ERID-207440

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NOV 2011
NMED Hazardous Waste Bureau

National Nuclear Security Administration
Los Alamos Site Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
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Date: NOV 0 3 2011
Refer To: EP2011-0368

John Kieling, Acting Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Submittal of the Fact Sheets for Regional Well R-62

Dear Mr. Kieling:

Enclosed please find two hard copies with electronic files of the Fact Sheets for R-62. Because several challenges were encountered during completion of this well, Los Alamos National Laboratory (the Laboratory) is including a brief narrative of the backfilling operations in this letter. Additional detail will be provided in the well completion report that will be submitted by March 1, 2012.

An annular seal was set at the base of the 16-in. casing at 672 to 708 ft below ground surface (bgs), before the 12-in. casing was advanced. Drilling continued with the 12-in. casing to a total depth of 1260 ft after which the borehole collapsed to 1239 ft. A single-screen, 5-in.-diameter well was built and properly completed, as depicted in the attached R-62 fact sheet. A calculated volume of 745.3 ft^3 of annular backfill was needed to complete the well. The actual volume of material used to backfill the well was 733.7 ft^3, which was 98.4% of the calculated volume (from the point when the 16-in. casing was stuck).

The borehole had been backfilled to 952 ft bgs with bentonite chips/pellets, when a 954-ft section of 12-in. casing was dropped down hole and lodged in the bentonite at 1004 ft bgs. The annular space between the outside of the 5-in. well casing and the inside of the 12-in. drill casing was then filled with bentonite chips and hydrated.

After lifting the 16-in. casing several inches, it became apparent that it was stuck in the borehole and 666 ft was left in place. A modified completion plan was submitted to and approved by the New Mexico Environment Department. In the plan, the Laboratory proposed to fill the annulus with a combination of Barotherm Gold bentonite grout (28% solids) and a cement mix.

To ensure optimal cure time and proper placement, the bentonite grout was tremied down hole in multiple lifts (from 952 to 600 ft bgs) to seal off the annular space between the 12-in. casing and the 16-in. casing and between the borehole wall and the 12-in. casing below the 16-in. casing. The

Laboratory ran gamma logs after each lift to evaluate the grout placement. After the grout was emplaced between the 12-in. and 16-in. casing, the 16-in. casing was sealed and pressurized to 40 pounds per square inch to force the grout between the casing and the borehole wall to form a tight seal. After the pressure test was determined to have been successful, bentonite grout was placed between the borehole wall and the outside of the 16-in. casing from 952 to 50 ft bgs.

A 20-ft lift of neat cement was pumped into the interval above the bentonite and allowed to cure for 12-plus hours. Then, a cement mix was placed in the annular space between the 12-in. and 16-in. casing, between the 5-in. and the 16-in. casing, and between the borehole wall and the 16-in. casing (see as-built diagram included with the R-62 fact sheets). Upon completion of backfilling activities, the Laboratory ran another gamma log to further evaluate the grout and cement placement. Examples of the gamma logs are attached. Figure 1 is the gamma log collected after the second lift of bentonite was added up to a target depth of 800 ft bgs, and Figure 2 is the gamma log collected after backfilling was completed.

If you have any questions, please contact Ted Ball at (505) 665-3996 (tedball@lanl.gov) or Woody Woodworth at (505) 665-5820 (lance.woodworth@doe.nnsa.gov).

Sincerely,

B-G Schappell for MJG

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

Cheryl Rodriguez for

George J. Rael, Assistant Manager
Environmental Projects Office
Los Alamos Site Office

MG/GR/CD/TB:sm

Enclosures: Two hard copies with electronic files – Fact Sheets for Regional Well R-62 (LA-UR-11-6229)

Cy: (w/enc.)
Neil Weber, San Ildefonso Pueblo
Woody Woodworth, DOE-LASO, MS A316
Ted Ball, EP-CAP, MS M996
RPF, MS M707 (electronic)
Public Reading Room, MS M992 (hard copy)

