

30-039-20649



OPERATOR: BLACK HILLS EXPLORATION
WELL: CARSON 29-04-11#2
LOCATION: RIO ARRIBA Co.NM

START: 5/8/06
FINISH: 5/8/06

PROPOSED DIRECTION: 274.20

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	Temp
67	5650.0	90.50	269.2	3738.4	179.3	-1857.1	1865.3	0.7	0.3	
67	5682.0	90.20	268.2	3738.2	178.6	-1889.1	1897.1	3.3	0.9	
68	5713.0	89.50	268.2	3738.3	177.6	-1920.1	1928.0	2.3	2.3	
69	5745.0	89.10	267.5	3738.7	176.4	-1952.1	1959.8	2.5	1.3	
70	5776.0	88.70	267.4	3739.3	175.0	-1983.0	1990.5	1.3	1.3	
71	5808.0	88.60	268.5	3740.0	173.9	-2015.0	2022.3	3.5	0.3	
72	5839.0	87.90	265.9	3741.0	172.4	-2046.0	2053.1	8.7	2.3	
73	5871.0	86.90	265.4	3742.4	169.9	-2077.8	2084.7	3.5	3.1	
74	5902.0	87.20	266.2	3744.0	167.7	-2108.7	2115.3	2.8	1.0	
75	5934.0	86.70	267.4	3745.7	165.9	-2140.6	2147.0	4.1	1.6	
76	5966.0	86.40	266.4	3747.6	164.2	-2172.5	2178.7	3.3	0.9	
77	5997.0	86.20	268.8	3749.6	162.9	-2203.4	2209.4	7.8	0.6	
78	6029.0	85.60	267.8	3751.9	161.9	-2235.3	2241.2	3.6	1.9	
79	6060.0	85.50	268.1	3754.3	160.8	-2266.2	2271.9	1.0	0.3	
80	6091.0	84.80	269.0	3756.9	160.0	-2297.1	2302.6	3.7	2.3	
81	6123.0	84.80	267.6	3759.8	159.1	-2328.9	2334.3	4.4	0.0	
82	6186.0	84.10	269.5	3765.9	157.5	-2391.6	2396.7	3.2	1.1	
83	6248.0	83.40	269.4	3772.7	156.9	-2453.2	2458.1	1.1	1.1	
84	6311.0	82.00	269.0	3780.7	156.0	-2515.7	2520.4	2.3	2.2	
85	6374.0	80.30	268.0	3790.4	154.4	-2578.0	2582.3	3.1	2.7	
bit pj	6424.0	80.30	268.0	3798.8	152.7	-2627.2	2631.3	0.0	0.0	

target line TVD	3760.00		
DIP AZ	274.20	FINAL	
DIP DEG	0.50	ANGLE	90.50
Target Line TVD	3760.00	PROPOSED	
DIP AZ	274.20	FINAL	
DIP DEG	0.50	ANGLE	90.50

LINE TARGET TVD	TVD TO LINE	TARGET line TVD	TVD TO LINE	CLOSURE BEARING	AWAY FROM PROP.
3743.7	5.3	3743.7	5.3	275.51	42.81
3743.4	5.3	3743.4	5.3	275.40	39.74
3743.2	4.9	3743.2	4.9	275.28	36.50
3742.9	4.2	3742.9	4.2	275.16	32.97
3742.6	3.4	3742.6	3.4	275.04	29.32
3742.4	2.3	3742.4	2.3	274.93	25.84
3742.1	1.1	3742.1	1.1	274.82	22.06
3741.8	-0.6	3741.8	-0.6	274.68	17.31
3741.5	-2.5	3741.5	-2.5	274.55	12.79
3741.3	-4.4	3741.3	-4.4	274.43	8.67
3741.0	-6.6	3741.0	-6.6	274.32	4.61
3740.7	-8.9	3740.7	-8.9	274.23	1.06
3740.4	-11.5	3740.4	-11.5	274.14	-2.22
3740.2	-14.2	3740.2	-14.2	274.06	-5.59
3739.9	-17.0	3739.9	-17.0	273.99	-8.63
3739.6	-20.2	3739.6	-20.2	273.91	-11.90
3739.1	-26.9	3739.1	-26.9	273.77	-18.08
3738.5	-34.1	3738.5	-34.1	273.66	-23.18
3738.0	-42.7	3738.0	-42.7	273.55	-28.63
3737.5	-52.9	3737.5	-52.9	273.43	-34.81
3737.0	-61.8	3737.0	-61.8	273.33	-40.13

