

30.015.36738



Devon Energy

Eddy Co., New Mexico (Nad 83)

Laguna Salado 22 Fed #5H

Laguna Salado 22 Fed #5H

Lateral #1

Survey: MWD Survey #1

Standard Survey Report

16 December, 2008





CUDD Drilling & Measurement Services
Survey Report



Company:	Devon Energy	Local Co-ordinate Reference:	Well Laguna Salado 22 Fed #5H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 2981.00ft (Original Well Elev)
Site:	Laguna Salado 22 Fed #5H	MD Reference:	WELL @ 2981.00ft (Original Well Elev)
Well:	Laguna Salado 22 Fed #5H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 2003.21 Midland Server 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	Laguna Salado 22 Fed #5H			
Site Position:		Northing:	470,248.49 ft	Latitude: 32° 17' 32.204 N
From:	Map	Easting:	652,002.34 ft	Longitude: 103° 58' 30.707 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence: 0 19 °

Well	Laguna Salado 22 Fed #5H			
Well Position	+N/-S	0 00 ft	Northing:	470,248.49 ft
	+E/-W	0 00 ft	Easting:	652,002.34 ft
Position Uncertainty	0 00 ft	Wellhead Elevation:	2,981.00 ft	Ground Level: 2,957.00 ft

Wellbore	Lateral #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	IGRF200510	11/13/2008	8.07	60.26	48,923	

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	177.16

Survey Program	Date 12/16/2008			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100 00	6,020.00	Gyro Survey #1 (Lateral #1)	SRG-GYRO-MS	surface readout gyro multishot
6,028 00	9,403.00	MWD Survey #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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,020.00	0.60	334.26	6,018.87	23.94	51.57	-21.35	0.00	0.00	0.00
6,028.00	0.50	252.40	6,026.87	23.96	51.52	-21.38	9.06	-1.25	-1,023.25
6,060.00	0.40	228.10	6,058.87	23.85	51.30	-21.28	0.67	-0.31	-75.94
First CUDD MWD Survey									
6,092.00	2.20	148.80	6,090.86	23.25	51.54	-20.66	6.76	5.63	-247.81
6,124.00	6.00	144.60	6,122.77	21.36	52.82	-18.71	11.90	11.88	-13.13
6,156.00	9.00	152.20	6,154.50	17.78	54.96	-15.03	9.85	9.38	23.75
6,188.00	11.00	161.30	6,186.01	12.67	57.11	-9.83	7.95	6.25	28.44
6,220.00	13.30	167.00	6,217.29	6.19	58.91	-3.27	8.10	7.19	17.81
6,251.00	15.40	170.00	6,247.32	-1.34	60.43	4.33	7.18	6.77	9.68
6,283.00	19.00	167.60	6,277.89	-10.61	62.29	13.68	11.46	11.25	-7.50
6,315.00	21.10	163.30	6,307.95	-21.22	65.06	24.42	8.01	6.56	-13.44



CUDD Drilling & Measurement Services

Survey Report



Company: Devon Energy
Project: Eddy Co., New Mexico (Nad 83)
Site: Laguna Salado 22 Fed #5H
Well: Laguna Salado 22 Fed #5H
Wellbore: Lateral #1
Design: Lateral #1

