



QEP ENERGY (TX)

**Texas North Central
Martin County
UL 0312 E18 09SB**

Original Hole

Survey: UL 0312 E18 09SB NN Svys

Standard Survey Report

04 September, 2019



Company:	QEP ENERGY (TX)	Local Co-ordinate Reference:	Well UL 0312 E18 09SB
Project:	Texas North Central	TVD Reference:	RKB @ 2956.00ft(UNIT 410)
Site:	Martin County	MD Reference:	RKB @ 2956.00ft(UNIT 410)
Well:	UL 0312 E18 09SB	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Compass DB

Project	Texas North Central		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas North Central 4202		

Site	Martin County				
Site Position:		Northing:	263,112.750 usft	Latitude:	32.301342
From:	Map	Easting:	554,202.580 usft	Longitude:	-102.180632
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	-2.55 °

Well	UL 0312 E18 09SB					
Well Position	+N/-S	0.00 ft	Northing:	303,145.120 usft	Latitude:	32.410627
	+E/-W	0.00 ft	Easting:	548,924.020 usft	Longitude:	-102.203497
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	2,935.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	7/1/2019	6.13	60.09	47,744

Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	9,421.02	0.00	0.00	346.30	

Survey Program	Date	9/4/2019			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
90.00	1,775.00	UL 0312 E18 09SB Svys (Original Hole)	MWD+HRGM	OWSG MWD + HRGM	
1,918.00	19,614.00	UL 0312 E18 09SB NN Svys (Original Hole)	MWD+HRGM	OWSG MWD + HRGM	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,775.00	2.24	203.75	1,773.40	-58.22	-29.97	-49.47	0.00	0.00	0.00	
1,918.00	2.04	209.81	1,916.30	-62.99	-32.37	-53.53	0.21	-0.14	4.24	
2,012.00	3.21	212.43	2,010.20	-66.66	-34.61	-56.57	1.25	1.24	2.79	
2,106.00	4.28	214.98	2,103.99	-71.76	-38.03	-60.71	1.15	1.14	2.71	
2,202.00	4.07	216.21	2,199.74	-77.44	-42.10	-65.27	0.24	-0.22	1.28	
2,296.00	3.70	217.74	2,293.52	-82.53	-45.92	-69.31	0.41	-0.39	1.63	
2,391.00	4.44	215.03	2,388.28	-87.96	-49.91	-73.64	0.80	0.78	-2.85	
2,486.00	4.61	219.17	2,482.99	-93.94	-54.43	-78.37	0.39	0.18	4.36	
2,579.00	4.20	217.18	2,575.71	-99.55	-58.85	-82.78	0.47	-0.44	-2.14	
2,674.00	4.06	218.04	2,670.47	-104.97	-63.03	-87.06	0.16	-0.15	0.91	

