

Devon Energy

Lea County, NM (NAD83 NME)

Fighting Okra 18-19 Fed

#6H

OH

Survey: SDI Survey #1

Regulatory Report (Grid North)

13 July, 2018

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Scientific Drilling, Intl
Regulatory Report (Grid North)

Company:	Devon Energy	Local Co-ordinate Reference:	Site Fighting Okra 18-19 Fed
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB=32' @ 3401.00usft (Nabors X04)
Site:	Fighting Okra 18-19 Fed	MD Reference:	KB=32' @ 3401.00usft (Nabors X04)
Well:	#6H	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	Fighting Okra 18-19 Fed		
Site Position:	Northing:	382,643.65 usft	Latitude: 32° 2' 57.315 N
From: Map	Easting:	798,304.66 usft	Longitude: 103° 30' 14.199 W
Position Uncertainty: 0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.44 °

Well	#6H		
Well Position	+N/-S	0.00 usft	Northing: 382,643.65 usft
	+E/-W	0.00 usft	Easting: 798,304.66 usft
Position Uncertainty	0.00 usft		Wellhead Elevation: 0.00 usft
			Latitude: 32° 2' 57.315 N
			Longitude: 103° 30' 14.199 W
			Ground Level: 3,369.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
			Dip Angle
			(°)
			Field Strength
			(nT)
	HDGM	6/25/2018	6.73
			59.72
			47,792

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)
			180.00

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Well:	#6H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey Program		Date	7/13/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
201.00	12,906.00	Surface Surveys (OH)	MWD	MWD - Standard ISCWSA	
13,026.00	22,898.00	SDI Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	

Survey									
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Closure Azimuth (bearing)	Closure Distance (usft)
12,906.00	62.81	183.30	12,781.65	-179.20	179.20	155.57	0.00	40.96	237.31
POP[FO#6H]									
13,026.00	77.75	180.85	12,822.03	-66.64	66.64	151.61	12.60	66.27	165.61
13,056.00	84.14	179.47	12,826.75	-37.03	37.03	151.53	21.78	76.27	155.99
13,089.00	89.03	179.16	12,828.72	-4.10	4.10	151.92	14.85	88.45	151.98
13,121.00	91.24	181.78	12,828.64	27.89	-27.89	151.66	10.71	100.42	154.20
13,166.00	89.43	179.53	12,828.38	72.88	-72.88	151.14	6.42	115.74	167.80
13,215.00	89.46	181.79	12,828.85	121.87	-121.87	150.58	4.61	128.99	193.72
13,310.00	90.44	185.95	12,828.93	216.63	-216.63	144.17	4.50	146.36	260.22
13,405.00	86.57	188.78	12,831.41	310.79	-310.79	132.00	5.05	156.99	337.66
13,499.00	85.19	182.40	12,838.17	404.05	-404.05	122.87	6.93	163.09	422.32
13,594.00	88.42	181.09	12,843.47	498.85	-498.85	119.98	3.67	166.48	513.07
13,689.00	90.20	191.44	12,844.62	593.14	-593.14	109.63	11.05	169.53	603.19
13,783.00	90.00	190.37	12,844.45	685.44	-685.44	91.85	1.16	172.37	691.57
13,878.00	89.83	181.43	12,844.59	779.84	-779.84	82.09	9.41	173.99	784.15
13,973.00	91.28	176.34	12,843.67	874.78	-874.78	83.94	5.57	174.52	878.80
14,068.00	88.76	174.78	12,843.64	969.49	-969.49	91.29	3.12	174.62	973.78
14,163.00	85.77	174.91	12,848.17	1,063.99	-1,063.99	99.82	3.15	174.64	1,068.66
14,258.00	88.35	173.38	12,853.04	1,158.36	-1,158.36	109.50	3.16	174.60	1,163.52
14,353.00	90.71	173.14	12,853.82	1,252.69	-1,252.69	120.65	2.50	174.50	1,258.48
14,449.00	91.24	171.59	12,852.19	1,347.82	-1,347.82	133.40	1.71	174.35	1,354.41

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Site: Fighting Okra 18-19 Fed
Well: #6H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Site Fighting Okra 18-19 Fed
TVD Reference: KB=32' @ 3401.00usft (Nabors X04)
MD Reference: KB=32' @ 3401.00usft (Nabors X04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland District

