

**FORGE Energy**  
**UL 20 Tensleep 1H**  
**API Number: 42-475-37120**

**08/05/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Location is clear for construction and permitting. 1-4" and 2-3" poly pipe flow lines will need to be moved before construction starts. Lines belong to Energen.

**08/09/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Met contractors on location for bidding purposes.

**08/23/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Pad is cleared

**08/24/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Pad is cleared and leveled, pits are 50% complete

**08/25/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Pad is ready for caliche, but was too muddy to pour today. Caliche is pushed up in caliche pit

**08/26/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Started hauling caliche, continued working on reserve pits, have hit hard caliche in pits

**08/27/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Hauled caliche on pad, pushed out reserve pits, started setting cellar

**08/28/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Finished hauling caliche, pushed out reserve pit, finished setting cellar

**08/29/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Finished location, and road

**08/30/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Construction: Location is 100% and ready for rig.

**09/02/2016**

Rig Name:

Depth = 0.0 Progress = 0.0

07:00 Set 40' of 20" conductor pipe, will drill mouse hole after surface is ran.

**09/10/2016**

Rig Name: PRO RIG #2

Depth = 400.0 Progress = 335.0

06:00 MOVE PRO OILFIELD SERVICES RIG #2 FROM THE UL 21 FLATHEAD 1H TO THE UL 20 TENSLEEP 1H = 40 MILE MOVE.  
START RIGGING UP ON NEW LOCATION @ 14:00 HR  
100% OF RIG MOVED TO NEW LOCATION @ 16:30 HR

21:30 SPUD IN AND DRILL 17.5" SURFACE HOLE F/ 65' - T/ 205' = 140' @ 35'/HR,  
WOB: 10-15,RPM: 80,GPM: 560, NORM. DRAG 100% RETURNS, WELL STATIC

01:30 DRILL 17.5" SURFACE HOLE F/ 205' - t/ 400' = 195' @ 43'/HR, WOB:  
10-15,RPM: 80,GPM: 560, NORM. DRAG 100% RETURNS, WELL STATIC

**09/11/2016**

Rig Name: PRO RIG #2

Depth = 520.0 Progress = 120.0

06:00 DRILL 17.5" SURFACE HOLE F/ 400' - T/ 520' = 120' @ 34'/HR, WOB:  
10-15,RPM: 80,GPM: 560,PSI: 300, NORM. DRAG 100% RETURNS, WELL  
STATIC

09:30 CIRCULATE 2- 20 BBL HIGH VIS SWEEP (60 VIS) TO ENSURE CLEAN HOILE  
PRIOR TO 13.375" SURFACE CSASING RUN.  
(NOTE: SWEEP BROUGHT BACK MIN DRILL CUTTING - HOLE IS CLEAN

10:30 DROP GYRO & TRIP OUT F/ 520' - SURFACE L/D DP & BHA, WITH NORMAL  
DRAG & WELLK STAIC  
RETRIEVE GYRO & L/D SAME, BRAKE BIT OFF

12:30 R/U 13.375" CRT & CSG ELEVATORS & RUN 13.375" CSG AS FOLLOWS.  
1-13.375" TX PATTERN SHOE SET @ 520', 1-JOINT 13.375" CASING,  
1-13.375" NON ROT. FLOAT C. SET @ 477', 11-JOINTS OF 13.375", 68.0#,  
J-55, BTC CASING RAN F/ SURFACE - T/ 520'. TAGED BTM @ 520'

15:00 BRAKE CIRCULATION & CIRCULATE 1.5 BTMS UP = 96 BBLs

16:00 SAFETY MEETING WITH HALLIBURTON & RIG CREW. R/U HALLIBURTON CMT  
HEAD ( VERIFIED THAT PLUG WAS LOADED)AND STEEL LINES, PRESSURE  
TESTED LINES TO 2500 PSI - GOOD TEST. PUMP CEMENT JOB AS FOLLOWS.  
20 BBL GEL SPACER, 540 SKS OF HALCHEM C 14.8 PPG @ 1.36 YIELD = 130  
BBLs, DISPLACE W/ 68 BBL OF FW, BUMPED PLUG WITH 500 OVER = 700  
PSI,BLEAD OFF PRESSURE FLOATS HELD GAINED 1 BBL BACK, HAD 100%  
RETURNS THE ENTIRE JOB, CIRCULATED 60 BBL OF CMT TO RESERVE PIT.

18:00 CUT OFF CASING & INSTALL CACTUS 13.375" STARTING HEAD & TEST@ 1000  
PSI GOOD TEST

22:00 R/D PRO RIG #2 & WAIT ON FIRST DAYLIGHT TO MOVE RIG 100% R/D  
RELEASE RIG @ 22:00

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
25.0	25.00	0.00	0.00	0.00	0.00	0.00	0.00
101.0	101.00	0.33	351.50	0.22	0.43	0.22	-0.03
199.0	199.00	0.42	356.02	0.86	0.10	0.86	-0.10
293.0	293.00	0.48	90.13	1.20	0.70	1.20	0.27
386.0	386.00	0.46	148.39	0.88	0.49	0.88	0.86
481.0	481.00	0.52	25.36	0.94	0.91	0.94	1.24

**02/15/2017**

Rig Name: PRO RIG #2

Depth = 520.0 Progress = 0.0

07:00 Checked pits, brine and fresh were both dry. Cows had got inside and tore  
holes in liner. Crew will repair liner in the morning, and will reload with water.

**02/16/2017**

Rig Name: PRO RIG #2

Depth = 520.0 Progress = 0.0

07:00 Pit liner could not be repaired from cow damage

**02/17/2017**

Rig Name: PRO RIG #2

Depth = 520.0 Progress = 0.0

07:00 Replaced liner in pits, due to cows. Load pits with fresh and brine water

**02/22/2017**

Rig Name: PRO RIG #2

Depth = 520.0 Progress = 0.0

07:00 Pits have 2' of fresh and brine water, Fence has been repaired

**03/22/2017**

Rig Name: PRO RIG #2

Depth = 520.0 Progress = 0.0

07:00 Load pits with brine and fresh water

**04/11/2017**

Rig Name: PRO RIG #2

Depth = 520.0 Progress = 0.0

06:00 LOAD PITS WITH FRESH AND BRINE WATER.

**05/30/2017**

Rig Name: H&amp;P 602

Depth = 520.0 Progress = 0.0

15:00 RIGGING DOWN & WASHING RIG ON THE UL 18 DYK 2H (TRUCKING HAULING  
TUBULAR & MISCELLANEOUS ON DAYLIGHT)

**05/31/2017**

Rig Name: H&amp;P 602

Depth = 520.0 Progress = 0.0

06:00 PJSM W/ TRUCKING, H&P HAND, H&J SUPERVISORS; MOVE RIG FROM UL 18 DYK 2H; MOVE TRAILER HOUSES TO NEW LOCATION; ( RIG RUNNERS; 2-FORKLIFT 2-POLE TRUCKS; 2-TANDEMS; 14 HAUL TRUCKS;) SET PITS, SHAKERS, MCC HOUSE, 3 X MUD PUMPS, VFD, 3 X GENS, FUEL TANK, SUB BASE, DRAWWORKS, WATER TANK, CREW & PUSHER HOUSES, RAISE SUB @ 19:00 HRS

19:00 RIG UP LIGHT TOWERS; PIN UPPER & LOWER DERRICK, RAISE MONKEY BOARD, STRING UP DERRICK; SET PREMIX TANK, BAR BINS, CENTRIFUGES, DRILLER'S CABIN, TRIP TANKS, TOOL HOUSE; RAISE MGS; SET FLOW LINE; INSTALL STAIRS; RAISE DRILLER'S CABIN; RAISE DERRICK TO FLOOR; RAISE DERRICK @ 04:00 HRS

04:00 INSTALL V-DOOR SLIDE & PIPE WRANGLER; SET OBM TANK; MOVE OPEN TOP TANKS TO EDGE OF LOCATION, RELEASE TRUCKS @ 05:00 HRS.

05:00 RAISE CABLE ARM TO RIG FLOOR; RIG UP CABLES AND DRILLER'S CABIN

### 06/01/2017

Rig Name: H&P 602

Depth = 520.0 Progress = 0.0

06:00 RIGGED UP MUD PITS AND EQUIPMENT; WATER TANK; VFD HOUSE; MCC HOUSE AND GENERATORS; RUN ELECTRIC LINES AND ALL BACK YARD PLUMBING; SPOOL DRLG LINE ON DRUM AND SECURE HORSEHEAD ANCHOR; UNDOCK BLOCKS AND TEST RUN DRAW WORKS; RIGGED UP FLOOR AND INSTALL BALES AND ELEVATORS; PERFORM PRE-SPUD INSPECTION.

00:00 PLACE RIG ON DAY RATE @ 00:00, 6/1/2017; MIX READY MIX CEMENT (8 SACKS) AND TOP OFF ANNULUS BETWEEN CONDUCTOR AND SURFACE CASING; INSTALL BASEPLATE ON WELL HEAD;

01:30 NIPPLE UP A SECTION AND ADAPTER SPOOL ON WELL HEAD; WELL HEAD WAS NOT PROPERLY 2 HOLED FOR ALIGNMENT WHEN INSTALLED; STACKED UP BOP 2 HOLES TO THE RIGHT OF CENTER AND FLOWLINE WILL MATE UP; LD BOP AND ANNULAR TO REPLACE ELEMENT IN ANNULAR; WORKING ON REPLACING ELEMENT IN ANNULAR PREVENTER (HARD TIME GETTING CAP OFF ANNULAR BODY, ADAPTER SEAL IN BOTTOM OF ANNULAR FOUND CORRODED AND BAD, CAN'T BE REPAIRED IN THE FIELD. H&P IS SENDING A NEW ANNULAR FROM THE YARD) SIMULTANEOUSLY TESTED CHOKE TO 5,000 PSI HIGH AND 250 PSI LOW FOR 10 MIN EACH; TESTS GOOD; TESTING MUD LINES FROM TDS TO PUMPS TO 7,500 PSI;

### 06/02/2017

Rig Name: H&P 602

Depth = 520.0 Progress = 0.0

06:00 SEAL IN BOTTOM OF ANNULAR FOUND BAD, ALSO CORROSION BEHIND SEAL, CAN'T BE REPAIRED IN THE FIELD. H&P IS SENDING A NEW ANNULAR FROM THE YARD); BREAK BOLTS TO SEPARATE ANNULAR BOP FROM STACK. SIMULTANEOUSLY TESTED MUD LINES & VALVES FROM TDS TO PUMPS TO 250 PSI LOW / 7,500 PSI HIGH EACH TEST 10 MINUTES;

08:00 LIFT ANNULAR BOP OFF STACK WITH CRANE; PULL CAP OFF ANNULAR BOP; INSTALL NEW ELEMENT; SIMULTANEOUSLY UNLOAD 9 5/8" CASING; CHANGE OUT SHAKER BEDS; R/U H2S MONITORING PACKAGE; HAUL FRESH WATER TO OUTSIDE RESERVE

11:00 SET ANNULAR BOP ON STACK; RELEASE CRANE; TORQUE BOLTS; INSTALL ROT HEAD ON TOP OF ANNULAR; SIMULTANEOUSLY BEGIN CHANGING OUT LINERS ON MP1 F/ 5.0" T/ 6.0"; FINISH UNLOAD CASING; BEGIN UNLOADING 180 JOINTS 5" DRILL PIPE (RECEIVED F/ HADCO); CONTINUE CHANGING OUT SHAKER BEDS.

14:00 SKATE BOP STACK OVER HOLE; NIPPLE UP STACK; ATTACH CHOKE HOSE TO STACK AND TO CHOKE MANIFOLD, HOOK UP HYDRAULIC LINES TO STACK; TEST IBOP & FOSV ON GROUND @ 250 LOW / 5000 HIGH FOR 10 MINUTES EACH TEST. FINISH CHANGING OUT SHAKER BEDS

18:00 INSTALL TEST PLUG IN WELL HEAD; OPEN CASING VALVES; RU TURNBUCKLES ON BOP; TEST BOP, UPPER AND LOWER PIPE RAMS; BLIND RAMS; HCR AND ALL VALVES AND CHOKE LINE TO 250 PSI LOW FOR 10 MINUTES EACH AND 5,000 PSI HIGH FOR 10 MINUTES EACH; TEST ANNULAR TO 250 PSI HIGH AND 5,000 PSI HIGH FOR 10 MINUTES EACH; ALL TESTS GOOD; TEST 13 3/8" SURFACE CASING TO 1,500 PSI FOR 30 MINUTES; GOOD TEST; PERFORM ACCUMULATOR TEST; TEST GOOD; SIMULTANEOUSLY CHANGING LINERS ON MUD PUMPS;

03:30 RIG UP PVC ON BACK OF PITS; INSTALL CUTTINGS TROUGH; RIG UP TRASH PUMPS; RIG UP PANIC LINE AND FLARE VENT LINE; BOLT UP FLOWLINE TO ORBIT VALVE.

### 06/03/2017

Rig Name: H&P 602

Depth = 1,226.0 Progress = 706.0

06:00 NIPPLE UP FLOW LINE TO ORBIT VALVE (DIFFICULTY ALIGNING FLANGE AND BOLTS WON'T TURN, CUT OFF BAD BOLTS); FINISH HOOK UP FLARE & PANIC LINES & INSTALL HOLD DOWN WEIGHTS; INSTALL SCREENS ON SHAKERS; LAY OUT DIRECTIONAL TOOLS & COLLARS FOR BHA

12:00 INSTALL MOUSE HOLE; BRING UP 5" SUBS & TOOLS TO FLOOR; M/U WEAR BUSHING & RUNNING TOOL ON DRILL PIPE JOINT; LAND WEAR BUSHING IN WELL HEAD; LAY OUT JOINT WITH RUNNING TOOL; ATTEMPT TO TIGHTEN HAMMER SLEEVE ON FLOWLINE, BUT UNABLE. FLOWLINE IS IN A BIND DUE TO WELLHEAD ALIGNMENT; DECISION MADE TO PROCEED WITH FLOWLINE AS IS.

15:30 CLEAN & ORGANIZE RIG FLOOR; STRAP COLLARS & HWDP AND ENTER BHA INTO TOTCO; BRING BHA SUBS, BIT & BREAKER TO RIG FLOOR

17:00 HELD PJSM; BEGIN P/U 12.25" FIRST INTERMEDIATE BHA AS FOLLOWS 12 1/4" DF616X2 ER01, PDC BIT W/ TFA= 1.053; 8", 1.15 BENT, 6:7, 6.0, 0.25 RPG MOTOR, 12" ROLLER REAMER, NM PONY, UBHO, HPTC, NM 11 1/2" STABILIZER, NM DC, SHALLOW TEST MOTOR AND TOOLS, GOOD TEST; 12" ROLLER REAMER, SHOCK SUB, XO, 3 8" DC'S, XO, 12, 6 1/2" DC'S, XO, 21 5" HWDP AND RUN IN HOLE. TAG @ 450'.

22:30 TAG CEMENT @ 450'; DRILL CEMENT AND FLOAT EQUIPMENT F/ 450' - T/ 520'; 500 GPM; SPP 800; TRQ 6000; WOB 10K/15K; RPM 25/35  
(UNABLE TO OPEN CLAMP ON ROTATING HEAD TO INSTALL TRIP NIPPLE OR ROTATING HEAD RUBBER; PUMPING REDUCED FLOW OF 500 GPM TO KEEP FROM RUNNING OVER BOP UNTIL WEATHERFORD TECH CAN ARRIVE TO FIX THE PROBLEM)

00:30 ROT DRLG F/ 520' - T/1,041' (521' @ 100 FPH). WOB : 15K-50K, TOP DRV RPM: 30/110; SPP 1950 PSI; GPM: 500; MUD MTR RPM: 125; TOP DRV TRQ: 9K/13K FT/LBS ON BTM, 1.7K OFF BTM; DIFF PSI: 650/750; PU 107 SO 105 ROT: 105  
(UNABLE TO OPEN CLAMP ON ROTATING HEAD TO INSTALL TRIP NIPPLE OR ROTATING HEAD RUBBER; PUMPING REDUCED FLOW OF 500 GPM TO KEEP FROM RUNNING OVER BOP)

04:30 WEATHERFORD TECH ARRIVED @ 04:30 AND INSTALLED A NEW HYDRAULIC PUMP ON OPEN AND CLOSE UNIT) INSTALLED FLOW NIPPLE ON ROTATING HEAD.

05:00 ROT DRLG F/1,041' - T/1,226' (185' @ 185 FPH). WOB : 45K-65K, TOP DRV RPM: 90/110; SPP 2700 PSI; GPM: 730/806; MUD MTR RPM: 183/202; TOP DRV TRQ: 9K/13K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 750/1230; PU 112 SO 108 ROT: 110  
PUMPING 15 BBL, 65 VIS SWEEPS EVERY OTHER CONNECTION.

Vis (s/qt): 28, Dens (lb/gal): 9.70, pH: 8.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
611.0	610.99	0.16	17.67	1.14	0.28	1.65	1.55
792.0	791.99	0.47	31.42	1.85	0.18	2.52	2.01
974.0	973.98	0.55	39.74	2.84	0.06	3.83	2.96

## 06/04/2017

Rig Name: H&P 602

Depth = 3,994.0 Progress = 2768.0

06:00 ROT DRLG F/1,226' - T/1,795' (569' @ 189.7 FPH). WOB : 45K-55K, TOP DRV RPM: 90/110; SPP 2550 PSI; GPM: 806/864; MUD MTR RPM: 201/216; TOP DRV TRQ: 9K/15K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 750/1350; PU 145 SO 125 ROT: 130 PUMPING 15 BBL, 65 VIS SWEEPS EVERY OTHER CONNECTION.

09:00 SLD DRLG F/ 1,795' - T/1,820' (25' @ 25 FPH); TF: 235; WOB 12K, OFF BOTTOM SPP 26400 PSI; SPM 225; GPM: 864; MUD MTR RPM: 216; DIFF PSI: 300; PU 145 SO 125 ROT: 130

10:00 ROT DRLG F/1,820' - T/2,316' (496' @ 124 FPH). WOB: 45-55K, TOP DRV RPM: 90/70; SPP 2470 PSI; GPM: 829; MUD MTR RPM: 207; TOP DRV TRQ: 5K/19K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 900/1350; PU 145 SO 132 ROT: 138 PUMPING 15 BBL, 65 VIS SWEEPS EVERY OTHER CONNECTION.

14:00 ROT DRLG F/2,316' - T/2,647' (331' @ 110.3 FPH). WOB: 45-55K, TOP DRV RPM: 90/70; SPP 2470 PSI; GPM: 829; MUD MTR RPM: 207; TOP DRV TRQ: 5K/19K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 900/1350; PU 155 SO 140 ROT: 145 PUMPING 15 BBL, 65 VIS SWEEPS EVERY OTHER CONNECTION.

17:00 SERVICE RIG

17:30 ROT DRLG F/2,647' - T/2,932' (285' @ 114 FPH). WOB: 45-55K, TOP DRV RPM: 90/70; SPP 2150 PSI; GPM: 755; MUD MTR RPM: 189; TOP DRV TRQ: 5K/19K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 900/1300; PU 163 SO 159 ROT: 161 PUMPING 15 BBL, 65 VIS SWEEPS EVERY OTHER CONNECTION.

