# Partner Drilling Report

**Report Date: 6/28/2017**
**Report #: 1.0, DFS: -1.04**
**Time Log DFS:**
**Depth Progress:**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | P.CLOUDY | 68.0 | GOOD | Good |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| PICKING UP DIRECTIONAL TOOLS AT REPORT TIME | FINISH PICKING UP DIRECTIONAL TOOLS , SPUD, DRILL SURFACE SECTION, RUN SURFACE CASING, |

Short Report

RIG UP CELLAR PUMPS AND HIGH PRESSURE LINES. INSTALL HAND RAILS AND CELLAR COVERS.R/U KOSERCA CELLAR PUMPS, FLOW LINE HOSES, STAIRWAYS, R/U ELEVATORS, TEST LINES TO 1600 PSI: TEST OK. P/U DIRECTIONAL TOOLS.

NOTE: NOTIFIED TRRC OF SPUD, SURFACE CASING AND CMT JOB @ 0530 SPOKE WITH KAY OPERATOR #40

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 3,862.0 | 3,862.0 | 3,862.0 | 3,862.0 | 0.0 | 0.0 | 0.0 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 16:30 | 04:30 | 12.00 | 01RGUP, Rig Up | LM | b | O | RIG UP CELLAR PUMPS AND HIGH PRESSURE LINES. INSTALL HAND RAILS AND CELLAR COVERS.R/U KOSERCA CELLAR PUMPS, FLOW LINE HOSES, STAIRWAYS, R/U ELEVATORS, TEST LINES TO 1600 PSI: TEST OK. |
| 04:30 | 06:00 | 1.50 | 01RGUP, Rig Up | LM | b | O | PICK UP DIRECTIONAL TOOLS, (STAB, HOS, MUD MOTOR, 8" NMDC, SHOCK SUB, BIT). SCRIBE MWD TOOL.<br><br>NOTE: NOTIFIED TRRC OF SPUD, SURFACE CASING AND CMT JOB @ 0530 SPOKE WITH KAY OPERATOR #40 |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| | | | | | | |

| Gel 10 sec (kPa) (lb… | Gell 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| | | | | | | |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | | | | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Addition | ANNULUS | | |
| Addition | PIPE CAP | | |
| Hole | Hole | | |
| Tank | ACTIVE PITS | | |
| Hole | TOTAL CIRC | | |
| Tank | RESERVE | 1,931.0 | |
| Tank | INVERMUL | 1,931.0 | |
| Addition | FRESH WATER | | |
| Loss | SURFACE | | |
| Loss | OTHER | | |
| Loss | PIT RESIDUAL | | |
| Addition | BASE | | |
| Addition | CHEMICALS | | |

### Drill Strings

**BHA #<stringno>, <des>**

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| | | | |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| | | | |

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| | | | | | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |

| Day Total (Cost) | Cum To Date (Cost) |
|---|---|
| 104,780 | 104,780 |

| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
|---|---|
| | |

| Start Depth (ftKB) | End Depth (ftKB) |
|---|---|
| 0.0 | 0.0 |

| Planned Formation | Planned TMD (ftKB) |
|---|---|
| WOLFCAMP B | 19,360.0 |

Last Casing String: Conductor Casing, 106.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| DEAN DUFFY, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |

| Rig Supervisor | Phone Mobile |
|---|---|
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| | | |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| | | | |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| | | |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| | | | |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| | | |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DIESEL FOR OBM | Gal | 41,967.0 | 32,079.0 | 0.0 |
| DRILLING CUTTINGS | Cu. Yds | 345.0 | 345.0 | 0.0 |
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

**Report Date: 6/28/2017**
**Report #: 1.0, DFS: -1.04**
**Time Log DFS:**
**Depth Progress:**

## Well Name: UNIVERSITY 3-35 #101HB

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| | | | | |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| | | | | |

Error

### Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

### Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

### Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

### Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

### Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

### Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

### Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| | | |

### Wellbores

Wellbore Name
UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Partner Drilling Report

**Report Date: 6/30/2017**
**Report #: 2.0, DFS: 0.96**
**Time Log DFS: 0.96**
**Depth Progress: 1,376.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 80.0 | GOOD | Good |

**Current Status/OART**
R/U BYRD CSG EQUIPMENT AT REPORT TIME.

**24 Hour Forecast**
COMPLETE RIGGING UP BYRD CSG, RUN SURFACE SECTION CSG, R/D BYRD CSG, R/U SLB CMT, RUN CMT, R/D SLB CMT, TEST BOPs, PREP TO DRILL INTERMEDIATE SECTION AS PER PROG PLAN #1. TEST CASING. R/D BOP TESTER AND INSTALL WEAR BUSHING. P/U DIRECTIONAL BHA. DRILL OUT 13 3/8" CASING. DRILL AND SURVEY 12 1/4" HOLE.

**Short Report**
CONTINUE PICKING UP DIRECTIONAL BHA, SPUD WELL @ 0700 HRS. C/O SAVOR SUB, TIGHTEN HYDRAULIC HOSES ON CELLAR PUMPS, ROTATE / SLIDE DRLG IN SURFACE SECTION TO SECTION TD @ 1482', CONDUCT CLEAN UP CYCLE, WIPER TRIP, PUMP SWEEPS & SPOT PILL, TOOH, L/D DIRECTIONAL BHA AND B/O BIT L/D SAME, CLEAN RIG FLOOR, PJSM W/ BYRD CSG CREW, HOC - REP, AND H&P CREW. R/U BYRD CSG EQUIPMENT AT REPORT TIME.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 3,435.5 | -426.5 | -1,255.4 | 2,632.5 | 828.9 | 0.0 | 803.0 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 07:00 | 1.00 | 01RGUP, Rig Up | LM | b | O | FINISH PICKING UP BHA, M/U 9-5/8" SDI TITAN II 1.5 ADJ, 7/8 LOBE, 5.7 STAGE MUD MOTOR, M/U MONELS AND MWD.<br><br>SCRIBE, M/U 17-1/2" SEC SF66M SN:12633990 PDC BIT TAG BOTTOM AT 106' |
| 07:00 | 07:30 | 0.50 | 07SHVD, Surf Hole Vert Drill | DR | a | O | SPUD WELL, DRILL AHEAD IN SURFACE FROM 106' TO 128'.<br><br>22' AT 44' FPH AVG ROP. |
| 07:30 | 09:00 | 1.50 | 07SHVD, Surf Hole Vert Drill | DT | e | S | DRILLLER MADE UP KELLY JT W/ THREAD PROTECTOR STILL ON SAVER SUB. CHANGE OUT THE SAVER SUB. |
| 09:00 | 10:00 | 1.00 | 07SHVD, Surf Hole Vert Drill | TR | o | S | CELLAR PUMP ISSUES. HAD TO TIGHTEN HYDRAULIC HOSE FITTINGS. |
| 10:00 | 20:45 | 10.75 | 07SHVD, Surf Hole Vert Drill | DR | a | O | ROTATE DRLG IN SURFACE SECTION F/128' TO 1482'<br><br>1376' AT 128 FPH AVG ROP.<br><br>NOTE:<br>- PUMPING 15 BBL HI - VIS SWEEPS EVERY 180' OR AS NEEDED CONSISTING OF:<br>4 PPB WALNUT, 1 CAN CON DET, 1 CAN EZ MUD.<br><br>- DROP 2 SAPP STICKS EVERY 90'. |
| 20:45 | 21:30 | 0.75 | 09SHC, Surf Hole Csg | CI | d | O | PUMP (2) 30 BBL HIGH - (90-100) VIS LCM SWEEPS, CIRC SWEEPS @ 216 SPM, 70 RPM. |
| 21:30 | 00:30 | 3.00 | 09SHC, Surf Hole Csg | TP | e | O | WIPER TRIP TO 123' AND BACK TO BTM,<br><br>NOTE: TOOH WET, CIRCULATE OUT PUMPING HIGH - VIS SWEEPS,<br><br>- FILLING UP ON BACKSIDE WITH KILL LINE. |
| 00:30 | 01:30 | 1.00 | 09SHC, Surf Hole Csg | CI | d | O | PUMP (2) 30 BBL HIGH - VIS LCM SWEEPS,<br><br>-SPOT 100 BBL HI - VIS PILL ON BOTTOM |
| 01:30 | 03:15 | 1.75 | 09SHC, Surf Hole Csg | TP | c | O | TOOH @ 100 FT PER MIN. F/ 1482' TO DIRECTIONAL BHA, RACKING BACK DRILL PIPE AND L/D 17 1/2" BHA |
| 03:15 | 04:30 | 1.25 | 09SHC, Surf Hole Csg | TP | b | O | LAYING OUT DIRECTIONAL TOOLS, BREAK OUT BIT, L/D DIRECTIONAL TOOLS, NMDC, SHOCK SUB, STAB, MOTOR.<br><br>BIT GRADE: 1-2-CT-T-X-2-CT-TD |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 52,860 | 157,641 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co…** |
| 3,261 | 3,261 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 106.0 | 1,482.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

**Last Casing String**
Surface Casing, 1,462.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| DEAN DUFFY, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

**Head Count**
28.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,780.0 | No | 99 | 88 |
| 2,780.0 | No | 99 | 88 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,780.0 | No | 99 | 88 |
| 2,780.0 | No | 99 | 88 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| CON DET | 59.00 | 7.0 |
| LIME | 6.00 | 5.0 |
| PAC-R | 149.00 | 1.0 |
| SAPP | 86.78 | 4.0 |
| SODA ASH | 13.25 | 3.0 |
| TANK | 500.00 | 3.0 |
| WALNUT PLUG MED | 13.75 | 6.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| **Total Received** | **Total Consumed** | **On Loc** |
| 41,967.0 | 32,079.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING CUTTINGS | Cu. Yds |
| **Total Received** | **Total Consumed** | **On Loc** |
| 345.0 | 345.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 6/30/2017**
**Report #: 2.0, DFS: 0.96**
**Time Log DFS: 0.96**
**Depth Progress: 1,376.00**

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 04:30 | 05:00 | 0.50 | 09SHC, Surf Hole Csg | RM | b | O | CLEAN RIG FLOOR- PREP TO RUN 13 3/8" SURFACE CASING. |
| 05:00 | 05:30 | 0.50 | 09SHC, Surf Hole Csg | SM | b | O | HELD PJSM WITH BYRD CSG CREW, HOC-REP, H&P CREW ON R/U & RUNNIG CSG. |
| 05:30 | 06:00 | 0.50 | 09SHC, Surf Hole Csg | CS | a | O | BEGIN TO R/U BYRD 13 3/8" CASING EQUIPMENT BAIL EXTENTIONS, POWER TONGS, POWER UNIT AND FILL UP HOSE AT REPORT TIME. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 15:00 | SPUD MUD | 461.0 | 8.45 | 28 | 1.0 | 4.002 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 1.000 | 2.001 | 3.001 | 95.0 | | 7.5 | 99.1 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 99.1 | 9,000.000 | | | |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 05:00 | SPUD MUD | 1,482.0 | 8.50 | 29 | 1.0 | 4.002 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 1.000 | 2.001 | 3.001 | 95.0 | | 8.0 | 98.8 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 98.8 | 9,000.000 | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 394.6 | |
| Hole | Hole | 6.9 | |
| Hole | Hole | 401.5 | |
| Addition | Addition | 826.2 | |
| Addition | Addition | 2.7 | |
| Tank | Tank | 401.5 | |
| Tank | Tank | 1,931.0 | |
| Tank | Tank | 300.0 | |

### Drill Strings

#### BHA #1, Surface

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 17 1/2in, SF66M, 12633990 | 1-2-CT-T-X-2-CT-TD | 1.77 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 16/16/16/16/16/16/16/16/16 | 586.29 | | 148.0 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 1.50 FIXED | 7.19 | |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | | 5 | 2.81 | 30.60 | IF |
| XO Sub | 1 | 7 5/8 | 3.88 | 3.61 | IF |
| Drill Collar | 11 | 6 1/2 | 2.50 | 333.00 | NC46 |
| XO Sub | 1 | 8 | 2.81 | 3.25 | NC46 |
| Drill Collar | 3 | 8 | 2.81 | 92.27 | NC56 |
| XO Sub | 1 | 7 15/16 | 3.13 | 3.03 | NC 56 |
| Drill Collar - Non Mag | 1 | 8 1/16 | 3.75 | 29.36 | Reg |
| Non-Mag Hangoff Sub | 1 | 8 1/16 | 3.75 | 5.72 | Reg |
| Drill Collar - Non Mag | 1 | 8 | 3.75 | 29.63 | Reg |
| Shock Sub | 1 | 8 1/4 | 3.13 | 13.77 | Reg |
| Stabilizer | 1 | 8 1/16 | 3.50 | 7.46 | Reg |
| Mud Motor - Bent Housing | 1 | 9 5/8 | 5.00 | 33.09 | Reg |

#### Variable Gauge Stabilizers

| Blade Type | Max Gauge (in) | Blade Angle |
|---|---|---|
| | | |

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 106.0 | 895.0 | 789.00 | 8.40 | 8.40 | 93.9 | 799 |
| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
| 25 | 70 | 1,593.0 | 120 | 125 | 115 | 11.0 | |
| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | MAKING CONNECTIO N |
| 05:30 | Pre-Tour | CMT OPERATIONS |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 75.2 | 0.3 | 145.2 | 161.3 | 10 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | |

Error: Unable to calculate annular pressure drop because pressure drop data is missing from AV calc

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 895.0 | 911.0 | 805.00 | 0.16 | 8.56 | 100.0 | 800 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 13 | 0 | 1,433.0 | 120 | 125 | 115 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 75.5 | 0.3 | 145.3 | 161.7 | 11 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | |

Error: Unable to calculate annular pressure drop because pressure drop data is missing from AV calc

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 911.0 | 1,482.0 | 1,376.00 | 0.74 | 9.30 | 771.6 | 821 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 34 | 70 | 1,888.0 | 120 | 125 | 115 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 81.6 | 0.3 | 149.2 | 170.3 | 9 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | |

Error: Unable to calculate annular pressure drop because pressure drop data is missing from AV calc

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes:

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| BHA | MADE UP JT WITH THREAD PROTECTOR STILL ON JT | 6/29/2017 | 128.0 | 128.0 | | 1.50 |

Action Taken: DRILLLER MADE UP KELLY JT W/ THREAD PROTECTOR STILL ON JOINT. HAD TO CHANGE OUT THE SAVOR SUB.

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| Other | CELLAR PUMP | 6/29/2017 | 128.0 | 128.0 | | 1.00 |

Action Taken: TIGHTENED HYDRAULIC HOSES ON CELLAR PUMPS

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co… | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment:

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft… | Set Depth (T… | Comment | MACP Press… |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 204.00 | 0.50 | 17.98 | 204.00 | 0.83 | 0.85 | 0.27 | 0.25 |
| 296.00 | 0.56 | 12.46 | 295.99 | 1.64 | 1.67 | 0.50 | 0.09 |
| 357.00 | 0.52 | 356.23 | 356.99 | 2.20 | 2.23 | 0.54 | 0.26 |
| 417.00 | 0.55 | 352.65 | 416.99 | 2.76 | 2.79 | 0.49 | 0.07 |
| 477.00 | 0.63 | 2.47 | 476.99 | 3.38 | 3.41 | 0.46 | 0.21 |
| 510.00 | 0.61 | 2.04 | 509.98 | 3.73 | 3.76 | 0.48 | 0.06 |
| 604.00 | 0.88 | 339.18 | 603.98 | 4.92 | 4.94 | 0.24 | 0.42 |
| 699.00 | 1.11 | 334.62 | 698.96 | 6.46 | 6.45 | -0.41 | 0.26 |
| 794.00 | 1.29 | 330.23 | 793.94 | 8.27 | 8.21 | -1.34 | 0.21 |
| 889.00 | 1.07 | 324.99 | 888.92 | 9.98 | 9.87 | -2.38 | 0.26 |
| 984.00 | 0.46 | 288.55 | 983.91 | 10.87 | 10.71 | -3.25 | 0.79 |
| 1,078.00 | 0.50 | 284.22 | 1,077.91 | 11.13 | 10.93 | -4.00 | 0.06 |
| 1,172.00 | 0.41 | 284.97 | 1,171.91 | 11.36 | 11.12 | -4.73 | 0.10 |
| 1,267.00 | 0.46 | 297.23 | 1,266.90 | 11.65 | 11.38 | -5.39 | 0.11 |
| 1,361.00 | 0.44 | 298.79 | 1,360.90 | 12.03 | 11.73 | -6.05 | 0.02 |
| 1,406.00 | 0.39 | 295.64 | 1,405.90 | 12.20 | 11.88 | -6.34 | 0.12 |
| 1,557.00 | 0.49 | 197.40 | 1,556.90 | 11.84 | 11.49 | -6.99 | 0.44 |
| 1,652.00 | 1.56 | 232.44 | 1,651.88 | 10.73 | 10.31 | -8.14 | 1.26 |

# Partner Drilling Report

**Report Date: 7/1/2017**
**Report #: 3.0, DFS: 1.96**
**Time Log DFS: 1.96**
**Depth Progress: 0.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | P.CLOUDY | 72.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| PICKING UP DIRECTIONAL BHA AT REPORT TIME | CONTINUE TO P/U DIRECTIONAL BHA. DRILL OUT 13 3/8" CASING AND SHOE TRACK, ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION AS PER HUNT DRILLING PROG AND MOTIVE DRILLING DIRECTIONAL PLAN. |

Short Report

R/U BYRD CSG EQUIP, M/U 13 3/8" CASING SHOE TRACK TEST SAME, RUN 13 3/8" SURFACE CASING, R/D BYRD CSG EQUIP, R/U SCHLUMBERGER CMT HEAD, PJSM, RUN CMT JOB, R/D CMT HEAD, L/O LND JT, R/D CSG ELEVATORS, DRESS WELLHEAD/ INSTALL VALVES, RUN CMT TOP OFF JOB, N/U BOPs, TEST BOPs, TEST CSG, DRESS OUT SHAKERS AND R/D BOP WRANGLER, R/U PVC IN BACK YARD, INSTALL LONG WEAR BUSHING, PICKING UP DIRECTIONAL BHA AT REPORT TIME.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 535.6 | -2,899.9 | -5,066.5 | 300.0 | 2,166.6 | 0.0 | 235.6 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 06:30 | 0.50 | 09SHC, Surf Hole Csg | CS | a | O | R/U BYRD 13 3/8" CASING EQUIPMENT BAIL EXTENTIONS, POWER TONGS, POWER UNIT AND FILL UP HOSE. |
| 06:30 | 10:30 | 4.00 | 09SHC, Surf Hole Csg | CS | b | O | MAKE UP SHOE TRACK AND TEST FLOATS - GOOD TEST. P/U AND RUN 1462' OF 13 3/8" 48# J-55 ST&C SURFACE CASING.<br><br>NOTE: NOTABLE DEPTHS.<br>-13 3/8" CASING SHOE @ 1462'<br><br>-13 3/8" FLOAT COLLAR @ 1418.1'<br><br>- RAN A TOTAL OF (35) 13 3/8" 48# J-55 STC CASING JOINTS.<br><br>- INSTALLED 10 BOW SPRING CENTRALIZERS.<br><br>- R/D CSG EQUIP AND L/D SAME. |
| 10:30 | 10:45 | 0.25 | 09SHC, Surf Hole Csg | CS | a | O | R/D BYRD CASING EQUIPMENT, POWER TONGS, MUD LINES, SLIPS |
| 10:45 | 11:45 | 1.00 | 09SHC, Surf Hole Csg | CE | d | O | R/U CMT HEAD, CIRC 1 1/2 CASING CAPACITY. PUMP @ 70 SPM. |
| 11:45 | 12:30 | 0.75 | 09SHC, Surf Hole Csg | TR | q | O | CONTINUE CIRCULATING WHILE WAITING ON SCHLUMBERGER. |
| 12:30 | 13:00 | 0.50 | 09SHC, Surf Hole Csg | SM | b | O | HELD PJSM W/ SCHLUMBERGER, HOC-REP, AND H&P 394 CREW ON CMT OPERATIONS. SWAP OVER LINES TO CEMENTERS. |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 200,996 | 358,636 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co…** |
| 2,986 | 6,247 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 1,482.0 | 1,482.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Surface Casing, 1,462.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| DEAN DUFFY, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 35.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 300.0 | Yes | 40 | 88 |
| 200.0 | Yes | 20 | 88 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 300.0 | Yes | 40 | 88 |
| 250.0 | Yes | 30 | 88 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| AQUAGEL | 150.00 | 4.0 |
| CON DET | 59.00 | 6.0 |
| EZ MUD | 85.03 | 1.0 |
| LIME | 6.00 | 5.0 |
| PAC-R | 149.00 | 2.0 |
| SAPP | 86.78 | 4.0 |
| SCALE CHARGE | 10.00 | 1.0 |
| TRANSPORTATION | 1.00 | 561.75 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 41,967.0 | 32,079.0 | 0.0 |



Report Printed: 7/19/2017

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/1/2017**
**Report #: 3.0, DFS: 1.96**
**Time Log DFS: 1.96**
**Depth Progress: 0.00**

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 13:00 | 15:30 | 2.50 | 09SHC, Surf Hole Csg | CE | a | O | PERFORM CEMENT JOB ON 13-3/8" SURFACE CASING. HOLD PJSM WITH CEMENT CREW AND H&P CREW.<br><br>- TEST LINES TO 2000 PSI. TEST GOOD.<br><br>FRESH WATER - PUMP 20 BBLS<br><br>- SPACER: MIX AND PUMP 20 BBLS OF VISCOSIFIED WATER @ 8.33 PPG + D182<br><br>- LEAD SLURRY: MIX & PUMP 290 BBLS (943 SACKS) OF BLEND CEMENT @ 12.8 PPG, YIELD 1.73 FT3/SK, MIX FLUID 9.26 GAL/SK<br><br>- TAIL SLURRY: MIX & PUMP 87 BBLS (368 SACKS) OF BLEND CEMENT @ 14.8 PPG, YIELD 1.33 FT3/SK, MIX FLUID 6.35 GAL/SK<br><br>DROP CEMENT PLUG. DISPLACE CEMENT WITH 223 BBLS OF FRESHWATER @ 5 BPM, 1047 PSI. BUMP PLUG WITH 500 PSI OVER CIRCULATING PRESSURE. HELD PRESSURE FOR 5 MINS. BLED PRESSURE & GOT BACK 135 BBL. CHECK FLOATS. FLOATS HELD.<br><br>- RETURNS THOUGH OUT CEMENT JOB. |
| 15:30 | 16:30 | 1.00 | 09SHC, Surf Hole Csg | CE | d | O | R/D SCHLUMBERGER CEMENTERS CMT HEAD.<br><br>- R/D CELLAR PUMPS |
| 16:30 | 17:00 | 0.50 | 09SHC, Surf Hole Csg | CS | a | O | L/O LANDING JOINT, R/D CASING ELEVATORS AND CASING BAILS |
| 17:00 | 18:00 | 1.00 | 09SHC, Surf Hole Csg | WH | b | O | DRESS WELLHEAD & INSTALL VALVES |
| 18:00 | 18:30 | 0.50 | 09SHC, Surf Hole Csg | CE | e | O | CONDUCTED CEMENT TOP OFF JOB ON BACKSIDE.<br><br>-PUMPING 1 BPM INCREASING TO 2 BPM,<br><br>-GOT CEMENT RETURNS AFTER 3.6 BBLS CEMENT PUMPED.<br><br>-REMAINING CEMENT USED TO FILL CELLAR.<br><br>PUMPED A TOTAL OF 31 BBLS |
| 18:30 | 21:45 | 3.25 | 09SHC, Surf Hole Csg | BO | f | O | N/U SPACER SPOOL ON WELL HEAD. N/U BOP STACK AND KILL LINE. INSERT TEST PLUG AND CLOSE ANNULAR. PUMP THRU KILL LINE AND PRESSURE UP TO 1000 PSI TO CHECK FOR LEAKS AROUND SPACER SPOOL.<br><br>N/U CHOKE LINE TO BOP. REMOVE CHECK VALVE. INSTALL FLOW LINE TO BOP. |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DRILLING CUTTINGS | Cu. Yds | 345.0 | 345.0 | 0.0 |
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | TESTING BOPs` |
| 21:45 | BOP Pressure Test | TEST BOP AND ALL ASSOCOIATED EQUIP. |
| 05:30 | Pre-Tour | PICKING UP DIRECTIONAL TOOLS |

### Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

**Time Log**

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 21:45 | 02:30 | 4.75 | 09SHC, Surf Hole Csg | BO | a | O | PERFORM BOP TEST AS FOLLOWS:<br><br>R/U MONAHANS TESTER WITH FMC UH-2 TEST PLUG.<br><br>- TEST #1: TEST ANNULAR ON 5" DP 250 PSI 5MIN / 3000 PSI 5MIN.<br><br>- TEST #2: TEST VBR'S UPPER PIPE RAMS W/ 5" DRILL PIPE, HYDRAULIC KILL VALVE, INNER 4" MANUAL CHOKE VALVE 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- TEST #3: TEST VBR'S UPPER PIPE RAMS W/ 5" DRILL PIPE, OUTER 4" KILL LINE VALVE, HCR VALVE 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- TEST #4: TEST UPPER VBRS, CHOKE LINE TO MANIFOLD MASTER VALVES, KILL LINE CHECK VALVE 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- TEST #5: TEST 5" FIXED LOWER PIPE RAMS 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- TEST #6: TEST 5" TIW VALVE 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- TEST #7: TEST TOP DRIVE MANUAL KELLY COCK 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- REMOVE TEST JT. LEAVE TEST PLUG IN WELL HEAD.<br><br>- TEST #8: TEST BLINDS, INNER KILL LINE VALVE, CHOKE MANIFOLD VALVES, MANUAL AND HYDRAULIC CHOKES, 250 PSI 5 MIN / 5000 PSI 5 MIN.<br><br>-TEST #9: TEST MUD LINES BACK TO PUMPS, 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- REMOVE FMC UH-2 TEST PLUG.<br><br>- CLOSE CASING VALVE ON WELLHEAD.<br><br>- TEST #10: TEST 5" GRAY VALVE 250 PSI 5MIN / 5000 PSI 5MIN.<br><br>- PERFORM ACCUMULATOR FUNCTION TEST, TESTED GOOD.<br><br>R/D TESTERS. |
| 02:30 | 03:00 | 0.50 | 09SHC, Surf Hole Csg | PT | a | O | TEST 13 3/8" CASING TO 500 PSI AND HOLD FOR 30 MINUTES. TEST GOOD. |
| 03:00 | 04:30 | 1.50 | 09SHC, Surf Hole Csg | BO | f | O | DRESS OUT SHAKERS, INSTALL SHAKER SLIDES, R/U PVC IN BACK YARD, REMOVE BOP WRANGLER, INSTALL TURN BUCKLES, INSTALL CHOKE VALVES, R/U FILL UP HOSE ON BOP, R/U MOUSE HOLE. |
| 04:30 | 05:00 | 0.50 | 09SHC, Surf Hole Csg | WH | c | O | INSTALL LONG WEAR BUSHING |

