



Project: Reagan County, TX (NAD 27)
Site: University Lands Block 10, Sec. 34
Well: University 11 RE 1006HS
Wellbore: HZ [196637]
Design: FINAL

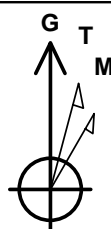


WELL DETAILS: University 11 RE 1006HS

Ground Level: 2696.00
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 565280.38 1625507.28 31.215433 -101.531355

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Annotation
1100.99	1101.00	0.22	175.16	1.07	-0.91	-1.05	Last Gyro Survey
4198.90	4227.00	8.10	176.63	-395.82	-24.87	396.21	34 / 3 Sec. Crossing
7101.47	7137.00	19.35	191.48	-495.59	-21.60	495.90	N. Hard Line Crossing
7245.36	17729.00	89.10	179.60	-10882.19	-202.86	10884.08	Last CES Survey
7245.51	17739.00	89.10	179.60	-10892.19	-202.79	10894.07	S. Hard Line Crossing
7246.28	17788.00	89.10	179.60	-10941.18	-202.45	10943.05	Actual BHL



Azimuths to Grid North
True North: 0.62°
Magnetic North: 6.52°

Magnetic Field
Strength: 47749.9snT
Dip Angle: 59.62°
Date: 10/12/2016
Model: HDGM

TARGET LINE
90.5° INC @ 7325' TVD @ 0' VS

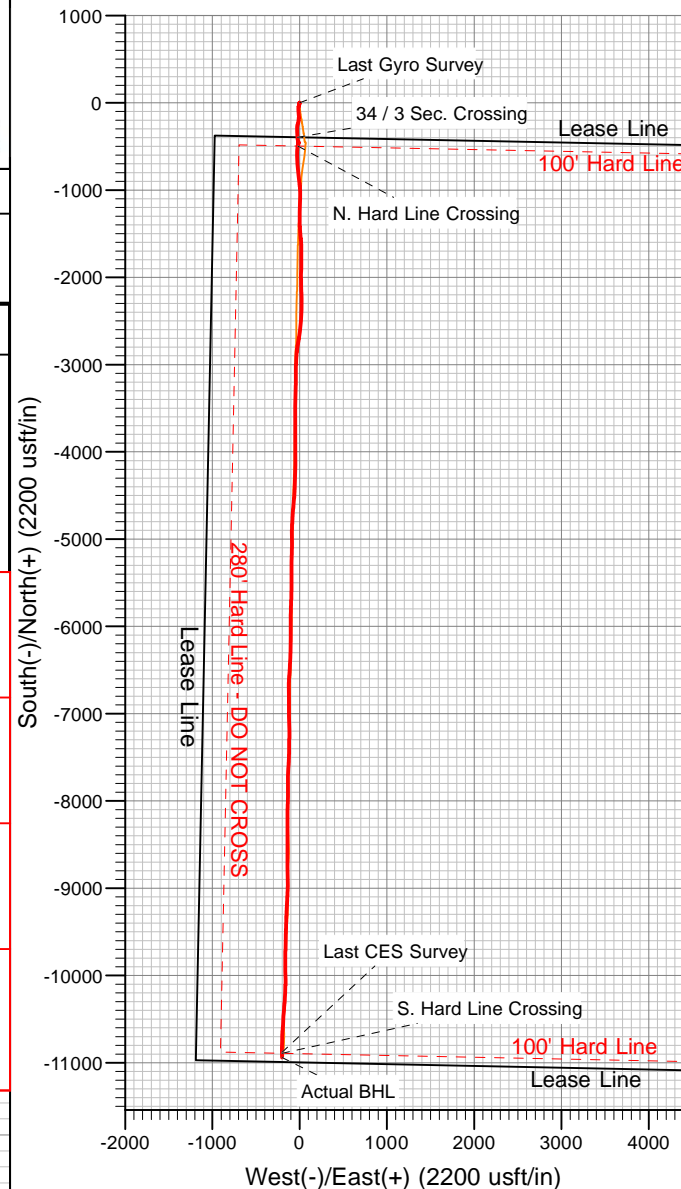
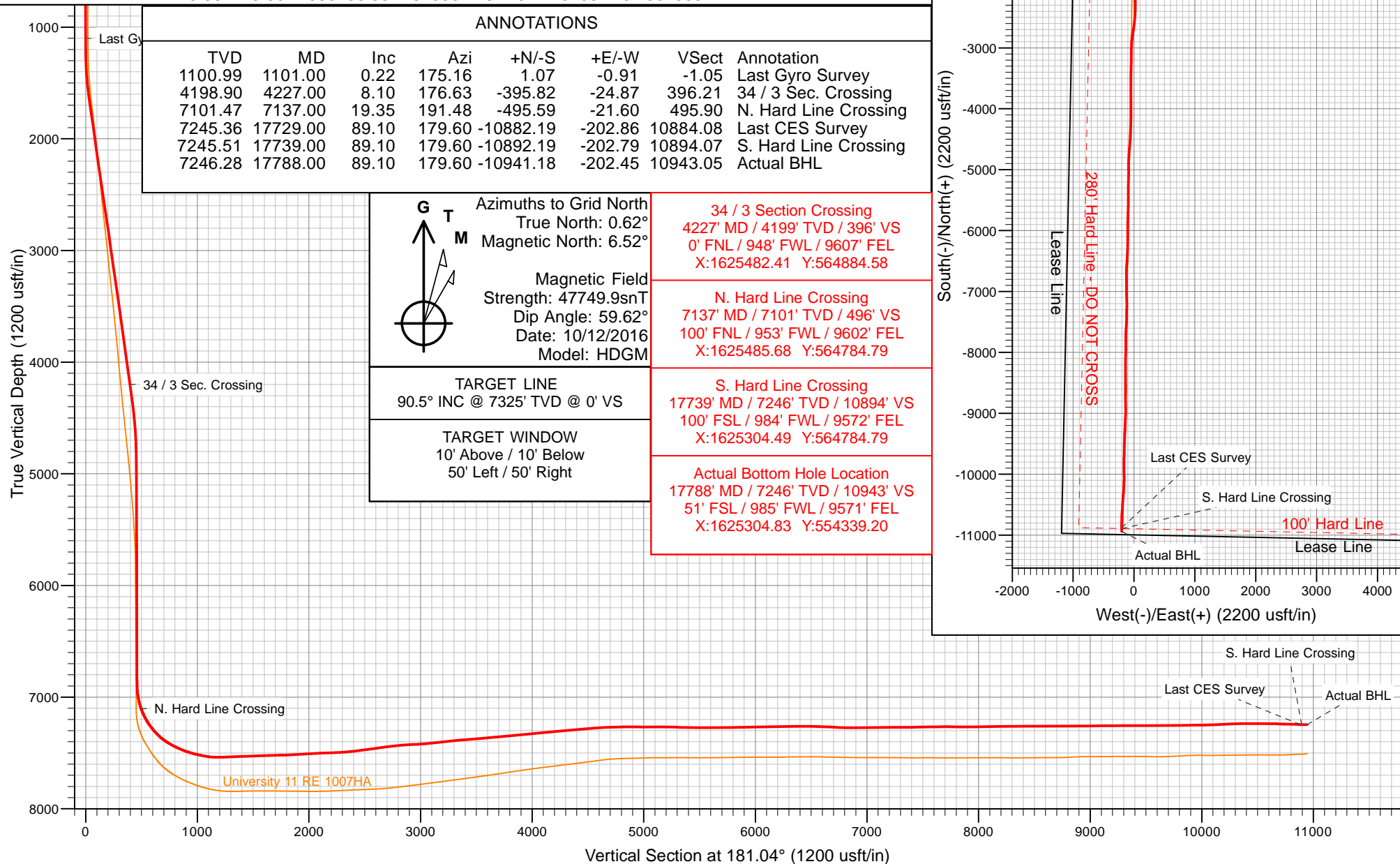
TARGET WINDOW
10' Above / 10' Below
50' Left / 50' Right

