



**NM OIL CONSERVATION
ARTESIA DISTRICT**

FEB 05 2019

RECEIVED

September 20, 2018

30-015-44984

Devon Energy Production Company, LP
Well: Turquoise PWU 27 61H
County/Parish: Eddy County, NM

LEAM MWD: (OH) from 428' MD – 14,042' MD
Projection; 14,115' MD

This Borehole Survey taken between 08/29/18 and 09/08/18 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: September 20, 2018



Survey Certification Form

State of New Mexico

Eddy County

I, Randy W. Rakowitz, certify that; I am employed by LEAM Drilling Services, that I did on the day(s) of 08/29/2018 through 09/08/2018, conduct or supervise the taking of MWD Survey from a depth of 428' MD to 14,115' MD; that the data is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon Energy Production Company, LP for the Turquoise PWU 27 61H in Eddy County, New Mexico; and that I reviewed this report and find that it conforms to the principals and procedures as set forth by LEAM Drilling Services.

A handwritten signature in black ink, appearing to read 'Randy W. Rakowitz', is written over a horizontal line.

Randy W. Rakowitz
MWD Operations Coordinator

LEAM Drilling Services

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Turquoise PWU 27 61H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3345.1' GE + 26' KB @ 3371.10usft
Site:	Turquoise	MD Reference:	3345.1' GE + 26' KB @ 3371.10usft
Well:	Turquoise PWU 27 61H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Multi User Db

Project	Eddy County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Turquoise				
Site Position:		Northing:	593,931.03 usft	Latitude:	32° 37' 56.9788 N
From:	Lat/Long	Easting:	621,732.64 usft	Longitude:	104° 4' 19.8333 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.14 "

Well	Turquoise PWU 27 61H					
Well Position	+N-S	0.00 usft	Northing:	595,319.97 usft	Latitude:	32° 38' 10.7228 N
	+E-W	0.00 usft	Easting:	621,736.42 usft	Longitude:	104° 4' 19.7491 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,345.10 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/22/2018	7.37	60.45	48,074

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.00	0.00	0.00	89.48	

Survey Program	Date	9/20/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
82.66	328.00	Survey #1 (OH)	VES GyroFlex V2	
428.00	14,042.00	Survey #2 (OH)	MWD+IFR1	OWSG MWD + IFR1
14,115.00	14,115.00	Survey #3 (OH)	Project	Projection

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82.66	0.34	177.01	82.66	-0.24	0.01	0.01	0.41	0.41	0.00
144.66	0.94	172.68	144.66	-0.93	0.09	0.08	0.97	0.97	-6.98
236.33	1.16	161.16	236.31	-2.56	0.48	0.46	0.33	0.24	-12.57
328.00	1.42	187.60	327.96	-4.56	0.63	0.59	0.70	0.28	28.84
428.00	1.76	173.14	427.92	-7.31	0.65	0.59	0.52	0.34	-14.46
520.00	1.32	156.09	519.89	-8.69	1.25	1.16	0.68	-0.48	-18.53
613.00	1.14	159.43	612.86	-11.53	2.01	1.90	0.21	-0.19	3.59
705.00	0.97	134.11	704.85	-12.93	2.89	2.77	0.53	-0.18	-27.52

