

## 2. DRILLING

### 2.1. Drilling Summary

- Saturday, 04/08/2012:** Complete cementing. Run in and ream to 250.02 m in preparation for side track start.
- Sunday, 05/08/2012:** Set up down-hole tools. Rig up deviation motor and drill string. Commence side track, drill on. Difficulty in cutting side-track, apply controlled drilling at 1-2 ROP.
- Monday, 06/08/2012:** Continue side track, drill on. Difficulty in cutting side-track, apply controlled drilling at 1-2 ROP. In track at 294 m, drilling on, POOH 312 m, change drives for greater deflection. Run back in, drill on to 332 m.
- Tuesday, 07/08/2012:** Continue side track, drill on. Change to air/mist drilling. Drilling on, hard formations at 502 m, POOH, run hammer, drill on to 515 m formation change, drill on to 519 m, POOH to run in directional tools.
- Wednesday, 08/08/2012:** Continue side track - run in directional tools, drilling on.
- Thursday, 09/08/2012:** Ream to 587.3 m, continue drilling.
- Friday, 10/08/2012:** Continue drilling, Shut in well for annular gas build up test, and circulate well before continue drilling.
- Saturday, 11/08/2012:** Continue drilling, sliding & rotating, RIH with new Tricone bit and re-scribing the path finder tools.
- Sunday, 12/08/2012:** Unload well multiple times, drill ahead directionally.
- Monday, 13/08/2012:** Drill ahead, rotating and sliding to 840 mTD, circulate hole clean, POOH.
- Tuesday, 14/08/2012:** Continue POOH, RIH for wireline logging, Commence wireline logging Run #1 & Run #2.
- Wednesday, 15/08/2012:** Continue Run #2, Make up packer assembly, Run 4-½ " Production Casing.
- Thursday, 16/08/2012:** Continue run casing, Cementing

## 2.2. Equipment Installed in or on the Well

### Conductor Hole

- Drill 17-1/2" hole to 12 m

### Surface Hole

- Drill 12-1/4" hole to 234.5 m
- Survey at 70 m then every 70.0 m
- Maximum deviation: 2 degrees
- Fluid Air/mist
- Bit: Air -Hammers

### Surface Casing

- Casing Size: 9-5/8"
- Grade: J-55
- Thread: BTC
- Burst: 2400.0 psi set at 234 m

### Production Hole

- Drill 6-1/4" hole to 840.0 mMD
- Surveys: 10 m intervals
- Maximum deviation: 90.0 degrees
- Maximum Dogleg: 14.8<sup>0</sup>/30 m
- Mud: Air / Mist Directionally drilled
- Bit: Insert 638

