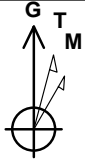


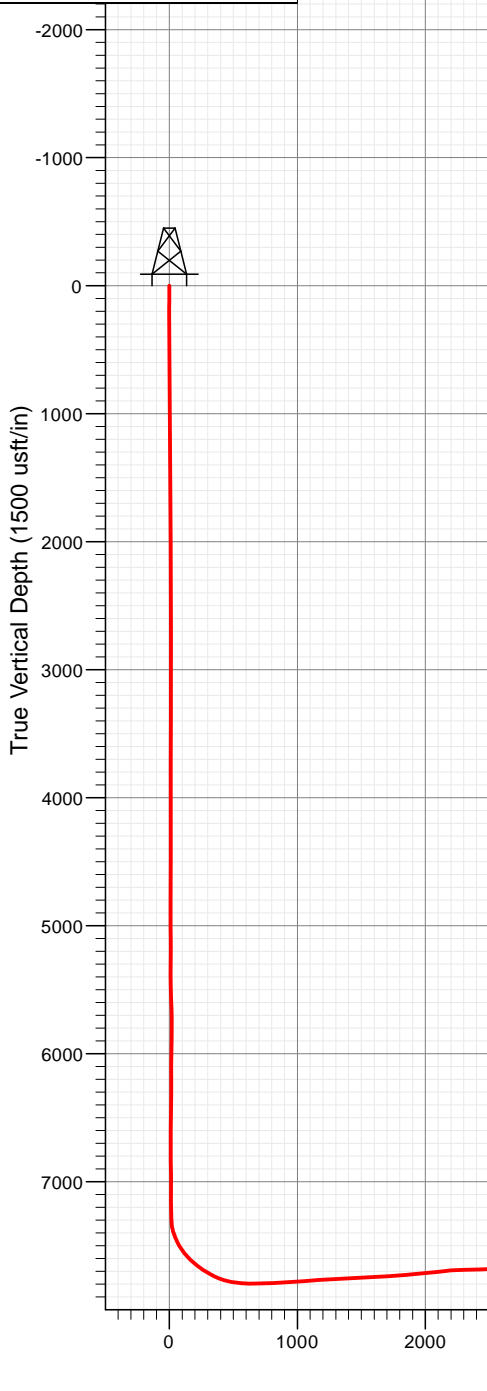


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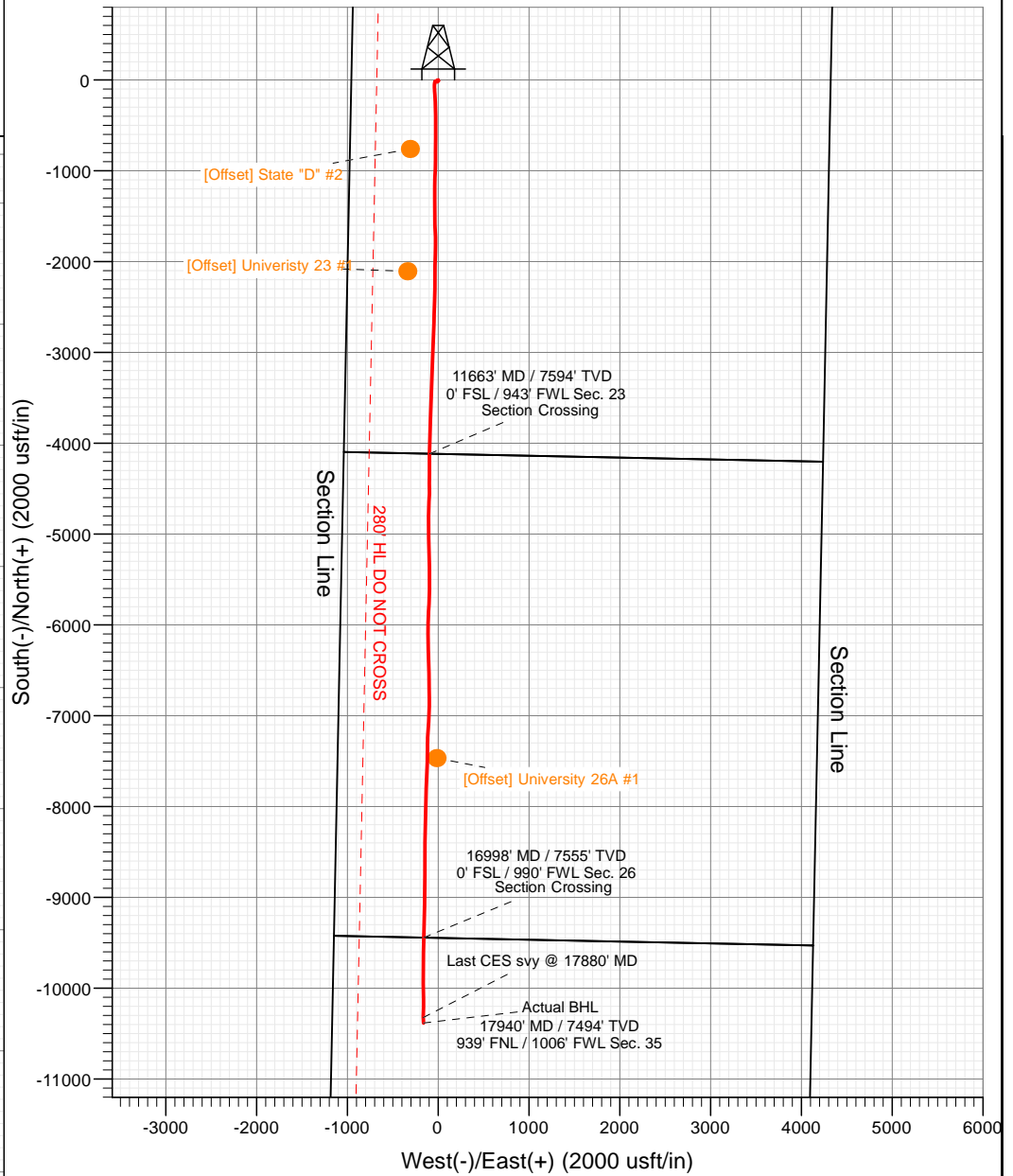


