

HOBBS OCD
REV 10-1-2019
REMOVED

Devon

Thistle Unit 156H

Cactus 167

This survey is correct to the best of my knowledge and is supported by actual field data.

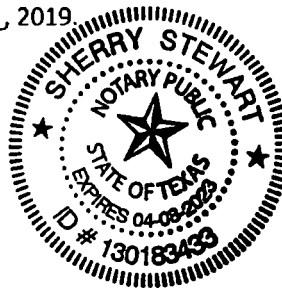
Notarized this data 20th of September, 2019

Sherry Stewart

Notary Signature

County of Midland

State of Texas



Scientific Drilling

The

In Wellbore Placement

Devon Energy

Lea County, NM (NAD83 NME)

Thistle Unit

156H

OH

Survey: SDI Surveys #1

Standard Survey Report

21 May, 2019



www.scientificdrilling.com

Scientific Drilling, Intl

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 156H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Site:	Thistle Unit	MD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Well:	156H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Project	Lea County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	Thistle Unit		
Site Position:		Northing:	457,063.23 usft
From:	Map	Easting:	776,815.89 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 15' 15.284 N
		Longitude:	103° 34' 17.748 W
		Grid Convergence:	0.41 °

Well	156H		
Well Position	+N/-S	0.00 usft	Northing: 457,062.97 usft
	+E/-W	0.00 usft	Easting: 776,765.86 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 15' 15.285 N
		Longitude:	103° 34' 18.330 W
		Ground Level:	3,651.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	4/23/2019	6.68
			Dip Angle
			(°)
			59.93
			Field Strength
			(nT)
			47,946

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(bearing)
			358.15

Survey Program	Date 5/21/2019		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
170.00	25,101.00	SDI Surveys #1 (OH)	MWD+HDGM
			Description
			OWSG MWD + HDGM

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(bearing)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.22	0.99	100.00	0.19	0.00	0.19	0.22	0.22	0.00
200.00	0.42	9.56	200.00	0.75	0.03	0.75	0.21	0.20	8.57
300.00	0.57	11.65	299.99	1.61	0.29	1.60	0.15	0.15	2.09
400.00	0.70	358.69	399.99	2.71	0.30	2.70	0.19	0.13	-12.96
500.00	0.71	8.16	499.98	4.01	0.36	4.00	0.12	0.01	9.47
600.00	0.68	12.50	599.97	5.13	0.62	5.11	0.06	-0.03	4.33
700.00	0.68	14.96	699.97	6.33	0.87	6.30	0.03	0.01	2.46
800.00	0.60	29.23	799.96	7.38	1.27	7.33	0.18	-0.08	14.28
900.00	0.56	29.71	899.95	8.22	1.81	8.16	0.05	-0.05	0.48