20:00 SLD DRLG F/ 2,932' - T/2,972' (40' @ 80 FPH); TF: 240M; WOB 25K, OFF BOTTOM SPP 2860 PSI; GPM: 900; MUD MTR RPM: 225; DIFF PSI: 350; PU 163, SO 159;

20:30 ROT DRLG F/2,972' - T/3,554' (582' @ 145.5 FPH). WOB: 35-55K, TOP DRV RPM: 65/75; SPP 2850 PSI; GPM: 900; MUD MTR RPM: 225; TOP DRV TRQ: 5K/19K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 900/1300; PU 163 SO 159 ROT: 161 PUMPING 15 BBL, 65 VIS SWEEPS EVERY OTHER CONNECTION.

00:30 ROT DRLG F/3,554' - T/3,972' (418' @ 104.5 FPH). WOB: 40/60K, TOP DRV RPM: 65/85; SPP 4450 PSI; GPM: 900; MUD MTR RPM: 225; TOP DRV TRQ: 5K/19K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 900/1300; PU 175 SO 163 ROT: 170 PUMPING 15 BBL, 65 VIS SWEEPS EVERY OTHER CONNECTION.  
DIFFERENTIAL SPIKE F/1,340 - T/2,220 PSI; PICKED UP AND RESTARTED. @

3,972'

04:30 ROT DRLG F/3,972' - T/3,994' (22' @ 44 FPH). WOB: 25K/50K, TOP DRV RPM: 65/85; SPP 5100 PSI; GPM: 499; MUD MTR RPM: 125; TOP DRV TRQ: 5K/14K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 600/700; PU 175 SO 163 ROT: 170 DIFFERENTIAL SPIKE F/1,340 - T/2,220 PSI; PICKED UP AND RESTARTED. @ 3,972'; DIFF SPIKED AGAIN TO 1,895 PSI AND OFF BOTTOM PSI CLIMBED TO 5,000 PSI WITH 300 GPM; DECISION WAS MADE TO TOH FOR DHM.

05:00 CIRCULATE BOTTOMS UP AND PREPARE FLOOR FOR TOH.

05:30 TOH FOR DHMF F/3,994'- T/3,969'; PU 180K, SO 177K; NO UNUSUAL DRAG SEEN; WELL IS TAKING PROPER FILL.

Vis (s/qt): 28, Dens (lb/gal): 10.00, pH: 8.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
1,154.0	1,153.97	0.60	23.09	4.04	0.10	5.36	3.88
1,344.0	1,343.96	0.77	31.91	5.66	0.11	7.36	4.94
1,533.0	1,532.94	0.94	53.56	7.04	0.19	9.36	6.86
1,723.0	1,722.89	1.51	57.10	8.28	0.30	11.65	10.22
1,913.0	1,912.87	0.43	309.53	9.58	0.89	13.46	11.77
2,102.0	2,101.86	0.45	335.63	10.90	0.11	14.59	10.92
2,292.0	2,291.86	0.56	9.99	12.47	0.17	16.18	10.77
2,481.0	2,480.84	0.92	43.60	14.06	0.29	18.19	11.98
2,671.0	2,670.80	1.44	50.67	15.75	0.28	20.81	14.88
2,860.0	2,859.70	2.22	58.85	17.60	0.43	24.21	19.85
3,049.0	3,048.62	0.88	358.47	19.93	1.03	27.55	22.94
3,238.0	3,237.58	1.90	38.19	23.15	0.71	31.46	24.84
3,427.0	3,426.49	1.63	37.52	26.54	0.14	36.05	28.41
3,617.0	3,616.42	1.36	37.15	29.47	0.14	40.00	31.42
3,806.0	3,805.38	1.25	39.28	31.96	0.06	43.38	34.08

## 06/05/2017

Rig Name: H&P 602

Depth = 5,012.0 Progress = 1018.0

06:00 TOH F/ 3,969' T/ SURFACE - HWDP HAD TIGHT CONNECTIONS THAT REQUIRED TONGS AND HAMMERING TO BREAK; LAY DOWN MOTOR; BREAK AND GRADE BIT (INNER 1, OUTER 1, IN GAUGE) SIX OF SEVEN NOZZLES WERE PLUGGED WITH RUBBER FROM MOTOR; NO UNUSUAL DRAG SEEN; WELL IS TAKING PROPER FILL. NOTE: RIG GENERATORS SHUT DOWN FOUR TIMES DURING TRIP

13:00 H&P ELECTRICIAN TROUBLESHOOT GENERATOR PROBLEM; SIGNAL NOISE FOUND IN GEN #2, DROVE TWO ADDITIONAL GROUND RODS AND NOISE WENT AWAY; ALSO TROUBLESHOOT ISSUE WITH DRAWWORKS SHUTTING DOWN - LOOSE WIRE.

15:00 HELD PJSM; BEGIN P/U 12.25" FIRST INTERMEDIATE BHA #2 AS FOLLOWS: 12 1/4" DF616X2 ER01, PDC BIT (RERUN) W/ TFA= 1.053; 8", 1.15 BENT, 7:8, 4.0, 0.16 RPG MOTOR, 12" ROLLER REAMER, NM PONY, UBHO, HPTC, NM 11 1/2" STABILIZER, NM DC, SHALLOW TEST MOTOR AND TOOLS, GOOD TEST; 12" ROLLER REAMER, SHOCK SUB, XO, 3 8" DC'S, XO, 12, 6 1/2" DC'S, XO, 21 5" HWDP AND RUN IN HOLE f/SURFACE -T/ 3,994'; WELL IS GIVING PROPER DISPLACEMENT.

20:00 ROT DRLG F/3,994' - T/4,063' (69' @ 69 FPH). WOB: 35K/50K, TOP DRV RPM: 45/120; SPP 3150 PSI; GPM: 900; MUD MTR RPM: 144; TOP DRV TRQ: 5K/13K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 650/950; PU 181 SO 172 ROT: 178; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.

21:00 SLD DRLG F/ 4,063' - T/4,103' (40' @ 40 FPH); TFO: 240M; WOB 35K, OFF BOTTOM SPP 2175 PSI; GPM: 900; MUD MTR RPM: 144; DIFF PSI: 350/450; PU 181, SO 173; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS.

22:00 ROT DRLG F/4,103' - T/4,630' (527' @ 131.75 FPH). WOB: 35K/50K, TOP DRV RPM: 45/120; SPP 3150 PSI; GPM: 900; MUD MTR RPM: 144; TOP DRV TRQ: 5K/13K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 650/950; PU 191 SO 172 ROT: 187; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.

02:00 SLD DRLG F/ 4,630' - T/4,680' (50' @ 100 FPH); TFO: 240M; WOB 35K, OFF BOTTOM SPP 2175 PSI; GPM: 900; MUD MTR RPM: 144; DIFF PSI: 350/450; PU 181, SO 179; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS.

02:30 ROT DRLG F/4,680' - T/4,821' (141' @ 141 FPH). WOB: 55K, TOP DRV RPM: 120; SPP 3150 PSI; GPM: 900; MUD MTR RPM: 144; TOP DRV TRQ: 5K/13K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 650/950; PU 191 SO 179 ROT: 187; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS;

SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.

03:30 SLD DRLG F/ 4,821' - T/4,861' (40' @ 40 FPH); TFO: 290M; WOB 35K, OFF BOTTOM SPP 2175 PSI; GPM: 900; MUD MTR RPM: 144; DIFF PSI: 350/450; PU 181, SO 179;

SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS.

04:30 ROT DRLG F/4,861' - T/5,012' (151' @ 101 FPH). WOB: 55K, TOP DRV RPM: 140; SPP 3450 PSI; GPM: 806; MUD MTR RPM: 130; TOP DRV TRQ: 5K/13K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 600/700; PU 191 SO 179 ROT: 187; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION.

SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS;

SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.

Vis (s/qt): 29, Dens (lb/gal): 10.05, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
3,995.0	3,994.27	2.72	68.00	33.56	0.92	46.66	39.54
4,185.0	4,184.15	0.99	116.64	32.88	1.16	47.61	45.19
4,374.0	4,373.14	1.13	62.27	32.12	0.52	47.75	48.30
4,564.0	4,563.03	2.46	75.05	32.39	0.73	49.67	53.90
4,753.0	4,751.89	2.04	128.97	29.51	1.10	48.60	60.43
4,943.0	4,941.87	1.09	218.81	25.70	1.22	45.06	61.93

## 06/06/2017

Rig Name: H&P 602

Depth = 5,088.0 Progress = 76.0

06:00 ROT DRLG F/5,012' - T/5,088' (76' @ 76 FPH). WOB: 55K, TOP DRV RPM: 145; SPP 3250 PSI; GPM: 800; MUD MTR RPM: 128; TOP DRV TRQ: 11K/13K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 400/600; PU 201 SO 189 ROT: 195; OBSERVE ROP CHANGE @ 5,065' F/85 T/150 FT/HR

07:00 CIRCULATE BOTTOMS UP TO CONFIRM TOP OF LAMAR @ 5,065'. ROP INCREASED @ 5,065' F/85 FPH T/ 150 FPH. AT 8500 STROKES CUTTINGS CHANGED FROM WHITE TO VERY DARK; MUD LOGGER & GEOLOGIST CONFIRMED TOP OF LAMAR @ 5,065'.

08:00 PUMP TWO 30 BBL SWEEPS, 60 VIS SWEEP TO CLEAN HOLE FOR 9 5/8" CSG; 1ST SWEEP BACK WITH 20% SCREEN COVERAGE OF MED AND FINE CUTTINGS; 2ND SWEEP BACK W/ 5% SCREEN COVERAGE OF FINE AND MEDIUM CUTTINGS; CUTTINGS CLEANED AFTER SWEEP. SHUT DOWN PUMPS AND FLOW CHECK WELL; WELL IS STATIC.

09:30 PUMP SLUG; SLM OUT OF HOLE F/5,088' - T/SURFACE; LD 8" BHA AND REAMERS; DRAIN MOTOR, BREAK AND DULL GRADE BIT; WELL IS TAKING PROPER FILL; BIT GRADE 1-2 FULL GAUGE, CT; LD MOTOR; NO UNUSUAL DRAG; SLM = 5,088.41' = 0.41' DIFFERENCE - NO CORRECTIONS MADE TO TALLY.

19:30 CLEAN AND CLEAR RIG FLOOR; PREPARE FLOOR FOR CASING RUN; PULL WEAR BUSHING

20:30 PJSM, RIG UP AND TEST CRT; MAKE UP 9 5/8" FLOAT SHOE AND FLOAT COLLAR ON 1ST JOINT OF 9 5/8", 40#, HCL80 LTC CSG; THREAD LOCKING ALL CONNECTIONS AND TORQUING TO 7,200 FT/LBS; PLACING STOP COLLAR AND CENTRALIZERS 10' ABOVE FS AND FC; PUMP THROUGH FLOATS AND FLOATS ARE GOOD; RUN 108 JTS OF 9 5/8", HCL-80, 40#, LTC CASING; TORQUING TO 7,200 FT/LBS; T/4,717'; LAID DOWN 4 JOINTS WITH BAD THREADS, TALLY ADJUSTED, 3' CHANGE.

05:00 CRT TOOL SLIPPING WHEN TRYING TO PICK UP STRING; LAYED DOWN 1 JT AND BROUGHT CRT TO FLOOR FOR INSPECTION; FOUND DIES VARNISHED OVER WITH PIPE INNER COATING; CLEANED UP DIES AND WORKING FINE;

05:30 CONTINUE RUNNING 9 5/8" CASING F/4,713' - T/4,892'; 5 JTS; TORQUING CONNECTIONS TO 7,200 FT/LBS.

Vis (s/qt): 29, Dens (lb/gal): 10.15, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
5,018.0	5,016.85	0.98	212.83	24.87	0.21	43.97	61.14

## 06/07/2017

Rig Name: H&P 602

Depth = 5,268.0 Progress = 180.0

06:00 RUN 9.625" CASING F/ 4,892' - T/5,044', WITH NORMAL DRAG & WELL STATIC, AS FOLLOWS, 1-9.625" FLOAT S., 1-JT 9.625" 40# HCL-80 LTC CSG, 1-9.625" NON-ROT. FLOAT C., 114 - JTS + 1 - 21' PUP JT. OF 9.625" HCL-80 40.0# LTC CSG, FLOW CHECKED FLOATS, GOOD, INSTALLED 1 BOW SPRING CENT ON SHOE JOINT 10' FROM SHOE, ONE BOW SPRING CENT 10' ABOVE FLOAT COLLAR, THEN ONE EVERY THIRD JOINT BACK TO SURFACE FOR A TOTAL OF 39 BOW SPRING CENTRALIZERS, P/U LANDING JOINT AND LAND OUT CASING WITH 140K LBS ON CACTUS FLUTED MANDRELL HANGER. FLOAT C. @ 5,028.59', SHOE @ 5,075'

07:00 CIRCULATE 2 X CASING CAPACITY @ 7 BPM, PSI: 310

09:00 PJSM; CEMENT 9 5/8" CSG AS FOLLOWS: PRESSURE TEST LINES TO 3K, PUMPED 20 BBL FRESH WATER GEL SPACER, PUMPED 1195 SX (598 BBLs) 11.0 PPG LEAD NEOCEM @ 2.81 YIELD 17.41 GAL/SK FW, W/ 150% XS

PUMPED AT 8 BPM, PUMPED 155 SX (37 BBLS) 14.8 PPG TAIL HALCEM C @ 1.332 YIELD 6.419 GAL/SK FW; W/ 20% XS PUMPED AT 5 BPM, STING OUT WITH CRT & DROP NON-ROT PLUG & DISPLACE WITH 371 BBLS OF FW. BUMP PLUG @ 3 BPM @ 450 PSI WITH 497 PSI OVER = 947 PSI, HELD FOR 5 MIN, BLEAD OFF GAINED 2 BBLS, FLOATS HOLDING. HAD FULL RETURNS THE ENTIRE JOB - 91 BBLS (182 SACKS) CEMENT CIRCULATED BACK TO SURFACE. TOC @ 25'

- 12:30 WHILE WAIT ON CEMENT - RIG DOWN CEMENTERS; WASH UP BOP STACK, STANDPIPE, & SHAKER MANIFOLD; BACK OFF & LAY DOWN LANDING JOINT; RIG DOWN CRT; INSTALL 5" ELEVATORS; CALIBRATE DRAWWORKS; SET WELLHEAD PACKOFF; TEST SEALS @ 5000 PSI 5 MINUTES; PULL TEST 40K OVER; RETEST SEALS 5000 PSI 15 MINUTES; MOVE PVC F/ INNER RESERVE PIT T/ OUTER RESERVE PIT
- 16:00 WHILE WAIT ON CEMENT - INSTALL WEAR BUSHING
- 16:30 SERVICE RIG
- 17:00 FINISH RIG UP PVC T/ OUT RESERVE PIT
- 17:30 PJSM; PU BHA AS FOLLOWS; 6 3/4" 9/10 LOBE 8.0 STAGE 1.15 BEND 0.27 RPG MOTOR; FOLLOWED BY 8.75" ROLLER REAMER; FOLLOWED BY 1 PONY NMDC; FOLLOWED BY 1, 6.75" MULESHOE; FOLLOWED BY HPTC, SCRIBE MOTOR TO HIGH SIDE, MAKE UP 8.75" SMITH XS616 PDC BIT JETTED W/ 6X14 NOZZLES FOR A TFA OF 0.92; INSTALLED MWD; PICKED UP NMDC, 1 8.75" ROLLER REAMER, XO, SHALLOW TEST MOTOR AND MWD, TESTS GOOD; PICK UP AND RUN 12 6 1/2" DC'S; XO; TIH W/ 7 STANDS OF 5" HWDP; TIH W/ DP F/ 1,102' - T/1,956'.
- 23:30 SAFETY STAND DOWN DUE TO INCLEMENT WEATHER; THUNDERSTORM WITH HEAVY LIGHTNING AND WIND.
- 01:00 TIH WITH BHA #4 F/1,956' - T/4,985'; WELL IS GIVING PROPER DISPLACEMENT; PULL TRIP NIPPLE AND INSTALL ROTATING HEAD BEARING ASSEMBLY.
- 02:30 CIRCULATE BOTTOMS UP TO FILL PIPE AND EVACUATE ALL AIR FROM ANNULUS; SHUT UPPER RAMS AND OPEN KILL LINE; TEST CASING TO 2,700 PSI FOR 30 MINUTES; GOOD TEST, BLEED OFF TO 2,630 PSI (3% LEAKOFF)
- 04:00 TAG CEMENT @ 5,020'; DRILL CEMENT AND FLOAT EQUIPMENT F/ 5,020' - T/ 5,088'; 400 GPM; SPP 1450/1500; DIFF 150/250; TRQ 3500/4000; WOB 10K/15K; RPM 45
- 05:00 ROT DRLG F/5,088' - T/5,268' (179' @ 179 FPH). WOB: 45K, TOP DRV RPM: 50/80; SPP 3200 PSI; GPM: 700; MUD MTR RPM: 191; TOP DRV TRQ: 10K/13K FT/LBS ON BTM, 3.5K OFF BTM; DIFF PSI: 650/750; PU 196 SO 178 ROT: 182; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.

Vis (s/qt): 29, Dens (lb/gal): 10.15, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
5,201.0	5,199.82	1.11	209.70	22.62	0.08	41.12	59.41

## 06/08/2017

Rig Name: H&P 602

Depth = 8,672.0 Progress = 3404.0

- 06:00 ROT DRLG F/5,268' - T/5,836' (568' @ 142 FPH). WOB: 45K/50K, TOP DRV RPM: 50/80; SPP 3200 PSI; GPM: 700; MUD MTR RPM: 191; TOP DRV TRQ: 10K/13K FT/LBS ON BTM, 3.5K OFF BTM; DIFF PSI: 300/500; PU 202 SO 178 ROT: 185; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.0 IN & OUT.
- 10:00 ROT DRLG F/5,836' - T/6,687' (851' @ 212.75 FPH). WOB: 45K/53K, TOP DRV RPM: 50/70; SPP 3200 PSI; GPM: 700; MUD MTR RPM: 191; TOP DRV TRQ: 10K/13K FT/LBS ON BTM, 3.5K OFF BTM; DIFF PSI: 750/1000; PU 218 SO 182 ROT: 195; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.0 IN & OUT.
- 14:00 ROT DRLG F/6,687' - T/7,253' (566' @ 162 FPH). WOB: 45K/53K, TOP DRV RPM: 50/70; SPP 3200 PSI; GPM: 700; MUD MTR RPM: 191; TOP DRV TRQ: 10K/13K FT/LBS ON BTM, 3.5K OFF BTM; DIFF PSI: 750/1000; PU 245 SO 205 ROT: 217; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.0 IN & OUT.
- 17:30 SERVICE RIG AND TDS
- 18:00 ROT DRLG F/7,253' - T/7,872' (619' @ 155 FPH). WOB: 50/55K, TOP DRV RPM: 65/70; SPP 3500 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 10K/13K FT/LBS ON BTM, 8K OFF BTM; DIFF PSI: 650/750; PU 247 SO 210 ROT: 225;

PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION.  
SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS;  
SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.0 IN &  
OUT.