Azimuths to Grid North
True North: 0.68°
Magnetic North: 6.89°

Magnetic Field
Strength: 47885.6nT
Dip Angle: 59.68°
Date: 1/18/2016
Model: HDGM



Project: Reagan County, TX (NAD 27)
Site: University Land Block 9
Well: University SR 23-26 06HS
Wellbore: HZ [153137]
Design: FINAL



WELL DETAILS: University SR 23-26 06HS

+N/-S	+E/-W	Northing	Ground Level:	2654.0	Latitude	Longitude
0.0	0.0	580399.76	Easting	1588852.89	31.255862	-101.649176



Cathedral Energy Services

Survey Report

Company:	American Energy Partners - Permian Basin	Local Co-ordinate Reference:	Well University SR 23-26 06HS
Project:	Reagan County, TX	TVD Reference:	21 @ 2675.0usft (Unit #407)
Site:	University Land Block 9	MD Reference:	21 @ 2675.0usft (Unit #407)
Well:	University SR 23-26 06HS	North Reference:	Grid
Wellbore:	HZ [153137]	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	Reagan County, TX		
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 Land Block 9			
Site Position:		Northing:	580,399.63 usft	Latitude:	31.255862
From:	Lat/Long	Easting:	1,588,852.85 usft	Longitude:	-101.649176
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.68 °

Well	University SR 23-26 06HS					
Well Position	+N/-S	0.0 usft	Northing:	580,399.76 usft	Latitude:	31.255862
	+E/-W	0.0 usft	Easting:	1,588,852.89 usft	Longitude:	-101.649176
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	2,654.0 usft

Wellbore	HZ [153137]				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/18/2016	6.22	59.68	47,886

Design	FINAL			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	180.98

Survey Program	Date	2/11/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
71.0	671.0	Surface Gyro Surveys (HZ [153137])	NS-GYRO-MS	North sensing gyrocompassing m/s	
758.0	17,940.0	MWD (HZ [153137])	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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
71.0	0.31	42.13	71.0	0.1	0.1	-0.1	0.44	0.44	
121.0	0.27	10.54	121.0	0.4	0.2	-0.4	0.32	-0.08	
171.0	0.21	24.99	171.0	0.6	0.3	-0.6	0.17	-0.12	
221.0	0.19	57.42	221.0	0.7	0.4	-0.7	0.23	-0.04	
271.0	0.16	74.79	271.0	0.7	0.5	-0.8	0.12	-0.06	
321.0	0.17	77.52	321.0	0.8	0.7	-0.8	0.03	0.02	
371.0	0.16	112.57	371.0	0.8	0.8	-0.8	0.20	-0.02	
421.0	0.15	106.96	421.0	0.7	1.0	-0.7	0.04	-0.02	
471.0	0.21	172.16	471.0	0.6	1.0	-0.6	0.40	0.12	
521.0	0.29	188.66	521.0	0.4	1.0	-0.4	0.21	0.16	
571.0	0.41	196.76	571.0	0.1	0.9	-0.1	0.26	0.24	