SURF 1770/N 944 E
1 Horiz. entry 1707/N 1045/E
2 Horiz BHL 1517/N 1769/W

MD 1, 3857
TVD 1, 3813

MD 2, 6424
TVD 2, 3798

~~SURF: 1770' FN 5163~~
~~-153~~
~~1517' FN~~
~~1592' FW~~

BOTTOM HOLE:

Rhett / Robert



OPERATOR: BLACK HILLS EXPLORATION START: 5/8/06
WELL: CARSON 29-04-11#2 FINISH: 5/8/06
LOCATION: RIO ARRIBA Co.NM

PROPOSED DIRECTION: 274.20

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	Temp
58	5366.0	90.20	269.1	3744.8	182.1	-1573.2	1582.3	1.9	0.3	
59	5398.0	90.60	269.2	3744.6	181.7	-1605.2	1614.2	1.3	1.3	
60	5429.0	91.40	269.7	3744.1	181.4	-1636.2	1645.1	3.0	2.6	
61	5461.0	91.70	269.7	3743.2	181.2	-1668.2	1677.0	0.9	0.9	
62	5492.0	92.10	269.8	3742.2	181.1	-1699.2	1707.9	1.3	1.3	
63	5524.0	91.80	269.6	3741.1	180.9	-1731.2	1739.8	1.1	0.9	
64	5555.0	91.70	269.4	3740.2	180.6	-1762.2	1770.7	0.7	0.3	
65	5587.0	91.50	268.9	3739.3	180.2	-1794.1	1802.5	1.7	0.6	
66	5618.0	90.60	269.4	3738.7	179.7	-1825.1	1833.4	3.3	2.9	
67	5650.0	90.50	269.2	3738.4	179.3	-1857.1	1865.3	0.7	0.3	
67	5682.0	90.20	268.2	3738.2	178.6	-1889.1	1897.1	3.3	0.9	
68	5713.0	89.50	268.2	3738.3	177.6	-1920.1	1928.0	2.3	2.3	
69	5745.0	89.10	267.5	3738.7	176.4	-1952.1	1959.8	2.5	1.3	
70	5776.0	88.70	267.4	3739.3	175.0	-1983.0	1990.5	1.3	1.3	
71	5808.0	88.60	268.5	3740.0	173.9	-2015.0	2022.3	3.5	0.3	
72	5839.0	87.90	265.9	3741.0	172.4	-2046.0	2053.1	8.7	2.3	
73	5871.0	86.90	265.4	3742.4	169.9	-2077.8	2084.7	3.5	3.1	
74	5902.0	87.20	266.2	3744.0	167.7	-2108.7	2115.3	2.8	1.0	
75	5934.0	86.70	267.4	3745.7	165.9	-2140.6	2147.0	4.1	1.6	
76	5966.0	86.40	266.4	3747.6	164.2	-2172.5	2178.7	3.3	0.9	
77	5997.0	86.20	268.8	3749.6	162.9	-2203.4	2209.4	7.8	0.6	
78	6029.0	85.60	267.8	3751.9	161.9	-2235.3	2241.2	3.6	1.9	
79	6060.0	85.50	268.1	3754.3	160.8	-2266.2	2271.9	1.0	0.3	
bit	6110.0	85.58	268.0	3758.2	159.1	-2316.0	2321.5	0.3	0.2	

