



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

Job Number: 71047
Company: Black Hills Gas Resources
Lease/Well: Jicarilla 452-08 #31
Location: Rio Arriba Co., NM
Rig Name: ☐
RKB: ☐
G.L. or M.S.L.: ☐

State/Country: NM/USA
Declination: ☐
Grid: ☐
File name: Z:\BLACKH-1171047J-114520831.SVY
Date/Time: 09-Mar-07 / 11:41
Curve Name: Pilot Hole Actual

20-039-29461

WINSERVE PROPOSAL REPORT
Minimum Curvature Method
Vertical Section Plane 86.10
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

PILOT

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									
350.00	.00	.00	350.00	.00	.00	.00	.00	.00	.00
First Nevis MWD Survey									
365.00	.20	130.40	365.00	.02	-.02	.02	.03	130.37	1.33
490.00	.50	67.10	490.00	.69	.05	.69	.69	85.53	.36
616.00	.50	102.30	615.99	1.74	.15	1.73	1.74	85.03	.24
740.00	.50	131.10	739.99	2.64	-.32	2.67	2.69	96.84	.20
866.00	1.20	177.90	865.98	2.99	-2.00	3.13	3.72	122.57	.74
991.00	.90	164.90	990.95	3.14	-4.26	3.43	5.47	141.09	.31
1117.00	1.10	188.40	1116.94	3.07	-6.41	3.52	7.31	151.25	.36
1238.00	1.10	179.60	1237.91	2.75	-8.72	3.35	9.34	158.96	.14
1357.00	.70	234.50	1356.90	2.06	-10.28	2.77	10.65	164.92	.76
1475.00	.70	156.10	1474.89	1.70	-11.36	2.48	11.63	167.71	.75
1593.00	.90	158.90	1592.88	2.22	-12.88	3.10	13.25	166.47	.17
1710.00	.90	162.00	1709.87	2.71	-14.62	3.72	15.08	165.73	.04
1833.00	.70	193.30	1832.86	2.73	-16.26	3.84	16.71	166.71	.38
1956.00	.70	165.60	1955.85	2.64	-17.72	3.86	18.14	167.73	.27
2081.00	1.20	185.20	2080.83	2.57	-19.77	3.93	20.15	168.76	.47
2207.00	.20	135.70	2206.82	2.51	-21.24	3.96	21.60	169.44	.86
2333.00	.30	193.00	2332.82	2.55	-21.72	4.04	22.09	169.46	.20
2459.00	.50	241.50	2458.82	1.96	-22.30	3.48	22.57	171.12	.30
2552.00	.70	194.70	2551.81	1.41	-23.04	2.98	23.24	172.63	.55
2588.00	.70	265.80	2587.81	1.12	-23.27	2.71	23.43	173.36	2.26

