



Devon Energy Production Co, LP

Eddy Co., New Mexico (Nad 83)

Cotton Draw Unit #152H

Cotton Draw Unit #152H

30-015-38609

Lateral #1

Survey: Lateral #1

Standard Survey Report

07 August, 2011



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co, LP	Local Co-ordinate Reference:	Site Cotton Draw Unit #152H
Project:	Eddy Co, New Mexico (Nad.83)	TVD Reference:	WELL @ 3529 00ft (Original Well Elev)
Site:	Cotton Draw Unit #152H	MD Reference:	WELL @ 3529 00ft (Original Well Elev)
Well:	Cotton Draw Unit #152H	North Reference:	Gnd
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	Cotton Draw Unit #152H, Sec.35, T-24S, R-31E		
Site Position:		Northing:	429,849.03 usft
From:	Map	Easting:	721,592.72 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16"
		Latitude:	32° 10' 49.407 N
		Longitude:	103° 45' 2.532 W
		Grid Convergence:	0.31°

Well	Cotton Draw Unit #152H		
Well Position	+N/-S	0.00 ft	Northing: 429,849.03 usft
	+E/-W	0.00 ft	Easting: 721,592.72 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,529.00 ft
		Latitude:	32° 10' 49.407 N
		Longitude:	103° 45' 2.532 W
		Ground Level:	3,504.00 ft

Wellbore	Lateral #1		
-----------------	------------	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/6/2011	7.65	60.14	48,601

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)	Direction (°)
	0.00	0.00	0.00	179.90

Survey Program		Date	8/7/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	7,638.70	Gyro #1 (Lateral #1)	NS-GYRO-MS	North sensing gyrocompassing m/s	
7,651.00	12,765.00	Lateral #1 (Lateral #1)	CUDD MWD	MWD - Standard CUDD MWD	

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)
7,638.70	1.58	164.03	7,636.73	-72.67	35.88	72.73	0.00	0.00	0.00
Tie-in to Gyro									
7,651.00	1.50	160.50	7,649.03	-72.98	35.98	73.04	1.01	-0.65	-28.70
First CUDD survey									
7,683.00	1.80	166.80	7,681.01	-73.86	36.24	73.93	1.09	0.94	19.69
7,714.00	3.00	176.60	7,711.99	-75.15	36.40	75.21	4.08	3.87	31.61
7,746.00	5.70	182.10	7,743.89	-77.57	36.39	77.63	8.53	8.44	17.19
7,777.00	8.70	183.70	7,774.64	-81.45	36.18	81.51	9.70	9.68	5.16
7,809.00	11.30	184.40	7,806.15	-86.99	35.78	87.05	8.13	8.13	2.19