34 / 3 Section Crossing
4227' MD / 4199' TVD / 396' VS
0' FNL / 948' FWL / 9607' FEL
X:1625482.41 Y:564884.58

N. Hard Line Crossing
7137' MD / 7101' TVD / 496' VS
100' FNL / 953' FWL / 9602' FEL
X:1625485.68 Y:564784.79

S. Hard Line Crossing
17739' MD / 7246' TVD / 10894' VS
100' FSL / 984' FWL / 9572' FEL
X:1625304.49 Y:564784.79

Actual Bottom Hole Location
17788' MD / 7246' TVD / 10943' VS
51' FSL / 985' FWL / 9571' FEL
X:1625304.83 Y:554339.20



Company:	Permian Resources	Local Co-ordinate Reference:	Well University 11 RE 1006HS
Project:	Reagan County, TX (NAD 27)	TVD Reference:	21' RKB @ 2717.00usft (Unit 407)
Site:	University Lands Block 10, Sec. 34	MD Reference:	21' RKB @ 2717.00usft (Unit 407)
Well:	University 11 RE 1006HS	North Reference:	Grid
Wellbore:	HZ [196637]	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

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

Site	University Lands Block 10, Sec. 34				
Site Position:		Northing:	565,260.38 usft	Latitude:	31.215378
From:	Map	Easting:	1,625,506.88 usft	Longitude:	-101.531356
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.62 °

Well	University 11 RE 1006HS					
Well Position	+N/-S	0.00 usft	Northing:	565,280.38 usft	Latitude:	31.215433
	+E/-W	0.00 usft	Easting:	1,625,507.28 usft	Longitude:	-101.531355
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	2,696.00 usft

Wellbore	HZ [196637]				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/12/2016	5.90	59.62	47,750

