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Devon Energy

Eddy 68, New Mexico (Nad 83)
Dickens 29 Fed #3H (Nad 83)
Dickens 29 Fed #3H

Lateral #1

MR

Survey: Cudd MWD Survey #1
Cudd MWD Survey #1

Standard Survey Report
Survey R

19 February, 2010
February, 2010

Cudd
DRILLING & MEASUREMENT
SERVICES

Company:	Devon Energy	Local Co-ordinate Reference:	Site Dickens 29 Fed #3H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 3614.00ft (Original Well Elev)
Site:	Dickens 29 Fed #3H	MD Reference:	WELL @ 3614.00ft (Original Well Elev)
Well:	Dickens 29 Fed #3H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 2003.21 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:		Dickens 29 Fed #3H, Sec 29, T-16S, R-28E			
Site Position:		Northing:	689,020.17 ft	Latitude:	32° 53' 38.591 N
From:	Map	Easting:	585,157.59 ft	Longitude:	104° 11' 26.053 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.08 °

Well:	Dickens 29 Fed #3H					
Well Position	+N/-S	0.00 ft	Northing:	689,020.17 ft	Latitude:	32° 53' 38.591 N
	+E/-W	0.00 ft	Easting:	585,157.59 ft	Longitude:	104° 11' 26.053 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	3,614.00 ft	Ground Level:	3,595.00 ft

Wellbore:	Lateral #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	01/25/10	8 08	60 75	49,119

Design	Lateral #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	269.73

Survey Program		Date	02/19/10		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
47.00	5,249.60	Gyro Survey #1 (Lateral #1)	NS-GYRO-MS	North sensing gyrocompassing m/s	
5,347.00	10,883.00	Cudd MWD Survey #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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,249.60	0.21	273.32	5,248.94	5.26	20.23	-20.25	0.00	0.00	0.00
Last Gyro Survey									
5,347.00	0.10	127.20	5,346.34	5.22	20.12	-20.14	0.31	-0.11	-150.02
First Cudd MWD Survey									
5,445.00	0.20	59.60	5,444.34	5.25	20.33	-20.36	0.19	0.10	-68.98
5,543.00	0.40	63.20	5,542.34	5.50	20.79	-20.81	0.20	0.20	3.67
5,640.00	0.40	63.90	5,639.33	5.80	21.39	-21.42	0.01	0.00	0.72
5,738.00	0.50	70.50	5,737.33	6.09	22.10	-22.13	0.11	0.10	6.73
5,837.00	0.60	76.90	5,836.33	6.35	23.02	-23.05	0.12	0.10	6.46
5,881.00	0.60	56.40	5,880.32	6.53	23.43	-23.46	0.49	0.00	-46.59
5,909.00	0.10	84.10	5,908.32	6.62	23.58	-23.61	1.83	-1.79	98.93
5,943.00	2.50	241.80	5,942.31	6.27	22.95	-22.98	7.63	7.06	463.82