LEAM Drilling Services

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Turquoise
Well: Turquoise PWU 27 61H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Turquoise PWU 27 61H
TVD Reference: 3345.1' GE + 28' KB @ 3371.10usft
MD Reference: 3345.1' GE + 26' KB @ 3371.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi 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)
798.00	0.97	129.72	797.84	-13.98	4.06	3.93	0.08	0.00	-4.72
890.00	0.97	140.97	889.82	-15.08	5.15	5.01	0.21	0.00	12.23
893.00	0.97	135.52	892.81	-16.26	6.20	6.05	0.10	0.00	-5.88
1,075.00	1.23	120.58	1,074.79	-17.31	7.59	7.44	0.42	0.28	-16.24
1,168.00	1.41	109.50	1,167.77	-18.20	9.53	9.37	0.33	0.19	-11.91
1,260.00	1.32	112.67	1,259.74	-18.99	11.58	11.40	0.13	-0.10	3.45
1,353.00	1.14	110.21	1,352.72	-19.72	13.43	13.25	0.20	-0.19	-2.65
1,445.00	0.97	96.50	1,444.71	-20.13	15.06	14.88	0.33	-0.18	-14.90
1,537.00	0.35	78.99	1,536.70	-20.15	16.11	15.93	0.71	-0.67	-21.21
1,630.00	0.26	58.70	1,629.70	-19.98	16.57	16.39	0.14	-0.10	-19.67
1,725.00	0.44	80.17	1,724.70	-19.87	17.12	16.94	0.27	0.19	33.13
1,820.00	0.35	75.58	1,819.69	-19.80	17.76	17.58	0.14	-0.09	-15.36
1,914.00	0.35	57.65	1,913.69	-19.57	18.28	18.11	0.12	0.00	-19.07
2,008.00	0.44	171.20	2,007.69	-19.77	18.58	18.40	0.70	0.10	120.80
2,102.00	0.35	188.61	2,101.69	-20.41	18.59	18.41	0.16	-0.10	18.52
2,196.00	0.35	208.47	2,195.69	-20.95	18.41	18.22	0.13	0.00	21.13
2,280.00	0.62	190.72	2,289.68	-21.70	18.18	17.99	0.33	0.29	-18.88
2,385.00	0.53	210.40	2,384.68	-22.59	17.87	17.66	0.23	-0.09	20.72
2,479.00	0.44	231.85	2,478.68	-23.19	17.36	17.15	0.21	-0.10	22.82
2,573.00	0.35	180.87	2,572.67	-23.70	17.07	16.86	0.37	-0.10	-54.23
2,667.00	0.35	178.06	2,666.67	-24.27	17.08	16.86	0.02	0.00	-2.99
2,782.00	0.44	256.63	2,781.67	-24.64	16.73	16.51	0.53	0.09	82.71
2,856.00	0.35	207.94	2,855.67	-24.98	16.25	16.02	0.36	-0.10	-51.80
2,951.00	0.70	226.05	2,950.66	-25.64	15.69	15.46	0.40	0.37	19.06
3,045.00	0.44	219.37	3,044.66	-26.32	15.05	14.81	0.29	-0.28	-7.11
3,139.00	0.79	229.74	3,138.65	-27.02	14.33	14.08	0.39	0.37	11.03
3,234.00	0.62	253.47	3,233.65	-27.58	13.34	13.08	0.35	-0.18	24.98
3,328.00	0.53	245.91	3,327.64	-27.91	12.45	12.20	0.13	-0.10	-8.04
3,357.00	0.70	264.37	3,356.64	-27.98	12.15	11.90	0.89	0.59	63.66
3,425.00	0.70	267.52	3,424.64	-28.04	11.32	11.07	0.06	0.00	4.63
3,520.00	0.35	252.93	3,519.63	-28.15	10.47	10.21	0.39	-0.37	-15.36
3,614.00	1.06	153.79	3,613.63	-29.01	10.58	10.31	1.24	0.76	-105.47
3,708.00	1.85	165.90	3,707.59	-31.18	11.58	11.30	0.84	0.84	2.24
3,803.00	2.02	158.71	3,802.54	-34.14	12.81	12.50	0.20	0.18	2.96
3,897.00	2.81	162.93	3,896.46	-37.88	14.09	13.75	0.86	0.84	4.49
3,991.00	3.43	156.96	3,990.32	-42.67	15.87	15.48	0.74	0.66	-6.35
4,085.00	2.73	140.96	4,084.18	-47.00	18.38	17.95	1.17	-0.74	-17.02
4,180.00	3.17	132.17	4,179.06	-50.52	21.75	21.29	0.66	0.46	-9.25
4,274.00	4.57	133.40	4,272.84	-54.84	26.40	25.90	1.49	1.49	1.31
4,369.00	4.48	130.94	4,367.54	-58.67	31.95	31.41	0.23	-0.09	-2.59
4,463.00	4.13	142.37	4,461.28	-64.96	36.79	36.20	0.98	-0.37	12.16
4,557.00	4.13	138.50	4,555.04	-70.17	41.10	40.46	0.30	0.00	-4.12
4,651.00	4.40	148.69	4,648.78	-75.79	45.22	44.53	0.85	0.29	10.84

