

BAM Permian Operating  
**University Roland #2**  
SEC. 42, BLK. 30 ULS  
Crane CO., TX  
API #: 42-103-36564  
Proposed TD: 9,600'  
PERMIT #: 826880

**06/12/17:** Commence rig move Sendero Rig 17 with Wilbanks trucking on Sunday 06/11/17.

**06/13/17:** Moving Sendero Rig 17 with Wilbanks trucking. Begin rigging up. Rig move slow because crown truck broke driveshaft, and truck hauling pump broke a driveshaft. Max 2 day move rate by contract. Will spud today.

DWC: \$183,900

CWC: \$183,900

**06/14/17: Day 1, Depth: 613'** Ftg: 556'. 7 hrs rig up floor and weld on conductor. ½ hrs Safety inspection. 16 ½ hrs drilling and surveys to 613'. Surveys: 250' 0.5 deg, 513 0.2 deg. Bit No. 1 17.5" ULT 616S, 34163, 8x15's, in 57', 556' in 15 hrs. Avg 37 fph. BHA: Bit, Shock sub, 8" DC, IBS, 3-8"DC's, X0, 21-6"DC, (763.12')

DWC: \$18,179

CWC: \$202,079

**06/15/17: Day 2, Depth: 757'** Ftg: 144'. 3 ½ hrs drlg from 613' to 757'. ½ hrs Pump Sweep and circ for 30m in. 2 ½ hrs TOH for casing. ½ hrs Clean and clear rig floor. 5 ½ hrs Safety meeting and run casing. 1 ½ hrs circulate RD Permian Power Tong Casing Crew and rig up O-TEX Cementer. 2 hrs cement casing, 4 hrs wait on cement. 2.5 hrs cut conductor off and and casing and weld on wellhead test weld to 600 psi ok. 1.5 hrs NU BOP. Surveys: 250' 0.5 deg, 513 0.2 deg. Bit No. 1 17.5" ULT 616S, 34163, 8x15's, in 57', 700' in 18.5 hrs. Avg 37.84 fph. BHA: Bit, Shock sub, 8" DC, IBS, 3-8"DC's, X0, 21-6"DC, (763.12') Remarks: Drilled to TD at 757', Ran casing as follows:

0.5 ft SK guide shoe  
27.01 ft shoe 1 joint  
1.6 ft SK Float collar  
325.86 ft 9 jts 13 3/8 54.50, J-55, STC  
93.15 ft 3 jts 13 3/8" 48# J-55 STC  
42.78 ft 1 jt 13 3/8" 54.50# J-55 X-Over STC to BTC  
240.43 ft 7 jts 13 3/8" 54.50# J-55 BTC  
27.80 ft landing joint 13 3/8" 54.50# J-55 BTC  
759.13 ft Total pipe set at 756' RKB  
-20.13 ft cut joint  
739.00 ft of pipe in slips to 756' RKB

Cement casing with O-TEX cementers as follows:

**Lead cement:** 265 sx CL C + 35% poz+6% gel+2%CaCl+0.25#/sk cello flake, 50% excess, 12.90 ppg, 1.80 ft3/sx,

**Tail cement:** 235 sx CL C +2% CaCl+0.75gal/100sx CF-41L mixed at 14.8 ppg, 1.35 ft3/sx, 3.37 gps water.

Pumped 1 1/2 bbls over displacement and did not bump plug. Bleed off and floats held ok. Plug down at 2200 hrs.

Circulated 125 sx to reserve. Top of cement: surface

DWC: \$59,947

CWC: \$262,026

**06/16/17: Day 3, Depth: 970'** Ftg: 213'. 9 hrs N/U BOP, flowline, co-flex line and kill line. ½ hrs test BOPE. 2 ½ PU BHA . 3 ½ TIH 2 ½ Tag cement at 696', drlg cement plug, float, and shoe track. 6 hrs drlg 757' to 970'. Surveys: 250' 0.5 deg, 513 0.2 deg. Bit No. 2 11" ULT 616S, 34902, 6x12's, in 757', 213' in 6 hrs. Avg 35.5 fph. BHA: Bit, Shock sub, 2-8" DC, IBS, 1-8"DC's, IBS, 1-8" DC, X0, 21-6"DC, (768.38'). Remarks: NU Bop and test to 250 low and 1000 high OK, PU BHA to TIH progress was slow as had trouble with draw works. Drilled shoe track and test casing to 1000 psi for 30 min, held ok. Drill formation to 970'. MW 10, Vis 29, ph10 WL N/C.