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Well:	156H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.00	0.50	18.66	999.95	9.07	2.20	8.99	0.12	-0.06	-11.05
1,100.00	0.40	357.84	1,099.95	9.83	2.33	9.75	0.19	-0.09	-20.82
1,200.00	0.57	357.08	1,199.94	10.64	2.27	10.56	0.17	0.17	-0.76
1,300.00	0.57	10.24	1,299.94	11.65	2.32	11.57	0.13	0.00	13.16
1,400.00	0.29	356.64	1,399.94	12.31	2.37	12.22	0.30	-0.29	-13.60
1,500.00	0.30	344.02	1,499.93	12.83	2.31	12.74	0.06	0.01	-12.61
1,600.00	0.31	336.05	1,599.93	13.29	2.08	13.21	0.04	0.01	-7.97
1,700.00	0.29	336.64	1,699.93	13.81	1.92	13.74	0.02	-0.02	0.59
1,800.00	0.25	319.80	1,799.93	14.18	1.65	14.12	0.09	-0.04	-16.83
1,900.00	0.21	325.51	1,899.93	14.50	1.40	14.44	0.04	-0.03	5.71
2,000.00	0.24	359.98	1,999.93	14.84	1.27	14.79	0.14	0.03	34.48
2,100.00	0.14	347.50	2,099.93	15.22	1.30	15.17	0.11	-0.10	-12.48
2,200.00	0.21	307.33	2,199.93	15.41	1.13	15.36	0.14	0.07	-40.17
2,300.00	0.24	319.56	2,299.93	15.68	0.82	15.64	0.06	0.03	12.23
2,400.00	0.47	209.52	2,399.93	15.57	0.51	15.55	0.59	0.23	-110.04
2,500.00	0.76	204.86	2,499.92	14.58	0.03	14.57	0.29	0.29	-4.66
2,600.00	0.92	205.82	2,599.91	13.25	-0.60	13.26	0.17	0.16	0.96
2,700.00	1.23	201.59	2,699.89	11.51	-1.35	11.55	0.32	0.31	-4.23
2,800.00	1.09	197.46	2,799.87	9.59	-2.04	9.65	0.16	-0.14	-4.13
2,900.00	0.93	195.62	2,899.86	7.95	-2.44	8.03	0.17	-0.16	-1.84
3,000.00	1.61	221.32	2,999.83	6.17	-3.52	6.28	0.87	0.68	25.70
3,100.00	2.87	234.78	3,099.75	3.56	-6.45	3.77	1.35	1.26	13.45
3,200.00	4.07	247.46	3,199.57	0.74	-11.78	1.12	1.42	1.21	12.69
3,300.00	5.44	255.52	3,299.23	-1.83	-19.58	-1.19	1.52	1.37	8.05
3,400.00	6.93	260.53	3,398.64	-3.98	-30.21	-3.00	1.59	1.49	5.01
3,500.00	7.86	262.69	3,497.78	-5.84	-43.12	-4.44	0.97	0.93	2.16
3,600.00	7.78	263.93	3,596.82	-7.44	-56.88	-5.60	0.19	-0.08	1.24
3,700.00	7.39	264.95	3,695.95	-8.71	-69.93	-6.45	0.41	-0.39	1.02
3,800.00	6.59	266.32	3,795.18	-9.68	-82.27	-7.02	0.82	-0.80	1.37
3,900.00	6.55	264.83	3,894.56	-10.42	-93.35	-7.40	0.18	-0.05	-1.48
4,000.00	7.98	261.00	3,993.78	-11.96	-105.68	-8.54	1.51	1.43	-3.83
4,100.00	8.88	258.47	4,092.68	-14.63	-120.27	-10.74	0.98	0.91	-2.53
4,200.00	8.43	261.68	4,191.51	-17.40	-135.23	-13.02	0.66	-0.46	3.20
4,300.00	7.88	261.20	4,290.50	-19.42	-149.26	-14.59	0.55	-0.55	-0.48
4,400.00	6.74	261.16	4,389.68	-21.39	-161.87	-16.15	1.14	-1.14	-0.04
4,500.00	6.39	258.38	4,489.03	-23.40	-173.08	-17.80	0.48	-0.35	-2.78
4,600.00	7.82	257.75	4,588.26	-26.01	-185.21	-20.02	1.43	1.43	-0.63
4,700.00	8.56	260.73	4,687.22	-28.67	-199.34	-22.22	0.85	0.74	2.99
4,800.00	8.08	262.91	4,786.16	-30.72	-213.67	-23.80	0.57	-0.48	2.18
4,900.00	7.80	263.54	4,885.22	-32.26	-227.26	-24.91	0.29	-0.28	0.63
5,000.00	8.30	261.73	4,984.25	-34.04	-241.07	-26.24	0.56	0.50	-1.81
5,100.00	9.45	260.84	5,083.08	-36.44	-256.09	-28.16	1.17	1.16	-0.89
5,200.00	9.47	259.84	5,181.67	-39.19	-272.60	-30.37	0.17	0.02	-1.00
5,300.00	9.39	259.01	5,280.35	-42.23	-288.54	-32.89	0.16	-0.08	-0.83

