



September 12, 2017

Railroad Commission of Texas  
Oil and Gas Division  
P.O. Box 12967  
Capitol Station  
Austin, Texas 78711

Attention: Regulatory Department

Re: Shell Western Exploration and Production Co.  
University 19 D 0904H  
Loving County, TX  
API #42-301-33226  
Job No. 60918

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Sean Burroughs	0904H	247	18,532	6/19/17	9/9/17	MWD

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

Best Regards,

*Brittany Carley*

Brittany Carley  
Operations Administrator



# **SWEPI**

**Loving County, Texas (NAD27)  
University 19  
D 0904H**

**OH / Job #60918**

**Survey: Phoenix MWD Surveys**

## **Standard Survey Report**

**10 September, 2017**





## Phoenix Technology Services LP

## Survey Report



<b>Company:</b>	SWEPI	<b>Local Co-ordinate Reference:</b>	Well D 0904H
<b>Project:</b>	Loving County, Texas (NAD27)	<b>TVD Reference:</b>	GL + KB @ 2799.10usft (Ensign 775)
<b>Site:</b>	University 19	<b>MD Reference:</b>	GL + KB @ 2799.10usft (Ensign 775)
<b>Well:</b>	D 0904H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH / Job #60918	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys (Ensign 775)	<b>Database:</b>	Compass 5000 GCR

<b>Project</b>	Loving County, Texas (NAD27), Loving, Texas		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Texas Central 4203		

<b>Site</b>	University 19		
<b>Site Position:</b>		<b>Northing:</b>	738,105.10 usft
<b>From:</b>	Map	<b>Easting:</b>	1,047,305.66 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	31° 39' 36.27010 N
		<b>Longitude:</b>	103° 23' 44.23223 W
		<b>Grid Convergence:</b>	-1.58 °

<b>Well</b>	D 0904H		
<b>Well Position</b>	<b>+N-S</b>	0.00 usft	<b>Northing:</b>
	<b>+E-W</b>	0.00 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	31° 41' 57.37679 N
		<b>Longitude:</b>	103° 25' 6.41379 W
		<b>Ground Level:</b>	2,771.10 usft

<b>Wellbore</b>	OH / Job #60918				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	8/1/2017	7.02	59.55	47,632

<b>Design</b>	Surveys (Ensign 775)				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	344.04	

<b>Survey Program</b>	<b>Date</b>	9/10/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
247.00	18,580.00	Phoenix MWD Surveys (OH / Job #60918)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
247.00	0.78	34.72	246.99	1.38	0.96	1.07	0.32	0.32	0.00	
<b>First Phoenix MWD Survey</b>										
425.00	3.88	181.45	424.87	-3.65	1.50	-3.92	2.56	1.74	82.43	
608.00	6.03	185.64	607.18	-19.40	0.39	-18.76	1.19	1.17	2.29	
788.00	7.39	189.42	785.94	-40.23	-2.43	-38.01	0.79	0.76	2.10	
967.00	7.53	190.80	963.43	-63.11	-6.51	-58.89	0.13	0.08	0.77	
1,146.00	7.60	195.06	1,140.87	-86.06	-11.79	-79.50	0.32	0.04	2.38	
1,325.00	8.07	192.85	1,318.20	-109.74	-17.65	-100.66	0.31	0.26	-1.23	
1,503.00	8.20	191.54	1,494.41	-134.36	-22.97	-122.86	0.13	0.07	-0.74	
1,682.00	8.41	191.88	1,671.53	-159.68	-28.22	-145.76	0.12	0.12	0.19	



# Phoenix Technology Services LP

## Survey Report



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<b>Project:</b>	Loving County, Texas (NAD27)	<b>TVD Reference:</b>	GL + KB @ 2799.10usft (Ensign 775)
<b>Site:</b>	University 19	<b>MD Reference:</b>	GL + KB @ 2799.10usft (Ensign 775)
<b>Well:</b>	D 0904H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH / Job #60918	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys (Ensign 775)	<b>Database:</b>	Compass 5000 GCR

