TADS

Young, John, NMENV

From: Danny Katzman [katzman@lanl.gov]
Sent: Thursday, June 28, 2007 3:16 PM
To: Young, John, NMENV
Cc: meverett@lanl.gov; broxton@lanl.gov; behr-andres@lanl.gov; riggs@lanl.gov; mjohansen@doeal.gov
Subject: Information on R-35 and path forward
Attachments: R35a062607gamma_up_welldesign_email.xls

LANL [Chromium Intern Nguyen, Sandia Canyon]

John-
This email is provided in response to your email request from June 27, 2007 to provide additional information on R-35a.This email provides information relating to the identification of bentonite grout in LANL Well R-35a including a high-level chronology of events, a summary of observations related to the detection of bentonite including observations from the video and gamma (see attached) logs, and the proposed path forward at this stage. A more detailed review of possible ways that bentonite might have entered the well will be included in the well completion report.

Chronology

- Construction of Well R-35a began on May 19, 2007
- Installation of the filter pack using a tremie pipe began on June 2, 2007
- Installation of the filter-pack and the upper bentonite-chip seal was completed on June 6, 2007
- Pressure grouting the annular seal using a high solids bentonite grout and a side-discharge tremie pipe was completed on June 11, 2007.
- Work shifted to R-35b between June 12 and June 21, 2007.
- On the June 21, LANL initiated development of Well R-35a. It was noted that the water level was approximately 150 feet above the expected static water level. At that time, a three foot zone of bentonite grout was identified in the well sump at a depth of approximately 1065 feet below the ground surface, three feet below the bottom of the screened interval.
- On June 22, 2007, the bentonite was removed from the well sump using split-spoon sampler. No additional bentonite was found during subsequent bailing of the sump on June 23.
- NMED was notified verbally of the findings on June 25
- Natural gamma and video logs were collected on June 26

Summary of Observations

Prior to the development activities on June 21, 2007, the water level in the well measured approximately 150 feet above the anticipated static water level, indicating that water added during construction was not rapidly equilibrating with the formation through the well screen. This observation was made prior to the introduction of any bentonite above the screened interval. Following surging and bailing, the water level in the well has returned to the anticipated static level, indicating that the well is in direct hydraulic communication with the formation.

LANL's initial analysis of the gamma log confirms the filter pack and transition seal are emplaced at the planned depths.

The video log produced usable information down to a depth of approximately 19 feet below the top of the well screen; below this depth the well water was too turbid to enable reliable observations of the well screen. The log indicates that there are no breaches in the well casing or screen, and bentonite was not observed

Path Forward


14775

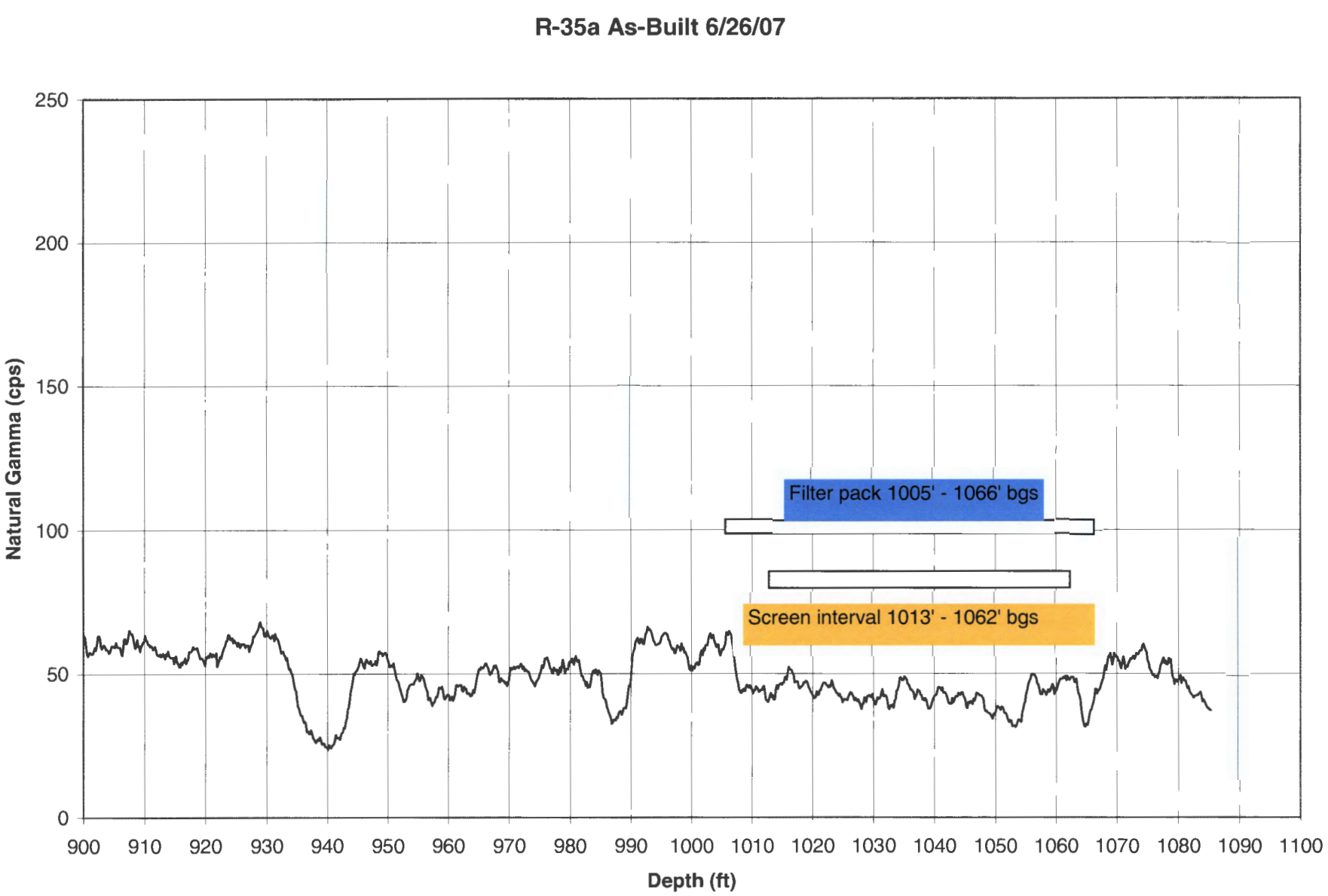
LANL proposes to continue development of R-35a in accordance with the Consent Order, the R-35 Drilling Plan, and standard environmental practices. Methods will include surging/swabbing, bailing, and pumping. During development

