

30-015-39262

RKI Exploration & Production

Eddy County (NM83E)

Sec 22-T26S-R30E

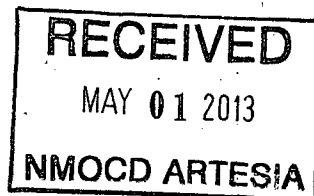
RDU 22-2H

Wellbore #1

Survey: MWD Surveys

Standard Survey Report

27 September, 2011



Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well RDU 22-2H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 22-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDU 22-2H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 2003.21 Single User Db

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	174.27

Survey Program	Date 2011/09/27			
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
100.0	12,110.0	MWD Surveys (Wellbore #1)	MWD	MWD - Standard

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
4.4	0.01	127.65	4.4	0.0	0.0	0.0	0.22	0.22	0.00
RDU #21									
100.0	0.22	127.65	100.0	-0.1	0.2	0.1	0.22	0.22	0.00
200.0	0.09	78.00	200.0	-0.2	0.4	0.3	0.18	-0.13	-49.65
300.0	0.10	133.26	300.0	-0.3	0.5	0.3	0.09	0.01	55.26
400.0	0.09	66.22	400.0	-0.3	0.7	0.4	0.11	-0.01	-67.04
500.0	0.33	109.22	500.0	-0.4	1.0	0.5	0.27	0.24	43.00
600.0	0.97	42.45	600.0	0.2	1.8	0.0	0.89	0.64	-66.77
700.0	1.39	31.44	700.0	1.8	3.0	-1.5	0.48	0.42	-11.01
800.0	1.59	40.99	799.9	3.9	4.6	-3.4	0.32	0.20	9.55
900.0	1.52	50.64	899.9	5.8	6.5	-5.1	0.27	-0.07	9.65
1,000.0	1.65	41.53	999.9	7.7	8.5	-6.8	0.28	0.13	-9.11
1,100.0	1.21	48.56	1,099.8	9.5	10.3	-8.4	0.47	-0.44	7.03
1,200.0	1.08	40.21	1,199.8	10.9	11.7	-9.7	0.21	-0.13	-8.35
1,300.0	0.68	26.28	1,299.8	12.2	12.5	-10.9	0.45	-0.40	-13.93
1,400.0	0.54	34.61	1,399.8	13.1	13.1	-11.7	0.17	-0.14	8.33
1,500.0	0.46	337.52	1,499.8	13.9	13.2	-12.5	0.48	-0.08	-57.09
1,600.0	0.68	315.04	1,599.8	14.6	12.6	-13.3	0.31	0.22	-22.48
1,700.0	1.11	269.49	1,699.8	15.1	11.2	-13.9	0.80	0.43	-45.55
1,800.0	1.61	264.04	1,799.7	14.9	8.8	-13.9	0.52	0.50	-5.45
1,900.0	2.12	268.04	1,899.7	14.7	5.6	-14.1	0.53	0.51	4.00
2,000.0	1.86	255.85	1,999.6	14.2	2.2	-13.9	0.50	-0.26	-12.19
2,100.0	0.93	229.78	2,099.6	13.3	0.0	-13.2	1.10	-0.93	-26.07
2,200.0	1.32	185.61	2,199.6	11.6	-0.8	-11.7	0.92	0.39	-44.17
2,300.0	1.42	169.17	2,299.6	9.3	-0.6	-9.3	0.40	0.10	-16.44
2,400.0	1.46	168.21	2,399.5	6.8	-0.1	-6.8	0.05	0.04	-0.96
2,500.0	1.47	180.29	2,499.5	4.3	0.1	-4.2	0.31	0.01	12.08
2,600.0	0.81	189.95	2,599.5	2.3	0.0	-2.3	0.69	-0.66	9.66
2,700.0	0.67	182.32	2,699.5	1.0	-0.2	-1.0	0.17	-0.14	-7.63
2,800.0	0.62	228.62	2,799.5	0.1	-0.6	-0.1	0.51	-0.05	46.30
2,900.0	0.30	132.12	2,899.5	-0.5	-0.8	0.4	0.72	-0.32	-96.50
3,000.0	2.33	115.85	2,999.4	-1.5	1.2	1.6	2.04	2.03	-16.27
3,100.0	2.51	116.80	3,099.3	-3.4	5.0	3.9	0.18	0.18	0.95
3,200.0	3.63	121.11	3,199.2	-6.0	9.7	6.9	1.14	1.12	4.31
3,300.0	4.42	117.36	3,298.9	-9.4	15.8	10.9	0.83	0.79	-3.75
3,400.0	4.62	119.40	3,398.6	-13.2	22.7	15.4	0.26	0.20	2.04
3,500.0	3.94	119.27	3,498.4	-16.8	29.2	19.7	0.68	-0.68	-0.13
3,600.0	2.41	117.41	3,598.2	-19.5	34.1	22.8	1.53	-1.53	1.86