# Well Name: UNIVERSITY 3-35 #101HB

## Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 05:00 | 06:00 | 1.00 | 09SHC, Surf Hole Csg | TP | b | O | P/U DIRECTIONAL BHA CONSISTING OF:<br>12 1/4" SMITH AXE BLADE BIT, 8" 1.83 .17 RPG MOTOR W/ NEAR BIT STAB, FLOAT SUB, 12" STAB, 8" NMDC, 8" HOC, 8" NODC, 3-8" DCs, XO SUB, 14- 6 1/2" DCs, 6 1/2" DRILLING JAR, 7- 6 1/2" DCs,<br><br>PICKED UP DIRECTIONAL BHA - SCRIBING TO INSTALL MWD AT REPORT TIME. |

## Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 15:00 | SPUD MUD | 1,482.0 | 8.45 | 28 | 1.0 | 4.002 |
| Gel 10 sec (kPa) (lb… | Gell 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 1.000 | 2.001 | 3.001 | 95.0 | | 7.5 | 99.1 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 99.1 | 9,000.000 | | | |

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 05:00 | Brine | 1,482.0 | 10.05 | 28 | 1.0 | 4.002 |
| Gel 10 sec (kPa) (lb… | Gell 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 1.000 | 2.001 | 3.001 | 95.0 | | 6.5 | 88.1 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 88.1 | 188,000.000 | | | |

## Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 0.0 | |
| Hole | Hole | 0.0 | |
| Hole | Hole | 235.6 | |
| Addition | Addition | 235.6 | |
| Addition | Addition | 1,931.0 | |
| Tank | Tank | 0.0 | |
| Tank | Tank | 0.0 | |
| Tank | Tank | 300.0 | |

## Drill Strings

### BHA #<stringno>, <des>

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| | | | |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| | | | |

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| | | | | | |

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
| | | | | | | | |
| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| | | | | |
| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
| | | | | |
| Error | | | | |
| | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| Other | WAITING ON SCHLUMBERGER | 6/30/2017 | 1,482.0 | 1,482.0 | | 0.75 |

Action Taken
CIRCULATED WHILE WAITING ON SCHLUMBERGER

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Partner Drilling Report

**Report Date: 7/2/2017**
**Report #: 4.0, DFS: 2.96**
**Time Log DFS: 2.96**
**Depth Progress: 2,125.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLOUDY | 76.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT. | ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION AS PER HUNT DRILLING PROG AND MOTIVE DRILLING DIRECTIONAL PLAN. |

Short Report
FINISH P/U BHA & TEST MWD, T/S MWD, RETEST MWD, M/U BIT , RIG SERVICE, TIH TO TAG TOC, INSTALL ROTATING RUBBER, DRILL OUT FC AND SHOE TRACK, ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION BUILDING A 9.5 DEGREE TANGENT

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 3,588.5 | 3,052.9 | 2,936.0 | 2,883.5 | 116.9 | 0.0 | 705.0 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 07:00 | 1.00 | 09SHC, Surf Hole Csg | TP | b | O | FINISH PICKING SCRIBING & TESTING DIRECTIONAL BHA. |
| 07:00 | 08:00 | 1.00 | 09SHC, Surf Hole Csg | TR | a | O | TROUBLE SHOOT MWD FOR TESTING FAILURE. |
| 08:00 | 08:30 | 0.50 | 09SHC, Surf Hole Csg | TP | b | O | RE-TEST MWD TOOL - TEST GOOD. MAKE UP 12 1/4" SMITH XS616S PDC SN: JM9343. |
| 08:30 | 09:00 | 0.50 | 09SHC, Surf Hole Csg | RM | b | O | RIG SERVICE - CHANGE OUT DP ELEVATORS. |
| 09:00 | 12:30 | 3.50 | 09SHC, Surf Hole Csg | TP | a | O | TIH WITH DIRECTIONAL BHA @ 1233.25' AND CONTINUE TO TIH TO 1388' AND WASH TO TOP OF FC @ 1418' AND TAG CMT @ 1418'.<br><br>NOTE:<br>- INSTALLED ROTATING HEAD RUBBER PACKAGE PRIOR TO TAG TOC.<br><br>- CREW M/U TDS. |
| 12:30 | 13:30 | 1.00 | 09SHC, Surf Hole Csg | CS | d | O | DRILL OUT FC AND SHOE TRACK F/1418' TO 1482' |
| 13:30 | 06:00 | 16.50 | 10IHVD, Int Hole Vert Drill | DR | b | O | ROTATE SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT F/1482' TO 3607'<br><br>2125' @ 129 FPH AVG ROP |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 15:00 | Brine | 1,652.0 | 9.90 | 28 | 1.0 | 4.002 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 1.000 | 2.001 | 3.001 | 95.0 | | 9.0 | |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 89.3 | 175,000.000 | | | |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 05:00 | Brine | 2,596.0 | 10.10 | 28 | 1.0 | 4.002 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 1.000 | 2.001 | 3.001 | 95.0 | | 9.0 | |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 87.8 | 180,000.000 | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 316.9 | |
| Hole | Hole | 35.6 | |
| Hole | Hole | 352.5 | |
| Addition | Addition | 115.5 | |
| Addition | Addition | 1.4 | |
| Tank | Tank | 1,931.0 | |
| Tank | Tank | 600.0 | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| Day Total (Cost) | Cum To Date (Cost) |
| 38,949 | 397,586 |
| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
| 2,358 | 8,606 |
| Start Depth (ftKB) | End Depth (ftKB) |
| 1,482.0 | 3,607.0 |
| Planned Formation | Planned TMD (ftKB) |
| WOLFCAMP B | 19,360.0 |

Last Casing String
Surface Casing, 1,462.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| DEAN DUFFY, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 22.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| Rig Supervisor | Phone Mobile |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,596.0 | No | 104 | 88 |
| 2,596.0 | No | 104 | 88 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,596.0 | No | 104 | 88 |
| 2,596.0 | No | 104 | 88 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| AQUAGEL | 150.00 | 8.0 |
| EZ MUD | 85.03 | 1.0 |
| LIME | 6.00 | 1.0 |
| MF-55 | 89.00 | 1.0 |
| SODA ASH | 13.25 | 21.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| Total Received | Total Consumed | On Loc |
| 41,967.0 | 32,079.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING CUTTINGS | Cu. Yds |
| Total Received | Total Consumed | On Loc |
| 345.0 | 345.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

**Report Date: 7/2/2017**
**Report #: 4.0, DFS: 2.96**
**Time Log DFS: 2.96**
**Depth Progress: 2,125.00**

## Well Name: UNIVERSITY 3-35 #101HB

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Tank | Tank | 352.5 | |

### Drill Strings

#### BHA #2, Intermediate

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 12 1/4in, XS616S, JM9343 | 1-1-WT-T-X-1-NO-TD | 0.78 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 16/16/16/16/16/16 | 1,234.43 | | 98.1 |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.88 | 640.35 | IF |
| HWDP | 1 | 5 | 3.88 | 30.60 | IF |
| XO Sub | 1 | 7 5/8 | 3.88 | 3.61 | IF |
| Drill Collar | 2 | 6 1/2 | 2.50 | 61.01 | NC46 |
| Drilling Jars - Mechanical | 1 | 6 1/2 | 2.25 | 28.05 | NC46 |
| Drill Collar | 9 | 6 1/2 | 2.50 | 273.17 | NC46 |
| XO Sub | 1 | 8 | 2.75 | 3.25 | NC46 |
| Drill Collar | 3 | 8 | 2.81 | 92.27 | NC56 |
| XO Sub | 1 | 7 15/16 | 3.13 | 3.03 | NC56 |
| Drill Collar - Non Mag | 1 | 8 1/16 | 3.75 | 29.36 | REG |
| Non-Mag Hangoff Sub | 1 | 8 1/16 | 3.75 | 5.72 | REG |
| Drill Collar - Non Mag | 1 | 8 | 3.75 | 29.63 | REG |
| Stabilizer | 1 | 8 | 2.88 | 4.58 | REG |
| Mud Motor - Bent Housing | 1 | 8 | 2.88 | 28.50 | REG |

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,482.0 | 1,631.0 | 149.00 | 0.80 | 0.80 | 186.3 | 728 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 23 | 50 | 2,471.0 | 135 | 138 | 130 | 8.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 346.7 | 2.9 | 299.4 | 816.3 | 33 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 130.6 | 0.0 | 130.6 | 0.0 | 10.05 |

Error

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,631.0 | 1,652.0 | 170.00 | 0.22 | 1.02 | 95.5 | 797 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 12 | 0 | 2,349.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 448.1 | 3.8 | 327.8 | 963.8 | 41 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.9 | 0.0 | 142.9 | 0.0 | 9.90 |

Error

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,652.0 | 1,733.0 | 251.00 | 0.60 | 1.62 | 135.0 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 29 | 70 | 2,451.0 | 135 | 138 | 130 | 10.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 39 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | WK W/ST80 |
| 05:30 | Pre-Tour | HOUSEKEEPING / MAKING CONNECTIONS |

### Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,733.0 | 1,757.0 | 275.00 | 0.34 | 1.96 | 70.6 | 797 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 11 | 0 | 2,340.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 448.1 | 3.8 | 327.8 | 963.8 | 41 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.9 | 0.0 | 142.9 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,757.0 | 1,816.0 | 334.00 | 0.41 | 2.37 | 143.9 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 70 | 2,683.0 | 135 | 138 | 130 | 9.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 36 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,816.0 | 1,835.0 | 353.00 | 0.25 | 2.62 | 76.0 | 797 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 11 | 0 | 2,338.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 448.1 | 3.8 | 327.8 | 963.8 | 41 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.9 | 0.0 | 142.9 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,835.0 | 1,910.0 | 428.00 | 0.46 | 3.08 | 163.0 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 70 | 2,712.0 | 135 | 138 | 130 | 9.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 35 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,910.0 | 1,931.0 | 449.00 | 0.43 | 3.51 | 48.8 | 797 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 11 | 0 | 2,397.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 448.1 | 3.8 | 327.8 | 963.8 | 40 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.9 | 0.0 | 142.9 | 0.0 | 9.90 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 1,931.0 | 2,008.0 | 526.00 | 0.53 | 4.04 | 145.3 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 70 | 2,724.0 | 135 | 138 | 130 | 9.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 35 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 2,008.0 | 2,032.0 | 550.00 | 0.27 | 4.31 | 88.9 | 797 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 9 | 0 | 2,421.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 448.1 | 3.8 | 327.8 | 963.8 | 40 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.9 | 0.0 | 142.9 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 2,032.0 | 2,571.0 | 1,089.00 | 3.29 | 7.60 | 163.8 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 70 | 2,817.0 | 135 | 138 | 130 | 11.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 444.7 | 3.8 | 327.0 | 958.9 | 34 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.6 | 0.0 | 142.6 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 2,571.0 | 2,597.0 | 1,115.00 | 0.48 | 8.08 | 54.2 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 13 | 0 | 2,537.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 38 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 2,597.0 | 2,953.0 | 1,471.00 | 2.01 | 10.09 | 177.1 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 70 | 2,977.0 | 135 | 138 | 130 | 12.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 444.7 | 3.8 | 327.0 | 958.9 | 32 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.6 | 0.0 | 142.6 | 0.0 | 9.90 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 2,953.0 | 2,965.0 | 1,483.00 | 0.36 | 10.45 | 33.3 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 19 | 0 | 2,622.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 37 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 2,965.0 | 3,237.0 | 1,755.00 | 1.77 | 12.22 | 153.7 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 70 | 3,171.0 | 135 | 138 | 130 | 14.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 443.0 | 3.8 | 326.6 | 956.5 | 30 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.4 | 0.0 | 142.4 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,237.0 | 3,250.0 | 1,768.00 | 0.43 | 12.65 | 30.2 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 0 | 2,653.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 36 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,250.0 | 3,331.0 | 1,849.00 | 0.81 | 13.46 | 100.0 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 70 | 3,007.0 | 135 | 138 | 130 | 12.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 444.7 | 3.8 | 327.0 | 958.9 | 32 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.6 | 0.0 | 142.6 | 0.0 | 9.90 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,331.0 | 3,343.0 | 1,861.00 | 0.52 | 13.98 | 23.1 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 2,604.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 446.4 | 3.8 | 327.4 | 961.3 | 37 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 9.90 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,343.0 | 3,607.0 | 2,125.00 | 2.00 | 15.98 | 132.0 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 70 | 3,090.0 | 135 | 138 | 130 | 13.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 452.0 | 3.8 | 326.6 | 975.8 | 32 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.4 | 0.0 | 142.4 | 0.0 | 10.10 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 1,746.00 | 3.48 | 244.41 | 1,745.78 | 8.91 | 8.30 | -11.73 | 2.11 |
| 1,840.00 | 5.75 | 252.17 | 1,839.47 | 6.61 | 5.62 | -18.78 | 2.50 |
| 1,935.00 | 7.49 | 258.64 | 1,933.84 | 4.50 | 2.95 | -29.39 | 1.99 |
| 2,029.00 | 9.40 | 260.68 | 2,026.82 | 2.77 | 0.50 | -42.97 | 2.06 |
| 2,124.00 | 10.52 | 259.09 | 2,120.38 | 0.73 | -2.40 | -59.14 | 1.21 |
| 2,218.00 | 10.31 | 258.95 | 2,212.83 | -1.62 | -5.64 | -75.82 | 0.23 |
| 2,313.00 | 9.81 | 257.88 | 2,306.37 | -4.09 | -8.97 | -92.08 | 0.56 |

# Well Name: UNIVERSITY 3-35 #101HB

**Survey Data**

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 2,408.00 | 9.27 | 258.98 | 2,400.06 | -6.43 | -12.13 | -107.50 | 0.60 |
| 2,502.00 | 8.58 | 258.46 | 2,492.92 | -8.52 | -14.98 | -121.80 | 0.74 |
| 2,596.00 | 10.04 | 258.90 | 2,585.68 | -10.71 | -17.96 | -136.72 | 1.56 |
| 2,691.00 | 10.90 | 259.66 | 2,679.10 | -13.01 | -21.16 | -153.68 | 0.92 |
| 2,786.00 | 10.18 | 260.40 | 2,772.49 | -15.12 | -24.18 | -170.79 | 0.77 |
| 2,880.00 | 9.71 | 261.58 | 2,865.08 | -16.81 | -26.72 | -186.82 | 0.54 |
| 2,975.00 | 10.12 | 261.80 | 2,958.66 | -18.31 | -29.09 | -203.01 | 0.43 |
| 3,069.00 | 10.02 | 261.65 | 3,051.21 | -19.82 | -31.45 | -219.28 | 0.11 |
| 3,164.00 | 9.39 | 263.07 | 3,144.85 | -21.11 | -33.59 | -235.15 | 0.71 |
| 3,258.00 | 9.32 | 261.34 | 3,237.60 | -22.38 | -35.66 | -250.28 | 0.31 |
| 3,353.00 | 9.95 | 257.93 | 3,331.26 | -24.42 | -38.53 | -265.91 | 0.89 |
| 3,447.00 | 9.94 | 257.05 | 3,423.85 | -27.10 | -42.05 | -281.76 | 0.16 |
| 3,542.00 | 9.48 | 257.14 | 3,517.49 | -29.85 | -45.63 | -297.38 | 0.48 |

# Partner Drilling Report

**Report Date: 7/3/2017**
**Report #: 5.0, DFS: 3.96**
**Time Log DFS: 3.96**
**Depth Progress: 2,373.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 76.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT. | ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION AS PER HUNT DRILLING PROG AND MOTIVE DRILLING DIRECTIONAL PLAN. |

Short Report

ROTATE SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT, DISPLACE BRINE WATER WITH WATER BASE GEL MUD WHILE DRILLING, CONTINUED TO ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT,

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 6,623.3 | 3,034.8 | 2,594.9 | 4,022.6 | 439.9 | 0.0 | 2,600.7 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 06:00 | 24.00 | 10IHVD, Int Hole Vert Drill | DR | b | O | ROTATE SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT F/3607' TO 5980'<br><br>DISPLACE BRINE WATER WITH WATER BASE GEL MUD WHILE DRILLING F/5036" TO 5056'.<br><br>2373' @ 99 FPH AVG ROP |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 15:00 | SPUD MUD | 4,204.0 | 10.35 | 29 | 1.0 | 4.002 |

| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 1.000 | 2.001 | 3.001 | 95.0 | | 7.5 | 96.3 |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | | 85.9 | 180,000.000 | | | |

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 05:00 | AQUAGEL WBM | 5,329.0 | 8.95 | 33 | 2.0 | 11.005 |

| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 9.004 | 14.006 | 16.007 | 70.0 | | 8.5 | 98.1 |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | | 96.0 | 39,000.000 | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 646.7 | |
| Hole | Hole | 82.8 | |
| Hole | Hole | 729.6 | |
| Tank | Tank | 412.0 | |
| Hole | Hole | 1,141.6 | |
| Tank | Tank | 950.0 | |
| Addition | Addition | 412.0 | |
| Addition | Addition | 27.9 | |
| Tank | Tank | 1,931.0 | |
| Tank | Tank | 729.6 | |

### Drill Strings

**BHA #2, Intermediate**

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 12 1/4in, XS616S, JM9343 | 1-1-WT-T-X-1-NO-TD | 0.78 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 16/16/16/16/16/16 | 1,234.43 | | 98.1 |

**Drill String Components**

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.88 | 640.35 | IF |
| HWDP | 1 | 5 | 3.88 | 30.60 | IF |
| XO Sub | 1 | 7 5/8 | 3.88 | 3.61 | IF |
| Drill Collar | 2 | 6 1/2 | 2.50 | 61.01 | NC46 |
| Drilling Jars - Mechanical | 1 | 6 1/2 | 2.25 | 28.05 | NC46 |
| Drill Collar | 9 | 6 1/2 | 2.50 | 273.17 | NC46 |
| XO Sub | 1 | 8 | 2.75 | 3.25 | NC46 |
| Drill Collar | 3 | 8 | 2.81 | 92.27 | NC56 |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |

| Day Total (Cost) | Cum To Date (Cost) |
|---|---|
| 51,714 | 449,299 |

| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
|---|---|
| 4,631 | 13,237 |

| Start Depth (ftKB) | End Depth (ftKB) |
|---|---|
| 3,607.0 | 5,980.0 |

| Planned Formation | Planned TMD (ftKB) |
|---|---|
| WOLFCAMP B | 19,360.0 |

Last Casing String: Surface Casing, 1,462.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| DEAN DUFFY, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 31.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |

| Rig Supervisor | Phone Mobile |
|---|---|
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,558.0 | No | 104 | 87 |
| 2,558.0 | No | 104 | 87 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,558.0 | No | 104 | 87 |
| 2,558.0 | No | 104 | 87 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| AQUAGEL | 6.00 | 8.0 |
| AQUAGEL | 150.00 | 10.0 |
| CAUSTIC SODA | 29.40 | 9.0 |
| CON DET | 59.00 | 3.0 |
| LIME | 6.00 | 6.0 |
| MF-55 | 89.00 | 3.0 |
| PALLETS | 10.00 | 9.0 |
| SCALE CHARGE | 10.00 | 1.0 |
| SHRINK WRAP | 10.00 | 9.0 |
| SODA ASH | 13.25 | 12.0 |
| TRANSPORTATION | 1.00 | 609.35 |
| TRANSPORTATION | 1.00 | 350.0 |

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/3/2017**
**Report #: 5.0, DFS: 3.96**
**Time Log DFS: 3.96**
**Depth Progress: 2,373.00**

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| XO Sub | 1 | 7 15/16 | 3.13 | 3.03 | NC56 |
| Drill Collar - Non Mag | 1 | 8 1/16 | 3.75 | 29.36 | REG |
| Non-Mag Hangoff Sub | 1 | 8 1/16 | 3.75 | 5.72 | REG |
| Drill Collar - Non Mag | 1 | 8 | 3.75 | 29.63 | REG |
| Stabilizer | 1 | 8 | 2.88 | 4.58 | REG |
| Mud Motor - Bent Housing | 1 | 8 | 2.88 | 28.50 | REG |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,607.0 | 3,612.0 | 2,130.00 | 0.14 | 16.12 | 35.7 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 70 | 3,090.0 | 135 | 138 | 130 | 13.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 452.0 | 3.8 | 326.6 | 975.8 | 32 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.4 | 0.0 | 142.4 | 0.0 | 10.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,612.0 | 3,624.0 | 2,142.00 | 0.31 | 16.43 | 38.7 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 6 | 0 | 2,680.0 | 135 | 138 | 130 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 455.4 | 3.9 | 327.4 | 980.8 | 37 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 10.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,624.0 | 3,991.0 | 2,509.00 | 2.82 | 19.25 | 130.1 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 70 | 3,266.0 | 147 | 150 | 144 | 15.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 452.0 | 3.8 | 326.6 | 975.8 | 30 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.4 | 0.0 | 142.4 | 0.0 | 10.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 3,991.0 | 4,012.0 | 2,530.00 | 0.51 | 19.76 | 41.2 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 8 | 0 | 2,712.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 455.4 | 3.9 | 327.4 | 980.8 | 36 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 10.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 4,012.0 | 4,556.0 | 3,074.00 | 4.52 | 24.28 | 120.4 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 40 | 70 | 3,206.0 | 147 | 150 | 144 | 15.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| WALNUT PLUG MED | 13.75 | 24.0 |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DIESEL FOR OBM | Gal | 41,967.0 | 32,079.0 | 0.0 |
| DRILLING CUTTINGS | Cu. Yds | 345.0 | 345.0 | 0.0 |
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | MIXING CHEMICALS |
| 05:30 | Pre-Tour | MAKING CONNECTIONS |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 452.0 | 3.8 | 326.6 | 975.8 | 30 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.4 | 0.0 | 142.4 | 0.0 | 10.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 4,556.0 | 4,571.0 | 3,089.00 | 0.63 | 24.91 | 23.8 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 17 | 0 | 2,820.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 453.7 | 3.8 | 327.0 | 978.3 | 35 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.6 | 0.0 | 142.6 | 0.0 | 10.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 4,571.0 | 5,124.0 | 3,642.00 | 4.22 | 29.13 | 131.0 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 69 | 3,036.0 | 147 | 150 | 144 | 16.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 464.9 | 3.9 | 327.0 | 1,002.5 | 33 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.6 | 0.0 | 142.6 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,124.0 | 5,151.0 | 3,669.00 | 1.05 | 30.18 | 25.7 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 0 | 2,499.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 466.7 | 4.0 | 327.4 | 1,005.0 | 40 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.8 | 0.0 | 142.8 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,151.0 | 5,313.0 | 3,831.00 | 1.07 | 31.25 | 151.4 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 36 | 70 | 3,178.0 | 147 | 150 | 144 | 19.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 463.2 | 3.9 | 326.6 | 1,000.0 | 31 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.4 | 0.0 | 142.4 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,313.0 | 5,330.0 | 3,848.00 | 0.95 | 32.20 | 17.9 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 2,528.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 466.7 | 4.0 | 327.4 | 1,005.0 | 40 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.8 | 0.0 | 142.8 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,330.0 | 5,409.0 | 3,927.00 | 0.63 | 32.83 | 125.4 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 40 | 70 | 3,165.0 | 147 | 150 | 144 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 463.2 | 3.9 | 326.6 | 1,000.0 | 32 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.4 | 0.0 | 142.4 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,409.0 | 5,428.0 | 3,946.00 | 1.02 | 33.85 | 18.6 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 0 | 2,550.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 466.7 | 4.0 | 327.4 | 1,005.0 | 39 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.8 | 0.0 | 142.8 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,428.0 | 5,596.0 | 4,114.00 | 1.27 | 35.12 | 132.3 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 36 | 70 | 3,187.0 | 147 | 150 | 144 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 463.2 | 3.9 | 326.6 | 1,000.0 | 31 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.4 | 0.0 | 142.4 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,596.0 | 5,613.0 | 4,131.00 | 0.71 | 35.83 | 23.9 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 0 | 2,628.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 466.7 | 4.0 | 327.4 | 1,005.0 | 38 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.8 | 0.0 | 142.8 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,613.0 | 5,690.0 | 4,208.00 | 0.68 | 36.51 | 113.2 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 40 | 70 | 3,139.0 | 147 | 150 | 144 | 16.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 463.2 | 3.9 | 326.6 | 1,000.0 | 32 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.4 | 0.0 | 142.4 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,690.0 | 5,711.0 | 4,229.00 | 0.72 | 37.23 | 29.2 | 796 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 34 | 0 | 2,655.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 466.7 | 4.0 | 327.4 | 1,005.0 | 38 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.8 | 0.0 | 142.8 | 0.0 | 10.35 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,711.0 | 5,972.0 | 4,490.00 | 2.00 | 39.23 | 130.5 | 794 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 40 | 70 | 3,140.0 | 147 | 150 | 144 | 16.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 400.5 | 3.4 | 326.6 | 864.7 | 28 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.4 | 0.0 | 142.4 | 0.0 | 8.95 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,972.0 | 5,980.0 | 4,498.00 | 0.75 | 39.98 | 10.7 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 8 | 0 | 2,624.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 402.0 | 3.4 | 327.0 | 866.9 | 33 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.6 | 0.0 | 142.6 | 0.0 | 8.95 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co… | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 3,636.00 | 9.87 | 258.53 | 3,610.15 | -32.35 | -48.95 | -312.82 | 0.48 |
| 3,731.00 | 9.85 | 259.14 | 3,703.75 | -34.65 | -52.10 | -328.78 | 0.11 |
| 3,826.00 | 9.54 | 260.10 | 3,797.39 | -36.70 | -54.99 | -344.52 | 0.37 |
| 3,920.00 | 8.90 | 260.97 | 3,890.18 | -38.39 | -57.47 | -359.37 | 0.70 |
| 4,014.00 | 9.90 | 260.20 | 3,982.92 | -40.10 | -59.98 | -374.52 | 1.07 |
| 4,109.00 | 10.70 | 258.72 | 4,076.38 | -42.33 | -63.10 | -391.21 | 0.89 |
| 4,204.00 | 10.22 | 260.17 | 4,169.80 | -44.60 | -66.26 | -408.17 | 0.58 |
| 4,299.00 | 9.99 | 261.65 | 4,263.33 | -46.36 | -68.90 | -424.62 | 0.37 |
| 4,393.00 | 9.71 | 262.16 | 4,355.95 | -47.78 | -71.16 | -440.54 | 0.31 |
| 4,487.00 | 9.10 | 263.92 | 4,448.68 | -48.84 | -73.03 | -455.79 | 0.72 |
| 4,582.00 | 9.52 | 262.65 | 4,542.43 | -49.83 | -74.83 | -471.05 | 0.49 |
| 4,676.00 | 10.10 | 260.45 | 4,635.06 | -51.35 | -77.20 | -486.89 | 0.73 |
| 4,771.00 | 10.08 | 260.76 | 4,728.59 | -53.20 | -79.91 | -503.31 | 0.06 |
| 4,865.00 | 9.90 | 260.89 | 4,821.16 | -54.94 | -82.51 | -519.41 | 0.19 |
| 4,959.00 | 9.29 | 260.58 | 4,913.85 | -56.64 | -85.03 | -534.87 | 0.65 |
| 5,053.00 | 8.26 | 259.66 | 5,006.74 | -58.35 | -87.49 | -549.00 | 1.11 |
| 5,148.00 | 9.41 | 259.01 | 5,100.62 | -60.29 | -90.19 | -563.34 | 1.22 |
| 5,243.00 | 9.06 | 257.10 | 5,194.38 | -62.65 | -93.34 | -578.25 | 0.49 |
| 5,337.00 | 9.12 | 256.08 | 5,287.20 | -65.32 | -96.79 | -592.70 | 0.18 |
| 5,432.00 | 9.78 | 255.38 | 5,380.91 | -68.37 | -100.64 | -607.81 | 0.71 |
| 5,526.00 | 9.17 | 254.32 | 5,473.63 | -71.61 | -104.68 | -622.75 | 0.67 |
| 5,621.00 | 9.35 | 254.53 | 5,567.39 | -74.93 | -108.78 | -637.47 | 0.19 |
| 5,716.00 | 10.49 | 256.11 | 5,660.97 | -78.22 | -112.91 | -653.31 | 1.23 |
| 5,811.00 | 10.25 | 255.60 | 5,754.42 | -81.52 | -117.09 | -669.89 | 0.27 |
| 5,905.00 | 8.20 | 255.44 | 5,847.20 | -84.51 | -120.86 | -684.48 | 2.18 |

