

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

Drilling

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'
<u>98 jts - 8 5/8" 32# J-55 8rd LTC casing</u>	<u>3,966.36'</u>
99 jts	4,007.83'
Total Casing	4,007.83'
Less above KB	-4.83'
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' 1.7 deg 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 2nd gear change mechanism and re-install 1st 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, 8,128' 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'
175 jts 5 ½ 17# L-80 LTC casing	<u>7,227.12'</u>
226 jts	
Total Casing	9,430.51'
Less above KB	<u>-5.00'</u>
Casing set at	9,425.51'
Cut off jt 18.5'(est)	

Cement **1st 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 **2nd 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 2nd 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

Completion

7/24/2017

Set and test anchors. MIRU Lucky Services PU. MIRU Reverse Unit. Unload and tally 292 jts. 2-3/8" 4.7# L-80 EUE tubing. MU & RIH w/ 4-3/4" Varel Rock Bit, BS, 4—3-1/2" DC's, X-Over and 38 jts. 4.7# L-80. Tubing tongs quit working, wait on replacements and change out tongs. Close BOP. SWION.

DWC: \$51,050

CWC: \$ 1,113,202

7/25/2017

Con't RIH w/ 2-3/8" 4.7# L-80. Tag up at 7,263'KB (tbg meas). RU swivel, break circulation and drill out DV tool in 45 min. Circulate hole clean. Con't in hole to 9,389'KB (tbg meas). RU swivel & drill out FC and cement to 9,410' in 1 hr. & circulate hole clean. Circulate 220 bbl 2% KCl. LD swivel and POOH and LD 65 jts 4.7# 2-3/8" L-80. Close BOP & SWION.

DWC: \$7,300

CWC: \$1,120,502

7/26/2017

Con't POOH & LD 2-3/8" 4.7# L-80, X-Over, DC's, BS & 4-3/4" bit. ND BOP, NU WH. RDMO PU.

DWC: \$3,230

CWC: \$1,123,732

7/27/2017

MIRU Capitan WLU. RIH w/ 4.625" GR/JB to PBSD at 9,404 (WL meas), POOH. Load hole w/ 18 bbl 2% KCl. RIH w/ GR/CBL/VDL and log from 9,404' to TOC at 3,480', holding 1,000 psi on casing. RDMO Capitan WLU.

DWC: \$6,200

CWC: \$1,129,932

8/10/2017

Carry forward cost to Install 3x10-3 Phase, 125 psi test separator at Stella battery. Various roustabout, valves, connection, surveys & regulatory expenses for off lease right away/surface commingle.

DWC: \$20,400

CWC: \$1,150,332

8/14/2017

Meet with Cudd frac supervisor. Spot and begin setting 17 frac tanks. Close in cellar. Will begin filling frac tanks tomorrow.

DWC: \$2,200

CWC: \$1,152,532

8/15/2017

Haul in chat and set Aledo 320-305-120 pumping unit. All frac tanks set, begin filling with freshwater.

DWC: \$44,150

CWC: \$1,196,626

8/16/2017

ND WH and NU 10k Frac Stack/Valve. Test 8-5/8"x5-1/2" to 1,500 psi. Con't filling tanks with freshwater.

DWC: \$18,250

CWC: \$1,214,876

8/17/2017

Pressure test casing and frac stack to 5,000 psi. Bleed off pressure. Test FV to 5,000 psi. RIH and perforate Stage 1 Devonian at 6 spf with Titan 19 Gram EXP-3319-323T 0.38" EHD as follows:

9,308.5-9,310' (9 shots)

9,286-9,288' (12 shots)

9,275-9,278' (18 shots)

9,262-9,264' (12 shots) 53 total perfs.

POOH. RIH and dump bail 15 gals 15% HCl acid across perfs 9,286-9,288'. POOH. Break down perfs at 2425 psi and EIR of 0.9 bpm at 1680 psi. RDMO WLU. All frac tanks full.