Wolverine Directional, LLC

Survey Report

Company: RKL Exploration & Production
Project: Eddy County (NM83E)
Site: Sec 22-T26S-R30E
Well: RDU 22-2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well RDU 22-2H
TVD Reference: WELL @ 0.0ft (Original Well Elev)
MD Reference: WELL @ 0.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
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)	
3,700.0	2.52	121.38	3,698.1	-21.6	37.8	25.3	0.20	0.11	3.97	
3,800.0	2.38	127.58	3,798.0	-24.0	41.4	28.0	0.30	-0.14	6.20	
3,900.0	2.52	126.52	3,897.9	-26.6	44.8	30.9	0.15	0.14	-1.06	
4,000.0	2.15	120.59	3,997.8	-28.8	48.2	33.5	0.44	-0.37	-5.93	
4,100.0	1.92	124.29	4,097.8	-30.7	51.2	35.7	0.26	-0.23	3.70	
4,200.0	1.88	133.12	4,197.7	-32.8	53.7	38.0	0.30	-0.04	8.83	
4,300.0	1.78	125.05	4,297.7	-34.8	56.2	40.2	0.28	-0.10	-8.07	
4,400.0	1.65	124.81	4,397.6	-36.5	58.7	42.2	0.13	-0.13	-0.24	
4,500.0	1.45	122.35	4,497.6	-38.0	60.9	43.9	0.21	-0.20	-2.46	
4,600.0	1.22	133.46	4,597.6	-39.4	62.8	45.5	0.35	-0.23	11.11	
4,700.0	0.77	120.22	4,697.5	-40.5	64.1	46.7	0.50	-0.45	-13.24	
4,800.0	0.78	120.45	4,797.5	-41.2	65.3	47.5	0.01	0.01	0.23	
4,900.0	0.84	137.39	4,897.5	-42.1	66.4	48.5	0.25	0.06	16.94	
5,000.0	0.61	171.56	4,997.5	-43.1	66.9	49.6	0.48	-0.23	34.17	
5,100.0	0.99	162.78	5,097.5	-44.5	67.3	51.0	0.40	0.38	-8.78	
5,200.0	0.51	162.15	5,197.5	-45.7	67.7	52.3	0.48	-0.48	-0.63	
5,300.0	0.68	165.04	5,297.5	-46.7	68.0	53.3	0.17	0.17	2.89	
5,400.0	0.60	196.13	5,397.5	-47.8	68.0	54.4	0.35	-0.08	31.09	
5,500.0	0.69	166.90	5,497.5	-48.9	68.0	55.4	0.34	0.09	-29.23	
5,600.0	0.68	193.00	5,597.5	-50.1	68.0	56.6	0.31	-0.01	26.10	
5,700.0	0.87	188.44	5,697.5	-51.4	67.7	57.9	0.20	0.19	-4.56	
5,800.0	0.66	207.01	5,797.5	-52.7	67.3	59.1	0.32	-0.21	18.57	
5,900.0	0.37	194.96	5,897.5	-53.5	67.0	59.9	0.31	-0.29	-12.05	
6,000.0	0.39	181.93	5,997.5	-54.1	66.9	60.5	0.09	0.02	-13.03	
6,100.0	0.62	164.44	6,097.4	-55.0	67.0	61.4	0.27	0.23	-17.49	
6,200.0	1.23	182.86	6,197.4	-56.6	67.1	63.0	0.67	0.61	18.42	
6,300.0	1.06	181.02	6,297.4	-58.6	67.1	65.0	0.17	-0.17	-1.84	
6,400.0	1.03	175.75	6,397.4	-60.4	67.1	66.8	0.10	-0.03	-5.27	
6,500.0	1.27	181.93	6,497.4	-62.4	67.1	68.8	0.27	0.24	6.18	
6,600.0	1.46	180.60	6,597.3	-64.8	67.1	71.2	0.19	0.19	-1.33	
6,700.0	1.37	182.65	6,697.3	-67.3	67.0	73.6	0.10	-0.09	2.05	
6,800.0	1.52	181.92	6,797.3	-69.8	66.9	76.1	0.15	0.15	-0.73	
6,900.0	1.31	190.26	6,897.3	-72.2	66.7	78.5	0.29	-0.21	8.34	
Tie on to GYRO										
6,912.0	1.50	186.50	6,909.3	-72.5	66.6	78.8	1.76	1.58	-31.33	
First MWD Survey										
6,944.0	1.60	188.10	6,941.2	-73.4	66.5	79.7	0.34	0.31	5.00	
6,975.0	1.50	187.70	6,972.2	-74.2	66.4	80.5	0.32	-0.32	-1.29	
7,007.0	1.50	185.80	7,004.2	-75.0	66.3	81.3	0.16	0.00	-5.94	
7,038.0	1.50	188.90	7,035.2	-75.8	66.2	82.1	0.26	0.00	10.00	
7,070.0	1.50	188.60	7,067.2	-76.7	66.1	82.9	0.02	0.00	-0.94	
7,089.0	1.50	191.30	7,086.2	-77.2	66.0	83.4	0.37	0.00	14.21	
7,101.0	1.60	192.60	7,098.2	-77.5	65.9	83.7	0.88	0.83	10.83	
7,137.0	1.50	188.90	7,134.2	-78.4	65.7	84.6	0.39	-0.28	-10.28	
7,165.0	1.50	193.20	7,162.2	-79.2	65.6	85.3	0.40	0.00	15.36	
7,196.0	1.90	183.90	7,193.2	-80.1	65.5	86.2	1.56	1.29	-30.00	
7,227.0	3.00	177.30	7,224.1	-81.4	65.5	87.5	3.66	3.55	-21.29	
7,259.0	5.00	173.10	7,256.0	-83.6	65.7	89.7	6.31	6.25	-13.13	
7,290.0	7.10	170.70	7,286.9	-86.8	66.1	93.0	6.82	6.77	-7.74	
7,322.0	9.10	169.30	7,318.5	-91.3	66.9	97.5	6.28	6.25	-4.38	
7,353.0	11.10	170.00	7,349.1	-96.6	67.9	102.9	6.46	6.45	2.26	
7,385.0	13.70	170.10	7,380.3	-103.4	69.1	109.8	8.13	8.13	0.31	
7,416.0	16.50	170.50	7,410.2	-111.4	70.5	117.8	9.04	9.03	1.29	
7,448.0	19.10	170.40	7,440.7	-121.0	72.1	127.6	8.13	8.13	-0.31	