target line TVD 3760.00
DIP AZ 274.20 FINAL
DIP DEG 0.50 ANGLE 90.50

Target Line TVD 3760.00 PROPOSED
DIP AZ 274.20 FINAL
DIP DEG 0.50 ANGLE 90.50

LINE TARGET TVD	TVD TO LINE	TARGET line TVD	TVD TO LINE	CLOSURE BEARING	AWAY FROM PROP.
3746.2	1.3	3746.2	1.3	276.60	66.43
3745.9	1.3	3745.9	1.3	276.46	63.62
3745.6	1.6	3745.6	1.6	276.33	61.05
3745.4	2.2	3745.4	2.2	276.20	58.54
3745.1	2.9	3745.1	2.9	276.08	56.14
3744.8	3.7	3744.8	3.7	275.97	53.63
3744.5	4.4	3744.5	4.4	275.85	51.09
3744.3	5.0	3744.3	5.0	275.73	48.27
3744.0	5.3	3744.0	5.3	275.62	45.54
3743.7	5.3	3743.7	5.3	275.51	42.81
3743.4	5.3	3743.4	5.3	275.40	39.74
3743.2	4.9	3743.2	4.9	275.28	36.50
3742.9	4.2	3742.9	4.2	275.16	32.97
3742.6	3.4	3742.6	3.4	275.04	29.32
3742.4	2.3	3742.4	2.3	274.93	25.84
3742.1	1.1	3742.1	1.1	274.82	22.06
3741.8	-0.6	3741.8	-0.6	274.68	17.31
3741.5	-2.5	3741.5	-2.5	274.55	12.79
3741.3	-4.4	3741.3	-4.4	274.43	8.67
3741.0	-6.6	3741.0	-6.6	274.32	4.61
3740.7	-8.9	3740.7	-8.9	274.23	1.06
3740.4	-11.5	3740.4	-11.5	274.14	-2.22
3740.2	-14.2	3740.2	-14.2	274.06	-5.59
3739.7	-18.5	3739.7	-18.5	273.93	-10.93

Rhett / Robert



OPERATOR: BLACK HILLS EXPLORATION START: 5/8/06
 WELL: CARSON 29-04-11#2 FINISH: 5/8/06
 LOCATION: RIO ARRIBA Co.NM

PROPOSED DIRECTION: 274.20

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
51	5145.0	89.90	270.8	3744.8	181.8	-1352.2	1361.9	0.7	0.3
52	5177.0	90.00	270.9	3744.8	182.3	-1384.2	1393.9	0.4	0.3
53	5209.0	89.80	270.5	3744.9	182.6	-1416.2	1425.8	1.4	0.6
54	5240.0	89.80	269.9	3745.0	182.8	-1447.2	1456.7	1.9	0.0
55	5271.0	89.90	270.0	3745.1	182.7	-1478.2	1487.6	0.5	0.3
56	5303.0	90.10	269.7	3745.1	182.6	-1510.2	1519.6	1.1	0.6
57	5334.0	90.30	269.7	3745.0	182.5	-1541.2	1550.5	0.6	0.6
58	5366.0	90.20	269.1	3744.8	182.1	-1573.2	1582.3	1.9	0.3
59	5398.0	90.60	269.2	3744.6	181.7	-1605.2	1614.2	1.3	1.3
60	5429.0	91.40	269.7	3744.1	181.4	-1636.2	1645.1	3.0	2.6
61	5461.0	91.70	269.7	3743.2	181.2	-1668.2	1677.0	0.9	0.9
62	5492.0	92.10	269.8	3742.2	181.1	-1699.2	1707.9	1.3	1.3
63	5524.0	91.80	269.6	3741.1	180.9	-1731.2	1739.8	1.1	0.9
64	5555.0	91.70	269.4	3740.2	180.6	-1762.2	1770.7	0.7	0.3
65	5587.0	91.50	268.9	3739.3	180.2	-1794.1	1802.5	1.7	0.6
66	5618.0	90.60	269.4	3738.7	179.7	-1825.1	1833.4	3.3	2.9
67	5682.0	90.20	268.2	3738.2	178.4	-1889.1	1897.1	2.0	0.6

Temp

target line TVD 3760.00
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50

Target Line TVD 3760.00 PROPOSED
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50

LINE TARGET TVD	TVD TO LINE	TARGET line TVD	TVD TO LINE	CLOSURE BEARING	AWAY FROM PROP.
3748.1	3.3	3748.1	3.3	277.66	82.25
3747.8	3.0	3747.8	3.0	277.50	80.38
3747.6	2.7	3747.6	2.7	277.35	78.43
3747.3	2.3	3747.3	2.3	277.20	76.27
3747.0	1.9	3747.0	1.9	277.05	73.97
3746.7	1.6	3746.7	1.6	276.90	71.54
3746.5	1.5	3746.5	1.5	276.75	69.11
3746.2	1.3	3746.2	1.3	276.60	66.43
3745.9	1.3	3745.9	1.3	276.46	63.62
3745.6	1.6	3745.6	1.6	276.33	61.05
3745.4	2.2	3745.4	2.2	276.20	58.54
3745.1	2.9	3745.1	2.9	276.08	56.14
3744.8	3.7	3744.8	3.7	275.97	53.63
3744.5	4.4	3744.5	4.4	275.85	51.09
3744.3	5.0	3744.3	5.0	275.73	48.27
3744.0	5.3	3744.0	5.3	275.62	45.54
3743.4	5.2	3743.4	5.2	275.39	39.52