DWC: \$24,812

CWC: \$286,838

**06/17/17: Day 4, Depth: 2,280'** Ftg: 1,310'. 24 hrs Drilling and surveys f/ 970' to 2,280'. Surveys: 1,019' 0.3 deg, 1,525' 1.2 deg, 1,780 1.3 deg, 2,033' 1.8 deg. Bit No. 2 11" ULT 616S, 34902, 6x12's, in 757', 1,523' in 28 ½ hrs, Avg 53 fph. BHA: Bit, Shock sub, 2-8" DC, IBS, 1-8"DC's, IBS, 1-8" DC, X0, 21-6"DC, (768.38'). Remarks: Drilling and surveys to 2,280' without problems. Surveys 250'. WOB 28-32, RPM 80-85, Pump 670 psi. MW 10, Vis 29, ph10 WL N/C.  
 DWC: \$32,504 CWC: \$322,190

**06/18/17: Day 5, Depth: 3,191'** Ftg: 911''. 22 ½ hrs Drilling and 1 ½ surveys, f/ 2,280' to 3,191'. Surveys: 2,287' 1.3 deg, 2,542' 1.0 deg, 3,047 1.4 deg. Bit No. 2 11" ULT 616S, 34902, 6x12's, in 757', 2,429' in 50 ½ hrs, Avg 48 fph. BHA: Bit, Shock sub, 2-8" DC, IBS, 1-8"DC's, IBS, 1-8" DC, X0, 21-6"DC, (768.38'). Remarks: Drilling and surveys to 3,191' without problems. WOB 28-32, RPM 80-85, Pump 670 psi. MW 10, Vis 29, ph10 WL N/C.  
 DWC: \$24,509 CWC: \$346,699

**06/19/17: Day 6, Depth: 3,865'** Ftg: 681. 2 hrs Drlg f/ 3,091' to 3,221'. 4 ½ hrs TOH f/ Bit #3. ½ hrs clear rig floor. 3 ½ hrs TIH w/ bit #3. ½ hrs establish circulation and wash 3' of fill. 1 hrs Drlg f/ 3,221' to 3,253'. 5 ½ hrs Drlg f/ 3,253 to 3,567'. ½ hrs survey 3,523' 0.7 deg. 6 hrs Drlg f/ 3,567' to 3,865'. Surveys: 3,523' 0.7 deg. Bit No. 2 11" ULT 616S, 34902, 9x15's, in 757', 2,434' in 52 ½ hrs, Avg 46.4 fph. Bit No. 3, 11" ULT 616S, 34919, 9x15's, in 3,221', 644' in 14 ½ hrs, Avg 44.4 fph BHA: Bit, Shock sub, 2-8" DC, IBS, 1-8"DC's, IBS, 1-8" DC, X0, 21-6"DC, (768.38'). Remarks: Drilled to 3,221' and penetration rate slowed. TOH f/ bit #3 and TIH wash 3' of fill to bottom and drill to 3,865' at report time. No Problems. WOB 28-32, RPM 80-85, Pump 670 psi. MW 10, Vis 29, ph10 WL N/C.  
 DWC: \$27,210 CWC: \$373,909

