



## Partner Drilling Report

### Well Name: UNIVERSITY 3-35 #102HB

Report Date: 6/23/2017  
Report #: 21.0, DFS: 19.48  
Time Log DFS: 19.48  
Depth Progress: 2,084.00

API/UWI No. 42461405920000	Surface Legal Location A-U47; SEC. 11; BLK. 4 CCSD&RGNG RR CO	Well License/Permit No. 826301	State/Province TEXAS
Original Spud/Spud Rig Date 6/3/2017 18:30	Rig Release Date	KB to GL (ft) 25.00	KB-Casing Flange Distance (ft)
Original Spud/Spud Rig Date 6/3/2017	Weather CLOUDY	Temperature (°F) 78.0	Road Condition GOOD
Current Status/OART ROTATE / SLIDE DRLG IN LATERAL SECTION AT REPORT TIME	24 Hour Forecast DRILL, SLIDE AND SURVEY 8 1/2" PRODUCTION LATERAL.		

Short Report  
ROTATE / SLIDE DRLG IN LATERAL SECTION, RIG SERVICE - LUBE RIG / SLIDE DRLG IN LATERAL SECTION,

Mud Volumes						
Active Volume (bbl)	Var Active Vol (bbl)	Balance (bbl)	Tank Volume (bbl)	Additions (bbl)	Losses (bbl)	Hole Volume (bbl)
3,923.7	294.8	381.2	2,937.8	71.6	158.0	985.9

Time Log						
Start Time	End Time	Dur (hr)	Phase	Ops Code	Sub Code	Time Code
06:00	17:00	11.00	23PHLD, Prod Hole Lat Drill	DR	c	O
ROTATE / SLIDE DRLG AND SURVEY F/ 13741' to 14947'						
1206' @ 110 FPH AVG ROP						
17:00	17:30	0.50	23PHLD, Prod Hole Lat Drill	RM	b	O
RIG SERVICE - LUBE RIG						
17:30	06:00	12.50	23PHLD, Prod Hole Lat Drill	DR	c	O
ROTATE / SLIDE DRLG AND SURVEY F/ 14947' TO 15825						
878' @ 70 FPH AVG ROP						
NOTE: PUMPING 20 BBL WEIGHTED SWEEPS EVERY 300'						

Mud Checks						
Time	Type	Depth (ftKB)	Density (kg/m³) (lb/g...)	Funnel Viscosity (s/qt)	PV Calc (cP)	YP Calc (lb/100ft²)
15:00	INVERMUL	14,412.0	9.50	65	15.0	15.006
Gel 10 sec (kPa) (lb...)	Gell 10 min (kPa) (l...	Gel 30 min (kPa) (lb...	Filtrate (mL/30min)	Filter Cake (1/32")	pH	Solids (%)
14.006	19.008	22.009				11.5
MBT (lb/bbl)	Percent Oil (%)	Percent Water (%)	Chlorides (kg/m³) (...)	Calcium (kg/m³) (m...	Potassium (mg/L)	Electric Stab (V)
	69.0	19.5	38,000.000	18,400.000		801.0
Time	Type	Depth (ftKB)	Density (kg/m³) (lb/g...)	Funnel Viscosity (s/qt)	PV Calc (cP)	YP Calc (lb/100ft²)
05:00	INVERMUL	15,372.0	9.55	58	15.0	13.005
Gel 10 sec (kPa) (lb...)	Gell 10 min (kPa) (l...	Gel 30 min (kPa) (lb...	Filtrate (mL/30min)	Filter Cake (1/32")	pH	Solids (%)
13.005	18.007	20.008				11.5
MBT (lb/bbl)	Percent Oil (%)	Percent Water (%)	Chlorides (kg/m³) (...)	Calcium (kg/m³) (m...	Potassium (mg/L)	Electric Stab (V)
	69.3	19.3	35,000.000	18,800.000		751.0

Mud Volumes			
Tank/Addition/Loss	Type	Volume (bbl)	Subtype
Addition	Water	58.0	
Hole	Hole	985.9	
Tank	Reserve	556.0	
Loss	SURFACE EQUIPMENT	131.0	
Tank	TOTAL CIRC	1,395.9	
Tank	INVERMUL	985.9	
Addition	CHEMICALS	13.6	
Loss	DOWNHOLE	0.0	
Loss	EVAPORATION	7.0	
Loss	FILTRATION	20.0	

