

JIC 30-03-33 #31
API#: 30-039-29446

DIST. 8

30 039 29446

Job Number: 61340 State/Country: NM/USA
Company: Black Hills Gas Resources Declination: 10.15176
Lease/Well: Jicarilla 30-03-33 #31 Grid: -0.35
Location: Rio Arriba Co., NM File name: C:\CURRENT\1\61340J~1\30033331.SVY
Rig Name: Date/Time: 17-Jan-07 / 10:23
RKB: Curve Name: Actual Surveys

Surface 1851/5 838/W

BH1 origin 1863/5 972/W

BH2 end 1606/5 909/E

MD 13808 Tvd 13755

MD 29181 Tvd 23593

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane 95.30

Vertical Section Referenced to offset from Wellhead: EW = .00 Ft, NS = .00 Ft

Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	Vertical Depth	Vertical Section FT	N-S FT	E-W FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
3640	0.87	38.7	3639.3	43.56	-25.3	41.4	48.52	121.43	0
3689	20.4	67.1	3687.23	51.37	-21.65	49.58	54.1	113.59	40.08
3721	37.9	64.9	3715.07	64.87	-15.26	63.73	65.53	103.47	54.78
3753	55.2	67.9	3737	85.16	-6.08	84.97	85.18	94.09	54.48
3784	73.2	69.9	3750.43	110.08	3.89	110.91	110.98	87.99	58.35
3808	86.1	71.6	3754.74	131.51	11.65	133.15	133.66	85	54.2
3840	90.7	72.3	3755.63	160.87	21.56	163.56	164.97	82.49	14.54
3871	94.5	74.5	3754.22	189.59	30.41	193.23	195.61	81.06	14.16
3903	98.5	77.1	3750.6	219.55	38.21	224.04	227.28	80.32	14.88
3934	101.9	80.8	3745.11	248.82	44.06	253.97	257.77	80.16	16.07
3966	105.4	84.3	3737.56	279.14	48.1	284.8	288.83	80.41	15.25
3997	108.2	89.3	3728.59	308.47	49.76	314.41	318.33	81.01	17.89
4028	110	93.5	3718.45	337.69	49.05	343.69	347.17	81.88	14.06
4060	107.5	96.3	3708.16	367.98	46.46	373.87	376.75	82.92	11.39
4092	106.1	98.4	3698.91	398.6	42.54	404.25	406.49	83.99	7.66
4123	103.5	98.8	3690.99	428.51	38.06	433.89	435.55	84.99	8.48
4155	100.7	99.2	3684.28	459.74	33.16	464.79	465.97	85.92	8.83
4186	100.7	99	3678.53	490.13	28.34	494.86	495.67	86.72	0.63
4218	100.9	98.7	3672.53	521.5	23.51	525.92	526.45	87.44	1.11
4249	101.6	98.6	3666.49	551.85	18.93	555.98	556.3	88.05	2.28
4281	99	99.7	3660.76	583.26	13.93	587.06	587.23	88.64	8.8
4313	99.4	100	3655.65	614.75	8.52	618.18	618.24	89.21	1.56
4344	96.6	101.6	3651.33	645.31	2.77	648.33	648.34	89.76	10.38
4375	96.9	102	3647.69	675.89	-3.53	678.47	678.48	90.3	1.61
4407	95.7	100.8	3644.18	707.52	-9.81	709.65	709.71	90.79	5.29
4439	96.1	102	3640.89	739.17	-16.1	740.85	741.02	91.25	3.93
4470	93.8	102.8	3638.21	769.81	-22.73	771.01	771.34	91.69	7.85
4501	92.1	103.5	3636.62	800.48	-29.78	801.16	801.71	92.13	5.93
4533	91.6	101.9	3635.59	832.2	-36.81	832.36	833.17	92.53	5.24
4564	92.3	101	3634.53	863	-42.96	862.72	863.79	92.85	3.68
4596	93.2	102.3	3633	894.77	-49.41	894.02	895.39	93.16	4.94
4627	90.9	102.6	3631.89	925.5	-56.09	924.27	925.97	93.47	7.48
4657	90.8	101.7	3631.44	955.29	-62.4	953.6	955.64	93.74	3.02
4688	90.8	102.8	3631.01	986.05	-68.98	983.89	986.3	94.01	3.55
4720	90.8	103.8	3630.56	1017.74	-76.34	1015.03	1017.89	94.3	3.12
4751	90.1	101.1	3630.32	1048.49	-83.02	1045.29	1048.59	94.54	9
4783	90.3	102	3630.21	1080.3	-89.43	1076.65	1080.35	94.75	2.88
4815	90.2	101.1	3630.07	1112.11	-95.84	1108	1112.13	94.94	2.83