LEAM Drilling Services

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Turquoise
Well: Turquoise PWU 27 61H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Turquoise PWU 27 61H
TVD Reference: 3345.1' GE + 26' KB @ 3371.10usft
MD Reference: 3345.1' GE + 26' KB @ 3371.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi 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)
4,745.00	4.48	149.05	4,742.50	-82.02	48.98	48.23	0.09	0.09	0.38
4,840.00	3.78	156.88	4,837.25	-88.08	52.11	51.31	0.95	-0.74	8.33
4,934.00	3.43	158.54	4,931.06	-93.55	54.36	53.50	0.39	-0.37	1.68
5,028.00	2.73	157.13	5,024.93	-98.23	56.25	55.36	0.75	-0.74	-1.50
5,123.00	2.55	157.48	5,119.83	-102.27	57.94	57.01	0.19	-0.19	0.37
5,217.00	2.37	156.78	5,213.74	-105.98	59.51	58.55	0.19	-0.19	-0.74
5,312.00	2.89	158.71	5,308.63	-110.10	61.18	60.18	0.66	0.65	2.03
5,405.00	2.90	158.54	5,401.51	-114.55	62.83	61.88	0.10	-0.10	-0.18
5,500.00	2.64	159.24	5,496.40	-118.83	64.58	63.50	0.28	-0.27	0.74
5,594.00	3.52	157.83	5,590.28	-123.53	66.44	65.31	0.94	0.94	-1.50
5,689.00	3.25	153.62	5,685.10	-128.64	68.73	67.56	0.39	-0.28	-4.43
5,783.00	2.84	135.69	5,778.98	-132.58	71.43	70.22	1.17	-0.65	-19.07
5,877.00	2.64	127.78	5,872.88	-135.45	74.65	73.42	0.39	0.00	-8.41
5,971.00	2.90	130.41	5,966.77	-138.32	78.17	76.92	0.31	0.28	2.80
6,065.00	3.08	130.94	6,060.64	-141.52	81.89	80.60	0.19	0.19	0.56
6,159.00	2.73	164.16	6,154.52	-145.32	84.41	83.09	1.80	-0.37	35.34
6,253.00	1.49	167.49	6,248.46	-148.67	85.28	83.93	1.33	-1.32	3.54
6,346.00	1.93	173.47	6,341.42	-151.41	85.73	84.35	0.51	0.47	6.43
6,441.00	2.20	166.09	6,436.35	-154.77	86.35	84.94	0.40	0.28	-7.77
6,535.00	3.69	166.97	6,530.23	-159.47	87.46	86.01	1.59	1.59	0.94
6,630.00	4.66	168.79	6,624.97	-166.20	89.03	87.52	1.02	1.02	-0.19
6,724.00	4.48	165.38	6,718.68	-173.47	90.83	89.26	0.23	-0.19	-1.50
6,818.00	3.43	159.23	6,812.45	-179.65	92.76	91.12	1.20	-1.12	-6.54
6,912.00	3.69	155.54	6,906.27	-185.03	95.01	93.32	0.37	0.28	-3.93
7,006.00	3.34	153.61	7,000.09	-190.24	97.48	95.75	0.39	-0.37	-2.05
7,101.00	3.78	159.05	7,094.91	-195.64	99.83	98.05	0.58	0.46	5.73
7,195.00	3.25	169.07	7,188.73	-201.15	101.44	99.61	0.86	-0.56	10.66
7,288.00	4.13	175.23	7,281.54	-207.08	102.22	100.33	1.04	0.95	6.62
7,381.00	3.78	167.14	7,374.32	-213.41	103.18	101.24	0.71	-0.38	-8.70
7,475.00	3.52	169.78	7,468.13	-219.27	104.38	102.39	0.33	-0.28	2.81
7,569.00	2.73	167.80	7,561.99	-224.30	105.37	103.33	0.85	-0.84	-2.11
7,663.00	3.43	164.86	7,655.85	-229.20	106.57	104.48	0.76	0.74	-3.13
7,757.00	4.66	153.61	7,749.62	-235.33	109.00	106.86	1.55	1.31	-11.97
7,851.00	4.48	155.36	7,843.32	-242.09	112.23	110.03	0.24	-0.19	1.88
7,945.00	4.84	148.16	7,937.01	-248.80	115.86	113.59	0.73	0.38	-7.66
8,039.00	5.98	145.17	8,030.59	-256.18	120.74	118.41	1.25	1.21	-3.18
8,133.00	6.68	142.36	8,124.01	-264.53	126.88	124.47	0.81	0.74	-2.99
8,228.00	6.95	137.28	8,218.34	-273.13	134.15	131.67	0.70	0.28	-5.37
8,322.00	7.56	129.88	8,311.59	-281.27	142.76	140.20	1.18	0.65	-7.85
8,397.00	7.47	132.51	8,385.95	-287.73	150.14	147.52	0.47	-0.12	3.51
8,497.00	11.70	135.84	8,484.53	-299.40	162.00	159.28	4.26	4.23	3.33
8,545.00	17.59	131.10	8,530.95	-307.87	170.88	168.07	12.51	12.27	-9.88
8,593.00	20.49	119.67	8,576.34	-316.60	183.64	180.76	9.81	6.04	-23.81