22:00 ROT DRLG F/7,872' - T/8,307' (435' @ 109 FPH). WOB: 50/55K, TOP DRV RPM: 45/70; SPP 3600 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 11K/14K FT/LBS ON BTM, 8K OFF BTM; DIFF PSI: 650; PU 259, SO 222, ROT 238; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.0 IN & OUT.

02:00 ROT DRLG F/8,307' - T/8,672' (365' @ 91.2 FPH). WOB: 40/55K, TOP DRV RPM: 45/70; SPP 3600 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 11K/14K FT/LBS ON BTM, 8K OFF BTM; DIFF PSI: 650; PU 262, SO 222, ROT 246; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.0 IN & OUT.  
SPR @ 8388' MWT 9.0ppg, #1MP 30@540, 40@ 620, 50@ 711; #2 MP 30@ 550, 40@ 615, 50@ 700

Vis (s/qt): 28, Dens (lb/gal): 8.90, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
5,391.0	5,389.79	1.04	200.66	19.97	0.10	37.91	57.89
5,580.0	5,578.76	1.13	206.39	17.24	0.07	34.64	56.46
5,770.0	5,768.72	1.13	202.91	14.42	0.04	31.24	54.90
5,959.0	5,957.68	1.36	196.77	11.11	0.14	27.38	53.53
6,148.0	6,146.62	1.54	199.49	7.18	0.10	22.84	52.04
6,337.0	6,335.56	1.21	197.89	3.47	0.18	18.55	50.58
6,526.0	6,524.52	1.26	202.86	0.22	0.06	14.74	49.16
6,715.0	6,713.48	1.13	204.08	-2.80	0.07	11.12	47.59
6,904.0	6,902.45	0.89	188.27	-5.55	0.19	7.97	46.62
7,092.0	7,090.43	0.95	200.05	-8.13	0.11	5.06	45.88
7,281.0	7,279.39	1.28	212.30	-10.78	0.21	1.80	44.21
7,470.0	7,468.35	1.07	167.86	-13.94	0.48	-1.71	43.45
7,659.0	7,657.31	1.34	156.76	-17.89	0.19	-5.47	44.69
7,848.0	7,846.25	1.48	140.90	-22.34	0.22	-9.39	47.10
8,038.0	8,036.19	1.35	131.23	-26.49	0.14	-12.77	50.33
8,227.0	8,225.14	1.33	138.60	-30.36	0.09	-15.88	53.45
8,416.0	8,414.10	0.95	136.77	-33.74	0.20	-18.67	55.97
8,605.0	8,603.06	1.42	131.70	-37.13	0.25	-21.37	58.79

## 06/09/2017

Rig Name: H&P 602

Depth = 9,144.0 Progress = 472.0

06:00 ROT DRLG F/8,672' - T/9,050' (378 @ 84 FPH). WOB: 53/55K, TOP DRV RPM: 50/55; SPP 3550 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 11K/13K FT/LBS ON BTM, 8K OFF BTM; DIFF PSI:450/650; PU 267, SO 229, ROT 252; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.0 IN & OUT.

10:30 SLD DRLG F/ 9,050' - T/9,101' (51' @ 21 FPH); TFO: 230M; WOB 45K, OFF BOTTOM SPP 3000 PSI; GPM: 700; MUD MTR RPM: 189; DIFF PSI: 150/350; PU 267, SO 218;

13:00 SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. ROT DRLG F/9,101' - T/9,144' (43 @ 43 FPH). WOB: 53/58K, TOP DRV RPM: 50/55; SPP 3550 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 11K/13K FT/LBS ON BTM, 8K OFF BTM; DIFF PSI:450/650; PU 267, SO 229, ROT 252; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 30%/40% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 15%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.2 IN & OUT; ROP SLOWED F/100 FPH T/18/20 FPH; 75% LOSS OF DIFF; DECISION WAS MADE TO TOH FOR BIT;

14:00 CIRCULATE AND CONDITION HOLE FOR BIT TRIP; PUMP 2, 30 BBL, 65 VIS SWEEPS; 1ST SWEEP BACK W/ 15%/20% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 2ND SWEEP BACK WITH 10%/15% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; SHAKERS CLEAN AFTER LAST SWEEP; LAST SAMPLE OFF FROM BOTTOM 90% LIME, 10% SHALE; TRACE OF CHERT.

15:30 FLOW CHECK WELL; WELL IS FLOWING @ 3 1/2 BBLS/MIN; SHUT IN WELL W/ ORBIT VALVE; SICP= 110 PSI; BULLHEADED 65 BBLS OF 12.5 KWM DOWN ANNULUS TO KILL FLOW; BEGIN PSI= 110; CLIMBED TO 540 PSI WHILE PUMPING @ 3 1/2 BBLS/MIN; PSI DROPPED TO 0 AFTER 65 BBLS PUMPED; FLOW CHECKED WELL ON CHOKE, WELL IS STATIC; PUMPED 15 BBL SLUG TO DRY STRING;

16:30 TOH FOR BIT FAILURE F/9,144' - T/ SURFACE; DRAIN MOTOR; BREAK AND DULL GRADE BIT 8/8 DBR; LD BIT AND MOTOR; PUMPING CALCULATED FILL W/ TT PUMP, NO RETURNS; PU- 290K, SO-247K; NO UNUSUAL DRAG SEEN.

22:30 PICK UP WEATHERFORD 6 3/4", 7:8, 3.0, 1.15 BEND, 0.15 RPG MOTOR;  
 SCRIBE MOTOR TO HIGH SIDE; MAKE UP SMITH 8 3/4", FH47HYODVPS  
 TRI-CONE INSERT BIT JETTED WITH 3x22 NOZZLES (TFA= 1.114); TEST  
 MOTOR AND MWD; TEST GOOD;  
 00:30 TIH F/ BHA T/9,144'  
 AT 9,000' REMOVE TRIP NIPPLE AND INSTALL ROTATING HEAD  
 05:30 FILL DRILL PIPE AND INDUCE WELL W/280 BBLS OF 9.2 PPG BRINE ON  
 ANNUAL SIDE.

Vis (s/qt): 28, Dens (lb/gal): 9.25, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
8,795.0	8,793.00	1.47	132.19	-41.21	0.03	-24.57	62.35
8,984.0	8,981.67	4.59	142.62	-50.34	1.67	-32.21	68.74

## 06/10/2017

Rig Name: H&P 602

Depth = 9,498.0 Progress = 354.0

06:00 INDUCE WELL BY BULLHEADING 280 BBLS OF 9.2 PPG BRINE ON ANNUAL SIDE  
 @ 4 BBLS/MIN; 475 PSI; OPEN WELL ON CHOKE AND WELL IS FLOWING @ 5  
 BBLS/MIN; CIRCULATE BTMS UP @ 550 GPM LOOSING 2 BBLS/MIN TO  
 FORMATION; SLOW PUMPS TO 300 GPM AND CIRCULATING WITH 1/2 BBL  
 GAIN; CIRCULATED REMAINING HEAVY MUD FROM WELLBORE TO INSURE  
 FULL RETURNS.  
 08:30 ROT DRLG F/9,144' - T/9,154' (10 @ 20 FPH). WOB: 10K/20K, TOP DRV RPM:  
 35/45; SPP 1550 PSI; GPM: 600; MUD MTR RPM: 92; TOP DRV TRQ: 7K/9K  
 FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 80/125; PU 280, SO 238, ROT 255;  
 CONTROL DRILLING FOR 10' TO ESTABLISH CUT PATTERN WITH NEW BIT; MW  
 IN & OUT- 9.4 PPG.  
 09:00 SLD DRLG F/ 9,154' - T/9,216' (62' @ 21 FPH); TFO: 0M; WOB 35K/45K, OFF  
 BOTTOM SPP 1,600 PSI; GPM: 600; MUD MTR RPM: 90; DIFF PSI: 175; PU  
 282, SO 238;  
 SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS.  
 12:00 ROT DRLG F/9,216' - T/9,360' (144' @ 36 FPH). WOB: 40K/55K, TOP DRV RPM:  
 45/75; SPP 2150 PSI; GPM: 600; MUD MTR RPM: 90; TOP DRV TRQ: 11K/14K  
 FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 100/125; PU 282, SO 238, ROT 255;  
 PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH  
 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20%  
 SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.  
 16:00 ROT DRLG F/9,360' - T/9,421' (61' @ 41 FPH). WOB: 40K/55K, TOP DRV RPM:  
 45/75; SPP 2150 PSI; GPM: 600; MUD MTR RPM: 90; TOP DRV TRQ: 11K/14K  
 FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 100/125; PU 288, SO 242, ROT 261;  
 PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH  
 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20%  
 SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.  
 17:30 SERVICE RIG, TDS AND PIPE WRANGLER  
 18:00 ROT DRLG F/9,421' - T/9,498' (77' @ 15.1 FPH). WOB: 40K/55K, TOP DRV  
 RPM: 45/75; SPP 2150 PSI; GPM: 600; MUD MTR RPM: 90; TOP DRV TRQ:  
 11K/14K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 100/125; PU 288, SO 242,  
 ROT 261; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS  
 BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS;  
 SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN &  
 OUT. BIT STALLED AT 9498'. RETURN TO DRILLING, BIT STALLED AGAIN.  
 DECISION MADE TO POOH.  
 23:00 CIRCULATE AND CONDITION HOLE FOR BIT TRIP; PUMP 2, 30 BBL, 65 VIS  
 SWEEPS; 1ST SWEEP BACK W/ 15%/20% SCREEN COVERAGE OF MED FINE  
 AND FINE CUTTINGS; 2ND SWEEP BACK WITH 10%/15% SCREEN COVERAGE  
 OF MED FINE AND FINE CUTTINGS; SHAKERS CLEAN AFTER LAST SWEEP;  
 LAST SAMPLE OFF FROM BOTTOM 60% LIME, 40% SHALE, TR CHERT AND TR  
 OF PYRITE.  
 01:00 FLOW CHECK WELL; WELL IS FLOWING @ 8 BBLS/MIN; SHUT IN WELL W/  
 HYDRIL; SICP= 95 PSI; BULLHEADED 70 BBLS OF 12.5 KWM DOWN ANNULUS  
 TO KILL FLOW; BEGIN PSI= 95; CLIMBED TO 760 PSI WHILE PUMPING @ 8  
 BBLS/MIN; PSI DROPPED TO 0 AFTER 70 BBLS PUMPED; FLOW CHECKED WELL  
 ON CHOKE, WELL IS STATIC;

01:30 POOH FOR BIT FAILURE F/9,498' - T/900'

Vis (s/qt): 28, Dens (lb/gal): 9.30, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
9,172.0	9,169.33	1.64	173.32	-60.02	1.75	-40.86	73.62
9,267.0	9,264.40	1.34	38.71	-60.75	2.90	-41.36	74.48
9,436.0	9,433.35	1.51	80.74	-59.90	0.61	-39.46	77.91

## 06/11/2017

Rig Name: H&P 602

Depth = 10,091.0 Progress = 593.0

06:00 TIH F/900'-T/SURFACE; DRAIN MOTOR, BREAK AND DULL GRADE BIT 8-8 FULL  
 GAUGE; LD MOTOR

08:00 PU NEW 9:10,8.0, 1.15 DEG, 0.27 RPG MOTOR; SCRIBE TO HIGH SIDE; MAKE UP ULTERRA 8 3/4", U716M PDC BIT, JETTED W/ 7x13 NOZZLES (TFA 0.908); SHALLOW TEST TOOLS; GOOD TEST; TIH TO 6,214'; NO RETURNS.

13:00 SERVICE RIG, TDS AND PIPE WRANGLER.

13:30 TIH F/6,214' - T/9,327'; NO RETURNS

16:30 FILL DRILL STRING; FILL BACKSIDE; SHUT IN ANNULAR; INDUCE FLOW BY BULLHEADING 280 BBLs OF 9.2 PPG SYSTEM FLUID DOWN THE BACKSIDE, CIRC 2 B/UP AND EST CIRC DRILLING PERIMETERS WITHOUT LOSSES.

21:00 ROT DRLG F/9,498' - T/9,705' (207' @ 52 FPH). WOB: 20-30K, TOP DRV RPM: 50; SPP 2090 PSI; GPM: 600; MUD MTR RPM: 120; TOP DRV TRQ: 9-12K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 350-550; PU 285, SO 258, ROT 270; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.

01:00 ROT DRLG F/9,705' - T/10,025' (320' @ 80 FPH). WOB:30K, TOP DRV RPM: 50-65; SPP 2540 PSI; GPM: 500-600; MUD MTR RPM: 120; TOP DRV TRQ: 10-12K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 350-550; PU 296, SO 262, ROT 272; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.

05:00 ROT DRLG F/10,025' - T/10,091' (66' @ 66 FPH). WOB:30K, TOP DRV RPM: 50-65; SPP 2540 PSI; GPM: 500-600; MUD MTR RPM: 120; TOP DRV TRQ: 10-12K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 350-550; PU 296, SO 262, ROT 272; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.

Vis (s/qt): 28, Dens (lb/gal): 9.40, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
9,552.0	9,549.30	1.68	94.65	-60.70	0.36	-39.35	81.11
9,741.0	9,738.23	1.36	106.31	-62.91	0.23	-40.20	86.02
9,931.0	9,928.15	1.84	100.84	-65.52	0.26	-41.41	91.18

## 06/12/2017

Rig Name: H&P 602

Depth = 11,170.0 Progress = 1079.0

06:00 ROT DRLG F/10,091' - T/10,658' (567' @ 141.75 FPH). WOB:45K/53K, TOP DRV RPM: 40-60; SPP 3850 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 16-17K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 650/800; PU 307, SO 268, ROT 283; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.

10:00 ROT DRLG F/10,658' - T/10,753' (95' @ 95 FPH). WOB:45K/53K, TOP DRV RPM: 40-60; SPP 3850 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 16-17K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 650/800; PU 325, SO 270, ROT 289; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.

11:00 SLD DRLG F/ 10,753' - T/10,783' (30' @ 30 FPH); TFO: 90M; WOB 35K/45K, OFF BOTTOM SPP 1,600 PSI; GPM: 600; MUD MTR RPM: 90; DIFF PSI: 175; PU 325, SO 270; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS.

12:00 ROT DRLG F/10,783' - T/10,847' (64' @ 128 FPH). WOB:45K/53K, TOP DRV RPM: 40-60; SPP 3850 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 16-17K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 650/800; PU 325, SO 270, ROT 289; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.

12:30 SLD DRLG F/ 10,847' - T/10,872' (25' @ 25 FPH); TFO: 90M; WOB 35K/45K, OFF BOTTOM SPP 1,600 PSI; GPM: 600; MUD MTR RPM: 90; DIFF PSI: 175; PU 325, SO 270; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. FLARE (13:06-13:10) 4 MIN 1'-5' LAZY

13:30 ROT DRLG F/10,872' - T/11,037' (165' @ 110 FPH). WOB:45K/53K, TOP DRV RPM: 40-60; SPP 3850 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 16-17K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 650/800; PU 325, SO 270, ROT 289; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. FLARE (14:33-14:54) 21 MIN 1'-10' LAZY

15:00 SLD DRLG F/ 11,037' - T/11,062' (25' @ 25 FPH); TFO: 90M; WOB 35K/45K, OFF BOTTOM SPP 1,600 PSI; GPM: 600; MUD MTR RPM: 90; DIFF PSI: 175; PU 326, SO 270; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. FLARE (15:18-15:42) 24 MIN 1'-10' LAZY

16:00 ROT DRLG F/11,062' - T/11,170' {KOP} (108' @ 108 FPH). WOB:45K/53K, TOP DRV RPM: 40-60; SPP 3850 PSI; GPM: 700; MUD MTR RPM: 189; TOP DRV TRQ: 16-17K FT/LBS ON BTM, 6-7K OFF BTM; DIFF PSI: 650/800; PU 328, SO 270, ROT 289; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT.

17:00 CIRCULATE AND CONDITION HOLE FOR TRIP; PUMP 2, 30 BBL, 65 VIS SWEEPS; 1ST SWEEP BACK W/ 15%/20% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 2ND SWEEP BACK WITH 10%/15% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; SHAKERS CLEAN AFTER LAST SWEEP; FLARE (17:05-17:10) 5 MIN 1'-15' LAZY

18:00 FLOW CHECK WELL; WELL IS FLOWING @ 8 BBLS/MIN; SHUT IN WELL W/ HYDRIL; SICP= 95 PSI; BULLHEADED 95 BBLS OF 12.5 KWM DOWN ANNULUS TO KILL FLOW; BEGIN PSI= 95; CLIMBED TO 760 PSI WHILE PUMPING @ 8 BBLS/MIN; SD & CSG PSI DROPPED TO 0 PSI; OPEN ANNULAR, FLOW CHECK, WELL IS STATIC;

19:30 POOH F/ 11170' T/ BHA, L/D DRILL COLLARS AND DIRECTIONAL BHA.  
Vis (s/qt): 28, Dens (lb/gal): 9.30, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
10,120.0	10,117.09	0.75	123.94	-67.87	0.63	-42.67	95.19
10,309.0	10,306.08	0.64	179.85	-69.83	0.35	-44.42	96.22
10,498.0	10,495.06	0.88	260.54	-70.67	0.53	-45.71	94.79
10,687.0	10,683.85	3.73	261.00	-69.69	1.51	-46.91	87.28
10,782.0	10,778.69	2.97	267.95	-68.68	0.91	-47.48	81.77
10,971.0	10,967.50	3.19	298.07	-63.79	0.85	-45.19	72.25
11,104.0	11,100.36	1.95	331.12	-58.99	1.42	-41.47	67.89

## 06/13/2017

Rig Name: H&P 602

Depth = 11,327.0 Progress = 157.0

06:00 FINISH LAYING DOWN 6" DC'S AND WEATHERFORD BHA; DRAIN MOTOR AND BREAK AND DULL GRADE BIT; 1-2-FULL GAUGE; PICK UP CURVE BHA AS FOLLOWS; 8", 4:5, 7.0, 2.12 BENT, 0.48 RPG MOTOR; PONY NMDC; MULESHOE; HPTC; SCRIBE MOTOR TO HIGH SIDE; MAKE UP BAKER HUGHES KM624 HYBRID PDC BIT, 4x18 NOZZLES (TFA=0.994); 2 FLEX NMDC'S; 60 JTS 5" DP; 21 JTS; 5" HWDP; MONITORING WELL ON T/T; NO DISPLACEMENT.

13:00 SLIP AND CUT DRILLING LINE; SECURE HORSEHEAD ANCHOR; MONITORING WELL ON T/T; 15 MINUTES AFTER WE BEGAN CUTTING LINE THE WELL STARTED FLOWING @ 4 1/2 BBL/MIN . SHUT IN WELL AND MONITOR SICP WHILE SLIPPING AND CUTTING LINE; SICP= 176 PSI; FLOWED APROX. 11 BBLS OF LIVE OIL TO T/T.