Drill Strings			
BHA #8, Curve			
Bit Run	Drill Bit	IADC Bit Dull	TFA (incl Noz) (in²)
	8 1/2in, MMD55DM, 12871270	-----	1.86
Nozzles (1/32")	BHA Length (ft)	String Wt (1000lb)	Bit ROP (ft/hr)
22/22/22/22/22	12,130.33		87.3

Mud Motors		
Motor Bend	Bit to Bend	Rotor Nozzle Diameter (in)
2.12 FIXED	4.04	

Drill String Components					
Item Des	Manual/Tally Jts	OD (in)	ID (in)	Len (ft)	Top Thread
HWDP	21	5	3.00	664.93	IF
Drill Pipe	306	5	4.28	9,638.80	IF
Agitator		6 7/8	2.44	24.22	IF
Drill Pipe	54	5	4.28	1,702.49	IF

AFE Number DD.17.30779.CAP.DRL	AFE+Supp Amt (Cost) 2,177,000.00
Day Total (Cost) 66,982	Cum To Date (Cost) 1,729,459
Mud Field Est (Cost) 9,697	Cum Mud Field Est (Co... 95,934
Start Depth (ftKB) 13,741.0	End Depth (ftKB) 15,825.0
Planned Formation WOLFCAMP B	Planned TMD (ftKB) 19,216.0
Last Casing String Intermediate Casing, 7,787.0ftKB	

Daily Contacts	
Job Contact	Mobile
BRIAN ALLEMAN, Engineer	214-978-8000
DAVID LANKFORD, Foreman	281-220-5828
MARTY ARREZOLA, Consultant	281-220-5828
DEAN DUFFY, Rig Clerk/Logistics	281-220-5829

Personnel Log	
Head Count	23.0

Rigs	
HELMERICH & PAYNE DRILLING, 3	
Contractor HELMERICH & PAYNE DRILLING	Rig Number 394
Rig Supervisor THOMAS PENDERGRASS, Toolpusher	Phone Mobile 918-936-7394

1, Gardner-Denver, PZ-11			
Pump Number	Pwr (hp)	Rod Diameter...	
1	1,300.0		
Liner Size (in)	Stroke (in)	Vol/Stk OR (b...	
5	11.00	0.067	
P (psi)	Slow Spd	Strokes (s...	Eff (%)
875.0	Yes	60	95
P (psi)	Slow Spd	Strokes (s...	Eff (%)
3,678.0	No	107	95

2, Gardner-Denver, PZ-11			
Pump Number	Pwr (hp)	Rod Diameter...	
2	1,300.0		
Liner Size (in)	Stroke (in)	Vol/Stk OR (b...	
5	11.00	0.067	
P (psi)	Slow Spd	Strokes (s...	Eff (%)
860.0	Yes	60	95
P (psi)	Slow Spd	Strokes (s...	Eff (%)
3,678.0	No	107	95

Mud Additive Amounts		
Mud Additive Description	Field Est (Cost/unit)	Consumed
12 HR MUD ENGINEER	700.00	1.0
BARABLOK 400	85.00	10.0
BAROID (BULK)	205.00	4.0
BARO-TROL PLUS	77.97	10.0
CALCIUM CHL 95 -98%	17.10	36.0
CON DET	59.00	5.0
DRILTREAT	97.02	3.0
GELTONE V	65.00	9.0
LIME	6.00	35.0
PALLETS	10.00	4.0
RIG WASH	786.59	2.0
SHRINK WRAP	10.00	4.0
SUSPENTONE	134.10	19.0



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Depth Progress: 2,084.00

### Drill String Components

Item Des	Manual/Tally Jts	OD (in)	ID (in)	Len (ft)	Top Thread
Drill Collar - Non Mag		6 1/2	3.25	30.02	IF
Non-Mag Hangoff Sub		6 1/2	3.25	5.46	IF
Drill Collar - Non Mag		6 1/2	3.25	29.67	IF
Mud Motor - Bent Housing		6 1/2	2.50	33.74	IF

