

AMERICAN ENERGY PERMIAN BASIN (AEP)

Reagan County, TX

University 09 Pad University Lands BLK 09 Sec 08

University 09 #0806H - Slot 0806H

0806H

Design: 0806H

Standard Survey Report

06 January, 2015

Archer

Survey Report

Company:	AMERICAN ENERGY PERMIAN BASIN (AEP)	Local Co-ordinate Reference:	Well University 09 #0806H - Slot 0806H
Project:	Reagan County, TX	TVD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Site:	University 09 Pad University Lands BLK 09 Sec 08	MD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Well:	University 09 #0806H	North Reference:	Grid
Wellbore:	0806H	Survey Calculation Method:	Minimum Curvature
Design:	0806H	Database:	EDM 5000.1 Single User 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 09 Pad University Lands BLK 09 Sec 08		
Site Position:		Northing:	590,061.98 usft
From:	Map	Easting:	1,606,070.46 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	31° 16' 58.709 N
		Longitude:	101° 35' 39.940 W
		Grid Convergence:	-0.65 °

Well	University 09 #0806H - Slot 0806H					
Well Position	+N/-S	0.0 usft	Northing:	590,061.98 usft	Latitude:	31° 16' 58.709 N
	+E/-W	0.0 usft	Easting:	1,606,070.46 usft	Longitude:	101° 35' 39.940 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	2,671.0 usft

Wellbore	0806H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	12/30/2014	6.25	59.75	48,041

Design	0806H				
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	2.53	

Survey Program	Date	1/6/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
130.0	657.0	Gyro Surveys (0806H)	EMS+HDGM	OWSG EMS + HDGM	
657.0	14,808.0	Archer MWD Survey (0806H)	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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
0806H Surface - 0806H PP/FTP										
130.0	0.07	303.73	130.0	0.0	-0.1	0.0	0.05	0.05	0.00	
First GYRO Survey										
230.0	0.14	138.79	230.0	0.0	0.0	0.0	0.21	0.07	-164.94	
330.0	0.14	356.10	330.0	0.0	0.0	0.0	0.27	0.00	-142.69	
430.0	0.12	157.78	430.0	0.0	0.1	0.0	0.26	-0.02	161.68	
530.0	0.24	62.18	530.0	0.0	0.3	0.1	0.28	0.12	-95.60	
630.0	0.19	77.11	630.0	0.2	0.6	0.2	0.07	-0.05	14.93	

Archer Survey Report

Company:	AMERICAN ENERGY PERMIAN BASIN (AEP)	Local Co-ordinate Reference:	Well University 09 #0806H - Slot 0806H
Project:	Reagan County, TX	TVD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Site:	University 09 Pad University Lands BLK 09 Sec 08	MD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Well:	University 09 #0806H	North Reference:	Grid
Wellbore:	0806H	Survey Calculation Method:	Minimum Curvature
Design:	0806H	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
657.0	0.20	52.13	657.0	0.2	0.7	0.2	0.31	0.04	-92.52	
Last GYRO Survey										
735.0	0.87	37.51	735.0	0.8	1.2	0.8	0.87	0.86	-18.74	
First Archer MWD Survey										
795.0	0.74	32.55	795.0	1.5	1.7	1.5	0.25	-0.22	-8.27	
885.0	0.81	34.51	885.0	2.5	2.3	2.6	0.08	0.08	2.18	
977.0	0.77	39.91	977.0	3.5	3.1	3.6	0.09	-0.04	5.87	
1,072.0	0.97	33.12	1,072.0	4.6	4.0	4.8	0.24	0.21	-7.15	
1,166.0	0.98	53.75	1,165.9	5.8	5.0	6.0	0.37	0.01	21.95	
1,260.0	0.64	45.45	1,259.9	6.6	6.1	6.9	0.38	-0.36	-8.83	
1,355.0	0.75	61.69	1,354.9	7.3	7.0	7.6	0.24	0.12	17.09	
1,449.0	0.71	65.07	1,448.9	7.8	8.1	8.2	0.06	-0.04	3.60	
1,543.0	2.54	118.00	1,542.9	7.1	10.4	7.6	2.33	1.95	56.31	
1,638.0	4.84	125.93	1,637.7	3.8	15.5	4.4	2.47	2.42	8.35	
1,732.0	5.39	127.64	1,731.3	-1.3	22.2	-0.3	0.61	0.59	1.82	
1,798.7	5.38	126.02	1,797.7	-5.0	27.2	-3.8	0.23	-0.02	-2.43	
Interp @ 1800.0 (University 09 #0806H 0806H Plan 1)										
1,827.0	5.37	125.33	1,825.9	-6.6	29.4	-5.3	0.23	-0.02	-2.44	
1,921.0	5.23	123.94	1,919.5	-11.5	36.5	-9.9	0.20	-0.15	-1.48	
2,015.0	5.06	124.52	2,013.1	-16.2	43.5	-14.3	0.19	-0.18	0.62	
2,110.0	4.95	125.17	2,107.7	-21.0	50.3	-18.7	0.13	-0.12	0.68	
2,204.0	4.89	125.84	2,201.4	-25.7	56.9	-23.1	0.09	-0.06	0.71	
2,298.0	4.86	128.03	2,295.1	-30.5	63.3	-27.6	0.20	-0.03	2.33	
2,393.0	4.96	129.60	2,389.7	-35.5	69.6	-32.4	0.18	0.11	1.65	
2,487.0	4.81	127.66	2,483.4	-40.5	75.8	-37.2	0.24	-0.16	-2.06	
2,582.0	4.65	129.22	2,578.0	-45.4	82.0	-41.7	0.22	-0.17	1.64	
2,676.0	4.68	130.11	2,671.7	-50.3	87.9	-46.4	0.08	0.03	0.95	
2,770.0	4.54	130.19	2,765.4	-55.2	93.6	-51.0	0.15	-0.15	0.09	
2,865.0	4.56	128.73	2,860.1	-60.0	99.5	-55.5	0.12	0.02	-1.54	
2,959.0	4.00	129.05	2,953.9	-64.4	104.9	-59.7	0.60	-0.60	0.34	
3,054.0	2.54	127.87	3,048.7	-67.7	109.2	-62.8	1.54	-1.54	-1.24	
3,148.0	1.74	124.86	3,142.6	-69.8	112.0	-64.8	0.86	-0.85	-3.20	
3,242.0	0.89	128.90	3,236.6	-71.1	113.7	-66.0	0.91	-0.90	4.30	
3,336.0	0.60	126.39	3,330.6	-71.9	114.7	-66.7	0.31	-0.31	-2.67	
3,430.0	0.59	127.03	3,424.6	-72.4	115.5	-67.3	0.01	-0.01	0.68	
3,525.0	0.68	147.61	3,519.6	-73.2	116.2	-68.0	0.26	0.09	21.66	
3,619.0	1.98	119.31	3,613.6	-74.5	117.9	-69.2	1.51	1.38	-30.11	
3,713.0	4.04	103.91	3,707.4	-76.1	122.5	-70.6	2.33	2.19	-16.38	
3,807.0	4.19	98.88	3,801.2	-77.4	129.1	-71.6	0.42	0.16	-5.35	
3,901.0	3.86	98.62	3,895.0	-78.4	135.6	-72.3	0.35	-0.35	-0.28	
3,995.0	3.49	97.31	3,988.8	-79.2	141.6	-72.9	0.40	-0.39	-1.39	
4,089.0	3.01	98.39	4,082.6	-80.0	146.9	-73.4	0.51	-0.51	1.15	
4,182.0	2.71	102.00	4,175.5	-80.8	151.4	-74.0	0.38	-0.32	3.88	