**06/20/17: Day 7, Depth: 4,003'** Ftg: 318'. 3 hrs Drlg f/ 3,865' to 4,003'. 1 ½ hrs Circulate and condition mud. 5 hrs TOH to run casing. Dropped survey, LD 8" DC's, IBS, shock sub and bit. RU lay down machine. 2 ½ hrs RU casing crews and Run 8 5/8" casing. 5 ½ hrs Run 99 jts of 8 5/8" casing. 1 ½ RD casing crew and LD machine and RU cementers. 2 ½ cement with O-Tex cementers. 2 hrs ND and set slips, cut off casing. Surveys: 3,959' 1.0 deg. Bit No. 3, 11" ULT 616S, 34919, 9x15's, in 3,221', Out: 4,003', 782' in 14 ½ hrs, Avg 44.4 fph BHA: Bit, Shock sub, 2-8" DC, IBS, 1-8"DC's, IBS, 1-8" DC, X0, 21-6"DC, (768.38'). Remarks: Drilled to 4,003. Circulate sweep and TOH f/8 5/8" casing. LD 8" DC's. RU Permian Power Tongs and run 99 jts of 8 5/8" 32# J-55 LTC casing to 4,003' tagged TD and PU 1 1/2'. Ran casing as follows:

1 - Antelope Float Shoe	1.32'
1 jts 8 5/8 32# J-55 8Rd LTC shoe joint	38.81'
1 - Antelope Float Collar	1.34'
99 jts - 8 5/8" 32# J-55 8rd LTC casing	<u>3,966.36'</u>
99 jts Total Casing	4,007.83'
Less above KB	<u>-4.83'</u>
Casing set at	4003.00'
Cut off jt	18.45'

Circulate casing on rig pump while RD LD machine and casing crew. RU O-Tex cementers and have safety meeting. Test lines, cement casing with O-Tex cementers as follows:

**Lead cement:** 710 sx Cl C + 50% poz+10% gel+0.25#/sk cello flake, +5% Salt +0.75-Gal/100sx, CF-41L, 100% excess, 11.80 ppg, 2.45 ft3/sx, 14.06 H2O

**Tail cement:** 200 sx CL C +1% CaCl+0.75gal/100sx CF-41L mixed at 14.8 ppg, 1.34 ft3/sx, 6.34 gps water.

Pumped 242 bbls of displacement bump plug with 1657 psi. Bleed off 2 ½ bbls, floats held ok. Plug down at 0300 hrs. Circulated 57 bbls, 131 sx to reserve. Top of cement: surface.

PU BOP stack and set slips with 100k of 120k hanging weight (75%).

DWC: \$104,721

CWC: \$478,630

**06/21/17: Day 8, Depth: 4,221'** Ftg: 218'. 6 ½ hrs Cutoff 8 5/8 casing, install "B" section and NU BOP. 1 ½ hrs Test BOP to 250 low and 1000 high. 1 ½ hrs Cut 150' drilling line. 1 ½ hrs wait on mud motor. 1 hrs PU BHA and TIH. 4 hrs TIH ½ hrs PU Kelly, establish circulation. ½ hrs test casing to 1000 psi for 30 m in OK. 1 hrs Tag cement at 3,958' 1 ½ hrs Drill plug, float collar and shoe track. 4 ½ hrs drlg f/ 4,003 to 4,223' Surveys: 3,959' 1.0 deg. Bit No. 4, 7 7/8" ULT 616S, 35763, 6x15's, in 4,003', FTG: 218' in 4 ½ hrs, Avg 48 fph BHA: Bit, Motor, IBS, 1-6"DC's, IBS, 20-6"DC, (662.85'). Remarks: Trip was slow due to pipe spinners breaking. Had to RU chain to spin pipe.  
 DWC: \$16,765 CWC: \$495,394

**06/22/17: Day 9, Depth: 5,330'** Ftg: 1,109'. 22 ½ hrs Drlg 4,221' to 5,330'. 1 hrs surveys, ½ hrs lubricate rig. 4,494' 0.4 deg. 4,937' 0.4 deg. Bit No. 4, 7 7/8" ULT 616M 35763, 5x15's, 1x16, in 4,003', FTG: 1,327' in 27 hrs, Avg 49 fph BHA: Bit, Motor, IBS, 1-6" DC's, IBS, 20-6" DC, (662.85'). MW: 8.9 ppg, Vis: 29, Ph 9.0 WL: N/C. Chl: 65,000 Remarks: Drilling with no problems.

