

30-015-40641

RKI Exploration & Production

Eddy County (NM83E)

Sec 17-T26S-R30E

RDX 17-11H

Wellbore #1

Survey: MWD Surveys

Standard Survey Report

02 November, 2012



Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well RDX-17-11H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 17-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDX-17-11H	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) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	355.12

Survey Program	Date 11/02/12			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.0	12,441.0	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
100.0	0.43	244.35	100.0	-0.2	-0.3	-0.1	0.43	0.43	0.00
First GYRO Survey									
200.0	0.95	243.61	200.0	-0.7	-1.4	-0.6	0.52	0.52	-0.74
300.0	1.48	235.45	300.0	-1.8	-3.2	-1.5	0.56	0.53	-8.16
400.0	1.73	231.47	399.9	-3.5	-5.5	-3.0	0.27	0.25	-3.98
500.0	1.73	231.10	499.9	-5.4	-7.8	-4.7	0.01	0.00	-0.37
600.0	1.57	218.75	599.8	-7.4	-9.9	-6.5	0.39	-0.16	-12.35
700.0	1.46	192.06	699.8	-9.7	-11.0	-8.7	0.71	-0.11	-26.69
800.0	1.84	159.53	799.8	-12.4	-10.7	-11.5	0.99	0.38	-32.53
900.0	1.88	140.08	899.7	-15.2	-9.1	-14.4	0.63	0.04	-19.45
1,000.0	1.53	132.17	999.7	-17.4	-7.0	-16.7	0.42	-0.35	-7.91
1,100.0	1.04	148.29	1,099.6	-19.0	-5.6	-18.5	0.60	-0.49	16.12
1,200.0	0.91	179.16	1,199.6	-20.6	-5.1	-20.1	0.53	-0.13	30.87
1,300.0	1.01	183.47	1,299.6	-22.3	-5.1	-21.7	0.12	0.10	4.31
1,400.0	1.01	184.42	1,399.6	-24.0	-5.2	-23.5	0.02	0.00	0.95
1,500.0	0.77	182.73	1,499.6	-25.6	-5.3	-25.0	0.24	-0.24	-1.69
1,600.0	0.52	161.59	1,599.6	-26.7	-5.2	-26.1	0.34	-0.25	-21.14
1,700.0	0.31	113.66	1,699.6	-27.2	-4.8	-26.7	0.39	-0.21	-47.93
1,800.0	0.16	327.58	1,799.6	-27.2	-4.7	-26.7	0.45	-0.15	-146.08
1,900.0	0.35	290.40	1,899.6	-27.0	-5.0	-26.5	0.24	0.19	-37.18
2,000.0	0.37	256.53	1,999.6	-26.9	-5.6	-26.4	0.21	0.02	-33.87
2,100.0	0.32	219.38	2,099.6	-27.2	-6.1	-26.6	0.22	-0.05	-37.15
2,200.0	0.66	169.29	2,199.6	-28.0	-6.2	-27.4	0.52	0.34	-50.09
2,300.0	0.77	180.90	2,299.6	-29.3	-6.1	-28.6	0.18	0.11	11.61
2,400.0	0.72	197.17	2,399.6	-30.5	-6.3	-29.9	0.22	-0.05	16.27
2,500.0	0.72	223.79	2,499.6	-31.6	-6.9	-30.9	0.33	0.00	26.62
2,600.0	0.82	240.90	2,599.5	-32.4	-8.0	-31.6	0.25	0.10	17.11
2,700.0	0.30	170.01	2,699.5	-33.0	-8.5	-32.1	0.78	-0.52	-70.89
2,800.0	3.51	101.19	2,799.5	-33.8	-5.5	-33.3	3.41	3.21	-68.82
2,900.0	3.62	109.12	2,899.3	-35.5	0.5	-35.4	0.50	0.11	7.93
3,000.0	3.44	115.87	2,999.1	-37.8	6.2	-38.2	0.45	-0.18	6.75
3,100.0	4.36	115.52	3,098.9	-40.8	12.3	-41.7	0.92	0.92	-0.35
3,200.0	4.80	117.02	3,198.5	-44.3	19.5	-45.8	0.46	0.44	1.50
3,300.0	3.64	122.78	3,298.3	-47.9	25.9	-49.9	1.23	-1.16	5.76
3,400.0	2.70	129.61	3,398.1	-51.1	30.3	-53.5	1.01	-0.94	6.83
3,500.0	2.01	135.51	3,498.0	-53.9	33.4	-56.5	0.73	-0.69	5.90
3,600.0	1.93	135.94	3,598.0	-56.4	35.8	-59.2	0.08	-0.08	0.43
3,700.0	1.64	136.96	3,697.9	-58.6	37.9	-61.6	0.29	-0.29	1.02

Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well: RDX-17-11H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 17-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDX-17-11H	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)
3,800.0	1.62	137.61	3,797.9	-60.7	39.9	-63.9	0.03	-0.02	0.65
3,900.0	1.55	136.29	3,897.8	-62.7	41.7	-66.0	0.08	-0.07	-1.32
4,000.0	1.36	137.54	3,997.8	-64.6	43.5	-68.0	0.19	-0.19	1.25
4,100.0	1.23	139.33	4,097.8	-66.3	45.0	-69.8	0.14	-0.13	1.79
4,200.0	1.09	141.16	4,197.8	-67.8	46.3	-71.5	0.14	-0.14	1.83
4,300.0	1.03	143.20	4,297.7	-69.3	47.4	-73.1	0.07	-0.06	2.04
4,400.0	0.97	152.50	4,397.7	-70.7	48.3	-74.6	0.17	-0.06	9.30
4,500.0	0.97	155.58	4,497.7	-72.3	49.1	-76.2	0.05	0.00	3.08
4,600.0	0.90	151.71	4,597.7	-73.7	49.8	-77.7	0.09	-0.07	-3.87
4,700.0	0.87	149.19	4,697.7	-75.1	50.6	-79.1	0.05	-0.03	-2.52
4,800.0	0.79	146.06	4,797.7	-76.3	51.3	-80.4	0.09	-0.08	-3.13
4,900.0	0.81	145.39	4,897.7	-77.5	52.1	-81.6	0.02	0.02	-0.67
5,000.0	0.77	139.06	4,997.7	-78.5	53.0	-82.8	0.10	-0.04	-6.33
5,100.0	1.06	116.75	5,097.6	-79.5	54.2	-83.8	0.45	0.29	-22.31
5,200.0	1.60	107.40	5,197.6	-80.3	56.4	-84.8	0.58	0.54	-9.35
5,300.0	1.64	107.57	5,297.6	-81.1	59.1	-85.9	0.04	0.04	0.17
5,400.0	1.54	112.76	5,397.5	-82.1	61.7	-87.1	0.18	-0.10	5.19
5,500.0	1.38	113.85	5,497.5	-83.1	64.0	-88.3	0.16	-0.16	1.09
5,600.0	1.26	113.17	5,597.5	-84.0	66.1	-89.3	0.12	-0.12	-0.68
5,700.0	1.43	117.40	5,697.5	-85.0	68.3	-90.5	0.20	0.17	4.23
5,800.0	1.50	133.54	5,797.4	-86.5	70.3	-92.2	0.42	0.07	16.14
5,900.0	1.59	141.23	5,897.4	-88.5	72.1	-94.3	0.23	0.09	7.69
6,000.0	1.46	143.05	5,997.4	-90.6	73.8	-96.5	0.14	-0.13	1.82
6,100.0	1.28	139.85	6,097.3	-92.5	75.3	-98.5	0.20	-0.18	-3.20
6,200.0	1.32	137.76	6,197.3	-94.2	76.8	-100.4	0.06	0.04	-2.09
6,300.0	1.36	140.22	6,297.3	-95.9	78.3	-102.2	0.07	0.04	2.46
6,400.0	1.49	143.13	6,397.2	-97.9	79.8	-104.3	0.15	0.13	2.91
6,500.0	1.50	148.18	6,497.2	-100.0	81.3	-106.6	0.13	0.01	5.05
6,600.0	1.65	147.70	6,597.2	-102.4	82.8	-109.0	0.15	0.15	-0.48
6,700.0	1.65	157.39	6,697.1	-104.9	84.1	-111.7	0.28	0.00	9.69
6,800.0	1.66	163.32	6,797.1	-107.6	85.0	-114.5	0.17	0.01	5.93
6,900.0	1.91	165.97	6,897.0	-110.6	85.9	-117.5	0.26	0.25	2.65
7,000.0	1.67	166.15	6,997.0	-113.7	86.6	-120.6	0.24	-0.24	0.18
Last GYRO Survey									
7,044.0	2.00	165.80	7,041.0	-115.0	87.0	-122.0	0.75	0.75	-0.80
First MWD Survey									
7,075.0	1.80	166.40	7,071.9	-116.0	87.2	-123.0	0.65	-0.65	1.94
7,107.0	1.70	165.50	7,103.9	-117.0	87.4	-124.0	0.32	-0.31	-2.81
7,139.0	1.30	320.20	7,135.9	-117.2	87.3	-124.2	9.15	-1.25	483.44
7,171.0	4.70	329.50	7,167.9	-115.8	86.4	-122.7	10.70	10.63	29.06
7,203.0	7.80	329.90	7,199.7	-112.7	84.7	-119.5	9.69	9.69	1.25
7,234.0	11.00	328.80	7,230.3	-108.4	82.1	-115.0	10.34	10.32	-3.55
7,266.0	14.10	328.10	7,261.5	-102.5	78.5	-108.8	9.70	9.69	-2.19
7,297.0	17.30	327.20	7,291.3	-95.4	74.0	-101.3	10.35	10.32	-2.90
7,329.0	20.80	326.80	7,321.6	-86.6	68.3	-92.1	10.95	10.94	-1.25
7,362.0	24.50	326.30	7,352.0	-76.0	61.3	-81.0	11.23	11.21	-1.52
7,394.0	27.60	326.20	7,380.8	-64.3	53.5	-68.7	9.69	9.69	-0.31
7,426.0	29.80	325.10	7,408.8	-51.7	44.8	-55.3	7.07	6.88	-3.44
7,458.0	32.10	324.00	7,436.3	-38.3	35.2	-41.1	7.40	7.19	-3.44
7,490.0	34.70	323.20	7,463.0	-24.1	24.8	-26.1	8.24	8.13	-2.50
7,521.0	37.50	321.90	7,488.0	-9.6	13.7	-10.7	9.36	9.03	-4.19
7,552.0	40.60	320.90	7,512.1	5.7	1.5	5.5	10.20	10.00	-3.23
7,584.0	43.50	319.80	7,535.9	22.2	-12.2	23.1	9.35	9.06	-3.44
7,616.0	46.10	319.20	7,558.6	39.3	-26.8	41.4	8.23	8.13	-1.88

Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well RDX 17-11H
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7,648.0	48.50	319.60	7,580.3	57.2	-42.1	60.5	7.56	7.50	1.25
7,680.0	51.20	320.50	7,600.9	75.9	-57.8	80.6	8.71	8.44	2.81
7,712.0	54.40	321.30	7,620.3	95.7	-73.9	101.6	10.20	10.00	2.50
7,744.0	57.40	322.00	7,638.2	116.5	-90.4	123.7	9.55	9.38	2.19
7,775.0	60.40	322.60	7,654.2	137.5	-106.6	146.0	9.82	9.68	1.94
7,806.0	62.90	322.10	7,668.9	159.1	-123.2	169.0	8.19	8.06	-1.61
7,839.0	67.40	324.00	7,682.8	183.0	-141.2	194.3	14.60	13.64	5.76
7,871.0	73.40	325.50	7,693.5	207.6	-158.6	220.3	19.26	18.75	4.69
7,903.0	79.50	327.00	7,701.0	233.5	-175.9	247.6	19.60	19.06	4.69
7,945.0	84.80	331.70	7,706.8	269.2	-197.1	285.0	16.79	12.62	11.19
7,975.0	88.00	334.70	7,708.6	296.0	-210.6	312.8	14.61	10.67	10.00
8,006.0	88.80	335.00	7,709.5	324.0	-223.7	341.9	2.76	2.58	0.97
8,038.0	90.10	334.70	7,709.8	353.0	-237.3	371.9	4.17	4.06	-0.94
8,070.0	90.10	335.60	7,709.8	382.0	-250.8	402.0	2.81	0.00	2.81
8,102.0	90.60	337.40	7,709.6	411.4	-263.5	432.3	5.84	1.56	5.63
8,134.0	91.70	338.30	7,708.9	441.0	-275.6	462.8	4.44	3.44	2.81
8,167.0	92.60	339.30	7,707.7	471.7	-287.5	494.5	4.08	2.73	3.03
8,199.0	92.70	339.60	7,706.2	501.7	-298.8	525.3	0.99	0.31	0.94
8,230.0	92.20	341.50	7,704.9	530.9	-309.1	555.2	6.33	-1.61	6.13
8,262.0	92.10	341.50	7,703.7	561.2	-319.2	586.3	0.31	-0.31	0.00
8,294.0	91.60	342.00	7,702.6	591.6	-329.2	617.4	2.21	-1.56	1.56
8,324.0	91.60	342.30	7,701.8	620.1	-338.4	646.6	1.00	0.00	1.00
8,357.0	91.80	343.40	7,700.8	651.6	-348.1	678.9	3.39	0.61	3.33
8,389.0	91.50	344.50	7,699.9	682.4	-357.0	710.3	3.56	-0.94	3.44
8,421.0	90.90	345.60	7,699.2	713.3	-365.2	741.8	3.91	-1.88	3.44
8,453.0	91.10	348.30	7,698.7	744.4	-372.5	773.4	8.46	0.63	8.44
8,485.0	90.60	349.80	7,698.2	775.9	-378.5	805.2	4.94	-1.56	4.69
