

# **Forge Energy**

**Winkler County, TX (NAD 27 TC)**

**UL 20 Tensleep**

**#1H**

**OH**

**Survey: SDI Keeper Gyro Drop**

## **Regulatory Report (Grid North)**

**06 December, 2016**

## Regulatory Report (Grid North)

<b>Company:</b>	Forge Energy	<b>Local Co-ordinate Reference:</b>	Well #1H
<b>Project:</b>	Winkler County, TX (NAD 27 TC)	<b>TVD Reference:</b>	GL @ 2790.00usft
<b>Site:</b>	UL 20 Tensleep	<b>MD Reference:</b>	GL @ 2790.00usft
<b>Well:</b>	#1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Midland District

<b>Project</b>	Winkler County, TX (NAD 27 TC)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Texas Central 4203		

Site		UL 20 Tensleep			
Site Position:		Northing:	731,082.82 usft	Latitude:	31° 38' 36.717 N
From:	Map	Easting:	1,084,450.47 usft	Longitude:	103° 16' 32.462 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-1.52 °

Well	#1H					
Well Position	+N/-S	0.00 usft	Northing:	731,082.82 usft	Latitude:	31° 38' 36.717 N
	+E/-W	0.00 usft	Easting:	1,084,450.47 usft	Longitude:	103° 16' 32.462 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	2,790.00 usft

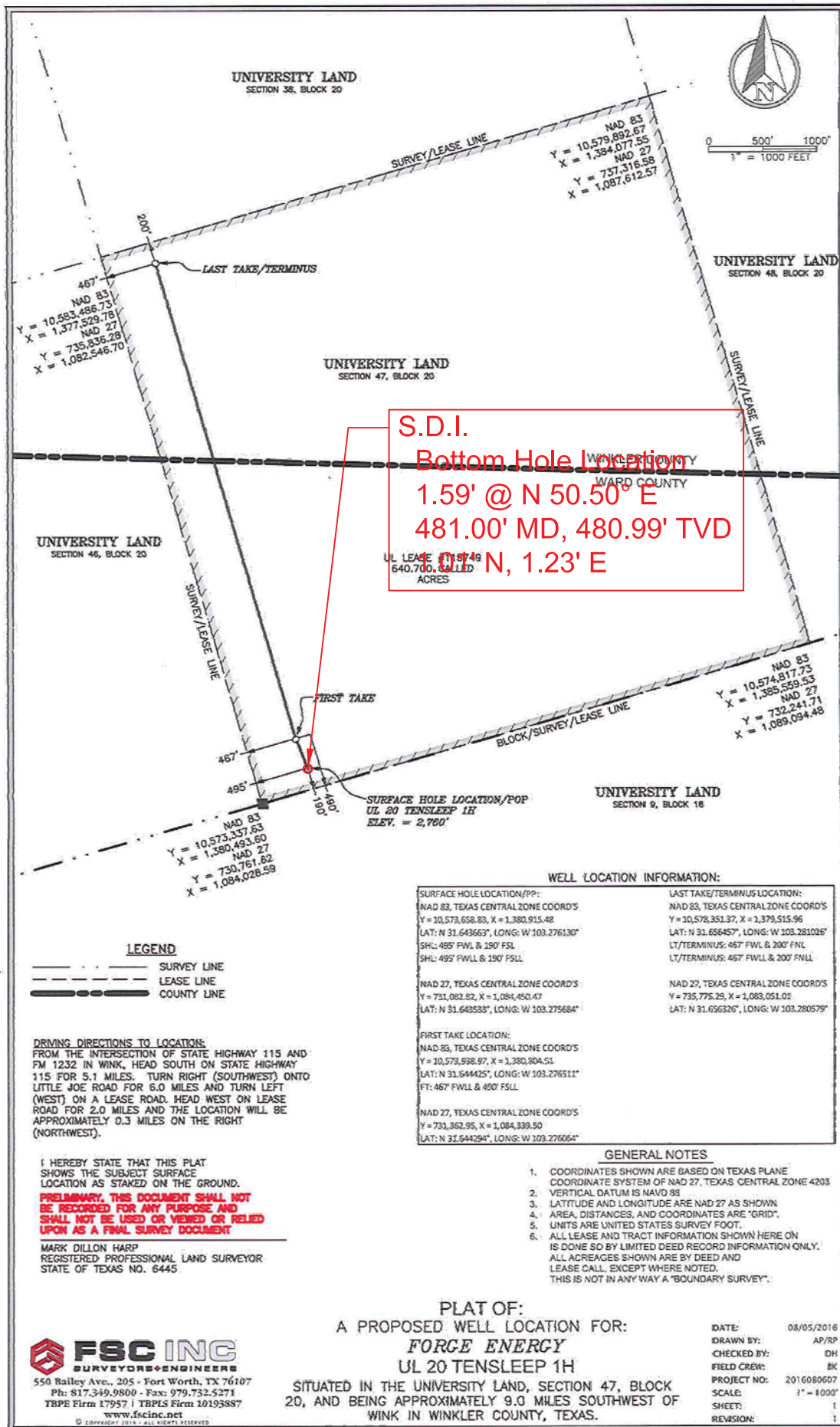
<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	12/6/2016	7.17	59.58	47,679

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(usft)	(usft)	(usft)	(bearing)	
	0.00	0.00	0.00	50.50	

<b>Survey Program</b>	<b>Date</b>	12/6/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
101.00	481.00	SDI Keeper Gyro Drop (OH)	SDI_Keeper_WL_NS+CT	SDI Keeper static gyrocompass with continuous surv	

<b>Survey</b>								
<b>MD (usft)</b>	<b>Inc (°)</b>	<b>Azi (grid_north_azim)</b>	<b>TVD (usft)</b>	<b>N/S (usft)</b>	<b>E/W (usft)</b>	<b>Closure Azimuth (bearing)</b>	<b>Closure Distance (usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101.00	0.33	351.50	101.00	0.29	-0.04	351.50	0.29	0.29
199.00	0.42	356.02	199.00	0.93	-0.11	353.24	0.93	0.93
293.00	0.48	90.13	293.00	1.27	0.26	11.60	1.29	1.29
386.00	0.46	148.39	385.99	0.95	0.85	41.69	1.27	1.27
481.00	0.52	25.36	480.99	1.01	1.23	50.50	1.59	1.59

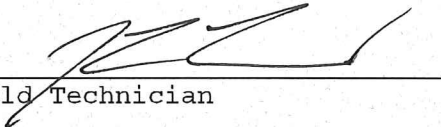
Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_





State of Texas  
County of Midland

I, Jeffrey Loyd, certify that; I am employed by Scientific Drilling International; that I did on the day(s) of 09/10/2016 through 09/10/2016 conduct or supervise the taking of a Keeper Gyro survey from a depth of 101 feet to a depth of 481 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Scientific Drilling International; that I am authorized and qualified to make this report; that this survey was conducted at the request of Forge Energy for the UL 20 Tensleep #1H Well, API# 42-475-37120 in Winkler County, Texas; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Scientific Drilling International.

  
Field Technician

**5D Survey Report****Forge Energy**

**Field Name:** *Forge-Nad 27 TCZ*  
**Site Name:** *UL 20 Tensleep 1H*  
**Well Name:** *UL 20 Tensleep 1H*  
**Survey:** *Definitive survey*

11 July 2017



## UL 20 Tensleep 1H

Field Name:  Forge-Nad 27 TCZ	Map Units: US ft		Company Name: Forge Energy	
	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD27 / Texas Central			
	Comment:			
Site:  UL 20 Tensleep 1H	Units: US ft		North Reference: Grid	
	Position:	Northing: 731082.82 US ft		Convergence Angle: -1.52
		Easting: 1084450.47 US ft		Latitude: 31° 38' 36.72"
	Elevation above MSL:2760.00 US ft		Longitude: -103° 16' 32.46"	
Comment:				
Slot:  UL 20 Tensleep 1H	Position (Relative to Site Centre)			
	+N/-S: 0.00 US ft	Northing: 731082.82 US ft		Latitude: 31°38'36.72"
	+E/-W: 0.00 US ft	Easting: 1084450.47 US ft		Longitude: -103°16'32.46"
	Elevation above MSL: 2760.00 US ft			
Comment:				
Well:  UL 20 Tensleep 1H	Type:Main well		UWI: Ward Co, TX	
	File Number:	Comment:		
	Closure Distance:2707.2US ft		Closure Azimuth:343.04°	
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: -0.00 US ft		+E/-W: -0.00 US ft	Az: 343.56°

