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DISTRICT II-ARTESIA O.C.D.

Devon Energy

Eddy County, New Mexico (NAD 83)

Lusitano 27-34 FED COM

336H

30-015-44425

OH

**Provide Signature Page for
Directional Survey**

Design: OH

Standard Survey Report

07 August, 2018

Survey Report

Company: Devon Energy
 Project: Eddy County, New Mexico (NAD 83)
 Site: Lusitano 27-34 FED COM
 Well: 336H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well 336H
 TVD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
 MD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14 Single User Db

Project	Eddy County, New Mexico (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	Lusitano 27-34 FED COM		
Site Position:		Northing:	403,270.15 usft
From:	Map	Easting:	719,382.96 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.107364
		Longitude:	-103.758304
		Grid Convergence:	0.31 °

Well	336H		
Well Position	+N/-S	0.00 usft	Northing: 403,469.96 usft
	+E/-W	0.00 usft	Easting: 719,353.02 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32.107913
		Longitude:	-103.758398
		Ground Level:	3,336.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	11/8/2017	6.99
			Dip Angle
			59.92
			Field Strength
			47,809.42932353

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:	Depth From (TVD)	+N/-S	Tie On Depth:
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			180.00

Survey Program	Date 8/7/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
144.00	962.00	Invictus MWD (OH)	MWD
995.00	21,785.00	#2 Legacy MWD (OH)	MWD
			Description
			OWSG MWD - Standard
			OWSG MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	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
144.00	1.00	6.72	143.99	1.25	0.15	-1.25	0.69	0.69	0.00
203.00	0.80	357.72	202.99	2.17	0.19	-2.17	0.41	-0.34	-15.25
294.00	1.10	2.72	293.97	3.68	0.21	-3.68	0.34	0.33	5.49
392.00	0.60	13.72	391.96	5.12	0.37	-5.12	0.53	-0.51	11.22
487.00	0.60	325.72	486.96	6.01	0.21	-6.01	0.51	0.00	-50.53
551.00	0.50	298.72	550.95	6.42	-0.22	-6.42	0.43	-0.16	-42.19
583.00	0.60	316.72	582.95	6.61	-0.46	-6.61	0.62	0.31	56.25
773.00	0.60	324.72	772.94	8.15	-1.72	-8.15	0.04	0.00	4.21
867.00	1.10	316.72	866.93	9.21	-2.62	-9.21	0.55	0.53	-8.51