DWC: \$7,800

CWC: \$1,222,676

8/18/2017

MIRU Cudd Frac Crew. Test lines and FV to 7,500 psi. Open well with 249 psi & EIR of 2.0 bpm and break down perfs at 2,503 psi. Frac Stage 1 Devonian (9,262-9,310') w/ 2,500 gal 15% HCl, 958 bbl 12# X-Link Pad, 3,015 bbl proppant laden 12# XL (0.5-4.0 ppg) & 12 bbl (500 gal) 15% HCl and 182 bbl linear flush. Bottom of acid spot to 8,346'. Proppant details-18,027 lbs 40/70 Ottawa, 136,390# 30/50 White & 61,583# 30/50 SDC (total prop-216,000#). Max Rate-87.1 bpm, Avg Rate-84.8 bpm, Max TP-4,599 psi, Avg TP-4,245 psi. ISIP-2,593 psi, 5 min-2,047 psi, 10 min-2,004. SWI. FG-0.71 psi/ft. Stage LTR-4,382 bbl.

NU 5k Lubricator and equalize. RIH w/ 5.5" (4.375" OD) Warden CBP and guns. Set plug at **9,000'** and pressure test to 3,000 psi. Pull up hole & perforate Stage 2 Atoka at 6 spf with Titan 19 Gram EXP-3319-323T 0.38" EHD as follows:

8,416-8,418' (12 shots)

8,404-8,407' (18 shots)

8,346-8,350' (24 shots) 54 total perfs. POOH.

Open well with 940 psi, EIR of 1.0 bpm and break down perfs at 5,863 psi. Frac Stage 2 Atoka (8,346-8,418') w/ 2,000 gal 15% HCl, 680 bbl 12# X-Link Pad, 1,712 bbl proppant laden 12# XL (0.5-4.0 ppg) & 195 bbl 12# linear flush. Proppant details-17,933 lbs 40/70 Ottawa, 78,938# 30/50 White & 34,477# 30/50 SDC (total prop-131,348#). Max Rate-87.0 bpm, Avg Rate-82.0 bpm, Max TP-6,137 psi, Avg TP-4,729 psi. ISIP-3,347 psi, 5 min-2,942 psi. SWI. FG-0.83 psi/ft, Stage LTR-2,863 bbl, TLTR-7,245 bbl.

NU 5k Lubricator and equalize. RIH w/ 5.5" (4.375" OD) Warden CBP. Set plug at **8,150'** and bleed off pressure to 0 psi to test. POOH. SWI. RDMO Frac Crew & WLU.

DWC: \$216,100

CWC: \$1,438,776

8/19/2017

ND Frac Stack/Valve, NU WH. MIRU Lucky Services PU & RU. SDFWKND.

DWC: \$5,600

CWC: \$1,444,376

8/21/2017

MU & RIH w/ 4-3/4" Varel Rock Bit, BS, 4—3-1/2" DC's, X-Over, 1 jt. 2-3/8" 4.7# L-80, 2-3/8" Check Valve & 246 jts 2-3/8" 4.7# L-80. Tag up at 8,153' (tbg meas). LD tag jt, RU swivel and stripping rubber. Close BOP and SDFN.

DWC: \$13,700

CWC: \$1,458,076

8/22/2017

Open BOP and break circulation. Close pipe rams and test BOP to 2,000 psi, good test. Drill out plug #1 in 20 minutes, 2.1 BPM in, 2.5 BPM out, 400-500 psi under plug. Circulate 20 minutes, LD swivel and RIH w/ 2-3/8" 4.7# L-80. Tag plug #2 at 8,997' (tbgs meas). RU swivel and drill out plug #2 in 10 minutes, 2.2 bpm in, 2.75 bpm out, 600 psi under plug. Circulate hole 30 minutes. Con't RIH w/ 2-3/8" 4.7# L-80 to PBTD at 9,406'. Circulate hole clean for 2 hrs with 252 bbl FW. LD swivel and POOH w/ 41 jts., EOT at 8,111'. Close BOP & begin to flowback well on 12/64" choke with 1,025 psi FCP at 45 BFPH. TLTR-7,245 bbl, TLR-305 bbl, TLLTR-6,940 bbl, LR-4.2%. Lay 3" SDR-7 poly line from well location to Stella battery.

