



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

September 5, 2017

Attn: Pam Johns

Enclosed, please find the original and one copy of the surveys performed on the referenced well by Premier Directional Drilling, LLC (Operator No. 676020) supervised by Ralph Clarke. Other information required by your office is as follows:

JOB NUMBER	M17031	CUSTOMER	Shell Western E&P
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WELL NAME	University 19 PW Unit 1504H ST01	COUNTY & STATE	Loving County, Texas
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API WELL NUMBER	42-301-33171	PROPOSED DIRECTION	163.72
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TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLINATION	AZIMUTH	N-S	E-W	DATA SOURCE
0.00 ft	0.00 ft	0.00 ft	0.00 ft	0.00 ft	0.00 ft	(Surface)

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLINATION	AZIMUTH
2/2/2017	189 ft	0.48°	56.63°

SURVEY INSTRUMENT TYPE
Premier MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLINATION	AZIMUTH
3/29/2017	20,546 ft	89.91°	173.91°

TO THE BEST OF MY KNOWLEDGE I  
CERTIFY THIS SURVEY DATA TO BE  
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLINATION	AZIMUTH
3/29/2017	20,600 ft	89.91°	173.91°

Ryan Collins

Ryan Collins  
MWD Coordinator  
Premier Directional Drilling, LLC

TOTAL CORRECTION USED	8.75
DECLINATION OR GRID	GRID

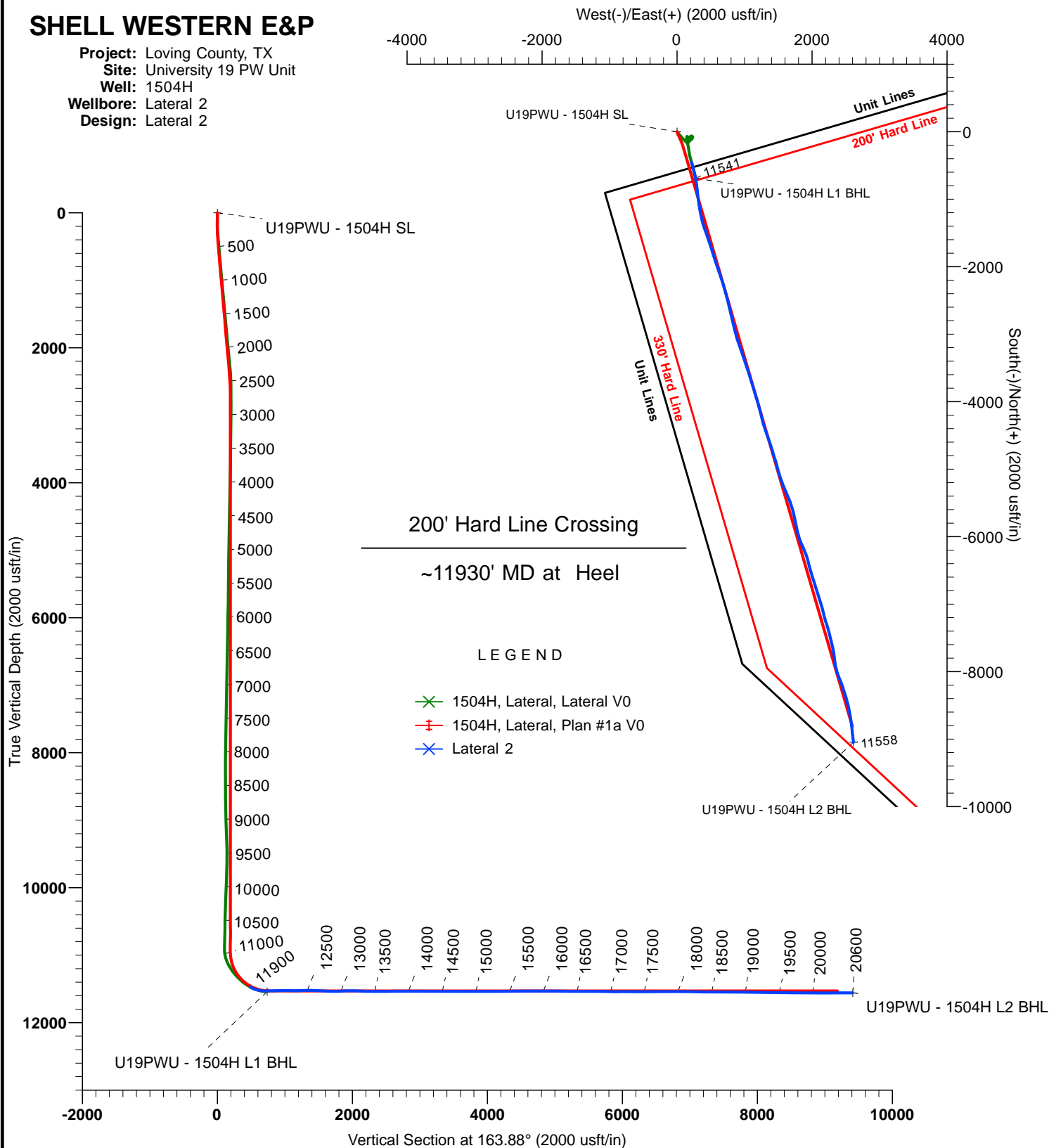
MWD SUPERVISOR 1	Charlie Mascagni	DIRECTIONAL DRILLER 1	Cory Alston
MWD SUPERVISOR 2	Jeff Brokaw	DIRECTIONAL DRILLER 2	Martin Farr

A certified plat on which the bottom-hole location is oriented to the surface location is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Enclosures (Surveys and Plat)