CUDD Drilling & Measurement Services
Survey Report



Company:	Devon Energy	Local Co-ordinate Reference:	Site Dickens 29 Fed #3H
Project:	Eddy Co., New Mexico (Nad 83)	TVD Reference:	WELL @ 3614.00ft (Original Well Elev)
Site:	Dickens 29 Fed #3H	MD Reference:	WELL @ 3614.00ft (Original Well Elev)
Well:	Dickens 29 Fed #3H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 2003.21 Single User 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)	
5,975.00	6.40	249.10	5,974.21	5.30	20.67	-20.70	12.29	12.19	22.81	
6,006.00	9.90	253.10	6,004.89	3.91	16.51	-16.53	11.43	11.29	12.90	
6,040.00	13.50	254.00	6,038.18	1.97	9.89	-9.90	10.60	10.59	2.65	
6,070.00	16.60	253.00	6,067.15	-0.25	2.43	-2.43	10.37	10.33	-3.33	
6,102.00	20.00	253.70	6,097.52	-3.13	-7.20	7.21	10.65	10.63	2.19	
6,134.00	22.20	255.20	6,127.38	-6.21	-18.30	18.33	7.08	6.88	4.69	
6,166.00	25.10	257.30	6,156.69	-9.24	-30.77	30.81	9.44	9.06	6.56	
6,198.00	28.00	259.60	6,185.31	-12.09	-44.78	44.84	9.61	9.06	7.19	
6,230.00	30.30	261.70	6,213.26	-14.61	-60.16	60.23	7.87	7.19	6.56	
6,262.00	32.20	262.90	6,240.61	-16.83	-76.61	76.69	6.25	5.94	3.75	
6,294.00	34.10	264.30	6,267.40	-18.78	-94.00	94.08	6.40	5.94	4.38	
6,327.00	35.10	266.60	6,294.57	-20.26	-112.67	112.77	4.98	3.03	6.97	
6,359.00	34.90	268.90	6,320.78	-20.98	-131.01	131.11	4.17	-0.63	7.19	
6,391.00	36.70	269.90	6,346.73	-21.17	-149.73	149.82	5.91	5.63	3.13	
6,423.00	39.70	269.70	6,371.88	-21.24	-169.51	169.61	9.38	9.38	-0.63	
6,455.00	42.80	269.60	6,395.94	-21.37	-190.61	190.71	9.69	9.69	-0.31	
6,487.00	44.30	270.10	6,419.13	-21.43	-212.66	212.75	4.81	4.69	1.56	
6,519.00	47.00	270.40	6,441.49	-21.33	-235.54	235.63	8.46	8.44	0.94	
6,551.00	50.70	269.80	6,462.55	-21.29	-259.63	259.72	11.65	11.56	-1.88	
6,583.00	54.30	269.20	6,482.03	-21.51	-285.01	285.11	11.35	11.25	-1.88	
6,615.00	57.80	268.60	6,499.89	-22.03	-311.54	311.65	11.05	10.94	-1.88	
6,646.00	61.10	268.70	6,515.65	-22.66	-338.23	338.33	10.65	10.65	0.32	
6,678.00	63.80	269.30	6,530.45	-23.15	-366.59	366.70	8.60	8.44	1.88	
6,710.00	65.80	270.00	6,544.07	-23.32	-395.55	395.65	6.56	6.25	2.19	
6,742.00	68.90	270.30	6,556.39	-23.25	-425.08	425.18	9.73	9.69	0.94	
6,774.00	72.10	270.10	6,567.07	-23.14	-455.24	455.34	10.02	10.00	-0.63	
6,805.00	74.60	270.40	6,575.96	-23.01	-484.93	485.04	8.12	8.06	0.97	
6,837.00	77.30	271.00	6,583.72	-22.63	-515.97	516.07	8.63	8.44	1.88	
6,868.00	79.70	271.10	6,589.90	-22.07	-546.34	546.44	7.75	7.74	0.32	
6,900.00	82.40	271.30	6,594.88	-21.41	-577.94	578.04	8.46	8.44	0.63	
6,932.00	85.60	271.10	6,598.23	-20.75	-609.76	609.85	10.02	10.00	-0.63	
6,963.00	88.30	271.40	6,599.88	-20.07	-640.70	640.79	8.76	8.71	0.97	
6,995.00	90.80	271.10	6,600.13	-19.37	-672.69	672.77	7.87	7.81	-0.94	
7,027.00	90.80	271.20	6,599.68	-18.73	-704.68	704.76	0.31	0.00	0.31	
7,059.00	90.50	271.10	6,599.32	-18.09	-736.67	736.75	0.99	-0.94	-0.31	
7,091.00	90.50	271.20	6,599.04	-17.45	-768.66	768.74	0.31	0.00	0.31	
7,123.00	90.40	271.10	6,598.28	-15.52	-864.64	864.71	0.15	-0.10	-0.10	
7,155.00	89.40	271.10	6,598.45	-13.68	-960.62	960.68	1.04	-1.04	0.00	
7,187.00	92.60	269.50	6,596.78	-13.17	-1,056.59	1,056.64	3.73	3.33	-1.67	
7,219.00	92.50	270.40	6,592.51	-13.26	-1,152.49	1,152.54	0.94	-0.10	0.94	
7,251.00	92.40	269.80	6,588.40	-13.09	-1,248.41	1,248.45	0.63	-0.10	-0.63	
7,283.00	92.30	270.00	6,584.55	-13.25	-1,342.33	1,342.37	0.24	-0.11	0.21	
7,315.00	92.20	269.80	6,580.78	-13.42	-1,438.25	1,438.30	0.23	-0.10	-0.21	
7,347.00	92.10	269.70	6,577.18	-13.84	-1,534.18	1,534.23	0.15	-0.10	-0.10	
7,379.00	92.20	269.80	6,573.58	-14.26	-1,630.12	1,630.17	0.15	0.10	0.10	
7,411.00	92.40	269.80	6,569.72	-14.59	-1,726.04	1,726.09	0.21	0.21	0.00	
7,443.00	92.40	270.00	6,565.66	-14.76	-1,822.95	1,823.00	0.21	0.00	0.21	
7,475.00	92.80	270.90	6,561.40	-14.02	-1,916.85	1,916.90	1.05	0.43	0.96	
7,507.00	90.40	270.00	6,558.72	-13.27	-2,012.80	2,012.84	2.67	-2.50	-0.94	
7,539.00	90.90	270.00	6,557.62	-13.27	-2,109.80	2,109.84	0.52	0.52	0.00	
7,571.00	89.80	271.90	6,557.03	-11.68	-2,205.78	2,205.81	2.29	-1.15	1.98	
7,603.00	89.60	271.10	6,557.53	-9.17	-2,301.74	2,301.76	0.86	-0.21	-0.83	
7,635.00	90.90	271.20	6,557.11	-7.24	-2,397.72	2,397.73	1.36	1.35	0.10	
7,667.00	90.70	271.50	6,555.79	-5.00	-2,492.68	2,492.68	0.38	-0.21	0.32	