Wolverine Directional, LLC

Survey Report

Company: RKI Exploration & Production
Project: Eddy County (NM83E)
Site: Sec 22-T26S-R30E
Well: RDU 22-2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well RDU 22-2H
TVD Reference: WELL @ 0.0ft (Original Well Elev)
MD Reference: WELL @ 0.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
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)
7,480.0	21.70	173.20	7,470.7	-132.0	73.7	138.7	8.68	8.13	8.75
7,511.0	24.30	175.10	7,499.2	-144.1	74.9	150.8	8.72	8.39	6.13
7,543.0	28.00	175.30	7,528.0	-158.1	76.1	164.9	11.57	11.56	0.63
7,574.0	32.30	175.20	7,554.8	-173.7	77.3	180.5	13.87	13.87	-0.32
7,606.0	36.20	174.40	7,581.2	-191.6	79.0	198.5	12.27	12.19	-2.50
7,637.0	40.00	173.20	7,605.6	-210.6	81.1	217.6	12.49	12.26	-3.87
7,669.0	43.80	172.60	7,629.4	-231.8	83.7	239.0	11.94	11.88	-1.88
7,700.0	47.70	171.70	7,651.0	-253.8	86.7	261.2	12.75	12.58	-2.90
7,732.0	50.50	170.90	7,672.0	-277.7	90.4	285.3	8.95	8.75	-2.50
7,763.0	53.10	171.50	7,691.1	-301.8	94.1	309.7	8.52	8.39	1.94
7,795.0	55.10	172.20	7,709.9	-327.4	97.8	335.5	6.50	6.25	2.19
7,826.0	57.20	172.00	7,727.2	-352.9	101.3	361.3	6.80	6.77	-0.65
7,857.0	60.40	172.10	7,743.2	-379.2	105.0	387.8	10.33	10.32	0.32
7,889.0	63.00	171.50	7,758.4	-407.1	109.0	415.9	8.29	8.13	-1.88
7,920.0	65.40	171.50	7,771.9	-434.7	113.1	443.8	7.74	7.74	0.00
7,952.0	68.10	171.30	7,784.5	-463.7	117.5	473.2	8.46	8.44	-0.63
7,984.0	70.10	171.90	7,795.9	-493.3	121.9	503.0	6.49	6.25	1.88
8,015.0	72.30	172.60	7,805.9	-522.4	125.9	532.3	7.41	7.10	2.26
8,047.0	74.90	172.90	7,815.0	-552.8	129.7	563.0	8.17	8.13	0.94
8,078.0	77.20	172.80	7,822.4	-582.7	133.5	593.1	7.43	7.42	-0.32
8,110.0	78.80	173.20	7,829.1	-613.7	137.3	624.4	5.15	5.00	1.25
8,141.0	80.50	173.20	7,834.7	-644.0	140.9	654.9	5.48	5.48	0.00
8,173.0	83.20	172.90	7,839.2	-675.5	144.7	686.5	8.49	8.44	-0.94
8,204.0	86.80	173.40	7,841.9	-706.1	148.4	717.4	11.72	11.61	1.61
8,235.0	90.00	173.40	7,842.8	-736.9	152.0	748.4	10.32	10.32	0.00