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Closure Azimuth (bearing)	Closure Distance (usft)
14,544.00	92.35	173.98	12,849.21	1,442.01	-1,442.01	145.32	2.77	174.25	1,449.32
14,638.00	89.26	179.68	12,847.89	1,535.81	-1,535.81	150.52	6.90	174.40	1,543.17
14,734.00	91.75	181.32	12,847.05	1,631.79	-1,631.79	149.68	3.11	174.76	1,638.64
14,828.00	87.28	179.39	12,847.84	1,725.76	-1,725.76	149.10	5.18	175.06	1,732.19
14,923.00	89.60	179.74	12,850.43	1,820.71	-1,820.71	149.82	2.47	175.30	1,826.87
15,018.00	90.24	180.76	12,850.56	1,915.71	-1,915.71	149.40	1.27	175.54	1,921.53
15,113.00	90.47	181.26	12,849.97	2,010.69	-2,010.69	147.73	0.58	175.80	2,016.11
15,207.00	90.20	180.28	12,849.42	2,104.68	-2,104.68	146.46	1.08	176.02	2,109.77
15,303.00	89.87	177.27	12,849.36	2,200.65	-2,200.65	148.52	3.15	176.14	2,205.66
15,398.00	91.44	179.33	12,848.28	2,295.59	-2,295.59	151.33	2.73	176.23	2,300.58
15,492.00	89.06	178.62	12,847.87	2,389.57	-2,389.57	153.02	2.64	176.34	2,394.46
15,587.00	89.43	182.29	12,849.12	2,484.54	-2,484.54	152.26	3.88	176.49	2,489.20
15,681.00	89.16	189.22	12,850.28	2,578.01	-2,578.01	142.84	7.38	176.83	2,581.96
15,776.00	89.73	185.67	12,851.20	2,672.18	-2,672.18	130.54	3.78	177.20	2,675.37
15,871.00	88.99	175.81	12,852.26	2,767.05	-2,767.05	129.31	10.41	177.32	2,770.07
15,965.00	90.03	167.76	12,853.07	2,860.01	-2,860.01	142.73	8.63	177.14	2,863.57
16,060.00	88.79	172.30	12,854.04	2,953.54	-2,953.54	159.17	4.95	176.92	2,957.83
16,155.00	89.40	177.51	12,855.55	3,048.12	-3,048.12	167.60	5.52	176.85	3,052.73
16,249.00	90.30	176.46	12,855.79	3,141.99	-3,141.99	172.55	1.47	176.86	3,146.72
16,343.00	90.07	169.75	12,855.49	3,235.25	-3,235.25	183.83	7.14	176.75	3,240.47
16,438.00	89.90	168.95	12,855.51	3,328.62	-3,328.62	201.38	0.86	176.54	3,334.70
16,534.00	89.26	172.46	12,856.22	3,423.34	-3,423.34	216.89	3.72	176.37	3,430.20
16,628.00	90.50	182.44	12,856.41	3,517.13	-3,517.13	221.06	10.70	176.40	3,524.07
16,722.00	89.80	182.38	12,856.17	3,611.04	-3,611.04	217.11	0.75	176.56	3,617.56
16,817.00	89.87	180.79	12,856.44	3,706.00	-3,706.00	214.48	1.68	176.69	3,712.20
16,910.00	89.56	183.33	12,856.90	3,798.93	-3,798.93	211.14	2.75	176.82	3,804.80
17,005.00	89.60	184.82	12,857.60	3,893.69	-3,893.69	204.39	1.57	177.00	3,899.05