Cathedral Energy Services

Survey Report

Company:	American Energy Partners - Permian Basin	Local Co-ordinate Reference:	Well University SR 23-26 06HS
Project:	Reagan County, TX	TVD Reference:	21 @ 2675.0usft (Unit #407)
Site:	University Land Block 9	MD Reference:	21 @ 2675.0usft (Unit #407)
Well:	University SR 23-26 06HS	North Reference:	Grid
Wellbore:	HZ [153137]	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
621.0	0.55	189.39	621.0	-0.3	0.9	0.3	0.31	0.28	
671.0	0.41	194.44	671.0	-0.7	0.8	0.7	0.29	-0.28	
758.0	0.70	213.90	758.0	-1.5	0.4	1.4	0.39	0.33	
850.0	0.70	220.80	850.0	-2.3	-0.3	2.4	0.09	0.00	
942.0	0.80	219.00	942.0	-3.3	-1.1	3.3	0.11	0.11	
1,034.0	0.80	232.00	1,034.0	-4.2	-2.0	4.2	0.20	0.00	
1,126.0	0.90	225.60	1,126.0	-5.1	-3.0	5.1	0.15	0.11	
1,222.0	0.70	213.50	1,221.9	-6.1	-3.8	6.2	0.27	-0.21	
1,317.0	0.50	229.10	1,316.9	-6.8	-4.5	6.9	0.27	-0.21	
1,411.0	0.50	227.30	1,410.9	-7.4	-5.1	7.5	0.02	0.00	
1,503.0	0.40	202.40	1,502.9	-8.0	-5.5	8.0	0.24	-0.11	
1,599.0	0.30	203.20	1,598.9	-8.5	-5.7	8.6	0.10	-0.10	
1,692.0	0.30	207.00	1,691.9	-8.9	-5.9	9.0	0.02	0.00	
1,784.0	0.70	247.10	1,783.9	-9.4	-6.6	9.5	0.55	0.43	
1,879.0	0.20	198.80	1,878.9	-9.8	-7.2	9.9	0.62	-0.53	
1,973.0	0.20	185.70	1,972.9	-10.1	-7.2	10.2	0.05	0.00	
2,068.0	0.20	198.80	2,067.9	-10.4	-7.3	10.5	0.05	0.00	
2,161.0	0.10	221.60	2,160.9	-10.6	-7.4	10.7	0.12	-0.11	
2,256.0	0.10	269.90	2,255.9	-10.7	-7.5	10.8	0.09	0.00	
2,351.0	0.20	244.30	2,350.9	-10.7	-7.8	10.9	0.12	0.11	
2,446.0	0.20	229.00	2,445.9	-10.9	-8.0	11.1	0.06	0.00	
2,539.0	0.40	223.70	2,538.9	-11.3	-8.4	11.4	0.22	0.22	
2,632.0	0.50	234.60	2,631.9	-11.7	-8.9	11.9	0.14	0.11	
2,725.0	0.10	256.50	2,724.9	-12.0	-9.4	12.1	0.44	-0.43	
2,818.0	0.20	55.40	2,817.9	-11.9	-9.3	12.1	0.32	0.11	
2,913.0	0.20	46.20	2,912.9	-11.7	-9.0	11.9	0.03	0.00	
3,007.0	0.10	40.60	3,006.9	-11.5	-8.9	11.7	0.11	-0.11	
3,101.0	0.10	254.20	3,100.9	-11.5	-8.9	11.6	0.20	0.00	
3,197.0	0.60	246.70	3,196.9	-11.7	-9.4	11.9	0.52	0.52	
3,291.0	1.00	85.10	3,290.9	-11.8	-9.1	12.0	1.68	0.43	
3,386.0	1.60	81.60	3,385.9	-11.6	-6.9	11.7	0.64	0.63	
3,481.0	1.30	80.40	3,480.9	-11.2	-4.6	11.3	0.32	-0.32	
3,576.0	1.20	76.80	3,575.8	-10.8	-2.5	10.8	0.13	-0.11	
3,671.0	0.90	87.70	3,670.8	-10.5	-0.8	10.5	0.38	-0.32	
3,767.0	0.80	90.60	3,766.8	-10.5	0.6	10.5	0.11	-0.10	
3,862.0	0.90	92.80	3,861.8	-10.6	2.0	10.5	0.11	0.11	
3,958.0	0.50	121.10	3,957.8	-10.8	3.1	10.8	0.54	-0.42	
4,053.0	0.50	176.60	4,052.8	-11.4	3.5	11.4	0.49	0.00	
4,149.0	0.60	287.30	4,148.8	-11.7	3.0	11.7	0.94	0.10	
4,245.0	0.80	298.30	4,244.8	-11.2	2.0	11.2	0.25	0.21	
4,339.0	1.30	262.40	4,338.8	-11.1	0.3	11.1	0.85	0.53	
4,435.0	0.70	261.30	4,434.7	-11.3	-1.3	11.3	0.63	-0.62	
4,529.0	0.70	20.00	4,528.7	-10.8	-1.7	10.9	1.28	0.00	
4,626.0	0.90	13.90	4,625.7	-9.6	-1.3	9.6	0.22	0.21	
4,721.0	0.40	297.40	4,720.7	-8.7	-1.4	8.7	0.94	-0.53	
4,816.0	0.80	258.30	4,815.7	-8.7	-2.4	8.7	0.58	0.42	
4,912.0	1.20	253.60	4,911.7	-9.1	-4.0	9.1	0.42	0.42	
5,005.0	0.90	236.70	5,004.7	-9.8	-5.5	9.8	0.46	-0.32	
5,099.0	0.30	138.20	5,098.7	-10.3	-6.0	10.4	1.05	-0.64	
5,192.0	0.40	42.30	5,191.7	-10.3	-5.6	10.4	0.56	0.11	
5,285.0	0.60	279.90	5,284.7	-10.0	-5.9	10.1	0.95	0.22	
5,378.0	0.70	286.50	5,377.7	-9.7	-6.9	9.8	0.13	0.11	
5,473.0	1.80	189.80	5,472.7	-11.0	-7.7	11.1	2.11	1.16	