### Production Casing

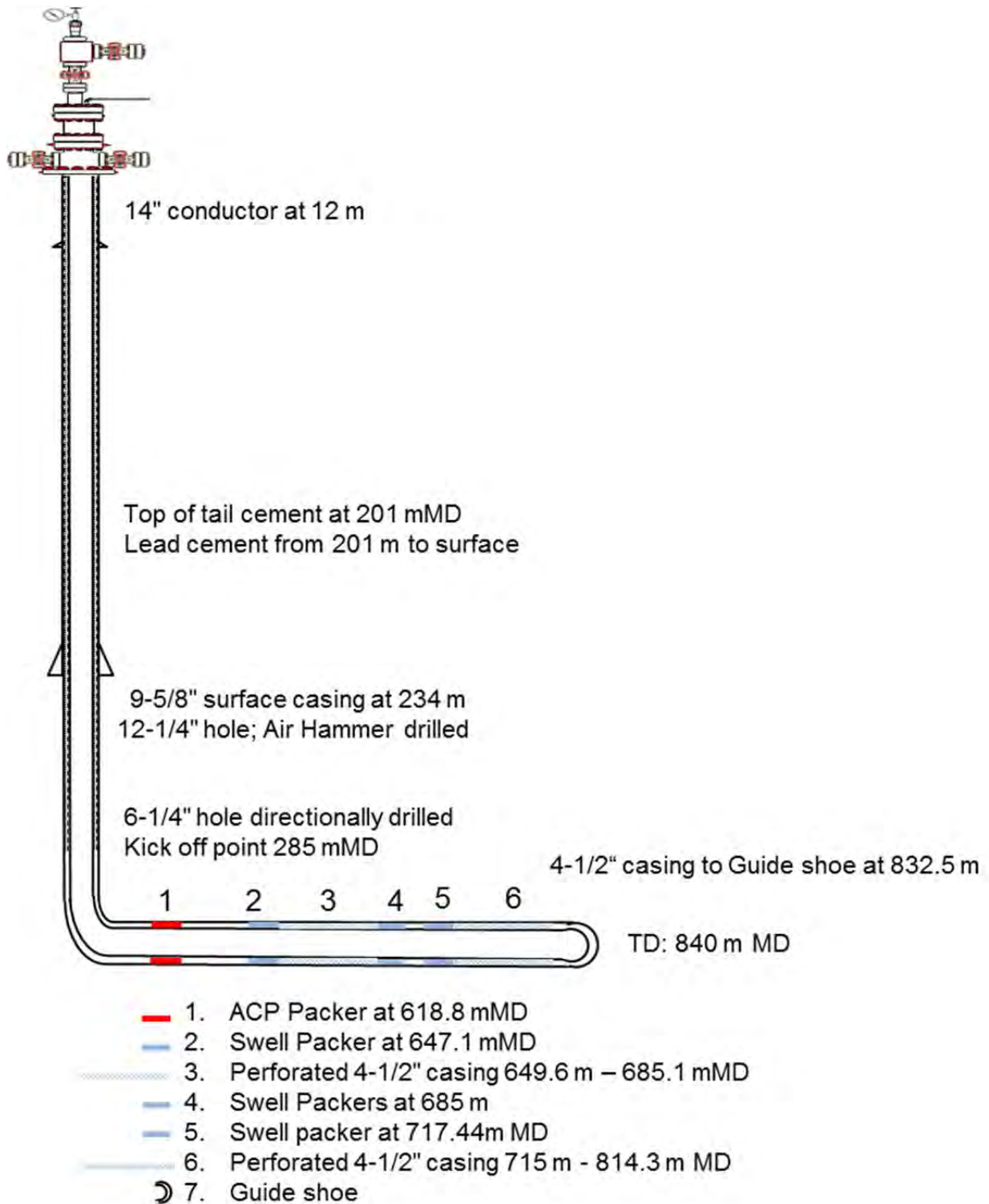
- 0.00 m to 620 mMD
  - Casing Size: 4-1/2"
  - Type: Blank-regular
- 618.8 m to 619.5 mMD
  - Casing Size: 4-1/2"
  - Type: ECP and cement plug, cement
- 630 m to 640 mMD
  - Casing Size: 4-1/2"
  - Type: Blank with swellable packer
- 640 m to 695 mMD
  - Casing Size: 4-1/2"
  - Type: Perforated

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- 685 m to 717.4 mMD
  - Casing Size: 4-1/2"
  - Type: Blank with 2x swellable pack
- 717 m to 814.3 mMD
  - Casing Size: 4-1/2"
  - Type: perforated 4-1/2" casing
- 814.3 m to 832.5 mMD
  - Casing Size: 4-1/2"
  - Type: Blank 4-1/2" casing with shoe

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### 2.3. Wellbore schematic GLYDE #1 ST1



**Figure 1: Wellbore Schematic for GLYDE #1 ST1, EP171.**

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## 2.4. Casing and Equipment Installed in or on the Well

|                      |       |
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| Conductor Casing:    | 12 m  |
| Surface Casing:      | 231 m |
| Intermediate Casing: | N/A   |
| Production Casing:   | 832 m |

## 2.5. Deviation Survey

**Table 1: Deviation survey for vertical drilling at GLYDE #1 ST1, EP171.**

| Depth [m]: | Deviation [0] |
|------------|---------------|
| 63         | 0.25          |
| 155        | 1.0           |
| 225        | 1.0           |