15:00 WELL BORE SHUT IN HARD; SICP= 180 PSI; WAS FLOWING @ 4 1/2 BBLS/MIN; APROX. 11 BBLS LIVE OIL TO T/T; BUILD 150 BBLS OF 12.6 PPG KWM; BULLHEAD 65 BBLS DOWN ANNULUS TO KILL FLOW. FLOW CHECK WELL; WELL IS STATIC, PSI= 0.

17:00 INSTALL ROTATING RUBBER AND TIH F/5,028'- T/10,792, GIH P/UP 12 JTS DP T/ 11,170'.

21:30 FILL ANNULUS W/ 45 BBLS 9.3 PPG BW, CHG OUT ROTATE HEAD ELEMENT DUE TO LEAK, INDUCE WELL DOWN ANNULUS WITH 350 BBLS 9.3 PPG BW. CIRC B/UP THRU CHOKE AND GAS BUSTER, 1180 UNITS GAS ON B/UP. LAZY FLARE 1'/15 MIN

01:30 SLD DRLG F/ 11,170' - T/11,200' (30' @ 30 FPH); TFO: 330; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 350; PU 300, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. LAZY FLARE 1'/15 MIN; OIL SHEEN ON SHAKERS.

02:30 ROT DRLG F/11,200' - T/11,208' (8' @ 50 FPH). WOB:20K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 550; PU 302, SO 257, ROT 285; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

03:00 SLD DRLG F/ 11,208' - T/11,236' (28' @ 112 FPH); TFO: 330; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 350; PU 300, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

03:15 ROT DRLG F/11,236' - T/11,239' (3' @ 12 FPH). WOB:20K, TOP DRV RPM: 20;

SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 550; PU 302, SO 257, ROT 285; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. LAZY FLARE 6'/ 15 MIN; OIL SHEEN ON SHAKERS.

03:30 SLD DRLG F/ 11,239' - T/11,263' (24' @ 48 FPH); TFO: 330; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 350; PU 300, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

04:00 ROT DRLG F/11,263' - T/11,271' (8' @ 16 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 550; PU 302, SO 257, ROT 285; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

04:30 SLD DRLG F/ 11,271' - T/11,295' (24' @ 48 FPH); TFO: 330; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 350; PU 300, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

05:00 ROT DRLG F/11,295' - T/11,303' (8' @ 16 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 550; PU 302, SO 257, ROT 285; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

05:30 SLD DRLG F/ 11,303' - T/11,327' (24' @ 48 FPH); TFO: 330; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 350; PU 300, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

Vis (s/qt): 28, Dens (lb/gal): 9.30, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
11,146.0	11,142.34	1.70	2.40	-57.70	2.41	-40.22	67.57
11,178.0	11,174.30	3.51	355.45	-56.29	5.73	-38.77	67.51
11,209.0	11,205.19	5.77	352.45	-53.82	7.33	-36.28	67.23

## 06/14/2017

Rig Name: H&P 602

Depth = 11,777.0 Progress = 450.0

06:00 SLD DRLG F/ 11,327' - T/11,330' (3' @ 3 FPH); TFO: 330; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 350; PU 300, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

07:00 ROT DRLG F/11,330' - T/11,334' (4' @ 16 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 550; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

07:30 SLD DRLG F/ 11,334' - T/11,362' (28' @ 56 FPH); TFO: 330; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

08:00 ROT DRLG F/11,362' - T/11,365' (3' @ 6 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

08:30 SLD DRLG F/ 11,365' - T/11,394' (29' @ 58 FPH); TFO: 0; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS. 11,376' 4 MIN 1-10' LAZY FLARE.

09:00 ROT DRLG F/11,394' - T/11,397' (3' @ 6 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

09:30 SLD DRLG F/ 11,397' - T/11,423' (26' @ 52 FPH); TFO: 0; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS. 11,407' 6 MIN 1-10' LAZY FLARE.

10:00 ROT DRLG F/11,423' - T/11,429' (6' @ 12 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING

15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

10:30 SLD DRLG F/ 11,429' - T/11,449' (20' @ 40 FPH); TFO: 30 R; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS, 11,437' 3 MIN 1-10' LAZY FLARE.

11:00 ROT DRLG F/11,449' - T/11,460' (11' @ 21 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

11:30 SLD DRLG F/ 11,460' - T/11,486' (26' @ 52 FPH); TFO: 30 R; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.11,470' 4 MIN 1-10' LAZY FLARE.

12:00 ROT DRLG F/11,486' - T/11,492' (6' @ 12 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

12:30 SLD DRLG F/ 11,492' - T/11,517' (25' @ 50 FPH); TFO: 20 L; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.11,503' 2 MIN 1-5' LAZY FLARE.

13:00 ROT DRLG F/11,517' - T/11,523' (6' @ 12 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

13:30 SLD DRLG F/ 11,523' - T/11,549' (26' @ 52 FPH); TFO: 30 L; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.11,535' 2 MIN 1-5' LAZY FLARE.

14:00 ROT DRLG F/11,549' - T/11,555' (6' @ 12 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

14:30 SLD DRLG F/ 11,555' - T/11,580' (25' @ 50 FPH); TFO: HSL; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

15:00 ROT DRLG F/11,580' - T/11,586' (6' @ 12 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

15:30 SLD DRLG F/ 11,586' - T/11,609' (23' @ 58 FPH); TFO: HSL; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.11,595' & 11,603' 1 MIN 1-3' LAZY FLARE.

16:00 ROT DRLG F/11,609' - T/11,618' (9' @ 18 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

16:30 SLD DRLG F/ 11,618' - T/11,640' (22' @ 44 FPH); TFO: HSL; WOB 25K, OFF BOTTOM SPP 2,000 PSI; GPM: 584; MUD MTR RPM: 280; DIFF PSI: 150; PU 350, SO 257; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS.

17:00 ROT DRLG F/11,640' - T/11,647' (7' @ 14 FPH). WOB:25K, TOP DRV RPM: 20; SPP 2200 PSI; GPM: 553; MUD MTR RPM: 265; TOP DRV TRQ: 15K FT/LBS ON BTM, 10K OFF BTM; DIFF PSI: 200/400; PU 350, SO 257, ROT 300; PUMPING 15 BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25% SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.

17:30 SERVICE RIG AND TDS.

18:00 SLD DRLG F/ 11,647' - T/11,675' (28' @ 44 FPH); TFO: HSL; WOB 25K, OFF BOTTOM SPP 2,150 PSI; GPM: 575; MUD MTR RPM: 276; DIFF PSI: 200; PU 328, SO 265; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE

19:00 CUTTINGS. OIL SHEEN ON SHAKERS.11,665' 25 MIN 1-15' LAZY FLARE.  
ROT DRLG F/11,675' - T/11,681' (6' @ 94 FPH). WOB:25K, TOP DRV RPM: 20;  
SPP 2150 PSI; GPM: 575; MUD MTR RPM: 276; TOP DRV TRQ: 9K FT/LBS ON  
BTM, 6K OFF BTM; DIFF PSI: 500; PU 328, SO 265, ROT 283; PUMPING 15  
BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25%  
SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN  
COVERAGE BETWEEN SWEEPS.MW: 9.3 IN & OUT. OIL SHEEN ON SHAKERS.  
CONSTANT 15' LAZY FLARE.

19:30 SLD DRLG F/ 11,681' - T/11,704' (23' @ 44 FPH); TFO: HSL; WOB 25K, OFF  
BOTTOM SPP 1,670 PSI; GPM: 500; MUD MTR RPM: 240; DIFF PSI: 200; PU  
328, SO 265; SHAKERS 15%/20% SCREEN COVERAGE OF FINE AND MED FINE  
CUTTINGS. OIL SHEEN ON SHAKERS. DUE TO INCREASE IN GAS (940 UNITS)  
AND GAIN IN PITS, START DRILLING THRU CHOKE AND RAISE MUD WT F/ 9.3  
PPG T/ 9.5 PPG. CONSTANT 15' LAZY FLARE.

20:30 ROT DRLG F/11,704' - T/11,712' (8' @ 94 FPH). WOB:25K, TOP DRV RPM: 25;  
SPP 1670 PSI; GPM: 500; MUD MTR RPM: 240; TOP DRV TRQ: 11K FT/LBS ON  
BTM, 6K OFF BTM; DIFF PSI: 500; PU 328, SO 265, ROT 283; PUMPING 15  
BBL, 65 VIS SWEEPS EVERY CONNECTION. SWEEPS BACK WITH 15%/25%  
SCREEN COVERAGE AND MED FINE CUTTINGS; SHAKERS 10%/20% SCREEN  
COVERAGE BETWEEN SWEEPS. OIL SHEEN ON SHAKERS, DRILLING THRU  
CHOKE AND RAISE MUD WT T/ 9.5 PPG. CONSTANT 5'-8' LAZY FLARE

21:00 SLD DRLG F/ 11,712' - T/11,777', TD 2nd INTERMEDIATE SECTION,(65' @ 30  
FPH); TFO: HSL; WOB 25K, OFF BOTTOM SPP 1,670 PSI; GPM: 500; MUD MTR  
RPM: 240; DIFF PSI: 200; PU 328, SO 265; SHAKERS 15%/20% SCREEN  
COVERAGE OF FINE AND MED FINE CUTTINGS. OIL SHEEN ON SHAKERS,  
DRILLING THRU CHOKE, MUD WT 9.5 PPG IN/OUT. CONSTANT 1-2' LAZY  
FLARE.

00:00 CIRC AND COND HOLE FOR CASING RUN. TAKING RETURNS THRU  
FLOWLINE,NO FLARE, PUMP 2- 40 BBL HIGH VISC SWEEPS SURF TO SURF.  
MUD WT 9.5 PPG IN/OUT. NO GAINS NO LOSSES. AFTER 2nd SWEEP AT  
SHAKERS APPROX 2% SCREEN COVERAGE OF FINE CUTTINGS. SHUT DOWN  
FLOW CHECK, WELL FLOWING 3 BPM, CLOSE ORBIT VALVE AND BULL HEAD 70  
BBLs 12.5 PPG KMW DOWN ANNULUS THRU KILL LINE. AFTER 45 BBLs  
PUMPED CASING PRESSURE WENT TO ZERO. FLOW CHECK, WELL STATIC.

02:30 POOH F/ 11,777' T/ 9,043',L/D 5" DP, STRAP DP ON PIPE RACK.  
SLUG DP AT 10,360'

Vis (s/qt): 28, Dens (lb/gal): 9.30, pH: 9.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
11,241.0	11,236.93	8.48	344.17	-49.88	9.04	-32.42	66.37
11,273.0	11,268.48	10.73	337.94	-44.55	7.74	-27.39	64.61
11,304.0	11,298.85	12.40	337.00	-38.38	5.42	-21.65	62.23
11,336.0	11,329.91	15.32	335.98	-30.77	9.16	-14.63	59.17
11,367.0	11,359.53	18.78	332.85	-21.81	11.54	-6.45	55.22
11,399.0	11,389.55	21.68	334.04	-10.92	9.15	3.45	50.28
11,430.0	11,418.03	24.72	335.72	1.15	10.04	14.51	45.11
11,462.0	11,446.87	26.61	338.35	14.92	6.89	27.27	39.71
11,493.0	11,474.24	29.31	338.04	29.38	8.72	40.76	34.31
11,525.0	11,501.72	32.29	336.46	45.66	9.65	55.86	27.97
11,556.0	11,527.55	34.81	335.46	62.64	8.32	71.50	20.99
11,588.0	11,553.40	37.40	334.92	81.29	8.15	88.61	13.08
11,620.0	11,578.34	40.14	335.47	101.11	8.63	106.80	4.68
11,652.0	11,602.33	42.68	336.06	122.08	8.03	126.10	-4.01
11,684.0	11,625.45	44.76	336.08	144.00	6.50	146.31	-12.98
11,715.0	11,647.09	46.70	335.35	165.99	6.48	166.54	-22.11

## 06/15/2017

Rig Name: H&P 602

Depth = 11,777.0 Progress = 0.0

06:00 PTSM W/ DRILL CREW; POOH L/D 5" DP F/ 9043' T/ BHA, STRAP DP ON RACK

16:30 CLEAR RIG FLOOR TO L/D WEATHERFORD BHA

17:00 RIG SERVICE

17:30 L/D DIRECTIONAL TOOLS; BROKE & GRADE BIT 1 INNER 3 OUTER;  
(LENGTH OF STRAP 11,776.31')

19:00 CLEAN FLOOR & PULL WEAR BUSHING

20:00 PJSM RIG UP CRT TOOL, BRING FLOAT EQUIPMENT TO THE FLOOR; CHECK  
CASING ELEVATOR ID; MARK CASING FOR CENTRALIZERS; INSTALL TRIP  
NIPPLE;

21:00 PJSM MAKE UP SHOE; 2-JOINTS 7" 32# CASING & FLOAT COLLAR; PUMP  
THREW SHOE TRACK (GOOD) RAN 7" CASING T/536';(WELL FLOWING)

00:00 SHUT IN AND MONITOR WELL FLOWING ON AND OFF; MIXED UP 50 BBLs 12.5  
KILL WT MUD BULLHEADED DOWN BACKSIDE; (WELL STATIC)

01:30 RUNNING CASING F/536' T/3,300' (FILLING CASING EVERY 20 JTS)

Vis (s/qt): 28, Dens (lb/gal): 9.50, pH: 9.0

**06/16/2017**

Rig Name: H&amp;P 602

Depth = 11,777.0 Progress = 0.0

06:00 RUNNING 7" 32# HCP-110 LTC CASING F/3300' T/8,204' (FILLING CASING EVERY 20 JTS)  
HAD TO LAYOUT 2 JTS W/ BAD THREADS. WELL STARTED FLOWING AT 8,204'. SHUT IN, ANNULUS HAD 48 PSI.

15:00 8204' CLOSE ANNULAR AND PUMP 40 BBLS 12.5 KILL MUD WT DOWN ANNULUS TO KILL WELL, WELL STATIC.

15:30 RUNNING 7" 32# HCP-110 LTC CASING F/8,204' T/ 11,758'(FILLING CASING EVERY 20 JTS) SHOE @ 11,756'; FC @ 11,668' CENTRALIZERS RUN AS PLANNED;

21:30 FILL UP CASING & BACK SIDE

22:30 INDUCED WELL 150 BBLS; CIRCULATED 150 BBLS @ 5.5 BPM GOT BACK 2 BPM; INDUCED 150 BBLS ; CIRCULATED 100 BBLS @ 5.5 GOT BACK 3.5 BPM; INDUCED 150 MORE BBLS ;CIRCULATING 5.5 BBL WITH FULL RETURNS;

01:00 CIRCULATE FIRST BOTTOMS UP @ 5.5 BPM THRU CHOKE; 5-10' FLARE FOR 2 HRS; 169 UNITS OF GAS; CIRCULATE 1 MORE BOTTOMS UP;

03:30 PJSM; CEMENT 7" CSG AS FOLLOWS: PRESSURE TEST LINES TO 3.5K, PUMPED 40 BBL FW SPACER FOLLOWED BY 47 BBLS OF SUPER FLUSH REACTIVE SPACER; FOLLOWED BY 20 BBL FRESH WATER GEL SPACER, FOLLOWED BY 355 SX (180 BBLS) 11.0 PPG LEAD NEOCEM CEMENT, 2.845 YIELD, 17.33 GAL/SK FW, W/ 85% XS PUMPED AT 5 BPM, PUMPED 535 SX (116 BBLS) 15.6 PPG TAIL HALCEM H , 1.196 YIELD, 5.45 GAL/SK FW; W/ 0% XS PUMPED AT 5 BPM,

Vis (s/qt): 28, Dens (lb/gal): 9.50, pH: 8.5

**06/17/2017**

Rig Name: H&amp;P 602

Depth = 11,777.0 Progress = 0.0

06:00 STING OUT WITH CRT & DROP NON-ROT PLUG & DISPLACE WITH 420 BBLS OF 9.5 PPG SYSTEM MUD. DID NOT BUMP PLUG; PUMPED 1.5 BBL HALF SHOE TRACK; FINAL CIRCULATING PRESS 1556 PSI @ 3 BPM, STOP PUMPING, BLED OFF 4.5 BBLS BACK FROM LINES; FLOATS HOLDING. HAD FULL RETURNS THE ENTIRE JOB; PUMPED JOB WITH RETURNS THROUGH CHOKE MAINTAINING BBL IN/ BBL OUT; LAST 100 BBLS OF DISPLACEMENT 4 BBLS IN/ 3 BBLS OUT; 3 BBLS IN/ 2 BBLS OUT FOR LAST 30 BBLS; WELL SHUT IN ON CHOKE WHILE WOC, MONITORING ANNULAR PSI.

07:00 WOC, MONITORING CASING PRESSURE, RUN VES GYRO MULTI SHOT F/ SURFACE T/ 11625', CLEAN PITS, R/UP NOV MUD CLEANING EQUIPMENT, CHANGE TO 5" LINERS AND PISTONS IN MUD PUMPS.  
STARTING SICP 58 PSI. PRESENTLY SICP 265 PSI. PRESS 260 PSI T/ 265 PSI IN LAST 3 HRS

15:00 WOC, MONITORING CASING PRESSURE(ANNULAR PSI 265) CLEAN PITS, R/UP NOV MUD CLEANING EQUIPMENT, R/U KATCH KAN

18:00 WOC, MONITORING CASING PRESSURE(ANNULAR PSI 265); CLEAN PITS, R/UP NOV MUD CLEANING EQUIPMENT, R/U KATCH KAN; PICKING UP 4" DRILL PIPE & BUILDING STANDS; TOTAL OF 47 STANDS MADE UP AND SET IN DERRICK.

**06/18/2017**

Rig Name: H&amp;P 602

Depth = 11,777.0 Progress = 0.0

06:00 WOC, P/UP 4" DP AND RACK BACK IN DERRICK (TOTAL 51 STDs)

07:00 OPEN CHOKE AND BLEED OFF ANNULAR PRESS F/ 265 PSI T/ 0 PSI, GOT BACK 1/2 BBL, NO FLOW.