Archer

Survey Report

Company:	AMERICAN ENERGY PERMIAN BASIN (AEP)	Local Co-ordinate Reference:	Well University 09 #0806H - Slot 0806H
Project:	Reagan County, TX	TVD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Site:	University 09 Pad University Lands BLK 09 Sec 08	MD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Well:	University 09 #0806H	North Reference:	Grid
Wellbore:	0806H	Survey Calculation Method:	Minimum Curvature
Design:	0806H	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,277.0	2.40	97.93	4,270.4	-81.5	155.6	-74.6	0.38	-0.33	-4.28
4,371.0	2.26	102.86	4,364.3	-82.2	159.4	-75.1	0.26	-0.15	5.24
4,465.0	0.93	116.11	4,458.3	-82.9	161.9	-75.7	1.46	-1.41	14.10
4,559.0	0.96	123.88	4,552.3	-83.7	163.2	-76.4	0.14	0.03	8.27
4,653.0	0.96	108.85	4,646.3	-84.4	164.6	-77.1	0.27	0.00	-15.99
4,747.0	0.83	106.55	4,740.3	-84.9	166.0	-77.4	0.14	-0.14	-2.45
4,841.0	0.61	92.31	4,834.3	-85.1	167.1	-77.6	0.30	-0.23	-15.15
4,935.0	0.32	92.62	4,928.2	-85.1	167.9	-77.6	0.31	-0.31	0.33
5,030.0	0.43	72.29	5,023.2	-85.0	168.5	-77.5	0.18	0.12	-21.40
5,124.0	0.26	34.66	5,117.2	-84.7	169.0	-77.2	0.29	-0.18	-40.03
5,218.0	0.19	21.32	5,211.2	-84.4	169.1	-76.9	0.09	-0.07	-14.19
5,313.0	0.27	64.93	5,306.2	-84.2	169.4	-76.6	0.20	0.08	45.91
5,407.0	0.20	19.91	5,400.2	-83.9	169.7	-76.3	0.20	-0.07	-47.89
5,501.0	0.30	127.15	5,494.2	-83.9	169.9	-76.3	0.43	0.11	114.09
5,595.0	0.29	125.20	5,588.2	-84.2	170.3	-76.6	0.02	-0.01	-2.07
5,690.0	0.77	96.18	5,683.2	-84.4	171.1	-76.8	0.56	0.51	-30.55
5,785.0	0.49	104.01	5,778.2	-84.6	172.2	-76.9	0.31	-0.29	8.24
5,879.0	0.67	109.11	5,872.2	-84.9	173.1	-77.1	0.20	0.19	5.43
5,973.0	0.75	89.89	5,966.2	-85.0	174.2	-77.3	0.27	0.09	-20.45
6,068.0	0.47	90.55	6,061.2	-85.0	175.2	-77.2	0.29	-0.29	0.69
6,162.0	0.64	87.69	6,155.2	-85.0	176.1	-77.2	0.18	0.18	-3.04
6,257.0	0.53	68.39	6,250.2	-84.8	177.1	-76.9	0.24	-0.12	-20.32
6,351.0	0.37	104.49	6,344.2	-84.7	177.8	-76.8	0.34	-0.17	38.40
6,450.0	0.60	109.70	6,443.2	-85.0	178.6	-77.0	0.24	0.23	5.26
6,543.0	0.40	40.70	6,536.2	-84.9	179.2	-76.9	0.63	-0.22	-74.19
6,638.0	0.60	207.20	6,631.2	-85.1	179.2	-77.1	1.05	0.21	175.26
6,732.0	0.50	197.90	6,725.2	-85.9	178.9	-78.0	0.14	-0.11	-9.89
6,826.0	0.60	131.40	6,819.2	-86.7	179.1	-78.7	0.65	0.11	-70.74
6,920.0	0.40	164.50	6,913.2	-87.3	179.6	-79.3	0.37	-0.21	35.21
7,013.0	0.60	146.10	7,006.2	-88.0	179.9	-80.0	0.27	0.22	-19.78
7,107.0	0.40	110.40	7,100.2	-88.5	180.5	-80.5	0.38	-0.21	-37.98
7,201.0	0.80	120.20	7,194.2	-89.0	181.4	-80.9	0.44	0.43	10.43
7,232.0	0.40	115.40	7,225.2	-89.1	181.7	-81.0	1.30	-1.29	-15.48
7,264.0	1.70	328.60	7,257.2	-88.8	181.5	-80.7	6.40	4.06	-458.75
7,295.0	4.40	345.10	7,288.1	-87.2	181.0	-79.2	9.07	8.71	53.23
7,327.0	7.30	351.80	7,319.9	-84.0	180.4	-76.0	9.30	9.06	20.94
7,358.0	10.60	354.50	7,350.6	-79.3	179.8	-71.2	10.73	10.65	8.71
7,390.0	13.50	352.00	7,381.9	-72.6	179.0	-64.6	9.21	9.06	-7.81
7,421.0	16.40	352.90	7,411.8	-64.7	178.0	-56.8	9.38	9.35	2.90
7,453.0	19.00	353.50	7,442.3	-55.0	176.8	-47.2	8.14	8.13	1.88
7,484.0	22.00	354.00	7,471.3	-44.2	175.6	-36.4	9.69	9.68	1.61
7,516.0	26.00	354.90	7,500.5	-31.3	174.4	-23.6	12.55	12.50	2.81
7,547.0	29.60	355.60	7,528.0	-16.9	173.2	-9.2	11.66	11.61	2.26

