

Noble Energy (Rockies)

Garfield County, CO

Sec. 7-T8S-R95W (SGV 7K PAD)

Federal 7-23A - B10

Wellbore #1

Plan: Plan #1 Proposal

Sperry Drilling Services

Proposal Report

10 August, 2009

Well Coordinates: 571,869.71 N, 1,282,889.42 E (39° 22' 33.88" N, 108° 02' 13.49" W)

Ground Level: 6,503.00 ft

Local Coordinate Origin:

Centered on Well Federal 7-23A - Slot B10

Viewing Datum:

RKB 24' @ 6527.00ft

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

HALLIBURTON

Plan Report for Federal 7-23A - Plan #1 Proposal

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Federal 7-23A N. Hardline										
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kickoff at 225.00ft										
300.00	1.50	304.99	299.99	0.56	-0.80	0.98	2.00	2.00	0.00	304.99
400.00	3.50	304.99	399.89	3.06	-4.38	5.34	2.00	2.00	0.00	0.00
500.00	5.50	304.99	499.58	7.56	-10.80	13.17	2.00	2.00	0.00	0.00
525.00	6.00	304.99	524.45	9.00	-12.86	15.67	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
600.00	7.50	304.99	598.93	14.05	-20.08	24.47	2.00	2.00	0.00	0.00
700.00	9.50	304.99	697.83	22.53	-32.19	39.23	2.00	2.00	0.00	0.00
800.00	11.50	304.99	796.15	32.98	-47.12	57.42	2.00	2.00	0.00	0.00
828.42	12.07	304.99	823.97	36.31	-51.87	63.22	2.00	2.00	0.00	0.00
End Build at 828.42ft										
900.00	12.07	304.99	893.97	44.89	-64.13	78.16	0.00	0.00	0.00	0.00
1,000.00	12.07	304.99	991.76	56.88	-81.26	99.03	0.00	0.00	0.00	0.00
1,100.00	12.07	304.99	1,089.55	68.87	-98.39	119.91	0.00	0.00	0.00	0.00
1,200.00	12.07	304.99	1,187.34	80.86	-115.52	140.78	0.00	0.00	0.00	0.00
1,300.00	12.07	304.99	1,285.13	92.85	-132.65	161.66	0.00	0.00	0.00	0.00
1,400.00	12.07	304.99	1,382.92	104.84	-149.77	182.53	0.00	0.00	0.00	0.00
1,500.00	12.07	304.99	1,480.71	116.83	-166.90	203.41	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	12.07	304.99	1,578.50	128.82	-184.03	224.28	0.00	0.00	0.00	0.00
1,700.00	12.07	304.99	1,676.29	140.81	-201.16	245.16	0.00	0.00	0.00	0.00
1,800.00	12.07	304.99	1,774.08	152.80	-218.29	266.03	0.00	0.00	0.00	0.00
1,900.00	12.07	304.99	1,871.86	164.79	-235.42	286.91	0.00	0.00	0.00	0.00
2,000.00	12.07	304.99	1,969.65	176.77	-252.55	307.78	0.00	0.00	0.00	0.00
2,100.00	12.07	304.99	2,067.44	188.76	-269.67	328.66	0.00	0.00	0.00	0.00
2,200.00	12.07	304.99	2,165.23	200.75	-286.80	349.53	0.00	0.00	0.00	0.00
2,300.00	12.07	304.99	2,263.02	212.74	-303.93	370.41	0.00	0.00	0.00	0.00
2,400.00	12.07	304.99	2,360.81	224.73	-321.06	391.28	0.00	0.00	0.00	0.00
2,500.00	12.07	304.99	2,458.60	236.72	-338.19	412.16	0.00	0.00	0.00	0.00
2,508.00	12.07	304.99	2,466.43	237.68	-339.56	413.83	0.00	0.00	0.00	0.00
12.07 Inclination										
2,600.00	12.07	304.99	2,556.39	248.71	-355.32	433.03	0.00	0.00	0.00	0.00
2,700.00	12.07	304.99	2,654.18	260.70	-372.45	453.91	0.00	0.00	0.00	0.00
2,800.00	12.07	304.99	2,751.97	272.69	-389.57	474.78	0.00	0.00	0.00	0.00
2,900.00	12.07	304.99	2,849.76	284.68	-406.70	495.66	0.00	0.00	0.00	0.00
3,000.00	12.07	304.99	2,947.55	296.67	-423.83	516.53	0.00	0.00	0.00	0.00
3,100.00	12.07	304.99	3,045.34	308.66	-440.96	537.41	0.00	0.00	0.00	0.00
3,200.00	12.07	304.99	3,143.13	320.65	-458.09	558.28	0.00	0.00	0.00	0.00
3,300.00	12.07	304.99	3,240.92	332.64	-475.22	579.16	0.00	0.00	0.00	0.00
3,400.00	12.07	304.99	3,338.71	344.63	-492.35	600.04	0.00	0.00	0.00	0.00
3,500.00	12.07	304.99	3,436.50	356.62	-509.47	620.91	0.00	0.00	0.00	0.00
3,600.00	12.07	304.99	3,534.29	368.61	-526.60	641.79	0.00	0.00	0.00	0.00
3,700.00	12.07	304.99	3,632.08	380.60	-543.73	662.66	0.00	0.00	0.00	0.00
3,743.89	12.07	304.99	3,675.00	385.86	-551.25	671.82	0.00	0.00	0.00	0.00
Williams Fork										
3,800.00	12.07	304.99	3,729.87	392.59	-560.86	683.54	0.00	0.00	0.00	0.00
3,900.00	12.07	304.99	3,827.66	404.58	-577.99	704.41	0.00	0.00	0.00	0.00
4,000.00	12.07	304.99	3,925.45	416.56	-595.12	725.29	0.00	0.00	0.00	0.00
4,100.00	12.07	304.99	4,023.24	428.55	-612.25	746.16	0.00	0.00	0.00	0.00
4,189.11	12.07	304.99	4,110.38	439.24	-627.51	764.76	0.00	0.00	0.00	0.00
Begin Drop at 4189.11ft										
4,200.00	11.90	304.99	4,121.04	440.54	-629.36	767.02	1.50	-1.50	0.00	180.00
4,300.00	10.40	304.99	4,219.14	451.63	-645.21	786.34	1.50	-1.50	0.00	180.00