DWC: \$26,082

CWC: \$521,476

**06/23/17: Day 10, Depth: 6,059'** Ftg: 729'. 5 ½ hrs Drlg f/ 5,330' to 5,520'. ½ hrs survey 5476 0.0 deg ½ hrs lubricate rig. 2 ½ hrs Drlg f/ 5,520' to 5,603'. 3 hrs TOH f/ bit No. 5, 3 ½ hrs PU bit #5 and TIH. ½ hrs PU Kelly and establish circulation, wash to bottom 5,539' to 5,603', with no fill. 6 hrs Drlg f/ 5,603' to 5,996'. 1 hrs circulate sweep out and run survey 5920 0.2 deg. 1 hrs Drlg f/ 5,996' to 6059'. 5,476' 0.0 deg. 5,920' 0.2 deg. Bit No. 4, 7 7/8" ULT 616M 35763, 5x15's, 1x16, in 4,003', Out 5,603' FTG: 1,600' in 35 hrs, Avg 45 fph Bit No. 5, 7 7/8" ULT 716M SN 35181, 7 X16, In: 5,603' Ftg: 456' in 7 hrs Avg PR: 65 fph. BHA: Bit, Motor, IBS, 1-6" DC's, IBS, 20-6" DC, (662.85'). MW: 9.0 ppg, Vis: 29, Ph 9.0 WL: N/C. Chl: 76,000 Remarks: PR slowed with bit #4. Tripped for bit and found bit starting to core. Run Bit #5 and drill to 6,059 at report time. Drilling with no problems. Will mud up at 6,700'.

DWC: \$28,006

CWC: \$549,483

**06/24/17: Day 11, Depth: 7,097'** Ftg: 1,038'. 6 hrs Drlg f/6,059' to 6,471'. ½ hrs survey @6,427' 0.9 deg. ½ hrs Lubricate rig. 1 ½ hrs Drlg f/ 6,471' to 6,565'. ½ hrs TOH 1 stand for repairs. 1 ½ hrs Change out clutch on #1 DW motor. ½ hrs TIH 1 stand to bottom. 3 ½ hrs Drlg f/ 6,565' to 6,723'. 1 hrs Survey 6,647' 0.9 deg. 5 hrs Drlg f/ 6,723' to 6,977'. ½ hrs Survey @ 6,091' 1.7 Deg. 3 hrs Drlg f/ 6,977' to 7,097'. Surveys: 6,427' 0.9 deg, 6,647' 0.9 deg, 6,091' 1.7deg Bit No. 5, 7 7/8" ULT 716M SN 35181, 7 X16, In: 5,603' Ftg: 1494' in 26 hrs Avg PR: 57 fph. BHA: Bit, Motor (Von Dyna Max), IBS, 1-6" DC's, IBS, 20-6" DC, (662.85'). MW: 9.5 ppg, Vis: 30, Ph 9.0 WL: 6. Chl: 100,000 Drill Solids 2.01% Remarks: Drilling with no problems. Have mudded up and will lower water loss to <4.5

DWC: \$33,888

CWC: \$584,870 (corrected)

**06/25/17: Day 12, Depth: 7,521'** Ftg: 424'. 2 ½ hrs Drlg f/ 7,097' to 7,231'. ½ hrs Survey @ 7,187' 1.7 deg. ½ hrs lubricate rig. 6 hrs Drlg f/ 7,231' to 7,485'. 1 hrs Survey @ 7,441' 0.9 deg. 1 hrs Drlg f/ 7,485' to 7,521'. 1 ½ hrs Circulate. 5 hrs TOH f/ motor. 1 hrs swap out Bit, motor, and install Teledrift sub. 3 hrs Remove transmission cover, repair 2<sup>nd</sup> gear change mechanism and re-install 1<sup>st</sup> gear drive chain, re-install transmission cover. 2 hrs TIH with bit #6. Surveys: 7,187' 1.7 deg, 7,441' 0.9 deg. Bit No. 5, 7 7/8" ULT 716M SN 35181, 7 X16, In: 5,603' Ftg: 1918' in 35.5 hrs Out: 7,521' Avg PR: 54 fph. BHA: Bit, Motor (Magnum), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (675.98'). MW: 9.7 ppg, Vis: 32, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 3.7% Remarks: Swapped pump and drilling became erratic, swapped pumps back and motor quit drilling. Tripped for Bit #6, Motor appeared worn out. Install Teledrift for pump up surveys. Had Bridges Equipment mechanic out to repair shifting mechanism and chain in Draw works. TIH back on bottom drilling post report time.