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Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,769.00	3.94	217.32	2,765.23	-110.21	-67.08	-91.19	0.14	-0.13	-0.76
2,864.00	3.68	220.80	2,860.02	-115.11	-71.05	-95.02	0.37	-0.27	3.66
2,959.00	3.90	214.14	2,954.82	-120.10	-74.85	-98.96	0.52	0.23	-7.01
3,053.00	3.88	210.50	3,048.60	-125.48	-78.26	-103.38	0.26	-0.02	-3.87
3,148.00	4.36	206.43	3,143.35	-131.49	-81.50	-108.45	0.59	0.51	-4.28
3,243.00	4.12	207.85	3,238.09	-137.74	-84.70	-113.76	0.28	-0.25	1.49
3,337.00	3.56	204.10	3,331.88	-143.39	-87.47	-118.60	0.65	-0.60	-3.99
3,433.00	4.17	201.39	3,427.66	-149.36	-89.96	-123.81	0.66	0.64	-2.82
3,528.00	4.69	208.64	3,522.38	-155.98	-93.08	-129.51	0.80	0.55	7.63
3,622.00	4.84	212.18	3,616.06	-162.71	-97.04	-135.11	0.35	0.16	3.77
3,717.00	5.53	210.80	3,710.67	-170.03	-101.52	-141.16	0.74	0.73	-1.45
3,811.00	5.26	210.77	3,804.25	-177.63	-106.04	-147.47	0.29	-0.29	-0.03
3,906.00	5.05	218.54	3,898.87	-184.64	-110.87	-153.14	0.77	-0.22	8.18
4,001.00	4.70	218.29	3,993.52	-190.96	-115.89	-158.09	0.37	-0.37	-0.26
4,096.00	4.19	219.06	4,088.24	-196.71	-120.49	-162.59	0.54	-0.54	0.81
4,190.00	3.95	217.10	4,182.00	-201.96	-124.60	-166.72	0.30	-0.26	-2.09
4,284.00	3.61	217.92	4,275.80	-206.88	-128.38	-170.60	0.37	-0.36	0.87
4,379.00	3.21	210.93	4,370.63	-211.52	-131.58	-174.35	0.61	-0.42	-7.36
4,474.00	3.92	211.87	4,465.44	-216.56	-134.66	-178.52	0.75	0.75	0.99
4,567.00	4.27	215.76	4,558.21	-222.07	-138.36	-182.99	0.48	0.38	4.18
4,662.00	3.78	214.57	4,652.97	-227.52	-142.21	-187.38	0.52	-0.52	-1.25
4,757.00	3.50	214.49	4,747.78	-232.49	-145.63	-191.39	0.29	-0.29	-0.08
4,851.00	3.24	213.84	4,841.62	-237.06	-148.73	-195.10	0.28	-0.28	-0.69
4,946.00	3.05	214.58	4,936.47	-241.37	-151.66	-198.59	0.20	-0.20	0.78
5,041.00	3.52	216.67	5,031.32	-245.79	-154.84	-202.14	0.51	0.49	2.20
5,135.00	4.33	222.11	5,125.10	-250.74	-158.94	-205.97	0.95	0.86	5.79
5,230.00	4.39	224.31	5,219.82	-256.00	-163.88	-209.91	0.19	0.06	2.32
5,325.00	4.03	228.20	5,314.57	-260.83	-168.91	-213.41	0.48	-0.38	4.09
5,420.00	3.61	229.75	5,409.35	-264.98	-173.68	-216.32	0.46	-0.44	1.63
5,516.00	2.96	230.86	5,505.20	-268.50	-177.91	-218.74	0.68	-0.68	1.16
5,611.00	2.46	210.63	5,600.09	-271.80	-180.85	-221.25	1.13	-0.53	-21.29
5,706.00	2.29	205.41	5,695.01	-275.27	-182.71	-224.18	0.29	-0.18	-5.49
5,802.00	2.00	201.94	5,790.94	-278.56	-184.16	-227.03	0.33	-0.30	-3.61
5,958.00	1.86	198.65	5,946.85	-283.48	-185.98	-231.38	0.11	-0.09	-2.11
6,053.00	1.55	209.10	6,041.81	-286.06	-187.10	-233.63	0.46	-0.33	11.00
6,149.00	1.41	222.50	6,137.78	-288.07	-188.53	-235.24	0.39	-0.15	13.96
6,244.00	1.16	236.24	6,232.76	-289.47	-190.12	-236.22	0.42	-0.26	14.46
6,338.00	0.69	212.64	6,326.75	-290.47	-191.22	-236.93	0.63	-0.50	-25.11
6,433.00	0.60	198.48	6,421.74	-291.43	-191.68	-237.75	0.19	-0.09	-14.91
6,528.00	0.15	82.82	6,516.74	-291.88	-191.72	-238.19	0.71	-0.47	-121.75
6,622.00	0.34	37.05	6,610.74	-291.64	-191.43	-238.02	0.28	0.20	-48.69
6,718.00	0.45	62.05	6,706.73	-291.24	-190.92	-237.75	0.21	0.11	26.04
6,812.00	0.54	48.18	6,800.73	-290.77	-190.27	-237.45	0.16	0.10	-14.76

