



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

Job Number: 71209
Company: Black Hills Gas Resources
Lease/Well: 452 #4
Location: Rio Arriba County, NM
Rig Name: Patt. 744
RKB: 13'
G.L. or M.S.L.: 7069'

State/Country: NM/USA
Declination: 10.11429
Grid: -0.33
File name: Z:\BLACKH-11712094-11452#4.SVY
Date/Time: 12-Jul-07 / 07:44
Curve Name: 452 #4 Actual Surveys

30-039-24257

JIC 452 #4

452 #4 Actual Surveys

SURF 793 FN 785 FW
D -44 4430
749 FN 5215 FW
5299
74' FE

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 90.00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Well

BH
A

RCVD JUL26'07

OIL CONS. DIV.
DIST. 3

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
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Surface Tie-In

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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First Nevis MWD Survey

160.00	.50	311.90	160.00	-.52	.47	-.52	.70	311.90	.31
223.00	1.70	63.80	222.99	.11	1.06	.11	1.07	6.14	3.08
256.00	3.60	72.90	255.95	1.54	1.58	1.54	2.21	44.28	5.88
288.00	5.00	79.10	287.86	3.87	2.14	3.87	4.43	61.05	4.60
320.00	6.00	76.90	319.71	6.87	2.79	6.87	7.41	67.94	3.19
352.00	5.80	76.50	351.54	10.07	3.54	10.07	10.68	70.63	.64
383.00	5.90	77.40	382.38	13.15	4.25	13.15	13.82	72.07	.44
414.00	5.70	79.80	413.22	16.22	4.88	16.22	16.94	73.27	1.01
446.00	5.60	77.90	445.07	19.31	5.48	19.31	20.08	74.15	.66
477.00	5.50	79.20	475.92	22.25	6.08	22.25	23.07	74.72	.52
509.00	5.40	77.90	507.78	25.23	6.68	25.23	26.10	75.16	.50
541.00	5.50	80.10	539.63	28.21	7.26	28.21	29.13	75.57	.72
572.00	5.40	78.20	570.49	31.10	7.82	31.10	32.07	75.90	.67
603.00	5.20	80.80	601.36	33.92	8.34	33.92	34.93	76.19	1.01
635.00	4.20	89.90	633.25	36.52	8.57	36.52	37.51	76.79	3.89
667.00	2.90	94.00	665.19	38.50	8.52	38.50	39.43	77.53	4.14
698.00	1.70	119.80	696.17	39.68	8.23	39.68	40.53	78.28	5.02
730.00	1.50	136.00	728.15	40.38	7.70	40.38	41.11	79.21	1.54
762.00	1.20	163.80	760.15	40.77	7.07	40.77	41.38	80.16	2.22
793.00	.90	165.80	791.14	40.92	6.53	40.92	41.44	80.94	.97