07:30 OPEN ANNULAR AND ATTEMPT TO BACK OFF LANDING JT, FOUND CMT AROUND LANDING JT F/ FLOW LINE TO TOP OF ANNULAR APPROX 2', COULD NOT BACK OFF LANDING JT. CHIPPED AND REMOVED CEMENT WITH ANNULAR CLOSED. (BATTLE HAND TEST CHOKE MANIFOLD 250 LOW 10 MIN 10,000 HIGH 10 MIN)

15:00 OPEN ANNULAR, AND REMOVED LANDING JT, P/UP HANGER WASH TOOL AND WASH CEMENT PIECES OFF TOP OF HANGER,

19:30 BREAK DOWN WASH TOOL; M/U & SET PACKER W/ 20K ON IT; PRESSURE TEST 5K F/5 MIN (GOOD); LOCK IN PACKER & PULL TEST TO 40K; PRESSURE TEST 5K F/5 MIN (GOOD); M/U & SET BIT GUIDE W/ 20K ON IT; PRESSURE TEST FAILED; P/U AND CHECK BIT GUIDE; TRY TO RE TEST STILL FAILED; P/U BIT GUIDE AND FOUND SEAL WAS NOT GOOD ( CACTUS HAND HAS NO EXTRA SEALS WAITING ON SEALS FROM TOWN)

23:00 HELD JSA WITH H&P BOP HANDS,BATTLE TESTER & RIG CREW; CHANGE VARIABLE RAMS ON BOP & TEST FLOOR VALVES & STANDPIPE BACK TO THE MUD PUMPS 250# LOW 10 MIN & 7500# HIGH 10 MIN;

00:30 REPLACE SEALS ON BIT GUIDE (NO GOOD TEST); WASH TOP OF PACK OFF BIT GUIDE STILL WOULD NOT SET OR TEST;

04:30 WHILE WAITING ON NIPPLE DOWN CREW TO PICK UP STACK AND TROUBLE SHOOT BIT GUIDE; CHANGING SWIVEL PACKING & SAVER SUB IN TOP DRIVE;

**06/19/2017**

Rig Name: H&P 602

Depth = 11,777.0 Progress = 0.0

06:00 FINISH CHANGING SAVER SUB, DRESS TOP DRIVE, R/D KATCH KAN, REMOVE MOUSE HOLE.  
07:30 REMOVE BOP TURN BUCKLES, FLOWLINE AND HCR LINE, RAISE BOP STACK AND TRACK BACK AWAY FROM WELL HEAD.  
10:30 N/D DRLG SPOOL AND REMOVE F/ WELL HEAD, CACTUS INSPECTED DRILLING SPOOL AND TOP OF PACK OFF, AND TOP OF HGR (OK). INSTALL DRILLING SPOOL AND TRQ SAME, INSTALL NEW BIT GUIDE AND SEALS INSIDE DRILLING SPOOL. PRESSURE TEST SAME AND OUTSIDE SEALS OF BIT GUIDE FAILED AND LEAKED FLUID OUT OF CASING VALVE. REMOVE BIT GUIDE AND REPLACE DRILLING SPOOL.  
18:00 INSTALL NEW DRILLING SPOOL; INSTALL BIT GUIDE & TEST (TEST GOOD); NIPPLE UP BOP & CHOKE LINE;  
23:30 TEST BOP 250 LOW F/10 MIN 10,000 HIGH F/10 MIN; TEST ANNULAR 250 LOW F/10 MIN 5,000 HIGH F/10 MIN;  
02:30 INSTALL WEAR BUSHING, KATCH KAN, NIPPLE UP FLOW LINE & TIGHTEN TURNBUCKLES

### 06/20/2017

Rig Name: H&P 602

Depth = 11,777.0 Progress = 0.0

06:00 PTSM W/ RIG CREW; R/UP KILL LINE, FLOW LINE, FILL UP LINE, TURNBUCKLES, KATCH KAN, ROT HEAD FLUID LINES, CENTER BOP STACK W/ ROTARY, HAD TO WORK EXTRA HOURS CONNECTING FLOWLINE DUE TO STARTING WELL HEAD NOT TWO HOLED TO RIG.  
14:00 L/OUT AND M/UP 6" DRILL OUT BHA  
16:00 TIH STANDS W/ 6" DRILL OUT ASSY T/4,723'

18:00 CLEAN OUT FLOW LINE STOPPED UP WITH CEMENT @ SHAKERS  
04:00 TIH SINGLES W/ 6" DRILL OUT ASSY F/4,723' T/5,824'

### 06/21/2017

Rig Name: H&P 602

Depth = 11,793.0 Progress = 16.0

06:00 TIH W/ 6" DRILL OUT ASSY P/UP 4" DP AND STRAP SAME T/11,631'(TAGGED CEMENT)  
16:00 INSTALL ROTATING HEAD  
16:30 DRILL PLUG & CEMENT F/11,631 T/ 11,658 (TOP OF FLOAT COLLAR)  
17:30 PERFORM CASING TEST TO 4750 PSI; HELD FOR 30 MIN LOST 70 PSI (GOOD CASING TEST)  
19:00 DRILL FLOAT EQUIPMENT & CEMENT F/ 11,658' T/11,777';(FLOAT COLLAR @ 11,668' & SHOE @ 11,758')  
22:00 ROT DRLG F/11,777' - T/11,787' (10' @ 20 FPH). WOB:30K, TOP DRV RPM: 20; SPP 750 PSI; GPM: 160; TOP DRV TRQ: 6K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 50; PU 230, SO 195, ROT 207;  
22:30 CIRCULATE BOTTOMS UP  
23:30 RACK BACK ONE STAND, SHUT IN WELL & PERFORM FIT TEST (ACHIEVED FIT TEST 17.5 EMW)  
00:30 RIG UP WEATHERFORD DOWN LINK CONTROL BOX TO STAND PIPE & TRIP TANK;  
01:00 DISPLACE HOLE WITH OBM; FILL CHOKE & SEPARATOR W/OBM; EMPTY TRIP TANKS;  
03:30 ROT DRLG F/11,787' - T/11,793' (6' @ 12 FPH). WOB:30K, TOP DRV RPM: 20; SPP 1500 PSI; GPM: 160; TOP DRV TRQ: 6K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 100; PU 230, SO 195 RT 207,  
04:00 CIRCULATE BOTTOMS UP & PUMP SLUG  
05:30 TOO H F/11,793' T/10,500'  
Vis (s/qt): 78, Dens (lb/gal): 13.10, pH: 0.0

### 06/22/2017

Rig Name: H&P 602

Depth = 12,024.0 Progress = 231.0

06:00 TOO H F/10,500' T/SURFACE (HOLE TAKING PROPER FILL)  
10:30 LAY DOWN DRILL OUT BHA; PICK UP RSS ASSEMBLY & TEST (GOOD)  
14:30 TIH F/SURFACE T/4,890' (FILLING UP EVERY 20 STAND)  
17:00 SERVICE RIG  
17:30 TIH F/4,890' T/11,431' (FILLING UP EVERY 20 STAND)  
21:30 PULL TRIP NIPPLE; INSTALL ROTATING HEAD  
22:00 TIH F/11,431' T/11,765'; FILL PIPE; WASH T/11,790'  
22:30 SEND DOWN LINKS TO RSS; WASH F/11,790' T/11,793'; OBTAIN SPR  
23:00 ROTATE DRILL F/ 11,793' - T/ 11,810' (17' @ 34 FPH). NO DEFLECTION ON RSS TO "BED IN" TOOL; WOB: 10-15K, SPM: 94, TOP DRV RPM: 25. GPM: 250; MUD MTR RPM: 87; OFF BOTTOM SPP: 4400 PSI; TOP DRV TRQ: 6K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 420, PU: 180; SO: 160; ROT: 173;  
23:30 ROTATE DRILL F/ 11,810' - T/ 11,874' (64' @ 25.6 FPH); DEFLECTION 64%

02:00 THEN REDUCE T/ 50%; WOB: 15-22K, SPM: 94, TOP DRV RPM: 25. GPM: 250; MUD MTR RPM: 87; OFF BOTTOM SPP: 4450 PSI; TOP DRV TRQ: 5K-6K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 500, PU: 180; SO: 160; ROT: 173

03:00 ROTATE DRILL F/ 11,874' - T/ 11,908' (34' @ 34 FPH); WOB: 22K, SPM: 94, TOP DRV RPM: 25. GPM: 250; MUD MTR RPM: 87; OFF BOTTOM SPP: 4450 PSI; TOP DRV TRQ: 5K-6K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 500, PU: 188; SO: 164; ROT: 173

03:30 ROTATE DRILL F/ 11,908' - T/ 11,938' (30' @ 60 FPH); WOB: 22K, SPM: 94, TOP DRV RPM: 80. GPM: 287; MUD MTR RPM: 100; OFF BOTTOM SPP: 5500 PSI; TOP DRV TRQ: 7K FT/LBS ON BTM, OFF BOTTOM TORQ: 4.5K; DIFF PSI: 500, PU: 188; SO: 164; ROT: 176

04:00 RELOG F/11,906' T/11,938' DUE TO POOR DETECTION AFFECTING GAMMA QUALITY; GPM: 266, SPP:4920 PSI, TOP DRIVE RPM: 20, TORQ: 3.6K FT-LBS

04:00 ROTATE DRILL F/ 11,938' - T/ 12,024' (86' @ 43 FPH); WOB: 22K, SPM: 100, TOP DRV RPM: 65. GPM: 266; MUD MTR RPM: 93; OFF BOTTOM SPP: 4880 PSI; TOP DRV TRQ: 5K-6.5K FT/LBS ON BTM, OFF BOTTOM TORQ: 4.5K; DIFF PSI: 300, PU: 188; SO: 164; ROT: 176

Vis (s/qt): 69, Dens (lb/gal): 13.00, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
11,791.0	11,696.72	51.67	335.86	222.91	6.56	218.88	-45.85
11,823.0	11,716.38	52.51	336.07	247.93	2.68	241.94	-56.13
11,854.0	11,734.67	55.16	336.92	272.76	8.83	264.88	-66.11
11,886.0	11,752.46	57.29	337.32	299.19	6.74	289.38	-76.45
11,917.0	11,768.73	59.39	337.87	325.42	6.94	313.77	-86.51
11,949.0	11,784.48	61.62	338.41	353.15	7.12	339.62	-96.88
11,981.0	11,799.29	63.23	338.95	381.41	5.25	366.04	-107.19

## 06/23/2017

Rig Name: H&P 602

Depth = 13,234.0 Progress = 1210.0

06:00 ROTATE DRILL F/ 12,024' - T/ 12,191' (167' @ 41.75 FPH); WOB: 22K, SPM: 101, TOP DRV RPM: 65. GPM: 266; MUD MTR RPM: 93; OFF BOTTOM SPP: 4880 PSI; TOP DRV TRQ: 8K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 575, PU: 185; SO: 163; ROT: 176

10:00 ROTATE DRILL F/ 12,191' - T/ 12,358' (167' @ 41.75 FPH); WOB: 25K, SPM: 105, TOP DRV RPM: 65. GPM: 275; MUD MTR RPM: 96.25; OFF BOTTOM SPP: 4980 PSI; TOP DRV TRQ: 8K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 575, PU: 185; SO: 163; ROT: 176

14:00 ROTATE DRILL F/ 12,358' - T/ 12,444' EOC (86' @ 57.3 FPH); WOB: 25K, SPM: 105, TOP DRV RPM: 65. GPM: 275; MUD MTR RPM: 96.25; OFF BOTTOM SPP: 4980 PSI; TOP DRV TRQ: 8K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 575, PU: 285; SO: 163; ROT: 176

15:30 SEND DOWN LINKS

16:00 ROTATE DRILL F/ 12,444' - T/ 12,475' (31' @ 62 FPH); WOB: 25K, SPM: 105, TOP DRV RPM: 65. GPM: 275; MUD MTR RPM: 96.25; OFF BOTTOM SPP: 4980 PSI; TOP DRV TRQ: 8K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 575, PU: 286; SO: 162; ROT: 178

16:30 SERVICE RIG SPR 30-830 40-1160 50-1650

17:00 ROTATE DRILL F/ 12,475' - T/ 12,570' (95' @ 95 FPH); WOB: 25K, SPM: 105, TOP DRV RPM: 65. GPM: 275; MUD MTR RPM: 96.25; OFF BOTTOM SPP: 4980 PSI; TOP DRV TRQ: 8K FT/LBS ON BTM, OFF BOTTOM TORQ: 3K; DIFF PSI: 575, PU: 195; SO: 160; ROT: 180

18:00 ROTATE DRILL F/ 12,570' - T/ 12,855' (285' @ 71.25 FPH); WOB: 25K, SPM: 105, TOP DRV RPM: 65/75. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 4900 PSI; TOP DRV TRQ: 8-9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 550, PU: 205; SO: 160; ROT: 180

22:00 ROTATE DRILL F/ 12,855' - T/ 13,016' (161' @ 80.5 FPH); WOB: 25-27K, SPM: 105, TOP DRV RPM: 75. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 4900 PSI; TOP DRV TRQ: 8-9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 550, PU: 205; SO: 160; ROT: 180

00:00 NEAR BIT INCLINATION DROPPED F/88.68 @ 12,980' T/87.0 @ 13,016'; SEND DOWN LINK TO TAKE RSS OUT OF AUTO-PILOT; INCREASE DEFLECTION TO 64% TO CORRECT INCLINATION.

00:30 ROTATE DRILL F/ 13,016' - T/ 13,073' (57' @ 23.5 FPH); NBI DECREASED TO 85.77 @ 13,044'; CONTROL DRILL AND INCREASE DEFLECTION TO CORRECT INCLINATION. WOB: 15K, SPM: 105, TOP DRV RPM: 75. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 5000 PSI; TOP DRV TRQ: 7K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 550, PU: 205; SO: 160; ROT: 180

02:30 SEND DOWN LINK TO RETURN RSS TO AUTOPILOT SET AT 91.5 DEGREES

03:00 ROTATE DRILL F/ 13,073' - T/ 13,234' (161' @ 53.67 FPH); WOB: 20-25K, SPM: 105, TOP DRV RPM: 75. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 5000 PSI; TOP DRV TRQ: 7K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 500, PU: 197; SO: 158; ROT: 180

Vis (s/qt): 63, Dens (lb/gal): 13.00, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)

12,012.0	11,812.77	65.21	339.61	409.24	6.67	392.15	-117.06
12,044.0	11,825.76	66.90	340.24	438.43	5.58	419.62	-127.10
12,076.0	11,837.78	68.96	340.79	468.04	6.63	447.57	-136.99
12,107.0	11,848.37	71.08	341.70	497.15	7.37	475.15	-146.36
12,139.0	11,858.25	72.94	341.75	527.56	5.81	504.05	-155.90
12,170.0	11,866.93	74.54	341.81	557.31	5.16	532.32	-165.20
12,202.0	11,874.93	76.50	341.46	588.27	6.22	561.72	-174.96
12,234.0	11,881.92	78.25	341.28	619.47	5.50	591.31	-184.94
12,265.0	11,887.85	79.68	341.53	649.88	4.68	620.15	-194.64
12,297.0	11,893.15	81.24	341.82	681.42	4.96	650.10	-204.56
12,329.0	11,897.49	83.17	342.48	713.10	6.37	680.27	-214.28
12,360.0	11,900.72	84.86	343.04	743.93	5.74	709.71	-223.42
12,392.0	11,903.28	85.96	343.28	775.82	3.52	740.24	-232.66
12,423.0	11,904.88	88.12	344.19	806.77	7.56	769.95	-241.33
12,455.0	11,905.62	89.22	344.36	838.76	3.48	800.74	-250.00
12,550.0	11,906.89	89.25	341.99	933.73	2.49	891.65	-277.49
12,645.0	11,908.26	89.10	342.18	1,028.69	0.25	982.03	-306.71
12,740.0	11,909.55	89.34	341.46	1,123.63	0.80	1,072.28	-336.35
12,835.0	11,910.08	90.02	342.13	1,218.58	1.00	1,162.52	-366.03
12,930.0	11,910.35	89.65	341.55	1,313.54	0.72	1,252.79	-395.64
13,025.0	11,914.33	85.55	338.46	1,408.19	5.40	1,341.90	-428.08
13,119.0	11,916.13	92.25	340.98	1,501.79	7.61	1,429.89	-460.63

## 06/24/2017

Rig Name: H&P 602

Depth = 14,035.0 Progress = 801.0

06:00 ROTATE DRILL F/ 13,234' - T/ 13,303' (69' @ 69 FPH); WOB: 27K, SPM: 105, TOP DRV RPM: 75. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 5100 PSI; TOP DRV TRQ: 9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 600, PU: 197; SO: 158; ROT: 180

07:00 CHANGE OUT SEATS & VALVES ON MUD PUMP

07:30 ROTATE DRILL F/ 13,303' - T/ 13,496' (193' @ 48.25 FPH); WOB: 27K, SPM: 105, TOP DRV RPM: 75. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 5100 PSI; TOP DRV TRQ: 9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 600, PU: 197; SO: 158; ROT: 180

11:30 ROTATE DRILL F/ 13,496' - T/ 13,709' (213' @ 53.25 FPH); WOB: 27K, SPM: 105, TOP DRV RPM: 70. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 5100 PSI; TOP DRV TRQ: 9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 600, PU: 198; SO: 158; ROT: 181

15:30 ROTATE DRILL F/ 13,709' - T/ 13,735' (26' @ 17.3FPH); WOB: 10-15K, SPM: 105, TOP DRV RPM: 70. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 5100 PSI; TOP DRV TRQ: 9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 600, PU: 198; SO: 158; ROT: 181

17:00 ROTATE DRILL F/ 13,735' - T/ 13,750' (15' @ 15 FPH); WOB: 5-10K, SPM: 105, TOP DRV RPM: 70. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 5100 PSI; TOP DRV TRQ: 9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 600, PU: 200; SO: 161; ROT: 179

18:00 ROTATE DRILL F/ 13,750' - T/ 13,835' (85' @ 21.25 FPH); WOB: 8-15K, SPM: 105, TOP DRV RPM: 70-80. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 4900 PSI; TOP DRV TRQ: 5-7K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 150-250, PU: 206; SO: 156; ROT: 179; HAVING DIFFICULTY DROPPING ANGLE TO FOLLOW PLAN DUE TO HARD STRINGER. CONTROL DRILL WITH RSS IN MANUAL MODE WITH 71 - 100% DOWN DEFLECTION.

22:00 ROTATE DRILL F/ 13,835' - T/ 13,950' (115' @ 28.75 FPH); WOB: 10-22K, SPM: 105, TOP DRV RPM: 70-80. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 4900 PSI; TOP DRV TRQ: 5-7K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 200-400, PU: 206; SO: 156; ROT: 179; HAVING DIFFICULTY DROPPING ANGLE.