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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)
962.00	1.40	318.72	961.91	10.74	-4.01	-10.74	0.32	0.32	2.11
995.00	1.52	324.42	994.90	11.40	-4.53	-11.40	0.57	0.36	17.27
1,072.00	0.90	340.33	1,071.88	12.80	-5.33	-12.80	0.91	-0.81	20.66
1,163.00	1.32	25.33	1,162.87	14.42	-5.12	-14.42	1.03	0.46	49.45
1,257.00	2.10	32.94	1,256.82	16.84	-3.72	-16.84	0.86	0.83	8.10
1,351.00	2.65	33.32	1,350.74	20.11	-1.59	-20.11	0.59	0.59	0.40
1,443.00	3.31	33.50	1,442.62	24.10	1.04	-24.10	0.72	0.72	0.20
1,535.00	4.12	36.57	1,534.42	28.97	4.48	-28.97	0.91	0.88	3.34
1,628.00	4.65	30.79	1,627.15	34.89	8.40	-34.89	0.74	0.57	-6.22
1,720.00	5.24	31.34	1,718.81	41.68	12.49	-41.68	0.64	0.64	0.60
1,814.00	4.81	31.92	1,812.45	48.69	16.81	-48.69	0.46	-0.46	0.62
1,909.00	5.33	30.42	1,907.07	55.88	21.15	-55.88	0.56	0.55	-1.58
2,004.00	5.11	28.79	2,001.68	63.39	25.42	-63.39	0.28	-0.23	-1.72
2,099.00	4.72	27.02	2,096.33	70.58	29.23	-70.58	0.44	-0.41	-1.86
2,194.00	4.89	32.15	2,191.00	77.49	33.16	-77.49	0.49	0.18	5.40
2,289.00	5.83	34.27	2,285.58	84.91	38.04	-84.91	1.01	0.99	2.23
2,384.00	5.77	33.41	2,380.09	92.88	43.38	-92.88	0.11	-0.06	-0.91
2,479.00	5.56	34.35	2,474.63	100.67	48.61	-100.67	0.24	-0.22	0.99
2,574.00	5.26	34.93	2,569.21	108.04	53.70	-108.04	0.32	-0.32	0.61
2,669.00	4.88	31.14	2,663.84	115.06	58.28	-115.06	0.53	-0.40	-3.99
2,764.00	4.93	26.11	2,758.49	122.19	62.17	-122.19	0.46	0.05	-5.29
2,860.00	4.72	24.51	2,854.15	129.49	65.62	-129.49	0.26	-0.22	-1.67
2,954.00	5.12	28.23	2,947.80	136.70	69.21	-136.70	0.54	0.43	3.96
3,049.00	5.68	30.82	3,042.38	144.47	73.62	-144.47	0.64	0.59	2.73
3,144.00	5.15	32.47	3,136.96	152.11	78.32	-152.11	0.58	-0.56	1.74
3,239.00	5.28	34.15	3,231.56	159.32	83.06	-159.32	0.21	0.14	1.77
3,334.00	6.10	33.76	3,326.09	167.14	88.32	-167.14	0.86	0.86	-0.41
3,430.00	5.46	33.75	3,421.61	175.17	93.70	-175.17	0.67	-0.67	-0.01
3,524.00	5.05	34.07	3,515.21	182.32	98.50	-182.32	0.44	-0.44	0.34
3,619.00	5.13	33.06	3,609.84	189.34	103.16	-189.34	0.13	0.08	-1.06
3,714.00	4.64	30.76	3,704.49	196.20	107.44	-196.20	0.56	-0.52	-2.42
3,809.00	3.80	31.83	3,799.23	202.18	111.06	-202.18	0.89	-0.88	1.13
3,905.00	3.53	21.26	3,895.04	207.64	113.81	-207.64	0.76	-0.28	-11.01
4,000.00	2.58	20.89	3,989.90	212.36	115.64	-212.36	1.00	-1.00	-0.39
4,096.00	1.98	35.10	4,085.82	215.74	117.36	-215.74	0.85	-0.63	14.80
4,191.00	2.05	40.60	4,180.77	218.37	119.41	-218.37	0.22	0.07	5.79
4,286.00	1.54	21.26	4,275.72	220.85	120.98	-220.85	0.83	-0.54	-20.36
4,381.00	0.91	6.90	4,370.70	222.79	121.53	-222.79	0.73	-0.66	-15.12
4,476.00	0.81	8.12	4,465.69	224.20	121.72	-224.20	0.11	-0.11	1.28
4,571.00	0.71	357.09	4,560.68	225.45	121.78	-225.45	0.19	-0.11	-11.61
4,666.00	0.56	5.37	4,655.67	226.50	121.80	-226.50	0.18	-0.16	8.72
4,761.00	0.57	11.30	4,750.67	227.43	121.93	-227.43	0.06	0.01	6.24
4,856.00	0.65	10.96	4,845.66	228.42	122.13	-228.42	0.08	0.08	-0.36