# SHELL WESTERN E&P

Project: Loving County, TX  
 Site: University 19 PW Unit  
 Well: 1504H  
 Wellbore: Lateral 2  
 Design: Lateral 2



## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
U19PWU - 1504H SL	0.00	0.00	0.00	750261.79	1035640.81	Point
U19PWU - 1504H L1 BHL	11540.65	-688.33	279.27	749573.46	1035920.08	Point
U19PWU - 1504H L2 BHL	11558.19	-9045.46	2614.57	741216.33	1038255.38	Point

Design: Lateral 2 (1504H/Lateral 2)

Created By: Bethany Johnson  
 Date: 9:23, March 31 2017

**PREMIER DIRECTIONAL DRILLING**  
 N Sam Houston Pwky E, Ste 300 Houston, TX 77060  
 Phone: 281-673-4000



# PDD

## Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral	<b>Database:</b>	EDM 5000.1 Multi-User

<b>Project</b>	Loving County, TX		
<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 PW Unit, Centered on 1503H		
<b>Site Position:</b>		<b>Northing:</b>	750,273.29 usft
<b>From:</b>	Map	<b>Easting:</b>	1,035,624.45 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	31° 41' 33.45 N
		<b>Longitude:</b>	103° 26' 3.26 W
		<b>Grid Convergence:</b>	-1.60 °

<b>Well</b>	1504H - Slot 1504H		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b> 750,261.79 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b> 1,035,640.81 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	31° 41' 33.34 N
		<b>Longitude:</b>	103° 26' 3.06 W
		<b>Ground Level:</b>	2,736.20 usft

<b>Wellbore</b>	Lateral				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	1/25/2017	7.15	59.52	47,642

<b>Design</b>	Lateral				
<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	163.72	

<b>Survey Program</b>	<b>Date</b>	3/31/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
189.00	11,846.00	Survey #1 (Lateral)	MWD+HRGM	OWSG MWD + HRGM	
11,900.00	11,900.00	Survey #2 (Lateral)	Projection	Projection to Bit	

<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 (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
189.00	0.48	56.63	189.00	0.44	0.66	-0.23	0.25	0.25	0.00	
313.00	5.29	137.48	312.82	-3.49	4.96	4.75	4.22	3.88	65.20	
500.00	6.03	137.89	498.90	-17.14	17.37	21.32	0.40	0.40	0.22	
625.00	6.07	140.55	623.21	-27.11	25.98	33.30	0.23	0.03	2.13	
813.00	5.63	140.52	810.23	-41.90	38.15	50.92	0.23	-0.23	-0.02	
996.00	5.05	145.15	992.44	-55.44	48.46	66.80	0.39	-0.32	2.53	
1,175.00	5.50	142.35	1,170.68	-68.70	58.21	82.26	0.29	0.25	-1.56	
1,354.00	5.53	139.86	1,348.85	-82.08	69.01	98.14	0.13	0.02	-1.39	
1,533.00	5.83	136.33	1,526.97	-95.25	80.84	114.10	0.26	0.17	-1.97	

# PDD

## Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral	<b>Database:</b>	EDM 5000.1 Multi-User

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,712.00	6.28	136.65	1,704.97	-108.95	93.84	130.89	0.25	0.25	0.18
1,890.00	6.65	132.87	1,881.84	-123.04	108.08	148.40	0.32	0.21	-2.12
2,069.00	6.53	132.55	2,059.66	-136.97	123.17	166.01	0.07	-0.07	-0.18
2,248.00	6.86	133.05	2,237.44	-151.15	138.48	183.91	0.19	0.18	0.28
2,427.00	3.16	131.01	2,415.72	-161.69	150.02	197.27	2.07	-2.07	-1.14
2,606.00	1.58	107.81	2,594.57	-165.69	156.10	202.80	1.02	-0.88	-12.96
2,785.00	1.67	102.77	2,773.49	-167.02	160.99	205.45	0.09	0.05	-2.82
2,964.00	0.97	327.60	2,952.47	-166.31	162.72	205.26	1.37	-0.39	-75.51
3,143.00	0.66	336.68	3,131.45	-164.09	161.50	202.78	0.19	-0.17	5.07
3,322.00	0.89	17.81	3,310.44	-161.82	161.52	200.61	0.33	0.13	22.98
3,501.00	1.84	41.40	3,489.39	-158.34	163.84	197.92	0.61	0.53	13.18
3,680.00	1.81	18.17	3,668.30	-153.50	166.63	194.05	0.41	-0.02	-12.98
3,859.00	2.47	55.10	3,847.18	-148.60	170.67	190.49	0.83	0.37	20.63
4,038.00	3.13	55.40	4,025.97	-143.62	177.86	187.72	0.37	0.37	0.17
4,217.00	2.47	49.93	4,204.75	-138.36	184.83	184.63	0.40	-0.37	-3.06
4,396.00	2.36	37.77	4,383.59	-132.97	190.04	180.91	0.29	-0.06	-6.79
4,575.00	1.97	49.14	4,562.47	-128.04	194.62	177.47	0.32	-0.22	6.35
4,774.00	2.30	55.65	4,761.33	-123.55	200.51	174.81	0.21	0.17	3.27
4,921.00	1.96	52.84	4,908.23	-120.37	204.95	172.99	0.24	-0.23	-1.91
5,100.00	1.67	49.49	5,087.14	-116.82	209.37	170.83	0.17	-0.16	-1.87
5,279.00	1.79	46.95	5,266.05	-113.22	213.40	168.50	0.08	0.07	-1.42
5,458.00	1.54	41.64	5,444.98	-109.52	217.04	165.97	0.16	-0.14	-2.97
5,637.00	1.52	37.30	5,623.91	-105.83	220.07	163.28	0.07	-0.01	-2.42
5,816.00	1.40	35.70	5,802.86	-102.17	222.79	160.52	0.07	-0.07	-0.89
5,995.00	1.34	33.31	5,981.81	-98.64	225.21	157.82	0.05	-0.03	-1.34
6,174.00	1.41	28.82	6,160.75	-94.96	227.42	154.91	0.07	0.04	-2.51
6,353.00	1.33	31.48	6,339.70	-91.26	229.57	151.96	0.06	-0.04	1.49
6,532.00	1.34	18.65	6,518.65	-87.51	231.32	148.84	0.17	0.01	-7.17
6,711.00	1.28	9.71	6,697.61	-83.55	232.33	145.33	0.12	-0.03	-4.99
6,890.00	1.17	1.09	6,876.57	-79.75	232.70	141.79	0.12	-0.06	-4.82
7,069.00	1.21	349.79	7,055.53	-76.07	232.40	138.17	0.13	0.02	-6.31
7,247.00	1.28	303.81	7,233.49	-73.11	230.42	134.77	0.55	0.04	-25.83
7,426.00	1.30	301.97	7,412.45	-70.92	227.03	131.72	0.03	0.01	-1.03
7,605.00	1.18	324.25	7,591.40	-68.35	224.24	128.47	0.28	-0.07	12.45
7,784.00	1.23	311.75	7,770.37	-65.58	221.72	125.10	0.15	0.03	-6.98
7,963.00	1.17	287.92	7,949.33	-63.74	218.55	122.45	0.28	-0.03	-13.31
8,142.00	1.28	264.39	8,128.29	-63.37	214.82	121.05	0.29	0.06	-13.15
8,321.00	1.80	258.47	8,307.22	-64.13	210.08	120.45	0.30	0.29	-3.31
8,500.00	1.79	244.05	8,486.14	-65.91	204.81	120.68	0.25	-0.01	-8.06
8,679.00	1.73	228.45	8,665.05	-68.93	200.28	122.31	0.27	-0.03	-8.72
8,858.00	1.97	230.07	8,843.96	-72.69	195.89	124.69	0.14	0.13	0.91
9,037.00	3.31	223.20	9,022.77	-78.44	190.00	128.55	0.77	0.75	-3.84
9,216.00	3.46	211.85	9,201.45	-86.79	183.61	134.78	0.38	0.08	-6.34