8,517.0	90.90	351.20	7,697.8	807.4	-383.8	837.1	4.47	0.94	4.38
8,549.0	90.60	353.90	7,697.4	839.1	-388.0	869.1	8.49	-0.94	8.44
8,581.0	90.20	356.00	7,697.1	871.0	-390.8	901.1	6.68	-1.25	6.56
8,613.0	89.40	357.00	7,697.2	902.9	-392.7	933.1	4.00	-2.50	3.13
8,645.0	89.00	357.40	7,697.7	934.9	-394.3	965.1	1.77	-1.25	1.25
8,678.0	89.80	358.20	7,698.0	967.9	-395.6	998.0	3.43	2.42	2.42
8,710.0	92.30	359.60	7,697.5	999.9	-396.2	1,029.9	8.95	7.81	4.38
8,742.0	93.80	0.60	7,695.8	1,031.8	-396.1	1,061.8	5.63	4.69	3.13
8,774.0	93.90	359.90	7,693.6	1,063.7	-396.0	1,093.6	2.20	0.31	-2.19
8,806.0	94.20	359.40	7,691.3	1,095.7	-396.2	1,125.4	1.82	0.94	-1.56
8,837.0	94.00	0.40	7,689.1	1,126.6	-396.2	1,156.2	3.28	-0.65	3.23
8,869.0	92.80	1.10	7,687.2	1,158.5	-395.8	1,188.0	4.34	-3.75	2.19
8,900.0	92.30	1.50	7,685.8	1,189.5	-395.1	1,218.8	2.06	-1.61	1.29
8,933.0	92.50	1.10	7,684.5	1,222.4	-394.4	1,251.6	1.35	0.61	-1.21
8,965.0	92.30	0.70	7,683.1	1,254.4	-393.9	1,283.4	1.40	-0.63	-1.25
8,997.0	92.30	0.60	7,681.8	1,286.4	-393.5	1,315.2	0.31	0.00	-0.31
9,028.0	91.90	0.70	7,680.7	1,317.4	-393.2	1,346.0	1.33	-1.29	0.32
9,060.0	91.40	359.80	7,679.8	1,349.4	-393.0	1,377.9	3.22	-1.56	-2.81
9,092.0	91.80	0.20	7,678.9	1,381.3	-393.0	1,409.8	1.77	1.25	1.25
9,124.0	92.00	359.60	7,677.8	1,413.3	-393.1	1,441.6	1.98	0.63	-1.88
9,156.0	91.20	359.90	7,676.9	1,445.3	-393.2	1,473.5	2.67	-2.50	0.94
9,187.0	89.90	0.30	7,676.6	1,476.3	-393.2	1,504.4	4.39	-4.19	1.29
9,220.0	89.80	0.70	7,676.7	1,509.3	-392.9	1,537.3	1.25	-0.30	1.21
9,252.0	89.70	1.00	7,676.9	1,541.3	-392.4	1,569.1	0.99	-0.31	0.94
9,284.0	89.90	0.80	7,677.0	1,573.3	-391.9	1,600.9	0.88	0.63	-0.63
9,315.0	90.40	1.10	7,676.9	1,604.3	-391.4	1,631.8	1.88	1.61	0.97
9,347.0	90.70	0.50	7,676.6	1,636.3	-390.9	1,663.6	2.10	0.94	-1.88