Archer

Survey Report

Company:	AMERICAN ENERGY PERMIAN BASIN (AEP)	Local Co-ordinate Reference:	Well University 09 #0806H - Slot 0806H
Project:	Reagan County, TX	TVD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Site:	University 09 Pad University Lands BLK 09 Sec 08	MD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Well:	University 09 #0806H	North Reference:	Grid
Wellbore:	0806H	Survey Calculation Method:	Minimum Curvature
Design:	0806H	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,578.0	33.30	358.60	7,554.4	-0.7	172.4	6.9	12.96	11.94	9.68
7,610.0	36.40	3.00	7,580.7	17.5	172.7	25.1	12.47	9.69	13.75
7,641.0	40.10	6.40	7,605.0	36.7	174.3	44.3	13.73	11.94	10.97
7,673.0	43.10	5.80	7,628.9	57.8	176.5	65.5	9.46	9.38	-1.88
7,704.0	46.60	2.90	7,650.9	79.6	178.2	87.4	13.07	11.29	-9.35
7,735.0	49.60	359.30	7,671.6	102.6	178.6	110.4	12.97	9.68	-11.61
7,758.5	52.60	358.26	7,686.4	120.9	178.2	128.6	13.26	12.81	-4.44
0806H FTP									
7,767.0	53.70	357.90	7,691.5	127.7	178.0	135.4	13.26	12.83	-4.20
7,798.0	56.70	357.00	7,709.2	153.1	176.8	160.8	9.97	9.68	-2.90
7,829.0	59.90	357.30	7,725.5	179.5	175.5	187.1	10.36	10.32	0.97
7,860.0	63.50	357.80	7,740.1	206.7	174.4	214.2	11.70	11.61	1.61
7,890.0	67.40	357.80	7,752.6	234.0	173.3	241.4	13.00	13.00	0.00
7,921.0	70.70	358.70	7,763.7	262.9	172.4	270.3	10.98	10.65	2.90
7,953.0	72.70	359.20	7,773.7	293.3	171.9	300.6	6.42	6.25	1.56
7,983.0	75.30	359.60	7,782.0	322.1	171.6	329.4	8.76	8.67	1.33
8,013.0	78.10	0.50	7,788.9	351.3	171.6	358.6	9.78	9.33	3.00
8,044.0	79.90	0.40	7,794.8	381.8	171.9	389.0	5.82	5.81	-0.32
8,074.0	81.10	1.20	7,799.8	411.3	172.3	418.6	4.79	4.00	2.67
8,105.0	82.10	1.50	7,804.3	442.0	173.0	449.2	3.36	3.23	0.97
8,135.0	82.40	1.80	7,808.3	471.7	173.8	478.9	1.41	1.00	1.00
8,164.0	82.70	1.70	7,812.1	500.5	174.7	507.7	1.09	1.03	-0.34
8,194.0	82.90	1.90	7,815.9	530.2	175.7	537.5	0.94	0.67	0.67
8,225.0	83.90	1.50	7,819.4	561.0	176.6	568.2	3.47	3.23	-1.29
8,255.0	85.50	1.20	7,822.2	590.9	177.3	598.1	5.43	5.33	-1.00
8,285.0	86.50	0.90	7,824.3	620.8	177.8	628.0	3.48	3.33	-1.00
8,315.0	88.10	0.60	7,825.7	650.7	178.2	658.0	5.43	5.33	-1.00
8,345.0	89.00	0.40	7,826.5	680.7	178.5	687.9	3.07	3.00	-0.67
8,375.0	89.30	0.10	7,826.9	710.7	178.6	717.9	1.41	1.00	-1.00
8,405.0	89.10	359.80	7,827.3	740.7	178.6	747.9	1.20	-0.67	-1.00
8,498.0	91.10	0.70	7,827.2	833.7	179.0	840.8	2.36	2.15	0.97
8,592.0	88.50	0.40	7,827.5	927.7	179.9	934.7	2.78	-2.77	-0.32
8,686.0	88.70	0.10	7,829.8	1,021.7	180.3	1,028.6	0.38	0.21	-0.32
8,781.0	90.70	1.50	7,830.3	1,116.7	181.6	1,123.6	2.57	2.11	1.47
8,875.0	91.30	1.00	7,828.7	1,210.6	183.7	1,217.5	0.83	0.64	-0.53
8,969.0	89.50	359.70	7,828.0	1,304.6	184.2	1,311.5	2.36	-1.91	-1.38
9,062.0	90.50	359.70	7,828.0	1,397.6	183.8	1,404.4	1.08	1.08	0.00
9,156.0	89.70	358.00	7,827.8	1,491.6	181.9	1,498.2	2.00	-0.85	-1.81
9,250.0	89.80	1.10	7,828.2	1,585.6	181.1	1,592.0	3.30	0.11	3.30
9,345.0	90.20	2.90	7,828.2	1,680.5	184.5	1,687.0	1.94	0.42	1.89
9,440.0	90.00	359.80	7,828.1	1,775.5	186.7	1,782.0	3.27	-0.21	-3.26
9,534.0	90.10	3.70	7,828.0	1,869.4	189.6	1,876.0	4.15	0.11	4.15