Plan Report for Federal 7-23A - Plan #1 Proposal

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
4,400.00	8.90	304.99	4,317.72	461.25	-658.95	803.08	1.50	-1.50	0.00	180.00
4,500.00	7.40	304.99	4,416.71	469.38	-670.57	817.24	1.50	-1.50	0.00	180.00
4,591.00	6.04	304.99	4,507.08	475.49	-679.30	827.88	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
4,600.00	5.90	304.99	4,516.03	476.03	-680.07	828.81	1.50	-1.50	0.00	-180.00
4,700.00	4.40	304.99	4,615.63	481.18	-687.43	837.78	1.50	-1.50	0.00	180.00
4,800.00	2.90	304.99	4,715.42	484.83	-692.65	844.15	1.50	-1.50	0.00	180.00
4,900.00	1.40	304.99	4,815.35	486.99	-695.73	847.90	1.50	-1.50	0.00	180.00
4,990.66	0.05	304.99	4,906.00	487.65	-696.67	849.05	1.50	-1.50	0.00	-180.00
Top of Gas										
4,993.66	0.00	0.00	4,909.00	487.65	-696.67	849.05	1.50	-1.50	1,833.64	179.96
End Drop at 4993.66ft - Federal 7-23A Plan #1 Driller's Tgt										
4,993.67	0.00	243.43	4,909.01	487.65	-696.67	849.05	0.90	0.00	-1,484,463.74	-148.28
Federal 7-23A Plan #1 Zone Tgt										
5,000.00	0.02	243.43	4,915.34	487.65	-696.67	849.05	0.25	0.25	0.00	0.00
5,100.00	0.27	243.43	5,015.34	487.54	-696.89	849.18	0.25	0.25	0.00	0.00
5,200.00	0.52	243.43	5,115.33	487.23	-697.51	849.54	0.25	0.25	0.00	0.00
5,300.00	0.78	243.43	5,215.33	486.72	-698.53	850.14	0.25	0.25	0.00	0.00
5,400.00	1.03	243.43	5,315.32	486.01	-699.94	850.97	0.25	0.25	0.00	0.00
5,500.00	1.29	243.43	5,415.29	485.11	-701.75	852.03	0.25	0.25	0.00	0.00
5,600.00	1.54	243.43	5,515.26	484.00	-703.96	853.32	0.25	0.25	0.00	0.00
5,700.00	1.79	243.43	5,615.22	482.70	-706.56	854.85	0.25	0.25	0.00	0.00
5,800.00	2.05	243.43	5,715.17	481.20	-709.56	856.61	0.25	0.25	0.00	0.00
5,900.00	2.30	243.43	5,815.09	479.51	-712.95	858.60	0.25	0.25	0.00	0.00
6,000.00	2.56	243.43	5,915.00	477.61	-716.74	860.83	0.25	0.25	0.00	0.00
6,100.00	2.81	243.43	6,014.89	475.52	-720.93	863.28	0.25	0.25	0.00	0.00
6,114.32	2.85	243.43	6,029.19	475.20	-721.56	863.65	0.25	0.25	0.00	0.00
6,200.00	2.63	243.43	6,114.78	473.37	-725.22	865.80	0.25	-0.25	0.00	180.00
6,246.27	2.51	243.43	6,161.00	472.44	-727.08	866.89	0.25	-0.25	0.00	-180.00
Cameo										
