

RCVD MAR5'07
OIL CONS. DIV.
DIST. 3



OPERATOR: BLACKHILLS GAS RESOURCES
WELL: jicarilla 452-05 #31
LOCATION: RIO ARRIBA CO., NM

START: 1/28/07
FINISH: 2/8/07

PROPOSED DIRECTION: 81.74

MIN. CURVATURE CALCULATIONS

SUR	MO	INCL.	AZM.	TVD	N-S	E-W	SECT.	DLS	BR	
NUM	ft	°	°	ft	ft	ft	ft	%/100 ft	%/100 ft	C.L.
82	6393.0	88.60	78.8	3809.4	371.2	2476.6	2504.2	3.1	0.3	32.0
83	6424.0	88.10	78.6	3810.3	377.3	2507.0	2535.2	1.7	1.6	31.0
84	6456.0	88.30	79.2	3811.3	383.5	2538.4	2567.1	2.0	0.6	32.0
85	6488.0	88.80	80.8	3812.1	389.0	2569.9	2599.1	5.2	1.6	32.0
86	6519.0	88.60	80.7	3812.8	394.0	2600.5	2630.1	0.7	0.6	31.0
87	6550.0	88.40	81.2	3813.6	398.9	2631.1	2661.1	1.7	0.6	31.0
88	6582.0	89.30	82.5	3814.3	403.4	2662.7	2693.1	4.9	2.8	32.0
89	6613.0	89.90	82.7	3814.5	407.4	2693.5	2724.1	2.0	1.9	31.0
90	6645.0	90.30	82.1	3814.4	411.6	2725.2	2756.1	2.3	1.3	32.0
91	6677.0	90.60	82.6	3814.2	415.9	2756.9	2788.1	1.8	0.9	32.0
92	6708.0	90.80	83.1	3813.8	419.8	2787.7	2819.0	1.7	0.6	31.0
93	6740.0	90.70	83.2	3813.4	423.6	2819.4	2851.0	0.4	0.3	32.0
94	6771.0	91.00	83.3	3812.9	427.2	2850.2	2882.0	1.0	1.0	31.0
95	6803.0	91.40	83.6	3812.3	430.9	2882.0	2914.0	1.6	1.3	32.0
96	6834.0	91.60	84.0	3811.5	434.2	2912.8	2945.0	1.4	0.6	31.0
97	6866.0	91.50	84.3	3810.6	437.5	2944.6	2976.9	1.0	0.3	32.0
TD	6911.0	91.50	84.4	3809.4	441.9	2989.4	3021.9	0.2	0.0	45.0

JIC 452-05 #31

SURF: 1455' FS 1005' FW
+ 442' 2989'
1897' FS 2639'
 2640'
 1285' FE

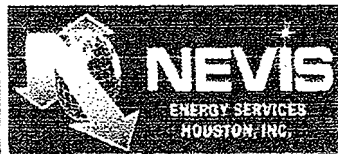
MD 6911
TVD 3809

API #30-039-29469

Lateral origin
1420/5 1112/W
MD 3979
TVD 3909

Rhett / Dwayne

8



OPERATOR: BLACKHILLS GAS RESOURCES
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 LOCATION: RIO ARRIBA CO.,NM

START: 1/28/07
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PROPOSED DIRECTION: 81.74