# Partner Drilling Report

**Report Date: 7/4/2017**
**Report #: 6.0, DFS: 4.96**
**Time Log DFS: 4.96**
**Depth Progress: 1,732.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 73.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION | ROTATE / SLIDE DRLG IN INTERMEDIATE SECTION AS PER HUNT DRILLING PROG AND MOTIVE DRILLING DIRECTIONAL PLAN, TD SECTION, CIRCULATE AND CONDITION HOLE. WIPER TRIP, CIRCULATE AND CONDITION. POOH AND LAY DOWN DIRECTIONAL TOOLS. P/U AND RUN 9 5/8" INTERMEDIATE CASING. CEMENT 9 5/8" INTERMEDIATE CASING |

Short Report
ROTATE SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT, C/O SWAB ON MP #2, ROTATE SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT, RIG SERVICE, ROTATE SLIDE DRLG IN INTERMEDIATE SECTION ,

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 6,791.5 | 168.2 | -206.6 | 3,175.0 | 374.8 | 0.0 | 3,616.5 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 08:45 | 2.75 | 10IHVD, Int Hole Vert Drill | DR | b | O | ROTATE SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT F/5980' TO 6248<br><br>268' @ 97 FPH AVG ROP |
| 08:45 | 10:00 | 1.25 | 10IHVD, Int Hole Vert Drill | TR | o | O | C/O SWAB ON # 2 MUD PUMP. |
| 10:00 | 17:00 | 7.00 | 10IHVD, Int Hole Vert Drill | DR | b | O | ROTATE SLIDE DRLG IN INTERMEDIATE SECTION BUILDING 9.5 DEGREE TANGENT F/6248' TO 6900<br><br>652' @ 87 FPH AVG ROP |
| 17:00 | 17:30 | 0.50 | 10IHVD, Int Hole Vert Drill | RM | b | O | RIG SERVICE |
| 17:30 | 06:00 | 12.50 | 10IHVD, Int Hole Vert Drill | DR | b | O | ROTATE SLIDE DRLG IN INTERMEDIATE SECTION F/6900 TO 7712'<br><br>812' @ 65 FPH AVG ROP |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 11:00 | AQUAGEL WBM | 6,421.0 | 9.30 | 33 | 5.0 | 8.003 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 9.004 | 13.005 | 16.007 | 50.0 | 2 | 10.0 | |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 94.5 | 41,000.000 | | | |

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 03:00 | AQUAGEL WBM | 7,585.0 | 9.20 | 32 | 4.0 | 10.004 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 9.004 | 14.006 | 17.007 | 50.0 | | 10.0 | |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 94.5 | 40,000.000 | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 919.1 | |
| Hole | Hole | 121.8 | |
| Hole | Hole | 1,040.8 | |
| Tank | Tank | 494.0 | |
| Hole | Hole | 1,534.8 | |
| Tank | Tank | 750.0 | |
| Addition | Addition | 350.0 | |
| Addition | Addition | 24.8 | |
| Tank | Tank | 1,931.0 | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| Day Total (Cost) | Cum To Date (Cost) |
| 56,993 | 506,292 |
| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
| 4,999 | 18,235 |
| Start Depth (ftKB) | End Depth (ftKB) |
| 5,980.0 | 7,712.0 |
| Planned Formation | Planned TMD (ftKB) |
| WOLFCAMP B | 19,360.0 |

Last Casing String
Surface Casing, 1,462.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| DEAN DUFFY, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 22.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| Rig Supervisor | Phone Mobile |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,558.0 | No | 104 | 87 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 2,868.0 | No | 104 | 87 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,558.0 | No | 104 | 87 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 2,868.0 | No | 104 | 87 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| AQUAGEL | 6.00 | 30.0 |
| AQUAGEL | 150.00 | 7.46 |
| CARBONOX | 11.00 | 12.0 |
| CAUSTIC SODA | 29.40 | 20.0 |
| CON DET | 59.00 | 6.0 |
| EZ MUD | 85.03 | 5.0 |
| MF-55 | 89.00 | 1.0 |
| PAC-R | 149.00 | 2.0 |
| SAPP STICK | 17.36 | 40.0 |
| SODA ASH | 13.25 | 14.0 |
| WALNUT PLUG MED | 13.75 | 17.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/4/2017**
**Report #: 6.0, DFS: 4.96**
**Time Log DFS: 4.96**
**Depth Progress: 1,732.00**

### Drill Strings

#### BHA #2, Intermediate

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 12 1/4in, XS616S, JM9343 | 1-1-WT-T-X-1-NO-TD | 0.78 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 16/16/16/16/16/16 | 1,234.43 | | 98.1 |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.88 | 640.35 | IF |
| HWDP | 1 | 5 | 3.88 | 30.60 | IF |
| XO Sub | 1 | 7 5/8 | 3.88 | 3.61 | IF |
| Drill Collar | 2 | 6 1/2 | 2.50 | 61.01 | NC46 |
| Drilling Jars - Mechanical | 1 | 6 1/2 | 2.25 | 28.05 | NC46 |
| Drill Collar | 9 | 6 1/2 | 2.50 | 273.17 | NC46 |
| XO Sub | 1 | 8 | 2.75 | 3.25 | NC46 |
| Drill Collar | 3 | 8 | 2.81 | 92.27 | NC56 |
| XO Sub | 1 | 7 15/16 | 3.13 | 3.03 | NC56 |
| Drill Collar - Non Mag | 1 | 8 1/16 | 3.75 | 29.36 | REG |
| Non-Mag Hangoff Sub | 1 | 8 1/16 | 3.75 | 5.72 | REG |
| Drill Collar - Non Mag | 1 | 8 | 3.75 | 29.63 | REG |
| Stabilizer | 1 | 8 | 2.88 | 4.58 | REG |
| Mud Motor - Bent Housing | 1 | 8 | 2.88 | 28.50 | REG |

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,980.0 | 5,994.0 | 4,512.00 | 1.00 | 40.98 | 14.0 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 12 | 0 | 2,624.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 402.0 | 3.4 | 327.0 | 866.9 | 33 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.6 | 0.0 | 142.6 | 0.0 | 8.95 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 5,994.0 | 6,840.0 | 5,358.00 | 7.50 | 48.48 | 112.8 | 793 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 40 | 70 | 3,383.0 | 147 | 150 | 144 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 414.6 | 3.5 | 326.2 | 896.3 | 26 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.2 | 0.0 | 142.2 | 0.0 | 9.30 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 6,840.0 | 6,861.0 | 5,379.00 | 2.30 | 50.78 | 9.1 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 0 | 2,709.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 417.8 | 3.5 | 327.0 | 900.8 | 33 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.6 | 0.0 | 142.6 | 0.0 | 9.30 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 6,861.0 | 6,918.0 | 5,436.00 | 0.21 | 50.99 | 271.4 | 793 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 37 | 74 | 3,222.0 | 147 | 150 | 144 | 20.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DIESEL FOR OBM | Gal | 41,967.0 | 32,079.0 | 0.0 |
| DRILLING CUTTINGS | Cu. Yds | 345.0 | 345.0 | 0.0 |
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | HAND PLACEMENT |
| 05:30 | Pre-Tour | HAND PLACEMENT |

### Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 414.6 | 3.5 | 326.2 | 896.3 | 28 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.2 | 0.0 | 142.2 | 0.0 | 9.30 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 6,918.0 | 6,937.0 | 5,455.00 | 2.19 | 53.18 | 8.7 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 8 | 0 | 2,697.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 417.8 | 3.5 | 327.0 | 900.8 | 33 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.6 | 0.0 | 142.6 | 0.0 | 9.30 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 6,937.0 | 7,199.0 | 5,717.00 | 2.37 | 55.55 | 110.5 | 793 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 73 | 3,346.0 | 147 | 150 | 144 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 414.6 | 3.5 | 326.2 | 896.3 | 27 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.2 | 0.0 | 142.2 | 0.0 | 9.30 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,199.0 | 7,216.0 | 5,734.00 | 1.45 | 57.00 | 11.7 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 4 | 0 | 2,795.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 417.8 | 3.5 | 327.0 | 900.8 | 32 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.6 | 0.0 | 142.6 | 0.0 | 9.30 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,216.0 | 7,585.0 | 6,103.00 | 3.63 | 60.63 | 101.7 | 793 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 39 | 74 | 3,394.0 | 147 | 150 | 144 | 19.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 410.2 | 3.5 | 326.2 | 886.7 | 26 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.2 | 0.0 | 142.2 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,585.0 | 7,601.0 | 6,119.00 | 1.68 | 62.31 | 9.5 | 795 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 4 | 0 | 2,853.0 | 147 | 150 | 144 | 0.0 | 0.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 413.3 | 3.5 | 327.0 | 891.1 | 31 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.6 | 0.0 | 142.6 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,601.0 | 7,712.0 | 6,230.00 | 1.00 | 63.31 | 111.0 | 793 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 40 | 72 | 3,380.0 | 147 | 150 | 144 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 410.2 | 3.5 | 326.2 | 886.7 | 26 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 142.2 | 0.0 | 142.2 | 0.0 | 9.20 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| Other | C/O SWAB ON # 2 MUD PUMP. | 7/3/2017 | 6,248.0 | 6,248.0 | | 1.25 |

Action Taken
C/O SWAB ON # 2 MUD PUMP.

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 6,000.00 | 7.87 | 257.53 | 5,941.27 | -86.93 | -123.97 | -697.39 | 0.46 |
| 6,095.00 | 6.96 | 260.04 | 6,035.47 | -88.69 | -126.37 | -709.41 | 1.02 |
| 6,190.00 | 5.10 | 265.36 | 6,129.94 | -89.50 | -127.70 | -719.29 | 2.04 |

# Well Name: UNIVERSITY 3-35 #101HB

**Survey Data**

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 6,284.00 | 4.19 | 263.87 | 6,223.63 | -89.81 | -128.41 | -726.86 | 0.98 |
| 6,378.00 | 3.27 | 264.16 | 6,317.43 | -90.12 | -129.05 | -732.95 | 0.98 |
| 6,473.00 | 2.45 | 270.68 | 6,412.31 | -90.13 | -129.30 | -737.67 | 0.93 |
| 6,568.00 | 1.82 | 276.23 | 6,507.25 | -89.75 | -129.11 | -741.20 | 0.70 |
| 6,662.00 | 1.48 | 277.49 | 6,601.21 | -89.29 | -128.79 | -743.89 | 0.36 |
| 6,756.00 | 1.10 | 276.92 | 6,695.18 | -88.91 | -128.52 | -745.99 | 0.40 |
| 6,851.00 | 0.98 | 271.37 | 6,790.17 | -88.69 | -128.39 | -747.71 | 0.16 |
| 6,945.00 | 2.38 | 253.23 | 6,884.13 | -89.09 | -128.94 | -750.38 | 1.57 |
| 7,039.00 | 2.31 | 245.19 | 6,978.05 | -90.26 | -130.30 | -753.97 | 0.36 |
| 7,134.00 | 0.98 | 219.30 | 7,073.01 | -91.57 | -131.73 | -756.22 | 1.57 |
| 7,228.00 | 1.21 | 247.09 | 7,166.99 | -92.50 | -132.74 | -757.64 | 0.61 |
| 7,323.00 | 1.14 | 251.64 | 7,261.97 | -93.09 | -133.43 | -759.46 | 0.12 |
| 7,417.00 | 0.56 | 220.41 | 7,355.96 | -93.68 | -134.07 | -760.65 | 0.77 |
| 7,512.00 | 0.33 | 223.81 | 7,450.96 | -94.20 | -134.62 | -761.14 | 0.24 |
| 7,606.00 | 0.79 | 241.20 | 7,544.95 | -94.67 | -135.13 | -761.89 | 0.52 |
| 7,701.00 | 0.91 | 257.37 | 7,639.94 | -95.08 | -135.61 | -763.20 | 0.28 |

# Partner Drilling Report

**Report Date: 7/5/2017**
**Report #: 7.0, DFS: 5.96**
**Time Log DFS: 5.96**
**Depth Progress: 126.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | P. CLOUDY | 70.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| RUNNING 9 5/8" INTERMEDIATE CASING STRING TO 2752' @ REPORT TIME | CONTINUE TO RUN 9 5/8" INTERMEDIATE CASING. CEMENT 9 5/8" INTERMEDIATE CASING. P/U DRILL OUT ASSEMBLY AND DRILL OUT. |

**Short Report**

ROTATE SLIDE DRLG IN INTERMEDIATE SECTION, CIRCULATE AND CONDITION HOLE. WIPER TRIP, CIRCULATE AND CONDITION, POOH @ 80 FT PER MIN, PULL ROTATING HEAD RUBBER AND INSTALL TRIP NIPPLE, POOH AND L/D DCs, WOW, CONTINUE TO L/D DCs, LAY DOWN DIRECTIONAL TOOLS. PULL WEAR BUSHING , CLEAN RIG FLOOR, PJSM, R/U CASING EQUIP, P/U AND RUN 9 5/8" INTERMEDIATE CASING AT REPORT TIME.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 4,326.9 | -2,464.6 | -2,275.6 | 2,891.0 | 3.0 | 192.0 | 1,435.9 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 07:15 | 1.25 | 10IHVD, Int Hole Vert Drill | DR | b | O | ROTATE SLIDE DRLG IN INTERMEDIATE SECTION F/7712' to 7838' TD INTERMEDIATE SECTION @ 0715 HRS.<br><br>126' @ 101 FPH AVG ROP |
| 07:15 | 08:30 | 1.25 | 12IHC, Int Hole Csg | CI | d | O | PUMP 50 BBL HI-VIS SWEEP AND CIRCULATE BOTTOMS UP.<br><br>NOTIFY TRRC @ 0730 HRS ON 7-4-17 FOR INTERMEDIATE CASING AND CMT JOB, SPOKE WITH WHITNEY, OPERATOR 87. |
| 08:30 | 12:30 | 4.00 | 12IHC, Int Hole Csg | TP | e | O | WIPER TRIP TO 5000' & BACK TO BOTTOM |
| 12:30 | 14:15 | 1.75 | 12IHC, Int Hole Csg | CI | g | O | PUMP TWO 40 BBL HI-VIS SWEEPS AND CIRCULATE BOTTOMS UP. |
| 14:15 | 18:30 | 4.25 | 12IHC, Int Hole Csg | TP | c | O | FLOW CHECK, POOH F/7838' TO 1233' |
| 18:30 | 19:00 | 0.50 | 12IHC, Int Hole Csg | OT | e | O | PULL ROTATING HEAD RUBBER ELEMENT & INSTALL TRIP NIPPLE. |
| 19:00 | 19:30 | 0.50 | 12IHC, Int Hole Csg | TP | c | O | POOH HWDP F/ 1233' TO 558' |
| 19:30 | 20:30 | 1.00 | 12IHC, Int Hole Csg | TP | c | O | LAY DOWN 6 1/2" & 8" DRILL COLLARS. |
| 20:30 | 21:00 | 0.50 | 12IHC, Int Hole Csg | OT | c | O | WAIT ON WEATHER - HIGH WINDS AND LIGHTENING. |
| 21:00 | 21:30 | 0.50 | 12IHC, Int Hole Csg | TP | b | O | CONTINUE TO LAY DOWN 6 1/2" DCs & 8" DCs. |
| 21:30 | 23:00 | 1.50 | 12IHC, Int Hole Csg | TP | b | O | DRAIN MOTOR, BREAK BIT AND LAY DOWN DIRECTIONAL TOOLS. |
| 23:00 | 23:15 | 0.25 | 12IHC, Int Hole Csg | WH | c | O | PULL WEAR BUSHING |
| 23:15 | 23:45 | 0.50 | 12IHC, Int Hole Csg | RM | b | O | CLEAN RIG FLOOR |
| 23:45 | 00:45 | 1.00 | 12IHC, Int Hole Csg | CS | a | O | HOLD PJSM WITH BYRD CASING CREW AND H&P PERSONNEL. R/U UP CASING RUNNING EQUIPMENT. |
| 00:45 | 06:00 | 5.25 | 12IHC, Int Hole Csg | CS | b | O | P/U AND MAKE UP SHOE TRACK. TEST FLOATS - GOOD TEST. P/U AND RUN 67 JOINTS OF 9 5/8" 40# SEAH-80HC BT&C INTERMEDIATE CASING @ REPORT TIME. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 07:00 | AQUAGEL WBM | 7,838.0 | 9.30 | 33 | 5.0 | 9.004 |

| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 9.004 | 15.006 | 19.008 | 25.0 | 2 | 10.0 | |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | | 94.0 | 40,000.000 | | | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |

| Day Total (Cost) | Cum To Date (Cost) |
|---|---|
| 34,707 | 540,999 |

| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
|---|---|
| 1,737 | 19,972 |

| Start Depth (ftKB) | End Depth (ftKB) |
|---|---|
| 7,712.0 | 7,838.0 |

| Planned Formation | Planned TMD (ftKB) |
|---|---|
| WOLFCAMP B | 19,360.0 |

**Last Casing String**
Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| DEAN DUFFY, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 22.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |

| Rig Supervisor | Phone Mobile |
|---|---|
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 3,100.0 | No | 104 | 87 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| 6 | 11.00 | 0.091 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 3,100.0 | No | 104 | 87 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| AQUAGEL | 6.00 | 25.0 |
| CARBONOX | 11.00 | 5.0 |
| CAUSTIC SODA | 29.40 | 3.0 |
| EZ MUD | 85.03 | 3.0 |
| PAC-R | 149.00 | 3.0 |
| WALNUT PLUG MED | 13.75 | 3.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 41,967.0 | 32,079.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING CUTTINGS | Cu. Yds |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 345.0 | 345.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 8,216.0 | 8,216.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/5/2017**
**Report #: 7.0, DFS: 5.96**
**Time Log DFS: 5.96**
**Depth Progress: 126.00**

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 01:00 | AQUAGEL WBM | 7,838.0 | 9.30 | 40 | 6.0 | 8.003 |

| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 9.004 | 15.006 | 20.008 | 25.0 | 2 | 10.0 | |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | | 95.5 | 40,000.000 | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 86.3 | |
| Hole | Hole | 0.0 | |
| Hole | Hole | 1,053.3 | |
| Tank | Tank | 210.0 | |
| Hole | Hole | 296.3 | |
| Tank | Tank | 750.0 | |
| Addition | Addition | 0.0 | |
| Addition | Addition | 3.0 | |
| Tank | Tank | 1,931.0 | |
| Loss | LOSS | 192.0 | |

### Drill Strings

#### BHA #2, Intermediate

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 12 1/4in, XS616S, JM9343 | 1-1-WT-T-X-1-NO-TD | 0.78 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 16/16/16/16/16/16 | 1,234.43 | | 98.1 |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.88 | 640.35 | IF |
| HWDP | 1 | 5 | 3.88 | 30.60 | IF |
| XO Sub | 1 | 7 5/8 | 3.88 | 3.61 | IF |
| Drill Collar | 2 | 6 1/2 | 2.50 | 61.01 | NC46 |
| Drilling Jars - Mechanical | 1 | 6 1/2 | 2.25 | 28.05 | NC46 |
| Drill Collar | 9 | 6 1/2 | 2.50 | 273.17 | NC46 |
| XO Sub | 1 | 8 | 2.75 | 3.25 | NC46 |
| Drill Collar | 3 | 8 | 2.81 | 92.27 | NC56 |
| XO Sub | 1 | 7 15/16 | 3.13 | 3.03 | NC56 |
| Drill Collar - Non Mag | 1 | 8 1/16 | 3.75 | 29.36 | REG |
| Non-Mag Hangoff Sub | 1 | 8 1/16 | 3.75 | 5.72 | REG |
| Drill Collar - Non Mag | 1 | 8 | 3.75 | 29.63 | REG |
| Stabilizer | 1 | 8 | 2.88 | 4.58 | REG |
| Mud Motor - Bent Housing | 1 | 8 | 2.88 | 28.50 | REG |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,712.0 | 7,838.0 | 6,356.00 | 1.50 | 64.81 | 84.0 | 793 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 40 | 72 | 3,380.0 | 147 | 150 | 144 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 414.6 | 3.5 | 326.2 | 896.3 | 27 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 142.2 | 0.0 | 142.2 | 0.0 | 9.30 |

Error

### Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

### Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | USING TAIL ROPE/ TRIPPING PIPE |
| 05:30 | Pre-Tour | RUNNING CASING & WK W/3RD PARTY HANDS |

### Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 7,783.00 | 0.43 | 259.23 | 7,721.94 | -95.23 | -135.81 | -764.14 | 0.59 |

# Partner Drilling Report

**Report Date: 7/6/2017**
**Report #: 8.0, DFS: 6.96**
**Time Log DFS: 6.96**
**Depth Progress: 0.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | OVERCAST/LIGHTENING IN DISTANCE | 72.0 | GOOD | GOOD |

**Current Status/OART**
CIRCULATE BOTTOMS UP @ REPORT TIME

**24 Hour Forecast**
CONTINUE TO CIRCULATE BOTTOMS UP. PUMP SECOND STAGE CEMENT. L/D LANDING JOINT, CLEAN OUT BOP AND INSTALL PACKOFF. TEST PACKOFF AND INSTALL WEAR BUSHING. LAY OUT AND P/U DRILL OUT ASSEMBLY. TIH, TEST CASING AND DRILL OUT FLOAT EQUIPMENT AND CEMENT. DRILL 10' OF NEW HOLE AND PERFORM A F.I.T..