**Table 2: Deviation survey for directional drilling at GLYDE #1 ST1, EP171 (Commence side track at 250.02 m).**

| MD [m] | TVD [m] | VSEC [m] | INCL [°] | AZIM GRID/<br>DIR[°] |
|--------|---------|----------|----------|----------------------|
| 0.00   | 0.00    | 0.00     | 0.00     | 0.00                 |
| 227.62 | 227.61  | 0.48     | 0.90     | 353.80               |
| 238.02 | 238.01  | 0.43     | 1.00     | 218.00               |
| 242.00 | 241.99  | 0.36     | 1.20     | 217.50               |
| 251.77 | 251.76  | 0.19     | 1.10     | 220.00               |
| 261.27 | 261.26  | 0.09     | 0.70     | 176.90               |
| 271.00 | 270.99  | -0.03    | 1.20     | 235.80               |
| 280.76 | 280.74  | -0.20    | 1.10     | 213.30               |
| 290.31 | 290.29  | -0.22    | 0.7      | 85.6                 |
| 301.12 | 301.09  | 0.20     | 3.8      | 66.7                 |
| 310.47 | 310.39  | 1.19     | 8.4      | 65.1                 |
| 320.21 | 319.96  | 2.99     | 12.9     | 64.0                 |
| 329.98 | 329.39  | 5.52     | 17.2     | 64.0                 |
| 339.74 | 338.63  | 8.65     | 20.4     | 63.8                 |
| 349.51 | 347.68  | 12.31    | 23.7     | 63.20                |
| 359.27 | 356.52  | 16.44    | 26.6     | 62.80                |
| 368.81 | 364.93  | 20.92    | 29.7     | 63.20                |
| 378.57 | 373.28  | 25.95    | 32.5     | 63.00                |
| 388.30 | 381.48  | 31.30    | 34.5     | 63.20                |
| 398.03 | 389.32  | 36.92    | 36.4     | 63.70                |
| 407.41 | 396.78  | 42.6     | 38.3     | 65.00                |
| 416.93 | 404.16  | 48.61    | 40.1     | 67.30                |
| 426.64 | 411.45  | 55.02    | 42.5     | 69.10                |
| 436.01 | 418.19  | 61.52    | 45.5     | 70.50                |

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|---------|---------|---------|---------|-------|
| 445.543 | 424.66  | 68.50   | 48.9    | 71.6  |
| 455.29  | 430.89  | 75.98   | 51.7    | 73.2  |
| 464.83  | 436.59  | 83.6    | 55.0    | 73.4  |
| 474.36  | 441.89  | 91.48   | 57.3    | 73.6  |
| 484.09  | 446.9   | 99.79   | 60.7    | 72.6  |
| 493.84  | 451.54  | 108.34  | 62.5    | 71.8  |
| 503.32  | 455.79  | 116.8   | 64.2    | 71.4  |
| 512.67  | 459.83  | 125.22  | 64.60   | 71.6  |
| 522.38  | 464.03  | 133.96  | 64.2    | 70.70 |
| 532.10  | 468.37  | 142.65  | 62.70   | 68.20 |
| 541.63  | 472.75  | 151.12  | 62.60eg | 66.50 |
| 550.98  | 477.02  | 159.43  | 63.10   | 64.90 |
| 560.33  | 481.16  | 167.8   | 64.30   | 64.30 |
| 569.67  | 485.022 | 176.28  | 66.90   | 63.50 |
| 579.16  | 488.38  | 185.123 | 71.60   | 63.10 |
| 588.51  | 490.93  | 194.08  | 76.70   | 63.60 |
| 598.23  | 492.76  | 203.59  | 81.60   | 63.60 |
| 607.99  | 493.92  | 213.26  | 84.8    | 65.1  |
| 617.49  | 494.81  | 222.71  | 84.40   | 66.50 |
| 627.25  | 495.85  | 232.42  | 83.40   | 68.40 |
| 637.01  | 497.11  | 242.09  | 81.8    | 70.8  |
| 646.77  | 498.58  | 251.72  | 80.9    | 73.0  |
| 656.51  | 500.23  | 261.29  | 79.6    | 71.60 |
| 666.28  | 502.24  | 270.80  | 77.8    | 70.20 |
| 676.05  | 504.22  | 280.34  | 77.7    | 69.8  |
| 685.81  | 506.1   | 289.92  | 80.1    | 68.90 |
| 695.63  | 507.52  | 299.63  | 83.3    | 67.90 |
| 705.38  | 508.38  | 309.34  | 86.6    | 67.20 |
| 714.89  | 508.64  | 318.84  | 90.3    | 66.50 |
| 724.61  | 508.30  | 328.55  | 93.7    | 65.70 |
| 734.00  | 507.63  | 337.91  | 94.5    | 65.00 |
| 743.73  | 506.82  | 347.60  | 95.0    | 67.40 |
| 753.46  | 505.90  | 357.28  | 95.8    | 69.20 |
| 762.79  | 505.10  | 366.57  | 94.1    | 70.00 |
| 772.32  | 504.39  | 376.07  | 94.4    | 70.10 |
| 781.71  | 503.81  | 385.44  | 92.7    | 70.90 |
| 791.24  | 503.35  | 394.94  | 92.8    | 71.30 |
| 801.00  | 503.10  | 404.68  | 90.2    | 72.00 |
| 810.75  | 503.12  | 414.40  | 89.6    | 72.30 |
| 817.54  | 503.16  | 421.18  | 89.6    | 72.20 |
| 840.00  | 503.04  | 443.58  | 91.00   | 72.20 |