MIN. CURVATURE CALCULATIONS

SUR NUM	MD ft	INCL. °	AZM. °	TVD ft	N-S ft	E-W ft	SECT. ft	DLS %/100 ft	BR %/100 ft	C.L.
41	5110.0	90.10	81.3	3812.4	166.7	1210.5	1221.9	1.2	1.0	31.0
42	5141.0	90.50	81.3	3812.3	171.4	1241.2	1252.9	1.3	1.3	31.0
43	5172.0	90.90	81.2	3811.9	176.1	1271.8	1263.9	1.3	1.3	31.0
44	5204.0	88.60	81.4	3812.0	181.0	1303.4	1315.9	7.2	7.2	32.0
45	5234.0	88.70	81.5	3812.7	185.4	1333.1	1345.9	0.5	0.3	30.0
46	5266.0	88.70	81.6	3813.5	190.1	1364.7	1377.9	0.3	0.0	32.0
47	5297.0	88.70	81.1	3814.2	194.8	1395.4	1408.9	1.6	0.0	31.0
48	5328.0	88.80	81.3	3814.8	199.5	1426.0	1439.9	0.7	0.3	31.0
49	5359.0	89.40	81.9	3815.3	204.1	1456.7	1470.9	2.7	1.9	31.0
50	5391.0	90.00	82.2	3815.5	208.5	1488.3	1502.9	2.1	1.9	32.0
51	5422.0	90.30	82.3	3815.4	212.7	1519.1	1533.9	1.0	1.0	31.0
52	5453.0	90.60	82.4	3815.2	216.8	1549.8	1564.9	1.0	1.0	31.0
53	5485.0	90.80	82.4	3814.8	221.0	1581.5	1596.9	0.6	0.6	32.0
54	5517.0	91.00	82.4	3814.3	225.3	1613.2	1628.8	0.6	0.6	32.0
55	5548.0	91.20	82.4	3813.7	229.4	1643.9	1659.8	0.6	0.6	31.0
56	5579.0	91.50	82.6	3813.0	233.4	1674.7	1690.8	1.2	1.0	31.0
57	5610.0	91.70	82.5	3812.1	237.4	1705.4	1721.8	0.7	0.6	31.0
58	5642.0	90.30	82.6	3811.5	241.6	1737.1	1753.8	4.4	4.4	32.0
59	5673.0	90.20	82.0	3811.4	245.7	1767.8	1784.8	2.0	0.3	31.0
60	5704.0	90.40	81.9	3811.2	250.1	1798.5	1815.8	0.7	0.6	31.0
61	5736.0	90.50	81.8	3811.0	254.6	1830.2	1847.8	0.4	0.3	32.0
62	5767.0	90.90	81.8	3810.6	259.0	1860.9	1878.8	1.3	1.3	31.0
63	5799.0	89.30	81.1	3810.5	263.8	1892.5	1910.8	5.5	5.0	32.0
64	5830.0	89.90	81.1	3810.8	268.6	1923.2	1941.8	1.9	1.9	31.0
65	5861.0	90.50	80.8	3810.7	273.5	1953.8	1972.8	2.2	1.9	31.0
66	5893.0	90.90	80.3	3810.3	278.7	1985.3	2004.8	2.0	1.3	32.0
67	5924.0	90.60	79.9	3809.9	284.0	2015.9	2035.6	1.6	1.0	31.0
68	5955.0	91.10	79.8	3809.4	289.5	2046.4	2066.7	1.6	1.6	31.0
69	5986.0	91.20	79.4	3808.8	295.1	2076.9	2097.7	1.3	0.3	31.0
70	6017.0	89.60	80.6	3808.6	300.5	2107.4	2128.7	6.5	5.2	31.0
71	6048.0	89.90	80.2	3808.7	305.6	2138.0	2159.7	1.6	1.0	31.0
72	6079.0	90.10	80.0	3808.7	311.0	2168.5	2190.7	0.9	0.6	31.0
73	6111.0	90.30	79.7	3808.6	316.6	2200.0	2222.7	1.1	0.6	32.0
74	6143.0	90.60	79.7	3808.3	322.3	2231.5	2254.6	0.9	0.9	32.0
75	6174.0	90.60	79.3	3808.0	328.0	2262.0	2285.6	1.3	0.0	31.0
76	6205.0	90.60	79.0	3807.7	333.8	2292.4	2316.6	1.0	0.0	31.0
77	6236.0	90.80	78.7	3807.3	339.8	2322.8	2347.5	1.2	0.6	31.0
78	6268.0	90.80	78.6	3806.9	346.1	2354.2	2379.5	0.3	0.0	32.0
79	6299.0	88.60	79.2	3807.0	352.1	2384.6	2410.4	7.4	7.1	31.0
80	6330.0	88.50	77.9	3807.8	358.2	2415.0	2441.4	4.2	0.3	31.0
81	6361.0	88.50	77.8	3808.6	364.8	2445.3	2472.3	0.3	0.0	31.0