OPERATOR: BLACK HILLS EXPLORATION START: 5/8/06
 WELL: CARSON 29-04-11#2 FINISH: 5/8/06
 LOCATION: RIO ARRIBA Co.NM

PROPOSED DIRECTION: 274.20

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
43	4893.0	89.90	271.8	3745.0	175.0	-1100.3	1110.2	0.6	0.6
44	4925.0	90.60	272.0	3744.9	176.0	-1132.3	1142.2	2.3	2.2
45	4957.0	90.40	271.8	3744.6	177.1	-1164.3	1174.1	0.9	0.6
46	4988.0	90.00	271.7	3744.5	178.0	-1195.3	1205.1	1.3	1.3
47	5019.0	90.00	271.7	3744.5	179.0	-1226.3	1236.1	0.0	0.0
48	5050.0	89.80	271.3	3744.6	179.8	-1257.3	1267.1	1.4	0.6
49	5082.0	89.90	271.6	3744.7	180.6	-1289.3	1299.0	1.0	0.3
50	5113.0	89.80	271.0	3744.7	181.3	-1320.2	1330.0	2.0	0.3
51	5145.0	89.90	270.8	3744.8	181.8	-1352.2	1361.9	0.7	0.3
52	5177.0	90.00	270.9	3744.8	182.3	-1384.2	1393.9	0.4	0.3
53	5209.0	89.80	270.5	3744.9	182.6	-1416.2	1425.8	1.4	0.6
54	5240.0	89.80	269.9	3745.0	182.8	-1447.2	1456.7	1.9	0.0
55	5271.0	89.90	270.0	3745.1	182.7	-1478.2	1487.6	0.5	0.3
56	5303.0	90.10	269.7	3745.1	182.6	-1510.2	1519.6	1.1	0.6
57	5334.0	90.30	269.7	3745.0	182.5	-1541.2	1550.5	0.6	0.6
58	5366.0	90.20	269.1	3744.8	182.1	-1573.2	1582.3	1.9	0.3
59	5398.0	90.60	269.2	3744.6	181.7	-1605.2	1614.2	1.3	1.3
60	5429.0	91.40	269.7	3744.1	181.4	-1636.2	1645.1	3.0	2.6
61	5461.0	91.70	269.7	3743.2	181.2	-1668.2	1677.0	0.9	0.9
62	5492.0	92.10	269.8	3742.2	181.1	-1699.2	1707.9	1.3	1.3
63	5524.0	91.80	269.6	3741.1	180.9	-1731.2	1739.8	1.1	0.9
64	5555.0	91.70	269.4	3740.2	180.6	-1762.2	1770.7	0.7	0.3
65	5587.0	91.50	268.9	3739.3	180.2	-1794.1	1802.5	1.7	0.6
66	5618.0	90.60	269.4	3738.7	179.7	-1825.1	1833.4	3.3	2.9

