

30-034-29971



1724-B Townhurst Dr, Houston, Tx 77043
(713) 827-8302
www.nevisenergy.com

Job Number: 61191

Company: Black Hills E&P

Lease/Well: Many Canyons 30-04-12 #4415

Location: Rio Arriba Co., NM

Rig Name: □

RKB: □

G.L. or M.S.L.: □

State/Country: NM/USA

Declination: 10.20556

Grid: -0.35

File name: N:\BLACKH-1\2006\61191M-1\30041244.SVY

Date/Time: 28-Aug-06 / 08:52

Curve Name: Actual

Surface 755/S 885/E
Horiz. origin: 780/S 909/E
Horiz. Term: 455/S 1359/W

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 264.57
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Md, 3803
TVd1 3749
md2 6817
TVd2 3693

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	CLOSURE		Dogleg Severity Deg/100
Distance FT	Direction Deg								
Tie-In									
3629.00	1.07	53.30	3628.50	-15.92	-41.10	19.90	45.66	154.16	.00
First Nevis MWD Survey									
3657.00	6.90	312.60	3656.43	-15.02	-39.80	18.87	44.05	154.64	25.63
3667.00	12.20	311.70	3666.29	-13.90	-38.69	17.64	42.52	155.49	53.02
3677.00	17.50	306.50	3675.95	-12.06	-37.09	15.64	40.26	157.14	54.60
3688.00	23.50	309.00	3686.25	-9.26	-34.73	12.60	36.94	160.05	55.11
3719.00	40.40	313.90	3712.47	1.78	-23.79	.47	23.80	178.87	55.11
3750.00	57.00	312.10	3732.85	17.22	-8.00	-16.53	18.37	244.18	53.72
3781.00	74.20	311.90	3745.61	36.24	10.82	-37.44	38.97	286.12	55.49
3803.00	88.10	311.30	3748.99	51.03	25.21	-53.65	59.28	295.17	63.24
3815.00	94.30	309.30	3748.74	59.40	32.97	-62.80	70.93	297.70	54.28
3846.00	102.30	300.30	3744.26	82.76	50.46	-87.93	101.38	299.85	38.60
3877.00	105.00	295.60	3736.94	107.90	64.58	-114.52	131.48	299.42	17.11
3908.00	105.80	291.00	3728.70	134.10	76.40	-141.96	161.22	298.29	14.54
3940.00	102.00	287.20	3721.01	162.35	86.55	-171.31	191.93	296.81	16.55
3971.00	97.00	286.50	3715.90	190.63	95.41	-200.56	222.10	295.44	16.28
4003.00	92.90	284.70	3713.14	220.38	103.98	-231.26	253.56	294.21	13.98
4034.00	91.00	279.80	3712.08	249.89	110.55	-261.53	283.93	292.92	16.94
4070.00	88.40	275.30	3712.27	284.96	115.28	-297.20	318.78	291.20	14.44
4101.00	87.60	274.50	3713.35	315.44	117.93	-328.07	348.62	289.77	3.65
4133.00	86.50	274.20	3715.00	346.93	120.35	-359.93	379.52	288.49	3.56
4164.00	88.60	270.40	3716.33	377.61	121.59	-390.87	409.35	287.28	13.99

