



CUDD Drilling & Measurement Services
3201 E. Loop 250 N.
Midland, TX 79705
Tel: (432) 689-5700
Fax: (432) 689-5716

30-015-36108

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Daniel Caruthers, certify that; I am employed by CUDD Drilling and Measurement Services; that I did on the day(s) of 09-06-2011 to 10-12-2011 conduct or supervise the taking of MWD surveys from a depth of 9,044 feet to a depth of 11,303 feet and MWD surveys from a depth of 10,869 feet to a depth of 13,460 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by CUDD Drilling and Measurement Services.; that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon Energy Production Co, LP for the Habanero 17 Fed 1H well, in Eddy Co, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by CUDD Drilling and Measurement Services.

A handwritten signature in black ink, appearing to read "Dan Caruthers", written over a horizontal line.

Daniel Caruthers
MWD Engineer



Devon Energy Production Co, LP

Eddy Co., New Mexico (Nad 83)

Habanero 17 Fed #1H

Habanero 17 Fed #1H

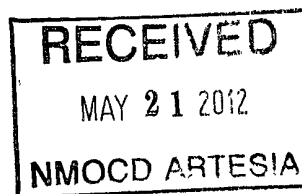
30-015-36108

Lateral #1

Survey: Lateral #1

Standard Survey Report

12 October, 2011





CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co, LP	Local Co-ordinate Reference:	Site Habanero, 17 Fed #1H
Project:	Eddy Co., New Mexico (Nad:83)	TVD Reference:	WELL @ 3221.00ft (Original Well Elev)
Site:	Habanero, 17 Fed #1H	MD Reference:	WELL @ 3221.00ft (Original Well Elev)
Well:	Habanero, 17 Fed #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000.1 Single User Db

Project:	Eddy Co., 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:	Habanero, 17 Fed #1H, Sec. 17, T:24S, R:27E		
Site Position:		Northing:	444,436.84 usft
From:	Map	Easting:	580,647.91 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32° 13' 18.370 N
		Longitude:	104° 12' 22.370 W
		Grid Convergence:	0.07 °

Well:	Habanero, 17 Fed #1H		
Well Position	+N/-S	0.00 ft	Northing: 444,436.84 usft
	+E/-W	0.00 ft	Easting: 580,647.91 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,221.00 ft
		Ground Level:	3,196.00 ft
		Latitude:	32° 13' 18.370 N
		Longitude:	104° 12' 22.370 W

Wellbore:	Lateral #1		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/9/2011	7.87	60.10	48,584

Design:	Lateral #1		
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Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	269.98

Survey Program	Date	From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
	10/12/2011	100.00	8,883.00	Gyro (Lateral #1)	NS-GYRO-MS	North sensing gyrocompassing m/s
		9,044.00	10,826.00	Lateral #1 (Lateral #1)	CUDD MWD	MWD - Standard CUDD MWD
		10,869.00	13,562.00	Side Track #1 (Lateral #1)	CUDD MWD	MWD - Standard CUDD MWD

Survey	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
	8,883.00	0.69	158.62	8,880.48	-18.83	11.49	-11.49	0.00	0.00	0.00
Tie in to Gyro										
	9,044.00	0.80	186.60	9,041.47	-20.85	11.72	-11.71	0.23	0.07	17.38
First CUDD survey										
	9,137.00	0.90	162.70	9,134.46	-22.20	11.86	-11.85	0.39	0.11	-25.70
	9,233.00	0.70	172.50	9,230.45	-23.50	12.16	-12.15	0.25	-0.21	10.21
	9,265.00	0.50	145.30	9,262.44	-23.81	12.26	-12.26	1.07	-0.63	-85.00
	9,297.00	2.20	256.90	9,294.44	-24.06	11.75	-11.74	7.59	5.31	348.75



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co., LP	Local Co-ordinate Reference:	Site Habanero 17 Fed #1H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 3221.00ft (Original Well Elev)
Site:	Habanero 17 Fed #1H	MD Reference:	WELL @ 3221.00ft (Original Well Elev)
Well:	Habanero 17 Fed #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000.1 Single User Db

