



Department of Energy
 Field Office, Albuquerque
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*Classified,
 File
 LANL-AIP*

FEB 23 1994

Dr. William J. Stone
 Ground Water Protection and
 Remediation Bureau
 New Mexico Environment Department
 4131 Montgomery, NE
 Albuquerque, NM 87109

LANL
 General
 Groundwater, Alluvial Wells

Dear Dr. Stone:

The Los Alamos National Laboratory (LANL) Hydrology Team, at the Department of Energy's (DOE) request, has reviewed the Agreement In Principle (AIP) staff recommendations on the installation of alluvial monitoring-wells in lower Los Alamos Canyon (see enclosure). At this time, no specific plans have been made regarding these particular NMED AIP technical recommendations. They will be considered along with those previously made by the Hydrology Team, AIP Staff, and the DOE as part of a detailed and prioritized plan for improvement of the groundwater monitoring program.

At DOE request, the Draft Groundwater Protection Management Program Plan (GWPMP) is being revised in 1994 to include a business plan that includes a detailed list of prioritized actions, funding requirements and a recommended implementation schedule. In general terms, this is one of the issues identified in Section 3, Identification of Required or Desirable Data, in the Draft GWPMP. Subsection 3.4.2 includes the need to site and install additional monitoring wells in the perched groundwater in canyon alluvium.

If you have any questions concerning the above information, or if additional information on this topic is desired, please contact Alan Stoker of ESH-8 at (505) 667-0818.

Sincerely,

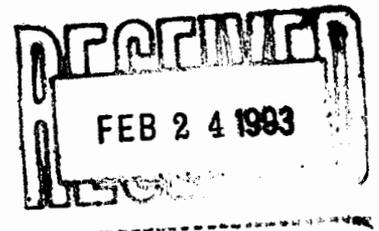
M. Diana Webb

M. Diana Webb
 AIP Point of Contact
 Environment, Safety and Health
 Branch

LESH:4DW-025

Enclosure

cc:
 See page 2



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Dr. William J. Stone

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FEB 23 1994

cc:

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Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

DATE: [REDACTED]
IN REPLY REFER TO: ESH-8/GO-94-0023
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Mr. Joseph C. Vozella, Chief
ES&H Branch
Los Alamos Area Office
U.S. Department of Energy
Los Alamos, New Mexico 87544

Dear Mr. Vozella:

This letter responds to your request (your ref. LESH:2JV-003) that we provide comments on the recommendations by the New Mexico Environment Department Agreement-in-Principle (NMED AIP) staff for alluvial monitoring in Lower Los Alamos Canyon. These recommendations had been made as Attachment A to the NMED AIP notes on the 2/19/93 meeting regarding groundwater monitoring issues in Lower Los Alamos Canyon, and included specific recommendations for the installation of new monitoring wells.

No specific plans have been made regarding these particular NMED AIP technical recommendations. The general status is that they need to be considered along with other possibilities as part of the development of a detailed and prioritized plan for improvement of the groundwater monitoring program. In general terms, this is one of the issues identified in Section 3, Identification of Required or Desirable Data, in the Draft Groundwater Protection Management Program Plan. Subsection 3.4.2 includes the need to site and install additional monitoring wells in the perched groundwater in canyon alluvium.

There are some technical observations that may influence evaluation of the need or priority for wells at some of the particular locations recommended. One of the reasons given in the recommendation is to "... monitor the perched-alluvial aquifers to ensure that contaminants are not leaving the laboratory boundary." At the proposed location in Los Alamos Canyon, downstream of the Pueblo-Los Alamos confluence near the lab boundary, there are two considerations:

First, there is no question that contaminants have moved off the Laboratory site through this reach of Los Alamos Canyon. This has long been documented by both routine annual monitoring and special studies. The mechanisms are surface flow in the channel since at least 1945, carrying both radionuclides in the water and on transported sediments, and probably in the perched intermediate-depth groundwater discharging from Basalt Spring, understood since the early US Geological Survey studies to be the same perched system as observed in Test Well 1A above the confluence. The intermediate-depth perched groundwater in both Test Well 1A and Basalt Spring have showed the influence of inorganic constituents from surface and alluvium since the 1960s, and more recent measurements of low-levels of tritium suggest that same pathway.

Second, the alluvium in Los Alamos Canyon is not continuous through this reach of the canyon. The alluvium thins out so that the Los Alamos stream channel is cut directly in the basalt from the confluence with Pueblo Canyon on downstream for some distance until it drops about a hundred feet over the edge of the basalt. At the lower level, there is very little, if any, alluvium until about the vicinity of Well LA-5 where Los Alamos Canyon begins to widen. The Bureau of Indian Affairs (BIA) was only able to penetrate a few feet when installing a drive point monitoring well in the alluvium in the channel adjacent to Well LA-5.

The need for additional monitoring wells to the intermediate-depth perched zone in the basalt in that same reach of Los Alamos Canyon would have to be considered carefully in relation to the expectation for learning more about the hydrologic system. It could add some understanding of the conditions between Test Well 1A and Basalt Spring. However, the existing chemical quality and low-level tritium data coupled with additional low-level tritium sampling in 1994, may be sufficient to be confident of the basic movement through that pathway.

The proposed transect of monitoring wells in Los Alamos Canyon below the confluence with Guaje Canyon could improve understanding of the detailed structure of the alluvium in that part of the canyon. However, information already exists to confirm the presence of contaminants in that portion of the Canyon. There may be some new insight from two drive-point monitoring wells installed by the BIA in 1993 in that portion of the Canyon.

The feasibility and cost of installing wells such as recommended could vary considerably depending on the exact location and type of well. If individual alluvial wells could be installed by Environmental Protection Group (ESH-8) staff and using the group's auger drill rig, they would probably represent costs of a few thousand dollars a well. This would apply in the instance of the Guaje-Los Alamos Canyon confluence and the Ancho Canyon location. The total cost for each transect would depend on the total number of wells required to meet the AIP recommendations. Potentially six wells could be required at those locations. In the case of new wells to the intermediate-depth perched zone in the vicinity of the Los Alamos-Pueblo confluence, an outside contractor would be required. This effort would be comparable to the two intermediate depth wells drilled by the Environmental Restoration Program in 1993 for the TA-21 Operable Unit investigation, probably several hundred thousand dollars a well.

Based on the above considerations, we do not plan to drill additional wells within Lower Los Alamos Canyon during the current fiscal year. The Environmental Protection Group will work with the Environmental Restoration program on development of the work plan for the canyons operable unit during the next year, and the Los Alamos and Pueblo canyons will be the first priority for this work plan. The NMEID AIP staff will be asked to participate in development of this work plan, which will consider additional wells into the alluvium, intermediate zone, and possibly the main aquifer to obtain information on the hydrologic system and potential for transport of contaminants through the system.

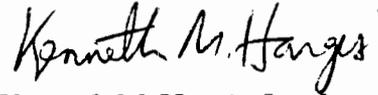
Mr. Joseph C. Vozella
ESH-8/GO-94-0023

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February 14, 1994

Please contact Alan Stoker of ESH-8 at 667-0818 if you have any questions concerning the above information, or if additional information on this topic is desired.

Sincerely,



Kenneth M. Hargis, Leader,
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Reading File