



Project: Reagan County, TX (NAD 27)
Site: University Lands Block 10, Sec. 6
Well: University 10 RE 0620HD
Wellbore: HZ [165837]
Design: FINAL



Azimuths to Grid North
True North: 0.59°
Magnetic North: 6.49°

Magnetic Field
Strength: 47886.4snT
Dip Angle: 59.70°
Date: 3/17/2016
Model: HDGM

+N/-S
0.00

+E/-W
0.00

Northing
591819.67

Ground Level: 2538.00
Easting
1644819.61

Latitude
31.288956

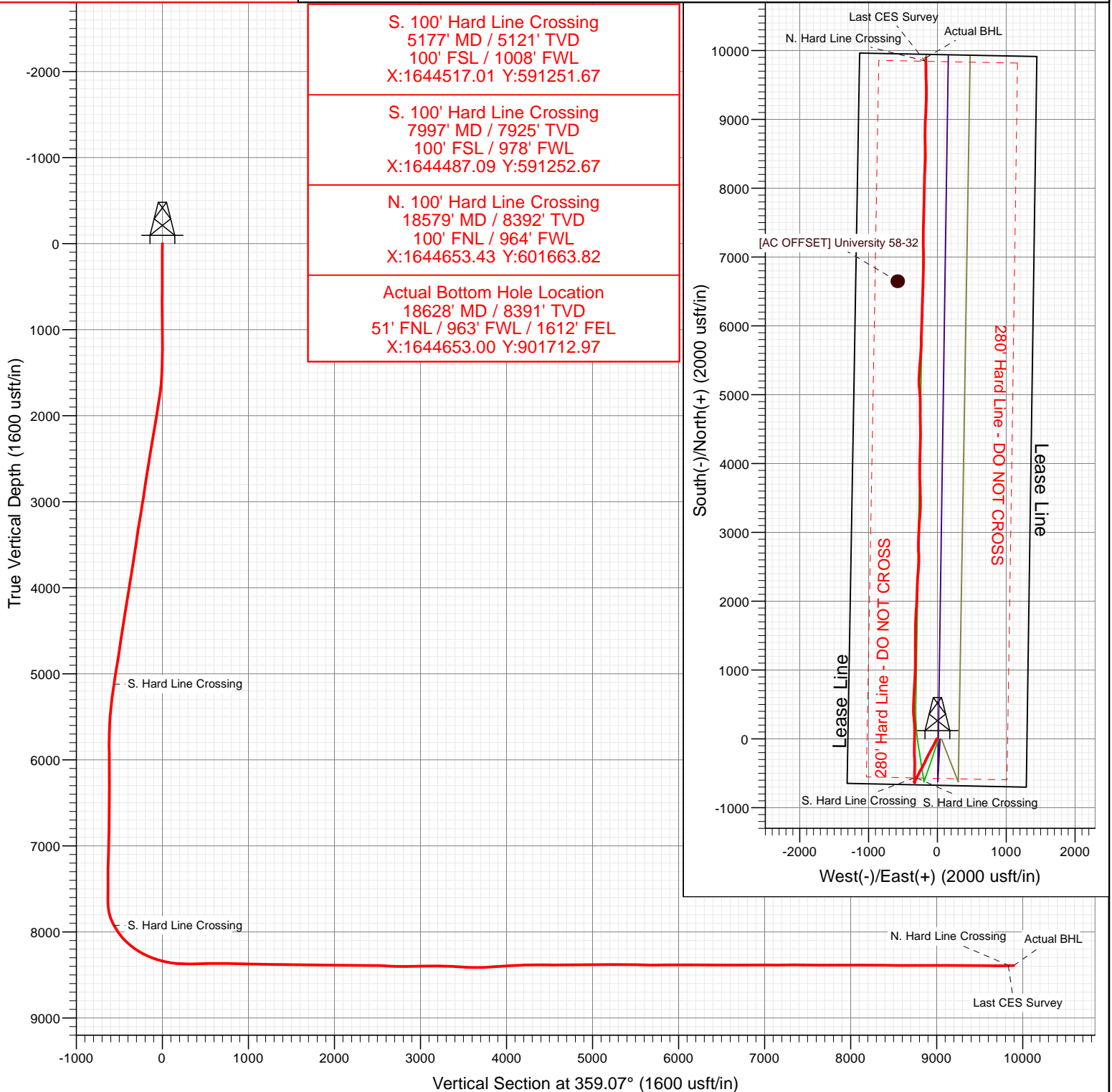
Longitude
-101.470446

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Annotation
5120.47	5177.00	10.31	208.86	-567.98	-302.59	-563.02	S. Hard Line Crossing
7924.43	7997.00	28.22	0.79	-567.11	-332.52	-561.67	S. Hard Line Crossing
8392.72	18566.00	91.60	359.50	9831.33	-166.07	9832.73	Last CES Survey
8392.36	18579.00	91.60	359.50	9844.32	-166.18	9845.72	N. Hard Line Crossing
8390.99	18628.00	91.60	359.50	9893.30	-166.61	9894.70	Actual BHL