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,329.00	5.80	257.90	9,326.35	-24.54	9.57	-9.56	11.25	11.25	3.13
9,360.00	9.40	261.40	9,357.08	-25.25	5.53	-5.52	11.70	11.61	11.29
9,392.00	12.10	263.60	9,388.51	-26.01	-0.39	0.40	8.53	8.44	6.88
9,424.00	15.30	266.00	9,419.60	-26.68	-7.93	7.94	10.15	10.00	7.50
9,456.00	17.10	265.40	9,450.33	-27.35	-16.84	16.85	5.65	5.63	-1.88
9,488.00	20.00	266.00	9,480.66	-28.11	-26.99	27.00	9.08	9.06	1.88
9,519.00	23.40	268.20	9,509.46	-28.67	-38.43	38.44	11.28	10.97	7.10
9,551.00	27.60	269.40	9,538.34	-28.95	-52.20	52.21	13.22	13.13	3.75
9,582.00	31.20	272.70	9,565.34	-28.65	-67.41	67.42	12.73	11.61	10.65
9,614.00	34.40	274.70	9,592.24	-27.52	-84.70	84.71	10.56	10.00	6.25
9,645.00	37.40	273.90	9,617.34	-26.16	-102.83	102.84	9.79	9.68	-2.58
9,677.00	40.60	272.10	9,642.21	-25.11	-122.93	122.94	10.61	10.00	-5.63
9,708.00	42.40	272.40	9,665.43	-24.31	-143.46	143.47	5.84	5.81	0.97
9,740.00	44.60	273.70	9,688.64	-23.13	-165.45	165.46	7.42	6.88	4.06
9,771.00	46.80	273.00	9,710.29	-21.84	-187.60	187.61	7.28	7.10	-2.26
9,802.00	49.80	273.20	9,730.91	-20.58	-210.71	210.71	9.69	9.68	0.65
9,834.00	52.10	272.40	9,751.07	-19.37	-235.53	235.53	7.45	7.19	-2.50
9,866.00	54.90	272.30	9,770.10	-18.32	-261.23	261.23	8.75	8.75	-0.31
9,897.00	56.30	272.90	9,787.61	-17.16	-286.78	286.78	4.79	4.52	1.94
9,929.00	59.10	271.90	9,804.71	-16.03	-313.80	313.80	9.14	8.75	-3.13
9,961.00	62.60	272.70	9,820.30	-14.90	-341.72	341.72	11.15	10.94	2.50
9,992.00	66.60	272.80	9,833.59	-13.56	-369.68	369.69	12.91	12.90	0.32
10,025.00	71.40	271.70	9,845.41	-12.36	-400.46	400.46	14.87	14.55	-3.33
10,071.00	78.70	271.30	9,857.27	-11.20	-444.86	444.86	15.89	15.87	-0.87
10,102.00	82.70	270.70	9,862.28	-10.66	-475.44	475.44	13.04	12.90	-1.94
10,132.00	84.40	271.70	9,865.65	-10.04	-505.24	505.24	6.56	5.67	3.33
10,163.00	87.30	271.80	9,867.89	-9.09	-536.14	536.14	9.36	9.35	0.32
10,194.00	86.90	273.10	9,869.46	-7.77	-567.07	567.08	4.38	-1.29	4.19
10,226.00	84.60	273.40	9,871.83	-5.96	-598.93	598.93	7.25	-7.19	0.94
10,257.00	84.50	273.20	9,874.78	-4.19	-629.74	629.74	0.72	-0.32	-0.65
10,289.00	84.70	273.50	9,877.79	-2.32	-661.54	661.54	1.12	0.63	0.94
10,320.00	85.80	273.40	9,880.36	-0.46	-692.38	692.38	3.56	3.55	-0.32
10,352.00	86.40	273.20	9,882.53	1.37	-724.25	724.25	1.98	1.88	-0.63
10,384.00	86.10	273.20	9,884.63	3.16	-756.14	756.13	0.94	-0.94	0.00
10,415.00	87.90	273.10	9,886.25	4.86	-787.04	787.04	5.82	5.81	-0.32
10,447.00	89.30	272.70	9,887.03	6.48	-818.99	818.99	4.55	4.38	-1.25
10,478.00	91.20	273.80	9,886.89	8.23	-849.94	849.94	7.08	6.13	3.55
10,510.00	90.90	274.30	9,886.31	10.49	-881.86	881.85	1.82	-0.94	1.56
10,543.00	88.00	274.60	9,886.63	13.05	-914.75	914.75	8.83	-8.79	0.91
10,574.00	87.60	274.60	9,887.82	15.54	-945.63	945.62	1.29	-1.29	0.00
10,605.00	87.30	274.20	9,889.19	17.91	-976.51	976.50	1.61	-0.97	-1.29
10,637.00	87.10	274.20	9,890.76	20.25	-1,008.38	1,008.38	0.63	-0.63	0.00
10,668.00	88.00	274.30	9,892.08	22.55	-1,039.27	1,039.26	2.92	2.90	0.32
10,700.00	89.20	273.60	9,892.86	24.75	-1,071.18	1,071.17	4.34	3.75	-2.19



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co., LP	Local Co-ordinate Reference:	Site: Habanero 17 Fed #1H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 3221.00ft (Original Well Elev)
Site:	Habanero 17 Fed #1H	MD Reference:	WELL @ 3221.00ft (Original Well Elev)
Well:	Habanero 17 Fed #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000.1, Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,732.00	89.30	273.60	9,893.28	26.76	-1,103.12	1,103.11	0.31	0.31	0.00
10,763.00	91.00	273.30	9,893.20	28.63	-1,134.06	1,134.05	5.57	5.48	-0.97
10,826.00	92.60	273.60	9,891.22	32.42	-1,196.91	1,196.90	2.58	2.54	0.48
10,889.00	91.00	272.90	9,889.24	35.99	-1,259.78	1,259.76	2.77	-2.54	-1.11
10,953.00	92.70	273.80	9,887.18	39.72	-1,323.63	1,323.62	3.01	2.66	1.41
11,016.00	91.10	273.10	9,885.09	43.51	-1,386.48	1,386.46	2.77	-2.54	-1.11
11,111.00	91.80	274.50	9,882.69	49.81	-1,481.24	1,481.22	1.65	0.74	1.47
11,208.00	93.70	284.40	9,878.02	65.69	-1,576.69	1,576.67	10.38	1.96	10.21
11,239.00	92.60	284.00	9,876.32	73.28	-1,606.70	1,606.67	3.78	-3.55	-1.29
11,303.00	90.20	283.50	9,874.75	88.48	-1,668.84	1,668.81	3.83	-3.75	-0.78
Last CUDD survey									
11,354.00	90.20	282.00	9,874.58	99.74	-1,718.58	1,718.54	2.94	0.00	-2.94
Projection to bit									

Survey Annotations:				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,883.00	8,880.48	-18.83	11.49	Tie-in to Gyro
9,044.00	9,041.47	-20.85	11.72	First CUDD survey
11,303.00	9,874.75	88.48	-1,668.84	Last CUDD survey
11,354.00	9,874.58	99.74	-1,718.58	Projection to bit

Checked By: _____ Approved By: _____ Date: _____



Devon Energy Production Co, LP

Eddy Co., New Mexico (Nad 83)

Habanero 17 Fed #1H

Habanero 17 Fed #1H

30-015-36108

Lateral #1

Survey: Side Track #1

Standard Survey Report

12 October, 2011



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co., LP	Local Co-ordinate Reference:	Site: Habanero 17 Fed #1H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 3221.00ft (Original Well Elev)
Site:	Habanero 17 Fed #1H	MD Reference:	WELL @ 3221.00ft (Original Well Elev)
Well:	Habanero 17 Fed #1H	North Reference:	Grid:
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM:5000.1 Single User Db.