7/31/07

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	
888.00	.70	216.90	886.13	40.75	5.34	40.75	41.10	82.54	.75
982.00	.80	208.30	980.12	40.10	4.30	40.10	40.33	83.88	.16
1077.00	.80	193.30	1075.12	39.63	3.07	39.63	39.75	85.57	.22
1172.00	.70	204.00	1170.11	39.24	1.90	39.24	39.29	87.23	.18
1266.00	.70	195.10	1264.10	38.86	.82	38.86	38.87	88.79	.12
1361.00	.80	187.50	1359.09	38.62	-.40	38.62	38.62	90.59	.15
1454.00	1.10	193.10	1452.08	38.33	-1.91	38.33	38.38	92.86	.34
1544.00	.80	201.50	1542.07	37.91	-3.34	37.91	38.06	95.03	.37
1633.00	1.00	194.80	1631.06	37.48	-4.67	37.48	37.77	97.10	.25
1725.00	1.10	190.10	1723.04	37.12	-6.31	37.12	37.66	99.65	.14
1816.00	1.10	185.00	1814.02	36.89	-8.04	36.89	37.76	102.30	.11
1907.00	1.10	181.10	1905.01	36.80	-9.79	36.80	38.08	104.89	.08
1997.00	1.10	182.00	1994.99	36.75	-11.51	36.75	38.51	107.39	.02
2089.00	1.20	182.90	2086.97	36.67	-13.36	36.67	39.03	110.01	.11
2179.00	1.30	178.00	2176.95	36.66	-15.32	36.66	39.73	112.68	.16
2268.00	1.50	171.40	2265.92	36.87	-17.48	36.87	40.81	115.37	.29
2358.00	1.40	168.10	2355.90	37.28	-19.72	37.27	42.17	117.88	.14
2449.00	1.50	172.60	2446.87	37.66	-21.99	37.66	43.61	120.28	.17
2539.00	1.40	184.50	2536.84	37.72	-24.25	37.72	44.85	122.74	.35
2629.00	1.60	179.80	2626.81	37.64	-26.61	37.64	46.09	125.26	.26
2723.00	1.40	183.00	2720.77	37.59	-29.07	37.58	47.51	127.72	.23
2819.00	1.50	178.80	2816.74	37.55	-31.49	37.55	49.01	129.99	.15
2877.00	1.60	166.80	2874.72	37.75	-33.04	37.75	50.17	131.19	.58
2913.00	1.40	147.00	2910.71	38.11	-33.90	38.10	51.00	131.66	1.53
2945.00	3.00	102.30	2942.69	39.14	-34.41	39.14	52.11	131.32	6.98
2977.00	5.80	85.90	2974.59	41.57	-34.47	41.57	54.00	129.67	9.51
3008.00	8.30	81.50	3005.36	45.35	-34.03	45.34	56.69	126.88	8.24
3040.00	10.40	79.30	3036.93	50.47	-33.15	50.47	60.38	123.30	6.66
3072.00	13.00	83.30	3068.26	56.88	-32.19	56.88	65.36	119.51	8.51
3103.00	15.20	85.00	3098.33	64.39	-31.43	64.39	71.65	116.02	7.22
3135.00	17.90	86.00	3129.00	73.48	-30.72	73.48	79.64	112.69	8.48
3167.00	20.40	88.60	3159.22	83.96	-30.24	83.96	89.24	109.81	8.25
3199.00	22.80	90.60	3188.98	95.74	-30.17	95.74	100.38	107.49	7.84
3231.00	25.10	89.80	3218.22	108.73	-30.21	108.73	112.85	105.53	7.26
3259.00	26.70	88.70	3243.41	120.96	-30.05	120.96	124.63	103.95	5.97
3294.00	28.90	87.90	3274.36	137.27	-29.56	137.27	140.42	102.15	6.38
3326.00	31.60	86.90	3302.00	153.38	-28.82	153.37	156.06	100.64	8.58
3358.00	34.00	87.30	3328.90	170.69	-27.95	170.68	172.96	99.30	7.53
3389.00	36.00	87.70	3354.29	188.45	-27.17	188.45	190.40	98.21	6.49
3421.00	36.00	87.90	3380.18	207.24	-26.45	207.24	208.92	97.27	.37
3453.00	35.70	87.40	3406.12	225.97	-25.68	225.97	227.42	96.48	1.31
3485.00	35.20	87.60	3432.19	244.51	-24.87	244.51	245.77	95.81	1.60
3516.00	37.50	88.70	3457.15	262.87	-24.29	262.87	263.99	95.28	7.71
3548.00	40.10	89.30	3482.09	282.92	-23.94	282.92	283.93	94.84	8.21
3578.00	42.90	89.80	3504.56	302.80	-23.79	302.80	303.73	94.49	9.40