Cy: (Letter and CD and/or DVD only)
Laurie King, EPA Region 6, Dallas, TX
Steve Yanicak, NMED-DOE-OB, MS M894
Hai Shen, DOE-LASO, MS A316
Richard Knapp, Eberline, Los Alamos, NM (w/ MS Word files on CD)
William Alexander, EP-BPS, MS M992

Cy: (w/o enc.)
Tom Skibitski, NMED-OB, Santa Fe, NM (date-stamped letter emailed)
Annette Russell, DOE-LASO (date-stamped letter emailed)
Craig Douglass, EP-CAP, MS M992 (date-stamped letter emailed)
Michael J. Graham, ADEP, MS M991 (date-stamped letter emailed)

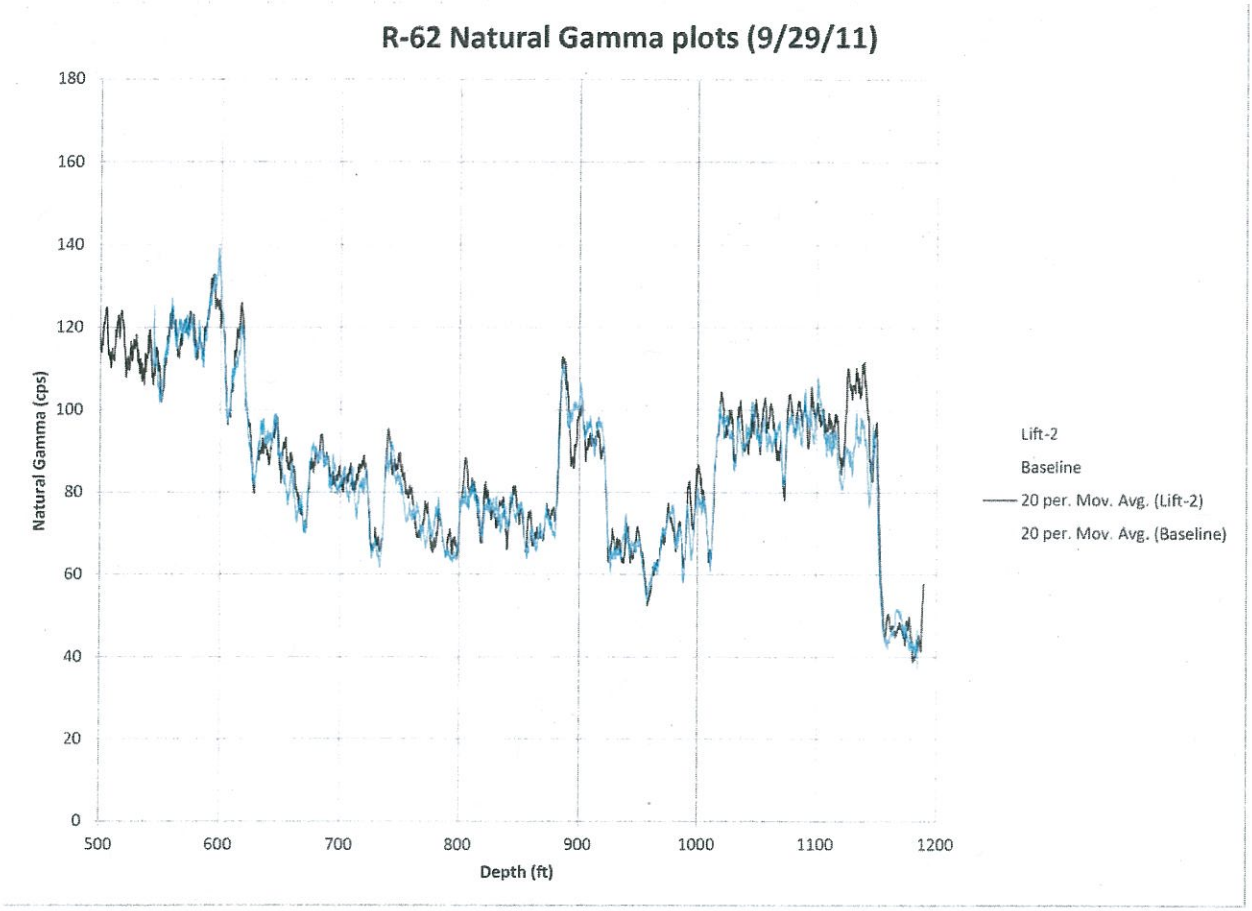


Figure 1 Gamma log collected after the second lift of bentonite was added

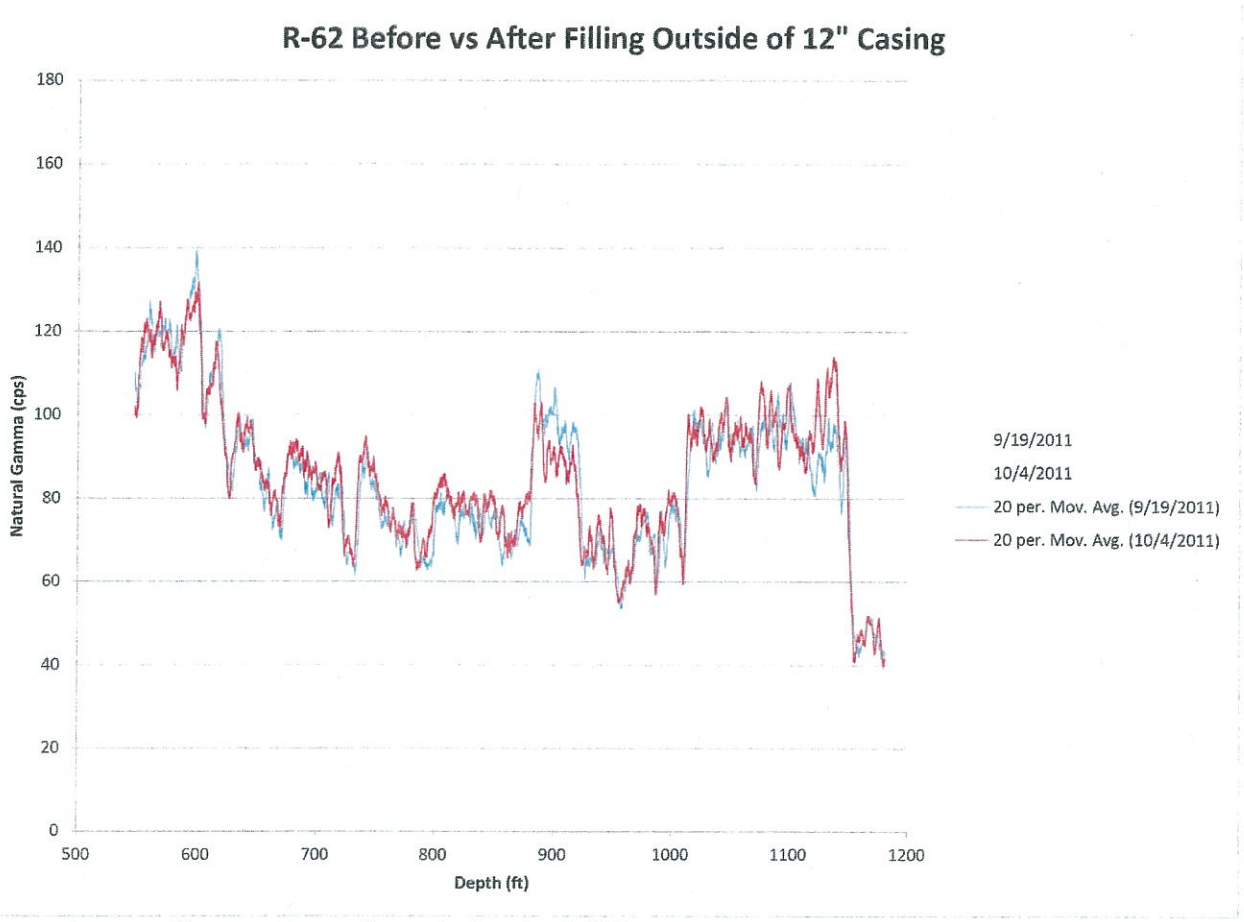


Figure 2 Gamma log collected after backfilling was completed