

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	
5770.00	87.30	263.30	3679.84	2038.06	-235.40	-2026.33	2039.96	263.37	3.88
5802.00	86.40	261.70	3681.60	2070.00	-239.57	-2058.01	2071.91	263.36	5.73
5835.00	85.50	262.20	3683.93	2102.91	-244.18	-2090.60	2104.81	263.34	3.12
5866.00	85.50	261.60	3686.37	2133.81	-248.54	-2121.20	2135.71	263.32	1.93
5896.00	86.70	261.30	3688.41	2163.74	-252.99	-2150.79	2165.62	263.29	4.12
5927.00	88.80	260.90	3689.62	2194.71	-257.78	-2181.39	2196.57	263.26	6.90
5959.00	90.50	261.30	3689.82	2226.71	-262.73	-2213.01	2228.55	263.23	5.46
5990.00	91.20	262.10	3689.36	2257.70	-267.21	-2243.68	2259.53	263.21	3.43
6021.00	91.60	262.10	3688.60	2288.68	-271.46	-2274.38	2290.52	263.19	1.29
6053.00	91.60	262.10	3687.71	2320.67	-275.86	-2306.06	2322.50	263.18	.00
6084.00	91.50	261.30	3686.87	2351.65	-280.33	-2336.72	2353.48	263.16	2.60
6116.00	91.60	260.80	3686.00	2383.64	-285.31	-2368.32	2385.45	263.13	1.59
6147.00	91.50	260.50	3685.17	2414.63	-290.35	-2398.90	2416.41	263.10	1.02
6179.00	91.50	259.80	3684.33	2446.61	-295.82	-2430.42	2448.35	263.06	2.19
6210.00	91.20	259.00	3683.60	2477.59	-301.52	-2460.88	2479.28	263.01	2.76
6241.00	91.00	258.90	3683.00	2508.57	-307.46	-2491.30	2510.20	262.96	.72
6273.00	90.70	258.30	3682.53	2540.54	-313.78	-2522.66	2542.10	262.91	2.10
6305.00	90.70	258.00	3682.14	2572.50	-320.35	-2553.98	2573.99	262.85	.94
6336.00	90.40	257.60	3681.84	2603.45	-326.91	-2584.28	2604.87	262.79	1.61
6367.00	90.00	257.50	3681.73	2634.40	-333.59	-2614.55	2635.74	262.73	1.33
6398.00	89.90	257.20	3681.76	2665.34	-340.38	-2644.80	2666.61	262.67	1.02
6429.00	91.50	257.80	3681.38	2696.28	-347.09	-2675.06	2697.48	262.61	5.51
6461.00	92.10	257.50	3680.37	2728.22	-353.93	-2706.30	2729.35	262.55	2.10
6492.00	91.30	257.10	3679.45	2759.14	-360.74	-2736.53	2760.20	262.49	2.88
6524.00	90.60	257.20	3678.92	2791.07	-367.86	-2767.72	2792.06	262.43	2.21
6555.00	90.30	257.80	3678.68	2822.01	-374.56	-2797.99	2822.95	262.38	2.16
6586.00	90.20	256.80	3678.55	2852.95	-381.38	-2828.23	2853.83	262.32	3.24
6618.00	89.40	257.30	3678.66	2884.88	-388.55	-2859.41	2885.69	262.26	2.95
6648.00	89.10	257.80	3679.05	2914.82	-395.02	-2888.71	2915.59	262.21	1.94
6679.00	88.70	256.40	3679.64	2945.75	-401.94	-2918.92	2946.46	262.16	4.70

Last Nevis MWD Survey

6710.00	89.40	256.40	3680.16	2976.65	-409.23	-2949.04	2977.30	262.10	2.26
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Projection to TD

6756.00	90.10	256.40	3680.36	3022.51	-420.04	-2993.75	3023.08	262.01	1.52
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JIC 452-8#24

surf 1400 FN
 - 420
 1820 FN
 1000 FE
 (2640+2641)
 - 2994
 1287 FW

JICARILLA 452-08 #24
 API# 30-039-29462

RCVD DEC5'06
 OIL CONS. DIV.
 DIST. 3



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

Job Number: 61270
Company: Black Hills E&P
Lease/Well: Jicarilla 452-08 #24
Location: Rio Arriba Co., NM
Rig Name: Patterson 744
RKB: ☐
G.L. or M.S.L.: ☐