Archer

Survey Report

Company:	AMERICAN ENERGY PERMIAN BASIN (AEP)	Local Co-ordinate Reference:	Well University 09 #0806H - Slot 0806H
Project:	Reagan County, TX	TVD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Site:	University 09 Pad University Lands BLK 09 Sec 08	MD Reference:	2671' GL + 30' RKB @ 2701.0usft (Planning)
Well:	University 09 #0806H	North Reference:	Grid
Wellbore:	0806H	Survey Calculation Method:	Minimum Curvature
Design:	0806H	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,629.0	90.30	3.50	7,827.7	1,964.2	195.5	1,970.9	0.30	0.21	-0.21
9,723.0	90.20	2.30	7,827.3	2,058.1	200.3	2,064.9	1.28	-0.11	-1.28
9,817.0	90.00	1.30	7,827.1	2,152.0	203.2	2,158.9	1.08	-0.21	-1.06
9,912.0	90.20	358.50	7,826.9	2,247.0	203.1	2,253.8	2.95	0.21	-2.95
10,007.0	89.30	0.20	7,827.3	2,342.0	202.0	2,348.7	2.02	-0.95	1.79
10,101.0	90.20	1.10	7,827.7	2,436.0	203.1	2,442.6	1.35	0.96	0.96
10,196.0	90.20	360.00	7,827.4	2,531.0	204.0	2,537.5	1.16	0.00	-1.16
10,290.0	89.60	2.40	7,827.6	2,625.0	205.9	2,631.5	2.63	-0.64	2.55
10,385.0	90.90	3.10	7,827.2	2,719.9	210.5	2,726.5	1.55	1.37	0.74
10,479.0	92.00	2.70	7,824.8	2,813.7	215.2	2,820.5	1.25	1.17	-0.43
10,573.0	90.50	2.80	7,822.7	2,907.6	219.8	2,914.5	1.60	-1.60	0.11
10,668.0	88.70	0.10	7,823.4	3,002.5	222.2	3,009.4	3.42	-1.89	-2.84
10,761.0	90.60	1.00	7,824.0	3,095.5	223.1	3,102.4	2.26	2.04	0.97
10,856.0	92.30	1.50	7,821.6	3,190.5	225.1	3,197.3	1.87	1.79	0.53
10,950.0	88.60	0.30	7,820.8	3,284.4	226.6	3,291.2	4.14	-3.94	-1.28
11,044.0	91.40	2.30	7,820.8	3,378.4	228.7	3,385.2	3.66	2.98	2.13
11,139.0	88.90	1.80	7,820.6	3,473.3	232.1	3,480.2	2.68	-2.63	-0.53
11,232.0	88.20	3.10	7,822.9	3,566.2	236.1	3,573.2	1.59	-0.75	1.40
11,326.0	89.80	3.10	7,824.6	3,660.1	241.2	3,667.1	1.70	1.70	0.00
11,421.0	87.60	2.90	7,826.7	3,754.9	246.2	3,762.1	2.33	-2.32	-0.21
11,515.0	88.30	2.40	7,830.1	3,848.7	250.5	3,856.0	0.91	0.74	-0.53
11,609.0	89.70	2.20	7,831.7	3,942.6	254.3	3,950.0	1.50	1.49	-0.21
11,703.0	91.20	2.30	7,831.0	4,036.6	258.0	4,044.0	1.60	1.60	0.11
11,798.0	90.40	2.50	7,829.7	4,131.5	261.9	4,139.0	0.87	-0.84	0.21
11,892.0	90.90	2.00	7,828.6	4,225.4	265.6	4,233.0	0.75	0.53	-0.53
11,986.0	92.40	1.40	7,825.9	4,319.3	268.4	4,326.9	1.72	1.60	-0.64
12,080.0	88.60	0.70	7,825.1	4,413.3	270.1	4,420.9	4.11	-4.04	-0.74
12,175.0	91.30	1.50	7,825.2	4,508.2	272.0	4,515.9	2.96	2.84	0.84
12,269.0	87.60	2.80	7,826.1	4,602.2	275.5	4,609.8	4.17	-3.94	1.38
12,363.0	88.00	2.70	7,829.7	4,696.0	280.0	4,703.8	0.44	0.43	-0.11
12,457.0	89.10	2.80	7,832.0	4,789.8	284.5	4,797.7	1.18	1.17	0.11
12,552.0	88.90	1.50	7,833.7	4,884.8	288.1	4,892.7	1.38	-0.21	-1.37
12,646.0	89.90	2.10	7,834.7	4,978.7	291.0	4,986.7	1.24	1.06	0.64
12,740.0	89.80	357.40	7,834.9	5,072.7	290.6	5,080.6	5.00	-0.11	-5.00
12,835.0	89.90	355.00	7,835.2	5,167.5	284.3	5,175.0	2.53	0.11	-2.53
12,929.0	90.60	357.10	7,834.8	5,261.2	277.8	5,268.4	2.35	0.74	2.23
13,023.0	92.40	357.80	7,832.3	5,355.1	273.7	5,362.0	2.05	1.91	0.74
13,117.0	91.70	358.70	7,828.9	5,449.0	270.8	5,455.6	1.21	-0.74	0.96
13,211.0	89.30	359.90	7,828.1	5,543.0	269.6	5,549.5	2.85	-2.55	1.28
13,305.0	90.80	0.80	7,828.0	5,637.0	270.2	5,643.4	1.86	1.60	0.96
13,399.0	86.50	359.30	7,830.3	5,730.9	270.3	5,737.3	4.84	-4.57	-1.60
13,493.0	86.90	359.00	7,835.7	5,824.7	268.9	5,830.9	0.53	0.43	-0.32
13,588.0	87.80	2.00	7,840.1	5,919.6	269.7	5,925.8	3.29	0.95	3.16