TARGET LINE

8348' TVD @ 0° VS; 89.72°



Cathedral Energy Services

Survey Report

Company:	Permian Resources	Local Co-ordinate Reference:	Well University 10 RE 0620HD
Project:	Reagan County, TX (NAD 27)	TVD Reference:	21 @ 2559.00usft (Unit #407)
Site:	University Lands Block 10, Sec. 6	MD Reference:	21 @ 2559.00usft (Unit #407)
Well:	University 10 RE 0620HD	North Reference:	Grid
Wellbore:	HZ [165837]	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. 6			
Site Position:		Northing:	591,818.98 usft	Latitude:	31.288955
From:	Map	Easting:	1,644,859.60 usft	Longitude:	-101.470318
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.59 °

Well	University 10 RE 0620HD					
Well Position	+N/-S	0.00 usft	Northing:	591,819.67 usft	Latitude:	31.288956
	+E/-W	0.00 usft	Easting:	1,644,819.61 usft	Longitude:	-101.470446
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	2,538.00 usft

Wellbore	HZ [165837]				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/17/2016	5.90	59.70	47,886

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	359.07	

Survey Program	Date	4/18/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
121.00	657.00	Surface Gyro - VES (HZ [165837])	GyroFlex		
799.00	18,628.00	CES MWD (HZ [165837])	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		
121.00	0.30	238.79	121.00	-0.16	-0.27	-0.16	0.25	0.25		
221.00	0.16	262.22	221.00	-0.32	-0.63	-0.31	0.17	-0.14		
321.00	0.26	271.50	321.00	-0.33	-1.00	-0.32	0.11	0.10		
421.00	0.23	204.61	421.00	-0.51	-1.31	-0.49	0.27	-0.03		
521.00	0.20	190.54	521.00	-0.86	-1.42	-0.84	0.06	-0.03		
621.00	0.19	175.29	621.00	-1.20	-1.44	-1.18	0.05	-0.01		
657.00	0.11	150.45	657.00	-1.29	-1.42	-1.27	0.28	-0.22		
799.00	0.30	306.10	799.00	-1.19	-1.65	-1.16	0.28	0.13		
893.00	0.50	282.60	892.99	-0.95	-2.25	-0.92	0.27	0.21		
989.00	0.50	296.90	988.99	-0.67	-3.04	-0.62	0.13	0.00		
1,083.00	0.50	293.70	1,082.99	-0.32	-3.78	-0.26	0.03	0.00		