Project:	Eddy Co., 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:	Habanero 17 Fed #1H, Sec 17, T-24S, R-27E		
Site Position:		Northing:	444,436.84 usft
From:	Map	Easting:	580,647.91 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32° 13' 18.370 N
		Longitude:	104° 12' 22.370 W
		Grid Convergence:	0.07 °

Well:	Habanero 17 Fed #1H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,221.00 ft
		Latitude:	32° 13' 18.370 N
		Longitude:	104° 12' 22.370 W
		Ground Level:	3,196.00 ft

Wellbore:	Lateral #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF200510	6/9/2011	7.87
			Dip Angle (°)
			60.10
			Field Strength (nT)
			48,584

Design:	Lateral #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°)
			269.98

Survey Program	Date: 10/12/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name
100.00	8,883.00	Gyro (Lateral #1)	NS-GYRO-MS
9,044.00	10,826.00	Lateral #1 (Lateral #1)	CUDD MWD
10,869.00	13,562.00	Side Track #1 (Lateral #1)	CUDD MWD
			Description
			North sensing gyrocompassing m/s
			MWD - Standard CUDD MWD
			MWD - Standard CUDD MWD

Survey:									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,826.00	92.60	273.60	9,891.22	32.42	-1,196.91	1,196.90	0.00	0.00	0.00
Tie-in to OH:									
10,869.00	92.60	271.50	9,889.27	34.33	-1,239.82	1,239.81	4.88	0.00	-4.88
10,898.00	91.30	270.80	9,888.29	34.91	-1,268.80	1,268.79	5.09	-4.48	-2.41
10,923.00	91.00	270.60	9,887.78	35.21	-1,293.79	1,293.78	1.44	-1.20	-0.80
10,958.00	86.90	268.00	9,888.43	34.79	-1,328.77	1,328.76	13.87	-11.71	-7.43
11,018.00	87.10	259.00	9,891.57	28.01	-1,388.24	1,388.23	14.98	0.33	-15.00
11,050.00	87.40	258.70	9,893.11	21.83	-1,419.60	1,419.60	1.33	0.94	-0.94
11,081.00	87.60	258.50	9,894.46	15.71	-1,449.96	1,449.96	0.91	0.65	-0.65



CUDD Drilling and Measurement Survey Report

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Site:	Habanero 17 Fed #1H	MD Reference:	WELL @ 3221.00ft (Original Well Elev)
Well:	Habanero 17 Fed #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM:5000:1 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,113.00	88.20	259.40	9,895.63	9.58	-1,481.35	1,481.35	3.38	1.88	2.81
11,145.00	88.90	261.60	9,896.44	4.30	-1,512.90	1,512.90	7.21	2.19	6.88
11,176.00	89.10	263.50	9,896.98	0.28	-1,543.63	1,543.63	6.16	0.65	6.13
11,208.00	89.70	263.70	9,897.32	-3.29	-1,575.43	1,575.43	1.98	1.88	0.63
11,240.00	93.10	266.60	9,896.54	-5.99	-1,607.30	1,607.30	13.96	10.63	9.06
11,271.00	94.40	268.60	9,894.51	-7.29	-1,638.20	1,638.20	7.68	4.19	6.45
11,303.00	93.20	269.50	9,892.39	-7.82	-1,670.12	1,670.13	4.68	-3.75	2.81
11,335.00	91.30	270.10	9,891.13	-7.93	-1,702.10	1,702.10	6.23	-5.94	1.88
11,367.00	91.50	269.60	9,890.35	-8.01	-1,734.09	1,734.09	1.68	0.63	-1.56
11,399.00	91.90	270.10	9,889.40	-8.09	-1,766.07	1,766.08	2.00	1.25	1.56
11,431.00	92.00	269.80	9,888.31	-8.12	-1,798.06	1,798.06	0.99	0.31	-0.94
11,462.00	91.00	270.70	9,887.50	-7.99	-1,829.04	1,829.05	4.34	-3.23	2.90
11,493.00	90.80	270.50	9,887.01	-7.66	-1,860.04	1,860.04	0.91	-0.65	-0.65
11,525.00	90.50	270.60	9,886.65	-7.36	-1,892.03	1,892.04	0.99	-0.94	0.31
11,557.00	90.60	269.60	9,886.34	-7.30	-1,924.03	1,924.04	3.14	0.31	-3.13
11,588.00	91.90	269.80	9,885.67	-7.46	-1,955.02	1,955.03	4.24	4.19	0.65
11,620.00	92.30	270.30	9,884.49	-7.43	-1,987.00	1,987.01	2.00	1.25	1.56
11,651.00	90.90	270.30	9,883.63	-7.27	-2,017.99	2,017.99	4.52	-4.52	0.00
11,683.00	91.60	270.10	9,882.93	-7.16	-2,049.98	2,049.98	2.27	2.19	-0.63
11,778.00	91.60	269.50	9,880.28	-7.49	-2,144.94	2,144.95	0.63	0.00	-0.63
11,872.00	92.80	269.30	9,876.67	-8.47	-2,238.87	2,238.87	1.29	1.28	-0.21
11,967.00	90.90	269.30	9,873.60	-9.63	-2,333.81	2,333.81	2.00	-2.00	0.00
12,062.00	91.30	268.60	9,871.78	-11.38	-2,428.77	2,428.78	0.85	0.42	-0.74
12,157.00	91.60	268.70	9,869.37	-13.61	-2,523.72	2,523.72	0.33	0.32	0.11
12,252.00	93.30	269.70	9,865.31	-14.94	-2,618.61	2,618.62	2.08	1.79	1.05
12,348.00	89.70	268.00	9,862.80	-16.87	-2,714.54	2,714.55	4.15	-3.75	-1.77
12,443.00	90.80	268.20	9,862.39	-20.01	-2,809.49	2,809.49	1.18	1.16	0.21
12,538.00	93.20	272.10	9,859.07	-19.77	-2,904.40	2,904.41	4.82	2.53	4.11
12,633.00	91.40	270.30	9,855.26	-17.78	-2,999.30	2,999.31	2.68	-1.89	-1.89
12,731.00	94.10	275.00	9,850.55	-13.26	-3,097.05	3,097.05	5.53	2.76	4.80
12,826.00	92.40	274.60	9,845.17	-5.33	-3,191.56	3,191.56	1.84	-1.79	-0.42
12,921.00	92.90	275.20	9,840.78	2.78	-3,286.11	3,286.11	0.82	0.53	0.63
12,986.00	92.40	269.90	9,837.77	5.67	-3,350.95	3,350.95	8.18	-0.77	-8.15
13,111.00	93.90	270.70	9,830.90	6.32	-3,475.75	3,475.75	1.36	1.20	0.64
13,206.00	91.40	269.30	9,826.51	6.32	-3,570.64	3,570.64	3.02	-2.63	-1.47
13,301.00	92.20	270.80	9,823.52	6.40	-3,665.59	3,665.59	1.79	0.84	1.58
13,333.00	93.40	270.40	9,821.96	6.74	-3,697.55	3,697.55	3.95	3.75	-1.25
13,396.00	91.60	268.70	9,819.21	6.24	-3,760.49	3,760.48	3.93	-2.86	-2.70
13,428.00	92.00	269.30	9,818.21	5.68	-3,792.46	3,792.46	2.25	1.25	1.88
13,460.00	93.70	270.20	9,816.62	5.54	-3,824.42	3,824.42	6.01	5.31	2.81
Last CUDD survey									
13,562.00	93.70	270.20	9,810.03	5.90	-3,926.21	3,926.21	0.00	0.00	0.00
Projection to bit									