DWC: \$28,314

CWC: \$613,184

**06/26/17: Day 13, Depth: 8,234'** Ftg: 713'. 3 hrs TIH. ½ hrs PU Kelly and ream 20' to bottom. 20 ½ hrs Drlg and surveys f/ 7,521' to 8,234'. Surveys: 7,578' 1.2 deg, 7,637' 0.7 deg, 7,812' 1.0 deg, 7,875' 0.9 deg, 7,938' 1.0 deg, 8,002' 0.90 deg, 8,065' 0.7 deg, 8128' 1.1 deg. Bit No. 6, 7 7/8" ULT 716M SN 35182, 7 X15, In: 7,521' Ftg: 713' in 20.5 hrs Out: Avg PR: 34 fph. BHA: Bit, Motor (Cobra), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (675.98'). MW: 9.7 ppg, Vis: 32, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 3.7% Remarks: Drilling without problems to 8,234'.

DWC: \$21,130

CWC: \$634,314

**06/27/17: Day 14, Depth: 8,350'** Ftg: 116'. 3 ½ hrs Drlg 8,234' to 8,332'. ½ hrs Circulate. 4 ¾ hrs TOH f/motor. 1 ½ hrs Layout motor. 3 ¾ hrs Wait on motor. 7 hrs TIH 1 hr Drlg f/ 8,332' to 8,350'. 1 hrs Drlg f/ 8,332' to 8,350'. 1 ¼ hrs Circ and check pumps f/ pressure loss. Pumps ok. 1 ¾ hrs TOH f/ motor. Surveys: none. Bit No. 6, 7 7/8" ULT 716M SN 35182, 7 X15, In: 7,521' Ftg: 811' in 33 hrs Out: 8,332'. Avg PR: 33 fph. BHA: Bit, Motor (Magnum), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (675.98'). MW: 10.4 ppg, Vis: 32, Ph 9.0 WL: 4.0. Chl: 102,500 Drill Solids 9.63% Remarks: Thrust bearing loose on motor. PU new Magnum motor and TIH to drill. Drilled 18' and lost differential pressure. Motor would not drill. TOH f/ new motor.

DWC: \$29,510

CWC: \$663,824

**06/28/17: Day 15, Depth: 8,360'**, Ftg: 10'. 4 hrs TOH f/ motor. ½ Break bit and mud motor and LD same. 1 ½ hrs wait on new motor. 5 hrs Rig Repair: repair shift shaft and yoke in transmission. 1 hrs Make up bit and motor and TIH. 5 hrs TIH, fill every 30 STDs. ½ hrs break circulation and wash to bottom. 2 hrs Drlg f/ 8,350' to 8,360' Losing pressure and differential immediately. Check pumps and WOB and hookload all ok. 1 hrs circulate. 3 ½ Hrs TOH f/ motor failure. (Cobra motor) Surveys: 8336' 1.3 deg. Bit No. 7, 7 7/8" ULT 716M SN 35290, 7 X18, In: 8,350'. Ftg: 10' in 2.0 hrs Out:8,360'. Avg PR: 5 fph. BHA: Bit, Motor (Cobra), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (672.95'). MW: 95 ppg, Vis: 34, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 2.94% Remarks: Changed motor companies and PU Cobra 6 ½ 0.15rpg motor. TIH and wash to bottom adding weight slowly. Could not drill. Check weight indicator and WOB. Pump pressure not high enough to be circulating through bit. Check pumps and swap pumps. TOH f/ Von motor that has been dyno tested. Von manager to be on location when get on bottom. Post report time: motor was bad, all fluid pumping out drain ports. DWC: \$29,908 CWC: \$693,733