Archer Survey Report

Company: AMERICAN ENERGY PERMIAN BASIN (AEP)	Local Co-ordinate Reference: Well University 09 #0806H - Slot 0806H
Project: Reagan County, TX	TVD Reference: 2671' GL + 30' RKB @ 2701.0usft (Planning)
Site: University 09 Pad University Lands BLK 09 Sec 08	MD Reference: 2671' GL + 30' RKB @ 2701.0usft (Planning)
Well: University 09 #0806H	North Reference: Grid
Wellbore: 0806H	Survey Calculation Method: Minimum Curvature
Design: 0806H	Database: EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,682.0	88.50	1.70	7,843.1	6,013.5	272.8	6,019.7	0.81	0.74	-0.32
13,776.0	90.40	4.20	7,844.0	6,107.4	277.6	6,113.7	3.34	2.02	2.66
13,870.0	92.20	4.30	7,841.9	6,201.1	284.6	6,207.6	1.92	1.91	0.11
13,964.0	91.50	3.80	7,838.8	6,294.8	291.2	6,301.5	0.91	-0.74	-0.53
14,058.0	92.80	3.60	7,835.3	6,388.6	297.3	6,395.5	1.40	1.38	-0.21
14,153.0	91.40	2.30	7,831.8	6,483.4	302.2	6,490.4	2.01	-1.47	-1.37
14,247.0	89.20	0.90	7,831.3	6,577.3	304.8	6,584.4	2.77	-2.34	-1.49
14,341.0	90.80	1.80	7,831.3	6,671.3	307.0	6,678.3	1.95	1.70	0.96
14,436.0	91.80	1.10	7,829.2	6,766.2	309.4	6,773.3	1.28	1.05	-0.74
14,530.0	91.80	0.60	7,826.2	6,860.2	310.8	6,867.2	0.53	0.00	-0.53
14,625.0	89.90	0.80	7,824.8	6,955.2	311.9	6,962.1	2.01	-2.00	0.21
14,719.0	90.60	0.00	7,824.4	7,049.1	312.6	7,056.1	1.13	0.74	-0.85
14,758.0	90.31	358.57	7,824.1	7,088.2	312.1	7,095.0	3.73	-0.73	-3.66
0806H LTP									
14,760.0	90.30	358.50	7,824.1	7,090.1	312.1	7,097.0	3.73	-0.73	-3.66
Last Archer MWD Survey - Crossed 100' FNL Perforation Hardline									
14,808.0	90.30	358.50	7,823.8	7,138.1	310.8	7,144.9	0.00	0.00	0.00
Projection To TD - PBHL 0806H - 0806H PBHL									

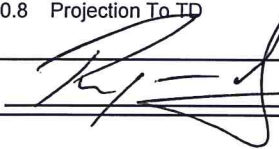
Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
Crossed 100' FNL Per	0.00	0.00	7,824.1	7,091.2	312.0	597,153.18	1,606,382.50	31° 18' 8.928 N	101° 35' 37.270 W
- actual wellpath misses target center by 1.1usft at 14760.0usft MD (7824.1 TVD, 7090.1 N, 312.1 E)									
- Point									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
130.0	130.0	0.0	-0.1	First GYRO Survey
657.0	657.0	0.2	0.7	Last GYRO Survey
735.0	735.0	0.8	1.2	First Archer MWD Survey
14,760.0	7,824.1	7,090.1	312.1	Last Archer MWD Survey
14,808.0	7,823.8	7,138.1	310.8	Projection To TD