### Drill floor: Survey Name: Definitive Survey

**Rig Height (Well TVD Reference):** 25.00 US ft **Elevation above MSL:** 2785.00 US ft **Inclination:** 0.00° **Azimuth:** 0.00°

### Survey Name: Definitive Survey

**Date:** 24/May/2017 **Survey Tool:** See Survey Tool Ranges below. **Comment:** **Company:**

### Magnetic Model:

**Model Name:** bggm2017 **Date:** 01/Jun/2017 **Field Strength:** 47682.5 nT **Declination:** 6.91° **Dip:** 59.57°

## 5D Survey Report

**Tie Point:**

**MD:** 0.00 US ft      **Inclination:** 0.00°      **Azimuth:** 0.00°      **TVD:** 0.00 US ft      **North Offset:** -0.00 US ft      **East Offset:** -0.00 US ft

**Survey Tool Ranges:**

Name	Start MD(USFt)	End MD(USFt)	Source Survey
GYRO-NS_OW	0.00	481.00	Gyro
MWD	481.00	3806.00	Wft MWD Svy (01)
MWD	3806.00	5018.00	Wft MWD Svy (02)
MWD	5018.00	8795.00	Wft MWD Svy (03)
MWD	8795.00	9436.00	Wft MWD Svy (04)
MWD	9436.00	11104.00	Wft MWD Svy (05)
MWD + Sag Corr	11104.00	11715.00	MWD+Sag Wft Svy (06)
MWD + Sag Corr	11715.00	13973.00	MWD+Sag Wft Svy (07)
MWD + Sag Corr	13973.00	14325.00	MWD Svy Sag Corr (08)

Wellpath created using minimum curvature.

**Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)**

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	T.Face (°)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	CL (US ft)	Comment
0.00	0.00	0.00	0.00	-2785.00	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	
25.00	0.00	0.00	25.00	-2760.00	-0.00	-0.00	0.00	0.00	0.00	0.00	25.00	
101.00	0.33	351.50	101.00	-2684.00	0.22	-0.03	0.43	351.50	0.43	0.00	76.00	
199.00	0.42	356.02	199.00	-2586.00	0.85	-0.10	0.10	20.46	0.09	4.61	98.00	
293.00	0.48	90.13	293.00	-2492.00	1.20	0.27	0.70	133.50	0.06	100.12	94.00	
386.00	0.46	148.39	385.99	-2399.01	0.88	0.86	0.49	121.32	-0.02	62.65	93.00	
481.00	0.52	25.36	480.99	-2304.01	0.94	1.24	0.91	210.39	0.06	-129.51	95.00	Tie On Gyro
611.00	0.16	17.67	610.99	-2174.01	1.65	1.55	0.28	183.39	-0.28	-5.92	130.00	First Wft Svy
792.00	0.47	31.42	791.99	-1993.01	2.52	2.01	0.18	20.64	0.17	7.60	181.00	
974.00	0.55	39.74	973.98	-1811.02	3.83	2.96	0.06	47.00	0.04	4.57	182.00	
1154.00	0.60	23.09	1153.97	-1631.03	5.36	3.88	0.10	278.22	0.03	-9.25	180.00	
1344.00	0.77	31.91	1343.96	-1441.04	7.36	4.95	0.11	36.27	0.09	4.64	190.00	
1533.00	0.94	53.56	1532.94	-1252.06	9.36	6.87	0.19	73.35	0.09	11.46	189.00	
1723.00	1.51	57.10	1722.89	-1062.11	11.65	10.22	0.30	9.34	0.30	1.86	190.00	
1913.00	0.43	309.53	1912.87	-872.13	13.46	11.77	0.89	194.04	-0.57	-56.62	190.00	
2102.00	0.45	335.63	2101.86	-683.14	14.59	10.92	0.11	97.45	0.01	13.81	189.00	
2292.00	0.56	9.99	2291.86	-493.14	16.18	10.77	0.17	87.77	0.06	18.08	190.00	
2481.00	0.92	43.60	2480.84	-304.16	18.19	11.98	0.29	67.95	0.19	17.78	189.00	
2671.00	1.44	50.67	2670.80	-114.20	20.81	14.88	0.28	19.20	0.27	3.72	190.00	

## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	T.Face (°)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	CL (US ft)	Comment
2860.00	2.22	58.85	2859.70	74.70	24.21	19.85	0.43	22.63	0.41	4.33	189.00	
3049.00	0.88	358.47	3048.64	263.64	27.55	22.94	1.03	203.20	-0.71	-31.95	189.00	
3238.00	1.90	38.19	3237.59	452.59	31.46	24.84	0.71	64.40	0.54	21.02	189.00	
3427.00	1.63	37.52	3426.50	641.50	36.06	28.41	0.14	184.04	-0.14	-0.35	189.00	
3617.00	1.36	37.15	3616.43	831.43	40.00	31.42	0.14	181.86	-0.14	-0.19	190.00	
3806.00	1.25	39.28	3805.38	1020.38	43.38	34.08	0.06	157.26	-0.06	1.13	189.00	
3995.00	2.72	68.00	3994.27	1209.27	46.66	39.55	0.92	49.01	0.78	15.20	189.00	
4185.00	0.99	116.64	4184.17	1399.17	47.61	45.19	1.16	160.21	-0.91	25.60	190.00	
4374.00	1.13	62.27	4373.14	1588.14	47.75	48.30	0.52	250.15	0.07	-28.77	189.00	
4564.00	2.46	75.05	4563.04	1778.04	49.67	53.90	0.73	23.20	0.70	6.73	190.00	
4753.00	2.04	128.97	4751.92	1966.92	48.60	60.44	1.10	127.34	-0.22	28.53	189.00	
4943.00	1.09	218.81	4941.87	2156.87	45.07	61.93	1.22	151.84	-0.50	47.28	190.00	
5018.00	0.98	212.83	5016.85	2231.85	43.97	61.14	0.21	221.52	-0.15	-7.97	75.00	
5201.00	1.11	209.70	5199.82	2414.82	41.12	59.41	0.08	334.72	0.07	-1.71	183.00	
5391.00	1.04	200.66	5389.79	2604.79	37.90	57.89	0.10	243.10	-0.04	-4.76	190.00	
5580.00	1.13	206.39	5578.76	2793.76	34.63	56.46	0.07	53.21	0.05	3.03	189.00	
5770.00	1.13	202.91	5768.72	2983.72	31.23	54.90	0.04	268.26	0.00	-1.83	190.00	
5959.00	1.36	196.77	5957.67	3172.67	27.36	53.52	0.14	326.79	0.12	-3.25	189.00	
6148.00	1.54	199.49	6146.61	3361.61	22.82	52.03	0.10	22.29	0.10	1.44	189.00	
6337.00	1.21	197.89	6335.56	3550.56	18.53	50.57	0.18	185.84	-0.17	-0.85	189.00	
6526.00	1.26	202.86	6524.52	3739.52	14.71	49.15	0.06	67.48	0.03	2.63	189.00	
6715.00	1.13	204.08	6713.47	3928.47	11.10	47.58	0.07	169.54	-0.07	0.65	189.00	
6904.00	0.89	188.27	6902.45	4117.45	7.94	46.61	0.19	221.54	-0.13	-8.37	189.00	
7092.00	0.95	200.05	7090.42	4305.42	5.03	45.86	0.11	78.35	0.03	6.27	188.00	
7281.00	1.28	212.30	7279.39	4494.39	1.78	44.20	0.21	42.07	0.17	6.48	189.00	
7470.00	1.07	167.86	7468.35	4683.35	-1.73	43.44	0.48	235.44	-0.11	-23.51	189.00	
7659.00	1.34	156.76	7657.31	4872.31	-5.49	44.68	0.19	313.52	0.14	-5.87	189.00	
7848.00	1.48	140.90	7846.25	5061.25	-9.41	47.10	0.22	281.69	0.07	-8.39	189.00	
8038.00	1.35	131.23	8036.19	5251.19	-12.79	50.33	0.14	236.66	-0.07	-5.09	190.00	
8227.00	1.33	138.60	8225.14	5440.14	-15.90	53.45	0.09	100.29	-0.01	3.90	189.00	
8416.00	0.95	136.77	8414.10	5629.10	-18.69	55.98	0.20	184.56	-0.20	-0.97	189.00	
8605.00	1.42	131.70	8603.06	5818.06	-21.39	58.80	0.25	344.88	0.25	-2.68	189.00	
8795.00	1.47	132.19	8793.00	6008.00	-24.59	62.36	0.03	14.13	0.03	0.26	190.00	



## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	T.Face (°)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	CL (US ft)	Comment
8984.00	4.59	142.62	8981.72	6196.72	-32.23	68.75	1.67	15.26	1.65	5.52	189.00	
9172.00	1.64	173.32	9169.43	6384.43	-40.88	73.63	1.75	165.24	-1.57	16.33	188.00	
9267.00	1.34	38.71	9264.41	6479.41	-41.37	74.48	2.90	200.29	-0.32	-141.69	95.00	
9436.00	1.51	80.74	9433.37	6648.37	-39.47	77.92	0.61	102.18	0.10	24.87	169.00	
9552.00	1.68	94.65	9549.32	6764.32	-39.36	81.12	0.36	73.35	0.15	11.99	116.00	
9741.00	1.36	106.31	9738.25	6953.25	-40.21	86.03	0.23	141.70	-0.17	6.17	189.00	
9931.00	1.84	100.84	9928.18	7143.18	-41.42	91.19	0.26	339.60	0.25	-2.88	190.00	
10120.00	0.75	123.94	10117.13	7332.13	-42.68	95.20	0.63	165.65	-0.58	12.22	189.00	
10309.00	0.64	179.85	10306.12	7521.12	-44.43	96.23	0.35	126.43	-0.06	29.58	189.00	
10498.00	0.88	260.54	10495.11	7710.11	-45.72	94.80	0.53	119.81	0.13	42.69	189.00	
10687.00	3.73	261.00	10683.93	7898.93	-46.92	87.30	1.51	0.60	1.51	0.24	189.00	
10782.00	2.97	267.95	10778.77	7993.77	-47.49	81.78	0.91	155.32	-0.80	7.32	95.00	
10971.00	3.19	298.07	10967.51	8182.51	-45.20	72.25	0.85	97.47	0.12	15.94	189.00	
11104.00	1.95	331.12	11100.38	8315.38	-41.47	67.89	1.42	145.63	-0.93	24.85	133.00	
11146.00	1.70	2.40	11142.36	8357.36	-40.22	67.57	2.41	119.38	-0.60	74.48	42.00	
11178.00	3.51	355.45	11174.33	8389.33	-38.77	67.51	5.73	346.62	5.66	-21.72	32.00	
11209.00	5.77	352.45	11205.22	8420.22	-36.28	67.23	7.33	352.37	7.29	-9.68	31.00	
11241.00	8.48	344.17	11236.97	8451.97	-32.42	66.38	9.04	335.10	8.47	-25.87	32.00	
11273.00	10.73	337.94	11268.52	8483.52	-27.39	64.62	7.74	332.11	7.03	-19.47	32.00	
11304.00	12.40	337.00	11298.89	8513.89	-21.65	62.23	5.42	353.10	5.39	-3.03	31.00	
11336.00	15.32	335.98	11329.96	8544.96	-14.62	59.17	9.16	354.72	9.13	-3.19	32.00	
11367.00	18.78	332.85	11359.59	8574.59	-6.44	55.22	11.54	343.64	11.16	-10.10	31.00	
11399.00	21.68	334.04	11389.61	8604.61	3.46	50.28	9.15	8.64	9.06	3.72	32.00	
11430.00	24.72	335.72	11418.10	8633.10	14.52	45.11	10.04	13.06	9.81	5.42	31.00	
11462.00	26.61	338.35	11446.95	8661.95	27.28	39.72	6.89	32.27	5.91	8.22	32.00	
11493.00	29.31	338.04	11474.33	8689.33	40.78	34.32	8.72	356.78	8.71	-1.00	31.00	
11525.00	32.29	336.46	11501.81	8716.81	55.88	27.97	9.65	344.13	9.31	-4.94	32.00	
11556.00	34.81	335.46	11527.64	8742.64	71.52	20.99	8.32	347.21	8.13	-3.23	31.00	
11588.00	37.40	334.92	11553.50	8768.50	88.64	13.07	8.15	352.78	8.09	-1.69	32.00	
11620.00	40.14	335.47	11578.44	8793.44	106.83	4.67	8.63	7.38	8.56	1.72	32.00	
11652.00	42.68	336.06	11602.44	8817.44	126.13	-4.01	8.03	8.96	7.94	1.84	32.00	
11684.00	44.76	336.08	11625.57	8840.57	146.34	-12.98	6.50	0.39	6.50	0.06	32.00	
11715.00	46.70	335.35	11647.21	8862.21	166.57	-22.12	6.48	344.66	6.26	-2.35	31.00	

## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	T.Face (°)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	CL (US ft)	Comment
11791.00	51.67	335.86	11696.86	8911.86	218.94	-45.86	6.56	4.61	6.54	0.67	76.00	
11823.00	52.51	336.07	11716.53	8931.53	242.00	-56.14	2.68	11.22	2.62	0.66	32.00	
11854.00	55.16	336.92	11734.82	8949.82	264.95	-66.12	8.83	14.77	8.55	2.74	31.00	
11886.00	57.29	337.32	11752.61	8967.61	289.45	-76.46	6.74	8.98	6.66	1.25	32.00	
11917.00	59.39	337.87	11768.88	8983.88	313.85	-86.51	6.94	12.71	6.77	1.77	31.00	
11949.00	61.62	338.41	11784.63	8999.63	339.70	-96.88	7.12	12.04	6.97	1.69	32.00	
11981.00	63.23	338.95	11799.44	9014.44	366.12	-107.19	5.25	16.68	5.03	1.69	32.00	
12012.00	65.21	339.61	11812.93	9027.93	392.23	-117.07	6.67	16.85	6.39	2.13	31.00	
12044.00	66.90	340.24	11825.91	9040.91	419.70	-127.10	5.58	18.94	5.28	1.97	32.00	
12076.00	68.96	340.79	11837.94	9052.94	447.65	-136.99	6.63	14.00	6.44	1.72	32.00	
12107.00	71.08	341.70	11848.53	9063.53	475.24	-146.36	7.37	22.13	6.84	2.94	31.00	
12139.00	72.94	341.75	11858.41	9073.41	504.14	-155.90	5.81	1.47	5.81	0.16	32.00	
12170.00	74.54	341.81	11867.09	9082.09	532.40	-165.21	5.16	2.07	5.16	0.19	31.00	
12202.00	76.50	341.46	11875.09	9090.09	561.81	-174.97	6.22	350.15	6.12	-1.09	32.00	
12234.00	78.25	341.28	11882.09	9097.09	591.40	-184.94	5.50	354.25	5.47	-0.56	32.00	
12265.00	79.68	341.53	11888.02	9103.02	620.23	-194.65	4.68	9.76	4.61	0.81	31.00	
12297.00	81.24	341.82	11893.32	9108.32	650.19	-204.57	4.96	10.41	4.88	0.91	32.00	
12329.00	83.17	342.48	11897.66	9112.66	680.37	-214.28	6.37	18.76	6.03	2.06	32.00	
12360.00	84.86	343.04	11900.89	9115.89	709.81	-223.42	5.74	18.27	5.45	1.81	31.00	
12392.00	85.96	343.28	11903.46	9118.46	740.34	-232.66	3.52	12.28	3.44	0.75	32.00	
12423.00	88.12	344.19	11905.06	9120.06	770.06	-241.33	7.56	22.84	6.97	2.94	31.00	
12455.00	89.22	344.36	11905.80	9120.80	800.85	-250.00	3.48	8.79	3.44	0.53	32.00	
12550.00	89.25	341.99	11907.07	9122.07	891.77	-277.50	2.49	270.71	0.03	-2.49	95.00	
12645.00	89.10	342.18	11908.44	9123.44	982.16	-306.72	0.25	128.29	-0.16	0.20	95.00	
12740.00	89.34	341.46	11909.73	9124.73	1072.40	-336.35	0.80	288.43	0.25	-0.76	95.00	
12835.00	90.02	342.13	11910.26	9125.26	1162.65	-366.03	1.00	44.58	0.72	0.71	95.00	
12930.00	89.65	341.55	11910.53	9125.53	1252.91	-395.64	0.72	237.46	-0.39	-0.61	95.00	
13025.00	85.55	338.46	11914.51	9129.51	1342.08	-428.08	5.40	216.93	-4.32	-3.25	95.00	
13119.00	92.25	341.98	11916.32	9131.32	1430.45	-459.86	8.05	27.77	7.13	3.74	94.00	
13214.00	90.05	342.34	11914.41	9129.41	1520.86	-488.96	2.35	170.70	-2.32	0.38	95.00	
13308.00	92.60	343.92	11912.24	9127.24	1610.78	-516.23	3.19	31.76	2.71	1.68	94.00	
13404.00	89.22	343.64	11910.71	9125.71	1702.94	-543.03	3.53	184.74	-3.52	-0.29	96.00	
13499.00	91.38	346.89	11910.21	9125.21	1794.79	-567.19	4.11	56.39	2.27	3.42	95.00	

## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	T.Face (°)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	CL (US ft)	Comment
13594.00	87.62	347.03	11911.04	9126.04	1887.32	-588.62	3.96	177.87	-3.96	0.15	95.00	
13688.00	89.84	346.13	11913.13	9128.13	1978.73	-610.43	2.55	337.93	2.36	-0.96	94.00	
13783.00	87.80	343.61	11915.08	9130.08	2070.40	-635.22	3.41	230.98	-2.15	-2.65	95.00	
13878.00	90.14	343.75	11916.79	9131.79	2161.55	-661.91	2.47	3.42	2.46	0.15	95.00	
13973.00	88.73	342.48	11917.73	9132.73	2252.45	-689.50	2.00	222.00	-1.48	-1.34	95.00	
14040.00	89.09	342.81	11919.00	9134.00	2316.39	-709.48	0.73	42.51	0.54	0.49	67.00	
14135.00	87.06	343.79	11922.19	9137.19	2407.32	-736.76	2.37	154.26	-2.14	1.03	95.00	
14230.00	86.57	343.79	11927.47	9142.47	2498.41	-763.24	0.52	180.00	-0.52	0.00	95.00	
14325.00	86.36	343.75	11933.33	9148.33	2589.45	-789.74	0.23	190.76	-0.22	-0.04	95.00	
14389.00 (pr)	86.36	343.75	11937.39	9152.39	2650.77	-807.62	0.00	0.00	0.00	0.00	64.00	



**Weatherford®**

Evaluation, Drilling & Intervention  
10000 West County Rd. 116  
P.O. Box 61028  
Midland, TX USA 79711  
Tel. (432) 561-8892 Fax (432) 561-8895

RAILROAD COMMISSION OF TEXAS  
Oil & Gas Division  
P.O. Drawer 12967  
Capitol Station  
Austin, TX 78711-2967

Date: July 17, 2017

Attention: Pam Johns

Re: Forge Energy  
Well: UL 20 Tensleep 1H  
RRC Lease/Gas ID No. N/A-  
UNIVERSITY LANDS., Survey A-  
Ward County Texas

API# 42-475-37120

Enclosed, please find the survey performed on the referenced well by Precision Energy Services, Inc. (P-5 No. 676004), a Weatherford company. Other information required by your office is as follows

<u>Name &amp; Title Of Surveyor</u>	<u>Well Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Chad Lowrey MWD Supervisor	1H	611 MD 16451 MD	6/1/2017 7/15/2017	Measurement While Drilling

A certified plat on which the bottom-hole location is oriented both to the surface location and to the lease lines (or unit line in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,

Jonathan Leger  
MWD Ops. Coordinator

Cc: Forge Energy  
Attn: Michael Johnson  
1031 Andrews Hwy, Suite 300  
Midland, TX 79701

**RAILROAD COMMISSION OF TEXAS**  
**OIL & GAS DIVISION**

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER <b>817618</b>	DATE PERMIT ISSUED OR AMENDED (AMENDED) <b>May 02, 2017</b>	DISTRICT <b>* 08</b>	
API NUMBER <b>42-475-37120</b>	FORM W-1 RECEIVED <b>Apr 25, 2017</b>	COUNTY <b>WARD</b>	
TYPE OF OPERATION <b>NEW DRILL</b>	WELLBORE PROFILE(S) <b>Horizontal</b>	ACRES <b>1281.4</b>	
OPERATOR <b>FORGE ENERGY, LLC</b> <b>10999 IH 10 WEST SUITE 900</b> <b>SAN ANTONIO, TX 78230-0000</b>		NOTICE This permit and any allowable assigned may be revoked if payment for fee(s) submitted to the Commission is not honored. <b>District Office Telephone No:</b> <b>(432) 684-5581</b>	
LEASE NAME <b>UL 20 TENSLEEP</b>		WELL NUMBER <b>1H</b>	
LOCATION <b>9 miles SW direction from WINK</b>		TOTAL DEPTH <b>12900</b>	
Section, Block and/or Survey SECTION <b>47</b> BLOCK <b>20</b> ABSTRACT SURVEY <b>UNIVERSITY LANDS</b>			
DISTANCE TO SURVEY LINES <b>495 ft. WEST    190 ft. SOUTH</b>		DISTANCE TO NEAREST LEASE LINE <b>200 ft.</b>	
DISTANCE TO LEASE LINES <b>495 ft. WEST    190 ft. SOUTH</b>		DISTANCE TO NEAREST WELL ON LEASE <b>See FIELD(s) Below</b>	
FIELD(s) and LIMITATIONS: <p style="text-align: center;"><b>* SEE FIELD DISTRICT FOR REPORTING PURPOSES *</b></p>			
FIELD NAME LEASE NAME		ACRES NEAREST LEASE	DEPTH WELL # NEAREST WE
PHANTOM (WOLFCAMP) UL 20 TENSLEEP		1281.40 200	12,900 1H 137
DIST <b>08</b>			
WELLBORE PROFILE(s) FOR FIELD: <b>Horizontal</b>			
RESTRICTIONS: No perforations or take points may be placed in the wellbore where a "NO PERF ZONE" was designated on the plat that was approved for this permit. If at such time the NPZ's are no longer applicable, then an amended permit will be required to remove the NPZ restriction before completing the well. This is a hydrogen sulfide field. Hydrogen Sulfide Fields with perforations must be isolated and tested per State Wide Rule 36 and a Form H-9 filed with the district office. Fields with SWR 10 authority to downhole commingle must be isolated and tested individually prior to commingling production.  Lateral: TH1 Penetration Point Location Lease Lines:           495.0 F WEST L 190.0 F SOUTH L  Terminus Location BH County: WINKLER Section: 38           Block: 20                     Abstract: Survey: UNIVERSITY LANDS Lease Lines:           467.0 F WEST L 200.0 F NORTH L Survey Lines:        467.0 F WEST L 200.0 F NORTH L			

**RAILROAD COMMISSION OF TEXAS**  
**OIL & GAS DIVISION**

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER <div align="center">817618</div>	DATE PERMIT ISSUED OR AMENDED (AMENDED)    May 02, 2017	DISTRICT <div align="center">*    08</div>			
API NUMBER <div align="center">42-475-37120</div>	FORM W-1 RECEIVED <div align="center">Apr 25, 2017</div>	COUNTY <div align="center">WARD</div>			
TYPE OF OPERATION <div align="center">NEW DRILL</div>	WELLBORE PROFILE(S) <div align="center">Horizontal</div>	ACRES <div align="center">1281.4</div>			
OPERATOR <div align="center"> <b>FORGE ENERGY, LLC</b>            10999 IH 10 WEST SUITE 900            SAN ANTONIO, TX 78230-0000         </div>		276868  <div align="center"> <b>NOTICE</b>            This permit and any allowable assigned may be            revoked if payment for fee(s) submitted to the            Commission is not honored.  <b>District Office Telephone No:</b>            (432) 684-5581         </div>			
LEASE NAME <div align="center">UL 20 TENSLEEP</div>		WELL NUMBER <div align="center">1H</div>			
LOCATION <div align="center">9 miles SW direction from WINK</div>		TOTAL DEPTH <div align="center">12900</div>			
Section, Block and/or Survey SECTION    47                                  BLOCK    20                                  ABSTRACT SURVEY    UNIVERSITY LANDS					
DISTANCE TO SURVEY LINES <div align="center">495 ft. WEST    190 ft. SOUTH</div>		DISTANCE TO NEAREST LEASE LINE <div align="center">200 ft.</div>			
DISTANCE TO LEASE LINES <div align="center">495 ft. WEST    190 ft. SOUTH</div>		DISTANCE TO NEAREST WELL ON LEASE <div align="center">See FIELD(s) Below</div>			
FIELD(s) and LIMITATIONS: <div align="center">*    SEE FIELD DISTRICT FOR REPORTING PURPOSES    *</div>					
FIELD NAME LEASE NAME		ACRES NEAREST LEASE	DEPTH NEAREST LEASE	WELL # NEAREST WE	DIST
----- WOLFBONE (TREND AREA) UL 20 TENSLEEP -----		1281.40 200	12,900 0	1H 0	08
----- WELLBORE PROFILE(s) FOR FIELD: Horizontal -----					
RESTRICTIONS:    No perforations or take points may be placed in the wellbore where a "NO PERF ZONE" was designated on the plat that was approved for this permit. If at such time the NPZ's are no longer applicable, then an amended permit will be required to remove the NPZ restriction before completing the well. This is a hydrogen sulfide field. Hydrogen Sulfide Fields with perforations must be isolated and tested per State Wide Rule 36 and a Form H-9 filed with the district office. Fields with SWR 10 authority to downhole commingle must be isolated and tested individually prior to commingling production.  Lateral: TH1 Penetration Point Location Lease Lines:                      495.0 F WEST L 190.0 F SOUTH L  Terminus Location BH County: WINKLER Section: 38                      Block: 20                      Abstract: Survey: UNIVERSITY LANDS Lease Lines:                      467.0 F WEST L 200.0 F NORTH L Survey Lines:                      467.0 F WEST L 200.0 F NORTH L					