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Survey										
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6,907.00	0.46	62.93	6,895.73	-290.30	-189.59	-237.15	0.16	-0.08	15.53	
7,002.00	0.68	31.57	6,990.72	-289.65	-188.96	-236.67	0.39	0.23	-33.01	
7,097.00	0.70	45.43	7,085.72	-288.76	-188.25	-235.97	0.18	0.02	14.59	
7,192.00	0.94	70.28	7,180.71	-288.09	-187.10	-235.59	0.45	0.25	26.16	
7,287.00	0.97	61.32	7,275.69	-287.44	-185.66	-235.30	0.16	0.03	-9.43	
7,381.00	2.21	88.12	7,369.66	-287.00	-183.15	-235.47	1.50	1.32	28.51	
7,476.00	2.73	97.90	7,464.57	-287.25	-179.08	-236.68	0.70	0.55	10.29	
7,569.00	1.62	109.00	7,557.50	-287.98	-175.64	-238.20	1.27	-1.19	11.94	
7,664.00	0.64	122.13	7,652.48	-288.70	-173.93	-239.31	1.06	-1.03	13.82	
7,759.00	0.36	269.16	7,747.48	-288.99	-173.77	-239.62	1.01	-0.29	154.77	
7,854.00	0.39	318.57	7,842.48	-288.75	-174.29	-239.27	0.33	0.03	52.01	
7,949.00	0.45	58.38	7,937.48	-288.31	-174.18	-238.87	0.68	0.06	105.06	
8,043.00	1.04	83.52	8,031.47	-288.02	-173.02	-238.86	0.70	0.63	26.74	
8,138.00	0.51	188.83	8,126.46	-288.34	-172.23	-239.36	1.34	-0.56	110.85	
8,232.00	0.77	271.92	8,220.46	-288.73	-172.93	-239.58	0.93	0.28	88.39	
8,327.00	1.60	279.20	8,315.44	-288.50	-174.87	-238.89	0.89	0.87	7.66	
8,422.00	1.20	281.35	8,410.41	-288.09	-177.16	-237.95	0.42	-0.42	2.26	
8,517.00	1.29	282.80	8,505.39	-287.66	-179.17	-237.05	0.10	0.09	1.53	
8,613.00	0.75	270.50	8,601.37	-287.41	-180.86	-236.42	0.60	-0.56	-12.81	
8,708.00	0.48	251.13	8,696.36	-287.54	-181.86	-236.30	0.35	-0.28	-20.39	
8,730.00	0.50	243.68	8,718.36	-287.61	-182.03	-236.33	0.30	0.09	-33.86	
8,780.00	0.63	327.35	8,768.36	-287.48	-182.37	-236.12	1.52	0.26	167.34	
8,811.00	3.85	3.51	8,799.33	-286.29	-182.40	-234.96	10.84	10.39	116.65	
8,843.00	7.87	3.08	8,831.16	-283.03	-182.22	-231.84	12.56	12.56	-1.34	
8,874.00	11.44	1.26	8,861.72	-277.84	-182.04	-226.83	11.56	11.52	-5.87	
8,906.00	14.85	358.27	8,892.87	-270.56	-182.09	-219.75	10.86	10.66	-9.34	
8,938.00	17.78	352.44	8,923.58	-261.62	-182.86	-210.88	10.48	9.16	-18.22	
8,970.00	20.74	350.20	8,953.79	-251.19	-184.46	-200.37	9.53	9.25	-7.00	
9,002.00	24.10	350.41	8,983.37	-239.16	-186.52	-188.19	10.50	10.50	0.66	
9,033.00	26.86	348.99	9,011.35	-226.04	-188.91	-174.88	9.12	8.90	-4.58	
9,065.00	30.07	347.65	9,039.48	-211.11	-192.01	-159.64	10.23	10.03	-4.19	
9,096.00	32.55	346.22	9,065.96	-195.42	-195.65	-143.54	8.35	8.00	-4.61	
9,128.00	36.06	348.50	9,092.39	-177.83	-199.58	-125.51	11.68	10.97	7.13	
9,159.00	39.27	350.67	9,116.93	-159.20	-202.99	-106.61	11.20	10.35	7.00	
9,191.00	42.52	350.24	9,141.12	-138.54	-206.47	-85.71	10.19	10.16	-1.34	
9,222.00	46.41	349.50	9,163.24	-117.17	-210.29	-64.05	12.66	12.55	-2.39	
9,254.00	49.79	349.56	9,184.60	-93.75	-214.62	-40.27	10.56	10.56	0.19	
9,285.00	52.67	349.69	9,204.01	-69.98	-218.97	-16.14	9.30	9.29	0.42	
9,317.00	55.74	348.60	9,222.73	-44.50	-223.86	9.78	9.98	9.59	-3.41	
9,348.00	59.44	347.85	9,239.34	-18.88	-229.21	35.93	12.11	11.94	-2.42	
9,380.00	62.80	347.16	9,254.79	8.47	-235.27	63.94	10.67	10.50	-2.16	
9,411.00	65.65	347.23	9,268.27	35.69	-241.46	91.85	9.20	9.19	0.23	
9,443.00	68.33	347.99	9,280.78	64.46	-247.78	121.29	8.66	8.38	2.38	