State/Country: NM/USA
Declination: 10.19161
Grid: -0.33
File name: Z:\BLACKH-1\2006\61271J-1\45208#24.SVY
Date/Time: 03-Nov-06 / 11:11
Curve Name: Actual

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 260.90
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
Tie-In									
3672.00	.44	86.40	3671.80	17.88	-6.90	-17.00	18.35	247.91	.00
First Nevis MWD Survey									
3724.00	26.30	270.40	3722.02	29.25	-6.81	-28.53	29.33	256.58	51.42
3756.00	46.70	274.60	3747.61	47.75	-5.81	-47.43	47.78	263.01	64.19
3787.00	68.10	276.40	3764.22	72.86	-3.27	-73.27	73.34	267.44	69.20
3819.00	89.90	273.70	3770.29	103.14	-.55	-104.37	104.37	269.70	68.62
3851.00	100.70	267.50	3767.34	134.49	-.20	-136.17	136.17	269.91	38.86
3882.00	103.80	263.90	3760.76	164.66	-2.47	-166.37	166.39	269.15	15.12
3914.00	104.10	264.90	3753.04	195.66	-5.50	-197.27	197.35	268.40	3.17
3945.00	104.50	266.90	3745.39	225.59	-7.65	-227.24	227.36	268.07	6.38
3976.00	104.60	266.40	3737.60	255.44	-9.40	-257.19	257.36	267.91	1.59
4007.00	105.00	267.50	3729.68	285.24	-11.00	-287.12	287.33	267.81	3.67
4039.00	105.20	268.10	3721.34	315.92	-12.18	-317.99	318.22	267.81	1.92
4070.00	106.60	271.80	3712.85	345.35	-12.21	-347.80	348.01	267.99	12.33
4100.00	108.00	274.90	3703.92	373.32	-10.54	-376.39	376.53	268.40	10.91
4132.00	104.80	271.60	3694.89	403.30	-8.81	-407.03	407.12	268.76	14.07
4163.00	99.80	267.70	3688.28	433.22	-9.00	-437.30	437.39	268.82	20.28
4195.00	93.80	263.60	3684.49	464.86	-11.42	-468.96	469.10	268.61	22.66
4226.00	89.10	260.60	3683.71	495.84	-15.68	-499.64	499.89	268.20	17.98
4258.00	88.40	260.20	3684.41	527.83	-21.01	-531.19	531.60	267.73	2.52
4289.00	88.20	259.70	3685.33	558.81	-26.42	-561.70	562.32	267.31	1.74
4320.00	88.50	259.50	3686.22	589.79	-32.01	-592.18	593.04	266.91	1.16

