TA 35

6/14/2005

DEPARTMENT OF ENERGY
National Nuclear Security Administration
Los Alamos Site Office
Los Alamos, New Mexico 87544

CERTIFIED MAIL/RETURN RECEIPT

Mr. James P. Bearzi, Chief
NMED-Hazardous Waste Bureau
2905 Rodeo Park Drive East,
Building 1
Santa Fe, NM 87505-6303

Dear Mr. Bearzi:

Subject: Errata Sheets for R-33 Well Completion Report

Enclosed are two copies of three errata sheets for the R-33 Well Completion Report, dated May 9, 2005. Please substitute the previous pages with the enclosed revised pages. There were some errors identified in the volumes of materials and fluids used in well construction and development. If you have any questions, please contact me at (505)606-0397, or Tom Whitacre at (505)665-5042.

Sincerely,

John C. Ordaz, P.E.
Assistant Manager
Office of Environmental Stewardship

ES: 2TW-003

Enclosures

cc w/o enclosures:
John Young
NMED-Hazardous Waste Bureau
2905 Rodeo Park Drive East,
Building 1
Santa Fe, NM 87505-6303

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file

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Table 3.0-2
Introduced and Recovered Fluids

Material		Amount (Gallons)
Introduced	QUIK-FOAM®	141
	EZ-MUD®	5
	Potable Water	31,600
	Total Introduced Fluids[(a)]	31,746
Recovered	Total Recovered Fluids[(b)]	171,039

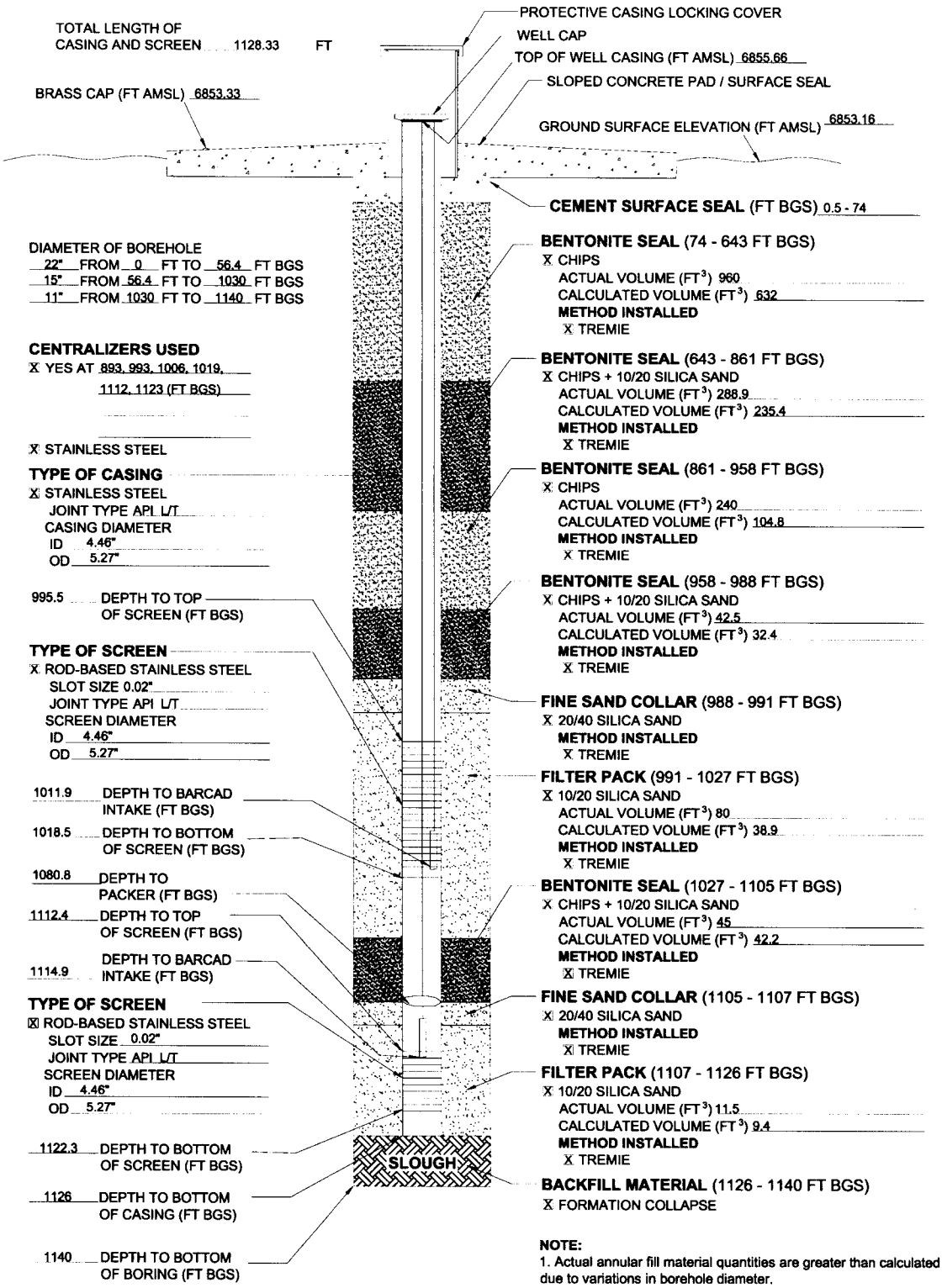
[a]Total Introduced Fluids represents fluids introduced during drilling.
[b]Total Recovered Fluids represents the estimated fluid volume recovered during drilling, well development, and hydrologic testing.