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	181.04	

Survey Program	Date	10/29/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
71.00	1,101.00	Surface Gyros (HZ [196637])	GyroFlex		
1,210.00	17,788.00	CES MWD (HZ [196637])	MWD+HDGM	OWSG MWD + HDGM	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
71.00	0.45	4.59	71.00	0.28	0.02	-0.28	0.63	0.63	
121.00	0.50	355.69	121.00	0.69	0.02	-0.69	0.18	0.10	
171.00	0.48	319.84	171.00	1.07	-0.13	-1.07	0.60	-0.04	
221.00	0.37	294.78	220.99	1.30	-0.41	-1.29	0.43	-0.22	
271.00	0.15	220.75	270.99	1.31	-0.60	-1.30	0.72	-0.44	
321.00	0.26	18.97	320.99	1.37	-0.61	-1.36	0.81	0.22	
371.00	0.32	324.45	370.99	1.59	-0.65	-1.58	0.54	0.12	
421.00	0.15	264.58	420.99	1.70	-0.80	-1.69	0.55	-0.34	
471.00	0.31	20.76	470.99	1.82	-0.81	-1.81	0.80	0.32	
521.00	0.26	11.74	520.99	2.06	-0.74	-2.04	0.13	-0.10	
571.00	0.18	281.19	570.99	2.18	-0.80	-2.17	0.64	-0.16	

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Well:	University 11 RE 1006HS	North Reference:	Grid
Wellbore:	HZ [196637]	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
621.00	0.12	195.33	620.99	2.15	-0.89	-2.13	0.42	-0.12	
671.00	0.21	140.86	670.99	2.03	-0.84	-2.01	0.34	0.18	
721.00	0.22	318.24	720.99	2.03	-0.85	-2.01	0.86	0.02	
771.00	0.22	218.99	770.99	2.03	-0.97	-2.01	0.67	0.00	
821.00	0.25	184.32	820.99	1.84	-1.04	-1.82	0.29	0.06	
871.00	0.20	109.81	870.99	1.70	-0.97	-1.69	0.55	-0.10	
921.00	0.11	38.37	920.99	1.71	-0.86	-1.70	0.39	-0.18	
971.00	0.06	288.54	970.99	1.76	-0.85	-1.74	0.28	-0.10	
1,021.00	0.38	195.03	1,020.99	1.61	-0.92	-1.59	0.78	0.64	
1,071.00	0.46	171.45	1,070.99	1.25	-0.93	-1.23	0.38	0.16	
1,101.00	0.22	175.16	1,100.99	1.07	-0.91	-1.05	0.80	-0.80	Last Gyro Survey
1,210.00	0.80	145.00	1,209.98	0.24	-0.46	-0.23	0.57	0.53	
1,304.00	1.70	181.10	1,303.96	-1.69	-0.11	1.69	1.23	0.96	
1,400.00	3.40	188.00	1,399.86	-5.94	-0.53	5.94	1.80	1.77	
1,494.00	5.80	194.30	1,493.55	-13.30	-2.09	13.34	2.61	2.55	
1,589.00	7.40	196.00	1,587.92	-23.83	-4.96	23.92	1.70	1.68	
1,682.00	8.40	200.70	1,680.04	-35.94	-9.02	36.10	1.28	1.08	
1,778.00	8.30	192.70	1,775.02	-49.26	-13.02	49.49	1.21	-0.10	
1,872.00	8.70	184.60	1,867.99	-62.97	-15.08	63.23	1.34	0.43	
1,967.00	7.90	175.50	1,962.00	-76.64	-15.14	76.90	1.62	-0.84	
2,062.00	7.70	171.20	2,056.12	-89.44	-13.66	89.67	0.65	-0.21	
2,157.00	8.00	175.50	2,150.24	-102.32	-12.17	102.52	0.69	0.32	
2,252.00	8.30	183.10	2,244.28	-115.76	-12.02	115.96	1.18	0.32	
2,344.00	8.90	175.30	2,335.25	-129.48	-11.79	129.67	1.42	0.65	
2,438.00	8.30	170.70	2,428.19	-143.42	-10.10	143.58	0.97	-0.64	
2,532.00	8.00	177.70	2,521.24	-156.65	-8.74	156.79	1.10	-0.32	
2,626.00	8.40	184.40	2,614.28	-170.04	-9.01	170.17	1.10	0.43	
2,721.00	9.10	182.50	2,708.18	-184.46	-9.87	184.61	0.80	0.74	
2,815.00	8.80	188.60	2,801.04	-199.00	-11.27	199.17	1.06	-0.32	
2,909.00	7.70	191.40	2,894.06	-212.28	-13.59	212.49	1.25	-1.17	
3,003.00	7.80	192.90	2,987.20	-224.67	-16.26	224.93	0.24	0.11	
3,096.00	8.40	196.60	3,079.28	-237.33	-19.60	237.65	0.85	0.65	
3,190.00	8.70	195.70	3,172.23	-250.76	-23.49	251.14	0.35	0.32	
3,285.00	8.80	192.00	3,266.13	-264.78	-26.95	265.23	0.60	0.11	
3,379.00	8.20	186.10	3,359.10	-278.48	-29.15	278.96	1.13	-0.64	
3,471.00	7.90	179.50	3,450.19	-291.33	-29.79	291.82	1.06	-0.33	
3,565.00	8.20	181.20	3,543.26	-304.49	-29.88	304.98	0.41	0.32	
3,660.00	8.10	179.80	3,637.30	-317.95	-30.00	318.45	0.23	-0.11	
3,754.00	7.90	179.40	3,730.39	-331.04	-29.91	331.52	0.22	-0.21	
3,848.00	7.70	175.80	3,823.52	-343.78	-29.38	344.25	0.56	-0.21	
3,943.00	7.50	175.80	3,917.69	-356.31	-28.46	356.76	0.21	-0.21	
4,039.00	8.20	173.80	4,012.79	-369.36	-27.26	369.80	0.78	0.73	
4,134.00	8.10	174.40	4,106.83	-382.76	-25.87	383.16	0.14	-0.11	
4,222.00	8.10	176.70	4,193.95	-395.12	-24.91	395.50	0.37	0.00	
4,227.00	8.10	176.63	4,198.90	-395.82	-24.87	396.21	0.19	0.00	34 / 3 Sec. Crossing
4,316.00	8.10	175.40	4,287.01	-408.33	-24.00	408.70	0.19	0.00	
4,412.00	6.70	171.60	4,382.21	-420.61	-22.64	420.95	1.54	-1.46	
4,506.00	6.60	168.80	4,475.58	-431.34	-20.79	431.64	0.36	-0.11	
4,599.00	4.70	167.30	4,568.12	-440.30	-18.91	440.57	2.05	-2.04	
4,695.00	3.20	163.10	4,663.89	-446.70	-17.27	446.94	1.59	-1.56	
4,789.00	1.50	188.60	4,757.81	-450.42	-16.69	450.65	2.08	-1.81	
4,884.00	1.10	175.50	4,852.79	-452.56	-16.81	452.79	0.52	-0.42	
4,980.00	0.50	70.20	4,948.78	-453.34	-16.34	453.56	1.38	-0.62	