CUDD Drilling & Measurement Services
Survey Report



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Site:	Dickens 29 Fed #3H	MD Reference:	WELL @ 3614.00ft (Original Well Elev)
Well:	Dickens 29 Fed #3H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 2003.21 Single User 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)
8,911.00	91.90	270.90	6,553.63	-3.01	-2,587.64	2,587.62	1.41	1.26	-0.63
9,008.00	92.10	271.20	6,550.25	-1.24	-2,684.56	2,684.54	0.37	0.21	0.31
9,104.00	91.70	271.10	6,547.06	0.69	-2,780.49	2,780.45	0.43	-0.42	-0.10
9,200.00	90.20	270.60	6,545.47	2.11	-2,876.46	2,876.42	1.65	-1.56	-0.52
9,296.00	89.80	270.90	6,545.47	3.37	-2,972.45	2,972.40	0.52	-0.42	0.31
9,392.00	90.30	270.20	6,545.39	4.29	-3,068.45	3,068.39	0.90	0.52	-0.73
9,488.00	90.80	270.20	6,544.47	4.63	-3,164.44	3,164.38	0.52	0.52	0.00
9,584.00	90.90	269.70	6,543.04	4.54	-3,260.43	3,260.37	0.53	0.10	-0.52
9,679.00	90.60	269.90	6,541.80	4.21	-3,355.42	3,355.36	0.38	-0.32	0.21
9,775.00	91.80	269.60	6,539.79	3.79	-3,451.40	3,451.34	1.29	1.25	-0.31
9,867.00	91.00	269.10	6,537.54	2.75	-3,543.36	3,543.31	1.03	-0.87	-0.54
9,899.00	90.80	269.00	6,537.04	2.22	-3,575.36	3,575.31	0.70	-0.63	-0.31
9,991.00	91.30	268.80	6,535.35	0.45	-3,667.32	3,667.28	0.59	0.54	-0.22
10,083.00	90.90	268.30	6,533.59	-1.88	-3,759.28	3,759.24	0.70	-0.43	-0.54
10,176.00	90.70	268.10	6,532.29	-4.80	-3,852.22	3,852.20	0.30	-0.22	-0.22
10,268.00	90.50	268.10	6,531.32	-7.85	-3,944.17	3,944.16	0.22	-0.22	0.00
10,361.00	90.70	267.90	6,530.35	-11.09	-4,037.10	4,037.11	0.30	0.22	-0.22
10,454.00	90.50	267.90	6,529.38	-14.50	-4,130.04	4,130.06	0.22	-0.22	0.00
10,547.00	90.70	268.30	6,528.40	-17.58	-4,222.98	4,223.02	0.48	0.22	0.43
10,640.00	90.50	268.20	6,527.43	-20.42	-4,315.93	4,315.98	0.24	-0.22	-0.11
10,734.00	90.40	267.90	6,526.69	-23.62	-4,409.87	4,409.94	0.34	-0.11	-0.32
10,835.00	90.60	267.50	6,525.81	-27.67	-4,510.79	4,510.87	0.44	0.20	-0.40
Last Cudd MWD Survey									
10,883.00	90.60	267.50	6,525.31	-29.77	-4,558.74	4,558.83	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)	
5,249.60	5,248.94	5.26	20.23	Last Gyro Survey
5,347.00	5,346.34	5.22	20.12	First Cudd MWD Survey
10,835.00	6,525.81	-27.67	-4,510.79	Last Cudd MWD Survey
10,883.00	6,525.31	-29.77	-4,558.74	Proj to Bit

Checked By: _____ Approved By: _____ Date: _____

Dickens 29 Fed #3H_Final MWD Survey Report_02-19-10.txt

Devon Energy

Dickens 29 Fed #3H - Cudd MWD Survey #1

Eddy Co., New Mexico (Nad 83)