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	
2650.00	.70	252.40	2649.80	.37	-23.42	1.97	23.50	175.19	.26
2681.00	.50	257.70	2680.80	.05	-23.50	1.66	23.56	175.97	.67
2713.00	1.80	103.00	2712.80	.40	-23.64	2.01	23.73	175.14	7.07
2745.00	4.60	104.70	2744.75	2.09	-24.08	3.74	24.37	171.17	8.75
2775.00	7.00	98.80	2774.59	5.02	-24.67	6.71	25.56	164.78	8.23
2806.00	9.30	96.30	2805.28	9.33	-25.23	11.07	27.55	156.32	7.51
2836.00	11.80	94.90	2834.77	14.74	-25.76	16.53	30.61	147.30	8.38
2867.00	13.70	93.10	2865.00	21.52	-26.23	23.36	35.12	138.31	6.26
2899.00	15.70	91.70	2895.95	29.59	-26.56	31.47	41.18	130.17	6.35
2930.00	17.60	91.00	2925.65	38.44	-26.77	40.35	48.42	123.56	6.16
2962.00	19.70	89.60	2955.97	48.64	-26.82	50.58	57.25	117.93	6.71
2993.00	21.80	88.60	2984.96	59.61	-26.64	61.56	67.08	113.40	6.87
3024.00	23.20	87.90	3013.60	71.46	-26.27	73.42	77.98	109.69	4.60
3056.00	24.60	90.00	3042.85	84.41	-26.04	86.38	90.22	106.78	5.12
3086.00	26.40	91.40	3069.93	97.28	-26.21	99.29	102.69	104.78	6.33
3118.00	28.00	91.40	3098.39	111.85	-26.56	113.92	116.97	103.13	5.00
3149.00	30.30	90.70	3125.46	126.89	-26.84	129.01	131.77	101.75	7.50
3181.00	32.90	90.70	3152.71	143.60	-27.04	145.78	148.26	100.51	8.12
3212.00	35.40	90.70	3178.37	160.94	-27.25	163.18	165.44	99.48	8.06
3244.00	37.10	90.30	3204.17	179.81	-27.42	182.10	184.15	98.56	5.36
3275.00	38.90	90.00	3228.60	198.85	-27.47	201.18	203.05	97.77	5.84
3306.00	40.80	89.30	3252.40	218.67	-27.34	221.04	222.73	97.05	6.30
3337.00	43.30	89.30	3275.41	239.40	-27.09	241.80	243.32	96.39	8.06
3369.00	45.90	88.90	3298.20	261.84	-26.73	264.27	265.62	95.78	8.17
3401.00	47.90	88.60	3320.06	285.18	-26.22	287.63	288.82	95.21	6.29
3432.00	49.40	89.60	3340.54	308.41	-25.86	310.89	311.97	94.76	5.41
3463.00	51.00	90.30	3360.38	332.18	-25.84	334.71	335.71	94.41	5.44
3493.00	52.60	91.00	3378.94	355.68	-26.11	358.28	359.23	94.17	5.64
3524.00	54.40	91.70	3397.38	380.49	-26.70	383.19	384.12	93.99	6.08
3555.00	56.00	92.40	3415.07	405.81	-27.61	408.63	409.56	93.87	5.48
3587.00	57.90	93.80	3432.52	432.43	-29.07	435.41	436.38	93.82	6.98
3618.00	60.00	93.00	3448.51	458.77	-30.64	461.92	462.94	93.79	7.13
3649.00	61.90	94.20	3463.56	485.63	-32.34	488.97	490.04	93.78	7.00
3681.00	63.50	94.20	3478.24	513.79	-34.43	517.33	518.47	93.81	5.00
3712.00	63.70	94.90	3492.02	541.25	-36.63	545.00	546.23	93.84	2.12
3743.00	63.70	94.90	3505.76	568.72	-39.00	572.69	574.02	93.90	.00
3774.00	65.40	94.50	3519.08	596.39	-41.29	600.59	602.01	93.93	5.61
3806.00	65.40	94.20	3532.40	625.19	-43.50	629.60	631.10	93.95	.85
3836.00	65.60	93.10	3544.84	652.25	-45.24	656.85	658.40	93.94	3.40
3867.00	64.90	93.10	3557.82	680.19	-46.76	684.96	686.55	93.91	2.26
3898.00	63.90	93.80	3571.21	707.92	-48.44	712.86	714.51	93.89	3.81
3929.00	64.10	93.80	3584.80	735.53	-50.29	740.66	742.37	93.88	.65
3954.00	63.79	92.71	3595.78	757.81	-51.56	763.09	764.83	93.87	4.12
3961.00	63.70	92.40	3598.88	764.05	-51.84	769.36	771.10	93.86	4.12
3992.00	64.20	92.10	3612.49	791.74	-52.94	797.19	798.94	93.80	1.83

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	
4023.00	64.80	90.70	3625.84	819.60	-53.62	825.16	826.90	93.72	4.51
4054.00	64.80	90.30	3639.04	847.57	-53.87	853.21	854.90	93.61	1.17
4085.00	64.90	90.30	3652.21	875.55	-54.01	881.27	882.92	93.51	.32
4116.00	64.10	89.60	3665.56	903.47	-53.99	909.25	910.85	93.40	3.29
4147.00	63.90	89.60	3679.15	931.28	-53.79	937.11	938.65	93.29	.65
4179.00	63.00	89.60	3693.45	959.85	-53.59	965.73	967.22	93.18	2.81
4210.00	62.10	89.60	3707.74	987.31	-53.40	993.24	994.68	93.08	2.90
4242.00	61.20	89.60	3722.94	1015.42	-53.21	1021.40	1022.79	92.98	2.81
4273.00	60.50	90.00	3738.04	1042.44	-53.11	1048.48	1049.82	92.90	2.52
Last Nevis MWD Survey									
4305.00	59.80	90.30	3753.96	1070.12	-53.18	1076.23	1077.54	92.83	2.33
Survey Projection to TD									
4350.00	59.80	90.30	3776.60	1108.91	-53.39	1115.12	1116.40	92.74	.00