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Site:	Thistle Unit	MD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Well:	156H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	9.81	264.17	5,378.95	-45.04	-304.94	-35.17	0.96	0.42	5.16
5,500.00	10.21	269.42	5,477.41	-45.64	-322.40	-35.21	1.00	0.40	5.26
5,600.00	10.41	269.90	5,575.80	-45.73	-340.29	-34.72	0.21	0.20	0.47
5,700.00	10.08	265.85	5,674.17	-46.14	-358.23	-34.55	0.79	-0.32	-4.05
5,800.00	9.31	262.46	5,772.74	-48.01	-375.02	-35.88	0.96	-0.78	-3.39
5,900.00	8.56	260.87	5,871.53	-50.27	-390.35	-37.64	0.79	-0.75	-1.58
6,000.00	8.40	260.06	5,970.45	-52.71	-404.80	-39.62	0.20	-0.16	-0.81
6,100.00	7.70	261.86	6,069.45	-54.98	-418.71	-41.43	0.74	-0.70	1.80
6,200.00	7.25	260.09	6,168.60	-56.97	-431.54	-43.01	0.51	-0.46	-1.77
6,300.00	7.16	259.60	6,267.81	-59.19	-443.87	-44.83	0.10	-0.08	-0.49
6,400.00	6.57	261.38	6,367.10	-61.16	-455.65	-46.41	0.63	-0.59	1.78
6,500.00	6.40	261.61	6,466.46	-62.82	-466.79	-47.72	0.17	-0.17	0.23
6,600.00	6.37	261.69	6,565.82	-64.48	-477.94	-49.01	0.04	-0.04	0.09
6,700.00	5.17	263.88	6,665.31	-65.79	-487.97	-50.01	1.21	-1.19	2.19
6,800.00	3.45	267.69	6,765.01	-66.32	-495.59	-50.28	1.75	-1.72	3.81
6,900.00	1.61	268.61	6,864.92	-66.48	-499.78	-50.31	1.84	-1.84	0.92
7,000.00	0.97	271.98	6,964.90	-66.46	-501.79	-50.22	0.65	-0.64	3.37
7,100.00	1.01	272.70	7,064.88	-66.39	-503.53	-50.10	0.04	0.04	0.71
7,200.00	0.98	275.16	7,164.87	-66.28	-505.26	-49.93	0.05	-0.02	2.47
7,300.00	1.12	273.53	7,264.85	-66.11	-507.03	-49.71	0.13	0.13	-1.63
7,400.00	1.23	273.92	7,364.83	-66.01	-509.12	-49.54	0.12	0.12	0.39
7,500.00	1.19	275.42	7,464.81	-65.83	-511.25	-49.29	0.06	-0.05	1.50
7,600.00	1.04	272.95	7,564.79	-65.67	-513.20	-49.06	0.15	-0.14	-2.47
7,700.00	1.15	271.59	7,664.77	-65.60	-515.05	-48.94	0.11	0.11	-1.35
7,800.00	1.33	274.08	7,764.75	-65.51	-517.22	-48.77	0.19	0.18	2.49
7,900.00	0.86	277.93	7,864.73	-65.31	-519.21	-48.52	0.48	-0.47	3.85
8,000.00	0.55	342.19	7,964.72	-64.78	-520.11	-47.96	0.80	-0.31	64.26
8,100.00	0.54	32.15	8,064.72	-63.91	-519.99	-47.09	0.46	-0.01	49.96
8,200.00	0.66	26.64	8,164.71	-62.98	-519.49	-46.18	0.13	0.12	-5.51
8,300.00	0.59	32.91	8,264.71	-62.02	-518.91	-45.24	0.09	-0.06	6.27
8,400.00	0.34	359.79	8,364.70	-61.33	-518.67	-44.55	0.36	-0.25	-33.13
8,500.00	0.36	352.80	8,464.70	-60.63	-518.71	-43.85	0.05	0.02	-6.98
8,600.00	0.12	302.23	8,564.70	-60.34	-518.82	-43.56	0.30	-0.25	-50.57
8,700.00	0.26	285.48	8,664.70	-60.21	-519.12	-43.42	0.16	0.15	-16.75
8,800.00	0.43	277.57	8,764.70	-60.10	-519.72	-43.29	0.18	0.17	-7.91
8,900.00	0.61	270.75	8,864.69	-60.03	-520.62	-43.19	0.19	0.18	-6.82
9,000.00	0.90	265.61	8,964.68	-60.12	-521.93	-43.23	0.30	0.29	-5.14
9,100.00	2.62	344.83	9,064.66	-58.75	-523.21	-41.83	2.61	1.72	79.22
9,200.00	9.89	3.16	9,164.02	-48.14	-523.44	-31.22	7.44	7.26	18.33
9,300.00	18.02	2.26	9,260.95	-23.91	-522.25	-7.04	8.14	8.13	-0.90
9,400.00	26.07	2.58	9,353.61	13.42	-520.61	30.22	8.05	8.04	0.32
9,500.00	36.26	2.17	9,439.30	64.66	-518.66	81.37	10.19	10.19	-0.41
9,600.00	50.57	2.20	9,511.83	133.03	-516.12	149.62	14.31	14.31	0.03