Checked By: _____ Approved By:  Date: 1/21/15

AMERICAN ENERGY PERMIAN BASIN (AEP)

University 09 #0806H - 0806H

Reagan County, TX

University 09 Pad University Lands BLK 09 Sec 08

Your Ref:

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130.00	0.07	303.73	130.00	0.04	-0.07	0.04	0.05
230.00	0.14	138.79	230.00	-0.01	-0.04	-0.02	0.21
330.00	0.14	356.10	330.00	0.02	0.04	0.02	0.27
430.00	0.12	157.78	430.00	0.04	0.07	0.04	0.26
530.00	0.24	62.18	530.00	0.04	0.29	0.05	0.28
630.00	0.19	77.11	630.00	0.18	0.64	0.20	0.07
657.00	0.20	52.13	657.00	0.22	0.72	0.25	0.31
735.00	0.87	37.51	734.99	0.77	1.19	0.82	0.87
795.00	0.74	32.55	794.99	1.46	1.67	1.53	0.25
885.00	0.81	34.51	884.98	2.47	2.35	2.57	0.08
977.00	0.77	39.91	976.97	3.48	3.11	3.61	0.09
1072.00	0.97	33.12	1071.96	4.64	3.96	4.81	0.24
1166.00	0.98	53.75	1165.95	5.79	5.04	6.00	0.37
1260.00	0.64	45.45	1259.94	6.63	6.07	6.89	0.38
1355.00	0.75	61.69	1354.93	7.30	6.99	7.60	0.24
1449.00	0.71	65.07	1448.92	7.83	8.06	8.18	0.06
1543.00	2.54	118.00	1542.89	7.10	10.43	7.55	2.33
1638.00	4.84	125.93	1637.68	3.76	15.53	4.44	2.47
1732.00	5.39	127.64	1731.31	-1.26	22.24	-0.28	0.61
1827.00	5.37	125.33	1825.89	-6.56	29.40	-5.25	0.23
1921.00	5.23	123.94	1919.49	-11.49	36.54	-9.87	0.20
2015.00	5.06	124.52	2013.11	-16.23	43.51	-14.30	0.19
2110.00	4.95	125.17	2107.75	-20.97	50.32	-18.73	0.13
2204.00	4.89	125.84	2201.40	-25.65	56.88	-23.11	0.09
2298.00	4.86	128.03	2295.06	-30.45	63.26	-27.63	0.20
2393.00	4.96	129.60	2389.71	-35.55	69.60	-32.44	0.18
2487.00	4.81	127.66	2483.37	-40.55	75.85	-37.16	0.24
2582.00	4.65	129.22	2578.05	-45.41	81.98	-41.75	0.22
2676.00	4.68	130.11	2671.74	-50.29	87.87	-46.36	0.08
2770.00	4.54	130.19	2765.43	-55.17	93.64	-50.97	0.15
2865.00	4.56	128.73	2860.13	-59.95	99.46	-55.50	0.12
2959.00	4.00	129.05	2953.87	-64.36	104.92	-59.66	0.60
3054.00	2.54	127.87	3048.71	-67.74	109.16	-62.85	1.54

3148.00	1.74	124.86	3142.65	-69.83	111.97	-64.82	0.86
3242.00	0.89	128.90	3236.62	-71.11	113.71	-66.01	0.91
3336.00	0.60	126.39	3330.61	-71.86	114.68	-66.72	0.31
3430.00	0.59	127.03	3424.61	-72.44	115.46	-67.27	0.01
3525.00	0.68	147.61	3519.60	-73.21	116.15	-68.01	0.26
3619.00	1.98	119.31	3613.57	-74.48	117.87	-69.20	1.51
3713.00	4.04	103.91	3707.44	-76.07	122.50	-70.58	2.33
3807.00	4.19	98.88	3801.20	-77.39	129.10	-71.61	0.42
3901.00	3.86	98.62	3894.97	-78.40	135.63	-72.33	0.35
3995.00	3.49	97.31	3988.77	-79.24	141.59	-72.90	0.40
4089.00	3.01	98.39	4082.62	-79.96	146.87	-73.39	0.51
4182.00	2.71	102.00	4175.51	-80.77	151.44	-74.00	0.38
4277.00	2.40	97.93	4270.41	-81.52	155.60	-74.56	0.38
4371.00	2.26	102.86	4364.33	-82.20	159.36	-75.08	0.26
4465.00	0.93	116.11	4458.30	-82.95	161.85	-75.72	1.46
4559.00	0.96	123.88	4552.28	-83.72	163.19	-76.43	0.14
4653.00	0.96	108.85	4646.27	-84.42	164.59	-77.06	0.27
4747.00	0.83	106.55	4740.26	-84.86	165.99	-77.45	0.14
4841.00	0.61	92.31	4834.25	-85.08	167.14	-77.61	0.30
4935.00	0.32	92.62	4928.25	-85.11	167.90	-77.61	0.31
5030.00	0.43	72.29	5023.25	-85.01	168.51	-77.49	0.18
5124.00	0.26	34.66	5117.24	-84.73	168.96	-77.18	0.29
5218.00	0.19	21.32	5211.24	-84.41	169.14	-76.86	0.09
5313.00	0.27	64.93	5306.24	-84.17	169.40	-76.60	0.20
5407.00	0.20	19.91	5400.24	-83.92	169.66	-76.34	0.20
5501.00	0.30	127.15	5494.24	-83.92	169.91	-76.33	0.43
5595.00	0.29	125.20	5588.24	-84.20	170.30	-76.60	0.02
5690.00	0.77	96.18	5683.24	-84.41	171.13	-76.77	0.56
5785.00	0.49	104.01	5778.23	-84.58	172.16	-76.89	0.31
5879.00	0.67	109.11	5872.23	-84.85	173.07	-77.12	0.20
5973.00	0.75	89.89	5966.22	-85.03	174.21	-77.25	0.27
6068.00	0.47	90.55	6061.21	-85.03	175.22	-77.21	0.29
6162.00	0.64	87.69	6155.21	-85.02	176.13	-77.15	0.18
6257.00	0.53	68.39	6250.20	-84.83	177.07	-76.93	0.24
6351.00	0.37	104.49	6344.20	-84.75	177.76	-76.81	0.34
6450.00	0.60	109.70	6443.20	-85.00	178.56	-77.03	0.24
6543.00	0.40	40.70	6536.19	-84.92	179.23	-76.92	0.63
6638.00	0.60	207.20	6631.19	-85.11	179.22	-77.11	1.05
6732.00	0.50	197.90	6725.19	-85.94	178.87	-77.95	0.14
6826.00	0.60	131.40	6819.19	-86.66	179.11	-78.66	0.65
6920.00	0.40	164.50	6913.18	-87.30	179.57	-79.28	0.37
7013.00	0.60	146.10	7006.18	-88.02	179.93	-79.98	0.27
7107.00	0.40	110.40	7100.18	-88.54	180.51	-80.48	0.38
7201.00	0.80	120.20	7194.17	-88.98	181.38	-80.88	0.44
7232.00	0.40	115.40	7225.17	-89.14	181.67	-81.03	1.30
7264.00	1.70	328.60	7257.16	-88.78	181.52	-80.67	6.40
7295.00	4.40	345.10	7288.12	-87.24	180.98	-79.16	9.07