b

JIC 30-03-33 #31
API#: 30-039-29446

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	Vertical Depth	Vertical Section FT	N-S FT	E-W FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
4846	90.5	100.8	3629.88	1142.96	-101.73	1138.43	1142.97	95.11	1.37
4877	90	98.9	3629.74	1173.86	-107.03	1168.97	1173.86	95.23	6.34
4909	90.9	97.7	3629.49	1205.82	-111.65	1200.64	1205.82	95.31	4.69
4941	91.3	98.6	3628.88	1237.77	-116.18	1232.31	1237.77	95.39	3.08
4972	92.1	97.2	3627.96	1268.72	-120.44	1263	1268.73	95.45	5.2
5003	92.1	96.7	3626.82	1299.69	-124.19	1293.75	1299.7	95.48	1.61
5034	92.8	95.5	3625.5	1330.66	-127.48	1324.54	1330.67	95.5	4.48
5066	93	96	3623.88	1362.62	-130.69	1356.34	1362.62	95.5	1.68
5098	91.9	95.5	3622.51	1394.58	-133.89	1388.15	1394.59	95.51	3.78
5129	92.2	95.2	3621.4	1425.56	-136.78	1419	1425.57	95.51	1.37
5161	91.3	95.7	3620.42	1457.55	-139.81	1450.84	1457.56	95.5	3.22
5192	90.9	95.7	3619.83	1488.54	-142.89	1481.68	1488.55	95.51	1.29
5224	91.7	93.9	3619.1	1520.53	-145.57	1513.56	1520.54	95.49	6.15
5255	89.7	94.3	3618.72	1551.52	-147.79	1544.47	1551.53	95.47	6.58
5286	90.2	94.9	3618.75	1582.52	-150.27	1575.37	1582.52	95.45	2.52
5318	90.9	94.4	3618.44	1614.51	-152.87	1607.27	1614.52	95.43	2.69
5349	90.8	93.1	3617.98	1645.5	-154.89	1638.2	1645.5	95.4	4.21
5380	91.3	93.1	3617.41	1676.47	-156.57	1669.14	1676.47	95.36	1.61
5412	92.1	93.1	3616.47	1708.43	-158.3	1701.08	1708.43	95.32	2.5
5444	91	93.7	3615.6	1740.4	-160.2	1733.02	1740.4	95.28	3.92
5475	89.5	95.3	3615.46	1771.4	-162.63	1763.92	1771.4	95.27	7.07
5506	89.7	95.2	3615.68	1802.4	-165.47	1794.79	1802.4	95.27	0.72
5538	90.6	93.5	3615.6	1834.39	-167.89	1826.69	1834.39	95.25	6.01
5570	88.6	94.9	3615.82	1866.38	-170.24	1858.6	1866.38	95.23	7.63
5601	88.1	94	3616.71	1897.37	-172.64	1889.5	1897.37	95.22	3.32
5633	88.7	93.9	3617.61	1929.34	-174.84	1921.41	1929.35	95.2	1.9
5664	89.3	94.2	3618.15	1960.33	-177.03	1952.33	1960.34	95.18	2.16
5695	88.7	94.2	3618.69	1991.32	-179.3	1983.24	1991.33	95.17	1.94
5726	89.1	94.6	3619.28	2022.31	-181.68	2014.14	2022.32	95.15	1.82
5758	89.7	93.5	3619.62	2054.3	-183.94	2046.06	2054.31	95.14	3.92
5790	90.3	93.7	3619.62	2086.29	-185.95	2078	2086.3	95.11	1.98
5815	90.2	93.6	3619.51	2111.28	-187.54	2102.94	2111.29	95.1	0.57
5847	89.7	92.9	3619.54	2143.26	-189.36	2134.89	2143.27	95.07	2.69
5879	88.7	93.3	3619.98	2175.23	-191.09	2166.84	2175.25	95.04	3.37
5910	89.2	93	3620.55	2206.2	-192.79	2197.79	2206.23	95.01	1.88
5942	89.7	92.9	3620.86	2238.17	-194.44	2229.75	2238.21	94.98	1.59
5973	90.1	92.4	3620.91	2269.14	-195.87	2260.71	2269.18	94.95	2.07
6005	90.7	92.4	3620.69	2301.1	-197.21	2292.68	2301.15	94.92	1.87
6036	91.2	92.1	3620.18	2332.05	-198.43	2323.66	2332.11	94.88	1.88
6068	91.5	93	3619.42	2364	-199.85	2355.61	2364.08	94.85	2.96
6099	90.8	92.3	3618.8	2394.96	-201.28	2386.57	2395.05	94.82	3.19
6130	91.2	93	3618.26	2425.93	-202.71	2417.54	2426.02	94.79	2.6
6162	91.9	93.3	3617.39	2457.89	-204.47	2449.48	2458	94.77	2.38
6193	93	91.9	3616.07	2488.83	-205.88	2480.41	2488.94	94.74	5.74
6225	91.8	93.7	3614.73	2520.77	-207.44	2512.35	2520.9	94.72	6.76
6256	91.5	92.6	3613.84	2551.73	-209.14	2543.29	2551.87	94.7	3.68
6286	91.1	93.8	3613.16	2581.7	-210.82	2573.23	2581.85	94.68	4.22
6317	91.6	92.4	3612.42	2612.67	-212.49	2604.18	2612.83	94.66	4.79
6347	90.3	92.5	3611.93	2642.63	-213.77	2634.14	2642.8	94.64	4.35
6379	91	92.7	3611.56	2674.59	-215.23	2666.11	2674.78	94.62	2.28
6411	91.2	93	3610.95	2706.56	-216.82	2698.06	2706.76	94.59	1.13
6442	91.7	92.2	3610.17	2737.51	-218.22	2729.02	2737.73	94.57	3.04
6474	92.3	92.1	3609.05	2769.44	-219.42	2760.98	2769.68	94.54	1.9
6505	91.5	93	3608.02	2800.39	-220.8	2791.93	2800.65	94.52	3.88