LEAM Drilling Services

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Turquoise
Well: Turquoise PWJ 27 61H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Turquoise PWJ 27 61H
TYD Reference: 3345.1' GE + 26' KB @ 3371.10usft
MD Reference: 3345.1' GE + 26' KB @ 3371.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi 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)
8,641.00	22.77	104.03	8,620.99	-323.02	199.96	197.02	12.87	4.75	-32.58
8,689.00	26.29	94.01	8,664.67	-326.01	219.59	216.63	11.33	7.33	-20.88
8,736.00	30.95	92.25	8,705.92	-327.22	242.07	239.09	10.07	9.91	-3.74
8,783.00	35.44	96.47	8,745.24	-329.23	267.70	264.70	10.74	9.55	8.98
8,830.00	40.89	96.82	8,782.18	-332.59	296.54	293.51	11.60	11.60	0.74
8,877.00	44.93	95.94	8,816.60	-336.14	328.33	325.27	8.69	8.60	-1.87
8,924.00	50.91	94.53	8,848.09	-339.30	363.05	359.96	12.92	12.72	-3.00
8,972.00	56.10	92.78	8,876.63	-341.74	401.55	398.43	11.20	10.81	-3.65
9,019.00	59.44	90.67	8,901.69	-342.92	441.28	438.15	8.06	7.11	-4.49
9,066.00	64.02	90.49	8,923.94	-343.34	482.66	479.52	9.75	9.74	-0.38
9,113.00	67.36	91.80	8,943.29	-344.24	525.48	522.33	7.61	7.11	3.00
9,160.00	70.35	92.60	8,960.24	-345.96	569.27	566.11	6.51	6.36	1.49
9,207.00	73.88	92.25	8,974.88	-347.85	613.95	610.77	7.50	7.47	-0.74
9,255.00	77.12	91.90	8,986.71	-349.54	660.38	657.18	6.83	6.79	-0.73
9,302.00	80.46	91.02	8,995.84	-350.71	706.47	703.25	7.34	7.11	-1.87
9,350.00	84.24	89.79	9,002.23	-351.04	754.03	750.81	8.27	7.88	-2.56
9,392.00	87.32	88.03	9,005.32	-350.24	795.90	792.69	8.44	7.33	-4.19
9,470.00	88.02	88.03	9,008.49	-347.56	873.79	870.60	0.90	0.90	0.00
9,564.00	87.05	88.91	9,012.54	-345.06	967.67	964.49	1.39	-1.03	0.94
9,658.00	87.05	90.14	9,017.38	-344.28	1,061.54	1,058.37	1.31	0.00	1.31