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Well:	University 11 RE 1006HS	North Reference:	Grid
Wellbore:	HZ [196637]	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
5,074.00	0.80	98.80	5,042.77	-453.30	-15.30	453.50	0.46	0.32	
5,168.00	0.40	304.00	5,136.77	-453.22	-14.93	453.41	1.25	-0.43	
5,263.00	0.30	205.20	5,231.77	-453.26	-15.31	453.46	0.56	-0.11	
5,359.00	1.00	199.40	5,327.76	-454.28	-15.69	454.49	0.73	0.73	
5,454.00	0.30	110.40	5,422.76	-455.14	-15.74	455.35	1.09	-0.74	
5,550.00	0.90	127.60	5,518.75	-455.69	-14.90	455.89	0.65	0.62	
5,645.00	0.20	254.30	5,613.75	-456.19	-14.47	456.38	1.09	-0.74	
5,739.00	0.50	131.20	5,707.75	-456.51	-14.32	456.69	0.67	0.32	
5,834.00	0.40	279.20	5,802.75	-456.73	-14.34	456.91	0.91	-0.11	
5,927.00	0.40	236.50	5,895.75	-456.85	-14.93	457.05	0.31	0.00	
6,022.00	0.30	186.40	5,990.74	-457.28	-15.23	457.48	0.33	-0.11	
6,115.00	0.40	177.30	6,083.74	-457.85	-15.24	458.05	0.12	0.11	
6,210.00	0.80	51.00	6,178.74	-457.76	-14.71	457.96	1.14	0.42	
6,305.00	0.90	57.20	6,273.73	-456.94	-13.57	457.11	0.14	0.11	
6,400.00	0.60	236.70	6,368.73	-456.81	-13.36	456.98	1.58	-0.32	
6,493.00	0.50	218.80	6,461.72	-457.39	-14.02	457.57	0.21	-0.11	
6,588.00	0.70	176.00	6,556.72	-458.30	-14.24	458.48	0.50	0.21	
6,682.00	0.40	346.50	6,650.71	-458.55	-14.28	458.73	1.17	-0.32	
6,777.00	0.30	138.00	6,745.71	-458.41	-14.19	458.59	0.71	-0.11	
6,870.00	0.70	121.80	6,838.71	-458.89	-13.54	459.06	0.45	0.43	
6,965.00	2.80	182.10	6,933.67	-461.52	-13.13	461.68	2.66	2.21	
6,997.00	6.80	191.90	6,965.55	-464.15	-13.55	464.32	12.71	12.50	
7,029.00	10.40	194.40	6,997.18	-468.81	-14.66	469.00	11.31	11.25	
7,060.00	13.00	195.80	7,027.54	-474.87	-16.31	475.09	8.44	8.39	
7,091.00	15.60	195.80	7,057.57	-482.24	-18.39	482.49	8.39	8.39	
7,123.00	18.00	192.80	7,088.20	-491.20	-20.66	491.50	7.97	7.50	
7,137.00	19.35	191.48	7,101.47	-495.59	-21.60	495.90	10.10	9.64	N. Hard Line Crossing
7,154.00	21.00	190.10	7,117.42	-501.35	-22.69	501.67	10.10	9.71	
7,185.00	24.00	190.20	7,146.06	-513.02	-24.79	513.39	9.68	9.68	
7,216.00	26.60	187.70	7,174.09	-526.11	-26.83	526.51	9.07	8.39	
7,248.00	29.40	183.90	7,202.34	-541.05	-28.33	541.47	10.37	8.75	
7,278.00	32.60	182.20	7,228.05	-556.47	-29.14	556.91	11.06	10.67	
7,310.00	35.80	180.20	7,254.52	-574.45	-29.50	574.89	10.60	10.00	
7,341.00	38.60	179.10	7,279.21	-593.19	-29.38	593.63	9.28	9.03	
7,373.00	41.50	178.60	7,303.70	-613.77	-28.97	614.20	9.12	9.06	
7,405.00	44.00	179.70	7,327.20	-635.49	-28.65	635.91	8.15	7.81	
7,437.00	47.10	179.20	7,349.60	-658.33	-28.43	658.74	9.75	9.69	
7,469.00	51.40	177.70	7,370.49	-682.56	-27.76	682.95	13.90	13.44	
7,500.00	54.90	176.40	7,389.08	-707.33	-26.48	707.69	11.78	11.29	
7,531.00	57.90	174.20	7,406.23	-733.05	-24.35	733.37	11.34	9.68	
7,563.00	60.70	173.30	7,422.57	-760.40	-21.36	760.66	9.08	8.75	
7,594.00	62.80	172.80	7,437.24	-787.51	-18.05	787.70	6.92	6.77	
7,625.00	65.00	172.80	7,450.88	-815.12	-14.56	815.25	7.10	7.10	
7,657.00	67.00	172.70	7,463.89	-844.12	-10.87	844.18	6.26	6.25	
7,689.00	68.70	172.80	7,475.96	-873.52	-7.13	873.51	5.32	5.31	
7,720.00	70.90	173.50	7,486.66	-902.41	-3.66	902.32	7.41	7.10	
7,750.00	73.30	174.50	7,495.88	-930.80	-0.68	930.65	8.61	8.00	
7,781.00	75.00	176.00	7,504.35	-960.51	1.79	960.32	7.19	5.48	
7,813.00	76.60	176.90	7,512.20	-991.47	3.71	991.24	5.70	5.00	
7,844.00	77.80	179.00	7,519.06	-1,021.68	4.79	1,021.43	7.66	3.87	
7,876.00	79.20	180.40	7,525.44	-1,053.04	4.95	1,052.77	6.13	4.37	
7,908.00	80.90	180.80	7,530.97	-1,084.55	4.62	1,084.29	5.45	5.31	
7,939.00	83.20	180.90	7,535.26	-1,115.25	4.16	1,114.99	7.43	7.42	