6,300.00	2.38	243.43	6,214.68	471.41	-729.13	868.09	0.25	-0.25	0.00	180.00
6,400.00	2.13	243.43	6,314.61	469.66	-732.65	870.16	0.25	-0.25	0.00	180.00
6,500.00	1.88	243.43	6,414.54	468.10	-735.77	871.99	0.25	-0.25	0.00	180.00
6,578.49	1.68	243.43	6,493.00	467.01	-737.95	873.27	0.25	-0.25	0.00	180.00
Rollins										
6,600.00	1.62	243.43	6,514.50	466.73	-738.50	873.59	0.25	-0.25	0.00	-180.00
6,700.00	1.37	243.43	6,614.46	465.56	-740.84	874.96	0.25	-0.25	0.00	180.00
6,800.00	1.12	243.43	6,714.44	464.59	-742.78	876.10	0.25	-0.25	0.00	180.00
6,900.00	0.87	243.43	6,814.42	463.81	-744.33	877.01	0.25	-0.25	0.00	180.00
7,000.00	0.62	243.43	6,914.42	463.23	-745.49	877.69	0.25	-0.25	0.00	180.00
7,100.00	0.36	243.43	7,014.41	462.85	-746.26	878.14	0.25	-0.25	0.00	180.00
7,200.00	0.11	243.43	7,114.41	462.67	-746.63	878.36	0.25	-0.25	0.00	180.00
7,244.59	0.00	0.00	7,159.00	462.65	-746.67	878.38	0.25	-0.25	0.00	180.00
Federal 7-23A Plan #1 BH Tgt										

Plan Report for Federal 7-23A - Plan #1 Proposal**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
225.00	225.00	0.00	0.00	Kickoff at 225.00ft
525.00	524.45	9.00	-12.86	Build Rate = 2.00°/100ft
828.42	823.97	36.31	-51.87	End Build at 828.42ft
2,508.00	2,466.43	237.68	-339.56	12.07 Inclinatio
4,189.11	4,110.38	439.24	-627.51	Begin Drop at 4189.11ft
4,591.00	4,507.08	475.49	-679.30	Drop Rate = 1.50°/100ft
4,993.66	4,909.00	487.65	-696.67	End Drop at 4993.66ft
7,244.59	7,159.00	462.65	-746.67	Total Depth = 7244.59ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Federal 7-23A Plan #1 BH Tgt	301.78	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,244.59	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,480.71	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,743.89	3,675.00	Williams Fork		0.00	
4,990.66	4,906.00	Top of Gas		0.00	
6,246.27	6,161.00	Cameo		0.00	
6,578.49	6,493.00	Rollins		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Federal 7-23A Plan #1 BH Tgt	7,159.00	462.65	-746.67	Point
Federal 7-23A N. Hardline	0.00	7.50	-0.19	Polygon
Federal 7-23A Plan #1 Driller's Tgt	4,909.00	487.65	-696.67	Rectangle
Federal 7-23A Plan #1 Zone Tgt	4,909.00	462.65	-746.67	Rectangle

