

**Kulis, Jerzy, NMENV**

From: Mark Everett [meverett@lanl.gov]
Sent: Wednesday, December 10, 2008 3:23 PM
To: Kulis, Jerzy, NMENV; Dale, Michael, NMENV; Cobrain, Dave, NMENV; Young, John, NMENV
Cc: katzman@lanl.gov; 'Shen, Hai'
Subject: Well R-44 proposed design
Attachments: R-44construction.pdf

Jerzy,

Attached is LANL's proposed design for well R-44. The design includes an upper screen targeting the top of the regional aquifer and a lower screen targeting the base of the Puye Formation.

During drilling of R-44, groundwater was first observed at a depth of 908 ft bgs. As has been observed in other locations where the top of the regional aquifer occurs within the Puye, saturation must be penetrated some distance before the formation pressure can overcome the drilling-induced air pressure allowing groundwater to enter the borehole. The current observed water level, with drill casing to 1,094 ft bgs, is 880 ft bgs. This level is consistent with observed water levels in nearby wells including R-13. To provide sufficient submergence for well development and to minimize screening a fine-grained matrix above 900 ft bgs, we propose placing the upper screen 895-905 ft bgs.

The purpose of the lower screen is to characterize vertical dispersion of any contaminants present within the aquifer. From lithologic observations and groundwater screening data the proposed depth of 985-995 ft bgs may represent the lower most interval of a lithostratigraphic unit. Our first line of evidence is that this depth coincides with a lithologic change observed at 1005 ft bgs. Secondly, after each 20-ft section of drill casing was added to the string, a groundwater sample was air-lifted and submitted to the EES laboratory for analysis. Preliminary review of these data suggests a drop off in anthropogenic tracers such as nitrate and sulfate below the sample collected at 997 ft bgs. These two lines of evidence along with the field observation that this is the most productive interval intersected by the borehole provide a compelling argument for the screen placement as proposed.

If the attached well design is acceptable to you, please respond to this e-mail with your concurrence. If you have further questions or comments, please feel free to contact Danny Katzman (667-6333) or me.

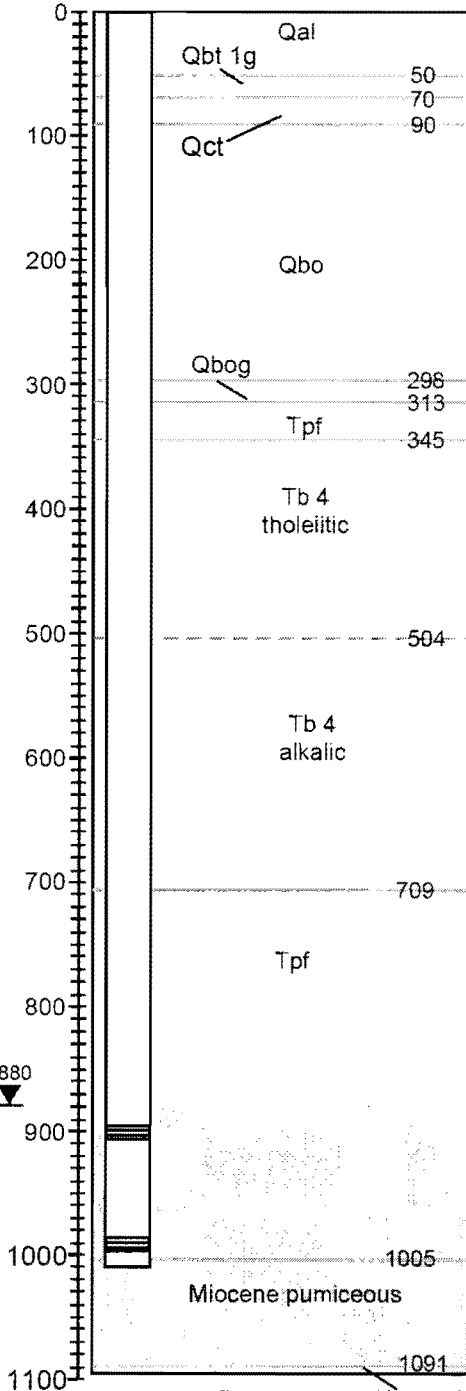
Thanks,

Mark Everett, PG
Drilling Project Technical Lead
EP-WSP
LANL
(505) 667-5931 (office)
(505) 231-6002 (mobile)
(505) 606-0503 (fax)

This inbound email has been scanned by the MessageLabs Email Security System.

6900
6800
6700
6600
6500
6400
6300
6200
6100
6000
5900
5800
5700

R-44



TD 1094

Hernandez Mbr.
1091-TD

slough
below 1084

cement,
2-5% bentonite
grout,
surface-300

high-solids
bentonite
grout
300-860

670
880
890
900
910
920
930
940
950
960
970
980
990
1000
1010
1020