Dickens 29 Fed #3H

Measured Dogleg Depth Rate (ft) (°/100ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)
5249.60	0.21	273.32	5248.94	5.26 N	20.23 E	-20.25
0.00						
5347.00	0.10	127.20	5346.34	5.22 N	20.12 E	-20.14
0.31						
5445.00	0.20	59.60	5444.34	5.25 N	20.33 E	-20.36
0.19						
5543.00	0.40	63.20	5542.34	5.50 N	20.79 E	-20.81
0.20						
5640.00	0.40	63.90	5639.33	5.80 N	21.39 E	-21.42
0.01						
5738.00	0.50	70.50	5737.33	6.09 N	22.10 E	-22.13
0.11						
5837.00	0.60	76.90	5836.33	6.35 N	23.02 E	-23.05
0.12						
5881.00	0.60	56.40	5880.32	6.53 N	23.43 E	-23.46
0.49						
5909.00	0.10	84.10	5908.32	6.62 N	23.58 E	-23.61
1.83						
5943.00	2.50	241.80	5942.31	6.27 N	22.95 E	-22.98
7.63						
5975.00	6.40	249.10	5974.21	5.30 N	20.67 E	-20.70
12.29						
6006.00	9.90	253.10	6004.89	3.91 N	16.51 E	-16.53
11.43						
6040.00	13.50	254.00	6038.18	1.97 N	9.89 E	-9.90
10.60						
6070.00	16.60	253.00	6067.15	0.25 S	2.43 E	-2.43
10.37						
6102.00	20.00	253.70	6097.52	3.13 S	7.20 W	7.21
10.65						
6134.00	22.20	255.20	6127.38	6.21 S	18.30 W	18.33
7.08						
6166.00	25.10	257.30	6156.69	9.24 S	30.77 W	30.81
9.44						
6198.00	28.00	259.60	6185.31	12.09 S	44.78 W	44.84
9.61						
6230.00	30.30	261.70	6213.26	14.61 S	60.16 W	60.23
7.87						
6262.00	32.20	262.90	6240.61	16.83 S	76.61 W	76.69
6.25						
6294.00	34.10	264.30	6267.40	18.78 S	94.00 W	94.08
6.40						
6327.00	35.10	266.60	6294.57	20.26 S	112.67 W	112.77
4.98						
6359.00	34.90	268.90	6320.78	20.98 S	131.01 W	131.11
4.17						
6391.00	36.70	269.90	6346.73	21.17 S	149.73 W	149.82
5.91						
6423.00	39.70	269.70	6371.88	21.24 S	169.51 W	169.61
9.38						

	Dickens	29 Fed	#3H_Final	MWD	Survey	Report_02-19-10.txt	
6455.00	42.80	269.60	6395.94	21.37	S	190.61	W 190.71
9.69							
6487.00	44.30	270.10	6419.13	21.43	S	212.66	W 212.75
4.81							
6519.00	47.00	270.40	6441.49	21.33	S	235.54	W 235.63
8.46							
6551.00	50.70	269.80	6462.55	21.29	S	259.63	W 259.72
11.65							
6583.00	54.30	269.20	6482.03	21.51	S	285.01	W 285.11
11.35							
6615.00	57.80	268.60	6499.89	22.03	S	311.54	W 311.65
11.05							
6646.00	61.10	268.70	6515.65	22.66	S	338.23	W 338.33
10.65							
6678.00	63.80	269.30	6530.45	23.15	S	366.59	W 366.70
8.60							
6710.00	65.80	270.00	6544.07	23.32	S	395.55	W 395.65
6.56							
6742.00	68.90	270.30	6556.39	23.25	S	425.08	W 425.18
9.73							
6774.00	72.10	270.10	6567.07	23.14	S	455.24	W 455.34
10.02							
6805.00	74.60	270.40	6575.96	23.01	S	484.93	W 485.04
8.12							
6837.00	77.30	271.00	6583.72	22.63	S	515.97	W 516.07
8.63							
6868.00	79.70	271.10	6589.90	22.07	S	546.34	W 546.44
7.75							
6900.00	82.40	271.30	6594.88	21.41	S	577.94	W 578.04
8.46							
6932.00	85.60	271.10	6598.23	20.75	S	609.76	W 609.85
10.02							
6963.00	88.30	271.40	6599.88	20.07	S	640.70	W 640.79
8.76							
6995.00	90.80	271.10	6600.13	19.37	S	672.69	W 672.77
7.87							
7027.00	90.80	271.20	6599.68	18.73	S	704.68	W 704.76
0.31							
7059.00	90.50	271.10	6599.32	18.09	S	736.67	W 736.75
0.99							
7091.00	90.50	271.20	6599.04	17.45	S	768.66	W 768.74
0.31							
7187.00	90.40	271.10	6598.28	15.52	S	864.64	W 864.71
0.15							
7283.00	89.40	271.10	6598.45	13.68	S	960.62	W 960.68
1.04							
7379.00	92.60	269.50	6596.78	13.17	S	1056.59	W 1056.64
3.73							
7475.00	92.50	270.40	6592.51	13.26	S	1152.49	W 1152.54
0.94							
7571.00	92.40	269.80	6588.40	13.09	S	1248.41	W 1248.45
0.63							
7665.00	92.30	270.00	6584.55	13.25	S	1342.33	W 1342.37
0.24							
7761.00	92.20	269.80	6580.78	13.42	S	1438.25	W 1438.30
0.23							
7857.00	92.10	269.70	6577.18	13.84	S	1534.18	W 1534.23
0.15							
7953.00	92.20	269.80	6573.58	14.26	S	1630.12	W 1630.17
0.15							
8049.00	92.40	269.80	6569.72	14.59	S	1726.04	W 1726.09
0.21							
8146.00	92.40	270.00	6565.66	14.76	S	1822.95	W 1823.00

