

**FORGE Energy**  
**UL 21 Yellowtail 1H**  
**API Number: 42-495-33769**

**11/04/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location is cleared for permitting and construction

**11/17/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Meeting with Scott on location. Carlos will bury flow line and Franks will re-stake pad

**11/19/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Bury flowline

**11/22/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location is 50% cleared.

**11/23/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location is 90% cleared

**11/24/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location is 100% cleared and leveled

**11/29/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Pad is cleared and leveled, and caliche is pushed up

**11/30/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Pad is 25% complete, pit construction is 20% complete, no road

**12/01/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Pad construction is 50% complete, pit construction is 100% complete

**12/02/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Pit construction is complete, Caliche is complete

**12/03/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location is 90% complete

**12/06/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location construction is 95% complete

**12/07/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location is finished, pits are lined. 80'X20" conductor is set, 70'X 14" MH is set, and started with brine and fresh to pits.

**12/08/2016**

Rig Name:  
Depth = 0.0 Progress = 0.0  
07:00 Location is complete

**01/30/2017**

Rig Name: H&P 602

Depth = 0.0 Progress = 0.0

17:00 HAULED 4" DRILL PIPE,SHAKER SKID,MUD TANKS, SEPERATOR SKID,RIG TANK,MUD PITS & OBM DIESEL TANK TO NEW LOCATION; 2-CRANES; 2-TANDEMS; 2- POLE TRUCKS; 2-FORKLIFT; 15 HAUL TRUCKS;  
19:00 PREPARING RIG ON THE UL 18 DYK 1H FOR CISCO TRUCKING TO HAUL TO LOCATION AT DAYLIGHT DUE TO NO PERMIT LOADS ON ROAD AT NIGHT; EQUIPMENT STAGED OUT READY TO BE LOADED;(DERRICK LAID OVER @ 3:00) (CLEANING OBM OFF DERRICK & SUB STRUCTURE THRU THE NIGHT)

### 01/31/2017

Rig Name: H&P 602

Depth = 0.0 Progress = 0.0

06:00 STAGING OUT RIG & CLEANING RIG FOR TRUCKS TO LOAD UP @ DAYLIGHT;  
08:00 CISCO TRUCKING ON LOCATION @ 8:00 AM; SAFETY MEETING W/ H&P CREWS,H&J WELL SITE SUPERVISORS & CISCO TRUCKING COMPANY;  
08:30 ONE CREW CLEANING RIG LOADING UP EQUIPMENT AND MOVING RIG TO NEW LOCATION; ONE CLEANING CREW WORKING ON SUB & DERRICK; ON NEW LOCATION SET IN MUD PITS & SHAKER SKID @ 9:30; MUD PUMP #1 SET IN @ 10:30; #1 GENERATOR ON NEW LOCATION @ 11:00; MUD PUMP #2 SET IN @ 11:00; #2 GENERATOR ON NEW LOCATION @ 11:30; MUD PUMP #3 SET IN @ 11:30; #3 GENERATOR ON NEW LOCATION. @ 12:00; MCC HOUSE,VFD HOUSE & RIG DIESEL TANK ON LOCATION @ 12:30; SET IN VFD HOUSE & ALL GENERATORS @ 1:00; SET IN MCC HOUSE @ 1:30; SET DRAWWORKS @ 3:00; SUB HALFS ON LOCATION @ 3:00; BOP WRANGLER ON LOCATION @ 3:00  
15:00 RELEASED MUHOLLAND RIG CLEANERS @ 3:30 ON OLD LOCATION; RIG CREWS RIGGING UP VFD & MCC HOUSE; HOOKING UP MUD PITS & PUMPS; SUB HALFS SET IN @ 4:00;SET IN DEISEL TANKS @ 4:30; BOP WRANGLER SET IN @ 4:30; RIG MANAGERS HOUSE ON LOC @ 5:00; SUB CENTER STEEL, LOWER & UPPER SECTION OF DERRICK ON LOCATION @ 5:30; CENTER STEEL SET IN @ 6:30; (3- WELDERS STARTED ON INSTALLING THE BOP AXCESS DOORS IN SUB FLOOR & CHANGE OUT HOIST @ 6:30) LOWER SECTION DERRICK SET IN @ 7:00; SET UP LIGHT TOWERS ALL OVER LOCATION @ 7:00; SET IN H&P CAMP @ 7:30; SET IN BOP SKID @ 8:00; ACCUMULATOR SKID IN @ 8:30; SET IN UPPER DERRICK SECTION & PIN TO LOWER DERRICK SECTION @ 9:00; SET IN TOP DOG HOUSE SKID @ 9:30; NOV SET IN EQUIPMENT @ 10:00; WIRED UP GENERATORS & VFD HOUSE; DRESS DERRICK FOR RAISING; ASSIST WELDERS ON UP GRADE ON CENTER STEEL;

### 02/01/2017

Rig Name: H&P 602

Depth = 0.0 Progress = 0.0

06:00 CONTINUE RIGGING UP; FINISH INSTALLING BOP ACCESS DOORS IN SUB FLOOR; WELDERS FINISHED ACCESS DOORS @ 06:30; PREP DERRICK & SUB;  
07:30 PJSM WITH CISCO LOGISTICS, RIG CREW,RIG SUPERVISORS & H&J WELL SUPERVISORS  
08:00 RAISED SUBS @ 08:00; RAISED DRILLERS CABIN @ 08:30, WELD WINCH ON DERRICK BOARD,SET TRIP TANKS & GAS BUSTER,INSTALLED FLOWLINE,CAT WALK V-DOOR, SET PRE-MIX, BLEED MRC,SET IN PARTS HOUSE, RAISED DERRICK TO FLOOR @12:00; RAISED DERRICK UPRIGHT& PINNED @ 12:30, UNPIN MRC, SET OBM DEISEL TANK & FRESH WATER FRAC TANKS,TRUCKS RELEASED @ 13:30,RAISE DEFUB ARM, SCOPE OUT WIRE TRAY ON DRILLERS CABIN & PLUG IN ALL WIRES,START #1 GEN & PUT ON LINE  
16:00 RUN OUT RIG, STRING UP DRAW WORKS, HOOK UP ELECTRIC LINES & MUD LINES, RIG UP TRIP TANKS,  
18:00 SPOOL UP DRAWWORKS; UN DOCK TOP DRIVE; UN PIN BOOM POLES; RIG UP STAND PIPE TREE & HOOK UP VIBRATING HOSE TO MUD PUMP LINE;  
23:30 C/O LINERS & SWABS ON MUD PUMPS #1 & #2; C/O CHARGE PUMP ON #2 MUD PUMP & CENTRIFUGAL ON MIXING HOPPER;

### 02/02/2017

Rig Name: H&P 602

Depth = 0.0 Progress = 0.0

06:00 EXCEPT RIG ON DAY WORK @ 6:00 AM 02-1-2017; C/O LINER & SWABS; C/O CENTRIFUGAL ON MIX HOPPER; C/O CHARGE PUMP ON #2 MUD PUMP; HAULING FRESH WATER FOR TANKS & RESERVE; INSPECTING ELECTRIC CHOKES ON CHOKE MANIFOLD; INSPECTING BOP ANNULAR ELEMENT; (H&P TECHS WILL CHANGE ELEMENT DUE TO TEARS & SPLITS IN RUBBER ON ELEMENT); MOVE DRYER SHAKERS WITH CISCO FORKLIFT THEN LOADING UP CRANE & FORKLIFT ON TRUCKS; RIGGING UP TRASH PUMPS & PVC TO RESERVE BEHIND PITS; C/O SAVER SUB & INSTALL CORROSION RING; FILLING STEEL PITS W/ FRESH WATER;TRRC# 70250;  
18:00 FINISH C/O SAVER SUB & INSTALL CORROSION RING; RIG UP BAILS; WELD CONDUCTOR PIPE; INSTALL PAD EYES AND 3' DRAIN ON CONDUCTOR; REPAIR BROKEN NIPPLE ON CUTTINGS TROUGH; INSTALL CAP ON CHOKE MANIFOLD; TEST OFFLINE AS FOLLOWS: CHOKE MANIFOLD, TIW, IBOP @ 250 LOW 10 MINUTES/5000 HIGH 10 MINUTES. BEGIN FILLING PITS WITH WATER. WORK

ON LEAKS ON EQUALIZERS BETWEEN PITS, CONTINUE TO HAUL FRESH WATER TO RESERVE PIT. UNABLE TO PULL CAP OFF ANNULAR TO CHANGE OUT ELEMENT - H&P GETTING CRANE IN MORNING TO ASSIST.

00:00 TEST OFFLINE - STANDPIPE AND ALL VALVES BACK TO PUMPS @ 250 LOW 10 MINUTES/5000 HIGH 10 MINUTES; FILL RIG PITS WITH FRESH WATER; START FILLING INNER RESERVE PIT WITH 10 PPG BRINE; INSTALL PVC FROM DESANDER TO TROUGH; INSTALL SUCTION HOSES WITH FLOATS IN RESERVE PIT; FINISH R/U OF TRASH PUMPS IN BACK YARD; DRESS SHAKERS; INSTALL KNUCKLE AND EXTENSION TO CONNECT CONDUCTOR TO FLOW LINE;

## 02/03/2017

Rig Name: H&P 602

Depth = 835.0 Progress = 730.0

06:00 R/U CONDUCTOR, FLOW LINE & FILL LINE; R/U TURNBUCKLES & CENTER CONDUCTOR; H&P MECHANICS CHANGING OUT ANNULAR ELEMENT; HAULING BRINE WATER;

08:00 LAY OUT, STRAP & CALIBER BHA; P/U ALL 5" TOOLS TO FLOOR, HANDLING SUBS, X-O ,BITSUB & BIT; P/U INSTALL MOUSE HOLE; R/U TRASH PUMP ON CELLAR; FILL ALL LIGHT TOWERS & GENERATOR W/ DIESEL FOR RELEASE; RUN OUT ALL EQUIPMENT;

14:00 PERFORM PRE SPUD RIG INSPECTION

15:00 PICK UP 17.5 ULTERRA U616S BIT, BIT SUB, SHOCK SUB, TRUE SHOT SURVEY TOOL, 17.25" IBS, 8" DC, 17.25" IBS

17:30 SPUD WELL @ 17:30 HRS, TAG @ 80'; REAM T/ 105'.  
ROTATE F/ 105' T/ 250' @ 41'/HR; 4-12 WOB; 40 RPM; 400-500 GPM; 430-500 PSI; 6-8 TORQUE; PUMPED 20 BBL HIGH VIS/PAPER SWEEP EVERY 120'; DROPPED 1 SOAP STICK EVERY 120'

21:00 ROTATE F/ 250' T/ 350' @ 67'/HR; 18-20 WOB; 60 RPM; 652 GPM; 900 PSI; 8-12 TORQUE; PUMPED 20 BBL HIGH VIS/PAPER SWEEP EVERY 120'; DROPPED 1 SOAP STICK EVERY 120'

22:30 ROTATE F/ 350' T/ 707' @ 119'/HR; 18-30 WOB; 100 RPM; 805 GPM; 1470 PSI; 8-14 TORQUE; PUMPED 20 BBL HIGH VIS/PAPER SWEEP EVERY 120'; DROPPED 1 SOAP STICK EVERY 120'

01:30 ROTATE F/ 707' T/ 835' @ 64'/HR; 35 WOB; 100 RPM; 805 GPM; 1480 PSI; 10-15 TORQUE; PUMPED 20 BBL HIGH VIS/PAPER SWEEP EVERY 120'; DROPPED 1 SOAP STICK EVERY 120'.  
NOTE: TOP OF RUSTLER @ 707' (ROP DROPPED F/ 200 FT/HR T/75 FT/HR @ 707')

03:30 CIRC HOLE CLEAN, FULL RETURNS, PUMPED 2 40 BBL HI-VIS/PAPER SWEEPS, HOLE CLEAN, FIRST SWEEP CAME BACK @ 2980 STROKES (17% WASH OUT)(80% SCREEN COVERAGE), SECOND SWEEP CAME BACK @ 2982 STROKES (17% WASH OUT)(20% SCREEN COVERAGE)

04:00 TOH F/ 835' T/ 94', HOLE SLICK & TOOK PROPER FILL  
Vis (s/qt): 28, Dens (lb/gal): 8.35, pH: 7.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
131.0	130.99	1.20	29.50	0.97	0.92	1.19	0.68
250.0	249.97	1.10	35.70	2.37	0.13	2.98	1.83
367.0	366.96	0.70	112.20	2.64	0.99	3.62	3.14
486.0	485.95	1.20	26.10	3.12	1.13	4.46	4.37
603.0	602.92	1.40	39.60	4.85	0.31	6.67	5.82
765.0	764.88	1.20	82.10	5.75	0.59	8.42	8.76

## 02/04/2017

Rig Name: H&P 602

Depth = 835.0 Progress = 0.0

06:00 REPLACE BUSTED HOSE ON LINK TILTS ON TOP DRIVE

06:30 SERVICE RIG

07:00 LAY DOWN BHA; BREAK & GRADE BIT 1- OUTER, 1- INNER, IN GAUGE;

08:30 INSTALL LONG BELLS & CLEAN FLOOR

09:00 PJSM RIG UP CASING CREW & GET ALL EQUIPMENT TO RIG FLOOR;

10:00 PJSM; RUN 13 3/8" CASING AS FOLLOWS: 1 TEXAS PATTERN SHOE', 1 JT 13 3/8" 68# J-55 BTC, FC, 1 JT 13 3/8" 68# J-55 BTC, THREAD LOCKED SHOE TRACK, PUMPED THROUGH FLOATS, (TEST GOOD), RUN 18 MORE JTS 13 3/8" 68# J-55 BTC CASING, PLACED CENT 10' ABOVE SHOE, 10' ABOVE FC, CENT EVERY 3RD JT T/ SURFACE, TAGGED @ 835', HARD BOTTOM, SHOE @ 835', FC @ 791'

12:30 CIRCULATE 2 BOTTOMS UP & PJSM

14:00 CEMENT 13 3/8" CSG AS FOLLOWS: PRESSURE TEST LINES TO 1,500 PSI, PUMPED 20 BBL FRESH WATER GEL SPACER, PUMPED 505 SX (170 BBLS) 12.9 PPG LEAD ECONOCHEM @ 1.893 YIELD W/ 175% XS PUMPED AT 6 BPM, PUMPED 185 SX (44 BBLS) 14.8 PPG TAIL HALCEM @ 1.342 YIELD W/ 0% XS PUMPED AT 5 BPM, DROPPED NON ROTATING TOP PLUG, PUMPED 118.5 BBLS OF DISPLACEMENT WITH 8.3# FRESH WATER, SLOWED T/ 3 BPM, BUMPED PLUG 400 PSI, PRESSURED UP 500 PSI OVER T/ 900 PSI, HOLD PRESSURE 5 MINUTES, BLEED OFF; FLOATS HOLDING, 1 BBLS BACK FRO LINES;

CIRCULATED 205 BBLS CEMENT TO SURFACE, FULL RETURNS THROUGHOUT JOB;

16:00 RIG DOWN CEMENTERS; FLUSH LINES & CONDUCTOR, RIG DOWN TURNBUCKLES, FLOW LINE, AND FILL HOSES; CUT CONDUCTOR PIPE & ROUGH CUT ON 13 3/8 CASING;

17:00 MAKE FINAL CUT ON CASING; WELD ON WELL HEAD W/ BASE PLATE; CACTUS TEST WELL HEAD 900 PSI & SUPERVISED INSTALLATION; INSTALL H2S COMPLIANCE PACKAGE, RIG UP FLARE LINE

19:30 INSTALL BASE PLATE; REMOVE FLOWLINE ADAPTOR; FABRICATE NEW FLOWLINE ADAPTOR FOR WEATHERFORD ORBIT VALVE; NIPPLE UP DRILLING ADAPTOR SPOOLS; SET BOP STACK AND TORQUE BOLTS; INSTALL CHOKE LINE TO CHOKE MANIFOLD.

23:00 INSTALL KOOMEY LINES TO BOP; INSTALL TURN BUCKLES; RE-CENTER BOP STACK UNDER ROTARY; GROUT ANNULUS WITH CEMENT FROM READY DRILL DUE TO 30 FT OF CEMENT FALL BACK; INSTALL ADAPTOR FROM ORBIT VALVE TO FLOWLINE; INSTALL KILL LINE; FUNCTION TEST BOPE.

01:30 INSTALL HOSES TO WEATHERFORD ROTATING HEAD; FUNCTION HYDRAULIC CLAMP AND OILER UNIT.

02:00 RIG UP BACK YARD FOR FIRST INTERMEDIATE, HOOK UP GAS BUSTER LINES, FILL MUD PITS WITH BRINE. UNABLE TO MAKE UP TO CACTUS TEST PLUG DUE TO EGGED CROSS-OVER, RAN BATTLE TEST PLUG; PULL TEST PLUG DUE TO NOT SEALING, INSTALL TEFLON UNDER SEALS AND RERUN, TEST PLUG SEALED.

04:30 SET TEST PLUG AND BEGIN BOP TEST. TEST UPPER & LOWER VBRS, BLIND RAMS, ANNULAR, INNER & OUTER KILL LINE VALVES, CHECK VALVE, INNER CHOKE LINE VALVE, HCR VALVE, AND CHOKE LINE CONNECTION TO CHOKE MANIFOLD @ 250 PSI LOW 10 MINUTES/5000 PSI HIGH 10 MINUTES. HOOKING UP PANIC LINE, ORGANIZE BHA #2

Vis (s/qt): 28, Dens (lb/gal): 8.40, pH: 7.0

## 02/05/2017

Rig Name: H&P 602

Depth = 2,262.0 Progress = 1427.0

06:00 TEST BOP 250 PSI LOW F/10 MIN 5000 PSI HIGH F/10 MIN & CASING TEST 1500 F/30 MIN; (TESTING COMPLETE ALL GOOD)

08:30 RIGGING UP PANIC LINE; INSTALLING WEAR BUSHING; INSTALL MOUSE HOLE; CLEAR FLOOR OF ALL TOOLS; STRAP HWDP;

10:00 PICKING UP BHA #2 AS FOLLOWED; 12.25 DRILLFORMANCE DF719X2 (JETTED 7-12s)(.773 TFA); 8" 1.15 6:7 6.0 MOTOR (0.26 rpg); 12 1/8 ROLLER REAMER; MWD TOOLS (TEST GOOD); 12 1/8 ROLLER REAMER; X-O; SHOCK SUB; 3-8" DC; X-O; 21-HWDP;

16:00 DRILLING FLOAT EQUIPMENT & CEMENT F/791' T/835';

17:00 ROT DRLG F/ 835' - T/ 980' (145' @ 48 FPH). WOB : 10-20K, SPM: 104, TOP DRV RPM:20-30. GPM: 400-550; PRESS OFF B: 900; MUD MTR RPM: 104-143; TOP DRV TRQ: 3-6K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 200/300; PU 108 SO 104 ROT: 106

20:00 ROT DRLG F/ 980' - T/ 1596' (616' @ 176 FPH). WOB : 10-26K, SPM: 225, TOP DRV RPM: 100. GPM: 824; PRESS OFF B: 2700; MUD MTR RPM: 214; TOP DRV TRQ: 4-15K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 600; PU 133 SO 127 ROT: 129; TRIED DIFFERENNT PARAMETERS TO COMBAT TORQUE WITH MINIMAL SUCCESS.

23:30 PULL TRIP NIPPLE; INSTALL ROTATING HEAD

00:00 ROT DRLG F/ 1596' - T/ 2075' (479' @ 120 FPH). WOB : 10-26K, SPM: 200-225, TOP DRV RPM: 80-100. GPM: 768-844; PRESS OFF B: 2700-3010; MUD MTR RPM: 214-219; TOP DRV TRQ: 4-15K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 600; PU 136 SO 128 ROT: 132; TRIED DIFFERENNT PARAMETERS TO COMBAT TORQUE WITH MINIMAL SUCCESS.