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co. LP	Local Co-ordinate Reference:	Site: Cotton Draw Unit #152H
Project:	Eddy Co., New Mexico (Nad '83)	TVD Reference:	WELL @ 3529'00ft (Original Well Elev)
Site:	Cotton Draw Unit #152H	MD Reference:	WELL @ 3529'00ft (Original Well Elev)
Well:	Cotton Draw Unit #152H	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)
7,841.00	14.50	183.80	7,837.34	-94.12	35.28	94.18	10.01	10.00	-1.88
7,872.00	17.40	182.90	7,867.15	-102.62	34.78	102.68	9.39	9.35	-2.90
7,904.00	20.50	183.90	7,897.41	-112.99	34.16	113.05	9.74	9.69	3.13
7,935.00	24.20	184.10	7,926.07	-124.75	33.34	124.81	11.94	11.94	0.65
7,967.00	27.70	184.70	7,954.84	-138.71	32.26	138.76	10.97	10.94	1.88
7,998.00	30.90	185.90	7,981.87	-153.81	30.85	153.86	10.49	10.32	3.87
8,030.00	34.70	186.80	8,008.77	-171.04	28.93	171.08	11.97	11.88	2.81
8,062.00	37.80	187.30	8,034.57	-189.81	26.60	189.86	9.73	9.69	1.56
8,093.00	41.10	187.10	8,058.50	-209.35	24.13	209.39	10.65	10.65	-0.65
8,125.00	45.00	186.50	8,081.88	-231.04	21.55	231.07	12.25	12.19	-1.88
8,156.00	48.60	186.00	8,103.10	-253.50	19.09	253.53	11.67	11.61	-1.61
8,188.00	51.00	185.70	8,123.76	-277.81	16.60	277.84	7.53	7.50	-0.94
8,219.00	54.30	185.10	8,142.56	-302.34	14.29	302.37	10.76	10.65	-1.94
8,251.00	57.90	184.20	8,160.41	-328.81	12.14	328.83	11.49	11.25	-2.81
8,282.00	61.40	183.60	8,176.07	-355.50	10.32	355.51	11.41	11.29	-1.94
8,309.00	63.50	182.60	8,188.55	-379.40	9.03	379.41	8.44	7.78	-3.70
8,341.00	65.80	181.80	8,202.25	-408.29	7.92	408.31	7.53	7.19	-2.50
8,373.00	69.20	181.20	8,214.50	-437.84	7.15	437.85	10.77	10.63	-1.88
8,404.00	72.40	180.90	8,224.69	-467.11	6.62	467.12	10.36	10.32	-0.97
8,436.00	75.10	180.70	8,233.65	-497.82	6.19	497.83	8.46	8.44	-0.63
8,467.00	76.70	181.00	8,241.20	-527.89	5.74	527.90	5.25	5.16	0.97
8,499.00	78.80	180.90	8,247.99	-559.15	5.22	559.16	6.57	6.56	-0.31
8,530.00	80.80	180.90	8,253.48	-589.66	4.74	589.66	6.45	6.45	0.00
8,562.00	83.10	180.80	8,257.96	-621.34	4.27	621.34	7.19	7.19	-0.31
8,593.00	85.50	180.90	8,261.04	-652.18	3.82	652.18	7.75	7.74	0.32
8,625.00	86.80	181.20	8,263.18	-684.10	3.23	684.10	4.17	4.06	0.94
8,656.00	88.40	180.20	8,264.48	-715.07	2.85	715.07	6.08	5.16	-3.23
8,688.00	90.20	180.40	8,264.87	-747.06	2.68	747.07	5.66	5.63	0.63
8,720.00	90.30	180.70	8,264.73	-779.06	2.38	779.06	0.99	0.31	0.94
8,814.00	89.90	180.00	8,264.57	-873.06	1.80	873.06	0.86	-0.43	-0.74
8,909.00	89.60	179.10	8,264.98	-968.05	2.55	968.06	1.00	-0.32	-0.95
9,004.00	90.20	179.30	8,265.15	-1,063.04	3.88	1,063.05	0.67	0.63	0.21
9,098.00	90.00	178.70	8,264.99	-1,157.03	5.52	1,157.04	0.67	-0.21	-0.64
9,193.00	88.70	178.10	8,266.06	-1,251.98	8.17	1,252.00	1.51	-1.37	-0.63
9,288.00	89.70	178.80	8,267.39	-1,346.94	10.74	1,346.95	1.28	1.05	0.74
9,382.00	89.80	178.40	8,267.80	-1,440.91	13.03	1,440.93	0.44	0.11	-0.43
9,477.00	90.00	177.10	8,267.97	-1,535.83	16.76	1,535.86	1.38	0.21	-1.37
9,572.00	89.80	178.20	8,268.13	-1,630.75	20.66	1,630.78	1.18	-0.21	1.16
9,666.00	89.80	178.90	8,268.46	-1,724.72	23.04	1,724.76	0.74	0.00	0.74
9,761.00	88.80	180.30	8,269.62	-1,819.71	23.70	1,819.75	1.81	-1.05	1.47
9,855.00	90.10	180.13	8,270.52	-1,913.70	23.35	1,913.74	1.39	1.38	-0.18
9,950.00	90.30	179.90	8,270.19	-2,008.70	23.32	2,008.74	0.32	0.21	-0.24
10,045.00	90.20	179.40	8,269.78	-2,103.70	23.90	2,103.73	0.54	-0.11	-0.53



