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AUG 2009
NMED Hazardous Waste Bureau

National Nuclear Security Administration
Los Alamos Site Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
(505) 667-4255/FAX (505) 606-2132

Date: September 1, 2009
Refer To: EP2009-0415

James Bearzi, 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 Work Plan for Proposed Aquifer Test Activities at Monitoring Well 03-B-10

Dear Mr. Bearzi:

Enclosed please find two hard copies with electronic files of the Work Plan for Proposed Aquifer Test Activities at Monitoring Well 03-B-10. Per the New Mexico Environment Department's Approval with Modifications for the Work Plan to Plug and Abandon Wells 03-B-09 and 03-B-10, dated August 10, 2009, this plan must be submitted to your office no later than September 4, 2009.

If you have any questions, please contact Becky Coel-Roback at (505) 665-5011 (becky_cr@lanl.gov) or Suzy Schulman at (505) 606-1962 (sschulman@doeal.gov).

Sincerely,

B-G Schumell for MJG

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

Sincerely,

David R. Gregory, Project Director
Environmental Operations
Los Alamos Site Office

31943

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MG/DG/DM/BCR:sm

Enclosures: (1) Two hard copies with electronic files – Work Plan for Proposed Aquifer Test Activities at Monitoring Well 03-B-10 (LA-UR-09-5446)

Cy: (w/enc.)
Becky Coel-Roback, EP-CAP, MS M992
Suzy Schulman, DOE-LASO, MS A316
RPF, MS M707 (with two CDs)
Public Reading Room, MS M992

Cy: (Letter and CD and/or DVD only)
Laurie King, EPA Region 6, Dallas, TX
Steve Yanicak, NMED-OB, White Rock, NM
Kristine Smeltz, EP-WES, MS M992

Cy: (w/o enc.)
Tom Skibitski, NMED-OB, Santa Fe, NM
Keyana DeAguero, DOE-LASO (date-stamped letter emailed)
Michael J. Graham, ADEP, MS M991
Alison M. Dorries, EP-WES, MS M996
Dave McInroy, EP-CAP, MS M992
IRM-RMMSO, MS A150 (date-stamped letter emailed)

Work Plan for Proposed Aquifer Test Activities at Monitoring Well 03-B-10

An aquifer (pumping) test will be conducted at monitoring well 03-B-10 in conjunction with the quarterly groundwater sampling event scheduled for September 2009. The purpose of the test is to assess the hydraulic properties of the perched intermediate groundwater zone in the vicinity of building SM-30 at Technical Area 03 (TA-03), near Solid Waste Management Unit 03-010(a) and Area of Concern 03-001(e). During the test, groundwater levels in well 03-B-10 and nearby wells 03-B-09 and 03-B-13 will be monitored using pressure transducers to evaluate drawdown and recovery responses in each well.

Figure 1 shows the locations of the B-wells in the roadway on the west side of building SM-30. Observation well 03-B-09 is located 26 ft north-northwest of 03-B-10, and observation well 03-B-13 is located 13.8 ft northeast of well 03-B-10. The pumping test will be conducted before sampling at wells 03-B-10 and 03-B-13 to ensure static conditions are present.