04:00 ROT DRLG F/ 2075' - T/ 2262' (187' @ 99 FPH). WOB : 10-26K, SPM: 200-225, TOP DRV RPM: 80-100. GPM: 768-844; PRESS OFF B: 2700-3010; MUD MTR RPM: 214-219; TOP DRV TRQ: 4-15K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 600; PU 141 SO 140 ROT: 140; TRIED DIFFERENNT PARAMETERS TO COMBAT TORQUE WITH MINIMAL SUCCESS.

Vis (s/qt): 28, Dens (lb/gal): 10.00, pH: 7.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
974.0	973.83	1.22	41.64	6.65	0.40	10.38	12.41
1,155.0	1,154.80	0.82	32.95	9.06	0.24	13.38	14.15
1,345.0	1,344.79	0.77	35.28	10.77	0.03	15.57	15.63
1,535.0	1,534.77	0.90	41.94	12.37	0.09	17.72	17.37
1,724.0	1,723.73	1.38	42.10	14.38	0.25	20.51	19.88
1,913.0	1,912.66	1.65	43.56	16.99	0.14	24.17	23.28
2,102.0	2,101.58	1.80	42.87	19.93	0.08	28.32	27.18

## 02/06/2017

Rig Name: H&P 602

Depth = 4,123.0 Progress = 1861.0

06:00 ROT DRLG F/ 2262' - T/ 2540' (278' @ 69.5 FPH). WOB : 10-25K, SPM: 207, TOP DRV RPM: 80-90. GPM: 800; PRESS OFF BTM: 2800; MUD MTR RPM: 208; TOP DRV TRQ: 4-15K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 700; PU 152 SO 146 ROT: 150; TRIED DIFFERENT PARAMETERS TO COMBAT TORQUE WITH MINIMAL SUCCESS.

10:00 ROT DRLG F/ 2540' - T/ 2731' (191' @ 95.5 FPH). WOB : 10-25K, SPM: 207, TOP DRV RPM: 80-90. GPM: 800; PRESS OFF BTM: 2800; MUD MTR RPM: 208; TOP DRV TRQ: 4-15K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 700; PU 152 SO 146 ROT: 150; TRIED DIFFERENT PARAMETERS TO COMBAT TORQUE WITH MINIMAL SUCCESS.

12:00 SLD DRLG F/ 2731' - T/ 2758' (27' @ 18 FPH). TF 220; WOB : 5-10K, SPM: 207, GPM: 800; MUD MTR RPM: 208; DIFF PSI: 150, PU 152 SO 146 ROT 150

13:30 ROT DRLG F/ 2758' - T/ 2826' (68' @ 68 FPH). WOB : 10-25K, SPM: 234, TOP DRV RPM: 80-90. GPM: 900; PRESS OFF BTM: 3200; MUD MTR RPM: 234; TOP DRV TRQ: 6-8K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 600; PU 156 SO 150 ROT: 154;

14:00 SLD DRLG F/ 2826' - T/ 2870' (44' @ 44 FPH). TF 220; WOB : 5-10K, SPM: 207, GPM: 800; MUD MTR RPM: 208; DIFF PSI: 150, PU 156 SO 150 ROT 154

15:00 ROT DRLG F/ 2870' - T/ 3114' (244' @ 97.6 FPH). WOB : 10-25K, SPM: 207, TOP DRV RPM: 80-90. GPM: 800; PRESS OFF BTM: 2800; MUD MTR RPM: 208; TOP DRV TRQ: 6-8K FT/LBS ON BTM, 2K OFF BTM; DIFF PSI: 600; PU 164 SO 157 ROT: 161

17:30 SERVICE RIG

18:00 ROT DRLG F/ 3114' - T/ 3520' (406' @ 101 FPH). WOB : 20-32K, SPM: 208, TOP DRV RPM: 80-95; GPM: 800; PRESS OFF BTM: 2800; MUD MTR RPM: 208; TOP DRV TRQ: 8-10K FT/LBS ON BTM, 1.5K OFF BTM; DIFF PSI: 600; PU 179 SO 165 ROT: 169

22:00 ROT DRLG F/ 3520' - T/ 3800' (280' @ 78 FPH). WOB : 20-35K, SPM: 208, TOP DRV RPM: 95-110; GPM: 800; PRESS OFF BTM: 2800; MUD MTR RPM: 208; TOP DRV TRQ: 8-11K FT/LBS ON BTM, 1.5K OFF BTM; DIFF PSI: 600-800; PU 180 SO 166 ROT: 171.

02:00 ROT DRLG F/ 3800' - T/ 4123' (323' @ 81 FPH). WOB : 20-35K, SPM: 208, TOP DRV RPM: 95-110; GPM: 800; PRESS OFF BTM: 3200; MUD MTR RPM: 208; TOP DRV TRQ: 8-11K FT/LBS ON BTM, 1.5K OFF BTM; DIFF PSI: 500-800; PU 185 SO 170 ROT: 176

Vis (s/qt): 29, Dens (lb/gal): 10.00, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
2,291.0	2,290.46	2.24	48.84	23.07	0.26	32.93	31.98
2,481.0	2,480.29	2.56	46.77	26.63	0.17	38.28	37.87
2,670.0	2,669.09	2.77	47.74	30.62	0.11	44.24	44.32
2,859.0	2,857.98	0.85	37.22	33.51	1.03	48.43	48.55
3,048.0	3,046.97	0.22	82.73	34.31	0.38	49.59	49.76
3,237.0	3,235.97	0.63	80.57	34.14	0.22	49.81	51.14
3,427.0	3,425.93	1.54	78.65	33.84	0.48	50.48	54.68
3,616.0	3,614.90	0.70	81.34	33.50	0.45	51.15	58.31
3,805.0	3,803.87	1.31	91.28	32.73	0.33	51.28	61.61
3,994.0	3,992.83	0.92	75.54	32.07	0.26	51.61	65.24

**02/07/2017**

Rig Name: H&P 602

Depth = 5,080.0 Progress = 957.0

06:00 ROT DRLG F/ 4123' - T/ 4437' (314' @ 78.5 FPH). WOB : 20-35K, SPM: 208, TOP DRV RPM: 95-110; GPM: 800; PRESS OFF BTM: 3200; MUD MTR RPM: 208; TOP DRV TRQ: 8-11K FT/LBS ON BTM, 1.5K OFF BTM; DIFF PSI: 500-800; PU 185 SO 178 ROT: 182

10:00 ROT DRLG F/ 4437' - T/ 4756' (319' @ 79.8 FPH). WOB : 20-35K, SPM: 208, TOP DRV RPM: 95-110; GPM: 800; PRESS OFF BTM: 3200; MUD MTR RPM: 208; TOP DRV TRQ: 8-11K FT/LBS ON BTM, 1.5K OFF BTM; DIFF PSI: 500-800; PU 193 SO 185 ROT: 190

14:00 ROT DRLG F/ 4756' - T/ 5070' (314' @ 70 FPH). WOB : 20-35K, SPM: 208, TOP DRV RPM: 95-110; GPM: 800; PRESS OFF BTM: 3200; MUD MTR RPM: 208; TOP DRV TRQ: 8-11K FT/LBS ON BTM, 1.5K OFF BTM; DIFF PSI: 500-800; PU 198 SO 192 ROT: 196

18:30 CIRCULATE SAMPLES T/SURFACE (LAMAR @ 5065')

19:00 ROT DRLG F/ 5070' - T/ 5080' (10' @ 20 FPH). WOB : 20-35K, SPM: 208, TOP DRV RPM: 95-110; GPM: 800; PRESS OFF BTM: 3200; MUD MTR RPM: 208; TOP DRV TRQ: 8-11K FT/LBS ON BTM, 1.5K OFF BTM; DIFF PSI: 500-800; PU 198 SO 192 ROT: 196. NOTIFIED TRRC OF CASING & CEMENT JOB (LEWISHA OP #18)

19:30 PUMP 50 BBL, 60 VIS SWEEP TO CLEAN HOLE FOR 9 5/8" CSG; SWEEP BACK WITH 10% SCREEN COVERAGE OF MED AND FINE CUTTINGS; CIRCULATE B/U; SHAKERS CLEAN; SHUT DOWN PUMPS AND FLOW CHECK WELL; WELL IS STATIC.

20:30 HELD PJSM; POOH F/ 5,080' T/ 4628'. HOLE TAKING PROPER FILL; NO DRAG.

21:00 PULL ROTATING HEAD

21:30 TOO H F/4,628' - T/ BHA; TIGHT CONNECTIONS ON HWDP BREAKING WITH TONGS; LAY DOWN 8" DRILL COLLARS.HOLE SLICK / NO DRAG  
01:30 LAY DOWN DIRECTIONAL BHA; DRAIN MOTOR, BREAK AND DULL GRADE BIT; WELL IS TAKING PROPER FILL; BIT GRADE 2-2 FULL GAUGE, ONE NOZZLE WAS PLUGGED WITH RUBBER FROM MOTOR; NO VISIBLE WEAR; LD MOTOR;  
04:00 CLEAR RIG FLOOR; PULL WEAR BUSHING  
05:00 HELD PJSM; RIG UP H&P CRT.  
Vis (s/qt): 29, Dens (lb/gal): 10.30, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
4,184.0	4,182.81	0.70	74.39	32.04	0.12	52.30	67.83
4,373.0	4,371.79	1.10	79.11	31.88	0.22	52.96	70.73
4,563.0	4,561.74	1.47	89.64	31.09	0.23	53.32	74.95
4,752.0	4,750.66	1.75	91.26	29.61	0.15	53.27	80.26
4,942.0	4,940.59	1.44	91.84	28.05	0.16	53.13	85.55
5,015.0	5,013.57	1.29	88.82	27.56	0.23	53.11	87.29

## 02/08/2017

Rig Name: H&P 602

Depth = 5,080.0 Progress = 0.0

06:00 MAKE UP SHOE, 1 JT OF 9 5/8" 40# HCL-80 BTC CSG, M/U NON-ROTATING FC; THREAD LOCKED ALL CONNECTIONS, PUMPED THROUGH FLOATS, FLOATS ARE GOOD, RUN 9 5/8" CASING F/ SURFACE T/ 5,070' WITH NORMAL DRAG & WELL STATIC, TOTAL OF 110 JOINTS RAN, INSTALLED 1 BOW SPRING CENT 10' ABOVE SHOE, ONE BOW SPRING CENT 10' ABOVE FLOAT COLLAR, THEN ONE EVERY THIRD JOINT BACK TO SURFACE FOR A TOTAL OF 37 BOW SPRING CENTRALIZERS, P/U LANDING JOINT AND LAND OUT CASING WITH CACTUS FLUTED MANDRELL HANGER. FLOAT C. @ 5,021.2', SHOE @ 5,070'  
17:00 CIRCULATE 2 BOTTOMS UP @ 5 BPM; 170 PSI; LOST 11 BBL DURING CIRCULATING TIME.  
19:00 HELD PJSM WITH HALLIBURTON, RIG CREW, & FORGE; RIG UP HALLIBURTON IRON TO STANDPIPE  
19:30 CEMENT 9 5/8" CSG AS FOLLOWS: PRESSURE TEST LINES TO 3500 PSI, PUMPED 20 BBL FRESH WATER GEL SPACER, PUMPED 1160 SX (580 BBLS) 11.0 PPG LEAD NEOCEM @ 2.809 YIELD 17.375 GAL/SK FW, W/ 150% XS PUMPED AT 6 BPM, PUMPED 155 SX (37 BBLS) 14.8 PPG TAIL HALCEM @ 1.332 YIELD 6.419 GAL/SK FW; W/ 20% XS PUMPED AT 4.8 BPM, STING OUT WITH CRT & DROP NON-ROT PLUG & DISPLACE @ 5 BPM WITH 381 BBLS OF BRINE. BUMP PLUG @ 23:02 HRS @ 3 BPM @ 1070 PSI WITH 700 PSI OVER FCP OF 370 PSI, HELD FOR 5 MIN, BLEAD OFF GAINED 2 BBLS, FLOATS HOLDING. HAD FULL RETURNS THE ENTIRE JOB - 131 BBL (262 SACKS) CEMENT CIRCULATED BACK TO SURFACE. TAIL TOC @ 4,484. LEAD TOC @ SURFACE  
23:00 RIG DOWN HALLIBURTON CEMENTING IRON; WASH OUT BOP STACK, FLOWLINE, DUMPLINE, CHOKE & KILL LINES WITH SUGAR WATER.  
23:30 WHILE WOC - BACK OUT LANDING JOINT AND LAY DOWN; RIG DOWN CRT; P/U WASH TOOL; WASH STACK AND WELLHEAD; LAY DOWN WASH TOOL; DUMP BRINE FROM PITS INTO BRINE RESERVE PIT.  
01:30 WHILE WOC - SET PACKOFF; PULL TEST WITH 40K LBS; PRESSURE TEST PACKOFF SEALS TO 5000 PSI - GOOD TEST; MOVE PVC IN BACKYARD TO DISCHARGE INTO FRESH WATER RESERVE PIT.  
02:30 WHILE WOC - ATTEMPT TO SET WEAR BUSHING, DOGS ON BOTTOM OF WEAR BUSHING WILL NOT ENGAGE IN TOP OF PACKOFF - CACTUS DETERMINED WEAR BUSHING WAS NOT CORRECT PART; OBTAINED CORRECT WEAR BUSHING FROM H&P 490; CLEAN & CLEAR RIG FLOOR OF UNNECESSARY EQUIPMENT; FILL RIG PITS WITH 8.6 PPG WATER FROM OUTSIDE RESERVE PIT. BEGIN CIRCULATING OUTSIDE RESERVE PIT AND ADD BRINE TO BRING WEIGHT UP TO 9.1 PPG.  
04:30 WHILE WOC - PULL WEAR BUSHING; CIRCULATE OUTSIDE RESERVE PIT WHILE ADDING BRINE TO INCREASE MUD WEIGHT TO 9.1.  
05:30 WHILE WOC - BEGIN PICKING UP 8 3/4 BIT, 6 3/4" MOTOR, & 2ND INTERMEDIATE BHA #1

Vis (s/qt): 29, Dens (lb/gal): 10.20, pH: 10.0

## 02/09/2017

Rig Name: H&P 602

Depth = 6,009.0 Progress = 929.0

06:00 WHILE WOC - P/U 2ND INTERMEDIATE SECTION BHA AS FOLLOWS 8.75" SMITH Z619 PDC BIT DRESSED WITH 6-14's(TFA 0.902), 1- 6 3/4" WEATHERFORD M.MTR 9/10 LOBE, 8.0 STAGE, 0.27 RPG, 3.88' BIT-BEND, 1.15 DEG ABH, 1- 8.5" R.RMR, 1- 6.5" MULESHOE NMDC, 1-HPTC, 1- 6.5" NMDC, 1-8.5"; SURFACE TEST BHA - GOOD  
09:30 CHANGE ACTUATOR ON IBOP  
10:30 LUBRICATE RIG; TRANSFER BRINE TO OUTSIDE RESERVE PIT TO INCREASE MUD WEIGHT.  
11:00 WAIT ON XH BOX X IF PIN X/O SUB TO CONTINUE PICKING UP BHA; CONTINUE TO TRANSFER BRINE TO OUTSIDE RESERVE PIT TO INCREASE WEIGHT TO 9 PPG; CLEANED SUCTION SCREENS ON ALL THREE MUD PUMPS

13:30 MAKE UP CROSSOVER; TRIP IN HOLE WITH 6.5 DRILL COLLARS TO 481'.  
 15:00 REPAIR ST80. REPLACE CONTROL CABLE.  
 16:00 TRIP IN HOLE F/ 481' T/ 5,000'  
 18:00 PULL TRIP NIPPLE; INSTALL ROTATING HEAD ELEMENT  
 18:00 CIRCULATE BOTTOMS UP 450 GPM; 1300 PSI; SLOW WORK PIPE UP AND  
 DOWN; MW IN 9.0/MW OUT 9.1  
 19:00 CLOSE UPPER PIPE RAMS; OPEN HCR; PERFORM CASING TEST TO 2,700 PSI  
 FOR 30 MINUTES AND CHARTED ON TOTCO; GOOD TEST, NO LEAKOFF -  
 GAINED 7 PSI OVER 30 MINUTES F/2,759 PSI T/2,766 PSI  
 20:00 DRILL FLOAT EQUIPMENT  
 21:30 DRILLING 8 3/4" INTERM2 HOLE F/ 5,080' - T/5,375' ( 295' @ 84.29 FPH).  
 WOB : 16K/45K, SPM: 115/170, TOP DRV RPM: 40/110. GPM: 442/653 MUD  
 MTR RPM: 119/177; TOP DRV TRQ: 15500/19350 FT/LBS ON BTM, DIFF PSI:  
 400/600, MW IN 9.1 PPG DRILLING THROUGH FLOWLINE. CIRCULATING  
 OUTSIDE RESERVE PIT  
 01:00 SLD DRLG F/5,375' - T/5,410' (35' @ 35 FPH). TF 270; WOB : 20K, SPM: 115;  
 PRESS OFF B: 4800; GPM: 455; MUD MTR RPM: 119; DIFF PSI: 195, MW  
 IN/OUT: 9.1 PPG/9.1 PPG, PU 186 SO 184 ROT 185  
 02:00 ROT DRILLING F/ 5,410' - T/6,009' (599' @ 150 FPH). WOB : 16K/45K, SPM:  
 115/170, TOP DRV RPM: 40/110. GPM: 442/653 MUD MTR RPM: 119/177; TOP  
 DRV TRQ: 15500/19350 FT/LBS ON BTM, DIFF PSI: 400/600, MW IN 9.1 PPG  
 DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT

Vis (s/qt): 28, Dens (lb/gal): 9.00, pH: 8.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
5,114.0	5,112.54	1.34	99.60	26.79	0.25	52.94	89.54
5,305.0	5,303.50	1.06	87.40	25.44	0.20	52.65	93.51
5,495.0	5,493.49	1.36	265.80	25.49	1.27	52.57	93.02
5,684.0	5,682.42	1.61	268.67	26.59	0.14	52.34	88.13
5,778.0	5,776.39	1.36	272.21	27.26	0.28	52.35	85.69
5,967.0	5,965.35	1.12	265.59	28.31	0.15	52.30	81.61

## 02/10/2017

Rig Name: H&P 602

Depth = 7,998.0 Progress = 1989.0

06:00 ROT DRILLING F/ 6,009' - T/ 6,373' (364' @ 91 FPH). WOB : 30/45K, SPM:  
 170/182, TOP DRV RPM: 70/85. GPM: 653/699 MUD MTR RPM: 177/189; TOP  
 DRV TRQ: 14000/18000 FT/LBS ON BTM, DIFF PSI: 400/600, MW IN 9.2 PPG  
 DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT  
 10:00 ROT DRILLING F/ 6,373' - T/ 6,782' (409' @ 102 FPH). WOB : 32-36K, SPM:  
 182, TOP DRV RPM: 65/80. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ:  
 9000/14000 FT/LBS ON BTM, OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 450, MW  
 IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE  
 PIT; PU: 210, SO: 197, ROT: 201  
 14:00 ROT DRILLING F/ 6,782' - T/ 7,083' (301' @ 120 FPH). WOB : 36K, SPM: 182,  
 TOP DRV RPM: 63. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ:  
 11000/13000 FT/LBS ON BTM, OFF BOTTOM SPP: 2750 PSI; DIFF PSI:  
 450-500, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING  
 OUTSIDE RESERVE PIT; PU: 227, SO: 197, ROT: 200  
 16:30 LUBRICATE RIG; CHECKED CROWN SAVER  
 17:00 SLIDE DRILL F/ 7,083' - T/ 7,101' ( 18' @ 36 FPH )- GTF: 90M, WOB : 25K,  
 SPM: 182,SPP: 3050, TOP DRV RPM: 0/0. GPM: 699; MUD MTR RPM: 189; TOP  
 DRV TRQ: 0/0 FT/LBS ON BTM, DIFF PSI: 250, MW IN 9.2 PPG DRILLING  
 THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 231; SO:210  
 17:30 ROT DRILLING F/7,101' - T/7,405' (304' @ 67.56 FPH). WOB : 36K, SPM: 182,  
 TOP DRV RPM: 63. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ:  
 11000/13000 FT/LBS ON BTM, OFF BOTTOM SPP: 2750 PSI; DIFF PSI:  
 450-500, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING  
 OUTSIDE RESERVE PIT; PU: 232, SO: 204, ROT: 230  
 22:00 ROT DRILLING F/7,405' - T/7,745' (340' @ 85 FPH). WOB : 36K/45K, SPM:  
 166/182, TOP DRV RPM: 63/85. GPM: 614/699 MUD MTR RPM: 166/189; TOP  
 DRV TRQ: 11000/13000 FT/LBS ON BTM, OFF BOTTOM SPP: 2750 PSI; DIFF  
 PSI: 450-500, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING  
 OUTSIDE RESERVE PIT; PU: 236, SO: 203, ROT: 212  
 02:00 ROT DRILLING F/7,745' - T/7,998' (253' @ 63.25 FPH). WOB : 36K/45K, SPM:  
 166/182, TOP DRV RPM: 63/85. GPM: 614/699 MUD MTR RPM: 166/189; TOP  
 DRV TRQ: 11000/13000 FT/LBS ON BTM, OFF BOTTOM SPP: 2750 PSI; DIFF  
 PSI: 450-500, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING  
 OUTSIDE RESERVE PIT; PU: 242, SO: 203, ROT: 230