7327.00	7.30	351.80	7319.95	-84.04	180.37	-75.99	9.30
7358.00	10.60	354.50	7350.57	-79.25	179.82	-71.23	10.73
7390.00	13.50	352.00	7381.86	-72.62	179.02	-64.64	9.21
7421.00	16.40	352.90	7411.81	-64.69	177.97	-56.77	9.38
7453.00	19.00	353.50	7442.29	-55.03	176.82	-47.17	8.14
7484.00	22.00	354.00	7471.32	-44.24	175.64	-36.44	9.69
7516.00	26.00	354.90	7500.55	-31.29	174.39	-23.55	12.55
7547.00	29.60	355.60	7527.97	-16.88	173.20	-9.22	11.66
7578.00	33.30	358.60	7554.41	-0.74	172.41	6.88	12.96
7610.00	36.40	3.00	7580.67	17.53	172.69	25.15	12.47
7641.00	40.10	6.40	7605.02	36.65	174.28	44.31	13.73
7673.00	43.10	5.80	7628.94	57.77	176.54	65.52	9.46
7704.00	46.60	2.90	7650.92	79.57	178.18	87.36	13.07
7735.00	49.60	359.30	7671.62	102.63	178.60	110.42	12.97
7767.00	53.70	357.90	7691.47	127.71	177.98	135.45	13.26
7798.00	56.70	357.00	7709.16	153.13	176.85	160.80	9.97
7829.00	59.90	357.30	7725.45	179.47	175.54	187.05	10.36
7860.00	63.50	357.80	7740.15	206.74	174.37	214.24	11.70
7890.00	67.40	357.80	7752.61	234.00	173.32	241.43	13.00
7921.00	70.70	358.70	7763.69	262.93	172.44	270.30	10.98
7953.00	72.70	359.20	7773.74	293.31	171.89	300.62	6.42
7983.00	75.30	359.60	7782.01	322.14	171.59	329.41	8.76
8013.00	78.10	0.50	7788.91	351.34	171.61	358.57	9.78
8044.00	79.90	0.40	7794.82	381.76	171.85	388.98	5.82
8074.00	81.10	1.20	7799.77	411.35	172.26	418.56	4.79
8105.00	82.10	1.50	7804.30	442.01	172.99	449.22	3.36
8135.00	82.40	1.80	7808.35	471.72	173.84	478.94	1.41
8164.00	82.70	1.70	7812.11	500.46	174.72	507.69	1.09
8194.00	82.90	1.90	7815.87	530.21	175.66	537.45	0.94
8225.00	83.90	1.50	7819.43	560.99	176.57	568.24	3.47
8255.00	85.50	1.20	7822.20	590.85	177.27	598.11	5.43
8285.00	86.50	0.90	7824.30	620.78	177.82	628.03	3.48
8315.00	88.10	0.60	7825.71	650.74	178.21	657.98	5.43
8345.00	89.00	0.40	7826.47	680.73	178.48	687.95	3.07
8375.00	89.30	0.10	7826.91	710.72	178.61	717.92	1.41
8405.00	89.10	359.80	7827.33	740.72	178.58	747.89	1.20
8498.00	91.10	0.70	7827.17	833.71	178.99	840.81	2.36
8592.00	88.50	0.40	7827.50	927.70	179.89	934.74	2.78
8686.00	88.70	0.10	7829.79	1021.67	180.30	1028.64	0.38
8781.00	90.70	1.50	7830.29	1116.65	181.62	1123.59	2.57
8875.00	91.30	1.00	7828.65	1210.62	183.67	1217.55	0.83
8969.00	89.50	359.70	7827.99	1304.61	184.25	1311.47	2.36
9062.00	90.50	359.70	7827.99	1397.60	183.76	1404.36	1.08
9156.00	89.70	358.00	7827.83	1491.58	181.88	1498.16	2.00
9250.00	89.80	1.10	7828.24	1585.57	181.14	1592.02	3.30
9345.00	90.20	2.90	7828.24	1680.50	184.45	1687.01	1.94
9440.00	90.00	359.80	7828.07	1775.47	186.69	1781.98	3.27