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co., LP	Local Co-ordinate Reference:	Site: Habanero 17 Fed #1H
Project:	Eddy Co. New Mexico (Nad: 83)	TVD Reference:	WELL @ 3221' 00ft (Original Well Elev)
Site:	Habanero 17 Fed #1H	MD Reference:	WELL @ 3221' 00ft (Original Well Elev)
Well:	Habanero 17 Fed #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM: 5000 1' Single User.Db

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,826.00	9,891.22	32.42	-1,196.91	Tie-in to OH
13,460.00	9,816.62	5.54	-3,824.42	Last CUDD survey
13,562.00	9,810.03	5.90	-3,926.21	Projection to bit

Checked By: _____ Approved By: _____ Date: _____

A Gyrodata Directional Survey

for

DEVON ENERGY

Lease: HABANERO #17 FED COM Well: 1H, 5" DRILLPIPE
Location: H & P #223, EDDY COUNTY, NEW MEXICO

Job Number: MD0811GDM379

Run Date: 01 Sep 2011

Surveyor: Jason Solomon

Calculation Method: MINIMUM CURVATURE

Azimuth Correction:

Gyro: -0.07000 deg to Grid North

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Survey surface coordinates obtained from: Company Map

Survey Latitude: 32.221769 deg. N Longitude: 104.206214 deg. W

Horizontal Coordinates Calculated from Well Head Location

A Gyrodata Directional Survey

DEVON ENERGY

Lease: HABANERO #17 FED COM Well: 1H, 5" DRILLPIPE

Location: H & P #223, EDDY COUNTY, NEW MEXICO

Job Number: MD0811GDM379

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00 N 0.00 E
0 TO 8883 FT RATE GYROSCOPIC MULTISHOT DROP RUN INSIDE 5" DRILLPIPE ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO H & P #223 RKB 25 FT							
100.00	0.45	176.39	0.45	100.00	0.4	176.4	0.39 S 0.02 E
200.00	0.85	190.04	0.43	199.99	1.5	183.0	1.51 S 0.08 W
300.00	1.11	188.85	0.26	299.98	3.2	186.4	3.20 S 0.36 W
400.00	0.87	181.80	0.27	399.96	4.9	186.2	4.92 S 0.53 W
500.00	0.78	168.59	0.21	499.95	6.4	183.8	6.34 S 0.42 W
600.00	0.49	164.79	0.29	599.95	7.4	181.3	7.42 S 0.17 W
700.00	0.26	125.15	0.33	699.94	8.0	179.1	7.97 S 0.12 E
747.40	0.32	136.83	0.18	747.34	8.1	177.9	8.13 S 0.30 E
842.00	0.41	107.06	0.22	841.94	8.5	174.5	8.42 S 0.81 E
936.60	0.50	103.29	0.10	936.54	8.7	169.9	8.61 S 1.53 E
1031.20	0.37	94.43	0.15	1031.14	9.0	165.6	8.73 S 2.24 E
1125.80	0.20	96.95	0.18	1125.73	9.2	162.9	8.77 S 2.71 E
1220.40	0.28	66.84	0.16	1220.33	9.2	160.5	8.70 S 3.08 E
1315.00	0.94	1.15	0.91	1314.93	8.5	157.1	7.84 S 3.31 E
1409.60	1.45	61.45	1.35	1409.51	7.8	146.0	6.49 S 4.38 E
1504.20	2.20	78.21	0.97	1504.06	9.1	127.6	5.54 S 7.21 E
1598.80	1.52	54.56	1.07	1598.61	11.0	114.0	4.45 S 10.01 E
1693.40	2.43	62.61	1.00	1693.16	13.1	102.3	2.80 S 12.81 E
1788.00	3.92	74.81	1.72	1787.61	17.7	93.3	1.03 S 17.71 E