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Design:	OH	Database:	Midland District

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,700.00	63.75	3.45	9,566.03	216.70	-511.84	233.11	13.22	13.18	1.25	
9,800.00	73.61	1.94	9,602.11	309.67	-506.43	325.86	9.96	9.86	-1.51	
9,900.00	82.44	0.09	9,621.78	407.60	-504.84	423.68	9.02	8.83	-1.86	
10,000.00	87.25	0.69	9,630.69	507.17	-504.54	523.19	4.85	4.81	0.61	
10,005.28	87.36	0.62	9,630.93	512.44	-504.48	528.46	2.60	2.15	-1.47	
FTP[TU156H]										
10,100.00	89.40	359.23	9,633.40	607.12	-504.72	623.10	2.60	2.15	-1.46	
10,200.00	89.69	358.98	9,634.18	707.10	-506.38	723.08	0.38	0.29	-0.25	
10,300.00	89.81	359.11	9,634.60	807.09	-507.90	823.07	0.17	0.12	0.12	
10,400.00	89.91	358.74	9,634.89	907.07	-509.90	923.06	0.38	0.10	-0.36	
10,500.00	90.07	358.41	9,634.83	1,007.04	-512.13	1,023.05	0.37	0.16	-0.34	
10,600.00	89.75	358.01	9,634.85	1,106.98	-515.68	1,123.05	0.51	-0.33	-0.40	
10,700.00	89.16	358.95	9,635.86	1,206.94	-518.38	1,223.04	1.11	-0.59	0.94	
10,800.00	88.98	359.40	9,637.61	1,306.92	-519.55	1,323.01	0.48	-0.17	0.45	
10,900.00	88.99	358.76	9,639.34	1,406.89	-520.97	1,422.97	0.64	0.01	-0.64	
11,000.00	89.04	0.19	9,641.10	1,506.85	-522.71	1,522.94	1.43	0.05	1.43	
11,100.00	89.16	1.09	9,642.66	1,606.83	-520.97	1,622.81	0.91	0.12	0.90	
11,200.00	89.35	1.21	9,643.99	1,706.80	-519.04	1,722.67	0.22	0.19	0.11	
11,300.00	89.45	1.45	9,645.01	1,806.77	-516.73	1,822.51	0.26	0.10	0.24	
11,400.00	89.35	1.38	9,646.04	1,906.73	-514.21	1,922.34	0.12	-0.10	-0.07	
11,500.00	89.42	0.26	9,647.13	2,006.71	-512.67	2,022.21	1.12	0.07	-1.12	
11,600.00	90.45	0.90	9,647.31	2,106.70	-511.79	2,122.13	1.21	1.03	0.64	
11,700.00	89.51	0.22	9,647.35	2,206.70	-510.81	2,222.04	1.16	-0.94	-0.68	
11,800.00	89.93	0.56	9,647.86	2,306.69	-510.14	2,321.96	0.54	0.42	0.34	
11,900.00	90.55	1.01	9,647.31	2,406.68	-508.68	2,421.85	0.76	0.61	0.45	
12,000.00	90.14	1.02	9,646.75	2,506.66	-507.04	2,521.73	0.40	-0.40	0.00	
12,100.00	89.65	1.42	9,646.70	2,606.64	-504.66	2,621.57	0.64	-0.49	0.41	
12,200.00	88.50	0.74	9,648.59	2,706.60	-502.83	2,721.42	1.34	-1.15	-0.69	
12,300.00	88.28	0.50	9,651.31	2,806.56	-501.88	2,821.30	0.32	-0.22	-0.24	
12,400.00	88.68	0.44	9,654.43	2,906.50	-500.94	2,921.16	0.40	0.40	-0.06	
12,500.00	90.89	0.32	9,655.02	3,006.49	-500.42	3,021.08	2.21	2.20	-0.12	
12,600.00	91.05	0.80	9,652.21	3,106.45	-499.56	3,120.96	0.52	0.17	0.49	
12,700.00	89.05	0.89	9,652.27	3,206.43	-497.82	3,220.83	2.01	-2.01	0.09	
12,800.00	88.69	0.69	9,654.71	3,306.39	-496.52	3,320.69	0.41	-0.36	-0.20	
12,900.00	88.43	1.16	9,657.00	3,406.35	-495.05	3,420.56	0.54	-0.26	0.47	
13,000.00	88.35	359.82	9,659.94	3,506.30	-493.69	3,520.41	1.35	-0.08	-1.35	
13,100.00	88.88	359.05	9,662.44	3,606.26	-494.94	3,620.35	0.93	0.53	-0.76	
13,200.00	90.12	358.58	9,663.40	3,706.23	-496.99	3,720.34	1.33	1.24	-0.47	
13,300.00	91.09	359.09	9,662.31	3,806.20	-499.12	3,820.33	1.09	0.96	0.51	
13,400.00	91.61	358.42	9,659.93	3,906.15	-501.22	3,920.29	0.85	0.52	-0.67	
13,500.00	92.55	359.11	9,656.23	4,006.05	-503.39	4,020.21	1.17	0.94	0.69	
13,600.00	91.85	0.03	9,652.42	4,105.98	-504.06	4,120.11	1.16	-0.70	0.92	
13,700.00	91.25	0.04	9,649.51	4,205.93	-503.94	4,220.01	0.60	-0.60	0.01	
13,800.00	89.24	359.24	9,649.23	4,305.92	-504.34	4,319.96	2.17	-2.01	-0.80	