Cathedral Energy Services

Survey Report

Company:	American Energy Partners - Permian Basin	Local Co-ordinate Reference:	Well University SR 23-26 06HS
Project:	Reagan County, TX	TVD Reference:	21 @ 2675.0usft (Unit #407)
Site:	University Land Block 9	MD Reference:	21 @ 2675.0usft (Unit #407)
Well:	University SR 23-26 06HS	North Reference:	Grid
Wellbore:	HZ [153137]	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
5,567.0	2.20	190.60	5,566.6	-14.2	-8.3	14.4	0.43	0.43	
5,661.0	1.80	224.50	5,660.5	-17.1	-9.6	17.2	1.31	-0.43	
5,754.0	1.00	251.40	5,753.5	-18.4	-11.4	18.6	1.09	-0.86	
5,847.0	1.10	26.90	5,846.5	-17.8	-11.8	18.0	2.09	0.11	
5,942.0	1.40	38.40	5,941.5	-16.1	-10.7	16.3	0.41	0.32	
6,037.0	0.60	293.10	6,036.5	-15.0	-10.4	15.2	1.75	-0.84	
6,132.0	0.90	254.10	6,131.5	-15.0	-11.6	15.2	0.61	0.32	
6,225.0	0.10	272.00	6,224.5	-15.2	-12.4	15.4	0.87	-0.86	
6,319.0	1.00	32.00	6,318.5	-14.5	-12.0	14.7	1.12	0.96	
6,413.0	0.80	6.70	6,412.5	-13.2	-11.5	13.4	0.47	-0.21	
6,507.0	1.10	315.40	6,506.4	-11.9	-12.1	12.1	0.92	0.32	
6,602.0	1.70	293.40	6,601.4	-10.7	-14.0	10.9	0.84	0.63	
6,696.0	2.40	267.80	6,695.4	-10.2	-17.2	10.5	1.21	0.74	
6,790.0	1.50	258.40	6,789.3	-10.5	-20.4	10.9	1.01	-0.96	
6,885.0	0.30	186.60	6,884.3	-11.0	-21.7	11.4	1.51	-1.26	
6,979.0	1.00	218.00	6,978.3	-11.9	-22.2	12.3	0.81	0.74	
7,073.0	1.50	263.20	7,072.3	-12.7	-23.9	13.1	1.13	0.53	
7,126.0	1.90	270.30	7,125.2	-12.8	-25.5	13.2	0.85	0.75	
7,168.0	2.20	265.70	7,167.2	-12.8	-27.0	13.3	0.81	0.71	
7,206.0	2.90	259.10	7,205.2	-13.1	-28.7	13.6	1.99	1.84	
7,274.0	3.70	251.80	7,273.1	-14.1	-32.4	14.6	1.33	1.18	
7,306.0	4.00	226.20	7,305.0	-15.2	-34.2	15.8	5.41	0.94	
7,337.0	7.50	190.90	7,335.8	-17.9	-35.4	18.5	15.55	11.29	
7,369.0	12.60	186.50	7,367.3	-23.4	-36.2	24.0	16.11	15.94	
7,401.0	17.80	189.50	7,398.2	-31.7	-37.4	32.4	16.43	16.25	
7,433.0	21.80	188.40	7,428.3	-42.4	-39.0	43.1	12.55	12.50	
7,464.0	24.80	183.40	7,456.8	-54.6	-40.3	55.3	11.58	9.68	
7,496.0	28.00	179.90	7,485.4	-68.8	-40.7	69.5	11.12	10.00	
7,527.0	31.00	178.30	7,512.4	-84.1	-40.4	84.8	10.00	9.68	
7,557.0	35.10	175.90	7,537.6	-100.4	-39.6	101.1	14.34	13.67	
7,589.0	40.40	175.70	7,562.9	-120.0	-38.1	120.6	16.57	16.56	
7,621.0	43.40	175.60	7,586.7	-141.3	-36.5	141.9	9.38	9.37	
7,652.0	45.70	176.10	7,608.8	-163.0	-34.9	163.5	7.51	7.42	
7,684.0	48.60	177.00	7,630.5	-186.4	-33.5	186.9	9.29	9.06	
7,716.0	51.60	177.70	7,651.0	-210.9	-32.4	211.4	9.52	9.37	
7,748.0	54.20	178.40	7,670.3	-236.4	-31.5	236.9	8.31	8.12	
7,780.0	57.00	178.30	7,688.4	-262.8	-30.8	263.3	8.75	8.75	
7,812.0	59.20	178.20	7,705.3	-289.9	-29.9	290.4	6.88	6.87	
7,843.0	60.90	178.80	7,720.8	-316.8	-29.2	317.2	5.73	5.48	
7,873.0	63.10	179.20	7,734.9	-343.3	-28.8	343.7	7.43	7.33	
7,904.0	65.00	178.20	7,748.5	-371.1	-28.1	371.6	6.78	6.13	
7,936.0	69.40	179.20	7,760.9	-400.6	-27.5	401.0	14.05	13.75	
7,968.0	74.40	179.30	7,770.8	-431.0	-27.1	431.4	15.63	15.62	
7,998.0	77.70	179.70	7,778.0	-460.1	-26.8	460.5	11.08	11.00	
8,030.0	80.10	179.20	7,784.2	-491.5	-26.5	491.9	7.66	7.50	
8,046.0	80.60	177.70	7,786.9	-507.3	-26.1	507.7	9.76	3.12	
8,078.0	84.20	180.70	7,791.1	-539.0	-25.7	539.4	14.59	11.25	
8,110.0	85.20	180.70	7,794.1	-570.9	-26.0	571.2	3.12	3.12	
8,142.0	88.00	181.00	7,796.0	-602.8	-26.5	603.2	8.80	8.75	
8,174.0	90.30	179.90	7,796.4	-634.8	-26.8	635.2	7.97	7.19	
8,237.0	91.30	180.60	7,795.5	-697.8	-27.0	698.2	1.94	1.59	
8,331.0	92.40	180.90	7,792.5	-791.7	-28.3	792.1	1.21	1.17	
8,425.0	93.10	181.10	7,788.0	-885.6	-29.9	886.0	0.77	0.74	