Cathedral Energy Services

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Well:	University 10 RE 0620HD	North Reference:	Grid
Wellbore:	HZ [165837]	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
1,179.00	0.50	290.30	1,178.98	-0.01	-4.55	0.06	0.03	0.00	
1,273.00	0.40	300.70	1,272.98	0.30	-5.22	0.39	0.14	-0.11	
1,369.00	1.50	223.10	1,368.97	-0.45	-6.37	-0.34	1.53	1.15	
1,463.00	2.90	217.60	1,462.90	-3.23	-8.66	-3.09	1.50	1.49	
1,557.00	4.30	209.90	1,556.71	-8.17	-11.87	-7.97	1.57	1.49	
1,651.00	6.10	204.50	1,650.32	-15.77	-15.69	-15.51	1.98	1.91	
1,746.00	8.10	205.20	1,744.58	-26.42	-20.64	-26.08	2.11	2.11	
1,839.00	10.10	205.20	1,836.41	-39.73	-26.90	-39.29	2.15	2.15	
1,934.00	10.70	205.70	1,929.85	-55.21	-34.27	-54.65	0.64	0.63	
2,028.00	11.10	209.10	2,022.15	-70.98	-42.46	-70.28	0.81	0.43	
2,120.00	11.20	210.20	2,112.42	-86.44	-51.26	-85.60	0.26	0.11	
2,214.00	10.80	207.30	2,204.69	-102.16	-59.89	-101.18	0.73	-0.43	
2,308.00	11.10	205.40	2,296.98	-118.16	-67.81	-117.05	0.50	0.32	
2,402.00	10.40	206.90	2,389.33	-133.90	-75.53	-132.66	0.80	-0.74	
2,496.00	10.10	208.40	2,481.83	-148.71	-83.29	-147.35	0.43	-0.32	
2,591.00	10.20	210.30	2,575.34	-163.30	-91.49	-161.80	0.37	0.11	
2,686.00	10.20	211.00	2,668.84	-177.78	-100.07	-176.14	0.13	0.00	
2,781.00	10.30	213.50	2,762.33	-192.07	-109.09	-190.28	0.48	0.11	
2,875.00	10.10	209.40	2,854.84	-206.26	-117.77	-204.33	0.80	-0.21	
2,970.00	10.40	209.90	2,948.32	-220.95	-126.14	-218.88	0.33	0.32	
3,065.00	10.20	203.20	3,041.80	-236.11	-133.73	-233.92	1.28	-0.21	
3,158.00	10.50	200.60	3,133.28	-251.61	-139.95	-249.32	0.60	0.32	
3,251.00	10.40	202.60	3,224.74	-267.29	-146.16	-264.90	0.40	-0.11	
3,346.00	9.90	204.10	3,318.26	-282.67	-152.79	-280.16	0.60	-0.53	
3,441.00	9.70	205.40	3,411.87	-297.35	-159.56	-294.73	0.31	-0.21	
3,535.00	9.50	207.00	3,504.55	-311.42	-166.48	-308.69	0.35	-0.21	
3,630.00	9.30	207.50	3,598.28	-325.21	-173.58	-322.36	0.23	-0.21	
3,724.00	9.70	207.60	3,690.99	-338.96	-180.75	-336.00	0.43	0.43	
3,820.00	9.20	206.50	3,785.68	-353.00	-187.93	-349.92	0.55	-0.52	
3,913.00	9.50	207.50	3,877.45	-366.46	-194.79	-363.27	0.37	0.32	
4,007.00	11.20	206.30	3,969.92	-381.53	-202.41	-378.21	1.82	1.81	
4,101.00	11.30	207.40	4,062.11	-397.89	-210.70	-394.43	0.25	0.11	
4,195.00	10.90	208.80	4,154.35	-413.85	-219.22	-410.26	0.51	-0.43	
4,289.00	11.00	209.20	4,246.64	-429.47	-227.87	-425.73	0.13	0.11	
4,384.00	10.70	211.70	4,339.94	-444.88	-236.93	-441.00	0.59	-0.32	
4,476.00	10.50	213.40	4,430.37	-459.15	-246.03	-455.12	0.40	-0.22	
4,569.00	9.50	209.70	4,521.96	-472.89	-254.50	-468.72	1.28	-1.08	
4,664.00	9.70	203.80	4,615.63	-487.02	-261.61	-482.73	1.06	0.21	
4,757.00	9.30	202.60	4,707.36	-501.13	-267.66	-496.74	0.48	-0.43	
4,850.00	9.30	205.50	4,799.13	-514.85	-273.79	-510.36	0.50	0.00	
4,945.00	10.00	209.20	4,892.79	-528.98	-281.12	-524.37	0.98	0.74	
5,041.00	11.60	208.90	4,987.09	-544.70	-289.85	-539.95	1.67	1.67	
5,135.00	11.30	208.50	5,079.22	-561.07	-298.81	-556.17	0.33	-0.32	
5,177.00	10.31	208.86	5,120.47	-567.98	-302.59	-563.02	2.37	-2.37	S. Hard Line Crossing
5,228.00	9.10	209.40	5,170.74	-575.49	-306.77	-570.46	2.37	-2.37	
5,324.00	8.10	208.60	5,265.66	-588.04	-313.73	-582.90	1.05	-1.04	
5,418.00	6.80	210.80	5,358.86	-598.64	-319.75	-593.39	1.42	-1.38	
5,511.00	5.50	207.00	5,451.33	-607.34	-324.59	-602.02	1.46	-1.40	
5,606.00	4.20	205.20	5,545.99	-614.54	-328.14	-609.16	1.38	-1.37	
5,702.00	2.70	203.60	5,641.81	-619.79	-330.55	-614.37	1.57	-1.56	
5,795.00	1.10	215.70	5,734.76	-622.53	-331.94	-617.08	1.76	-1.72	
5,889.00	0.40	272.50	5,828.75	-623.24	-332.80	-617.79	1.00	-0.74	
5,985.00	0.30	334.60	5,924.75	-623.00	-333.24	-617.54	0.39	-0.10	