**06/29/17: Day 16, Depth: 8,530'**, Ftg: 170'. ½ hrs TOH f/ motor. 1 hrs Break bit and lay down motor. XO IBS to ¼" under. ½ MU RR Bit #6 and new motor (Von Dynamax). ½ hrs TIH 7 stds DC's. ½ hrs PU Kelly and test motor. 2 hrs TIH w/ 30 Stds DP. 2 hrs PU Kelly and circ, cut drlg line and adjust brakes. 1 ½ hrs TIH 30 stds. 1 hrs circulate. 1 ½ hrs TIH. ½ hrs ream to bottom f/ 8292 to 8360. 8 hrs drlg f/ 8,360' to 8,513'. ½ hrs Rig service and adjust brakes. 1 ½ hrs Drlg f/ 8,513' to 8,530'. Surveys: 8,418' 1.6 deg. 8,481' 1.70 deg. Bit No. 7, 7 7/8" ULT 716M SN 35290, 7 X18, In: 8,350'. Ftg: 10' in 2.0 hrs Out:8,360'. Avg PR: 5 fph. Bit: No. 8 (RR #6), 7 7/8" ULT 716M SN 35812, 7 X18, In: 8,360'. Ftg: 170' in 9.5 hrs Out :8,360'. Avg PR: 17 fph. BHA: Bit, Motor (Von Dynamax), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (678.69'). MW: 9.5 ppg, Vis: 33, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 2.91% Wt: 20 to30, Rpm: 75/60, Pump Press: 1500. Remarks: TOH and found motor bad, bit and motor plugged with cuttings. Seals out in motor. PU new motor and RR bit #6 and TIH. Von Directional manager on location to get motor on bottom drilling. All checked out ok. Drilling with 1500 Psi and 20 to 30 WOB at 35 to 55 fph. Post report time. Bit balled up with gummy shale this morning, efforts to correct unsuccessful and now TOH to remove shale. DWC: \$19,976 CWC: \$713,709

**06/30/17: Day 17, Depth: 8,550'**, Ftg: 20' 2 hrs Drlg f/ 8530' to 8,550'. 5 Hrs TOH bit. ½ hrs break bit. 4 ½ Hang blocks to replace break bands. 6 hrs change break pads and adjusting assembly. 6 hrs when prepping to put drill line back in dog nut/ spool, ubolt, broke off. Waiting for new bolt and modify new bolt. Surveys: 8,544' 1.4 deg. Bit: No. 8 (RR #6), 7 7/8" ULT 716M SN 35812, 7 X18, In: 8,360'. Ftg: 190' in 9.5 hrs Out :8,550'. Avg PR: 17 fph. Bit: No. 9, 7 7/8" ULT 616M SN 35054, 6X14, In: 8,550'. Ftg: in hrs Out :. Avg PR: fph. BHA: Bit, Motor (Von Dynamax), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (678.69'). MW: 9.5 ppg, Vis: 33, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 2.91% Wt: 20 to30, Rpm: 75/60, Pump Press: 1500. Remarks: TOH and change bit and motor. Repair brakes on drawworks. Post report time TIH. Dyno test of Cobra motor indicated water bypassing bit through side ports DWC: \$26,152 CWC: \$739,860

**07/01/17: Day 18, Depth: 8,998'**, Ftg: 448'. 2 hrs Waiting on welder to weld dog-nut bolt and put guards back on and spool on drlg line. ½ Break and LD old motor and PU new motor and bit. 3 TIH 30 Stds fill up and break circulation. 1 ½ hrs TIH 30 stds, fill up and break circulation. 1 hrs TIF 30 stds. ½ hrs PU Kelly and break circulation. Wash and ream 70' to bottom. 3 ½ hrs Drlg f/ 8,550' to 8,681'. 12 hrs drlg f/ 8,681' to 8,998'. Surveys: 8,641' 1.4 deg. 8,733' 2.4°, 8,797' 2.0°, 8,860' 2.2°, 8,955' 2.7°. Bit: No. 9, 7 7/8" ULT 616M SN 35054, 6X14, In: 8,550'. Ftg:448 In: 8,550' Hrs:15.5 Out :. Avg PR: 28 fph. BHA: Bit, Motor (Von Dynamax), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (678.69'). MW: 10.1 ppg, Vis: 32, Ph 9.0 WL: 3.5. Chl: 100,000 Drill Solids 3.78%, Wt: 18 to20, Rpm: 70, Pump Press: 1700. Remarks: TOH and change bit and motor. Repair brakes on draw works. TIH. 616. Bit and slow motor combination is drilling good in Barnett shale. Will penetrate as far into Devonian as we can then PU a 716 to finish the well. DWC: \$19,188 CWC: \$760,348