9,753.00	88.37	91.02	9,021.17	-345.24	1,156.45	1,153.27	1.67	1.39	0.93
9,848.00	88.60	89.96	9,022.85	-346.05	1,251.43	1,248.24	1.71	1.29	-1.12
10,036.00	90.48	89.61	9,022.72	-345.35	1,439.43	1,436.23	0.50	0.47	-0.19
10,130.00	90.75	89.61	9,021.71	-344.71	1,533.42	1,530.23	0.29	0.29	0.00
10,224.00	91.10	90.84	9,020.20	-345.08	1,627.40	1,624.21	1.36	0.37	1.31
10,319.00	89.78	89.61	9,019.47	-345.45	1,722.40	1,719.19	1.90	-1.39	-1.29
10,413.00	88.20	89.44	9,021.12	-344.67	1,816.38	1,813.17	1.69	-1.68	-0.18
10,508.00	88.29	89.08	9,024.03	-343.44	1,911.32	1,908.13	0.39	0.09	-0.38
10,603.00	88.46	89.08	9,026.73	-341.92	2,006.27	2,003.09	0.18	0.18	0.00
10,698.00	87.67	90.49	9,029.84	-341.56	2,101.22	2,098.03	1.70	-0.83	1.48
10,792.00	86.44	91.02	9,034.76	-342.80	2,195.08	2,191.88	1.42	-1.31	0.56
10,887.00	86.44	91.02	9,040.66	-344.49	2,289.88	2,286.66	0.00	0.00	0.00
10,981.00	88.29	91.54	9,044.98	-346.58	2,383.76	2,380.51	2.04	1.97	0.55
11,075.00	88.20	91.18	9,047.86	-348.82	2,477.68	2,474.42	0.38	-0.10	-0.37
11,169.00	89.78	92.07	9,049.52	-351.50	2,571.63	2,568.33	1.92	1.68	0.94
11,264.00	90.92	91.54	9,048.94	-354.49	2,666.58	2,663.25	1.32	1.20	-0.56
11,358.00	91.10	90.67	9,047.28	-356.30	2,760.54	2,757.20	0.94	0.19	-0.93
11,452.00	91.28	90.67	9,045.33	-357.40	2,854.52	2,851.16	0.19	0.19	0.00
11,546.00	91.54	90.67	9,043.02	-358.50	2,948.48	2,945.11	0.28	0.28	0.00
11,640.00	90.40	89.78	9,041.43	-358.88	3,042.47	3,039.08	1.53	-1.21	-0.94
11,734.00	90.31	89.96	9,040.84	-358.67	3,136.46	3,133.08	0.20	-0.10	0.18
11,828.00	89.60	90.31	9,040.92	-358.89	3,230.46	3,227.07	0.84	-0.76	0.37
11,922.00	89.60	90.49	9,041.57	-359.55	3,324.46	3,321.06	0.19	0.00	0.19
12,017.00	88.37	90.31	9,043.26	-360.21	3,419.44	3,416.03	1.31	-1.29	-0.19