Scientific Drilling, Intl Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 156H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Site:	Thistle Unit	MD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Well:	156H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,900.00	88.27	357.58	9,651.59	4,405.85	-507.38	4,419.93	1.91	-0.96	-1.65
14,000.00	88.60	357.99	9,654.62	4,505.70	-511.80	4,519.87	0.53	0.33	0.41
14,100.00	89.71	359.34	9,655.91	4,605.67	-513.53	4,619.85	1.74	1.10	1.35
14,200.00	90.42	359.43	9,655.88	4,705.66	-514.90	4,719.83	0.72	0.71	0.09
14,300.00	90.18	359.94	9,654.82	4,805.65	-515.25	4,819.78	0.56	-0.24	0.51
14,400.00	89.39	0.19	9,655.52	4,905.65	-515.22	4,919.73	0.82	-0.79	0.24
14,500.00	90.34	0.37	9,656.13	5,005.65	-514.65	5,019.65	0.97	0.95	0.18
14,600.00	90.68	0.73	9,654.80	5,105.63	-513.81	5,119.56	0.49	0.34	0.36
14,700.00	89.39	1.82	9,654.51	5,205.61	-511.73	5,219.41	1.69	-1.29	1.10
14,800.00	88.25	2.61	9,656.68	5,305.50	-507.74	5,319.13	1.38	-1.14	0.78
14,900.00	88.13	2.86	9,659.99	5,405.33	-502.91	5,418.75	0.28	-0.12	0.26
15,000.00	87.17	0.63	9,663.95	5,505.19	-499.55	5,518.44	2.43	-0.97	-2.23
15,006.68	87.19	0.66	9,664.28	5,511.86	-499.47	5,525.11	0.52	0.29	0.44
T1 [TU156H]									
15,100.00	87.45	1.07	9,668.78	5,605.06	-498.36	5,618.23	0.52	0.29	0.44
15,200.00	87.27	0.77	9,673.35	5,704.94	-496.70	5,718.00	0.35	-0.18	-0.30
15,300.00	87.38	0.40	9,678.01	5,804.83	-495.66	5,817.80	0.39	0.11	-0.38
15,400.00	87.21	359.68	9,682.76	5,904.71	-495.69	5,917.64	0.73	-0.17	-0.71
15,500.00	87.87	0.12	9,687.28	6,004.61	-495.76	6,017.49	0.79	0.66	0.44
15,600.00	89.91	359.75	9,688.95	6,104.59	-495.83	6,117.42	2.07	2.04	-0.37
15,700.00	90.24	359.24	9,688.76	6,204.59	-496.78	6,217.39	0.61	0.33	-0.51
15,800.00	90.48	359.11	9,688.25	6,304.57	-498.24	6,317.37	0.28	0.24	-0.13
15,900.00	91.07	359.31	9,686.81	6,404.55	-499.77	6,417.35	0.62	0.58	0.19
16,000.00	91.45	359.77	9,684.66	6,504.52	-500.45	6,517.29	0.61	0.39	0.47
16,100.00	91.51	359.89	9,681.84	6,604.48	-500.75	6,617.21	0.13	0.06	0.12
16,200.00	90.72	359.94	9,679.78	6,704.46	-500.86	6,717.14	0.80	-0.79	0.05
16,300.00	90.41	359.37	9,679.09	6,804.46	-501.25	6,817.09	0.64	-0.30	-0.57
16,400.00	90.43	358.67	9,678.24	6,904.44	-503.06	6,917.08	0.70	0.02	-0.70
16,500.00	90.63	358.57	9,677.43	7,004.40	-505.59	7,017.07	0.22	0.20	-0.10
16,600.00	91.59	359.09	9,675.64	7,104.36	-507.73	7,117.05	1.10	0.96	0.52
16,700.00	91.75	359.68	9,672.51	7,204.31	-508.78	7,216.98	0.61	0.16	0.59
16,800.00	91.43	359.66	9,669.70	7,304.27	-509.25	7,316.90	0.32	-0.32	-0.02
16,900.00	88.70	359.84	9,669.30	7,404.25	-509.73	7,416.85	2.74	-2.73	0.18
17,000.00	88.68	359.97	9,671.83	7,504.22	-509.89	7,516.77	0.13	-0.02	0.13
17,100.00	89.95	1.34	9,673.03	7,604.20	-508.78	7,616.66	1.88	1.28	1.38
17,200.00	88.44	1.63	9,674.53	7,704.15	-506.17	7,716.48	1.54	-1.51	0.28
17,300.00	88.80	1.54	9,676.97	7,804.09	-503.49	7,816.27	0.37	0.36	-0.09
17,400.00	89.46	2.13	9,678.51	7,904.02	-500.13	7,916.04	0.89	0.66	0.59
17,500.00	89.80	1.50	9,678.81	8,003.97	-496.94	8,015.84	0.72	0.35	-0.63
17,600.00	88.53	1.06	9,680.51	8,103.93	-494.93	8,115.68	1.34	-1.27	-0.44
17,700.00	88.61	1.64	9,683.12	8,203.86	-492.52	8,215.49	0.58	0.08	0.58
17,800.00	88.52	1.09	9,685.24	8,303.80	-489.63	8,315.28	0.55	-0.10	-0.55
17,900.00	87.62	359.31	9,688.88	8,403.73	-489.54	8,415.15	1.99	-0.89	-1.78