Wolverine Directional, LLC

Survey Report

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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)	
9,379.0	90.90	0.80	7,676.1	1,668.3	-390.6	1,695.5	1.13	0.63	0.94	
9,412.0	91.00	1.10	7,675.6	1,701.3	-390.0	1,728.3	0.96	0.30	0.91	
9,444.0	90.70	1.50	7,675.1	1,733.3	-389.3	1,760.1	1.56	-0.94	1.25	
9,476.0	90.40	2.00	7,674.8	1,765.2	-388.3	1,791.9	1.82	-0.94	1.56	
9,508.0	89.50	2.10	7,674.8	1,797.2	-387.2	1,823.6	2.83	-2.81	0.31	
9,541.0	89.60	0.50	7,675.1	1,830.2	-386.4	1,856.5	4.86	0.30	-4.85	
9,573.0	89.40	0.90	7,675.4	1,862.2	-386.0	1,888.3	1.40	-0.63	1.25	
9,605.0	89.10	0.50	7,675.8	1,894.2	-385.6	1,920.1	1.56	-0.94	-1.25	
9,637.0	89.50	359.70	7,676.2	1,926.2	-385.6	1,952.0	2.79	1.25	-2.50	
9,670.0	89.90	0.30	7,676.4	1,959.2	-385.6	1,984.9	2.19	1.21	1.82	
9,702.0	90.80	0.70	7,676.2	1,991.2	-385.3	2,016.8	3.08	2.81	1.25	
9,734.0	91.10	1.10	7,675.6	2,023.2	-384.8	2,048.6	1.56	0.94	1.25	
9,765.0	92.10	1.40	7,674.8	2,054.2	-384.1	2,079.4	3.37	3.23	0.97	
9,796.0	91.30	1.00	7,673.9	2,085.1	-383.5	2,110.2	2.88	-2.58	-1.29	
9,828.0	91.60	0.80	7,673.0	2,117.1	-383.0	2,142.0	1.13	0.94	-0.63	
9,860.0	91.80	0.80	7,672.1	2,149.1	-382.5	2,173.9	0.63	0.63	0.00	
9,892.0	91.30	1.10	7,671.2	2,181.1	-382.0	2,205.7	1.82	-1.56	0.94	
9,924.0	91.90	1.90	7,670.3	2,213.1	-381.2	2,237.5	3.12	1.88	2.50	
9,955.0	92.60	1.60	7,669.1	2,244.0	-380.2	2,268.2	2.46	2.26	-0.97	
9,988.0	93.20	2.00	7,667.4	2,277.0	-379.2	2,301.0	2.18	1.82	1.21	
10,019.0	93.40	1.60	7,665.7	2,307.9	-378.2	2,331.7	1.44	0.65	-1.29	
10,051.0	94.00	1.90	7,663.6	2,339.8	-377.2	2,363.4	2.10	1.88	0.94	
10,081.0	93.90	1.00	7,661.5	2,369.8	-376.5	2,393.2	3.01	-0.33	-3.00	
10,113.0	94.00	1.00	7,659.3	2,401.7	-375.9	2,424.9	0.31	0.31	0.00	
10,145.0	93.30	359.90	7,657.3	2,433.6	-375.7	2,456.7	4.07	-2.19	-3.44	
10,177.0	93.00	359.60	7,655.5	2,465.6	-375.8	2,488.6	1.32	-0.94	-0.94	