Vis (s/qt): 29, Dens (lb/gal): 9.20, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
6,063.0	6,061.32	1.40	263.03	28.67	0.30	52.08	79.51
6,252.0	6,250.26	1.48	260.83	29.30	0.05	51.41	74.81
6,441.0	6,439.19	1.64	262.57	29.96	0.09	50.68	69.72
6,631.0	6,629.12	1.64	262.88	30.76	0.00	49.99	64.32
6,820.0	6,818.03	1.82	272.39	32.09	0.18	49.78	58.64

7,010.0	7,007.92	2.13	266.70	33.78	0.19	49.70	52.10
7,199.0	7,196.82	1.67	312.49	36.87	0.81	51.36	46.56
7,388.0	7,385.77	0.94	324.54	40.67	0.41	54.48	43.63
7,578.0	7,575.75	0.90	293.58	43.08	0.26	56.35	41.36
7,767.0	7,764.72	1.10	287.97	45.03	0.12	57.50	38.28

## 02/11/2017

Rig Name: H&P 602

Depth = 9,355.0 Progress = 1357.0

06:00 ROT DRILLING F/7,998' - T/8,265' (267' @ 66.8 FPH). WOB : 45K, SPM: 182, TOP DRV RPM: 45/70. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ: 8500 FT/LBS ON BTM, OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 300-500, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 249, SO: 229, ROT: 230

10:00 ROT DRILLING F/8,265' - T/8,524' (259' @ 64.8 FPH). WOB : 45K, SPM: 182, TOP DRV RPM: 60/70. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ: 11000-14000 FT/LBS ON BTM, OFF BOTTOM TRQ: 6500; OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 300-450, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 256, SO: 230, ROT: 231

14:00 ROT DRILLING F/8,524' - T/8,692' (168' @ 67.2 FPH). WOB : 45K, SPM: 182, TOP DRV RPM: 60/70. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ: 11000-14000 FT/LBS ON BTM, OFF BOTTOM TRQ: 6500; OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 300-450, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 256, SO: 230, ROT: 231

16:30 SERVICE RIG AND TDS.

17:00 ROT DRILLING F/8,692' - T/8,786' (94' @ 94 FPH). WOB : 45K, SPM: 182, TOP DRV RPM: 60/70. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ: 11000-14000 FT/LBS ON BTM, OFF BOTTOM TRQ: 6500; OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 300-450, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 256, SO: 230, ROT: 231

18:00 GAMMA IS NOT PULSING UP SIGNALS; TROUBLE SHOOT PROBLEMS; TRY ALL 3 PUMPS IN ALL ORDERS WITH NO SUCCESS; CLEAN OUT SCREENS AND FOUND MINIMAL RUBBER FROM WIPER PLUG; CHANGED OUT SURFACE CABLES AND STROKE COUNTERS WITH NO SUCCESS; SURVEYS ARE PUMPING UP BUT NOT THE GAMMA; DECISION WAS MADE TO DRILL AHEAD WITHOUT REAL TIME GAMMA AND TO DOWN LOAD IT ON NEXT BIT TRIP.

20:00 ROT DRILLING F/8,786' - T/9,070' (284' @ 71 FPH). WOB : 45K, SPM: 182, TOP DRV RPM: 60/70. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ: 11000-14000 FT/LBS ON BTM, OFF BOTTOM TRQ: 6500; OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 300-450, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 256, SO: 230, ROT: 231; TRACE OF CHERT SEEN @ 8,990'.

00:00 ROT DRILLING F/9,070' - T/9,255' (185' @ 46.25 FPH). WOB : 30K/40K, SPM: 182, TOP DRV RPM: 60/65. GPM: 699 MUD MTR RPM: 189; TOP DRV TRQ: 11000-14000 FT/LBS ON BTM, OFF BOTTOM TRQ: 6500; OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 300-450, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 256, SO: 230, ROT: 231; LITHOLOGY @ 9,110' = 60% LIMESTONE, 20% SILTSTONE, 20% CHERT.

04:00 ROT DRILLING F/9,255' - T/9,355' (100' @ 50 FPH). WOB : 30K/35K, SPM: 150, TOP DRV RPM: 60. GPM: 576 MUD MTR RPM: 156; TOP DRV TRQ: 11,000-12,500 FT/LBS ON BTM, OFF BOTTOM TRQ: 6500; OFF BOTTOM SPP: 2750 PSI; DIFF PSI: 250-400, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 270, SO: 244, ROT: 230;

Vis (s/qt): 29, Dens (lb/gal): 9.20, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
7,956.0	7,953.69	0.89	287.07	46.82	0.11	58.49	35.15
8,146.0	8,143.67	0.80	280.16	48.20	0.07	59.16	32.43
8,335.0	8,332.66	0.60	267.18	49.00	0.13	59.34	30.14
8,524.0	8,521.65	0.51	253.59	49.20	0.08	59.06	28.35
8,713.0	8,710.64	0.44	215.65	48.74	0.17	58.23	27.12
8,903.0	8,900.64	0.49	168.88	47.47	0.20	56.84	26.85
9,092.0	9,089.63	0.50	219.84	46.20	0.23	55.41	26.48

## 02/12/2017

Rig Name: H&P 602

Depth = 9,483.0 Progress = 128.0

06:00 ROT DRILLING F/9,355' - T/9,448' (93' @ 23.25 FPH). WOB : 35K/45K, SPM: 150-160, TOP DRV RPM: 50-60. GPM: 576-615 MUD MTR RPM: 156-166; TOP DRV TRQ: 11,500 FT/LBS ON BTM, OFF BOTTOM TRQ: 8300; OFF BOTTOM SPP: 2010-2260 PSI; DIFF PSI: 300, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 273, SO: 244, ROT: 248;

10:00 ROT DRILLING F/9,448' - T/9,483' (35' @ 17.5 FPH). BIT STOPPED DRILLING @ 9,483'. WOB : 35K/45K, SPM: 150-160, TOP DRV RPM: 50-60. GPM: 576-615 MUD MTR RPM: 156-166; TOP DRV TRQ: 11,500 FT/LBS ON BTM, OFF



BOTTOM TRQ: 8300; OFF BOTTOM SPP: 2010-2260 PSI; DIFF PSI: 300, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 273, SO: 244, ROT: 248

12:00 PUMP 30 BBL HIGH VIS SWEEP IN PREPARATION FOR TOH. ZERO SCREEN COVERAGE AHEAD OF SWEEP AND ZERO SCREEN COVERAGE DURING SWEEP.

13:00 FLOW CHECK WELL ON TRIP TANK. WELL FLOWING 0.2 BBL/MINUTE. SHUT IN WELL ON ORBIT VALVE. ROTATING HEAD ELEMENT LEAKING. SHUT IN ANNULAR BOP. SICP = 18 PSI. TRANSFER 90 BBL OF 12.5 PPG MUD FROM PREMIX TANK TO SLUGGING PIT.

14:00 OPEN CHOKE; PUMP 25 BBL 12.5 PPG SLUG DOWN DRILL PIPE. CLOSE CHOKE; LINE UP ON ANNULUS; BULLHEAD 50 BBL 12.5 PPG @ 4 BPM. INITIAL PUMP IN PRESSURE 375 PSI; FINAL PUMP IN PRESSURE 212 PSI. AFTER PUMPS OFF, PRESSURE FELL TO 38 PSI AFTER 5 MINUTES. BULLHEAD ADDITIONAL 30 BBL 12.5 PPG MUD DOWN BACKSIDE @ 4 BPM. INITIAL PUMP IN PRESSURE 158 PSI; FINAL PUMP IN PRESSURE 110 PSI. AFTER PUMPS OFF, PRESSURE FELL TO 0 IN FIVE MINUTES. OPEN CHOKES - NO FLOW. LINE UP TO TRIP TANKS, OPEN ANNULAR - NO FLOW. WELL STATIC

15:30 TRIP OUT OF HOLE F/ 9,483' T/SURFACE; PUMPING CALCULATED FILL WITH TRIP TANK, NO RETURNS.

23:30 INSPECTED ROLLER REAMERS BOTH HAVE LOOSE BEARINGS; DRAIN MOTOR AFTER 2 REVOLUTIONS THE MOTOR LOCKED UP; BIT IS DBR, CORED OUT, FULL GAUGE, 8 INNER, 7 OUTER FOR BROKE AND DAMAGED TEETH; LD MOTOR AND PU NEW WEATHERFORD 9/10, 8.0, 1.15 BEND, 0.27 RPG MOTOR; NEW SMITH Z813 BIT AND MAKE UP.

01:00 WAITING ON 2, 8 1/2" IBS STABILIZERS TO ARRIVE; THE BACK UP ROLLER REAMERS WERE PRE ORDERED BUT NOT READY YET AND WE WERE UNABLE TO FIND ANY WITH SEALED BEARINGS.

03:30 UNLOAD IBS'S, STRAP AND MEASURE OD AND ID.

04:00 PU AND MU 1ST IBS, TIH W/ NEW ASSEMBLY AND 2ND IBS T/ 112'; SHALLOW TEST MOTOR AND MWD; TEST GOOD; TIH F/ 112' T/970';

Vis (s/qt): 29, Dens (lb/gal): 9.20, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
9,282.0	9,279.62	0.57	246.46	45.60	0.23	54.40	25.08

## 02/13/2017

Rig Name: H&P 602

Depth = 9,657.0 Progress = 174.0

06:00 TRIP IN HOLE WITH BHA #4 F/ 970' T/ 8,807'; DISPLACEMENT WAS 88.8 BBL LESS THAN CALCULATED.

11:00 PULL TRIP NIPPLE; INSTALL ROTATING HEAD.

11:30 TRIP IN HOLE F/ 8,807' T/ 9,356'; NO DISPLACEMENT.

12:00 FILL DRILL PIPE - NO CIRCULATION; FILL BACKSIDE WITH 8 BBL MUD; HOLE TAKING FLUID; SHUT IN ANNULAR, BULL HEAD 280 BBLS 9.2 PPG SYSTEM MUD DOWN ANNULUS TO INDUCE FLOW; BLEED DOWN ANNULUS PRESSURE F/381 PSI T/7 PSI; OPEN ANNULAR; CIRCULATE DOWN FLOWLINE TO RIG PITS

14:30 WASH & REAM F/9,356' T/9,483'; 500 GPM; 1800 PSI; 20 RPM; 6.5K TORQUE

15:00 ROT DRILLING F/9,483' - T/9,574' (91' @ 23 FPH). WOB : 30K, SPM: 130, TOP DRV RPM: 45. GPM: 500 MUD MTR RPM: 135; TOP DRV TRQ: 10,500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5000; OFF BOTTOM SPP: 1800 PSI; DIFF PSI: 400, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 280, SO: 256, ROT: 271;

19:00 ROT DRILLING F/9,574' - T/9,649' (75' @ 21 FPH). WOB : 18K/38K, SPM: 110/150, TOP DRV RPM: 40/60. GPM: 422/576 MUD MTR RPM: 114/156; TOP DRV TRQ: 10,500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5000; OFF BOTTOM SPP: 1800 PSI; DIFF PSI: 85/400, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 280, SO: 256, ROT: 271; ROP FELL OFF RAPIDLY F/34 FT/HR, T/ 7 FT/HR;

23:00 ROT DRILLING F/9,649' - T/9,657' (8' @ 5 FPH). WOB : 18K/38K, SPM: 110/150, TOP DRV RPM: 40/60. GPM: 422/576 MUD MTR RPM: 114/156; TOP DRV TRQ: 10,500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5000; OFF BOTTOM SPP: 1800 PSI; DIFF PSI: 85/400, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 280, SO: 256, ROT: 271; ROP FELL OFF RAPIDLY F/34 FT/HR, T/ 7 FT/HR; ATTEMPTING TO GET ASSEMBLY DRILLING WITH VARIOUS PARAMETERS WITH NO SUCCESS

00:00 PUMP 2, 45 BBL, 65 VIS SWEEPS; WELL IS CLEAN; MINIMAL CUTTINGS BACK TO SHAKERS; FLOW CHECK WELL; WELL IS FLOWING @ 4 BBLS/MIN; SHUT IN AND BULLHEADED 80 BBLS OF 12.5 PPG KWM DOWN ANNULUS; FLOW CHECKED WELL AND STILL FLOWING @ 3/4 BBL/MIN. STRIPPED OUT BULLHEADING CALCULATED FILL AND WELL WENT STATIC AFTER 25 STANDS (15 BBLS); OPENED WELL AND VERIFY STATIC;

02:30 TOH F/7,157' T/4,500'; MONITORING WELL ON TT, PUMPING CALCULATED FILL W/ 9.3 PPG SYSTEM MUD; NO UNUSUAL DRAG SEEN; PU- 280K, ROT- 273K, SO- 262K.

05:30 PULL ROTATING HEAD AND INSTALL TRIP NIPPLE BEFORE PULLING HWDP.

Vis (s/qt): 30, Dens (lb/gal): 9.20, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
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9,377.0	9,374.62	0.94	196.33	44.88	0.76	53.46	24.43
9,566.0	9,563.59	1.15	258.56	43.70	0.58	51.60	22.13

## 02/14/2017

Rig Name: H&P 602

Depth = 9,757.0 Progress = 100.0

06:00 TRIP OUT OF HOLE F/ 4,500' T/ DIRECTIONAL TOOLS; FILLING HOLE WITH CALCULATED DISPLACEMENT

08:30 LAY DOWN NMDC & IBS; DRAIN MOTOR; BREAK & GRADE BIT - CORED OUT (INNER 8, OUTER 6, IN GAUGE); LAY DOWN MOTOR; PULL MWD; INSTALL NEW MWD; P/U 6.75" 7/8 LOBE 3.0 STAGE 0.15 REV/GAL MOTOR; SCRIBE DETERMINED BENT TOOLS AT CONNECTION BETWEEN UBHO & TOOL CARRIER. MONITOR WELL ON TRIP TANK - STATIC

09:30 LAY DOWN SHORT NMDC, UBHO, HPTC, & MWD NMDC; P/U 6.75" 7/8 LOBE 3.0 STAGE 0.15 REV/GAL MOTOR; PICK UP NEW DIRECTIONAL TOOLS; SCRIBE BHA. MONITOR WELL ON TRIP TANK - STATIC

12:00 SHALLOW TEST BHA - GOOD, M/U 8 3/4" SMITH FH47HY ODVPS BIT, RIH, P/U MWD NMDC, 8 1/2" IBS, X/O, & 12 6 1/2" DRILL COLLARS. GOT RETURNS AFTER 30 BBLS DURING SHALLOW TEST, BUT NO DISPLACEMENT WHILE TIH. TIH F/ 112' - T/ 5,000'; WELL IS NOT GIVING DISPLACEMENT.

14:00

17:00 SLIP AND CUT DRILLING LINE; RESET STOP POINTS AND DO 4 POINT CALIBRATION ON BLOCKS.

19:00 TIH F/ 5,000' - T/ 9,533'; WELL IS NOT GIVING DISPLACEMENT; NO UNUSUAL DRAG SEEN.

22:30 FILL DRILL PIPE - NO CIRCULATION; FILL BACKSIDE WITH 49 BBL MUD; HOLE TAKING FLUID; SHUT IN ANNULAR, BULL HEAD 270 BBLS 9.2 PPG SYSTEM MUD DOWN ANNULUS TO INDUCE FLOW; BLEED DOWN ANNULUS PRESSURE F/381 PSI T/7 PSI; OPEN ANNULAR; CIRCULATE DOWN FLOWLINE TO RIG PITS

00:30 SAFETY WASH TO BOTTOM F/9,533' - T/9,657'; 154 SPM, 591 GPM, 2100 PSI SPP, 70 RPM, 9850 TRQ. TIGHT SPOT @ 9,633' - 9,635'; REAM THROUGH SEVERAL TIMES; 25K DRAG UP AND DOWN TRQ INCREASE F/ 7,500 FT/LBS T/ 12,000 FT/LBS. MONITOR SHAKERS AT BOTTOMS UP AFTER KNOCKING OUT SPOT AND NO UNUSUAL CUTTINGS NOTICED.

01:30 ROT DRILLING F/9,657' - T/9,757' (100' @ 23 FPH). WOB : 10K/35K, SPM: 140/150, TOP DRV RPM: 45/60. GPM: 538/576 MUD MTR RPM: 81/86; TOP DRV TRQ: 8250 FT/LBS ON BTM, OFF BOTTOM TRQ: 6500; SPP: 2,150 PSI; DIFF PSI: 75/125, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 300, SO: 240, ROT: 270

Vis (s/qt): 29, Dens (lb/gal): 9.30, pH: 9.5

## 02/15/2017

Rig Name: H&P 602

Depth = 10,148.0 Progress = 391.0

06:00 ROT DRILLING F/9,757' - T/9,818' (61' @ 20.3 FPH). WOB : 42K, SPM: 140/150, TOP DRV RPM: 55. GPM: 538/576 MUD MTR RPM: 81/86; TOP DRV TRQ: 7500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5800; SPP: 2,000 PSI; DIFF PSI: 75/125, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 258, ROT: 270

09:00 SLIDE DRILL F/ 9,818' - T/ 9,847' ( 29' @ 19.3 FPH )- MTF: 90M, WOB : 55K, SPM: 150,SPP: 2000, TOP DRV RPM: 0/0. GPM: 576; MUD MTR RPM: 86; TOP DRV TRQ: 0/0 FT/LBS ON BTM, DIFF PSI: 95, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 309; SO:262

10:30 ROT DRILLING F/9,847' - T/9,936' (89' @ 22.3 FPH). WOB : 45K, SPM: 150, TOP DRV RPM: 55. GPM: 576 MUD MTR RPM: 86; TOP DRV TRQ: 7500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5800; SPP: 2,000 PSI; DIFF PSI: 75/125, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 309, SO: 262, ROT: 270

14:30 ROT DRILLING F/9,936' - T/10,008' (72' @ 28.8 FPH). WOB : 45K, SPM: 150, TOP DRV RPM: 55. GPM: 576 MUD MTR RPM: 86; TOP DRV TRQ: 7500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5800; SPP: 2,000 PSI; DIFF PSI: 75/125, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 258, ROT: 270

17:00 LUBRICATE RIG; CROWN SAVER TEST

17:30 ROT DRILLING F/10,008' - T/10,102' (94' @ 23.5 FPH). WOB : 45K, SPM: 150, TOP DRV RPM: 55. GPM: 576 MUD MTR RPM: 86; TOP DRV TRQ: 7500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5800; SPP: 2,000 PSI; DIFF PSI: 75/125, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 258, ROT: 276

21:30 ROT DRILLING F/10,102' - T/10,148' (46' @ 46 FPH). WOB : 50K, SPM: 150, TOP DRV RPM: 55. GPM: 576 MUD MTR RPM: 86; TOP DRV TRQ: 7500 FT/LBS ON BTM, OFF BOTTOM TRQ: 5800; SPP: 2,000 PSI; DIFF PSI: 75/125, MW IN 9.2 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 255, ROT: 277

22:30 PUMPED 2, 40 BBL, 65 VIS SWEEPS TO CLEAN HOLE FOR TRIP; 1ST SWEEP BACK W/ 20% SCREEN COVERAGE OF FINE AND MEDIUM CUTTINGS; 2ND SWEEP BACK W/ 5% SCREEN COVERAGE OF FINE CUTTINGS AND CLEANED UP

IMMEDIATELY AFTER SWEEP; FLOW CHECKED WELL, WELL IS FLOWING @ 4 BBLs/MIN; BULLHEADED 110 BBLs OF 12.5 PPG KWM DOWN BACKSIDE TO KILL FLOW; PUMPED @ 7 BBLs/MIN, ANN PSI 273, ; OPENED WELL AND FLOW CHECKED; WELL IS STATIC;

00:30 TOH F/ 10,148'- T/ 1,500'; MONITORING WELL ON TRIP TANK; PUMPING CALCULATED FILL; NO UNUSUAL DRAG SEEN.