Scientific Drilling, Intl Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 156H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Site:	Thistle Unit	MD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Well:	156H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
18,000.00	87.89	358.81	9,692.97	8,503.63	-491.42	8,515.06	0.57	0.27	-0.50	
18,100.00	87.79	358.24	9,696.35	8,603.54	-493.66	8,614.99	0.57	-0.10	-0.57	
18,200.00	87.87	358.33	9,700.60	8,703.39	-497.27	8,714.90	0.12	0.08	0.09	
18,300.00	89.34	359.48	9,703.17	8,803.33	-499.06	8,814.85	1.87	1.47	1.15	
18,400.00	90.20	359.69	9,703.26	8,903.33	-499.54	8,914.82	0.88	0.86	0.20	
18,500.00	90.60	359.85	9,702.59	9,003.33	-500.06	9,014.78	0.43	0.40	0.17	
18,600.00	90.25	359.40	9,701.64	9,103.32	-500.50	9,114.73	0.58	-0.36	-0.46	
18,700.00	90.20	358.54	9,701.40	9,203.30	-502.29	9,214.72	0.85	-0.05	-0.85	
18,800.00	90.57	357.52	9,700.76	9,303.24	-505.70	9,314.72	1.09	0.38	-1.02	
18,900.00	91.08	359.38	9,699.33	9,403.18	-508.81	9,414.70	1.93	0.51	1.86	
19,000.00	91.23	358.59	9,697.27	9,503.14	-510.27	9,514.66	0.81	0.15	-0.79	
19,100.00	91.41	358.00	9,694.97	9,603.07	-513.27	9,614.63	0.61	0.17	-0.59	
19,200.00	91.34	358.85	9,692.57	9,703.00	-516.03	9,714.60	0.86	-0.06	0.85	
19,300.00	91.25	359.28	9,690.41	9,802.97	-517.61	9,814.57	0.43	-0.10	0.42	
19,400.00	89.05	0.75	9,689.24	9,902.94	-518.03	9,914.51	2.64	-2.19	1.48	
19,500.00	86.51	359.21	9,693.35	10,002.84	-517.28	10,014.33	2.97	-2.55	-1.54	
19,600.00	88.53	1.32	9,698.41	10,102.70	-517.65	10,114.14	2.92	2.02	2.11	
19,700.00	89.23	1.65	9,700.05	10,202.64	-514.66	10,213.94	0.78	0.70	0.33	
19,800.00	87.56	0.84	9,702.68	10,302.57	-512.44	10,313.75	1.85	-1.67	-0.81	
19,900.00	89.31	2.91	9,705.56	10,402.47	-509.29	10,413.49	2.70	1.75	2.06	