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)
1,861.00	8.66	191.85	1,848.55	-185.67	-33.68	-169.26	0.14	0.14	-0.02
2,039.00	8.95	194.11	2,024.45	-212.22	-39.81	-193.09	0.25	0.16	1.27
2,218.00	8.79	194.14	2,201.31	-238.98	-46.55	-216.97	0.09	-0.09	0.02
2,396.00	7.25	197.57	2,377.57	-262.88	-53.26	-238.10	0.91	-0.87	1.93
2,575.00	6.67	198.79	2,555.25	-283.49	-60.02	-256.06	0.33	-0.32	0.68
2,753.00	6.03	193.97	2,732.16	-302.35	-65.60	-272.66	0.47	-0.36	-2.71
2,932.00	5.70	194.13	2,910.22	-320.10	-70.04	-288.50	0.18	-0.18	0.09
3,111.00	5.47	192.81	3,088.37	-337.03	-74.11	-303.67	0.15	-0.13	-0.74
3,290.00	5.41	186.39	3,266.56	-353.74	-76.94	-318.95	0.34	-0.03	-3.59
3,469.00	4.78	170.94	3,444.86	-369.49	-76.70	-334.16	0.84	-0.35	-8.63
3,647.00	5.40	181.55	3,622.17	-385.19	-75.76	-349.51	0.63	0.35	5.96
3,826.00	4.61	170.53	3,800.49	-400.70	-74.80	-364.69	0.69	-0.44	-6.16
4,005.00	6.16	182.67	3,978.70	-417.39	-74.07	-380.94	1.07	0.87	6.78
4,184.00	7.48	189.18	4,156.43	-438.49	-76.37	-400.59	0.85	0.74	3.64
4,362.00	6.71	192.58	4,333.06	-460.08	-80.49	-420.21	0.49	-0.43	1.91
4,541.00	6.36	187.13	4,510.90	-480.12	-84.00	-438.52	0.40	-0.20	-3.04
4,720.00	5.87	182.64	4,688.88	-499.10	-85.65	-456.32	0.38	-0.27	-2.51
4,848.00	5.51	176.03	4,816.26	-511.77	-85.52	-468.53	0.58	-0.28	-5.16
5,061.00	5.15	175.71	5,028.33	-531.51	-84.10	-487.90	0.17	-0.17	-0.15
5,240.00	5.46	175.43	5,206.57	-548.01	-82.82	-504.11	0.17	0.17	-0.16
5,418.00	6.51	194.09	5,383.61	-566.24	-84.60	-521.15	1.23	0.59	10.48
5,597.00	6.16	192.89	5,561.52	-585.44	-89.22	-538.34	0.21	-0.20	-0.67
5,775.00	6.53	193.83	5,738.43	-604.58	-93.77	-555.49	0.22	0.21	0.53
5,954.00	6.81	193.68	5,916.22	-624.78	-98.71	-573.55	0.16	0.16	-0.08
6,133.00	6.52	195.34	6,094.01	-644.89	-103.91	-591.46	0.19	-0.16	0.93
6,311.00	6.73	195.68	6,270.82	-664.68	-109.40	-608.97	0.12	0.12	0.19
6,490.00	7.03	195.76	6,448.53	-685.32	-115.21	-627.22	0.17	0.17	0.04
6,669.00	5.86	192.40	6,626.39	-704.78	-120.15	-644.58	0.69	-0.65	-1.88
6,848.00	1.43	174.15	6,804.99	-715.94	-121.88	-654.82	2.53	-2.47	-10.20
7,026.00	1.54	185.84	6,982.93	-720.52	-121.90	-659.23	0.18	0.06	6.57
7,205.00	1.19	195.10	7,161.88	-724.71	-122.63	-663.06	0.23	-0.20	5.17
7,294.00	0.90	196.67	7,250.87	-726.27	-123.07	-664.44	0.33	-0.33	1.76
7,473.00	1.19	194.30	7,429.84	-729.42	-123.93	-667.23	0.16	0.16	-1.32
7,652.00	0.97	261.36	7,608.81	-731.45	-125.89	-668.64	0.67	-0.12	37.46
7,830.00	1.71	258.88	7,786.76	-732.19	-129.99	-668.22	0.42	0.42	-1.39
8,009.00	1.84	251.75	7,965.68	-733.60	-135.34	-668.11	0.14	0.07	-3.98
8,188.00	1.71	253.00	8,144.59	-735.28	-140.62	-668.28	0.08	-0.07	0.70
8,367.00	1.43	245.83	8,323.52	-736.98	-145.21	-668.64	0.19	-0.16	-4.01
8,545.00	1.39	249.58	8,501.47	-738.64	-149.26	-669.13	0.06	-0.02	2.11
8,724.00	1.42	239.90	8,680.41	-740.51	-153.21	-669.84	0.13	0.02	-5.41
8,903.00	1.66	233.54	8,859.35	-743.17	-157.22	-671.29	0.16	0.13	-3.55
9,081.00	1.67	243.65	9,037.28	-745.85	-161.62	-672.66	0.16	0.01	5.68
9,260.00	1.61	264.45	9,216.20	-747.25	-166.46	-672.68	0.33	-0.03	11.62