**Short Report**
CONTINUE TO RUN 9 5/8" CASING TO 7818'. LAND CASING AND R/D CASING EQUIPMENT. R/U CIRCULATING SWAGE AND CIRCULATE. CIRCULATE WHILE WAITING ON LABS. SCHLUMBERGER PUMP TRUCK COMPUTER SHORTED OUT, CIRCULATE HOLE WHILE WAITING ON SECOND PUMP TRUCK. R/U SCHLUMBERGER CEMENT HEAD AND IRON. CIRCULATE WHILE MIXING FIRST STAGE CEMENT. PUMP FIRST STAGE CEMENT JOB. DROP DV BOMB, OPEN DV TOOL AND CIRCULATE BOTTOMS UP @ REPORT TIME.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,665.2 | -2,661.7 | -2,754.9 | 1,182.0 | 200.5 | 107.3 | 483.2 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 13:00 | 7.00 | 12IHC, Int Hole Csg | CS | b | O | CONTINUE RUNNING 9-5/8" SEAH-80HC BTC INTERMEDIATE CSG FROM 2752' TO 7818'. P/U 9-5/8" LANDING JOINT AND LAND CASING @ 7818'. LANDED CASING IN WELLHEAD.<br><br>NOTE: LOSE PIPE DISPLACEMENT @ 5677'.<br><br>NOTABLE DEPTHS & ACCESSORIES:<br><br>- 9-5/8" ECCENTRIC NOSE DOWN JET FLOAT SHOE @ 7818'<br>- 9-5/8" FLOAT COLLAR, WITH BAFFLE PLATE @ 7725.8'<br>- TAM CONTINGENCY BAFFLE PLATE @ 5019.3'<br>- TAM PACKER @ 5002'<br>- 9-5/8" SUMMIT DV TOOL @ 5,016.5'<br><br>TOTAL CENTRALIZERS (32) 11" x 8" STRAIGHT BLADE SOLID BODY CENTRALIZERS.<br><br>TOTAL 9-5/8" 40# H-80HC BTC INTERMEDIATE CASING RAN-184 JOINTS. MAKE UP TORQUE 8,000 FT/LBS TO TRIANGLE |
| 13:00 | 13:15 | 0.25 | 12IHC, Int Hole Csg | CS | a | O | R/D CASING RUNNING EQUIPMENT. |
| 13:15 | 13:30 | 0.25 | 12IHC, Int Hole Csg | CI | g | O | R/U SCHLUMBERGER CIRCULATING SWAGE |
| 13:30 | 15:30 | 2.00 | 12IHC, Int Hole Csg | CI | g | O | FILL PIPE AND BREAK CIRCULATION. CIRCULATE 1.5 CASING CAPACITY.<br><br>NOTE: REGAINED FULL RETURNS WHILE CIRCULATING. |
| 15:30 | 17:00 | 1.50 | 12IHC, Int Hole Csg | TR | q | O | CONTINUE CIRCULATING WHILE WAITING ON SCHLUMBERGER CEMENT LAB TESTS FOR TAIL SLURRY. |
| 17:00 | 23:15 | 6.25 | 12IHC, Int Hole Csg | TR | o | O | SCHLUMBERGER PUMP TRUCK COMPUTER SHORTED OUT. CIRCULATE HOLE WHILE WAITING ON SECOND PUMP TRUCK. |
| 23:15 | 23:45 | 0.50 | 12IHC, Int Hole Csg | CE | d | O | R/U SCHLUMBERGER CEMENT HEAD AND HARD LINES. |
| 23:45 | 00:30 | 0.75 | 12IHC, Int Hole Csg | TR | q | O | CIRCULATE WITH RIG PUMPS WHILE MIXING CEMENT. |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 265,008 | 806,007 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co...** |
| 906 | 20,878 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 7,838.0 | 7,838.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

**Last Casing String**
Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| MARTY ARREZOLA, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

**Head Count**
22.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter... |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b...** |
| 6 | 11.00 | 0.091 |
| **P (psi)** | **Slow Spd** | **Strokes (s...** | **Eff (%)** |
| | | | |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter... |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b...** |
| 6 | 11.00 | 0.091 |
| **P (psi)** | **Slow Spd** | **Strokes (s...** | **Eff (%)** |
| | | | |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| CAUSTIC SODA | 29.40 | 7.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| **Total Received** | **Total Consumed** | **On Loc** |
| 41,967.0 | 32,079.0 | 0.0 |
| **Supply Item Description** | **Unit Label** |
| DRILLING CUTTINGS | Cu. Yds |
| **Total Received** | **Total Consumed** | **On Loc** |
| 345.0 | 345.0 | 0.0 |
| **Supply Item Description** | **Unit Label** |
| DRILLING WATER | Bbl |
| **Total Received** | **Total Consumed** | **On Loc** |
| 8,216.0 | 8,216.0 | 0.0 |
| **Supply Item Description** | **Unit Label** |
| DRILLING WATER | Bbl |
| **Total Received** | **Total Consumed** | **On Loc** |
| 0.0 | 0.0 | 0.0 |
| **Supply Item Description** | **Unit Label** |
| FUEL | Gal |
| **Total Received** | **Total Consumed** | **On Loc** |
| 39,093.0 | 31,761.0 | 0.0 |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 00:30 | 04:45 | 4.25 | 12IHC, Int Hole Csg | CE | a | O | HOLD PJSM WITH SCHLUMBERGER, H&P AND HOC PERSONNEL ABOUT CEMENTING.<br><br>TEST LINES TO 3500 PSI. TEST GOOD.<br><br>STAGE 1:<br><br>- MIX & PUMP 20 BBL OF 8.33 PPG VISCOSIFIER WATER SPACER. MIX & PUMP 40 BBL OF 10.0 PPG MUD PUSH EXPRESS SPACER.<br><br>- LEAD SLURRY: MIX & PUMP 281 BBLS (628 SKS) OF CLASS C CEMENT @ 11.5 PPG, YIELD 2.51 FT3/SK, MIX FLUID 14.76 GAL/SK.<br><br>- TAIL SLURRY: MIX & PUMP 40 BBLS (209 SKS) OF CLASS H CEMENT @ 16.4 PPG, YIELD 1.07 FT3/SK, MIX FLUID 4.38 GAL/SK.<br><br>- DROP 1ST STAGE DART PLUG. DISPLACE CEMENT W/ 586 BBLS, 8.5 PPG WBM. BUMP PLUG TO 2000 PSI, 650 PSI OVER CIRCULATING PRESSURE. HELD PRESSURE FOR 5 MINS.<br><br>PROCEDURE TO SET TAM PACKER:<br><br>- INCREASE PRESSURE TO 2,000 PSI @ 2 BBL/MIN USED .5 BBL. PRESSURE HOLDING.<br><br>- INCREASE PRESSURE TO 2,200 PSI @ 2 BBL/MIN USED .5 BBL. PRESSURE HOLDING.<br><br>- INCREASE PRESSURE TO 2,400 PSI @ 2 BBL/MIN USED .5 BBL. PRESSURE HOLDING.<br><br>- INCREASE PRESSURE TO 2,600 PSI @ 2 BBL/MIN USED .5 BBL. PRESSURE HOLDING.<br><br>- INCREASE PRESSURE TO 2,800 PSI @ 2 BBL/MIN USED .5 BBL. PRESSURE HOLDING.<br><br>- INCREASE PRESSURE TO 3,000 PSI @ 2 BBL/MIN USED .75 BBL. PRESSURE HOLDING<br><br>- INCREASE PRESSURE TO 3,300 PSI @ 2 BBL/MIN USED .75 BBL. PRESSURE HOLDING<br><br>- INCREASE PRESSURE TO 3,500 PSI @ 2 BBL/MIN USED .75 BBLS. PACKER OPENS AT 2750 PSI.<br><br>- BLED OFF PRESSURE & GOT BACK 4.5 BBLS. FLOATS HELD. GOOD RETURNS DURING 1ST STAGE CEMENT JOB. |
| 04:45 | 05:15 | 0.50 | 12IHC, Int Hole Csg | CE | a | O | DROP DV TOOL OPENING DEVICE & LET SAME FREE FALL FOR 30 MINS. PRESSURE UP TO 835 PSI. PRESSURE FELL OFF TO 530 PSI. INDICATED THAT THE DV TOOL OPENED. |
| 05:15 | 06:00 | 0.75 | 12IHC, Int Hole Csg | CI | g | O | CIRCULATE BOTTOMS UP. |

## Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | AQUAGEL WBM | 7,838.0 | 9.30 | 33 | 5.0 | 8.003 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 8.003 | 14.006 | 19.008 | 25.0 | 2 | 10.0 | |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 95.0 | 40,000.000 | | | |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | AQUAGEL WBM | 7,838.0 | 9.00 | 29 | 4.0 | 7.003 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 4.002 | 11.005 | 14.006 | | | 10.0 | |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | | 96.0 | 40,000.000 | | | |

## Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

## Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | HIGH PRESSURE CEMENT LINES |
| 00:30 | Pre-Job | CEMENTING OPERATIONS |
| 05:30 | Pre-Tour | BUFFER ZONE |

## Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

## Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

## Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 483.2 | |
| Tank | Tank | 432.0 | |
| Tank | Tank | 750.0 | |
| Addition | Addition | 200.0 | |
| Addition | Addition | 0.5 | |
| Loss | LOSS | 107.3 | |

## Drill Strings

### BHA #<stringno>, <des>

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| | | | |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| | | | |

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| | | | | | |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| | | | | |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| | | | | |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|

# Partner Drilling Report

**Report Date: 7/7/2017**
**Report #: 9.0, DFS: 7.96**
**Time Log DFS: 7.96**
**Depth Progress: 10.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | PARTLY CLOUDY | 73.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| POOH TO PICK UP DIRECTIONAL BHA @ REPORT TIME. | POOH, L/D BIT AND BIT SUB. M/U DIRECTIONAL CURVE BHA AND TIH. DRILL TO KOP AND SURVEY. BUILD CURVE AND SURVEY. |

Short Report

CONTINUE CIRCULATING BOTTOMS UP. PUMP 2ND STAGE CEMENT JOB. R/D CEMENT EQUIPMENT AND L/D LANDING JOINT. WASH STACK AND FLUSH THROUGH LINES. SET PACKOFF AND TEST. INSTALL WEAR BUSHING, MAKE UP BIT SUB AND BIT. TIH TO 3182', PERFROM RIG SERVICE AND TIH TO 4999'. TEST CASING ABOVE DV TOOL. DRILL OUT DV TOOL AND CONTIGENCY BAFFLE F/ 5012' TO 5113'. TIH F/ 5113' TO 7725'. TEST CASING TO 1500 PSI. DRILL OUT FLOAT EQUIPMENT AND CEMENT F/ 7725' TO 7838'. DRILL 10' OF NEW FORMATION F/ 7838' TO 7848'. CIRCULATE BOTTOMS UP AND SPOT LCM PILL. PERFORM F.I.T. POOH TO PICK UP CURVE ASSEMBLY

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,759.3 | 94.1 | 914.2 | 840.0 | 88.5 | 908.6 | 919.3 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 06:15 | 0.25 | 12IHC, Int Hole Csg | CI | g | O | CONTINUE CIRCULATING ONE BOTTOMS UP. OBSERVED +/- 20 BBLS OF CEMENT ABOVE DV TOOL. |
| 06:15 | 09:30 | 3.25 | 12IHC, Int Hole Csg | CE | a | O | STAGE 2:<br><br>- MIX & PUMP 20 BBL OF 8.3 PPG VISCOSIFIED WATER.<br><br>- LEAD SLURRY: MIX & PUMP 377 BBL (700 SKS) OF CLASS H CEMENT @ 11 PPG, YIELD 3.00 FT3/SK, MIX FLUID 18.64 GAL/SK<br><br>- TAIL SLURRY:MIX & PUMP 23 BBL (81 SKS) OF CLASS H CEMENT @ 14 PPG, YIELD 1.57 FT3/SK, MIX FLUID 8.02 GAL/SK<br><br>- DROP CLOSING DEVICE. DISPLACE CEMENT W/ 380 BBL OF 8.3 PPG FRESH WATER, BUMP PLUG AT 2,500 PSI, 1,500 PSI OVER CIRCULATING PRESSURE. HELD PRESSURE FOR 5 MINS. BLEED PRESSURE & GOT BACK 3 BBLS. DV TOOL CLOSED.<br><br>FULL RETURNS DURING 2ND STAGE CEMENT JOB.<br><br>NOTE: BEGIN CLEANING PITS @ 8:00. |
| 09:30 | 10:30 | 1.00 | 12IHC, Int Hole Csg | CE | d | O | R/D CEMENT EQUIPMENT.<br><br>FLUSH KILL LINE, FLOW LINE AND SHAKER BYPASS. |
| 10:30 | 11:00 | 0.50 | 12IHC, Int Hole Csg | RE | a | O | L/D LANDING JOINT AND CHANGE OUT ELEVATORS. |
| 11:00 | 15:15 | 4.25 | 12IHC, Int Hole Csg | WH | d | O | M/U WELL HEAD WASH TOOL. WASH TOP OF WELL HEAD.<br><br>M/U RUNNING TOOL AND SET PACKOFF WITH 10K DOWN. TEST PACKOFF TO 5000 PSI. PULL 50K OVER ON PACKOFF TO VERIFY LATCH RING IS FULLY EXTENDED - LATCH RING FULLY EXTENDED. |
| 15:15 | 16:00 | 0.75 | 12IHC, Int Hole Csg | WH | c | O | INSTALL SHORT WEAR BUSHING. |
| 16:00 | 16:30 | 0.50 | 12IHC, Int Hole Csg | TP | b | O | MAKE UP 8 3/4" SMITH XR+C117 MILL TOOTH BIT AND BIT SUB. |
| 16:30 | 17:30 | 1.00 | 12IHC, Int Hole Csg | TP | a | O | TIH WITH 7 STANDS OF 5" HWDP AND 5" DP TO 3182'. |
| 17:30 | 18:00 | 0.50 | 12IHC, Int Hole Csg | RM | b | O | SERVICE RIG. CHANGE OUT ST-80 HOSE. |
| 18:00 | 19:30 | 1.50 | 12IHC, Int Hole Csg | TP | a | O | TIH TO 4999'. |
| 19:30 | 20:00 | 0.50 | 12IHC, Int Hole Csg | PT | a | O | FILL PIPE. TEST CASING ABOVE DV TOOL TO 1500 PSI FOR 10 MINUTES - TEST GOOD. |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 84,990 | 890,996 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co…** |
| 865 | 21,743 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 7,838.0 | 7,848.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 22.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 6 | 11.00 | 0.091 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| | | | |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 6 | 11.00 | 0.091 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| | | | |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| WALNUT PLUG MED | 13.75 | 12.0 |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DIESEL FOR OBM | Gal | 41,967.0 | 32,079.0 | 0.0 |
| DRILLING CUTTINGS | Cu. Yds | 345.0 | 345.0 | 0.0 |
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/7/2017**
**Report #: 9.0, DFS: 7.96**
**Time Log DFS: 7.96**
**Depth Progress: 10.00**

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 20:00 | 22:00 | 2.00 | 12IHC, Int Hole Csg | CS | d | O | DRILL OUT CEMENT AND DV TOOL. DRILL WITH 15 WOB, 267 GPM, 60 RPM, 361 SPP.<br><br>DV TOOL @ 5012'.<br><br>RUN IN ONE STAND. TAG AND DRILL OUT CONTINGENCY BAFFLE @ 5113'. |
| 22:00 | 23:00 | 1.00 | 12IHC, Int Hole Csg | TP | a | O | TIH F/ 5113' TO 7725', TAG FLOAT COLLAR @ 7725'. |
| 23:00 | 00:00 | 1.00 | 12IHC, Int Hole Csg | PT | a | O | FILL PIPE. TEST CASING TO 1500 PSI AND HOLD FOR 30 MINUTES - TEST GOOD. |
| 00:00 | 03:00 | 3.00 | 12IHC, Int Hole Csg | CS | d | O | DRILL OUT SHOE TRACK AND CEMENT F/ 7725' TO 7838'. DRILL WITH 15 WOB, 267 GPM, 60 RPM, 361 SPP. |
| 03:00 | 03:30 | 0.50 | 12IHC, Int Hole Csg | DR | a | O | DRILL 10' OF NEW FORMATION F/ 7838 TO 7848' |
| 03:30 | 04:30 | 1.00 | 12IHC, Int Hole Csg | CI | g | O | CIRCULATE BOTTOMS UP |
| 04:30 | 05:00 | 0.50 | 12IHC, Int Hole Csg | CI | d | O | MIX AND PUMP LCM PILL. |
| 05:00 | 05:30 | 0.50 | 12IHC, Int Hole Csg | PT | b | O | PERFORM F.I.T. WITH 8.7 PPG WBM. PRESSURED UP TO 940 PSI, BLED TO 935 PSI IN 5 MINUTES. TEST GOOD. EMW 11.0 PPG. |
| 05:30 | 06:00 | 0.50 | 12IHC, Int Hole Csg | TP | c | O | POOH TO 6877'. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g... | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 01:00 | AQUAGEL WBM | 7,838.0 | 8.80 | 28 | 1.0 | 3.001 |

| Gel 10 sec (kPa) (lb... | Gel 10 min (kPa) (l... | Gel 30 min (kPa) (lb... | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 1.000 | 3.001 | 3.001 | | | 9.0 | |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (... | Calcium (kg/m³) (m... | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | | 97.2 | 38,000.000 | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 392.6 | |
| Tank | Tank | 90.0 | |
| Tank | Tank | 750.0 | |
| Addition | Addition | 86.9 | |
| Addition | Addition | 1.6 | |
| Loss | LOSS | 908.6 | |
| Hole | PIPE | 526.7 | |

### Drill Strings

#### BHA #3, Clean Out

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 3/4in, XR+C117, <sn> | 1-1-CT-C-1-1-WT-BHA | 0.92 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 20/20/20 | 643.65 | | 20.0 |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | | 5 | 3.00 | 640.35 | IF |
| Bit Sub | | 6 1/2 | 2.50 | 2.50 | IF |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,838.0 | 7,848.0 | 10.00 | 0.50 | 0.50 | 20.0 | 426 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 70 | 820.0 | | | | 9.5 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 43.7 | 0.7 | 148.6 | 175.9 | 21 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 197.1 | 0.0 | 76.4 | 0.0 | 8.80 |

Error

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | TRIPPING PIPE |
| 05:30 | Pre-Tour | HAND AND BODY PLACEMENT |

### Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Partner Drilling Report

**Report Date: 7/8/2017**
**Report #: 10.0, DFS: 8.96**
**Time Log DFS: 8.96**
**Depth Progress: 310.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 74.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| BUILD PRODUCTION CURVE AND SURVEY @ REPORT TIME | BUILD 8 1/2" PRODUCTION CURVE AND SURVEY PER DIRECTIONAL PLAN 1A. LAND CURVE, DRILL 8 1/2" PRODUCTION HOLE AND SURVEY. |

Short Report

CONTINUE TO POOH AND P/U DIRECTIONAL ASSEMBLY. TIH TO 7781'. HANG BLOCKS, SLIP AND CUT DRILL LINE. WASH TO BOTTOM F/ 7781' TO 7848'. DISPLACE HOLE WITH OBM. DRILL AND SURVEY TO KOP F/ 7848' TO 7915'. BUILD CURVE AND SURVEY F/ 7915' TO 8158'.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,933.4 | 174.1 | 171.7 | 1,404.0 | 6.1 | 3.7 | 529.4 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 09:45 | 3.75 | 12IHC, Int Hole Csg | TP | c | O | POOH F/ 6877' TO P/U CURVE DIRECTIONAL ASSEMBLY. BREAK BIT.<br><br>NOTE: DE LAUNE DRILLING ON LOCATION TO RE-DRILL UNIVERSITY 3-35 #104HB CONDUCTOR, CELLAR AND MOUSE HOLES. |
| 09:45 | 10:30 | 0.75 | 12IHC, Int Hole Csg | TP | b | O | MAKE UP SDI 2.0° MUD MOTOR, NMDC AND HANG OFF SUB. SCRIBE MOTOR AND ATTEMPT TO STAB THE MWD TOOL. MWD TOOL STABILIZERS NOT FITTING IN NMDC. |
| 10:30 | 11:00 | 0.50 | 12IHC, Int Hole Csg | TR | q | S | SCIENTIFIC TRIMMED STABILIZER FINS ON MWD TOOL DOWN TO FIT IN NMDC. |
| 11:00 | 11:45 | 0.75 | 12IHC, Int Hole Csg | TP | b | O | MAKE UP SECOND NMDC. SHALLOW TEST MWD TOOL - TEST GOOD. MAKE UP 8 1/2"SECURITY MMD55DM PDC. |
| 11:45 | 12:30 | 0.75 | 12IHC, Int Hole Csg | TP | a | O | TIH F/ 109' TO 1802'. P/U AGITATOR AND TEST.<br><br>PRESSURE BEFORE P/U AGITATOR 950 @ 540 GPM. PRESSURE AFTER P/U AGITAOR 1180 @ 540 GPM. |
| 12:30 | 16:00 | 3.50 | 12IHC, Int Hole Csg | TP | a | O | TIH F/ 1802' TO 7781'. |
| 16:00 | 16:30 | 0.50 | 12IHC, Int Hole Csg | TP | a | O | FILL PIPE AND CHANGE OUT ST-80 HOSE. |
| 16:30 | 17:00 | 0.50 | 12IHC, Int Hole Csg | OT | e | O | PULL TRIP NIPPLE AND INTALL ROTATING HEAD RUBBER. |
| 17:00 | 18:30 | 1.50 | 12IHC, Int Hole Csg | RM | a | O | HANG BLOCKS, SLIP AND CUT DRILL LINE. |
| 18:30 | 19:00 | 0.50 | 12IHC, Int Hole Csg | RM | b | O | PERFORM RIG SERVICE. GREASE BLOCKS, CHECK OIL IN TOP DRIVE AND CALIBRATE DRAW WORKS. |
| 19:00 | 19:15 | 0.25 | 12IHC, Int Hole Csg | TP | a | O | WASH TO BOTTOM F/ 7781' TO 7848'. |
| 19:15 | 21:00 | 1.75 | 12IHC, Int Hole Csg | CI | c | O | DISPLACE WBM IN HOLE WITH 9.00 PPG OBM. |
| 21:00 | 23:45 | 2.75 | 22PHCD, Prod Hole Curve Drill | DR | b | O | DRILL TO KOP AND SURVEY F/ 7848' TO 7915'.<br><br>KOP @ 7915'.<br><br>AVG ROP: 24.36 FT/HR |
| 23:45 | 06:00 | 6.25 | 22PHCD, Prod Hole Curve Drill | DR | b | O | BUILD 8 1/2" CURVE AND SURVEY F/ 7915' TO 8158' PER DIRECTIONAL PLAN 1A.<br><br>AVG ROP: 38.88 FT/HR |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 15:00 | INVERMUL | 7,848.0 | 9.20 | 66 | 13.0 | 14.006 |

| Gel 10 sec (kPa) (lb… | Gell 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 10.004 | 16.007 | 21.009 | | | | 8.0 |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | 69.0 | 23.0 | 45,000.000 | 21,000.000 | | 600.0 |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 45,955 | 936,952 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co…** |
| 2,685 | 24,428 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 7,848.0 | 8,158.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,643.0 | No | 100 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 2,643.0 | No | 99 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BARABLOK 400 | 85.00 | 5.0 |
| CALCIUM CHL 95 -98% | 17.10 | 5.0 |
| CON DET | 59.00 | 3.0 |
| DRILTREAT | 97.02 | 1.0 |
| INVERMUL | 558.60 | 1.0 |
| LIME | 6.00 | 40.0 |
| SUSPENTONE | 134.10 | 3.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 41,967.0 | 32,079.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING CUTTINGS | Cu. Yds |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 345.0 | 345.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 8,216.0 | 8,216.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/8/2017**
**Report #: 10.0, DFS: 8.96**
**Time Log DFS: 8.96**
**Depth Progress: 310.00**

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g... | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 01:00 | INVERMUL | 7,892.0 | 9.00 | 59 | 12.0 | 13.005 |

| Gel 10 sec (kPa) (lb... | Gel 10 min (kPa) (l... | Gel 30 min (kPa) (lb... | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 13.005 | 18.007 | 22.009 | | | | 8.0 |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (... | Calcium (kg/m³) (m... | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | 69.0 | 23.0 | 45,000.000 | 22,000.000 | | 625.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 393.4 | |
| Tank | Tank | 520.0 | |
| Tank | Tank | 884.0 | |
| Addition | Addition | | |
| Addition | Addition | 6.1 | |
| Loss | LOSS | 3.7 | |
| Hole | PIPE | 136.0 | |

### Drill Strings

#### BHA #4, Curve

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55DM, 12926846 | 1-2-CT-H-X-1-FC-BHA | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.32 | | 89.1 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.0 | |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.68 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.72 | IF |

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,848.0 | 7,915.0 | 67.00 | 2.82 | 2.82 | 23.8 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 65 | 2,589.0 | 179 | 208 | 190 | 9.3 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.6 | 0.4 | 91.7 | 70.0 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 245.2 | 0.0 | 95.0 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,915.0 | 7,949.0 | 101.00 | 1.27 | 4.09 | 26.8 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 16 | 0 | 2,423.0 | 187 | 204 | 189 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,949.0 | 7,968.0 | 120.00 | 0.49 | 4.58 | 38.8 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 23 | 60 | 2,578.0 | 178 | 200 | 194 | 9.3 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 0.0 | 0.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | P/U DIRECTIONAL TOOLS |
| 05:30 | Pre-Tour | SLIP AND CUTTING DRILL LINE |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 7,968.0 | 8,008.0 | 160.00 | 0.88 | 5.46 | 45.5 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 2,488.0 | 183 | 209 | 194 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,008.0 | 8,015.0 | 167.00 | 0.30 | 5.76 | 23.3 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 17 | 65 | 2,577.0 | 182 | 201 | 194 | 8.9 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,015.0 | 8,048.0 | 200.00 | 0.66 | 6.42 | 50.0 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 17 | 0 | 2,485.0 | 180 | 211 | 194 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,048.0 | 8,062.0 | 214.00 | 0.36 | 6.78 | 38.9 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 24 | 60 | 2,560.0 | 181 | 209 | 195 | 8.8 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,062.0 | 8,090.0 | 242.00 | 0.60 | 7.38 | 46.7 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 24 | 0 | 2,491.0 | 182 | 214 | 204 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,090.0 | 8,110.0 | 262.00 | 0.40 | 7.78 | 50.0 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 60 | 2,584.0 | 179 | 202 | 192 | 8.9 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,110.0 | 8,133.0 | 285.00 | 0.51 | 8.29 | 45.1 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 22 | 0 | 2,494.0 | 181 | 210 | 192 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,133.0 | 8,155.0 | 307.00 | 0.62 | 8.91 | 35.5 | 530 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 60 | 2,594.0 | 179 | 202 | 192 | 9.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 21.2 | 0.4 | 91.7 | 68.5 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 245.2 | 0.0 | 95.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,155.0 | 8,158.0 | 310.00 | 0.07 | 8.98 | 42.9 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 0 | 2,409.0 | 179 | 202 | 192 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 7,913.00 | 1.32 | 341.54 | 7,851.92 | -93.85 | -134.48 | -765.10 | 1.02 |
| 7,959.00 | 6.01 | 348.07 | 7,897.82 | -90.96 | -131.62 | -765.76 | 10.22 |
| 8,008.00 | 12.42 | 352.42 | 7,946.16 | -83.16 | -123.88 | -766.99 | 13.15 |
| 8,054.00 | 18.51 | 354.26 | 7,990.47 | -70.93 | -111.70 | -768.37 | 13.28 |
| 8,102.00 | 22.89 | 352.74 | 8,035.36 | -54.00 | -94.85 | -770.31 | 9.19 |

# Partner Drilling Report

**Report Date: 7/9/2017**
**Report #: 11.0, DFS: 9.96**
**Time Log DFS: 9.96**
**Depth Progress: 1,427.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 77.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL @ REPORT TIME | DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL. |

Short Report

BUILD AND SURVEY 8 1/2" CURVE F/ 8158' TO 8393'. TROUBLESHOOT MWD SURFACE EQUIPMENT. BUILD AND SURVEY 8 1/2" CURVE F/ 8393' TO 8771'. DOWN LINK TO MWD TOO. BUILD CURVE AND SURVEY F/ 8771' TO 8877'. LAND CURVE @ 8877'. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 8877' TO 9585'.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,879.7 | -53.7 | 0.1 | 1,288.0 | 72.8 | 126.6 | 591.7 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 11:30 | 5.50 | 22PHCD, Prod Hole Curve Drill | DR | b | O | BUILD CURVE AND SURVEY F/ 8158' TO 8393'.<br><br>AVG ROP: 42.7 FT/HR |
| 11:30 | 12:00 | 0.50 | 22PHCD, Prod Hole Curve Drill | TR | o | S | MWD NOT CATCHING SYNC. TROUBLESHOOT SURFACE EQUIPMENT. CHANGE OUT TRANSDUCER. |
| 12:00 | 19:15 | 7.25 | 22PHCD, Prod Hole Curve Drill | DR | b | O | BUILD CURVE AND SURVEY F/ 8393' TO 8771'.<br><br>AVG ROP: 52.1 FT/HR |
| 19:15 | 19:45 | 0.50 | 22PHCD, Prod Hole Curve Drill | TR | q | S | DOWN LINK TO MWD TOOL TO REPROGRAM FROM HIGH SPEED TO STANDARD SPEED DUE TO NOT GETTING TOOL FACES. |
| 19:45 | 22:00 | 2.25 | 22PHCD, Prod Hole Curve Drill | DR | c | O | BUILD CURVE AND SURVEY F/ 8771' TO 8877'. LAND CURVE @ 8877', INC 88.14°.<br><br>AVG ROP: 47.1 FT/HR. |
| 22:00 | 06:00 | 8.00 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 8877' TO 9585'.<br><br>AVG ROP: 88.5 FT/HR |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 8,233.0 | 9.00 | 58 | 15.0 | 13.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 13.005 | 19.008 | 25.010 | | | | 8.5 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 68.0 | 23.5 | 30,000.000 | 25,000.000 | | 750.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 8,771.0 | 9.00 | 57 | 15.0 | 14.006 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 13.005 | 18.007 | 24.010 | | | | 9.0 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 68.0 | 23.0 | 60,000.000 | 40,000.000 | | 800.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 438.2 | |
| Tank | Tank | 497.0 | |
| Tank | Reserve | 791.0 | |
| Addition | Addition | 30.0 | |
| Addition | Addition | 42.8 | |
| Loss | LOSS | 126.6 | |
| Hole | PIPE | 153.5 | |