Cathedral Energy Services

Survey Report

Company:	American Energy Partners - Permian Basin	Local Co-ordinate Reference:	Well University SR 23-26 06HS
Project:	Reagan County, TX	TVD Reference:	21 @ 2675.0usft (Unit #407)
Site:	University Land Block 9	MD Reference:	21 @ 2675.0usft (Unit #407)
Well:	University SR 23-26 06HS	North Reference:	Grid
Wellbore:	HZ [153137]	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
8,518.0	93.30	181.40	7,782.8	-978.4	-31.9	978.8	0.39	0.22	
8,614.0	94.70	181.50	7,776.1	-1,074.2	-34.4	1,074.6	1.46	1.46	
8,707.0	95.80	181.50	7,767.6	-1,166.8	-36.8	1,167.2	1.18	1.18	
8,801.0	91.60	179.80	7,761.5	-1,260.5	-37.9	1,261.0	4.82	-4.47	
8,895.0	93.30	180.30	7,757.5	-1,354.4	-37.9	1,354.9	1.88	1.81	
8,989.0	92.60	179.20	7,752.7	-1,448.3	-37.5	1,448.7	1.39	-0.74	
9,082.0	93.50	178.30	7,747.7	-1,541.2	-35.5	1,541.5	1.37	0.97	
9,176.0	91.80	177.80	7,743.4	-1,635.0	-32.3	1,635.3	1.88	-1.81	
9,270.0	94.30	178.30	7,738.4	-1,728.8	-29.1	1,729.0	2.71	2.66	
9,365.0	95.80	181.10	7,730.0	-1,823.4	-28.6	1,823.6	3.33	1.58	
9,460.0	94.90	181.70	7,721.2	-1,918.0	-30.9	1,918.2	1.14	-0.95	
9,556.0	95.30	180.70	7,712.6	-2,013.6	-32.9	2,013.8	1.12	0.42	
9,648.0	96.20	180.00	7,703.4	-2,105.1	-33.5	2,105.4	1.24	0.98	
9,743.0	95.20	180.70	7,694.0	-2,199.6	-34.1	2,199.9	1.28	-1.05	
9,835.0	91.80	180.50	7,688.4	-2,291.4	-35.0	2,291.7	3.70	-3.70	
9,931.0	90.70	182.80	7,686.3	-2,387.4	-37.8	2,387.7	2.66	-1.15	
10,024.0	91.90	181.50	7,684.2	-2,480.3	-41.3	2,480.6	1.90	1.29	
10,119.0	94.00	180.70	7,679.3	-2,575.1	-43.1	2,575.5	2.37	2.21	
10,213.0	92.90	181.30	7,673.6	-2,668.9	-44.7	2,669.3	1.33	-1.17	
10,307.0	95.50	183.50	7,666.7	-2,762.6	-48.7	2,763.0	3.62	2.77	
10,401.0	94.40	182.80	7,658.6	-2,856.1	-53.8	2,856.6	1.39	-1.17	
10,497.0	95.20	181.80	7,650.6	-2,951.7	-57.6	2,952.2	1.33	0.83	
10,591.0	93.80	182.00	7,643.2	-3,045.3	-60.7	3,045.9	1.50	-1.49	
10,683.0	92.80	181.70	7,637.9	-3,137.1	-63.7	3,137.8	1.13	-1.09	