Vis (s/qt): 29, Dens (lb/gal): 9.30, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
9,753.0	9,750.50	2.40	266.14	44.64	0.68	50.96	16.39
9,848.0	9,845.45	1.22	253.45	45.03	1.30	50.54	13.43
9,943.0	9,940.43	1.10	234.62	44.71	0.42	49.72	11.72
10,037.0	10,034.41	1.28	229.07	43.96	0.23	48.51	10.19

## 02/16/2017

Rig Name: H&P 602

Depth = 10,582.0 Progress = 434.0

06:00 TOH F/ 1,500'- T/ SURFACE; DRAIN MOTOR, DRAINED GOOD, NO VISIBLE DAMAGE; BREAK AND DULL GRADE BIT; BIT GRADE- 2 INNER, 4 OUTER W/ 4 MISSING BUTTONS, FULL GAUGE; LD MOTOR AND MWD TOOLS; MONITORING WELL ON TRIP TANK; PUMPING CALCULATED FILL; NO UNUSUAL DRAG SEEN.

08:00 PU WEATHERFORD 6 3/4", 9:10 LOBE, 8.0 STAGE, 1.15 DEG BEND, 0.27 RPG MOTOR; PU ULTERRA 8 3/4", U716M PDC BIT, DRESSED W/ 7, 14'S NOZZLES (1.052 TFA); SCRIBE MOTOR TO HIGH SIDE AND INSTALL NEW MWD TOOLS; TEST MOTOR AND MWD @ SURFACE, TEST GOOD.

09:00 TIH F/ SURFACE T/8,600'; NO UNUSUAL DRAG; NO DISPLACEMENT;

13:30 FILL STRING AND BACKSIDE; SHUT IN WELL AND BULLHEADED 270 BBLs OF 9.3 PPG MUD F/ ACTIVE SYSTEM TO INDUCE FLOW; PUMPED @ 7 BBLs/MIN, 346 PSI ANN PSI; OPENED WELL ON CHOKE AND WELL IS FLOWING @ 4 BBLs/MIN;

15:30 RE-LOGGING GAMMA F/8,728'- T/ 8,828'

17:30 TIH T/ 9,600';

18:00 RE-LOGGING GAMMA F/ 9,650'- 10,148';

21:30 ROT DRILLING F/10,148' - T/10,393' (245' @ 70 FPH). WOB : 35K, SPM: 150, TOP DRV RPM: 60. GPM: 576 MUD MTR RPM: 155; TOP DRV TRQ: 15000 FT/LBS ON BTM, OFF BOTTOM TRQ: 8000; SPP: 2,770 PSI; DIFF PSI: 390/534, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 325, SO: 238, ROT: 275

01:00 S/DRILLING F/10,393' - T/10,424' (31' @ 20.7 FPH). WOB : 30K, SPM: 150, GPM: 576 MUD MTR RPM: 155; SPP: 2,550 PSI; DIFF PSI: 240, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 325, SO: 238, TF:30R

02:30 ROT DRILLING F/10,424' - T/10,487' (63' @ 63 FPH). WOB : 35K, SPM: 150, TOP DRV RPM: 60. GPM: 576 MUD MTR RPM: 155; TOP DRV TRQ: 15000 FT/LBS ON BTM, OFF BOTTOM TRQ: 8000; SPP: 2,770 PSI; DIFF PSI:400, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 325, SO: 255, ROT: 275

03:30 S/DRILLING F/10,487' - T/10,514' (27' @ 13.5 FPH). WOB : 30K, SPM: 150, GPM: 576 MUD MTR RPM: 155; SPP: 2,550 PSI; DIFF PSI: 200, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 325, SO: 238, TF:30R

05:30 ROT DRILLING F/10,514' - T/10,582' (68' @ 136 FPH). WOB : 35K, SPM: 150, TOP DRV RPM: 60. GPM: 576 MUD MTR RPM: 155; TOP DRV TRQ: 15000 FT/LBS ON BTM, OFF BOTTOM TRQ: 8000; SPP: 2,770 PSI; DIFF PSI:400, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 325, SO: 255, ROT: 275

Vis (s/qt): 29, Dens (lb/gal): 9.30, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
10,131.0	10,128.37	1.73	228.40	42.89	0.48	46.88	8.34
10,226.0	10,223.33	1.96	228.26	41.55	0.24	44.85	6.05
10,321.0	10,318.26	2.46	215.17	39.55	0.74	42.10	3.67
10,415.0	10,412.15	2.93	218.55	36.87	0.53	38.57	1.01

## 02/17/2017

Rig Name: H&P 602

Depth = 11,269.0 Progress = 687.0

06:00 S/DRILLING F/10,582' - T/10,621' (39' @ 20 FPH). WOB : 30K, SPM: 150, GPM: 576 MUD MTR RPM: 155; SPP: 2,550 PSI; DIFF PSI: 200, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 325, SO: 238, TF:45M

08:00 ROT DRILLING F/10,621' - T/10,910' (289' @ 72.25 FPH). WOB : 35K, SPM: 150, TOP DRV RPM: 60. GPM: 576 MUD MTR RPM: 155; TOP DRV TRQ: 15000 FT/LBS ON BTM, OFF BOTTOM TRQ: 8000; SPP: 2,770 PSI; DIFF PSI:400, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 325, SO: 265, ROT: 280

12:00 ROT DRILLING F/10,910' - T/11,269' (359' @ 90 FPH). WOB : 45K, SPM: 180,

TOP DRV RPM: 80. GPM: 691 MUD MTR RPM: 187; TOP DRV TRQ: 15000  
 FT/LBS ON BTM, OFF BOTTOM TRQ: 8000; SPP: 3,250 PSI; DIFF PSI:400/550,  
 MW IN 9.4 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE  
 RESERVE PIT; PU: 325, SO: 255, ROT: 294  
 16:00 PUMPED 2, 40 BBL, 65 VIS SWEEPS TO CLEAN HOLE FOR TRIP; 1ST SWEEP  
 BACK W/ 20% SCREEN COVERAGE OF FINE AND MEDIUM CUTTINGS; 2ND  
 SWEEP BACK W/ 5% SCREEN COVERAGE OF FINE CUTTINGS AND CLEANED UP  
 IMMEDIATELY AFTER SWEEP; FLOW CHECKED WELL, WELL IS FLOWING @ 4  
 BBLS/MIN; BULLHEADED 110 BBLS OF 12.5 PPG KWM DOWN BACKSIDE TO  
 KILL FLOW; PUMPED @ 7 BBLS/MIN, ANN PSI 273, ; OPENED WELL AND FLOW  
 CHECKED; WELL IS STATIC;  
 18:30 TOH F/ 10,269'- T/ 5,000'; MONITORING WELL ON TRIP TANK; PUMPING  
 CALCULATED FILL; NO UNUSUAL DRAG SEEN.  
 21:30 PULL ROTATING HEAD & PUMP 40 BBL SLUG,CHECK FOR FLOW WELL STATIC  
 22:30 TOH F/ 5,000'- T/ 600'; L/D 6.5" DC'S, MONITORING WELL ON TRIP TANK;  
 PUMPING CALCULATED FILL;  
 02:00 BREAK BIT; L/D MOTOR AND NMDC; PICK UP 2.38 BEND MOTOR;4/5 LOBE;  
 BIT TO BEND 6.5'  
 03:30 WAIT ON MWD CHANGE OUT CTSD PROBE (DIRECTION SENSOR) & SURFACE  
 TEST MWD  
 04:00 INSTALL MWD & SCRIBE,SHALLOW TEST; M/UP BIT; P/UP & M/UP 2 FLEX DC'S  
 05:30 TIH F/135' T/500'

Vis (s/qt): 29, Dens (lb/gal): 9.30, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
10,510.0	10,507.03	2.97	236.76	34.71	0.98	35.33	-2.57
10,605.0	10,601.96	1.05	246.80	33.85	2.05	33.63	-5.42
10,699.0	10,695.96	0.22	223.26	33.64	0.91	33.16	-6.34
10,794.0	10,790.96	0.56	226.95	33.34	0.36	32.71	-6.80
10,983.0	10,979.92	1.51	210.74	31.19	0.52	29.94	-8.75
11,173.0	11,169.79	2.70	212.73	26.50	0.63	24.03	-12.45

## 02/18/2017

Rig Name: H&P 602

Depth = 11,691.0 Progress = 422.0

06:00 TIH F/ 500'- T/ 11,092'; NO DISPLACEMENT; NO UNUSUAL DRAG SEEN;  
 12:30 FILL BACKSIDE W/5 BBLS OF 9.3 MUD; FILL STRING, NO CIRCULATION; SHUT  
 IN WELL AND BULLHEADED 270 BBLS OF 9.3 PPG SYSTEM MUD DOWN  
 BACKSIDE TO INDUCE FLOW; SHUT DOWN AND OPEN WELL ON CHOKE; WELL  
 IS FLOWING @ 4 BBLS/MIN.  
 13:30 SAFETY WASH F/ 11,092' - T/ 11,269'; 116 SPM; 20 RPM; 445 GPM; TRQ 3300;  
 SPP 1770 PSI.  
 14:00 SLD DRLG F/11,269' - T/11,375' (106' @ 26.5 FPH). WOB : 25K, SPM: 116,  
 GPM: 445, MUD MTR RPM: ; SPP: 1,700 PSI; DIFF PSI: 100/220, MW IN 9.3  
 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT;  
 PU: 325, SO: 238, TF:30M  
 18:00 SLD DRLG F/11,375' - T/11,428' (53' @ 21 FPH). WOB : 30K, SPM: 118, GPM:  
 460, MUD MTR RPM:233 ; SPP: 1,550 PSI; DIFF PSI: 100/220, MW IN 9.3 PPG  
 DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU:  
 315, SO: 270, TF:30M  
 20:30 ROT DRILLING F/11,428' - T/11,438' (10' @ 20 FPH). WOB : 30K, SPM: 118,  
 TOP DRV RPM: 20. GPM: 460 MUD MTR RPM: 233; TOP DRV TRQ: 13000  
 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 1750 PSI; DIFF PSI:300, MW  
 IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE  
 PIT; PU: 312, SO: 252, ROT: 278  
 21:00 SLD DRLG F/11,438' - T/11,454' (16' @ 32 FPH). WOB : 30K, SPM: 118, GPM:  
 460, MUD MTR RPM:233 ; SPP: 1,800 PSI; DIFF PSI: 100/200, MW IN 9.3 PPG  
 DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU:  
 315, SO: 270, TF:30M  
 21:30 ROT DRILLING F/11,454' - T/11,470' (16' @ 32 FPH). WOB : 30K, SPM: 118,  
 TOP DRV RPM: 20. GPM: 460 MUD MTR RPM: 233; TOP DRV TRQ: 13000  
 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 1750 PSI; DIFF PSI:500, MW  
 IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE  
 PIT; PU: 312, SO: 252, ROT: 278  
 22:00 SLD DRLG F/11,470' - T/11,488' (18' @ 36 FPH). WOB : 30K, SPM: 118, GPM:  
 460, MUD MTR RPM:233 ; SPP: 1,900 PSI; DIFF PSI: 100/200, MW IN 9.3 PPG  
 DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU:  
 315, SO: 270, TF:30M  
 22:30 ROT DRILLING F/11,488' - T/11,502' (14' @ 28 FPH). WOB : 30K, SPM: 118,  
 TOP DRV RPM: 20. GPM: 460 MUD MTR RPM: 233; TOP DRV TRQ: 13000  
 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 1750 PSI; DIFF PSI:500, MW  
 IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE  
 PIT; PU: 312, SO: 252, ROT: 278  
 23:00 SLD DRLG F/11,502' - T/11,520' (18' @ 36 FPH). WOB : 30K, SPM: 118, GPM:  
 460, MUD MTR RPM:233 ; SPP: 1,900 PSI; DIFF PSI: 100/200, MW IN 9.3 PPG  
 DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU:  
 315, SO: 270, TF:30M

23:30 ROT DRILLING F/11,520' - T/11,533' (13' @ 26 FPH). WOB : 30K, SPM: 118, TOP DRV RPM: 20. GPM: 460 MUD MTR RPM: 233; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 1750 PSI; DIFF PSI:500, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

00:00 SLD DRLG F/11,533' - T/11,551' (18' @ 36 FPH). WOB : 30K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,900 PSI; DIFF PSI: 100/200, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:30M

00:30 ROT DRILLING F/11,551' - T/11,564' (13' @ 26 FPH). WOB : 30K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2050 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

01:00 SLD DRLG F/11,564' - T/11,590' (26' @ 26 FPH). WOB : 30K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 2,070 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:30M

02:00 ROT DRILLING F/11,590' - T/11,597' (7' @ 14 FPH). WOB : 30K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2050 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

02:30 SLD DRLG F/11,597' - T/11,620' (23' @ 46 FPH). WOB : 30K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,950 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:30M

03:00 ROT DRILLING F/11,620' - T/11,628' (8' @ 16 FPH). WOB : 30K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2050 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

03:30 SLD DRLG F/11,628' - T/11,648' (20' @ 40 FPH). WOB : 30K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,950 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:30M

04:00 ROT DRILLING F/11,648' - T/11,659' (11' @ 22 FPH). WOB : 30K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2096 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

04:30 NEW TARGET CHANGE OF 42'LOWER; DIRECTIONAL DRILLER DISCUSSED TARGET CHANGE WITH WEATHERFORDS WELL PLANNER FOR NEW WELL PLAN

05:00 SLD DRLG F/11,659' - T/11,675' (16' @ 32 FPH). WOB : 18K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:30M

05:30 ROT DRILLING F/11,675' - T/11,691' (16' @ 32 FPH). WOB : 30K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

Vis (s/qt): 29, Dens (lb/gal): 9.20, pH: 10.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
11,252.0	11,248.71	2.63	233.25	24.61	1.20	21.38	-14.91
11,283.0	11,279.69	1.34	280.70	24.51	6.41	21.02	-15.84
11,315.0	11,311.67	3.48	10.73	25.55	11.65	22.04	-16.02
11,347.0	11,343.52	7.44	23.11	28.04	12.84	24.90	-15.03
11,378.0	11,374.08	11.72	26.61	31.93	13.93	29.57	-12.83
11,410.0	11,405.20	15.14	30.91	37.21	11.13	36.06	-9.23
11,441.0	11,434.88	18.42	33.07	43.23	10.77	43.64	-4.47
11,473.0	11,464.99	21.04	32.87	50.36	8.19	52.70	1.41
11,504.0	11,493.69	23.39	30.34	58.32	8.18	62.69	7.53
11,536.0	11,522.82	25.54	26.18	67.88	8.61	74.36	13.79
11,567.0	11,550.60	27.14	20.80	78.54	9.27	86.97	19.25
11,599.0	11,578.92	28.42	13.48	91.07	11.38	101.21	23.62
11,631.0	11,606.81	30.40	6.33	105.23	12.59	116.66	26.29

## 02/19/2017

Rig Name: H&P 602

Depth = 12,231.0 Progress = 540.0

06:00 SLD DRLG F/11,691' - T/11,708' (17' @ 32 FPH). WOB : 18K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:HS

06:30 ROT DRILLING F/11,708' - T/11,722' (14' @ 28 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

07:00 SLD DRLG F/11,722' - T/11,740' (18' @ 36 FPH). WOB : 18K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:HS

07:30 ROT DRILLING F/11,740' - T/11,754' (14' @ 28 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 312, SO: 252, ROT: 278

08:00 SLD DRLG F/11,754' - T/11,772' (18' @ 36 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 315, SO: 270, TF:HS

08:30 ROT DRILLING F/11,772' - T/11,785' (13' @ 26 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 252, ROT: 293

09:00 SLD DRLG F/11,785' - T/11,803' (18' @ 36 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

09:30 ROT DRILLING F/11,803' - T/11,817' (14' @ 56 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 252, ROT: 293

09:45 SLD DRLG F/11,817' - T/11,830' (13' @ 52 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

10:00 ROT DRLG F/11,830' - T/11,848' (18 @ 36 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270,

10:30 SLD DRLG F/11,848' - T/11,867' (19' @ 38 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

11:00 ROT DRLG F/11,867' - T/11,881' (14 @ 28 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270,

11:30 SLD DRLG F/11,881' - T/11,898' (17' @ 68 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

11:45 ROT DRILLING F/11,898' - T/11,912' (14' @ 56 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 252, ROT: 293

12:00 SLD DRLG F/11,912' - T/11,929' (17' @ 34 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

12:30 ROT DRILLING F/11,929' - T/11,944' (15' @ 30 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

13:00 SLD DRLG F/11,944' - T/11,969' (25' @ 50 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

13:30 ROT DRILLING F/11,969' - T/11,975' (6' @ 24 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

13:45 SLD DRLG F/11,975' - T/11,996' (21' @ 42 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG

DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

14:15 ROT DRILLING F/11,996' - T/12,007' (11' @ 44 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 7000; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

14:30 SLD DRLG F/12,007' - T/12,031' (24' @ 48 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

15:00 ROT DRILLING F/12,031' - T/12,038' (7' @ 28 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 9200; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

15:15 SLD DRLG F/12,038' - T/12,066' (28' @ 37.34 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

16:00 ROT DRILLING F/12,066' - T/12,070' (4' @ 16 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 9200; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

16:15 SLD DRLG F/12,070' - T/12,096' (26' @ 35 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

17:00 ROT DRILLING F/12,096' - T/12,102' (6' @ 24 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 9200; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

17:15 SLD DRLG F/12,102' - T/12,122' (20' @ 40 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

17:45 ROT DRILLING F/12,122' - T/12,133' (11' @ 44 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 9200; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

18:00 SLD DRLG F/12,133' - T/12,160' (27' @ 54 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

18:30 ROT DRILLING F/12,160' - T/12,166' (6' @ 24 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 9200; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

19:00 SLD DRLG F/12,166' - T/12,185' (19' @ 57 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

20:00 ROT DRILLING F/12,185' - T/12,195' (10' @ 20 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 9200; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 277, ROT: 297

20:30 SLD DRLG F/12,195' - T/12,213' (18' @ 18 FPH). WOB : 25K, SPM: 136, GPM: 500, MUD MTR RPM:240 ; SPP: 1,850 PSI; DIFF PSI: 100/250, MW IN 9.3 PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 318, SO: 270, TF:HS

21:30 ROT DRILLING F/12,213' - T/12,231' (18' @ 36 FPH). WOB : 25K, SPM: 136, TOP DRV RPM: 20. GPM: 500 MUD MTR RPM: 240; TOP DRV TRQ: 13000 FT/LBS ON BTM, OFF BOTTOM TRQ: 9200; SPP: 2150 PSI; DIFF PSI:500, MW IN 9.2+ PPG DRILLING THROUGH FLOWLINE. CIRCULATING OUTSIDE RESERVE PIT; PU: 328, SO: 271, ROT: 280

22:00 PUMPED 2, 40 BBL, 65 VIS SWEEPS; MINIMAL CUTTINGS BACK ACROSS SHAKERS; FLOW CHECK WELL, FLOWING @ 4 BBLs/MIN; BULLHEADED 110 BBLs OF 12.5 PPG KWM DOWN BACKSIDE TO KILL FLOW; WELL IS STATIC;

02:00 TOOH L/D 5"DP & STRAP DP ON GULL WINGS F/12,231' T/9,400' filling hole with calculated fill

Vis (s/qt): 29, Dens (lb/gal): 9.30, pH: 9.5

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
11,662.0	11,633.28	32.37	0.85	120.46	11.18	132.76	27.27
11,694.0	11,660.10	33.76	356.96	137.35	7.93	150.21	26.93
11,725.0	11,685.48	36.30	353.85	154.81	10.01	167.94	25.49
11,757.0	11,710.73	39.48	352.56	174.23	10.24	187.45	23.16
11,789.0	11,734.99	41.94	353.03	194.87	7.75	208.15	20.54
11,820.0	11,757.63	44.21	353.84	215.77	7.54	229.19	18.12
11,852.0	11,780.19	46.14	353.93	238.15	6.03	251.75	15.71
11,884.0	11,801.90	48.38	353.82	261.33	7.00	275.12	13.20
11,915.0	11,821.93	51.11	353.20	284.68	8.94	298.62	10.52
11,947.0	11,841.59	53.07	352.85	309.64	6.19	323.68	7.46
11,978.0	11,859.73	55.32	351.02	334.55	8.69	348.57	3.92
12,010.0	11,877.48	57.32	348.29	361.06	9.46	374.76	-0.87
12,041.0	11,893.50	60.42	345.80	387.56	12.13	400.61	-6.82
12,073.0	11,908.40	64.07	344.82	415.87	11.72	428.00	-14.01
12,105.0	11,921.38	68.06	344.45	445.11	12.51	456.19	-21.76
12,136.0	11,932.16	71.26	344.04	474.17	10.40	484.17	-29.65
12,168.0	11,941.50	74.78	343.32	504.78	11.21	513.53	-38.25

## 02/20/2017

Rig Name: H&P 602

Depth = 12,231.0 Progress = 0.0

06:00 TOO H L/D 5"DP & STRAP DP ON GULL WINGS F/9,400' T/ 117' filling hole with calculated fill; NO RETURNS.