# Phoenix Technology Services LP

## Survey Report



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<b>Wellbore:</b>	OH / Job #60918	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys (Ensign 775)	<b>Database:</b>	Compass 5000 GCR

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)
9,408.00	1.95	279.35	9,364.13	-747.04	-171.01	-671.22	0.39	0.23	10.07
9,587.00	2.22	294.95	9,543.02	-745.08	-177.16	-667.65	0.35	0.15	8.72
9,766.00	2.17	299.22	9,721.88	-741.97	-183.26	-662.98	0.10	-0.03	2.39
9,945.00	1.84	272.07	9,900.78	-740.21	-189.09	-659.68	0.56	-0.18	-15.17
10,124.00	1.63	262.77	10,079.70	-740.43	-194.49	-658.41	0.20	-0.12	-5.20
10,302.00	1.21	234.49	10,257.64	-741.84	-198.53	-658.65	0.45	-0.24	-15.89
10,481.00	2.03	238.68	10,436.57	-744.58	-202.77	-660.13	0.46	0.46	2.34
10,660.00	1.49	247.22	10,615.49	-747.13	-207.63	-661.24	0.33	-0.30	4.77
10,838.00	1.06	197.90	10,793.45	-749.59	-210.27	-662.88	0.64	-0.24	-27.71
10,928.00	1.17	189.08	10,883.43	-751.29	-210.67	-664.41	0.23	0.12	-9.80
11,062.00	0.33	304.55	11,017.42	-752.43	-211.20	-665.35	1.00	-0.63	86.17
11,151.00	9.22	6.12	11,106.03	-745.18	-210.65	-658.53	10.19	9.99	69.18
11,241.00	20.86	356.78	11,192.81	-721.93	-210.78	-636.14	13.17	12.93	-10.38
11,330.00	29.73	351.89	11,273.20	-684.18	-214.80	-598.74	10.23	9.97	-5.49
11,420.00	37.59	351.98	11,348.06	-634.83	-221.79	-549.37	8.73	8.73	0.10
11,509.00	45.28	351.35	11,414.73	-576.60	-230.34	-491.04	8.65	8.64	-0.71
11,599.00	50.35	352.75	11,475.15	-510.57	-239.53	-425.03	5.75	5.63	1.56
11,688.00	57.80	353.24	11,527.33	-439.09	-248.30	-353.89	8.38	8.37	0.55
11,777.00	67.66	352.51	11,568.06	-360.69	-258.12	-275.81	11.10	11.08	-0.82
11,867.00	77.50	351.59	11,594.97	-275.75	-270.00	-190.88	10.98	10.93	-1.02
11,997.00	91.03	349.77	11,607.93	-148.41	-290.92	-62.70	10.50	10.41	-1.40
12,090.00	88.85	349.71	11,608.03	-56.91	-307.49	29.83	2.34	-2.34	-0.06
12,185.00	90.65	349.65	11,608.44	36.55	-324.50	124.37	1.90	1.89	-0.06
12,280.00	89.65	346.50	11,608.20	129.49	-344.13	219.12	3.48	-1.05	-3.32
12,374.00	89.36	346.84	11,609.01	220.95	-365.80	313.02	0.48	-0.31	0.36
12,468.00	90.04	346.44	11,609.50	312.41	-387.52	406.92	0.84	0.72	-0.43
12,563.00	90.08	343.11	11,609.40	404.06	-412.47	501.90	3.51	0.04	-3.51
12,658.00	90.44	342.34	11,608.97	494.77	-440.68	596.87	0.89	0.38	-0.81
12,753.00	89.82	342.24	11,608.75	585.27	-469.58	691.83	0.66	-0.65	-0.11
12,847.00	89.45	343.10	11,609.35	675.00	-497.58	785.80	1.00	-0.39	0.91
12,942.00	90.15	343.44	11,609.68	765.98	-524.92	880.79	0.82	0.74	0.36
13,037.00	88.73	343.26	11,610.61	856.99	-552.14	975.77	1.51	-1.49	-0.19
13,131.00	87.45	341.18	11,613.75	946.44	-580.83	1,069.67	2.60	-1.36	-2.21
13,226.00	87.68	341.42	11,617.78	1,036.34	-611.26	1,164.47	0.35	0.24	0.25
13,321.00	87.35	340.61	11,621.90	1,126.09	-642.13	1,259.25	0.92	-0.35	-0.85
13,415.00	87.05	342.69	11,626.49	1,215.20	-671.69	1,353.05	2.23	-0.32	2.21
13,510.00	89.76	344.20	11,629.14	1,306.21	-698.74	1,448.00	3.27	2.85	1.59
13,605.00	89.76	344.14	11,629.54	1,397.61	-724.66	1,543.00	0.06	0.00	-0.06
13,700.00	91.38	344.58	11,628.59	1,489.09	-750.27	1,637.99	1.77	1.71	0.46
13,795.00	91.32	344.72	11,626.35	1,580.67	-775.41	1,732.95	0.16	-0.06	0.15
13,889.00	90.65	347.81	11,624.74	1,671.96	-797.72	1,826.86	3.36	-0.71	3.29
13,984.00	89.67	347.73	11,624.47	1,764.80	-817.84	1,921.65	1.04	-1.03	-0.08
14,078.00	89.98	344.48	11,624.76	1,856.04	-840.41	2,015.58	3.47	0.33	-3.46