10,775.0	93.10	182.30	7,633.2	-3,229.0	-66.9	3,229.6	0.73	0.33	
10,867.0	90.70	181.40	7,630.1	-3,320.9	-69.9	3,321.6	2.79	-2.61	
10,959.0	92.00	181.70	7,628.0	-3,412.8	-72.4	3,413.5	1.45	1.41	
11,052.0	93.50	181.80	7,623.5	-3,505.6	-75.2	3,506.4	1.62	1.61	
11,144.0	92.70	182.50	7,618.5	-3,597.4	-78.7	3,598.3	1.15	-0.87	
11,236.0	93.60	182.60	7,613.5	-3,689.2	-82.7	3,690.1	0.98	0.98	
11,328.0	91.30	181.80	7,609.5	-3,781.0	-86.3	3,782.0	2.65	-2.50	
11,420.0	91.80	181.30	7,607.0	-3,873.0	-88.8	3,873.9	0.77	0.54	
11,513.0	94.10	182.00	7,602.3	-3,965.8	-91.4	3,966.8	2.58	2.47	
11,607.0	92.90	181.80	7,596.5	-4,059.6	-94.5	4,060.6	1.29	-1.28	
11,663.0	91.97	180.69	7,594.1	-4,115.5	-95.8	4,116.6	2.59	-1.67	Section Crossing
11,703.0	91.30	179.90	7,593.0	-4,155.5	-96.0	4,156.5	2.59	-1.67	
11,798.0	89.90	179.80	7,592.0	-4,250.5	-95.7	4,251.5	1.48	-1.47	
11,893.0	90.60	180.20	7,591.6	-4,345.5	-95.7	4,346.5	0.85	0.74	
11,986.0	92.90	180.30	7,588.8	-4,438.4	-96.1	4,439.4	2.48	2.47	
12,081.0	92.70	179.50	7,584.1	-4,533.3	-96.0	4,534.3	0.87	-0.21	
12,175.0	95.00	182.50	7,577.8	-4,627.1	-97.6	4,628.1	4.02	2.45	
12,270.0	93.60	183.10	7,570.7	-4,721.7	-102.2	4,722.8	1.60	-1.47	
12,363.0	92.90	180.90	7,565.4	-4,814.5	-105.5	4,815.6	2.48	-0.75	
12,458.0	93.40	179.90	7,560.2	-4,909.3	-106.1	4,910.4	1.18	0.53	
12,553.0	93.20	178.50	7,554.7	-5,004.2	-104.8	5,005.2	1.49	-0.21	
12,648.0	92.40	177.40	7,550.1	-5,099.0	-101.4	5,100.0	1.43	-0.84	
12,741.0	93.00	178.50	7,545.7	-5,191.8	-98.1	5,192.7	1.35	0.65	
12,836.0	92.90	179.80	7,540.8	-5,286.7	-96.7	5,287.5	1.37	-0.11	
12,930.0	91.50	177.60	7,537.2	-5,380.6	-94.5	5,381.4	2.77	-1.49	
13,024.0	94.40	180.30	7,532.4	-5,474.4	-92.8	5,475.2	4.21	3.09	
13,119.0	94.20	181.80	7,525.2	-5,569.1	-94.6	5,569.9	1.59	-0.21	
13,212.0	91.80	181.40	7,520.4	-5,661.9	-97.1	5,662.8	2.62	-2.58	
13,307.0	91.80	182.80	7,517.4	-5,756.8	-100.6	5,757.7	1.47	0.00	