9534.00	90.10	3.70	7827.99	1869.40	189.56	1875.95	4.15
9629.00	90.30	3.50	7827.66	1964.22	195.53	1970.94	0.30
9723.00	90.20	2.30	7827.25	2058.09	200.28	2064.93	1.28
9817.00	90.00	1.30	7827.09	2152.04	203.23	2158.92	1.08
9912.00	90.20	358.50	7826.92	2247.04	203.07	2253.81	2.95
10007.00	89.30	0.20	7827.34	2342.02	201.99	2348.66	2.02
10101.00	90.20	1.10	7827.75	2436.01	203.06	2442.61	1.35
10196.00	90.20	360.00	7827.41	2531.01	203.97	2537.55	1.16
10290.00	89.60	2.40	7827.58	2624.98	205.94	2631.52	2.63
10385.00	90.90	3.10	7827.16	2719.87	210.49	2726.51	1.55
10479.00	92.00	2.70	7824.79	2813.72	215.25	2820.48	1.25
10573.00	90.50	2.80	7822.73	2907.58	219.76	2914.45	1.60
10668.00	88.70	0.10	7823.40	3002.54	222.16	3009.42	3.42
10761.00	90.60	1.00	7823.97	3095.53	223.05	3102.36	2.26
10856.00	92.30	1.50	7821.56	3190.47	225.13	3197.30	1.87
10950.00	88.60	0.30	7820.82	3284.44	226.60	3291.24	4.14
11044.00	91.40	2.30	7820.82	3378.40	228.73	3385.20	3.66
11139.00	88.90	1.80	7820.58	3473.33	232.13	3480.19	2.68
11232.00	88.20	3.10	7822.93	3566.21	236.11	3573.16	1.59
11326.00	89.80	3.10	7824.57	3660.06	241.19	3667.14	1.70
11421.00	87.60	2.90	7826.72	3754.90	246.16	3762.10	2.33
11515.00	88.30	2.40	7830.09	3848.73	250.50	3856.04	0.91
11609.00	89.70	2.20	7831.73	3942.64	254.27	3950.03	1.50
11703.00	91.20	2.30	7830.99	4036.56	257.96	4044.02	1.60
11798.00	90.40	2.50	7829.66	4131.47	261.94	4139.01	0.87
11892.00	90.90	2.00	7828.60	4225.39	265.63	4233.00	0.75
11986.00	92.40	1.40	7825.89	4319.31	268.42	4326.95	1.72
12080.00	88.60	0.70	7825.07	4413.27	270.14	4420.90	4.11
12175.00	91.30	1.50	7825.15	4508.24	271.96	4515.86	2.96
12269.00	87.60	2.80	7826.05	4602.16	275.49	4609.83	4.17
12363.00	88.00	2.70	7829.66	4695.98	280.00	4703.76	0.44
12457.00	89.10	2.80	7832.04	4789.84	284.51	4797.73	1.18
12552.00	88.90	1.50	7833.70	4884.75	288.07	4892.71	1.38
12646.00	89.90	2.10	7834.68	4978.70	291.02	4986.70	1.24
12740.00	89.80	357.40	7834.93	5072.67	290.61	5080.56	5.00
12835.00	89.90	355.00	7835.18	5167.46	284.32	5174.97	2.53
12929.00	90.60	357.10	7834.77	5261.23	277.84	5268.37	2.35
13023.00	92.40	357.80	7832.31	5355.10	273.66	5361.96	2.05
13117.00	91.70	358.70	7828.95	5448.99	270.79	5455.64	1.21
13211.00	89.30	359.90	7828.13	5542.97	269.64	5549.47	2.85
13305.00	90.80	0.80	7828.04	5636.97	270.22	5643.40	1.86
13399.00	86.50	359.30	7830.26	5730.92	270.30	5737.26	4.84
13493.00	86.90	359.00	7835.67	5824.75	268.91	5830.94	0.53
13588.00	87.80	2.00	7840.06	5919.63	269.74	5925.77	3.29
13682.00	88.50	1.70	7843.10	6013.53	272.77	6019.71	0.81
13776.00	90.40	4.20	7844.00	6107.39	277.61	6113.70	3.34
13870.00	92.20	4.30	7841.87	6201.11	284.57	6207.62	1.92

13964.00	91.50	3.80	7838.83	6294.82	291.21	6301.54	0.91
14058.00	92.80	3.60	7835.31	6388.56	297.27	6395.45	1.40
14153.00	91.40	2.30	7831.82	6483.36	302.15	6490.38	2.01
14247.00	89.20	0.90	7831.33	6577.32	304.78	6584.36	2.77
14341.00	90.80	1.80	7831.33	6671.29	306.99	6678.34	1.95
14436.00	91.80	1.10	7829.18	6766.23	309.40	6773.29	1.28
14530.00	91.80	0.60	7826.22	6860.17	310.79	6867.21	0.53
14625.00	89.90	0.80	7824.81	6955.15	311.95	6962.14	2.01
14719.00	90.60	0.00	7824.40	7049.15	312.61	7056.08	1.13
14760.00	90.30	358.50	7824.08	7090.14	312.07	7097.01	3.73
14808.00	90.30	358.50	7823.83	7138.13	310.81	7144.89	0.00