Department of Energy
Field Office, Albuquerque
Los Alamos Area Office
Los Alamos, New Mexico 87544

AUG 19 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

William K. Honker, P.E., Chief
RCRA Permits Branch
U. S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Dear Mr. Honker:

Your letter of July 19, 1994 requests that the Department of Energy (DOE) submit a potentiometric map(s) and conduct additional sampling at wells installed in 1990, located in Los Alamos canyons. The letter directs DOE to submit a schedule for providing this information within 60 days. The letter also requires that the sampling events be initiated within 60 days of receipt of the letter. DOE cannot provide the information requested in the time specified.

Currently, there are not a sufficient number of data to generate potentiometric maps which show, as you have requested, water level conditions for the intermediate aquifer. We have enclosed a more detailed discussion of what currently is known for this aquifer. Our current data does allow us the ability to generate two potentiometric surface maps for the main aquifer, one showing historical conditions and one showing current conditions. The same enclosure details how we propose to create these maps so that we depict, very approximately, the actual conditions for the main aquifer. These maps will include the locations of intermediate wells. Unfortunately, more than 60 days will be required to generate these maps. Therefore, this letter also serves as a request for an extension to December 30, 1994, to submit the maps for your review.

We must also request an extension beyond the 60-day period you have specified to initiate sampling in the Los Alamos Canyon wells. We are currently reviewing the status of Fiscal Years 1995 and 1996 budget requests and will submit plans for conducting this work when funding has been obtained.

DOE proposes to conduct four rounds of sampling and analysis in the future, commencing no later than the first quarter of 1995. The initial round of sampling will be for the same constituents

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analyzed in 1994. The remaining three sampling episodes may result in the analysis of fewer constituents based on the initial sampling results (e.g., if no volatile organics are detected in the first round of sampling, they will be eliminated from the list of analytes of interest). Additional information on the proposed sampling and analysis strategy is provided in the enclosure. This sampling approach should end in the last quarter of 1995. DOE will notify the Environmental Protection Agency via a letter if the sampling plan is being delayed for any reason, such as lack of water in the alluvial wells.

If you have any questions regarding this response letter and the enclosure outlining DOE's proposed plans, please contact me at (505) 665-7203.

Sincerely,

Theodore J. Taylor
Program Manager
Environmental Restoration Program

LAAMEP:9TT-021

Enclosure

VXII

HSWA 94

cc w/enclosure:
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LANL HSWA GEN/MISC/S

REQUIREMENT #1
GROUNDWATER FLOW AND DIRECTION, INFLUENCE OF PRODUCTION WELLS, DEPICT ACTUAL CONDITIONS.

STATUS OF CURRENT MAIN AQUIFER INFORMATION

LANL does not have the facilities to collect the data required to produce the potentiometric and flow direction maps required by Item 1. Item 1 states the requirement to produce maps depicting "the actual conditions at the facility" emphasis added. We interpret "actual" to mean measured as contrasted with estimated or modeled by numerical methods.

In order to determine the influence of the numerous pumping wells on the potentiometric surface would require the installation of a significant number (as yet undetermined) of additional monitoring wells and/or piezometric tubes in order to measure the effect of the pumping supply wells on the aquifer surface. At present, with only one exception, the test wells or other unpumped wells are too far removed from the regularly pumped water supply production wells to measure the effects of pumping.

At present, the best possible map of a potentiometric surface that can be generated would be based on the static levels measured at the eight test wells and "non-pumping" levels based on measurements from the operating water supply wells. The effects of supply well pumping on the potentiometric surface of the main aquifer can be discussed qualitatively and with semi-quantitative limits in regard to both long-term drawdown and recovery trends in the supply well fields and short-term effects as observed by well interference or the observations during some recent aquifer pump tests.

A compilation of historic records of water levels for the test wells and the supply well fields is in process and is planned to be included in the Water Supply Report for calendar 1993. This data will permit construction of potentiometric maps at various times as desired to investigate any gross changes in patterns. Detailed discussions of extended pump tests at Supply Well LA-2 and at Supply Well Otowi-4 will be included in the Water Supply Reports for 1992 and 1993, respectively. These data will permit interpretation of transmissivity and storativity values that could be useful in numerical modeling of the cones of depression or zones of influence of the supply wells.