Cathedral Energy Services

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Survey									
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6,078.00	0.10	66.40	6,017.75	-622.75	-333.27	-617.29	0.34	-0.22	
6,172.00	0.20	340.30	6,111.75	-622.56	-333.25	-617.10	0.23	0.11	
6,264.00	0.20	324.40	6,203.74	-622.28	-333.40	-616.82	0.06	0.00	
6,358.00	0.20	100.30	6,297.74	-622.18	-333.33	-616.71	0.39	0.00	
6,452.00	0.10	183.40	6,391.74	-622.29	-333.18	-616.83	0.23	-0.11	
6,547.00	0.20	184.40	6,486.74	-622.54	-333.19	-617.07	0.11	0.11	
6,642.00	0.10	127.20	6,581.74	-622.75	-333.14	-617.29	0.18	-0.11	
6,725.00	0.30	132.30	6,664.74	-622.94	-332.92	-617.48	0.24	0.24	
6,820.00	0.60	164.20	6,759.74	-623.59	-332.60	-618.14	0.40	0.32	
6,915.00	1.30	156.50	6,854.73	-625.05	-332.04	-619.61	0.75	0.74	
7,008.00	1.80	153.10	6,947.69	-627.32	-330.96	-621.90	0.55	0.54	
7,103.00	1.90	153.70	7,042.64	-630.07	-329.58	-624.66	0.11	0.11	
7,138.00	1.90	157.10	7,077.62	-631.12	-329.10	-625.73	0.32	0.00	
7,260.00	2.10	159.10	7,199.55	-635.07	-327.52	-629.70	0.17	0.16	
7,356.00	0.80	255.70	7,295.53	-636.88	-327.54	-631.51	2.43	-1.35	
7,450.00	0.60	273.20	7,389.52	-637.02	-328.66	-631.63	0.31	-0.21	
7,544.00	0.30	310.80	7,483.52	-636.83	-329.34	-631.43	0.43	-0.32	
7,639.00	0.20	296.70	7,578.51	-636.59	-329.68	-631.18	0.12	-0.11	
7,734.00	0.60	335.90	7,673.51	-636.06	-330.03	-630.65	0.49	0.42	
7,766.00	3.90	348.00	7,705.48	-634.85	-330.32	-629.43	10.36	10.31	
7,798.00	8.10	355.60	7,737.30	-631.53	-330.72	-626.11	13.33	13.12	
7,830.00	12.00	359.40	7,768.80	-625.96	-330.93	-620.53	12.36	12.19	
7,862.00	15.40	357.20	7,799.89	-618.38	-331.17	-612.95	10.75	10.62	
7,894.00	18.70	357.00	7,830.48	-609.01	-331.65	-603.58	10.31	10.31	
7,925.00	22.40	357.80	7,859.50	-598.14	-332.14	-592.70	11.97	11.94	
7,956.00	25.40	358.90	7,887.84	-585.59	-332.49	-580.15	9.78	9.68	
7,987.00	27.50	0.40	7,915.59	-571.79	-332.57	-566.34	7.11	6.77	
7,997.00	28.22	0.79	7,924.43	-567.11	-332.52	-561.67	7.41	7.18	S. Hard Line Crossing
8,019.00	29.80	1.60	7,943.67	-556.45	-332.30	-551.01	7.41	7.19	
8,050.00	32.60	2.70	7,970.19	-540.40	-331.69	-534.98	9.22	9.03	
8,081.00	34.70	3.70	7,995.99	-523.25	-330.72	-517.84	7.01	6.77	
8,112.00	36.70	2.70	8,021.17	-505.19	-329.72	-499.80	6.72	6.45	
8,144.00	39.00	1.30	8,046.43	-485.57	-329.04	-480.20	7.67	7.19	
8,176.00	41.30	0.60	8,070.89	-464.94	-328.70	-459.57	7.32	7.19	
8,208.00	43.70	0.10	8,094.48	-443.33	-328.57	-437.96	7.57	7.50	
8,240.00	46.20	0.10	8,117.13	-420.72	-328.53	-415.36	7.81	7.81	
8,271.00	48.50	359.70	8,138.13	-397.92	-328.57	-392.56	7.48	7.42	
8,302.00	51.00	359.40	8,158.16	-374.26	-328.76	-368.91	8.10	8.06	
8,333.00	53.00	359.00	8,177.24	-349.84	-329.10	-344.48	6.53	6.45	
8,365.00	55.20	358.40	8,196.00	-323.93	-329.69	-318.56	7.04	6.87	
8,397.00	57.10	358.00	8,213.83	-297.37	-330.53	-291.99	6.03	5.94	
8,429.00	59.30	358.40	8,230.69	-270.18	-331.38	-264.80	6.96	6.87	
8,461.00	61.10	358.70	8,246.59	-242.43	-332.08	-237.03	5.68	5.62	
8,493.00	63.20	359.20	8,261.54	-214.14	-332.60	-208.74	6.71	6.56	
8,525.00	65.40	359.60	8,275.42	-185.31	-332.90	-179.91	6.97	6.87	
8,556.00	67.10	0.20	8,287.90	-156.93	-332.95	-151.54	5.76	5.48	
8,588.00	68.60	0.30	8,299.97	-127.30	-332.82	-121.91	4.70	4.69	
8,619.00	70.20	0.60	8,310.87	-98.28	-332.59	-92.90	5.24	5.16	
8,651.00	72.20	1.20	8,321.19	-67.99	-332.11	-62.62	6.50	6.25	
8,682.00	74.30	1.50	8,330.12	-38.32	-331.41	-32.96	6.84	6.77	
8,714.00	75.90	0.90	8,338.35	-7.40	-330.77	-2.06	5.32	5.00	
8,746.00	77.10	0.60	8,345.82	23.71	-330.36	29.04	3.86	3.75	
8,777.00	77.90	0.50	8,352.53	53.97	-330.07	59.30	2.60	2.58	

