

BAM Permian Operating  
**University Morgan #1**  
 SEC. 13, BLK. 31 ULS  
 Crane CO., TX  
 API #: 42-103-36565  
 Proposed TD: 9,600'  
 PERMIT #: 826881

**07/09/17:** Commence rig move Sendero Rig 17 from Roland #2 With Hooper Trucking on Saturday 07/08/17. Hooper dropped derrick when walking off floor. Derrick twisted and will have to go to shop. Sendero is going to replace sub, draw works and derrick with Rig 10 equivalent in Bridges yard.

DWC: \$161,700 CWC: \$161,700

**07/10/17:** Moving Sendero Rig 17 with Hooper trucking. Moving rig 10 sub and derrick and draw works to location. Max 2 day move rate by contract.

DWC: \$11,300 CWC: \$173,000

**07/11/17: Day 0, Depth: 0'** Continue MIRU rig.

DWC: \$8,974 CWC: \$181,794

**07/12/17: Day 0, Depth 0':** Continue MIRU Sendero 17 with Sendero 10 sub and derrick. Weld on conductor. Rig up floor. Work on waterlines, fix diesel lines. Work and replace high and low drum valves. Work on high drum air lines. Replace foot throttle. Build 6" lines on MGS. Finish rigging up floor. Work on drilling console and hydromatic brake. Work on #2 floor motor. Set rotary table. Set tongs. Bridle down and install flowline. Pump through lines and make up bit.

DWC: \$17,811 CWC: \$199,785

**07/13/17: Day 1, Depth 817': Footage 772':** 3 ½ hrs Pump through lines, strap BHA and MU Bit. ½ hrs Safety inspection. 9 ¾ hrs Drlg f/ 40 to 427'. ¼ hrs survey 383' 0.0 deg. 5 ½ hrs Drlg f/ 427' to 662'. ½ hrs survey 618' 0.2 deg. 3 hrs Drlg f/ 662' to 818'. ½ hrs Circulate sweep out ½ hrs TOH for casing. Bit #1 17 ½ Ulterra CF616, 8x15, In: 45', Footage 772', Hrs: 18.5, ROP 41.7 fph. BHA: Bit, BS, SS, 8" DC, IBS, 3 -8" DC's, XO, 21- 6" DC's. (765.72'). Mw: 8.34 Vis: 28.

DWC: \$18,730 CWC: \$218,515

**07/14/17: Day 2, Depth 817': Footage 772':** 3 hrs Trip, 4 hrs weld on wellhead, 6 ½ hrs Run csg, 1hrs cmt csg, 4 ½ hrs WOC. 2 ½ hrs NU BOP. 2 ½ hrs Circulate. Bit #1 17 ½ Ulterra CF616, 8x15, In: 45', Footage 772', Hrs: 18.5, ROP 41.7 fph. BHA: Bit, BS, SS, 8" DC, IBS, 3 -8" DC's, XO, 21- 6" DC's. (765.72'). Mw: 8.34 Vis: 28. 2 hrs TOH, 1 hrs break 8" IBS, SS and bit. 1 hrs RU casing crew. 5 hrs Safety meeting and run casing. 2 hrs Circulate and Wait on 1 jt of 13 3/8" casing to replace one dropped and damaged. 1 Wash last joint of 13 3/8" casing to depth. RD casing crew and RU cementers. 1 hrs Cement surface casing plug down at 1915 hrs. 4 ½ hrs WOC. 4 hrs Weld on wellhead. Bolt up flex line to choke. Jet pits. 2 ½ hrs NU BOP. Ran casing as follows:

1 Antelope Float Shoe	2.6'
1 jts 13 3/8" 53.50# J-55 STC EUE 8rd	23.34'
1 Antelope Float Collar	2.5'
<u>21 jts</u> 13 3/8" 53.50# J-55 STC EUE 8rd	<u>790.47'</u>
22 jts	Total Casing 818.91'
	Less above KB <u>-3.0'</u>
	Casing set at 815.91'
	Cut off jt 22.0' (est)

