



Job Number: 1010237
Company: Black Hills E&P
Lease/Well: Ute #33-44
Location: La Plata County, Colorado
Rig Name:
RKB: 7269'
G.L. or M.S.L.: 7258'

State/Country: CO
Declination: 10.01905
Grid: 1.11
File name: C:\102032~1\33#44.SVY
Date/Time: 18-Jun-10 / 07:39
Curve Name: Ute #33-44 Surveys

Ute #33-44 Surveys

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 141.55
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>Vertical Section FT</i>	<i>C L O S U R E Distance FT</i>	<i>Direction Deg</i>	<i>Dogleg Severity Deg/100</i>
Surface Tie In point									
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Firts Nevis MWD surveys									
449.00	1.00	208.80	448.98	-3.43	-1.89	1.52	3.92	208.80	.22
481.00	.80	213.90	480.97	-3.86	-2.15	1.69	4.42	209.06	.67
512.00	1.30	183.10	511.97	-4.39	-2.29	2.02	4.95	207.49	2.38
542.00	2.20	187.70	541.95	-5.30	-2.38	2.67	5.82	204.18	3.03
573.00	3.60	176.00	572.91	-6.87	-2.39	3.89	7.27	199.22	4.88
604.00	4.10	167.40	603.84	-8.92	-2.08	5.69	9.16	193.15	2.46
635.00	4.60	166.90	634.75	-11.21	-1.56	7.81	11.32	187.93	1.62
666.00	5.40	168.50	665.64	-13.85	-.99	10.23	13.89	184.08	2.62
696.00	5.80	163.00	695.49	-16.68	-.26	12.90	16.69	180.90	2.23
727.00	6.70	155.40	726.31	-19.83	.95	16.12	19.85	177.26	3.94
758.00	7.40	148.60	757.08	-23.17	2.74	19.85	23.34	173.26	3.51
789.00	7.90	142.30	787.80	-26.56	5.08	23.96	27.05	169.17	3.15
819.00	8.50	139.90	817.49	-29.89	7.77	28.24	30.88	165.42	2.30
850.00	8.60	142.10	848.15	-33.47	10.67	32.85	35.13	162.32	1.10
881.00	9.30	139.80	878.77	-37.21	13.71	37.67	39.66	159.77	2.54
911.00	9.60	137.20	908.36	-40.90	16.98	42.59	44.28	157.46	1.74
942.00	10.50	136.40	938.89	-44.84	20.68	47.98	49.38	155.24	2.94
973.00	11.20	137.40	969.33	-49.11	24.67	53.80	54.95	153.33	2.34
1004.00	11.40	136.50	999.73	-53.54	28.81	59.85	60.80	151.71	.86
1035.00	11.30	139.50	1030.13	-58.08	32.89	65.94	66.74	150.47	1.93