Local Co-ordinate Reference: Well Laguna Salado 22 Fed #5H
TVD Reference: WELL @ 2981.00ft (Original Well Elev)
MD Reference: WELL @ 2981.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.21 Midland Server Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,347.00	23 80	162.10	6,337.52	-32.88	68 70	36 24	8 56	8.44	-3 75
6,379 00	27 30	163.00	6,366 39	-46 05	72.83	49.60	11 00	10 94	2.81
6,410 00	31 10	162 80	6,393 44	-60 50	77.28	64.25	12.26	12.26	-0 65
6,442.00	34.20	162 30	6,420 38	-76.97	82.46	80.96	9 72	9 69	-1.56
6,474 00	37 20	161.30	6,446.37	-94 70	88.30	98.96	9.55	9 38	-3.13
6,507 00	41 10	161.40	6,471.95	-114 44	94.96	119.00	11.82	11.82	0 30
6,539 00	46 50	160 90	6,495 04	-135 39	102.12	140.28	16.91	16.88	-1 56
6,571.00	50 40	158 90	6,516 26	-157 87	110.36	163 14	13 05	12.19	-6.25
6,603.00	55 70	158.90	6,535.49	-181.72	119 56	187.42	16 56	16 56	0 00
6,635 00	62.40	158.70	6,551.94	-207.29	129.48	213.45	20.94	20 94	-0 63
6,667 00	68.20	158.30	6,565 31	-234 33	140.13	240.98	18 16	18.13	-1 25
6,698.00	74 00	159 80	6,575 34	-261.71	150 61	268 85	19.26	18 71	4.84
6,730.00	80.40	163 50	6,582.43	-291.31	160.41	298.90	22.96	20 00	11 56
6,762 00	86.20	166.00	6,586.16	-321.95	168.76	329.92	19 71	18.13	7.81
6,794.00	87 20	167.30	6,588.01	-353.04	176.14	361.33	5.12	3.13	4 06
6,826.00	88 00	168.90	6,589 35	-384 32	182.73	392 90	5 59	2.50	5.00
6,858.00	88.30	168 90	6,590.38	-415.71	188 89	424 55	0.94	0.94	0 00
6,889.00	88 60	169 50	6,591.22	-446 14	194.70	455 24	2 16	0 97	1.94
6,921.00	90 90	170 60	6,591 36	-477 66	200.22	486 99	7.97	7 19	3 44
6,953.00	93 00	172 90	6,590.27	-509.31	204.81	518.83	9.73	6 56	7 19
6,985.00	94.10	173 80	6,588.29	-541.03	208.51	550.70	4.44	3.44	2.81
7,016 00	93.50	175.00	6,586.23	-571 81	211.53	581.59	4.32	-1.94	3.87
7,048 00	94.20	176.70	6,584.08	-603 66	213 84	613 51	5.73	2 19	5.31
7,080.00	93 70	176 70	6,581.88	-635 53	215.68	645 43	1 56	-1 56	0 00
7,111.00	92.30	177 70	6,580.26	-666.45	217.19	676.39	5.55	-4.52	3.23
7,143 00	90.50	178.30	6,579 48	-698 42	218.31	708 37	5 93	-5 63	1.88
7,174.00	88 90	178.30	6,579 64	-729 40	219 23	739.37	5.16	-5.16	0 00
7,206.00	88 60	178.30	6,580.34	-761.38	220.18	771.35	0.94	-0.94	0 00
7,237 00	88.50	177.50	6,581.12	-792 35	221 31	802.34	2 60	-0.32	-2.58
7,268.00	88 50	179.30	6,581.93	-823.32	222.18	833.32	5.80	0.00	5 81
7,300 00	88.90	179 60	6,582 66	-855 31	222 48	865 29	1 56	1 25	0 94
7,332.00	90 20	180 70	6,582.91	-887.31	222 40	897.24	5.32	4.06	3.44
7,364 00	90 30	180 70	6,582 77	-919 31	222.01	929 18	0 31	0 31	0 00
7,396.00	90.50	180 40	6,582.55	-951 31	221.70	961 12	1.13	0 63	-0.94
7,428 00	90 30	179 70	6,582 32	-983.31	221.67	993.08	2.27	-0.63	-2.19
7,459.00	90 40	178.80	6,582.13	-1,014 30	222 08	1,024.06	2 92	0 32	-2.90
7,491 00	89 20	181 00	6,582.24	-1,046 30	222.14	1,056 02	7.83	-3 75	6 88
7,523 00	88.90	181 70	6,582.78	-1,078.29	221.38	1,087.93	2 38	-0.94	2.19
7,555 00	89.10	182.40	6,583 33	-1,110.26	220.24	1,119.81	2.27	0 63	2.19
7,587 00	89 10	184 90	6,583 84	-1,142 19	218 20	1,151 60	7 81	0 00	7 81
7,619 00	89 00	186 40	6,584 37	-1,174.03	215.05	1,183 24	4 70	-0 31	4 69
7,650 00	89 10	185 80	6,584 88	-1,204.85	211.76	1,213 86	1 96	0 32	-1 94
7,682 00	89 60	186 00	6,585.24	-1,236.68	208.47	1,245 49	1 68	1 56	0 63
7,714 00	89 50	185.80	6,585 50	-1,268.51	205.18	1,277.11	0 70	-0 31	-0 63
7,746 00	90 50	186 00	6,585.50	-1,300.34	201.89	1,308 74	3.19	3.13	0 63
7,778 00	91.30	186.50	6,584.99	-1,332.14	198 41	1,340.34	2.95	2 50	1.56
7,809.00	91.70	187.80	6,584.18	-1,362 89	194.55	1,370 86	4.39	1.29	4.19
7,841 00	91 70	186 80	6,583.23	-1,394 82	190.48	1,402 34	3.12	0 00	-3.13
7,873.00	91 50	186 30	6,582 34	-1,426.39	186.84	1,433.90	1 68	-0 63	-1 56
7,905.00	90.50	185.00	6,581 78	-1,458.23	183.69	1,465.54	5.12	-3 13	-4 06
7,936 00	90.20	184.30	6,581 59	-1,489.13	181 17	1,496 28	2.46	-0 97	-2.26
7,968 00	90 40	184.20	6,581 42	-1,521 04	178 80	1,528.03	0.70	0 63	-0 31
8,000.00	90 30	183.30	6,581 23	-1,552.97	176.71	1,559.82	2 83	-0 31	-2.81
8,032 00	90 40	183 20	6,581.03	-1,584.92	174.89	1,591.64	0 44	0 31	-0 31