# PDD Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral	<b>Database:</b>	EDM 5000.1 Multi-User

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
9,395.00	3.08	215.44	9,380.16	-95.30	177.97	141.37	0.24	-0.21	2.01	
9,574.00	0.89	224.39	9,559.05	-100.21	174.21	145.03	1.23	-1.22	5.00	
9,753.00	2.88	350.26	9,737.98	-96.77	172.48	141.24	1.94	1.11	70.32	
9,932.00	3.21	313.64	9,916.74	-88.88	168.09	132.43	1.08	0.18	-20.46	
10,111.00	1.90	312.62	10,095.56	-83.41	162.28	125.56	0.73	-0.73	-0.57	
10,290.00	1.65	303.42	10,274.47	-79.98	157.94	121.05	0.21	-0.14	-5.14	
10,469.00	1.11	334.07	10,453.42	-77.00	155.03	117.38	0.50	-0.30	17.12	
10,649.00	1.42	311.81	10,633.38	-73.95	152.61	113.76	0.32	0.17	-12.37	
10,828.00	1.85	305.14	10,812.31	-70.81	148.59	109.62	0.26	0.24	-3.73	
10,923.00	1.64	293.51	10,907.26	-69.38	146.09	107.55	0.43	-0.22	-12.24	
11,013.00	10.24	183.99	10,996.80	-76.87	144.35	114.25	12.11	9.56	-121.69	
11,103.00	21.73	174.87	11,083.18	-101.53	145.29	138.19	13.03	12.77	-10.13	
11,192.00	30.09	167.13	11,163.19	-139.77	151.74	176.70	10.11	9.39	-8.70	
11,282.00	36.72	170.86	11,238.29	-188.39	161.05	225.98	7.71	7.37	4.14	
11,372.00	41.17	170.90	11,308.27	-244.23	170.02	282.10	4.94	4.94	0.04	
11,462.00	49.15	170.56	11,371.68	-307.16	180.30	345.39	8.87	8.87	-0.38	
11,551.00	55.00	166.13	11,426.37	-375.84	194.58	415.31	7.65	6.57	-4.98	
11,641.00	60.72	162.97	11,474.24	-449.23	214.93	491.47	7.02	6.36	-3.51	
11,730.00	70.54	164.84	11,510.92	-527.03	237.33	572.43	11.20	11.03	2.10	
11,819.00	80.67	167.07	11,533.02	-610.56	258.18	658.45	11.64	11.38	2.51	
11,846.00	84.30	165.31	11,536.55	-636.54	264.57	685.19	14.92	13.44	-6.52	
11,900.00	87.00	163.00	11,540.65	-688.33	279.27	739.02	6.57	5.00	-4.28	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
U19PWU - 1504H L1	0.00	360.00	11,540.65	-688.33	279.27	749,573.45	1,035,920.08	31° 41' 26.61 N	103° 25' 59.61 W	
- hit/miss target										
- Shape										
- actual wellpath hits target center										
- Point										

# PDD

## Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral 2	<b>Database:</b>	EDM 5000.1 Multi-User

<b>Project</b>	Loving County, TX		
<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 PW Unit, Centered on 1503H		
<b>Site Position:</b>		<b>Northing:</b>	750,273.29 usft
<b>From:</b>	Map	<b>Easting:</b>	1,035,624.45 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	31° 41' 33.45 N
		<b>Longitude:</b>	103° 26' 3.26 W
		<b>Grid Convergence:</b>	-1.60 °