A Gyrodata Directional Survey

DEVON ENERGY

Lease: HABANERO #17 FED COM Well: 1H, 5" DRILLPIPE

Location: H & P #223, EDDY COUNTY, NEW MEXICO

Job Number: MD0811GDM379

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
1882.60	4.10	78.87	0.36	1881.98	24.2	88.9	0.47 N 24.15 E
1977.20	2.85	76.70	1.33	1976.40	29.8	86.8	1.67 N 29.76 E
2071.80	2.20	79.68	0.70	2070.91	33.9	85.7	2.53 N 33.83 E
2166.40	1.80	77.04	0.43	2165.45	37.2	85.1	3.19 N 37.07 E
2261.00	1.85	76.88	0.05	2260.00	40.2	84.5	3.87 N 40.00 E
2355.60	1.46	74.71	0.42	2354.57	42.9	83.9	4.54 N 42.65 E
2450.20	1.24	77.53	0.24	2449.14	45.1	83.5	5.08 N 44.81 E
2544.80	0.92	82.96	0.35	2543.72	46.9	83.4	5.39 N 46.57 E
2639.40	0.78	81.02	0.15	2638.31	48.3	83.4	5.58 N 47.96 E
2734.00	0.41	86.69	0.40	2732.91	49.3	83.4	5.70 N 48.93 E
2828.60	0.36	99.42	0.10	2827.50	49.9	83.5	5.67 N 49.56 E
2923.20	0.26	118.90	0.15	2922.10	50.3	83.7	5.52 N 50.04 E
3017.80	0.25	153.65	0.16	3016.70	50.6	84.1	5.23 N 50.32 E
3112.40	0.26	157.16	0.02	3111.30	50.7	84.5	4.85 N 50.50 E
3207.00	0.23	162.34	0.04	3205.90	50.8	85.0	4.47 N 50.64 E
3301.60	0.18	187.38	0.11	3300.50	50.8	85.3	4.14 N 50.68 E
3396.20	0.18	223.07	0.12	3395.10	50.7	85.6	3.89 N 50.56 E
3490.80	0.26	256.32	0.16	3489.70	50.4	85.8	3.73 N 50.25 E
3585.40	0.23	255.12	0.03	3584.30	50.0	85.8	3.63 N 49.85 E
3680.00	0.28	244.43	0.07	3678.90	49.6	86.0	3.48 N 49.46 E
3774.60	0.26	235.84	0.05	3773.50	49.2	86.2	3.26 N 49.08 E
3869.20	0.19	204.78	0.15	3868.10	48.9	86.5	3.00 N 48.83 E
3963.80	0.26	192.94	0.09	3962.69	48.8	86.9	2.65 N 48.72 E

A Gyrodata Directional Survey

DEVON ENERGY

Lease: HABANERO #17 FED COM Well: 1H, 5" DRILLPIPE

Location: H & P #223, EDDY COUNTY, NEW MEXICO

Job Number: MD0811GDM379

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
4058.40	0.33	174.31	0.12	4057.29	48.7	87.5	2.17 N 48.70 E
4153.00	0.38	192.09	0.13	4151.89	48.7	88.1	1.59 N 48.66 E
4247.60	0.46	226.96	0.28	4246.49	48.3	88.8	1.02 N 48.32 E
4342.20	0.32	210.42	0.19	4341.09	47.9	89.4	0.53 N 47.90 E
4436.80	0.15	204.25	0.18	4435.69	47.7	89.8	0.19 N 47.72 E
4531.40	0.11	203.89	0.04	4530.29	47.6	90.0	0.00 S 47.63 E
4626.00	0.17	221.59	0.08	4624.89	47.5	90.2	0.19 S 47.50 E
4720.60	0.31	240.22	0.17	4719.48	47.2	90.5	0.42 S 47.19 E
4815.20	0.36	250.91	0.08	4814.08	46.7	90.8	0.65 S 46.68 E
4909.80	0.26	228.66	0.16	4908.68	46.3	91.1	0.89 S 46.24 E
5004.40	0.35	212.03	0.13	5003.28	45.9	91.6	1.27 S 45.93 E
5099.00	0.34	175.87	0.23	5097.88	45.8	92.2	1.80 S 45.79 E
5193.60	0.40	161.82	0.11	5192.48	46.0	93.0	2.39 S 45.92 E
5288.20	0.56	149.35	0.20	5287.07	46.4	93.8	3.10 S 46.26 E
5382.80	0.97	145.92	0.44	5381.66	47.1	95.1	4.16 S 46.94 E
5477.40	0.81	148.63	0.17	5476.25	48.0	96.5	5.40 S 47.74 E
5572.00	0.84	129.76	0.29	5570.84	49.0	97.5	6.41 S 48.62 E
5666.60	0.44	77.05	0.71	5665.44	50.0	97.8	6.77 S 49.51 E
5761.20	0.78	57.34	0.42	5760.03	50.8	97.2	6.34 S 50.40 E
5855.80	1.07	51.75	0.32	5854.62	51.9	96.0	5.45 S 51.64 E
5950.40	1.48	54.84	0.44	5949.20	53.5	94.5	4.20 S 53.33 E
6045.00	1.86	64.28	0.49	6043.76	55.8	92.9	2.83 S 55.71 E
6139.60	1.80	68.52	0.16	6138.31	58.5	91.6	1.62 S 58.48 E

