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**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

September 10, 1999

Dr. John C. Browne, Director
Los Alamos National Laboratory
P.O. Box 1663, MS-A100
Los Alamos, New Mexico 87545

Mr. Theodore Taylor, Area Manager
Los Alamos Area Office
Department of Energy
528 35th Street, MS-A316
Los Alamos, New Mexico 87544

**RE: Hydrogeologic Workplan Data Quality Objectives
Los Alamos National Laboratory
NM0890010515**

Dear Dr. Browne and Mr Taylor:

In a letter dated August 18, 1999, concerning the R-25 "homework", the Hazardous and Radioactive Materials Bureau (HRMB) stated some concerns regarding the lack of progress towards the implementation of the Hydrogeologic Workplan (HWP) developed by Los Alamos National Laboratory (LANL) and the Department of Energy (DOE). We believe that progress has been particularly limited by resistance to applying a variety of drilling technologies due in part to the interpretation of the data quality objectives (DQO's) outlined in the HWP. In an effort to address this issue, HRMB and the New Mexico Environment Department's Department of Energy-Oversight Bureau have reviewed the DQO's in the HWP and have developed the following recommendations.

One of the DQO's listed in the HWP (page 3 of DQO's listed for Aggregate 1: Los Alamos, Sandia,



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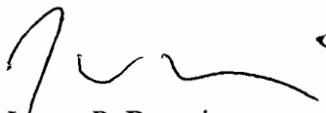
and Pueblo Canyons) lists one decision as: "Is the intermediate perched groundwater underlying the alluvial sediments and upper most subsurface water at [cont]>regulatory limit or risk level?". The decision rule for new data is listed as: "If perched groundwater zones are encountered between the Gauje pumice and the Regional Aquifer, then collect information to characterize the hydrologic characteristics of those zones". HRMB believes that the means to adequately *characterize* any perched zones identified during the course of drilling regional aquifer wells is to have dedicated monitoring well(s) to collect hydrochemical and hydrologic data as well as hydraulic data. The collection of a single grab sample during the drilling of a regional aquifer wells is *not* considered to be adequate characterization. Water samples collected during the drilling are therefore considered by HRMB *not* to be critical; they are useful for screening purposes only, to determine the presence or absence of contaminants *only*.

HRMB has required LANL/DOE to adequately characterize and monitor *each* intermediate ground water zone encountered/identified during drilling. Not only does this more appropriately follow the DQO's outlined in the HWP, this is also in accordance with the New Mexico Water Quality Control Commission (WQCC) Regulations (20 NMAC 6.2) which defines ground water as "interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply" and defines subsurface water as "ground water and water in the vadoze zone that may become ground water or surface water in the reasonably foreseeable future or may be utilized by vegetation". Perched zones may therefore, depending on the size and yield, be considered under either or both of these definitions and must be monitored and protected.

This refining of the DQO's should allow LANL/DOE to use the most effective drilling technologies for acquiring needed information. For example, instead of using air-rotary with casing advance, nearly exclusively, a more efficient drilling methodology could be utilized, such as air-rotary with the option to use foam or mud. Depending on the drilling technique decreased sensitivity for determining perched zones may be expected while drilling. LANL/DOE would then be able to utilize open-hole geophysics to identify any intermediate perched zones that must be characterized and/or monitored. In addition, open-hole geophysics would allow LANL/DOE to collect hydraulic data (e.g., bulk density, porosity, permeability, stratigraphy, etc.) over the entire length of the well. Also, open-hole geophysics will allow LANL/DOE to collect a variety of information pertaining to hydrologic parameters through any vadose zones as well. This should reduce the need of collecting core, a time-consuming activity. The result would be reduced time to drill and complete a well *and* reduced overall cost of each well. HRMB will consider the need for further characterization and monitoring of each intermediate perched zone on a case-by-case basis.

HRMB considers these recommendations as appropriate application of the iterative nature of the HWP. We appreciate and value our relationship with LANL and DOE, and trust that all parties will continue to seek ways to improve and make more efficient the implementation of the HWP. We request a response to this letter either in person, in writing, or both within thirty (30) calendar days of receipt of this letter. Should you have any questions please do not hesitate to call John Kieling of my staff at (505) 827-1558, extension 1012 or myself at (505) 827-1567.

Sincerely,



James P. Bearzi
Chief
Hazardous and Radioactive Materials Bureau

JPB:jry

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