Cathedral Energy Services

Survey Report

Company:	American Energy Partners - Permian Basin	Local Co-ordinate Reference:	Well University SR 23-26 06HS
Project:	Reagan County, TX	TVD Reference:	21 @ 2675.0usft (Unit #407)
Site:	University Land Block 9	MD Reference:	21 @ 2675.0usft (Unit #407)
Well:	University SR 23-26 06HS	North Reference:	Grid
Wellbore:	HZ [153137]	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
13,403.0	92.80	182.70	7,513.5	-5,852.6	-105.2	5,853.6	1.05	1.04	
13,498.0	94.60	182.20	7,507.4	-5,947.4	-109.3	5,948.4	1.97	1.89	
13,593.0	92.90	180.60	7,501.2	-6,042.1	-111.6	6,043.2	2.45	-1.79	
13,688.0	91.90	178.90	7,497.2	-6,137.1	-111.2	6,138.1	2.07	-1.05	
13,783.0	90.50	177.90	7,495.2	-6,232.0	-108.5	6,232.9	1.81	-1.47	
13,878.0	91.00	179.50	7,494.0	-6,327.0	-106.4	6,327.9	1.76	0.53	
13,973.0	89.80	177.90	7,493.3	-6,421.9	-104.2	6,422.8	2.11	-1.26	
14,068.0	90.30	178.70	7,493.2	-6,516.9	-101.4	6,517.7	0.99	0.53	
14,163.0	89.90	179.40	7,493.1	-6,611.9	-99.8	6,612.6	0.85	-0.42	
14,258.0	87.00	179.50	7,495.6	-6,706.8	-98.9	6,707.5	3.05	-3.05	
14,353.0	86.60	179.10	7,500.9	-6,801.7	-97.8	6,802.3	0.59	-0.42	
14,447.0	86.70	180.70	7,506.4	-6,895.5	-97.6	6,896.2	1.70	0.11	
14,541.0	87.10	182.80	7,511.5	-6,989.3	-100.5	6,990.0	2.27	0.43	
14,634.0	86.30	182.50	7,516.9	-7,082.1	-104.8	7,082.8	0.92	-0.86	
14,729.0	87.50	184.30	7,522.0	-7,176.7	-110.4	7,177.6	2.27	1.26	
14,823.0	86.40	182.10	7,527.0	-7,270.5	-115.6	7,271.4	2.61	-1.17	
14,917.0	86.30	180.70	7,533.0	-7,364.2	-117.9	7,365.2	1.49	-0.11	
15,011.0	85.80	180.50	7,539.5	-7,458.0	-118.9	7,459.0	0.57	-0.53	
15,106.0	85.80	181.70	7,546.4	-7,552.7	-120.7	7,553.7	1.26	0.00	
15,200.0	87.50	183.40	7,551.9	-7,646.5	-124.9	7,647.5	2.56	1.81	
15,295.0	87.10	182.70	7,556.4	-7,741.2	-129.9	7,742.3	0.85	-0.42	
15,389.0	86.80	181.00	7,561.4	-7,835.0	-133.0	7,836.2	1.83	-0.32	
15,485.0	88.40	180.80	7,565.4	-7,930.9	-134.5	7,932.1	1.68	1.67	
15,580.0	89.10	182.00	7,567.5	-8,025.9	-136.8	8,027.1	1.46	0.74	
15,675.0	89.20	180.50	7,568.9	-8,120.9	-138.9	8,122.0	1.58	0.11	
15,769.0	89.60	181.70	7,569.9	-8,214.8	-140.7	8,216.0	1.35	0.43	
15,864.0	90.40	181.40	7,569.9	-8,309.8	-143.2	8,311.0	0.90	0.84	
15,958.0	90.80	180.20	7,568.9	-8,403.8	-144.6	8,405.0	1.35	0.43	
16,053.0	91.70	179.20	7,566.8	-8,498.8	-144.1	8,500.0	1.42	0.95	
16,148.0	92.00	180.50	7,563.8	-8,593.7	-143.8	8,594.9	1.40	0.32	
16,243.0	89.80	179.90	7,562.3	-8,688.7	-144.1	8,689.9	2.40	-2.32	
16,338.0	90.90	182.10	7,561.7	-8,783.7	-145.8	8,784.9	2.59	1.16	
16,433.0	88.90	179.20	7,561.9	-8,878.6	-146.9	8,879.9	3.71	-2.11	
16,528.0	89.30	180.70	7,563.3	-8,973.6	-146.8	8,974.8	1.63	0.42	
16,623.0	90.60	181.90	7,563.4	-9,068.6	-148.9	9,069.8	1.86	1.37	
16,717.0	89.50	180.60	7,563.3	-9,162.6	-151.0	9,163.8	1.81	-1.17	
16,794.0	91.10	182.40	7,562.9	-9,239.5	-153.0	9,240.8	3.13	2.08	
16,890.0	92.10	181.50	7,560.3	-9,335.4	-156.3	9,336.7	1.40	1.04	
16,984.0	93.30	181.00	7,555.8	-9,429.3	-158.3	9,430.6	1.38	1.28	
16,998.0	93.46	181.00	7,555.0	-9,443.3	-158.6	9,444.6	1.16	1.16	Section Crossing
17,079.0	94.40	181.00	7,549.5	-9,524.1	-160.0	9,525.4	1.16	1.16	
17,174.0	95.50	180.60	7,541.3	-9,618.7	-161.3	9,620.0	1.23	1.16	
17,214.0	96.50	180.40	7,537.1	-9,658.5	-161.6	9,659.9	2.55	2.50	
17,296.0	93.00	180.60	7,530.3	-9,740.2	-162.4	9,741.6	4.28	-4.27	
17,391.0	94.00	180.20	7,524.5	-9,835.0	-163.0	9,836.4	1.13	1.05	
17,486.0	91.50	179.90	7,519.9	-9,929.9	-163.1	9,931.2	2.65	-2.63	
17,581.0	92.60	179.50	7,516.5	-10,024.8	-162.6	10,026.2	1.23	1.16	
17,676.0	94.30	179.60	7,510.8	-10,119.7	-161.9	10,121.0	1.79	1.79	
17,770.0	92.60	180.50	7,505.2	-10,213.5	-161.9	10,214.8	2.05	-1.81	
17,864.0	94.00	179.80	7,499.7	-10,307.3	-162.2	10,308.6	1.66	1.49	
17,880.0	94.20	179.80	7,498.6	-10,323.3	-162.1	10,324.6	1.25	1.25	Last CES svy @ 17880' MD
17,940.0	94.20	179.80	7,494.2	-10,383.1	-161.9	10,384.4	0.00	0.00	Actual BHL