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Well:	University 11 RE 1006HS	North Reference:	Grid
Wellbore:	HZ [196637]	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
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7,971.00	87.20	182.00	7,537.94	-1,147.12	3.36	1,146.87	12.96	12.50	
8,001.00	89.80	182.10	7,538.72	-1,177.09	2.28	1,176.85	8.67	8.67	
8,097.00	93.00	179.60	7,536.38	-1,273.03	0.86	1,272.80	4.23	3.33	
8,190.00	91.90	180.20	7,532.40	-1,365.94	1.02	1,365.70	1.35	-1.18	
8,284.00	92.10	176.30	7,529.12	-1,459.82	3.89	1,459.51	4.15	0.21	
8,379.00	92.20	173.30	7,525.56	-1,554.35	12.49	1,553.87	3.16	0.11	
8,475.00	92.20	180.00	7,521.87	-1,650.07	18.09	1,649.46	6.97	0.00	
8,539.00	91.00	180.00	7,520.08	-1,714.04	18.09	1,713.43	1.87	-1.87	
8,569.00	90.40	179.90	7,519.71	-1,744.04	18.12	1,743.42	2.03	-2.00	
8,601.00	90.90	179.60	7,519.35	-1,776.03	18.26	1,775.41	1.82	1.56	
8,633.00	91.50	179.30	7,518.68	-1,808.03	18.57	1,807.39	2.10	1.87	
8,664.00	92.60	179.90	7,517.57	-1,839.00	18.78	1,838.36	4.04	3.55	
8,695.00	93.70	180.80	7,515.87	-1,869.96	18.59	1,869.31	4.58	3.55	
8,727.00	94.00	182.40	7,513.72	-1,901.87	17.70	1,901.24	5.08	0.94	
8,759.00	94.40	182.80	7,511.37	-1,933.75	16.25	1,933.14	1.77	1.25	
8,789.00	94.90	181.40	7,508.94	-1,963.63	15.16	1,963.03	4.94	1.67	
8,820.00	93.30	179.60	7,506.73	-1,994.55	14.89	1,993.95	7.76	-5.16	
8,852.00	92.40	178.70	7,505.13	-2,026.51	15.36	2,025.89	3.97	-2.81	
8,884.00	92.40	178.80	7,503.79	-2,058.47	16.06	2,057.84	0.31	0.00	
8,916.00	92.50	178.50	7,502.43	-2,090.43	16.81	2,089.78	0.99	0.31	
8,947.00	92.20	177.90	7,501.16	-2,121.39	17.79	2,120.72	2.16	-0.97	
8,978.00	91.90	177.80	7,500.05	-2,152.35	18.95	2,151.65	1.02	-0.97	
9,009.00	92.00	177.50	7,498.99	-2,183.30	20.22	2,182.58	1.02	0.32	
9,041.00	92.20	177.60	7,497.82	-2,215.25	21.59	2,214.50	0.70	0.62	
9,072.00	92.30	177.80	7,496.60	-2,246.20	22.83	2,245.42	0.72	0.32	
9,104.00	92.90	179.50	7,495.15	-2,278.16	23.58	2,277.36	5.63	1.87	
9,135.00	93.80	181.40	7,493.34	-2,309.11	23.34	2,308.30	6.77	2.90	
9,166.00	94.60	181.70	7,491.07	-2,340.01	22.50	2,339.22	2.76	2.58	
9,198.00	95.40	182.40	7,488.28	-2,371.87	21.36	2,371.09	3.32	2.50	
9,230.00	96.10	182.70	7,485.07	-2,403.68	19.95	2,402.92	2.38	2.19	
9,262.00	97.10	182.90	7,481.40	-2,435.42	18.39	2,434.69	3.19	3.12	
9,293.00	98.10	183.50	7,477.30	-2,466.10	16.68	2,465.40	3.75	3.23	
9,324.00	99.30	183.80	7,472.61	-2,496.68	14.73	2,496.01	3.99	3.87	
9,355.00	98.50	184.60	7,467.81	-2,527.23	12.49	2,526.59	3.63	-2.58	
9,386.00	98.30	185.40	7,463.28	-2,557.78	9.81	2,557.18	2.63	-0.65	
9,416.00	98.10	186.50	7,459.00	-2,587.31	6.73	2,586.76	3.69	-0.67	
9,512.00	97.30	189.30	7,446.14	-2,681.53	-6.34	2,681.21	3.01	-0.83	
9,606.00	94.40	190.10	7,436.56	-2,773.70	-22.10	2,773.64	3.20	-3.09	
9,700.00	94.00	185.00	7,429.67	-2,866.60	-34.41	2,866.75	5.43	-0.43	
9,794.00	93.90	182.70	7,423.19	-2,960.16	-40.71	2,960.41	2.44	-0.11	
9,889.00	94.70	179.00	7,416.07	-3,054.86	-42.11	3,055.12	3.97	0.84	
9,984.00	97.00	181.10	7,406.38	-3,149.36	-42.19	3,149.60	3.27	2.42	
10,077.00	96.20	181.50	7,395.70	-3,241.72	-44.29	3,241.98	0.96	-0.86	
10,173.00	94.90	182.20	7,386.41	-3,337.21	-47.37	3,337.52	1.54	-1.35	
10,266.00	94.40	181.30	7,378.87	-3,429.86	-50.20	3,430.21	1.10	-0.54	
10,362.00	95.40	180.70	7,370.67	-3,525.49	-51.87	3,525.86	1.21	1.04	
10,455.00	94.30	179.80	7,362.81	-3,618.16	-52.28	3,618.51	1.53	-1.18	
10,550.00	95.70	179.60	7,354.53	-3,712.79	-51.78	3,713.12	1.49	1.47	
10,644.00	94.60	179.90	7,346.09	-3,806.41	-51.37	3,806.72	1.21	-1.17	
10,739.00	96.20	179.10	7,337.15	-3,900.98	-50.55	3,901.26	1.88	1.68	
10,833.00	96.10	180.00	7,327.08	-3,994.44	-49.81	3,994.68	0.96	-0.11	
10,928.00	95.70	180.30	7,317.31	-4,088.93	-50.06	4,089.17	0.53	-0.42	
11,023.00	94.40	180.70	7,308.95	-4,183.56	-50.89	4,183.79	1.43	-1.37	