Beginning on August 26, 2004, WDC mobilized drilling equipment and supplies to the R-33 site. On August 28, the drillers began operations by installing temporary 13⅜-inch (in.) outer diameter (OD) drill casing from the ground surface to a depth of 18.8 ft bgs. The drillers then advanced a 10⅝-in. diameter boring to 225 ft bgs to determine whether groundwater was present in either the alluvium or the Cerro Toledo interval. The borehole encountered the Cerro Toledo interval at a depth of 66 ft bgs and the Otowi Member of the Bandelier Tuff at 90 ft bgs. The drill system was tripped out of the hole, and LANL conducted a video investigation of the borehole the following morning. Because no groundwater was detected in either the alluvium or the Cerro Toledo interval, the 13⅜-in. diameter casing was removed. The borehole was then reamed out to a 22-in. diameter to a depth of 56.4 ft bgs to set a permanent conductor casing. A 16-in. permanent conductor casing was cemented in place to 56.4 ft bgs.

On August 31, 2004, the borehole below the conductor casing was cleared of slough and opened to a 15-in. diameter with a tricone bit while water was injected for dust suppression. Drilling continued with only water injection to 285 ft bgs, where the drillers began having difficulties clearing cuttings from the borehole. The borehole was then advanced to the top of the basalt with an air-water-foam mixture to lift the cuttings from the borehole. The drill system was then tripped out of the borehole to check for the presence of perched groundwater on top of the basalt. A downhole video investigation conducted on September 1 and 2 encountered approximately 6 in. of very turbid fluid at the bottom of the borehole. Because this was an insufficient volume of groundwater to sample, DOE and LANL staff elected to advance the borehole to the base of the basalt and then run the downhole video again.

On September 2, 2004, the drillers replaced the tricone bit with a DTH hammer and bit. The borehole was then advanced with the air-water-foam mixture to a depth of 735 ft bgs, which was approximately 4 ft into softer material below the basalt. The drill string was tripped out in preparation for the downhole video investigation.

The following morning, a damaged video cable head prevented the downhole inspection. However, a fluid level of 719.55 ft bgs was measured, and a sample of the fluid was collected.



NOTE:
1. Actual annular fill material quantities are greater than calculated due to variations in borehole diameter.

WELL COMPLETION BEGAN
DATE 10/06/04 TIME 01:07 AM

WELL COMPLETION FINISHED
DATE 10/13/04 TIME 11:55 AM

WELL DEVELOPMENT INFORMATION
DEVELOPMENT METHOD
X SWABBING X BAILING
X PUMPING
TOTAL PURGE VOLUME 148,164 GALLONS

FINAL PARAMETER MEASUREMENTS

Upper Screen			Lower Screen		
pH	8.05		pH	8.04	
TEMPERATURE	20.3	°C	TEMPERATURE	20.0	°C
SPECIFIC CONDUCTANCE	60	µS	SPECIFIC CONDUCTANCE	120	µS
TURBIDITY	2.2	NTU	TURBIDITY	3.7	NTU

KLEINFELDER

Drawn By: C. Landon
Project No.: 37151
Date: February 2005
Filename: Figure 7.2-1.dwg

WELL SCHEMATIC
Characterization Well R-33
Mortandad Canyon
Los Alamos National Laboratory
Los Alamos, New Mexico

FIGURE
7.2-1

G:\Environ\37151 - DOE Deep Wells\R-33\Fact Sheets

Table 8.1-1
Water Removed and Final Water Quality Parameters
During Well Development and Aquifer Testing

Method	Water Removed (gallons)	pH	Temp-erature (°C)	Specific Conductance (mS/cm)	Turbidity (NTU)	Total Organic Carbon (ppm)
(10/25/04) Bailing/Swabbing Screens	40	NM	NM	NM	NM	NM
(10/27 – 11/9/04) Pumping Lower Screened Interval	68,443	8.04	20.00	0.12	3.72	1.96
(11/9 – 11/11/04) Pumping Upper Screened Interval	19,147	8.05	20.30	0.06	2.23	3.45
(11/14 – 11/16/04) Aquifer Test – Lower Screened Interval	21,134	NM	NM	NM	NM	3.31
(11/19 – 11/22/04) Pumping Lower Screened Interval (w/packer in place)	34,550	NM	NM	NM	3.0	1.83
(12/2 – 12/3/04) Aquifer Test – Upper Screened Interval (w/packer)	4,850	NM	NM	NM	NM	1.79
Total	**148,164**	–	–	–	–	–

NM: Not Measured

A 7.5-horsepower, 4-in. Grundfos submersible pump was used for the final stage of well development. During the first phase of pumping development, the pump intake was set in multiple locations within the lower screened interval, and 68,443 gal. of water were removed; then, the pump was raised to the upper screened interval and an additional 19,147 gal. were removed as the pump intake was again set in multiple locations. A packer was not used during the first phase of pumping. Water samples were collected to measure water quality parameters; Figure 8.1-1 shows the effect of well development on the water quality parameters.

An inflatable packer was emplaced between the two screened intervals during the first phase of aquifer testing for the lower screened interval. The packer allowed the two water-bearing zones to be tested independently of one another. Following aquifer testing, the TOC value in the lower zone was still elevated, and the packer was left in place so that the interval could be isolated and properly developed. Well development continued in the lower zone until the turbidity was less than 5 NTUs and the TOC levels were less than 2.0 ppm. Figure 8.1-2 shows the turbidity levels