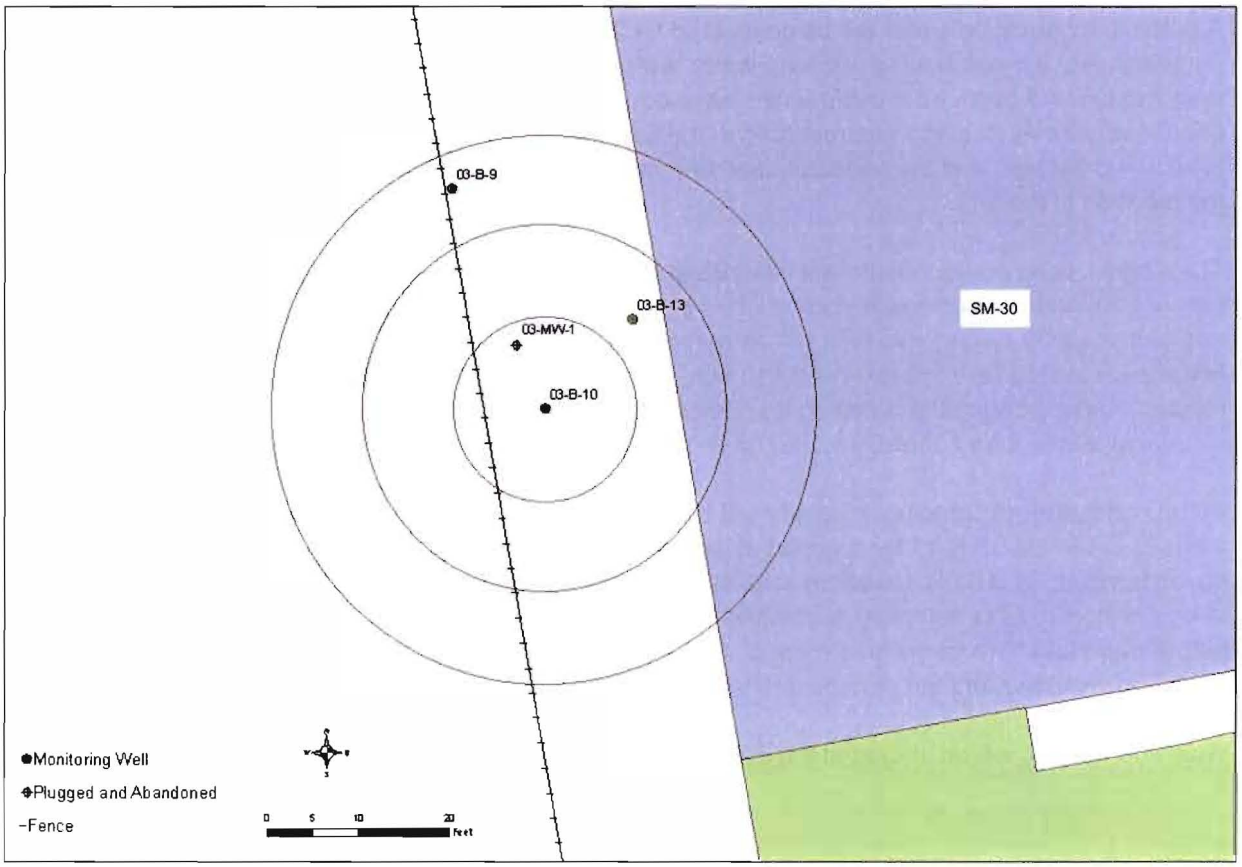

Figure 1 Location of B-wells west of building SM-30 showing 10-ft-radius circles from well 03-B-10

Completion diagrams for the B-wells are presented in Figures 2 through 4. The wells are completed from 31 to 32 ft below ground surface (bgs) in unit 4 of the Bandelier Tuff. The fill/tuff interface is located at 10.6 to 12.8 ft bgs. Manual groundwater-level measurements from June 2008 indicate groundwater at approximately 20 ft bgs. Historical data show that water level in the B-wells regularly drops below the top of the screened interval.

Before the pumping test at well 03-B-10, water levels will be measured manually in each of the three B-wells. Transducers will be installed in each B-well, transducer clocks will be synchronized to Mountain Standard Time (MST) on a single computer, and transducers will be programmed to record at 5-second intervals. Laptop computers connected to the transducers at wells 03-B-10 and 03-B-13 will monitor the groundwater levels in real time during the pumping test.