JIC 30-03-33 #31
API#: 30-039-29446

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	Vertical Depth FT	Vertical Section FT	N-S FT	E-W FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
6536	91.1	92.8	3607.32	2831.35	-222.37	2822.88	2831.63	94.5	1.44
6568	91.3	92.8	3606.65	2863.32	-223.93	2854.84	2863.61	94.49	0.63
6600	91.8	92.5	3605.78	2895.27	-225.41	2886.79	2895.58	94.46	1.82
6631	92.2	93	3604.7	2926.22	-226.9	2917.74	2926.55	94.45	2.06
6662	91.8	92.5	3603.62	2957.17	-228.38	2948.68	2957.51	94.43	2.06
6694	90.4	92.8	3603	2989.13	-229.86	2980.64	2989.49	94.41	4.47
6725	90.2	92.7	3602.84	3020.1	-231.35	3011.61	3020.48	94.39	0.72
6756	89.4	92.7	3602.95	3051.07	-232.81	3042.57	3051.46	94.38	2.58
6788	89.8	93.2	3603.17	3083.04	-234.46	3074.53	3083.45	94.36	2
6819	89.4	92.1	3603.39	3114	-235.89	3105.49	3114.44	94.34	3.78
6851	89.7	92.4	3603.64	3145.96	-237.15	3137.47	3146.42	94.32	1.33
6882	90	92.1	3603.72	3176.91	-238.36	3168.44	3177.4	94.3	1.37
6914	90.6	91.8	3603.55	3208.86	-239.45	3200.42	3209.37	94.28	2.1
6945	91.5	91.1	3602.99	3239.78	-240.24	3231.41	3240.33	94.25	3.68
6976	92	91	3602.04	3270.68	-240.8	3262.39	3271.26	94.22	1.64
7008	92.3	91	3600.84	3302.57	-241.36	3294.36	3303.19	94.19	0.94
7039	92.7	91.6	3599.49	3333.47	-242.07	3325.32	3334.12	94.16	2.32
7071	93.5	91.2	3597.76	3365.34	-242.85	3357.27	3366.04	94.14	2.79
7102	94.1	91.1	3595.7	3396.2	-243.47	3388.19	3396.93	94.11	1.96
7134	94.3	91.4	3593.36	3428.03	-244.16	3420.1	3428.8	94.08	1.12
TD7181	94.5	91.4	3589.75	3474.78	-245.31	3466.95	3475.61	94.05	0.43

JIC 30-3-33 #31
30-039-29446

SURF: 1851 FS
- 245
1606 FS

838 FW
3467 FW
4305 FW

2615.36 SW/4
2598.2 SE/4

SEC. WIDTH: 5213.56'
909' FE