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0.21	8240.00	92.80	270.90	6561.40	14.02 S	1916.85 W	1916.90
1.05	8336.00	90.40	270.00	6558.72	13.27 S	2012.80 W	2012.84
2.67	8433.00	90.90	270.00	6557.62	13.27 S	2109.80 W	2109.84
0.52	8529.00	89.80	271.90	6557.03	11.68 S	2205.78 W	2205.81
2.29	8625.00	89.60	271.10	6557.53	9.17 S	2301.74 W	2301.76
0.86	8721.00	90.90	271.20	6557.11	7.24 S	2397.72 W	2397.73
1.36	8816.00	90.70	271.50	6555.79	5.00 S	2492.68 W	2492.68
0.38	8911.00	91.90	270.90	6553.63	3.01 S	2587.64 W	2587.62
1.41	9008.00	92.10	271.20	6550.25	1.24 S	2684.56 W	2684.54
0.37	9104.00	91.70	271.10	6547.06	0.69 N	2780.49 W	2780.45
0.43	9200.00	90.20	270.60	6545.47	2.11 N	2876.46 W	2876.42
1.65	9296.00	89.80	270.90	6545.47	3.37 N	2972.45 W	2972.40
0.52	9392.00	90.30	270.20	6545.39	4.29 N	3068.45 W	3068.39
0.90	9488.00	90.80	270.20	6544.47	4.63 N	3164.44 W	3164.38
0.52	9584.00	90.90	269.70	6543.04	4.54 N	3260.43 W	3260.37
0.53	9679.00	90.60	269.90	6541.80	4.21 N	3355.42 W	3355.36
0.38	9775.00	91.80	269.60	6539.79	3.79 N	3451.40 W	3451.34
1.29	9867.00	91.00	269.10	6537.54	2.75 N	3543.36 W	3543.31
1.03	9899.00	90.80	269.00	6537.04	2.22 N	3575.36 W	3575.31
0.70	9991.00	91.30	268.80	6535.35	0.45 N	3667.32 W	3667.28
0.59	10083.00	90.90	268.30	6533.59	1.88 S	3759.28 W	3759.24
0.70	10176.00	90.70	268.10	6532.29	4.80 S	3852.22 W	3852.20
0.30	10268.00	90.50	268.10	6531.32	7.85 S	3944.17 W	3944.16
0.22	10361.00	90.70	267.90	6530.35	11.09 S	4037.10 W	4037.11
0.30	10454.00	90.50	267.90	6529.38	14.50 S	4130.04 W	4130.06
0.22	10547.00	90.70	268.30	6528.40	17.58 S	4222.98 W	4223.02
0.48	10640.00	90.50	268.20	6527.43	20.42 S	4315.93 W	4315.98
0.24	10734.00	90.40	267.90	6526.69	23.62 S	4409.87 W	4409.94
0.34	10835.00	90.60	267.50	6525.81	27.67 S	4510.79 W	4510.87
0.44	10883.00	90.60	267.50	6525.31	29.77 S	4558.74 W	4558.83
0.00							

Dickens 29 Fed #3H_Final MWD Survey Report_02-19-10.txt

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.

Vertical depths are relative to WELL. Northings and Eastings are relative to Site.

The Dogleg Severity is in Degrees per 100 feet.