HOLD C104 FOR NSL

Bv

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
4196.00	89.10	270.30	3716.97	409.44	121.79	-422.86	440.05	286.07	1.59
4227.00	88.70	270.40	3717.56	440.28	121.98	-453.86	469.96	285.04	1.33
4258.00	89.70	268.00	3718.00	471.17	121.55	-484.85	499.85	284.07	8.39
4289.00	89.60	268.30	3718.19	502.11	120.55	-515.83	529.73	283.15	1.02
4321.00	90.20	267.10	3718.24	534.06	119.26	-547.81	560.64	282.28	4.19
4352.00	89.70	266.80	3718.27	565.04	117.61	-578.76	590.59	281.49	1.88
4383.00	90.10	267.30	3718.32	596.01	116.02	-609.72	620.66	280.77	2.07
4415.00	90.00	267.00	3718.29	627.97	114.43	-641.68	651.80	280.11	.99
4446.00	91.10	266.00	3718.00	658.95	112.53	-672.62	681.97	279.50	4.80
4477.00	91.00	265.40	3717.43	689.94	110.21	-703.53	712.11	278.90	1.96
4509.00	91.10	265.40	3716.84	721.93	107.64	-735.42	743.26	278.33	.31
4536.00	91.30	266.00	3716.28	748.92	105.62	-762.34	769.62	277.89	2.34
4567.00	91.00	264.70	3715.65	779.91	103.11	-793.23	799.90	277.41	4.30
4599.00	91.10	264.70	3715.07	811.91	100.15	-825.09	831.14	276.92	.31
4630.00	90.90	264.40	3714.53	842.90	97.21	-855.94	861.44	276.48	1.16
4662.00	90.90	262.90	3714.02	874.89	93.67	-887.74	892.67	276.02	4.69
4702.00	91.00	262.90	3713.36	914.87	88.73	-927.43	931.66	275.46	.25
4723.00	91.10	262.40	3712.98	935.86	86.04	-948.25	952.15	275.18	2.43
4754.00	91.10	262.00	3712.38	966.82	81.83	-978.96	982.37	274.78	1.29
4786.00	91.40	261.60	3711.68	998.78	77.27	-1010.63	1013.58	274.37	1.56
4817.00	91.90	261.30	3710.79	1029.72	72.66	-1041.27	1043.80	273.99	1.88
4848.00	89.30	260.30	3710.47	1060.65	67.71	-1071.86	1074.00	273.61	8.99
4880.00	89.90	260.70	3710.69	1092.57	62.43	-1103.42	1105.19	273.24	2.25
4911.00	89.90	259.80	3710.74	1123.48	57.18	-1133.98	1135.42	272.89	2.90
4942.00	90.30	260.00	3710.69	1154.37	51.74	-1164.50	1165.64	272.54	1.44
4972.00	90.20	259.00	3710.56	1184.26	46.27	-1193.99	1194.89	272.22	3.35
5003.00	90.10	258.60	3710.48	1215.10	40.25	-1224.40	1225.06	271.88	1.33
5035.00	90.20	258.00	3710.39	1246.91	33.76	-1255.74	1256.19	271.54	1.90
5066.00	90.10	257.20	3710.31	1277.68	27.11	-1286.01	1286.30	271.21	2.60
5097.00	90.10	257.20	3710.26	1308.42	20.24	-1316.24	1316.40	270.88	.00
5129.00	90.20	256.80	3710.17	1340.14	13.04	-1347.42	1347.49	270.55	1.29
5160.00	89.90	254.60	3710.15	1370.77	5.38	-1377.46	1377.47	270.22	7.16
5192.00	90.30	253.50	3710.09	1402.23	-3.41	-1408.23	1408.23	269.86	3.66
5223.00	90.00	255.40	3710.01	1432.75	-11.72	-1438.09	1438.14	269.53	6.20
5254.00	89.80	255.40	3710.06	1463.35	-19.53	-1468.09	1468.22	269.24	.65
5286.00	88.40	257.20	3710.57	1495.01	-27.11	-1499.17	1499.42	268.96	7.13
5316.00	88.30	257.30	3711.43	1524.76	-33.73	-1528.42	1528.79	268.74	.47
5348.00	88.20	257.00	3712.41	1556.47	-40.84	-1559.61	1560.14	268.50	.99
5379.00	88.10	256.60	3713.41	1587.17	-47.92	-1589.77	1590.49	268.27	1.33
5410.00	88.10	257.60	3714.44	1617.89	-54.84	-1619.97	1620.90	268.06	3.22
5442.00	88.40	257.80	3715.41	1649.65	-61.65	-1651.22	1652.37	267.86	1.13
5473.00	88.50	257.70	3716.25	1680.42	-68.22	-1681.51	1682.89	267.68	.46
5484.00	88.50	258.00	3716.54	1691.34	-70.54	-1692.26	1693.73	267.61	2.73
5516.00	88.00	257.20	3717.52	1723.09	-77.41	-1723.49	1725.23	267.43	2.95
5547.00	87.90	257.30	3718.63	1753.81	-84.24	-1753.71	1755.73	267.25	.46

