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Sent: Tue 9/29/2009 6:47 PM

From: Dale, Michael, NMENV
To: Mark Everett
Cc: Kulis, Jerzy, NMENV; Cobrain, Dave, NMENV; twhitacre@doeal.gov; hshen@doeal.gov; huberpr@lanl.gov; katzman@lanl.gov; riggs@lanl.gov; mgard@lanl.gov; robinp@lanl.gov; anderson_d@lanl.gov; spearson@lanl.gov; r_morley@lanl.gov; gdh45@lanl.gov; 'Heather Smith'
Subject: RE: R-47 revised well design with cement grout
Attachments:

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Mark,

This email serves as NMED approval for the revised grouting/cementing plan for R-47 as proposed in the email below and attached well design that were received by NMED at 3:14 PM today (September 29, 2009). This approval is based on the information available to NMED at the time of the approval. NMED understands that LANL will provide the results of preliminary sampling, any proposed modifications to the well design proposed in the email below, and any additional information related to the installation of well R-47 as soon as such information becomes available.

Michael Dale, NMED HWB

-----Original Message-----

From: Mark Everett [mailto:meverett@lanl.gov]
Sent: Tue 9/29/2009 3:14 PM
To: Kulis, Jerzy, NMENV; Dale, Michael, NMENV; Cobrain, Dave, NMENV
Cc: twhitacre@doeal.gov; hshen@doeal.gov; huberpr@lanl.gov; katzman@lanl.gov; riggs@lanl.gov; mgard@lanl.gov; robinp@lanl.gov; anderson_d@lanl.gov; spearson@lanl.gov; r_morley@lanl.gov; gdh45@lanl.gov; 'Heather Smith'
Subject: R-47 revised well design with cement grout

Dave,

On September 27, 2009, LANL received an approval of the proposed R-27i well design with direction to use grout as an annular sealant. In an effort to address NMED's direction to use grout as a sealant in the vadose zone annulus of LANL's monitoring wells, we are re-submitting the attached R-47 well design, with modifications, for your approval. The approval request pertains to the interval (1040 ft-TD) below the 12-in. drill casing only. The purpose of the modified design is to provide a seal complimentary to the



bentonite chip seal previously proposed while still being protective of the regional aquifer screen and adjacent filter pack. Since previous attempts to place grout seals (both bentonite and cement based) have led to detection of the grout materials in water samples from screens in the completed well, LANL proposes to place hydrated bentonite chips above the filter pack to 90 ft above the regional aquifer. Keeping the grout this distance from the aquifer and screen will diminish the likelihood of negatively impacting the quality of water sampled from the screen. From this depth of 1150 ft up to 1050 ft, we propose to use cement with IDP-381. The Schlumberger logs indicate that this interval is unsaturated and relatively free of borehole washouts.

After emplacement of the cement, backfilling of the annulus will be suspended while decisions are made about the perched groundwater above. As you recall, a perched groundwater interval appears to be present 842 ft to an unknown depth below and is currently sealed behind the 12-in. casing. Once the well is constructed and backfilled up to the bottom of the 12-in. casing, efforts will be made to evaluate the viability of completing 3-in. diameter well to monitor the perched zone in the main well's annulus. After evaluation of the zone, LANL will submit a revised well design for NMED approval.

Mark Everett, PG

Drilling Project Technical Lead

EP-WSP

LANL

(505) 667-5931 (office)

(505) 231-6002 (mobile)

(505) 606-0503 (fax)

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