20,000.00	89.47	2.54	9,706.64	10,502.35	-504.56	10,513.17	0.40	0.16	-0.37	
20,100.00	90.30	3.14	9,706.77	10,602.23	-499.58	10,612.83	1.03	0.83	0.60	
20,166.46	90.32	3.15	9,706.42	10,668.58	-495.94	10,679.03	0.03	0.03	0.01	
T2[TU156H]										
20,200.00	90.33	3.15	9,706.27	10,702.06	-493.89	10,712.43	0.03	0.03	0.01	
20,300.00	90.75	1.52	9,705.36	10,801.97	-489.73	10,812.15	1.68	0.42	-1.63	
20,400.00	91.13	359.69	9,703.63	10,901.95	-488.84	10,912.05	1.88	0.39	-1.84	
20,500.00	91.11	358.71	9,701.88	11,001.92	-490.31	11,012.01	0.97	-0.02	-0.97	
20,600.00	91.11	358.13	9,699.74	11,101.86	-493.13	11,111.99	0.58	0.00	-0.58	
20,700.00	91.13	357.74	9,697.79	11,201.77	-496.72	11,211.97	0.39	0.02	-0.39	
20,800.00	91.47	357.74	9,695.65	11,301.66	-500.87	11,311.94	0.33	0.33	0.00	
20,900.00	92.07	358.58	9,692.53	11,401.56	-504.21	11,411.89	1.04	0.60	0.84	
21,000.00	92.07	359.80	9,688.70	11,501.47	-505.64	11,511.80	1.22	0.00	1.22	
21,100.00	91.41	0.82	9,685.59	11,601.42	-505.01	11,611.68	1.21	-0.66	1.01	
21,200.00	90.37	0.48	9,683.95	11,701.39	-503.49	11,711.55	1.10	-1.05	-0.33	
21,300.00	89.29	359.46	9,684.29	11,801.39	-503.54	11,811.49	1.49	-1.08	-1.03	
21,400.00	89.32	359.51	9,685.78	11,901.37	-504.72	11,911.46	0.06	0.03	0.06	
21,500.00	89.83	359.85	9,686.53	12,001.37	-505.24	12,011.42	0.61	0.51	0.34	
21,600.00	89.93	359.64	9,686.67	12,101.37	-505.60	12,111.38	0.24	0.10	-0.21	
21,700.00	89.75	0.11	9,686.93	12,201.36	-505.92	12,211.34	0.50	-0.18	0.47	
21,800.00	89.76	359.80	9,687.37	12,301.36	-505.92	12,311.28	0.31	0.01	-0.31	
21,900.00	89.30	359.36	9,688.17	12,401.36	-506.66	12,411.25	0.63	-0.45	-0.43	
22,000.00	90.89	1.11	9,687.99	12,501.35	-506.22	12,511.17	2.36	1.59	1.75	
22,100.00	91.54	1.15	9,685.85	12,601.31	-504.26	12,611.02	0.65	0.65	0.04	