Company:	Permian Resources	Local Co-ordinate Reference:	Well University 11 RE 1006HS
Project:	Reagan County, TX (NAD 27)	TVD Reference:	21' RKB @ 2717.00usft (Unit 407)
Site:	University Lands Block 10, Sec. 34	MD Reference:	21' RKB @ 2717.00usft (Unit 407)
Well:	University 11 RE 1006HS	North Reference:	Grid
Wellbore:	HZ [196637]	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
11,117.00	94.10	181.50	7,301.99	-4,277.28	-52.69	4,277.53	0.91	-0.32	
11,211.00	95.30	181.50	7,294.28	-4,370.93	-55.14	4,371.21	1.28	1.28	
11,305.00	95.80	183.70	7,285.19	-4,464.39	-59.38	4,464.73	2.39	0.53	
11,398.00	94.40	184.90	7,276.92	-4,556.76	-66.33	4,557.21	1.98	-1.51	
11,492.00	92.10	185.10	7,271.60	-4,650.24	-74.51	4,650.83	2.46	-2.45	
11,587.00	92.10	183.60	7,268.11	-4,744.90	-81.71	4,745.60	1.58	0.00	
11,682.00	90.00	182.30	7,266.37	-4,839.75	-86.60	4,840.53	2.60	-2.21	
11,777.00	89.50	180.20	7,266.79	-4,934.72	-88.67	4,935.52	2.27	-0.53	
11,871.00	90.00	179.10	7,267.20	-5,028.72	-88.09	5,029.49	1.29	0.53	
11,966.00	90.40	181.50	7,266.87	-5,123.71	-88.59	5,124.47	2.56	0.42	
12,059.00	89.20	182.40	7,267.19	-5,216.65	-91.76	5,217.46	1.61	-1.29	
12,155.00	87.60	181.10	7,269.87	-5,312.57	-94.69	5,313.41	2.15	-1.67	
12,250.00	89.10	178.30	7,272.61	-5,407.51	-94.19	5,408.33	3.34	1.58	
12,345.00	90.00	180.80	7,273.35	-5,502.50	-93.44	5,503.29	2.80	0.95	
12,439.00	91.50	180.80	7,272.12	-5,596.48	-94.76	5,597.28	1.60	1.60	
12,534.00	89.20	181.70	7,271.54	-5,691.45	-96.83	5,692.27	2.60	-2.42	
12,629.00	90.70	182.10	7,271.63	-5,786.39	-99.98	5,787.25	1.63	1.58	
12,724.00	90.50	180.30	7,270.63	-5,881.36	-101.97	5,882.24	1.91	-0.21	
12,819.00	91.40	179.90	7,269.06	-5,976.35	-102.13	5,977.22	1.04	0.95	
12,914.00	91.60	179.90	7,266.57	-6,071.31	-101.97	6,072.17	0.21	0.21	
13,009.00	91.00	181.40	7,264.41	-6,166.28	-103.04	6,167.14	1.70	-0.63	
13,104.00	90.80	180.90	7,262.92	-6,261.25	-104.95	6,262.12	0.57	-0.21	
13,199.00	90.50	182.20	7,261.84	-6,356.21	-107.52	6,357.11	1.40	-0.32	
13,294.00	89.90	182.80	7,261.51	-6,451.11	-111.66	6,452.08	0.89	-0.63	
13,389.00	88.30	184.60	7,263.00	-6,545.90	-117.79	6,546.96	2.53	-1.68	
13,483.00	87.90	182.20	7,266.12	-6,639.67	-123.36	6,640.82	2.59	-0.43	
13,578.00	86.40	179.70	7,270.85	-6,734.53	-124.94	6,735.69	3.07	-1.58	
13,673.00	88.60	178.10	7,274.99	-6,829.42	-123.12	6,830.53	2.86	2.32	
13,768.00	91.90	179.90	7,274.58	-6,924.38	-121.46	6,925.45	3.96	3.47	
13,861.00	90.70	180.60	7,272.47	-7,017.36	-121.86	7,018.41	1.49	-1.29	
13,955.00	90.50	177.90	7,271.48	-7,111.33	-120.63	7,112.35	2.88	-0.21	
14,050.00	90.60	179.60	7,270.57	-7,206.30	-118.56	7,207.27	1.79	0.11	
14,146.00	90.20	181.20	7,269.90	-7,302.30	-119.23	7,303.26	1.72	-0.42	
14,240.00	90.30	180.00	7,269.49	-7,396.29	-120.22	7,397.25	1.28	0.11	
14,334.00	91.80	182.20	7,267.77	-7,490.25	-122.02	7,491.23	2.83	1.60	
14,427.00	90.70	184.00	7,265.74	-7,583.08	-127.05	7,584.14	2.27	-1.18	
14,521.00	90.90	182.90	7,264.42	-7,676.90	-132.70	7,678.05	1.19	0.21	
14,617.00	88.20	178.80	7,265.18	-7,772.86	-134.13	7,774.01	5.11	-2.81	
14,711.00	89.40	179.20	7,267.15	-7,866.82	-132.49	7,867.93	1.35	1.28	
14,806.00	90.70	182.20	7,267.06	-7,961.80	-133.65	7,962.92	3.44	1.37	
14,901.00	91.70	182.60	7,265.07	-8,056.70	-137.63	8,057.87	1.13	1.05	
14,996.00	91.60	180.30	7,262.34	-8,151.62	-140.03	8,152.82	2.42	-0.11	
15,091.00	89.80	180.70	7,261.18	-8,246.61	-140.86	8,247.80	1.94	-1.89	
15,186.00	90.20	178.90	7,261.18	-8,341.60	-140.53	8,342.78	1.94	0.42	
15,281.00	91.00	179.80	7,260.18	-8,436.59	-139.45	8,437.73	1.27	0.84	
15,375.00	89.20	179.70	7,260.02	-8,530.58	-139.04	8,531.70	1.92	-1.91	
15,470.00	90.60	181.40	7,260.19	-8,625.57	-139.95	8,626.69	2.32	1.47	
15,564.00	90.90	180.80	7,258.95	-8,719.55	-141.75	8,720.68	0.71	0.32	
15,659.00	89.70	176.20	7,258.46	-8,814.49	-139.27	8,815.56	5.00	-1.26	
15,754.00	90.20	179.30	7,258.54	-8,909.40	-135.54	8,910.39	3.31	0.53	
15,849.00	91.00	183.10	7,257.54	-9,004.36	-137.53	9,005.37	4.09	0.84	
15,944.00	90.00	181.30	7,256.72	-9,099.28	-141.17	9,100.34	2.17	-1.05	
16,038.00	90.60	184.30	7,256.22	-9,193.15	-145.77	9,194.28	3.25	0.64	