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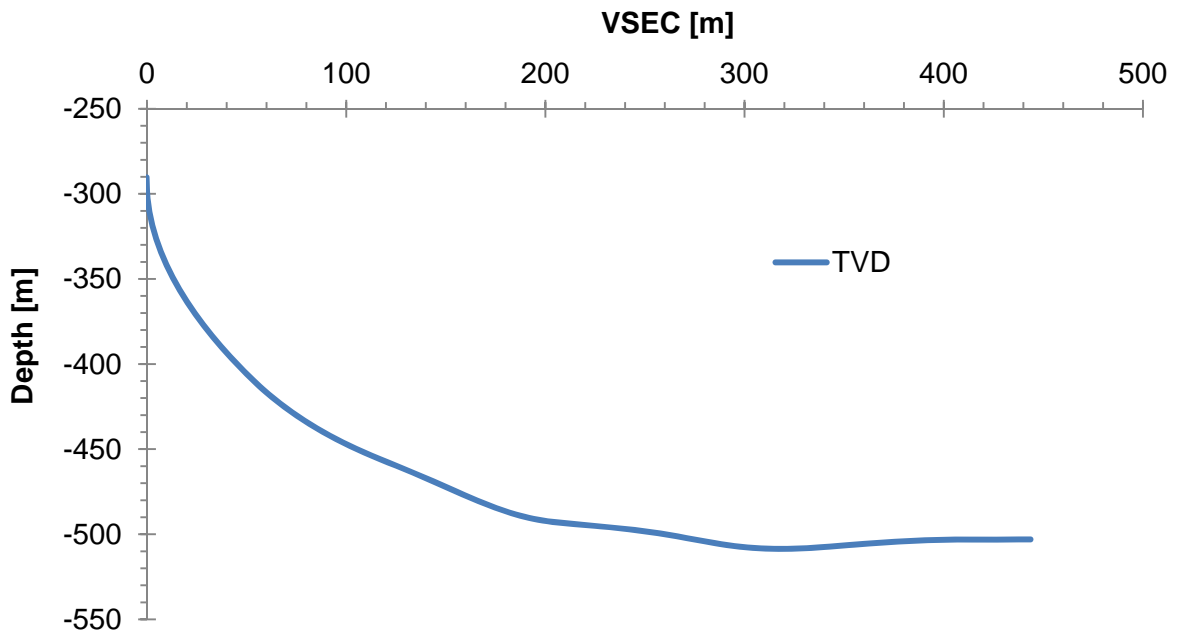


Figure 2: True vertical depth (TVD) plotted against vertical section at GLYDE #1 ST1.

