

# **PERMIAN**

**LOVING - TEXAS CENTRAL (NAD27)**

**BLK 19 SEC 10**

**UNIVERSITY 19-10 LOV 1D**

**4230132766**

**UNIVERSITY 19-10 LOV 1D**

**Design: UNIVERSITY 19-10 LOV 1D**

## **Standard Survey Report**

**17 May, 2016**



# Shell

## Survey Report



<b>Company:</b>	PERMIAN	<b>Local Co-ordinate Reference:</b>	Site BLK 19 SEC 10
<b>Project:</b>	LOVING - TEXAS CENTRAL (NAD27)	<b>TVD Reference:</b>	DFE @ 2850.80ft (Ensign 776)
<b>Site:</b>	BLK 19 SEC 10	<b>MD Reference:</b>	DFE @ 2850.80ft (Ensign 776)
<b>Well:</b>	UNIVERSITY 19-10 LOV 1D	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	UNIVERSITY 19-10 LOV 1D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	UNIVERSITY 19-10 LOV 1D	<b>Database:</b>	EDM_UA_PRODUCTION

<b>Project</b>	LOVING - TEXAS CENTRAL (NAD27), PERMIAN BASIN		
<b>Map System:</b>	UA US NAD27 (US ft)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD27 (ConUS Nadcon) [1241_4267]		
<b>Map Zone:</b>	NAD27 / Texas Central [1241_32039]		

<b>Site</b>	BLK 19 SEC 10		
<b>Site Position:</b>		<b>Northing:</b>	755,108.15 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,048,913.05 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	31° 42' 24.920 N
		<b>Longitude:</b>	103° 23' 31.050 W
		<b>Grid Convergence:</b>	-1.58 °

<b>Well</b>	UNIVERSITY 19-10 LOV 1D, Development		
<b>Well Position</b>	<b>+N-S</b>	0.00 ft	<b>Latitude:</b> 31° 42' 24.920 N
	<b>+E-W</b>	0.00 ft	<b>Longitude:</b> 103° 23' 31.050 W
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	ft
		<b>Ground Level:</b>	2,820.80 ft

<b>Wellbore</b>	UNIVERSITY 19-10 LOV 1D				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	04/12/2016	7.06	59.60	47,770

<b>Design</b>	UNIVERSITY 19-10 LOV 1D				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N-S (ft)</b>	<b>+E-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00		0.00

<b>Survey Program</b>	<b>Date</b>	05/17/2016			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
30.00	8,529.00	BAKER MWD - UNIVERSITY 19-10 LOV 1	EPW MWD	MWD-Standard Rev. 2-provided by Mike Cauley	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N-S (ft)</b>	<b>+E-W (ft)</b>	<b>Vertical Section (ft)</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
30.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00
491.00	0.57	189.91	490.99	-2.26	-0.39	-2.26	0.12	0.12	0.00
986.00	0.96	221.30	985.95	-7.80	-3.56	-7.80	0.11	0.08	6.34
1,102.00	0.81	232.61	1,101.94	-9.03	-4.85	-9.03	0.20	-0.13	9.75
1,378.00	0.60	254.02	1,377.92	-10.61	-7.79	-10.61	0.12	-0.08	7.76
1,851.00	0.49	48.16	1,850.91	-9.94	-8.66	-9.94	0.22	-0.02	32.59
2,324.00	1.84	40.22	2,323.80	-2.79	-2.25	-2.79	0.29	0.29	-1.68
2,796.00	3.23	42.47	2,795.33	12.80	11.62	12.80	0.30	0.29	0.48
3,268.00	3.23	42.45	3,266.58	32.42	29.57	32.42	0.00	0.00	0.00

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<b>Wellbore:</b>	UNIVERSITY 19-10 LOV 1D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	UNIVERSITY 19-10 LOV 1D	<b>Database:</b>	EDM_UA_PRODUCTION

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,457.00	3.12	50.07	3,455.29	39.65	37.11	39.65	0.23	-0.06	4.03
3,740.00	3.88	57.45	3,737.76	49.75	51.09	49.75	0.31	0.27	2.61
4,211.00	5.27	67.81	4,207.25	66.49	84.55	66.49	0.34	0.30	2.20
4,684.00	3.94	70.62	4,678.72	80.09	120.00	80.09	0.29	-0.28	0.59
4,778.00	4.35	74.26	4,772.47	82.13	126.47	82.13	0.52	0.44	3.87
4,873.00	4.82	78.21	4,867.17	83.92	133.85	83.92	0.60	0.49	4.16
4,943.00	4.42	76.97	4,936.94	85.13	139.36	85.13	0.59	-0.57	-1.77
5,054.00	3.01	83.33	5,047.70	86.43	146.42	86.43	1.32	-1.27	5.73
5,527.00	2.72	73.35	5,520.11	91.09	169.51	91.09	0.12	-0.06	-2.11
6,000.00	2.05	69.25	5,992.70	97.30	188.17	97.30	0.15	-0.14	-0.87
6,471.00	1.25	55.37	6,463.51	103.21	200.28	103.21	0.19	-0.17	-2.95
6,944.00	0.34	40.64	6,936.46	107.20	205.43	107.20	0.20	-0.19	-3.11
7,416.00	1.06	224.82	7,408.43	105.17	203.27	105.17	0.30	0.15	-37.25
7,889.00	1.76	148.14	7,881.32	95.90	204.02	95.90	0.39	0.15	-16.21
8,362.00	0.71	134.88	8,354.21	87.66	209.93	87.66	0.23	-0.22	-2.80
8,463.00	0.36	184.91	8,455.20	86.90	210.35	86.90	0.55	-0.35	49.53
8,529.00	0.36	184.91	8,521.20	86.49	210.31	86.49	0.00	0.00	0.00

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
150.00	150.00	Conductor - run	20.000	30.000
1,163.00	1,162.93	Surface Casing	9.625	12.250
5,000.00	4,993.80	Intermediate Casing	7.000	12.250
8,495.00	8,487.20	Production Liner	4.500	6.125

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,529.00	8,521.20	86.49	210.31	PROJ TO 8529' MD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_