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	
3609.00	45.20	90.00	3526.84	324.35	-23.75	324.35	325.22	94.19	7.43
3641.00	47.40	88.70	3548.94	347.48	-23.48	347.48	348.27	93.87	7.48
3673.00	49.70	88.20	3570.12	371.45	-22.83	371.45	372.15	93.52	7.28
3705.00	51.60	88.60	3590.41	396.19	-22.14	396.19	396.81	93.20	6.02
3736.00	54.00	88.40	3609.15	420.87	-21.49	420.87	421.42	92.92	7.76
3768.00	56.30	88.20	3627.44	447.12	-20.71	447.12	447.60	92.65	7.21
3800.00	58.80	87.30	3644.61	474.10	-19.65	474.10	474.50	92.37	8.16
3832.00	61.30	86.50	3660.58	501.78	-18.15	501.78	502.11	92.07	8.11
3864.00	63.60	86.70	3675.38	530.10	-16.47	530.10	530.36	91.78	7.21
3896.00	66.60	86.60	3688.85	559.07	-14.77	559.07	559.27	91.51	9.38
3927.00	69.70	87.20	3700.39	587.80	-13.22	587.80	587.95	91.29	10.16
3959.00	71.90	86.60	3710.91	617.97	-11.58	617.97	618.08	91.07	7.10
3990.00	74.70	88.10	3719.82	647.63	-10.21	647.63	647.71	90.90	10.15
4022.00	77.50	88.10	3727.51	678.67	-9.18	678.67	678.74	90.78	8.75
4053.00	80.30	89.20	3733.48	709.08	-8.47	709.08	709.13	90.68	9.68
4084.00	81.80	88.30	3738.30	739.70	-7.80	739.70	739.74	90.60	5.62
4116.00	83.00	89.10	3742.53	771.41	-7.08	771.41	771.44	90.53	4.49
4147.00	84.50	87.80	3745.91	802.21	-6.25	802.21	802.23	90.45	6.39
4179.00	84.70	87.10	3748.92	834.04	-4.83	834.04	834.05	90.33	2.27
4211.00	84.60	87.10	3751.90	865.86	-3.22	865.85	865.86	90.21	.31
X 4242.00	84.40	87.60	3754.87	896.68	-1.79	896.68	896.68	90.11	1.73
4330.00	83.90	83.50	3763.85	983.94	5.00	983.94	983.95	89.71	4.67
4362.00	83.30	83.10	3767.41	1015.52	8.71	1015.52	1015.56	89.51	2.25
4393.00	85.20	85.10	3770.52	1046.20	11.88	1046.20	1046.27	89.35	8.88
4425.00	87.40	86.90	3772.58	1078.05	14.11	1078.05	1078.14	89.25	8.88
4455.00	90.20	89.10	3773.21	1108.02	15.15	1108.02	1108.12	89.22	11.87
4484.00	92.80	92.00	3772.45	1137.00	14.87	1137.00	1137.10	89.25	13.43
4544.00	93.70	91.40	3769.05	1196.88	13.10	1196.88	1196.95	89.37	1.80
4603.00	94.10	91.50	3765.04	1255.72	11.61	1255.73	1255.78	89.47	.70
4662.00	92.50	92.20	3761.64	1314.59	9.71	1314.59	1314.63	89.58	2.96
4721.00	92.70	91.80	3758.97	1373.50	7.65	1373.50	1373.52	89.68	.76
4780.00	90.90	93.40	3757.11	1432.40	4.97	1432.40	1432.41	89.80	4.08
4839.00	91.00	93.60	3756.13	1491.29	1.37	1491.29	1491.29	89.95	.38
4898.00	91.40	94.60	3754.90	1550.12	-2.84	1550.12	1550.12	90.11	1.83
4958.00	92.80	93.80	3752.70	1609.92	-7.24	1609.92	1609.93	90.26	2.69
5016.00	91.10	92.50	3750.73	1667.79	-10.42	1667.79	1667.83	90.36	3.69
5075.00	89.30	91.40	3750.52	1726.76	-12.43	1726.75	1726.80	90.41	3.58
5135.00	89.60	91.50	3751.10	1786.73	-13.95	1786.73	1786.79	90.45	.53
5194.00	89.90	90.40	3751.35	1845.72	-14.92	1845.72	1845.78	90.46	1.93
5253.00	90.60	89.30	3751.10	1904.72	-14.77	1904.72	1904.78	90.44	2.21
5313.00	90.80	89.60	3750.36	1964.71	-14.19	1964.71	1964.76	90.41	.60
5375.00	90.80	89.20	3749.50	2026.70	-13.55	2026.70	2026.75	90.38	.65
5435.00	91.60	88.40	3748.24	2086.68	-12.29	2086.68	2086.71	90.34	1.89
5501.00	89.70	89.70	3747.49	2152.66	-11.19	2152.66	2152.69	90.30	3.49
5564.00	88.90	88.90	3748.26	2215.65	-10.43	2215.65	2215.67	90.27	1.80