Cement casing with O-Tex cementers as follows:

Pump 20 bbls FW spacer followed by:

**Lead cement: 355 sx** Cl C + 35% poz+6% gel+2%CaCl+0.2%C-40P+0.25#/sk cello flake, 50% excess, mixed at 12.90 ppg, 1.80 ft3/sx,9.50 H2O

**Tail cement:** 235 sx CL C +2% CaCl+0.2% C-40P, mixed at 14.8 ppg, 1.35 ft3/sx, 6.36 gps water. Pumped 4 bbls under displacement. Bump plug with 600 psi over circulating pressure to 900 psi. Bleed back ½ bbls and floats held ok. Plug down at 1915 hrs. Circulated 187 sx to reserve. Top of cement: surface

DWC: \$56,706

CWC: \$275,221

**07/15/17: Day 3, Depth 1240', Footage 423':** 8 hrs Drilling. 3 ½ hrs Trip. ½ hrs Install Rotating head. 8 hrs NU BOPE. 1 hrs Test casing . 1 hrs Drlg cement. 1 ½ wait on tools ½ Test BOPE. Surveys: 873' 0.50 deg, 1032' 0.30 deg. Bit #2 11"Ulterra U616S, 8x15, In: 817' Footage 423', Hrs: 9.0, ROP 47.0 fph. BHA: Bit, BS, SS, TELE,2-8" DC, IBS, 1 -8" DC's, IBS, 1-8" DC, XO, 21- 6" DC's. (815.15'). Mw: 10.0 Vis: 30. Remarks: 0600 hrs Nipple up BOP. 1400 hrs test BOP, Choke manifold, HCR valve to 1000 psi high and 250 psi low. 1430 hrs Wait on teledrift sub1600 hrs MU BHA and TIH. 1800 Hrs TIH 1930 hrs Test casing 1000 psi ok. 2030 hrs Drilling cement and float and shoe. 2130 Drlg f/ 817 to 943 taking teledrift surveys.2330 hrs Install rotating head. 0000 to 0600 Drlg f/ 943' to 1240'.

DWC: \$30,179

CWC: \$305,400

**07/16/17: Day 4, Depth 2,207, Footage 967':** 17 ½ hrs Drilling. 5 ½ hrs Trip. ½ hrs service rig. ½ hrs Circ. Surveys: 1303' 0.50 deg, 1524' 0.40 deg, 1748' 0.3 deg, 1970' 1.1 deg, 2207' 0.7 deg. Bit #2 11"Ulterra U616S,SN 36001, 8x15, In: 817' Footage 1390', Hrs: 26, ROP 53.0 fph. BHA: Bit, BS, SS, TELE,2-8" DC, IBS, 1 -8" DC's, IBS, 1-8" DC, XO, 21- 6" DC's. (815.15'). Mw: 10.1 Vis: 29. Remarks: 0600 hrs Drlg f/ 1,240' to 1,588. 1200 hrs Service rig. 1230 hrs Drlg f/ 1,588' to 2,207'. 0000 hrs Circulate BU. 0030 TOH and clean balled up bit. 0300 to 0600 TIH.

DWC: \$19,097

CWC: \$324,498

**07/17/17: Day 5, Depth 3,015, Footage 808':** 22 hrs Drilling. 1 hrs Trip. ½ hrs ream and wash. ½ hrs Service rig. Surveys: 2444' 1.0 deg, 2664' 2.30 deg, 2696' 2.30 deg, 2822' 2.20 deg, 2886' 2.90 deg. 2917 3.0 deg. 2949 2.30 deg. Bit #2 11"Ulterra U616S,SN 36001, 8x15, In: 817' Footage 3015', Hrs: 46.5, ROP 64.0 fph. BHA: Bit, BS, SS, TELE,2-8" DC, IBS, 1 -8" DC's, IBS, 1-8" DC, XO, 21- 6" DC's. (815.15'). Mw: 10.1 Vis: 29. Remarks: 0600 hrs TIH. 0700 PU Kelly and ream to bottom. 0730 hrs Drlg f/ 2,207' to 2,504'. 1400 hrs Service rig. 1430 hrs to 0600 hrs Drlg f/ 2,504' to 3,015'. Running light weight to bring in deviation.WOB: 22 to 26 RPM 80/80 Press:1100