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Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,475.00	71.08	349.54	9,291.88	93.89	-253.62	151.27	9.72	8.59	4.84	
9,507.00	73.22	349.18	9,301.69	123.83	-259.24	181.69	6.77	6.69	-1.13	
9,538.00	74.94	349.39	9,310.19	153.12	-264.78	211.46	5.59	5.55	0.68	
9,570.00	77.45	350.31	9,317.82	183.70	-270.26	242.47	8.33	7.84	2.88	
9,601.00	79.36	350.89	9,324.06	213.66	-275.22	272.75	6.43	6.16	1.87	
9,633.00	80.51	351.05	9,329.65	244.78	-280.16	304.15	3.63	3.59	0.50	
9,665.00	80.67	349.68	9,334.88	275.90	-285.45	335.64	4.25	0.50	-4.28	
9,696.00	81.57	347.94	9,339.67	305.94	-291.39	366.24	6.26	2.90	-5.61	
9,728.00	84.09	346.62	9,343.66	336.91	-298.38	397.98	8.87	7.88	-4.13	
9,759.00	86.64	345.53	9,346.16	366.90	-305.82	428.88	8.94	8.23	-3.52	
9,791.00	88.07	344.25	9,347.64	397.76	-314.15	460.83	5.99	4.47	-4.00	
9,823.00	89.33	344.30	9,348.37	428.55	-322.82	492.80	3.94	3.94	0.16	
9,854.00	89.75	344.42	9,348.62	458.40	-331.18	523.79	1.41	1.35	0.39	
9,936.00	90.01	343.71	9,348.79	537.25	-353.69	605.72	0.92	0.32	-0.87	
10,030.00	90.52	343.69	9,348.35	627.47	-380.07	699.62	0.54	0.54	-0.02	
10,125.00	90.83	344.46	9,347.23	718.82	-406.14	794.54	0.87	0.33	0.81	
10,221.00	90.70	346.17	9,345.95	811.67	-430.47	890.52	1.79	-0.14	1.78	
10,316.00	90.69	346.97	9,344.80	904.07	-452.53	985.51	0.84	-0.01	0.84	
10,411.00	90.49	347.30	9,343.82	996.68	-473.68	1,080.49	0.41	-0.21	0.35	
10,505.00	91.20	347.89	9,342.44	1,088.47	-493.87	1,174.46	0.98	0.76	0.63	
10,600.00	91.21	347.66	9,340.44	1,181.30	-513.99	1,269.41	0.24	0.01	-0.24	
10,695.00	90.97	347.46	9,338.63	1,274.05	-534.45	1,364.37	0.33	-0.25	-0.21	
10,790.00	91.70	346.88	9,336.42	1,366.65	-555.54	1,459.33	0.98	0.77	-0.61	
10,884.00	90.64	346.64	9,334.50	1,458.13	-577.06	1,553.30	1.16	-1.13	-0.26	
10,977.00	90.04	347.45	9,333.95	1,548.76	-597.91	1,646.29	1.08	-0.65	0.87	
11,072.00	90.83	347.74	9,333.22	1,641.54	-618.32	1,741.27	0.89	0.83	0.31	
11,163.00	91.06	348.24	9,331.72	1,730.54	-637.25	1,832.21	0.60	0.25	0.55	
11,255.00	90.43	349.36	9,330.53	1,820.77	-655.12	1,924.12	1.40	-0.68	1.22	
11,348.00	89.98	350.26	9,330.19	1,912.31	-671.57	2,016.94	1.08	-0.48	0.97	
11,440.00	89.84	349.51	9,330.34	2,002.87	-687.73	2,108.76	0.83	-0.15	-0.82	
11,532.00	89.83	348.83	9,330.60	2,093.24	-705.01	2,200.64	0.74	-0.01	-0.74	
11,624.00	89.82	349.44	9,330.89	2,183.59	-722.35	2,292.53	0.66	-0.01	0.66	
11,716.00	89.55	350.12	9,331.39	2,274.12	-738.68	2,384.36	0.80	-0.29	0.74	
11,810.00	89.68	347.81	9,332.02	2,366.38	-756.67	2,478.25	2.46	0.14	-2.46	
11,905.00	90.16	347.14	9,332.16	2,459.12	-777.27	2,573.23	0.87	0.51	-0.71	
11,999.00	90.58	347.51	9,331.55	2,550.82	-797.90	2,667.21	0.60	0.45	0.39	
12,094.00	90.93	347.29	9,330.30	2,643.53	-818.62	2,762.19	0.44	0.37	-0.23	
12,188.00	91.60	347.73	9,328.22	2,735.28	-838.94	2,856.14	0.85	0.71	0.47	
12,283.00	90.54	347.46	9,326.45	2,828.04	-859.35	2,951.10	1.15	-1.12	-0.28	
12,378.00	89.60	346.41	9,326.33	2,920.58	-880.82	3,046.09	1.48	-0.99	-1.11	
12,472.00	90.34	347.20	9,326.38	3,012.10	-902.28	3,140.09	1.15	0.79	0.84	
12,567.00	90.25	347.39	9,325.89	3,104.77	-923.17	3,235.07	0.22	-0.09	0.20	
12,662.00	90.36	347.07	9,325.39	3,197.42	-944.17	3,330.06	0.36	0.12	-0.34	
12,757.00	90.60	346.71	9,324.59	3,289.94	-965.72	3,425.05	0.46	0.25	-0.38	