LEAM Drilling Services

Survey Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Turquoise
 Well: Turquoise PWU 27 61H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well Turquoise PWU 27 61H
 TVD Reference: 3345.1' GE + 26' KB @ 3371.10usft
 MD Reference: 3345.1' GE + 26' KB @ 3371.10usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Multi 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)
12,111.00	88.29	90.31	9,046.00	-360.72	3,513.40	3,509.98	0.09	-0.09	0.00
12,205.00	88.46	90.49	9,048.66	-361.38	3,607.36	3,603.93	0.26	0.18	0.19
12,300.00	88.90	90.49	9,050.85	-362.19	3,702.33	3,698.89	0.46	0.46	0.00
12,394.00	88.37	89.86	9,053.09	-362.56	3,796.30	3,792.85	0.80	-0.56	-0.56
12,488.00	88.46	89.79	9,055.69	-362.35	3,890.26	3,886.82	0.20	0.10	-0.18
12,582.00	86.97	89.61	9,059.44	-361.86	3,984.19	3,980.74	1.60	-1.59	-0.19
12,677.00	86.26	89.96	9,065.05	-361.50	4,078.02	4,075.57	0.83	-0.75	0.37
12,771.00	87.14	88.91	9,070.46	-360.58	4,172.86	4,169.41	1.46	0.94	-1.12
12,865.00	88.81	88.91	9,073.78	-358.79	4,266.78	4,263.34	1.78	1.78	0.00
12,959.00	88.90	88.73	9,075.66	-356.86	4,360.74	4,357.32	0.21	0.10	-0.19
13,054.00	89.08	88.56	9,077.33	-354.61	4,455.70	4,452.29	0.26	0.19	-0.18
13,148.00	89.08	87.68	9,078.84	-351.53	4,549.63	4,546.26	0.94	0.00	-0.94
13,242.00	89.08	87.68	9,080.35	-347.72	4,643.54	4,640.20	0.00	0.00	0.00
13,336.00	88.99	87.33	9,081.93	-343.63	4,737.44	4,734.13	0.38	-0.10	-0.37
13,431.00	88.81	87.50	9,083.76	-339.35	4,832.33	4,829.05	0.26	-0.19	0.18
13,525.00	88.90	88.56	9,085.64	-336.12	4,928.25	4,923.00	1.13	0.10	1.13
13,619.00	88.90	88.56	9,087.44	-333.75	5,020.20	5,016.97	0.00	0.00	0.00
13,713.00	89.78	88.91	9,088.52	-331.68	5,114.17	5,110.95	1.01	0.94	0.37
13,807.00	90.31	89.08	9,088.45	-330.03	5,208.16	5,204.95	0.59	0.56	0.18
13,902.00	89.60	89.96	9,088.52	-329.23	5,303.15	5,299.95	1.19	-0.75	0.93
13,996.00	89.69	90.31	9,089.11	-329.46	5,397.15	5,393.94	0.38	0.10	0.37
14,042.00	89.78	90.31	9,089.32	-329.71	5,443.15	5,439.93	0.20	0.20	0.00
14,115.00	89.78	90.31	9,089.60	-330.10	5,516.15	5,512.93	0.00	0.00	0.00
Projection									

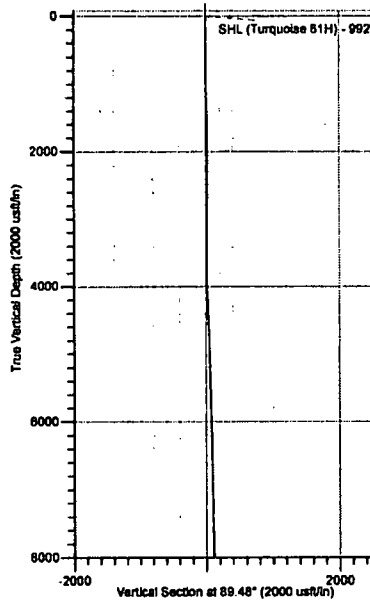
Devon Energy

Project: Eddy County, NM (NAD-83)
Site: Turquoise
Well: Turquoise PWU 27 61H
Wellbore: OH
Design: OH