# Phoenix Technology Services LP

## Survey Report



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<b>Well:</b>	D 0904H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH / Job #60918	<b>Survey Calculation Method:</b>	Minimum Curvature
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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)
14,173.00	89.53	344.93	11,625.16	1,947.67	-865.47	2,110.57	0.67	-0.47	0.47
14,268.00	89.99	347.16	11,625.56	2,039.86	-888.38	2,205.51	2.40	0.48	2.35
14,363.00	90.05	349.65	11,625.53	2,132.91	-907.48	2,300.22	2.62	0.06	2.62
14,457.00	89.56	344.97	11,625.85	2,224.59	-928.12	2,394.04	5.01	-0.52	-4.98
14,551.00	88.18	341.14	11,627.70	2,314.48	-955.50	2,487.99	4.33	-1.47	-4.07
14,646.00	88.88	342.04	11,630.14	2,404.58	-985.50	2,582.87	1.20	0.74	0.95
14,740.00	87.98	341.93	11,632.72	2,493.94	-1,014.56	2,676.78	0.96	-0.96	-0.12
14,834.00	88.27	343.02	11,635.79	2,583.53	-1,042.84	2,770.69	1.20	0.31	1.16
14,929.00	87.96	343.84	11,638.92	2,674.53	-1,069.92	2,865.63	0.92	-0.33	0.86
15,023.00	87.22	344.00	11,642.87	2,764.77	-1,095.94	2,959.55	0.81	-0.79	0.17
15,117.00	89.17	344.10	11,645.83	2,855.11	-1,121.75	3,053.50	2.08	2.07	0.11
15,212.00	91.59	346.96	11,645.20	2,947.07	-1,145.49	3,148.44	3.94	2.55	3.01
15,306.00	88.32	342.30	11,645.27	3,037.67	-1,170.39	3,242.40	6.06	-3.48	-4.96
15,401.00	90.16	345.47	11,646.53	3,128.92	-1,196.75	3,337.38	3.86	1.94	3.34
15,495.00	89.44	351.76	11,646.86	3,221.02	-1,215.30	3,431.03	6.74	-0.77	6.69
15,590.00	89.78	357.15	11,647.51	3,315.54	-1,224.47	3,524.43	5.68	0.36	5.67
15,684.00	88.07	350.68	11,649.27	3,408.94	-1,234.43	3,616.96	7.12	-1.82	-6.88
15,778.00	90.82	346.87	11,650.19	3,501.11	-1,252.72	3,710.61	5.00	2.93	-4.05
15,872.00	89.33	343.31	11,650.06	3,591.93	-1,276.90	3,804.58	4.11	-1.59	-3.79
15,967.00	89.16	343.46	11,651.31	3,682.95	-1,304.07	3,899.57	0.24	-0.18	0.16