8,267.0	92.00	173.50	7,842.2	-768.7	155.6	780.4	6.26	6.25	0.31
8,298.0	93.20	173.50	7,840.8	-799.5	159.1	811.4	3.87	3.87	0.00
8,329.0	94.60	173.40	7,838.7	-830.2	162.7	842.3	4.53	4.52	-0.32
8,360.0	94.70	173.70	7,836.2	-860.9	166.1	873.2	1.02	0.32	0.97
8,392.0	94.70	173.30	7,833.6	-892.6	169.7	905.1	1.25	0.00	-1.25
8,423.0	94.20	173.10	7,831.2	-923.3	173.4	936.0	1.74	-1.61	-0.65
8,455.0	92.80	172.60	7,829.2	-955.0	177.4	967.9	4.64	-4.38	-1.56
8,486.0	92.30	173.20	7,827.8	-985.7	181.2	998.9	2.52	-1.61	1.94
8,518.0	93.40	172.70	7,826.2	-1,017.4	185.1	1,030.8	3.78	3.44	-1.56
8,550.0	93.50	172.50	7,824.3	-1,049.1	189.2	1,062.7	0.70	0.31	-0.63
8,581.0	92.20	172.30	7,822.8	-1,079.8	193.3	1,093.7	4.24	-4.19	-0.65
8,613.0	90.90	172.00	7,821.9	-1,111.5	197.7	1,125.6	4.17	-4.06	-0.94
8,644.0	91.30	171.20	7,821.3	-1,142.1	202.2	1,156.6	2.88	1.29	-2.58
8,676.0	90.60	171.20	7,820.8	-1,173.7	207.1	1,188.5	2.19	-2.19	0.00
8,708.0	90.70	170.90	7,820.4	-1,205.3	212.1	1,220.5	0.99	0.31	-0.94
8,739.0	91.00	170.90	7,819.9	-1,236.0	217.0	1,251.4	0.97	0.97	0.00
8,771.0	91.50	170.90	7,819.2	-1,267.5	222.1	1,283.4	1.56	1.56	0.00
8,802.0	91.40	170.60	7,818.5	-1,298.1	227.1	1,314.3	1.02	-0.32	-0.97
8,834.0	91.30	170.60	7,817.7	-1,329.7	232.3	1,346.2	0.31	-0.31	0.00
8,865.0	92.10	170.60	7,816.8	-1,360.3	237.3	1,377.2	2.58	2.58	0.00
8,897.0	91.50	170.30	7,815.8	-1,391.8	242.6	1,409.1	2.10	-1.88	-0.94
8,928.0	92.00	170.00	7,814.8	-1,422.3	247.9	1,440.0	1.88	1.61	-0.97
8,960.0	92.20	170.20	7,813.7	-1,453.8	253.4	1,471.9	0.88	0.63	0.63
8,991.0	92.80	170.00	7,812.3	-1,484.3	258.8	1,502.8	2.04	1.94	-0.65
9,023.0	91.60	170.60	7,811.1	-1,515.9	264.2	1,534.7	4.19	-3.75	1.88
9,054.0	92.00	170.40	7,810.1	-1,546.4	269.3	1,565.6	1.44	1.29	-0.65
9,086.0	92.00	170.00	7,809.0	-1,577.9	274.7	1,597.5	1.25	0.00	-1.25
9,117.0	91.40	170.70	7,808.1	-1,608.5	279.9	1,628.4	2.97	-1.94	2.26
9,149.0	90.90	170.60	7,807.4	-1,640.0	285.1	1,660.3	1.59	-1.56	-0.31

Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well RDU 22-2H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec.22-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDU 22-2H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #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)	
9,180.0	90.20	171.40	7,807.1	-1,670.7	290.0	1,691.3	3.43	-2.26	2.58	
9,212.0	89.70	171.60	7,807.2	-1,702.3	294.7	1,723.2	1.68	-1.56	0.63	
9,243.0	89.70	171.20	7,807.3	-1,733.0	299.3	1,754.2	1.29	0.00	-1.29	
9,275.0	90.20	171.20	7,807.4	-1,764.6	304.2	1,786.1	1.56	1.56	0.00	
9,306.0	90.50	171.50	7,807.2	-1,795.2	308.9	1,817.1	1.37	0.97	0.97	
9,338.0	90.80	172.40	7,806.8	-1,826.9	313.4	1,849.1	2.96	0.94	2.81	
9,369.0	91.80	172.60	7,806.1	-1,857.6	317.4	1,880.0	3.29	3.23	0.65	
9,401.0	91.40	172.60	7,805.2	-1,889.4	321.5	1,912.0	1.25	-1.25	0.00	
9,433.0	90.60	172.50	7,804.6	-1,921.1	325.7	1,944.0	2.52	-2.50	-0.31	
9,464.0	89.90	172.80	7,804.5	-1,951.8	329.6	1,975.0	2.46	-2.26	0.97	
9,496.0	90.60	172.70	7,804.4	-1,983.6	333.7	2,007.0	2.21	2.19	-0.31	
9,527.0	90.90	172.80	7,804.0	-2,014.3	337.6	2,038.0	1.02	0.97	0.32	
9,559.0	90.10	172.10	7,803.7	-2,046.0	341.8	2,069.9	3.32	-2.50	-2.19	
9,590.0	87.70	171.30	7,804.3	-2,076.7	346.3	2,100.9	8.16	-7.74	-2.58	
9,622.0	88.00	171.10	7,805.5	-2,108.3	351.2	2,132.8	1.13	0.94	-0.63	
9,653.0	89.10	171.30	7,806.3	-2,138.9	355.9	2,163.8	3.61	3.55	0.65	
9,684.0	90.00	170.90	7,806.5	-2,169.6	360.7	2,194.7	3.18	2.90	-1.29	
9,716.0	91.00	171.00	7,806.2	-2,201.2	365.7	2,226.7	3.14	3.13	0.31	
9,748.0	91.30	170.50	7,805.6	-2,232.7	370.9	2,258.6	1.82	0.94	-1.56	
9,779.0	90.90	170.20	7,805.0	-2,263.3	376.1	2,289.5	1.61	-1.29	-0.97	
9,811.0	90.80	170.30	7,804.5	-2,294.8	381.5	2,321.5	0.44	-0.31	0.31	
9,842.0	90.20	171.20	7,804.2	-2,325.4	386.5	2,352.4	3.49	-1.94	2.90	
9,874.0	90.70	171.30	7,804.0	-2,357.1	391.3	2,384.3	1.59	1.56	0.31	
9,905.0	90.70	172.00	7,803.6	-2,387.7	395.8	2,415.3	2.26	0.00	2.26	
9,937.0	91.00	172.20	7,803.1	-2,419.4	400.2	2,447.3	1.13	0.94	0.63	