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Well:	#6H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey									
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Closure Azimuth (bearing)	Closure Distance (usft)
17,099.00	90.17	181.17	12,857.79	3,987.54	-3,987.54	199.48	3.93	177.14	3,992.53
17,193.00	89.73	181.81	12,857.87	4,081.51	-4,081.51	197.03	0.83	177.24	4,086.26
17,287.00	90.17	182.99	12,857.95	4,175.43	-4,175.43	193.10	1.34	177.35	4,179.89
17,381.00	91.88	183.51	12,856.27	4,269.26	-4,269.26	187.77	1.90	177.48	4,273.38
17,475.00	90.77	186.18	12,854.10	4,362.88	-4,362.88	179.83	3.08	177.64	4,366.59
17,569.00	89.70	188.78	12,853.71	4,456.07	-4,456.07	167.60	2.99	177.85	4,459.22
17,662.00	91.11	192.86	12,853.06	4,547.40	-4,547.40	150.14	4.64	178.11	4,549.87
17,756.00	90.34	192.05	12,851.87	4,639.18	-4,639.18	129.87	1.19	178.40	4,640.99
17,851.00	90.87	192.91	12,850.86	4,731.92	-4,731.92	109.35	1.06	178.68	4,733.19
17,945.00	89.40	181.79	12,850.64	4,825.00	-4,825.00	97.34	11.93	178.84	4,825.99
18,040.00	90.27	182.55	12,850.91	4,919.93	-4,919.93	93.74	1.22	178.91	4,920.83
18,134.00	90.23	187.01	12,850.50	5,013.58	-5,013.58	85.91	4.74	179.02	5,014.32
18,229.00	87.61	179.24	12,852.30	5,108.34	-5,108.34	80.74	8.63	179.09	5,108.98
18,323.00	88.09	170.25	12,855.83	5,201.78	-5,201.78	89.33	9.57	179.02	5,202.55
18,417.00	87.99	169.08	12,859.05	5,294.20	-5,294.20	106.18	1.25	178.85	5,295.27
18,512.00	92.02	172.45	12,859.04	5,387.94	-5,387.94	121.43	5.53	178.71	5,389.31
18,606.00	86.50	171.74	12,860.25	5,481.00	-5,481.00	134.35	5.92	178.60	5,482.65
18,700.00	91.17	176.00	12,862.16	5,574.40	-5,574.40	144.37	6.72	178.52	5,576.27
18,795.00	92.55	175.29	12,859.08	5,669.07	-5,669.07	151.58	1.63	178.47	5,671.10
18,890.00	92.56	174.99	12,854.84	5,763.64	-5,763.64	159.62	0.32	178.41	5,765.85
18,984.00	93.19	179.62	12,850.13	5,857.39	-5,857.39	164.04	4.96	178.40	5,859.68
19,079.00	91.14	178.14	12,846.54	5,952.29	-5,952.29	165.89	2.66	178.40	5,954.61
19,173.00	89.73	177.25	12,845.82	6,046.21	-6,046.21	169.68	1.77	178.39	6,048.59
19,268.00	91.08	182.34	12,845.15	6,141.18	-6,141.18	170.02	5.54	178.41	6,143.53
19,362.00	89.70	183.16	12,844.51	6,235.06	-6,235.06	165.51	1.71	178.48	6,237.26
19,457.00	88.72	184.72	12,845.82	6,329.82	-6,329.82	158.98	1.94	178.56	6,331.82
19,552.00	88.09	185.41	12,848.47	6,424.42	-6,424.42	150.60	0.98	178.66	6,426.18

Scientific Drilling, Intl
Regulatory Report (Grid North)

Company:	Devon Energy	Local Co-ordinate Reference:	Site Fighting Okra 18-19 Fed
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB=32' @ 3401.00usft (Nabors X04)
Site:	Fighting Okra 18-19 Fed	MD Reference:	KB=32' @ 3401.00usft (Nabors X04)
Well:	#6H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