<b>Well</b>	1504H - Slot 1504H		
<b>Well Position</b>	<b>+N-S</b>	0.00 usft	<b>Northing:</b> 750,261.79 usft
	<b>+E-W</b>	0.00 usft	<b>Easting:</b> 1,035,640.81 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	31° 41' 33.34 N
		<b>Longitude:</b>	103° 26' 3.06 W
		<b>Ground Level:</b>	2,736.20 usft

<b>Wellbore</b>	Lateral 2				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	3/20/2017	7.13	59.52	47,627

<b>Design</b>	Lateral 2				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	11,641.00
<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	163.72	

<b>Survey Program</b>	<b>Date</b>	3/31/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
189.00	11,641.00	Survey #1 (Lateral)	MWD+HRGM	OWSG MWD + HRGM	
11,836.00	20,546.00	Survey #1 (Lateral 2)	MWD+HRGM	OWSG MWD + HRGM	
20,600.00	20,600.00	Survey #2 (Lateral 2)	Projection	Projection to Bit	

<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 (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
189.00	0.48	56.63	189.00	0.44	0.66	-0.23	0.25	0.25	0.00	
313.00	5.29	137.48	312.82	-3.49	4.96	4.75	4.22	3.88	65.20	
500.00	6.03	137.89	498.90	-17.14	17.37	21.32	0.40	0.40	0.22	
625.00	6.07	140.55	623.21	-27.11	25.98	33.30	0.23	0.03	2.13	
813.00	5.63	140.52	810.23	-41.90	38.15	50.92	0.23	-0.23	-0.02	
996.00	5.05	145.15	992.44	-55.44	48.46	66.80	0.39	-0.32	2.53	
1,175.00	5.50	142.35	1,170.68	-68.70	58.21	82.26	0.29	0.25	-1.56	
1,354.00	5.53	139.86	1,348.85	-82.08	69.01	98.14	0.13	0.02	-1.39	

# PDD Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral 2	<b>Database:</b>	EDM 5000.1 Multi-User

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,533.00	5.83	136.33	1,526.97	-95.25	80.84	114.10	0.26	0.17	-1.97
1,712.00	6.28	136.65	1,704.97	-108.95	93.84	130.89	0.25	0.25	0.18
1,890.00	6.65	132.87	1,881.84	-123.04	108.08	148.40	0.32	0.21	-2.12
2,069.00	6.53	132.55	2,059.66	-136.97	123.17	166.01	0.07	-0.07	-0.18
2,248.00	6.86	133.05	2,237.44	-151.15	138.48	183.91	0.19	0.18	0.28
2,427.00	3.16	131.01	2,415.72	-161.69	150.02	197.27	2.07	-2.07	-1.14
2,606.00	1.58	107.81	2,594.57	-165.69	156.10	202.80	1.02	-0.88	-12.96
2,785.00	1.67	102.77	2,773.49	-167.02	160.99	205.45	0.09	0.05	-2.82
2,964.00	0.97	327.60	2,952.47	-166.31	162.72	205.26	1.37	-0.39	-75.51
3,143.00	0.66	336.68	3,131.45	-164.09	161.50	202.78	0.19	-0.17	5.07
3,322.00	0.89	17.81	3,310.44	-161.82	161.52	200.61	0.33	0.13	22.98
3,501.00	1.84	41.40	3,489.39	-158.34	163.84	197.92	0.61	0.53	13.18
3,680.00	1.81	18.17	3,668.30	-153.50	166.63	194.05	0.41	-0.02	-12.98
3,859.00	2.47	55.10	3,847.18	-148.60	170.67	190.49	0.83	0.37	20.63
4,038.00	3.13	55.40	4,025.97	-143.62	177.86	187.72	0.37	0.37	0.17
4,217.00	2.47	49.93	4,204.75	-138.36	184.83	184.63	0.40	-0.37	-3.06
4,396.00	2.36	37.77	4,383.59	-132.97	190.04	180.91	0.29	-0.06	-6.79
4,575.00	1.97	49.14	4,562.47	-128.04	194.62	177.47	0.32	-0.22	6.35
4,774.00	2.30	55.65	4,761.33	-123.55	200.51	174.81	0.21	0.17	3.27
4,921.00	1.96	52.84	4,908.23	-120.37	204.95	172.99	0.24	-0.23	-1.91
5,100.00	1.67	49.49	5,087.14	-116.82	209.37	170.83	0.17	-0.16	-1.87
5,279.00	1.79	46.95	5,266.05	-113.22	213.40	168.50	0.08	0.07	-1.42
5,458.00	1.54	41.64	5,444.98	-109.52	217.04	165.97	0.16	-0.14	-2.97
5,637.00	1.52	37.30	5,623.91	-105.83	220.07	163.28	0.07	-0.01	-2.42
5,816.00	1.40	35.70	5,802.86	-102.17	222.79	160.52	0.07	-0.07	-0.89
5,995.00	1.34	33.31	5,981.81	-98.64	225.21	157.82	0.05	-0.03	-1.34
6,174.00	1.41	28.82	6,160.75	-94.96	227.42	154.91	0.07	0.04	-2.51
6,353.00	1.33	31.48	6,339.70	-91.26	229.57	151.96	0.06	-0.04	1.49
6,532.00	1.34	18.65	6,518.65	-87.51	231.32	148.84	0.17	0.01	-7.17
6,711.00	1.28	9.71	6,697.61	-83.55	232.33	145.33	0.12	-0.03	-4.99
6,890.00	1.17	1.09	6,876.57	-79.75	232.70	141.79	0.12	-0.06	-4.82
7,069.00	1.21	349.79	7,055.53	-76.07	232.40	138.17	0.13	0.02	-6.31
7,247.00	1.28	303.81	7,233.49	-73.11	230.42	134.77	0.55	0.04	-25.83
7,426.00	1.30	301.97	7,412.45	-70.92	227.03	131.72	0.03	0.01	-1.03
7,605.00	1.18	324.25	7,591.40	-68.35	224.24	128.47	0.28	-0.07	12.45
7,784.00	1.23	311.75	7,770.37	-65.58	221.72	125.10	0.15	0.03	-6.98
7,963.00	1.17	287.92	7,949.33	-63.74	218.55	122.45	0.28	-0.03	-13.31
8,142.00	1.28	264.39	8,128.29	-63.37	214.82	121.05	0.29	0.06	-13.15
8,321.00	1.80	258.47	8,307.22	-64.13	210.08	120.45	0.30	0.29	-3.31
8,500.00	1.79	244.05	8,486.14	-65.91	204.81	120.68	0.25	-0.01	-8.06
8,679.00	1.73	228.45	8,665.05	-68.93	200.28	122.31	0.27	-0.03	-8.72
8,858.00	1.97	230.07	8,843.96	-72.69	195.89	124.69	0.14	0.13	0.91
9,037.00	3.31	223.20	9,022.77	-78.44	190.00	128.55	0.77	0.75	-3.84