**RAILROAD COMMISSION OF TEXAS**  
**OIL & GAS DIVISION**

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER <div style="text-align: right;">817618</div>	DATE PERMIT ISSUED OR AMENDED (AMENDED)    May 02, 2017	DISTRICT <div style="text-align: right;">*    08</div>										
API NUMBER <div style="text-align: right;">42-475-37120</div>	FORM W-1 RECEIVED <div style="text-align: center;">Apr 25, 2017</div>	COUNTY <div style="text-align: right;">WARD</div>										
TYPE OF OPERATION <div style="text-align: center;">NEW DRILL</div>	WELLBORE PROFILE(S) <div style="text-align: center;">Horizontal</div>	ACRES <div style="text-align: right;">1281.4</div>										
OPERATOR <div style="text-align: right;">276868</div> <div style="text-align: center;"> <b>FORGE ENERGY, LLC</b>                      10999 IH 10 WEST SUITE 900                      SAN ANTONIO, TX 78230-0000                 </div>		NOTICE This permit and any allowable assigned may be revoked if payment for fee(s) submitted to the Commission is not honored. <b>District Office Telephone No:</b> <div style="text-align: right;">(432) 684-5581</div>										
LEASE NAME <div style="text-align: center;">UL 20 TENSLEEP</div>		WELL NUMBER <div style="text-align: right;">1H</div>										
LOCATION <div style="text-align: center;">9 miles SW direction from WINK</div>		TOTAL DEPTH <div style="text-align: right;">12900</div>										
Section, Block and/or Survey SECTION    47                                      BLOCK    20                                      ABSTRACT SURVEY    UNIVERSITY LANDS												
DISTANCE TO SURVEY LINES <div style="text-align: center;">495 ft. WEST    190 ft. SOUTH</div>		DISTANCE TO NEAREST LEASE LINE <div style="text-align: center;">200 ft.</div>										
DISTANCE TO LEASE LINES <div style="text-align: center;">495 ft. WEST    190 ft. SOUTH</div>		DISTANCE TO NEAREST WELL ON LEASE <div style="text-align: center;">See FIELD(s) Below</div>										
FIELD(s) and LIMITATIONS: <div style="text-align: center;">*    SEE FIELD DISTRICT FOR REPORTING PURPOSES    *</div>												
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">FIELD NAME</td> <td style="width: 15%;">ACRES</td> <td style="width: 15%;">DEPTH</td> <td style="width: 10%;">WELL #</td> <td style="width: 10%;">DIST</td> </tr> <tr> <td>LEASE NAME</td> <td>NEAREST LEASE</td> <td></td> <td>NEAREST WE</td> <td></td> </tr> </table>			FIELD NAME	ACRES	DEPTH	WELL #	DIST	LEASE NAME	NEAREST LEASE		NEAREST WE	
FIELD NAME	ACRES	DEPTH	WELL #	DIST								
LEASE NAME	NEAREST LEASE		NEAREST WE									
<p style="text-align: center;"><b>THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS</b></p> <p>This well shall be completed and produced in compliance with applicable special field or statewide spacing and density rules. If this well is to be used for brine mining, underground storage of liquid hydrocarbons in salt formations, or underground storage of gas in salt formations, a permit for that specific purpose must be obtained from Environmental Services prior to construction, including drilling, of the well in accordance with Statewide Rules 81, 95, and 97.</p> <p>The designated interval for one or more of the fields approved in this permit appears to overlap with the designated interval of another field or fields in this district. In the case of conflicting designated intervals you will be required to be consistent in field designation on this lease. Further, if the designated interval overlap of wells on this lease results in an actual or potential double assignment of reservoir and the applicant cannot conclusively demonstrate that there is no double assignment, the permitted well may not be assigned an allowable until the conflict is resolved. Because of the overlapping designated intervals in this area, issuance of this permit does not guarantee that the completion of the well will be approved or that the well will receive an allowable in any given field, even if that field is listed on the approved permit application.</p> <p>Currently there are no identified formations listed for this county. It is still the operators responsibility to isolate and report any potential flow zones that are encountered in the completion of this well.</p>												

**5D Survey Report****Forge Energy**

**Field Name:** *Forge-Nad 27 TCZ*  
**Site Name:** *UL 20 Tensleep 1H*  
**Well Name:** *UL 20 Tensleep 1H*  
**Survey:** *Definitive survey*

17 July 2017







## UL 20 Tensleep 1H

Field Name:  Forge-Nad 27 TCZ	Map Units: US ft		Company Name: Forge Energy	
	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD27 / Texas Central			
	Comment:			
Site:  UL 20 Tensleep 1H	Units: US ft	North Reference: Grid	Convergence Angle: -1.52	
	Position:	Northing: 731082.82 US ft	Latitude: 31° 38' 36.72"	
		Easting: 1084450.47 US ft	Longitude: -103° 16' 32.46"	
	Elevation above MSL:2760.00 US ft		Comment:	
Slot:  UL 20 Tensleep 1H	Position (Relative to Site Centre)			
	+N/-S: 0.00 US ft	Northing: 731082.82 US ft	Latitude: 31°38'36.72"	
	+E/-W: 0.00 US ft	Easting: 1084450.47 US ft	Longitude: -103°16'32.46"	
	Elevation above MSL: 2760.00 US ft		Comment:	
Well:  UL 20 Tensleep 1H	Type:Main well		UWI: Ward Co, TX	
	File Number:	Comment:		
	Closure Distance:4895.52US ft		Closure Azimuth:343.71°	
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: -0.00 US ft		+E/-W: -0.00 US ft	Az: 343.56°

<b>Drill floor: Survey Name: Definitive Survey</b>			
<b>Rig Height (Well TVD Reference):</b> 25.00 US ft	<b>Elevation above MSL:</b> 2785.00 US ft	<b>Inclination:</b> 0.00°	<b>Azimuth:</b> 0.00°

<b>Survey Name: Definitive Survey</b>			
<b>Date:</b> 24/May/2017	<b>Survey Tool:</b> See Survey Tool Ranges below.	<b>Comment:</b>	<b>Company:</b>

<b>Magnetic Model:</b>				
<b>Model Name:</b> bggm2017	<b>Date:</b> 01/Jun/2017	<b>Field Strength:</b> 47682.5 nT	<b>Declination:</b> 6.91°	<b>Dip:</b> 59.57°
<b>Tie Point:</b>				
<b>MD:</b> 0.00 US ft	<b>Inclination:</b> 0.00°	<b>Azimuth:</b> 0.00°	<b>TVD:</b> 0.00 US ft	<b>North Offset:</b> -0.00 US ft
				<b>East Offset:</b> -0.00 US ft

Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
GYRO-NS_OW	0.00	481.00	Gyro
MWD	481.00	3806.00	Wft MWD Svy (01)
MWD	3806.00	5018.00	Wft MWD Svy (02)
MWD	5018.00	8795.00	Wft MWD Svy (03)
MWD	8795.00	9436.00	Wft MWD Svy (04)
MWD	9436.00	11104.00	Wft MWD Svy (05)
MWD + Sag Corr	11104.00	11715.00	MWD+Sag Wft Svy (06)

## 5D Survey Report

Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
MWD + Sag Corr	11715.00	13973.00	MWD+Sag Wft Svy (07)
MWD	13973.00	16515.00	MWD+Sag Wft Svy (08)

Casing Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)								
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Name
520.00	0.41	24.47	519.99	1.23	1.37	731084.05	1084451.84	13 3/8 in
5088.00	1.03	211.54	5086.84	42.93	60.48	731125.75	1084510.95	9 5/8 in
11787.00	51.41	335.83	11694.38	216.08	-44.57	731298.90	1084405.90	7 in

Wellpath created using minimum curvature.