30-039-29971

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	CLOSURE				Dogleg Severity Deg/100
					N-S FT	E-W FT	Distance FT	Direction Deg	
5578.00	89.70	258.50	3719.28	1784.60	-90.74	-1784.01	1786.32	267.09	6.98
5610.00	90.00	258.70	3719.36	1816.42	-97.07	-1815.38	1817.98	266.94	1.13
5641.00	90.20	258.70	3719.31	1847.26	-103.14	-1845.78	1848.66	266.80	.65
5672.00	90.70	258.40	3719.06	1878.09	-109.29	-1876.16	1879.34	266.67	1.88
5703.00	91.20	258.20	3718.55	1908.90	-115.58	-1906.52	1910.02	266.53	1.74
5735.00	90.80	257.70	3717.99	1940.68	-122.26	-1937.81	1941.66	266.39	2.00
5766.00	89.10	258.00	3718.02	1971.46	-128.78	-1968.11	1972.32	266.26	5.57
5829.00	89.10	258.00	3719.01	2034.04	-141.88	-2029.73	2034.68	266.00	.00
5860.00	89.10	257.40	3719.49	2064.82	-148.48	-2060.01	2065.35	265.88	1.94
5891.00	88.90	257.70	3720.03	2095.58	-155.17	-2090.28	2096.03	265.75	1.16
5922.00	88.60	257.70	3720.71	2126.35	-161.77	-2120.56	2126.72	265.64	.97
5954.00	89.90	258.50	3721.13	2158.14	-168.37	-2151.87	2158.44	265.53	4.77
5986.00	90.50	258.50	3721.02	2189.96	-174.75	-2183.22	2190.21	265.42	1.87
6017.00	90.60	258.50	3720.72	2220.79	-180.93	-2213.60	2220.98	265.33	.32
6048.00	90.20	258.20	3720.50	2251.60	-187.18	-2243.96	2251.75	265.23	1.61
6080.00	90.10	258.30	3720.42	2283.41	-193.70	-2275.29	2283.52	265.13	.44
6111.00	90.00	258.40	3720.39	2314.23	-199.96	-2305.65	2314.31	265.04	.46
6142.00	92.10	259.30	3719.83	2345.06	-205.95	-2336.06	2345.12	264.96	7.37
6174.00	92.90	259.60	3718.43	2376.91	-211.81	-2367.49	2376.94	264.89	2.67
6205.00	93.20	259.70	3716.78	2407.75	-217.37	-2397.94	2407.77	264.82	1.02
6237.00	93.40	259.30	3714.94	2439.57	-223.19	-2429.35	2439.58	264.75	1.40
6268.00	93.50	259.00	3713.07	2470.38	-229.02	-2459.74	2470.38	264.68	1.02
6299.00	92.50	259.30	3711.45	2501.19	-234.84	-2490.15	2501.20	264.61	3.37
6330.00	92.90	259.40	3709.99	2532.03	-240.57	-2520.58	2532.03	264.55	1.33
6362.00	93.10	260.60	3708.31	2563.89	-246.12	-2552.05	2563.89	264.49	3.80
6393.00	93.30	260.80	3706.58	2594.77	-251.12	-2582.59	2594.77	264.45	.91
6424.00	91.00	262.40	3705.42	2625.70	-255.64	-2613.24	2625.71	264.41	9.04
6456.00	90.70	262.10	3704.95	2657.67	-259.96	-2644.94	2657.68	264.39	1.33
6487.00	90.00	263.80	3704.76	2688.66	-263.76	-2675.70	2688.67	264.37	5.93
6518.00	90.00	263.60	3704.76	2719.65	-267.16	-2706.52	2719.67	264.36	.65
6550.00	90.80	263.80	3704.53	2751.65	-270.67	-2738.32	2751.67	264.35	2.58
6582.00	91.60	264.20	3703.86	2783.64	-274.02	-2770.14	2783.66	264.35	2.79
6644.00	93.00	264.30	3701.38	2845.59	-280.23	-2831.78	2845.61	264.35	2.26
6706.00	93.70	263.20	3697.75	2907.47	-286.96	-2893.30	2907.50	264.34	2.10
6737.00	92.10	263.60	3696.18	2938.43	-290.52	-2924.06	2938.45	264.33	5.32

Last Nevis MWD Survey

6769.00	91.90	263.30	3695.07	2970.40	-294.17	-2955.83	2970.43	264.32	1.13
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Projection to TD

6817.00	92.00	263.20	3693.43	3018.36	-299.81	-3003.47	3018.39	264.30	.29
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MC 30-4-12#44
PC HORIZ
P 12 30-4

SURF: 755 FS - 885 FE
-300 -3003
455 FS 5247
BOTTOM - 1359 FW
HOLE -