02:00 ROTATE DRILL F/ 13,950' - T/ 14,035' (85' @ 21.25 FPH); WOB: 10-25K, SPM: 105, TOP DRV RPM: 90. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 4900 PSI; TOP DRV TRQ: 6-9K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 200-400, PU: 206; SO: 156; ROT: 179; HAVING DIFFICULTY DROPPING ANGLE

Vis (s/qt): 64, Dens (lb/gal): 13.00, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
13,214.0	11,914.22	90.05	342.34	1,596.70	2.72	1,520.02	-490.51
13,308.0	11,912.05	92.60	343.92	1,690.64	3.19	1,609.92	-517.78
13,404.0	11,910.53	89.22	343.64	1,786.59	3.53	1,702.05	-544.59
13,499.0	11,910.03	91.38	346.89	1,881.49	4.11	1,793.87	-568.75
13,594.0	11,910.86	87.62	347.03	1,976.27	3.96	1,886.37	-590.18
13,688.0	11,912.94	89.84	346.13	2,070.10	2.55	1,977.76	-611.99
13,783.0	11,914.90	87.80	343.61	2,165.02	3.41	2,069.41	-636.78
13,878.0	11,916.61	90.14	343.75	2,259.99	2.47	2,160.55	-663.47

13,973.0	11,917.55	88.73	342.48	2,354.97	2.00	2,251.44	-691.06
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### 06/25/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 6.0

06:00 ROTATE DRILL F/ 14,035' - T/ 14,041' (6' @ 6 FPH); WOB: 10-15K, SPM: 105, TOP DRV RPM: 90. GPM: 275; MUD MTR RPM: 96; OFF BOTTOM SPP: 4900 PSI; TOP DRV TRQ: 8K FT/LBS ON BTM, OFF BOTTOM TORQ: 4K; DIFF PSI: 200, PU: 206; SO: 156; ROT: 179; (TRIP REASON TOOL FACE CONTROL ISSUES TO OVERCOME FORMATION)

07:00 CIRCULATE & CONDITION HOLE USING K&M PRACTICES. RACK BACK 1 STAND PER BOTTOMS UP;

09:30 TOO H F/14,041' T/13,530'; PULLED 3 STANDS ON ELEVATORS;

10:30 WORK STUCK PIPE FREE;

14:30 PERFORM CLEAN UP CYCLE RECIPROCATING PIPE F/13,525' T/13,615'; 263 GPM; 80 RPM; 100 SPM; 4500 PSI;

15:30 BACK REAM OUT OF HOLE F/13,525' T/12,955';

16:30 PUMP OUT OF HOLE F/12,955' T/11,720'

19:00 TOH F/11,720' T/11,055' HOLE TAKING PROPER FILL; FLOW CHECK - NO FLOW; PUMP SLUG

20:00 TOH F/11,055' T/8,450' - HOLE TAKING PROPER FILL; PULL ROT HEAD; INSTALL TRIP NIPPLE; TOH F/8,450' T/BHA - HOLE TAKING PROPER FILL

01:00 LAY DOWN DRILL-N-REAM TOOL, BREAK & GRADE BIT (1, 1, IN) PICTURES IN DROPBOX, LAY DOWN RSS, HEL TOOL, TOMAX TOOL & MOTOR, CLEAN OBM FROM RIG FLOOR; MAKE UP NEW MOTOR, TOMAX TOOL, HEL, & RSS; RERUN BIT; SURFACE TEST TOOLS - GOOD; RERUN DRILL-N-REAM;

05:00 TIH WITH 6" RSS LATERAL BHA T/2,233' FILLING EVERY 30 STANDS; HOLE GIVING PROPER DISPLACEMENT

Vis (s/qt): 68, Dens (lb/gal): 13.10, pH: 0.0

### 06/26/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 TIH WITH 6" RSS LATERAL BHA F/2,233' T/11,527'; FILLING EVERY 30 STANDS; HOLE GIVING PROPER DISPLACEMENT

11:00 REMOVE TRIP NIPPLE & INSTALL ROTATING HEAD

11:30 SLIP & CUT DRILLING LINE (8 WRAPS)

13:00 SERVICE RIG

13:30 TIH WITH 6" RSS LATERAL BHA F/11,527' T/11,804'; FILLING EVERY 30 STANDS; HOLE GIVING PROPER DISPLACEMENT

14:00 CIRCULATE BOTTOMS UP (NO GAS OR FLARE)

14:30 TIH WITH 6" RSS LATERAL BHA F/11,804' T/12,365'; FILLING EVERY 30 STANDS; HOLE GIVING PROPER DISPLACEMENT

15:00 REAM F/12,365' T/12,849; GPM 275; RPM 90;

16:30 TIH WITH 6" RSS LATERAL BHA F/12,849' T/13,600'; FILLING EVERY 30 STANDS; HOLE GIVING PROPER DISPLACEMENT

17:30 REAM F/13,600' T/13,686'; GPM 275; RPM 60-90; SPP OFF BOTTOM: 5000 PSI; TQ OFF BOTTOM: 3.5K; TQ ON BOTTOM 3.5-13K; SENT DOWN LINKS TO ORIENT TOOL, ATTEMPT TO SLACK OFF, STOPPED GOING DOWN @ 13,645', P/U TO 13,606', REAM TO 13,686' WITH MULTIPLE DOWNLINKS TO CHANGE TOOLFACE OR DEFLECTION; ROTARY STALLED @ 13,615' & 13,686; PUMPED 3 TWENTY BBL SWEEPS WITH 5 PPB BEADS & 15 PPB GRAPHITE DURING PROCESS; OFF BOTTOM PUMP PRESSURE GRADUALLY DECLINED FROM 5,000 PSI TO 4650 PSI; CUTTINGS ON SHAKER ARE FINE WITH <5% SCREEN COVERAGE; CONTACT MANAGEMENT - DECISION TO TOH W/ BHA

01:30 BACKREAM F/13,686' T/12,955' RPM: 65, GPM: 210; SPP: 3,100 (TIGHT SPOT @ 13,365')

03:30 TOH F/12,955' T/12,095'; HOLE TAKING PROPER FILL

04:30 SHUT DOWN DUE TO HIGH WIND & LIGHTNING; WELL STATIC

05:30 FLOW CHECK - NO FLOW; PUMP SLUG

Vis (s/qt): 68, Dens (lb/gal): 13.00, pH: 0.0

### 06/27/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 TOO H F/12,095' T/10,884'; HOLE TAKING PROPER FILL

07:00 PULL ROTATING HEAD & INSTALL TRIP NIPPLE

07:30 TOO H F/10,884' T/4,998'; HOLE TAKING PROPER FILL

09:30 SERVICE RIG

10:00 WAITING ON EQUIPMENT & ORDERS

11:00 TOO H F/4,998' T/SURFACE'; HOLE TAKING PROPER FILL

12:30 LAY DOWN RSS ASSEMBLY; BREAK & GRADE BIT 1 INNER 1 OUTER IN GAUGE;

14:30 CLEAN OBM OFF FLOOR; LAYING OUT & STRAPPING CONVENTIONAL TOOL BHA;

16:30 P/U CONVENTIONAL TOOLS AS FOLLOWS; 6" ULTERRA U613M W/6 X 12'S = 0.663 TFA, 4" GAUGE; WEATHERFORD 5" MOTOR 6/7 LOBE, 9.6 STAGE, 0.81

REV, 1.83 BEND; UBHO; HPTC; 2 X FLEX NMDC; X/O; ACCELGLIDE; X/O; 15 X 4" DP, X/O; ACCELGLIDE; X/O; 33 X DP; X/O; ACCELGLIDE; X/O; SHALLOW TEST TOOLS - GOOD

21:30 TRIP IN HOLE T/ 11,170' FILLING DP EVERY 30 STANDS; HOLE GIVING PROPER DISPLACEMENT

02:30 PULL TRIP NIPPLE; INSTALL ROT HEAD; WELL STATIC

03:00 TIH F/ 11,170' T/11,793'; HOLE GIVING PROPER DISPLACEMENT

03:30 FILL PIPE; BEGIN CIRCULATE B/U @ 100 SPM; SWIVEL PACKING BEGAN LEAKING

04:00 CHANGE SWIVEL PACKING; MONITOR WELL ON TRIP TANK - STATIC

05:00 CIRCULATE BOTTOMS UP, GPM: 266, SPP: 4,300 PSI; TRIP GAS: 870 UNITS WITH NO FLARE

Vis (s/qt): 71, Dens (lb/gal): 13.10, pH: 0.0

### 06/28/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 TIH F/ 11,793' T/12,586'; HOLE GIVING PROPER DISPLACEMENT

07:30 CHANGE OUT SWIVEL PACKING (LEAKING AT TOP CONNECTION)

09:00 TIH F/ 12,586' T/13,665'; HOLE GIVING PROPER DISPLACEMENT

10:00 WASH & REAM F/13,665' T/13,770'; (TIGHT)

13:00 BACK REAM OUT F/13,770' T/12,966'

16:00 BUILDING DIRECTIONAL TROUGH F/12,995' T/13,025'

18:30 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,025' T/13,028'; TF: 170; WOB 15-20K; GPM:250; OFF BOTTOM SPP: 4175 PSI; DIFF: 10-30 PSI; PU: 215; SO: 170

22:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,028' T/13,030'; TF: 170; WOB 15-20K; GPM:250; OFF BOTTOM SPP: 4175 PSI; DIFF: 10-30 PSI; PU: 215; SO: 170

23:30 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,030' T/13,034'; TF: 170; WOB 15-20K; GPM:250; OFF BOTTOM SPP: 4175 PSI; DIFF: 10-30 PSI; PU: 215; SO: 170

03:00 SLIDE DRLG - TIME DRILL 3 MINUTES PER INCH F/13,034' T/13,037'; TF: 170; WOB 20-22K; GPM:250; OFF BOTTOM SPP: 4175 PSI; DIFF: 10-30 PSI; PU: 215; SO: 170

04:30 SLIDE DRLG - TIME DRILL 2 MINUTES PER INCH F/13,037' T/13,039'; TF: 170; WOB 22-25K; GPM:250; OFF BOTTOM SPP: 4175 PSI; DIFF: 10-30 PSI; PU: 215; SO: 170

05:30 SLIDE DRLG - TIME DRILL 1 MINUTES PER INCH F/13,039' T/13,041'; TF: 170; WOB 22-25K; GPM:250; OFF BOTTOM SPP: 4175 PSI; DIFF: 10-30 PSI; PU: 215; SO: 170

Vis (s/qt): 65, Dens (lb/gal): 13.00, pH: 0.0

### 06/29/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 SLD DRLG F/13,041' T/13,081'; TF: 180; WOB 20K; GPM: 250; OFF BOTTOM SPP: 4075; DIFF 25 PSI; PU: 240, SO: 170

09:30 SERVICE RIG

10:00 TOH WET T/KOP @ 11,170'; HOLE TAKING PROPER FILL

12:00 PULL ROT HEAD; INSTALL TRIP NIPPLE; FLOW CHECK WELL - STATIC; PUMP SLUG

13:00 TOH F/11,170' T/SURFACE'; HOLE TAKING PROPER FILL

18:30 DRAIN MOTOR AND BREAK BIT; MOTOR DRAINED GOOD; NO VISIBLE DAMAGE TO BIT OR BHA; BIT GRADE 1-1 FULL GAUGE; PU 4 3/4", 7:8, 2.6, 0.26 RPG, 2.6 DEG BENT MOTOR, 6.15' BIT TO BEND; PU NEW HALLIBURTON QH30R, TRI CONE BIT, JETTED W/ 3x 16'S (TFA= 0.589);

20:00 TIH W/ NEW SIDE TRACK ASSEMBLY F/ SURFACE T/12,965'; FILLING PIPE EVERY 30 STANDS; NO UNUSUAL DRAG SEEN; WELL IS GIVING PROPER DISPLACEMENT.

04:30 CIRCULATE BOTTOMS UP. MAX GAS 356 UNITS

Vis (s/qt): 68, Dens (lb/gal): 13.05, pH: 0.0

### 06/30/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 MWD TOOL WILL NOT PULSE; TROUBLESHOOT SURFACE EQUIPMENT; CHANGE OUT PRESSURE TRANSDUCERS ON STANDPIPE; PUMP HIGH VIS SWEEP THROUGH TOOLS; UNABLE TO GET PULSE FROM MWD TOOLS; DECISION MADE TO TOH & CHANGE OUT MWD TOOLS

08:30 FLOW CHECK WELL - STATIC; TOH WET F/12,960' T/11,763'; HOLE TAKING PROPER FILL

09:30 CYCLE PUMPS - MWD TOOL WILL NOT PULSE; FLOW CHECK - STATIC; PUMP SLUG; PULL ROT HEAD; INSTALL TRIP NIPPLE

10:30 TOH F/11763' T/BHA; DRAIN MOTOR AND BREAK BIT; NO VISIBLE DAMAGE; PULL MWD TOOLS AND INSPECT; FOUND A SMALL HAND FULL OF LONG FIBERS IN MWD TOOL AND TOOL CARRIER; HOLE TAKING PROPER FILL

17:30 SERVICE RIG AND TDS.  
18:00 CHANGE OUT SLIP DIES ON DP SLIPS; FLUSH OUT TOOL CARRIER TO CLEAN ANY TRASH OR DEBRIS; CLEAN RIG FLOOR AND INSPECT MUD PITS, PRE MIX TANK, AND RIG FLOOR TRYING TO FIGURE OUT WHERE THE FIBERS CAME FROM AND HOW THEY GOT IN THE STRING;  
19:00 TIH W/ SIDE TRACK ASSEMBLY F/ SURFACE T/12,869'; STOPPED @ 6,000' AND SHALLOW TESTED TOOLS AGAIN; GOOD TEST; FILLING PIPE EVERY 30 STANDS; NO UNUSUAL DRAG SEEN; WELL IS GIVING PROPER DISPLACEMENT.  
04:30 PULL TRIP NIPPLE, INSTALL ROTATING HEAD; FILL PIPE, BREAK CIRCULATION.  
05:30 ORIENTING TOOLFACE TO 170 DEG.  
Vis (s/qt): 72, Dens (lb/gal): 13.20, pH: 0.0

### 07/01/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 BUILDING DIRECTIONAL TROUGH F/12,965' T/13,025'; TF: 170; WOB: 10K; GPM: 243; OFF BOTTOM SPP: 4100 PSI; DIFF: 50; PU: 205; SO: 154  
10:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,025' T/13,028'; TF: 170; WOB 5-10K; GPM:243; MMRPM: 63; OFF BOTTOM SPP: 4100 PSI; DIFF: 0-30 PSI; PU: 205; SO: 154  
13:00 PULSER STOPPED PULSING ON MWD TOOL; RECYCLE PUMPS; GOT BACK PULSE TEMPORARILY; RECYCLE PUMPS & INCREASE FLOW RATE TO 325 GPM TO RECOVER PULSE  
13:30 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,028' T/13,032'; TF: 170; WOB 5-10K; GPM:325; MMRPM: 84.5; OFF BOTTOM SPP: 6200 PSI; DIFF: 0-30 PSI; PU: 205; SO: 154  
18:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,032' T/13,035'; TF: 170; WOB 5-10K; GPM:325; MMRPM: 67; OFF BOTTOM SPP: 4,000 PSI; DIFF: 50 PSI; PU: 205; SO: 154  
22:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,035' T/13,039'; TF: 170; WOB 5-10K; GPM:325; MMRPM: 67; OFF BOTTOM SPP: 4,000 PSI; DIFF: 50/80 PSI; PU: 205; SO: 154  
02:00 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,039' T/13,044'; TF: 170; WOB 5-10K; GPM:325; MMRPM: 67; OFF BOTTOM SPP: 4,100 PSI; DIFF: 85/121 PSI; PU: 205; SO: 154  
Vis (s/qt): 58, Dens (lb/gal): 13.00, pH: 0.0

### 07/02/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,044' T/13,046'; MWD TOOL QUIT PULSING @ 06:00 @ TF: 170; CONTINUE TIME DRILLING WITH STEADY WOB & DIFF; WOB 13K; GPM:250; MMRPM: 65; OFF BOTTOM SPP: 4,000 PSI; DIFF: 10/35 PSI; PU: 205; SO: 154;  
08:30 WOB AND DIFFERENTIAL BEGAN TO DECREASE. DECISION MADE TO QUIT TIME DRILLING UNTIL MWD CAN GIVE US TOOLFACE. CHANGE OUT TWO SEATS IN MP1; TWO PUMPS NEEDED FOR MORE FLOW RATE TO WAKE UP MWD TOOL. PUMP REPAIR REQUIRED WELDER TO REMOVE STUCK SEAT. CYCLE PUMP#2 AT VARYING FLOW RATES ATTEMPTING TO TURN ON MWD TOOL. NO SUCCESS.  
11:30 RECYCLE PUMPS @ 305, 325, & 345 GPM. MWD BEGAN PULSING; REDUCE PUMPS TO 325 GPM WITH MWD CONTINUING TO FUNCTION  
12:00 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,046' T/13,049'; TF: 170; WOB 15K; GPM:325; MMRPM: 84.5; OFF BOTTOM SPP: 6,000 PSI; DIFF: 10/30 PSI; PU: 205; SO: 154  
14:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,049' T/13,052'; TF: 170; WOB 15K; GPM:325; MMRPM: 84.5; OFF BOTTOM SPP: 5,950 PSI; DIFF: 10/30 PSI; PU: 205; SO: 152  
18:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,052' T/13,056'; TF: 170; WOB 10/13K; GPM:325; MMRPM: 84.5; OFF BOTTOM SPP: 5,950 PSI; DIFF: 10/30 PSI; PU: 205; SO: 152  
22:30 TOOLFACE FLOPPED FROM 170 DEG. TO 196 DEG, THEN 226 DEG. WORKED STRING 3' UP AND DOWN WORKING TOOLFACE BACK TO 170'  
00:30 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,056' T/13,058'; TF: 170; WOB 15K; GPM:325; MMRPM: 84.5; OFF BOTTOM SPP: 5,950 PSI; DIFF: 10/30 PSI; PU: 205; SO: 152  
03:00 SLIDE DRLG - TIME DRILL 3 MINUTES PER INCH F/13,058' T/13,060'; TF: 170; WOB 5K/10K; GPM:325; MMRPM: 84.5; OFF BOTTOM SPP: 5,950 PSI; DIFF: 10/30 PSI; PU: 205; SO: 152  
04:30 SLIDE DRLG - TIME DRILL 2 MINUTES PER INCH F/13,060' T/13,062'; TF: 170; WOB 10K/20K; GPM:280; MMRPM: 73; OFF BOTTOM SPP: 4,675 PSI; DIFF: 85/135 PSI; PU: 205; SO: 152  
Vis (s/qt): 56, Dens (lb/gal): 13.05, pH: 0.0

### 07/03/2017

Rig Name: H&P 602

Depth = 14,041.0 Proaress = 0.0

06:00 SLIDE DRLG - TIME DRILL 2 MINUTES PER INCH F/13,062' T/13,067'; TF: 184 - 216; WOB 10K; GPM:275; MMRPM: 71.5; OFF BOTTOM SPP: 4,650 PSI; DIFF: 80/120 PSI; PU: 205; SO: 159

07:30 TOOL FACE INCREASED F/184 T/216; PU SEVERAL TIMES TO RESET TOOL FACE; FOUND LEDGE @ 13,061' THAT TAKES 17K WEIGHT; DECISION MADE TO TIME DRILL ON LEDGE @ 13,061'

08:30 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,060' T/13,061'; LOST LEDGE @ 13061.3' AND HAD TO REPEAT; TF: 156; WOB 13-17K; GPM:275; MMRPM: 71.5; OFF BOTTOM SPP: 4,650 PSI; DIFF: 50 PSI; PU: 205; SO: 159

12:30 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,061' T/13,065'; TF: 156; WOB 12-15K; GPM:275/320; MMRPM: 71.5/83.2; OFF BOTTOM SPP: 4,650/5900 PSI; DIFF: 50 PSI; PU: 205; SO: 159

16:00 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,065' T/13,069'; TF: 180; WOB 12-15K; GPM:320; MMRPM: 83.2; OFF BOTTOM SPP: 5500 PSI; DIFF: 50 PSI; PU: 205; SO: 159

20:00 SLIDE DRLG - TIME DRILL 3 MINUTES PER INCH F/13,069' T/13,072'; TF: 180; WOB 12-15K; GPM:320; MMRPM: 83.2; OFF BOTTOM SPP: 5500 PSI; DIFF: 50 PSI; PU: 205; SO: 159

22:30 SLIDE DRLG - TIME DRILL 2 MINUTES PER INCH F/13,072' T/13,074'; TF: 180; WOB 12-15K; GPM:320; MMRPM: 83.2; OFF BOTTOM SPP: 5500 PSI; DIFF: 50 PSI; PU: 205; SO: 159; LOST PULSE FROM MWD; RECYLED PUMPS FOR 20 MIN TO REGAIN PULSE.