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MIN. CURVATURE CALCULATIONS

SUR NUM	MD ft	INCL. °	AZM. °	TVD ft	N-S ft	E-W ft	SECT. ft	DLS %/100 ft	RR %/100 ft	C.L.
tie in	3800.0	0.38	134.3	3799.7	-43.0	-8.4	-14.5	0.0	0.0	
1	3858.0	29.60	98.1	3855.1	-45.2	6.2	-0.3	50.5	50.4	58.0
2	3889.0	47.50	92.9	3879.2	-46.9	25.4	18.4	58.6	57.7	31.0
3	3920.0	64.30	82.4	3896.6	-45.6	50.9	43.8	60.9	54.2	31.0
4	3948.0	79.40	79.2	3905.3	-41.3	77.1	70.3	55.0	53.9	28.0
5	3979.0	87.40	76.7	3908.5	-34.9	107.1	101.0	27.0	25.8	31.0
6	4011.0	90.10	72.9	3909.6	-26.5	138.0	132.8	14.6	8.4	32.0
7	4042.0	94.00	72.7	3908.4	-17.3	167.6	163.4	12.6	12.6	31.0
8	4073.0	97.30	72.7	3905.4	-8.2	197.1	193.8	10.6	10.6	31.0
9	4104.0	98.70	74.5	3900.8	0.5	226.5	224.2	9.6	7.7	31.0
10	4135.0	100.60	75.0	3895.4	8.5	255.9	254.5	3.3	2.9	31.0
11	4166.0	101.10	75.0	3889.5	16.4	285.3	284.7	1.6	1.6	31.0
12	4197.0	101.40	75.4	3883.5	24.2	314.7	314.9	1.6	1.0	31.0
13	4229.0	99.90	76.9	3877.6	31.7	345.2	346.2	6.6	4.7	32.0
14	4261.0	100.10	76.8	3872.0	38.9	375.9	377.6	0.7	0.6	32.0
15	4292.0	100.50	77.1	3866.5	45.8	405.6	408.0	1.6	1.3	31.0
16	4323.0	99.50	79.1	3861.1	52.1	435.5	438.5	7.1	3.2	31.0
17	4354.0	99.70	79.1	3855.9	57.8	465.5	469.0	0.6	0.6	31.0
18	4386.0	100.20	79.3	3850.4	63.7	496.5	500.5	1.7	1.6	32.0
19	4417.0	100.70	79.7	3844.8	69.3	526.5	531.0	2.1	1.9	31.0
20	4449.0	101.30	79.7	3838.6	74.9	557.4	562.3	1.9	1.9	32.0
21	4480.0	99.70	81.2	3833.0	80.0	587.4	592.8	7.0	5.2	31.0
22	4512.0	97.60	81.8	3828.2	84.6	618.7	624.4	6.8	6.6	32.0
23	4543.0	94.70	82.0	3824.9	89.0	649.2	655.3	9.4	9.4	31.0
24	4575.0	94.90	82.3	3822.2	93.3	680.8	687.2	1.1	0.6	32.0
25	4606.0	92.70	82.7	3820.1	97.4	711.5	718.1	7.2	7.1	31.0
26	4638.0	92.60	82.6	3818.6	101.5	743.2	750.0	0.4	0.3	32.0
27	4669.0	90.00	82.2	3817.8	105.6	773.9	781.0	9.1	9.0	31.0
28	4700.0	90.30	82.1	3817.8	109.8	804.6	812.0	1.0	1.0	31.0
29	4732.0	90.70	82.2	3817.5	114.2	836.3	844.0	1.3	1.3	32.0
30	4764.0	91.20	82.3	3816.9	118.5	868.0	876.0	1.6	1.6	32.0
31	4796.0	91.50	82.2	3816.2	122.8	899.7	908.0	1.3	1.3	32.0
32	4827.0	92.00	82.1	3815.2	127.0	930.4	939.0	1.3	1.3	31.0
33	4859.0	92.30	82.2	3814.0	131.4	962.1	971.0	1.0	0.9	32.0
34	4890.0	92.60	82.2	3812.7	135.6	992.8	1001.9	1.0	1.0	31.0
35	4921.0	90.60	82.1	3811.8	139.8	1023.5	1032.9	6.5	6.5	31.0
36	4953.0	90.90	82.1	3811.4	144.2	1055.1	1064.9	0.9	0.9	32.0
37	4984.0	89.10	82.5	3811.4	148.4	1086.9	1095.9	5.9	5.8	31.0
38	5016.0	89.20	81.7	3811.9	152.8	1117.5	1127.9	2.5	0.3	32.0
39	5047.0	89.50	81.4	3812.2	157.3	1148.2	1158.9	1.4	1.0	31.0
40	5079.0	89.80	81.5	3812.4	162.1	1179.9	1190.9	1.0	0.9	32.0

