

WELL SUMMARY

Location ID: 700-A-253 Field Representative(s): G. Contaldo/P. Linley

Northing: 235422.96 Easting: 417647.81

Date Started: 10/30/89 Date Completed: 11/09/89

Drilling Method: Mud/Air-Foam Rotary Drilling Contractor: Larjon  
with Tricone Bit, Air-Foam Rotary with Air Hammer Bit

Driller: T. Crawford

Total Depth Borehole: 287.0' Total Depth Well Casing: 268.7'

Total Depth Surface Casing: 60.0'

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

Length of Bottom Blank: 5.3'

Type of Screen: 10' Reg. strength 0.02 slot

Screen Interval: 253.0' to 263.4'

Water First Detected: Not observed while drilling Water Level Open Borehole: 182.45' 11/6/89

Water Level Cased Borehole: 175.70' (T.O.C.) 11/7/89

Quik-Foam Use: 3 gallons

Estimated Water Use: 3200 gallons used during drilling  
-2394 gallons recovered in pit  
806 gallons introduced to formation

Well Casing:

|                           |        |                             |      |
|---------------------------|--------|-----------------------------|------|
| 4in x 3ft SCD 40 PVC:     | 1      | stock SS centralizers:      | 0    |
| 4in x 5ft SCD 40 PVC:     | 0      | custom SS centralizers:     | 1    |
| 4in x 10ft SCD 40 PVC:    | 0      | 4"x2' SS locking riser:     | 1    |
| 4in x 20ft SCD 40 PVC:    | 8      | 4" SS locking cap:          | 1    |
| Total SCD 40 PVC pipe:    | 163 ft | 4" SS female cap:           | 1 ft |
| 4in x 3ft SCD 5 SS pipe:  | 0      |                             |      |
| 4in x 5ft SCD 5 SS pipe:  | 1      | 4in x 5ft SCD 10 SS pipe:   | 0    |
| 4in x 10ft SCD 5 SS pipe: | 1      | 4in x 10ft SCD 10 SS pipe:  | 0    |
| 4in x 20ft SCD 5 SS pipe: | 4      | 4in x 20ft SCD 10 SS pipe:  | 0    |
| Total SCD 5 SS pipe:      | 95 ft  | Total SCD 10 SS pipe:       | 0 ft |
|                           |        | 10' Regular Strength Screen |      |

Well Completion:

|                           |     |         |
|---------------------------|-----|---------|
| 100# bags 16/40 sand:     | 17  | bags    |
| 100# bags 10/20 sand:     | 0   | bags    |
| 100# bags 8/14 sand:      | 0   | bags    |
| 100# bags 8/20 sand:      | 18  | bags    |
| 94# bags cement:          | 65  | bags    |
| 5 gal. buckets bentonite: | 2   | buckets |
| 50# bentonite powder:     | 6.5 | bags    |

Surface Casing:

|                            |     |         |
|----------------------------|-----|---------|
| 94# bags cement:           | 30  | bags    |
| 50# bags bentonite powder: | 3   | bags    |
| Grout:                     | 0   | bags    |
| Water:                     | 255 | gallons |

Pertinent Field Notes:

10/30/89 Drilled from 0'-60' using mud rotary, 12 ¼" pilot hole reamed to 16 ½". Used 1200 gallons of water. - Contaldo

10/31/89 Installed and grouted 10" surface casing to 60'. - Linley

11/01/89 Drilled from 60' to 160' using air-foam rotary with 12 ¼" tricone bit. Drilled from 160'-187' using air-foam rotary with 9" air hammer bit. Used 1000 gallons of fresh water and 3 gallons of Quik-foam. Encountered bedrock (Orejon Andesite) at 149'. No water observed while drilling to 187'. - Linley

11/02/89 Drilled from 187'-287' using air-foam rotary with 9" air hammer bit. Encountered Limestone (Panther Seep Formation ?) at 206', then andesite at 280'. Used 1000 gallons of fresh water. No water observed while drilling to 287'. - Contaldo

11/03/89 Measured water level in open borehole at 182.50' (ground surface) using probe #1. This indicated that water is entering the borehole somewhere between 187' to 287'. T.D. borehole at 287'. - Contaldo

- 11/05/89 Logged borehole using a full suite of geophysical logs plus drift. - Contaldo
- 11/06/89 Designed and installed well. Sounded bottom of borehole at 281.5' (ground surface). Measured water level in open borehole at 182.45' (ground surface). Well consisted of 4" schedule 40 PVC and Schedule 5 stainless steel pipe with a 10' regular strength screen and a 5' schedule 5 stainless steel sump. Screened interval from 253.00' to 263.38', bottom of well casing at 268.66'. Bottom plug from 273.2' to 276.9', gravel pack (8/20 sand) from 249.0' to 269.2', top plug from 239.8' to 243.2'. - Contaldo
- 11/07/89 Continued well completion. Measured water level in cased borehole at 175.70' (T.O.C.). Installed filler sand from 165.8' to 239.8'. Installed first load of grout. Used 30 bags cement, 3 bags bentonite powder, and 253.5 gallons of water for grout mixture. - Contaldo
- 11/08/89 Sounded top of first load of grout at 99.8' (top of surface casing). Installed second load of grout to land surface and set protective outer casing. Used 35 bags cement, 3.5 bags Bentonite powder, and 296 gallons of water. - Contaldo
- 11/09/89 Measured water level in cased borehole at 183.71' (T.O.C.). Began development using surge/bail method, discharged approximately 60 gallons and let well recover. Poured concrete pad and set brass cap. - Contaldo
- 11/10/89 Measured water level in cased borehole at 190.26' (T.O.C.) and discharged 50 to 60 gallons of water using bailer. - Cooper
- 11/13/89 Measured water level in cased borehole at 182.88' (T.O.C.). See development sheet for details on the development of this well. - Contaldo
- 11/17/89 Set submersible pump at 263'. Pumped well dry after 50 gallons. See development sheet for details. - Cooper
- 11/27/89 Pulled submersible pump and informed Lockheed that the well was ready to sample. - Cooper