Company:	QEP ENERGY (TX)	Local Co-ordinate Reference:	Well UL 0312 E18 09SB
Project:	Texas North Central	TVD Reference:	RKB @ 2956.01ft (UNIT 410)
Site:	Martin County	MD Reference:	RKB @ 2956.01ft (UNIT 410)
Well:	UL 0312 E18 09SB	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Compass DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,852.00	90.45	347.55	9,323.72	3,382.55	-986.87	3,520.03	0.90	-0.16	0.88
12,947.00	90.36	348.10	9,323.05	3,475.41	-1,006.91	3,615.00	0.59	-0.09	0.58
13,042.00	90.41	348.05	9,322.41	3,568.36	-1,026.54	3,709.95	0.07	0.05	-0.05
13,137.00	90.84	347.65	9,321.37	3,661.22	-1,046.53	3,804.91	0.62	0.45	-0.42
13,231.00	90.02	347.23	9,320.67	3,752.97	-1,066.97	3,898.89	0.98	-0.87	-0.45
13,326.00	90.06	347.84	9,320.60	3,845.73	-1,087.48	3,993.86	0.64	0.04	0.64
13,421.00	89.58	347.03	9,320.90	3,938.45	-1,108.14	4,088.84	0.99	-0.51	-0.85
13,516.00	89.48	348.12	9,321.68	4,031.22	-1,128.58	4,183.82	1.15	-0.11	1.15
13,611.00	89.05	348.86	9,322.90	4,124.30	-1,147.54	4,278.74	0.90	-0.45	0.78
13,705.00	89.66	348.77	9,323.96	4,216.51	-1,165.77	4,372.64	0.66	0.65	-0.10
13,800.00	89.52	348.60	9,324.64	4,309.66	-1,184.41	4,467.56	0.23	-0.15	-0.18
13,895.00	89.01	349.41	9,325.85	4,402.91	-1,202.53	4,562.44	1.01	-0.54	0.85
13,991.00	89.31	349.36	9,327.26	4,497.26	-1,220.21	4,658.29	0.32	0.31	-0.05
14,085.00	88.23	348.97	9,329.28	4,589.56	-1,237.88	4,752.15	1.22	-1.15	-0.41
14,180.00	89.23	348.60	9,331.38	4,682.72	-1,256.35	4,847.04	1.12	1.05	-0.39
14,272.00	89.62	349.06	9,332.31	4,772.97	-1,274.17	4,938.94	0.66	0.42	0.50
14,367.00	89.06	349.09	9,333.40	4,866.25	-1,292.17	5,033.83	0.59	-0.59	0.03
14,463.00	89.70	348.98	9,334.44	4,960.49	-1,310.43	5,129.71	0.68	0.67	-0.11
14,557.00	90.19	348.34	9,334.53	5,052.65	-1,328.91	5,223.63	0.86	0.52	-0.68