The pumps proposed for the test are two peristaltic pumps (e.g., the Geotech Geopump 2) in parallel or the 60-ft Geosquirt pump system. The output of the peristaltic pumps is estimated to be up to 1 Lpm each, for a maximum total output from the two pumps of up to 2 Lpm (approximately 0.5 gpm). The maximum lift using the peristaltic pump system at the site elevation will be about 26 ft, and approximately 35 ft of Tygon tubing and a tubing weight will be needed for each pump (additional tubing will be used, if needed). The Geosquirt pump system is rated at 1.5 gpm at 30 ft. If neither the peristaltic pumps nor the Geosquirt pump produces at least 0.2 gpm, another option is to use the QED bladder pump that is routinely used to sample these wells. This pump will produce approximately 0.13 gpm.

A preliminary pumping event will be conducted for 2 min to fill the pump tubing and to establish the pumping rate. A 5-gal. bucket and stop watch will be used to measure the pumping rate. The actual pumping test will begin after water levels have equilibrated. The time of pump-on and pump-off will be coordinated for each pump and recorded in the field logbook. Pumping will be maintained at a constant rate during the test, and the batteries used to power the pumps will be adequate to maintain pumping for the duration of the test.

The single casing purge volume will be calculated for the pumping well. The 2-in.-inside-diameter polyvinyl chloride casing has a volume of 0.16 gal./ft or 0.62 L/ft. A minimum of 20 gal. (77 L), which is approximately 10-casing volumes, will be pumped during the test. At a total pumping rate of 2 Lpm, the test is expected to take approximately 40 min. Groundwater quality parameters will be measured at regular intervals during the pumping test. Back-pressure resulting from sample filtration may cause a change in pump output; therefore, well 03-B-10 will be sampled at the end of the pumping test.

At the conclusion of pumping, recovery will be monitored in pumping well 03-B-10 and in observation wells 03-B-09 and 03-B-13 for a period at least as long as the period of pumping. After the water levels have stabilized, well 03-B-13 will be sampled while the water levels in each of the three wells will continue to be monitored. After sampling is completed, the groundwater levels will again be allowed to equilibrate before transducer programs are stopped. After postsampling stabilization is complete, the transducer data will be downloaded and the transducers will be reprogrammed to the normal data collection rate.

Waste containers will be staged at the site for containerization and disposal of the groundwater produced.

BOREHOLE/WELL CONSTRUCTION AND COMPLETION LOG
SWMU 03-010(a) and SWMU 03-001(e) RFI Investigation

BOREHOLE ID: 03-24529 (B-9)	Technical Area (TA): 03-010(a)	Field Team Leader: G. Stoopes
DRILLING COMPANY: Spectrum Exploration	START DATE/TIME: 06/02/2005:1500	FINISH DATE/TIME: 06/03/2005:0950

DRAWING NOT TO SCALE
ALL DEPTHS IN FEET BELOW GROUND SURFACE (bgs)