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
				FT	FT	FT	Distance FT	Direction Deg	
1067.00	11.60	139.80	1061.49	-62.92	37.01	72.29	72.99	149.54	.96
1098.00	11.90	137.50	1091.84	-67.65	41.18	78.59	79.20	148.67	1.79
1131.00	12.50	139.40	1124.10	-72.87	45.80	85.55	86.07	147.85	2.19
1162.00	12.70	142.10	1154.35	-78.11	50.08	92.31	92.78	147.34	2.01
1193.00	13.20	138.50	1184.56	-83.45	54.52	99.25	99.68	146.84	3.06
1225.00	13.90	137.80	1215.67	-89.03	59.52	106.74	107.10	146.24	2.25
1256.00	14.40	140.10	1245.73	-94.75	64.49	114.31	114.62	145.76	2.43
1288.00	15.20	139.70	1276.67	-101.00	69.76	122.48	122.75	145.37	2.52
1319.00	15.60	139.50	1306.55	-107.27	75.09	130.71	130.94	145.01	1.30
1351.00	16.80	139.00	1337.28	-114.03	80.92	139.63	139.83	144.64	3.78
1383.00	17.30	140.20	1367.88	-121.18	87.00	149.00	149.18	144.32	1.91
1415.00	18.00	139.00	1398.37	-128.57	93.29	158.70	158.85	144.03	2.47
1446.00	19.20	140.60	1427.75	-136.12	99.67	168.58	168.71	143.79	4.21
1477.00	20.00	144.40	1456.96	-144.37	105.99	178.97	179.10	143.71	4.85
1508.00	20.90	146.00	1486.00	-153.26	112.17	189.78	189.93	143.80	3.42
1540.00	21.10	145.00	1515.88	-162.72	118.67	201.22	201.39	143.90	1.28
1571.00	21.00	144.30	1544.81	-171.80	125.11	212.34	212.52	143.94	.87
1603.00	21.10	144.10	1574.67	-181.12	131.83	223.82	224.02	143.95	.38
1634.00	20.50	145.40	1603.65	-190.11	138.19	234.81	235.02	143.99	2.44
1666.00	19.90	143.60	1633.68	-199.10	144.60	245.84	246.07	144.01	2.70
1698.00	20.20	145.10	1663.74	-208.02	150.99	256.80	257.04	144.03	1.86
1729.00	20.00	142.70	1692.86	-216.62	157.27	267.44	267.69	144.02	2.74
1760.00	20.30	142.70	1721.96	-225.12	163.74	278.12	278.37	143.97	.97
1792.00	19.80	144.00	1752.02	-233.92	170.29	289.09	289.34	143.95	2.09
1824.00	19.40	143.40	1782.17	-242.57	176.64	299.81	300.07	143.94	1.40
1855.00	19.20	143.00	1811.42	-250.78	182.78	310.05	310.32	143.91	.77
1887.00	19.90	141.80	1841.58	-259.26	189.31	320.76	321.02	143.86	2.52
1918.00	20.50	140.40	1870.67	-267.59	196.04	331.46	331.71	143.77	2.49
1949.00	21.30	139.50	1899.63	-276.05	203.15	342.52	342.75	143.65	2.78
1981.00	22.20	142.80	1929.36	-285.29	210.58	354.37	354.59	143.57	4.74
2013.00	21.70	142.10	1959.04	-294.77	217.87	366.33	366.55	143.53	1.76
2044.00	21.80	140.80	1987.83	-303.75	225.03	377.82	378.03	143.47	1.59
2076.00	21.70	141.33	2017.55	-312.98	232.48	389.67	389.88	143.39	.69
2108.00	21.20	141.30	2047.33	-322.11	239.80	401.38	401.57	143.33	1.56
2139.00	21.00	138.60	2076.26	-330.65	246.98	412.53	412.71	143.24	3.20
2171.00	20.60	139.80	2106.17	-339.25	254.40	423.88	424.04	143.13	1.83
2202.00	21.20	138.00	2135.13	-347.58	261.67	434.93	435.07	143.03	2.83
2233.00	21.40	140.50	2164.01	-356.11	269.02	446.18	446.31	142.93	3.00
2265.00	21.20	139.60	2193.83	-365.02	276.48	457.80	457.92	142.86	1.20
2296.00	21.30	140.30	2222.72	-373.63	283.71	469.03	469.14	142.79	.88
2327.00	21.30	139.40	2251.60	-382.23	290.97	480.28	480.38	142.72	1.05
2359.00	21.50	139.90	2281.40	-391.13	298.53	491.95	492.04	142.65	.85
2390.00	20.80	140.30	2310.31	-399.71	305.71	503.13	503.22	142.59	2.31
2422.00	20.80	142.90	2340.22	-408.61	312.77	514.49	514.58	142.57	2.89
2453.00	20.70	143.60	2369.21	-417.41	319.34	525.47	525.56	142.58	.86