Vertical Section is from Slot and calculated along an Azimuth of 269.730° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

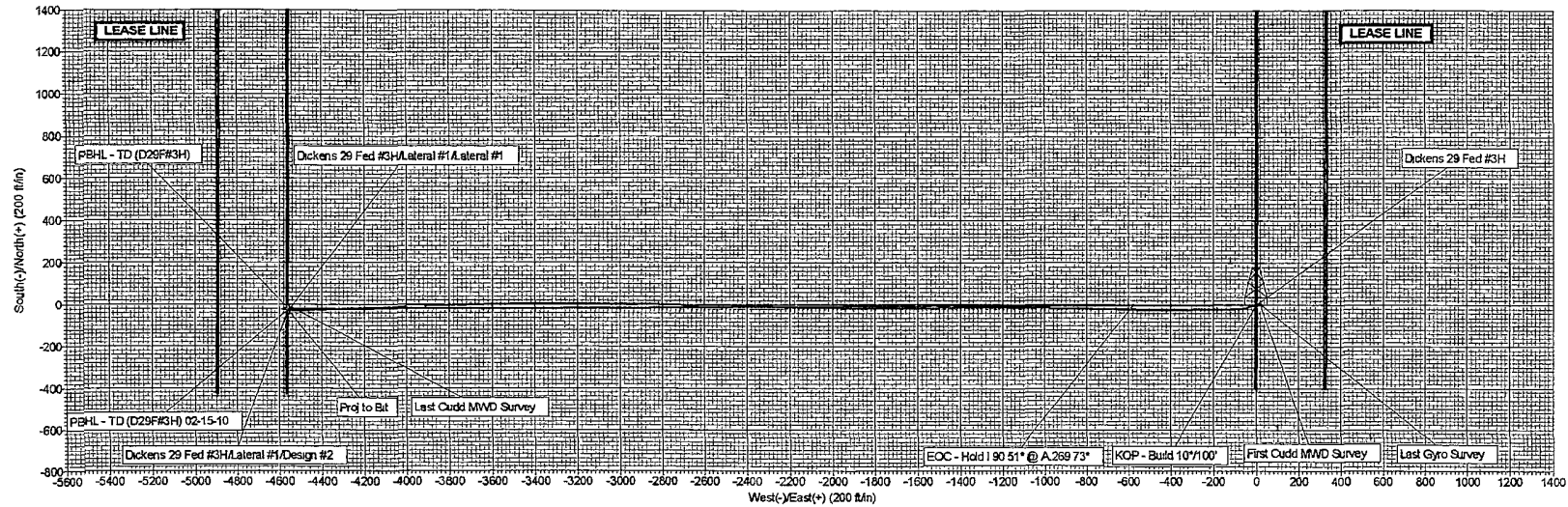
Central meridian is -104.333°.

Grid Convergence at Surface is 0.078°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 10883.00ft., the Bottom Hole Displacement is 4558.84ft., in the Direction of 269.730° (Grid).



Project: Eddy Co., New Mexico (Nad 83)
Site: Dickens 29 Fed #3H
Well: Dickens 29 Fed #3H
Wellbore: Lateral #1
Design: Design #2



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude	Shape
PBHL - TD (D29F#3H) 02-15-10	6510.00	-21.65	-4558.34	688996.52	580599.26	32° 53' 38.434 N	104° 12' 19.516 W	Point
PBHL - TD (D29F#3H)	6565.00	-21.65	-4558.34	688996.52	580599.26	32° 53' 38.434 N	104° 12' 19.516 W	Point

SECTION DETAILS

Sec	MD	Inc	Adj	TVD	+N/S	+E/W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5972.49	0.00	0.00	5972.49	0.00	0.00	0.00	0.00	0.00	
3	6877.60	90.51	269.73	6545.43	-2.75	-578.05	10.00	269.73	579.06	
4	10858.09	90.51	269.73	6510.00	-21.65	-4558.34	0.00	0.00	458.39	PBHL - TD (D29F#3H) 02-15-10

WELL DETAILS: Dickens 29 Fed #3H

Ground Level 3595.00 WELL @ 3614.00ft (Original Well Elev)						
+N/S	+E/W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	689020.17	585157.59	32° 53' 38.591 N	104° 11' 26.053 W	