LANL will collect samples for on-site (EES-6) analysis of cations (including arsenic and uranium), anions, and total organic carbon to provide data to evaluate the potential presence of bentonite and trends that may relate to changes during development Standard field parameters of turbidity, pH, temperature, conductivity, and DO will also be monitored.

LANL proposes to complete construction of Well R-35b using bentonite chips as annular seal to an elevation equivalent to the top of the Cerros del Rio basalt and then use cement grout to the surface. This is the same approach as proposed to NMED by email on June 26.

Please provide an email response that we can proceed with completion of R-35b and development of R-35a.
Feel free to call if you have any questions.
Thanks.
- Danny

Danny Katzman
Water Stewardship Program Manager
LANL Environmental Programs
7-6333 (ph)
699-1042 (cell)
5-4747 (fax)


R-35a As-Built 6/26/07
Natural Gamma (cps)
250
200
150
100
50
0
900
910
920
930
940
950
960
970
980
990
1000
1010
1020
1030
1040
1050
1060
1070
1080
1090
1100
Depth (ft)
Filter pack 1005' - 1066' bgs
Screen interval 1013' - 1062' bgs

Young, John, NMENV

From: Mark Everett [meverett@lanl.gov]

Sent: Thursday, June 28, 2007 4:52 PM

To: Young, John, NMENV; Cobrain, Dave, NMENV; Shen, Hai, NMENV; Dale, Michael

Cc: 'Danny Katzman'; behr-andres@lanl.gov; 'Jean M. Dewart'; riggs@lanl.gov; mikea@lanl.gov; spearson@lanl.gov; 'David E. Broxton'; vaniman@lanl.gov