### Drill Strings

#### BHA #4, Curve

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55DM, 12926846 | 1-2-CT-H-X-1-FC-BHA | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.32 | | 89.1 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.0 | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| Day Total (Cost) | Cum To Date (Cost) |
| 67,061 | 1,004,013 |
| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
| 4,465 | 28,893 |
| Start Depth (ftKB) | End Depth (ftKB) |
| 8,158.0 | 9,585.0 |
| Planned Formation | Planned TMD (ftKB) |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| Rig Supervisor | Phone Mobile |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 3,084.0 | No | 105 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 3,084.0 | No | 104 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BARABLOK 400 | 85.00 | 18.0 |
| CALCIUM CHL 95 -98% | 17.10 | 36.0 |
| LIME | 6.00 | 24.0 |
| SUSPENTONE | 134.10 | 11.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| Total Received | Total Consumed | On Loc |
| 41,967.0 | 32,079.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING CUTTINGS | Cu. Yds |
| Total Received | Total Consumed | On Loc |
| 345.0 | 345.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING WATER | Bbl |
| Total Received | Total Consumed | On Loc |
| 8,216.0 | 8,216.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

**Report Date: 7/9/2017**
**Report #: 11.0, DFS: 9.96**
**Time Log DFS: 9.96**
**Depth Progress: 1,427.00**

## Well Name: UNIVERSITY 3-35 #101HB

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.68 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.72 | IF |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,158.0 | 8,182.0 | 334.00 | 0.74 | 9.72 | 32.4 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 9 | 0 | 2,633.0 | 186 | 216 | 195 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,182.0 | 8,203.0 | 355.00 | 0.51 | 10.23 | 41.2 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 40 | 2,765.0 | 178 | 214 | 195 | 8.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,203.0 | 8,250.0 | 402.00 | 0.84 | 11.07 | 56.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 2,692.0 | 178 | 216 | 195 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,250.0 | 8,254.0 | 406.00 | 0.41 | 11.48 | 9.8 | 55 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 23 | 40 | 2,716.0 | 185 | 215 | 198 | 7.9 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 0.0 | 0.0 | 9.5 | 0.7 | 0 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 25.4 | 0.0 | 9.9 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,254.0 | 8,294.0 | 446.00 | 0.73 | 12.21 | 54.8 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 14 | 0 | 2,692.0 | 180 | 207 | 200 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 0.0 | 0.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | MIXING CHEMICALS |
| 05:30 | Pre-Tour | MAN BASKET OPERATION |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,294.0 | 8,298.0 | 450.00 | 0.31 | 12.52 | 12.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 21 | 40 | 2,750.0 | 182 | 212 | 193 | 7.9 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,298.0 | 8,329.0 | 481.00 | 0.59 | 13.11 | 52.5 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 2,703.0 | 178 | 213 | 193 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,329.0 | 8,334.0 | 486.00 | 0.42 | 13.53 | 11.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 40 | 2,768.0 | 176 | 214 | 193 | 9.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,334.0 | 8,367.0 | 519.00 | 0.40 | 13.93 | 82.5 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 2,713.0 | 178 | 208 | 195 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,367.0 | 8,391.0 | 543.00 | 0.50 | 14.43 | 48.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 40 | 2,764.0 | 178 | 216 | 195 | 9.2 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,391.0 | 8,416.0 | 568.00 | 0.40 | 14.83 | 62.5 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 21 | 0 | 2,714.0 | 175 | 208 | 195 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,416.0 | 8,439.0 | 591.00 | 0.47 | 15.30 | 48.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 40 | 2,804.0 | 176 | 214 | 192 | 9.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,439.0 | 8,480.0 | 632.00 | 0.57 | 15.87 | 71.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 2,747.0 | 172 | 207 | 193 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,480.0 | 8,488.0 | 640.00 | 0.34 | 16.21 | 23.5 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 23 | 40 | 2,825.0 | 177 | 208 | 195 | 9.4 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,488.0 | 8,518.0 | 670.00 | 0.51 | 16.72 | 58.8 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 16 | 0 | 2,703.0 | 179 | 205 | 204 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,518.0 | 8,534.0 | 686.00 | 0.38 | 17.10 | 42.1 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 40 | 2,761.0 | 181 | 210 | 183 | 9.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,534.0 | 8,556.0 | 708.00 | 0.40 | 17.50 | 55.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 16 | 0 | 2,702.0 | 181 | 219 | 205 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,556.0 | 8,581.0 | 733.00 | 0.45 | 17.95 | 55.6 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 50 | 2,776.0 | 181 | 216 | 193 | 9.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,581.0 | 8,603.0 | 755.00 | 0.36 | 18.31 | 61.1 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 2,706.0 | 180 | 216 | 193 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,603.0 | 8,629.0 | 781.00 | 0.51 | 18.82 | 51.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 27 | 50 | 2,754.0 | 182 | 216 | 199 | 10.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,629.0 | 8,644.0 | 796.00 | 0.30 | 19.12 | 50.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 2,718.0 | 181 | 221 | 198 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,644.0 | 8,676.0 | 828.00 | 0.69 | 19.81 | 46.4 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 29 | 50 | 2,835.0 | 181 | 221 | 198 | 10.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,676.0 | 8,692.0 | 844.00 | 0.26 | 20.07 | 61.5 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 16 | 0 | 2,814.0 | 181 | 221 | 198 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,692.0 | 8,724.0 | 876.00 | 0.64 | 20.71 | 50.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 50 | 2,900.0 | 181 | 221 | 198 | 10.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,724.0 | 8,737.0 | 889.00 | 0.26 | 20.97 | 50.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 12 | 0 | 2,687.0 | 184 | 224 | 212 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,737.0 | 8,771.0 | 923.00 | 0.48 | 21.45 | 70.8 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 27 | 50 | 2,811.0 | 181 | 203 | 198 | 10.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,771.0 | 8,785.0 | 937.00 | 0.47 | 21.92 | 29.8 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 10 | 0 | 2,726.0 | 185 | 215 | 206 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,785.0 | 8,818.0 | 970.00 | 0.59 | 22.51 | 55.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 50 | 2,868.0 | 180 | 210 | 196 | 10.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,818.0 | 8,843.0 | 995.00 | 0.48 | 22.99 | 52.1 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 14 | 0 | 2,753.0 | 184 | 222 | 205 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,843.0 | 8,866.0 | 1,018.00 | 0.49 | 23.48 | 46.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 50 | 2,891.0 | 179 | 203 | 192 | 10.9 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,866.0 | 8,877.0 | 1,029.00 | 0.23 | 23.71 | 47.8 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 23 | 0 | 2,784.0 | 182 | 212 | 208 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 8,877.0 | 9,025.0 | 1,177.00 | 1.74 | 25.45 | 85.1 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 50 | 2,931.0 | 180 | 208 | 182 | 11.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,025.0 | 9,036.0 | 1,188.00 | 0.23 | 25.68 | 47.8 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 13 | 0 | 2,818.0 | 182 | 213 | 206 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,036.0 | 9,306.0 | 1,458.00 | 2.69 | 28.37 | 100.4 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 29 | 60 | 3,025.0 | 179 | 215 | 190 | 11.7 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,306.0 | 9,320.0 | 1,472.00 | 0.39 | 28.76 | 35.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 2,833.0 | 180 | 218 | 204 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,320.0 | 9,400.0 | 1,552.00 | 0.89 | 29.65 | 89.9 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 27 | 70 | 3,023.0 | 179 | 207 | 184 | 12.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,400.0 | 9,412.0 | 1,564.00 | 0.48 | 30.13 | 25.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 13 | 0 | 2,823.0 | 181 | 208 | 193 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,412.0 | 9,585.0 | 1,737.00 | 1.58 | 31.71 | 109.5 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 70 | 3,060.0 | 179 | 207 | 184 | 11.5 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co… | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 8,148.00 | 25.11 | 351.63 | 8,077.39 | -35.36 | -76.31 | -772.87 | 4.92 |
| 8,197.00 | 28.16 | 351.48 | 8,121.18 | -13.49 | -54.59 | -776.09 | 6.23 |
| 8,243.00 | 33.81 | 352.89 | 8,160.60 | 10.10 | -31.14 | -779.29 | 12.38 |
| 8,291.00 | 41.51 | 356.75 | 8,198.58 | 39.38 | -1.95 | -781.85 | 16.77 |
| 8,337.00 | 47.42 | 358.74 | 8,231.39 | 71.58 | 30.23 | -783.09 | 13.20 |
| 8,386.00 | 50.33 | 358.85 | 8,263.62 | 108.46 | 67.12 | -783.86 | 5.94 |
| 8,432.00 | 54.12 | 359.33 | 8,291.79 | 144.79 | 103.47 | -784.43 | 8.28 |
| 8,480.00 | 60.50 | 359.15 | 8,317.70 | 185.14 | 143.84 | -784.97 | 13.30 |
| 8,526.00 | 65.39 | 359.83 | 8,338.62 | 226.05 | 184.80 | -785.33 | 10.71 |
| 8,575.00 | 69.83 | 359.19 | 8,357.28 | 271.30 | 230.09 | -785.72 | 9.14 |
| 8,621.00 | 73.65 | 358.29 | 8,371.69 | 314.95 | 273.75 | -786.69 | 8.51 |
| 8,670.00 | 76.33 | 358.05 | 8,384.38 | 362.27 | 321.05 | -788.20 | 5.49 |
| 8,716.00 | 78.71 | 358.25 | 8,394.32 | 407.17 | 365.94 | -789.65 | 5.19 |
| 8,764.00 | 80.69 | 358.72 | 8,402.90 | 454.38 | 413.15 | -790.90 | 4.24 |
| 8,810.00 | 82.55 | 358.46 | 8,409.60 | 499.86 | 458.64 | -792.02 | 4.08 |
| 8,859.00 | 86.67 | 359.78 | 8,414.21 | 548.60 | 507.41 | -792.76 | 8.83 |
| 8,953.00 | 88.69 | 0.57 | 8,418.01 | 642.37 | 601.32 | -792.48 | 2.31 |
| 9,047.00 | 91.21 | 0.75 | 8,418.09 | 736.17 | 695.31 | -791.39 | 2.69 |
| 9,141.00 | 92.32 | 359.91 | 8,415.20 | 829.96 | 789.26 | -790.85 | 1.48 |
| 9,236.00 | 93.13 | 358.45 | 8,410.68 | 924.78 | 884.14 | -792.21 | 1.76 |
| 9,330.00 | 93.77 | 359.67 | 8,405.02 | 1,018.54 | 977.96 | -793.75 | 1.46 |
| 9,425.00 | 93.49 | 1.07 | 8,399.01 | 1,113.18 | 1,072.76 | -793.14 | 1.50 |
| 9,519.00 | 94.57 | 359.89 | 8,392.40 | 1,206.77 | 1,166.52 | -792.35 | 1.70 |

# Partner Drilling Report

**Report Date: 7/10/2017**
**Report #: 12.0, DFS: 10.96**
**Time Log DFS: 10.96**
**Depth Progress: 2,745.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | PARTLY CLOUDY | 77.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL @ REPORT TIME | DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL. |

Short Report
DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 9585' TO 10597'. PERFORM RIG SERVICE. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 10597' TO 12330'.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,842.8 | -36.9 | 2.0 | 1,117.0 | 143.5 | 182.4 | 725.8 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 16:45 | 10.75 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 9585' TO 10597'<br><br>AVG ROP: 94.14 FT/HR. |
| 16:45 | 17:15 | 0.50 | 23PHLD, Prod Hole Lat Drill | RM | b | O | PERFORM RIG SERVICE. |
| 17:15 | 06:00 | 12.75 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 10597' TO 12330'.<br><br>AVG ROP: 135.92 FT/HR |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g... | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 9,831.0 | 9.10 | 58 | 15.0 | 14.006 |
| Gel 10 sec (kPa) (lb... | Gel 10 min (kPa) (l... | Gel 30 min (kPa) (lb... | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 11.005 | 18.007 | 23.009 | | | | 10.0 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (... | Calcium (kg/m³) (m... | Potassium (mg/L) | Electric Stab (V) |
| | 67.0 | 23.0 | 38,000.000 | 26,000.000 | | 850.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g... | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 10,886.0 | 9.10 | 59 | 17.0 | 14.006 |
| Gel 10 sec (kPa) (lb... | Gel 10 min (kPa) (l... | Gel 30 min (kPa) (lb... | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 13.005 | 20.008 | 25.010 | | | | 10.0 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (... | Calcium (kg/m³) (m... | Potassium (mg/L) | Electric Stab (V) |
| | 67.0 | 23.0 | 40,000.000 | 30,000.000 | | 800.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 534.8 | |
| Tank | Tank | 466.0 | |
| Tank | Reserve | 651.0 | |
| Addition | Addition | 50.0 | |
| Addition | Addition | 93.5 | |
| Loss | LOSS | 182.4 | |
| Hole | PIPE | 191.0 | |

### Drill Strings

**BHA #4, Curve**

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55DM, 12926846 | 1-2-CT-H-X-1-FC-BHA | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.32 | | 89.1 |

**Mud Motors**

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.0 | |

**Drill String Components**

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.68 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| Day Total (Cost) | Cum To Date (Cost) |
| 70,277 | 1,074,290 |
| Mud Field Est (Cost) | Cum Mud Field Est (Co... |
| 8,024 | 36,917 |
| Start Depth (ftKB) | End Depth (ftKB) |
| 9,585.0 | 12,330.0 |
| Planned Formation | Planned TMD (ftKB) |
| WOLFCAMP B | 19,360.0 |

Last Casing String
Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| Rig Supervisor | Phone Mobile |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter... |
|---|---|---|
| 1 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b... |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s... | Eff (%) |
| 3,324.0 | No | 105 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter... |
|---|---|---|
| 2 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b... |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s... | Eff (%) |
| 3,324.0 | No | 103 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BARABLOK 400 | 85.00 | 6.0 |
| BAROID (BULK) | 205.00 | 10.28 |
| CALCIUM CHL 95 -98% | 17.10 | 24.0 |
| DRILTREAT | 97.02 | 2.0 |
| LIME | 6.00 | 34.0 |
| RM-63 | 1,618.23 | 1.0 |
| SUSPENTONE | 134.10 | 17.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| Total Received | Total Consumed | On Loc |
| 41,967.0 | 32,079.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING CUTTINGS | Cu. Yds |
| Total Received | Total Consumed | On Loc |
| 345.0 | 345.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/10/2017**
**Report #: 12.0, DFS: 10.96**
**Time Log DFS: 10.96**
**Depth Progress: 2,745.00**

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.72 | IF |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,585.0 | 9,600.0 | 1,752.00 | 0.22 | 31.93 | 68.2 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 70 | 3,060.0 | 179 | 207 | 184 | 11.5 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,600.0 | 9,620.0 | 1,772.00 | 0.36 | 32.29 | 55.6 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 2,904.0 | 173 | 210 | 188 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,620.0 | 9,680.0 | 1,832.00 | 0.70 | 32.99 | 85.7 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 27 | 70 | 3,051.0 | 175 | 205 | 183 | 12.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,680.0 | 9,695.0 | 1,847.00 | 0.25 | 33.24 | 60.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 2,945.0 | 172 | 216 | 206 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 96.2 | 75.4 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,695.0 | 9,871.0 | 2,023.00 | 1.81 | 35.05 | 97.2 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 70 | 3,078.0 | 179 | 219 | 192 | 12.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.2 | 76.2 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.10 |

Error

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 8,216.0 | 8,216.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 0.0 | 0.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | HAND PLACEMENTS |
| 05:30 | Pre-Tour | WORKING IN HEAD. STAYING HYDRATED |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,871.0 | 9,889.0 | 2,041.00 | 0.30 | 35.35 | 60.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 17 | 0 | 2,997.0 | 171 | 205 | 206 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.2 | 76.2 | 3 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,889.0 | 9,972.0 | 2,124.00 | 0.81 | 36.16 | 102.5 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 70 | 3,130.0 | 176 | 211 | 191 | 12.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.2 | 76.2 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,972.0 | 9,992.0 | 2,144.00 | 0.30 | 36.46 | 66.7 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 21 | 0 | 3,078.0 | 171 | 216 | 208 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.2 | 76.2 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 9,992.0 | 10,149.0 | 2,301.00 | 1.63 | 38.09 | 96.3 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 35 | 70 | 3,181.0 | 183 | 226 | 196 | 12.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.2 | 76.2 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,149.0 | 10,164.0 | 2,316.00 | 0.25 | 38.34 | 60.0 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 3,086.0 | 173 | 216 | 216 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.2 | 76.2 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.10 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,164.0 | 10,423.0 | 2,575.00 | 2.44 | 40.78 | 106.1 | 556 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 34 | 70 | 3,286.0 | 184 | 227 | 199 | 12.9 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.2 | 76.2 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.3 | 0.0 | 99.7 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,423.0 | 10,443.0 | 2,595.00 | 0.36 | 41.14 | 55.6 | 559 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 17 | 0 | 3,274.0 | 180 | 225 | 216 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.1 | 0.4 | 96.7 | 77.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.7 | 0.0 | 100.2 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,443.0 | 10,518.0 | 2,670.00 | 0.70 | 41.84 | 107.1 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 70 | 3,392.0 | 185 | 222 | 197 | 13.7 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,518.0 | 10,543.0 | 2,695.00 | 0.41 | 42.25 | 61.0 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 17 | 0 | 3,248.0 | 179 | 228 | 214 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,543.0 | 10,593.0 | 2,745.00 | 0.20 | 42.45 | 250.0 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 75 | 3,460.0 | 179 | 228 | 214 | 14.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,593.0 | 10,800.0 | 2,952.00 | 1.20 | 43.65 | 172.5 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 75 | 3,534.0 | 179 | 228 | 214 | 14.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,800.0 | 10,817.0 | 2,969.00 | 0.34 | 43.99 | 50.0 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 11 | 0 | 3,256.0 | 182 | 221 | 185 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,817.0 | 10,895.0 | 3,047.00 | 0.57 | 44.56 | 136.8 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 3,517.0 | 184 | 233 | 193 | 14.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,895.0 | 10,907.0 | 3,059.00 | 0.22 | 44.78 | 54.5 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 3,275.0 | 181 | 218 | 201 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 10,907.0 | 11,079.0 | 3,231.00 | 1.07 | 45.85 | 160.7 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 75 | 3,642.0 | 186 | 223 | 198 | 15.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,079.0 | 11,096.0 | 3,248.00 | 0.23 | 46.08 | 73.9 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 0 | 3,306.0 | 174 | 219 | 202 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,096.0 | 11,173.0 | 3,325.00 | 0.54 | 46.62 | 142.6 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 75 | 3,544.0 | 186 | 175 | 202 | 15.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,173.0 | 11,187.0 | 3,339.00 | 0.27 | 46.89 | 51.9 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 0 | 3,299.0 | 180 | 226 | 219 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,187.0 | 11,271.0 | 3,423.00 | 0.62 | 47.51 | 135.5 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 75 | 3,553.0 | 189 | 223 | 202 | 15.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,271.0 | 11,281.0 | 3,433.00 | 0.17 | 47.68 | 58.8 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 21 | 0 | 3,365.0 | 174 | 202 | 186 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,281.0 | 11,645.0 | 3,797.00 | 2.11 | 49.79 | 172.5 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 75 | 3,689.0 | 181 | 210 | 187 | 16.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,645.0 | 11,661.0 | 3,813.00 | 0.28 | 50.07 | 57.1 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 22 | 0 | 3,367.0 | 183 | 209 | 211 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,661.0 | 11,932.0 | 4,084.00 | 1.56 | 51.63 | 173.7 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 29 | 75 | 3,695.0 | 184 | 227 | 187 | 15.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,932.0 | 11,947.0 | 4,099.00 | 0.32 | 51.95 | 46.9 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 0 | 3,359.0 | 174 | 228 | 217 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 11,947.0 | 12,030.0 | 4,182.00 | 0.59 | 52.54 | 140.7 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 75 | 3,642.0 | 186 | 222 | 199 | 16.3 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,030.0 | 12,047.0 | 4,199.00 | 0.40 | 52.94 | 42.5 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 12 | 0 | 3,356.0 | 178 | 232 | 190 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,047.0 | 12,218.0 | 4,370.00 | 1.05 | 53.99 | 162.9 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 75 | 3,875.0 | 183 | 213 | 187 | 17.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.0 | 0.4 | 96.5 | 76.8 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,218.0 | 12,234.0 | 4,386.00 | 0.41 | 54.40 | 39.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 24 | 0 | 3,361.0 | 169 | 210 | 193 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.6 | 0.4 | 96.0 | 76.0 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,234.0 | 12,313.0 | 4,465.00 | 0.57 | 54.97 | 138.6 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 75 | 3,678.0 | 182 | 211 | 188 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.6 | 0.4 | 96.0 | 76.0 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,313.0 | 12,330.0 | 4,482.00 | 0.25 | 55.22 | 68.0 | 557 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 29 | 0 | 3,465.0 | 182 | 211 | 188 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.9 | 0.4 | 96.3 | 76.5 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 257.7 | 0.0 | 99.9 | 0.0 | 9.10 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 9,614.00 | 93.83 | 0.09 | 8,385.44 | 1,301.39 | 1,261.27 | -792.37 | 0.81 |
| 9,709.00 | 93.09 | 2.59 | 8,379.71 | 1,395.93 | 1,356.06 | -790.15 | 2.74 |
| 9,803.00 | 94.17 | 1.36 | 8,373.76 | 1,489.38 | 1,449.81 | -786.92 | 1.74 |
| 9,892.00 | 93.63 | 2.85 | 8,367.71 | 1,577.81 | 1,538.54 | -783.65 | 1.78 |
| 9,985.00 | 92.25 | 2.99 | 8,362.94 | 1,670.19 | 1,631.30 | -778.92 | 1.49 |
| 10,076.00 | 91.31 | 4.02 | 8,360.11 | 1,760.55 | 1,722.08 | -773.36 | 1.53 |
| 10,166.00 | 90.07 | 2.11 | 8,359.02 | 1,850.03 | 1,811.94 | -768.55 | 2.53 |
| 10,258.00 | 89.70 | 1.74 | 8,359.21 | 1,941.69 | 1,903.89 | -765.46 | 0.57 |
| 10,349.00 | 90.47 | 0.75 | 8,359.07 | 2,032.43 | 1,994.86 | -763.48 | 1.38 |
| 10,444.00 | 89.19 | 2.00 | 8,359.36 | 2,127.15 | 2,089.83 | -761.20 | 1.88 |
| 10,538.00 | 86.37 | 2.98 | 8,363.00 | 2,220.63 | 2,183.66 | -757.12 | 3.18 |
| 10,633.00 | 85.16 | 2.49 | 8,370.01 | 2,314.89 | 2,278.29 | -752.60 | 1.37 |
| 10,727.00 | 84.92 | 0.97 | 8,378.14 | 2,408.21 | 2,371.89 | -749.78 | 1.63 |
| 10,822.00 | 86.44 | 0.58 | 8,385.30 | 2,502.73 | 2,466.61 | -748.49 | 1.65 |
| 10,916.00 | 88.76 | 359.76 | 8,389.23 | 2,596.49 | 2,560.52 | -748.22 | 2.62 |

# Well Name: UNIVERSITY 3-35 #101HB

**Survey Data**

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 11,011.00 | 89.89 | 358.96 | 8,390.35 | 2,691.40 | 2,655.51 | -749.28 | 1.46 |
| 11,105.00 | 89.40 | 0.87 | 8,390.93 | 2,785.27 | 2,749.50 | -749.42 | 2.10 |
| 11,200.00 | 86.44 | 1.51 | 8,394.38 | 2,879.94 | 2,844.41 | -747.45 | 3.19 |
| 11,294.00 | 87.72 | 2.75 | 8,399.17 | 2,973.43 | 2,938.22 | -743.96 | 1.89 |
| 11,389.00 | 88.79 | 1.68 | 8,402.06 | 3,067.99 | 3,033.10 | -740.29 | 1.59 |
| 11,483.00 | 89.30 | 359.92 | 8,403.63 | 3,161.76 | 3,127.07 | -738.97 | 1.95 |
| 11,578.00 | 90.03 | 359.46 | 8,404.19 | 3,256.65 | 3,222.07 | -739.49 | 0.91 |
| 11,673.00 | 88.99 | 0.89 | 8,405.00 | 3,351.50 | 3,317.06 | -739.20 | 1.86 |
| 11,767.00 | 89.06 | 359.84 | 8,406.60 | 3,445.32 | 3,411.04 | -738.60 | 1.12 |
| 11,861.00 | 89.53 | 359.01 | 8,407.75 | 3,539.22 | 3,505.03 | -739.54 | 1.01 |
| 11,955.00 | 87.95 | 359.34 | 8,409.82 | 3,633.13 | 3,599.00 | -740.90 | 1.72 |
| 12,050.00 | 88.05 | 1.27 | 8,413.14 | 3,727.90 | 3,693.93 | -740.39 | 2.03 |
| 12,144.00 | 89.23 | 0.75 | 8,415.37 | 3,821.64 | 3,787.89 | -738.73 | 1.37 |
| 12,239.00 | 89.97 | 1.72 | 8,416.03 | 3,916.38 | 3,882.86 | -736.69 | 1.28 |

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/11/2017**
**Report #: 13.0, DFS: 11.96**
**Time Log DFS: 11.96**
**Depth Progress: 2,443.00**

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 79.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL @ REPORT TIME | DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL. |

Short Report

DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 12330' TO 13616'. PERFORM RIG SERVICE. DRILL AND SURVEY 8 1/2" PRODUCTION LATAERAL F/ 13616' TO 14716'. TROUBLESHOOT PASON STAND PIPE PRESSURE SENSOR. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 14716' TO 14773'