Temp

target line TVD	3760.00		
DIP AZ	274.20	FINAL	
DIP DEG	0.50	ANGLE	90.50

Target Line TVD	3760.00	PROPOSED	
DIP AZ	274.20	FINAL	
DIP DEG	0.50	ANGLE	90.50

LINE TARGET TVD	TVD TO LINE	TARGET line TVD	TVD TO LINE	AWAY CLOSURE BEARING	FROM PROP.
3750.3	5.3	3750.3	5.3	279.03	93.91
3750.0	5.1	3750.0	5.1	278.84	92.62
3749.8	5.1	3749.8	5.1	278.65	91.34
3749.5	5.0	3749.5	5.0	278.47	90.01
3749.2	4.7	3749.2	4.7	278.30	88.66
3748.9	4.4	3748.9	4.4	278.14	87.20
3748.7	4.0	3748.7	4.0	277.97	85.66
3748.4	3.7	3748.4	3.7	277.82	84.10
3748.1	3.3	3748.1	3.3	277.66	82.25
3747.8	3.0	3747.8	3.0	277.50	80.38
3747.6	2.7	3747.6	2.7	277.35	78.43
3747.3	2.3	3747.3	2.3	277.20	76.27
3747.0	1.9	3747.0	1.9	277.05	73.97
3746.7	1.6	3746.7	1.6	276.90	71.54
3746.5	1.5	3746.5	1.5	276.75	69.11
3746.2	1.3	3746.2	1.3	276.60	66.43
3745.9	1.3	3745.9	1.3	276.46	63.62
3745.6	1.6	3745.6	1.6	276.33	61.05
3745.4	2.2	3745.4	2.2	276.20	58.54
3745.1	2.9	3745.1	2.9	276.08	56.14
3744.8	3.7	3744.8	3.7	275.97	53.63
3744.5	4.4	3744.5	4.4	275.85	51.09
3744.3	5.0	3744.3	5.0	275.73	48.27
3744.0	5.3	3744.0	5.3	275.62	45.54

Rhett / Robert



OPERATOR: BLACK HILLS EXPLORATION
 WELL: CARSON 29-04-11#2
 LOCATION: RIO ARRIBA Co.NM

START: 5/8/06
 FINISH: 5/8/08

PROPOSED DIRECTION: 274.20

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	Temp	LINE TARGET TVD	TVD TO LINE	TARGET line TVD	TVD TO LINE	CLOSURE BEARING	AWAY FROM PROP.
23	4264.0	95.60	271.5	3770.7	152.7	-472.8	482.7	5.1	0.3		3755.8	-14.9	3755.8	-14.9	287.90	117.65
24	4296.0	95.50	271.9	3767.6	153.6	-504.6	514.5	1.3	0.3		3755.5	-12.1	3755.5	-12.1	286.93	116.26
25	4327.0	95.90	271.8	3764.5	154.6	-535.5	545.3	1.3	1.3		3755.2	-9.2	3755.2	-9.2	286.11	115.00
26	4359.0	96.40	271.8	3761.1	155.6	-567.3	577.1	1.6	1.6		3755.0	-6.1	3755.0	-6.1	285.34	113.67
27	4390.0	96.80	271.7	3757.5	156.6	-598.0	607.9	1.3	1.3		3754.7	-2.8	3754.7	-2.8	284.67	112.35
28	4421.0	93.90	271.8	3754.6	157.5	-628.9	638.7	9.4	9.4		3754.4	-0.2	3754.4	-0.2	284.06	111.03
29	4452.0	94.20	271.8	3752.4	158.5	-659.8	669.6	1.0	1.0		3754.2	1.7	3754.2	1.7	283.51	109.74
30	4484.0	92.10	272.6	3750.7	159.7	-691.7	701.6	7.0	6.6		3753.9	3.2	3753.9	3.2	283.00	108.62
31	4516.0	92.50	272.3	3749.4	161.1	-723.7	733.5	1.6	1.3		3753.6	4.2	3753.6	4.2	282.55	107.65
32	4547.0	90.30	272.6	3748.6	162.4	-754.6	764.5	7.2	7.1		3753.3	4.7	3753.3	4.7	282.15	106.70
33	4579.0	90.90	273.1	3748.3	164.0	-786.6	796.5	2.4	1.9		3753.0	4.8	3753.0	4.8	281.78	105.95
34	4610.0	91.70	272.9	3747.6	165.6	-817.5	827.5	2.7	2.6		3752.8	5.2	3752.8	5.2	281.45	105.30
35	4641.0	89.70	272.1	3747.2	167.0	-848.5	858.4	6.9	6.5		3752.5	5.3	3752.5	5.3	281.13	104.38
36	4672.0	90.00	271.9	3747.3	168.0	-879.5	889.4	1.2	1.0		3752.2	5.0	3752.2	5.0	280.82	103.19
37	4722.0	90.10	272.1	3747.2	169.8	-929.4	939.4	0.4	0.2		3751.8	4.6	3751.8	4.6	280.35	101.27
38	4735.0	90.60	271.9	3747.2	170.2	-942.4	952.4	4.1	3.8		3751.7	4.5	3751.7	4.5	280.24	100.77
39	4766.0	91.00	271.8	3746.7	171.2	-973.4	983.3	1.3	1.3		3751.4	4.7	3751.4	4.7	279.98	99.50
40	4798.0	91.20	271.6	3746.1	172.2	-1005.4	1015.3	0.9	0.6		3751.1	5.0	3751.1	5.0	279.72	98.10
41	4829.0	91.70	271.5	3745.3	173.0	-1036.4	1046.3	1.6	1.6		3750.9	5.5	3750.9	5.5	279.48	96.67
42	4861.0	89.70	271.8	3744.9	174.0	-1068.4	1078.2	6.3	6.3		3750.6	5.7	3750.6	5.7	279.25	95.25
bit	4911.0	89.70	271.8	3745.2	175.5	-1118.3	1128.2	0.0	0.0		3750.2	5.0	3750.2	5.0	278.92	93.15