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	
5627.00	88.90	89.10	3749.47	2278.63	-9.33	2278.63	2278.65	90.23	.32
5691.00	90.30	88.90	3749.92	2342.61	-8.21	2342.61	2342.63	90.20	2.21
5754.00	90.70	88.40	3749.37	2405.59	-6.72	2405.59	2405.60	90.16	1.02
5817.00	89.30	89.30	3749.37	2468.58	-5.46	2468.58	2468.59	90.13	2.64
5879.00	89.40	89.30	3750.07	2530.57	-4.70	2530.57	2530.58	90.11	.16
5941.00	89.70	89.50	3750.56	2592.57	-4.05	2592.57	2592.57	90.09	.58
6005.00	90.00	89.10	3750.73	2656.56	-3.27	2656.56	2656.56	90.07	.78
6068.00	90.60	88.30	3750.40	2719.54	-1.84	2719.54	2719.54	90.04	1.59
6131.00	91.80	87.50	3749.08	2782.48	.47	2782.48	2782.48	89.99	2.29
6195.00	91.70	90.30	3747.12	2846.44	1.69	2846.44	2846.44	89.97	4.38
6258.00	92.00	89.70	3745.09	2909.40	1.69	2909.40	2909.40	89.97	1.06
6321.00	91.50	90.10	3743.16	2972.37	1.80	2972.37	2972.37	89.97	1.02
6385.00	90.90	90.60	3741.82	3036.36	1.41	3036.36	3036.36	89.97	1.22
6448.00	91.20	90.30	3740.67	3099.34	.92	3099.34	3099.35	89.98	.67
6511.00	91.50	90.60	3739.19	3162.33	.42	3162.33	3162.33	89.99	.67
6574.00	89.00	91.00	3738.91	3225.31	-.46	3225.31	3225.31	90.01	4.02
6637.00	89.60	90.50	3739.68	3288.30	-1.28	3288.30	3288.30	90.02	1.24
6701.00	89.80	89.40	3740.01	3352.30	-1.23	3352.30	3352.30	90.02	1.75
6763.00	90.40	88.70	3739.91	3414.29	-.20	3414.29	3414.29	90.00	1.49
6826.00	89.90	89.10	3739.74	3477.28	1.01	3477.28	3477.28	89.98	1.02
6889.00	90.10	88.80	3739.74	3540.27	2.17	3540.27	3540.27	89.96	.57
6952.00	90.30	88.40	3739.52	3603.25	3.71	3603.25	3603.25	89.94	.71
7015.00	88.80	88.00	3740.02	3666.21	5.68	3666.21	3666.22	89.91	2.46
7077.00	88.70	87.60	3741.37	3728.15	8.06	3728.15	3728.16	89.88	.66
7140.00	88.30	88.10	3743.02	3791.09	10.43	3791.09	3791.10	89.84	1.02
7203.00	88.80	87.80	3744.61	3854.03	12.68	3854.03	3854.05	89.81	.93
7266.00	89.00	88.10	3745.82	3916.97	14.93	3916.97	3917.00	89.78	.57
7329.00	89.50	87.30	3746.65	3979.92	17.46	3979.92	3979.96	89.75	1.50
7392.00	89.10	87.50	3747.42	4042.85	20.32	4042.85	4042.90	89.71	.71
7424.00	89.10	87.50	3747.92	4074.81	21.71	4074.81	4074.87	89.69	.00
7455.00	88.90	87.10	3748.46	4105.77	23.17	4105.77	4105.84	89.68	1.44
7486.00	88.30	87.20	3749.22	4136.73	24.71	4136.73	4136.80	89.66	1.96
7518.00	88.00	87.00	3750.25	4168.67	26.33	4168.67	4168.75	89.64	1.13
7549.00	87.60	87.00	3751.44	4199.60	27.95	4199.60	4199.70	89.62	1.29
7580.00	87.70	86.40	3752.71	4230.52	29.74	4230.53	4230.63	89.60	1.96
7612.00	87.20	86.40	3754.14	4262.43	31.74	4262.43	4262.55	89.57	1.56
7643.00	86.80	86.30	3755.76	4293.32	33.72	4293.33	4293.46	89.55	1.33
7675.00	86.40	85.80	3757.66	4325.19	35.92	4325.19	4325.34	89.52	2.00
7705.00	86.10	85.40	3759.62	4355.04	38.21	4355.04	4355.21	89.50	1.66
Last Nevis MWD Survey									
7737.00	85.90	85.40	3761.85	4386.86	40.77	4386.86	4387.05	89.47	.62
Survey Projection to TD									
7780.00	85.60	85.40	3765.04	4429.60	44.21	4429.60	4429.82	89.43	.70

7/25/2007

PROD JUL2007

OIL CONS. DIV.