10,209.0	91.60	358.30	7,654.2	2,497.5	-376.4	2,520.5	5.97	-4.38	-4.06	
10,241.0	89.40	357.10	7,654.0	2,529.5	-377.7	2,552.5	7.83	-6.88	-3.75	
10,272.0	89.70	356.50	7,654.2	2,560.4	-379.4	2,583.4	2.16	0.97	-1.94	
10,305.0	89.40	356.70	7,654.5	2,593.4	-381.4	2,616.4	1.09	-0.91	0.61	
10,336.0	89.70	356.80	7,654.7	2,624.3	-383.1	2,647.4	1.02	0.97	0.32	
10,368.0	90.20	356.00	7,654.7	2,656.3	-385.1	2,679.4	2.95	1.56	-2.50	
10,401.0	90.20	355.90	7,654.6	2,689.2	-387.5	2,712.4	0.30	0.00	-0.30	
10,433.0	90.40	355.90	7,654.5	2,721.1	-389.8	2,744.4	0.63	0.63	0.00	
10,464.0	90.50	355.00	7,654.2	2,752.0	-392.2	2,775.4	2.92	0.32	-2.90	
10,496.0	90.60	355.10	7,653.9	2,783.9	-395.0	2,807.4	0.44	0.31	0.31	
10,527.0	90.50	355.50	7,653.6	2,814.8	-397.5	2,838.4	1.33	-0.32	1.29	
10,560.0	91.00	356.20	7,653.2	2,847.7	-399.9	2,871.4	2.61	1.52	2.12	
10,592.0	91.20	357.40	7,652.6	2,879.6	-401.7	2,903.4	3.80	0.63	3.75	
10,623.0	91.50	357.90	7,651.8	2,910.6	-403.0	2,934.3	1.88	0.97	1.61	
10,654.0	92.10	358.40	7,650.9	2,941.6	-404.0	2,965.3	2.52	1.94	1.61	
10,686.0	92.50	357.90	7,649.6	2,973.5	-405.0	2,997.2	2.00	1.25	-1.56	
10,718.0	91.50	358.70	7,648.5	3,005.5	-405.9	3,029.1	4.00	-3.13	2.50	
10,751.0	90.80	358.10	7,647.8	3,038.5	-406.9	3,062.1	2.79	-2.12	-1.82	
10,782.0	89.20	357.90	7,647.8	3,069.4	-407.9	3,093.0	5.20	-5.16	-0.65	
10,814.0	88.70	358.10	7,648.4	3,101.4	-409.1	3,125.0	1.68	-1.56	0.63	
10,846.0	88.70	358.20	7,649.1	3,133.4	-410.1	3,156.9	0.31	0.00	0.31	
10,878.0	89.40	358.00	7,649.6	3,165.4	-411.2	3,188.9	2.28	2.19	-0.63	
10,911.0	90.20	357.80	7,649.8	3,198.4	-412.4	3,221.8	2.50	2.42	-0.61	
10,942.0	90.80	358.00	7,649.5	3,229.3	-413.5	3,252.8	2.04	1.94	0.65	
10,974.0	91.40	357.10	7,648.9	3,261.3	-414.9	3,284.8	3.38	1.88	-2.81	
11,007.0	91.40	358.60	7,648.1	3,294.3	-416.1	3,317.7	4.54	0.00	4.55	
11,039.0	91.60	358.80	7,647.2	3,326.2	-416.8	3,349.6	0.88	0.63	0.63	
11,071.0	91.70	358.50	7,646.3	3,358.2	-417.6	3,381.6	0.99	0.31	-0.94	

Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well RDX 17-11H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 17-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDX 17-11H	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)
11,103.0	91.90	359.80	7,645.3	3,390.2	-418.1	3,413.5	4.11	0.63	4.06
11,135.0	92.50	0.00	7,644.1	3,422.2	-418.1	3,445.3	1.98	1.88	0.63
11,168.0	92.80	359.70	7,642.5	3,455.1	-418.2	3,478.2	1.28	0.91	-0.91
11,200.0	93.40	359.40	7,640.8	3,487.1	-418.5	3,510.1	2.10	1.88	-0.94
11,231.0	92.20	0.50	7,639.3	3,518.1	-418.5	3,540.9	5.25	-3.87	3.55
11,262.0	92.30	0.50	7,638.1	3,549.0	-418.2	3,571.7	0.32	0.32	0.00
11,295.0	92.50	0.80	7,636.7	3,582.0	-417.8	3,604.6	1.09	0.61	0.91
11,326.0	91.70	2.50	7,635.6	3,613.0	-416.9	3,635.3	6.06	-2.58	5.48
11,359.0	91.90	2.50	7,634.5	3,645.9	-415.5	3,668.0	0.61	0.61	0.00
11,390.0	92.00	2.50	7,633.5	3,676.9	-414.2	3,698.8	0.32	0.32	0.00
11,422.0	92.50	2.50	7,632.2	3,708.8	-412.8	3,730.5	1.56	1.56	0.00
11,453.0	91.10	1.60	7,631.2	3,739.8	-411.7	3,761.2	5.37	-4.52	-2.90
11,485.0	90.90	1.90	7,630.7	3,771.8	-410.7	3,793.0	1.13	-0.63	0.94
11,517.0	91.10	2.20	7,630.1	3,803.7	-409.5	3,824.8	1.13	0.63	0.94
11,548.0	91.90	1.30	7,629.3	3,834.7	-408.6	3,855.6	3.88	2.58	-2.90
11,579.0	92.40	2.30	7,628.2	3,865.7	-407.6	3,886.3	3.60	1.61	3.23
11,611.0	90.90	1.90	7,627.2	3,897.6	-406.4	3,918.1	4.85	-4.69	-1.25
11,641.0	90.40	1.90	7,626.9	3,927.6	-405.4	3,947.9	1.67	-1.67	0.00
11,674.0	90.90	1.20	7,626.5	3,960.6	-404.5	3,980.7	2.61	1.52	-2.12
11,705.0	90.90	1.30	7,626.0	3,991.6	-403.9	4,011.5	0.32	0.00	0.32
11,737.0	90.90	1.00	7,625.5	4,023.6	-403.2	4,043.3	0.94	0.00	-0.94
11,769.0	91.30	0.80	7,624.9	4,055.6	-402.7	4,075.1	1.40	1.25	-0.63
11,800.0	91.70	1.00	7,624.1	4,086.6	-402.2	4,106.0	1.44	1.29	0.65
11,831.0	91.80	0.70	7,623.2	4,117.5	-401.8	4,136.8	1.02	0.32	-0.97
11,863.0	91.50	359.90	7,622.2	4,149.5	-401.6	4,168.6	2.67	-0.94	-2.50
11,894.0	91.00	359.30	7,621.6	4,180.5	-401.8	4,199.5	2.52	-1.61	-1.94
11,926.0	91.10	359.10	7,621.0	4,212.5	-402.3	4,231.5	0.70	0.31	-0.63
11,957.0	90.50	359.10	7,620.5	4,243.5	-402.8	4,262.4	1.94	-1.94	0.00
11,989.0	90.20	358.30	7,620.3	4,275.5	-403.5	4,294.3	2.67	-0.94	-2.50
12,021.0	90.40	358.60	7,620.2	4,307.5	-404.4	4,326.3	1.13	0.63	0.94
12,052.0	90.70	358.20	7,619.9	4,338.5	-405.2	4,357.2	1.61	0.97	-1.29
12,085.0	91.20	358.40	7,619.3	4,371.4	-406.2	4,390.2	1.63	1.52	0.61
12,116.0	91.30	358.80	7,618.7	4,402.4	-407.0	4,421.1	1.33	0.32	1.29
12,148.0	91.30	358.60	7,617.9	4,434.4	-407.7	4,453.0	0.62	0.00	-0.63
12,180.0	91.20	358.50	7,617.2	4,466.4	-408.5	4,485.0	0.44	-0.31	-0.31
12,211.0	91.40	358.50	7,616.5	4,497.4	-409.3	4,515.9	0.65	0.65	0.00
12,242.0	91.40	358.10	7,615.8	4,528.4	-410.2	4,546.8	1.29	0.00	-1.29
12,274.0	91.50	357.50	7,615.0	4,560.3	-411.5	4,578.8	1.90	0.31	-1.88
12,305.0	92.00	358.00	7,614.0	4,591.3	-412.7	4,609.7	2.28	1.61	1.61
12,337.0	92.20	357.50	7,612.8	4,623.2	-413.9	4,641.7	1.68	0.63	-1.56
12,369.0	91.90	358.50	7,611.7	4,655.2	-415.0	4,673.6	3.26	-0.94	3.13
12,390.0	92.00	358.20	7,611.0	4,676.2	-415.6	4,694.6	1.51	0.48	-1.43
Last MWD Survey									
12,441.0	92.00	358.20	7,609.2	4,727.1	-417.2	4,745.5	0.00	0.00	0.00
Project: TD - RDX 17-11H PBHL									