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

JOB NO.:	71021	Report Time:	2400	18 of 18
COMPANY:	Black Hills E & P	API JOB #		
LOCATION:	Rio Arriba Co. NM	WORK ORDER#		
RIG NAME:	Patterson #744	FIELD:	Dulce	
STATE:	New Mexico	Township:		
COUNTY:	Rio Arriba	SECTRANGE:		
WELL NAME:	Jicarilla 452-05 #31			

From Friday, February 09, 2007 at 0000 to Friday, February 09, 2007 at 2400

DRILLING SUMMARY				Drilling Parameters							
Start Depth	6911.00	Rotary Hours	0.00	WOB	2.5	Pick UP	66	Slack Off	40	SPM	
End Depth	6911.00	Circulating Hours	0.00	RAB	64	SPP	1275	FlowRate	160 - 160	60	
Total Drilled:	0.00	Avg. Total ROP:	NA	Mud Data							
Total Rotary Drilled:	0.00	Avg. Rotary ROP:	NA	Type		PV	0	SOLID		0	
Total Drilled Sliding:	0.00	Avg. Slide ROP:	NA	Weight	8.5	GAS	0	YP	0	BHT°	
Slide Hours	0.00	Percent Rotary:	NA	Viscosity	0	SAND	0	PH	0	Flow T°	
Below Rotary Hrs.	24.00	Percent Slide:	NA	Chlorides	0	WL	0		Oil %	0	
PERSONNEL				CASING				BHA			
Lead Directional :	Rheft Hebert			Size	Lb/ft	Set Depth	BHA # 4: HUGHES HMC 404Z, 4-18, BLACK MAX 1.69 DEG., FLOAT SUB, PONY COLLAR, NMDC, GAP SUB, GAP SUB XO, NMDC, 60 JTS. 2 7/8 PH6, XO, 38 JTS HEAVY WEIGHT.				
Second Directional :	Dwain Howell			Signature:							
MWD Operator1	Vinn Adams										
MWD Operator2	Jimmi Krajnik										
Directional Company:	Nevis Energy Services										
Geologist:	Dick White										
Company Man:	Darrell Baxter										
Incl. In:	0	Azm. In:	0	Incl. Out:	0	Azm. Out:	0	Daily Cost	\$3,725.00		
				Cummulative Cost:				\$175,130.00			

GENERAL COMMENT

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
9-Feb-07	00:00	24:00	24.00	6911	6911	Other	Job Complete Travel

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
8-Feb-07	07:25	07:35	0.17	6848	6848	Survey & Conn.	Survey & Conn. @ 6803
8-Feb-07	07:35	08:30	0.92	6848	6879	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	08:30	08:45	0.25	6879	6879	Survey & Conn.	Survey & Conn.@6834
8-Feb-07	08:45	09:00	0.25	6879	6879	Other	Rig Service
8-Feb-07	09:00	10:00	1.00	6879	6911	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	10:00	10:10	0.17	6911	6911	Survey & Conn.	Survey & Conn.@6866
8-Feb-07	10:10	11:10	1.00	6911	6911	Circulating	Circulating
8-Feb-07	11:10	18:00	6.83	6911	6911	POOH	POOH TD Lateral L/D Tools
8-Feb-07	18:00	24:00	6.00	6911	6911	Other	Load Truck Job Complete