00:30 SLIDE DRLG - TIME DRILL 1 MINUTES PER INCH F/13,074' T/13,076'; TF: 180; WOB 12-15K; GPM:320; MMRPM: 83.2; OFF BOTTOM SPP: 5500 PSI; DIFF: 50 PSI; PU: 205; SO: 159

01:30 SLD SRLG F/ 13,076' - T/13,090'; 14' @ 9 FPH; WOB 15K/25K; SPP 6,000; DIFF 0/10 PSI; 325 GPM; MMRPM 85; UNABLE TO GET BIT WT OR DIFF; SLACKED OFF F/ 13,090' - T/13,105' WITH 18K/22K DRAG. STILL IN ORIGINAL HOLE.

03:00 PJSM; FLOW CHECK WELL; WELL IS STATIC;

03:30 TOH F/13,105' - T/9,234' ; WELL IS TAKING PROPER FILL; NO UNUSUAL DRAG SEEN.

Vis (s/qt): 55, Dens (lb/gal): 13.00, pH: 0.0

#### 07/04/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 TOH F/9,234' - T/8,431' ; WELL IS TAKING PROPER FILL; NO UNUSUAL DRAG SEEN.

06:30 PUMP SLUG; PULL ROT HEAD; INSTALL TRIP NIPPLE

07:00 TOH F/8,432' - T/BHA; WELL IS TAKING PROPER FILL; NO UNUSUAL DRAG SEEN.

10:30 STAND BACK 2 X FLEX NMDC; BREAK & GRADE BIT (1, 1, IN GAUGE, EFFECTIVE BEARINGS)(PICTURES ARE IN DROPBOX); CHANGE OUT MWD TOOLS; SHALLOW TEST TOOLS WITH NO BIT - GOOD; MAKE UP 6" SMITH XR+ TRICONE MILL TOOTH BIT WITH 3 X 16'S; MAKE UP FLEX COLLARS ABOVE MWD TOOLS

13:30 TIH F/BHA' - T/8,662' FILLING DP EVERY 30 STANDS; WELL IS GIVING PROPER DISPLACEMENT

17:30 SERVICE RIG

18:00 TIH F/8,662' T/11,696' FILLING DP EVERY 30 STANDS; WELL IS GIVING PROPER DISPLACEMENT;

19:30 REMOVE TRIP NIPPLE; INSTALL ROTATING HEAD; TEST MWD, TEST GOOD.

20:00 TIH F/11,696' T/13,117' FILLING DP EVERY 30 STANDS; WELL IS GIVING PROPER DISPLACEMENT; TAGGED UP @ 13,117' WITH 45K.

21:30 WASH F/13,117' - T/13,215'; WORKING STRING AND ROCKING; 25K/40K DRAG.

00:00 ORIENT TF TO 170; TROUGHING F/13,195' - T/13,225'; 275 GPM; 0 PSI DIFF; 72 MMRPM; 4400 PSI SPP;

03:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,225' T/13,228'; TF: 170; WOB 5K/8K; GPM:275; MMRPM: 72; SPP: 4,400 PSI; DIFF: 0/20 PSI; PU: 210; SO: 153

Vis (s/qt): 60, Dens (lb/gal): 13.10, pH: 0.0

#### 07/05/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,228' T/13,231'; TF: 170; WOB 0K/8K; GPM:272; MMRPM: 70.7; SPP: 4,300 PSI; DIFF: 0 PSI; PU: 212; SO: 153

10:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,231' T/13,235'; TF: 170; WOB 2K/4K; GPM:272; MMRPM: 70.7; SPP: 4,300 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153

14:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,235' T/13,239'; TF: 170; WOB 2K/4K; GPM:272; MMRPM: 70.7; SPP: 4,300 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153

18:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,239' T/13,242'; TF: 170; WOB 2K/12K; GPM:278; MMRPM: 73; SPP: 4,300 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
22:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,242' T/13,245'; TF: 170; WOB 12K/20K; GPM:278; MMRPM: 73; SPP: 4,300 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
02:00 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,245' T/13,249'; TF: 170; WOB 20K/28K; GPM:278; MMRPM: 73; SPP: 4,300 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
Vis (s/qt): 57, Dens (lb/gal): 13.05, pH: 0.0

### 07/06/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,249' T/13,251'; TF: 170; WOB 10K/14K; GPM:278; MMRPM: 73; SPP: 4,300 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
08:30 SLIDE DRLG - TIME DRILL 3 MINUTES PER INCH F/13,251' T/13,255'; TF: 170; WOB 0K/10K; GPM:278; MMRPM: 73; SPP: 4,300 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
11:00 SLD SRLG F/ 13,255' - T/13,266'; 11' @ 5 FPH; WOB 5K/16K; SPP 4,300; DIFF 0/10 PSI; 275 GPM; MMRPM 72; SLACK OFF TO 13,280'; STILL IN ORIGINAL HOLE;  
14:30 TOH F/ 13,280' - T/13,086';  
15:00 ORIENT TOOLFACE TO 170 DEG. TROUGH F/13,086' - T/13,117'  
17:30 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,117' T/13,121'; TF: 170; WOB 0/8K; GPM:278; MMRPM: 73; SPP: 4,225 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
22:00 SLIDE DRLG - TIME DRILL 5 MINUTES PER INCH F/13,121' T/13,122'; TF: 170; WOB 6/9K; GPM:278; MMRPM: 73; SPP: 4,225 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
23:00 SLIDE DRLG - TIME DRILL 4 MINUTES PER INCH F/13,122' T/13,126'; TF: 170; WOB 9/19K; GPM:278; MMRPM: 73; SPP: 4,225 PSI; DIFF: 0/25 PSI; PU: 212; SO: 153  
02:00 SLIDE DRLG - TIME DRILL 3 MINUTES PER INCH F/13,126' T/13,129'; TF: 170; WOB 11/15K; GPM:278; MMRPM: 73; SPP: 4,225 PSI; DIFF: 0/20 PSI; PU: 212; SO: 153  
04:30 SLIDE DRLG - TIME DRILL 2 MINUTES PER INCH F/13,129' T/13,131'; TF: 170; WOB 6/11K; GPM:278; MMRPM: 73; SPP: 4,225 PSI; DIFF: 0/15 PSI; PU: 212; SO: 153  
05:30 SLIDE DRLG - TIME DRILL 1 MINUTES PER INCH F/13,131' T/13,132'; TF: 170; WOB 6/10K; GPM:278; MMRPM: 73; SPP: 4,225 PSI; DIFF: 0/20 PSI; PU: 212; SO: 153

Vis (s/qt): 56, Dens (lb/gal): 13.10, pH: 0.0

### 07/07/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 SLIDE DRLG - TIME DRILL 1 MINUTES PER INCH F/13,132' T/13,133'; TF: 170; WOB 6/10K; GPM:278; MMRPM: 73; SPP: 4,225 PSI; DIFF: 0/20 PSI; PU: 212; SO: 153; SLD F/ 13,133' - T/13,176'; STILL IN ORIGINAL HOLE.  
06:30 FLOW CHECK WELL; WELL IS STATIC; PUMP 40 BBLS OF 15.5 PPG SLUG TO DRY PIPE;  
07:00 TOH F/ 13,176' T/ BHA; WELL IS TAKING PROPER FILL; NO UNUSUAL DRAG.  
11:00 BREAK AND LD BHA; DRAIN MOTOR AND DULL GRADE BIT; 1-1 FULL GAUGE; SEALS EFFECTIVE; BEARINGS SLIGHT WEAR.  
12:30 PJSM; CLEAN AND CLEAR RIG FLOOR; PREPARE TO PICK UP NEW BHA.  
13:00 SERVICE RIG  
13:30 PICK UP AND MAKE UP REAMING BHA AS FOLLOWS; ULTERRA U613, PDC BIT, SN 34838; BIT SUB; GUN DRILL 6" REAMER; 5', 4 3/4" PONY COLLAR; X/O; DRILL-N-REAM; 30' DC; DRILL-N-REAM; X/O; 26 STANDS OF 4" DP; X/O; DRILLING JARS; X/O; DP TO SURFACE.  
18:00 TIH F/ 2,500' TO 11,679'  
00:00 REMOVE TRIP NIPPLE AND INSTALL ROTATING HEAD  
00:30 SLIP AND CUT 9 WRAPS OF DRILL LINE, CALIBRATE DRAWWORKS & CHECK COM  
02:30 TIH F/ 11,679' TO 13,008'  
04:00 FILL DP & CIRCULATE  
04:30 WASH & REAM F/ 13,020' TO 13,039'; 131 SPM; 349 GPM; 5350 SPP; 0/2K WEIGHT; 45 RPM; PU 210; SO 150; RW 174;

Vis (s/qt): 60, Dens (lb/gal): 13.10, pH: 0.0

### 07/08/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 WASH & REAM F/ 13,039' TO 13,322'; 131 SPM; 349 GPM; 5200 SPP; 0/15K WEIGHT; 45/100 RPM; PU 240; SO 155; RW 178;

10:00 WASH & REAM F/ 13,322' TO 13,380'; 131 SPM; 349 GPM; 5200 SPP; 0/15K WEIGHT; 45/100 RPM; PU 240; SO 155; RW 178; PACKING OFF AND STICKY @ 13,374'; WEIGHTING UP MW F/ 13.1 PPG - 13.4 PPG; HOLE CLEANED UP AFTER MW= 13.4 PPG.  
18:00 WASH & REAM F/ 13,380' TO 13,482'; 131 SPM; 349 GPM; 5100 SPP; 0/7K WEIGHT; 45/100 RPM; PU 210; SO 150; RW 174;  
22:00 WASH & REAM F/ 13,482' TO 13,524'; 131 SPM; 349 GPM; 5100 SPP; 0/7K WEIGHT; 45/100 RPM; PU 210; SO 150; RW 174;  
02:00 WASH & REAM F/ 13,482' TO 13,524'; 131 SPM; 349 GPM; 5100 SPP; 0/7K WEIGHT; 45/100 RPM; PU 210; SO 150; RW 174;  
Vis (s/qt): 58, Dens (lb/gal): 13.40, pH: 0.0

### 07/09/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 WASH & REAM F/ 13,524' TO 13,573'; 131 SPM; 349 GPM; 5100 SPP; 0/7K WEIGHT; 45/100 RPM; PU 222; SO 150; RW 178; MW= 14.0 IN AND OUT; 20%/30% SCREEN COVERAGE OF LARGE AND MEDIUM CUTTINGS ACROSS SHAKERS ON BOTTOMS UP; 40%/50% COVERAGE WITH 13.5 PPG AND 13.8 PPG.  
10:00 WASH & REAM F/ 13,573' TO 13,628'; 131 SPM; 349 GPM; 5100 SPP; 0/7K WEIGHT; 45/100 RPM; PU 222; SO 150; RW 178; MW= 14.2 IN AND OUT; 20%/30% SCREEN COVERAGE OF LARGE AND MEDIUM CUTTINGS ACROSS SHAKERS ON BOTTOMS UP.  
14:00 WASH & REAM F/ 13,628' TO 13,734'; 131 SPM; 349 GPM; 5100 SPP; 0/7K WEIGHT; 45/100 RPM; PU 222; SO 150; RW 178; MW= 14.2 IN AND OUT; 20%/30% SCREEN COVERAGE OF LARGE AND MEDIUM CUTTINGS ACROSS SHAKERS ON BOTTOMS UP.  
18:00 CIRCULATE BOTTOMS UP @ 250 GPM; CONDITION HOLE TO PULL UP TO 13,000'; BOTTOMS UP SHALE SHAKERS COVERED FOR 5 MINUTES; 50% SMALL CUTTINGS & 50% FINGER NAIL SIZE CUTTINGS  
19:30 POOH F/ 13,734' TO 12,976'; @ 100 FPM; NO PUMP & NO ROTATION; PULLED SLICK; TIH F/ 12,976' TO 13,640';  
22:00 WASH & REAM F/ 13,672' TO 13,764'; 80 SPM; 214 GPM; 2900 SPP; 0/6K WEIGHT; 100 RPM; PU 210; SO 150; RW 182;  
02:00 WASH & REAM F/ 13,764' TO 13,805'; 80 SPM; 214 GPM; 2900 SPP; 0/6K WEIGHT; 100 RPM; PU 225; SO 150; RW 182;  
Vis (s/qt): 6, Dens (lb/gal): 14.20, pH: 0.0

### 07/10/2017

Rig Name: H&P 602

Depth = 14,041.0 Progress = 0.0

06:00 WASH & REAM F/ 13,805' TO 13,821'; 80 SPM; 214 GPM; 2900 SPP; 0/6K WEIGHT; 100 RPM; PU 225; SO 150; RW 182;  
10:00 WASH & REAM F/ 13,821' TO 14,027'; 80 SPM; 214 GPM; 2900 SPP; 0/6K WEIGHT; 100 RPM; PU 225; SO 150; RW 182;  
14:00 WASH & REAM F/ 14,027' TO 14,041'; TD; 80 SPM; 214 GPM; 2900 SPP; 0/6K WEIGHT; 100 RPM; PU 225; SO 150; RW 182;  
15:30 CIRCULATE BOTTOMS UP WHILE RECIPROCATING STRING 90'; 100 RPM'S; 300 GPM.  
16:30 TOH @ 100 FT/MIN FROM 14,041' - T/ 11,750'; 7" CSG SHOE; HOLE SLICK;  
18:00 TIH @ 100 FT/MIN FROM 11,750' - T/ 14,041'; HOLE SLICK;  
19:00 FILL PIPE; CBU @ 14,041'; 100 SPM; 266 GPM; 4100 SPP; 50 RPM; 2/5K TQ; B/U SMALL COFFEE GRIND CUTTINGS FOR 4 MINUTES; FLOW CHECK WELL;  
20:30 POOH @ 100 FPM F/ 14,041' TO 11,679';  
22:00 REMOVE ROTATING HEAD & INSTALL TRIP NIPPLE  
22:30 POOH F/ 11,679' TO BHA;  
04:00 PJSM; L/D REAMING BHA; GRADE BIT; 1-1- FULL GAUGE; GUN BARREL REAMER MISSING 2 BUTTONS AND 1 CRACKED BUTTON; CLEAN RIG FLOOR;  
05:30 PICKING UP WEATHERFORD 1.83 DEG, BENT MOTOR; AND UBHO SUB.  
Vis (s/qt): 61, Dens (lb/gal): 14.20, pH: 0.0

### 07/11/2017

Rig Name: H&P 602

Depth = 14,415.0 Progress = 374.0

06:00 FINISHED PICKING UP BHA AS FOLLOWS; WEATHERFORD 6/7, 9.6, 0.81 RPG, 1.83 BEND, MOTOR; DRILFORMANCE DF611, PDC BIT WITH 3x11 AND 3x12 NOZZLES (TFA= 0.609); UBHO; HPTC; 2 FLEC NMDC'S; X/O; ACCELGLIDE; X/O; 15 JTS DP; X/O; ACCELGLIDE; X/O; 33 JTS DP; X/O; ACCELGLIDE; X/O; SHALLOW TEST TOOLS AND MOTOR; TEST GOOD;  
08:00 SERVICE RIG AND TDS  
08:30 TIH WITH CONVENTIONAL BHA F/1,683' - T/13,740'; WELL IS GIVING PROPER DISPLACEMENT; NO UNUSUAL DRAG SEEN. TAGGED UP @ 13,740'.  
14:00 WASH AND REAM F/13,740' - T/13,765'; TIGHT SPOT WIPED OUT; SLIDE TO 14,041' WITH NO ISSUES; ORIENT TF TO 145 GRAVITY.  
15:30 SLIDE DRLG - F/14,041' T/14,075'; TF: 145; WOB 10K/15K; GPM:255; MMRPM: 219; SPP: 5.250 PSI; DIFF: 100/200 PSI; PU: 205; SO: 150;

19:00 ROT DRLG - F/14,075' T/14,210'; 135' @ 33.75 FPH; WOB: 12/18K; SPM 100/112; GPM: 266/298; MMRPM: 215/241; SPP: 5,100/6200 PSI; DIFF: 250/450 PSI; RPM 65; TQ: 4/6K; PU: 205; SO: 150; RW: 175

23:00 ROT DRLG - F/14,210' T/14,386'; 176' @ 44 FPH; WOB: 18/22K; SPM 101/103; GPM: 269/274; MMRPM: 217/221; SPP: 5,100/5350 PSI; DIFF: 250/750 PSI; RPM 65; TQ: 5/9K; PU: 205; SO: 150; RW: 178

03:00 SLIDE DRLG - F/14,386' T/ 14,415'; TF: 20; WOB 10K; GPM:265; MMRPM: 215; SPP: 5,600 PSI; DIFF: 200 PSI; PU: 205; SO: 150;

Vis (s/qt): 65, Dens (lb/gal): 14.20, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
14,040.0	11,918.82	89.09	342.81	2,421.95	0.73	2,315.38	-711.04
14,135.0	11,922.18	87.07	343.79	2,517.33	2.36	2,406.77	-738.32
14,230.0	11,927.45	86.57	343.79	2,612.18	0.53	2,497.85	-764.80
14,325.0	11,933.30	86.37	343.75	2,707.00	0.21	2,588.89	-791.30

## 07/12/2017

Rig Name: H&P 602

Depth = 15,179.0 Progress = 764.0

06:00 SLIDE DRLG - F/14,415' T/ 14,429'; 14' @ 7 FT/HR; TF: 40 R; WOB 10K; GPM:265; MMRPM: 215; SPP: 5,600 PSI; DIFF: 200 PSI; PU: 205; SO: 150;

08:00 ROT DRLG F/14,429' - T/14,603' (174' @ 38.6 FPH). WOB:10K/25K, TOP DRV RPM: 65; SPP 6200 PSI; GPM: 375; MUD MTR RPM: 304; TOP DRV TRQ: 5K/9K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 400/600; PU 218, SO 145, ROT 178; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT.

12:30 SLIDE DRLG - F/14,603' T/ 14,640'; 37' @ 18.5 FT/HR; TF: 30 R; WOB 10K/15K; GPM:265; MMRPM: 215; SPP: 5,600 PSI; DIFF: 200 PSI; PU: 218; SO: 145;

14:30 ROT DRLG F/14,640' - T/14,799' (159' @ 45.4 FPH). WOB; 10K/25K, TOP DRV RPM: 65; SPP 6200 PSI; GPM: 375; MUD MTR RPM: 304; TOP DRV TRQ: 5K/9K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 400/600; PU 218, SO 145, ROT 178; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT.

18:00 ROT DRLG F/14,799' - T/14,960' (161' @ 40.25 FPH). WOB; 9K/18K, TOP DRV RPM: 90; SPP 6000 PSI; GPM: 288; MUD MTR RPM: 233; TOP DRV TRQ: 5K/9K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 250/675; PU 220, SO 135, ROT 173; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT.