16,062.00	90.61	344.19	11,651.50	3,774.19	-1,330.53	3,994.56	1.71	1.53	0.77
16,157.00	90.95	344.29	11,650.21	3,865.61	-1,356.33	4,089.55	0.37	0.36	0.11
16,251.00	89.68	340.75	11,649.69	3,955.25	-1,384.56	4,183.50	4.00	-1.35	-3.77
16,346.00	88.85	340.41	11,650.91	4,044.84	-1,416.14	4,278.32	0.94	-0.87	-0.36
16,440.00	91.12	341.73	11,650.94	4,133.75	-1,446.64	4,372.18	2.79	2.41	1.40
16,535.00	91.53	341.10	11,648.74	4,223.77	-1,476.90	4,467.06	0.79	0.43	-0.66
16,629.00	91.96	341.01	11,645.88	4,312.64	-1,507.41	4,560.89	0.47	0.46	-0.10
16,723.00	91.82	341.66	11,642.78	4,401.64	-1,537.48	4,654.73	0.71	-0.15	0.69
16,818.00	89.62	340.65	11,641.58	4,491.54	-1,568.16	4,749.60	2.55	-2.32	-1.06
16,912.00	88.13	339.64	11,643.43	4,579.93	-1,600.08	4,843.36	1.91	-1.59	-1.07
17,007.00	86.64	339.46	11,647.76	4,668.85	-1,633.23	4,937.96	1.58	-1.57	-0.19
17,101.00	89.02	339.46	11,651.32	4,756.80	-1,666.19	5,031.59	2.53	2.53	0.00
17,196.00	89.46	341.25	11,652.58	4,846.26	-1,698.12	5,126.38	1.94	0.46	1.88
17,290.00	88.90	340.49	11,653.93	4,935.06	-1,728.92	5,220.23	1.00	-0.60	-0.81
17,384.00	91.25	341.19	11,653.81	5,023.84	-1,759.77	5,314.07	2.61	2.50	0.74
17,478.00	92.30	342.13	11,650.89	5,113.02	-1,789.33	5,407.94	1.50	1.12	1.00
17,573.00	90.69	341.31	11,648.42	5,203.20	-1,819.12	5,502.83	1.90	-1.69	-0.86
17,667.00	91.25	341.84	11,646.82	5,292.36	-1,848.83	5,596.73	0.82	0.60	0.56
17,762.00	88.42	340.82	11,647.10	5,382.35	-1,879.23	5,691.61	3.17	-2.98	-1.07
17,856.00	89.99	345.20	11,648.40	5,472.22	-1,906.69	5,785.56	4.95	1.67	4.66
17,951.00	91.47	344.62	11,647.19	5,563.93	-1,931.42	5,880.54	1.67	1.56	-0.61
18,045.00	91.81	345.99	11,644.50	5,654.82	-1,955.25	5,974.48	1.50	0.36	1.46
18,140.00	89.82	345.22	11,643.15	5,746.82	-1,978.87	6,069.43	2.25	-2.09	-0.81
18,235.00	91.79	346.18	11,641.82	5,838.86	-2,002.33	6,164.37	2.31	2.07	1.01



