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M E M O R A N D U M

To: Michael Dale, NMED, DOE OB, White Rock
From: WTS William Stone, NMED, DOE OB, Albuquerque
Date: 14 Nov 1997

Subject: Completion of R-9

Although more information would be helpful, based on what you provided yesterday by phone, **LANL's proposed completion of R-9 does not seem advisable for several reasons:**

1. **Nested construction is risky in view of the limited space available.** Encirclement by sealant of all three risers (one 5" and two 2") cannot be assured in a 15" casing.

2. **Use of 5" schedule 80 PVC for the main aquifer riser (projected depth of 780 ft) is also ill advised.** Guidance I have shows that 2,070 ft of 5", flush-joint, threaded, schedule 80 PVC can theoretically be suspended without damage. However, using a typical industry safety factor of 1/3, a rule-of-thumb maximum safe length would be 690 ft.

3. **Drilling on to projected TD is not appropriate.** As the hole now contains oil from a tool leak, drilling to the main aquifer would permit contamination of water in it as well. On the other hand, if there were already organics in the deep ground water, it might not be readily detected due to such mixing.

4. **Even if there were no contaminant at intermediate depth, such action would not be prudent.** The point of monitoring wells is to provide a means of sampling discrete waters. As the second intermediate saturated zone is apparently open to the hole, drilling on would permit mixing of presumably different waters.

5. **Drilling should be halted and the oil cleaned up.** To make some use of the hole, once it is clean, it may be constructed for monitoring the second intermediate saturated zone (280 ft).

6. **A new (separate) hole should be drilled to the main aquifer.** If saturated zones are encountered above the regional water table, they should be sampled then sealed to avoid mixing of intermediate and deep ground waters. The result would be a staged well characterized by a telescoping sequence of casings, decreasing in diameter with depth.

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The original plan of drilling directly to the main aquifer, noting/sampling intermediate saturated intervals as encountered, is still the best approach. Such observations could then be used to install monitoring wells in these intervals, if deemed useful.

Hope these comments are useful. If there are any questions, don't hesitate to call (845-4103).

cc: John Kieling, HRMB, Santa Fe
Roger Kennett, NMED, DOE OB, POC, Albuquerque