Cathedral Energy Services

Survey Report

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Survey

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8,823.00	81.40	0.80	8,360.79	99.22	-329.56	104.52	7.64	7.61	
8,855.00	83.40	0.10	8,365.02	130.93	-329.31	136.23	6.62	6.25	
8,887.00	86.10	358.10	8,367.95	162.79	-329.81	168.09	10.48	8.44	
8,981.00	89.00	354.30	8,371.97	256.47	-336.03	261.86	5.08	3.09	
9,076.00	91.00	355.90	8,371.97	351.11	-344.15	356.63	2.70	2.11	
9,170.00	91.80	0.50	8,369.67	445.01	-347.10	450.56	4.97	0.85	
9,266.00	90.80	2.80	8,367.49	540.94	-344.34	546.43	2.61	-1.04	
9,361.00	89.90	4.20	8,366.91	635.76	-338.54	641.14	1.75	-0.95	
9,454.00	89.60	3.80	8,367.32	728.53	-332.05	733.80	0.54	-0.32	
9,549.00	87.90	0.10	8,369.39	823.43	-328.82	828.64	4.29	-1.79	
9,645.00	89.60	3.60	8,371.49	919.34	-325.72	924.48	4.05	1.77	
9,739.00	88.80	1.80	8,372.80	1,013.22	-321.29	1,018.28	2.10	-0.85	
9,833.00	89.70	1.00	8,374.03	1,107.19	-319.00	1,112.19	1.28	0.96	
9,926.00	87.70	359.90	8,376.14	1,200.15	-318.26	1,205.14	2.45	-2.15	
10,021.00	89.10	359.90	8,378.79	1,295.11	-318.43	1,300.09	1.47	1.47	
10,115.00	88.90	359.40	8,380.43	1,389.10	-319.00	1,394.07	0.57	-0.21	
10,209.00	88.80	1.10	8,382.32	1,483.07	-318.59	1,488.03	1.81	-0.11	
10,302.00	89.60	0.60	8,383.62	1,576.05	-317.22	1,580.97	1.01	0.86	
10,396.00	88.60	0.10	8,385.09	1,670.04	-316.64	1,674.93	1.19	-1.06	
10,492.00	90.60	3.80	8,385.76	1,765.96	-313.37	1,770.79	4.38	2.08	
10,585.00	90.10	4.50	8,385.20	1,858.71	-306.64	1,863.42	0.92	-0.54	
10,679.00	89.70	3.40	8,385.36	1,952.49	-300.17	1,957.08	1.25	-0.43	
10,774.00	88.50	1.20	8,386.85	2,047.39	-296.36	2,051.91	2.64	-1.26	
10,868.00	90.00	1.80	8,388.08	2,141.35	-293.90	2,145.82	1.72	1.60	
10,962.00	88.60	1.30	8,389.23	2,235.30	-291.35	2,239.72	1.58	-1.49	
11,058.00	90.80	4.50	8,389.73	2,331.16	-286.50	2,335.48	4.04	2.29	
11,152.00	89.70	4.60	8,389.32	2,424.86	-279.04	2,429.05	1.18	-1.17	
11,246.00	87.60	4.00	8,391.54	2,518.57	-272.00	2,522.63	2.32	-2.23	
11,338.00	85.90	0.20	8,396.76	2,610.34	-268.63	2,614.33	4.52	-1.85	
11,433.00	88.00	356.60	8,401.81	2,705.14	-271.28	2,709.17	4.38	2.21	
11,528.00	92.50	0.40	8,401.40	2,800.07	-273.77	2,804.12	6.20	4.74	
11,622.00	89.60	0.30	8,399.68	2,894.04	-273.19	2,898.08	3.09	-3.09	
11,717.00	91.90	2.30	8,398.43	2,989.00	-271.04	2,992.98	3.21	2.42	
11,811.00	90.40	4.20	8,396.55	3,082.82	-265.71	3,086.71	2.57	-1.60	
11,905.00	89.10	5.10	8,396.96	3,176.51	-258.09	3,180.26	1.68	-1.38	
11,998.00	89.50	4.20	8,398.09	3,269.19	-250.55	3,272.81	1.06	0.43	
12,093.00	86.30	1.80	8,401.57	3,363.98	-245.58	3,367.51	4.21	-3.37	
12,187.00	86.40	359.70	8,407.56	3,457.78	-244.35	3,461.27	2.23	0.11	
12,282.00	87.80	358.00	8,412.36	3,552.63	-246.26	3,556.14	2.32	1.47	
12,376.00	90.10	357.50	8,414.09	3,646.53	-249.95	3,650.09	2.50	2.45	
12,471.00	93.00	358.60	8,411.52	3,741.43	-253.18	3,745.03	3.26	3.05	
12,566.00	93.30	0.10	8,406.30	3,836.28	-254.26	3,839.89	1.61	0.32	
12,629.00	94.20	359.20	8,402.18	3,899.14	-254.64	3,902.75	2.02	1.43	
12,692.00	93.20	0.20	8,398.11	3,962.01	-254.97	3,965.61	2.24	-1.59	
12,755.00	92.80	1.50	8,394.81	4,024.91	-254.03	4,028.49	2.16	-0.63	
12,818.00	93.50	0.90	8,391.35	4,087.80	-252.72	4,091.35	1.46	1.11	
12,881.00	93.50	0.90	8,387.51	4,150.68	-251.73	4,154.20	0.00	0.00	
12,945.00	90.70	3.10	8,385.16	4,214.59	-249.50	4,218.07	5.56	-4.37	
13,008.00	90.40	2.20	8,384.56	4,277.52	-246.58	4,280.94	1.51	-0.48	
13,072.00	90.70	2.00	8,383.94	4,341.47	-244.24	4,344.85	0.56	0.47	
13,135.00	90.10	0.20	8,383.50	4,404.45	-243.03	4,407.80	3.01	-0.95	
13,198.00	89.10	358.80	8,383.94	4,467.45	-243.58	4,470.80	2.73	-1.59	
13,261.00	89.70	358.70	8,384.60	4,530.43	-244.95	4,533.79	0.97	0.95	