A Gyrodata Directional Survey

DEVON ENERGY

Lease: HABANERO #17 FED COM Well: 1H, 5" DRILLPIPE

Location: H & P #223, EDDY COUNTY, NEW MEXICO

Job Number: MD0811GDM379

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
6234.20	1.64	79.39	0.38	6232.87	61.2	90.8	0.83 S 61.19 E
6328.80	0.67	64.77	1.06	6327.45	63.0	90.3	0.34 S 63.02 E
6423.40	0.46	19.96	0.50	6422.04	63.7	89.8	0.25 N 63.65 E
6518.00	0.85	354.61	0.50	6516.64	63.7	88.8	1.31 N 63.72 E
6612.60	1.36	268.57	1.64	6611.22	62.6	88.2	1.98 N 62.53 E
6707.20	1.54	254.09	0.43	6705.79	60.2	88.5	1.60 N 60.18 E
6801.80	1.78	242.14	0.44	6800.35	57.7	89.4	0.57 N 57.66 E
6896.40	2.15	232.97	0.51	6894.90	55.0	91.2	1.19 S 54.95 E
6991.00	2.94	227.61	0.87	6989.40	51.9	94.3	3.89 S 51.74 E
7085.60	3.00	221.85	0.32	7083.88	48.9	98.7	7.37 S 48.29 E
7180.20	2.26	221.62	0.78	7178.38	46.6	103.2	10.61 S 45.40 E
7274.80	2.14	230.45	0.38	7272.91	44.8	107.1	13.13 S 42.80 E
7369.40	2.07	229.78	0.08	7367.44	43.0	110.9	15.36 S 40.14 E
7464.00	1.81	240.28	0.46	7461.99	41.3	114.6	17.20 S 37.53 E
7558.60	1.51	248.94	0.41	7556.55	39.6	117.7	18.39 S 35.07 E
7653.20	1.33	268.44	0.54	7651.12	37.9	119.9	18.87 S 32.81 E
7747.80	3.86	252.21	2.76	7745.62	34.9	124.7	19.87 S 28.68 E
7842.40	2.26	256.46	1.71	7840.08	32.0	131.8	21.28 S 23.84 E
7937.00	1.34	272.03	1.09	7934.63	30.1	136.0	21.68 S 20.92 E
8031.60	1.56	263.15	0.33	8029.20	28.6	139.6	21.79 S 18.53 E
8126.20	1.86	280.58	0.63	8123.76	26.8	144.0	21.67 S 15.75 E
8220.80	1.44	3.67	2.34	8218.33	24.8	144.7	20.20 S 14.31 E
8315.40	0.99	9.42	0.49	8312.91	23.3	141.4	18.20 S 14.52 E
8410.00	0.50	347.65	0.59	8407.50	22.4	139.4	17.00 S 14.57 E

A Gyrodata Directional Survey

DEVON ENERGY

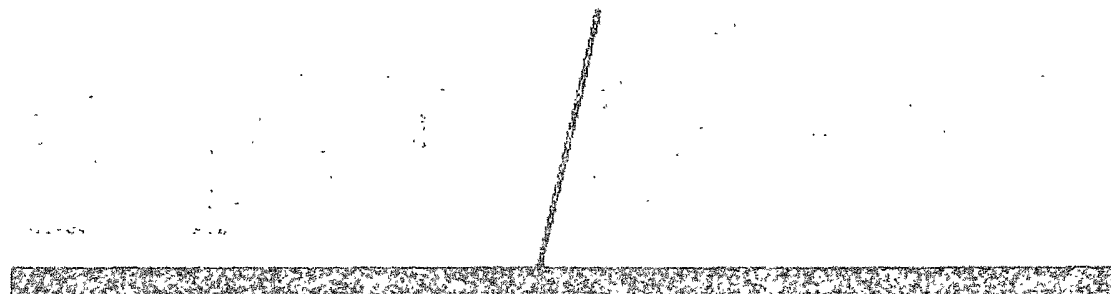
Lease: HABANERO #17 FED COM Well: 1H, 5" DRILLPIPE

Location: H & P #223, EDDY COUNTY, NEW MEXICO

Job Number: MD0811GDM379

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
8504.60	0.68	277.48	0.73	8502.10	21.6 139.9	16.52 S 13.92 E
8599.20	0.62	248.96	0.34	8596.69	21.0 142.2	16.63 S 12.89 E
8693.80	0.58	229.75	0.22	8691.29	20.9 144.9	17.12 S 12.05 E
8788.40	0.58	204.43	0.27	8785.88	21.2 147.3	17.87 S 11.48 E
8883.00	0.69	158.62	0.53	8880.48	22.1 148.6	18.83 S 11.49 E

Final Station Closure: Distance: 22.06 ft Az: 148.61 deg.





CUDD Drilling & Measurement Services
3201 E. Loop 250 N.
Midland, TX 79705
Tel: (432) 689-5700
Fax: (432) 689-5716

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Daniel Caruthers, certify that; I am employed by CUDD Drilling and Measurement Services; that I did on the day(s) of 01-05-2012 to 01-17-2012 conduct or supervise the taking of MWD surveys from a depth of 8,134 feet to a depth of 13,151 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by CUDD Drilling and Measurement Services.; that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon Energy Production Co, LP for the Sirius 17 Fed Com 4H well, in Eddy Co, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by CUDD Drilling and Measurement Services.

A handwritten signature in black ink, appearing to read "Dan Caruthers", written over a horizontal line.