Subject: R-35b revised annular fill design approval request

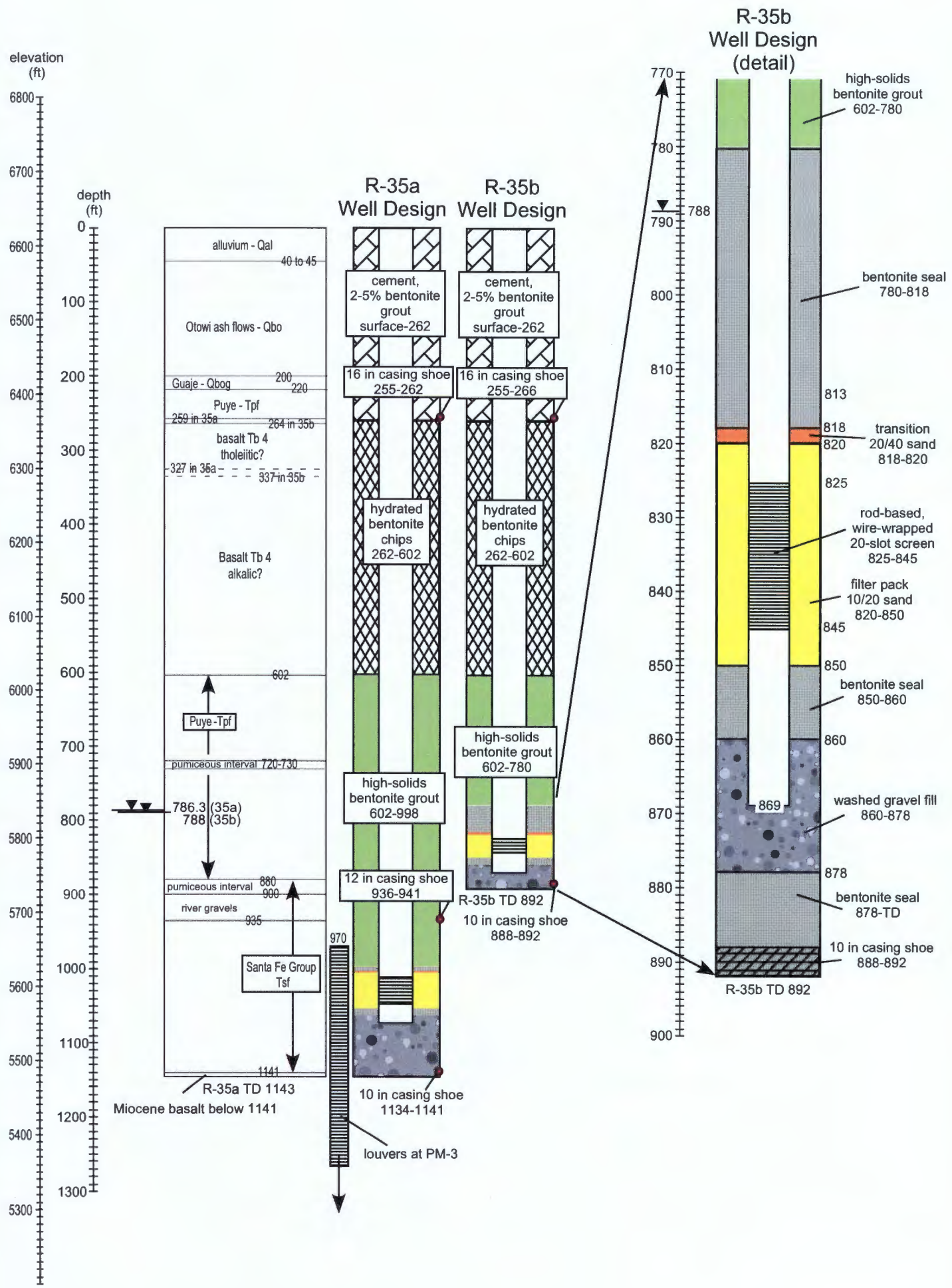
Attachments: Fig 1 R-35b welldesign revised 062807.pdf

John,

The attached annular fill design for R-35b reflects decisions made in our discussion earlier today. LANL will extend the bentonite chip seal from above the fine-grained transition sand at 818 feet to just above the top of the regional aquifer at 780 feet. A bentonite grout will be used to fill the annulus from the top of the bentonite chips to the base of the Cerros del Rio basalt at 602'. Bentonite chips will be used to fill the basalt interval by using the drill casing as the tremie pipe. The bentonite chips will be hydrated as they are emplaced and a tag line will be downhole continuously to ensure no bridges form in the annulus. If this modification to the annular fill design at R-35b is acceptable, please respond to this e-mail with your approval. If you have additional comments or questions, please call me at 231-6002.

Thanks,

Mark Everett, PG
Drilling Project Lead
EP-WSP
LANL
(505) 667-5931 (o)
(505) 231-6002 (c)


elevation (ft)
depth (ft)
alluvium - Qal
40 to 45
Otowi ash flows - Qbo
Guaje - Qbog
200
220
Puye - Tpf
259 in 35a
264 in 35b
basalt Tb 4 tholeiitic?
327 in 35a
337 in 35b
Basalt Tb 4 alkalic?
602
Puye-Tpf
pumiceous interval 720-730
786.3 (35a)
788 (35b)
pumiceous interval
880
900
river gravels
935
Santa Fe Group Tsf
1141
R-35a TD 1143
Miocene basalt below 1141
R-35a Well Design
cement, 2-5% bentonite grout surface-262
16 in casing shoe 255-262
hydrated bentonite chips 262-602
high-solids bentonite grout 602-998
12 in casing shoe 936-941
970
10 in casing shoe 1134-1141
louvers at PM-3
R-35b Well Design
cement, 2-5% bentonite grout surface-262
16 in casing shoe 255-266
hydrated bentonite chips 262-602
high-solids bentonite grout 602-780
R-35b TD 892
10 in casing shoe 888-892
R-35b Well Design (detail)
788
high-solids bentonite grout 602-780
bentonite seal 780-818
813
818
820
transition 20/40 sand 818-820
825
rod-based, wire-wrapped 20-slot screen 825-845
filter pack 10/20 sand 820-850
845
850
bentonite seal 850-860
860
869
washed gravel fill 860-878
878
bentonite seal 878-TD
10 in casing shoe 888-892
R-35b TD 892

Young, John, NMENV

From: Young, John, NMENV
Sent: Thursday, June 28, 2007 5:37 PM
To: 'Mark Everett'; Cobrain, Dave, NMENV; Shen, Hai, NMENV; Dale, Michael
Cc: 'Danny Katzman'; behr-andres@lanl.gov; 'Jean M. Dewart'; riggs@lanl.gov; mikea@lanl.gov; spearson@lanl.gov; 'David E. Broxton'; vaniman@lanl.gov
Subject: RE: R-35b revised annular fill design approval request

All-

Go ahead and construct as proposed.

From: Mark Everett [mailto:meverett@lanl.gov]
Sent: Thursday, June 28, 2007 4:52 PM
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