# PDD

## Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral 2	<b>Database:</b>	EDM 5000.1 Multi-User

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,216.00	3.46	211.85	9,201.45	-86.79	183.61	134.78	0.38	0.08	-6.34
9,395.00	3.08	215.44	9,380.16	-95.30	177.97	141.37	0.24	-0.21	2.01
9,574.00	0.89	224.39	9,559.05	-100.21	174.21	145.03	1.23	-1.22	5.00
9,753.00	2.88	350.26	9,737.98	-96.77	172.48	141.24	1.94	1.11	70.32
9,932.00	3.21	313.64	9,916.74	-88.88	168.09	132.43	1.08	0.18	-20.46
10,111.00	1.90	312.62	10,095.56	-83.41	162.28	125.56	0.73	-0.73	-0.57
10,290.00	1.65	303.42	10,274.47	-79.98	157.94	121.05	0.21	-0.14	-5.14
10,469.00	1.11	334.07	10,453.42	-77.00	155.03	117.38	0.50	-0.30	17.12
10,649.00	1.42	311.81	10,633.38	-73.95	152.61	113.76	0.32	0.17	-12.37
10,828.00	1.85	305.14	10,812.31	-70.81	148.59	109.62	0.26	0.24	-3.73
10,923.00	1.64	293.51	10,907.26	-69.38	146.09	107.55	0.43	-0.22	-12.24
11,013.00	10.24	183.99	10,996.80	-76.87	144.35	114.25	12.11	9.56	-121.69
11,103.00	21.73	174.87	11,083.18	-101.53	145.29	138.19	13.03	12.77	-10.13
11,192.00	30.09	167.13	11,163.19	-139.77	151.74	176.70	10.11	9.39	-8.70
11,282.00	36.72	170.86	11,238.29	-188.39	161.05	225.98	7.71	7.37	4.14
11,372.00	41.17	170.90	11,308.27	-244.23	170.02	282.10	4.94	4.94	0.04
11,462.00	49.15	170.56	11,371.68	-307.16	180.30	345.39	8.87	8.87	-0.38
11,551.00	55.00	166.13	11,426.37	-375.84	194.58	415.31	7.65	6.57	-4.98
11,641.00	60.72	162.97	11,474.24	-449.23	214.93	491.47	7.02	6.36	-3.51
11,836.00	85.35	166.80	11,530.72	-627.97	262.78	676.46	12.77	12.63	1.96
11,874.00	91.70	170.62	11,531.70	-665.20	270.21	714.28	19.50	16.71	10.05
11,963.00	92.01	171.19	11,528.82	-753.03	284.27	802.53	0.73	0.35	0.64
12,053.00	91.17	172.37	11,526.32	-842.07	297.13	891.61	1.61	-0.93	1.31
12,143.00	90.07	173.77	11,525.35	-931.41	307.99	980.40	1.98	-1.22	1.56
12,233.00	89.41	173.11	11,525.76	-1,020.82	318.27	1,069.11	1.04	-0.73	-0.73
12,322.00	89.29	170.94	11,526.77	-1,108.94	330.62	1,157.16	2.44	-0.13	-2.44
12,412.00	92.29	168.64	11,525.53	-1,197.49	346.57	1,246.63	4.20	3.33	-2.56
12,502.00	90.50	166.94	11,523.33	-1,285.43	365.60	1,336.37	2.74	-1.99	-1.89
12,592.00	88.14	163.35	11,524.40	-1,372.39	388.66	1,426.32	4.77	-2.62	-3.99
12,681.00	87.29	160.61	11,527.95	-1,456.95	416.17	1,515.20	3.22	-0.96	-3.08
12,771.00	87.55	160.34	11,532.00	-1,541.69	446.22	1,604.96	0.42	0.29	-0.30
12,861.00	88.04	161.04	11,535.47	-1,626.56	475.96	1,694.77	0.95	0.54	0.78
12,951.00	92.18	162.30	11,535.29	-1,711.97	504.25	1,784.69	4.81	4.60	1.40
13,041.00	92.06	162.82	11,531.96	-1,797.78	531.21	1,874.61	0.59	-0.13	0.58
13,130.00	91.56	162.62	11,529.15	-1,882.72	557.63	1,963.55	0.61	-0.56	-0.22
13,220.00	88.00	160.32	11,529.50	-1,968.03	586.23	2,053.46	4.71	-3.96	-2.56
13,310.00	88.51	161.04	11,532.24	-2,052.92	615.99	2,143.29	0.98	0.57	0.80
13,400.00	88.15	161.32	11,534.86	-2,138.08	645.01	2,233.16	0.51	-0.40	0.31
13,490.00	89.64	162.35	11,536.60	-2,223.57	673.06	2,323.09	2.01	1.66	1.14
13,580.00	90.35	164.01	11,536.61	-2,309.72	699.10	2,413.09	2.01	0.79	1.84
13,669.00	90.33	165.20	11,536.08	-2,395.52	722.73	2,502.07	1.34	-0.02	1.34
13,759.00	90.86	165.26	11,535.14	-2,482.54	745.67	2,592.04	0.59	0.59	0.07
13,849.00	90.33	165.96	11,534.21	-2,569.71	768.04	2,681.98	0.98	-0.59	0.78