STATUS OF CURRENT INFORMATION ON INTERMEDIATE DEPTH PERCHED GROUNDWATER

At present there are only three wells that are completed in intermediate depth perched groundwater and permit measurement of water levels; these are TW-1A and TW-2A in Pueblo Canyon, and LADP-3 in Los Alamos Canyon. Intermittent records of depth to water are available for TW-1A and TW-2A back as far as 1943. Other locations at which intermediate depth groundwater was encountered during drilling include Supply Wells Otowi-1 (Pueblo Canyon), Otowi-4 (Los Alamos Canyon) and Pajarito Mesa-1 (Sandia Canyon); however, no monitoring wells were installed at these locations so water levels cannot be monitored. Intermediate depth groundwater also discharges from Basalt Spring in Los Alamos Canyon.

Accordingly, there are insufficient wells to determine whether the intermediate depth groundwater is a continuous or interrupted feature, much less to determine a potentiometric surface. Until a reasonable number of additional wells or borings are completed to sufficient depth with adequate areal coverage, it is not possible to delineate the occurrence of intermediate depth water except at the above described locations, or to document the water level as a potentiometric surface or to determine the extent, if any, of effects on such potentiometric surface as a result of pumping the main aquifer supply wells.

PROPOSED DELIVERABLES AND WORK SCHEDULE

The planned activities include completion of the historic water level compilation and summary and the development of at least two potentiometric maps. One map would reflect the best estimate of "pre-Laboratory conditions", the second would reflect the best estimate of current conditions. The current conditions map will also depict where saturation has been documented within the alluvial and intermediate perched zones. Additional documentation will summarize the estimated maximum areal effects of pumping based on observations of lack of inter-well interference and the measurements of drawdown during recent long-term pumping tests.

Summary of Activities for Requirement #1:

1. Complete water level compilation and summary by January 31, 1995.

2. Complete summary of observations of drawdown interference and pump test measurements by January 31, 1995.

3. Produce Potentiometric Surface maps by use of the FIMAD System by January 31, 1995.

REQUIREMENT #2
SPECIAL CONDITION C OF HSWA PERMIT
SAMPLING OF ALLUVIUM MONITORING WELLS, ADDITIONAL SAMPLING TO PROVIDE STATISTICAL ANALYSIS.

The original, and only, comprehensive sampling of the alluvium perched zone monitoring wells was accomplished in 1990. This included sampling of all the saturated new wells installed by mid-1990 in conformance with the Section C.1 requirement, and the related adjacent old wells installed previously by the U. S. G. S. or the Laboratory for routine monitoring. At that time (September 1990) samples were collected from two new wells in Los Alamos Canyon (LAO-3A and LA0-4.5C), two adjacent old wells (LAO-3 and LAO-4.5), three new wells in Mortandad Canyon (MCO-4B, MCO-6B, and MCO-7A) and three adjacent older wells (MCO-4, MCO-6, and MCO-7), and one new well in Pueblo Canyon (APCO-1). All samples were analyzed for a set of radiochemical parameters, the Appendix IX constituents, and a set of general major ions and water chemistry parameters.

One additional pair of wells in Los Alamos Canyon, LAO-6 (old) and LAO-6A (new) were not sampled because saturation did not extend that far down the canyon in the fall of 1990, but they are saturated periodically, usually in the late spring-early summer, and could be sampled at such times. Additional wells drilled as part of the special permit condition were not saturated in 1990 and have not been at the times of subsequent periodic inspections. These include wells in Sandia, Fence, and Water Canyons.

A sampling program to better understand the differences in observations made between the pairs of wells would need to include several sampling events spaced over different seasons because of the considerable effect of surface water recharge to the alluvial perched zones, especially in Los Alamos Canyon. (Accordingly the total sampling program would optimally require 12 months to complete.) The study should include samples taken both unfiltered, for comparison with results of the first sampling event, and with in-field filtering, in order to appropriately interpret geochemistry indicators and because there is so much turbidity in both the old and new wells.