Wolverine Directional, LLC

Survey Report

Company:	RKI Exploration & Production	Local Co-ordinate Reference:	Well: RDX-17-11H
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 17-T26S-R30E	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	RDX-17-11H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM/2003.21.Single User.Db

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
100.0	100.0	-0.2	-0.3	First GYRO Survey
7,000.0	6,997.0	-113.7	86.6	Last GYRO Survey
7,044.0	7,041.0	-115.0	87.0	First MWD Survey
12,390.0	7,611.0	4,676.2	-415.6	Last MWD Survey
12,441.0	7,609.2	4,727.1	-417.2	Proj to TD

Checked By: _____ Approved By: _____ Date: _____

INCLINATION REPORT

FIELD NAME	LEASE NAME RDX 17-11H	RECEIVED MAY 1 2013 NMOCD ARTESIA
OPERATOR RKI Exploration		
4. ADDRESS Oklahoma Tower 210 Park Avenue, Suite 800 Oklahoma City, OK 73102		
LOCATION (Section, Block, and Survey)		County Eddy

RECORD OF INCLINATION

Measured Depth (feet)	Course Length (Hundreds of feet)	Angle of Inclination (Degrees)	Displacement per 100 feet (Sine of Angle x 100)	Course Displacement (Feet)	Accumulative Displacement (Feet)
300	300	1.00	1.75	5.24	5.24
619	319	1.00	1.75	5.57	10.80
923	304	1.00	1.75	5.31	16.11
1,050	127	1.50	2.62	3.32	19.43
1,471	421	0.90	1.57	6.61	26.05
1,885	414	0.40	0.70	2.89	28.94
2,285	400	0.90	1.57	6.28	35.22
2,635	350	0.10	0.17	0.61	35.83
2,970	335	3.40	5.93	19.87	55.70
3,107	137	4.10	7.15	9.80	65.49
3,753	646	2.00	3.49	22.55	88.04
4,168	415	3.00	5.23	21.72	109.76
4,581	413	1.00	1.75	7.23	7.23
5,091	510	1.00	1.75	8.90	16.13
5,605	514	1.00	1.75	8.97	25.10
6,116	511	1.50	2.62	13.38	38.48
6,629	513	1.80	3.14	16.11	54.59
7,075	446	1.80	3.14	14.01	68.60
7,621	546	46.10	72.06	393.42	462.02
7,712	91	54.40	81.31	73.99	536.01
7,903	191	79.50	98.33	187.80	723.81
8,389	486	91.50	99.97	485.83	1,209.65
8,805	416	94.20	99.73	414.88	1,624.53
9,288	483	89.90	100.00	483.00	2,107.53
9,574	286	89.40	99.99	285.98	2,393.51
9,800	226	91.30	99.97	225.94	2,619.45
10,273	473	89.70	100.00	472.99	3,092.45
10,686	413	92.50	99.90	412.61	3,505.05
10,878	192	89.40	99.99	191.99	3,697.04
11,326	448	91.70	99.96	447.80	4,144.85
11,675	349	90.90	99.99	348.96	4,493.80
11,988	313	90.20	100.00	313.00	3,818.05
12,303	315	92.00	99.94	314.81	4,132.86
12,388	85	92.00	99.94	84.95	4,217.81

Accumulative total displacement of well bore at total depth of
Inclination measurements were made in ☐ Tubing

12,388 feet = 4,217.81 feet

☐ Casing

☐ Open Hole

☒ Drill Pipe

Inclination Data Certification

I declare that I am authorized to make this certification, that I have personal knowledge of the inclination data and facts placed on both sides of this form and that such data and facts are true, correct, and complete to the best of my knowledge.

Jessica Green

Date

Jessica Green, Operations Coordinator

Name of Person and Title

Latshaw Drilling Company, LLC

Name of Company

Inclination Data Certification

I declare that I am authorized to make this certification, that I have personal knowledge of the inclination data and facts placed on both sides of this form and that such data and facts are true, correct, and complete to the best of my knowledge.

Jody Noerdlinger

5/7/2013

Signature of Authorized Representative

Date

Jody Noerdlinger, Regulatory Analyst

Name of Person and Title

RKI Exploration and Production

Operator