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,885.3 | 42.5 | -2.0 | 969.0 | 211.8 | 167.3 | 916.3 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 17:15 | 11.25 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 12330' TO 13616'.<br><br>AVG ROP: 114.3 FT/HR. |
| 17:15 | 17:45 | 0.50 | 23PHLD, Prod Hole Lat Drill | RM | b | O | PERFORM RIG SERVICE. |
| 17:45 | 04:15 | 10.50 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 13616' TO 14716'.<br><br>AVG ROP: 104.76 FT/HR |
| 04:15 | 05:00 | 0.75 | 23PHLD, Prod Hole Lat Drill | TR | o | S | TROUBLESHOOT PASON STAND PIPE PRESSESURE SENSOR. SENSOR READING 300-400 PSI WHEN PUMPS ARE SHUT DOWN AND TWO INCH OPENED. |
| 05:00 | 06:00 | 1.00 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 14716' TO 14773.<br><br>AVG ROP: 57.0 FT/HR. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 12,761.0 | 9.00 | 59 | 15.0 | 15.006 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 12.005 | 17.007 | 20.008 | | | | 9.5 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 67.0 | 23.5 | 41,000.000 | 21,000.000 | | 800.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 14,042.0 | 9.00 | 57 | 15.0 | 13.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 11.005 | 17.007 | 19.008 | | | | 9.8 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 69.9 | 20.4 | 40,000.000 | 21,000.000 | | 800.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 671.8 | |
| Tank | Tank | 460.0 | |
| Tank | Reserve | 509.0 | |
| Addition | Addition | 70.0 | |
| Addition | Addition | 141.8 | |
| Loss | LOSS | 167.3 | |
| Hole | PIPE | 244.5 | |

### Drill Strings

#### BHA #4, Curve

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55DM, 12926846 | 1-2-CT-H-X-1-FC-BHA | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.32 | | 89.1 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.0 | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| Day Total (Cost) | Cum To Date (Cost) |
| 76,196 | 1,150,485 |
| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
| 4,430 | 41,346 |
| Start Depth (ftKB) | End Depth (ftKB) |
| 12,330.0 | 14,773.0 |
| Planned Formation | Planned TMD (ftKB) |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| Rig Supervisor | Phone Mobile |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 4,053.0 | No | 105 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 4,053.0 | No | 104 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BARABLOK 400 | 85.00 | 7.0 |
| BAROID (BULK) | 205.00 | 6.0 |
| CALCIUM CHL 95 -98% | 17.10 | 10.0 |
| CON DET | 59.00 | 4.0 |
| DRILTREAT | 97.02 | 3.0 |
| GELTONE V | 65.00 | 4.0 |
| INVERMUL | 558.60 | 1.0 |
| LIME | 6.00 | 20.0 |
| SUSPENTONE | 134.10 | 2.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| Total Received | Total Consumed | On Loc |
| 41,967.0 | 32,079.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING CUTTINGS | Cu. Yds |
| Total Received | Total Consumed | On Loc |
| 345.0 | 345.0 | 0.0 |



Report Printed: 7/19/2017

# Partner Drilling Report

**Report Date: 7/11/2017**
**Report #: 13.0, DFS: 11.96**
**Time Log DFS: 11.96**
**Depth Progress: 2,443.00**

## Well Name: UNIVERSITY 3-35 #101HB

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.68 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.72 | IF |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,330.0 | 12,594.0 | 4,746.00 | 1.64 | 56.86 | 161.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 75 | 3,714.0 | 185 | 217 | 174 | 16.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.6 | 0.4 | 96.0 | 76.0 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,594.0 | 12,612.0 | 4,764.00 | 0.44 | 57.30 | 40.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 23 | 0 | 3,435.0 | 160 | 240 | 202 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.6 | 0.4 | 96.0 | 76.0 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,612.0 | 12,781.0 | 4,933.00 | 1.18 | 58.48 | 143.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 75 | 3,779.0 | 183 | 221 | 188 | 16.8 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,781.0 | 12,799.0 | 4,951.00 | 0.37 | 58.85 | 48.6 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 0 | 3,465.0 | 156 | 250 | 223 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,799.0 | 12,972.0 | 5,124.00 | 1.62 | 60.47 | 106.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 34 | 75 | 3,739.0 | 190 | 243 | 220 | 16.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 8,216.0 | 8,216.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 0.0 | 0.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | HOUSE KEEPING |
| 05:30 | Pre-Tour | MAKING CONNECTIONS |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,972.0 | 12,981.0 | 5,133.00 | 0.24 | 60.71 | 37.5 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 9 | 0 | 3,450.0 | 167 | 249 | 220 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 12,981.0 | 13,065.0 | 5,217.00 | 0.70 | 61.41 | 120.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 3,732.0 | 189 | 224 | 212 | 17.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,065.0 | 13,083.0 | 5,235.00 | 0.35 | 61.76 | 51.4 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 3,464.0 | 161 | 243 | 220 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,083.0 | 13,251.0 | 5,403.00 | 1.27 | 63.03 | 132.3 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 35 | 75 | 3,811.0 | 190 | 243 | 194 | 16.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,251.0 | 13,265.0 | 5,417.00 | 0.35 | 63.38 | 40.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 19 | 0 | 3,503.0 | 157 | 220 | 181 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,265.0 | 13,439.0 | 5,591.00 | 1.33 | 64.71 | 130.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 3,833.0 | 186 | 223 | 215 | 17.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,439.0 | 13,464.0 | 5,616.00 | 0.56 | 65.27 | 44.6 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 18 | 0 | 3,585.0 | 157 | 231 | 194 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,464.0 | 13,533.0 | 5,685.00 | 0.67 | 65.94 | 103.0 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 35 | 75 | 3,875.0 | 186 | 223 | 215 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,533.0 | 13,554.0 | 5,706.00 | 0.43 | 66.37 | 48.8 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 3,544.0 | 157 | 231 | 194 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,554.0 | 13,616.0 | 5,768.00 | 0.33 | 66.70 | 187.9 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 75 | 3,893.0 | 187 | 231 | 202 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,616.0 | 13,723.0 | 5,875.00 | 0.97 | 67.67 | 110.3 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 75 | 3,893.0 | 187 | 231 | 202 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,723.0 | 13,736.0 | 5,888.00 | 0.40 | 68.07 | 32.5 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 24 | 0 | 4,023.0 | 166 | 205 | 202 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 13,736.0 | 14,199.0 | 6,351.00 | 2.40 | 70.47 | 192.9 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 34 | 75 | 3,893.0 | 181 | 232 | 197 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,199.0 | 14,213.0 | 6,365.00 | 0.53 | 71.00 | 26.4 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 3,479.0 | 157 | 207 | 174 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,213.0 | 14,291.0 | 6,443.00 | 0.60 | 71.60 | 130.0 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 3,885.0 | 186 | 217 | 181 | 18.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,291.0 | 14,302.0 | 6,454.00 | 0.52 | 72.12 | 21.2 | 558 |
| **WOB (1000lbf)** | **Rotary RPM (rpm)** | **SPP (psi)** | **Drill Str Wt (1000...** | **PU Str Wt (1000lbf)** | **SO Str Wt (1000lbf)** | **Drilling Torque** | **Off Btm Tq** |
| 18 | 0 | 3,504.0 | 167 | 212 | 184 | 0.0 | |
| **Q Gas Inj (ft³/min)** | **T Inj (°F)** | **P BH Ann (psi)** | **T BH (°F)** | **P Surf Annulus (p...** | **T Surf Annulus (°F)** | **Q Liq Return (gpm)** | **Q Gas Return (f...** |
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,302.0 | 14,400.0 | 6,552.00 | 0.73 | 72.85 | 134.2 | 558 |
| **WOB (1000lbf)** | **Rotary RPM (rpm)** | **SPP (psi)** | **Drill Str Wt (1000...** | **PU Str Wt (1000lbf)** | **SO Str Wt (1000lbf)** | **Drilling Torque** | **Off Btm Tq** |
| 31 | 75 | 3,885.0 | 186 | 217 | 181 | 18.0 | |
| **Q Gas Inj (ft³/min)** | **T Inj (°F)** | **P BH Ann (psi)** | **T BH (°F)** | **P Surf Annulus (p...** | **T Surf Annulus (°F)** | **Q Liq Return (gpm)** | **Q Gas Return (f...** |
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,400.0 | 14,411.0 | 6,563.00 | 0.44 | 73.29 | 25.0 | 558 |
| **WOB (1000lbf)** | **Rotary RPM (rpm)** | **SPP (psi)** | **Drill Str Wt (1000...** | **PU Str Wt (1000lbf)** | **SO Str Wt (1000lbf)** | **Drilling Torque** | **Off Btm Tq** |
| 13 | 0 | 3,500.0 | 164 | 240 | 200 | 0.0 | |
| **Q Gas Inj (ft³/min)** | **T Inj (°F)** | **P BH Ann (psi)** | **T BH (°F)** | **P Surf Annulus (p...** | **T Surf Annulus (°F)** | **Q Liq Return (gpm)** | **Q Gas Return (f...** |
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,411.0 | 14,669.0 | 6,821.00 | 1.83 | 75.12 | 141.0 | 558 |
| **WOB (1000lbf)** | **Rotary RPM (rpm)** | **SPP (psi)** | **Drill Str Wt (1000...** | **PU Str Wt (1000lbf)** | **SO Str Wt (1000lbf)** | **Drilling Torque** | **Off Btm Tq** |
| 32 | 75 | 3,882.0 | 186 | 185 | 227 | 18.0 | |
| **Q Gas Inj (ft³/min)** | **T Inj (°F)** | **P BH Ann (psi)** | **T BH (°F)** | **P Surf Annulus (p...** | **T Surf Annulus (°F)** | **Q Liq Return (gpm)** | **Q Gas Return (f...** |
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,669.0 | 14,684.0 | 6,836.00 | 1.03 | 76.15 | 14.6 | 558 |
| **WOB (1000lbf)** | **Rotary RPM (rpm)** | **SPP (psi)** | **Drill Str Wt (1000...** | **PU Str Wt (1000lbf)** | **SO Str Wt (1000lbf)** | **Drilling Torque** | **Off Btm Tq** |
| 20 | 0 | 2,820.0 | 164 | 240 | 200 | 0.0 | |
| **Q Gas Inj (ft³/min)** | **T Inj (°F)** | **P BH Ann (psi)** | **T BH (°F)** | **P Surf Annulus (p...** | **T Surf Annulus (°F)** | **Q Liq Return (gpm)** | **Q Gas Return (f...** |
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 3 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,684.0 | 14,716.0 | 6,868.00 | 0.53 | 76.68 | 60.4 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 75 | 4,139.0 | 176 | 227 | 185 | 19.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,716.0 | 14,762.0 | 6,914.00 | 0.55 | 77.23 | 83.6 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 34 | 75 | 4,186.0 | 176 | 227 | 185 | 19.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,762.0 | 14,773.0 | 6,925.00 | 0.45 | 77.68 | 24.4 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 16 | 0 | 4,186.0 | 176 | 227 | 185 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co… | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 12,333.00 | 89.16 | 3.56 | 8,416.74 | 4,009.91 | 3,976.76 | -732.36 | 2.14 |
| 12,428.00 | 89.13 | 3.63 | 8,418.16 | 4,104.26 | 4,071.56 | -726.40 | 0.08 |
| 12,523.00 | 90.34 | 3.40 | 8,418.60 | 4,198.64 | 4,166.38 | -720.58 | 1.30 |
| 12,617.00 | 88.19 | 2.10 | 8,419.81 | 4,292.15 | 4,260.25 | -716.07 | 2.67 |
| 12,712.00 | 89.30 | 2.01 | 8,421.89 | 4,386.75 | 4,355.17 | -712.66 | 1.17 |
| 12,806.00 | 86.00 | 1.43 | 8,425.74 | 4,480.33 | 4,449.03 | -709.84 | 3.56 |
| 12,901.00 | 85.49 | 1.04 | 8,432.79 | 4,574.81 | 4,543.75 | -707.80 | 0.68 |
| 12,995.00 | 85.83 | 1.43 | 8,439.90 | 4,668.28 | 4,637.46 | -705.78 | 0.55 |
| 13,090.00 | 89.56 | 2.56 | 8,443.72 | 4,762.82 | 4,732.30 | -702.48 | 4.10 |
| 13,184.00 | 91.04 | 1.03 | 8,443.23 | 4,856.48 | 4,826.25 | -699.53 | 2.26 |
| 13,278.00 | 89.83 | 0.58 | 8,442.52 | 4,950.27 | 4,920.24 | -698.21 | 1.37 |
| 13,373.00 | 91.04 | 0.07 | 8,441.80 | 5,045.10 | 5,015.23 | -697.67 | 1.38 |
| 13,467.00 | 88.69 | 358.56 | 8,442.02 | 5,139.01 | 5,109.21 | -698.80 | 2.97 |
| 13,562.00 | 87.95 | 1.18 | 8,444.80 | 5,233.84 | 5,204.16 | -699.01 | 2.86 |
| 13,656.00 | 90.10 | 2.85 | 8,446.40 | 5,327.45 | 5,298.08 | -695.71 | 2.90 |
| 13,751.00 | 88.05 | 2.96 | 8,447.94 | 5,421.93 | 5,392.94 | -690.89 | 2.16 |
| 13,845.00 | 87.68 | 3.03 | 8,451.44 | 5,515.34 | 5,486.75 | -685.98 | 0.40 |
| 13,939.00 | 88.12 | 2.48 | 8,454.88 | 5,608.80 | 5,580.58 | -681.47 | 0.75 |
| 14,034.00 | 89.56 | 1.61 | 8,456.81 | 5,703.40 | 5,675.50 | -678.08 | 1.77 |
| 14,128.00 | 89.97 | 0.74 | 8,457.19 | 5,797.15 | 5,769.47 | -676.15 | 1.02 |
| 14,223.00 | 89.50 | 1.59 | 8,457.63 | 5,891.89 | 5,864.45 | -674.22 | 1.02 |
| 14,317.00 | 88.89 | 1.11 | 8,458.95 | 5,985.61 | 5,958.42 | -672.01 | 0.83 |
| 14,412.00 | 87.78 | 0.42 | 8,461.71 | 6,080.36 | 6,053.37 | -670.74 | 1.38 |
| 14,507.00 | 87.25 | 359.99 | 8,465.83 | 6,175.12 | 6,148.27 | -670.40 | 0.72 |
| 14,601.00 | 86.87 | 358.78 | 8,470.65 | 6,268.91 | 6,242.14 | -671.41 | 1.35 |
| 14,695.00 | 87.68 | 358.95 | 8,475.12 | 6,362.75 | 6,336.02 | -673.27 | 0.88 |

# Partner Drilling Report

**Report Date: 7/12/2017**
**Report #: 14.0, DFS: 12.96**
**Time Log DFS: 12.96**
**Depth Progress: 1,247.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 78.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL @ REPORT TIME | DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL. |

Short Report

DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 14773' TO 15410'. PERFORM RIG SERVICE. TROUBLESHOOT TOP DRIVE ISSUES. CHANGE OUT BAD TOP DRIVE BLOWER MOTOR. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 15410' TO 15421'. CHANGE OUT DIRECTIONAL RIG FLOOR DISPLAY. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 15421' TO 16020'.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,894.5 | 9.2 | 0.0 | 893.0 | 164.3 | 155.1 | 1,001.5 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 13:45 | 7.75 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL AND SURVEY PRODUCTION LATERAL F/ 14773' TO 15410'.<br><br>AVG ROP: 82.2 FT/HR |
| 13:45 | 14:15 | 0.50 | 23PHLD, Prod Hole Lat Drill | RM | b | O | PERFORM RIG SERVICE. WENT TO MAKE A CONNECTION AND TOP DRIVE WOULD NOT COME BACK ON. ONLY ABLE TO MOVE BLOCKS. |
| 14:15 | 22:30 | 8.25 | 23PHLD, Prod Hole Lat Drill | DT | c | S | TROUBLESHOOT ELECTRICAL ISSUES. CIRCULATE @ 555 SPM AND WORK PIPE UP AND DOWN.<br><br>H&P ELECTRICIAN ON LOCATION @ 16:30.<br><br>LEFT TOP DRIVE BLOWER MOTOR BAD. REMOVE BAD BLOWER MOTOR AND WAIT ON REPLACEMENT.<br><br>NEW BLOWER MOTOR ON LOCATION @ 20:00. INSTALL NEW BLOWER MOTOR.<br><br>NOTE: BEGIN TO SET SKID RAILS BACK INTO POSITION WITH POLE TRUCK. |
| 22:30 | 23:00 | 0.50 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL AND SURVEY PRODUCTION LATERAL F/ 15410' TO 15421'.<br><br>AVG ROP: 24 FT/HR. |
| 23:00 | 23:30 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | o | S | CHANGE OUT DIRECTIONAL RIG FLOOR DISPLAY. |
| 23:30 | 06:00 | 6.50 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL AND SURVEY PRODUCTION LATERAL F/ 15421' TO 16020'.<br><br>AVG ROP: 92.2 FT/HR |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 15,031.0 | 9.00 | 55 | 15.0 | 14.006 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 10.004 | 16.007 | 19.008 | | | | 10.1 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.0 | 19.9 | 41,000.000 | 23,000.000 | | 800.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 15,410.0 | 9.00 | 55 | 15.0 | 13.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 10.004 | 15.006 | 19.008 | | | | 10.1 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 71.0 | 18.9 | 41,000.000 | 23,000.000 | | 800.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 733.1 | |
| Tank | Tank | 523.0 | |
| Tank | Reserve | 370.0 | |
| Addition | Addition | 70.0 | |
| Addition | Addition | 94.3 | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| Day Total (Cost) | Cum To Date (Cost) |
| 72,354 | 1,222,839 |
| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
| 4,305 | 45,652 |
| Start Depth (ftKB) | End Depth (ftKB) |
| 14,773.0 | 16,020.0 |
| Planned Formation | Planned TMD (ftKB) |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| CHRISTOPHER ABSHIRE, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| Rig Supervisor | Phone Mobile |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 3,934.0 | No | 103 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| 3,934.0 | No | 103 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BARABLOK 400 | 85.00 | 12.0 |
| BAROID (BULK) | 205.00 | 5.0 |
| DRILTREAT | 97.02 | 2.0 |
| LIME | 6.00 | 20.0 |
| SCALE CHARGE | 10.00 | 1.0 |
| SUSPENTONE | 134.10 | 4.0 |
| TRANSPORTATION | 1.00 | 700.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| Total Received | Total Consumed | On Loc |
| 41,967.0 | 32,079.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING CUTTINGS | Cu. Yds |
| Total Received | Total Consumed | On Loc |
| 345.0 | 345.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING WATER | Bbl |
| Total Received | Total Consumed | On Loc |
| 8,216.0 | 8,216.0 | 0.0 |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Loss | LOSS | 155.1 | |
| Hole | PIPE | 268.4 | |

## Drill Strings

### BHA #4, Curve

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55DM, 12926846 | 1-2-CT-H-X-1-FC-BHA | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.32 | | 89.1 |

### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.0 | |

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.68 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.72 | IF |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,773.0 | 14,776.0 | 6,928.00 | 0.17 | 77.85 | 17.6 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 15 | 0 | 4,186.0 | 166 | 195 | 182 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,776.0 | 14,856.0 | 7,008.00 | 0.83 | 78.68 | 96.4 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 75 | 4,565.0 | 191 | 155 | 172 | 17.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,856.0 | 14,875.0 | 7,027.00 | 0.58 | 79.26 | 32.8 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 17 | 0 | 3,602.0 | 145 | 209 | 170 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

## Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

## Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | FORKLIFT OPERATIONS |
| 05:30 | Pre-Tour | MIXING CHEMICALS |

## Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

## Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 14,875.0 | 15,138.0 | 7,290.00 | 2.72 | 81.98 | 96.7 | 558 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 33 | 75 | 3,891.0 | 187 | 220 | 198 | 17.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 96.5 | 75.9 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 258.2 | 0.0 | 100.1 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,138.0 | 15,160.0 | 7,312.00 | 0.84 | 82.82 | 26.2 | 563 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 0 | 3,660.0 | 174 | 242 | 176 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 25.4 | 0.4 | 97.4 | 77.3 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 260.5 | 0.0 | 101.0 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,160.0 | 15,312.0 | 7,464.00 | 0.67 | 83.49 | 226.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 38 | 75 | 4,001.0 | 182 | 218 | 187 | 20.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,312.0 | 15,330.0 | 7,482.00 | 0.55 | 84.04 | 32.7 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 0 | 3,608.0 | 182 | 218 | 187 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,330.0 | 15,410.0 | 7,562.00 | 0.53 | 84.57 | 150.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 38 | 75 | 4,005.0 | 182 | 218 | 187 | 23.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,410.0 | 15,421.0 | 7,573.00 | 0.50 | 85.07 | 22.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 75 | 3,885.0 | 191 | 188 | 228 | 17.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,421.0 | 15,436.0 | 7,588.00 | 0.48 | 85.55 | 31.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 14 | 0 | 3,531.0 | 165 | 200 | 178 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,436.0 | 15,698.0 | 7,850.00 | 1.87 | 87.42 | 140.1 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 75 | 3,929.0 | 182 | 225 | 192 | 20.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,698.0 | 15,715.0 | 7,867.00 | 0.64 | 88.06 | 26.6 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 29 | 0 | 3,553.0 | 155 | 188 | 160 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,715.0 | 15,798.0 | 7,950.00 | 0.81 | 88.87 | 102.5 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 3,945.0 | 182 | 218 | 197 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

# Well Name: UNIVERSITY 3-35 #101HB

## Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,798.0 | 15,814.0 | 7,966.00 | 0.59 | 89.46 | 27.1 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 0 | 3,571.0 | 160 | 213 | 197 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,814.0 | 15,987.0 | 8,139.00 | 1.27 | 90.73 | 136.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 75 | 3,989.0 | 182 | 218 | 197 | 22.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 15,987.0 | 16,002.0 | 8,154.00 | 0.67 | 91.40 | 22.4 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 3,635.0 | 182 | 218 | 197 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,002.0 | 16,020.0 | 8,172.00 | 0.17 | 91.57 | 105.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 28 | 75 | 3,903.0 | 182 | 218 | 197 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

# Well Name: UNIVERSITY 3-35 #101HB

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 14,789.00 | 89.66 | 0.57 | 8,477.30 | 6,456.60 | 6,429.98 | -673.66 | 2.72 |
| 14,978.00 | 89.83 | 1.77 | 8,478.95 | 6,644.96 | 6,618.89 | -668.24 | 0.71 |
| 15,073.00 | 90.47 | 0.50 | 8,478.70 | 6,739.71 | 6,713.87 | -666.36 | 1.50 |
| 15,167.00 | 88.08 | 1.05 | 8,479.89 | 6,833.49 | 6,807.85 | -665.09 | 2.61 |
| 15,261.00 | 89.09 | 0.38 | 8,482.21 | 6,927.26 | 6,901.81 | -663.91 | 1.29 |
| 15,355.00 | 85.86 | 1.29 | 8,486.35 | 7,020.94 | 6,995.70 | -662.55 | 3.57 |
| 15,450.00 | 87.38 | 1.95 | 8,491.95 | 7,115.46 | 7,090.49 | -659.87 | 1.74 |
| 15,544.00 | 87.65 | 0.57 | 8,496.03 | 7,209.10 | 7,184.38 | -657.80 | 1.49 |
| 15,639.00 | 87.01 | 359.50 | 8,500.45 | 7,303.86 | 7,279.27 | -657.74 | 1.31 |
| 15,733.00 | 90.20 | 1.24 | 8,502.74 | 7,397.65 | 7,373.23 | -657.14 | 3.87 |
| 15,828.00 | 89.19 | 2.65 | 8,503.24 | 7,492.29 | 7,468.17 | -653.91 | 1.83 |
| 15,922.00 | 89.73 | 2.02 | 8,504.13 | 7,585.87 | 7,562.08 | -650.08 | 0.88 |

# Partner Drilling Report

**Report Date: 7/13/2017**
**Report #: 15.0, DFS: 13.96**
**Time Log DFS: 13.96**
**Depth Progress: 1,861.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | PARTLY CLOUDY | 77.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| PUMP SLUG @ REPORT TIME | POOH TO CHANGE OUT MUD MOTOR. TIH TO BOTTOM. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL. |

Short Report
DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 16020' TO 17881'. UNABLE TO SLIDE WEIGHT STACKING UP. PUMP SWEEPS AND CIRCULATE BOTTOMS UPS. FLOW CHECK AND PUMP SLUG.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,894.6 | 0.1 | 0.0 | 781.0 | 163.2 | 163.1 | 1,113.6 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 04:00 | 22.00 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL AND SURVEY PRODUCTION LATERAL F/ 16020' TO 17881'.<br><br>AVG ROP: 84.6 FT/HR |
| 04:00 | 04:30 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | WHILE SLIDING WOB BEGAN INCREASING AND ROP DROPPED. PICKED UP AND TRIED ROTATING 3-5'. WAS UNABLE TO GET WEIGHT ON BIT AND TORQUE INCREASED TO 27-28 KFT-LBS. |
| 04:30 | 06:00 | 1.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | PUMP WEIGHTED SWEEPS AND CIRCULATE BOTTOMS UP.<br><br>ATTEMPT TO ROTATE DRILL. UNABLE TO GET ANY DIFFERENTIAL.<br><br>DECISION TO PULL OUT OF HOLE FOR MUD MOTOR.<br><br>FLOW CHECK AND PUMP SLUG. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 16,364.0 | 9.00 | 55 | 14.0 | 12.005 |

| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 9.004 | 14.006 | 19.008 | | | | 10.5 |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | 70.0 | 19.5 | 44,000.000 | 21,000.000 | | 850.0 |

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 01:00 | INVERMUL | 17,321.0 | 9.00 | 55 | 14.0 | 12.005 |

| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 10.004 | 15.006 | 18.007 | | | | 10.5 |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | 70.5 | 19.0 | 43,000.000 | 22,000.000 | | 850.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 815.3 | |
| Tank | Tank | 520.0 | |
| Tank | Reserve | 261.0 | |
| Addition | Addition | 30.0 | |
| Addition | Addition | 133.2 | |
| Loss | LOSS | 163.1 | |
| Hole | PIPE | 298.3 | |

### Drill Strings

#### BHA #4, Curve

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55DM, 12926846 | 1-2-CT-H-X-1-FC-BHA | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.32 | | 89.1 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.0 | |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |

| Day Total (Cost) | Cum To Date (Cost) |
|---|---|
| 71,708 | 1,294,547 |

| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
|---|---|
| 4,496 | 50,148 |

| Start Depth (ftKB) | End Depth (ftKB) |
|---|---|
| 16,020.0 | 17,881.0 |

| Planned Formation | Planned TMD (ftKB) |
|---|---|
| WOLFCAMP B | 19,360.0 |

Last Casing String
Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| DAVID LANKFORD, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |

| Rig Supervisor | Phone Mobile |
|---|---|
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| 5 | 11.00 | 0.067 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 800.0 | No | 60 | 95 |
| 3,515.0 | No | 105 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
|---|---|---|
| 5 | 11.00 | 0.067 |

| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
|---|---|---|---|
| 640.0 | No | 30 | 95 |
| 3,515.0 | No | 103 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BARABLOK 400 | 85.00 | 8.0 |
| BAROID (BULK) | 205.00 | 6.0 |
| CALCIUM CHL 95 -98% | 17.10 | 10.0 |
| DRILTREAT | 97.02 | 2.0 |
| LIME | 6.00 | 30.0 |
| SUSPENTONE | 134.10 | 10.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 41,967.0 | 32,079.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING CUTTINGS | Cu. Yds |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 345.0 | 345.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