Achieving full comparability in the sampling will require the installation of bladder pumps in all the new (i.e. 1990) wells. This is because all the older wells of the pairs now used for the routine sampling program have been equipped with dedicated bladder pumps. The bladder pumps permit uniform purging and, more importantly, minimize the turbulence during sampling to limit generation of turbidity. Sampling with a bailer unavoidably stirs up the water in the immediate vicinity of the wellbore. Given the extremely small particle size of tuff resulting from weathering and mechanical disturbance by drilling, turbidity is of great importance in the Los Alamos alluvium.

PROPOSED DELIVERABLES AND WORK SCHEDULE

The sampling plan for the alluvium perched groundwater includes the installation of bladder pumps in the new wells and then four sampling events spaced seasonally to provide for a minimally valid statistical analysis.

Summary of Proposed Activities for Requirement #2:

1. Install bladder pumps in up to 10 of the "new" alluvium wells.

2. Conduct four sampling events, each to include approximately 30 samples (6 wells in Los Alamos Canyon, 6 wells in Mortandad Canyon, 1 well in Pueblo Canyon, each well producing one unfiltered and one filtered sample, and a total of four QA samples per event). The first of these sampling events will be initiated no later than the first quarter of 1995. Later sampling events will be conducted approximately quarterly and will be completed by CY 1995.

3. Analysis of samples for radiochemistry (filtered and unfiltered), inorganics and general chemistry parameters (filtered and unfiltered), and organics (unfiltered only). The list of analytes for the initial 1995 event will be identical to that specified in the HSWA Permit for the 1990 sampling event. Constituents of concern that are not detected analytically during the first 1995 event will be dropped from subsequent samplings.

   Report to EPA analytical sampling results from individual sampling events within 30 days of LANL receipt of quality assured data.

   Deliver to EPA a comprehensive interpretive report, including statistical analysis of the data, within 3 months of receipt of all quality assured data from the final sampling event.

VII.A. GENERAL CONDITIONS

1. Authorized Unit. The unit is the Sprunz Incinerator Corporation, model RL-80-P incinerator located in Technical Area 16 and listed as structure 16-1409.

2. Destruction and Removal Efficiency. Emissions from the incinerator shall meet all Federal and State air standards and regulations.

VII.B. WASTE IDENTIFICATION

1. Authorized wastes.

   a. Wastes listed as hazardous waste solely because they are ignitable, corrosive or both (F003).

   b. Wastes listed as hazardous waste solely because they are reactive.

   c. Wastes listed as hazardous wastes solely because they exhibit the characteristic(s) of ignitability, corrosivity, or both.

   d. Wastes listed as hazardous wastes solely because they exhibit the characteristic of reactivity.

2. Prohibited wastes.

   a. No hazardous wastes other than those identified in permit paragraph VII.B.1. above shall be incinerated in this unit.

   b. No off-site wastes shall be incinerated.

VII.C. WASTE ANALYSIS

1. Waste Analysis Plan. The Permittee shall follow Permit Attachment A. where applicable.

2. Batch analysis. Each batch to be incinerated shall be inspected by a knowledgeable individual for the presence of ignitable, corrosive or reactive wastes and the absence of prohibited wastes. A signed record of each inspection shall be retained in the facility records.

3. Initial Analysis. Each new mixture of wastes not previously analyzed shall be analyzed prior to incineration for:

   a. Heating value,

   b. Viscosity or physical form,

   c. Identification of any hazardous constituent,

d. An approximate quantification of any hazardous constituent, and

e. The absence of any HWMR-5, as amended 1989, Part II, Appendix VIII constituent in a concentration in excess of one hundred micrograms per gram of waste.

*VII.*D. WASTE STORAGE

Wastes to be incinerated shall be stored in Technical Area 16, Building 290. Building 290 shall not accumulate hazardous wastes for greater than ninety days. All the requirements of HWMR-5, as amended 1989, Part III, 40 CFR section 262.34 shall be met.

*VII.*E. RECORD KEEPING

1. Waste History. The incinerator operating record shall include the source, date of receipt, description, quantity and date of incineration for each batch of hazardous waste incinerated.

2. Waste Analysis. Where applicable, the sampling date, individual(s), method and analytical results for each batch sampled at the incinerator shall be entered in the operating record.

3. Closure. The final disposition of the closure residues shall be recorded.

*VII.*F. CLOSURE

The incinerator shall be closed in accordance with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR section 264.351 and Permit Attachment E.