17:30 LD BHA, DRAIN MOTOR; MOTOR DRAINED GOOD, NO VISIBLE DAMAGE; BREAK AND DULL GRADE BIT; 2 INNER, 5 OUTER FOR BROKEN AND MISSING TEETH ON BLADES AND CONES; BEARINGS AND SEALS EFFECTIVE; FULL GAUGE; BEGINNING TO RING OUT.

19:00 CLEAN AND CLEAR RIG FLOOR, PULL WEAR BUSHING, PU AND RIG UP CRT TOOL; FUNCTION TEST CRT, TEST GOOD; SET STOP POINTS ON BLOCKS; PJSM FOR 7" CSG RUN.

21:30 MAKE UP SHOE TRACK LEVELED UP DERRICK PUMP THROUGH SHOE TRACK (GOOD) RUN 87 JTS. 7"32# HCP 110 LTC F/ SHOE T/ 3645'; FILLING CASING UP ON FLY; PIPE STARTED FLOATING SHUT DOWN @ 3645' WELL STARTED FLOWING @ 1 BBL PER HOUR SHUT WELL IN HAD 17 PSI ON CASING; CALLED MANAGEMENT DISCUSSED GOING ON TO BOTTOM & MONITORING WELL WITH TRIP TANK

04:30 RUN 19 JTS. 7"32# HCP 110 LTC F/3645' T/4432'; FILLING CASING UP ON FLY; MONITORING WELL IN TRIP TANK; WELL IS STATIC

Vis (s/qt): 29, Dens (lb/gal): 9.35, pH: 9.5

## 02/21/2017

Rig Name: H&P 602

Depth = 12,231.0 Progress = 0.0

06:00 RAN 185 JTS OF 32#, HCP-110, LTC, 7" CSG FOR A TOTAL OF 291 JTS; LANDED IN WELLHEAD W/ MANDREL; SHOE @ 12,209', FC @ 12,125'; SHOE TRACK IS BAKER LOCKED AND TORQUED; STOP RINGS AND CENTRALIZERS PLACE 10' ABOVE FS AND 10' BELOW FC; CENTRALIZERS ON EVERY OTHER JT FROM FC TO KOP THEN EVERY 3RD JT TO 9 5/8" CSG SHOE; ALL CONNECTIONS TORQUED TO 8970 FT/LBS; PU- 356K, SO- 315K; 315K SET ON MANDREL.

18:30 PUMPED 180 BBLS OF 9.4 PPG DOWN BACKSIDE TO INDUCE FLOW; WELL FLOWING @ 4 BBLS/MIN. CIRCULATE 2 BOTTOMS UP 9,650 STKS; SOME GAS CUT MUD; (WHILE CIRCULATING 1ST BOTTOMS UP WE GAINED 20 PLUS BBLS WITH NO MUD WT CHANGE OR SIGNIFICANT AMOUNTS OF GAS) WHILE RIGGING HALLIBURTON CEMENTERS TO RIG FLOOR

23:00 PJSM; RIG UP LINES TO STAND PIPE AND TEST TO 5,000 PSI. GOOD TEST; BLEED OFF PRESSURE AND PUMPED JOB AS FOLLOWS; 40 BBLS FRESH WATER SPACER; FOLLOWED BY LEAD TUNED LIGHT CEMENT 196 BBLS (360 SACKS) @ 7 BBL./MIN 10.2 PPG, 3.054 YIELD, 16.55 GAL/SK; FOLLOWED BY TAIL HALCEM H 100 BBLS (470 SACKS) @ 7 BBL/MIN, 15.6 PPG, 1.196 YIELD, 5.41 GAL/SK; SHUT IN WELL AND DROPPED NO-ROTATE WIPER PLUG; PUMPED 436 BBLS OF ACTIVE DISPLACEMENT @ 8 BBL/MIN, THEN 3 BBL/MIN FOR FINAL 30 BBLS. BUMPED PLUG ON SCHEDULE WITH 1800 PSI, PRESSURED UP TO 2350 PSI AND HELD FOR 5 MIN. BLED BACK 4.5 BBLS FROM LINES; FLOATS ARE HOLDING; FULL RETURNS THRU JOB; BUMPED PLUG @ 1:20 HRS 2/21/2017. (BARREL IN & OUT DETAILS) AT 350 BBLS IN WE STARED 4 BBL IN @ 3 BBL OUT; DISPLACEMENT CAUGHT CEMENT @ 350 BBLS; THEN @ 400 BBLS WE WENT TO 3BBLS IN AND 2 BBLS OUT WHEN PLUG WAS BUMPED; SHUT IN AND SHUT IN CASING PRESSURE WAS 250; ESTIMATED TOPS FROM LIFT PSI- LEAD @3,621'; TAIL @ 7,119'.

01:30 WAITING ON CEMENT; CLEANING PITS; PREPARING BACKYARD FOR OBM & MONITORING WELL

Vis (s/qt): 29, Dens (lb/gal): 9.35, pH: 9.0



**02/22/2017**

Rig Name: H&amp;P 602

Depth = 12,231.0 Progress = 0.0

06:00 WOC UNTIL 01:30, 2/22/2017; WHILE WAITING JET AND CLEAN PITS, PREPARE FOR OBM; CHANGE OUT LINERS AND SWABS IN #1 AND #2 PUMPS FROM 6" TO 5"; RIG UP SOLIDS CONTROL EQUIPMENT IN BACKYARD; RACKING AND STRAPING 4" DP.

18:00 WOC UNTIL 01:30, 2/22/2017; WHILE WAITING STRAP 4" DP ON RACKS; CLEAN FLOOR FROM ALL 5"TOOLS; P/UP 4" TOOLS; CHANGED OUT DRILLER SIDE HOIST CABLE AND BULLET SWIVEL;

22:30 RIG DOWN CRT AND ALL HOSES AND SLIPSFOR CASING WHILE PLUGGING IN BACKYARD SOLIDS CONTROL FOR NOV.LUBRICATE RIG; CHANGE OUT VALVE ON TOP DRIVE; INSTALL 4"ELEVATORS WHILE INSTALLING CATCH CAN ON BOP; TRANSFER OBM FROM OIL TANKS TO MUD TANKS; PUT SHAKER COVERS ON SHAKERS AND HOOK UP HOSES FOR OBM TRANSFER FROM FRAC TANKS TO ACTIVE & BEGIN TRANSFERING OBM

01:30 AFTER 24 HOURS BLEED CASING PRESSURE FROM 60 PSI DOWN TO 0 STOPPED FLOWING FOR 10 SEC STARTED FLOWING 2BBLs PER HR. SHUT IN WELL; CALLED MANAGEMENT DISCUSSED KILLING WELL BY BULLHEADING 40 BBLs DOWN BACKSIDE; BUILDING 12.5 KILL MUD; STOPPED OBM TRANSFER TO BUILD KILL MUD;

04:30 PUMP 2BBLs @ 5 STKS.@ 200 PSI; 4BBLs @ 10 STKS. @ 450 PSI;34 BBLs @ 15 STKS. @ 700 PSI(PUMPED TOTAL 40 BBLs BULLHEADED DOWN BACKSIDE); SHUT DOWN PUMPS OPENED CHOKES MONITORED WELL FOR 30 MIN. WELL STATIC

Vis (s/qt): 29, Dens (lb/gal): 9.30, pH: 9.0

**02/23/2017**

Rig Name: H&amp;P 602

Depth = 12,231.0 Progress = 0.0

06:00 BACK OUT LANDING JT.; WASH OUT BOP; SET PACK OFF & TEST @ 5K PSI FOR 15 MIN (GOOD); PULL TEST @ 40K; TEST T/5K PSI FOR 5 MIN (GOOD);INSTALL BIT GUIDE;

09:30 CHANGE OUT VBR'S,T/3.5"-5.5"

10:00 TEST BOP UPPER & LOWER PIPE RAMS; BLIND RAMS; HCR;4"& 2" VALVES & CHOKE 250 LOW 5 MIN.; 10K HIGH FOR 10 MIN.; ANNULAR 250 LOW 5/MIN; 5K HIGH 10/MIN; FLOOR VALVES & TOP DRIVE BACK TO PUMPS 250 LOW 5/MIN 7500 HIGH 10/MIN.

14:00 INSTALL WEAR BUSHING & CHANGE OUT SAVER SUB F/4.5" IF T/HT-38 & COMPRESSION RING ON SAVER SUB

17:00 RIG SERVICE; 2 POINT CALIBRATION; COM TEST

17:30 RIG UP HOSE FROM TRIP TANK TO RESERVE FOR HOLE DISPLACEMENT WHILE TIH

18:00 PJSM W/CREW PU & MU HALLIBURTON MILL TOOTH BIT JETTED W/3-20"s (TFA .920); BIT SUB & 9- HWDP & PICK UP 4" DP F/SURFACE T/6911'

Vis (s/qt): 29, Dens (lb/gal): 9.30, pH: 9.0

**02/24/2017**

Rig Name: H&amp;P 602

Depth = 12,241.0 Progress = 10.0

06:00 TIH STRAPING & PICKING UP 120 JTS. 4" SINGLES F/6911' T/12122', INSTALL ROTATING HEAD

15:30 CUT & SLIP DRILLING LINE 8 WRAPS OFF DRUM = 85';2 POINT CALIBRATION & COM TEST

17:30 DRILL CEMENT F/12,016' T/12,070'

18:00 CIRCULATE 1 COMPLETE CIRCULATION @ 450 GPM 50RPM & RECIPROCATATE PIPE TO CLEAN HOLE TO PERFORM CASING TEST

19:30 PERFORM CASING TEST T/ 5098 PSI 17.5 EMW HELD FOR 30 MIN (TEST GOOD)

21:00 DRLG CEMENT, FLOAT COLLAR & SHOE F/ 12,070 T/ 12,231';

22:30 ROT DRILLING F/12,231' - T/12,241' (10' @ 20 FPH). WOB : 25K, SPM: 150, TOP DRV RPM: 80. GPM: 400; TOP DRV TRQ: 5000 FT/LBS ON BTM, OFF BOTTOM TRQ: 2000; SPP: 2,700 PSI; MW IN 9.3 PPG

23:00 CIRCULATE BOTTOMS UP

23:30 PERFORM FIT TEST T/4700 PSI EMW 16.9 HELD FOR 10 MIN (LOSS 55 PSI)

00:30 DISPLACE HOLE W/OBM & FILLED CHOKE & SEPARATOR W/OBM

02:00 CIRCULATE & CONDITION OBM F/ TOO H F/RSS (FLOW CHECK NO FLOW) (BUILD 20 BBLs 15.7 SLUG)

03:30 TOO H F/12,241 T/5,770'

Vis (s/qt): 70, Dens (lb/gal): 13.80, pH: 0.0

**02/25/2017**

Rig Name: H&amp;P 602

Depth = 12,332.0 Progress = 91.0

06:00 TOO H F/5,770 T/SURFACE' PULL ROTATING HEAD & INSTALL TRIP NIPPLE; BREAK BIT & BIT SUB; DULL GRADE BIT @ 1-1-WT-A-0-I-0-BHA

08:30 CLEAN OFF RIG FLOOR (OBM) P/U FLOOR TOOLS & SEND DOWN BIT TO CO. MANS HOUSE

09:00 LAY OUT BHA ON GULL WINGS

09:30 PJSM W/CREW P/UP ULTERRA U613M SN# 33245 BIT; RSS ASSEMBLY; 4.75" 7/8 LOBE, 3.7 STAGE, .35 REVS/GAL MOTOR; TEST MWD, DLC & RSS TOOL (GOOD)

12:30 TIH F/210' T/10153'

17:00 STRAP & P/UP 27 JTS HWDP & TIH F/10,153' T/10,659

19:00 REMOVE TRIP NIPPLE & INSTALL ROTATING HEAD

19:30 TIH F/10,659 T/12,241

21:00 REPAIR HOSE ON DIRECTIONAL DRILLING DOWN LINKING MANIFOLD;

21:30 TROUBLE SHOOTING GETTING DIRECTIONAL TOOLS THREW FLOAT COLLAR & SHOE; SENDING DOWNLOADS AND WORKING TO BOTTOM;

00:00 ROT DRILLING F/12,241' - T/12,270' (29' @ 14.5 FPH). WOB : 5/10K, SPM: 100, TOP DRV RPM: 40; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 6000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,200 PSI; DIFF PSI: 50/100, MW IN 13.8 PPG PU: 220, SO: 195, ROT: 200

01:00 SENDING DOWN LINKS

01:30 ROT DRILLING F/12,270' - T/12,275' (5' @ 10 FPH). WOB : 5/10K, SPM: 100, TOP DRV RPM: 40; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 6000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,200 PSI; DIFF PSI: 50/100, MW IN 13.8 PPG PU: 220, SO: 195, ROT: 200

02:00 SENDING DOWN LINKS & MOVE HOSE DOWN ON THE DOWN LINK MANIFOLD

04:00 ROT DRILLING F/12,275' - T/12,332' (57' @ 28.5 FPH). WOB : 20/25K, SPM: 100, TOP DRV RPM: 70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 6000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,200 PSI; DIFF PSI: 200/300, MW IN 13.8 PPG PU: 205, SO: 183, ROT: 185

Vis (s/qt): 64, Dens (lb/gal): 13.75, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
12,279.0	11,966.77	78.89	343.21	612.82	3.70	617.01	-69.36

## 02/26/2017

Rig Name: H&P 602

Depth = 13,217.0 Progress = 885.0

06:00 ROT DRILLING F/12,332' - T/12,364' (32' @ 32 FPH). WOB : 20/25K, SPM: 100, TOP DRV RPM: 70; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 7000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,200 PSI; DIFF PSI: 200/350, MW IN 13.7+ PPG PU: 205, SO: 183, ROT: 185; (LAND CURVE @ 12,364' INC:89.46° AZM:344.9 TVD:11975.67' VS:698.24' DLS:13.02° BELOW:6.45' LEFT:0.8')

07:00 PUMP UP SURVEY & SEND DOWN LINKS

08:00 ROT DRILLING F/12,364' - T/12,395' (31' @ 31 FPH). WOB : 20/25K, SPM: 100, TOP DRV RPM: 70; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 7000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,200 PSI; DIFF PSI: 200/350, MW IN 13.7+ PPG PU: 205, SO: 183, ROT: 185;

09:00 SEND DOWN LINKS TO RSS

09:30 ROT DRILLING F/12,395' - T/12,500' (105' @ 26.3 FPH). WOB : 20/25K, SPM: 102, TOP DRV RPM: 35/70; GPM: 275/325; MUD MTR RPM: 101.75/120.25; TOP DRV TRQ: 7000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,200/6650 PSI; DIFF PSI: 200/350, MW IN 13.7+ PPG PU: 205, SO: 183, ROT: 185;

13:30 ROT DRILLING F/12,500' - T/12,585' (85' @ 28.3 FPH). WOB : 18/25K, SPM: 104, TOP DRV RPM: 30/70; GPM: 275/325; MUD MTR RPM: 120.25; TOP DRV TRQ: 7000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,930 PSI; DIFF PSI: 200/350, MW IN 13.7+ PPG PU: 205, SO: 183, ROT: 185;

16:30 SERVICE RIG; SPR: 12,585' MUD WT 13.7 MUD PUMP #1:20/650, 30/980,40/1300, MUD PUMP #2: 20/620,30/920,40/1200

17:00 ROT DRILLING F/12,585' - T/12,800' (215' @ 43 FPH). WOB : 18/25K, SPM: 104, TOP DRV RPM: 70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 7000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,200 PSI; DIFF PSI: 400/500, MW IN 13.7 PPG PU: 205, SO: 177, ROT: 183;

22:00 SENDING DOWNLINKS

22:30 ROT DRILLING F/12,800' - T/13,060' (260' @ 74 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 80; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 9000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,200 PSI; DIFF PSI: 500/600, MW IN 13.7 PPG PU: 205, SO: 163, ROT: 183;

02:00 ROT DRILLING F/13,060' - T/13,155' (95' @ 47.5 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 80; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 9000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,200 PSI; DIFF PSI: 500/600, MW IN 13.7 PPG PU: 205, SO: 163, ROT: 183;

04:00 RELOGGING GAMMA F/13,135 T/13,155

04:30 ROT DRILLING F/13,155' - T/13,193' (38' @ 76 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 80; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 9000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,200 PSI; DIFF PSI: 500/600, MW IN 13.7 PPG PU: 212, SO: 166, ROT: 182;

05:00 SEND DOWN LINKS DUE TO TOOL KICKING OUT OF AUTO PILOT

05:30 ROT DRILLING F/13,193' - T/13,217' (24' @ 48 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 80; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 9000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,200 PSI; DIFF PSI: 500/600, MW IN 13.7 PPG PU: 212, SO: 166, ROT: 182;

Vis (s/qt): 60, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
12,311.0	11,971.93	82.57	343.84	644.39	11.66	647.29	-78.32
12,343.0	11,974.95	86.60	344.90	676.24	13.02	677.97	-86.90
12,374.0	11,975.97	89.63	345.52	707.22	9.98	707.92	-94.81
12,470.0	11,975.71	90.68	344.47	803.21	1.55	800.64	-119.66
12,564.0	11,975.15	90.00	343.29	897.20	1.45	890.94	-145.76
12,658.0	11,973.03	92.59	344.04	991.16	2.87	981.12	-172.19
12,753.0	11,971.29	89.51	342.92	1,086.12	3.45	1,072.17	-199.19
12,847.0	11,971.53	90.19	341.19	1,180.04	1.98	1,161.59	-228.15
12,942.0	11,970.57	90.97	341.45	1,274.91	0.87	1,251.58	-258.58
13,037.0	11,969.40	90.44	343.03	1,369.83	1.75	1,342.04	-287.55
13,132.0	11,968.89	90.18	343.90	1,464.82	0.96	1,433.11	-314.59

## 02/27/2017

Rig Name: H&P 602

Depth = 13,837.0 Progress = 620.0

06:00 ROT DRILLING F/13,217' - T/13,440' (223' @ 55.75 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 50/75; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 11000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,400 PSI; DIFF PSI: 180/650, MW IN 13.7 PPG PU: 197, SO: 168, ROT: 182;

10:00 ROT DRILLING F/13,440' - T/13,657' (217' @ 54.3 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 50/75; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 11000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,400 PSI; DIFF PSI: 350/627, MW IN 13.7 PPG PU: 202, SO: 166, ROT: 181;

14:00 ROT DRILLING F/13,657' - T/13,812' (155' @ 41.8 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 50/75; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 11000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,400 PSI; DIFF PSI: 350/627, MW IN 13.7 PPG PU: 202, SO: 166, ROT: 181;

16:45 STARTED BUILDING IN ROTATION TO 92.38° SEND DOWN LINKS TO DROP INC.