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

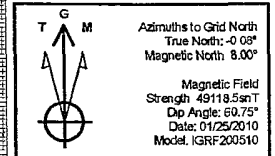
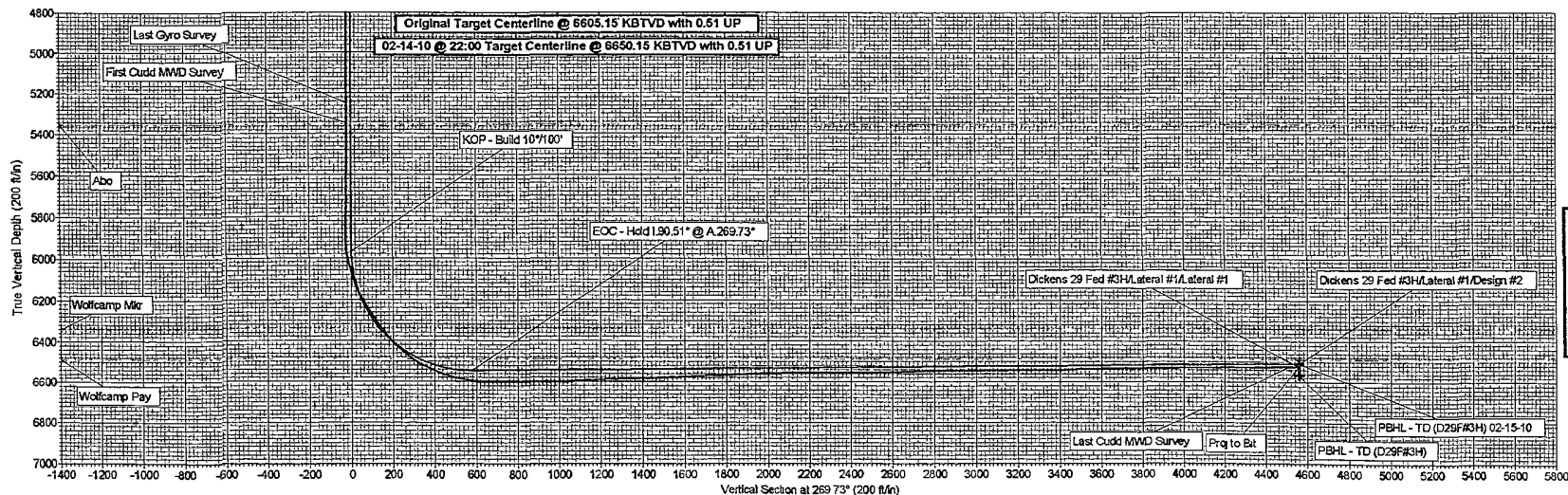
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

ANNOTATIONS

TVD	MD	Annotation
5972.49	5972.49	KOP - Build 10°/100°
6545.43	6877.60	EOC - Hold 190.51° @ A.269.73°

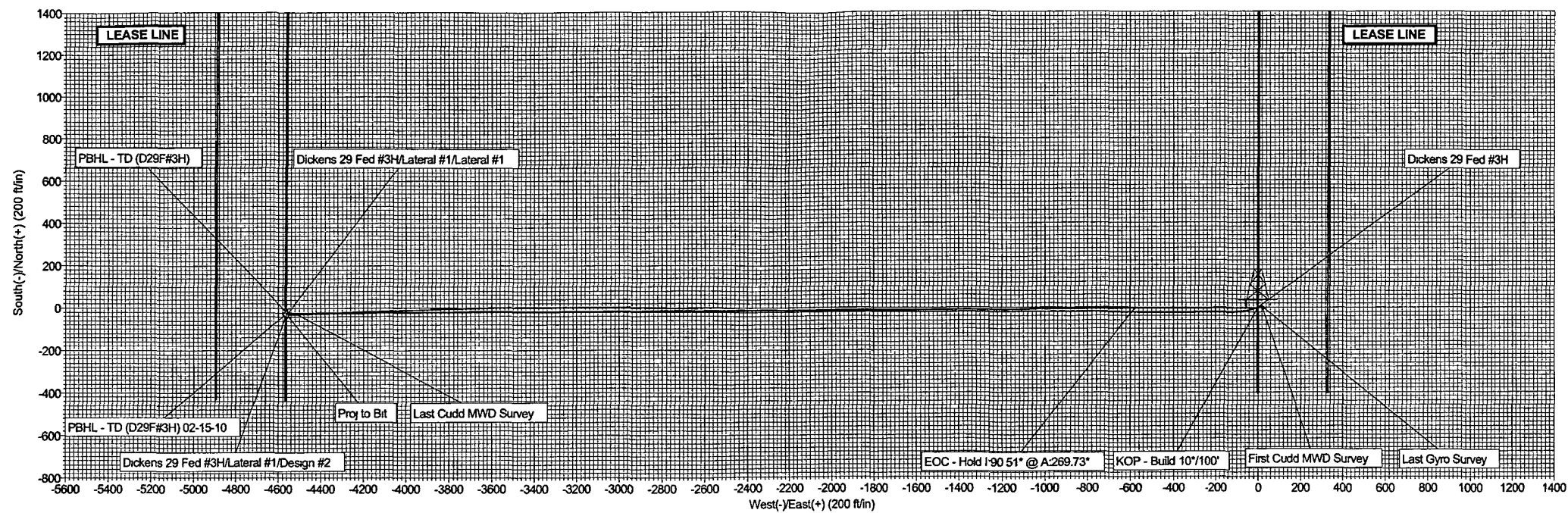
Plan, Design #2 (Dickens 29 Fed #3H/Lateral #1)