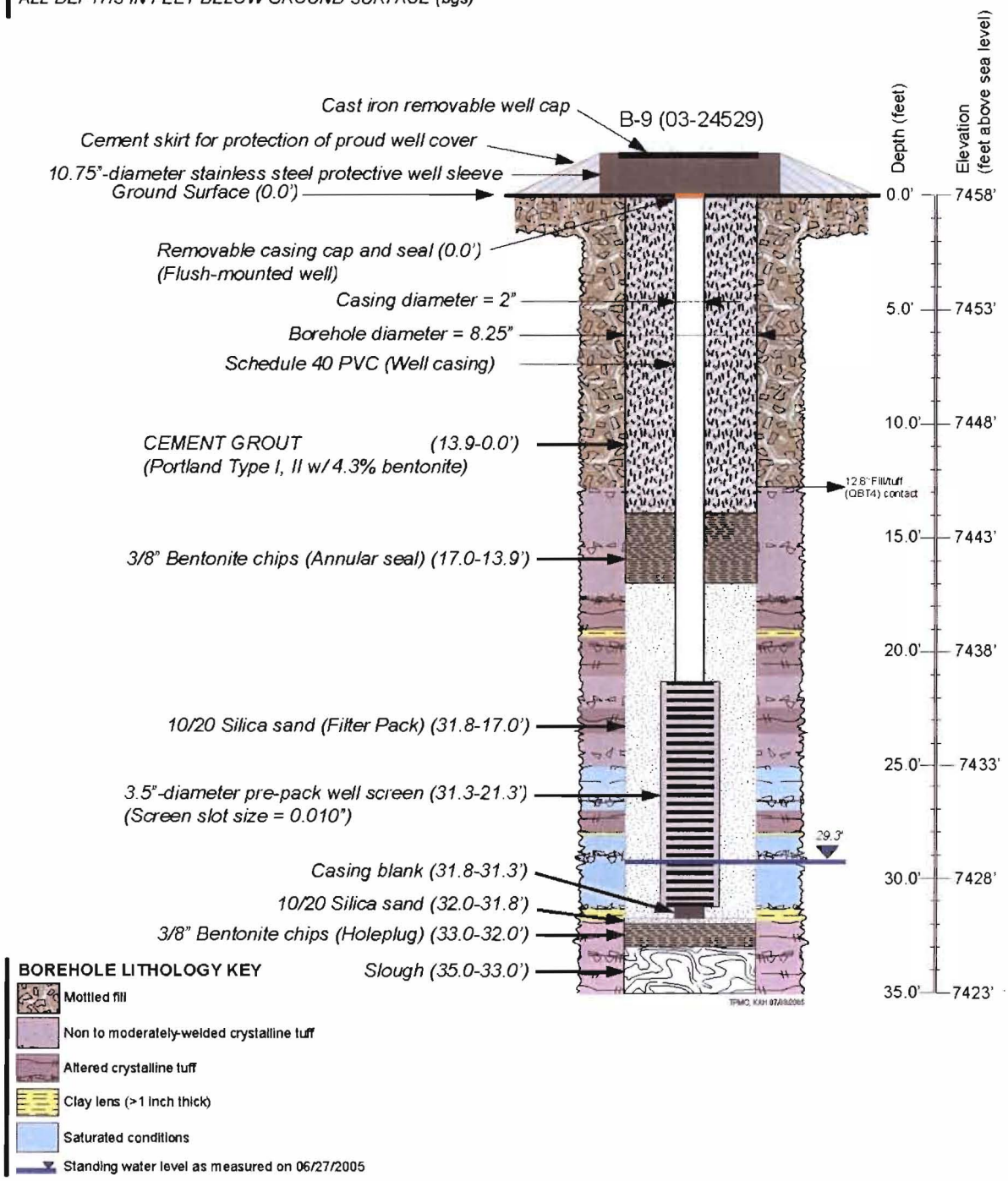

Figure 2 Completion diagram of well 03-B-09

BOREHOLE/WELL CONSTRUCTION AND COMPLETION LOG SWMU 03-010(a) and SWMU 03-001(e) RFI Investigation		
BOREHOLE ID: 03-24530 (B-10)	Technical Area (TA): 03-010(a)	Field Team Leader: G. Stoopes
DRILLING COMPANY: Spectrum Exploration	START DATE/TIME: 06/03/2005:1502	FINISH DATE/TIME: 06/04/2005:1200

DRAWING NOT TO SCALE
ALL DEPTHS IN FEET BELOW GROUND SURFACE (bgs)

