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MARK E. WEIDLER
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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 21, 1997

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DOE OVERSIGHT BUREAU

Mr. Tom Todd, Area Manager
528 35th Street
Los Alamos, New Mexico 87544

RE: Request for Additional Information, LANL, Radioactive Liquid
Waste Treatment Facility (TA-50), DP-1132

Dear Mr. Todd:

The New Mexico Environment Department (NMED), Ground Water Quality Bureau (GWQB) has received and reviewed the discharge plan application for the Los Alamos National Laboratories (LANL), Radioactive Liquid Waste Treatment Facility (RLWTF) dated August 16, 1996. Prior to approval of the discharge plan, DP-1132, clarification of information submitted and/or additional information will be required. Please respond to the following items in writing within 60 days of receipt of this letter.

Operational Plan:

1. Prior to implementing a final treatment process for Phase II upgrades, LANL must receive approval from NMED.

Phase II Treatment System Upgrades at the RLWTF, page 7, states:

Determination of satisfactory contaminant removal and operational performance for interim use will be made by DOE and the Laboratory in coordination with NMED.

The section does not state that final selection for the treatment process will be made in coordination with NMED.

Please commit to submitting a report to the GWQB after completion of the pilot tests which includes the following:

- a. RLWTF's preferred method of nitrate removal and an

LANL/GR/00 1197

TA-50 (RLWTF @ GWQB/wacc Discharge Permit)



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explanation supporting the preference,

- b. influent nitrate, fluoride, and total dissolved solids (TDS) concentrations to each pilot process,
- c. effluent nitrate, fluoride, and TDS concentrations from each pilot process.

The report must be received and approved by NMED prior to implementing a final treatment process for Phase II upgrades.

2. The discharge plan application is unclear about the effluent quality that will be achieved by Phase II upgrades. The Executive Summary, page 1, states:

...RLWTF treatment processes will be upgraded during Phase I and II to enable the treated effluent to meet or exceed WQCC ground water standards for nitrate (NO₃-N) and fluoride...

The contingency plan, page 20, states:

After January 31, 1998, as a contingency against discharging nitrates (NO₃-N) in excess of WQCC standards, each batch of treated effluent will be screened for nitrates prior to discharge. This will enable plant operators at the RLWTF to minimize their response time to sub-standard treatment process performance.

As stated, it appears that the effluent concentrations may be greater than ground water standards. Please clarify, whether treated effluent exceeding WQCC Regulation 3103 ground water standards will be discharged to effluent canyon, tributary to Mortandad Canyon, after implementation of Phase II upgrades.

Monitoring Plan:

3. The GWQB does not agree that the data presented in the discharge plan application is sufficient to adequately demonstrate that nitrate and fluoride concentrations in ground water are consistently decreasing.

The Executive Summary, page 1, and the Quality of Mortandad Canyon Alluvial Ground Water, page 14, state that the overall nitrate and fluoride concentrations are trending downward and bases this on the data in table 2.2, (Mortandad Canyon Alluvial Ground Water Monitoring Stations: 1981-1995: Nitrate Concentrations), and the graphs provided in figures 3.0, (Nitrate Concentrations in Six Mortandad Canyon Monitoring Wells from 1981 to 1995), and 3.1, (Fluoride Concentrations

in Six Mortandad Canyon Monitoring Wells from 1981 to 1995). The data and graphs illustrate fluctuations with various increases and decreases depending on monitor well and constituent. In addition, the scale of the graphs does not adequately illustrate concentrations relative to WQCC Regulation 3103 standards. Table 1.1, NPDES Monitoring Data for Outfall 051: January 1994-May 1996, shows that the average nitrate concentrations in water discharged from the RLWTF to Mortandad Canyon in 1996 was 4 times higher than in 1995. The increase in nitrate concentrations in effluent discharges may reverse any downward trends in ground water that have been suggested in the discharge plan application.

Based on the information provided in the discharge plan application, the GWQB does not agree that there is sufficient data to substantiate a consistent downward trend in constituents currently exceeding WQCC Regulation 3103 standards. Additional ground water monitoring will be required to determine any long term trends.