Cathedral Energy Services

Survey Report

Company:	Permian Resources	Local Co-ordinate Reference:	Well University 10 RE 0620HD
Project:	Reagan County, TX (NAD 27)	TVD Reference:	21 @ 2559.00usft (Unit #407)
Site:	University Lands Block 10, Sec. 6	MD Reference:	21 @ 2559.00usft (Unit #407)
Well:	University 10 RE 0620HD	North Reference:	Grid
Wellbore:	HZ [165837]	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
13,325.00	90.50	358.60	8,384.49	4,594.41	-246.46	4,597.79	1.26	1.25	
13,388.00	91.40	358.80	8,383.44	4,657.39	-247.89	4,660.78	1.46	1.43	
13,451.00	91.70	360.00	8,381.74	4,720.36	-248.55	4,723.76	1.96	0.48	
13,513.00	89.70	1.60	8,380.98	4,782.34	-247.68	4,785.72	4.13	-3.23	
13,608.00	89.70	358.80	8,381.48	4,877.33	-247.35	4,880.69	2.95	0.00	
13,703.00	89.70	355.90	8,381.98	4,972.22	-251.74	4,975.63	3.05	0.00	
13,798.00	89.80	354.90	8,382.39	5,066.91	-259.36	5,070.44	1.06	0.11	
13,893.00	90.60	358.10	8,382.06	5,161.72	-265.16	5,165.33	3.47	0.84	
13,988.00	92.00	1.30	8,379.90	5,256.68	-265.66	5,260.28	3.68	1.47	
14,082.00	89.70	3.70	8,378.51	5,350.56	-261.56	5,354.09	3.54	-2.45	
14,176.00	89.30	6.70	8,379.33	5,444.16	-253.04	5,447.54	3.22	-0.43	
14,271.00	87.70	5.10	8,381.82	5,538.62	-243.28	5,541.83	2.38	-1.68	
14,366.00	88.40	2.10	8,385.05	5,633.37	-237.32	5,636.47	3.24	0.74	
14,461.00	90.20	0.60	8,386.21	5,728.33	-235.08	5,731.38	2.47	1.89	
14,555.00	91.40	0.90	8,384.90	5,822.31	-233.85	5,825.33	1.32	1.28	
14,649.00	89.40	1.50	8,384.24	5,916.28	-231.88	5,919.25	2.22	-2.13	
14,743.00	91.10	3.50	8,383.83	6,010.18	-227.78	6,013.08	2.79	1.81	
14,839.00	88.90	1.10	8,383.83	6,106.09	-223.93	6,108.91	3.39	-2.29	
14,934.00	90.40	1.60	8,384.41	6,201.06	-221.69	6,203.83	1.66	1.58	
15,028.00	91.40	1.90	8,382.94	6,295.00	-218.82	6,297.72	1.11	1.06	
15,123.00	88.20	3.00	8,383.27	6,389.90	-214.76	6,392.54	3.56	-3.37	
15,218.00	88.90	1.60	8,385.67	6,484.79	-210.95	6,487.35	1.65	0.74	
15,312.00	90.00	1.60	8,386.57	6,578.75	-208.33	6,581.26	1.17	1.17	