North Reference Sheet for Sec. 7-T8S-R95W (SGV 7K PAD) - Federal 7-23A - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB 24' @ 6527.00ft. Northing and Easting are relative to Federal 7-23A - Slot B10

Coordinate System is US State Plane 1927 (Exact solution), Colorado Central 502 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 39° 45' 0.000 N°

False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 0.99994740

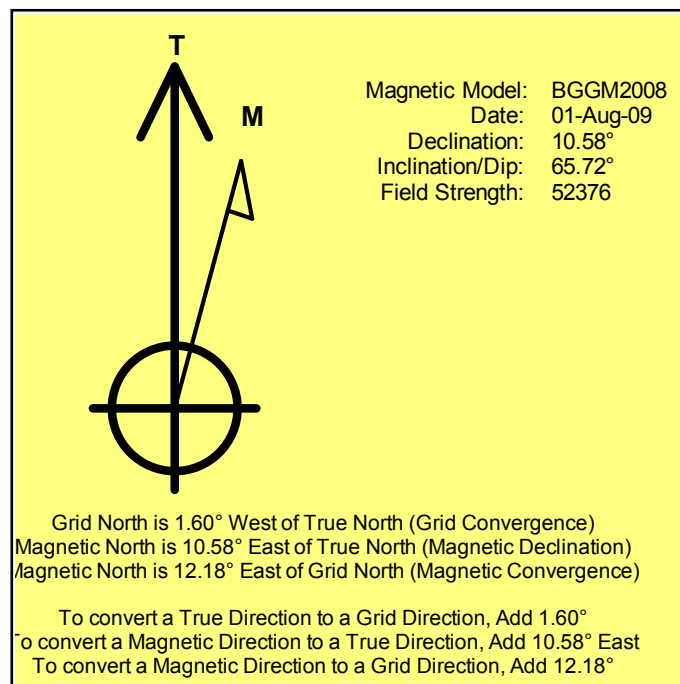
Grid Coordinates of Well: 571,869.71 ft N, 1,282,889.42 ft E

Geographical Coordinates of Well: 39° 22' 33.88" N, 108° 02' 13.49" W

Grid Convergence at Surface is: -1.60°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,244.59ft the Bottom Hole Displacement is 878.38ft in the Direction of 301.78° (True).

Magnetic Convergence at surface is: -12.18° (1 August 2009, , BGGM2008)



Project: Garfield County, CO
Site: Sec. 7-T8S-R95W (SGV 7K PAD)
Well: Federal 7-23A
Wellbore: Wellbore #1
Plan: Plan #1 Proposal

Noble Energy (Rockies)

HALLIBURTON

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00
3	828.42	12.07	304.99	823.96	36.31	-51.87	2.00	304.99	63.22
4	4189.11	12.07	304.99	4110.38	439.24	-627.51	0.00	0.00	764.76
5	4993.66	0.00	0.00	4909.00	487.65	-696.67	1.50	180.00	849.05
6	6114.32	2.85	243.43	6029.19	475.20	-721.56	0.25	243.43	863.65
7	7244.59	0.00	0.00	7159.00	462.65	-746.67	0.25	180.00	878.38

Federal 7-23A Plan #1 Driller's Tgt

Federal 7-23A Plan #1 BH Tgt

WELL DETAILS: Federal 7-23A

Northing	Easting	Ground Level:	Latitude	Longitude
571869.71	1282889.42	6503.00	39° 22' 33.87" N	107° 2' 13.491" W

B10

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3675.00	3743.89	Williams Fork
4906.00	4990.66	Top of Gas
6161.00	6246.27	Cameo
6493.00	6578.49	Rollins

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Federal 7-23A N. Hardline	0.00	7.50	-0.19	Polygon
Federal 7-23A Plan #1 Driller's Tgt	4909.00	487.65	-696.67	Rectangle (Sides: L25.00 W25.00)
Federal 7-23A Plan #1 Zone Tgt	4909.00	462.65	-746.67	Rectangle (Sides: L68.50 W200.00)
Federal 7-23A Plan #1 BH Tgt	7159.00	462.65	-746.67	Point



Azimuths to True North
Magnetic North: 10.58°
Magnetic Field
Strength: 52375.5nT
Dip Angle: 65.72°
Date: 8/1/2009
Model: BGGM2008