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
				FT	FT	FT	Distance FT	Direction Deg	
2484.00	20.80	145.10	2398.20	-426.34	325.74	536.44	536.54	142.62	1.74
2515.00	21.40	143.80	2427.12	-435.42	332.23	547.59	547.69	142.66	2.45
2547.00	21.40	143.90	2456.92	-444.85	339.11	559.25	559.36	142.68	.11
2578.00	20.80	144.10	2485.84	-453.87	345.67	570.40	570.52	142.71	1.95
2610.00	20.70	143.90	2515.76	-463.05	352.34	581.73	581.85	142.73	.38
2642.00	20.90	141.00	2545.68	-472.05	359.26	593.09	593.21	142.73	3.28
2674.00	20.90	143.00	2575.57	-481.05	366.29	604.50	604.63	142.71	2.23
2705.00	20.60	140.80	2604.56	-489.69	373.06	615.48	615.61	142.70	2.69
2737.00	20.70	139.40	2634.51	-498.34	380.30	626.76	626.88	142.65	1.57
2769.00	20.70	137.80	2664.44	-506.83	387.78	638.06	638.16	142.58	1.77
2800.00	20.20	140.90	2693.49	-515.04	394.84	648.88	648.97	142.53	3.85
2832.00	21.00	142.00	2723.44	-523.85	401.85	660.14	660.23	142.51	2.78
2864.00	21.20	143.10	2753.30	-532.99	408.86	671.65	671.75	142.51	1.39
2895.00	21.10	142.60	2782.21	-541.91	415.61	682.84	682.93	142.51	.67
2927.00	20.50	143.60	2812.12	-550.99	422.44	694.20	694.30	142.52	2.18
2959.00	20.30	143.20	2842.12	-559.95	429.09	705.34	705.45	142.54	.76
2991.00	20.50	143.20	2872.11	-568.88	435.77	716.49	716.60	142.55	.62
3022.00	19.90	141.00	2901.20	-577.33	442.34	727.20	727.30	142.54	3.12
3054.00	19.90	141.10	2931.29	-585.80	449.19	738.09	738.19	142.52	.11
3086.00	19.80	140.50	2961.39	-594.22	456.05	748.95	749.05	142.49	.71
3117.00	19.60	141.70	2990.58	-602.35	462.62	759.40	759.50	142.48	1.46
3150.00	19.90	142.50	3021.64	-611.15	469.47	770.55	770.65	142.47	1.22
3182.00	19.70	144.10	3051.74	-619.84	475.94	781.39	781.49	142.48	1.81
3213.00	19.70	144.30	3080.93	-628.31	482.06	791.82	791.93	142.50	.22
3244.00	20.00	145.30	3110.09	-636.92	488.12	802.33	802.45	142.53	1.46
3275.00	20.80	145.50	3139.14	-645.81	494.26	813.11	813.24	142.57	2.59
3307.00	22.20	143.70	3168.92	-655.37	501.06	824.82	824.96	142.60	4.84
3339.00	22.90	144.20	3198.47	-665.29	508.28	837.08	837.23	142.62	2.27
3369.00	22.40	142.00	3226.16	-674.53	515.21	848.63	848.78	142.63	3.28
3401.00	21.30	143.60	3255.86	-684.01	522.41	860.54	860.69	142.63	3.91
3432.00	21.50	141.90	3284.72	-693.01	529.26	871.84	872.00	142.63	2.10
3464.00	21.40	142.80	3314.50	-702.28	536.41	883.55	883.70	142.63	1.07
3495.00	21.50	141.70	3343.36	-711.24	543.35	894.88	895.04	142.62	1.34
3527.00	21.30	141.60	3373.15	-720.40	550.59	906.56	906.71	142.61	.64
3558.00	20.90	140.50	3402.07	-729.08	557.61	917.72	917.87	142.59	1.82
3590.00	20.30	140.30	3432.03	-737.75	564.79	928.97	929.12	142.56	1.89
3621.00	20.80	138.10	3461.05	-745.99	571.90	939.84	939.98	142.53	2.97
3653.00	20.60	141.50	3490.99	-754.62	579.20	951.14	951.27	142.49	3.81
3685.00	20.50	141.20	3520.95	-763.39	586.21	962.38	962.50	142.48	.45
3717.00	19.80	141.70	3550.99	-772.01	593.08	973.40	973.52	142.47	2.25
3749.00	20.30	139.00	3581.06	-780.46	600.08	984.37	984.49	142.44	3.29
3780.00	20.60	138.40	3610.10	-788.59	607.23	995.18	995.29	142.40	1.18
3812.00	20.40	138.40	3640.08	-796.97	614.67	1006.37	1006.47	142.36	.62
3843.00	19.10	140.60	3669.25	-804.93	621.48	1016.84	1016.93	142.33	4.83
3875.00	18.40	138.30	3699.55	-812.75	628.16	1027.12	1027.20	142.30	3.18

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3907.00	18.80	139.70	3729.88	-820.45	634.86	1037.31	1037.39	142.27	1.87
3938.00	19.60	141.10	3759.16	-828.31	641.35	1047.50	1047.58	142.25	2.98
3970.00	20.50	142.70	3789.22	-836.94	648.12	1058.47	1058.55	142.25	3.29
4000.00	21.40	143.30	3817.23	-845.51	654.57	1069.20	1069.28	142.25	3.08
4032.00	22.10	144.60	3846.96	-855.10	661.55	1081.04	1081.13	142.27	2.66
4064.00	21.20	143.90	3876.70	-864.68	668.44	1092.84	1092.93	142.29	2.93
4095.00	20.50	144.20	3905.67	-873.61	674.92	1103.86	1103.96	142.31	2.28
4127.00	20.00	144.80	3935.69	-882.63	681.35	1114.92	1115.02	142.33	1.69
4157.00	20.00	142.90	3963.88	-890.91	687.41	1125.17	1125.28	142.35	2.17
4188.00	20.60	143.70	3992.96	-899.54	693.83	1135.92	1136.03	142.36	2.13
4220.00	20.00	141.50	4022.97	-908.36	700.57	1147.02	1147.13	142.36	3.03
Last Nevis MWD Surveys									
4251.00	19.70	141.10	4052.13	-916.57	707.15	1157.54	1157.66	142.35	1.06
Projection to TD									
4300.00	19.70	141.10	4098.26	-929.43	717.53	1174.06	1174.17	142.33	.00