target line TVD 3760.00
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50
 Target Line TVD 3760.00 PROPOSED
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50



OPERATOR: BLACK HILLS EXPLORATION START: 5/8/08
 WELL: CARSON 29-04-11#2 FINISH: 5/8/08
 LOCATION: RIO ARRIBA Co.NM

PROPOSED DIRECTION: 274.20

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
12	3920.0	97.10	289.9	3812.2	84.2	-140.2	146.0	13.2	13.2
13	3951.0	98.30	289.9	3808.0	94.7	-169.1	175.6	3.9	3.9
14	3982.0	98.70	289.8	3803.4	105.1	-197.9	205.1	1.3	1.3
15	4013.0	97.50	287.1	3799.0	114.8	-227.1	234.9	9.5	3.9
16	4044.0	97.20	285.4	3795.1	123.4	-256.6	264.9	5.5	1.0
17	4076.0	97.00	282.0	3791.1	130.9	-287.4	296.2	10.6	0.6
18	4107.0	96.80	280.3	3787.4	136.9	-317.6	326.8	5.5	0.6
19	4138.0	96.00	277.5	3783.9	141.7	-348.0	357.5	9.3	2.6
20	4169.0	96.20	276.2	3780.7	145.3	-378.6	388.3	4.2	0.6
21	4201.0	96.50	276.4	3777.1	148.8	-410.3	420.1	1.1	0.9
22	4233.0	95.70	273.1	3773.7	151.5	-442.0	451.9	10.6	2.5
23	4264.0	95.60	271.5	3770.7	152.7	-472.8	482.7	5.1	0.3
24	4296.0	95.50	271.9	3767.6	153.6	-504.6	514.5	1.3	0.3
25	4327.0	95.90	271.8	3764.5	154.6	-535.5	545.3	1.3	1.3
26	4359.0	96.40	271.8	3761.1	155.6	-567.3	577.1	1.6	1.6
27	4390.0	96.80	271.7	3757.5	156.6	-598.0	607.9	1.3	1.3
28	4421.0	93.90	271.8	3754.6	157.5	-628.9	638.7	9.4	9.4
29	4452.0	94.20	271.8	3752.4	158.5	-659.8	669.6	1.0	1.0
bit	4502.0	91.80	271.8	3749.8	160.1	-709.7	719.5	4.8	4.8
rot	4510.0	91.00	271.8	3749.6	160.3	-717.7	727.5	10.0	10.0
drp	4509.0	90.50	272.0	3749.6	160.3	-716.7	726.5	-53.9	-50.0

target line TVD 3760.00
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50

Target Line TVD 3760.00 PROPOSED
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50