CUDD Drilling & Measurement Services

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Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 2003.21 Midland Server Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,064.00	88.50	181.90	6,581.34	-1,616.89	173.47	1,623.49	7.19	-5.94	-4.06
8,096.00	87.40	181.70	6,582.48	-1,648.85	172.47	1,655.37	3.49	-3.44	-0.63
8,127.00	87.20	180.60	6,583.94	-1,679.81	171.84	1,686.26	3.60	-0.65	-3.55
8,159.00	88.20	180.70	6,585.23	-1,711.78	171.48	1,718.17	3.14	3.13	0.31
8,191.00	89.50	180.80	6,585.87	-1,743.77	171.06	1,750.10	4.07	4.06	0.31
8,222.00	89.10	181.20	6,586.25	-1,774.76	170.52	1,781.03	1.82	-1.29	1.29
8,251.00	88.20	181.60	6,586.93	-1,803.74	169.81	1,809.94	3.40	-3.10	1.38
8,283.00	88.60	182.00	6,587.83	-1,835.72	168.81	1,841.83	1.77	1.25	1.25
8,315.00	89.80	179.90	6,588.27	-1,867.71	168.28	1,873.75	7.56	3.75	-6.56
8,347.00	89.80	178.50	6,588.38	-1,899.70	168.73	1,905.73	4.37	0.00	-4.38
8,379.00	90.40	180.30	6,588.33	-1,931.70	169.06	1,937.70	5.93	1.88	5.63
8,411.00	91.30	179.50	6,587.85	-1,963.69	169.12	1,969.66	3.76	2.81	-2.50
8,442.00	91.40	180.00	6,587.12	-1,994.69	169.25	2,000.62	1.64	0.32	1.61
8,474.00	89.10	179.60	6,586.98	-2,026.68	169.36	2,032.59	7.30	-7.19	-1.25
8,506.00	88.80	179.20	6,587.57	-2,058.68	169.70	2,064.56	1.56	-0.94	-1.25
8,538.00	86.90	179.90	6,588.77	-2,090.65	169.95	2,096.50	6.33	-5.94	2.19
8,570.00	86.80	179.90	6,590.53	-2,122.60	170.01	2,128.42	0.31	-0.31	0.00
8,601.00	86.80	181.60	6,592.26	-2,153.55	169.60	2,159.31	5.48	0.00	5.48
8,633.00	87.30	182.10	6,593.91	-2,185.49	168.57	2,191.16	2.21	1.56	1.56
8,665.00	87.80	182.60	6,595.27	-2,217.43	167.26	2,223.00	2.21	1.56	1.56
8,697.00	89.00	183.60	6,596.17	-2,249.37	165.53	2,254.81	4.88	3.75	3.13
8,729.00	89.20	184.20	6,596.67	-2,281.30	163.35	2,286.59	1.98	0.63	1.88
8,760.00	89.80	184.30	6,596.94	-2,312.21	161.05	2,317.35	1.96	1.94	0.32
8,792.00	89.90	183.60	6,597.03	-2,344.13	158.85	2,349.12	2.21	0.31	-2.19
8,824.00	91.00	183.00	6,596.77	-2,376.08	157.01	2,380.94	3.92	3.44	-1.88
8,856.00	91.20	183.20	6,596.16	-2,408.03	155.28	2,412.76	0.88	0.63	0.63
8,888.00	91.00	183.50	6,595.55	-2,439.97	153.41	2,444.57	1.13	-0.63	0.94
8,919.00	90.50	182.90	6,595.14	-2,470.91	151.68	2,475.39	2.52	-1.61	-1.94
8,951.00	90.50	182.60	6,594.86	-2,502.88	150.14	2,507.24	0.94	0.00	-0.94
8,982.00	91.30	182.40	6,594.37	-2,533.84	148.79	2,538.10	2.66	2.58	-0.65
9,014.00	92.00	183.10	6,593.45	-2,565.79	147.26	2,569.94	3.09	2.19	2.19
9,046.00	91.30	182.90	6,592.53	-2,597.73	145.58	2,601.76	2.27	-2.19	-0.63
9,078.00	90.10	181.60	6,592.14	-2,629.71	144.33	2,633.63	5.53	-3.75	-4.06
9,109.00	89.10	180.70	6,592.36	-2,660.70	143.70	2,664.55	4.34	-3.23	-2.90
9,141.00	88.70	179.20	6,592.97	-2,692.69	143.73	2,696.51	4.85	-1.25	-4.69
9,173.00	88.70	179.40	6,593.70	-2,724.68	144.12	2,728.48	0.62	0.00	0.63
9,205.00	89.10	179.30	6,594.31	-2,756.67	144.49	2,760.45	1.29	1.25	-0.31
9,236.00	89.00	179.40	6,594.82	-2,787.67	144.84	2,791.42	0.46	-0.32	0.32
9,268.00	88.70	179.10	6,595.47	-2,819.66	145.26	2,823.39	1.33	-0.94	-0.94
9,354.00	88.70	178.40	6,597.42	-2,905.61	147.13	2,909.34	0.81	0.00	-0.81
Last CUDD MWD Survey									
9,403.00	88.70	178.40	6,598.53	-2,954.58	148.50	2,958.31	0.00	0.00	0.00
Proj to Bit									