**07/02/17: Day 19, Depth: 9,247, Ftg: 249'.** 8 hrs Drlg f/ 8,998' to 9,145'. ½ hrs Rig service. 3 ½ hrs. Drlg f/ 9,145' to 9,202'. 3 hrs Drlg f/ 9,208' to 9,240'. ½ hrs Rig repair (switch air line from daytank to compound compressor). 1 hrs Drlg f/ 9,240' to 9,247'. ½ hrs circulate samples up. 7 hrs TOH f/bit. Surveys: 8,641' 1.4 deg. 8,733' 2.4°, 8,797' 2.0°, 8,860' 2.2°, 8,955' 2.7°. 9,240' 3.0 deg. Bit: No. 9, 7 7/8" ULT 616M SN 35054, 6X14, In: 8,550'. Ftg: 697' Out: 9,247' Hrs:31 Avg PR: 22 fph. BHA: Bit, Motor (Von Dynamax), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (678.69'). MW: 10.2 ppg, Vis: 32, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 5.09%, Wt: 5 to 25, Rpm: 70 to 40/ 70 at bit, Pump Press: 1700. Remarks: U 616M Bit drilled about 40' into Devonian. Pulled to run Devonian PDC. DWC: \$19,599 CWC: \$779,947

**07/03/17: Day 20, Depth: 9,336, Ftg: 89'.** 3 ½ hrs Drlg. 17 ½ hrs Tripping. 3 hrs Cut drilling line. Surveys: 9,242' 2.6 deg. 9,274' 3.3°. Bit: No. 10, 7 7/8" ULT 716M SN 35179, 6X14, In: 9,247'. Ftg: 89' Out: 9,336' Hrs:3.5 Avg PR: 25fph. BHA: Bit, Motor (Von Dynamax), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (678.69'). MW: 10.3 ppg, Vis: 33, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 5.16%, Wt: 35, Rpm: 45 to 70 at bit, Pump Press: 1700. Remarks: Break bit off and MU Bit #10. TIH and fill up every 30 stands. PU Kelly and ream to bottom 75'. 3 ½ hrs Drlg f/ 9,247' to 9,336'. Set Kelly back and TOH f/ bit #11. TIH w/ Bit #11. Install rotating head and fill pipe. 3 hrs Cut drilling line. TIH filling every 30 stds. DWC: \$28,045 CWC: \$817,493 (corrected cost)

**07/04/17: Day 21, Depth: 9,425, Ftg: 89'.** 12 hrs Drlg. 9 hrs Tripping. ½ hrs Ream /wash. ½ hrs Service rig. 2 hrs circulate. Surveys: 9,330' 3.4 deg. 9,360' 2.7°. Bit: No. 11, 7 7/8" Smith F47H, SN Pk414, 3x16, In: 9,336'. Ftg: 89' Out: 9,425' Hrs: 12.0 Avg PR: 7 fph. BHA: Bit, Motor (Von Dynamax), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (678.69'). MW: 10.3 ppg, Vis: 33, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 5.16%, Wt: 35, Rpm: 70, Pump Press: 1700. Remarks: 3 hrs TIH and fill up every 30 stands. ½ hrs Ream 60' to bottom. 8 hrs . ½ service rig. 4 hrs Drlg f/ 9,399' to 9,425'. ½ hrs Circulate bottoms up. 2 ½ hrs short trip up to 8,000' and back to bottom. (tight at 8,740' PU Kelly and wash free. 1 ½ PU Kelly, establish circulation, pump sweep and circulate out. Spot pill on bottom for logs. 3 ½ hrs TOH for logs. DWC: \$23,139 CWC: \$840,633 (corrected cost)