Cathedral Energy Services

Survey Report



Company: Permian Resources
Project: Reagan County, TX (NAD 27)
Site: University Lands Block 10, Sec. 34
Well: University 11 RE 1006HS
Wellbore: HZ [196637]
Design: FINAL

Local Co-ordinate Reference: Well University 11 RE 1006HS
TVD Reference: 21' RKB @ 2717.00usft (Unit 407)
MD Reference: 21' RKB @ 2717.00usft (Unit 407)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
16,133.00	89.70	182.10	7,255.97	-9,288.00	-151.07	9,289.21	2.50	-0.95	
16,228.00	90.30	181.10	7,255.97	-9,382.96	-153.72	9,384.20	1.23	0.63	
16,323.00	90.80	182.80	7,255.06	-9,477.90	-156.95	9,479.18	1.87	0.53	
16,418.00	89.90	180.80	7,254.48	-9,572.84	-159.94	9,574.17	2.31	-0.95	
16,513.00	90.40	181.60	7,254.23	-9,667.82	-161.93	9,669.17	0.99	0.53	
16,607.00	91.10	180.60	7,253.00	-9,761.79	-163.73	9,763.16	1.30	0.74	
16,702.00	90.60	179.60	7,251.59	-9,856.78	-163.90	9,858.13	1.18	-0.53	
16,797.00	90.80	179.70	7,250.43	-9,951.77	-163.32	9,953.10	0.24	0.21	
16,891.00	91.10	179.50	7,248.87	-10,045.76	-162.66	10,047.05	0.38	0.32	
16,986.00	92.70	181.90	7,245.72	-10,140.69	-163.82	10,141.99	3.04	1.68	
17,081.00	92.60	183.30	7,241.33	-10,235.49	-168.12	10,236.85	1.48	-0.11	
17,176.00	91.50	184.80	7,237.93	-10,330.18	-174.83	10,331.65	1.96	-1.16	
17,270.00	89.40	183.70	7,237.20	-10,423.91	-181.79	10,425.50	2.52	-2.23	
17,365.00	90.00	183.60	7,237.69	-10,518.72	-187.84	10,520.40	0.64	0.63	
17,458.00	89.40	184.40	7,238.18	-10,611.49	-194.33	10,613.27	1.08	-0.65	
17,553.00	88.30	182.10	7,240.09	-10,706.31	-199.71	10,708.17	2.68	-1.16	
17,648.00	87.90	181.10	7,243.24	-10,801.22	-202.36	10,803.11	1.13	-0.42	
17,729.00	89.10	179.60	7,245.36	-10,882.19	-202.86	10,884.08	2.37	1.48	Last CES Survey
17,739.00	89.10	179.60	7,245.51	-10,892.19	-202.79	10,894.07	0.00	0.00	S. Hard Line Crossing
17,788.00	89.10	179.60	7,246.28	-10,941.18	-202.45	10,943.05	0.00	0.00	Actual BHL

Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
1006HS - PBHL 7	0.00	360.00	7,229.19	-10,977.16	-198.61	554,303.22	1,625,308.67	31.185247	-101.531612
- actual wellpath misses target center by 40.02usft at 17788.00usft MD (7246.28 TVD, -10941.18 N, -202.45 E)									
- Point									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,101.00	1,100.99	1.07	-0.91	Last Gyro Survey
4,227.00	4,198.90	-395.82	-24.87	34 / 3 Sec. Crossing
7,137.00	7,101.47	-495.59	-21.60	N. Hard Line Crossing
17,729.00	7,245.36	-10,882.19	-202.86	Last CES Survey
17,739.00	7,245.51	-10,892.19	-202.79	S. Hard Line Crossing
17,788.00	7,246.28	-10,941.18	-202.45	Actual BHL

Checked By: _____ Approved By: _____ Date: _____



State of Texas
County of **Reagan**

I, Randy Burns, certify that; I am employed by Cathedral Energy Services; that I did on the day(s) of **10/15/16** through **10/29/16** conduct or supervise the taking of a directional MWD survey from a depth of **1210** feet to a depth of **17788** feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Cathedral Energy Services; that I am authorized and qualified to make this report; that this survey was conducted at the request of **Permian Resources** for the **University 11 RE 1006HS**. Well API No. **42-383-39675** in **Reagan** County, Texas; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Cathedral Energy Services.

CATHEDRAL ENERGY SERVICES

6622 Willow Brook Park
Houston, Texas 77066

281.440.1010 Office
877.825.1002 Toll-Free
281.440.1025 Fax

CathedralEnergyServices.com

Drilling + Completions

Randy Burns
Well Planner