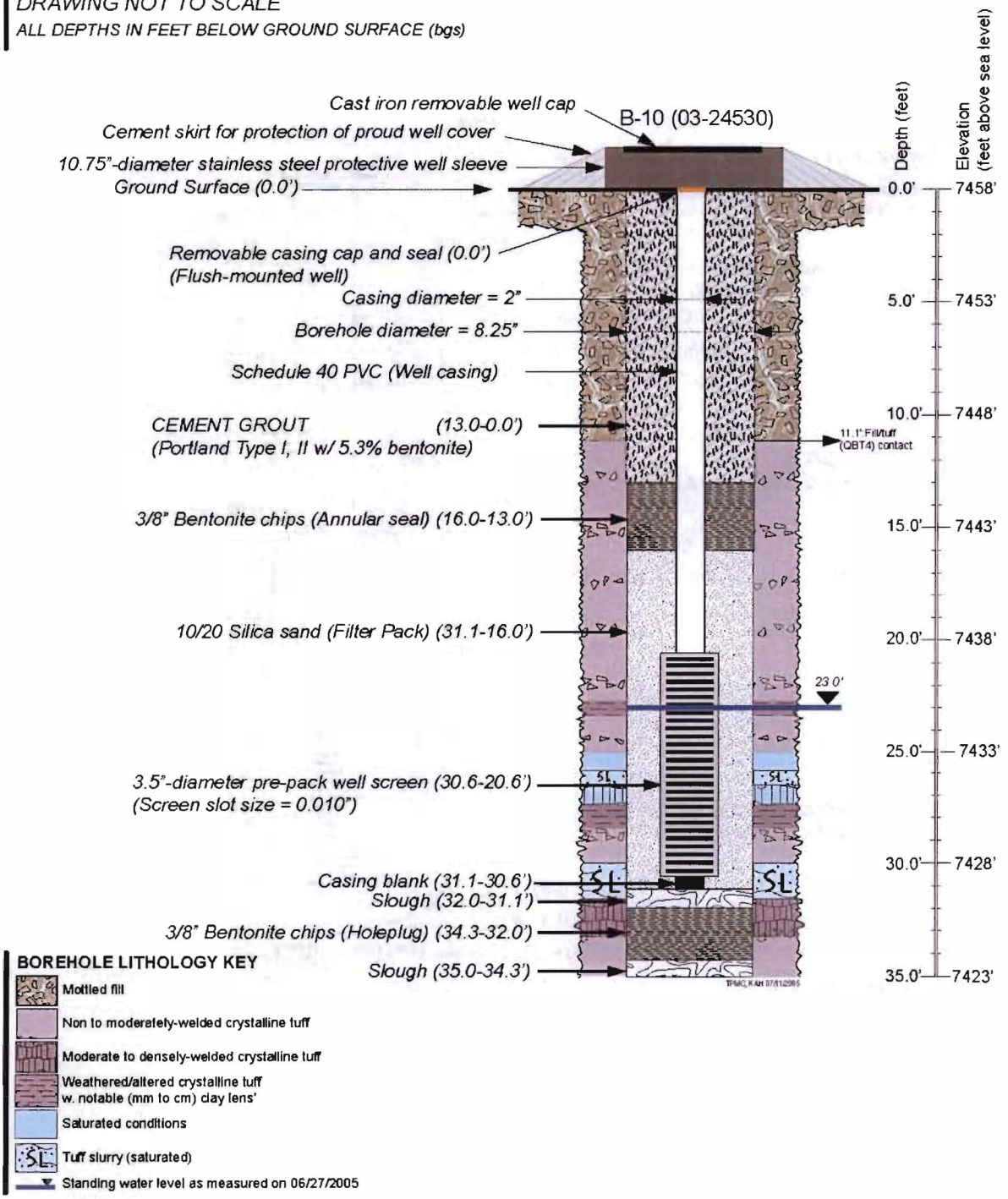

Figure 3 Completion diagram of well 03-B-10

BOREHOLE/WELL CONSTRUCTION AND COMPLETION LOG SWMU 03-010(a) and SWMU 03-001(e) RFI Investigation		
BOREHOLE ID: 03-24548 (B-13)	Technical Area (TA): 03-001(e)	Field Team Leader: G. Stoopes
DRILLING COMPANY: Spectrum Exploration	START DATE/TIME: 06/09/2005:1420	FINISH DATE/TIME: 06/10/2005:0815