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	
4352.00	88.10	259.40	3687.17	621.76	-37.87	-623.62	624.77	266.52	1.29
4383.00	87.70	259.00	3688.31	652.73	-43.68	-654.05	655.51	266.18	1.82
4414.00	86.90	258.50	3689.77	683.67	-49.72	-684.42	686.23	265.85	3.04
4446.00	88.90	258.20	3690.94	715.62	-56.17	-715.74	717.94	265.51	6.32
4477.00	88.50	257.80	3691.64	746.57	-62.62	-746.06	748.68	265.20	1.82
4508.00	88.30	257.40	3692.51	777.51	-69.27	-776.32	779.41	264.90	1.44
4540.00	90.20	259.60	3692.93	809.47	-75.65	-807.67	811.21	264.65	9.08
4571.00	89.90	260.40	3692.90	840.47	-81.03	-838.20	842.11	264.48	2.76
4603.00	89.80	260.70	3692.98	872.47	-86.29	-869.77	874.04	264.33	.99
4634.00	92.50	262.20	3692.36	903.46	-90.89	-900.41	904.99	264.24	9.96
4665.00	92.80	263.30	3690.93	934.41	-94.80	-931.13	935.94	264.19	3.67
4696.00	93.30	263.20	3689.28	965.34	-98.44	-961.87	966.90	264.16	1.64
4727.00	93.30	262.80	3687.49	996.26	-102.21	-992.59	997.84	264.12	1.29
4760.00	93.00	263.10	3685.68	1029.19	-106.26	-1025.29	1030.78	264.08	1.28
4791.00	91.00	263.00	3684.60	1060.15	-110.01	-1056.04	1061.76	264.05	6.46
4822.00	90.80	263.10	3684.11	1091.12	-113.76	-1086.81	1092.75	264.02	.72
4853.00	90.30	263.50	3683.81	1122.10	-117.37	-1117.60	1123.74	264.00	2.07
4884.00	90.00	263.40	3683.73	1153.06	-120.91	-1148.40	1154.74	263.99	1.02
4915.00	89.20	262.80	3683.95	1184.04	-124.63	-1179.17	1185.74	263.97	3.23
4946.00	89.20	262.70	3684.38	1215.02	-128.55	-1209.92	1216.73	263.94	.32
4978.00	89.10	262.70	3684.86	1247.00	-132.61	-1241.66	1248.72	263.90	.31
5009.00	89.10	262.70	3685.34	1277.98	-136.55	-1272.40	1279.71	263.87	.00
5040.00	89.10	262.70	3685.83	1308.96	-140.49	-1303.15	1310.70	263.85	.00
5072.00	90.50	262.30	3685.94	1340.95	-144.66	-1334.87	1342.69	263.81	4.55
5104.00	90.50	262.30	3685.66	1372.94	-148.95	-1366.58	1374.68	263.78	.00
5135.00	92.30	261.80	3684.91	1403.92	-153.24	-1397.27	1405.65	263.74	6.03
5166.00	92.50	260.80	3683.61	1434.89	-157.92	-1427.89	1436.60	263.69	3.29
5197.00	92.20	259.80	3682.34	1465.87	-163.14	-1458.42	1467.52	263.62	3.37
5228.00	92.50	259.30	3681.07	1496.83	-168.76	-1488.88	1498.41	263.53	1.88
5259.00	93.20	259.20	3679.52	1527.78	-174.53	-1519.30	1529.29	263.45	2.28
5290.00	91.30	260.10	3678.31	1558.75	-180.10	-1549.77	1560.20	263.37	6.78
5333.00	91.20	260.10	3677.37	1601.73	-187.49	-1592.12	1603.12	263.28	.23
5364.00	89.80	262.90	3677.10	1632.73	-192.07	-1622.77	1634.10	263.25	10.10
5395.00	89.50	262.90	3677.29	1663.71	-195.90	-1653.53	1665.10	263.24	.97
5426.00	89.80	262.50	3677.48	1694.69	-199.84	-1684.28	1696.10	263.23	1.61
5458.00	90.10	262.80	3677.50	1726.68	-203.94	-1716.02	1728.09	263.22	1.33
5489.00	90.80	263.20	3677.26	1757.65	-207.71	-1746.79	1759.09	263.22	2.60
5520.00	91.20	263.30	3676.72	1788.62	-211.36	-1777.57	1790.09	263.22	1.33
5551.00	90.10	264.60	3676.37	1819.58	-214.62	-1808.39	1821.08	263.23	5.49
5583.00	90.40	264.60	3676.23	1851.51	-217.64	-1840.25	1853.07	263.26	.94
5614.00	90.60	264.30	3675.96	1882.45	-220.63	-1871.10	1884.07	263.27	1.16
5645.00	89.10	265.30	3676.04	1913.37	-223.44	-1901.97	1915.05	263.30	5.82
5677.00	88.80	265.10	3676.63	1945.28	-226.12	-1933.86	1947.03	263.33	1.13
5708.00	87.80	264.50	3677.55	1976.19	-228.93	-1964.71	1978.01	263.35	3.76
5739.00	88.20	264.10	3678.63	2007.12	-232.01	-1995.54	2008.98	263.37	1.82