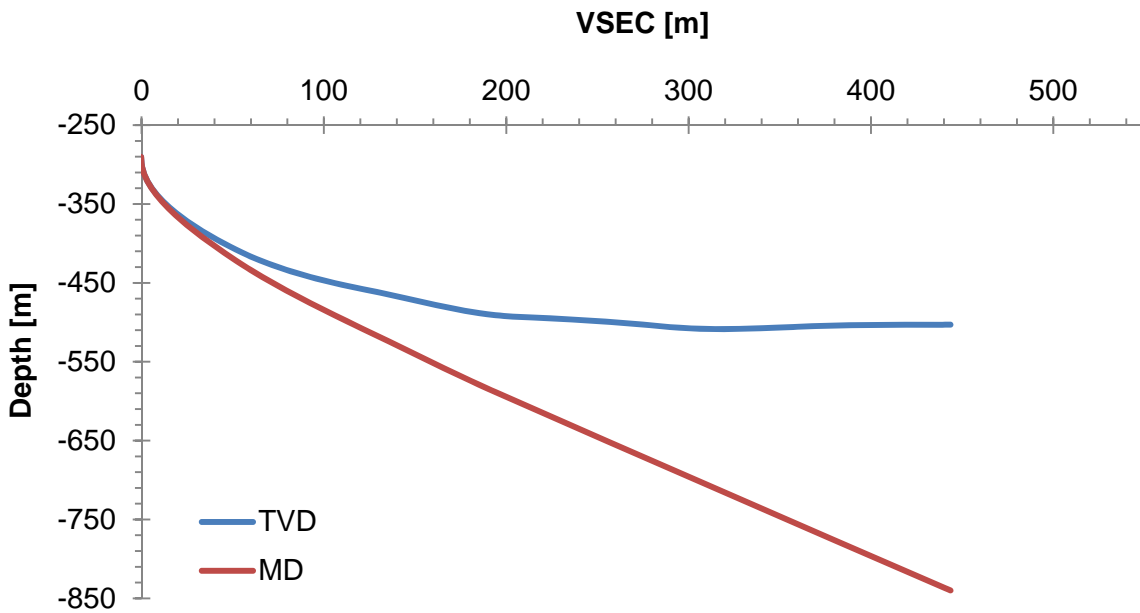


Figure 3: Measured depth (MD) and true vertical depth (TVD) plotted against vertical section at GLYDE #1 ST1.