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4,951.00	0.48	359.03	4,940.66	229.35	122.22	-229.35	0.22	-0.18	-12.56
5,046.00	0.54	353.46	5,035.65	230.19	122.17	-230.19	0.08	0.06	-5.86
5,141.00	0.54	347.23	5,130.65	231.07	122.02	-231.07	0.06	0.00	-6.56
5,236.00	0.23	65.70	5,225.65	231.59	122.09	-231.59	0.57	-0.33	82.60
5,331.00	0.20	71.56	5,320.65	231.72	122.42	-231.72	0.04	-0.03	6.17
5,426.00	0.18	69.21	5,415.65	231.82	122.72	-231.82	0.02	-0.02	-2.47
5,522.00	0.14	40.97	5,511.65	231.97	122.94	-231.97	0.09	-0.04	-29.42
5,617.00	0.11	34.50	5,606.65	232.13	123.06	-232.13	0.03	-0.03	-6.81
5,712.00	0.18	351.74	5,701.65	232.35	123.09	-232.35	0.13	0.07	-45.01
5,808.00	0.21	343.63	5,797.65	232.67	123.02	-232.67	0.04	0.03	-8.45
5,903.00	0.10	337.62	5,892.65	232.91	122.94	-232.91	0.12	-0.12	-6.33
5,997.00	0.23	329.87	5,986.65	233.15	122.82	-233.15	0.14	0.14	-8.24
6,093.00	0.30	330.96	6,082.64	233.54	122.60	-233.54	0.07	0.07	1.14
6,188.00	0.37	327.04	6,177.64	234.01	122.31	-234.01	0.08	0.07	-4.13
6,283.00	0.24	284.71	6,272.64	234.32	121.95	-234.32	0.26	-0.14	-44.56
6,378.00	0.31	294.97	6,367.64	234.48	121.53	-234.48	0.09	0.07	10.80
6,473.00	0.30	333.96	6,462.64	234.81	121.18	-234.81	0.21	-0.01	41.04
6,569.00	0.10	332.62	6,558.64	235.11	121.03	-235.11	0.21	-0.21	-1.40
6,664.00	0.06	284.11	6,653.64	235.20	120.95	-235.20	0.08	-0.04	-51.06
6,759.00	0.23	305.50	6,748.64	235.32	120.74	-235.32	0.18	0.18	22.52
6,854.00	0.00	6.68	6,843.64	235.43	120.59	-235.43	0.24	-0.24	0.00
6,949.00	0.03	178.66	6,938.64	235.41	120.59	-235.41	0.03	0.03	0.00
7,044.00	0.04	211.26	7,033.64	235.35	120.57	-235.35	0.02	0.01	34.32
7,140.00	0.09	189.02	7,129.64	235.25	120.54	-235.25	0.06	0.05	-23.17
7,234.00	0.28	170.33	7,223.64	234.95	120.57	-234.95	0.21	0.20	-19.88
7,330.00	0.28	157.72	7,319.64	234.50	120.70	-234.50	0.06	0.00	-13.14
7,425.00	0.31	150.38	7,414.63	234.07	120.91	-234.07	0.05	0.03	-7.73
7,520.00	0.34	135.11	7,509.63	233.64	121.24	-233.64	0.10	0.03	-16.07
7,615.00	0.34	147.29	7,604.63	233.21	121.59	-233.21	0.08	0.00	12.82
7,711.00	0.28	157.83	7,700.63	232.75	121.83	-232.75	0.09	-0.06	10.98
7,806.00	0.29	160.28	7,795.63	232.31	122.00	-232.31	0.02	0.01	2.58
7,901.00	0.48	181.69	7,890.63	231.68	122.07	-231.68	0.25	0.20	22.54
7,996.00	0.58	176.52	7,985.62	230.81	122.09	-230.81	0.12	0.11	-5.44
8,091.00	0.81	171.44	8,080.62	229.66	122.22	-229.66	0.25	0.24	-5.35
8,187.00	1.00	173.48	8,176.60	228.16	122.42	-228.16	0.20	0.20	2.13
8,282.00	0.86	177.27	8,271.59	226.62	122.54	-226.62	0.16	-0.15	3.99
8,376.00	0.76	188.50	8,365.58	225.30	122.48	-225.30	0.20	-0.11	11.95
8,472.00	0.38	167.30	8,461.58	224.36	122.46	-224.36	0.45	-0.40	-22.08
8,567.00	0.04	217.23	8,556.58	224.03	122.51	-224.03	0.37	-0.36	52.56
8,662.00	0.34	3.18	8,651.58	224.28	122.51	-224.28	0.39	0.32	153.63
8,757.00	0.68	321.66	8,746.57	225.01	122.17	-225.01	0.51	0.36	-43.71
8,853.00	1.18	309.23	8,842.56	226.08	121.05	-226.08	0.56	0.52	-12.95
8,948.00	1.26	303.19	8,937.54	227.27	119.42	-227.27	0.16	0.08	-6.36

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9,043.00	1.48	313.08	9,032.51	228.68	117.65	-228.68	0.34	0.23	10.41
9,138.00	1.25	326.86	9,127.48	230.38	116.19	-230.38	0.42	-0.24	14.51
9,233.00	0.89	339.84	9,222.47	231.94	115.37	-231.94	0.45	-0.38	13.66
9,262.00	0.87	341.53	9,251.46	232.36	115.22	-232.36	0.11	-0.07	5.83
9,375.00	0.84	286.84	9,364.45	233.42	114.15	-233.42	0.70	-0.03	-48.40
9,418.00	0.91	276.46	9,407.45	233.55	113.51	-233.55	0.40	0.16	-24.14
9,514.00	1.14	337.51	9,503.44	234.52	112.39	-234.52	1.10	0.24	63.59
9,609.00	1.29	357.54	9,598.41	236.46	111.98	-236.46	0.47	0.16	21.08
9,704.00	1.25	342.14	9,693.39	238.51	111.62	-238.51	0.36	-0.04	-16.21
9,799.00	0.89	269.08	9,788.38	239.49	110.56	-239.49	1.37	-0.38	-76.91
9,894.00	1.24	299.79	9,883.36	239.99	108.93	-239.99	0.69	0.37	32.33
9,990.00	2.44	309.34	9,979.31	241.80	106.45	-241.80	1.29	1.25	9.95
10,085.00	1.98	321.21	10,074.24	244.36	103.86	-244.36	0.68	-0.48	12.49
10,180.00	1.93	10.29	10,169.19	247.21	103.12	-247.21	1.71	-0.05	51.66
10,275.00	2.24	30.29	10,264.13	250.39	104.34	-250.39	0.83	0.33	21.05
10,373.00	2.77	45.03	10,362.04	253.72	106.98	-253.72	0.85	0.54	15.04
10,468.00	2.85	67.46	10,456.93	256.24	110.79	-256.24	1.15	0.08	23.61
10,563.00	2.93	95.26	10,551.81	256.93	115.39	-256.93	1.46	0.08	29.26
10,658.00	1.07	175.03	10,646.76	255.82	117.88	-255.82	3.09	-1.96	83.97
10,753.00	0.86	192.45	10,741.75	254.24	117.80	-254.24	0.38	-0.22	18.34
10,848.00	0.29	1.63	10,836.74	253.78	117.66	-253.78	1.21	-0.60	178.08
10,943.00	0.39	338.16	10,931.74	254.32	117.54	-254.32	0.18	0.11	-24.71
11,041.00	2.68	213.83	11,029.71	252.73	116.14	-252.73	2.98	2.34	-126.87
KOP 11041'MD / 11029.71'TVD									
11,087.00	8.02	222.13	11,075.49	249.45	113.39	-249.45	11.70	11.61	18.04
11,136.00	11.94	222.23	11,123.74	243.16	107.69	-243.16	8.00	8.00	0.20
11,232.00	20.36	217.28	11,215.87	222.49	90.87	-222.49	8.88	8.77	-5.16
11,327.00	31.29	209.29	11,301.28	187.70	68.72	-187.70	12.05	11.51	-8.41
11,422.00	41.87	195.21	11,377.60	135.35	48.23	-135.35	14.15	11.14	-14.82
11,517.00	50.25	194.20	11,443.46	69.24	30.93	-69.24	8.85	8.82	-1.06
11,612.00	58.89	193.99	11,498.48	-5.77	12.10	5.77	9.10	9.09	-0.22
11,708.00	67.08	192.72	11,542.05	-88.92	-7.60	88.92	8.61	8.53	-1.32
11,714.90	67.50	192.35	11,544.71	-95.13	-8.98	95.13	7.85	6.08	-5.39
FTP at 11714.90'MD / 11544.71'TVD - FTP - 336H									
11,750.70	69.69	190.45	11,557.78	-127.80	-15.57	127.80	7.85	6.12	-5.29
LP - 336H									
11,802.00	72.86	187.83	11,574.25	-175.76	-23.28	175.76	7.85	6.18	-5.11
11,897.00	74.52	185.99	11,600.93	-266.27	-34.24	266.27	2.55	1.75	-1.94
11,992.00	83.31	184.09	11,619.18	-359.04	-42.40	359.04	9.46	9.25	-2.00
12,071.00	89.92	183.19	11,623.84	-437.70	-47.40	437.70	8.44	8.37	-1.14
12,108.00	91.15	183.11	11,623.49	-474.64	-49.43	474.64	3.33	3.32	-0.22
12,203.00	90.42	183.14	11,622.19	-569.49	-54.61	569.49	0.77	-0.77	0.03
12,298.00	90.81	183.02	11,621.17	-664.35	-59.71	664.35	0.43	0.41	-0.13
12,393.00	90.11	181.59	11,620.41	-759.26	-63.53	759.26	1.68	-0.74	-1.51

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 Well: 336H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well 336H
 TVD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
 MD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14 Single 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)
12,487.00	89.47	180.41	11,620.75	-853.25	-65.17	853.25	1.43	-0.68	-1.26
12,582.00	89.10	178.13	11,621.94	-948.22	-63.96	948.22	2.43	-0.39	-2.40
12,676.00	89.33	178.43	11,623.23	-1,042.17	-61.14	1,042.17	0.40	0.24	0.32
12,771.00	88.79	178.12	11,624.79	-1,137.12	-58.28	1,137.12	0.66	-0.57	-0.33
12,866.00	90.06	177.84	11,625.74	-1,232.05	-54.94	1,232.05	1.37	1.34	-0.29
12,961.00	90.65	178.03	11,625.15	-1,326.99	-51.51	1,326.99	0.65	0.62	0.20
13,056.00	90.78	179.41	11,623.97	-1,421.95	-49.39	1,421.95	1.46	0.14	1.45
13,151.00	91.32	179.51	11,622.23	-1,516.93	-48.50	1,516.93	0.58	0.57	0.11
13,245.00	91.63	180.85	11,619.81	-1,610.90	-48.79	1,610.90	1.46	0.33	1.43
13,340.00	89.66	181.22	11,618.74	-1,705.87	-50.51	1,705.87	2.11	-2.07	0.39
13,435.00	89.97	181.49	11,619.04	-1,800.85	-52.75	1,800.85	0.43	0.33	0.28
13,530.00	90.14	182.16	11,618.95	-1,895.80	-55.78	1,895.80	0.73	0.18	0.71
13,625.00	90.36	182.53	11,618.54	-1,990.72	-59.67	1,990.72	0.45	0.23	0.39
13,719.00	89.27	181.39	11,618.84	-2,084.66	-62.88	2,084.66	1.68	-1.16	-1.21
13,814.00	89.33	179.99	11,620.00	-2,179.64	-64.02	2,179.64	1.47	0.06	-1.47
13,909.00	89.33	180.00	11,621.11	-2,274.64	-64.02	2,274.64	0.01	0.00	0.01
14,004.00	90.73	179.81	11,621.06	-2,369.63	-63.86	2,369.63	1.49	1.47	-0.20
14,098.00	91.23	180.34	11,619.45	-2,463.62	-63.98	2,463.62	0.78	0.53	0.56
14,193.00	91.79	180.13	11,616.95	-2,558.58	-64.37	2,558.58	0.63	0.59	-0.22
14,288.00	90.59	178.85	11,614.98	-2,653.56	-63.53	2,653.56	1.85	-1.26	-1.35
14,383.00	90.90	178.80	11,613.74	-2,748.53	-61.58	2,748.53	0.33	0.33	-0.05
14,477.00	90.48	179.17	11,612.61	-2,842.51	-59.91	2,842.51	0.60	-0.45	0.39
14,572.00	90.45	179.30	11,611.84	-2,937.49	-58.64	2,937.49	0.14	-0.03	0.14
14,667.00	88.43	179.27	11,612.77	-3,032.48	-57.46	3,032.48	2.13	-2.13	-0.03
14,762.00	88.49	178.97	11,615.32	-3,127.43	-56.00	3,127.43	0.32	0.06	-0.32
14,856.00	88.57	178.84	11,617.73	-3,221.38	-54.20	3,221.38	0.16	0.09	-0.14
14,951.00	88.54	179.04	11,620.13	-3,316.34	-52.45	3,316.34	0.21	-0.03	0.21
15,045.00	88.77	178.59	11,622.34	-3,410.29	-50.50	3,410.29	0.54	0.24	-0.48
15,140.00	89.41	179.81	11,623.84	-3,505.27	-49.18	3,505.27	1.45	0.67	1.28
15,244.48	90.14	180.59	11,624.25	-3,609.74	-49.54	3,609.74	1.02	0.70	0.75
15,330.00	89.36	180.12	11,624.63	-3,695.26	-50.07	3,695.26	1.06	-0.91	-0.55
15,425.00	89.41	179.77	11,625.65	-3,790.26	-49.98	3,790.26	0.37	0.05	-0.37
15,520.00	90.92	180.29	11,625.37	-3,885.25	-50.03	3,885.25	1.68	1.59	0.55
15,614.00	91.63	181.60	11,623.28	-3,979.21	-51.58	3,979.21	1.58	0.76	1.39
15,709.00	91.99	182.41	11,620.28	-4,074.11	-54.90	4,074.11	0.93	0.38	0.85
15,804.00	90.36	181.92	11,618.33	-4,169.02	-58.49	4,169.02	1.79	-1.72	-0.52
15,899.00	89.30	180.14	11,618.62	-4,263.99	-60.20	4,263.99	2.18	-1.12	-1.87
15,994.00	88.37	179.47	11,620.55	-4,358.97	-59.87	4,358.97	1.21	-0.98	-0.71
16,089.00	90.20	180.35	11,621.73	-4,453.96	-59.73	4,453.96	2.14	1.93	0.93
16,183.00	89.89	178.92	11,621.66	-4,547.96	-59.13	4,547.96	1.56	-0.33	-1.52
16,278.00	89.24	178.23	11,622.38	-4,642.92	-56.76	4,642.92	1.00	-0.68	-0.73
16,373.00	90.67	179.75	11,622.45	-4,737.90	-55.09	4,737.90	2.20	1.51	1.60
16,468.00	88.91	179.00	11,622.80	-4,832.89	-54.05	4,832.89	2.01	-1.85	-0.79

Survey Report

Company: Devon Energy
 Project: Eddy County, New Mexico (NAD 83)
 Site: Lusitano 27-34 FED COM
 Well: 336H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well 336H
 TVD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
 MD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14 Single 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)
16,562.00	89.27	180.77	11,624.30	-4,926.88	-53.87	4,926.88	1.92	0.38	1.88
16,635.22	90.83	180.16	11,624.23	-5,000.09	-54.46	5,000.09	2.28	2.13	-0.83
Midpoint - 336H									
16,657.00	91.29	179.98	11,623.83	-5,021.87	-54.49	5,021.87	2.28	2.13	-0.83
16,753.00	91.99	179.25	11,621.08	-5,117.82	-53.84	5,117.82	1.05	0.73	-0.76
16,847.00	91.99	179.66	11,617.82	-5,211.76	-52.95	5,211.76	0.44	0.00	0.44
16,942.00	91.23	179.81	11,615.15	-5,306.72	-52.51	5,306.72	0.82	-0.80	0.16
17,036.00	92.86	180.97	11,611.80	-5,400.66	-53.15	5,400.66	2.13	1.73	1.23
17,131.00	90.98	180.33	11,608.61	-5,495.59	-54.23	5,495.59	2.09	-1.98	-0.67
17,226.00	90.98	180.84	11,606.99	-5,590.57	-55.20	5,590.57	0.54	0.00	0.54
17,320.00	92.66	183.02	11,604.00	-5,684.46	-58.36	5,684.46	2.93	1.79	2.32
17,415.00	92.75	182.07	11,599.52	-5,779.26	-62.57	5,779.26	1.00	0.09	-1.00
17,510.00	91.54	179.25	11,595.96	-5,874.18	-63.66	5,874.18	3.23	-1.27	-2.97
17,604.00	91.09	178.80	11,593.81	-5,968.14	-62.07	5,968.14	0.68	-0.48	-0.48
17,699.00	91.35	179.84	11,591.78	-6,063.11	-60.94	6,063.11	1.13	0.27	1.09
17,794.00	89.16	180.32	11,591.36	-6,158.10	-61.07	6,158.10	2.36	-2.31	0.51
17,889.00	88.85	180.92	11,593.01	-6,253.08	-62.10	6,253.08	0.71	-0.33	0.63
17,985.00	90.67	180.74	11,593.41	-6,349.07	-63.49	6,349.07	1.91	1.90	-0.19
18,080.00	92.04	179.54	11,591.17	-6,444.04	-63.72	6,444.04	1.92	1.44	-1.26
18,175.00	92.13	177.20	11,587.71	-6,538.93	-61.02	6,538.93	2.46	0.09	-2.46
18,269.00	89.61	176.41	11,586.28	-6,632.76	-55.78	6,632.76	2.81	-2.68	-0.84
18,364.00	89.30	177.13	11,587.19	-6,727.61	-50.43	6,727.61	0.83	-0.33	0.76
18,459.00	91.71	177.98	11,586.35	-6,822.51	-46.38	6,822.51	2.69	2.54	0.89
18,554.00	90.67	178.75	11,584.37	-6,917.45	-43.67	6,917.45	1.36	-1.09	0.81
18,649.00	91.68	180.23	11,582.43	-7,012.42	-42.82	7,012.42	1.89	1.06	1.56
18,744.00	91.71	181.04	11,579.62	-7,107.37	-43.88	7,107.37	0.85	0.03	0.85
18,839.00	93.28	180.59	11,575.48	-7,202.27	-45.23	7,202.27	1.72	1.65	-0.47
18,933.00	92.66	180.93	11,570.61	-7,296.14	-46.47	7,296.14	0.75	-0.66	0.36
19,029.00	93.28	178.83	11,565.64	-7,392.00	-46.27	7,392.00	2.28	0.65	-2.19
19,124.00	93.16	179.35	11,560.30	-7,486.84	-44.76	7,486.84	0.56	-0.13	0.55
19,219.00	90.45	177.08	11,557.31	-7,581.73	-41.81	7,581.73	3.72	-2.85	-2.39
19,314.00	89.89	176.04	11,557.03	-7,676.56	-36.11	7,676.56	1.24	-0.59	-1.09
19,409.00	91.12	177.90	11,556.19	-7,771.41	-31.08	7,771.41	2.35	1.29	1.96
19,504.00	89.89	177.69	11,555.35	-7,866.34	-27.43	7,866.34	1.31	-1.29	-0.22
19,599.00	91.18	178.96	11,554.46	-7,961.29	-24.65	7,961.29	1.91	1.36	1.34
19,694.00	91.21	179.59	11,552.48	-8,056.26	-23.45	8,056.26	0.66	0.03	0.66
19,789.00	89.80	178.77	11,551.65	-8,151.24	-22.09	8,151.24	1.72	-1.48	-0.86
19,883.00	90.48	180.72	11,551.42	-8,245.24	-21.67	8,245.24	2.20	0.72	2.07
19,978.00	91.77	181.46	11,549.55	-8,340.20	-23.48	8,340.20	1.57	1.36	0.78
20,073.00	91.71	182.02	11,546.67	-8,435.11	-26.36	8,435.11	0.59	-0.06	0.59
20,168.00	90.64	180.36	11,544.72	-8,530.07	-28.33	8,530.07	2.08	-1.13	-1.75
20,263.00	89.72	180.19	11,544.42	-8,625.06	-28.79	8,625.06	0.98	-0.97	-0.18
20,358.00	90.03	181.71	11,544.63	-8,720.05	-30.37	8,720.05	1.63	0.33	1.60
20,453.00	89.78	182.87	11,544.78	-8,814.97	-34.16	8,814.97	1.25	-0.26	1.22