# PDD

## Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral 2	<b>Database:</b>	EDM 5000.1 Multi-User

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,939.00	90.36	166.49	11,533.67	-2,657.12	789.47	2,771.89	0.59	0.03	0.59
14,029.00	89.90	166.78	11,533.46	-2,744.68	810.27	2,861.78	0.60	-0.51	0.32
14,118.00	89.39	167.45	11,534.01	-2,831.44	830.12	2,950.62	0.95	-0.57	0.75
14,208.00	88.54	165.15	11,535.64	-2,918.86	851.43	3,040.50	2.72	-0.94	-2.56
14,298.00	91.29	166.19	11,535.77	-3,006.05	873.70	3,130.44	3.27	3.06	1.16
14,387.00	89.96	161.71	11,534.80	-3,091.55	898.30	3,219.41	5.25	-1.49	-5.03
14,477.00	88.20	159.23	11,536.25	-3,176.35	928.38	3,309.25	3.38	-1.96	-2.76
14,567.00	89.53	161.06	11,538.03	-3,260.98	958.94	3,399.05	2.51	1.48	2.03
14,657.00	90.72	161.33	11,537.83	-3,346.17	987.95	3,488.96	1.36	1.32	0.30
14,747.00	90.94	161.74	11,536.53	-3,431.53	1,016.45	3,578.88	0.52	0.24	0.46
14,836.00	90.45	162.05	11,535.45	-3,516.12	1,044.11	3,667.83	0.65	-0.55	0.35
14,926.00	89.25	162.18	11,535.69	-3,601.77	1,071.75	3,757.79	1.34	-1.33	0.14
15,016.00	89.89	163.26	11,536.36	-3,687.70	1,098.48	3,847.77	1.39	0.71	1.20
15,106.00	90.28	162.55	11,536.23	-3,773.72	1,124.93	3,937.76	0.90	0.43	-0.79
15,196.00	89.55	162.93	11,536.36	-3,859.67	1,151.64	4,027.75	0.91	-0.81	0.42
15,285.00	90.08	163.20	11,536.65	-3,944.81	1,177.56	4,116.74	0.67	0.60	0.30
15,375.00	90.27	164.28	11,536.37	-4,031.21	1,202.76	4,206.74	1.22	0.21	1.20
15,465.00	90.46	165.47	11,535.80	-4,118.09	1,226.24	4,296.72	1.34	0.21	1.32
15,555.00	90.96	165.90	11,534.68	-4,205.29	1,248.49	4,386.66	0.73	0.56	0.48
15,645.00	90.33	166.38	11,533.67	-4,292.66	1,270.05	4,476.57	0.88	-0.70	0.53
15,735.00	89.82	160.68	11,533.55	-4,378.93	1,295.56	4,566.54	6.36	-0.57	-6.33
15,824.00	90.43	160.44	11,533.36	-4,462.86	1,325.18	4,655.40	0.74	0.69	-0.27
15,914.00	90.32	161.31	11,532.77	-4,547.89	1,354.66	4,745.29	0.97	-0.12	0.97
16,004.00	90.05	161.73	11,532.48	-4,633.24	1,383.19	4,835.22	0.55	-0.30	0.47
16,094.00	89.44	162.52	11,532.88	-4,718.90	1,410.82	4,925.18	1.11	-0.68	0.88
16,184.00	89.36	162.55	11,533.82	-4,804.74	1,437.83	5,015.16	0.09	-0.09	0.03
16,273.00	88.94	162.75	11,535.14	-4,889.69	1,464.36	5,104.13	0.52	-0.47	0.22
16,363.00	90.19	164.46	11,535.83	-4,976.02	1,489.76	5,194.12	2.35	1.39	1.90
16,453.00	90.79	165.38	11,535.06	-5,062.91	1,513.18	5,284.10	1.22	0.67	1.02
16,543.00	88.98	160.95	11,535.24	-5,149.03	1,539.24	5,374.07	5.32	-2.01	-4.92
16,632.00	90.40	157.85	11,535.72	-5,232.33	1,570.54	5,462.80	3.83	1.60	-3.48
16,722.00	88.94	157.34	11,536.24	-5,315.53	1,604.85	5,552.28	1.72	-1.62	-0.57
16,812.00	88.86	155.67	11,537.97	-5,398.05	1,640.72	5,641.55	1.86	-0.09	-1.86
16,902.00	88.71	160.15	11,539.87	-5,481.40	1,674.55	5,731.05	4.98	-0.17	4.98
16,992.00	88.76	161.79	11,541.86	-5,566.46	1,703.89	5,820.92	1.82	0.06	1.82
17,082.00	90.27	165.97	11,542.62	-5,652.90	1,728.87	5,910.89	4.94	1.68	4.64
17,171.00	90.73	171.46	11,541.85	-5,740.14	1,746.28	5,999.52	6.19	0.52	6.17
17,261.00	90.30	166.12	11,541.04	-5,828.39	1,763.77	6,089.13	5.95	-0.48	-5.93
17,351.00	90.50	168.72	11,540.41	-5,916.22	1,783.37	6,178.93	2.90	0.22	2.89
17,441.00	89.53	161.85	11,540.38	-6,003.21	1,806.21	6,268.84	7.71	-1.08	-7.63
17,531.00	90.08	157.48	11,540.69	-6,087.58	1,837.48	6,358.59	4.89	0.61	-4.86
17,620.00	88.40	156.47	11,541.87	-6,169.48	1,872.29	6,446.97	2.20	-1.89	-1.13
17,710.00	89.58	158.11	11,543.46	-6,252.49	1,907.03	6,536.38	2.24	1.31	1.82
17,800.00	90.03	164.47	11,543.76	-6,337.69	1,935.88	6,626.25	7.08	0.50	7.07