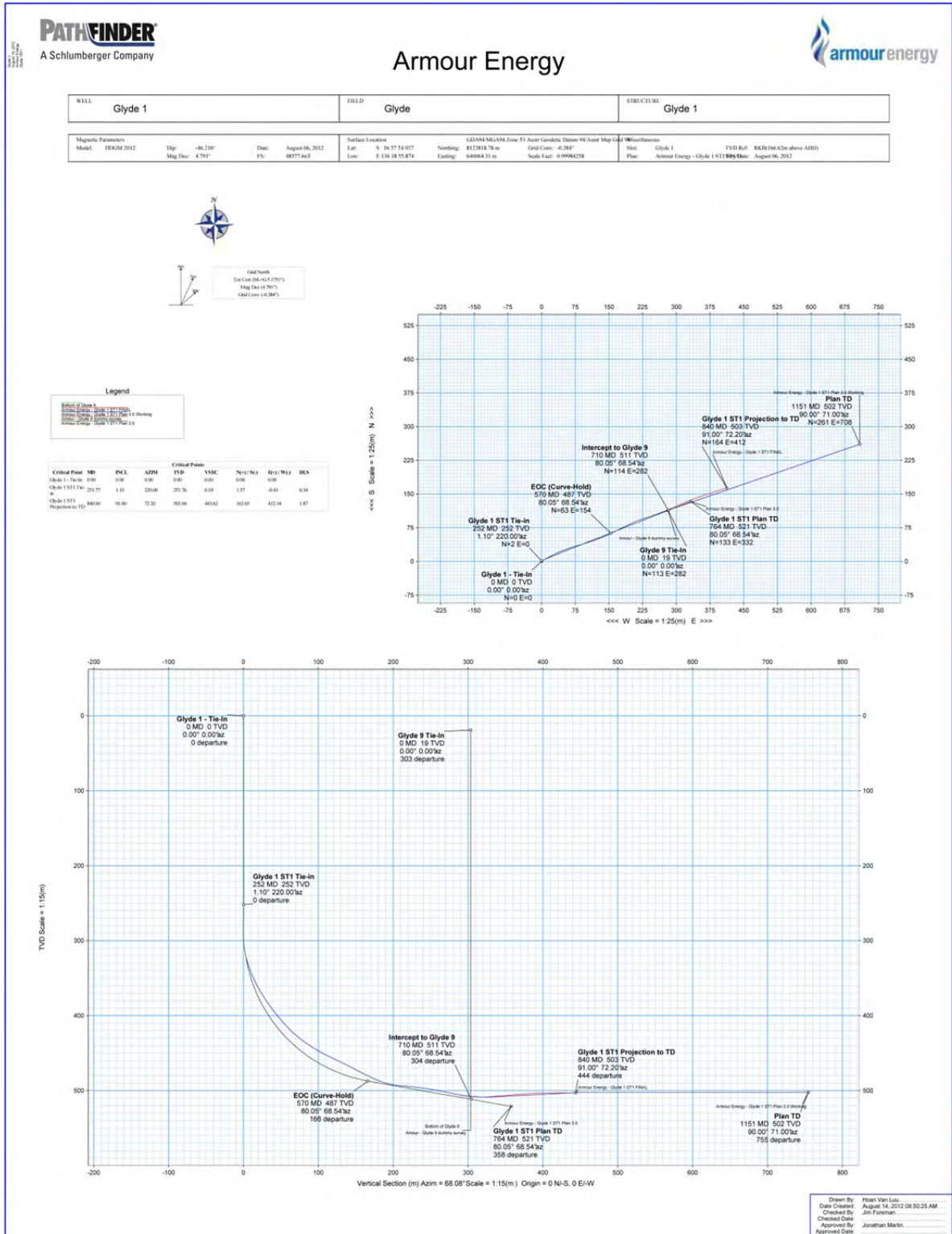


Figure 4: GLYDE #1 ST1 EP171, directional drilling information from Pathfinder.



## 2.6. Cementing Operation

### Cellar

- 6' by 3.2' cellar ring installed and cemented in place.

### Conductor Pipe 14" Casing

- 14' Conductor casing cemented from 16.4m to surface.

### Surface Casing Cement Casing

- 12-1/4" hole drilled to 234. 5m.
- 9-5/8" casing ran from 231 m back to surface.
- 9-5/8" casing cemented from 231 m back to surface.
- 45.9 bbls of 12.5 ppg lead, 27.3 bbls of 15.4 ppg cement pumped.
- 14 bbls of good cement back to surface.
- Casing pressure tested to 3000 psi for 10 min.

### Production Hole

- Run perforated 4-1/2" casing from 835 m to 725 m.
- Run 2 joints on blank 4-1/2" casing with an external swellable packer from 725 m to 695 m.
- Run perforated 4-1/2" casing from 695 m to 640 m.
- Run 1 blank joint of 4-1/2" casing with an external swellable packer.
- Run 1 blank joint of 4-1/2" casing with an external cement basket from 630 m to 640 m.
- Kick off point 285 mMD.
- Run 1 blank joint of 4-1/2" casing with an external casing packer and cement stage tool from 620 m to 630 m.
- Run blank 4-1/2" casing 620 m to surface.
- Cement 4-1/2" casing back to surface from 620 m, through stage tool.
- Bottom of Tail cement at 618 mMD.
- Top of tail 15.4 ppg cement at 201 mMD, pumped 27.3 bbls.
- Top of lead 12.5 ppg cement at surface pumped 45.9 bbls.
- 14 bbls of good cement returns back to surface.

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## 2.7. Bit Record

**Table 3: Bit Record for GLYDE #1 ST1, EP171.**

| Bit Number | Size [mm] | Type   | In [m] | Out [m] | Drilled meters [m] | Hours [h] |
|------------|-----------|--------|--------|---------|--------------------|-----------|
| 1rr        | 216       | PDC    | 220    | 250     | 30                 |           |
| 2          | 155       | PDC    | 250    | 503     | 253                | 29        |
| 3          | 155       | Hammer | 503    | 519     | 16                 | 30.5      |
| 4          | 155       | PDC    | 519    | 588     | 69                 | 47        |
| 5          | 158       | PDC    | 588    | 709     | 121                | 82        |
| 6          | 158       | Insert | 709    | 840     | 131                | 110.35    |

## 2.8. Drilling Fluids

Hole was drilled on air/mist and during coring and wireline logging operations the hole was loaded with KCl water. Average loaded-hole fluid properties were:

- Density  $\rho$ : 1.02 g/c3
- Viscosity: 31 sec/qt

Air drilling properties:

- 1800 cfm air
- 20-30 gpm misting
- 0.05 % foam