Daniel Caruthers
MWD Engineer



Devon Energy Production Co, LP

Eddy Co., New Mexico (Nad 83)

Sirius 17 Fed Com 4H

Sirius 17 Fed Com 4H

30-015-38478

Lateral #1

Survey: Survey #2

Standard Survey Report

17 January, 2012



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co. LP	Local Co-ordinate Reference:	Site Sirius 17 Fed Com 4H
Project:	Eddy Co. New Mexico (Nad 83)	TVD Reference:	WELL @ 3439.00ft (Original Well Elev)
Site:	Sirius 17 Fed Com 4H	MD Reference:	WELL @ 3439.00ft (Original Well Elev)
Well:	Sirius 17 Fed Com 4H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000.1 Single User Db

Project:	Eddy Co. 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:	Sirius 17 Fed Com 4H, Sec: 17, T: 19S, R: 31E			
Site Position:		Northing:	602,059.24 usft	Latitude: 32° 39' 15.682 N
From:	Map	Easting:	675,031.54 usft	Longitude: 103° 53' 56.162 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.23 °

Well:	Sirius 17 Fed Com 4H			
Well Position	+N/-S	0.00 ft	Northing:	602,059.24 usft
	+E/-W	0.00 ft	Easting:	675,031.54 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,439.00 ft	Ground Level: 3,419.00 ft

Wellbore:	Lateral #1			
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/14/2011	7.71	60.52	48,790

Design:	Lateral #1			
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Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	89.68

Survey Program	Date 1/17/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	8,100.60	Gyro (Lateral #1)	NS-GYRO-MS	North sensing gyrocompassing m/s
8,134.00	13,215.00	Survey #2 (Lateral #1)	CUDD MWD	MWD - Standard CUDD MWD

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,100.60	1.91	196.09	8,098.29	6.38	-0.35	-0.31	0.00	0.00	0.00
Tie-in to Gyro									
8,134.00	1.80	191.90	8,131.67	5.33	-0.61	-0.58	0.52	-0.33	-12.54
First CUDD survey									
8,166.00	2.10	198.20	8,163.65	4.28	-0.90	-0.87	1.15	0.94	19.69
8,197.00	2.20	195.40	8,194.63	3.17	-1.23	-1.22	0.47	0.32	-9.03
8,229.00	2.30	199.80	8,226.60	1.98	-1.61	-1.60	0.62	0.31	13.75
8,261.00	1.80	171.70	8,258.58	0.87	-1.76	-1.75	3.46	-1.56	-87.81
8,293.00	3.40	108.50	8,290.56	0.08	-0.79	-0.79	9.52	5.00	-197.50



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co., LP	Local Co-ordinate Reference:	Site Sirius 17 Fed Com 4H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 3439.00ft (Original Well Elev)
Site:	Sirius 17 Fed Com 4H	MD Reference:	WELL @ 3439.00ft (Original Well Elev)
Well:	Sirius 17 Fed Com 4H	North Reference:	Grnd
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000 1 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,324.00	6.80	91.90	8,321.43	-0.28	1.92	1.92	11.84	10.97	-53.55
8,356.00	9.60	85.00	8,353.10	-0.11	6.47	6.47	9.26	8.75	-21.56
8,388.00	12.40	81.30	8,384.51	0.64	12.53	12.53	9.02	8.75	-11.56
8,420.00	15.30	81.90	8,415.58	1.76	20.11	20.12	9.07	9.06	1.88
8,452.00	18.20	84.10	8,446.22	2.87	29.26	29.27	9.28	9.06	6.88
8,483.00	20.20	84.90	8,475.49	3.84	39.41	39.43	6.51	6.45	2.58
8,515.00	21.80	86.30	8,505.36	4.72	50.84	50.87	5.24	5.00	4.38
8,547.00	23.50	87.30	8,534.89	5.40	63.14	63.17	5.45	5.31	3.13
8,579.00	25.80	90.00	8,563.98	5.70	76.48	76.51	8.00	7.19	8.44
8,610.00	28.80	90.40	8,591.52	5.65	90.70	90.73	9.70	9.68	1.29
8,642.00	32.10	89.70	8,619.10	5.64	106.91	106.94	10.37	10.31	-2.19
8,673.00	35.80	89.50	8,644.81	5.76	124.22	124.25	11.94	11.94	-0.65
8,705.00	39.20	90.20	8,670.20	5.81	143.70	143.73	10.71	10.63	2.19
8,737.00	42.90	89.90	8,694.33	5.79	164.71	164.74	11.58	11.56	-0.94
8,768.00	46.70	89.40	8,716.32	5.93	186.55	186.58	12.31	12.26	-1.61
8,800.00	50.70	89.40	8,737.43	6.18	210.58	210.61	12.50	12.50	0.00
8,832.00	54.70	88.30	8,756.82	6.70	236.03	236.06	12.80	12.50	-3.44
8,864.00	59.00	87.80	8,774.32	7.61	262.80	262.84	13.50	13.44	-1.56
8,896.00	62.40	88.90	8,789.98	8.41	290.69	290.73	11.04	10.63	3.44
8,928.00	65.80	90.10	8,803.95	8.66	319.47	319.51	11.15	10.63	3.75
8,959.00	68.20	91.00	8,816.06	8.38	348.00	348.04	8.19	7.74	2.90
8,991.00	68.70	91.40	8,827.82	7.76	377.76	377.79	1.95	1.56	1.25
9,025.00	69.90	91.70	8,839.84	6.90	409.55	409.58	3.62	3.53	0.88
9,057.00	72.40	91.00	8,850.17	6.19	439.82	439.85	8.08	7.81	-2.19
9,089.00	76.50	89.80	8,858.75	5.97	470.64	470.67	13.31	12.81	-3.75
9,120.00	81.10	88.90	8,864.77	6.32	501.04	501.07	15.11	14.84	-2.90
9,122.00	81.50	88.00	8,865.07	6.37	503.02	503.05	48.77	20.00	-45.00
9,217.00	88.10	87.00	8,873.68	10.50	597.48	597.53	7.03	6.95	-1.05
9,312.00	87.70	88.60	8,877.16	14.15	692.35	692.41	1.73	-0.42	1.68
9,408.00	88.30	88.20	8,880.51	16.83	788.25	788.33	0.75	0.63	-0.42
9,503.00	88.70	88.40	8,883.00	19.64	883.17	883.27	0.47	0.42	0.21
9,593.00	89.20	89.10	8,884.65	21.61	973.14	973.24	0.96	0.56	0.78
9,693.00	88.70	90.10	8,886.48	22.30	1,073.12	1,073.22	1.12	-0.50	1.00
9,789.00	88.80	89.50	8,888.57	22.64	1,169.09	1,169.20	0.63	0.10	-0.63
9,884.00	88.20	89.70	8,891.06	23.30	1,264.06	1,264.17	0.67	-0.63	0.21
9,979.00	88.10	90.20	8,894.13	23.39	1,359.01	1,359.12	0.54	-0.11	0.53
10,075.00	86.50	90.20	8,898.65	23.05	1,454.90	1,455.00	1.67	-1.67	0.00
10,170.00	87.30	89.70	8,903.79	23.13	1,549.76	1,549.86	0.99	0.84	-0.53
10,265.00	88.70	89.50	8,907.10	23.80	1,644.69	1,644.80	1.49	1.47	-0.21
10,360.00	87.90	89.30	8,909.92	24.79	1,739.65	1,739.76	0.87	-0.84	-0.21
10,456.00	86.10	88.70	8,914.94	26.46	1,835.50	1,835.61	1.98	-1.88	-0.63
10,551.00	85.80	89.00	8,921.65	28.37	1,930.24	1,930.37	0.45	-0.32	0.32
10,646.00	85.70	90.70	8,928.69	28.61	2,024.97	2,025.10	1.79	-0.11	1.79