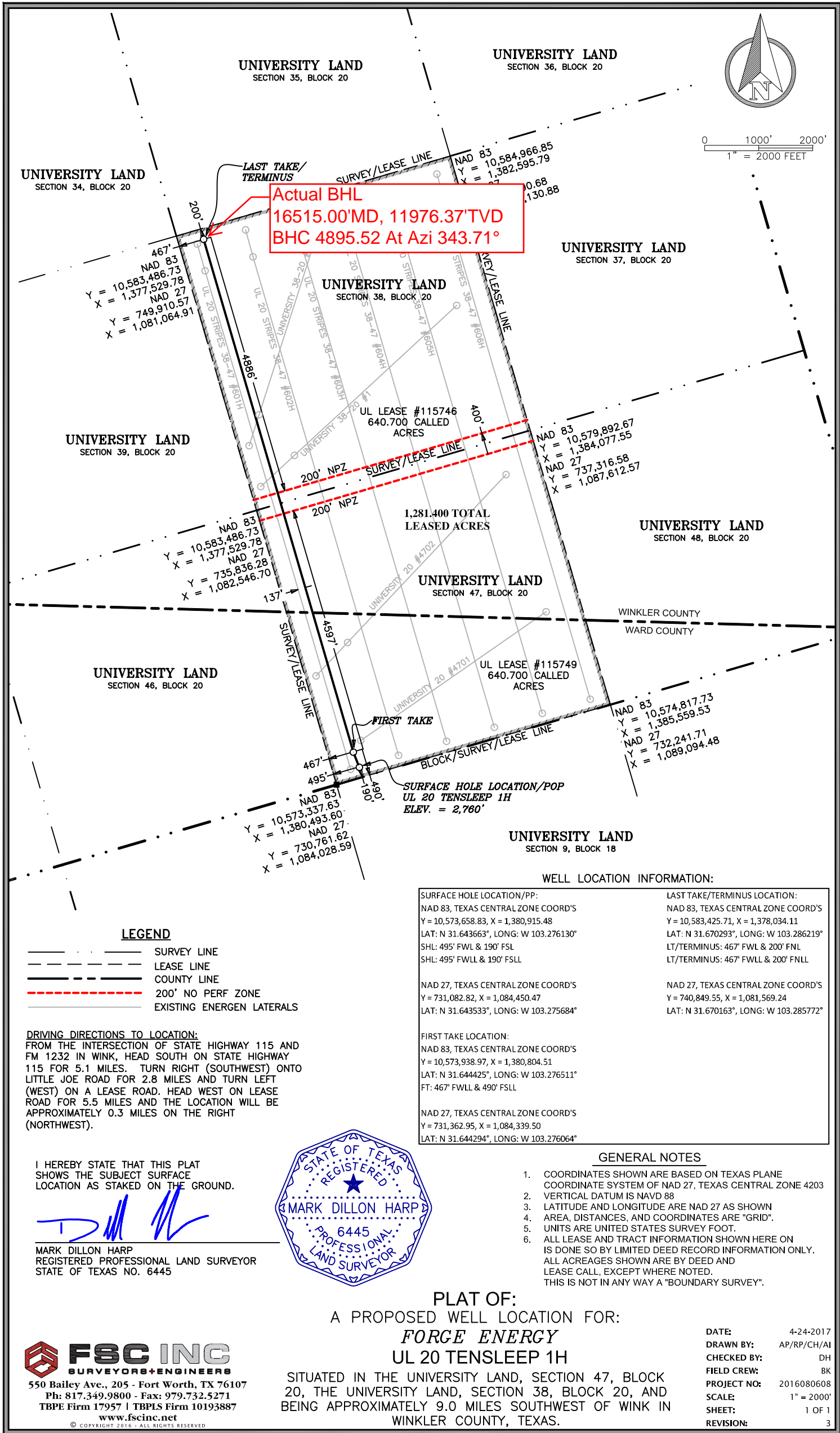
Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Clos.Dist (US ft)	Clos.Az (°)	Comment
481.00	0.52	25.36	480.00	0.55	1.01	1.24	731083.76	1084451.71	1.56	52.77	Tie On Gyro
520.00	0.41	24.47	519.99	0.79	1.23	1.37	731084.05	1084451.84	1.84	48.17	13 3/8 in
611.00	0.16	17.67	610.99	1.14	1.65	1.55	731084.47	1084452.02	2.26	43.20	First Wft Svy
792.00	0.47	31.42	791.99	1.85	2.52	2.01	731085.34	1084452.48	3.23	38.57	
974.00	0.55	39.74	973.98	2.84	3.83	2.96	731086.65	1084453.43	4.84	37.68	
1154.00	0.60	23.09	1153.97	4.05	5.36	3.88	731088.18	1084454.35	6.62	35.90	
1344.00	0.77	31.91	1343.96	5.66	7.36	4.95	731090.18	1084455.42	8.87	33.90	
1533.00	0.94	53.56	1532.94	7.04	9.36	6.87	731092.18	1084457.34	11.61	36.26	
1723.00	1.51	57.10	1722.89	8.28	11.65	10.22	731094.47	1084460.69	15.50	41.27	
1913.00	0.43	309.53	1912.87	9.58	13.46	11.77	731096.28	1084462.24	17.88	41.17	
2102.00	0.45	335.63	2101.86	10.90	14.59	10.92	731097.41	1084461.39	18.22	36.82	
2292.00	0.56	9.99	2291.86	12.47	16.18	10.77	731099.00	1084461.24	19.44	33.65	
2481.00	0.92	43.60	2480.84	14.06	18.19	11.98	731101.01	1084462.45	21.78	33.37	
2671.00	1.44	50.67	2670.80	15.75	20.81	14.88	731103.63	1084465.35	25.58	35.57	
2860.00	2.22	58.85	2859.70	17.60	24.21	19.85	731107.03	1084470.32	31.30	39.35	
3049.00	0.88	358.47	3048.64	19.93	27.55	22.94	731110.37	1084473.41	35.85	39.78	
3238.00	1.90	38.19	3237.59	23.15	31.46	24.84	731114.28	1084475.31	40.09	38.29	
3427.00	1.63	37.52	3426.50	26.55	36.06	28.41	731118.88	1084478.88	45.91	38.24	
3617.00	1.36	37.15	3616.43	29.47	40.00	31.42	731122.82	1084481.89	50.87	38.15	
3806.00	1.25	39.28	3805.38	31.97	43.38	34.08	731126.20	1084484.55	55.17	38.15	
3995.00	2.72	68.00	3994.27	33.56	46.66	39.55	731129.48	1084490.02	61.16	40.28	
4185.00	0.99	116.64	4184.17	32.88	47.61	45.19	731130.43	1084495.66	65.65	43.51	
4374.00	1.13	62.27	4373.14	32.13	47.75	48.30	731130.57	1084498.77	67.92	45.33	
4564.00	2.46	75.05	4563.04	32.39	49.67	53.90	731132.49	1084504.37	73.30	47.34	
4753.00	2.04	128.97	4751.92	29.52	48.60	60.44	731131.42	1084510.91	77.55	51.19	
4943.00	1.09	218.81	4941.87	25.70	45.07	61.93	731127.89	1084512.40	76.59	53.96	
5018.00	0.98	212.83	5016.85	24.88	43.97	61.14	731126.79	1084511.61	75.31	54.28	
5088.00	1.03	211.54	5086.84	24.06	42.93	60.48	731125.75	1084510.95	74.17	54.63	9 5/8 in
5201.00	1.11	209.70	5199.82	22.63	41.12	59.41	731123.94	1084509.88	72.25	55.31	
5391.00	1.04	200.66	5389.79	19.98	37.90	57.89	731120.72	1084508.36	69.20	56.78	
5580.00	1.13	206.39	5578.76	17.24	34.63	56.46	731117.45	1084506.93	66.23	58.48	
5770.00	1.13	202.91	5768.72	14.42	31.23	54.90	731114.05	1084505.37	63.15	60.37	
5959.00	1.36	196.77	5957.67	11.10	27.36	53.52	731110.18	1084503.99	60.11	62.92	
6148.00	1.54	199.49	6146.61	7.17	22.82	52.03	731105.64	1084502.50	56.81	66.32	
6337.00	1.21	197.89	6335.56	3.46	18.53	50.57	731101.35	1084501.04	53.85	69.88	
6526.00	1.26	202.86	6524.52	0.21	14.71	49.15	731097.53	1084499.62	51.30	73.33	
6715.00	1.13	204.08	6713.47	-2.82	11.10	47.58	731093.92	1084498.05	48.86	76.87	
6904.00	0.89	188.27	6902.45	-5.57	7.94	46.61	731090.76	1084497.08	47.28	80.33	
7092.00	0.95	200.05	7090.42	-8.15	5.03	45.86	731087.85	1084496.33	46.14	83.74	
7281.00	1.28	212.30	7279.39	-10.80	1.78	44.20	731084.60	1084494.67	44.23	87.70	
7470.00	1.07	167.86	7468.35	-13.95	-1.73	43.44	731081.09	1084493.91	43.48	92.28	
7659.00	1.34	156.76	7657.31	-17.91	-5.49	44.68	731077.33	1084495.15	45.02	97.00	
7848.00	1.48	140.90	7846.25	-22.35	-9.41	47.10	731073.41	1084497.57	48.03	101.30	
8038.00	1.35	131.23	8036.19	-26.51	-12.79	50.33	731070.03	1084500.80	51.93	104.26	

## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Clos.Dist (US ft)	Clos.Az (°)	Comment
8227.00	1.33	138.60	8225.14	-30.38	-15.90	53.45	731066.92	1084503.92	55.77	106.57	
8416.00	0.95	136.77	8414.10	-33.77	-18.69	55.98	731064.13	1084506.45	59.01	108.47	
8605.00	1.42	131.70	8603.06	-37.15	-21.39	58.80	731061.43	1084509.27	62.57	109.99	
8795.00	1.47	132.19	8793.00	-41.23	-24.59	62.36	731058.23	1084512.83	67.03	111.52	
8984.00	4.59	142.62	8981.72	-50.37	-32.23	68.75	731050.59	1084519.22	75.93	115.12	
9172.00	1.64	173.32	9169.43	-60.05	-40.88	73.63	731041.94	1084524.10	84.22	119.04	
9267.00	1.34	38.71	9264.41	-60.75	-41.37	74.48	731041.45	1084524.95	85.20	119.05	
9436.00	1.51	80.74	9433.37	-59.90	-39.47	77.92	731043.35	1084528.39	87.34	116.86	
9552.00	1.68	94.65	9549.32	-60.70	-39.36	81.12	731043.46	1084531.59	90.16	115.88	
9741.00	1.36	106.31	9738.25	-62.91	-40.21	86.03	731042.61	1084536.50	94.97	115.05	
9931.00	1.84	100.84	9928.18	-65.53	-41.42	91.19	731041.40	1084541.66	100.16	114.43	
10120.00	0.75	123.94	10117.13	-67.88	-42.68	95.20	731040.14	1084545.67	104.33	114.15	
10309.00	0.64	179.85	10306.12	-69.84	-44.43	96.23	731038.39	1084546.70	105.99	114.78	
10498.00	0.88	260.54	10495.11	-70.68	-45.72	94.80	731037.10	1084545.27	105.25	115.75	
10687.00	3.73	261.00	10683.93	-69.71	-46.92	87.30	731035.90	1084537.77	99.11	118.26	
10782.00	2.97	267.95	10778.77	-68.69	-47.49	81.78	731035.33	1084532.25	94.57	120.15	
10971.00	3.19	298.07	10967.51	-63.79	-45.20	72.25	731037.62	1084522.72	85.22	122.03	
11104.00	1.95	331.12	11100.38	-58.99	-41.47	67.89	731041.35	1084518.36	79.56	121.42	
11146.00	1.70	2.40	11142.36	-57.70	-40.22	67.57	731042.60	1084518.04	78.64	120.76	
11178.00	3.51	355.45	11174.33	-56.29	-38.77	67.51	731044.05	1084517.98	77.86	119.87	
11209.00	5.77	352.45	11205.22	-53.82	-36.28	67.23	731046.54	1084517.70	76.40	118.35	
11241.00	8.48	344.17	11236.97	-49.87	-32.42	66.38	731050.40	1084516.85	73.87	116.03	
11273.00	10.73	337.94	11268.52	-44.55	-27.39	64.62	731055.43	1084515.09	70.18	112.97	
11304.00	12.40	337.00	11298.89	-38.37	-21.65	62.23	731061.17	1084512.70	65.89	109.18	
11336.00	15.32	335.98	11329.96	-30.77	-14.62	59.17	731068.20	1084509.64	60.95	103.88	
11367.00	18.78	332.85	11359.59	-21.80	-6.44	55.22	731076.38	1084505.69	55.60	96.65	
11399.00	21.68	334.04	11389.61	-10.91	3.46	50.28	731086.28	1084500.75	50.40	86.06	
11430.00	24.72	335.72	11418.10	1.16	14.52	45.11	731097.34	1084495.58	47.39	72.16	
11451.00	25.96	337.49	11437.08	10.08	22.77	41.55	731105.59	1084492.02	47.38	61.27	Cross HL 11451'MD
11462.00	26.61	338.35	11446.95	14.93	27.28	39.72	731110.10	1084490.19	48.18	55.51	
11493.00	29.31	338.04	11474.33	29.40	40.78	34.32	731123.60	1084484.79	53.29	40.08	
11525.00	32.29	336.46	11501.81	45.68	55.88	27.97	731138.70	1084478.44	62.49	26.59	
11556.00	34.81	335.46	11527.64	62.66	71.52	20.99	731154.34	1084471.46	74.54	16.35	
11588.00	37.40	334.92	11553.50	81.32	88.64	13.07	731171.46	1084463.54	89.60	8.39	
11620.00	40.14	335.47	11578.44	101.14	106.83	4.67	731189.65	1084455.14	106.93	2.50	
11652.00	42.68	336.06	11602.44	122.11	126.13	-4.01	731208.95	1084446.46	126.19	358.18	
11684.00	44.76	336.08	11625.57	144.03	146.34	-12.98	731229.16	1084437.49	146.91	354.93	
11715.00	46.70	335.35	11647.21	166.02	166.57	-22.12	731249.39	1084428.35	168.03	352.44	
11787.00	51.41	335.83	11694.38	219.87	216.08	-44.57	731298.90	1084405.90	220.63	348.34	7 in
11791.00	51.67	335.86	11696.86	222.97	218.94	-45.86	731301.76	1084404.61	223.69	348.17	
11823.00	52.51	336.07	11716.53	247.99	242.00	-56.14	731324.82	1084394.33	248.43	346.94	
11854.00	55.16	336.92	11734.82	272.83	264.95	-66.12	731347.77	1084384.35	273.07	345.99	
11886.00	57.29	337.32	11752.61	299.26	289.45	-76.46	731372.27	1084374.01	299.38	345.20	
11917.00	59.39	337.87	11768.88	325.50	313.85	-86.51	731396.67	1084363.96	325.55	344.59	
11949.00	61.62	338.41	11784.63	353.23	339.70	-96.88	731422.52	1084353.59	353.24	344.08	
11981.00	63.23	338.95	11799.44	381.49	366.12	-107.19	731448.94	1084343.28	381.49	343.68	
12012.00	65.21	339.61	11812.93	409.32	392.23	-117.07	731475.05	1084333.40	409.33	343.38	
12044.00	66.90	340.24	11825.91	438.51	419.70	-127.10	731502.52	1084323.37	438.52	343.15	
12076.00	68.96	340.79	11837.94	468.12	447.65	-136.99	731530.47	1084313.48	468.14	342.98	
12107.00	71.08	341.70	11848.53	497.23	475.24	-146.36	731558.06	1084304.11	497.26	342.88	
12139.00	72.94	341.75	11858.41	527.65	504.14	-155.90	731586.96	1084294.57	527.69	342.82	
12170.00	74.54	341.81	11867.09	557.39	532.40	-165.21	731615.22	1084285.26	557.45	342.76	
12202.00	76.50	341.46	11875.09	588.36	561.81	-174.97	731644.63	1084275.50	588.42	342.70	
12234.00	78.25	341.28	11882.09	619.56	591.40	-184.94	731674.22	1084265.53	619.64	342.63	
12265.00	79.68	341.53	11888.02	649.96	620.23	-194.65	731703.05	1084255.82	650.06	342.58	
12297.00	81.24	341.82	11893.32	681.50	650.19	-204.57	731733.01	1084245.90	681.61	342.54	
12329.00	83.17	342.48	11897.66	713.20	680.37	-214.28	731763.19	1084236.19	713.31	342.52	
12360.00	84.86	343.04	11900.89	744.02	709.81	-223.42	731792.63	1084227.05	744.14	342.53	