### Drilling Parameters

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 13,741.0	End Depth (ftKB) 14,099.0	Cum Depth (ft) 5,801.00	Drilling Time (hr) 2.69	Cum Drill Time (hr) 64.90	Interval ROP (ft/hr) 133.1	Flow Rate (gpm) 566
WOB (1000lbf) 30	Rotary RPM (rpm) 70	SPP (psi) 3,887.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 15.0	Off Btm Tq
Q Gas Inj (ft³/min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp) 26.9	HP/Area (hp/in²) 0.5	Bit Jet Velocity (ft/s) 97.9	Bit Pressure Drop (psi) 81.6	% P @ bit (%) 2
Max Casing AV (ft/min) 261.9	Max Open Hole AV (ft/min) 555.3	Min Casing AV (ft/min) 101.5	Min Open Hole AV (ft/min) 110.9	ECD End (lb/gal) 9.77

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,099.0	End Depth (ftKB) 14,114.0	Cum Depth (ft) 5,816.00	Drilling Time (hr) 0.51	Cum Drill Time (hr) 65.41	Interval ROP (ft/hr) 29.4	Flow Rate (gpm) 566
WOB (1000lbf) 43	Rotary RPM (rpm) 0	SPP (psi) 3,644.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 0.0	Off Btm Tq 0.0
Q Gas Inj (ft³/min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

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Max Casing AV (ft/min) 261.9	Max Open Hole AV (ft/min) 555.3	Min Casing AV (ft/min) 101.5	Min Open Hole AV (ft/min) 110.9	ECD End (lb/gal) 9.77

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,114.0	End Depth (ftKB) 14,382.0	Cum Depth (ft) 6,084.00	Drilling Time (hr) 2.40	Cum Drill Time (hr) 67.81	Interval ROP (ft/hr) 111.7	Flow Rate (gpm) 566
WOB (1000lbf) 30	Rotary RPM (rpm) 70	SPP (psi) 3,184.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 15.0	Off Btm Tq
Q Gas Inj (ft³/min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp) 26.9	HP/Area (hp/in²) 0.5	Bit Jet Velocity (ft/s) 97.9	Bit Pressure Drop (psi) 81.6	% P @ bit (%) 3
Max Casing AV (ft/min) 261.9	Max Open Hole AV (ft/min) 555.3	Min Casing AV (ft/min) 101.5	Min Open Hole AV (ft/min) 110.9	ECD End (lb/gal) 9.77

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,382.0	End Depth (ftKB) 14,398.0	Cum Depth (ft) 6,100.00	Drilling Time (hr) 0.59	Cum Drill Time (hr) 68.40	Interval ROP (ft/hr) 27.1	Flow Rate (gpm) 566
WOB (1000lbf) 43	Rotary RPM (rpm) 0	SPP (psi) 3,664.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 0.0	Off Btm Tq 0.0
Q Gas Inj (ft³/min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp) 26.9	HP/Area (hp/in²) 0.5	Bit Jet Velocity (ft/s) 97.9	Bit Pressure Drop (psi) 81.6	% P @ bit (%) 2
Max Casing AV (ft/min) 261.9	Max Open Hole AV (ft/min) 555.3	Min Casing AV (ft/min) 101.5	Min Open Hole AV (ft/min) 110.9	ECD End (lb/gal) 9.77

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,398.0	End Depth (ftKB) 14,758.0	Cum Depth (ft) 6,460.00	Drilling Time (hr) 2.73	Cum Drill Time (hr) 71.13	Interval ROP (ft/hr) 131.9	Flow Rate (gpm) 566
WOB (1000lbf) 30	Rotary RPM (rpm) 70	SPP (psi) 3,975.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 15.0	Off Btm Tq
Q Gas Inj (ft³/min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Mud Additive Amounts

Mud Additive Description	Field Est (Cost/unit)	Consumed
TRANSPORTATI ON	1.00	350.0

### Job Supplies

Supply Item Description		Unit Label
DIESEL FOR OBM		Gal
Total Received	Total Consumed	On Loc
27,241.6	20,829.6	6,412.0

Supply Item Description		Unit Label
DRILLING CUTTINGS		Cu. Yds
Total Received	Total Consumed	On Loc
250.0	250.0	0.0

Supply Item Description		Unit Label
DRILLING WATER		Bbl
Total Received	Total Consumed	On Loc
6,436.7	6,436.7	0.0

Supply Item Description		Unit Label
DRILLING WATER		Bbl
Total Received	Total Consumed	On Loc
9,718.0	9,718.0	0.0

Supply Item Description		Unit Label
FUEL		Gal
Total Received	Total Consumed	On Loc
40,235.5	31,163.5	9,072.0
Supply Item Description		Unit Label