**07/05/17: Day 22, Depth: 9,425, Ftg: 0'.** ½ hrs Tripping. 5 ½ hrs LDDP. 7 hrs Log well. 3 hrs Circulate. Bit: No. 11, 7 7/8" Smith F47H, SN Pk414, 3x16, In: 9,336'. Ftg: 89' Out: 9,425' Hrs: 12.0 Avg PR: 7 fph. BHA: Bit, Motor (Von Dynamax), Teledrift, IBS, 1-6" DC's, IBS, 20-6" DC, (678.69'). MW: 10.1 ppg, Vis: 33, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 5.38%, Wt: 35, Rpm: 70, Pump Press: 1700. Remarks: 2 ½ hrs TOH f/ logs. ½ hrs lay down BHA. ½ hrs RU Schlumberger and have safety meeting. 6 ½ hrs Run wireline logs. 5 ½ hrs TIH filling every 30 stands. 3 hrs PU Kelly and circulate and pump sweep and spot pill on bottom. 5 ½ hrs LDDP. DWC: \$36,114 CWC: \$876,747

**07/06/17: Day 23, Depth: 9,425, Ftg: 0'.** 6 hrs LDDP. 4 ½ hrs Circulate. 11 hrs Run casing 1 hrs Cement casing. 6 hrs LDDP and DC's. 11 hrs RU Permian Power Tongs and Run 5 ½ casing as below. 1 ½ hrs RD casers MW: 10.1 ppg, Vis: 33, Ph 9.0 WL: 4.0. Chl: 100,000 Drill Solids 5.38%, Wt: 35, Rpm: 70, Pump Press: 1700. Remarks: Run casing as follows:

1 - Antelope Float Shoe	1.56'
1 jts 5 ½ 17# L-80 LTC shoe joint	43.23'
1 - Antelope Float Collar	1.29'
50 jts - 5 ½ 17# L-80 LTC casing	<u>2,116.17'</u>
1 - Antelope DV Tool	2.22'
<u>175 jts 5 ½ 17# L-80 LTC casing</u>	<u>7,227.12'</u>
226 jts	Total Casing
	9,430.51'
	Less above KB
	<u>-4.00'</u>
	Casing set at
	9,426.51'
	Cut off jt 18.5'(est)

Cement **1<sup>st</sup> stage** with: 24 bbls of mud wash spacer followed by Lead: 450 sx of 50:50 H+2%Gel+0.3%C-12+0.2%C-49+0.2%SMS+0.3%O-Tex20+0.25#/sx Cello Flake+0.75-gal/100sx CF-41L mixed at 14.4 ppg, 1.22 yield, 5.39 H2O. Displaced with 218 bbls of FW. Land Plug with 2000 psi, 620 psi over circulating press. Bled back 2 ½ bbls and floats held. Plug down at 0132 hrs 07/06/17. Drop bomb and open DV tool with 1330 psi. Circulate on Rig pump 5hrs.

Cement **2<sup>nd</sup> Stage** with: 20 bbls FW spacer + Lead: 350 sx 50:50 H +10%Gel+0.1%O-Tex20+0.25#/sx Cello Flake+5% Salt+0.75-Gal/100sx CF-41L, mixed at 11.80 ppg, 2.45 Yield, 14.06 H2O. Followed by Tail: 200 sx CL H +0.1%OTex20+0.75-Gal/100sx CF-41L, mixed at 15.6 ppg, 1.18 yield, 5.22gps H2O. Displaced with 169 bbls of FW. Landed plug with 2,850 psi, 1600 psi over circulating press at 0815hrs 07/06/17. Bled back 2.0 bbls and floats held.

DWC: \$150,688

CWC: \$1,027,435

CMC: \$41,094

**07/7/17: Day 23, Depth: 9,425**, Ftg: 0'. Remarks: 1 ½ hrs Circ while wait on cement. 2 ½ hrs Cement 2<sup>nd</sup> stage. 1 ½ hrs ND BOP. 1 hrs Set slips and cut off. Set 136k on slips. 2 hrs Finish cut and install tubing spool. Test to 1200 psi ok. 3 ½ hrs Lay out BOP jet pits and Rig down. Rig released 1830 hrs 7/6/17.

DWC: \$34,717

CWC: \$1,062,152