## 5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Clos.Dist (US ft)	Clos.Az (°)	Comment
12392.00	85.96	343.28	11903.46	775.92	740.34	-232.66	731823.16	1084217.81	776.04	342.55	
12423.00	88.12	344.19	11905.06	806.87	770.06	-241.33	731852.88	1084209.14	806.99	342.60	
12455.00	89.22	344.36	11905.80	838.86	800.85	-250.00	731883.67	1084200.47	838.97	342.66	
12550.00	89.25	341.99	11907.07	933.85	891.77	-277.50	731974.59	1084172.97	933.95	342.72	
12645.00	89.10	342.18	11908.44	1028.80	982.16	-306.72	732064.98	1084143.75	1028.93	342.66	
12740.00	89.34	341.46	11909.73	1123.75	1072.40	-336.35	732155.22	1084114.12	1123.91	342.59	
12835.00	90.02	342.13	11910.26	1218.70	1162.65	-366.03	732245.47	1084084.44	1218.90	342.52	
12930.00	89.65	341.55	11910.53	1313.66	1252.91	-395.64	732335.73	1084054.83	1313.90	342.48	
13025.00	85.55	338.46	11914.51	1408.36	1342.08	-428.08	732424.90	1084022.39	1408.70	342.31	
13119.00	92.25	340.98	11916.32	1502.07	1430.18	-460.63	732513.00	1083989.84	1502.53	342.15	
13214.00	90.05	342.34	11914.41	1596.99	1520.33	-490.52	732603.15	1083959.95	1597.50	342.12	
13308.00	92.60	343.92	11912.24	1690.95	1610.25	-517.79	732693.07	1083932.68	1691.45	342.17	
13404.00	89.22	343.64	11910.71	1786.93	1702.40	-544.59	732785.22	1083905.88	1787.39	342.26	
13499.00	91.38	346.89	11910.21	1881.87	1794.26	-568.75	732877.08	1083881.72	1882.25	342.41	
13594.00	87.62	347.03	11911.04	1976.68	1886.79	-590.18	732969.61	1083860.29	1976.94	342.63	
13688.00	89.84	346.13	11913.13	2070.52	1978.19	-611.99	733061.01	1083838.48	2070.70	342.81	
13783.00	87.80	343.61	11915.08	2165.46	2069.87	-636.78	733152.69	1083813.69	2165.61	342.90	
13878.00	90.14	343.75	11916.79	2260.44	2161.02	-663.47	733243.84	1083787.00	2260.57	342.93	
13973.00	88.73	342.48	11917.73	2355.43	2251.92	-691.06	733334.74	1083759.41	2355.57	342.94	
14040.00	89.09	342.81	11919.00	2422.41	2315.85	-711.04	733398.67	1083739.43	2422.55	342.93	
14135.00	87.07	343.79	11922.18	2517.34	2406.79	-738.32	733489.61	1083712.15	2517.49	342.95	
14230.00	86.57	343.79	11927.45	2612.20	2497.87	-764.80	733580.69	1083685.67	2612.33	342.98	
14325.00	86.37	343.75	11933.30	2707.02	2588.91	-791.30	733671.73	1083659.17	2707.15	343.00	
14420.00	88.19	342.41	11937.81	2801.90	2679.69	-818.92	733762.51	1083631.55	2802.03	343.01	
14514.00	89.17	342.83	11939.98	2895.86	2769.38	-846.99	733852.20	1083603.48	2896.00	342.99	
14609.00	87.90	343.71	11942.41	2990.83	2860.32	-874.33	733943.14	1083576.14	2990.97	343.00	
14704.00	89.73	343.36	11944.37	3085.80	2951.40	-901.25	734034.22	1083549.22	3085.94	343.02	
14799.00	90.29	343.97	11944.35	3180.80	3042.57	-927.96	734125.39	1083522.51	3180.93	343.04	
14894.00	90.50	344.52	11943.70	3275.79	3134.00	-953.76	734216.82	1083496.71	3275.91	343.07	
14989.00	89.51	344.23	11943.69	3370.78	3225.48	-979.35	734308.30	1083471.12	3370.89	343.11	
15083.00	89.94	344.66	11944.14	3464.77	3316.04	-1004.55	734398.86	1083445.92	3464.86	343.15	
15178.00	91.13	345.25	11943.25	3559.73	3407.78	-1029.21	734490.60	1083421.26	3559.81	343.19	
15273.00	91.89	345.22	11940.75	3654.66	3499.61	-1053.41	734582.43	1083397.06	3654.71	343.25	
15367.00	89.37	345.32	11939.72	3748.60	3590.51	-1077.31	734673.33	1083373.16	3748.64	343.30	
15462.00	88.62	344.55	11941.38	3843.56	3682.23	-1102.00	734765.05	1083348.47	3843.59	343.34	
15556.00	87.55	345.16	11944.52	3937.48	3772.91	-1126.54	734855.73	1083323.93	3937.50	343.38	
15651.00	89.17	345.53	11947.24	4032.39	3864.78	-1150.57	734947.60	1083299.90	4032.41	343.42	
15745.00	89.45	345.49	11948.38	4126.33	3955.78	-1174.09	735038.60	1083276.38	4126.34	343.47	
15841.00	87.63	344.57	11950.82	4222.27	4048.49	-1198.87	735131.31	1083251.60	4222.27	343.50	
15935.00	86.71	344.80	11955.46	4316.13	4139.04	-1223.67	735221.86	1083226.80	4316.13	343.53	
16030.00	86.80	344.27	11960.84	4410.97	4230.45	-1248.96	735313.27	1083201.51	4410.97	343.55	
16124.00	88.19	345.00	11964.95	4504.86	4321.00	-1273.84	735403.82	1083176.63	4504.86	343.57	
16219.00	89.17	345.64	11967.14	4599.78	4412.87	-1297.91	735495.69	1083152.56	4599.79	343.61	
16314.00	88.55	344.92	11969.03	4694.72	4504.74	-1322.05	735587.56	1083128.42	4694.73	343.64	
16409.00	87.98	345.01	11971.90	4789.65	4596.44	-1346.68	735679.26	1083103.79	4789.66	343.67	
16451.00	87.49	345.45	11973.56	4831.60	4637.02	-1357.38	735719.84	1083093.09	4831.61	343.68	Last Wft Svy
16515.00	87.49	345.45	11976.37	4895.50	4698.91	-1373.44	735781.73	1083077.03	4895.52	343.71	PTB
Formation Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Name	Comment		
11615.51	39.75	335.40	11575.00	104.20	5.87	731187.02	1084456.34	Base Y Sand			
11804.17	52.02	335.95	11705.00	228.39	-50.08	731311.21	1084400.39	Bentonite Marker			





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Evaluation, Drilling & Intervention

10000 West County Rd. 116

P.O. Box 61028

Midland, TX USA 79711

Tel. (432) 561-8892 Fax (432) 561-8895

State Of Texas  
County Of Ward

I, Chad Lowrey certify that I am employed by Precision Energy Services, Inc., a Weatherford Company, and on the days of 06/01/17 through 7/15/2017 I did conduct, or supervise the taking of a Measurement While Drilling survey from a depth of 611 MD ft. to a depth of 16451 MD ft., that the data is true, correct, complete, and within the limitations of the tool as set forth by Weatherford; that I am authorized and qualified to make this report, that this survey was conducted at the request of: Forge Energy for the UL 20 Tensleep 1H well, API Number: 42-475-37120 in Ward County, Texas; and find that it conforms to the principles and procedures as set forth by Weatherford.

Sincerely,

Jonathan Leger  
MWD Ops. Coordinator