

Location ID: BW-5-295 Field Representative(s): Kaszuba, CooperNorthing: 232803.78 Easting: 413875.15Date Started: 16 January 1989 Date Completed: 4 February 1989Drilling Method: Mud/Air-Foam Rotary Drilling Contractor: LarjonDriller: T. CrawfordTotal Depth Borehole: 311.3' Total Depth Well Casing: 310.5'Total Depth Surface Casing: 80'Diameter Well Casing: 4" Diameter Surface Casing: 8"Length of Bottom Blank: 5.3'Type of Screen: regular strength 0.02 slotScreen Interval: 294.9' to 305.2'Water First Detected: 299' Water Level Open Borehole: 234.05'
(surface casing)Water Level Cased Borehole: 233.85'
(surface casing)Quik-Foam Use: 17 sacks of bentonite gel; 1 1/2 gallons with 1 gallon
of EZ-MudEstimated Water Use: 4225 gallons used during drilling
3351 gallons recirculated to surface
874 gallons lost to boreholeWell Casing:

4in x 3ft SCD 40 PVC:		stock SS centralizers:	
4in x 5ft SCD 40 PVC:		custom SS centralizers:	1
4in x 10ft SCD 40 PVC:	15	4"x2' SS locking riser:	1
4in x 20ft SCD 40 PVC:	3	4" SS locking cap:	1
Total SCD 40 PVC pipe:	210 ft	4" SS female cap:	1
4in x 3ft SCD 5 SS pipe:			
4in x 5ft SCD 5 SS pipe:	2	4in x 5ft SCD 10 SS pipe:	
4in x 10ft SCD 5 SS pipe:	2	4in x 10ft SCD 10 SS pipe:	
4in x 20ft SCD 5 SS pipe:	3	4in x 20ft SCD 10 SS pipe:	
Total SCD 5 SS pipe:	90 ft	Total SCD 10 SS pipe:	ft

Well Completion:

100# bags 16/40 sand: 4 bags
100# bags 10/20 sand: bags
100# bags 8/14 sand: bags
100# bags 8/20 sand: 14 bags

94# bags cement: 65 bags

50# bentonite powder: 6.5 bags
50# Benseal 1/2 bag
EZ-Mud 1 cup

Surface Casing:

94# bags cement: 32 bags

50# bags bentonite powder: 3.5 bags

Pertinent Field Notes:

- 01/16/89 Steam clean, mobilize and set up at well site. - Kaszuba
- 01/17/89 Down time: repair portable mud pit. - Kaszuba
- 01/18/89 Continue repairing portable mud pit in the morning. Begin drilling in the afternoon. Drill with 12 1/4-inch tri-cone bit, mud rotary, from 0'-30'. - Kaszuba
- 01/19/89 Drill from 30' to 80', 12 1/4" tri-cone bit and mud rotary. Install 8" x 80' of steel surface casing. - Cooper
- 01/20/89 Grout surface casing. Demobilize mud rotary equipment. Steam clean, mobilize and set-up air-foam rotary equipment at well site. - Cooper
- 01/21/89 Drill from 80' to 247' with 7 7/8" tri-cone bit and air-foam rotary. Bedrock encountered at 224'. No water noted during drilling. Monitor main compressor during drilling. - Cooper
- 01/22/89 Measure static water level in borehole prior to drilling; no water detected. Drill from 247' to 291', no water detected during drilling. Monitor auxiliary compressor during drilling. - Cooper/Kaszuba

- 01/23/89 Measure static water level in borehole prior to drilling at 282.85' (surface casing). The water is clear when blown from borehole, therefore, the 8' water column represents formation water. Drill from 291' to 310'. A slow but steady stream of water is produced starting at 299'. Trip out entire drill string to monitor recovery in the next few days. - Kaszuba
- 01/24/89 Measure static water level: 234.05' (surface casing). Call geophysical logger, set up logging for AM tomorrow. - Kaszuba
- 01/25/89 D. Pearson and S. Adams (SW Surveys) geophysically log the borehole with the standard suite of logs plus drift. Larjon steam cleans and mobilizes tremie pipe, casing and pulling unit for well completion. - Kaszuba
- 01/30/89 Bottom of borehole at 311.3'. Install 313.05' x 4" well casing and screen. A Benseal/EZ-Mud seal was pumped and allowed to set overnight. - Cooper
- 01/31/89 Sound plug at \approx 10' thick. Add filler sand at 3:1 ratio of 8/20:16/40 sand to 216' (\approx 18' above static). Grout with 5% bentonite slurry (20 sacks cement, 2 sacks bentonite gel). Bailed to check for grout invasion and none was noted. - Cooper
- 02/01/89 Grout installed yesterday filled annulus from 216' to 170'. Mix 60 sacks cement and 6 sacks bentonite gel. Grout to surface (\approx 45 sacks cement and 4.5 sacks bentonite gel) and install 6" x 5' guard pipe. Install balance of grout in 200-E (approximately 15 sacks of cement and 1.5 of grout). - Cooper
- 02/02/89 Surge well with surge block 20 times, bail well 15 times (water was just slightly turbid during bailing). Set 1 hp submersible pump at 294' and purge \approx 570 gallons until development parameters stabilize. Well will produce \approx 1 gpm. - Cooper
- 02/03/89 Purge well dry and pull submersible pump. See development sheet for development details. - Cooper
- 02/04/89 Pour concrete pad and set brass cap. Well is completed. - Cooper