Survey									
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Closure Azimuth (bearing)	Closure Distance (usft)
19,647.00	90.34	187.89	12,849.77	6,518.75	-6,518.75	139.60	3.52	178.77	6,520.25
19,742.00	88.46	188.33	12,850.76	6,612.79	-6,612.79	126.20	2.03	178.91	6,614.00
19,835.00	86.84	180.38	12,854.58	6,705.37	-6,705.37	119.14	8.72	178.98	6,706.43
19,930.00	87.82	179.35	12,859.01	6,800.26	-6,800.26	119.37	1.50	178.99	6,801.31
20,023.00	92.52	178.90	12,858.73	6,893.23	-6,893.23	120.79	5.08	179.00	6,894.28
20,117.00	89.46	176.54	12,857.11	6,987.12	-6,987.12	124.52	4.11	178.98	6,988.23
20,212.00	89.30	176.59	12,858.14	7,081.94	-7,081.94	130.22	0.18	178.95	7,083.14
20,307.00	90.84	178.70	12,858.02	7,176.86	-7,176.86	134.12	2.75	178.93	7,178.11
20,402.00	89.36	172.61	12,857.85	7,271.53	-7,271.53	141.31	6.60	178.89	7,272.91
20,497.00	90.20	171.46	12,858.22	7,365.62	-7,365.62	154.48	1.50	178.80	7,367.24
20,593.00	90.81	167.47	12,857.37	7,459.97	-7,459.97	172.02	4.20	178.68	7,461.96
20,688.00	90.17	173.83	12,856.56	7,553.66	-7,553.66	187.45	6.73	178.58	7,555.99
20,783.00	91.44	175.46	12,855.22	7,648.23	-7,648.23	196.31	2.17	178.53	7,650.75
20,878.00	91.44	182.31	12,852.83	7,743.13	-7,743.13	198.16	7.21	178.53	7,745.66
20,973.00	89.93	184.26	12,851.70	7,837.96	-7,837.96	192.72	2.60	178.59	7,840.32
21,068.00	89.50	187.70	12,852.17	7,932.42	-7,932.42	182.82	3.65	178.68	7,934.53
21,164.00	89.60	189.77	12,852.93	8,027.30	-8,027.30	168.25	2.16	178.80	8,029.06
21,259.00	89.70	189.78	12,853.51	8,120.92	-8,120.92	152.12	0.11	178.93	8,122.35
21,353.00	88.56	187.86	12,854.93	8,213.79	-8,213.79	137.71	2.38	179.04	8,214.95
21,448.00	88.29	187.72	12,857.54	8,307.88	-8,307.88	124.83	0.32	179.14	8,308.82
21,543.00	89.63	189.21	12,859.27	8,401.83	-8,401.83	110.85	2.11	179.24	8,402.56
21,637.00	90.17	185.86	12,859.43	8,495.00	-8,495.00	98.53	3.61	179.34	8,495.57
21,732.00	90.20	184.07	12,859.13	8,589.64	-8,589.64	90.31	1.88	179.40	8,590.11
21,827.00	90.67	180.72	12,858.40	8,684.54	-8,684.54	86.34	3.56	179.43	8,684.97
21,921.00	91.11	179.90	12,856.94	8,778.53	-8,778.53	85.83	0.99	179.44	8,778.95
22,016.00	88.72	178.95	12,857.09	8,873.51	-8,873.51	86.78	2.71	179.44	8,873.94
22,110.00	89.13	178.38	12,858.85	8,967.47	-8,967.47	88.97	0.75	179.43	8,967.91

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Site:	Fighting Okra 18-19 Fed	MD Reference:	KB=32' @ 3401.00usft (Nabors X04)
Well:	#6H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland District

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22,204.00	89.56	177.80	12,859.92	9,061.41	-9,061.41	92.10	0.77	179.42	9,061.88
22,299.00	90.40	178.48	12,859.96	9,156.36	-9,156.36	95.19	1.14	179.40	9,156.85
22,393.00	87.99	177.37	12,861.28	9,250.28	-9,250.28	98.59	2.82	179.39	9,250.81
22,487.00	90.13	178.39	12,862.82	9,344.20	-9,344.20	102.07	2.52	179.37	9,344.75
22,582.00	90.57	179.88	12,862.24	9,439.18	-9,439.18	103.50	1.64	179.37	9,439.75
22,677.00	88.32	179.33	12,863.16	9,534.17	-9,534.17	104.16	2.44	179.37	9,534.74
22,771.00	89.66	180.64	12,864.82	9,628.15	-9,628.15	104.18	1.99	179.38	9,628.71
22,843.00	88.72	180.55	12,865.83	9,700.14	-9,700.14	103.43	1.31	179.39	9,700.69
FINAL MWD Survey (22843.00' MD) - BHL[FO/#6H]									
22,898.00	88.72	180.55	12,867.06	9,755.12	-9,755.12	102.90	0.00	179.40	9,755.66
FINAL Proj. to Bit (22898.00' MD)									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
22,843.00	12,865.83	-9,700.14	103.43	FINAL MWD Survey (22843.00' MD)
22,898.00	12,867.06	-9,755.12	102.90	FINAL Proj. to Bit (22898.00' MD)

Checked By: _____	Approved By: _____	Date: _____
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