DWC: \$16,749

CWC: \$341,247

**07/18/17: Day 6, Depth 3,747, Footage 41':** 2 hrs Drilling. 4 ½ hrs Trip. 1 hrs RU/RD. 5 ½ Run casing. 2 ½ hrs Set slips, 2 ½ hrs Cement casing. 5 ½ hrs NU/ND. ½ Circ. Surveys: 3747' 2.0 deg. Bit #2 11"Ulterra U616S,SN 36001, 8x15, In: 817' Footage 2930', Hrs: 71, ROP 41.0 fph. BHA: Bit, BS, SS, TELE,2-8" DC, IBS, 1 -8" DC's, IBS, 1-8" DC, XO, 21- 6" DC's. (815.15'). Mw: 10.2 Vis: 30. Remarks: 0600 HRS Drlg f/ 3,706' to 3,747'. 0800 hrs Circulate. 0830 hrs Set Kelly back and TOH. 1100 hrs RU LD machine and LD BHA. 1300hrs RU Permian Power casing crew and Run 8 5/8 casing. 1830 hrs RD casing crew and LD machine and RU cementers. 1930 hrs Cement casing and RD cementers. 2200 hrs ND BOP set slips and rough-cut casing. 0100 hrs Final cut and set "B" section. 0300 hrs to 0600 hrs NU BOP.

1 - Antelope Float Shoe	1.50'
1 jts 8 5/8 32# J-55 8Rd LTC shoe joint	41.68'
1 - Antelope Float Collar	1.35'
<u>90 jts - 8 5/8" 32# J-55 8rd LTC casing</u>	<u>3,705.51'</u>
91 jts	Total Casing 3750.04'
	Less above KB -4.00'
<b>Casing set at</b>	<b>3,746.00'</b>
Cut off jt 19.00'	

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:** 665 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, 14.09 H2O

**Tail cement:** 200 sx CL C +1% CaCl+0.75gal/100sx CF-41L mixed at 14.8 ppg, 1.34 ft3/sx, 6.35 gps water.

Pumped 221 bbls of displacement bump plug with 1479 psi. (540 psi over circ.) Bled back 1 ¼ bbls, floats held ok. Plug down at 2130 hrs. Circulated 31 bbls, 71 sx to reserve. Top of cement: surface.

PU BOP stack and set slips with 100k of 106k hanging weight.

DWC: \$107,321

CWC: \$466,979

**07/20/17: Day 8, Depth 4,582', Footage 835'**: 15 ½ hrs Drilling. 1 hrs Trip. 6 hrs Service rig. ½ hrs Test casing. ½ hrs Drill cement, 1 ½ hrs Test BOP. Surveys: 3969' 1.7 deg, 4222' 1.4 deg, 4457' 0.90 deg., Bit #3 7 7/8" Ulterra U716M, SN 35291, 7x15, In: 3747' Footage 835', Hrs: 15.5, ROP 53.0 fph. BHA: Bit, Motor, TELE, 6" DC, IBS, 6" DC, IBS, 19- 6" DC. (677.62'). Mw: 9.1 Vis: 29. Remarks: Test BOP Blind rams 250 low and 1000 high OK. PU tools and get rig floor ready. MU BHA and TIH. Test pipe rams and casing 250 low and 1000 psi high OK. Drill plug float and shoe. Tag plug at 3705' tag cement @ 3712'. Drlg f/ 3,747' to 4,582'. #1 Pump gear end making noise mechanic on way. #2 floor motor has diesel in oil, mechanic on way. WOB: 35 RPM 65/65 Press:1000.