17:15 ROT DRILLING F/13,812' - T/13,819' (7' @ 28 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 50/75; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 11000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,400 PSI; DIFF PSI: 350/627, MW IN 13.7 PPG PU: 202, SO: 166, ROT: 181

17:30 SERVICE RIG & SPR @ 13,819' MUD WT. 13.7; MUD PUMP #1: 30/1070,40/1440;50/1940; MUD PUMP #2: 30/1070;40/1430,50/1940

18:00 ROT DRILLING F/13,819' - T/13,832' (13' @ 52 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 50/75; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 11000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,400 PSI; DIFF PSI: 350/627, MW IN 13.7 PPG PU: 202, SO: 166, ROT: 181

18:15 SENDING DOWN LINK FOR STEERING DEFLECTION

18:45 ROT DRILLING F/13,832' - T/13,837' (5' @ 20 FPH). WOB : 25/30K, SPM: 104, TOP DRV RPM: 50/75; GPM: 275; MUD MTR RPM: 101.75; TOP DRV TRQ: 11000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,400 PSI; DIFF PSI: 350/627, MW IN 13.7 PPG PU: 202, SO: 166, ROT: 181

19:00 SENDING DOWN LINKS FOR STEERING & TAKING OFF AUTO PILOT; TOOL FAILURE DUE TO NO STEERING OR DEFLECTION;

20:30 CIRCULATE & CONDITION HOLE; 270 GPM; 60 RPM; RECIPROCATING STRING; (FLOW CHECK NO FLOW)

21:30 TOOH F/13,837 T/13,628;

22:00 SEND DOWN LINK TO ENSURE TOOL FAILURE @ DIFFERENT DEPTH;(TOOLS STILL NOT COMMUNICATING); PUMP SLUG ;(NO FLOW)

23:00 TOOH F/13,628 T/SURFACE; HOLE TAKING PROPER FILL;

05:00 LAYING OUT BHA;

Vis (s/qt): 69, Dens (lb/gal): 13.75, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
13,227.0	11,968.95	89.74	344.44	1,559.82	0.73	1,524.51	-340.50
13,322.0	11,970.45	88.46	343.74	1,654.80	1.54	1,615.86	-366.54
13,417.0	11,972.08	89.57	343.50	1,749.78	1.20	1,706.99	-393.33
13,513.0	11,973.89	88.27	343.71	1,845.75	1.37	1,799.06	-420.42
13,608.0	11,975.22	90.12	345.96	1,940.73	3.07	1,890.74	-445.27
13,702.0	11,977.35	87.29	344.86	2,034.68	3.23	1,981.67	-468.94
13,798.0	11,978.02	91.91	346.98	2,130.61	5.29	2,074.76	-492.28

## 02/28/2017

Rig Name: H&P 602

Depth = 13,950.0 Progress = 113.0

06:00 BREAK BIT;L/D DIRECTIONAL TOOLS;

07:30 WAITING ON DIRECTIONAL TOOLS; LOAD OUT 17 HWDP; 96.5"DC'S & 6.5"BIT

SUB GOIG TO HADCO TO BE RECUT & HARD BANDED; MONITORING WELL  
WITH TRIP TANK; RSS TOOL ARRIVED @ 12:00

12:00 PROGRAMING RSS TOOL  
14:00 PJSM W/CREW P/UP DIRECTIONAL TOOLS MAKE UP BIT, 4.75" 7/8 LOBE, 3.7  
STAGE, .35 REVS/GAL MOTOR; TEST MWD; MOTOR & RSS TOOL (GOOD)  
15:30 TIH F/208'T/10,887' HOLE GIVING PROPER DISPLACEMENT IN TRIP TANK  
21:00 REMOVE TRIP NIPPLE & INSTALL ROTATING HEAD  
21:30 TIH F/10,887'T/13,160' HOLE GIVING PROPER DISPLACEMENT IN TRIP TANK  
23:00 WASH F/13,160' T/13,533'; 1 ST STAND HAVING TROUBLE SLIDING THRU  
WITH PUMPING; 2ND 3RD & 4TH STAND PUMPED DOWN NO ISSUES;  
00:30 TIH F/13,553'T/13,837' HOLE GIVING PROPER DISPLACEMENT IN TRIP TANK  
01:00 SENDING DOWN LINKS F/STEERING & DEFLECTION  
02:00 ROT DRILLING F/13,837' - T/13,922' (85' @ 42.5 FPH). WOB : 15/20K, SPM:  
102, TOP DRV RPM: 65/70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ:  
8000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,800 PSI; DIFF PSI:  
100/200, MW IN 13.7 PPG PU: 205, SO: 155, ROT: 175  
04:00 SENDING DOWN LINKS TO GO INTO AUTO PILOT  
04:30 ROT DRILLING F/13,922' - T/13,936' (14' @ 28 FPH). WOB : 20/25K, SPM:  
102, TOP DRV RPM: 65/70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ:  
9000 FT/LBS ON BTM, OFF BOTTOM TRQ: 3000; SPP: 5,800 PSI; DIFF PSI:  
100/200, MW IN 13.7 PPG PU: 205, SO: 155, ROT: 175  
05:00 SENDING DOWN LINK F/SECOND TIME FOR AUTO PILOT  
05:30 ROT DRILLING F/13,936' - T/13,950' (14' @ 28 FPH). WOB : 25K, SPM: 102,  
TOP DRV RPM: 65; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 9000  
FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,800 PSI; DIFF PSI: 100/200,  
MW IN 13.7 PPG PU: 205, SO: 155, ROT: 175

Vis (s/qt): 72, Dens (lb/gal): 13.75, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
13,894.0	11,974.79	91.94	345.32	2,226.50	1.73	2,167.91	-515.25

### 03/01/2017

Rig Name: H&P 602

Depth = 14,957.0 Progress = 1007.0

06:00 ROT DRILLING F/13,950' - T/14,103' (153' @ 38.3 FPH). WOB : 25K, SPM:  
102, TOP DRV RPM: 65/95; GPM: 250/270; MUD MTR RPM: 94.5; TOP DRV  
TRQ: 12000 FT/LBS ON BTM, OFF BOTTOM TRQ: 4000; SPP: 5,650 PSI; DIFF  
PSI: 200/650, MW IN 13.7 PPG PU: 202, SO: 160, ROT: 177  
10:00 ROT DRILLING F/14,103' - T/14,292' (189' @ 47.3 FPH). WOB : 25K, SPM:  
102, TOP DRV RPM: 40/50; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ:  
11K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI:  
200/650, MW IN 13.7 PPG PU: 202, SO: 160, ROT: 177  
14:00 ROT DRILLING F/14,292' - T/14,387' (95' @ 47.5 FPH). WOB : 25/30K, SPM:  
102, TOP DRV RPM: 40/75; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ:  
10K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI:  
200/650, MW IN 13.7 PPG PU: 202, SO: 160, ROT: 177  
16:00 SERVICE RIG; SPR @ 14,387' MUD WT.13.7; MPUMP #1: 30/1100,40/1480,  
50/1960, MPUMP #2: 30/1090, 40/1460,50/1900  
16:30 ROT DRILLING F/14,387' - T/14,483' (96' @ 64 FPH). WOB : 25/30K, SPM:  
102, TOP DRV RPM: 40/75; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ:  
10K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI:  
200/650, MW IN 13.7 PPG PU: 202, SO: 160, ROT: 177  
18:00 ROT DRILLING F/14,483' - T/14,600' (117' @ 29 FPH). WOB : 25/28K, SPM:  
102, TOP DRV RPM: 40; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10K  
FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI: 650, MW IN  
13.7 PPG PU: 205, SO: 160, ROT: 180  
22:00 ROT DRILLING F/14,600' - T/14,816' (216' @ 54 FPH). WOB : 25/28K, SPM:  
102, TOP DRV RPM: 40; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 12K  
FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI: 550, MW IN  
13.7 PPG PU: 205, SO: 155, ROT: 180  
02:00 ROT DRILLING F/14,816' - T/14,957' (141' @ 35.25 FPH). WOB : 25/28K, SPM:  
102, TOP DRV RPM: 40; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 12K  
FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI: 550, MW IN  
13.7 PPG PU: 207, SO: 160, ROT: 180

Vis (s/qt): 62, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
13,987.0	11,975.77	86.85	342.61	2,319.46	6.20	2,257.25	-540.92
14,082.0	11,979.51	88.64	342.39	2,414.33	1.90	2,347.78	-569.47
14,177.0	11,980.64	90.00	343.58	2,509.29	1.90	2,438.61	-597.26
14,271.0	11,981.71	88.70	343.05	2,603.27	1.49	2,528.64	-624.25
14,367.0	11,984.27	88.24	341.45	2,699.17	1.73	2,620.04	-653.50
14,462.0	11,986.39	89.20	341.37	2,794.02	1.01	2,710.06	-683.78
14,556.0	11,987.35	89.63	340.35	2,887.84	1.18	2,798.86	-714.60
14,651.0	11,988.63	88.83	342.23	2,982.69	2.15	2,888.82	-745.07
14,746.0	11,990.16	89.32	341.69	3,077.60	0.77	2,979.14	-774.49
14,840.0	11,990.93	89.74	343.39	3,171.55	1.86	3,068.80	-802.69

14,936.0	11,992.18	88.77	346.78	3,267.52	3.67	3,161.55	-827.39
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### 03/02/2017

Rig Name: H&P 602

Depth = 15,935.0 Progress = 978.0

06:00 ROT DRILLING F/14,957' - T/15,160' (203' @ 50.75 FPH). WOB : 26/28K, SPM: 102, TOP DRV RPM: 40; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 12K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 207, SO: 153, ROT: 180

10:00 ROT DRILLING F/15,160' - T/15,239' (79' @ 31.6 FPH). WOB : 26/28K, SPM: 102, TOP DRV RPM: 40; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 12K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 207, SO: 153, ROT: 180

12:30 ROT DRILLING F/15,239' - T/15,432' (193' @ 38.6 FPH). WOB : 26/28K, SPM: 113, TOP DRV RPM: 65; GPM: 300; MUD MTR RPM: 105; TOP DRV TRQ: 10K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,650 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 207, SO: 153, ROT: 180

17:30 SERVICE RIG

18:00 SENDING DOWN LINK FOR STEERING DEFLECTION

18:30 ROT DRILLING F/15,432' - T/15,590' (158' @ 45.1 FPH). WOB : 26/28K, SPM: 114, TOP DRV RPM: 70; GPM: 303; MUD MTR RPM: 106; TOP DRV TRQ: 10K-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 6,250 PSI; DIFF PSI: 250-500, MW IN 13.7 PPG PU: 207, SO: 149, ROT: 177

22:00 ROT DRILLING F/15,590' - T/15,770' (180' @ 45 FPH). WOB : 28/29K, SPM: 114, TOP DRV RPM: 70; GPM: 303; MUD MTR RPM: 106; TOP DRV TRQ: 10K-11K FT/LBS ON BTM, OFF BOTTOM TRQ: 4.5K; SPP: 6,250 PSI; DIFF PSI: 250-450, MW IN 13.7 PPG PU: 209, SO: 149, ROT: 177

02:00 ROT DRILLING F/15,770' - T/15,935' (165' @ 41.25 FPH). WOB : 26/28K, SPM: 114, TOP DRV RPM: 70; GPM: 303; MUD MTR RPM: 106; TOP DRV TRQ: 10K-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 4.5K; SPP: 6,280 PSI; DIFF PSI: 150-450, MW IN 13.7 PPG PU: 209, SO: 150, ROT: 176

Vis (s/qt): 64, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
15,030.0	11,992.33	91.05	346.46	3,361.43	2.45	3,252.99	-849.14
15,124.0	11,990.91	90.68	344.51	3,455.40	2.11	3,343.97	-872.70
15,222.0	11,989.38	91.11	343.67	3,553.39	0.96	3,438.21	-899.56
15,315.0	11,986.72	92.16	343.42	3,646.34	1.16	3,527.36	-925.89
15,411.0	11,984.66	90.31	342.84	3,742.29	2.02	3,619.20	-953.74
15,504.0	11,984.91	89.38	342.95	3,835.26	1.01	3,708.09	-981.10
15,599.0	11,984.24	91.42	344.28	3,930.24	2.56	3,799.22	-1,007.89
15,694.0	11,983.37	89.63	344.76	4,025.23	1.95	3,890.77	-1,033.25
15,788.0	11,984.49	89.01	344.94	4,119.22	0.69	3,981.49	-1,057.81
15,883.0	11,986.69	88.33	346.01	4,214.18	1.33	4,073.43	-1,081.63

### 03/03/2017

Rig Name: H&P 602

Depth = 16,948.0 Progress = 1013.0

06:00 ROT DRILLING F/15,935' - T/16,113' (178' @ 44.5 FPH). WOB: 26/28K, SPM: 114, TOP DRV RPM: 70; GPM: 303; MUD MTR RPM: 106; TOP DRV TRQ: 12K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,400 PSI; DIFF PSI: 350-450, MW IN 13.7 PPG PU: 209, SO: 150, ROT: 177

10:00 ROT DRILLING F/16,113' - T/16,282' (169' @ 42.25 FPH). WOB: 26/28K, SPM: 102, TOP DRV RPM: 70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 12K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,400 PSI; DIFF PSI: 350-450, MW IN 13.7 PPG PU: 209, SO: 150, ROT: 177

14:00 ROT DRILLING F/16,282' - T/16,473' (191' @ 47.75 FPH). WOB: 28K, SPM: 102, TOP DRV RPM: 70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 12K FT/LBS ON BTM, OFF BOTTOM TRQ: 4K; SPP: 5,600 PSI; DIFF PSI: 650, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 176

18:00 ROT DRILLING F/16,473' - T/16,629' (156' @ 36.75 FPH). WOB: 25-28K, SPM: 102, TOP DRV RPM: 60-70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; SPP: 5,450 PSI; DIFF PSI: 625, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 176

22:00 ROT DRILLING F/16,629' - T/16,782' (153' @ 38.25 FPH). WOB: 25-28K, SPM: 102, TOP DRV RPM: 60-70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; SPP: 5,450 PSI; DIFF PSI: 625, MW IN 13.7 PPG PU: 209, SO: 147, ROT: 180

02:00 ROT DRILLING F/16,782' - T/16,948' (166' @ 41.5 FPH). WOB: 25-28K, SPM: 102, TOP DRV RPM: 40-70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; SPP: 5,450 PSI; DIFF PSI: 625, MW IN 13.7 PPG PU: 209, SO: 147, ROT: 177

Vis (s/qt): 62, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
15,977.0	11,988.32	89.69	345.11	4,308.14	1.73	4,164.44	-1,105.07
16,073.0	11,988.58	90.00	344.86	4,404.13	0.41	4,257.16	-1,129.94

16,168.0	11,988.84	89.69	344.92	4,499.13	0.33	4,348.88	-1,154.70
16,262.0	11,989.09	90.00	345.58	4,593.11	0.78	4,439.78	-1,178.63
16,356.0	11,990.86	87.84	343.87	4,687.09	2.93	4,530.44	-1,203.39
16,451.0	11,996.33	85.56	341.83	4,781.88	3.22	4,621.05	-1,231.35
16,546.0	12,000.83	89.01	343.02	4,876.71	3.84	4,711.50	-1,260.00
16,641.0	12,001.91	89.69	344.38	4,971.69	1.60	4,802.67	-1,286.66
16,736.0	12,001.91	90.31	345.96	5,066.68	1.79	4,894.50	-1,310.97
16,831.0	12,002.24	89.29	345.85	5,161.64	1.08	4,986.64	-1,334.11

### 03/04/2017

Rig Name: H&P 602

Depth = 17,706.0 Progress = 758.0

06:00 ROT DRILLING F/16,948' - T/17,042' (94' @ 31.3 FPH). WOB: 25-28K, SPM: 102, TOP DRV RPM: 40-70; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; SPP: 6,200 PSI; DIFF PSI: 625, MW IN 13.7 PPG PU: 209, SO: 147, ROT: 177

09:00 CHANGE OUT DOWN LINK MANIFOLD

09:30 ROT DRILLING F/17,042' - T/17,169' (127' @ 28.2 FPH). WOB: 25-28K, SPM: 102, TOP DRV RPM: 50; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; SPP: 6,200 PSI; DIFF PSI: 625, MW IN 13.7 PPG PU: 209, SO: 147, ROT: 177

14:00 ROT DRILLING F/17,169' - T/17,232' (63' @ 31.5 FPH). WOB: 25-28K, SPM: 102, TOP DRV RPM: 50; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; SPP: 6,200 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 209, SO: 147, ROT: 177

16:00 SERVICE RIG

16:30 ROT DRILLING F/17,232' - T/17,292' (60' @ 40 FPH). WOB: 28K, SPM: 102, TOP DRV RPM: 50; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; SPP: 6,200 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 209, SO: 147, ROT: 177

18:00 ROT DRILLING F/17,292' - T/17,422' (130' @ 37.1 FPH). WOB: 28-30K, SPM: 102, TOP DRV RPM: 50-60; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,050 PSI; DIFF PSI: 500-600, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 179

21:30 ROT DRILLING F/17,422' - T/17,455' (33' @ 33 FPH). WOB: 28-30K, SPM: 102, TOP DRV RPM: 60; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,050 PSI; DIFF PSI: 500, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 179

22:30 ROT DRILLING F/17,455' - T/17,481' (26' @ 26 FPH). WOB: 30K, SPM: 114, TOP DRV RPM: 60-75; GPM: 303; MUD MTR RPM: 106; TOP DRV TRQ: 10-12K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,950 PSI; DIFF PSI: 300, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 179

23:30 ROT DRILLING F/17,481' - T/17,517' (36' @ 36 FPH). WOB: 28-30K, SPM: 106, TOP DRV RPM: 60; GPM: 282; MUD MTR RPM: 99; TOP DRV TRQ: 10-12K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,200 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 179

00:30 ROT DRILLING F/17,517' - T/17,576' (59' @ 29.5 FPH). WOB: 28-30K, SPM: 110, TOP DRV RPM: 60; GPM: 292; MUD MTR RPM: 102; TOP DRV TRQ: 9-12K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,550 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 179

02:30 ROT DRILLING F/17,576' - T/17,706' (130' @ 37.1 FPH). WOB: 28-30K, SPM: 103, TOP DRV RPM: 60; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 9-12K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,250 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 179

Vis (s/qt): 66, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
16,926.0	12,002.11	90.86	345.83	5,256.61	1.65	5,078.75	-1,357.35
17,021.0	12,001.55	89.82	345.32	5,351.58	1.22	5,170.76	-1,381.01
17,115.0	12,001.30	90.49	343.33	5,445.58	2.23	5,261.25	-1,406.41
17,212.0	12,000.83	90.06	341.49	5,542.52	1.95	5,353.71	-1,435.72
17,305.0	11,999.98	90.99	340.54	5,635.35	1.43	5,441.65	-1,465.97
17,400.0	11,998.39	90.93	341.35	5,730.17	0.85	5,531.43	-1,496.98
17,495.0	11,997.25	90.44	340.39	5,824.99	1.13	5,621.18	-1,528.11
17,590.0	11,996.99	89.88	341.65	5,919.83	1.45	5,711.01	-1,559.01