9,968.0	90.90	172.30	7,802.6	-2,450.1	404.4	2,478.3	0.46	-0.32	0.32	
10,000.0	90.50	172.40	7,802.2	-2,481.8	408.7	2,510.2	1.29	-1.25	0.31	
10,031.0	90.90	172.80	7,801.9	-2,512.6	412.7	2,541.2	1.82	1.29	1.29	
10,063.0	91.60	172.80	7,801.2	-2,544.3	416.7	2,573.2	2.19	2.19	0.00	
10,094.0	91.50	173.00	7,800.3	-2,575.1	420.5	2,604.2	0.72	-0.32	0.65	
10,126.0	91.70	173.90	7,799.4	-2,606.9	424.2	2,636.2	2.88	0.63	2.81	
10,157.0	92.50	174.10	7,798.3	-2,637.7	427.4	2,667.1	2.66	2.58	0.65	
10,189.0	92.70	174.00	7,796.8	-2,669.5	430.7	2,699.1	0.70	0.63	-0.31	
10,220.0	93.20	173.80	7,795.2	-2,700.2	434.0	2,730.1	1.74	1.61	-0.65	
10,252.0	93.50	173.40	7,793.4	-2,732.0	437.6	2,762.0	1.56	0.94	-1.25	
10,283.0	93.10	173.30	7,791.6	-2,762.7	441.1	2,793.0	1.33	-1.29	-0.32	
10,315.0	93.20	173.30	7,789.8	-2,794.5	444.9	2,824.9	0.31	0.31	0.00	
10,346.0	93.70	173.00	7,788.0	-2,825.2	448.6	2,855.8	1.88	1.61	-0.97	
10,378.0	93.60	173.40	7,785.9	-2,856.9	452.3	2,887.8	1.29	-0.31	1.25	
10,409.0	93.80	174.50	7,783.9	-2,887.7	455.6	2,918.7	3.60	0.65	3.55	
10,441.0	93.00	175.70	7,782.0	-2,919.5	458.3	2,950.6	4.50	-2.50	3.75	
10,472.0	92.70	175.60	7,780.5	-2,950.4	460.7	2,981.6	1.02	-0.97	-0.32	
10,504.0	92.30	176.80	7,779.1	-2,982.3	462.8	3,013.6	3.95	-1.25	3.75	
10,535.0	92.30	176.70	7,777.9	-3,013.2	464.6	3,044.5	0.32	0.00	-0.32	
10,567.0	91.90	177.30	7,776.7	-3,045.1	466.2	3,076.4	2.25	-1.25	1.88	
10,598.0	91.50	177.20	7,775.8	-3,076.1	467.7	3,107.4	1.33	-1.29	-0.32	
10,630.0	91.20	178.60	7,775.0	-3,108.0	468.9	3,139.3	4.47	-0.94	4.38	
10,661.0	91.70	179.10	7,774.2	-3,139.0	469.5	3,170.2	2.28	1.61	1.61	
10,692.0	91.60	179.00	7,773.3	-3,170.0	470.0	3,201.1	0.46	-0.32	-0.32	
10,724.0	91.80	179.10	7,772.4	-3,202.0	470.6	3,233.0	0.70	0.63	0.31	
10,755.0	91.80	179.10	7,771.4	-3,233.0	471.0	3,263.8	0.00	0.00	0.00	
10,787.0	92.10	178.80	7,770.3	-3,264.9	471.6	3,295.7	1.33	0.94	-0.94	
10,818.0	92.30	179.90	7,769.1	-3,295.9	472.0	3,326.6	3.60	0.65	3.55	
10,850.0	92.60	182.00	7,767.8	-3,327.9	471.4	3,358.3	6.62	0.94	6.56	

Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well RDU/22-2H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 22-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDU 22-2H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #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)	
10,881.0	92.20	181.50	7,766.5	-3,358.8	470.5	3,389.0	2.06	-1.29	-1.61	
10,913.0	92.50	181.50	7,765.1	-3,390.8	469.7	3,420.7	0.94	0.94	0.00	
10,944.0	92.70	181.90	7,763.7	-3,421.7	468.7	3,451.4	1.44	0.65	1.29	
10,976.0	92.80	181.70	7,762.2	-3,453.7	467.7	3,483.1	0.70	0.31	-0.63	
11,007.0	92.80	181.30	7,760.7	-3,484.6	466.9	3,513.9	1.29	0.00	-1.29	
11,039.0	92.80	181.40	7,759.1	-3,516.6	466.2	3,545.6	0.31	0.00	0.31	
11,070.0	93.30	181.30	7,757.5	-3,547.5	465.4	3,576.3	1.64	1.61	-0.32	
11,102.0	93.60	181.90	7,755.6	-3,579.5	464.6	3,608.0	2.09	0.94	1.88	
11,133.0	93.80	181.70	7,753.6	-3,610.4	463.6	3,638.6	0.91	0.65	-0.65	
11,164.0	94.10	181.70	7,751.4	-3,641.3	462.7	3,669.3	0.97	0.97	0.00	
11,196.0	93.30	181.80	7,749.4	-3,673.2	461.7	3,701.0	2.52	-2.50	0.31	
11,228.0	92.20	181.70	7,747.8	-3,705.2	460.7	3,732.7	3.45	-3.44	-0.31	
11,259.0	92.20	181.30	7,746.6	-3,736.1	459.9	3,763.4	1.29	0.00	-1.29	
11,291.0	92.40	181.80	7,745.3	-3,768.1	459.0	3,795.1	1.68	0.63	1.56	
11,322.0	92.60	181.90	7,744.0	-3,799.1	458.0	3,825.8	0.72	0.65	0.32	
11,354.0	93.00	182.00	7,742.4	-3,831.0	457.0	3,857.5	1.29	1.25	0.31	
11,385.0	93.10	181.80	7,740.8	-3,861.9	455.9	3,888.2	0.72	0.32	-0.65	
11,417.0	93.20	182.00	7,739.0	-3,893.9	454.9	3,919.8	0.70	0.31	0.63	
11,448.0	93.40	182.20	7,737.2	-3,924.8	453.7	3,950.5	0.91	0.65	0.65	
11,480.0	94.00	182.10	7,735.2	-3,956.7	452.5	3,982.1	1.90	1.88	-0.31	
11,511.0	91.90	181.40	7,733.6	-3,987.7	451.6	4,012.8	7.14	-6.77	-2.26	
11,543.0	91.90	180.90	7,732.5	-4,019.6	450.9	4,044.6	1.56	0.00	-1.56	
11,574.0	92.00	181.10	7,731.5	-4,050.6	450.4	4,075.3	0.72	0.32	0.65	
11,606.0	92.20	181.00	7,730.3	-4,082.6	449.8	4,107.1	0.70	0.63	-0.31	
11,638.0	92.30	181.30	7,729.0	-4,114.6	449.2	4,138.8	0.99	0.31	0.94	
11,669.0	92.40	181.50	7,727.8	-4,145.5	448.4	4,169.6	0.72	0.32	0.65	
11,701.0	92.70	181.70	7,726.3	-4,177.5	447.5	4,201.3	1.13	0.94	0.63	
11,732.0	92.70	181.40	7,724.9	-4,208.4	446.7	4,232.0	0.97	0.00	-0.97	
11,764.0	93.00	181.90	7,723.3	-4,240.4	445.8	4,263.7	1.82	0.94	1.56	
11,795.0	93.40	181.80	7,721.6	-4,271.3	444.8	4,294.4	1.33	1.29	-0.32	
11,827.0	93.50	181.50	7,719.6	-4,303.2	443.9	4,326.1	0.99	0.31	-0.94	
11,858.0	93.80	181.60	7,717.7	-4,334.2	443.0	4,356.7	1.02	0.97	0.32	
11,890.0	94.20	181.90	7,715.4	-4,366.1	442.0	4,388.4	1.56	1.25	0.94	
11,921.0	94.20	182.20	7,713.2	-4,397.0	440.9	4,419.0	0.97	0.00	0.97	
11,953.0	94.60	181.90	7,710.7	-4,428.9	439.8	4,450.6	1.56	1.25	-0.94	
11,984.0	94.90	181.80	7,708.1	-4,459.7	438.8	4,481.3	1.02	0.97	-0.32	
12,016.0	95.20	182.10	7,705.3	-4,491.6	437.7	4,512.8	1.32	0.94	0.94	
12,047.0	95.50	182.10	7,702.4	-4,522.4	436.6	4,543.4	0.97	0.97	0.00	
12,059.0	95.50	182.30	7,701.3	-4,534.4	436.1	4,555.3	1.66	0.00	1.67	
Last MWD Survey										
12,110.0	95.50	182.30	7,696.4	-4,585.1	434.1	4,605.5	0.00	0.00	0.00	
Proj to TD - RDU 22-2H PBHL										

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
6,900.0	6,897.3	-72.2	66.7	Tie on to GYRO	
6,912.0	6,909.3	-72.5	66.6	First MWD Survey	
12,059.0	7,701.3	-4,534.4	436.1	Last MWD Survey	
12,110.0	7,696.4	-4,585.1	434.1	Proj to TD	

Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well RDU/22-2H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec:22-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDU 22-2H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 2003.21 Single User Db

Checked By: _____	Approved By: _____	Date: _____
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