15,407.00	90.00	1.60	8,386.57	6,673.71	-205.68	6,676.16	0.00	0.00	
15,502.00	90.20	1.90	8,386.41	6,768.67	-202.77	6,771.06	0.38	0.21	
15,596.00	90.00	359.90	8,386.24	6,862.65	-201.30	6,865.01	2.14	-0.21	
15,690.00	90.90	0.10	8,385.51	6,956.65	-201.30	6,958.99	0.98	0.96	
15,785.00	89.40	359.40	8,385.26	7,051.64	-201.71	7,053.98	1.74	-1.58	
15,880.00	90.00	359.40	8,385.76	7,146.64	-202.71	7,148.98	0.63	0.63	
15,975.00	90.80	359.40	8,385.09	7,241.63	-203.70	7,243.97	0.84	0.84	
16,070.00	91.10	0.50	8,383.52	7,336.61	-203.78	7,338.95	1.20	0.32	
16,165.00	90.20	1.00	8,382.44	7,431.60	-202.54	7,433.90	1.08	-0.95	
16,260.00	88.30	2.30	8,383.68	7,526.54	-199.81	7,528.79	2.42	-2.00	
16,355.00	88.40	0.90	8,386.42	7,621.47	-197.16	7,623.66	1.48	0.11	
16,450.00	89.40	1.20	8,388.24	7,716.43	-195.41	7,718.58	1.10	1.05	
16,545.00	90.50	1.20	8,388.32	7,811.41	-193.43	7,813.51	1.16	1.16	
16,640.00	91.50	1.20	8,386.67	7,906.37	-191.44	7,908.43	1.05	1.05	
16,736.00	90.30	0.90	8,385.16	8,002.34	-189.68	8,004.36	1.29	-1.25	
16,831.00	89.50	1.30	8,385.32	8,097.32	-187.85	8,099.30	0.94	-0.84	
16,925.00	89.60	2.50	8,386.06	8,191.27	-184.74	8,193.18	1.28	0.11	
17,020.00	89.40	3.70	8,386.89	8,286.12	-179.60	8,287.94	1.28	-0.21	
17,115.00	89.40	2.50	8,387.89	8,380.98	-174.46	8,382.70	1.26	0.00	
17,209.00	89.10	359.00	8,389.12	8,474.95	-173.23	8,476.64	3.74	-0.32	
17,304.00	90.20	359.50	8,389.70	8,569.93	-174.48	8,571.63	1.27	1.16	
17,399.00	89.20	357.70	8,390.20	8,664.90	-176.80	8,666.62	2.17	-1.05	
17,492.00	91.20	359.90	8,389.87	8,757.87	-178.74	8,759.61	3.20	2.15	
17,587.00	90.40	1.00	8,388.54	8,852.85	-178.00	8,854.57	1.43	-0.84	
17,681.00	89.80	2.50	8,388.38	8,946.81	-175.13	8,948.47	1.72	-0.64	
17,776.00	89.20	3.10	8,389.21	9,041.69	-170.49	9,043.26	0.89	-0.63	
17,871.00	90.00	3.30	8,389.87	9,136.54	-165.18	9,138.01	0.87	0.84	
17,966.00	89.20	1.50	8,390.54	9,231.45	-161.21	9,232.85	2.07	-0.84	
18,060.00	90.10	0.60	8,391.11	9,325.43	-159.48	9,326.79	1.35	0.96	
18,155.00	89.10	358.60	8,391.77	9,420.42	-160.15	9,421.77	2.35	-1.05	