### 03/05/2017

Rig Name: H&P 602

Depth = 18,369.0 Progress = 663.0

06:00 ROT DRILLING F/17,706' - T/17,852' (146' @ 36.5 FPH). WOB: 28-30K, SPM: 103, TOP DRV RPM: 60; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 9-12K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,250 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 214, SO: 142, ROT: 179

10:00 ROT DRILLING F/17,852' - T/17,978' (126' @ 31.5 FPH). WOB: 28-30K, SPM: 103, TOP DRV RPM: 60; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 9-12K

14:00 FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,250 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 214, SO: 142, ROT: 179  
 ROT DRILLING F/17,978' - T/18,084' (106' @ 35.3 FPH). WOB: 30K, SPM: 103, TOP DRV RPM: 50-65; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K  
 17:00 FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,250 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 207, SO: 144, ROT: 177  
 LUBRICATE RIG AND OBTAIN SPR  
 17:30 ROT DRILLING F/18,084' - T/18,092' (8' @ 16 FPH). WOB: 30K, SPM: 103, TOP DRV RPM: 50-65; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K  
 18:00 FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; SPP: 6,250 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 207, SO: 144, ROT: 177  
 ROT DRILLING F/18,092' - T/18,119' (27' @ 27 FPH). WOB: 30K, SPM: 103, TOP DRV RPM: 65; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K  
 19:00 FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,050 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 208, SO: 144, ROT: 177  
 INCLINATION STARTED BUILDING @ 18,096' F/90.71 T/92.91; INCREASED DEFLECTION IN AUTOPILOT @ 18,108'.  
 19:30 DOWN LINK DIRECTIONAL COMMAND TO STEER DOWN DUE TO 93.7 DEGREES NEAR BIT INCLINATION  
 ROT DRILLING F/18,119' - T/18,191' (72' @ 20.6 FPH). WOB: 28-30K, SPM: 103, TOP DRV RPM: 65; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K  
 23:00 FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,050 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 210, SO: 144, ROT: 178  
 ROT DRILLING F/18,191' - T/18,255' (64' @ 32 FPH). WOB: 24-28K, SPM: 103, TOP DRV RPM: 65; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K  
 01:00 FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,050 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 210, SO: 144, ROT: 178  
 ROT DRILLING F/18,255' - T/18,276' (21' @ 21 FPH). WOB: 24-30K, SPM: 103, TOP DRV RPM: 60-90; GPM: 270; MUD MTR RPM: 94.5; TOP DRV TRQ: 10-13K  
 02:00 FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,050 PSI; DIFF PSI: 450, MW IN 13.7 PPG PU: 210, SO: 144, ROT: 178  
 VARY DRILLING PARAMETERS; ATTEMPTING TO RESOLVE STICKSLIP AND SLEEVE ROTATION ISSUES  
 ROT DRILLING F/18,276' - T/18,369' (93' @ 23.25 FPH). WOB: 25-28K, SPM: 106, TOP DRV RPM: 80-100; GPM: 282; MUD MTR RPM: 99; TOP DRV TRQ: 8-10K  
 8-10K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 200-300, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 178

Vis (s/qt): 65, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
17,684.0	11,996.36	90.88	344.27	6,013.79	2.98	5,800.87	-1,586.55
17,779.0	11,994.56	91.30	344.54	6,108.78	0.53	5,892.36	-1,612.09
17,873.0	11,993.34	90.18	343.95	6,202.77	1.35	5,982.82	-1,637.61
17,968.0	11,993.92	89.12	343.56	6,297.76	1.19	6,074.02	-1,664.18
18,062.0	11,993.88	90.93	343.33	6,391.74	1.94	6,164.12	-1,690.97
18,158.0	11,992.79	90.37	343.19	6,487.72	0.60	6,256.04	-1,718.61
18,253.0	11,991.32	91.41	344.62	6,582.70	1.86	6,347.31	-1,744.95

### 03/06/2017

Rig Name: H&P 602

Depth = 18,465.0 Progress = 96.0

06:00 ROT DRILLING F/18,369' - T/18,410' (41' @ 20.5 FPH). WOB: 26-28K, SPM: 106, TOP DRV RPM: 80-100; GPM: 282; MUD MTR RPM: 99; TOP DRV TRQ: 8-10K  
 8-10K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 200-300, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 178  
 08:00 PERFORM CLEAN UP CYCLE 2 BOTTOMS UP;  
 09:30 ROT DRILLING F/18,410' - T/18,465' (55' @ 36.6 FPH). WOB: 26-28K, SPM: 106, TOP DRV RPM: 80-100; GPM: 282; MUD MTR RPM: 99; TOP DRV TRQ: 8-10K  
 8-10K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 200-300, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 178  
 11:00 PERFORM CLEAN UP CYCLE 2 BOTTOMS UP; STANDING BACK ONE STD EVERY BOTTOM UP; GPM 282; RPM 75; PUMP OUT 3 MORE STANDS; (FLOW CHECK NO FLOW); PUMP 40 BBL SLUG;  
 14:00 TOO H F/17,894' T/11,885' @ 60 FT/MIN STRING SPEED. NO UNUSUAL DRAG; HOLE TAKING PROPER FILL. FLOW CHECK WELL - NO FLOW  
 17:30 TOO H IN 7" CASING F/11,885' T/2,467' @ 100 FT/MIN STRING SPEED; HOLE TAKING PROPER FILL  
 22:00 PULL ROT HEAD; INSTALL TRIP NIPPLE; MONITOR WELL ON TRIP TANK - WELL STATIC  
 22:30 TOO H IN 7" CASING F/2,467' T/210' @ 100 FT/MIN STRING SPEED; HOLE TAKING PROPER FILL  
 23:30 INSPECT AND L/D DRILL & REAM TOOL; STAND BACK ONE STAND HWDP; BREAK & GRADE BIT (INNER 1, OUTER 2, IN GAUGE); INSPECT AND L/D RSS (REFERENCE STABILIZER IS LOCKED UP AND CANNOT BE TURNED BY HAND); INSPECT AND L/D HEL, STABILIZER, PONY NMDC, TOMAX TOOL (FOUND SMALL AMOUNT OF SEAL COMING OUT OF TOMAX TOOL). MONITOR WELL ON

TRIP TANK  
01:30 CLEAN RIG FLOOR; PJSM W/CREW P/UP DIRECTIONAL TOOLS MAKE UP 6" ULTRA U613M BIT W/ 0.8 TFA, WEATHERFORD RSS, HEL TOOL, STABILIZER, PONY COLLAR, TOMAX TOOL, 4.75" 7/8 LOBE, 3.7 STAGE, .35 REVS/GAL MOTOR; TEST MWD; MOTOR & RSS TOOL (GOOD); RUN 1 STAND HWD, MAKE UP DRILL & REAM TOOL, MONITOR WELL ON TRIP TANK  
04:30 TIH F/210' T/3,400' @ 100 FT/MIN STRING SPEED; FILL PIPE EVERY 30 STDS; HOLE GIVING PROPER DISPLACEMENT

Vis (s/qt): 70, Dens (lb/gal): 13.80, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
18,347.0	11,989.50	90.80	344.60	6,676.68	0.65	6,437.92	-1,769.89
18,442.0	11,988.02	90.99	344.07	6,771.67	0.59	6,529.38	-1,795.54

### 03/07/2017

Rig Name: H&P 602

Depth = 18,656.0 Progress = 191.0

06:00 TIH F/3,400' T/10,876' @ 100 FT/MIN STRING SPEED; FILL PIPE EVERY 30 STDS; HOLE GIVING PROPER DISPLACEMENT  
10:30 STRAP & PICK UP 4" HWD F/10,876' T/11,608'  
12:30 REMOVE TRIP NIPPLE & INSTALL ROTATING HEAD  
13:00 SLIP & CUT DRLG LINE (7 WRAPS)  
15:00 TIH F/11,608' T/18,243' @ 60 FT/MIN STRING SPEED; FILL PIPE EVERY 30 STDS; HOLE GIVING PROPER DISPLACEMENT  
20:30 SAFETY WASH F/18,243' T/18,465'; TRIP GAS = 1986 UNITS W/ NO FLARE; GET SPR'S FOR NEW BHA; DOWN LINK COMMANDS TO RSS  
22:30 ROT DRILLING F/18,465' - T/18,482' (17' @ 17 FPH). DRILL WITH REDUCED PARAMETERS UNTIL SEATING BIAS UNIT IN NEW HOLE; WOB: 15K, SPM: 94, TOP DRV RPM: 25; GPM: 250; MUD MTR RPM: 88; TOP DRV TRQ: 10-11K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 5,950 PSI; DIFF PSI: 250, MW IN 13.7 PPG PU: 207, SO: 165, ROT: 183  
23:30 ROT DRILLING F/18,482' - T/18,556' (74' @ 24.7 FPH); WOB: 20-25K, SPM: 99, TOP DRV RPM: 40-80; GPM: 260; MUD MTR RPM: 91; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 6,350 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 207, SO: 155, ROT: 183  
02:30 ROT DRILLING F/18,556' - T/18,623' (67' @ 33.5 FPH); WOB: 20-27K, SPM: 99, TOP DRV RPM: 75; GPM: 260; MUD MTR RPM: 91; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,350 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 207, SO: 155, ROT: 183  
04:30 DOWN LINK DIRECTIONAL COMMANDS TO DROP INCLINATION 1 DEGREE AND 7% DEFLECTION @ 90R  
05:00 ROT DRILLING F/18,623' - T/18,656' (33' @ 33 FPH); WOB: 20-27K, SPM: 99, TOP DRV RPM: 75; GPM: 260; MUD MTR RPM: 91; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,350 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 207, SO: 155, ROT: 183

Vis (s/qt): 63, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
18,508.0	11,986.63	91.42	344.16	6,837.66	0.67	6,592.84	-1,813.60
18,602.0	11,984.74	90.88	343.21	6,931.63	1.16	6,683.04	-1,840.00

### 03/08/2017

Rig Name: H&P 602

Depth = 19,435.0 Progress = 779.0

06:00 ROT DRILLING F/18,656' - T/18,787' (131' @ 32.75 FPH); WOB: 20-25K, SPM: 100, TOP DRV RPM: 75/90; GPM: 260; MUD MTR RPM: 91; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,350 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 180  
10:00 ROT DRILLING F/18,787' - T/18,913' (126' @ 31.5 FPH); WOB: 20-25K, SPM: 100, TOP DRV RPM: 75/90; GPM: 260; MUD MTR RPM: 91; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,350 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 180  
14:00 ROT DRILLING F/18,913' - T/19,004' (91' @ 36.4 FPH); WOB: 20-25K, SPM: 100, TOP DRV RPM: 75/90; GPM: 260; MUD MTR RPM: 91; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,350 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 180  
16:30 SERVICE RIG  
17:00 ROT DRILLING F/19,004' - T/19,050' (46' @ 46 FPH); WOB: 20-25K, SPM: 100, TOP DRV RPM: 75/90; GPM: 260; MUD MTR RPM: 91; TOP DRV TRQ: 10-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 6,350 PSI; DIFF PSI: 350, MW IN 13.7 PPG PU: 210, SO: 147, ROT: 179  
18:00 ROT DRILLING F/19,050' - T/19,098' (48' @ 32 FPH); WOB: 24K, SPM: 103, TOP DRV RPM: 75; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 211, SO: 147, ROT: 179  
19:30 DIRECTIONAL SEND DOWN LINKS FOR 7% DEFLECTION; TF: 270; TRIM UP INCLINATION 1/2 DEGREE  
20:00 ROT DRILLING F/19,098' - T/19,167' (69' @ 34.5 FPH); WOB: 22-24K, SPM:



103, TOP DRV RPM: 75; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 212, SO: 147, ROT: 179

22:00 ROT DRILLING F/19,167' - T/19,292' (125' @ 31.3 FPH); WOB: 22-24K, SPM: 103, TOP DRV RPM: 75; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 212, SO: 147, ROT: 179

02:00 ROT DRILLING F/19,292' - T/19,339' (47' @ 47 FPH); WOB: 22-24K, SPM: 103, TOP DRV RPM: 75; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 212, SO: 147, ROT: 179

03:00 ROT DRILLING F/19,339' - T/19,383' (44' @ 29.3 FPH); WOB: 22-24K, SPM: 100, TOP DRV RPM: 75; GPM: 266; MUD MTR RPM: 93; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 6,050 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 212, SO: 145, ROT: 179

04:30 ROT DRILLING F/19,383' - T/19,435' (52' @ 34.6 FPH); WOB: 22-24K, SPM: 103, TOP DRV RPM: 75; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 5K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 212, SO: 145, ROT: 179

Vis (s/qt): 62, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
18,697.0	11,984.06	89.94	342.56	7,026.60	1.20	6,773.83	-1,867.96
18,792.0	11,985.19	88.70	342.51	7,121.54	1.31	6,864.44	-1,896.46
18,887.0	11,986.06	90.25	344.87	7,216.52	2.97	6,955.60	-1,923.14
18,982.0	11,986.21	89.57	345.81	7,311.50	1.22	7,047.51	-1,947.18
19,077.0	11,986.78	89.75	346.77	7,406.45	1.03	7,139.80	-1,969.70
19,171.0	11,986.93	90.06	346.95	7,500.35	0.38	7,231.34	-1,991.07
19,266.0	11,985.80	91.30	345.95	7,595.28	1.68	7,323.69	-2,013.32
19,361.0	11,984.01	90.86	344.50	7,690.25	1.59	7,415.53	-2,037.54

### 03/09/2017

Rig Name: H&P 602

Depth = 20,237.0 Progress = 802.0

06:00 ROT DRILLING F/19,435' - T/19,530' (95' @ 24 FPH); WOB: 18-22K, SPM: 103, TOP DRV RPM: 85; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 212, SO: 148, ROT: 179  
PUMP 10 BBL SWEEPS W/ 20 PPB GRAPHITE AT TOP & MIDDLE OF EACH STAND

10:00 ROT DRILLING F/19,530' - T/19,675' (145' @ 36 FPH); WOB: 13-16K, SPM: 103, TOP DRV RPM: 75; GPM: 274; MUD MTR RPM: 96; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; OFF BOTTOM SPP: 6,500 PSI; DIFF PSI: 550, MW IN 13.7 PPG PU: 212, SO: 144, ROT: 180  
PUMP 10 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS AT TOP & MIDDLE OF EACH STAND

14:00 ROT DRILLING F/19,675' - T/19,765' (90' @ 36 FPH); WOB: 12K, SPM: 92, TOP DRV RPM: 100; GPM: 245; MUD MTR RPM: 86; TOP DRV TRQ: 12-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; OFF BOTTOM SPP: 5,600 PSI; DIFF PSI: 300-700, MW IN 13.7 PPG PU: 212, SO: 148, ROT: 180  
PUMP 10 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS AT TOP & MIDDLE OF EACH STAND

16:30 LUBRICATE RIG

17:00 ROT DRILLING F/19,765' - T/19,826' (61' @ 61 FPH); WOB: 12K, SPM: 92, TOP DRV RPM: 100; GPM: 245; MUD MTR RPM: 86; TOP DRV TRQ: 13-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 5,650 PSI; DIFF PSI: 300-700, MW IN 13.7 PPG PU: 203, SO: 148, ROT: 180  
PUMP 10 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS AT TOP & MIDDLE OF EACH STAND

18:00 ROT DRILLING F/19,826' - T/19,952' (126' @ 31.5 FPH); WOB: 12K, SPM: 92, TOP DRV RPM: 100; GPM: 245; MUD MTR RPM: 86; TOP DRV TRQ: 13-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 5,650 PSI; DIFF PSI: 300-700, MW IN 13.7 PPG PU: 203, SO: 140, ROT: 183 PUMP 12-15 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS AS NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.

22:00 ROT DRILLING F/19,952' - T/20,086' (134' @ 33.5 FPH); WOB: 12K/24K, SPM: 92, TOP DRV RPM: 100; GPM: 245; MUD MTR RPM: 86; TOP DRV TRQ: 13-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 5,650 PSI; DIFF PSI: 300-700, MW IN 13.7 PPG PU: 203, SO: 140, ROT: 183  
PUMP 12-15 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS AS NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.

02:00 ROT DRILLING F/20,086' - T/20,237' (151' @ 37.75 FPH); WOB: 22K/24K, SPM: 92, TOP DRV RPM: 100; GPM: 245; MUD MTR RPM: 86; TOP DRV TRQ: 13-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 6K; OFF BOTTOM SPP: 5,650 PSI; DIFF PSI: 300-700, MW IN 13.7 PPG PU: 203, SO: 140, ROT: 183  
PUMP 12-15 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS AS

NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.

Vis (s/qt): 62, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
19,456.0	11,982.64	90.80	342.14	7,785.22	2.48	7,506.51	-2,064.81
19,551.0	11,981.76	90.26	341.09	7,880.10	1.24	7,596.66	-2,094.77
19,645.0	11,981.34	90.25	341.68	7,973.98	0.63	7,685.74	-2,124.77
19,740.0	11,980.93	90.25	343.00	8,068.92	1.39	7,776.26	-2,153.59
19,835.0	11,980.26	90.55	343.64	8,163.90	0.74	7,867.26	-2,180.86
19,930.0	11,980.06	89.69	343.87	8,258.89	0.94	7,958.46	-2,207.43
20,025.0	11,980.03	90.35	344.27	8,353.89	0.81	8,049.82	-2,233.51
20,120.0	11,979.09	90.79	344.09	8,448.89	0.50	8,141.21	-2,259.40

### 03/10/2017

Rig Name: H&P 602

Depth = 21,279.0 Progress = 1042.0

- 06:00 ROT DRILLING F/20,237' - T/20,370' (133' @ 43 FPH); WOB: 26K, SPM: 92, TOP DRV RPM: 100; GPM: 245; MUD MTR RPM: 86; TOP DRV TRQ: 12-13K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; OFF BOTTOM SPP: 5,725 PSI; DIFF PSI: 400-500, MW IN 13.7 PPG PU: 202, SO: 130, ROT: 180 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.
- 10:00 ROT DRILLING F/20,370' - T/20,521' (151' @ 37.8 FPH); WOB: 27K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 13-15K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; OFF BOTTOM SPP: 5,725 PSI; DIFF PSI: 400-500, MW IN 13.7 PPG PU: 202, SO: 130, ROT: 180 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.
- 14:00 ROT DRILLING F/20,521' - T/20,711' (190' @ 47.5 FPH); WOB: 27K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 13-15K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; OFF BOTTOM SPP: 5,725 PSI; DIFF PSI: 400-500, MW IN 13.7 PPG PU: 202, SO: 130, ROT: 180 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.
- 18:00 ROT DRILLING F/20,711' - T/20,897' (186' @ 46.5 FPH); WOB: 27K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 13-15K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,250 PSI; DIFF PSI: 375/450, MW IN 13.7 PPG PU: 212, SO: 130, ROT: 179 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.
- 22:00 ROT DRILLING F/20,897' - T/21,086' (189' @ 47.25 FPH); WOB: 27K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 13-15K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,250 PSI; DIFF PSI: 375/450, MW IN 13.7 PPG PU: 212, SO: 130, ROT: 179 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.
- 02:00 ROT DRILLING F/21,086' - T/21,279' (193' @ 48.25 FPH); WOB: 27K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 13-15K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,250 PSI; DIFF PSI: 375/450, MW IN 13.7 PPG PU: 212, SO: 130, ROT: 179 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.