1724-B Townhurst Dr, Houston, Tx 77043
(713) 627-6302
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JOB NO.:	71021	Report Time:	2400	17 of 18
COMPANY:	Black Hills E & P	API JOB #		
LOCATION:	Rio Arriba Co.NM	WORK ORDER#		
RIG NAME:	Patterson #744	FIELD:	Dulce	
STATE:	New Mexico	Township:		
COUNTY:	Rio Arriba	SECT/RANGE:		
WELL NAME:	Jicarilla 452-05 #31			

From Thursday, February 08, 2007 at 0000 to Thursday, February 08, 2007 at 2400

DRILLING SUMMARY				Drilling Parameters							
Start Depth	6605.00	Rotary Hours	8.08	WOB	2.5	Pick UP	66	Slack Off	40	SPM	
End Depth	6911.00	Circulating Hours	1.00	RAB	64	SPP	1275	FlowRate	160 - 160	60	
Total Drilled:	306.00	Avg. Total ROP:	37.86	Mud Data							
Total Rotary Drilled:	306.00	Avg. Rotary ROP:	37.86	Type				PV	0	SOLID	0
Total Drilled Sliding:	0.00	Avg. Slide ROP:	NA	Weight	8.5	GAS	0	YP	0	BHT°	0
Slide Hours	0.00	Percent Rotary:	100.00	Viscosity	0	SAND	0	PH	0	Flow T°	0
Below Rotary Hrs.	24.00	Percent Slide:	.00	Chlorides	0	WL	0			Oil %	0
PERSONNEL				CASING				BHA			
Lead Directional :	Rhett Hebert			Size	Lb/ft	Set Depth	BHA # 4: HUGHES HMC 4042.. 4-16, BLACK MAX 1.89 DEG., FLOAT SUB, PONY COLLAR, NMDC, GAP SUB, GAP SUB XO, NMDC, 60 JTS. 2 7/8 PH6, XO, 38 JTS HEAVY WEIGHT.				
Second Directional :	Dwain Howell			Signature:							
MWD Operator1	Vinn Adams										
MWD Operator2	Jimmi Krajcik										
Directional Company:	Nevis Energy Services										
Geologist:	Dick White										
Company Man:	Darrell Baxter										
Incl. In:	88.4	Azm. In:	81.2	Incl. Out:	0	Azm. Out:	0	Daily Cost	\$9,890.00		
				Cummulative Cost:				\$171,405.00			

GENERAL COMMENT

Date	Start Time	End Time	Hours	Start Depth	End Depth	Activity Code	COMMENT
8-Feb-07	00:00	00:30	0.50	6605	6627	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	00:30	00:40	0.17	6627	6627	Survey & Conn.	Survey & Conn. @6582
8-Feb-07	00:40	01:00	0.33	6627	6642	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	01:00	01:05	0.08	6642	6642	Other	Chk shot @ 6597
8-Feb-07	01:05	01:20	0.25	6642	6658	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	01:20	01:30	0.17	6658	6658	Survey & Conn.	Survey & Conn. @ 6613
8-Feb-07	01:30	02:20	0.83	6658	6690	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	02:20	02:30	0.17	6690	6690	Survey & Conn.	Survey & Conn. @ 6645
8-Feb-07	02:30	03:15	0.75	6690	6722	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	03:15	03:25	0.17	6722	6722	Survey & Conn.	Survey & Conn. @ 6677
8-Feb-07	03:25	04:10	0.75	6722	6753	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	04:10	04:20	0.17	6753	6753	Survey & Conn.	Survey & Conn. @ 6708
8-Feb-07	04:20	05:00	0.67	6753	6785	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	05:00	05:10	0.17	6785	6785	Survey & Conn.	Survey & Conn. @ 6740
8-Feb-07	05:10	06:00	0.83	6785	6816	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)
8-Feb-07	06:00	06:10	0.17	6816	6816	Survey & Conn.	Survey & Conn. @ 6771
8-Feb-07	06:10	07:25	1.25	6816	6848	Drilling	Drilling - (WOB:2.5;GPM:160;RPM:50)