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co., LP	Local Co-ordinate Reference:	Site Sirius 17 Fed Com 4H
Project:	Eddy Co. New Mexico (Nad 83)	TVD Reference:	WELL @ 3439 00ft (Original Well Elev)
Site:	Sirius 17 Fed Com 4H	MD Reference:	WELL @ 3439 00ft (Original Well Elev)
Well:	Sirius 17 Fed Com 4H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000 1 Single User Db

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,742.00	86.20	90.40	8,935.48	27.69	2,120.73	2,120.85	0.61	0.52	-0.31
10,837.00	87.70	90.30	8,940.53	27.11	2,215.59	2,215.71	1.58	1.58	-0.11
10,931.00	88.50	91.20	8,943.65	25.89	2,309.53	2,309.64	1.28	0.85	0.96
11,024.00	89.70	91.60	8,945.11	23.61	2,402.49	2,402.58	1.36	1.29	0.43
11,118.00	91.60	91.60	8,944.04	20.99	2,496.44	2,496.52	2.02	2.02	0.00
11,213.00	93.50	91.60	8,939.81	18.34	2,591.31	2,591.37	2.00	2.00	0.00
11,307.00	94.60	91.40	8,933.18	15.88	2,685.04	2,685.08	1.19	1.17	-0.21
11,401.00	94.50	89.30	8,925.72	15.31	2,778.73	2,778.78	2.23	-0.11	-2.23
11,495.00	94.00	90.50	8,918.75	15.48	2,872.47	2,872.51	1.38	-0.53	1.28
11,589.00	92.40	89.50	8,913.50	15.48	2,966.32	2,966.36	2.01	-1.70	-1.06
11,681.00	92.30	88.90	8,909.73	16.76	3,058.24	3,058.28	0.66	-0.11	-0.65
11,774.00	93.60	88.50	8,904.95	18.87	3,151.09	3,151.14	1.46	1.40	-0.43
11,866.00	94.00	87.80	8,898.85	21.83	3,242.84	3,242.91	0.87	0.43	-0.76
11,959.00	92.00	88.20	8,893.98	25.07	3,335.65	3,335.73	2.19	-2.15	0.43
12,052.00	91.60	87.50	8,891.06	28.56	3,428.53	3,428.64	0.87	-0.43	-0.75
12,145.00	91.50	87.50	8,888.54	32.61	3,521.41	3,521.54	0.11	-0.11	0.00
12,237.00	90.90	88.70	8,886.62	35.66	3,613.34	3,613.48	1.46	-0.65	1.30
12,330.00	90.60	88.90	8,885.40	37.61	3,706.31	3,706.46	0.39	-0.32	0.22
12,424.00	91.90	88.40	8,883.35	39.82	3,800.26	3,800.42	1.48	1.38	-0.53
12,516.00	92.10	88.60	8,880.14	42.23	3,892.17	3,892.35	0.31	0.22	0.22
12,610.00	90.80	89.30	8,877.76	43.95	3,986.12	3,986.31	1.57	-1.38	0.74
12,705.00	90.90	89.10	8,876.35	45.28	4,081.10	4,081.29	0.24	0.11	-0.21
12,799.00	90.70	88.80	8,875.04	47.00	4,175.08	4,175.28	0.38	-0.21	-0.32
12,892.00	90.70	88.90	8,873.90	48.87	4,268.05	4,268.26	0.11	0.00	0.11
12,986.00	90.80	89.80	8,872.67	49.93	4,362.04	4,362.25	0.96	0.11	0.96
13,078.00	91.40	89.80	8,870.91	50.25	4,454.02	4,454.23	0.65	0.65	0.00
13,151.00	91.40	89.80	8,869.12	50.51	4,527.00	4,527.21	0.00	0.00	0.00
Last CUDD survey									
13,215.00	91.70	89.60	8,867.39	50.84	4,590.97	4,591.19	0.56	0.47	-0.31
Projection to Bit									

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
8,100.60	8,098.29	6.38	-0.35	Tie-in to Gyro
8,134.00	8,131.67	5.33	-0.61	First CUDD survey
13,151.00	8,869.12	50.51	4,527.00	Last CUDD survey
13,215.00	8,867.39	50.84	4,590.97	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____