Vis (s/qt): 63, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
20,215.0	11,978.02	90.49	344.07	8,543.88	0.32	8,232.56	-2,285.46
20,310.0	11,976.52	91.32	344.97	8,638.87	1.29	8,324.10	-2,310.81
20,404.0	11,974.93	90.62	343.17	8,732.85	2.05	8,414.48	-2,336.61
20,499.0	11,974.05	90.44	341.98	8,827.80	1.27	8,505.11	-2,365.05
20,594.0	11,973.53	90.19	341.85	8,922.71	0.30	8,595.42	-2,394.54
20,689.0	11,972.05	91.60	343.40	9,017.65	2.21	8,686.07	-2,422.91
20,784.0	11,969.85	91.05	344.70	9,112.62	1.49	8,777.38	-2,449.01
20,878.0	11,968.59	90.49	344.85	9,206.61	0.62	8,868.07	-2,473.69
20,973.0	11,967.21	91.17	345.55	9,301.59	1.03	8,959.91	-2,497.96
21,068.0	11,965.53	90.86	345.29	9,396.56	0.43	9,051.84	-2,521.87
21,163.0	11,964.46	90.43	343.64	9,491.55	1.79	9,143.36	-2,547.31

### 03/11/2017

Rig Name: H&P 602

Depth = 21,843.0 Progress = 564.0

- 06:00 ROT DRILLING F/21,279' - T/21,425' (146' @ 36.5 FPH); WOB: 16-24K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 11-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,100 PSI; DIFF PSI: 375/500,

MW IN 13.7 PPG PU: 203, SO: 129, ROT: 182 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.

10:00 ROT DRILLING F/21,425' - T/21,470' (45' @ 45 FPH); WOB: 20-23K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 11-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,100 PSI; DIFF PSI: 375/500, MW IN 13.7 PPG PU: 203, SO: 129, ROT: 182 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.

11:00 LUBRICATE RIG; GET SPR'S

11:30 ROT DRILLING F/21,470' - T/21,610' (140' @ 35 FPH); WOB: 25-28K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 11-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,100 PSI; DIFF PSI: 375/500, MW IN 13.7 PPG PU: 203, SO: 129, ROT: 182 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED.

15:30 ROT DRILLING F/21,610' - T/21,713' (103' @ 23 FPH); WOB: 28K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 13-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,100 PSI; DIFF PSI: 375/500, MW IN 13.7 PPG PU: 203, SO: 129, ROT: 182 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED; SWIVAL PACKING BLOWN.

20:00 REPLACE BLOWN SWIVAL PACKING AND CLEAN TOP DRIVE; PRESSURE TEST. TEST GOOD.

21:00 ROT DRILLING F/21,713' - T/21,843' [TD] (130' @ 43.34 FPH); WOB: 28K, SPM: 90, TOP DRV RPM: 100; GPM: 240; MUD MTR RPM: 84; TOP DRV TRQ: 13-14K FT/LBS ON BTM, OFF BOTTOM TRQ: 7K; SPP: 6,100 PSI; DIFF PSI: 375/500, MW IN 13.7 PPG PU: 203, SO: 129, ROT: 182 PUMP 12 BBL SWEEPS W/ 15 PPB GRAPHITE & 4 PPB SUNBURST BEADS EACH STAND AND MIDDLE OF STAND IF NEEDED TO MAINTAIN DIFFERENTIAL AND KEEP BIT ENGAGED

00:00 PUMP UP FINAL SURVEY; DOWNLINK TO TOOLS AND VERIFY RIBS OFF MODE.

01:00 CIRCULATE AND CONDITION WELL PER K&M CLEAN UP PROCEDURE; 240 GPM; 6350 SPP; 100 RPM; WORKING STRING @ 60 FT/MIN; PU 205K; SO 170K; SETTING BACK ONE STAND EVERY BOTTOMS UP; 1ST BTM UP 35%/40% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 2ND BTM UP 20%/25% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 3RD BTM UP 20%/25% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 4TH BTM UP 15%/20% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS;

Vis (s/qt): 61, Dens (lb/gal): 13.70, pH: 0.0

MD (ft)	TVD (ft)	Incl (°)	Azi (°)	VS (ft)	DLS (°/100ft)	N/S (ft)	E/W (ft)
21,257.0	11,964.20	89.88	342.37	9,585.52	1.47	9,233.25	-2,574.78
21,353.0	11,964.10	90.25	342.12	9,681.46	0.47	9,324.68	-2,604.06
21,448.0	11,962.61	91.54	343.24	9,776.40	1.80	9,415.36	-2,632.33
21,542.0	11,959.93	91.73	344.44	9,870.36	1.29	9,505.60	-2,658.49
21,637.0	11,958.28	90.26	341.27	9,965.30	3.68	9,596.35	-2,686.48
21,732.0	11,960.68	86.85	338.09	10,059.93	4.91	9,685.39	-2,719.45
21,821.0	11,963.36	89.69	339.32	10,148.45	3.48	9,768.26	-2,751.75

### 03/12/2017

Rig Name: H&P 602

Depth = 21,843.0 Progress = 0.0

06:00 CIRCULATE AND CONDITION WELL PER K&M CLEAN UP PROCEDURE; 240 GPM; 6350 SPP; 100 RPM; WORKING STRING @ 60 FT/MIN; PU 205K; SO 170K; SETTING BACK ONE STAND EVERY BOTTOMS UP; 1ST BTM UP 35%/40% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 2ND BTM UP 20%/25% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 3RD BTM UP 20%/25% SCREEN COVERAGE OF MED FINE AND FINE CUTTINGS; 4TH BTM UP SHAKERS ARE CLEAN W/ ONLY A SMALL AMOUNT OF FINE CUTTINGS PRESENT.

08:00 FLOW CHECK WELL - GOOD.  
TOOH ON ELEVATORS F/ 21,465' T/21,150' @ 40 FT/MIN; 0 - 10K OVERPULL ABOVE P/U OF 265K

09:00 PULLED 30K OVER NORMAL @ 21,150'. COULD NOT TIH. BREAK CIRCULATION; REAM IN HOLE T/21,276' (TIGHT @ 21,265' WHICH WAS PREVIOUSLY SLICK); CIRCULATE AND REAM STAND @ GPM 240; SPP 6200; RPM 100; TORQ 7500; ATTEMPT TO TOH ON ELEVATORS; HOLE SLICK UNTIL TIGHT SPOT @ 21,140'

10:00 REAM IN HOLE T/ 21,277' - NO TIGHT SPOT @ 21,265'; REAM OUT OF HOLE T/ 20,993'; REAM IN HOLE T/ 21,183'; ALL REAMING AT 100 RPM & 240 GPM; SHAKERS ARE CLEAN EXCEPT FOR SMALL AMOUNT OF FINE SILT.

12:30 TOH ON ELEVATORS F/21,183' T/20,854' @ 40FT/MIN. SLICK UNTIL 20,854 THEN UNABLE TO PULL THROUGH TIGHT SPOT WITH 30K OVERPULL.

13:00 PERFORM CLEAN UP CYCLE F/20,800' T/20,894', GPM 266, SPP 6850, RPM 90, TORQ 7-8K; SHAKERS CONTINUE TO REMAIN CLEAN.

14:30 TOH ON ELEVATORS F/21,805' T/20,334' @ 40 FT/MIN; 0 - 15K OVERPULL,

UNTIL TIGHT SPOT @ 20,334', UNABLE TO WORK THOUGH TIGHT SPOT WITH 30K.  
15:30 REAM THROUGH TIGHT SPOT AT 20,334', THEN SMOOTH T/20,237'.  
16:30 TOH ON ELEVATORS F/20,237' T/19,848' @ 40FT/MIN UNTIL TIGHT SPOT @ 19,848'.  
17:00 BACKREAM F/19,848' T/19,190'; GPM 245, SPP 6200, RPM 100, TORQ 6K  
19:30 WEATHER STAND DOWN DUE TO HIGH WIND & LIGHTNING. CONTINUE TO RECIPROCAT & CIRCULATE; GPM 245, SPP 6200, RPM 100, TORQ 6K.  
22:00 TOH F/19,190'- T/12,464'; PULLING @ 50 FT/MIN TO 18,200', THEN @ 60 FT/MIN TO 16,200', THEN 80 FT/MIN TO 14,000', THEN 100 FT/MIN TO 12,464'(EOC) NO UNUSUAL DRAG OR TIGHT SPOTS SEEN. WELL IS TAKING PROPER DISPLACEMENT.  
03:00 \*\*\* 1 HOUR DAYLIGHT SAVINGS TIME \*\*\*  
04:00 CIRCULATE BOTTOMS UP TO CLEAR GAS FROM LATERAL; FLOW CHECK WELL, WELL IS STATIC; DROP RABBIT.  
Vis (s/qt): 65, Dens (lb/gal): 13.70, pH: 0.0

### 03/13/2017

Rig Name: H&P 602

Depth = 21,843.0 Progress = 0.0

06:00 TOH & SLM F/12,464' T/3,060' @ 140 FT/MIN STRING SPEED; PULL ROTATING HEAD ELEMENT; INSTALL TRIP NIPPLE TOH & SLM F/3,060' T/204' @ 140 FT/MIN STRING SPEED; HOLE TAKING PROPER FILL.  
15:30 LAY DOWN REAMER (NO CUTTERS ARE CHIPPED), PULL 200' OF WIRE AND RABBIT FROM BHA; BREAK DOWN & LAY OUT ALL BHA COMPONENTS; BREAK AND DULL GRADE BIT- 1 INNER, 1 OUTER, FULL GAUGE; RD ALL WEATHERFORD DIRECTIONAL FROM FLOOR AND DOGHOUSE; RD DLC UNIT FROM TRIP TANKS.  
18:30 RIG UP CASING CREW, TORQUE TURN AND THREAD REP; SET STOP POINTS ON BLOCKS; SET BRIDGE PROTECTION AND FUNCTION TEST STOP POINTS AND CASING RUNNING EQUIPMENT; PJSM W/ RIG CREW, CASING CREW AND THREAD REPS.  
20:00 MU SHOE JT TO FIRST JT OF CSG, PUMP AND TEST FLOATS, FLOATS GOOD; RUN 130 JTS FROM A TOTAL OF 228 JTS OF HCP-110, 13.5 PPF, WEDGE 563, 4 1/2" CASING AS FOLLOWS, SHOE JT @ 21,832.9', THEN 10 JTS OF CSG, 1ST MRKR JT @ 21,325.4', THEN 91 JTS OF CSG, THEN 2ND MRKR JT @ 17,062.4', THEN 126 JTS OF CSG, THEN 3RD MRKR JT @ 11,225', THEN 1 JT OF CSG, THEN LINER HANGER @ 11,130'; ALL JTS TORQUED TO 5,300 FT/LBS; CENTRALIZERS PLACED ON LAST 23 JTS IN HOLE, WILL LAND CENTRALIZERS THROUGH CURVE.

Vis (s/qt): 74, Dens (lb/gal): 13.80, pH: 0.0

### 03/14/2017

Rig Name: H&P 602

Depth = 21,843.0 Progress = 0.0

06:00 RUN F/#130 T/#228 JTS FROM A TOTAL OF 228 JTS OF HCP-110, 13.5 PPF, WEDGE 563, 4 1/2" CASING AS FOLLOWS, SHOE JT @ 21,832.9', THEN 10 JTS OF CSG, 1ST MRKR JT @ 21,325.4', THEN 91 JTS OF CSG, THEN 2ND MRKR JT @ 17,062.4', THEN 126 JTS OF CSG, THEN 3RD MRKR JT @ 11,225', THEN 1 JT OF CSG, THEN LINER HANGER @ 11,130'; JTS #1 - #178 TORQUED TO 5,300 FT/LBS; JTS #179 - HANGER TORQUED TO 5,800 FT/LBS; CENTRALIZERS PLACED ON LAST 23 JTS IN HOLE, WILL LAND CENTRALIZERS THROUGH CURVE.  
12:00 HPJSM, PICK UP BAKER LINER HANGER/RUNNING TOOL ASSEMBLY; MAKE UP TO CASING AT 5800 FT-LB  
12:30 RIG DOWN CASING TONGS & BAIL EXTENSIONS; RIG UP DP ELEVATORS; MAKE UP CROSS-OVER & 1 STAND OF DP TO LINER RUNNING TOOLS  
13:30 START TO CIRCULATE BOTTOMS UP; UNABLE TO READ SPP ON TOTCO OR OMRON; CABLE ON STANDPIPE MANIFOLD IS BAD.  
14:00 PULL TRIP NIPPLE; INSTALL ROTATING HEAD ELEMENT  
15:30 CIRCULATE BU; GPM 210; SPP 1100  
16:30 TIH WITH 4 1/2" LINER F/10,797' T/21,834' @ 90 FPM. ONE STAND OF DP ABOVE LINER TOOLS, THEN 59 JOINTS OF HWD, THEN DRILL PIPE TO SURFACE. HOLE GIVING PROPER DISPLACEMENT; NO UNUSUAL DRAG SEEN.  
00:30 CIRCULATE 2 HOLE VOLUMES; 1ST HOLE VOLUME @ 4BBL/MIN, SPP= 2365 PSI; 2ND HOLE VOLUME @ 5 BBL/MIN, SPP= 3965 PSI, TO CONDITION MUD AND CUT MW FROM 13.7 PPG TO 13.5 PPG AND EVACUATE TRIP GAS FROM WELLBORE; 1ST BTM UP, 1,441 UNITS GAS W/ 6'x 8 MIN LAZY FLARE; NO GAINS OR LOSSES ENCOUNTERED; BEGIN MW 13.7 PPG, END MW 13.5 PPG.  
05:00 STAND BACK ONE STAND IN DERRICK; PU AND MU 10' PUP JT AND BAKER CEMENT HEAD; DROP SETTING BALL DOWN STRING AND WAIT 30 MINUTES FOR BALL TO LAND IN HANGER.

Vis (s/qt): 74, Dens (lb/gal): 13.80, pH: 0.0

### 03/15/2017

Rig Name: H&P 602

Depth = 21,843.0 Progress = 0.0

06:00 PJSM WITH RIG CREW, BAKER LINER HANGER TOOL REP. DROP 1.25 BALL; R/U CEMENT HEAD WITH X/O & 10' PUP JOINT; PICK UP FREE TRAVEL WAS 220K SLACK OFF FREE TRAVEL 205 K; PRESSURED UP ON BALL SEAT TO 1400 PSI SET HANGER W/ 80K WEIGHT ON IT; PRESSURED UP ON BALL - PASS THROUGH BALL SEAT @ 2100 PSI; DROPPED 1.5 BALL; HPJSM WITH CEMENTERS, BAKER, & RIG CREW WHILE WAIT ON BALL TO FALL; PASSED 1.5" BALL THROUGH BALL SEAT @ 1800 PSI & RELEASED FROM LINER;

08:00 R/U HALLIBURTON TO CEMENT HEAD, PRESSURE TEST LINES TO 8,000 PSI, CEMENT 4.5" LINER AS FOLLOWS: MIX AND PUMP 30 BBLS OF 14.3 PPG TUNED SPACER III, PUMPED 790 SX 172 BBLS VERSACEM CMT, 1.223 CU FT/SK, 14.5 PPG, 5.55 GAL/SK MIX WATER, 0.45% HR-601, 0.40% HALAD(R)-344: , MIXED AND PUMPED AT 3.5 BPM, DROPPED WEATHERFORD DP WIPER PLUG, DISPLACED W/ 20 BBLS MMCR, 133 BBLS OF 2% KCL (SUBSTITUTE) OVER FRESH WATER MIXED ON THE FLY, 15 BBLS OF 14.3 PPG TUNED SPACER III, 99 BBLS OF OBM FROM PITS, BUMPED PLUG ON TIME, FINAL RATE WAS 2.0 BPM @ 2800 PSI, PRESSURED UP TO 3,283 PSI, HELD FOR 5 MINUTE, OPEN LINE BLEED BACK 2.5 BBLS FROM LINES, FLOATS HELD, PRESSURED BACK UP TO 3,700 PSI OPENED WET SHOE, WET SHOE W/2 BBLS; FINAL PUMP IN PRESSURE 2,600 PSI @ 2 BPM, SHUT DOWN AND HELD 1700 PSI, BLEED OFF PRESSURE TO ZERO, BLEED BACK 1.5 BBLS, FLOATS HOLDING, WELL STATIC.

11:00 P/U TO PULL LINER TOOL DOGS ABOVE LINER TOP; SET PACKER WITH 100K DOWN WEIGHT; PRESSURE UP ANNULUS TO TEST PACK OFF WITH 3,000 PSI FOR 5 MIN (TEST GOOD);

12:00 PRESSURE UP TO 500 PSI THEN STING OUT; CONFIRM FULL RETURNS @ 3.5 BPM WITH 2,325 PSI, TRIP TANKS THEN INCREASE TO 5 BPM @ 3,000 PSI; PRESSURE CLIMBED GRADUALLY TO 3,800 PSI UNTIL THICK CEMENT RETURNS AT SURFACE, THEN DECREASED TO 2,400 PSI AFTER BOTTOMS UP; CIRCULATED 35 BBLS CEMENT TO SURFACE; RECIPROCATATE PIPE 10' DURING CIRCULATION.

13:00 FILL TRIP TANKS WITH SUGAR WATER. WASH OUT STACK, FLOW LINE, AND VENT LINE

13:30 RIG DOWN CEMENT HEAD, CROSS-OVER, & 10' PUP JT; STAND BACK 6 STANDS OF 4" DRILL PIPE; INSTALL BUMP STOP ON PDS TO LAY DOWN DP

15:30 PULL ROTATING HEAD; INSTALL TRIP NIPPLE

16:00 PUT TRIP TANK ON HOLE TO LAY DOWN PIPE AND FLOWLINE WOULD NOT DRAIN DUE TO CEMENT PLUG IN TRIP TANK VALVE; CLEARED CEMENT PLUG

17:00 TOH LAYING DOWN 4" DRILL PIPE F/10,550' T/SURFACE; LD RUNNING TOOL; HOLE TAKING PROPER FILL: WHILE LDDP TRANSFERRED OBM TO STORAGE TANKS; CLEANING MUD PITS;

02:00 TIH W/ 81 STANDS OF DP OUT OF DERRICK, F/ SURFACE T/-7,481'; WELL IS GIVING PROPER DISPLACEMENT; WHILE TIH TRANSFERRED OBM TO STORAGE TANKS; CLEANING MUD PITS;

### 03/16/2017

Rig Name: H&P 602

Depth = 21,843.0 Progress = 0.0

06:00 TIH F/ 7,481' T/-11,125'; WELL IS GIVING PROPER DISPLACEMENT; WHILE TIH TRANSFERRED OBM TO STORAGE TANKS; CLEANING MUD PITS;

09:00 PUMP OUT TRIP TANKS AND FLUSH LINES ON PITS; LOAD PITS WITH 550 BBLS OF FW AND MIX 2% KCL; DISPLACE OBM FROM WELL BORE WITH 2% KCL.

12:30 PERFORM NEGATIVE TEST ON LINER PACKER WITH 8.4 PPG 2% KCL IN HOLE; MONITORING ON TRIP TANK FOR 30 MINUTES, NO FLOW.

13:00 LDDP F/ 11,125'- T/ SURFACE; WELL IS TAKING PROPER DISPLACEMENT; LOADING OUT FRONT YARD DP, BHA AND MISC LOADS WITH RIG RUNNERS RIG MOVERS.

22:00 CLEAR RIG FLOOR; FLUSH OUT BOP, CHOKE MANIFOLD, GAS SEPARATOR, AND ALL MUD LINES TO CLEAR OBM INTO TRIP TANK; PULL WEAR BUSHING FROM WELLHEAD.

00:00 CLEAN OUT KATCH KAN SYSTEM AND RD, NIPPLE DOWN B.O.P.E. AND SET BACK ON WRANGLER; NIPPLE UP TUBING HEAD AND FRAC VALVE; SIMULTANEOUSLY RIGGING DOWN PITS AND PUMPS.

### 03/17/2017

Rig Name: H&P 602

Depth = 21,843.0 Progress = 0.0

06:00 NIPPLE UP FRAC VAVLE ANY TUBING HEAD; RIG RELEASED @ 10:00;