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,060.00	6,058.87	23.85	51.30	First CUDD MWD Survey
9,354.00	6,597.42	-2,905.61	147.13	Last CUDD MWD Survey
9,403.00	6,598.53	-2,954.58	148.50	Proj to Bit



CUDD Drilling & Measurement Services
Survey Report



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Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 2981.00ft (Original Well Elev)
Site:	Laguna Salado 22 Fed #5H	MD Reference:	WELL @ 2981.00ft (Original Well Elev)
Well:	Laguna Salado 22 Fed #5H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 2003.21 Midland Server Db

Checked By: _____ Approved By: _____ Date: _____

devon

Project Eddy Co., New Mexico (Nad 83)
 Site Laguna Salado 22 Fed #5H
 Well: Laguna Salado 22 Fed #5H
 Wellbore: Lateral #1
 Design Design #2



SECTION DETAILS

Sec	MD	Inc	Ap	TVD	+N-S	+EAW	DLeg	TFace	VSec	Target
1	5020.00	0.50	334.26	5018.87	23.94	51.57	0.00	0.00	-21.35	
2	5050.00	0.50	334.26	5048.87	24.22	51.43	0.00	0.00	-21.64	
3	5100.00	0.50	334.26	5098.87	24.69	51.20	0.00	0.00	-22.12	
4	5568.52	90.00	178.12	5590.00	491.57	85.05	11.78	-156.14	464.23	
5	9363.29	90.00	178.12	6590.00	-2954.71	146.73	0.00	0.00	2958.35	PBHL - TD (LS22F#5H) 11-13-08

ANNOTATIONS

TVD	MD	Annotation
5018.87	5020.00	Tie-In to Gyro
5048.87	5050.00	Proj to Bit
5098.87	5100.00	KOP - Build 11 78°/100'
5590.00	5568.52	EOC - Hold 90°

WELLBORE TARGET DETAILS

Name	TVD	+N-S	+EAW	Shape
PBHL - TD (LS22F#5H) 11-13-08	5590.00	-2954.71	146.73	Point

WELL DETAILS Laguna Salado 22 Fed #5H

Ground Level 2957.00				
WELL @ 2981.00ft (Original Well Elev)				
+N-S	+EAW	North	East	Latitude
0.00	0.00	470248.49	652002.34	32° 17' 32.204 N
				Longitude
				103° 58' 30.707 W
				Slot

PROJECT DETAILS Eddy Co., New Mexico (Nad 83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level

Plan: Design #2 (Laguna Salado 22 Fed #5H/Lateral #1)

Created By: Mike Starkay Date: 8-43, December 16 2008
 Checked: _____ Date: _____
 Reviewed: _____ Date: _____
 Approved: _____ Date: _____



Azimuths to Grid North
 True North: -0.19°
 Magnetic North: 7.68°
 Magnetic Field
 Strength: 48522.95nT
 Dip Angle: 63.25°
 Date: 11/13/2008
 Model: IGRF200510