Cathedral Energy Services

Survey Report

Company:	Permian Resources	Local Co-ordinate Reference:	Well University 10 RE 0620HD
Project:	Reagan County, TX (NAD 27)	TVD Reference:	21 @ 2559.00usft (Unit #407)
Site:	University Lands Block 10, Sec. 6	MD Reference:	21 @ 2559.00usft (Unit #407)
Well:	University 10 RE 0620HD	North Reference:	Grid
Wellbore:	HZ [165837]	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
18,247.00	90.40	359.50	8,392.17	9,512.40	-161.67	9,513.77	1.72	1.41	
18,340.00	88.40	358.70	8,393.15	9,605.38	-163.13	9,606.76	2.32	-2.15	
18,432.00	89.90	359.30	8,394.51	9,697.35	-164.74	9,698.75	1.76	1.63	
18,524.00	91.10	359.50	8,393.71	9,789.34	-165.70	9,790.74	1.32	1.30	
18,566.00	91.60	359.50	8,392.72	9,831.33	-166.07	9,832.73	1.19	1.19	Last CES Survey
18,579.00	91.60	359.50	8,392.36	9,844.32	-166.18	9,845.72	0.00	0.00	N. Hard Line Crossing
18,628.00	91.60	359.50	8,390.99	9,893.30	-166.61	9,894.70	0.00	0.00	Actual BHL

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
0620HD - PBHL 2 - actual wellpath misses target center by 62.48usft at 18628.00usft MD (8390.99 TVD, 9893.30 N, -166.61 E) - Point	0.00	360.00	8,441.80	9,929.12	-160.36	601,748.79	1,644,659.25	31.316249	-101.471285
0620HD - PBHL 3 - actual wellpath misses target center by 104.85usft at 18628.00usft MD (8390.99 TVD, 9893.30 N, -166.61 E) - Point	0.00	360.00	8,489.33	9,929.12	-160.36	601,748.79	1,644,659.25	31.316249	-101.471285
0620HD - PBHL 4 - actual wellpath misses target center by 37.99usft at 18628.00usft MD (8390.99 TVD, 9893.30 N, -166.61 E) - Point	0.00	360.00	8,402.00	9,929.12	-160.36	601,748.79	1,644,659.25	31.316249	-101.471285
0620HD - PBHL 5 - actual wellpath misses target center by 86.35usft at 18628.00usft MD (8390.99 TVD, 9893.30 N, -166.61 E) - Point	0.00	360.00	8,312.67	9,929.12	-160.36	601,748.79	1,644,659.25	31.316249	-101.471285
0620HD - PBHL 7 - actual wellpath misses target center by 36.85usft at 18628.00usft MD (8390.99 TVD, 9893.30 N, -166.61 E) - Point	0.00	360.00	8,397.00	9,929.12	-160.36	601,748.79	1,644,659.25	31.316249	-101.471285

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,177.00	5,120.47	-567.98	-302.59	S. Hard Line Crossing
7,997.00	7,924.43	-567.11	-332.52	S. Hard Line Crossing
18,566.00	8,392.72	9,831.33	-166.07	Last CES Survey
18,579.00	8,392.36	9,844.32	-166.18	N. Hard Line Crossing
18,628.00	8,390.99	9,893.30	-166.61	Actual BHL

Checked By: _____ Approved By: _____ Date: _____