 Off-Site

Subject: Well Installation
Date: Wed, 04 Sep 2002 08:47:58 -0600
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LANL HSWA offsite (R-16, HWP) well installation

NMED has some concerns about the quality of well installation in recent Hydrogeologic Workplan wells. The drilling of well R-16 highlights some important issues.

The field personnel were unable to accurately locate the top of the regional aquifer. The geophysical logs did not help to delineate this important feature. Two screens were placed in locations which may or may not be near the top of the zone of regional saturation. NMED believes it is very important to set a screen across the potentiometric surface in each well.

We also understand there was a complete loss of circulation while using mud rotary drilling from 867-1047 feet. NMED is concerned about the volume of fluids that were lost, likely into the surrounding formation/aquifer, as well as the effects these fluids may have on the aquifer. While drilling muds enhance the stability of the borehole, they can also adversely affect the hydrologic properties and geochemistry of the surrounding aquifer. Drilling fluid invasion and the buildup of borehole filter cake may reduce the effective porosity of the aquifer in the vicinity of the borehole. NMED understands that LANL keeps accurate account of how much drilling fluid (muds and dispersants) is used and how much is recovered. NMED would like to receive this information for each borehole that is drilled. Additionally, NMED requests information on how LANL plans to enhance drilling fluid recovery from the borehole and subsequently what well development methods are planned given well casing already in the hole. NMED also has concerns regarding the integrity of the seals between the screen and vadose zone, which may be impacted as the "caked" drilling fluids (mud) break down over time.

If it is determined that sand will be pumped into the borehole at R-16 to form the filter packs, NMED would like some rationale for using the coarser grade of sand that LANL has proposed with this method, especially in the silty sand zone that is screened from approximately 1014-1022 feet.

Please contact us if you have any questions regarding these issues.


4138