexico, w/att.  
B. Garcia, NMED HRMB, Santa Fe, New Mexico, w/att.  
S. Yanicak, NMED DOE/OB, w/att., MS J993  
B. Stine, ALDNW, w/att., MS F629  
J. Vozella, DOE LAAO, w/att., MS A316  
B. Enz, DOE/CON, w/att., MS A316  
T. Gunderson, DLDOPS, w/att., MS A100  
T. Baca EM-DO, w/att., MS J591  
K. Hargis, EM/WM, w/att., MS J591  
T. Stanford, EM-SWO, w/att., MS J595  
S. Hanson, EM/RLW, w/att., MS E518  
D. Moss, EM/RLW, w/att., MS E518  
P. Worland, EM/RLW, w/att., MS E518  
D. Erickson, ESH-DO w/att., MS K491  
S. Rae, ESH-18, w/att., MS K497  
M. Saladen, ESH-18, w/att., MS K497  
D. Woitte, LC/GL, w/att., MS A187  
S. Schriber, NMT-2, w/att., MS K490  
S. Yarbrow, NMT-2, w/att., MS E511  
S. Gibbs, NW-MM, w/att., MS A102  
WQ&H File, MS K497  
CIC-10, MS A150

Table 1.0. RLWTF Weekly Effluent Monitoring Analytical Results, 3/22/99-4/18/99.

| Monitoring Period   | Weekly Effluent Monitoring Analytical Results |             |             | Laboratory Detection Limits |          |            |
|---|---|-------------|-------------|-----------------------------|----------|------------|
|   | NO3-N (mg/L)                                  | F (mg/L)    | TDS (mg/L)  | NO3-N (mg/L)                | F (mg/L) | TDS (mg/L) |
| 3/22/99-3/28/99   | 6.72  | 0.69        | 476         | 0.01                        | 0.01     | 1          |
| 3/29/99-4/4/99  | 6.97  | 0.93        | 452         | 0.01                        | 0.01     | 1          |
| 4/5/99-4/11/99  | 7.81  | 0.88        | 304         | 0.01                        | 0.01     | 1          |
| 4/12/99-4/18/99   | 1.91  | 0.24        | 162         | 0.01                        | 0.01     | 1          |
| <b>Quarterly Average per RLWTF Ground Water Discharge Application</b> | <b>5.85</b>                                   | <b>0.69</b> | <b>349</b>  |                             |          |            |
| <i>NM WQCC 3103 Ground Water Standards</i>                            | <i>10</i>                                     | <i>1.6</i>  | <i>1000</i> |                             |          |            |

**Radioactive Liquid Waste Treatment Facility  
Ground Water Discharge Plan (DP-1132) Quarterly Report**

Table 2.0 Analytical Results from Sampling of Mortandad Canyon Alluvial Monitoring Wells (mg/L).

| Location                            | Sample Date: October, 1998 |     |      |      |     | Sample Date: December, 1998 |     |      |      |     | Sample Date: February, 1999 |     |      |      |     | Sample Date: April, 1999 |     |      |      |     |
|-------------------------------------|----------------------------|-----|------|------|-----|-----------------------------|-----|------|------|-----|-----------------------------|-----|------|------|-----|--------------------------|-----|------|------|-----|
|                                     | NO3-N                      | TKN | NH3  | TDS  | F   | NO3-N                       | TKN | NH3  | TDS  | F   | NO3-N                       | TKN | NH3  | TDS  | F   | NO3-N                    | TKN | NH3  | TDS  | F   |
| MCO-3                               | 29.1                       | 0.6 | <0.2 | 507  | 1.1 | 36.4                        | 0.7 | <0.2 | 713  | 1.0 | 41.9                        | 0.5 | <0.2 | 595  | 0.9 | 8.2                      | 0.4 | <0.2 | 302  | 1   |
| MCO-4B                              | 16.1                       | 0.4 | <0.2 | 355  | 1.3 | 14.0                        | 0.6 | <0.2 | 343  | 1.4 | 37.8                        | 0.4 | <0.2 | 505  | 1.0 | NS                       | NS  | NS   | NS   | NS  |
| MCO-6                               | 13.7                       | 0.4 | <0.2 | 350  | 1.7 | 14.8                        | 0.6 | <0.2 | 374  | 1.7 | 17.0                        | 0.4 | <0.2 | 357  | 1.4 |                          |     |      |      |     |
| MCO-6 duplicate                     | NA                         | NA  | NA   | NA   | NA  | 15.0                        | 0.6 | <0.2 | 378  | 1.6 | 17.8                        | 0.4 | <0.2 | 362  | 1.4 |                          |     |      |      |     |
| MCO-6B*                             |                            |     |      |      |     |                             |     |      |      |     |                             |     |      |      |     | 32.2                     | 0.3 | <0.2 | 494  | 1.2 |
| MCO-7                               | 16.0                       | 0.4 | <0.2 | 355  | 1.7 | 14.0                        | 0.6 | <0.2 | 368  | 1.8 | 13.8                        | 0.3 | <0.2 | 354  | 1.7 | 14.7                     | 0.3 | <0.2 | 351  | 1.7 |
| MCO-7 duplicate                     | NA                         | NA  | NA   | NA   | NA  | NA                          | NA  | NA   | NA   | NA  | NA                          | NA  | NA   | NA   | NA  | 14.6                     | 0.3 | <0.2 | 355  | 1.7 |
| NM WQCC 3103 Ground Water Standards | 10                         |     |      | 1000 | 1.6 | 10                          |     |      | 1000 | 1.6 | 10                          |     |      | 1000 | 1.6 | 10                       |     |      | 1000 | 1.6 |

Notes:

\*Monitoring well MCO-6B, located in the immediate vicinity of MCO-6, was substituted for MCO-6 during the April 1999 sampling round.

NA means that no duplicate sample was collected during this sampling event.

NS means that no sample was collected at this well due to insufficient water.

All units: mg/L