22:00 ROT DRLG F/14,960' - T/15,103' (143' @ 40.8 FPH). WOB; 9K/18K, TOP DRV RPM: 90; SPP 6000 PSI; GPM: 288; MUD MTR RPM: 233; TOP DRV TRQ: 6K/9K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 250/675; PU 220, SO 135, ROT 173; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT.

01:30 SLIDE DRLG - F/15,103' T/ 15,122'; 19' @ 7.6 FT/HR; TF: 0; WOB 8K/15K; GPM:288; MMRPM: 233; SPP: 6,100 PSI; DIFF: 250 PSI; PU: 220; SO: 135;

04:00 ROT DRLG F/15,122' - T/15,179' (57' @ 28.5 FPH). WOB; 9K/18K, TOP DRV RPM: 90; SPP 6150 PSI; GPM: 288; MUD MTR RPM: 233; TOP DRV TRQ: 6K/9K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 250/675; PU 220, SO 135, ROT 173; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT.

Vis (s/qt): 67, Dens (lb/gal): 14.20, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
14,420.0	11,937.81	88.19	342.41	2,801.87	2.38	2,679.66	-818.92
14,514.0	11,939.98	89.17	342.83	2,895.83	1.13	2,769.34	-846.99
14,609.0	11,942.41	87.90	343.71	2,990.79	1.63	2,860.28	-874.33
14,704.0	11,944.37	89.73	343.36	3,085.76	1.96	2,951.35	-901.25
14,799.0	11,944.35	90.29	343.97	3,180.75	0.87	3,042.51	-927.97
14,894.0	11,943.70	90.50	344.52	3,275.74	0.62	3,133.94	-953.76
14,989.0	11,943.69	89.51	344.23	3,370.73	1.09	3,225.43	-979.35
15,083.0	11,944.14	89.94	344.66	3,464.72	0.65	3,315.98	-1,004.56

## 07/13/2017

Rig Name: H&P 602

Depth = 15,911.0 Progress = 732.0

06:00 ROT DRLG F/15,179' - T/15,334'; (155' @ 38.75 FPH). WOB; 13K/18K, TOP DRV RPM: 90/110; SPP 6200 PSI; GPM: 288; MUD MTR RPM: 233; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 650; PU 206, SO 131, ROT 170; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT.

10:00 SLIDE DRLG - F/15,334' T/15,351'; 17' @ 8.5 FT/HR; TF: 140L; WOB 10/30K; GPM:288; MMRPM: 233; SPP: 6,200 PSI; DIFF: 150 PSI; PU: 206; SO: 131;

12:00 ROT DRLG F/15,351' - T/15,525'; (174' @ 43.5 FPH). WOB; 13K/18K, TOP DRV RPM: 90/110; SPP 6200 PSI; GPM: 288; MUD MTR RPM: 233; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 3K OFF BTM; DIFF PSI: 650; PU 206, SO 131, ROT

170; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION.  
MW 14.2 PPG IN AND OUT.

16:00 SERVICE RIG & TAKE SLOW PUMP RATES

16:30 ROT DRLG F/15,525' - T/15,565'; (40' @ 26.6 FPH). WOB; 14K, TOP DRV RPM: 90/110; SPP 6200 PSI; GPM: 288; MUD MTR RPM: 233; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 650; PU 210, SO 130, ROT 167; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

18:00 ROT DRLG F/15,565' - T/15,713'; (148' @ 37 FPH). WOB; 8/16K, TOP DRV RPM: 80; SPP 6200 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 550; PU 210, SO 130, ROT 167; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

22:00 ROT DRLG F/15,713' - T/15,847'; (134' @ 33.5 FPH). WOB; 8/16K, TOP DRV RPM: 85; SPP 6200 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 550; PU 210, SO 130, ROT 168; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

02:00 ROT DRLG F/15,847' - T/15,903'; (56' @ 37.3 FPH). WOB; 8/16K, TOP DRV RPM: 85; SPP 6200 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 550; PU 210, SO 130, ROT 168; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

03:30 SLIDE DRLG - F/15,903' T/15,911'; 8' @ 3.2 FT/HR; TF: 340L; WOB 30K; GPM:285; MMRPM: 231; SPP: 6,200 PSI; DIFF: 150 PSI; PU: 210; SO: 130;

Vis (s/qt): 60, Dens (lb/gal): 14.20, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
15,178.0	11,943.25	91.13	345.25	3,559.67	1.40	3,407.71	-1,029.22
15,273.0	11,940.75	91.89	345.22	3,654.60	0.80	3,499.54	-1,053.42
15,367.0	11,939.72	89.37	345.32	3,748.53	2.68	3,590.42	-1,077.32
15,462.0	11,941.39	88.62	344.55	3,843.48	1.13	3,682.14	-1,102.01
15,556.0	11,944.53	87.55	345.16	3,937.40	1.31	3,772.82	-1,126.55
15,651.0	11,947.25	89.17	345.53	4,032.31	1.75	3,864.68	-1,150.57
15,745.0	11,948.38	89.45	345.49	4,126.24	0.30	3,955.68	-1,174.09
15,841.0	11,950.83	87.63	344.57	4,222.16	2.12	4,048.38	-1,198.88

## 07/14/2017

Rig Name: H&P 602

Depth = 16,515.0 Progress = 604.0

06:00 ROT DRLG F/15,911' - T/15,939'; (28' @ 56 FPH). WOB; 8/16K, TOP DRV RPM: 70; SPP 6200 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 550; PU 210, SO 130, ROT 170; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

06:30 SLIDE DRLG - F/15,939' T/15,947'; 8' @ 8 FT/HR; TF: HIGH SIDE; WOB 30/45K; GPM:285; MMRPM: 231; SPP: 6,200 PSI; DIFF: 100 PSI; PU: 210; SO: 130;

07:30 ROT DRLG F/15,947' - T/16,063'; (116' @ 46.4 FPH). WOB; 10/20K, TOP DRV RPM: 90; SPP 6250 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 600; PU 213, SO 120, ROT 168; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

10:00 SLIDE DRLG - F/16,063' T/16,078'; 15' @ 3.75 FT/HR; TF: HIGH SIDE; WOB 30/50K; GPM:288/240; MMRPM: 233/194; SPP: 6,200 PSI; DIFF: 100 PSI; PU: 213; SO: 120;

14:00 ROT DRLG F/16,078' - T/16,186'; (108' @ 43.2 FPH). WOB; 15/18K, TOP DRV RPM: 70; SPP 6350 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 600; PU 213, SO 120, ROT 168; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

16:30 RIG SERVICE

17:00 ROT DRLG F/16,186' - T/16,230'; (44' @ 44 FPH). WOB; 15/18K, TOP DRV RPM: 70; SPP 6350 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 600; PU 213, SO 120, ROT 168; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

18:00 ROT DRLG F/16,230' - T/16,377'; (147' @ 36.75 FPH). WOB; 15/18K, TOP DRV RPM: 70; SPP 6400 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 600; PU 213, SO 120, ROT 168; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW 14.2 PPG IN AND OUT

22:00 ROT DRLG F/16,377' - T/16,515'; (138' @ 30.66 FPH). WOB; 15/18K, TOP DRV RPM: 70; SPP 6400 PSI; GPM: 285; MUD MTR RPM: 230; TOP DRV TRQ: 5K/8K FT/LBS ON BTM, 4K OFF BTM; DIFF PSI: 600; PU 213, SO 120, ROT 168; PUMPING 15 BBL, GRAPHITE AND BEAD SWEEPS EVERY CONNECTION. MW

## 14.2 PPG IN AND OUT

02:30 CIRCULATE & CONDITION HOLE USING K&M PRACTICES; RACK BACK 1 STAND  
PER BOTTOMS UP; GPM 285; RPM 90;

Vis (s/qt): 65, Dens (lb/gal): 14.20, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
15,935.0	11,955.46	86.71	344.80	4,316.13	1.01	4,139.04	-1,223.67
16,030.0	11,960.84	86.80	344.27	4,410.97	0.56	4,230.45	-1,248.96
16,124.0	11,964.95	88.19	345.00	4,504.85	1.67	4,321.00	-1,273.84
16,219.0	11,967.14	89.17	345.64	4,599.78	1.23	4,412.87	-1,297.91
16,314.0	11,969.03	88.55	344.92	4,694.72	1.00	4,504.73	-1,322.04
16,409.0	11,971.91	87.98	345.01	4,789.64	0.61	4,596.43	-1,346.67
16,451.0	11,973.57	87.49	345.45	4,831.58	1.57	4,637.01	-1,357.37
16,515.0	11,976.37	87.49	345.45	4,895.49	0.00	4,698.90	-1,373.43

**07/15/2017**

Rig Name: H&P 602

Depth = 16,515.0 Progress = 0.0

06:00 CIRCULATE & CONDITION HOLE USING K&M PRACTICES; RACK BACK 1 STAND  
PER BOTTOMS UP; GPM 285; RPM 90;

06:30 POOH F/ 16,188' TO 12,400' (EOC); PULL 10 STDS WET; PUMP SLUG @  
15,244'; FLOW CHECK WELL;

09:30 CIRC 2 BTMS UP @ 12,400'; 106 SPM; 283 GPM; 5600 SPP; 40 RPM;  
RECIPROCATATE PIPE; FIRST B/U 5 MINUTES OF SMALL FINES; SECOND B/U 2  
MINUTES OF SMALL FINES;

11:00 TIH F/ 12,400' TO 16,473'; FILL DP EVERY 20 STANDS;

13:30 SAFETY WASH & REAM F/ 16,473' TO 16,515'; NO FILL; CIRCULATE 2  
BOTTOMS UP; 106 SPM; 283 GPM; 6700 SPP; 90 RPM; RECIPROCATATE PIPE;  
FLOW CHECK WELL;

16:00 POOH F/ 16,515' TO 15,620'; PULL 10 STDS WET;

16:30 FLOW CHECK WELL (STATIC); PUMP SLUG;

17:00 R/U BUMP STOP ON PDS TO LAY DOWN DP;

17:30 POOH L/D 4" DP F/ 15,620' TO 11,280'; HOLE TAKING PROPER DISPLACEMENT.

21:30 TIH F/11,280' 12,232' OUT OF DERRICK

22:30 DROP RABBIT & TOO H F/12,232' T/8,783'; HOLE TAKING PROPER  
DISPLACEMENT.

00:00 REMOVE ROTATING HEAD & INSTALL TRIP NIPPLE

00:30 TOO H F/8,783' T/BHA; HOLE TAKING PROPER DISPLACEMENT.

04:30 REMOVE BUMP STOP & SEND DOWN ACCELGLIDES & CROSS OVERS; CLEAN  
OBM OFF FLOOR

05:30 LAY DOWN DIRECTIONAL TOOLS

Vis (s/qt): 69, Dens (lb/gal): 14.30, pH: 0.0

**07/16/2017**

Rig Name: H&P 602

Depth = 16,515.0 Progress = 0.0

06:00 L/D DIRECTIONAL TOOLS & BIT; CLEAR TOOLS F/ RIG FLOOR

07:30 PULL WEAR BUSHING

08:00 CLEAN RIG FLOOR

08:30 HPJSM W/ CSG CREW & RIG CREW, R/U CSG EQUIP

10:00 HPJSM W/ RIG CREW & CSG CREW, P/U SHOE ASSEMBLY CONSISTING OF FS,  
1 JT 4 1/2" CSG, FC, 1 JT 4 1/2" CSG, LC, M/U 1 JT 4 1/2" 13.50# HCP-110  
WEDGE 563 CSG, TORQ TO 6000 FT/LB, M/U CIRC SWEDGE, PUMP THROUGH  
& CHECK FLOATS, GOOD TESTS, RUN 4 1/2" 13.50# HCP-110 WEDGE 563 CSG  
F/ SURFACE T/ 3,593' @ 100 FT/MIN, HOLE DISPLACING PROPERLY; (TUBULAR  
SOLUTIONS ON LOCATION FOR TORQUE TURN & THREAD REP)

14:30 WAIT ON WEATHER (LIGHTNING)

16:00 RUN 4 1/2" CSG F/ 3,593' TO 5,410'

17:00 R/D CSG TOOLS & M/U HALLIBURTON LINER HANGER

18:00 TIH F/5,410' T/12,276'(100 FPM) (FILLING UP EVERY 5 STANDS)

22:30 REMOVE TRIP NIPPLE & INSTALL ROTATING HEAD

23:00 TIH F/12,276' T/16,515'; (50 FPM) (FILLING UP EVERY 5 STANDS) TOPS OF FS  
@ 16,508'; FC @ 16,463'; LJ @ 16,414'; MJA @ 15,976'; MJB @ 14,496'; MJC  
@ 11,104'; TOP OF LINER @ 11,073.9; CENTRALIZERS RAN AS DIRECTED;

02:30 CIRCULATE & CONDITION HOLE 16,510' @ 50 SPM 130 GPM PSI 1950 (980  
UNITS GAS) (RPM 20 @ 5:30 AM)

Vis (s/qt): 73, Dens (lb/gal): 14.30, pH: 0.0

**07/17/2017**

Rig Name: H&P 602

Depth = 16,515.0 Progress = 0.0

06:00 CIRCULATE & CONDITION HOLE 16,510'; 50 SPM; 130 GPM; SPP 2025; 20  
RPM; TQ 3/4K; P/U 230K; S/O 150K; R/W 176K;

07:30 L/D SINGLE; P/U & M/U CMT ASSEMBLY

08:30 HPJSM W/ HALLIBUTON CMT & LINER, RIG CREW & 4 H & J REPS; CIRCULATE  
& CONDITION HOLE 16,510'; 50 SPM; 130 GPM; SPP 1800; 15 RPM; TQ 4/5K;

09:00 P/U 230K; S/O 150K; R/W 176K;  
 09:00 R/U CMT LINES  
 09:30 SWITCH OVER TO HALLIBURTON, PRESSURE TEST LINES TO 9,500 PSI, CEMENT 4.5" LINER AS FOLLOWS: MIX & PUMP 80 BBLS OF 14.3 PPG TUNED SPACER III, PUMPED 480 SX 83 BBLS VERSACEM CMT, 1.223 CU FT/SK, 14.5 PPG, 5.56 GAL/SK MIX WATER, ADDITIVES: , M & P AT 4 BPM, DROPPED HALLIBURTON WIPER PLUG, DISPLACED W/ 20 BBLS MMCR, 45 BBLS FRESH WATER, 20 BBLS SUGAR WATER, 30 BBLS TUNED SPACER III, 79 BBLS OF OBM FROM PITS, TOTAL 194 BBLS; FINAL RATE WAS 2.0 BPM @ 2,600 PSI; BUMPED PLUG 6 BBLS EARLY W/ 3,200 PSI; BLEED OFF 2 BBLS; FLOATS HELD; RPM 15; TQ 4/5K;  
 12:30 DROP 1 7/8" BALL; PUMP DOWN BALL; PRESSURE UP 5,670 PSI TO RUPTURE DISC; CONTINUE PUMPING BALL TO SEAT BALL TO EXPAND LINER HANGER; R/D CMT LINES F/ CMT HD  
 13:30 CIRCULATE 2 BTM'S UP @ 16,480' W/ RIG PUMP; 104 SPM, 4,000 SPP; P/U 178K; S/O 162K; FIRST B/U RECOVERED 50 BBLS (FW, SUGAR WATER, TUNED SPACER III & OBM);  
 15:30 CLOSE ANNULAR & TEST TOP OF LINER TO 3,000 PSI FOR 5 MINUTES; GOOD TEST;  
 16:00 R/D HALLIBURTON CMT LINES; FILL SLUGGING TANK W/ 2% KCL WATER  
 16:30 DISPLACE OBM W/ 2% KCL WATER; 62 SPM; 165 GPM; 4,000 SPP;  
 18:30 PERFORM NEGATIVE TEST FOR 30 MINUTES; NO FLOW  
 19:00 R/D HALLIBURTON CMT HD;  
 20:00 LDDS F/11,105' T/5,700'  
 00:30 SERVICE RIG  
 01:00 LDDS F/5,700' T/5,150'  
 01:30 RIG DOWN KATCH KAN  
 03:00 LDDS F/ 5,150' T/1,065

### 07/18/2017

Rig Name: H&P 602

Depth = 16,515.0 Progress = 0.0

06:00 LDDS F/ 1,065' T/150'  
 07:00 TIH F/ 150' TO 1,000'  
 07:30 FLUSH THROUGH CHOKE & GAS BUSTER  
 08:00 LDDS F/ 1,000' T/60'  
 09:30 REMOVE ROTATING HEAD  
 10:00 LAY DOWN & CLEAN HALLIBURTON LINER RUNNING TOOL; R/D 4" ELEVATORS  
 10:30 BREAK WEAR BUSHING PULLER & X/O F/ 4" DP; PULL BIT GUIDE; BREAK PULLER F/ 5" DP  
 12:00 N/D BOP'S; TURN BUCKLES; AIR LINES; FILL UP LINES; FLOW LINE; 4" & 2" HOSES; HYDRAULIC LINES; P/U BOP'S & SET ASIDE; N/D SPOOL; SET BOP'S ON CARRIER W/NEW RING GASKET; SET ON TUBING HEAD;  
 18:00 TORQUE & TEST TUBING HEAD T/ 10,000 PSI HELD FOR 10 MIN; INSTALLED FRAC VALVE;  
 21:00 CLEANING WITH THIRD PARTY ON MUD PITS WITH SUPER VAC; PRESSURE WASHING RIG FLOOR, SUB STRUCTURE; BOP & CARRIER; CLEAN RIG WATER TANK; RIGGING DOWN MUD PUMPS; LOTO & UN WIRE VFD, MUD PUMPS, DRAW WORKS, JUNCTION BOXES ON MUD TANKS,

### 07/19/2017

Rig Name: H&P 602

Depth = 16,515.0 Progress = 0.0

06:00 CLEANING WITH THIRD PARTY ON RIG, MUD PITS & PRE MIX TANK & DRY SHAKERS WITH SUPER VAC; PRESSURE WASHING RIG FLOOR, SUB STRUCTURE; SET ELECTRICAL CABLES TOP OF WIRE TRAY; CHECK MRC, ROTARY TABLE, & WORK MRC; PIN MRC & R/D ELECTRICAL CABLES; R/U HYD LINES TO CYLINDERS ON THE SUB STRUCTURE; WORK CYLINDERS & PIN SAME; 4" DRILL PIPE, 4" HWDP, 4" HANDLING TOOLS, NOV EQUIPMENT, OBM DIESEL TANK, 490 SHAKER TROUGH HAULED TO SUGARLOAF; HAULING OBM TANKS & OBM TO SUGARLOAF; HAULED 5" DRILL STRING & MISC. TO THE VOYAGER; LOWER DOG HOUSE @ 13:00 HRS; LOWER DERRICK @ 16:30 HRS; LOWERED SEPARATOR @ 22:00; SEPARATED DERRICK @ 24:00; LOWERED SUB @ 2:00; THIRD PARTY WASHING SUB & DERRICK FOR ROAD; STAGING OUT RIG TO LOAD UP AND MOVE IN THE MORNING; RIG RELEASE @ 6:00 AM;