DWC: \$19,303

CWC: \$486,282

**07/21/17: Day 9, Depth 5,841' Footage 1,269'**: 14 hrs Drilling. 8 hrs Trip ½ hrs Service rig. 1 hrs Flow check. Surveys: 4772' 1.2 deg, 5027' 0.4 deg, 5278' 0.20 deg, 5489' 0.50 deg, 5742' 0.20 deg Bit #3 7 7/8" Ulterra U716M, SN 35291, 7x15, In: 3747' Footage 2104', Hrs: 39, ROP 54.0 fph. BHA: Bit, Motor, TELE, 6" DC, IBS, 6" DC, IBS, 19- 6" DC. (677.62'). Mw: 9.1 Vis: 29. Remarks: Mechanic repaired oiler pump sprocket in gear end of #1 pump. Mechanic replaced injectors and rack in #2 floor motor. Back to 100% on pump and floor motor. Lost returns at 5152', backed pump strokes down to 100. Mixing LCM sweeps. Continue having losses and pumping LCM. Cut Mud weight to 8.8 and losses quit. Now have slight water flow, sour smell. Raising mud weight back to 9.1 with brine additions. Drilling ahead with full returns. Mud engineer on location. Lost 1000 bbls est in last 24 hrs. WOB: 35 RPM 65/65 Press:1200.

DWC: \$18,984

CWC: \$505,267

**07/22/17: Day 10, Depth 6,443' Footage 529'**: 23 ½ hrs Drilling. ½ hrs Service rig. Surveys: 6039' 0.4 deg, 6293' 0.6 deg, Bit #3 7 7/8" Ulterra U716M, SN 35291, 7x15, In: 3747' Out: 6,443' Footage 2696', Hrs: 51, ROP 52.0 fph. BHA: Bit, Motor, TELE, 6" DC, IBS, 6" DC, IBS, 19- 6" DC. (677.62'). Mw: 9.1 Vis: 29, Ph 10, Cl 75k, Solids 5%. Remarks: 14 ½ hrs Drilling and surveys to 6,443'. At 5,152' lost returns and reduced pump to 380 GPM. Pump 40 bbls of 12 #/bbls LCM and got ½ returns back. Drilled to 5,250 and pump another 40 bbls LCM pill. Drilled to 5300 and had full returns. Drilled to 5600 and lost returns again, cut mud weight to 8.8 and pump LCM sweeps until got full returns back at 5,700'. Drilled to 5,900' and had 200 bbls sulphur water influx. Add brine water and increase weight to 9.0 to control flow. At 6,000' had no flow and no losses. In last 24 hrs lost 1500 bbls. Flow was about 30 bbls per hour when flowing. PR slowed indicating dull bit. Check for flow and set Kelly back and TOH for bit. ½ hrs check for flow and well was flowing, pump 40 bbls of 10# brine water and kill flow. 4 ½ hrs continue trip out of hole. 3 hrs XO bit and TIH with BHA and 10 stands of DP. Bit #3 was beginning to core out. ½ hrs cut drilling line. 24 hrs. WOB: 35 RPM 65/65 Press:1200.

DWC: \$26,915

CWC: \$532,183

**07/23/17: Day 11, Depth 7,338' Footage 895'**: 17½ hrs Drilling. 4 ½ hrs Trip. 2 hrs Cut drilling line. Surveys: 6039' 0.4 deg, 6293' 0.6 deg, Bit #4 7 7/8" Ulterra U716M, SN 35288, 7x15, In: 6443' Out: Footage 895', Hrs: 17.5, ROP 51.0 fph. BHA: Bit, Motor, TELE, 6" DC, IBS, 6" DC, IBS, 19- 6" DC. (677.62'). Mw: 9.1 Vis: 30, Ph 9, Cl 85k, Solids 5%. Remarks: Cut Drilling line 200 feet. TIH. Wash to bottom and Drlg f/ 6,443' to 7,338'. Began mud up when back on bottom to heal losses. Will add brine as we drill to get chlorides up. WOB: 35 RPM 65/65 Press:1000.

DWC: \$31,500

CWC: \$563,682