Scientific Drilling, Intl Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 156H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Site:	Thistle Unit	MD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Well:	156H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
22,200.00	91.93	1.33	9,682.88	12,701.24	-502.07	12,710.83	0.43	0.39	0.19
22,300.00	92.86	1.36	9,678.79	12,801.13	-499.77	12,810.59	0.93	0.93	0.03
22,400.00	93.77	1.58	9,672.64	12,900.90	-497.13	12,910.22	0.94	0.92	0.22
22,500.00	93.00	1.39	9,666.83	13,000.70	-494.54	13,009.89	0.80	-0.77	-0.18
22,600.00	92.46	1.35	9,661.96	13,100.55	-492.23	13,109.61	0.54	-0.54	-0.05
22,700.00	91.55	1.53	9,658.47	13,200.46	-489.71	13,209.39	0.93	-0.91	0.19
22,800.00	90.17	1.81	9,656.73	13,300.40	-486.85	13,309.18	1.41	-1.38	0.27
22,900.00	89.34	2.12	9,657.70	13,400.33	-483.37	13,408.95	0.89	-0.83	0.31
22,974.49	89.43	1.61	9,658.50	13,474.78	-480.95	13,483.28	0.70	0.12	-0.69
T3[TU156H]									
23,000.00	89.46	1.44	9,658.63	13,500.27	-479.91	13,508.72	0.70	0.12	-0.69
23,100.00	89.13	359.67	9,659.80	13,600.25	-478.83	13,608.62	1.79	-0.33	-1.76
23,200.00	88.57	358.34	9,661.78	13,700.21	-480.77	13,708.59	1.44	-0.55	-1.33
23,300.00	88.01	357.80	9,664.77	13,800.10	-484.24	13,808.54	0.78	-0.56	-0.54
23,400.00	88.76	357.89	9,667.87	13,899.98	-488.10	13,908.49	0.75	0.74	0.09
23,500.00	89.42	358.08	9,669.37	13,999.91	-491.60	14,008.48	0.69	0.66	0.19
23,600.00	89.86	357.97	9,669.99	14,099.85	-495.00	14,108.48	0.46	0.44	-0.11
23,700.00	90.80	359.00	9,669.45	14,199.80	-497.73	14,208.47	1.39	0.94	1.03
23,800.00	90.26	357.71	9,668.47	14,299.76	-500.53	14,308.46	1.41	-0.54	-1.30
23,900.00	88.97	357.36	9,669.23	14,399.66	-504.84	14,408.45	1.33	-1.28	-0.35
24,000.00	89.17	357.25	9,670.84	14,499.53	-509.63	14,508.43	0.22	0.19	-0.11
24,100.00	89.20	357.66	9,672.23	14,599.43	-513.89	14,608.41	0.41	0.03	0.41
24,200.00	89.11	357.13	9,673.73	14,699.31	-518.58	14,708.39	0.54	-0.09	-0.53
24,300.00	89.50	357.02	9,675.12	14,799.18	-523.52	14,808.36	0.40	0.39	-0.11
24,400.00	90.78	357.42	9,674.96	14,899.02	-529.07	14,908.33	1.34	1.28	0.40
24,500.00	92.12	359.41	9,672.30	14,998.95	-531.45	15,008.29	2.40	1.34	1.99
24,600.00	92.42	0.26	9,668.03	15,098.86	-531.74	15,108.15	0.90	0.30	0.85
24,700.00	92.22	0.66	9,664.13	15,198.77	-530.75	15,207.99	0.45	-0.20	0.40
24,800.00	92.44	0.42	9,660.09	15,298.69	-529.74	15,307.81	0.33	0.22	-0.24
24,900.00	92.72	0.26	9,655.59	15,398.58	-529.22	15,407.64	0.32	0.28	-0.16
25,000.00	92.91	359.86	9,650.66	15,498.46	-529.00	15,507.46	0.44	0.19	-0.39
25,029.00	92.95	359.69	9,649.18	15,527.42	-529.11	15,536.41	0.61	0.15	-0.60
FINAL MWD Survey (25029.00' MD)									
25,100.00	92.95	359.69	9,645.52	15,598.33	-529.50	15,607.29	0.00	0.00	0.00
BHL[TU156H]									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
25,029.00	9,649.18	15,527.42	-529.11	FINAL MWD Survey (25029.00' MD)
25,101.00	9,645.47	15,599.33	-529.50	FINAL Proj. to Bit (25101.00' MD)

Scientific Drilling, Intl
Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 156H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Site:	Thistle Unit	MD Reference:	KB = 24' @ 3675.00usft (Cactus 167)
Well:	156H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Checked By: _____	Approved By: _____	Date: _____
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