DWC: \$21,500

CWC: \$1,479,576

8/23/2017

Con't flow back well overnight. FCP-600 psi on 17/64" choke at 7:00 AM, current rate-47 BFPH. Recover 680 bbl load water. TLR-985 bbl, TLLTR-6,260 bbl, LR-13.5%. RIH to PBTD at 9,406' and circulate hole clean with 220 bbl FW. POOH w/ 41 jt 2-3/8" 4.7# L-80 and flow well 2 hours, FCP-550 psi on 18/64" choke. Circulate 175 bbl 10# brine water, FCP-200 psi. POOH w/ 100 stands 2-3/8" 4.7# L-80, EOT at 1,573'. SICP-150 psi. Pump 50 bbl 10# brine down casing, SICP-125 psi. Unable to kill well, will con't flow back overnight. Flowback to pit on 28/64" choke at 190 psi and 45 BFPH.

DWC: \$15,300

CWC: \$1,494,876

8/24/2017

Con't flow back well until 11 AM. FCP-30 psi on 28/64" choke at 45 BFPH. Well starting to gas. Recover 655 total bbl fluid (225 bbl brine pumped yesterday), Load recovered 430 bbl. TLR-1,415 bbl, TLLTR-5,830 bbl, LR-19.5%. Pump 50 bbl 10# BW, SICP-50 psi. Pump 50 additional bbl 10# BW, SICP-70 psi. RIH w/ 2-3/8" 4.7# L-80 to EOT at 8,111'. Con't flowing well to pit on 30/64" choke at 50 psi and 40 BFPH.

DWC: \$7,100

CWC: \$1,501,976

8/25/2017

Con't flowing well until 6 AM. FCP-10 psi full open 64/64" choke at 10 BFPH, with gas. Recover 370 bbl total fluid, load recovered 270 bbl. TLR-1,685 bbl, TLLTR-5,560 bbl, LR-23.2%. Circulate 50 bbl 10# BW, well flowing, circulate 40 bbl 10# BW, well still flowing slightly, circulate 30 bbl 10# BW, well dead. POOH w/ 2-3/8" 4.7# L-80, LD DC's, Float, BS, and bit. RIH w/ production string as follows:

Description	Jts	Grade	Weight	Length	Depth
KB (14 minus 3)				11	11
2-3/8" 4.7# L-80	252	L-80	4.7	8195.89	8,207
2-3/8"x5-1/2" TAC (40k)	1	L-80		3.0	8,210
2-3/8" 4.7# L-80	34	L-80	4.7	1104.11	9,314
2-3/8" SN	1	L-80		1.1	9,315
2-7/8" Slotted BPMA	1	L-80		36.47	9,351
Total					9,351

ND BOP & NU slips. Set TAC w/ 15 pts tension.

RIH w/ rod string as follows:

Description	No.	Grade	Length
1-1/4"x26' PR w/ 16' 1-1/2" PR Liner	1	SM	26
6', 9' 0.98 " FG Pony	2	FG	15
0.98" FG	82	FG	3075
7/8" JCQ79	150	D	3750
3/4" JCQ79	80	D	2000
1.5" Sinker Bars	15	C	375

3/4" Shear Tool	1	26k	1
1.5" Sinker Bars	1	C	25
4' Stabilzer Sub	1	D	4
20-125-24-5-2 HHBC (John Crane)	1	NA	26

Load tubing w/ 4 bbl water and pressure test to 600 psi. Bleed off pressure and pump up to 500 psi. Space well out w/ 37" and hang on. Electrical issue at pumping unit and unable to finish plumbing in well head and flowline before dark. Will begin production in AM. All rentals released. SDFN.

DWC: \$45,350

CWC: \$1,547,326

8/26/2017

Finish hooking up wellhead and flowline. Pumping unit extremely weight heavy, causing motor overload. Balance unit and begin pumping well to battery at 10:30 AM. RDMO Lucky PU.

DWC: \$4,700

CWC: \$1,552,026