4. The GWQB does not believe that the proposed frequencies constitute adequate monitoring of the quality of Mortandad Canyon's alluvial ground water.

The Executive Summary, page 1, states that:

...using a network of six ground water monitoring wells the Laboratory will closely monitor the quality of Mortandad Canyon's alluvial ground water to demonstrate that the improvements in water quality are consistent with the NMWQCC standards.

Table 3.0., Proposed Monitoring Plan for the RLWTF Ground Water Discharge Plan Application, page 22, provides a list of monitor wells, the parameters for analysis, and the monitoring frequencies. Well MCO-6 is the only monitor well proposed to be sampled on a quarterly bases. The proposal for the other monitor wells is annually.

Please commit to quarterly sampling of all monitor wells listed in table 3.0 and analyzing the ground water samples for nitrate as nitrogen, fluoride, and TDS and any other constituent currently exceeding WQCC numerical standards. Should ground water concentrations drop below WQCC numerical standards for 4 consecutive quarters of monitoring and effluent concentrations do not exceed WQCC numerical standards for any constituent, LANL may request an amendment to their monitoring plan to reduce the frequency of sampling.

5. The system of monitor wells in Mortandad Canyon is not

adequate to monitor ground water quality as required by WQCC Regulations.

Table 3.0 states that the monitor wells to be sampled are 3,4,5,6,7, and 7.5.

- a. On page 10, number 10., it is stated that MCO-3 has been out of service since 1993 due to erosion around the well casing, and that as a contingency, the Laboratory proposes to substitute a surface water sampling station, GS-1, if MCO-3 is unavailable for sampling.

The GWQB does not find this contingency acceptable. WQCC Regulation 3103 standards are for dissolved concentrations in ground water. A surface water sample is not a substitute for ground water monitoring.

Please commit to repairing MCO-3. If MCO-3 cannot be repaired, please abandon the well as to preclude migration of surface runoff or ground water along the well casing, and propose, for GWQB approval, a location for the installation of a replacement well between the TA-50 outfall and MCO-3 for routine sampling of ground water.

- b. During a site visit, November 7, 1996, GWQB staff observed that the outer casing on MCO-4 had dropped below the inner pvc well casing and the well was not covered.

Please commit to repairing MCO-4. If MCO-4 cannot be repaired, please abandon the well as to preclude migration of surface runoff or ground water along the length of the well, and propose, for GWQB approval, a replacement well for routine sampling of ground water.

- c. All of the monitor wells proposed for ground water monitoring are completed in the perched alluvial aquifer in Mortandad Canyon. In the discharge plan application on pages 14, and 18, and in appendix E, Purtymun (1977), it is stated that ground water from the alluvial aquifer seeps into the underlying tuff. It is also stated in appendix E, page 4, that a 1994 sampling of test well 8, a main aquifer well, showed a nitrate (as Nitrogen) value of 5.1 mg/L, while all other values since 1988 were 0.2 mg/L or less.

Based on the downward migration of alluvial aquifer ground water and the increase in nitrate concentrations in the main aquifer in Mortandad Canyon, the GWQB is requesting monitoring of the main aquifer.

Please commit to quarterly sampling and analysis of a ground water sample from a monitor well completed in the main aquifer. Please propose, for GWQB approval, a monitor well for routine monitoring of the main aquifer.

- d. On page 13, Table 2.1, Well Characteristics of Mortandad Canyon Observation Wells, monitor well information is provided as; the "depth drilled" and the "depth completed". The table does not provide information on the screened section for each of the proposed monitor wells.

Contingency Plan:

6. The contingency submitted in the discharge plan application does not adequately describe the actions to be taken for the protection of ground water in the event of a contaminant spill or failure of the treatment process. The contingency plan, page 20, states that there are three main contingency plans to address actions that will be taken in the event of an emergency spill at the facility: 1) Contingency Plan; 2) Spill Prevention Control and Countermeasure Plan (SPCC); and 3) LANL Emergency Management Plan.
 - a. Two of the three plans listed, the Contingency Plan and the LANL Emergency Management Plan enclosed in Appendix G do not include specific information describing the actions to be taken in the event that spills or failure of the treatment process occur or ground water standards are threatened. The SPCC was not included due to size.