**Report Date: 7/13/2017**
**Report #: 15.0, DFS: 13.96**
**Time Log DFS: 13.96**
**Depth Progress: 1,861.00**

## Well Name: UNIVERSITY 3-35 #101HB

### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.68 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.72 | IF |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,020.0 | 16,364.0 | 8,516.00 | 2.02 | 93.59 | 170.3 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 35 | 75 | 4,005.0 | 184 | 240 | 176 | 20.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,364.0 | 16,374.0 | 8,526.00 | 0.52 | 94.11 | 19.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 42 | 0 | 3,649.0 | 152 | 255 | 255 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,374.0 | 16,836.0 | 8,988.00 | 3.83 | 97.94 | 120.6 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 36 | 75 | 4,076.0 | 185 | 221 | 190 | 22.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,836.0 | 16,854.0 | 9,006.00 | 0.91 | 98.85 | 19.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 22 | 0 | 3,655.0 | 160 | 255 | 196 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,854.0 | 16,931.0 | 9,083.00 | 0.82 | 99.67 | 93.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 75 | 4,009.0 | 186 | 239 | 196 | 20.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 8,216.0 | 8,216.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 0.0 | 0.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | MAN BASKET OPERATIONS |
| 05:30 | Pre-Tour | PRESSURE WASHING |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,931.0 | 16,945.0 | 9,097.00 | 0.48 | 100.15 | 29.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 12 | 0 | 3,668.0 | 160 | 241 | 190 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 16,945.0 | 17,120.0 | 9,272.00 | 1.38 | 101.53 | 126.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 37 | 75 | 4,044.0 | 186 | 239 | 196 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,120.0 | 17,139.0 | 9,291.00 | 0.72 | 102.25 | 26.4 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 3,690.0 | 186 | 2,339 | 193 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,139.0 | 17,214.0 | 9,366.00 | 1.14 | 103.39 | 65.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 35 | 75 | 4,025.0 | 183 | 201 | 203 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,214.0 | 17,233.0 | 9,385.00 | 0.83 | 104.22 | 22.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 10 | 0 | 3,694.0 | 168 | 184 | 178 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,233.0 | 17,309.0 | 9,461.00 | 0.80 | 105.02 | 95.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 20 | 75 | 4,003.0 | 187 | 248 | 193 | 20.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,309.0 | 17,322.0 | 9,474.00 | 0.61 | 105.63 | 21.3 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 16 | 0 | 3,689.0 | 161 | 205 | 205 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,322.0 | 17,591.0 | 9,743.00 | 2.04 | 107.67 | 131.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 75 | 4,080.0 | 185 | 240 | 202 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,591.0 | 17,602.0 | 9,754.00 | 0.44 | 108.11 | 25.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 26 | 0 | 3,699.0 | 165 | 181 | 200 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,602.0 | 17,685.0 | 9,837.00 | 0.92 | 109.03 | 90.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 4,070.0 | 184 | 241 | 180 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,685.0 | 17,701.0 | 9,853.00 | 0.81 | 109.84 | 19.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 3,702.0 | 159 | 179 | 177 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,701.0 | 17,873.0 | 10,025.00 | 1.95 | 111.79 | 88.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 4,066.0 | 183 | 202 | 199 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,873.0 | 17,881.0 | 10,033.00 | 0.78 | 112.57 | 10.3 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 35 | 0 | 3,640.0 | 183 | 202 | 199 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.3 | 0.4 | 96.0 | 75.1 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.00 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co… | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 16,017.00 | 88.49 | 3.00 | 8,505.61 | 7,680.42 | 7,656.98 | -645.92 | 1.66 |
| 16,111.00 | 88.05 | 2.22 | 8,508.44 | 7,773.92 | 7,750.84 | -641.64 | 0.95 |
| 16,205.00 | 88.72 | 1.66 | 8,511.09 | 7,867.53 | 7,844.74 | -638.46 | 0.93 |
| 16,299.00 | 87.82 | 1.21 | 8,513.93 | 7,961.20 | 7,938.67 | -636.11 | 1.07 |
| 16,394.00 | 88.96 | 2.01 | 8,516.60 | 8,055.84 | 8,033.59 | -633.44 | 1.47 |
| 16,489.00 | 89.16 | 1.33 | 8,518.16 | 8,150.51 | 8,128.54 | -630.67 | 0.75 |
| 16,583.00 | 89.70 | 0.28 | 8,519.09 | 8,244.30 | 8,222.52 | -629.35 | 1.26 |
| 16,677.00 | 90.07 | 359.40 | 8,519.28 | 8,338.18 | 8,316.52 | -629.62 | 1.02 |
| 16,772.00 | 90.97 | 358.74 | 8,518.42 | 8,433.11 | 8,411.50 | -631.16 | 1.17 |
| 16,866.00 | 88.79 | 359.53 | 8,518.62 | 8,527.03 | 8,505.49 | -632.58 | 2.47 |
| 16,960.00 | 88.09 | 0.93 | 8,521.18 | 8,620.84 | 8,599.45 | -632.20 | 1.66 |
| 17,055.00 | 91.51 | 2.67 | 8,521.51 | 8,715.49 | 8,694.38 | -629.22 | 4.04 |
| 17,150.00 | 90.47 | 3.37 | 8,519.87 | 8,809.94 | 8,789.23 | -624.21 | 1.32 |
| 17,244.00 | 89.33 | 3.08 | 8,520.03 | 8,903.38 | 8,883.08 | -618.92 | 1.25 |
| 17,339.00 | 87.85 | 1.25 | 8,522.37 | 8,997.96 | 8,977.98 | -615.34 | 2.48 |
| 17,434.00 | 88.15 | 0.65 | 8,525.68 | 9,092.67 | 9,072.91 | -613.76 | 0.71 |
| 17,528.00 | 88.79 | 0.49 | 8,528.19 | 9,186.45 | 9,166.87 | -612.83 | 0.70 |
| 17,623.00 | 85.43 | 359.99 | 8,532.98 | 9,281.16 | 9,261.74 | -612.43 | 3.58 |
| 17,717.00 | 87.88 | 0.15 | 8,538.47 | 9,374.85 | 9,355.57 | -612.31 | 2.61 |
| 17,811.00 | 90.07 | 359.35 | 8,540.15 | 9,468.72 | 9,449.55 | -612.72 | 2.48 |

# Partner Drilling Report

**Report Date: 7/14/2017**
**Report #: 16.0, DFS: 14.96**
**Time Log DFS: 14.96**
**Depth Progress: 0.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | OVERCAST | 72.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| SLIP AND CUT DRILL LINE @ REPORT TIME. | CONTINUE TO SLIP AND CUT. TIH TO BOTTOM. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL TO TD. |

Short Report
POOH TO 6000', PERFORM RIG SERVICE, POOH F/ 6000' TO 100'. BREAK BIT AND L/D MUD MOTOR. P/U NEW MUD MOTOR, BIT AND HANG OFF SUB. TIH F/ 100' TO 7747'. SLIP AND CUT DRILL LINE.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,902.5 | 7.9 | -0.1 | 620.0 | 66.0 | 58.0 | 1,282.5 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 06:30 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | FINISH PUMPING SLUG. |
| 06:30 | 16:00 | 9.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | POOH 80 STANDS. PULL ROTATING HEAD RUBBER ELEMENT. POOH TO 6000'.<br><br>NOTE: BREAK TIGHT CONNECTIONS AND HAVING ISSUES WITH SLIP DIES. |
| 16:00 | 16:30 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | PERFORM RIG SERVICE. |
| 16:30 | 20:30 | 4.00 | 23PHLD, Prod Hole Lat Drill | TR | p | D | POOH TO BHA F/ 6000' TO 100'. |
| 20:30 | 21:30 | 1.00 | 23PHLD, Prod Hole Lat Drill | TR | p | D | BREAK BIT AND LAY DOWN MUD MOTOR. WAS UNABLE TO DRAIN MOTOR DUE TO A POSSIBLE BROKEN DRIVE SHAFT. |
| 21:30 | 22:00 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | CLEAN RIG FLOOR. |
| 22:00 | 00:00 | 2.00 | 23PHLD, Prod Hole Lat Drill | TR | p | D | P/U NEW SDI 2.0° FXD MUD MOTOR. CHANGE OUT HANG OFF SUB DUE TO SEIZED MWD TOOL LOCKING SCREWS. INSTALL NEW MWD TOOL AND SHALLOW TEST - TEST GOOD. MAKE UP 8 1/2" SECURITY MMS55D. |
| 00:00 | 05:00 | 5.00 | 23PHLD, Prod Hole Lat Drill | TR | p | D | TIH WITH NEW MUD MOTOR TO 7747'. |
| 05:00 | 06:00 | 1.00 | 23PHLD, Prod Hole Lat Drill | TR | p | D | SLIP AND CUT DRILL LINE. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 17,881.0 | 9.10 | 56 | 14.0 | 13.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 9.004 | 15.006 | 19.008 | | | | 11.0 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.0 | 19.0 | 42,000.000 | 22,000.000 | | 800.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 17,881.0 | 9.10 | 59 | 15.0 | 13.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 10.004 | 16.007 | 19.008 | | | | 11.0 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.0 | 19.0 | 42,000.000 | 22,000.000 | | 800.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 1,282.5 | |
| Tank | Tank | 360.0 | |
| Tank | Reserve | 260.0 | |
| Addition | Addition | | |
| Addition | Addition | 66.0 | |
| Loss | LOSS | 58.0 | |
| Hole | PIPE | | |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| Day Total (Cost) | Cum To Date (Cost) |
| 49,910 | 1,344,457 |
| Mud Field Est (Cost) | Cum Mud Field Est (Co… |
| 4,575 | 54,723 |
| Start Depth (ftKB) | End Depth (ftKB) |
| 17,881.0 | 17,881.0 |
| Planned Formation | Planned TMD (ftKB) |
| WOLFCAMP B | 19,360.0 |

Last Casing String
Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| DAVID LANKFORD, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| Rig Supervisor | Phone Mobile |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| | | | |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| Liner Size (in) | Stroke (in) | Vol/Stk OR (b… |
| 5 | 11.00 | 0.067 |
| P (psi) | Slow Spd | Strokes (s… | Eff (%) |
| | | | |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BAROID (BULK) | 205.00 | 13.0 |
| DRILTREAT | 97.02 | 2.0 |
| SCALE CHARGE | 10.00 | 1.0 |
| TRANSPORTATION | 1.00 | 1,005.9 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| Total Received | Total Consumed | On Loc |
| 41,967.0 | 32,079.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING CUTTINGS | Cu. Yds |
| Total Received | Total Consumed | On Loc |
| 345.0 | 345.0 | 0.0 |
| Supply Item Description | Unit Label |
| DRILLING WATER | Bbl |
| Total Received | Total Consumed | On Loc |
| 8,216.0 | 8,216.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/14/2017**
**Report #: 16.0, DFS: 14.96**
**Time Log DFS: 14.96**
**Depth Progress: 0.00**

### Drill Strings

#### BHA #4, Curve

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55DM, 12926846 | 1-2-CT-H-X-1-FC-BHA | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.32 | | 89.1 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.0 | |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.68 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.72 | IF |

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| | | | | |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| | | | | |

Error

#### Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

#### Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

#### Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

#### Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

#### Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

#### Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |
| LIQUID DRILLING WASTE | Bbl | 750.0 | 750.0 | 0.0 |
| POTABLE WATER | Gal | 9.0 | 9.0 | 0.0 |
| SEWAGE | Gal | 24,700.0 | 24,700.0 | 0.0 |
| THREAD PROTECTORS | Box | 1.0 | 1.0 | 0.0 |
| TRASH/GENERAL WASTE | Ea | 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | TRIPPING |
| 05:30 | Pre-Tour | SETTING AND PULLING SLIPS |

### Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|

# Partner Drilling Report

**Report Date: 7/15/2017**
**Report #: 17.0, DFS: 15.96**
**Time Log DFS: 15.96**
**Depth Progress: 1,239.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | MOSTLY CLOUDY | 71.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL @ REPORT TIME | DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL TO TD. CIRCULATE AND CONDITION HOLE. POOH AND LAY DOWN DIRECTIONAL TOOLS. RIG UP AND RUN 5 1/2" PRODUCTION CASING. |

Short Report
CONTINUE TO SLIP AND CUT. TIH F/ 7747 TO 14465' AND INSTALL ROTATING HEAD RUBBER. TIH F/ 14465' TO 16900'. FILL PIPE AND REAM THROUGH TIGHT HOLE. TIH F/ 16995' TO 17881'. DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 17881' TO 19120'.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,928.0 | 25.5 | 0.1 | 750.0 | 67.7 | 42.3 | 1,178.0 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 06:30 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | CONTINUE TO SLIP AND CUT DRILL LINE. |
| 06:30 | 07:00 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | PERFORM RIG SERVICE. |
| 07:00 | 12:00 | 5.00 | 23PHLD, Prod Hole Lat Drill | TR | p | D | TIH F/ 7747' TO 14465' |
| 12:00 | 12:30 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | PULL TRIP NIPPLE AND INSTALL ROTATING HEAD RUBBER ELEMENT. |
| 12:30 | 14:00 | 1.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | TIH F/ 14465' TO 16900'. |
| 14:00 | 14:30 | 0.50 | 23PHLD, Prod Hole Lat Drill | TR | p | D | ENCOUNTERED TIGHT SPOT @ 16900'. SCREW INTO STAND AND FILL PIPE. WASH AND REAM F/ 16900' TO 16995'. |
| 14:30 | 15:30 | 1.00 | 23PHLD, Prod Hole Lat Drill | TR | p | D | TIH F/ 16995' TO 17881. TAG BOTTOM @ 17881'. |
| 15:30 | 06:00 | 14.50 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 17881' TO 19120'.<br><br>AVG ROP: 85.4 FT/HR |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 17,881.0 | 9.10 | 58 | 15.0 | 13.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 8.003 | 14.006 | 17.007 | | | | 11.0 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.5 | 18.5 | 45,000.000 | 20,000.000 | | 800.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 18,354.0 | 9.20 | 53 | 15.0 | 10.004 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 8.003 | 13.005 | 16.007 | | | | 11.1 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.0 | 18.9 | 44,000.000 | 21,000.000 | | 820.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 861.6 | ANNULUS |
| Tank | Tank | 520.0 | ACTIVE |
| Tank | Reserve | 230.0 | RESERVE |
| Addition | Addition | 20.0 | DW |
| Addition | Addition | 47.7 | CHEMICALS |
| Loss | LOSS | 42.3 | SCE |
| Hole | PIPE | 316.4 | CAP |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 80,947 | 1,425,404 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co…** |
| 3,868 | 58,591 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 17,881.0 | 19,120.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

Last Casing String
Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| DAVID LANKFORD, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 23.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| 4,188.0 | No | 104 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| 4,188.0 | No | 103 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BARABLOK 400 | 85.00 | 10.0 |
| BARO-TROL PLUS | 77.97 | 5.0 |
| OBM RENTAL ON RETURN MUD | 1.00 | 1,928.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| **Total Received** | **Total Consumed** | **On Loc** |
| 41,967.0 | 32,079.0 | 0.0 |
| **Supply Item Description** | **Unit Label** |
| DRILLING CUTTINGS | Cu. Yds |
| **Total Received** | **Total Consumed** | **On Loc** |
| 345.0 | 345.0 | 0.0 |
| **Supply Item Description** | **Unit Label** |
| DRILLING WATER | Bbl |
| **Total Received** | **Total Consumed** | **On Loc** |
| 8,216.0 | 8,216.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/15/2017**
**Report #: 17.0, DFS: 15.96**
**Time Log DFS: 15.96**
**Depth Progress: 1,239.00**

### Drill Strings

#### BHA #5, Lateral

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55D, 12742752 | 0-0-NO-A-X-I-NO-TD | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.12 | | 87.0 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.03 | |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.92 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.28 | IF |

#### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,881.0 | 17,892.0 | 11.00 | 0.85 | 0.85 | 12.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 12 | 0 | 4,001.0 | 162 | 210 | 180 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 95.7 | 75.5 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 17,892.0 | 18,066.0 | 185.00 | 1.27 | 2.12 | 137.0 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 4,413.0 | 183 | 170 | 177 | 21.0 | 14.0 |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 95.7 | 75.5 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,066.0 | 18,083.0 | 202.00 | 0.66 | 2.78 | 25.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 14 | 0 | 3,833.0 | 183 | 170 | 177 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

#### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 95.7 | 75.5 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,083.0 | 18,346.0 | 465.00 | 2.32 | 5.10 | 113.4 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 31 | 75 | 4,309.0 | 185 | 237 | 184 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 0.0 | 0.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | HOUSE KEEPING |
| 05:30 | Pre-Tour | PROPER LIFTING TECHNIQUE |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 95.7 | 75.5 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,346.0 | 18,362.0 | 481.00 | 0.66 | 5.76 | 24.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 19 | 0 | 3,928.0 | 163 | 240 | 179 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.5 | 0.4 | 95.7 | 75.5 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.10 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,362.0 | 18,826.0 | 945.00 | 3.60 | 9.36 | 128.9 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 30 | 75 | 4,359.0 | 188 | 265 | 208 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 95.7 | 76.4 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,826.0 | 18,844.0 | 963.00 | 0.91 | 10.27 | 19.8 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 19 | 0 | 3,926.0 | 160 | 239 | 184 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 95.7 | 76.4 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,844.0 | 18,920.0 | 1,039.00 | 0.83 | 11.10 | 91.6 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 29 | 75 | 4,327.0 | 186 | 244 | 169 | 20.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 95.7 | 76.4 | 2 |
| **Max Casing AV (ft/min)** | **Max Open Hole AV (ft/min)** | **Min Casing AV (ft/min)** | **Min Open Hole AV (ft/min)** | **ECD End (lb/gal)** |
| 256.8 | 0.0 | 99.5 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,920.0 | 18,938.0 | 1,057.00 | 1.04 | 12.14 | 17.3 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 3,944.0 | 160 | 182 | 174 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# Well Name: UNIVERSITY 3-35 #101HB

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 95.7 | 76.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 18,938.0 | 19,103.0 | 1,222.00 | 1.33 | 13.47 | 124.1 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 35 | 75 | 4,336.0 | 186 | 244 | 169 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 95.7 | 76.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.20 |

Error

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 19,103.0 | 19,120.0 | 1,239.00 | 0.83 | 14.30 | 20.5 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 25 | 0 | 3,880.0 | 186 | 244 | 169 | 0.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 95.7 | 76.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 0.0 | 99.5 | 0.0 | 9.20 |

Error

## Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 14,884.00 | 89.26 | 2.12 | 8,478.20 | 6,551.32 | 6,524.95 | -671.43 | 1.68 |
| 17,906.00 | 88.69 | 0.16 | 8,541.18 | 9,563.60 | 9,544.54 | -613.13 | 1.68 |
| 18,000.00 | 89.36 | 0.26 | 8,542.78 | 9,657.44 | 9,638.52 | -612.79 | 0.72 |
| 18,095.00 | 88.59 | 1.07 | 8,544.48 | 9,752.22 | 9,733.50 | -611.68 | 1.18 |
| 18,189.00 | 88.92 | 0.76 | 8,546.52 | 9,845.98 | 9,827.46 | -610.18 | 0.48 |
| 18,284.00 | 89.43 | 0.60 | 8,547.89 | 9,940.77 | 9,922.45 | -609.06 | 0.56 |
| 18,378.00 | 88.22 | 2.34 | 8,549.81 | 10,034.45 | 10,016.39 | -606.64 | 2.25 |
| 18,472.00 | 87.75 | 1.59 | 8,553.12 | 10,128.04 | 10,110.28 | -603.42 | 0.94 |
| 18,567.00 | 88.49 | 1.08 | 8,556.24 | 10,222.71 | 10,205.20 | -601.21 | 0.95 |
| 18,661.00 | 88.82 | 0.39 | 8,558.44 | 10,316.48 | 10,299.16 | -600.01 | 0.81 |
| 18,756.00 | 89.56 | 0.08 | 8,559.78 | 10,411.32 | 10,394.15 | -599.62 | 0.84 |
| 18,851.00 | 89.13 | 0.52 | 8,560.87 | 10,506.15 | 10,489.15 | -599.12 | 0.65 |
| 18,945.00 | 89.13 | 2.40 | 8,562.30 | 10,599.85 | 10,583.10 | -596.72 | 2.00 |
| 19,039.00 | 89.63 | 1.80 | 8,563.32 | 10,693.46 | 10,677.03 | -593.28 | 0.83 |

# Partner Drilling Report

**Report Date: 7/16/2017**
**Report #: 18.0, DFS: 16.96**
**Time Log DFS: 16.96**
**Depth Progress: 214.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | PARTLY CLOUDY | 75.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| P/U 5 1/2" PRODUCTION CASING SHOE JOINT @ REPORT TIME | P/U AND RUN 5 1/2" PRODUCTION CASING AND CEMENT SAME. |

Short Report

DRILL AND SURVEY 8 1/2" PRODUCTION LATERAL F/ 19120' TO 19334'. CIRCULATE AND CONDITION HOLE. POOH F/ 19334' TO BHA. L/D DIRECTIONAL BHA. PULL WEAR BUSHING AND CLEAN RIG FLOOR. R/U BYRD CASING EQUIPMENT. HOLD PJSM AND P/U 5 1/2" PRODUCTION CASING SHOE JOINT @ REPORT TIME.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,930.1 | 2.1 | 0.0 | 529.0 | 120.0 | 117.9 | 1,401.1 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 08:30 | 2.50 | 23PHLD, Prod Hole Lat Drill | DR | c | O | DRILL PRODUCTION LATERAL AND SURVEY F/ 19120' TO 19334'.<br><br>TD PRODUCTION LATERAL @ 19334', INC - 90.74°, AZ - 2.19°, TVD - 8654.53'.<br><br>AVG ROP: 85.6 FT/HR |
| 08:30 | 13:00 | 4.50 | 24PHC, Prod Hole Csg | CI | g | O | PUMP WEIGHTED SWEEPS AND CIRCULATE HOLE CLEAN. |
| 13:00 | 13:30 | 0.50 | 24PHC, Prod Hole Csg | CI | h | O | FLOW CHECK - NO FLOW. PUMP SLUG. |
| 13:30 | 17:30 | 4.00 | 24PHC, Prod Hole Csg | TP | c | O | POOH F/ 19334 TO 12316'.<br><br>NOTE: NOTIFY TRRC WITH INTENT TO RUN AND CEMENT 5 1/2" PRODUCTION CASING @ 16:00. SPOKE WITH RENAY, OPERATOR # 0097. |
| 17:30 | 18:00 | 0.50 | 24PHC, Prod Hole Csg | OT | e | O | PULL ROTATING HEAD RUBBER ELEMENT. |
| 18:00 | 02:30 | 8.50 | 24PHC, Prod Hole Csg | TP | c | O | POOH F/ 12316' TO 99'.<br><br>NOTE: BREAK TIGHT CONNECTIONS ON LAST 4000'. |
| 02:30 | 03:30 | 1.00 | 24PHC, Prod Hole Csg | TP | b | O | DRAIN MOTOR, BREAK BIT AND LAY DOWN BHA. |
| 03:30 | 04:00 | 0.50 | 24PHC, Prod Hole Csg | WH | c | O | PULL WEAR BUSHING. |
| 04:00 | 04:30 | 0.50 | 24PHC, Prod Hole Csg | RM | b | O | CLEAN AND ORGANIZE RIG FLOOR. |
| 04:30 | 05:30 | 1.00 | 24PHC, Prod Hole Csg | CS | a | O | RIG UP BYRD CASING EQUIPMENT. |
| 05:30 | 06:00 | 0.50 | 24PHC, Prod Hole Csg | CS | b | O | HOLD PJSM WITH BYRD, H&P AND HUNT PERSONNEL. P/U SHOE JOINT @ REPORT TIME. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 19,284.0 | 9.20 | 53 | 15.0 | 11.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 8.003 | 15.006 | 18.007 | | | | 11.3 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.8 | 18.0 | 42,000.000 | 21,000.000 | | 800.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 19,334.0 | 9.30 | 58 | 16.0 | 11.005 |
| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 8.003 | 15.006 | 18.007 | | | | 11.8 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.0 | 18.3 | 42,000.000 | 21,000.000 | | 800.0 |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 78,589 | 1,503,993 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co…** |
| 3,287 | 61,878 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 19,120.0 | 19,334.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| DAVID LANKFORD, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 28.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| 4,357.0 | No | 104 | 95 |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| 4,357.0 | No | 103 | 95 |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| BAROID (BULK) | 205.00 | 7.74 |
| BARO-TROL PLUS | 77.97 | 5.0 |
| DRILTREAT | 97.02 | 2.0 |
| OIL ABSORB-CLAY | 14.00 | 1.0 |
| SUSPENTONE | 134.10 | 3.0 |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DIESEL FOR OBM | Gal |
| **Total Received** | **Total Consumed** | **On Loc** |
| 41,967.0 | 32,079.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING CUTTINGS | Cu. Yds |
| **Total Received** | **Total Consumed** | **On Loc** |
| 345.0 | 345.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |
| **Total Received** | **Total Consumed** | **On Loc** |
| 8,216.0 | 8,216.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/16/2017**
**Report #: 18.0, DFS: 16.96**
**Time Log DFS: 16.96**
**Depth Progress: 214.00**

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 1,401.1 | ANNULUS |
| Tank | Tank | 304.0 | ACTIVE |
| Tank | Reserve | 225.0 | RESERVE |
| Addition | Addition | 20.0 | DW |
| Addition | Addition | 100.0 | CHEMICALS |
| Loss | LOSS | 117.9 | SCE |
| Hole | PIPE | 0.0 | CAP |

### Drill Strings

#### BHA #5, Lateral

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| 1 | 8 1/2in, MMD55D, 12742752 | 0-0-NO-A-X-I-NO-TD | 1.86 |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| 22/22/22/22/22 | 12,106.12 | | 87.0 |

#### Mud Motors

| Motor Bend | Bit to Bend | Rotor Nozzle Diameter (in) |
|---|---|---|
| 2.00 FIXED | 4.03 | |

#### Drill String Components

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| HWDP | 21 | 5 | 3.00 | 640.35 | IF |
| Drill Pipe | 306 | 5 | 4.28 | 9,638.80 | IF |
| Agitator | 1 | 6 9/16 | 2.50 | 24.59 | IF |
| Drill Pipe | 54 | 5 | 4.28 | 1,702.49 | IF |
| Drill Collar - Non Mag | 1 | 6 1/2 | 3.25 | 30.02 | IF |
| Non-Mag Hangoff Sub | | 6 1/2 | 3.25 | 5.92 | IF |
| Drill Collar - Non Mag | | 6 1/2 | 3.25 | 29.67 | IF |
| Mud Motor - Bent Housing | | 6 1/2 | 2.50 | 33.28 | IF |

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| UNIVERSITY 3-35 #101HB | 19,120.0 | 19,334.0 | 1,453.00 | 2.40 | 16.70 | 89.2 | 555 |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| 32 | 75 | 4,294.0 | 187 | 244 | 192 | 21.0 | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| 24.7 | 0.4 | 95.7 | 76.4 | 2 |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| 256.8 | 453.4 | 99.5 | 453.4 | 9.20 |

Error

### Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

### Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

### Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

### Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

### Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| DRILLING WATER | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 0.0 | 0.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | L/D DIRECTIONAL TOOLS |
| 00:00 | Pre-Job | RUNNING PRODUCTION CASING |
| 05:30 | Pre-Tour | PROPER HYDRATION |

### Wellbores

Wellbore Name: UNIVERSITY 3-35 #101HB

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |

# Well Name: UNIVERSITY 3-35 #101HB

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| 19,134.00 | 89.03 | 2.84 | 8,564.43 | 10,788.04 | 10,771.94 | -589.43 | 1.26 |
| 19,228.00 | 89.80 | 2.54 | 8,565.39 | 10,881.57 | 10,865.83 | -585.02 | 0.88 |
| 19,278.00 | 90.74 | 2.11 | 8,565.15 | 10,931.35 | 10,915.79 | -583.00 | 2.07 |
| 19,334.00 | 90.74 | 2.19 | 8,564.43 | 10,987.12 | 10,971.75 | -580.89 | 0.14 |

# Partner Drilling Report

**Report Date: 7/17/2017**
**Report #: 19.0, DFS: 17.96**
**Time Log DFS: 17.96**
**Depth Progress: 0.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 72.0 | GOOD | GOOD |

**Current Status/OART**
R/U SCHLUMBERGER CEMENT EQUIPMENT @ REPORT TIME.

**24 Hour Forecast**
R/U SCHLUMBERGER CEMENT EQUIPMENT. CEMENT 5 1/2" PRODUCTION CASING. R/D CEMENT EQUIPMENT. WAIT ON CEMENT. NIPPLE DOWN FLOW LINE AND BREAK BOP STACK. SET CASING SLIPS, CUT CASING AND NIPPLE DOWN BOP. CLEAN PITS AND PREPARE TO SKID THE RIG.