Supply Item Description		Unit Label
LIQUID DRILLING WASTE		Bbl
Total Received 490.0	Total Consumed 490.0	On Loc 0.0
Supply Item Description		Unit Label

Supply Item Description		Unit Label
POTABLE WATER		Gal
Total Received 17,300.0	Total Consumed 17,300.0	On Loc 0.0
Supply Item Description		Unit Label

SEWAGE		Gal
Total Received 28,400.0	Total Consumed 28,400.0	On Loc 0.0
Supply Item Description		Unit Label

THREAD PROTECTORS		Box
Total Received 1.0	Total Consumed 1.0	On Loc 0.0
Supply Item Description		Unit Label

TRASH/GENERAL WASTE		Ea
Total Received 2.0	Total Consumed 2.0	On Loc 0.0
Safety Checks		

### Safety Checks

Time	Type	Safety Topic
17:30	Pre-Tour	HYDRATION
05:30	Pre-Tour	BUFFER ZONES

### Wellbores

Wellbore Name UNIVERSITY 3-35 #102HB
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### Kick Offs & Key Depths

Type	Top Depth (ftKB)



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### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
26.9	0.5	97.9	81.6	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.9	555.3	101.5	110.9	9.78

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,758.0	End Depth (ftKB) 14,774.0	Cum Depth (ft) 6,476.00	Drilling Time (hr) 0.65	Cum Drill Time (hr) 71.78	Interval ROP (ft/hr) 24.6	Flow Rate (gpm) 566
WOB (1000lbf) 48	Rotary RPM (rpm) 0	SPP (psi) 3,782.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 0.0	Off Btm Tq 0.0
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.2	0.5	97.9	82.5	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.9	555.3	101.5	110.9	9.89

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,774.0	End Depth (ftKB) 14,948.0	Cum Depth (ft) 6,650.00	Drilling Time (hr) 1.95	Cum Drill Time (hr) 73.73	Interval ROP (ft/hr) 89.2	Flow Rate (gpm) 565
WOB (1000lbf) 31	Rotary RPM (rpm) 70	SPP (psi) 3,921.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 17.0	Off Btm Tq 0.0
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.89

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,948.0	End Depth (ftKB) 14,963.0	Cum Depth (ft) 6,665.00	Drilling Time (hr) 0.53	Cum Drill Time (hr) 74.26	Interval ROP (ft/hr) 28.3	Flow Rate (gpm) 565
WOB (1000lbf) 40	Rotary RPM (rpm) 0	SPP (psi) 3,636.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 0.0	Off Btm Tq 0.0
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.89

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 14,963.0	End Depth (ftKB) 15,141.0	Cum Depth (ft) 6,843.00	Drilling Time (hr) 1.71	Cum Drill Time (hr) 75.97	Interval ROP (ft/hr) 104.1	Flow Rate (gpm) 565
WOB (1000lbf) 29	Rotary RPM (rpm) 70	SPP (psi) 3,858.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 16.0	Off Btm Tq 0.0
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.90

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB) 15,141.0	End Depth (ftKB) 15,158.0	Cum Depth (ft) 6,860.00	Drilling Time (hr) 0.72	Cum Drill Time (hr) 76.69	Interval ROP (ft/hr) 23.6	Flow Rate (gpm) 565
WOB (1000lbf) 18	Rotary RPM (rpm) 0	SPP (psi) 3,616.0	Drill Str Wt (1000... 180	PU Str Wt (1000lbf) 246	SO Str Wt (1000lbf) 215	Drilling Torque 0.0	Off Btm Tq 0.0
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...



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### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.90

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB)	End Depth (ftKB)	Cum Depth (ft)	Drilling Time (hr)	Cum Drill Time (hr)	Interval ROP (ft/hr)	Flow Rate (gpm)
	15,158.0	15,233.0	6,935.00	0.78	77.47	96.2	565
WOB (1000lbf)	Rotary RPM (rpm)	SPP (psi)	Drill Str Wt (1000...)	PU Str Wt (1000lbf)	SO Str Wt (1000lbf)	Drilling Torque	Off Btm Tq
30	70	3,827.0	180	246	215	17.0	
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...)	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.90