14,652.00	90.05	348.12	9,334.33	5,145.65	-1,348.29	5,318.58	0.27	-0.15	-0.23
14,747.00	89.81	348.67	9,334.45	5,238.71	-1,367.40	5,413.51	0.63	-0.25	0.58
14,842.00	89.89	348.37	9,334.70	5,331.81	-1,386.31	5,508.44	0.33	0.08	-0.32
14,936.00	89.20	348.15	9,335.44	5,423.84	-1,405.44	5,602.38	0.77	-0.73	-0.23
15,031.00	89.55	348.29	9,336.48	5,516.83	-1,424.83	5,697.32	0.40	0.37	0.15
15,126.00	90.49	348.11	9,336.45	5,609.82	-1,444.26	5,792.27	1.01	0.99	-0.19
15,220.00	90.76	346.94	9,335.42	5,701.60	-1,464.56	5,886.24	1.28	0.29	-1.24
15,315.00	90.69	346.11	9,334.22	5,793.97	-1,486.69	5,981.23	0.88	-0.07	-0.87
15,408.00	90.93	345.69	9,332.90	5,884.16	-1,509.35	6,074.22	0.52	0.26	-0.45
15,503.00	90.53	346.42	9,331.69	5,976.36	-1,532.24	6,169.21	0.88	-0.42	0.77
15,598.00	90.85	346.10	9,330.55	6,068.63	-1,554.80	6,264.20	0.48	0.34	-0.34
15,693.00	90.43	346.47	9,329.49	6,160.92	-1,577.33	6,359.20	0.59	-0.44	0.39
15,788.00	89.33	346.24	9,329.69	6,253.23	-1,599.74	6,454.20	1.18	-1.16	-0.24
15,883.00	90.84	345.83	9,329.55	6,345.42	-1,622.66	6,549.19	1.65	1.59	-0.43
15,977.00	90.30	346.39	9,328.61	6,436.67	-1,645.23	6,643.19	0.83	-0.57	0.60
16,072.00	90.42	347.47	9,328.02	6,529.20	-1,666.71	6,738.18	1.14	0.13	1.14
16,167.00	90.60	347.02	9,327.17	6,621.85	-1,687.68	6,833.16	0.51	0.19	-0.47
16,262.00	90.85	346.99	9,325.97	6,714.41	-1,709.04	6,928.15	0.27	0.26	-0.03
16,355.00	90.48	346.16	9,324.89	6,804.87	-1,730.63	7,021.14	0.98	-0.40	-0.89
16,450.00	90.22	346.72	9,324.31	6,897.22	-1,752.91	7,116.14	0.65	-0.27	0.59
16,545.00	90.53	347.26	9,323.69	6,989.77	-1,774.29	7,211.13	0.66	0.33	0.57
16,640.00	90.19	346.47	9,323.09	7,082.29	-1,795.88	7,306.12	0.91	-0.36	-0.83
16,734.00	89.76	346.53	9,323.13	7,173.69	-1,817.82	7,400.12	0.46	-0.46	0.06
16,829.00	89.87	347.05	9,323.44	7,266.17	-1,839.53	7,495.11	0.56	0.12	0.55