**Short Report**
CONTINUE TO P/U AND M/U SHOE TRACK AND ALPHA SLEEVES. P/U AND RUN 5 1/2" 20# P-110 GEOCONN CASING F/ 164' TO 6310'. REPAIR PIPE WRANGLER. CONT. TO P/U AND RUN 5 1/2" 20# P-110 GEOCONN CASING F/ 6310' TO 14056'. REPAIR HYDRAULIC HOSE ON PIPE WRANGLER. CONT. TO P/U AND RUN 5 1/2" 20# P-110 GEOCONN CASING F/ 14056' TO 19331'. CIRCULATE 1.5 CASING VOLUMES.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 1,962.8 | 32.7 | 0.0 | 663.0 | 35.4 | 2.7 | 1,299.8 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 14:00 | 8.00 | 24PHC, Prod Hole Csg | CS | b | O | CONTINUE TO M/U 5-1/2" 20# P-110 GEOCONN SHOE TRACK, CONSISTING OF 6 1/2" OD SUMMIT ECCENTRIC REAMER SHOE, 1 JT 5-1/2" CASING, 5 1/2" SUMMIT FLOAT COLLAR, 20' PUP JOINT, 5-5/8" BAKER LANDING COLLAR, 1 JT 5-1/2" CASING, 10' PUP JOINT, 6-3/8" BAKER ALPHA FRAC SLEEVE, 10' PUP JOINT, 6-3/8" BAKER ALPHA FRAC SLEEVE AND 20' PUP JOINT TO 164.21'.<br><br>RIG UP CRT. PUMP THRU TO CHECK FLOATS. GOOD.<br><br>P/U AND RUN 5-1/2" 20# P-110 GEOCONN PRODUCTION CASING FROM 164.07' TO 6310'.<br><br>NOTE: BOTH TAIL AND LEAD CEMENT ON LOCATION. |
| 14:00 | 14:30 | 0.50 | 24PHC, Prod Hole Csg | RM | b | O | PERFORM RIG SERVICE.<br><br>NOTE: CATWALK DOWN. |
| 14:30 | 15:30 | 1.00 | 24PHC, Prod Hole Csg | DT | b | S | CATWALK SHUT DOWN AND NOT ABLE TO RESTART. |
| 15:30 | 22:30 | 7.00 | 24PHC, Prod Hole Csg | CS | b | O | CONTINUE TO P/U AND RUN 5-1/2" 20# P-110 GEOCONN PRODUCTION CASING FROM 6310'' TO 14056'. |
| 22:30 | 23:30 | 1.00 | 24PHC, Prod Hole Csg | DT | c | O | BREAK CIRCULATION WHILE REPAIRING HYDRAULIC HOSE ON PIPE WRANGLER. |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |

| Day Total (Cost) | Cum To Date (Cost) |
|---|---|
| 266,063 | 1,770,056 |

| Mud Field Est (Cost) | Cum Mud Field Est (Co... |
|---|---|
| 1,841 | 63,718 |

| Start Depth (ftKB) | End Depth (ftKB) |
|---|---|
| 19,334.0 | 19,334.0 |

| Planned Formation | Planned TMD (ftKB) |
|---|---|
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| DAVID LANKFORD, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 31.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |

| Rig Supervisor | Phone Mobile |
|---|---|
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter... |
|---|---|---|
| 1 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b... |
|---|---|---|
| 5 | 11.00 | 0.067 |

| P (psi) | Slow Spd | Strokes (s... | Eff (%) |
|---|---|---|---|
| | | | |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter... |
|---|---|---|
| 2 | 1,300.0 | |

| Liner Size (in) | Stroke (in) | Vol/Stk OR (b... |
|---|---|---|
| 5 | 11.00 | 0.067 |

| P (psi) | Slow Spd | Strokes (s... | Eff (%) |
|---|---|---|---|
| | | | |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| CON DET | 59.00 | 6.0 |
| RIG WASH | 786.59 | 1.0 |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DIESEL FOR OBM | Gal | 41,967.0 | 32,079.0 | 0.0 |
| DRILLING CUTTINGS | Cu. Yds | 345.0 | 345.0 | 0.0 |
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |



**Report Printed: 7/19/2017**

# Partner Drilling Report

## Well Name: UNIVERSITY 3-35 #101HB

**Report Date: 7/17/2017**
**Report #: 19.0, DFS: 17.96**
**Time Log DFS: 17.96**
**Depth Progress: 0.00**

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 23:30 | 03:30 | 4.00 | 24PHC, Prod Hole Csg | CS | b | O | CONTINUE TO P/U AND RUN 5-1/2" 20# P-110 GEOCONN PRODUCTION CASING FROM 14056' TO 19331'.<br><br>NOTABLE DEPTHS AND ACCESSORIES AS FOLLOWS:<br><br>- 6-1/2" REAMER SHOE @ 19,331'<br>- 1 JOINT OF 5-1/2" CASING<br>- 5 1/2" FLOAT COLLAR @ 19,283.5'<br>- 20 FT 5-1/2" PUP JOINT<br>- 5-1/2" LANDING COLLAR @ 19,262.3"<br>- 1 JOINT OF 5-1/2" CASING<br>- 10 FT 5-1/2" PUP JOINT<br>- 6-1/2" BAKER FRAC POINT ALPHA SLEEVE @ 19,205.2'<br>- 10 FT 5-1/2" PUP JOINT<br>- 6-1/2" BAKER FRAC POINT ALPHA SLEEVE @ 19,190.9'<br>- 20 FT 5-1/2" PUP JOINT<br>- 73 JOINTS OF 5-1/2" CASING<br>- 20 FT 5-1/2" MARKER JOINT "A" @ 15,879.6'<br>- 79 JOINTS OF 5-1/2" CASING<br>- 20 FT 5-1/2" MARKER JOINT "B" @ 12,385.1'<br>- 103 JOINTS OF 5-1/2" CASING<br>- 20 FT 5-1/2" MARKER JOINT "C" @ 7,729.4'<br>- 172 JOINTS OF 5-1/2" CASING TO SURFACE. (TOTAL 5-1/2" CASING RAN: 429 JOINTS).<br><br>NOTE: HOLE GIVING PROPER DISPLACEMENT DURING CASING RUN.<br><br>INSTALL 5-1/2" X 7-1/4" X 8" SOLID BODY CENTRALIZERS EVERY JOINT ON THE LATERAL AND CURVE TO INSIDE 9-5/8" CASING, 5-1/2" X 8" CENTEK BOWSPRING CENTRALIZERS EVERY OTHER JOINT INSIDE THE 9-5/8" CASING TO 4,029.9' |
| 03:30 | 06:00 | 2.50 | 24PHC, Prod Hole Csg | CI | g | O | CIRCULATE 1.5 CASING CAPACITIES. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 09:00 | INVERMUL | 19,334.0 | 9.30 | 57 | 15.0 | 11.005 |
| Gel 10 sec (kPa) (lb… | Gell 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 8.003 | 13.005 | 18.007 | | | | 11.5 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.0 | 18.5 | 42,000.000 | 22,000.000 | | 800.0 |
| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
| 01:00 | INVERMUL | 19,334.0 | 9.20 | 54 | 15.0 | 10.004 |
| Gel 10 sec (kPa) (lb… | Gell 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
| 8.003 | 15.006 | 17.007 | | | | 11.5 |
| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
| | 70.0 | 18.5 | 43,000.000 | 21,000.000 | | 800.0 |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | 618.1 | ANNULUS |
| Tank | Tank | 438.0 | ACTIVE |
| Tank | Reserve | 225.0 | RESERVE |
| Addition | Addition | 0.0 | DW |
| Addition | Addition | 35.4 | CHEMICALS |
| Loss | LOSS | 2.7 | SCE |
| Hole | PIPE | 681.7 | CAP |

### Drill Strings

**BHA #<stringno>, <des>**

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| | | | |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| | | | |

**Drill String Components**

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| | | | | | |

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| FUEL | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 39,093.0 | 31,761.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 17:30 | Pre-Tour | BUFFER ZONE |
| 05:30 | Pre-Tour | RIGGING DOWN CASING EQUIPMENT |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Partner Drilling Report

**Report Date: 7/17/2017**
**Report #: 19.0, DFS: 17.96**
**Time Log DFS: 17.96**
**Depth Progress: 0.00**

## Well Name: UNIVERSITY 3-35 #101HB

### Drilling Parameters

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000... | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p... | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f... |

### Hydraulic Calculations

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
| Error | | | | |

### Kicks

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| Kill Notes | | | | |

### Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|

### Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| Action Taken | | | | | | |

### Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| Comment | | | | | | |

### Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

### Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

### Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|

# Partner Drilling Report

**Report Date: 7/18/2017**
**Report #: 20.0, DFS: 18.96**
**Time Log DFS: 18.96**
**Depth Progress: 0.00**

## Well Name: UNIVERSITY 3-35 #101HB

| API/UWI No. | Surface Legal Location | Well License/Permit No. | State/Province |
|---|---|---|---|
| 42461406090000 | A-U47; SEC. 11; BLK 4; UNIVERSITY LAND | 826701 | TEXAS |

| Original Spud/Spud Rig Date | Rig Release Date | KB to GL (ft) | KB-Casing Flange Distance (ft) |
|---|---|---|---|
| 6/29/2017 07:00 | 7/18/2017 06:00 | 25.00 | |

| Original Spud/Spud Rig Date | Weather | Temperature (°F) | Road Condition | Hole Condition |
|---|---|---|---|---|
| 6/29/2017 | CLEAR | 75.0 | GOOD | GOOD |

| Current Status/OART | 24 Hour Forecast |
|---|---|
| RELEASE RIG @ REPORT TIME | SKID RIG AND SPUD THE UNIVERSTIY 3-35 #104HB. |

Short Report

R/D CASING EQUIPMENT AND R/U CEMENT EQUIPMENT. CEMENT 5 1/2" PRODUCTION CASING . R/D CEMENT EQUIPMENT. WOC. NIPPLE DOWN FLOW, CHOKE AND KILL LINES. UNBOLT STACK AND LIFT. SET CASING SLIPS AND CUT CASING. SET STACK DOWN AND REMOVE CASING. CONTINUE TO NIPPLE DOWN BOP EQUIPMENT AND SET ASIDE. CLEAN CASING CUT AND INSTALL PACKOFF. TEST PACKOFF - TEST GOOD. INSTALL NIGHT CAP AND TORQUE DOWN. PREPARE RIG FOR SKID. RELEASE RIG @ 600 AM.

### Mud Volumes

| Active Volume (bbl) | Var Active Vol (bbl) | Balance (bbl) | Tank Volume (bbl) | Additions (bbl) | Losses (bbl) | Hole Volume (bbl) |
|---|---|---|---|---|---|---|
| 2,063.0 | 100.2 | 100.2 | 2,063.0 | 0.0 | 0.0 | 0.0 |

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 06:00 | 07:00 | 1.00 | 24PHC, Prod Hole Csg | CS | a | O | R/D BYRD CASING CRT AND SPIDER SLIPS. |
| 07:00 | 08:00 | 1.00 | 24PHC, Prod Hole Csg | CE | d | O | R/U SCHLUMBERGER CEMENT HEAD AND IRON. |
| 08:00 | 13:00 | 5.00 | 24PHC, Prod Hole Csg | CE | a | O | HELD PJSM WITH HOC - H&P - BAKER AND SLB CEMENTERS ON PRODUCTION CEMENT JOB.<br><br>PERFORM CEMENT JOB FOR PRODUCTION CASING AS FOLLOWS:<br><br>SWAPPED TO SCHLUMBERGER CEMENT LINES PRESSURE TESTED SAME TO 1000 PSI LOW AND 4000 PSI HIGH: TEST GOOD,<br><br>- SPACER: MIX & PUMP 60 BBL'S OF MUD PUSH EXPRESS SPACER @ 10.5 PPG. MIX AND PUMP 126 BBL MRF SPACER @ 10.5 PPG<br><br>- LEAD SLURRY: MIX & PUMP 154 BBL'S (378 SK'S) OF TXI LIGHTWEIGHT BLEND CEMENT @ 11.5 PPG, YIELD 2.29 FT3/SK, MIX WATER 13.10 GAL/SK<br><br>- TAIL SLURRY: MIX & PUMP 590 BBL'S (2125 SK'S) OF D909 CEMENT @ 13.20 PPG, YIELD 1.56 FT3/SK, MIX WATER 7.59 GAL/SK<br><br>- FLUSH LINES WITH 20 BBL OF 20% ACETIC ACID TO RESERVE PIT TO MAKE SURE THE LINE IS FILLED UP WITH ACID.<br><br>- DROP DART PLUG AND PUMP 20 BBL OF 20% ACETIC ACID. FOLLOWED BY 407 BBLS OF KCL BRINE WATER.<br><br>- TOTAL DISPLACEMENT PUMPED 427 BBL. FIELD CALCULATED TOP OF CEMENT @ 4000'.<br><br>- BUMP PLUG AT 12:58 HRS . PRESSURE UP TO 3382 PSI (500 PSI OVER CIRCULATING PSI) AND HOLD FOR 5 MINUTES. BLEED BACK 5 BBL. FLOAT EQUIPMENT HELD.<br><br>NOTE: 100 BBLS OF A MIXTURE OF CONTAMINATED MUD AND SPACER RETURNED TO SURFACE. |
| 13:00 | 21:00 | 8.00 | 24PHC, Prod Hole Csg | CE | d | O | WOC. (8 HOURS) RIG DOWN CEMENTERS AND EQUIPMENT.<br><br>FLUSH THROUGH LINES, BOP STACK, CHOKE MANIFOLD AND BACK TO MUD PUMPS AND STAND PIPE.<br><br>TRANSFER REMAINING MUD FROM MUD TANKS TO FRAC TANKS. BEGIN CLEANING PITS. R/D FLOW LINE, CLEANED RIG FLOOR. |

| AFE Number | AFE+Supp Amt (Cost) |
|---|---|
| DD.17.30748.CAP.DRL | 2,183,000.00 |
| **Day Total (Cost)** | **Cum To Date (Cost)** |
| 137,134 | 1,907,189 |
| **Mud Field Est (Cost)** | **Cum Mud Field Est (Co…** |
| 2,273 | 65,991 |
| **Start Depth (ftKB)** | **End Depth (ftKB)** |
| 19,334.0 | 19,334.0 |
| **Planned Formation** | **Planned TMD (ftKB)** |
| WOLFCAMP B | 19,360.0 |

Last Casing String: Intermediate Casing, 7,818.0ftKB

### Daily Contacts

| Job Contact | Mobile |
|---|---|
| BRIAN ALLEMAN, Engineer | 214-978-8000 |
| DAVID LANKFORD, Foreman | 281-220-5828 |
| KEVIN GOTTE, Consultant | 281-220-5828 |
| TRAVIS PERSCHE, Rig Clerk/Logistics | 281-220-5829 |

### Personnel Log

Head Count: 28.0

### Rigs

**HELMERICH & PAYNE DRILLING, 3**

| Contractor | Rig Number |
|---|---|
| HELMERICH & PAYNE DRILLING | 394 |
| **Rig Supervisor** | **Phone Mobile** |
| JARED CARPENTER, Toolpusher | 918-936-7394 |

**1, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 1 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| | | | |

**2, Gardner-Denver, PZ-11**

| Pump Number | Pwr (hp) | Rod Diameter… |
|---|---|---|
| 2 | 1,300.0 | |
| **Liner Size (in)** | **Stroke (in)** | **Vol/Stk OR (b…** |
| 5 | 11.00 | 0.067 |
| **P (psi)** | **Slow Spd** | **Strokes (s…** | **Eff (%)** |
| | | | |

### Mud Additive Amounts

| Mud Additive Description | Field Est (Cost/unit) | Consumed |
|---|---|---|
| 12 HR MUD ENGINEER | 700.00 | 1.0 |
| RIG WASH | 786.59 | 2.0 |

### Job Supplies

| Supply Item Description | Unit Label | Total Received | Total Consumed | On Loc |
|---|---|---|---|---|
| DIESEL FOR OBM | Gal | 41,967.0 | 32,079.0 | 0.0 |
| DRILLING CUTTINGS | Cu. Yds | 345.0 | 345.0 | 0.0 |
| DRILLING WATER | Bbl | 8,216.0 | 8,216.0 | 0.0 |
| DRILLING WATER | Bbl | 0.0 | 0.0 | 0.0 |
| FUEL | Gal | 39,093.0 | 31,761.0 | 0.0 |



Report Printed: 7/19/2017

# Partner Drilling Report

**Report Date: 7/18/2017**
**Report #: 20.0, DFS: 18.96**
**Time Log DFS: 18.96**
**Depth Progress: 0.00**

## Well Name: UNIVERSITY 3-35 #101HB

### Time Log

| Start Time | End Time | Dur (hr) | Phase | Ops Code | Sub Code | Time Code | Operation Summary |
|---|---|---|---|---|---|---|---|
| 21:00 | 22:00 | 1.00 | 24PHC, Prod Hole Csg | BO | f | O | BREAK BOLTS ON STACK. NIPPLE DOWN CHOKE AND KILL LINE. |
| 22:00 | 22:30 | 0.50 | 24PHC, Prod Hole Csg | WH | e | O | PICK STACK UP. SET CASING SLIPS WITH 180K STRING WEIGHT. ROUGH CUT CASING. |
| 22:30 | 23:30 | 1.00 | 24PHC, Prod Hole Csg | BO | f | O | SET STACK DOWN AND LAY DOWN CUT CASING JOINT. CONTINUE TO NIPPLE DOWN SWC CONNECTION FROM WELL HEAD. |
| 23:30 | 03:30 | 4.00 | 24PHC, Prod Hole Csg | WH | d | O | DRESS UP CASING CUT AND INSTALL PACKOFF. TEST PACKOFF TO 5000 PSI AND HOLD FOR 15 MINUTES. TEST GOOD.<br><br>INSTALL AND TORQUE NIGHT CAP ON WELL HEAD. |
| 03:30 | 06:00 | 2.50 | 24PHC, Prod Hole Csg | LM | b | O | PREPARE RIG FOR SKID TO THE UNIVERSITY 3-35 #104HB.<br><br>RELEASE RIG TO THE UNIVERSITY 3-35 #104HB @ 06:00 AM ON 7/18/2017.<br><br>FINAL DRILLING REPORT FOR THE UNIVERSITY 3-35 #101HB. |

### Mud Checks

| Time | Type | Depth (ftKB) | Density (kg/m³) (lb/g… | Funnel Viscosity (s/qt) | PV Calc (cP) | YP Calc (lbf/100ft²) |
|---|---|---|---|---|---|---|
| 05:00 | Brine | 19,334.0 | 8.85 | 28 | 1.0 | 4.002 |

| Gel 10 sec (kPa) (lb… | Gel 10 min (kPa) (l… | Gel 30 min (kPa) (lb… | Filtrate (mL/30min) | Filter Cake (1/32") | pH | Solids (%) |
|---|---|---|---|---|---|---|
| 1.000 | 2.001 | 3.001 | 95.0 | | 9.0 | |

| MBT (lb/bbl) | Percent Oil (%) | Percent Water (%) | Chlorides (kg/m³) (… | Calcium (kg/m³) (m… | Potassium (mg/L) | Electric Stab (V) |
|---|---|---|---|---|---|---|
| | | 96.8 | 50,000.000 | | | |

### Mud Volumes

| Tank/Addition/Loss | Type | Volume (bbl) | Subtype |
|---|---|---|---|
| Hole | Hole | | ANNULUS |
| Tank | Tank | | ACTIVE |
| Tank | Reserve | 2,063.0 | RESERVE |
| Addition | Addition | | DW |
| Addition | Addition | | CHEMICALS |
| Loss | LOSS | | SCE |
| Hole | PIPE | | CAP |

### Drill Strings

**BHA #<stringno>, <des>**

| Bit Run | Drill Bit | IADC Bit Dull | TFA (incl Noz) (in²) |
|---|---|---|---|
| | | | |

| Nozzles (1/32") | BHA Length (ft) | String Wt (1000lbf) | Bit ROP (ft/hr) |
|---|---|---|---|
| | | | |

**Drill String Components**

| Item Des | Manual/Tally Jts | OD (in) | ID (in) | Len (ft) | Top Thread |
|---|---|---|---|---|---|
| | | | | | |

**Drilling Parameters**

| Wellbore | Start Depth (ftKB) | End Depth (ftKB) | Cum Depth (ft) | Drilling Time (hr) | Cum Drill Time (hr) | Interval ROP (ft/hr) | Flow Rate (gpm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| WOB (1000lbf) | Rotary RPM (rpm) | SPP (psi) | Drill Str Wt (1000… | PU Str Wt (1000lbf) | SO Str Wt (1000lbf) | Drilling Torque | Off Btm Tq |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| Q Gas Inj (ft³/min) | T Inj (°F) | P BH Ann (psi) | T BH (°F) | P Surf Annulus (p… | T Surf Annulus (°F) | Q Liq Return (gpm) | Q Gas Return (f… |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

**Hydraulic Calculations**

| Bit Hydraulic Power (hp) | HP/Area (hp/in²) | Bit Jet Velocity (ft/s) | Bit Pressure Drop (psi) | % P @ bit (%) |
|---|---|---|---|---|
| | | | | |

| Max Casing AV (ft/min) | Max Open Hole AV (ft/min) | Min Casing AV (ft/min) | Min Open Hole AV (ft/min) | ECD End (lb/gal) |
|---|---|---|---|---|
| | | | | |

Error

**Kicks**

| Kick Date | Kick Depth (ftKB) | Control Date | Control Depth (ftKB) | Kick Class |
|---|---|---|---|---|
| | | | | |

Kill Notes

### Job Supplies

| Supply Item Description | Unit Label |
|---|---|
| LIQUID DRILLING WASTE | Bbl |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 750.0 | 750.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| POTABLE WATER | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 9.0 | 9.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| SEWAGE | Gal |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 24,700.0 | 24,700.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| THREAD PROTECTORS | Box |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 1.0 | 1.0 | 0.0 |

| Supply Item Description | Unit Label |
|---|---|
| TRASH/GENERAL WASTE | Ea |

| Total Received | Total Consumed | On Loc |
|---|---|---|
| 2.0 | 2.0 | 0.0 |

### Safety Checks

| Time | Type | Safety Topic |
|---|---|---|
| 08:00 | Pre-Job | CEMENTING OPERATIONS |
| 17:30 | Pre-Tour | NIPPLE DOWN BOP |
| 05:30 | Pre-Tour | WORKING FROM HEIGHTS |

### Wellbores

| Wellbore Name |
|---|
| UNIVERSITY 3-35 #101HB |

### Kick Offs & Key Depths

| Type | Top Depth (ftKB) |
|---|---|
| | |



**Report Printed: 7/19/2017**

# Well Name: UNIVERSITY 3-35 #101HB

## Lost Circulation

| Start Date | Top Depth (ftKB) | Bottom Depth (ftKB) | Ops In Prog | Vol Lost Tot (bbl) | End Date |
|---|---|---|---|---|---|
| | | | | | |

## Interval Problems

| Problem Type | Problem Subtype | Start Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost (Cost) | Est Lost Time (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Action Taken

## Interval Lessons

| Lesson Type | Start Date | End Date | Start Depth (ftKB) | End Depth (ftKB) | Est Cost Saving (Co... | Est Time Saving (hr) |
|---|---|---|---|---|---|---|
| | | | | | | |

Comment

## Safety Incidents

| Time | Category | Type | Subtype | Cause | Lost time? | Severity |
|---|---|---|---|---|---|---|
| | | | | | | |

## Leak Off and Formation Integrity Tests

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 6/29/2017 | 13 3/8 | 1,462.0 | 1,461.9 | TEST GOOD | 500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/1/2017 | Casing Test | 8.45 | 15.03 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/6/2017 | Casing Test | 8.80 | 14.63 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | 9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK - TEST GOOD. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | Casing Test | 8.80 | 12.57 |

| Run Date | OD (in) | Set Depth (ft... | Set Depth (T... | Comment | MACP Press... |
|---|---|---|---|---|---|
| 7/4/2017 | 9 5/8 | 7,818.0 | 7,756.9 | PERFORM F.I.T. AS FOLLOW: MW USED WBM @ 8.7 PPG. PUMPED 3.5 BBLS @ .5 BPM. PRESSURE UP TO 940 PSI TO 11.0 PPG EMW. HELD FOR 5 MINUTES. | 1,500.0 |

| Test Date | Test Type | Fluid Density (lb/gal) | EMW (lb/gal) |
|---|---|---|---|
| 7/7/2017 | F.I.T. | 8.70 | 11.02 |

## Survey Data

| MD (ftKB) | Inclination (°) | Azimuth (°) | TVD (ftKB) | VS (ft) | NS (ft) | EW (ft) | DLS (°/100ft) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |