

LEAM Drilling Systems LLC

Survey Report

3001541116

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OCT 11 2013

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Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well: 17H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Site:	Apache 25 Fed	MD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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

Site:		Apache 25 Fed			
Site Position:		Northing:	495,000.20 usft	Latitude:	32° 21' 35.328 N
From:	Map	Easting:	697,379.50 usft	Longitude:	103° 49' 40.699 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.27 °

Well	17H					
Well Position	+N-S	0.00 usft	Northing:	495,000.20 usft	Latitude:	32° 21' 35.328 N
	+E-W	0.00 usft	Easting:	697,379.50 usft	Longitude:	103° 49' 40.699 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,341.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	04/23/13	7.49	60.22	48,485

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	259.38	

Survey Program		Date	06/19/13	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	10,046.00	Survey #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s
10,146.00	15,093.00	Survey #2 (OH)	LEAM MWD	MWD - Standard
15,154.00	15,154.00	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
SHL(A-25-F 17H)									
100.00	0.17	344.89	100.00	0.14	-0.04	0.01	0.17	0.17	0.00
200.00	0.35	329.78	200.00	0.55	-0.23	0.13	0.19	0.18	-15.11
300.00	0.23	5.61	300.00	1.01	-0.37	0.17	0.21	-0.12	35.83
400.00	0.11	41.43	400.00	1.29	-0.28	0.04	0.15	-0.12	35.82
500.00	0.29	80.15	500.00	1.40	0.03	-0.29	0.22	0.18	38.72
600.00	0.47	118.87	599.99	1.25	0.64	-0.86	0.30	0.18	38.72
700.00	0.53	124.98	699.99	0.78	1.38	-1.50	0.08	0.06	6.11

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Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM:5000.1 Single User Db

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)
800.00	0.59	131.09	799.99	0.18	2.14	-2.14	0.08	0.06	6.11
900.00	0.64	127.35	899.98	-0.50	2.98	-2.83	0.06	0.05	-3.74
1,000.00	0.69	119.61	999.97	-1.13	3.94	-3.67	0.10	0.05	-7.74
1,100.00	0.85	115.97	1,099.96	-1.76	5.13	-4.72	0.17	0.16	-3.64
1,200.00	1.01	112.32	1,199.95	-2.42	6.62	-6.06	0.17	0.16	-3.65
1,300.00	1.09	117.96	1,299.93	-3.20	8.27	-7.54	0.13	0.08	5.64
1,400.00	1.17	123.60	1,399.91	-4.21	9.96	-9.02	0.14	0.08	5.64
1,500.00	1.30	134.20	1,499.89	-5.56	11.63	-10.40	0.26	0.13	10.60
1,600.00	1.42	144.80	1,599.86	-7.37	13.15	-11.57	0.28	0.12	10.60
1,700.00	1.72	152.52	1,699.83	-9.71	14.56	-12.52	0.37	0.30	7.72
1,800.00	2.02	160.25	1,799.77	-12.70	15.85	-13.24	0.39	0.30	7.73
1,900.00	1.94	163.66	1,899.71	-15.98	16.92	-13.69	0.14	-0.08	3.41
2,000.00	1.85	165.08	1,999.66	-19.17	17.81	-13.98	0.10	-0.09	1.42
2,100.00	1.70	159.96	2,099.61	-22.12	18.74	-14.34	0.22	-0.15	-5.12
2,200.00	1.55	154.83	2,199.57	-24.74	19.82	-14.92	0.21	-0.15	-5.13
2,300.00	1.42	160.02	2,299.54	-27.13	20.82	-15.46	0.19	-0.13	5.19
2,400.00	1.29	165.21	2,399.51	-29.38	21.53	-15.75	0.18	-0.13	5.19
2,500.00	1.04	169.06	2,499.49	-31.36	21.99	-15.83	0.26	-0.25	3.85
2,600.00	0.79	166.91	2,599.48	-32.92	22.32	-15.87	0.25	-0.25	-2.15
2,700.00	1.15	186.31	2,699.46	-34.59	22.36	-15.61	0.48	0.36	19.40
2,800.00	1.52	205.71	2,799.43	-36.78	21.68	-14.53	0.58	0.37	19.40
2,900.00	1.45	208.23	2,899.40	-39.09	20.50	-12.95	0.10	-0.07	2.52
3,000.00	1.38	180.75	2,999.37	-41.41	19.89	-11.92	0.68	-0.07	-27.48
3,100.00	2.36	176.51	3,099.32	-44.67	20.00	-11.43	0.99	0.98	-4.24
3,200.00	3.34	157.27	3,199.19	-49.41	21.25	-11.78	1.36	0.98	-19.24
3,300.00	3.19	141.61	3,299.03	-54.28	24.10	-13.69	0.90	-0.15	-15.66
3,400.00	3.03	138.95	3,398.89	-58.45	27.57	-16.32	0.22	-0.16	-2.66
3,500.00	3.27	135.31	3,498.74	-62.48	31.31	-19.26	0.31	0.24	-3.64
3,600.00	3.50	131.66	3,598.56	-66.53	35.59	-22.73	0.32	0.23	-3.65
3,700.00	3.16	140.46	3,698.39	-70.69	39.63	-25.93	0.61	-0.34	8.80
3,800.00	2.82	149.25	3,798.26	-74.93	42.64	-28.11	0.57	-0.34	8.79
3,900.00	2.55	151.63	3,898.15	-79.00	44.96	-29.63	0.29	-0.27	2.38
4,000.00	2.29	152.01	3,998.06	-82.72	46.95	-30.91	0.26	-0.26	0.38
4,100.00	2.32	155.68	4,097.98	-86.33	48.72	-31.98	0.15	0.03	3.67
4,200.00	2.35	153.34	4,197.89	-90.00	50.48	-33.03	0.10	0.03	-2.34
4,300.00	2.38	152.07	4,297.81	-93.67	52.37	-34.21	0.06	0.03	-1.27
4,400.00	2.40	154.79	4,397.72	-97.40	54.23	-35.36	0.12	0.02	2.72
4,500.00	2.36	151.44	4,497.64	-101.10	56.11	-36.52	0.14	-0.04	-3.35
4,600.00	2.32	154.09	4,597.55	-104.73	57.98	-37.69	0.12	-0.04	2.65
4,700.00	2.30	157.74	4,697.47	-108.41	59.62	-38.63	0.15	-0.02	3.65
4,800.00	2.28	155.39	4,797.39	-112.07	61.21	-39.51	0.10	-0.02	-2.35
4,900.00	2.32	150.75	4,897.31	-115.65	63.03	-40.64	0.19	0.04	-4.64
5,000.00	2.36	158.11	4,997.23	-119.33	64.78	-41.69	0.30	0.04	7.36

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Design:	OH	Database:	EDM-5000.1 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)
5,100.00	2.20	152.87	5,097.15	-122.94	66.43	-42.64	0.26	-0.16	-5.24
5,200.00	2.03	145.63	5,197.08	-126.11	68.30	-43.90	0.32	-0.17	-7.24
5,300.00	2.04	149.67	5,297.02	-129.11	70.20	-45.21	0.14	0.01	4.04
5,400.00	2.05	146.70	5,396.95	-132.14	72.08	-46.50	0.11	0.01	-2.97
5,500.00	2.03	152.76	5,496.89	-135.21	73.87	-47.70	0.22	-0.02	6.06
5,600.00	2.00	159.83	5,596.83	-138.43	75.29	-48.49	0.25	-0.03	7.07
5,700.00	1.99	153.77	5,696.77	-141.62	76.66	-49.25	0.21	-0.01	-6.06
5,800.00	1.97	143.72	5,796.71	-144.56	78.44	-50.46	0.35	-0.02	-10.05
5,900.00	2.05	149.92	5,896.65	-147.50	80.35	-51.80	0.23	0.08	6.20
6,000.00	2.13	156.11	5,996.58	-150.74	82.00	-52.83	0.24	0.08	6.19
6,100.00	2.22	155.30	6,096.51	-154.20	83.56	-53.72	0.10	0.09	-0.81
6,200.00	2.30	152.49	6,196.43	-157.74	85.30	-54.78	0.14	0.08	-2.81
6,300.00	2.16	151.65	6,296.36	-161.18	87.12	-55.94	0.14	-0.14	-0.84
6,400.00	2.02	148.81	6,396.29	-164.35	88.93	-57.13	0.17	-0.14	-2.84
6,500.00	1.89	151.83	6,496.23	-167.31	90.62	-58.25	0.17	-0.13	3.02
6,600.00	1.76	154.86	6,596.18	-170.15	92.05	-59.13	0.16	-0.13	3.03
6,700.00	1.74	158.69	6,696.13	-172.96	93.26	-59.80	0.12	-0.02	3.83
6,800.00	1.73	164.52	6,796.09	-175.83	94.21	-60.20	0.18	-0.01	5.83
6,900.00	1.63	160.42	6,896.05	-178.62	95.09	-60.55	0.16	-0.10	-4.10
7,000.00	1.54	158.33	6,996.01	-181.21	96.06	-61.03	0.11	-0.09	-2.09
7,100.00	1.52	156.85	7,095.97	-183.68	97.08	-61.58	0.04	-0.02	-1.48
7,200.00	1.50	153.38	7,195.94	-186.07	98.19	-62.23	0.09	-0.02	-3.47
7,300.00	1.57	158.65	7,295.90	-188.51	99.27	-62.84	0.16	0.07	5.27
7,400.00	1.65	150.92	7,395.86	-191.05	100.47	-63.55	0.23	0.08	-7.73
7,500.00	1.71	152.87	7,495.82	-193.63	101.85	-64.43	0.08	0.06	1.95
7,600.00	1.77	151.82	7,595.77	-196.32	103.26	-65.33	0.07	0.06	-1.05
7,700.00	1.65	158.89	7,695.73	-199.03	104.51	-66.05	0.24	-0.12	7.07
7,800.00	1.53	165.96	7,795.69	-201.67	105.35	-66.40	0.23	-0.12	7.07
7,900.00	1.58	163.92	7,895.65	-204.29	106.06	-66.61	0.07	0.05	-2.04
8,000.00	1.63	159.87	7,995.61	-206.95	106.93	-66.97	0.12	0.05	-4.05
8,100.00	1.72	156.45	8,095.57	-209.66	108.02	-67.54	0.13	0.09	-3.42
8,200.00	1.81	153.03	8,195.52	-212.44	109.33	-68.32	0.14	0.09	-3.42
8,300.00	1.85	151.95	8,295.47	-215.27	110.81	-69.25	0.05	0.04	-1.08
8,400.00	1.89	148.86	8,395.42	-218.11	112.42	-70.31	0.11	0.04	-3.09
8,500.00	1.97	143.26	8,495.36	-220.90	114.30	-71.65	0.20	0.08	-5.60
8,600.00	2.06	137.67	8,595.30	-223.60	116.54	-73.35	0.22	0.09	-5.59
8,700.00	2.19	142.15	8,695.23	-226.44	118.92	-75.17	0.21	0.13	4.48
8,800.00	2.32	147.63	8,795.15	-229.66	121.18	-76.79	0.25	0.13	5.48
8,900.00	2.31	148.48	8,895.07	-233.09	123.32	-78.26	0.04	-0.01	0.85
9,000.00	2.31	150.32	8,994.99	-236.55	125.37	-79.64	0.07	0.00	1.84
9,100.00	2.28	162.63	9,094.91	-240.20	126.96	-80.53	0.49	-0.03	12.31
9,200.00	2.26	170.94	9,194.83	-244.05	127.86	-80.71	0.33	-0.02	8.31
9,300.00	1.80	168.00	9,294.77	-247.53	128.50	-80.70	0.47	-0.46	-2.94
9,400.00	1.35	165.05	9,394.73	-250.21	129.13	-80.82	0.46	-0.45	-2.95

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9,500.00	1.67	182.10	9,494.70	-252.80	129.38	-80.59	0.55	0.32	17.05
9,600.00	1.99	199.14	9,594.65	-255.90	128.76	-79.41	0.63	0.32	17.04
9,700.00	2.30	203.48	9,694.58	-259.38	127.39	-77.42	0.35	0.31	4.34
9,800.00	2.60	197.82	9,794.49	-263.38	125.90	-75.22	0.39	0.30	-5.66
9,900.00	2.58	194.04	9,894.38	-267.72	124.66	-73.20	0.17	-0.02	-3.78
10,000.00	2.56	188.26	9,994.28	-272.12	123.79	-71.54	0.26	-0.02	-5.78
10,046.00	2.60	187.66	10,040.24	-274.17	123.50	-70.88	0.10	0.09	-1.30
10,146.00	1.90	175.80	10,140.16	-278.07	123.32	-69.98	0.84	-0.70	-11.86
10,241.00	2.00	181.80	10,235.11	-281.29	123.39	-69.45	0.24	0.11	6.32
10,304.00	2.60	212.90	10,298.06	-283.59	122.58	-68.23	2.16	0.95	49.37
10,336.00	5.50	224.00	10,329.97	-285.31	121.12	-66.48	9.35	9.06	34.69
10,367.00	9.00	230.10	10,360.72	-287.93	118.22	-63.15	11.54	11.29	19.68
10,399.00	10.60	232.90	10,392.25	-291.31	113.95	-58.33	5.22	5.00	8.75
10,430.00	11.70	233.30	10,422.67	-294.91	109.16	-52.96	3.56	3.55	1.29
10,462.00	14.20	230.30	10,453.85	-299.36	103.54	-46.61	8.09	7.81	-9.38
10,494.00	16.30	228.90	10,484.72	-304.82	97.13	-39.31	6.66	6.56	-4.38
10,525.00	16.80	233.50	10,514.44	-310.34	90.25	-31.53	4.52	1.61	14.84
10,556.00	17.20	238.00	10,544.09	-315.44	82.76	-23.23	4.43	1.29	14.52
10,588.00	19.70	237.80	10,574.44	-320.82	74.19	-13.81	7.81	7.81	-0.63
10,619.00	23.10	235.90	10,603.30	-327.01	64.73	-3.37	11.19	10.97	-6.13
10,650.00	27.20	234.50	10,631.35	-334.54	53.92	8.64	13.36	13.23	-4.52
10,682.00	31.10	232.40	10,659.30	-343.83	41.41	22.64	12.60	12.19	-6.56
10,713.00	35.00	231.00	10,685.28	-354.32	28.15	37.61	12.82	12.58	-4.52
10,745.00	39.00	229.90	10,710.83	-366.58	13.31	54.45	12.67	12.50	-3.44
10,776.00	43.30	229.20	10,734.17	-379.82	-2.20	72.14	13.95	13.87	-2.26
10,807.00	47.40	229.60	10,755.95	-394.17	-18.95	91.24	13.26	13.23	1.29
10,839.00	51.60	230.80	10,776.72	-409.73	-37.64	112.48	13.43	13.13	3.75
10,870.00	56.10	231.30	10,795.01	-425.46	-57.10	134.51	14.57	14.52	1.61
10,902.00	60.10	232.20	10,811.91	-442.27	-78.44	158.58	12.73	12.50	2.81
10,934.00	63.70	235.00	10,826.99	-459.01	-101.16	183.99	13.64	11.25	8.75
10,965.00	66.50	238.50	10,840.04	-474.41	-124.67	209.94	13.65	9.03	11.29
10,996.00	69.10	242.20	10,851.76	-488.60	-149.61	237.07	13.87	8.39	11.94
11,028.00	71.00	245.20	10,862.68	-501.92	-176.57	266.02	10.63	5.94	9.38
11,059.00	72.20	247.50	10,872.46	-513.72	-203.52	294.68	8.03	3.87	7.42
11,091.00	73.80	250.00	10,881.82	-524.81	-232.04	324.75	8.99	5.00	7.81
11,122.00	75.80	252.40	10,889.95	-534.44	-260.35	354.36	9.87	6.45	7.74
11,154.00	77.10	254.40	10,897.45	-543.33	-290.16	385.30	7.31	4.06	6.25
11,185.00	78.10	255.60	10,904.10	-551.16	-319.41	415.48	4.97	3.23	3.87
11,217.00	79.00	258.40	10,910.46	-558.22	-349.96	446.82	9.03	2.81	8.75
11,248.00	80.00	260.30	10,916.11	-563.85	-379.92	477.30	6.84	3.23	6.13
11,311.00	81.00	262.30	10,926.50	-573.25	-441.33	539.39	3.51	1.59	3.17
11,343.00	83.70	263.30	10,930.76	-577.22	-472.80	571.05	8.99	8.44	3.13
11,375.00	86.80	262.80	10,933.41	-581.08	-504.45	602.87	9.81	9.69	-1.56

LEAM Drilling Systems LLC

Survey Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 17H
Project:	Eddy County - NM (NAD-83)	TVD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Site:	Apache 25-Fed	MD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000:1 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)
11,469.00	88.70	263.70	10,937.10	-592.12	-597.72	696.58	2.24	2.02	0.96
11,564.00	89.80	264.60	10,938.35	-601.80	-692.21	791.24	1.50	1.16	0.95
11,659.00	90.30	266.30	10,938.26	-609.33	-786.91	885.70	1.87	0.53	1.79
11,753.00	91.20	266.80	10,937.03	-614.99	-880.73	978.96	1.10	0.96	0.53
11,847.00	92.10	267.20	10,934.33	-619.91	-974.56	1,072.09	1.05	0.96	0.43
11,941.00	91.40	267.60	10,931.46	-624.17	-1,068.42	1,165.13	0.86	-0.74	0.43
12,036.00	91.50	267.70	10,929.05	-628.06	-1,163.31	1,259.11	0.15	0.11	0.11
12,130.00	92.10	268.30	10,926.10	-631.34	-1,257.21	1,352.00	0.90	0.64	0.64
12,225.00	91.10	267.90	10,923.45	-634.49	-1,352.12	1,445.87	1.13	-1.05	-0.42
12,320.00	90.10	267.40	10,922.45	-638.39	-1,447.03	1,539.87	1.18	-1.05	-0.53
12,413.00	90.60	267.60	10,921.89	-642.44	-1,539.94	1,631.94	0.58	0.54	0.22
12,508.00	89.50	267.00	10,921.80	-646.92	-1,634.83	1,726.03	1.32	-1.16	-0.63
12,602.00	89.90	267.70	10,922.29	-651.26	-1,728.73	1,819.12	0.86	0.43	0.74
12,697.00	90.20	268.30	10,922.21	-654.58	-1,823.67	1,913.05	0.71	0.32	0.63
12,791.00	90.20	268.10	10,921.88	-657.53	-1,917.62	2,005.94	0.21	0.00	-0.21
12,885.00	89.20	267.40	10,922.38	-661.22	-2,011.55	2,098.93	1.30	-1.06	-0.74
12,980.00	89.40	267.70	10,923.54	-665.28	-2,106.45	2,192.96	0.38	0.21	0.32
13,074.00	89.10	267.70	10,924.77	-669.06	-2,200.37	2,285.97	0.32	-0.32	0.00
13,168.00	88.20	267.20	10,926.98	-673.24	-2,294.25	2,379.01	1.10	-0.96	-0.53
13,263.00	87.80	267.70	10,930.30	-677.46	-2,389.10	2,473.01	0.67	-0.42	0.53
13,358.00	87.40	267.20	10,934.27	-681.68	-2,483.92	2,566.99	0.67	-0.42	-0.53
13,453.00	88.20	268.10	10,937.92	-685.58	-2,578.77	2,660.93	1.27	0.84	0.95
13,547.00	89.30	267.70	10,939.97	-689.02	-2,672.68	2,753.87	1.25	1.17	-0.43
13,650.00	89.30	264.90	10,941.23	-695.66	-2,775.45	2,856.10	2.72	0.00	-2.72
13,744.00	93.60	265.10	10,938.85	-703.85	-2,869.04	2,949.60	4.58	4.57	0.21
13,839.00	95.60	265.30	10,931.23	-711.78	-2,963.39	3,043.80	2.12	2.11	0.21
13,934.00	94.10	266.10	10,923.20	-718.87	-3,057.78	3,137.88	1.79	-1.58	0.84
14,028.00	93.10	266.30	10,917.30	-725.09	-3,151.39	3,231.03	1.08	-1.06	0.21
14,122.00	91.20	266.70	10,913.77	-730.82	-3,245.15	3,324.24	2.07	-2.02	0.43
14,217.00	92.20	266.10	10,910.96	-736.79	-3,339.92	3,418.49	1.23	1.05	-0.63
14,311.00	91.70	267.20	10,907.76	-742.28	-3,433.70	3,511.67	1.28	-0.53	1.17
14,406.00	90.00	267.20	10,906.35	-746.92	-3,528.57	3,605.78	1.79	-1.79	0.00
14,500.00	90.90	267.00	10,905.61	-751.67	-3,622.45	3,698.92	0.98	0.96	-0.21
14,594.00	90.00	267.70	10,904.87	-756.02	-3,716.34	3,792.01	1.21	-0.96	0.74
14,689.00	91.50	268.10	10,903.63	-759.50	-3,811.27	3,885.95	1.63	1.58	0.42
14,783.00	90.00	265.80	10,902.40	-764.50	-3,905.12	3,979.12	2.92	-1.60	-2.45
14,878.00	90.40	267.00	10,902.07	-770.46	-3,999.93	4,073.40	1.33	0.42	1.26
14,973.00	91.00	267.60	10,900.90	-774.94	-4,094.81	4,167.49	0.89	0.63	0.63
15,093.00	92.90	267.60	10,896.82	-779.96	-4,214.63	4,286.18	1.58	1.58	0.00
15,154.00	92.90	267.60	10,893.74	-782.51	-4,275.50	4,346.48	0.00	0.00	0.00
PBHL(A-25-F 17H)									

LEAM Drilling Systems LLC

Survey Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 17H
Project:	Eddy County, NM (NAD:83)	TVD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Site:	Apache 25 Fed.	MD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Design Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
SHL(A-25-F 17H)	- actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	495,000.20	697,379.50	32° 21' 35.328 N 103° 49' 40.699 W
PBHL(A-25-F 17H)	- actual wellpath misses target center by 23.88usft at 15154.00usft MD (10893.74 TVD, -782.51 N, -4275.50 E) - Rectangle (sides W50.00 H3,735.84 D20.00)	-0.38	259.38	10,905.0 0	-802.60	-4,281.80	494,197.60	693,097.70	32° 21' 27.583 N 103° 50' 30.662 W

Checked By: _____ Approved By: _____ Date: _____

LEAM Drilling Systems LLC

Survey Report - Geographic

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well: 17H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	GE 3341' +25' @ 3366.00usft (Scan Texas)
Site:	Apache 25 Fed	MD Reference:	GE 3341' +25' @ 3366.00usft (Scan Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-5000.1 Single 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		Apache 25 Fed			
Site Position:		Northing:	495,000.20 usft	Latitude:	32° 21' 35.328 N
From:	Map	Easting:	697,379.50 usft	Longitude:	103° 49' 40.699 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.27 °

Well	17H					
Well Position	+N/-S	0.00 usft	Northing:	495,000.20 usft	Latitude:	32° 21' 35.328 N
	+E/-W	0.00 usft	Easting:	697,379.50 usft	Longitude:	103° 49' 40.699 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,341.00 usft

Wellbore						OH
Magnetics						
Model Name		Sample Date	Declination	Dip Angle	Field Strength	
			(°)	(°)	(nT)	
IGRF2010		04/23/13	7.49	60.22	48,485	

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	259.38

Survey Program		Date	06/19/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	10,046.00	Survey #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s	
10,146.00	15,093.00	Survey #2 (OH)	LEAM MWD	MWD - Standard	
15,154.00	15,154.00	Survey #3 (OH)	Project	Projection	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	495,000.20	697,379.50	32° 21' 35.328 N	103° 49' 40.699 W
SHL(A-25-F 17H)									
100.00	0.17	344.89	100.00	0.14	-0.04	495,000.34	697,379.46	32° 21' 35.330 N	103° 49' 40.700 W
200.00	0.35	329.78	200.00	0.55	-0.23	495,000.75	697,379.26	32° 21' 35.334 N	103° 49' 40.702 W
300.00	0.23	5.61	300.00	1.01	-0.37	495,001.22	697,379.13	32° 21' 35.338 N	103° 49' 40.703 W
400.00	0.11	41.43	400.00	1.29	-0.28	495,001.49	697,379.21	32° 21' 35.341 N	103° 49' 40.702 W
500.00	0.29	80.15	500.00	1.40	0.03	495,001.60	697,379.53	32° 21' 35.342 N	103° 49' 40.699 W
600.00	0.47	118.87	599.99	1.25	0.64	495,001.45	697,380.13	32° 21' 35.340 N	103° 49' 40.692 W
700.00	0.53	124.98	699.99	0.78	1.38	495,000.98	697,380.87	32° 21' 35.336 N	103° 49' 40.683 W
800.00	0.59	131.09	799.99	0.18	2.14	495,000.38	697,381.64	32° 21' 35.330 N	103° 49' 40.674 W

LEAM Drilling Systems LLC

Survey Report - Geographic

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 17H
Project:	Eddy County, NM (NAD:83)	TVD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Site:	Apache 25 Fed	MD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM:5000-1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
900.00	0.64	127.35	899.98	-0.50	2.98	494,999.70	697,382.47	32° 21' 35.323 N	103° 49' 40.664 W	
1,000.00	0.69	119.61	999.97	-1.13	3.94	494,999.07	697,383.44	32° 21' 35.317 N	103° 49' 40.653 W	
1,100.00	0.85	115.97	1,099.96	-1.76	5.13	494,998.44	697,384.63	32° 21' 35.310 N	103° 49' 40.639 W	
1,200.00	1.01	112.32	1,199.95	-2.42	6.62	494,997.79	697,386.11	32° 21' 35.304 N	103° 49' 40.622 W	
1,300.00	1.09	117.96	1,299.93	-3.20	8.27	494,997.00	697,387.77	32° 21' 35.296 N	103° 49' 40.603 W	
1,400.00	1.17	123.60	1,399.91	-4.21	9.96	494,995.99	697,389.46	32° 21' 35.286 N	103° 49' 40.583 W	
1,500.00	1.30	134.20	1,499.89	-5.56	11.63	494,994.64	697,391.12	32° 21' 35.272 N	103° 49' 40.564 W	
1,600.00	1.42	144.80	1,599.86	-7.37	13.15	494,992.83	697,392.65	32° 21' 35.255 N	103° 49' 40.546 W	
1,700.00	1.72	152.52	1,699.83	-9.71	14.56	494,990.49	697,394.06	32° 21' 35.231 N	103° 49' 40.530 W	
1,800.00	2.02	160.25	1,799.77	-12.70	15.85	494,987.50	697,395.34	32° 21' 35.202 N	103° 49' 40.515 W	
1,900.00	1.94	163.66	1,899.71	-15.98	16.92	494,984.22	697,396.42	32° 21' 35.169 N	103° 49' 40.503 W	
2,000.00	1.85	165.08	1,999.66	-19.17	17.81	494,981.03	697,397.31	32° 21' 35.138 N	103° 49' 40.492 W	
2,100.00	1.70	159.96	2,099.61	-22.12	18.74	494,978.08	697,398.23	32° 21' 35.108 N	103° 49' 40.482 W	
2,200.00	1.55	154.83	2,199.57	-24.74	19.82	494,975.46	697,399.31	32° 21' 35.082 N	103° 49' 40.469 W	
2,300.00	1.42	160.02	2,299.54	-27.13	20.82	494,973.07	697,400.31	32° 21' 35.059 N	103° 49' 40.458 W	
2,400.00	1.29	165.21	2,399.51	-29.38	21.53	494,970.82	697,401.02	32° 21' 35.036 N	103° 49' 40.450 W	
2,500.00	1.04	169.06	2,499.49	-31.36	21.99	494,968.84	697,401.48	32° 21' 35.017 N	103° 49' 40.444 W	
2,600.00	0.79	166.91	2,599.48	-32.92	22.32	494,967.28	697,401.81	32° 21' 35.001 N	103° 49' 40.441 W	
2,700.00	1.15	186.31	2,699.46	-34.59	22.36	494,965.61	697,401.86	32° 21' 34.985 N	103° 49' 40.440 W	
2,800.00	1.52	205.71	2,799.43	-36.78	21.68	494,963.42	697,401.17	32° 21' 34.963 N	103° 49' 40.448 W	
2,900.00	1.45	208.23	2,899.40	-39.09	20.50	494,961.11	697,400.00	32° 21' 34.940 N	103° 49' 40.462 W	
3,000.00	1.38	180.75	2,999.37	-41.41	19.89	494,958.79	697,399.38	32° 21' 34.917 N	103° 49' 40.470 W	
3,100.00	2.36	176.51	3,099.32	-44.67	20.00	494,955.53	697,399.49	32° 21' 34.885 N	103° 49' 40.468 W	
3,200.00	3.34	157.27	3,199.19	-49.41	21.25	494,950.79	697,400.74	32° 21' 34.838 N	103° 49' 40.454 W	
3,300.00	3.19	141.61	3,299.03	-54.28	24.10	494,945.92	697,403.60	32° 21' 34.790 N	103° 49' 40.421 W	
3,400.00	3.03	138.95	3,398.89	-58.45	27.57	494,941.75	697,407.06	32° 21' 34.748 N	103° 49' 40.381 W	
3,500.00	3.27	135.31	3,498.74	-62.48	31.31	494,937.73	697,410.80	32° 21' 34.708 N	103° 49' 40.338 W	
3,600.00	3.50	131.66	3,598.56	-66.53	35.59	494,933.67	697,415.09	32° 21' 34.668 N	103° 49' 40.288 W	
3,700.00	3.16	140.46	3,698.39	-70.69	39.63	494,929.51	697,419.12	32° 21' 34.627 N	103° 49' 40.241 W	
3,800.00	2.82	149.25	3,798.26	-74.93	42.64	494,925.27	697,422.14	32° 21' 34.585 N	103° 49' 40.206 W	
3,900.00	2.55	151.63	3,898.15	-79.00	44.96	494,921.20	697,424.45	32° 21' 34.544 N	103° 49' 40.179 W	
4,000.00	2.29	152.01	3,998.06	-82.72	46.95	494,917.48	697,426.45	32° 21' 34.507 N	103° 49' 40.156 W	
4,100.00	2.32	155.68	4,097.98	-86.33	48.72	494,913.87	697,428.22	32° 21' 34.472 N	103° 49' 40.136 W	
4,200.00	2.35	153.34	4,197.89	-90.00	50.48	494,910.20	697,429.97	32° 21' 34.435 N	103° 49' 40.116 W	
4,300.00	2.38	152.07	4,297.81	-93.67	52.37	494,906.53	697,431.86	32° 21' 34.399 N	103° 49' 40.094 W	
4,400.00	2.40	154.79	4,397.72	-97.40	54.23	494,902.80	697,433.73	32° 21' 34.362 N	103° 49' 40.072 W	
4,500.00	2.36	151.44	4,497.64	-101.10	56.11	494,899.10	697,435.60	32° 21' 34.325 N	103° 49' 40.051 W	
4,600.00	2.32	154.09	4,597.55	-104.73	57.98	494,895.47	697,437.47	32° 21' 34.289 N	103° 49' 40.029 W	
4,700.00	2.30	157.74	4,697.47	-108.41	59.62	494,891.79	697,439.12	32° 21' 34.253 N	103° 49' 40.010 W	
4,800.00	2.28	155.39	4,797.39	-112.07	61.21	494,888.13	697,440.71	32° 21' 34.216 N	103° 49' 39.992 W	
4,900.00	2.32	150.75	4,897.31	-115.65	63.03	494,884.55	697,442.52	32° 21' 34.181 N	103° 49' 39.971 W	
5,000.00	2.36	158.11	4,997.23	-119.33	64.78	494,880.88	697,444.28	32° 21' 34.144 N	103° 49' 39.950 W	
5,100.00	2.20	152.87	5,097.15	-122.94	66.43	494,877.26	697,445.92	32° 21' 34.108 N	103° 49' 39.931 W	
5,200.00	2.03	145.63	5,197.08	-126.11	68.30	494,874.09	697,447.80	32° 21' 34.077 N	103° 49' 39.910 W	
5,300.00	2.04	149.67	5,297.02	-129.11	70.20	494,871.09	697,449.70	32° 21' 34.047 N	103° 49' 39.888 W	
5,400.00	2.05	146.70	5,396.95	-132.14	72.08	494,868.06	697,451.58	32° 21' 34.017 N	103° 49' 39.866 W	
5,500.00	2.03	152.76	5,496.89	-135.21	73.87	494,864.99	697,453.37	32° 21' 33.987 N	103° 49' 39.845 W	
5,600.00	2.00	159.83	5,596.83	-138.43	75.29	494,861.77	697,454.78	32° 21' 33.955 N	103° 49' 39.829 W	
5,700.00	1.99	153.77	5,696.77	-141.62	76.66	494,858.58	697,456.15	32° 21' 33.923 N	103° 49' 39.813 W	
5,800.00	1.97	143.72	5,796.71	-144.56	78.44	494,855.64	697,457.94	32° 21' 33.894 N	103° 49' 39.793 W	
5,900.00	2.05	149.92	5,896.65	-147.50	80.35	494,852.70	697,459.85	32° 21' 33.865 N	103° 49' 39.770 W	
6,000.00	2.13	156.11	5,996.58	-150.74	82.00	494,849.46	697,461.50	32° 21' 33.833 N	103° 49' 39.751 W	
6,100.00	2.22	155.30	6,096.51	-154.20	83.56	494,846.00	697,463.06	32° 21' 33.798 N	103° 49' 39.733 W	
6,200.00	2.30	152.49	6,196.43	-157.74	85.30	494,842.46	697,464.80	32° 21' 33.763 N	103° 49' 39.713 W	
6,300.00	2.16	151.65	6,296.36	-161.18	87.12	494,839.02	697,466.62	32° 21' 33.729 N	103° 49' 39.692 W	

LEAM Drilling Systems LLC

Survey Report - Geographic

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well: 17H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Site:	Apache 25 Fed	MD Reference:	GE 3341' + 25" @ 3366.00usft (Scan Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000:1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
6,400.00	2.02	148.81	6,396.29	-164.35	88.93	494,835.85	697,468.43	32° 21' 33.698 N	103° 49' 39.671 W	
6,500.00	1.89	151.83	6,496.23	-167.31	90.62	494,832.89	697,470.12	32° 21' 33.668 N	103° 49' 39.652 W	
6,600.00	1.76	154.86	6,596.18	-170.15	92.05	494,830.05	697,471.55	32° 21' 33.640 N	103° 49' 39.635 W	
6,700.00	1.74	158.69	6,696.13	-172.96	93.26	494,827.24	697,472.75	32° 21' 33.612 N	103° 49' 39.621 W	
6,800.00	1.73	164.52	6,796.09	-175.83	94.21	494,824.37	697,473.71	32° 21' 33.584 N	103° 49' 39.610 W	
6,900.00	1.63	160.42	6,896.05	-178.62	95.09	494,821.58	697,474.59	32° 21' 33.556 N	103° 49' 39.600 W	
7,000.00	1.54	158.33	6,996.01	-181.21	96.06	494,818.99	697,475.56	32° 21' 33.530 N	103° 49' 39.589 W	
7,100.00	1.52	156.85	7,095.97	-183.68	97.08	494,816.52	697,476.58	32° 21' 33.506 N	103° 49' 39.577 W	
7,200.00	1.50	153.38	7,195.94	-186.07	98.19	494,814.13	697,477.68	32° 21' 33.482 N	103° 49' 39.565 W	
7,300.00	1.57	158.65	7,295.90	-188.51	99.27	494,811.69	697,478.77	32° 21' 33.458 N	103° 49' 39.552 W	
7,400.00	1.65	150.92	7,395.86	-191.05	100.47	494,809.15	697,479.97	32° 21' 33.433 N	103° 49' 39.538 W	
7,500.00	1.71	152.87	7,495.82	-193.63	101.85	494,806.57	697,481.35	32° 21' 33.407 N	103° 49' 39.522 W	
7,600.00	1.77	151.82	7,595.77	-196.32	103.26	494,803.88	697,482.76	32° 21' 33.381 N	103° 49' 39.506 W	
7,700.00	1.65	158.89	7,695.73	-199.03	104.51	494,801.17	697,484.01	32° 21' 33.354 N	103° 49' 39.492 W	
7,800.00	1.53	165.96	7,795.69	-201.67	105.35	494,798.54	697,484.85	32° 21' 33.328 N	103° 49' 39.482 W	
7,900.00	1.58	163.92	7,895.65	-204.29	106.06	494,795.92	697,485.55	32° 21' 33.302 N	103° 49' 39.474 W	
8,000.00	1.63	159.87	7,995.61	-206.95	106.93	494,793.26	697,486.43	32° 21' 33.275 N	103° 49' 39.464 W	
8,100.00	1.72	156.45	8,095.57	-209.66	108.02	494,790.54	697,487.51	32° 21' 33.248 N	103° 49' 39.451 W	
8,200.00	1.81	153.03	8,195.52	-212.44	109.33	494,787.76	697,488.83	32° 21' 33.221 N	103° 49' 39.436 W	
8,300.00	1.85	151.95	8,295.47	-215.27	110.81	494,784.93	697,490.31	32° 21' 33.193 N	103° 49' 39.419 W	
8,400.00	1.89	148.86	8,395.42	-218.11	112.42	494,782.09	697,491.92	32° 21' 33.165 N	103° 49' 39.400 W	
8,500.00	1.97	143.26	8,495.36	-220.90	114.30	494,779.30	697,493.80	32° 21' 33.137 N	103° 49' 39.379 W	
8,600.00	2.06	137.67	8,595.30	-223.60	116.54	494,776.60	697,496.04	32° 21' 33.110 N	103° 49' 39.353 W	
8,700.00	2.19	142.15	8,695.23	-226.44	118.92	494,773.76	697,498.42	32° 21' 33.082 N	103° 49' 39.325 W	
8,800.00	2.32	147.63	8,795.15	-229.66	121.18	494,770.54	697,500.68	32° 21' 33.050 N	103° 49' 39.299 W	
8,900.00	2.31	148.48	8,895.07	-233.09	123.32	494,767.12	697,502.81	32° 21' 33.016 N	103° 49' 39.274 W	
9,000.00	2.31	150.32	8,994.99	-236.55	125.37	494,763.65	697,504.86	32° 21' 32.981 N	103° 49' 39.251 W	
9,100.00	2.28	162.63	9,094.91	-240.20	126.96	494,760.00	697,506.46	32° 21' 32.945 N	103° 49' 39.232 W	
9,200.00	2.26	170.94	9,194.83	-244.05	127.86	494,756.15	697,507.36	32° 21' 32.907 N	103° 49' 39.222 W	
9,300.00	1.80	168.00	9,294.77	-247.53	128.50	494,752.67	697,508.00	32° 21' 32.873 N	103° 49' 39.215 W	
9,400.00	1.35	165.05	9,394.73	-250.21	129.13	494,749.99	697,508.63	32° 21' 32.846 N	103° 49' 39.207 W	
9,500.00	1.67	182.10	9,494.70	-252.80	129.38	494,747.40	697,508.88	32° 21' 32.820 N	103° 49' 39.205 W	
9,600.00	1.99	199.14	9,594.65	-255.90	128.76	494,744.30	697,508.26	32° 21' 32.790 N	103° 49' 39.212 W	
9,700.00	2.30	203.48	9,694.58	-259.38	127.39	494,740.82	697,506.89	32° 21' 32.755 N	103° 49' 39.228 W	
9,800.00	2.60	197.82	9,794.49	-263.38	125.90	494,736.82	697,505.39	32° 21' 32.716 N	103° 49' 39.246 W	
9,900.00	2.58	194.04	9,894.38	-267.72	124.66	494,732.48	697,504.15	32° 21' 32.673 N	103° 49' 39.261 W	
10,000.00	2.56	188.26	9,994.28	-272.12	123.79	494,728.09	697,503.29	32° 21' 32.630 N	103° 49' 39.271 W	
10,046.00	2.60	187.66	10,040.24	-274.17	123.50	494,726.04	697,503.00	32° 21' 32.609 N	103° 49' 39.274 W	
10,146.00	1.90	175.80	10,140.16	-278.07	123.32	494,722.13	697,502.82	32° 21' 32.571 N	103° 49' 39.277 W	
10,241.00	2.00	181.80	10,235.11	-281.29	123.39	494,718.91	697,502.88	32° 21' 32.539 N	103° 49' 39.276 W	
10,304.00	2.60	212.90	10,298.06	-283.59	122.58	494,716.61	697,502.07	32° 21' 32.516 N	103° 49' 39.286 W	
10,336.00	5.50	224.00	10,329.97	-285.31	121.12	494,714.89	697,500.61	32° 21' 32.499 N	103° 49' 39.303 W	
10,367.00	9.00	230.10	10,360.72	-287.93	118.22	494,712.27	697,497.72	32° 21' 32.473 N	103° 49' 39.337 W	
10,399.00	10.60	232.90	10,392.25	-291.31	113.95	494,708.89	697,493.45	32° 21' 32.440 N	103° 49' 39.387 W	
10,430.00	11.70	233.30	10,422.67	-294.91	109.16	494,705.29	697,488.66	32° 21' 32.405 N	103° 49' 39.443 W	
10,462.00	14.20	230.30	10,453.85	-299.36	103.54	494,700.84	697,483.03	32° 21' 32.361 N	103° 49' 39.508 W	
10,494.00	16.30	228.90	10,484.72	-304.82	97.13	494,695.38	697,476.63	32° 21' 32.307 N	103° 49' 39.583 W	
10,525.00	16.80	233.50	10,514.44	-310.34	90.25	494,689.86	697,469.75	32° 21' 32.253 N	103° 49' 39.664 W	
10,556.00	17.20	238.00	10,544.09	-315.44	82.76	494,684.76	697,462.26	32° 21' 32.203 N	103° 49' 39.752 W	
10,588.00	19.70	237.80	10,574.44	-320.82	74.19	494,679.38	697,453.68	32° 21' 32.150 N	103° 49' 39.852 W	
10,619.00	23.10	235.90	10,603.30	-327.01	64.73	494,673.19	697,444.22	32° 21' 32.089 N	103° 49' 39.962 W	
10,650.00	27.20	234.50	10,631.35	-334.54	53.92	494,665.66	697,433.41	32° 21' 32.015 N	103° 49' 40.089 W	
10,682.00	31.10	232.40	10,659.30	-343.83	41.41	494,656.37	697,420.91	32° 21' 31.924 N	103° 49' 40.235 W	
10,713.00	35.00	231.00	10,685.28	-354.32	28.15	494,645.88	697,407.65	32° 21' 31.821 N	103° 49' 40.390 W	
10,745.00	39.00	229.90	10,710.83	-366.58	13.31	494,633.62	697,392.81	32° 21' 31.700 N	103° 49' 40.564 W	

LEAM Drilling Systems LLC

Survey Report - Geographic

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well 17H
Project:	Eddy County, NM (NAD:83)	TVD Reference:	GE 334.1' + 25" @ 3366.00usft (Scan:Texas)
Site:	Apache 25 Fed	MD Reference:	GE 334.1' + 25" @ 3366.00usft (Scan:Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM:5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,776.00	43.30	229.20	10,734.17	-379.82	-2.20	494,620.38	697,377.29	32° 21' 31.570 N	103° 49' 40.746 W
10,807.00	47.40	229.60	10,755.95	-394.17	-18.95	494,606.03	697,360.55	32° 21' 31.429 N	103° 49' 40.942 W
10,839.00	51.60	230.80	10,776.72	-409.73	-37.64	494,590.47	697,341.86	32° 21' 31.275 N	103° 49' 41.160 W
10,870.00	56.10	231.30	10,795.01	-425.46	-57.10	494,574.74	697,322.39	32° 21' 31.121 N	103° 49' 41.388 W
10,902.00	60.10	232.20	10,811.91	-442.27	-78.44	494,557.93	697,301.06	32° 21' 30.955 N	103° 49' 41.638 W
10,934.00	63.70	235.00	10,826.99	-459.01	-101.16	494,541.19	697,278.34	32° 21' 30.791 N	103° 49' 41.904 W
10,965.00	66.50	238.50	10,840.04	-474.41	-124.67	494,525.79	697,254.83	32° 21' 30.639 N	103° 49' 42.179 W
10,996.00	69.10	242.20	10,851.76	-488.60	-149.61	494,511.60	697,229.88	32° 21' 30.500 N	103° 49' 42.470 W
11,028.00	71.00	245.20	10,862.68	-501.92	-176.57	494,498.28	697,202.92	32° 21' 30.370 N	103° 49' 42.785 W
11,059.00	72.20	247.50	10,872.46	-513.72	-203.52	494,486.48	697,175.98	32° 21' 30.254 N	103° 49' 43.100 W
11,091.00	73.80	250.00	10,881.82	-524.81	-232.04	494,475.39	697,147.46	32° 21' 30.146 N	103° 49' 43.433 W
11,122.00	75.80	252.40	10,889.95	-534.44	-260.35	494,465.76	697,119.14	32° 21' 30.052 N	103° 49' 43.764 W
11,154.00	77.10	254.40	10,897.45	-543.33	-290.16	494,456.87	697,089.33	32° 21' 29.965 N	103° 49' 44.112 W
11,185.00	78.10	255.60	10,904.10	-551.16	-319.41	494,449.04	697,060.09	32° 21' 29.889 N	103° 49' 44.453 W
11,217.00	79.00	258.40	10,910.46	-558.22	-349.96	494,441.98	697,029.53	32° 21' 29.821 N	103° 49' 44.810 W
11,248.00	80.00	260.30	10,916.11	-563.85	-379.92	494,436.35	696,999.58	32° 21' 29.766 N	103° 49' 45.159 W
11,311.00	81.00	262.30	10,926.50	-573.25	-441.33	494,426.96	696,938.16	32° 21' 29.676 N	103° 49' 45.876 W
11,343.00	83.70	263.30	10,930.76	-577.22	-472.80	494,422.98	696,906.70	32° 21' 29.638 N	103° 49' 46.243 W
11,375.00	86.80	262.80	10,933.41	-581.08	-504.45	494,419.12	696,875.05	32° 21' 29.602 N	103° 49' 46.612 W
11,469.00	88.70	263.70	10,937.10	-592.12	-597.72	494,408.08	696,781.78	32° 21' 29.497 N	103° 49' 47.700 W
11,564.00	89.80	264.60	10,938.35	-601.80	-692.21	494,398.40	696,687.28	32° 21' 29.405 N	103° 49' 48.802 W
11,659.00	90.30	266.30	10,938.26	-609.33	-786.91	494,390.87	696,592.58	32° 21' 29.335 N	103° 49' 49.907 W
11,753.00	91.20	266.80	10,937.03	-614.99	-880.73	494,385.21	696,498.76	32° 21' 29.284 N	103° 49' 51.001 W
11,847.00	92.10	267.20	10,934.33	-619.91	-974.56	494,380.29	696,404.93	32° 21' 29.239 N	103° 49' 52.095 W
11,941.00	91.40	267.60	10,931.46	-624.17	-1,068.42	494,376.03	696,311.07	32° 21' 29.201 N	103° 49' 53.190 W
12,036.00	91.50	267.70	10,929.05	-628.06	-1,163.31	494,372.14	696,216.18	32° 21' 29.167 N	103° 49' 54.296 W
12,130.00	92.10	268.30	10,926.10	-631.34	-1,257.21	494,368.86	696,122.29	32° 21' 29.139 N	103° 49' 55.391 W
12,225.00	91.10	267.90	10,923.45	-634.49	-1,352.12	494,365.71	696,027.38	32° 21' 29.112 N	103° 49' 56.498 W
12,320.00	90.10	267.40	10,922.45	-638.39	-1,447.03	494,361.81	695,932.47	32° 21' 29.078 N	103° 49' 57.604 W
12,413.00	90.60	267.60	10,921.89	-642.44	-1,539.94	494,357.76	695,839.56	32° 21' 29.042 N	103° 49' 58.688 W
12,508.00	89.50	267.00	10,921.80	-646.92	-1,634.83	494,353.28	695,744.66	32° 21' 29.003 N	103° 49' 59.794 W
12,602.00	89.90	267.70	10,922.29	-651.26	-1,728.73	494,348.94	695,650.77	32° 21' 28.964 N	103° 50' 0.889 W
12,697.00	90.20	268.30	10,922.21	-654.58	-1,823.67	494,345.62	695,555.83	32° 21' 28.935 N	103° 50' 1.996 W
12,791.00	90.20	268.10	10,921.88	-657.53	-1,917.62	494,342.67	695,461.87	32° 21' 28.911 N	103° 50' 3.092 W
12,885.00	89.20	267.40	10,922.38	-661.22	-2,011.55	494,338.98	695,367.95	32° 21' 28.878 N	103° 50' 4.187 W
12,980.00	89.40	267.70	10,923.54	-665.28	-2,106.45	494,334.92	695,273.04	32° 21' 28.843 N	103° 50' 5.294 W
13,074.00	89.10	267.70	10,924.77	-669.06	-2,200.37	494,331.15	695,179.13	32° 21' 28.810 N	103° 50' 6.389 W
13,168.00	88.20	267.20	10,926.98	-673.24	-2,294.25	494,326.96	695,085.25	32° 21' 28.772 N	103° 50' 7.483 W
13,263.00	87.80	267.70	10,930.30	-677.46	-2,389.10	494,322.74	694,990.40	32° 21' 28.735 N	103° 50' 8.589 W
13,358.00	87.40	267.20	10,934.27	-681.68	-2,483.92	494,318.52	694,895.58	32° 21' 28.698 N	103° 50' 9.695 W
13,453.00	88.20	268.10	10,937.92	-685.58	-2,578.77	494,314.63	694,800.73	32° 21' 28.663 N	103° 50' 10.801 W
13,547.00	89.30	267.70	10,939.97	-689.02	-2,672.68	494,311.18	694,706.82	32° 21' 28.634 N	103° 50' 11.896 W
13,650.00	89.30	264.90	10,941.23	-695.66	-2,775.45	494,304.54	694,604.05	32° 21' 28.573 N	103° 50' 13.095 W
13,744.00	93.60	265.10	10,938.85	-703.85	-2,869.04	494,296.35	694,510.46	32° 21' 28.496 N	103° 50' 14.186 W
13,839.00	95.60	265.30	10,931.23	-711.78	-2,963.39	494,288.42	694,416.10	32° 21' 28.422 N	103° 50' 15.287 W
13,934.00	94.10	266.10	10,923.20	-718.87	-3,057.78	494,281.33	694,321.71	32° 21' 28.356 N	103° 50' 16.388 W
14,028.00	93.10	266.30	10,917.30	-725.09	-3,151.39	494,275.11	694,228.10	32° 21' 28.299 N	103° 50' 17.479 W
14,122.00	91.20	266.70	10,913.77	-730.82	-3,245.15	494,269.38	694,134.35	32° 21' 28.246 N	103° 50' 18.573 W
14,217.00	92.20	266.10	10,910.96	-736.79	-3,339.92	494,263.41	694,039.58	32° 21' 28.192 N	103° 50' 19.678 W
14,311.00	91.70	267.20	10,907.76	-742.28	-3,433.70	494,257.92	693,945.80	32° 21' 28.142 N	103° 50' 20.771 W
14,406.00	90.00	267.20	10,906.35	-746.92	-3,528.57	494,253.28	693,850.92	32° 21' 28.100 N	103° 50' 21.878 W
14,500.00	90.90	267.00	10,905.61	-751.67	-3,622.45	494,248.53	693,757.05	32° 21' 28.057 N	103° 50' 22.972 W
14,594.00	90.00	267.70	10,904.87	-756.02	-3,716.34	494,244.18	693,663.15	32° 21' 28.018 N	103° 50' 24.067 W
14,689.00	91.50	268.10	10,903.63	-759.50	-3,811.27	494,240.70	693,568.23	32° 21' 27.988 N	103° 50' 25.174 W
14,783.00	90.00	265.80	10,902.40	-764.50	-3,905.12	494,235.70	693,474.38	32° 21' 27.943 N	103° 50' 26.269 W

LEAM Drilling Systems LLC

Survey Report - Geographic

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well: 17H
Project:	Eddy County, NM (NAD:83)	TVD Reference:	GE 3341' + 25' @ 3366.00usft (Scan Texas)
Site:	Apache 25 Fed	MD Reference:	GE 3341' + 25' @ 3366.00usft (Scan Texas)
Well:	17H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM:5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,878.00	90.40	267.00	10,902.07	-770.46	-3,999.93	494,229.74	693,379.57	32° 21' 27.888 N	103° 50' 27.374 W
14,973.00	91.00	267.60	10,900.90	-774.94	-4,094.81	494,225.26	693,284.68	32° 21' 27.848 N	103° 50' 28.481 W
15,093.00	92.90	267.60	10,896.82	-779.96	-4,214.63	494,220.24	693,164.86	32° 21' 27.804 N	103° 50' 29.878 W
15,154.00	92.90	267.60	10,893.74	-782.51	-4,275.50	494,217.69	693,103.99	32° 21' 27.782 N	103° 50' 30.588 W
PBHL(A-25-F 17H)									

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
SHL(A-25-F 17H)	0.00	0.00	0.00	0.00	0.00	495,000.20	697,379.50	32° 21' 35.328 N	103° 49' 40.699 W
- actual wellpath hits target center									
- Point									
PBHL(A-25-F 17H)	-0.38	259.38	10,905.0 0	-802.60	-4,281.80	494,197.60	693,097.70	32° 21' 27.583 N	103° 50' 30.662 W
- actual wellpath misses target center by 23.88usft at 15154.00usft MD (10893.74 TVD, -782.51 N, -4275.50 E)									
- Rectangle (sides W50.00 H3,735.84 D20.00)									

Checked By: _____ Approved By: _____ Date: _____

MD	INC	AZI	TVD	NS	EW	VS	X(easting)	Y(northing)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	697379.50	495000.20
100.00	0.17	344.89	100.00	0.14	-0.04	0.01	697379.46	495000.34
200.00	0.35	329.78	200.00	0.55	-0.23	0.13	697379.27	495000.75
300.00	0.23	5.61	300.00	1.01	-0.37	0.17	697379.13	495001.21
400.00	0.11	41.43	400.00	1.29	-0.28	0.04	697379.22	495001.49
500.00	0.29	80.15	500.00	1.40	0.03	-0.29	697379.53	495001.60
600.00	0.47	118.87	599.99	1.25	0.64	-0.86	697380.14	495001.45
700.00	0.53	124.98	699.99	0.78	1.38	-1.50	697380.88	495000.98
800.00	0.59	131.09	799.99	0.18	2.14	-2.14	697381.64	495000.38
900.00	0.64	127.35	899.98	-0.50	2.98	-2.83	697382.48	494999.70
1000.00	0.69	119.61	999.97	-1.13	3.94	-3.67	697383.44	494999.07
1100.00	0.85	115.97	1099.96	-1.76	5.13	-4.72	697384.63	494998.44
1200.00	1.01	112.32	1199.95	-2.42	6.62	-6.06	697386.12	494997.78
1300.00	1.09	117.96	1299.93	-3.20	8.27	-7.54	697387.77	494997.00
1400.00	1.17	123.60	1399.91	-4.21	9.96	-9.02	697389.46	494995.99
1500.00	1.30	134.20	1499.89	-5.56	11.63	-10.40	697391.13	494994.64
1600.00	1.42	144.80	1599.86	-7.37	13.15	-11.57	697392.65	494992.83
1700.00	1.72	152.52	1699.83	-9.71	14.56	-12.52	697394.06	494990.49
1800.00	2.02	160.25	1799.77	-12.70	15.85	-13.24	697395.35	494987.50
1900.00	1.94	163.66	1899.71	-15.98	16.92	-13.69	697396.42	494984.22
2000.00	1.85	165.08	1999.66	-19.17	17.81	-13.98	697397.31	494981.03
2100.00	1.70	159.96	2099.61	-22.12	18.74	-14.34	697398.24	494978.08
2200.00	1.55	154.83	2199.57	-24.74	19.82	-14.92	697399.32	494975.46
2300.00	1.42	160.02	2299.54	-27.13	20.82	-15.46	697400.32	494973.07
2400.00	1.29	165.21	2399.51	-29.38	21.53	-15.75	697401.03	494970.82
2500.00	1.04	169.06	2499.49	-31.36	21.99	-15.83	697401.49	494968.84
2600.00	0.79	166.91	2599.48	-32.92	22.32	-15.87	697401.82	494967.28
2700.00	1.15	186.31	2699.46	-34.59	22.36	-15.61	697401.86	494965.61
2800.00	1.52	205.71	2799.43	-36.78	21.68	-14.53	697401.18	494963.42
2900.00	1.45	208.23	2899.40	-39.09	20.50	-12.95	697400.00	494961.11
3000.00	1.38	180.75	2999.37	-41.41	19.89	-11.92	697399.39	494958.79
3100.00	2.36	176.51	3099.32	-44.67	20.00	-11.43	697399.50	494955.53
3200.00	3.34	157.27	3199.19	-49.41	21.25	-11.78	697400.75	494950.79
3300.00	3.19	141.61	3299.03	-54.28	24.10	-13.69	697403.60	494945.92
3400.00	3.03	138.95	3398.89	-58.45	27.57	-16.32	697407.07	494941.75
3500.00	3.27	135.31	3498.74	-62.48	31.31	-19.26	697410.81	494937.72
3600.00	3.50	131.66	3598.56	-66.53	35.59	-22.73	697415.09	494933.67
3700.00	3.16	140.46	3698.39	-70.69	39.63	-25.93	697419.13	494929.51
3800.00	2.82	149.25	3798.26	-74.93	42.64	-28.11	697422.14	494925.27
3900.00	2.55	151.63	3898.15	-79.00	44.96	-29.63	697424.46	494921.20
4000.00	2.29	152.01	3998.06	-82.72	46.95	-30.91	697426.45	494917.48
4100.00	2.32	155.68	4097.98	-86.33	48.72	-31.98	697428.22	494913.87
4200.00	2.35	153.34	4197.89	-90.00	50.48	-33.03	697429.98	494910.20
4300.00	2.38	152.07	4297.81	-93.67	52.37	-34.21	697431.87	494906.53
4400.00	2.40	154.79	4397.72	-97.40	54.23	-35.36	697433.73	494902.80
4500.00	2.36	151.44	4497.64	-101.10	56.11	-36.52	697435.61	494899.10
4600.00	2.32	154.09	4597.55	-104.73	57.98	-37.69	697437.48	494895.47
4700.00	2.30	157.74	4697.47	-108.41	59.62	-38.63	697439.12	494891.79
4800.00	2.28	155.39	4797.39	-112.07	61.21	-39.51	697440.71	494888.13
4900.00	2.32	150.75	4897.31	-115.65	63.03	-40.64	697442.53	494884.55
5000.00	2.36	158.11	4997.23	-119.33	64.78	-41.69	697444.28	494880.87
5100.00	2.20	152.87	5097.15	-122.94	66.43	-42.64	697445.93	494877.26
5200.00	2.03	145.63	5197.08	-126.11	68.30	-43.90	697447.80	494874.09
5300.00	2.04	149.67	5297.02	-129.11	70.20	-45.21	697449.70	494871.09
5400.00	2.05	146.70	5396.95	-132.14	72.08	-46.50	697451.58	494868.06
5500.00	2.03	152.76	5496.89	-135.21	73.87	-47.70	697453.37	494864.99
5600.00	2.00	159.83	5596.83	-138.43	75.29	-48.49	697454.79	494861.77
5700.00	1.99	153.77	5696.77	-141.62	76.66	-49.25	697456.16	494858.58
5800.00	1.97	143.72	5796.71	-144.56	78.44	-50.46	697457.94	494855.64
5900.00	2.05	149.92	5896.65	-147.50	80.35	-51.80	697459.85	494852.70

6000.00	2.13	156.11	5996.58	-150.74	82.00	-52.83	697461.50	494849.46
6100.00	2.22	155.30	6096.51	-154.20	83.56	-53.72	697463.06	494846.00
6200.00	2.30	152.49	6196.43	-157.74	85.30	-54.78	697464.80	494842.46
6300.00	2.16	151.65	6296.36	-161.18	87.12	-55.94	697466.62	494839.02
6400.00	2.02	148.81	6396.29	-164.35	88.93	-57.13	697468.43	494835.85
6500.00	1.89	151.83	6496.23	-167.31	90.62	-58.25	697470.12	494832.89
6600.00	1.76	154.86	6596.18	-170.15	92.05	-59.13	697471.55	494830.05
6700.00	1.74	158.69	6696.13	-172.96	93.26	-59.80	697472.76	494827.24
6800.00	1.73	164.52	6796.09	-175.83	94.21	-60.20	697473.71	494824.37
6900.00	1.63	160.42	6896.05	-178.62	95.09	-60.55	697474.59	494821.58
7000.00	1.54	158.33	6996.01	-181.21	96.06	-61.03	697475.56	494818.99
7100.00	1.52	156.85	7095.97	-183.68	97.08	-61.58	697476.58	494816.52
7200.00	1.50	153.38	7195.94	-186.07	98.19	-62.23	697477.69	494814.13
7300.00	1.57	158.65	7295.90	-188.51	99.27	-62.84	697478.77	494811.69
7400.00	1.65	150.92	7395.86	-191.05	100.47	-63.55	697479.97	494809.15
7500.00	1.71	152.87	7495.82	-193.63	101.85	-64.43	697481.35	494806.57
7600.00	1.77	151.82	7595.77	-196.32	103.26	-65.33	697482.76	494803.88
7700.00	1.65	158.89	7695.73	-199.03	104.51	-66.05	697484.01	494801.17
7800.00	1.53	165.96	7795.69	-201.67	105.35	-66.40	697484.85	494798.53
7900.00	1.58	163.92	7895.65	-204.29	106.06	-66.61	697485.56	494795.91
8000.00	1.63	159.87	7995.61	-206.95	106.93	-66.97	697486.43	494793.25
8100.00	1.72	156.45	8095.57	-209.66	108.02	-67.54	697487.52	494790.54
8200.00	1.81	153.03	8195.52	-212.44	109.33	-68.32	697488.83	494787.76
8300.00	1.85	151.95	8295.47	-215.27	110.81	-69.25	697490.31	494784.93
8400.00	1.89	148.86	8395.42	-218.11	112.42	-70.31	697491.92	494782.09
8500.00	1.97	143.26	8495.36	-220.90	114.30	-71.65	697493.80	494779.30
8600.00	2.06	137.67	8595.30	-223.60	116.54	-73.35	697496.04	494776.60
8700.00	2.19	142.15	8695.23	-226.44	118.92	-75.17	697498.42	494773.76
8800.00	2.32	147.63	8795.15	-229.66	121.18	-76.79	697500.68	494770.54
8900.00	2.31	148.48	8895.07	-233.09	123.32	-78.26	697502.82	494767.11
9000.00	2.31	150.32	8994.99	-236.55	125.37	-79.64	697504.87	494763.65
9100.00	2.28	162.63	9094.91	-240.20	126.96	-80.53	697506.46	494760.00
9200.00	2.26	170.94	9194.83	-244.05	127.86	-80.71	697507.36	494756.15
9300.00	1.80	168.00	9294.77	-247.53	128.50	-80.70	697508.00	494752.67
9400.00	1.35	165.05	9394.73	-250.21	129.13	-80.82	697508.63	494749.99
9500.00	1.67	182.10	9494.70	-252.80	129.38	-80.59	697508.88	494747.40
9600.00	1.99	199.14	9594.65	-255.90	128.76	-79.41	697508.26	494744.30
9700.00	2.30	203.48	9694.58	-259.38	127.39	-77.42	697506.89	494740.82
9800.00	2.60	197.82	9794.49	-263.38	125.90	-75.22	697505.40	494736.82
9900.00	2.58	194.04	9894.38	-267.72	124.66	-73.20	697504.16	494732.48
10000.00	2.56	188.26	9994.28	-272.12	123.79	-71.54	697503.29	494728.08
10046.00	2.60	187.66	10040.24	-274.17	123.50	-70.88	697503.00	494726.03
10146.00	1.90	175.80	10140.16	-278.07	123.32	-69.98	697502.82	494722.13
10241.00	2.00	181.80	10235.11	-281.29	123.39	-69.45	697502.89	494718.91
10304.00	2.60	212.90	10298.06	-283.59	122.58	-68.23	697502.08	494716.61
10336.00	5.50	224.00	10329.97	-285.31	121.12	-66.48	697500.62	494714.89
10367.00	9.00	230.10	10360.72	-287.93	118.22	-63.15	697497.72	494712.27
10399.00	10.60	232.90	10392.25	-291.31	113.95	-58.33	697493.45	494708.89
10430.00	11.70	233.30	10422.67	-294.91	109.16	-52.96	697488.66	494705.29
10462.00	14.20	230.30	10453.85	-299.36	103.54	-46.61	697483.04	494700.84
10494.00	16.30	228.90	10484.72	-304.82	97.13	-39.31	697476.63	494695.38
10525.00	16.80	233.50	10514.44	-310.34	90.25	-31.53	697469.75	494689.86
10556.00	17.20	238.00	10544.09	-315.44	82.76	-23.23	697462.26	494684.76
10588.00	19.70	237.80	10574.44	-320.82	74.19	-13.81	697453.69	494679.38
10619.00	23.10	235.90	10603.30	-327.01	64.73	-3.37	697444.23	494673.19
10650.00	27.20	234.50	10631.35	-334.54	53.92	8.64	697433.42	494665.66
10682.00	31.10	232.40	10659.30	-343.83	41.41	22.64	697420.91	494656.37
10713.00	35.00	231.00	10685.28	-354.32	28.15	37.61	697407.65	494645.88
10745.00	39.00	229.90	10710.83	-366.58	13.31	54.45	697392.81	494633.62
10776.00	43.30	229.20	10734.17	-379.82	-2.20	72.14	697377.30	494620.38
10807.00	47.40	229.60	10755.95	-394.17	-18.95	91.24	697360.55	494606.03