LINE TARGET TVD	TVD TO LINE	TARGET line TVD	TVD TO LINE	AWAY CLOSURE BEARING	FROM PROP.
3758.7	-53.4	3758.7	-53.4	301.00	73.74
3758.5	-49.5	3758.5	-49.5	299.25	82.05
3758.2	-45.2	3758.2	-45.2	297.97	90.32
3758.0	-41.1	3758.0	-41.1	296.82	97.88
3757.7	-37.4	3757.7	-37.4	295.69	104.29
3757.4	-33.7	3757.4	-33.7	294.49	109.53
3757.1	-30.3	3757.1	-30.3	293.32	113.26
3756.9	-27.1	3756.9	-27.1	292.15	115.78
3756.6	-24.0	3756.6	-24.0	291.00	117.21
3756.3	-20.8	3756.3	-20.8	289.94	118.37
3756.1	-17.7	3756.1	-17.7	288.92	118.68
3755.8	-14.9	3755.8	-14.9	287.90	117.65
3755.5	-12.1	3755.5	-12.1	286.93	116.26
3755.2	-9.2	3755.2	-9.2	286.11	115.00
3755.0	-6.1	3755.0	-6.1	285.34	113.67
3754.7	-2.8	3754.7	-2.8	284.67	112.35
3754.4	-0.2	3754.4	-0.2	284.06	111.03
3754.2	1.7	3754.2	1.7	283.51	109.74
3753.7	3.9	3753.7	3.9	282.71	107.65
3753.7	4.1	3753.7	4.1	282.59	107.31
3753.7	4.0	3753.7	4.0	282.61	107.35



OPERATOR: BLACK HILLS EXPLORATION START: 5/8/06
 WELL: CARSON 29-04-11#2 FINISH: 5/8/06
 LOCATION: RIO ARRIBA Co.NM
 PROPOSED DIRECTION: 274.20

MIN. CURVATURE CALCULATIONS

SUR NUM	MD ft	INCL. °	AZIM. °	TVD ft	N-S ft	E-W ft	SECT. ft	DLS %/100 ft	BR %/100 ft
TIE IN	3690.0	0.48	134.9	3689.7	38.2	1.0	1.9	0.0	0.0
1	3732.0	8.30	274.5	3731.6	38.3	-2.0	4.8	20.6	18.6
2	3749.0	17.70	281.8	3748.1	39.0	-5.7	8.6	56.0	55.3
3	3763.0	26.70	284.0	3761.1	40.2	-10.9	13.8	64.5	64.3
4	3778.0	36.50	288.0	3773.8	42.4	-18.4	21.4	66.8	65.3
5	3795.0	46.20	288.3	3786.6	45.9	-29.1	32.3	57.1	57.1
6	3810.0	54.70	288.2	3796.1	49.5	-40.0	43.5	56.7	56.7
7	3826.0	63.70	287.9	3804.3	53.7	-53.1	56.9	56.3	56.3
8	3835.0	69.80	287.9	3807.9	56.3	-60.9	64.9	67.8	67.8
9	3841.0	73.60	288.0	3809.7	58.0	-66.4	70.4	63.4	63.3
10	3857.0	81.10	289.2	3813.2	63.0	-81.1	85.5	47.4	46.9
11	3889.0	93.00	290.0	3814.9	73.7	-111.2	116.3	37.3	37.2
12	3920.0	97.10	289.9	3812.2	84.2	-140.2	146.0	13.2	13.2
bit	3970.0	101.90	289.9	3803.9	101.0	-186.6	193.5	9.6	9.6

target line TVD 3760.00
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50

Target Line TVD 3760.00 PROPOSED
 DIP AZ 274.20 FINAL
 DIP DEG 0.50 ANGLE 90.50

LINE TARGET TVD	TVD TO LINE	TARGET line TVD	TVD TO LINE	CLOSURE BEARING	AWAY FROM PROP.
3760.0	70.3	3760.0	70.3	1.42	38.19
3760.0	28.4	3760.0	28.4	357.08	38.09
3759.9	11.8	3759.9	11.8	351.66	38.44
3759.9	-1.2	3759.9	-1.2	344.87	39.26
3759.8	-14.0	3759.8	-14.0	336.53	40.90
3759.7	-26.9	3759.7	-26.9	327.64	43.60
3759.6	-36.5	3759.6	-36.5	321.03	46.41
3759.5	-44.8	3759.5	-44.8	315.35	49.69
3759.4	-48.4	3759.4	-48.4	312.71	51.65
3759.4	-50.3	3759.4	-50.3	311.16	53.01
3759.3	-54.0	3759.3	-54.0	307.82	56.89
3759.0	-55.9	3759.0	-55.9	303.54	65.36
3758.7	-53.4	3758.7	-53.4	301.00	73.74
3758.3	-45.6	3758.3	-45.6	298.43	87.08