Survey Report

Company: Devon Energy
Project: Eddy County, New Mexico (NAD 83)
Site: Lusitano 27-34 FED COM
Well: 336H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 336H
TVD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
MD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14 Single 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)
20,548.00	91.54	182.07	11,543.69	-8,909.87	-38.26	8,909.87	2.04	1.85	-0.84
20,643.00	92.10	180.79	11,540.67	-9,004.79	-40.62	9,004.79	1.47	0.59	-1.35
20,738.00	91.96	181.08	11,537.31	-9,099.72	-42.17	9,099.72	0.34	-0.15	0.31
20,833.00	89.83	178.00	11,535.82	-9,194.69	-41.41	9,194.69	3.94	-2.24	-3.24
20,928.00	89.80	178.52	11,536.13	-9,289.64	-38.53	9,289.64	0.55	-0.03	0.55
21,023.00	91.26	179.29	11,535.25	-9,384.62	-36.71	9,384.62	1.74	1.54	0.81
21,117.00	89.36	179.69	11,534.74	-9,478.61	-35.87	9,478.61	2.07	-2.02	0.43
21,212.00	90.22	180.42	11,535.09	-9,573.61	-35.97	9,573.61	1.19	0.91	0.77
21,307.00	90.53	181.36	11,534.47	-9,668.59	-37.44	9,668.59	1.04	0.33	0.99
21,402.00	91.40	180.92	11,532.87	-9,763.56	-39.33	9,763.56	1.03	0.92	-0.46
21,497.00	93.06	180.70	11,529.17	-9,858.47	-40.67	9,858.47	1.76	1.75	-0.23
21,593.00	92.77	180.49	11,524.29	-9,954.34	-41.67	9,954.34	0.37	-0.30	-0.22
21,658.78	93.07	180.79	11,520.94	-10,020.04	-42.41	10,020.04	0.65	0.45	0.46
BHL - 336H									
21,659.00	93.07	180.79	11,520.93	-10,020.25	-42.41	10,020.25	0.00	0.00	0.00
LTP at 21659'MD / 11520.93'TVD - LTP - 336H									
21,688.00	93.20	180.93	11,519.34	-10,049.21	-42.84	10,049.21	0.65	0.46	0.47
21,730.00	93.58	181.52	11,516.86	-10,091.12	-43.74	10,091.12	1.67	0.90	1.40
Last Survey 21730'MD / 11516.86'TVD									
21,785.00	93.58	181.52	11,513.43	-10,146.00	-45.20	10,146.00	0.00	0.00	0.00
PTB - 21785'MD / 11513.43'TVD									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
LTP - 336H	0.00	0.00	11,520.93	-10,020.25	-42.41	393,449.71	719,310.61	32.080370	-103.758707
- actual wellpath hits target center									
- Point									
FTP - 336H	0.00	0.01	11,544.71	-95.13	-8.98	403,374.83	719,344.03	32.107652	-103.758428
- actual wellpath hits target center									
- Point									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,041.00	11,029.71	252.73	116.14	KOP 11041'MD / 11029.71'TVD
11,714.90	11,544.71	-95.13	-8.98	FTP at 11714.90'MD / 11544.71'TVD
21,659.00	11,520.93	-10,020.25	-42.41	LTP at 21659'MD / 11520.93'TVD
21,730.00	11,516.86	-10,091.12	-43.74	Last Survey 21730'MD / 11516.86'TVD
21,785.00	11,513.43	-10,146.00	-45.20	PTB - 21785'MD / 11513.43'TVD

Survey Report

Company: Devon Energy
Project: Eddy County, New Mexico (NAD 83)
Site: Lusitano 27-34 FED COM
Well: 336H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 336H
TVD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
MD Reference: GL 3336 + 26' KB @ 3362.00usft (ICD 217)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14 Single User Db

Checked By: _____	Approved By: _____	Date: _____
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