# PDD Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral 2	<b>Database:</b>	EDM 5000.1 Multi-User

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,890.00	91.53	166.98	11,542.54	-6,424.89	1,958.07	6,716.18	3.25	1.67	2.79
17,980.00	91.67	163.46	11,540.03	-6,511.86	1,981.02	6,806.10	3.91	0.16	-3.91
18,069.00	90.23	162.65	11,538.55	-6,596.99	2,006.95	6,895.08	1.86	-1.62	-0.91
18,159.00	89.02	162.27	11,539.14	-6,682.80	2,034.07	6,985.05	1.41	-1.34	-0.42
18,249.00	88.19	162.11	11,541.33	-6,768.46	2,061.59	7,074.99	0.94	-0.92	-0.18
18,339.00	87.78	161.55	11,544.49	-6,853.92	2,089.64	7,164.89	0.77	-0.46	-0.62
18,428.00	90.74	164.23	11,545.64	-6,938.95	2,115.82	7,253.85	4.49	3.33	3.01
18,518.00	89.53	162.28	11,545.43	-7,025.13	2,141.74	7,343.84	2.55	-1.34	-2.17
18,608.00	88.64	167.17	11,546.87	-7,111.91	2,165.44	7,433.79	5.52	-0.99	5.43
18,698.00	90.18	165.63	11,547.80	-7,199.38	2,186.61	7,523.68	2.42	1.71	-1.71
18,787.00	89.14	160.43	11,548.33	-7,284.47	2,212.57	7,612.64	5.96	-1.17	-5.84
18,877.00	89.88	163.66	11,549.10	-7,370.07	2,240.31	7,702.59	3.68	0.82	3.59
18,967.00	90.14	167.54	11,549.08	-7,457.23	2,262.69	7,792.52	4.32	0.29	4.31
19,057.00	89.76	165.71	11,549.16	-7,544.79	2,283.51	7,882.40	2.08	-0.42	-2.03
19,147.00	88.28	165.98	11,550.70	-7,632.04	2,305.51	7,972.33	1.67	-1.64	0.30
19,236.00	89.65	172.10	11,552.31	-7,719.36	2,322.42	8,060.88	7.05	1.54	6.88
19,326.00	90.30	174.08	11,552.35	-7,808.70	2,333.25	8,149.68	2.32	0.72	2.20
19,416.00	88.51	168.98	11,553.28	-7,897.68	2,346.50	8,238.80	6.01	-1.99	-5.67
19,506.00	88.74	165.88	11,555.44	-7,985.49	2,366.08	8,328.58	3.45	0.26	-3.44
19,596.00	88.57	156.62	11,557.56	-8,070.59	2,394.97	8,418.37	10.29	-0.19	-10.29
19,685.00	88.78	159.81	11,559.62	-8,153.20	2,427.98	8,506.93	3.59	0.24	3.58
19,775.00	89.23	160.99	11,561.18	-8,237.97	2,458.17	8,596.76	1.40	0.50	1.31
19,865.00	90.03	163.13	11,561.76	-8,323.59	2,485.89	8,686.72	2.54	0.89	2.38
19,955.00	90.30	163.35	11,561.50	-8,409.77	2,511.84	8,776.71	0.39	0.30	0.24
20,045.00	90.01	166.31	11,561.26	-8,496.62	2,535.39	8,866.68	3.30	-0.32	3.29
20,135.00	89.80	169.72	11,561.41	-8,584.65	2,554.08	8,956.42	3.80	-0.23	3.79
20,225.00	90.54	169.95	11,561.14	-8,673.23	2,569.96	9,045.90	0.86	0.82	0.26
20,314.00	91.29	172.51	11,559.72	-8,761.17	2,583.53	9,134.12	3.00	0.84	2.88
20,404.00	89.62	174.71	11,559.00	-8,850.60	2,593.54	9,222.77	3.07	-1.86	2.44
20,494.00	91.00	173.21	11,558.52	-8,940.10	2,603.01	9,311.33	2.26	1.53	-1.67
20,546.00	89.91	173.91	11,558.10	-8,991.77	2,608.84	9,362.57	2.49	-2.10	1.35
20,600.00	89.91	173.91	11,558.19	-9,045.46	2,614.57	9,415.71	0.00	0.00	0.00

# PDD

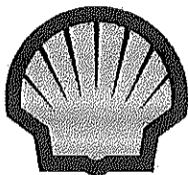
## Survey Report

<b>Company:</b>	SHELL WESTERN E&P	<b>Local Co-ordinate Reference:</b>	Well 1504H - Slot 1504H
<b>Project:</b>	Loving County, TX	<b>TVD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Site:</b>	University 19 PW Unit	<b>MD Reference:</b>	2736.1+21 @ 2761.20usft (Precision 563)
<b>Well:</b>	1504H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Lateral 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Lateral 2	<b>Database:</b>	EDM 5000.1 Multi-User