# Phoenix Technology Services LP

## Survey Report



<b>Company:</b>	SWEPI	<b>Local Co-ordinate Reference:</b>	Well D 0904H
<b>Project:</b>	Loving County, Texas (NAD27)	<b>TVD Reference:</b>	GL + KB @ 2799.10usft (Ensign 775)
<b>Site:</b>	University 19	<b>MD Reference:</b>	GL + KB @ 2799.10usft (Ensign 775)
<b>Well:</b>	D 0904H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH / Job #60918	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys (Ensign 775)	<b>Database:</b>	Compass 5000 GCR

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)
18,329.00	91.04	345.45	11,639.50	5,929.97	-2,025.36	6,258.29	1.11	-0.80	-0.78
18,424.00	90.98	345.77	11,637.82	6,021.97	-2,048.96	6,353.24	0.34	-0.06	0.34
18,532.00	88.72	344.70	11,638.10	6,126.40	-2,076.48	6,461.21	2.32	-2.09	-0.99
<b>Final Phoenix MWD Survey</b>									
18,580.00	88.72	344.70	11,639.18	6,172.68	-2,089.15	6,509.20	0.00	0.00	0.00
<b>Projection to TD</b>									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
247.00	246.99	1.38	0.96	First Phoenix MWD Survey
18,532.00	11,638.10	6,126.40	-2,076.48	Final Phoenix MWD Survey
18,580.00	11,639.18	6,172.68	-2,089.15	Projection to TD

# SURVEY DATA CERTIFICATION



**PHOENIX**  
TECHNOLOGY SERVICES

Job #: 60918  
 Client: SWEPI  
 County & State: Loving Cty, TX  
 Well: UNIVERSITY 19 D 0904H  
 API No: 42-301-33226  
 Proposed Direction: 344.04

## TIE-IN DATA

MD	TVD	INC	AZM	N/-S	E/-W	DATA SOURCE
		0	0	0	0	Spud
Data Source Company:						PHX

## SURVEY DATA

First Survey Date	First Survey Depth	INC	AZM
19-Jun-17	247 ft	0.78°	34.72°

Last Survey Date	Last Survey Depth	INC	AZM
9-Sep-17	18,532 ft	88.72°	344.70°

Survey Instrument Type
Phoenix Velocity

Projected TD Survey Date	Projected TD Survey Depth	INC	AZM
9-Sep-17	18,580 ft	88.72°	344.70°

## CORRECTION INFORMATION

Magnetic Declination Used	7.02 degrees
Grid Convergence Used	-1.59 degrees

Corrected to True/Grid North
Grid North

Total Correction	8.61 degrees
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TO THE BEST OF MY KNOWLEDGE, I  
 CERTIFY THIS SURVEY DATA TO BE TRUE  
 AND CORRECT.

Sean Burroughs 9/9/2017  
 Field Engineer Signature Date

Well Planner/Supervisor Date





SHELL WESTERN  
E&P

WELL LOCATION  
LEASE NAME & WELL NO.:  
**UNIVERSITY 19 D 0904H**

UNIT/LEASE ACREAGE:  
PW UNIT: 8588.11 ACRES, ALLOCATION UNIT: 320.48 ACRES (MEASURED)

TOTAL ACREAGE:  
8908.59 ACRES (MEASURED)

NEAREST TOWN IN COUNTY:  
±10.6 MILES SOUTHEAST OF MENTONE, TEXAS

DESCRIPTION:  
S/2 OF SECTION 3 & SECTION 9, BLOCK 19, UNIVERSITY LAND SURVEY  
LOVING COUNTY, TEXAS

NAD 27  
GRID BEARINGS  
SCALE: 1" = 1000'  
0' 500' 1000'

