

TA-18

LANL/ER/OU 1093

MEMORANDUM

TO: Steve Alexander, Technical Compliance Program Manager

THROUGH: Bruce Swanton, POC
AIP DOE/LANL

FROM: Teri D. Davis
LANL/DOE Oversight Program

DATE: March 14, 1994

SUBJECT: **Comments on LANL's May 1993, Operable Unit 1093 RFI Work Plan**

The Hazardous and Radioactive Materials Bureau (HRMB) Agreement in Principle (AIP) personnel have completed their review of the Operable Unit (OU) 1093 RCRA Facility Investigation Work Plan (RFIW). The following memo is divided into two sections; general comments and specific comments. The specific comments are referenced by the following notation: (section number, page number followed by citation of paragraph (p), table (t), figure (f), or bullet (b) number). The AIP program is submitting these technical recommendations to the HRMB's RCRA Permitting and Enforcement/Technical Programs because of eventual New Mexico Hazardous and Solid Waste Amendment (HWSA) authorization.

General Comments

Test wells T-5 and T-6, drilled in 1950, have been cited as evidence that no perched water exists below the alluvial aquifer in Pajarito Canyon. Black and Veatch (1950) reported that T-5 did not encounter any perched water during drilling and that no water other than a slight seepage at a depth of about 18 feet was encountered in T-6. The main conclusion drawn from this investigation was that no perched water exists in Pajarito Canyon. This conceptual model is now suspect due to data obtained from recently drilled wells. In 1985, three alluvial monitoring wells were installed in Pajarito Canyon. These wells have maintained water-levels since their development.

Additionally, as noted by N.D. Rosenberg and H.J. Turin (1993), in Summary of Area G Geology, Hydrogeology, and Seismicity for Radiological Performance Assessment, a seismic hole drilled by J. Gardner in 1993 recorded wet core and equipment approximately 125 to 145 feet below ground-level, suggesting the possible existence of a perched-intermediate aquifer. The seismic drill hole is located approximately 700 feet NW of production well PM-2 which is located immediately downstream of the confluence of Pajarito and Three Mile Canyon (TA-18).

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As noted in LANL's May 1993 OU 1148 RFI Workplan: "Perched (intermediate) aquifers, recharged from the alluvial aquifer in Pajarito Canyon, may exist in the subsurface in the southern vicinity of OU 1148, although no drill holes are available to determine if they exist.". It is recommended that a data need be included in the groundwater sampling section of this RFI to investigate the presence of a perched-intermediate aquifer in lower Pajarito Canyon.

If a perched-intermediate zone of saturation exists beneath Pajarito Canyon, it may be hypothesized that some component of recharge may be occurring from delineated fault zones which exist 0.5 miles east and 1 mile west of TA-18 as mapped by Vaniman and Wohletz, (1990). If a perched-intermediate system were to be recharged in such a manner, it could be conceptualized that the alluvial system may be a separate or partially-isolated pathway for groundwater movement.

Supporting evidence suggests that a perched-intermediate zone may exist beneath lower Pajarito Canyon. It is therefore recommended that a well be installed to investigate the existence of a perched-intermediate zone beneath lower Pajarito Canyon.

Specific Comments

1. (4.2.3.1,p.4-4) If phase I does not detect contaminants of concern (COC) in soil/sediment sampling then Figure 4-2 (p.4-5) indicates that a second question is asked; are potential contaminants of concern (PCOC)s present in groundwater? The text in this section does not indicate that such an action will take place. This apparent discrepancy needs clarification.
2. (4.3.3.2.2,p.4-17p1) Regarding the statement, "Any PRS in OU1093 with surface contamination (0 to 6 in.) above screening action levels will be evaluated in a baseline risk assessment using the recreational scenario", it is suggested that this issue be discussed with the appropriate stakeholders prior to any decision making.
3. (4.6.2,p.4-29t4-5) As shown in Table 4-5, the mobile lab detection limits for some of the radiological constituents to be analyzed for are higher than the listed screening action levels (SAL). In general, the RFIW proposes that phase I sampling results will determine if samples will be analyzed with gamma spectroscopy at the analytical laboratory contingent mobile lab gross-gamma results being above background. Also, the RFIW proposes that phase I results as

obtained by the mobile lab will be used for No-Further-Action (NFA) recommendations. The use of low confidence data (Quality Assurance (QA)/Quality Control (QC) Level II) does not appear adequate for use as a basis for NFA recommendations. It is suggested that this issue be discussed with the appropriate stakeholders.

4. (5.1.2.1.2,p.5-16p2) The wells located near Building TA-18-168 are not located downgradient of the drain field which serves Septic Tank TA-18-39 as stated in the text. Figure 5-7 (p.5-17) shows the spatial relationship of the wells, drain field, and septic tank with respect to the approximate direction of groundwater flow.
5. (5.1.5.2.1,p.5-38p3) The assumption that COC's are evenly distributed through a drain field, septic tank, drain line, or sewage lagoon is not a valid assumption. AIP comments have repeatedly made this point and Solid Waste Management Unit (SWMU) 0-030(g) near the Catholic church in the townsite supports AIP's conclusions.

The purpose of phase I sampling is to determine if COC's are present at the site or, the principal goal being "to detect contamination present above a substantial portion of a relatively small area" (p.4-20). If COC's exist at a site then phase II sampling is designed to determine the extent of contamination. The fraction of the site contaminated is in most instances unknown at the beginning of phase I. How was it determined that for the equation (p.4-20):

$$P = 1 - (1-f)^N$$

f is equal to 50 percent (0.5) for these SWMU's? It would appear that for the above equation f should be the dependant variable as opposed to N. For example on page 5-25, "the objective of the groundwater sampling is to obtain sufficient data to determine, with a 95% probability, if PCOC are present in the groundwater over at least 50% of the line", what about the other 50% of the line?

6. (5.1.5.2.1,p.5-39p1) The soil samples for the drain field investigations should be taken at least as deep as the clay pipes rather than the proposed depth of 0-6in.
7. (5.1.5.2.1,p.5-39p3) It is recommended that a sampling plan for 18-003(c) outfall and contingency sampling plan for 18-003(g,h) outfalls be included in either Table 5-5 or 5-6.

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8. (5.6.1.1,p5-80,f5-20) PCO-2 is located on the north side of the road, not on the south side as indicated in this figure.
9. (5.6.2) The statement, "Radiochemical data collected to date from the PCO-series wells indicate that Laboratory operations have had no impacts on the shallow groundwater system in Pajarito Canyon.", is not exactly correct. In the 1991 LANL ES report, Cs(137) was reported at 237 pCi/L in PCO-2 which exceeds the standard of 120 pCi/L (DOE Derived Concentration Guide applicable to DOE Drinking Water System). NMED is aware of the interference problems associated with LANL's analytical procedures for detecting Cs(137); however, given that the standard deviation for this sample was reported at 135 pCi/L this result may suggest that lab operations are impacting the shallow groundwater system in Pajarito Canyon. Also, total dissolved solids results for well PCO-3 have been noted in past ES reports to have been above Drinking Water Standards. It is recommended that this statement be revised.