### Design 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)		
U19PWU - 1504H SL	0.00	360.00	0.00	0.00	0.00	750,261.79	1,035,640.81	31° 41' 33.34 N	103° 26' 3.06 W
- actual wellpath hits target center									
- Point									
U19PWU - 1504H BH	0.00	0.00	11,558.19	-9,045.46	2,614.57	741,216.33	1,038,255.38	31° 40' 4.57 N	103° 25' 29.91 W
- actual wellpath hits target center									
- Point									



# SHELL WESTERN E&P

## WELL LOCATION

LEASE NAME & WELL NO.:

UNIVERSITY 19 PW UNIT 1504H

UNIT/LEASE ACREAGE:

8588.11 ACRES

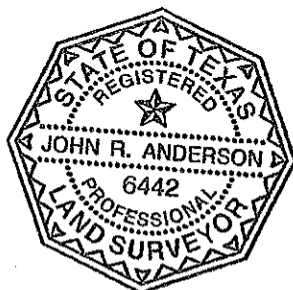
NEAREST TOWN IN COUNTY:

±9.7 MILES SOUTHEAST OF MENTONE, TEXAS

DESCRIPTION:

SECTIONS 15 & 17, BLOCK 19, UNIVERSITY LAND SURVEY  
LOVING COUNTY, TEXAS

This location and/or unit/lease boundary has been carefully surveyed on the ground under my supervision and is true and correct to the best of my knowledge according to the evidence, official survey records, maps, and other data provided by Shell Western E&P. This plat was created for the sole purpose of filing a permit with the Railroad Commission of Texas and should not be construed as a "Boundary Survey" in compliance with T.B.P.L.S. Minimum Standards of Procedures for Boundary Surveys. This certification is made and limited to those persons or entities shown on the face of this plat is non-transferable. This Survey is Certified for this transaction only.  
Survey date of October 26, 2016.



*John R. Anderson* 1/10/17  
John R. Anderson, R.P.L.S. No. 6442

I, John R. Anderson, a Registered Professional Land Surveyor, and an authorized agent of Topographic Land Surveyors, do hereby certify that the above described well location was surveyed on the ground as shown herein.  
This plat is for Texas Railroad Commission permitting only.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE OF THE NORTH AMERICAN DATUM 1927, U.S. SURVEY FEET

ALL ELEVATION VALUES CONTAINED HEREON ARE ORTHOMETRIC ONLY, BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), U.S. SURVEY FEET.

ALL INSTRUMENTS, PREPOST DRILLING DATA, PREPOST COMPLETION DATA, HARD LINE INFORMATION, LEASE INFORMATION, AND ANY PERTINENT INFORMATION USED IN THE PREPARATION OF THIS MAP WAS PROVIDED BY SHELL WESTERN E&P OR ITS SUBSIDIARIES & AFFILIATES.

ORIGINAL DOC. SIZE: 8.5"x14"



1400 EVERMAN PARKWAY, Ste. 197 • FT. WORTH, TEXAS 76140  
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548  
TEXAS FIRM REGISTRATION NO. 10042504  
WWW.TOPOGRAPHIC.COM

DATE:	11/22/2016
DRAWN BY:	O.M.
LO UNIVERSITY 19 PW UNIT 1504H OPT 1 REV2	
SHEET:	1 OF 1

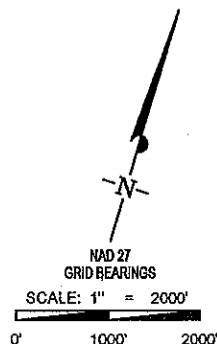
REV#	BY	DATE REVISED
O.M.		12/18/2016
O.M.		01/10/2017

TIES TABLE

POINT	UNIT	SURVEY/SECTION
S.H.L.	570' FNWL	1279' FSWL &
	1400' FWC	570' FSEL
P.P.	377' FNWL	1304' FSWL &
	1357' FWC	377' FSEL
F.T.P.	200' FNWL	200' FNWL &
	1304' FSWL	1304' FSWL
L.T.P./B.H.L.	429' FSWL	3329' FNWL &
	8616' FNWL	429' FSWL

### LEGEND:

	Unit Boundary
	Survey/Section line
	Proposed Well Path
	Existing/Permitted Well Path
	Mineral Tract Boundary
	Monument Found
	Calculated Corner
	Well Point



GREAT WESTERN DRILLING, LTD.  
(80.11 ACRES)

PENETRATION POINT (P.P.)  
X=1035719.01  
Y=750083.42  
LAT.: N 31°41'31.60"  
LONG.: W 103°26'02.10"

SURFACE HOLE LOCATION (S.H.L.)  
ELEV = 2736.1  
X=1035640.81  
Y=750261.79  
LAT.: N 31°41'33.34"  
LONG.: W 103°26'03.06"

UNIVERSITY LANDS  
(40.06 ACRES)

FIRST TAKE POINT (F.T.P.)  
X=1035880.73  
Y=749529.55  
LAT.: N 31°41'26.16"  
LONG.: W 103°26'00.05"

LAST TAKE POINT/  
BOTTOM HOLE LOCATION  
(L.T.P./B.H.L.)  
X=1038239.57  
Y=741450.88  
LAT.: N 31°40'06.89"  
LONG.: W 103°25'30.16"

BLOCK 1  
W & N. W. RR. CO. SURVEY

MRS. M. J. H. HERRING  
SURVEY