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB)	End Depth (ftKB)	Cum Depth (ft)	Drilling Time (hr)	Cum Drill Time (hr)	Interval ROP (ft/hr)	Flow Rate (gpm)
	15,233.0	15,246.0	6,948.00	0.56	78.03	23.2	565
WOB (1000lbf)	Rotary RPM (rpm)	SPP (psi)	Drill Str Wt (1000...)	PU Str Wt (1000lbf)	SO Str Wt (1000lbf)	Drilling Torque	Off Btm Tq
4	0	3,644.0	180	246	215	0.0	0.0
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...)	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.90

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB)	End Depth (ftKB)	Cum Depth (ft)	Drilling Time (hr)	Cum Drill Time (hr)	Interval ROP (ft/hr)	Flow Rate (gpm)
	15,246.0	15,517.0	7,219.00	3.19	81.22	85.0	565
WOB (1000lbf)	Rotary RPM (rpm)	SPP (psi)	Drill Str Wt (1000...)	PU Str Wt (1000lbf)	SO Str Wt (1000lbf)	Drilling Torque	Off Btm Tq
33	69	3,873.0	180	246	215	16.0	
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...)	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.91

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB)	End Depth (ftKB)	Cum Depth (ft)	Drilling Time (hr)	Cum Drill Time (hr)	Interval ROP (ft/hr)	Flow Rate (gpm)
	15,517.0	15,531.0	7,233.00	0.75	81.97	18.7	565
WOB (1000lbf)	Rotary RPM (rpm)	SPP (psi)	Drill Str Wt (1000...)	PU Str Wt (1000lbf)	SO Str Wt (1000lbf)	Drilling Torque	Off Btm Tq
6	0	3,599.0	180	246	215	0.0	0.0
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...)	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.1	0.5	97.7	82.2	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.91

Error

Wellbore UNIVERSITY 3-35 #102HB	Start Depth (ftKB)	End Depth (ftKB)	Cum Depth (ft)	Drilling Time (hr)	Cum Drill Time (hr)	Interval ROP (ft/hr)	Flow Rate (gpm)
	15,531.0	15,825.0	7,527.00	4.22	86.19	69.7	565
WOB (1000lbf)	Rotary RPM (rpm)	SPP (psi)	Drill Str Wt (1000...)	PU Str Wt (1000lbf)	SO Str Wt (1000lbf)	Drilling Torque	Off Btm Tq
29	70	3,990.0	180	246	215	14.0	
Q Gas Inj (ft <sup>3</sup> /min)	T Inj (°F)	P BH Ann (psi)	T BH (°F)	P Surf Annulus (p...)	T Surf Annulus (°F)	Q Liq Return (gpm)	Q Gas Return (f...



## Partner Drilling Report

Well Name: UNIVERSITY 3-35 #102HB

Report Date: 6/23/2017  
Report #: 21.0, DFS: 19.48  
Time Log DFS: 19.48  
Depth Progress: 2,084.00

### Hydraulic Calculations

Bit Hydraulic Power (hp)	HP/Area (hp/in <sup>2</sup> )	Bit Jet Velocity (ft/s)	Bit Pressure Drop (psi)	% P @ bit (%)
27.2	0.5	97.7	82.6	2
Max Casing AV (ft/min)	Max Open Hole AV (ft/min)	Min Casing AV (ft/min)	Min Open Hole AV (ft/min)	ECD End (lb/gal)
261.4	554.3	101.3	110.7	9.97
Error				

### Kicks

Kick Date	Kick Depth (ftKB)	Control Date	Control Depth (ftKB)	Kick Class
Kill Notes				

### Lost Circulation

Start Date	Top Depth (ftKB)	Bottom Depth (ftKB)	Ops In Prog	Vol Lost Tot (bbl)	End Date
6/3/2017 20:30	192.0				

### Interval Problems

Problem Type	Problem Subtype	Start Date	Start Depth (ftKB)	End Depth (ftKB)	Est Cost (Cost)	Est Lost Time (hr)
Action Taken						

### Interval Lessons

Lesson Type	Start Date	End Date	Start Depth (ftKB)	End Depth (ftKB)	Est Cost Saving (Co..)	Est Time Saving (hr)
Comment						

