

WELL SUMMARY

Location ID: 700-B-510 Field Representative(s): M. Canavan; D. Menzie

Date Started: 06/25/90 Date Completed: 08/14/90

Northing: 236139.75 Easting: 413809.71

Brass Cap: 4805.89 Outer Casing: 4807.31 Inner Casing: 4807.88

Drilling Method: Mud and Air-foam Rotary Drilling Contractor: Larjon Drilling Co.

Driller: J. Gower

Total Depth Borehole: 550' Total Depth Well Casing: 536.29'(TOC)

Total Depth Surface Casing: 80'

Diameter Well Casing: 4" Diameter Surface Casing: 10"

Length of Bottom Blank: 5.45'

Type of Screen: Extra Strength 0.02 slot

Screen Interval: 510' to 530.84'

Water First Detected: Water not detected while drilling Water Level Open Borehole: 468.65'(TSC)

Water Level Cased Borehole: 468.65'(TOC)

Quik-Foam Use: 6 gallons

Estimated Water Use: 10,200 gallons

Well Casing:

4in x 3ft SCD 40 PVC:
4in x 5ft SCD 40 PVC:
4in x 10ft SCD 40 PVC:
4in x 20ft SCD 40 PVC:
Total SCD 40 PVC pipe: ft

stock SS centralizers: -
custom SS centralizers: 4
4"x2' SS locking riser: 1
4" SS locking cap: 1
4" SS female cap: 1 2 ft

4in x 3ft SCD 5 SS pipe:
4in x 5ft SCD 5 SS pipe:
4in x 10ft SCD 5 SS pipe:
4in x 20ft SCD 5 SS pipe: 20
Total SCD 5 SS pipe: 400 ft

4in x 5ft SCD 10 SS pipe:
4in x 10ft SCD 10 SS pipe:
4in x 20ft SCD 10 SS pipe: 5
Total SCD 10 SS pipe: 115 ft

Well Completion:

100# bags 16/40 sand:	15 1/2	bags
100# bags 10/20 sand:		bags
100# bags 8/14 sand:		bags
100# bags 8/20 sand:	18	bags
94# bags cement:	124	bags
5 gal. buckets bentonite:		buckets
50# bentonite powder:	12	bags
Benseal:	1/2	bags

Surface Casing:

94# bags cement:	36	bags
50# bags bentonite powder:	4	bags
Grout:	n/a	bags

Pertinent Field Notes:

06/25/90 Spud well. Drill 12' with 7 7/8" bit mud rotary. - Canavan

06/26/90 Drill 12'-25' with 7 7/8" bit mud-rotary. Problems with slough. - Canavan

06/27/90 Drill pilot hole 25'-80'. Ream (to 16") to 37'. - Canavan

06/28/90 Ream borehole 37'-80' to 16" diameter. Set surface casing to 80'. Grouted surface casing. - Canavan

07/02/90 Drill air-foam rotary (9 7/8" bit) from 80'-165'. - Canavan

07/03/90 Drill air-foam rotary from 165' to 255'. - Menzie

07/05/90 Drill air-foam rotary from 255'-355'. Possible water noted 308'-312'. - Canavan

07/06/90 Measured H₂O level in open borehole level at 335.80 (TSC). Drill air-foam rotary from 355' to 430'. Formation apparently making some H₂O at approximately 407'-408'. Good fracture zone from 411'-430'. - Canavan

07/09/90 Starter on rig needs repair. No drilling. - Canavan

- 07/10/90 Drill air-foam rotary 430'-500'. Drilling fluid appeared to thin 488'-490'. TD at 500'. - Canavan
- 07/11/90 Measured H₂O level at 486.7' (top of deflector). T. Thomas made decision to drill to 550'. Drilled air-foam rotary from 500'-550' (TD). Possible H₂O detected while blowing borehole at 500'. - Canavan
- 07/13/90 Water level measured at 469.14' (TSC). - Canavan
- 07/14/90 Water level measured at 468.65 (TSC). - Kirby
- 07/16/90 Measured water level at 468.55 (TSC). - Menzie
- 07/17/90 Measured water level at 468.53 (TSC). - Menzie
- 07/18/90 Measured water level at 468.48' (TSC). Bailed borehole 15 times. Measured water level at 533.10'. Water level up to 481.94' by 16:25 p.m.. - Menzie
- 07/19/90 Measured water level at 469.39' (TSC). - Canavan
- 07/21/90 Measured water level at 468.72'(TSC). Southwest Surveys ran full suite of geophysical logs, including drift log. - Kirby
- 07/23/90 Designed and installed well. Bottom of borehole sounded at 548.33'. Measured water level in open borehole at 468.65'(TSC). Screened interval from 510' to 530.84'; bottom of well casing at 536.29'; 8/20 gravel pack from 532.5' to 503.6'; Benseal plug 499.2' to 494.85'. - Canavan
- 07/24/90 Continued well completion. Measured water level in cased borehole at 468.62' (TSC). Installed 1:1 ratio mix of 8/20 and 16/40 filler sand from 494.85' to 449.58'. Installed first load of grout, using 54 bags cement, 5 bags bentonite and 456 gallons H₂O. Bailed well 2 times; no sign of grout invasion. - Canavan
- 07/25/90 Sound top of first load of grout at 119.92' (possible bridge). Added second load of grout (40 bags cement, 4 bags bentonite, 372 gallons H₂O). Surged well 13 minutes, bailed 10 times (approximately 40 gallons) for development. No sign of grout invasion. - Canavan
- 07/26/90 Sound top of second load of grout at 101.5'. Measured top of water level at 468.66'. Surged well 15 minutes, bailed well 15 times (approximately 60 gallons) for development. No sign of grout invasion. Set pump at 528'. - Canavan
- 07/27/90 -
08/13/90 Continued development by pumping. Pumped 921 gallons total. See development sheet for details. - Canavan
- 08/14/90 Well developed. Pulled pump. Notified Lockheed that well is ready for sampling. - Canavan

08/21/90 Poured final load of grout. Well ready for Lockheed to construct concrete pad.
- Canavan

10/15/90 Lockheed poured pad and set brass cap.