Cathedral Energy Services

Survey Report

Company:	American Energy Partners - Permian Basin	Local Co-ordinate Reference:	Well University SR 23-26 06HS
Project:	Reagan County, TX	TVD Reference:	21 @ 2675.0usft (Unit #407)
Site:	University Land Block 9	MD Reference:	21 @ 2675.0usft (Unit #407)
Well:	University SR 23-26 06HS	North Reference:	Grid
Wellbore:	HZ [153137]	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
University SR 23-26 06H	87.55	180.85	7,500.6	-10,384.1	-177.4	570,015.67	1,588,675.47	31.227308	-101.649350
- actual wellpath misses target center by 16.8usft at 17940.0usft MD (7494.2 TVD, -10383.1 N, -161.9 E)									
- Rectangle (sides W30.0 H60.0 D766.0)									
University SR 23-26 06H	89.79	180.85	7,561.9	-10,384.1	-177.4	570,015.67	1,588,675.47	31.227308	-101.649350
- actual wellpath misses target center by 69.3usft at 17935.9usft MD (7494.5 TVD, -10379.1 N, -161.9 E)									
- Rectangle (sides W25.0 H60.0 D1,222.0)									
University SR 23-26 06H	87.48	180.85	7,197.0	-10,384.1	-177.4	570,015.67	1,588,675.47	31.227308	-101.649350
- actual wellpath misses target center by 297.6usft at 17940.0usft MD (7494.2 TVD, -10383.1 N, -161.9 E)									
- Rectangle (sides W20.0 H60.0 D6,325.0)									
University SR 23-26 06H	93.14	181.06	7,700.0	-10,384.1	-177.4	570,015.67	1,588,675.47	31.227308	-101.649350
- actual wellpath misses target center by 205.9usft at 17925.8usft MD (7495.2 TVD, -10369.0 N, -162.0 E)									
- Rectangle (sides W30.0 H60.0 D3,218.0)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment	
11,663.0	7,594.1	-4,115.5	-95.8	Section Crossing	
16,998.0	7,555.0	-9,443.3	-158.6	Section Crossing	
17,880.0	7,498.6	-10,323.3	-162.1	Last CES svy @ 17880' MD	
17,940.0	7,494.2	-10,383.1	-161.9	Actual BHL	

Checked By: _____ Approved By: _____ Date: _____