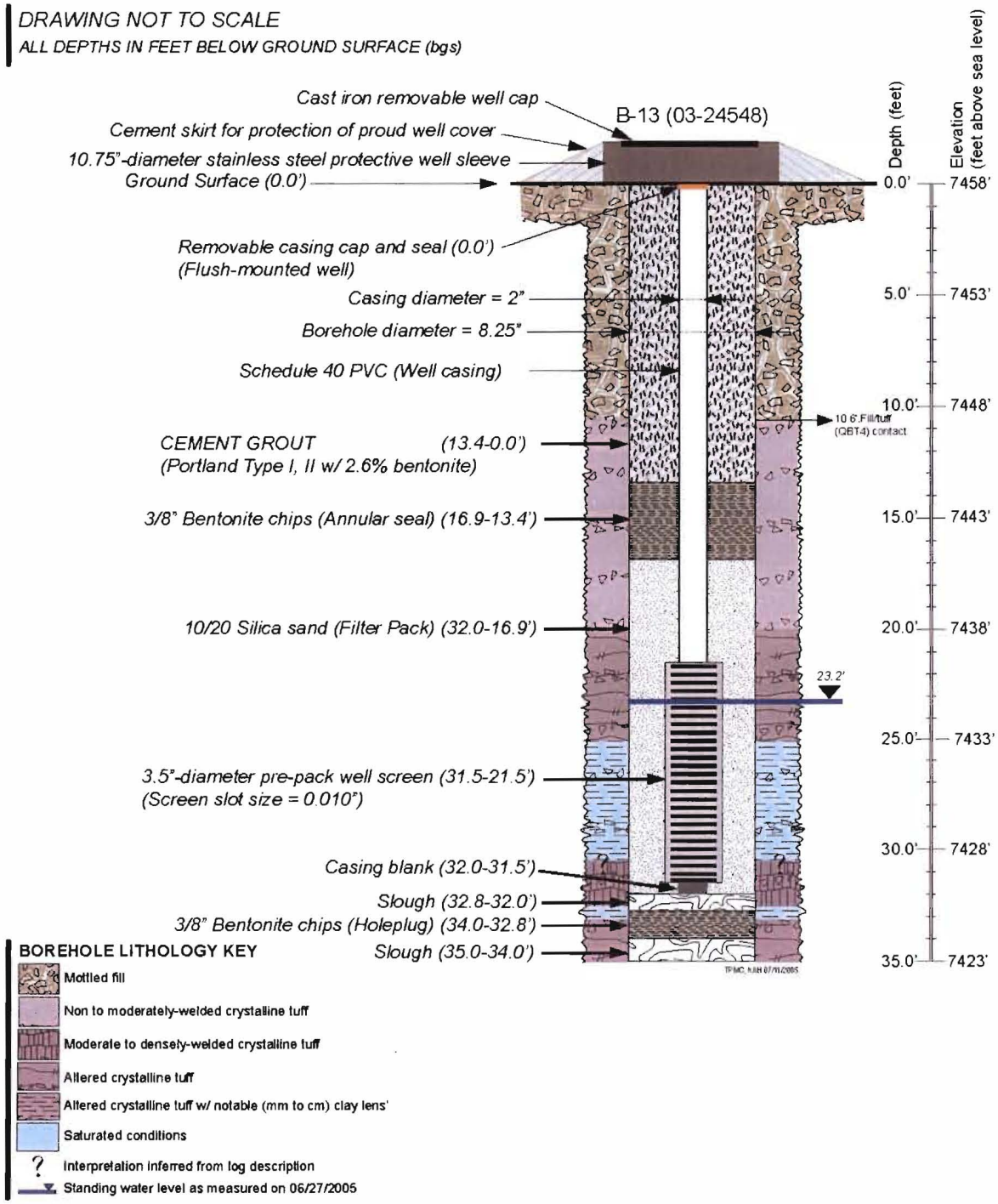

Figure 4 Completion diagram of well 03-B-13