10839.00	51.60	230.80	10776.72	-409.73	-37.64	112.48	697341.86	494590.47
10870.00	56.10	231.30	10795.01	-425.46	-57.10	134.51	697322.40	494574.74
10902.00	60.10	232.20	10811.91	-442.27	-78.44	158.58	697301.06	494557.93
10934.00	63.70	235.00	10826.99	-459.01	-101.16	183.99	697278.34	494541.19
10965.00	66.50	238.50	10840.04	-474.41	-124.67	209.94	697254.83	494525.79
10996.00	69.10	242.20	10851.76	-488.60	-149.61	237.07	697229.89	494511.60
11028.00	71.00	245.20	10862.68	-501.92	-176.57	266.02	697202.93	494498.28
11059.00	72.20	247.50	10872.46	-513.72	-203.52	294.68	697175.98	494486.48
11091.00	73.80	250.00	10881.82	-524.81	-232.04	324.75	697147.46	494475.39
11122.00	75.80	252.40	10889.95	-534.44	-260.35	354.36	697119.15	494465.76
11154.00	77.10	254.40	10897.45	-543.33	-290.16	385.30	697089.34	494456.87
11185.00	78.10	255.60	10904.10	-551.16	-319.41	415.48	697060.09	494449.04
11217.00	79.00	258.40	10910.46	-558.22	-349.96	446.82	697029.54	494441.98
11248.00	80.00	260.30	10916.11	-563.85	-379.92	477.30	696999.58	494436.35
11311.00	81.00	262.30	10926.50	-573.25	-441.33	539.39	696938.17	494426.95
11343.00	83.70	263.30	10930.76	-577.22	-472.80	571.05	696906.70	494422.98
11375.00	86.80	262.80	10933.41	-581.08	-504.45	602.87	696875.05	494419.12
11469.00	88.70	263.70	10937.10	-592.12	-597.72	696.58	696781.78	494408.08
11564.00	89.80	264.60	10938.35	-601.80	-692.21	791.24	696687.29	494398.40
11659.00	90.30	266.30	10938.26	-609.33	-786.91	885.70	696592.59	494390.87
11753.00	91.20	266.80	10937.03	-614.99	-880.73	978.96	696498.77	494385.21
11847.00	92.10	267.20	10934.33	-619.91	-974.56	1072.09	696404.94	494380.29
11941.00	91.40	267.60	10931.46	-624.17	-1068.42	1165.13	696311.08	494376.03
12036.00	91.50	267.70	10929.05	-628.06	-1163.31	1259.11	696216.19	494372.14
12130.00	92.10	268.30	10926.10	-631.34	-1257.21	1352.00	696122.29	494368.86
12225.00	91.10	267.90	10923.45	-634.49	-1352.12	1445.87	696027.38	494365.71
12320.00	90.10	267.40	10922.45	-638.39	-1447.03	1539.87	695932.47	494361.81
12413.00	90.60	267.60	10921.88	-642.44	-1539.94	1631.94	695839.56	494357.76
12508.00	89.50	267.00	10921.80	-646.92	-1634.83	1726.03	695744.67	494353.28
12602.00	89.90	267.70	10922.29	-651.26	-1728.73	1819.12	695650.77	494348.94
12697.00	90.20	268.30	10922.21	-654.58	-1823.67	1913.05	695555.83	494345.62
12791.00	90.20	268.10	10921.88	-657.53	-1917.62	2005.94	695461.88	494342.67
12885.00	89.20	267.40	10922.38	-661.22	-2011.55	2098.93	695367.95	494338.98
12980.00	89.40	267.70	10923.54	-665.28	-2106.45	2192.96	695273.05	494334.92
13074.00	89.10	267.70	10924.77	-669.06	-2200.37	2285.97	695179.13	494331.14
13168.00	88.20	267.20	10926.98	-673.24	-2294.25	2379.01	695085.25	494326.96
13263.00	87.80	267.70	10930.30	-677.46	-2389.10	2473.01	694990.40	494322.74
13358.00	87.40	267.20	10934.27	-681.68	-2483.92	2566.99	694895.58	494318.52
13453.00	88.20	268.10	10937.92	-685.58	-2578.77	2660.93	694800.73	494314.62
13547.00	89.30	267.70	10939.97	-689.02	-2672.68	2753.87	694706.82	494311.18
13650.00	89.30	264.90	10941.23	-695.66	-2775.45	2856.10	694604.05	494304.54
13744.00	93.60	265.10	10938.85	-703.85	-2869.04	2949.60	694510.46	494296.35
13839.00	95.60	265.30	10931.23	-711.78	-2963.39	3043.80	694416.11	494288.42
13934.00	94.10	266.10	10923.20	-718.87	-3057.78	3137.88	694321.72	494281.33
14028.00	93.10	266.30	10917.30	-725.09	-3151.39	3231.03	694228.11	494275.11
14122.00	91.20	266.70	10913.77	-730.82	-3245.15	3324.24	694134.35	494269.38
14217.00	92.20	266.10	10910.96	-736.79	-3339.92	3418.49	694039.58	494263.41
14311.00	91.70	267.20	10907.76	-742.28	-3433.70	3511.67	693945.80	494257.92
14406.00	90.00	267.20	10906.35	-746.92	-3528.57	3605.78	693850.93	494253.28
14500.00	90.90	267.00	10905.61	-751.67	-3622.45	3698.92	693757.05	494248.53
14594.00	90.00	267.70	10904.87	-756.02	-3716.34	3792.01	693663.16	494244.18
14689.00	91.50	268.10	10903.63	-759.50	-3811.27	3885.95	693568.23	494240.70
14783.00	90.00	265.80	10902.40	-764.50	-3905.12	3979.12	693474.38	494235.70
14878.00	90.40	267.00	10902.07	-770.46	-3999.93	4073.40	693379.57	494229.74
14973.00	91.00	267.60	10900.90	-774.94	-4094.81	4167.49	693284.69	494225.26
15093.00	92.90	267.60	10896.82	-779.96	-4214.63	4286.18	693164.87	494220.24
15154.00	92.90	267.60	10893.74	-782.51	-4275.50	4346.48	693104.00	494217.69

APACHE 25 FED 17H - Permian Basin Stimulation Summary - Page No. 1 - Date: 10/10/2013

Stage #	Date	Type	Zone	Min Top Depth (ftKB)	Max Btm Depth (ftKB)	Proppant Fm (lb)	Proppant Design (lb)	Total Clean Volume Pumped (bbl)	Conc Max (lb/gal)	P Max (psi)	ISIP (psi)	Q Start Max (bbl/min)
1	6/25/2013 01:56	SLICKWATER FRAC	BONE SPRING 3RD, OH	14,865.0	15,062.0	138,935.7	140,000.0	5431.21	2.07	8,280.0	3,960.0	79
2	6/25/2013 09:34	SLICKWATER FRAC	BONE SPRING 3RD, OH	14,625.0	14,807.0	136,605.1	140,000.0	6648.84	2.03	8,290.0	3,981.0	81
3	6/26/2013 09:00	SLICKWATER FRAC	BONE SPRING 3RD, OH	14,385.0	14,567.0	137,279.0	140,000.0	5630.13	1.96	8,277.0	3,994.0	80
4	6/26/2013 12:00	SLICKWATER FRAC	BONE SPRING 3RD, OH	14,145.0	14,327.0	140,681.4	140,000.0	5454.35	2.04	8,172.0	4,104.0	80
5	6/26/2013 15:00	SLICKWATER FRAC	BONE SPRING 3RD, OH	13,905.0	14,087.0	140,310.4	140,000.0	5454.31	2.01	7,621.0	4,048.0	80
6	6/27/2013 02:29	SLICKWATER FRAC	BONE SPRING 3RD, OH	13,665.0	13,847.0	140,397.4	140,000.0	5580.42	2.07	8,225.0	4,119.0	80
7	6/27/2013 18:00	SLICKWATER FRAC	BONE SPRING 3RD, OH	13,425.0	13,607.0	139,175.1	140,000.0	5405.61	2.06	7,386.0	3,992.0	81
8	6/27/2013 21:00	SLICKWATER FRAC	BONE SPRING 3RD, OH	13,185.0	13,367.0	135,828.3	140,000.0	5401.19	2.03	7,758.0	3,997.0	81
9	6/28/2013 01:47	SLICKWATER FRAC	BONE SPRING 3RD, OH	12,945.0	13,127.0	135,622.9	140,000.0	5467.06	1.79	6,523.0	3,724.0	81
10	6/28/2013 05:03	SLICKWATER FRAC	BONE SPRING 3RD, OH	12,705.0	12,887.0	138,024.9	140,000.0	5411.70	2.06	6,900.0	3,970.0	81
11	6/28/2013 08:06	SLICKWATER FRAC	BONE SPRING 3RD, OH	12,465.0	12,647.0	137,205.6	140,000.0	5430.80	2.01	6,910.0	3,312.0	81
12	6/28/2013 21:00	SLICKWATER FRAC	BONE SPRING 3RD, OH	12,225.0	12,407.0	134,595.1	140,000.0	5404.06	2.06	6,910.0	3,744.0	80
13	6/29/2013 01:51	SLICKWATER FRAC	BONE SPRING 3RD, OH	11,985.0	12,167.0	136,886.3	140,000.0	5384.65	1.95	6,080.0	3,581.0	81
14	6/29/2013 04:56	SLICKWATER FRAC	BONE SPRING 3RD, OH	11,745.0	11,927.0	138,367.1	140,000.0	5388.87	2.03	6,411.0	3,516.0	81
15	6/29/2013 19:15	SLICKWATER FRAC	BONE SPRING 3RD, OH	11,505.0	11,687.0	140,792.9	140,000.0	5431.98	2.01	6,422.0	3,462.0	80
16	6/29/2013 22:00	SLICKWATER FRAC	BONE SPRING 3RD, OH	11,265.0	11,447.0	182,763.7	140,000.0	5856.96	2.07	5,850.0	3,562.0	83