Created By: Mike Starkey	Date: 6.26, February 19 2010
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____





Project Eddy Co, New Mexico (Nad 83)
Site Dickens 29 Fed #3H
Well Dickens 29 Fed #3H
Wellbore Lateral #1
Design Design #2



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL - TD (D29F#3H) 02-15-10	6510.00	-21.65	-4558.34	688998.52	580599.26	32° 53' 38.434 N	104° 12' 19.516 W	Point	
PBHL - TD (D29F#3H)	6565.00	-21.65	-4558.34	688998.52	580599.26	32° 53' 38.434 N	104° 12' 19.516 W	Point	

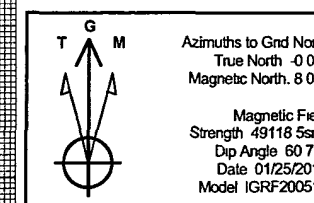
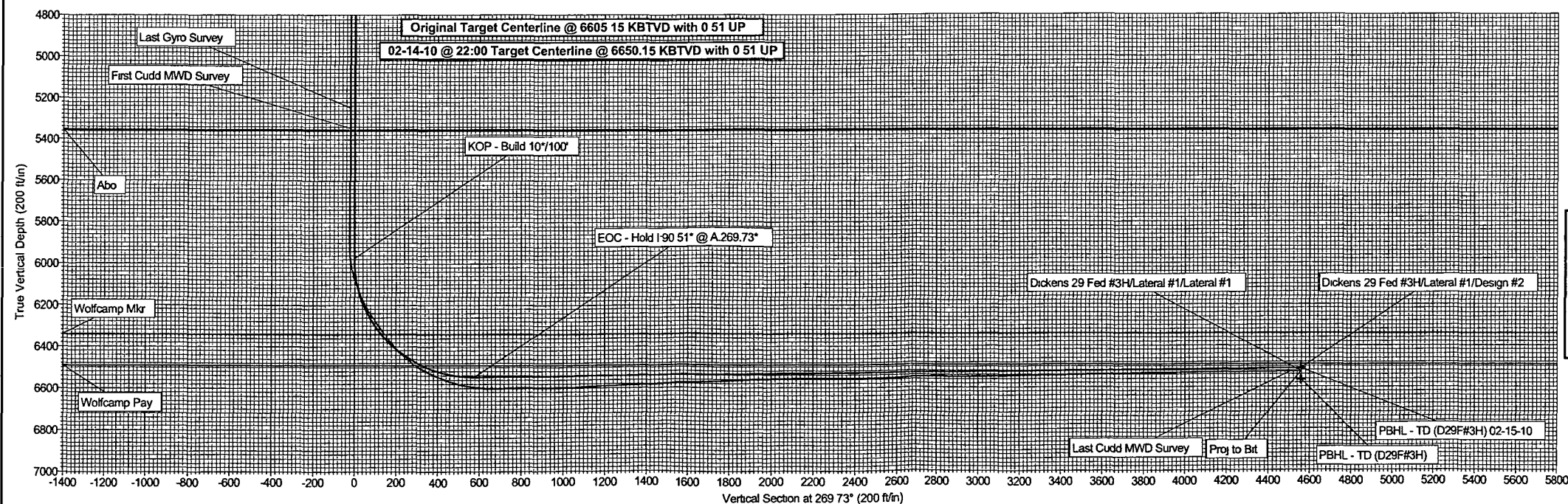
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5972.49	0.00	0.00	5972.49	0.00	0.00	0.00	0.00	0.00	
3	6877.60	90.51	269.73	6545.43	-2.75	-578.05	10.00	269.73	578.06	
4	10858.09	90.51	269.73	6510.00	-21.65	-4558.34	0.00	0.00	4558.39	PBHL - TD (D29F#3H) 02-15-10

WELL DETAILS Dickens 29 Fed #3H							
Ground Level 3595.00							
WELL @ 3614.00ft (Original Well Elev)							
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot	
0.00	0.00	689020.17	585157.59	32° 53' 38.591 N	104° 11' 26.053 W		

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

ANNOTATIONS		
TVD	MD	Annotation
5972.49	5972.49	KOP - Build 10°/100°
6545.43	6877.60	EOC - Hold 190.51° @ A.269.73°

Plan: Design #2 (Dickens 29 Fed #3H/Lateral #1)	
Created By: Mike Starkey	Date: 6/26, February 19 2010
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____



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