Azimuths to Grid North
True North: -0.14°
Magnetic North: 7.23°
Magnetic Field
Strength: 46074.2nT
Dip Angle: 60.45°
Date: 8/23/2018
Model: HDGM

PROJECT DETAILS: Eddy County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GR8 1980
Zone: New Mexico Eastern Zone
Datum: 3346.1' GE + 26' KB @ 3371.10usft

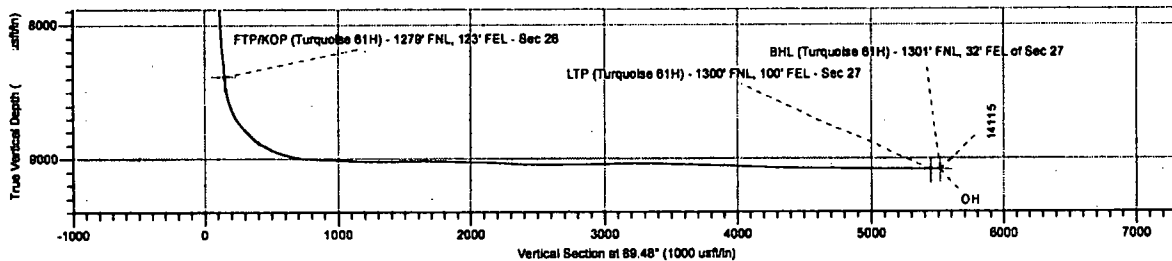
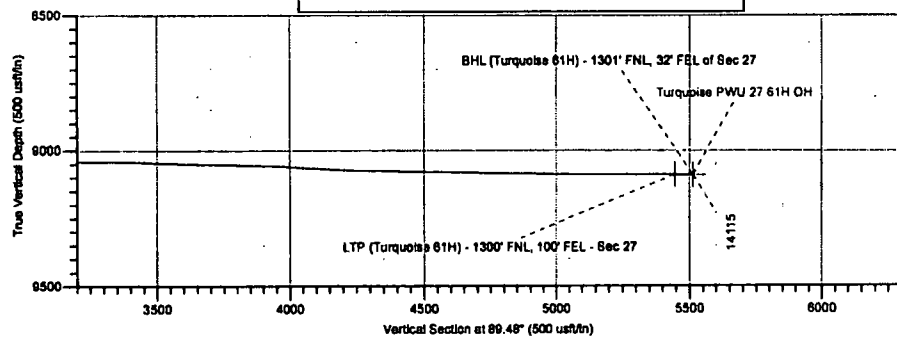


Name
BHL - 1301' FNL, 32' FEL of Sec 27
FTP - 1278' FNL, 123' FEL - Sec 28
KOP - 1278' FNL, 123' FEL - Sec 28
LTP - 1300' FNL, 100' FEL - Sec 27
SHL - 992' FNL, 273' FEL of Sec 28

TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
9089.50	-330.10	5516.15	594889.97	627252.57	32° 38' 7.3176 N	104° 3' 15.2495 W
8385.95	-287.73	150.14	595032.24	621886.56	32° 38' 7.8720 N	104° 4' 18.0018 W
8385.95	-287.73	150.14	595032.24	621886.56	32° 38' 7.8720 N	104° 4' 18.0018 W
9089.34	-329.74	5449.32	594890.23	627185.74	32° 38' 7.3229 N	104° 3' 18.0311 W
0.00	0.00	0.00	595319.97	621736.42	32° 38' 10.7228 N	104° 4' 19.7491 W

DESIGN TARGET DETAILS

ACTUAL LINE CALLS
SHL: 992' FNL, 273' FEL of Sec 28
BHL: 1301' FNL, 32' FEL of Sec 27



LEAM DRILLING SERVICES
2010 East Davis, Conroe, Texas 77301
Phone: 936/756-7618, Fax: 936/756-7595

Design: OH (Turquoise PWU 27 61H/OH)
Created By: Dustin Ault
Date: 14 18, September 13 2018
Approved: _____
Date: _____