### Safety Incidents

Time	Category	Type	Subtype	Cause	Lost time?	Severity

### Leak Off and Formation Integrity Tests

Run Date	OD (in)	Set Depth (ft...)	Set Depth (T...)	Comment	MACP Press...
6/4/2017	13 3/8	684.0	684.0		500.0
Test Date	Test Type	Fluid Density (lb/gal)	EMW (lb/gal)		
6/8/2017	Casing Test	9.10	23.17		
Run Date	OD (in)	Set Depth (ft...)	Set Depth (T...)	Comment	MACP Press...
6/12/2017	9 5/8	7,787.0	7,781.9	9 5/8" INTERMEDIATE CASING TEST ABOVE DV TOOL.	1,500.0
Test Date	Test Type	Fluid Density (lb/gal)	EMW (lb/gal)		
6/13/2017	Casing Test	8.80			
Run Date	OD (in)	Set Depth (ft...)	Set Depth (T...)	Comment	MACP Press...
6/12/2017	9 5/8	7,787.0	7,781.9	9 5/8" INTERMEDIATE CASING TEST ABOVE SHOE TRACK.	1,500.0
Test Date	Test Type	Fluid Density (lb/gal)	EMW (lb/gal)		
6/13/2017	Casing Test	8.80			
Run Date	OD (in)	Set Depth (ft...)	Set Depth (T...)	Comment	MACP Press...
6/12/2017	9 5/8	7,787.0	7,781.9	PERFORM F.I.T. AS FOLLOWS: MW USED WBM @ 8.6 PPG. PUMPED 12.5 BBLS @ .5 BPM. PRESSURE UP TO 975 PSI 11.0 PPG EMW. HELD FOR 5 MINUTES.	986.0
Test Date	Test Type	Fluid Density (lb/gal)	EMW (lb/gal)		
6/13/2017	F.I.T.	8.60	11.03		

### Survey Data

MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
13,751.00	88.18	2.40	8,405.55	5,496.88	5,497.30	-53.42	1.72
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
13,845.00	88.62	2.24	8,408.18	5,590.79	5,591.18	-49.62	0.50
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
13,940.00	89.93	2.00	8,409.38	5,685.73	5,686.11	-46.10	1.40
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,034.00	90.64	1.79	8,408.91	5,779.70	5,780.06	-43.00	0.79
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,129.00	88.39	2.35	8,409.72	5,874.65	5,874.98	-39.56	2.44
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,223.00	88.12	1.31	8,412.58	5,968.57	5,968.89	-36.56	1.14
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,318.00	87.48	359.10	8,416.23	6,063.49	6,063.81	-36.22	2.42
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,412.00	89.66	1.80	8,418.57	6,157.45	6,157.77	-35.49	3.69
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,507.00	90.07	1.29	8,418.79	6,252.43	6,252.73	-32.92	0.69
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,602.00	90.50	1.23	8,418.32	6,347.41	6,347.71	-30.84	0.46



## Partner Drilling Report

Report Date: 6/23/2017  
Report #: 21.0, DFS: 19.48  
Time Log DFS: 19.48  
Depth Progress: 2,084.00

Well Name: UNIVERSITY 3-35 #102HB

### Survey Data

MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,696.00	91.75	0.59	8,416.48	6,441.39	6,441.67	-29.34	1.49
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,790.00	89.73	1.51	8,415.26	6,535.37	6,535.65	-27.62	2.36
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,884.00	90.50	1.15	8,415.07	6,629.35	6,629.62	-25.44	0.90
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
14,979.00	89.50	2.31	8,415.07	6,724.32	6,724.57	-22.57	1.61
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,073.00	89.97	1.69	8,415.51	6,818.28	6,818.51	-19.29	0.83
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,167.00	85.62	0.86	8,419.12	6,912.17	6,912.40	-17.20	4.71
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,261.00	87.72	1.45	8,424.58	7,006.00	7,006.21	-15.31	2.32
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,356.00	89.30	1.16	8,427.05	7,100.95	7,101.15	-13.14	1.69
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,450.00	91.04	1.23	8,426.78	7,194.94	7,195.13	-11.18	1.85
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,545.00	89.73	0.80	8,426.14	7,289.93	7,290.11	-9.50	1.45
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,639.00	89.46	0.47	8,426.80	7,383.92	7,384.10	-8.46	0.45
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,734.00	91.18	359.80	8,426.27	7,478.92	7,479.10	-8.24	1.94
MD (ftKB)	Inclination (°)	Azimuth (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
15,825.00	91.18	359.80	8,424.40	7,569.89	7,570.08	-8.55	0.00