CUDD Drilling and Measurement Survey Report

Company:	Devon Energy Production Co. LP	Local Co-ordinate Reference:	Site Cotton Draw Unit #152H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 3529 00ft (Original Well Elev)
Site:	Cotton Draw Unit #152H	MD Reference:	WELL @ 3529 00ft (Original Well Elev)
Well:	Cotton Draw Unit #152H	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)	
10,140.00	90.60	180.70	8,269.11	-2,198.69	23.82	2,198.73	1.43	0.42	1.37	
10,234.00	90.80	179.90	8,267.97	-2,292.68	23.33	2,292.72	0.88	0.21	-0.85	
10,329.00	90.00	179.60	8,267.30	-2,387.68	23.74	2,387.72	0.90	-0.84	-0.32	
10,424.00	90.50	179.20	8,266.89	-2,482.67	24.74	2,482.71	0.67	0.53	-0.42	
10,518.00	90.30	180.20	8,266.23	-2,576.67	25.23	2,576.71	1.08	-0.21	1.06	
10,613.00	92.40	180.50	8,263.99	-2,671.63	24.65	2,671.67	2.23	2.21	0.32	
10,708.00	91.60	180.20	8,260.68	-2,766.57	24.07	2,766.61	0.90	-0.84	-0.32	
10,802.00	90.30	179.60	8,259.12	-2,860.56	24.23	2,860.59	1.52	-1.38	-0.64	
10,897.00	90.30	178.10	8,258.62	-2,955.53	26.14	2,955.57	1.58	0.00	-1.58	
10,992.00	90.60	179.90	8,257.88	-3,050.51	27.80	3,050.56	1.92	0.32	1.89	
11,086.00	90.60	179.10	8,256.89	-3,144.50	28.62	3,144.55	0.85	0.00	-0.85	
11,181.00	90.50	179.50	8,255.98	-3,239.49	29.78	3,239.54	0.43	-0.11	0.42	
11,276.00	89.10	180.20	8,256.31	-3,334.49	30.03	3,334.53	1.65	-1.47	0.74	
11,370.00	89.40	180.60	8,257.54	-3,428.48	29.37	3,428.52	0.53	0.32	-0.43	
11,465.00	89.70	180.30	8,258.29	-3,523.47	28.63	3,523.52	0.45	0.32	-0.32	
11,560.00	90.40	180.70	8,258.20	-3,618.47	27.80	3,618.51	0.85	0.74	0.42	
11,654.00	89.80	178.60	8,258.04	-3,712.46	28.37	3,712.50	2.32	-0.64	-2.23	
11,749.00	90.40	177.80	8,257.87	-3,807.41	31.36	3,807.46	1.05	0.63	-0.84	
11,843.00	89.60	177.90	8,257.87	-3,901.34	34.88	3,901.40	0.86	-0.85	0.11	
11,938.00	89.60	180.10	8,258.54	-3,996.32	36.54	3,996.38	2.32	0.00	2.32	
12,032.00	88.60	181.00	8,260.01	-4,090.30	35.64	4,090.36	1.43	-1.06	0.96	
12,127.00	89.50	180.70	8,261.59	-4,185.28	34.23	4,185.33	1.00	0.95	-0.32	
12,222.00	89.00	179.00	8,262.83	-4,280.27	34.48	4,280.32	1.87	-0.53	-1.79	
12,316.00	88.90	178.60	8,264.56	-4,374.23	36.45	4,374.29	0.44	-0.11	-0.43	
12,411.00	88.70	180.40	8,266.55	-4,469.20	37.27	4,469.26	1.91	-0.21	1.89	
12,505.00	89.80	181.60	8,267.78	-4,563.18	35.63	4,563.23	1.73	1.17	1.28	
12,600.00	90.80	183.80	8,267.28	-4,658.06	31.16	4,658.11	2.54	1.05	2.32	
12,694.00	90.70	182.00	8,266.05	-4,751.93	26.40	4,751.97	1.92	-0.11	-1.91	
12,714.00	91.00	181.90	8,265.75	-4,771.92	25.72	4,771.95	1.58	1.50	-0.50	
Last CUDD survey										
12,765.00	91.00	181.90	8,264.86	-4,822.88	24.03	4,822.91	0.00	0.00	0.00	
Projection to bit - PBHL - TD (CDU#152H)a										

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
7,638.70	7,636.73	-72.67	35.88	Tie-in to Gyro	
7,651.00	7,649.03	-72.98	35.98	First CUDD survey	
12,714.00	8,265.75	-4,771.92	25.72	Last CUDD survey	
12,765.00	8,264.86	-4,822.88	24.03	Projection to bit	

Checked By: _____ Approved By: _____ Date: _____



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 NEW MEXICO

I, Daniel Caruthers, certify that; I am-employed by CUDD Drilling and Measurement Services; that I did on the day(s) of 07/25/2011 – 08/06/2011 conduct or supervise the taking of MWD surveys from a depth of 7,651 feet to a depth of 12,714 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 Cotton Draw Unit 152 in Eddy County, 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.


Daniel Caruthers
MWD Engineer