Please submit a contingency plan describing the actions to be taken in the event of a contaminant spill or failure of the treatment process. The actions should be directed at containment of the contaminant discharged and disposal of the affected substrate. Please include the actions to be taken in the event of WQCC Regulation 3103 exceedances in ground water.

- b. The contingency plan, page 21, states:

The Laboratory's approach in developing corrective actions for this ground water discharge plan is based upon Purtymun's research (1977) and the data record for Mortandad Canyon; both strongly indicate that after reducing the input of contaminants from RLWTF effluent the alluvial ground water will naturally attenuate to below WQCC ground standards.

...in the event that these corrective actions prove to be inadequate, the Laboratory is committed to revisiting its approach and evaluating alternate actions.

The contingency plan and corrective actions submitted as part of the discharge plan application does not provide enough information to determine if the proposed corrective actions will be adequate to restore ground water in Mortandad Canyon to below WQCC ground water standards, and may not be an approvable contingency plan for the discharge permit. Prior to approving the corrective actions as part of the discharge permit, NMED must receive the following:

1. an accurate definition (vertical and horizontal extent) of the contamination in the alluvial aquifer of Mortandad Canyon with concentrations of all WQCC constituents currently exceeding standards from all sampling points used to define the plume. Additional wells, or transects of wells may be needed to complete this requirement.
2. well logs and well construction details of all wells used to define the plume and the depth at which samples were taken from each well,
3. a ground water level surface map of the alluvial aquifer based on all wells drilled in the alluvial aquifer in Mortandad Canyon,
4. information demonstrating whether or not an intermediate aquifer exists in Mortandad Canyon. If an intermediate aquifer does exist in Mortandad Canyon, ground water quality will need to be determined, and monitoring of the intermediate aquifer will need to be incorporated into the monitoring plan,
5. water quality analysis for samples taken from the regional aquifer. If water quality analysis indicates exceedances of WQCC ground water standards, the extent of the contamination must be defined.
6. water quality data from water above the TA-50 outfall, and
7. a time frame in which additional corrective actions will be proposed if concentrations do not drop below

WQCC Regulation 3103 numerical standards. This may be based on modeling, but determination of the effectiveness of the corrective actions must be confirmed by sampling and analysis.

Closure Plan:

6. The closure plan submitted in the discharge plan application does not provide sufficient detail. The closure plan, page 23, states:

Currently, Los Alamos National Laboratory has no plans to discontinue RLWTF system components or abandon Mortandad Canyon ground water monitor wells during the term of the discharge permit. When the facility is ultimately closed it will be monitored, decontaminated, and decommissioned in accordance with applicable state and federal requirements.

The GWQB recognizes that LANL has no intentions of discontinuing use of the RLWTF during the term of the discharge permit, however, prior to discharge plan approval, the GWQB will need additional information for the closure plan.

- a. The closure plan does not commit to a specific monitoring plan for any designated length of time after cessation of operations at the RLWTF.

Please commit to monitoring ground water at the same frequency and locations at the time of closure for at least two years after closure. This may be modified at the time of closure depending on ground water conditions at that time.

- b. The closure plan does not commit to disconnecting all pipes and other wastewater works which could allow for any discharge to occur after cessation of operations.

Please commit to disconnecting and/or plugging all pipes and wastewater works that could allow a liquid waste discharge after cessation of operations at the RLWTF.

- c. The closure plan does not commit to plugging and abandoning all monitor wells.

Please commit to plugging and abandoning all monitor wells once it has been determined by NMED that ground water monitoring will no longer be required.

Mr. Todd, DP-1132
April 21, 1997
Page 8

- d. The closure plan does not provide a contingency plan with corrective actions should WQCC 3103 standards be exceeded at the time of closure.

Please commit to taking corrective actions to remediate any contaminated ground water existing at the time of closure.

If you have any questions pertaining to the requests in this letter, please call me at 827-0166.

Sincerely,

Phyllis Bustamante

Phyllis Bustamante
Water Resource Specialist
Pollution Prevention Section

xc: ~~James Bearzi, District Manager, NMED District II~~
~~Ralph Ford-Schmid, DOE Oversight Bureau~~
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