DIST. 3

JIC 452 #4

Well Bore Diagram

Post Drilling Wellbore Diagram

API # 30-039-24257

NW NW, Sec 5, T29N, R3W Rio Arriba, NM

SURF CSG

8 5/8" 24# @ 133' TOC = Surf

4 1/2" casing cut off @ 490',
KO plug 490' to 107'. Drilled to
196 kicking off

Retainer @ 1920', cement
above and below

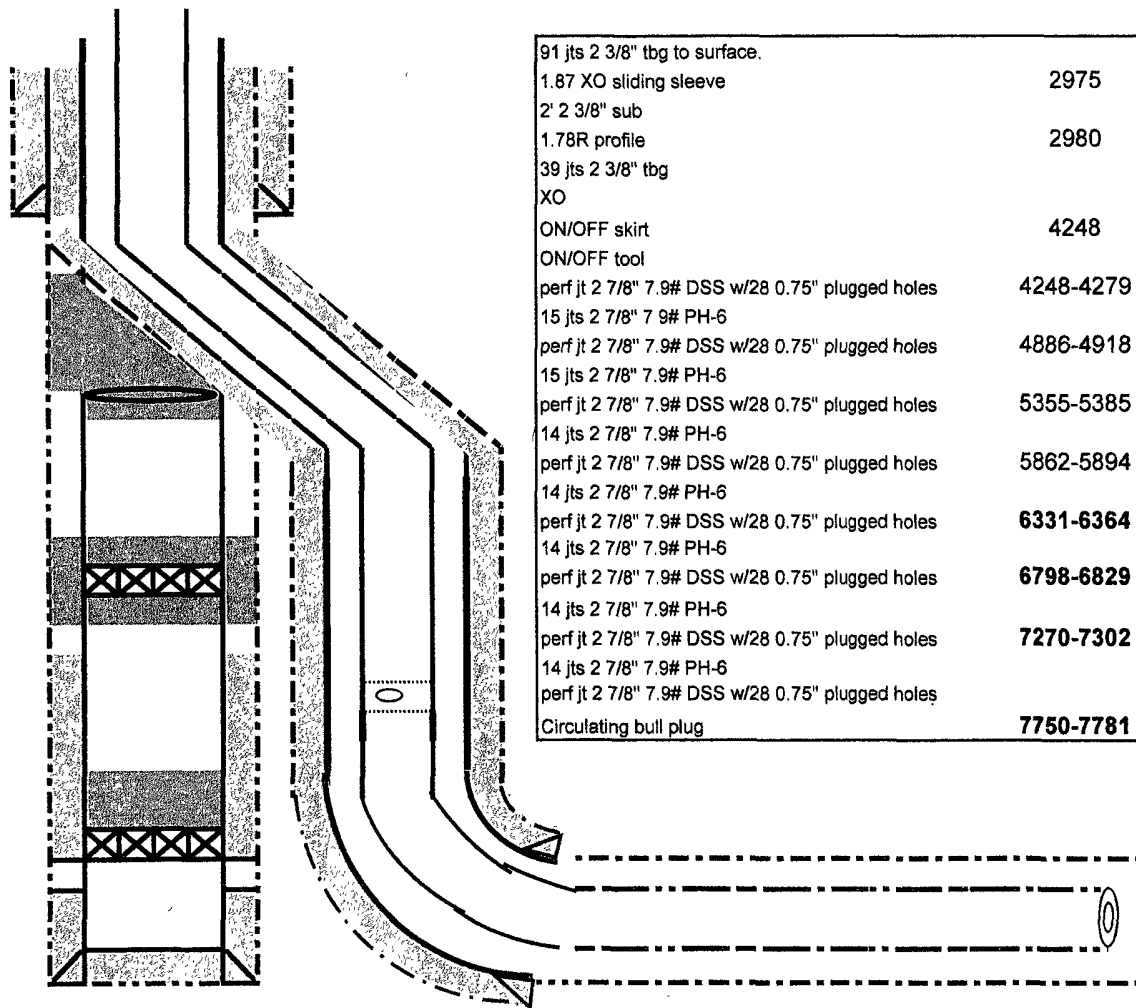
Retainer @ 3716, cement
above

ORIG CSG

4 1/2" 10.5# J-55 @ 4094' KB,
TOC = 2010'

NEW PROD CSG

5 1/2" 17# J-55/N-80 set @ 4286
@ 85 deg. Cement w/ 375 sx
(1.96) 65/35/6 poz, + 250 sx
(1.46) 50/50/3 poz. Circ mud all
job, no cement circ.



4286

7781