Company:	QEP ENERGY (TX)	Local Co-ordinate Reference:	Well UL 0312 E18 09SB
Project:	Texas North Central	TVD Reference:	RKB @ 2956.01ft (UNIT 410)
Site:	Martin County	MD Reference:	RKB @ 2956.01ft (UNIT 410)
Well:	UL 0312 E18 09SB	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Compass DB

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,924.00	89.47	348.64	9,323.98	7,359.04	-1,859.53	7,590.07	1.73	-0.42	1.67
17,019.00	90.20	348.43	9,324.26	7,452.14	-1,878.42	7,685.00	0.80	0.77	-0.22
17,114.00	88.29	349.07	9,325.51	7,545.31	-1,896.95	7,779.90	2.12	-2.01	0.67
17,208.00	88.78	350.19	9,327.91	7,637.74	-1,913.86	7,873.71	1.30	0.52	1.19
17,302.00	90.67	349.44	9,328.36	7,730.25	-1,930.48	7,967.53	2.16	2.01	-0.80
17,397.00	90.20	348.78	9,327.64	7,823.54	-1,948.43	8,062.41	0.85	-0.49	-0.69
17,491.00	90.14	348.47	9,327.36	7,915.69	-1,966.97	8,156.33	0.34	-0.06	-0.33
17,586.00	90.55	348.11	9,326.79	8,008.71	-1,986.25	8,251.27	0.57	0.43	-0.38
17,681.00	89.58	347.60	9,326.68	8,101.58	-2,006.24	8,346.24	1.15	-1.02	-0.54
17,776.00	89.99	347.90	9,327.04	8,194.42	-2,026.39	8,441.21	0.53	0.43	0.32
17,870.00	90.15	347.29	9,326.93	8,286.22	-2,046.59	8,535.18	0.67	0.17	-0.65
17,965.00	88.88	348.17	9,327.73	8,379.05	-2,066.78	8,630.15	1.63	-1.34	0.93
18,061.00	88.84	350.35	9,329.64	8,473.34	-2,084.66	8,725.99	2.27	-0.04	2.27
18,155.00	90.30	349.70	9,330.35	8,565.91	-2,100.94	8,819.79	1.70	1.55	-0.69
18,250.00	90.18	347.19	9,329.95	8,658.98	-2,119.97	8,914.71	2.65	-0.13	-2.64
18,345.00	88.45	347.93	9,331.08	8,751.74	-2,140.43	9,009.68	1.98	-1.82	0.78
18,440.00	87.50	349.94	9,334.44	8,844.91	-2,158.65	9,104.52	2.34	-1.00	2.12
18,534.00	88.88	351.37	9,337.41	8,937.61	-2,173.91	9,198.19	2.11	1.47	1.52
18,629.00	91.44	350.32	9,337.14	9,031.39	-2,189.02	9,292.88	2.91	2.69	-1.11
18,724.00	92.00	346.06	9,334.29	9,124.32	-2,208.45	9,387.77	4.52	0.59	-4.48
18,818.00	90.36	344.59	9,332.36	9,215.23	-2,232.26	9,481.73	2.34	-1.74	-1.56
18,913.00	88.50	345.62	9,333.30	9,307.02	-2,256.68	9,576.70	2.24	-1.96	1.08
19,008.00	87.51	347.33	9,336.61	9,399.33	-2,278.88	9,671.64	2.08	-1.04	1.80
19,103.00	88.85	349.26	9,339.63	9,492.30	-2,298.14	9,766.52	2.47	1.41	2.03
19,198.00	90.48	347.59	9,340.18	9,585.36	-2,317.20	9,861.45	2.46	1.72	-1.76
19,292.00	89.79	346.29	9,339.96	9,676.93	-2,338.44	9,955.44	1.57	-0.73	-1.38
19,387.00	88.69	347.78	9,341.22	9,769.49	-2,359.75	10,050.42	1.95	-1.16	1.57
19,482.00	90.13	347.82	9,342.20	9,862.34	-2,379.83	10,145.38	1.52	1.52	0.04
19,577.00	89.68	347.00	9,342.36	9,955.05	-2,400.53	10,240.36	0.98	-0.47	-0.86
19,614.00	89.68	347.00	9,342.56	9,991.10	-2,408.86	10,277.36	0.00	0.00	0.00

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
UL 0312 E18 09SB	0.00	0.00	9,421.02	9,987.12	-2,434.02	313,132.220	546,490.000	32.437752	-102.212827
- hit/miss target									
- Shape									
- survey misses target center by 82.49ft at 19614.00ft MD (9342.56 TVD, 9991.10 N, -2408.86 E)									
- Point									

Checked By: _____ Approved By: _____ Date: _____