

# Noble Energy (Rockies)

Garfield County, CO

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

Federal 7-44A (7O PAD) - A 7

Wellbore #1

Plan: Plan #1 Proposal

## Sperry Drilling Services Proposal Report

10 August, 2009

Well Coordinates: 571,847.20 N, 1,282,898.87 E (39° 22' 33.66" N, 108° 02' 13.36" W)

Ground Level: 6,503.00 ft

Local Coordinate Origin: Centered on Well Federal 7-44A (7O PAD) - Slot A 7

Viewing Datum: RKB - 24' @ 6527.00ft (Original Well Elev)

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 7-44A (70 PAD) - 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
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	3.00	108.76	299.97	-0.63	1.86	1.96	4.00	4.00	0.00	108.76
400.00	7.00	108.76	399.56	-3.43	10.11	10.68	4.00	4.00	0.00	0.00
500.00	11.00	108.76	498.31	-8.47	24.92	26.31	4.00	4.00	0.00	0.00
600.00	15.00	108.76	595.73	-15.70	46.21	48.80	4.00	4.00	0.00	0.00
621.00	15.84	108.76	615.97	-17.50	51.50	54.38	4.00	4.00	0.00	0.00
Build Rate = 4.00°/100ft										
700.00	19.00	108.76	691.34	-25.10	73.89	78.03	4.00	4.00	0.00	0.00
800.00	23.00	108.76	784.68	-36.63	107.82	113.85	4.00	4.00	0.00	0.00
900.00	27.00	108.76	875.29	-50.22	147.82	156.10	4.00	4.00	0.00	0.00
1,000.00	31.00	108.76	962.74	-65.81	193.72	204.56	4.00	4.00	0.00	0.00
1,016.15	31.65	108.76	976.53	-68.51	201.67	212.96	4.00	4.00	0.00	0.00
End Build at 1016.15ft										
1,100.00	31.65	108.76	1,047.92	-82.66	243.32	256.95	0.00	0.00	0.00	0.00
1,200.00	31.65	108.76	1,133.05	-99.54	293.00	309.40	0.00	0.00	0.00	0.00
1,300.00	31.65	108.76	1,218.18	-116.42	342.68	361.86	0.00	0.00	0.00	0.00
1,400.00	31.65	108.76	1,303.31	-133.29	392.36	414.32	0.00	0.00	0.00	0.00
1,500.00	31.65	108.76	1,388.44	-150.17	442.04	466.78	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	31.65	108.76	1,473.57	-167.05	491.71	519.24	0.00	0.00	0.00	0.00
1,700.00	31.65	108.76	1,558.70	-183.93	541.39	571.70	0.00	0.00	0.00	0.00
1,800.00	31.65	108.76	1,643.83	-200.80	591.07	624.16	0.00	0.00	0.00	0.00
1,900.00	31.65	108.76	1,728.96	-217.68	640.75	676.62	0.00	0.00	0.00	0.00
2,000.00	31.65	108.76	1,814.09	-234.56	690.43	729.08	0.00	0.00	0.00	0.00
2,100.00	31.65	108.76	1,899.22	-251.43	740.11	781.54	0.00	0.00	0.00	0.00
2,200.00	31.65	108.76	1,984.35	-268.31	789.78	834.00	0.00	0.00	0.00	0.00
2,300.00	31.65	108.76	2,069.48	-285.19	839.46	886.46	0.00	0.00	0.00	0.00
2,400.00	31.65	108.76	2,154.62	-302.06	889.14	938.92	0.00	0.00	0.00	0.00
2,500.00	31.65	108.76	2,239.75	-318.94	938.82	991.37	0.00	0.00	0.00	0.00
2,600.00	31.65	108.76	2,324.88	-335.82	988.50	1,043.83	0.00	0.00	0.00	0.00
2,700.00	31.65	108.76	2,410.01	-352.69	1,038.18	1,096.29	0.00	0.00	0.00	0.00
2,800.00	31.65	108.76	2,495.14	-369.57	1,087.85	1,148.75	0.00	0.00	0.00	0.00
2,893.00	31.65	108.76	2,574.31	-385.27	1,134.05	1,197.54	0.00	0.00	0.00	0.00
31.65 Inclination										
2,900.00	31.65	108.76	2,580.27	-386.45	1,137.53	1,201.21	0.00	0.00	0.00	0.00
3,000.00	31.65	108.76	2,665.40	-403.33	1,187.21	1,253.67	0.00	0.00	0.00	0.00
3,100.00	31.65	108.76	2,750.53	-420.20	1,236.89	1,306.13	0.00	0.00	0.00	0.00
3,200.00	31.65	108.76	2,835.66	-437.08	1,286.57	1,358.59	0.00	0.00	0.00	0.00
3,300.00	31.65	108.76	2,920.79	-453.96	1,336.24	1,411.05	0.00	0.00	0.00	0.00
3,400.00	31.65	108.76	3,005.92	-470.83	1,385.92	1,463.51	0.00	0.00	0.00	0.00
3,500.00	31.65	108.76	3,091.05	-487.71	1,435.60	1,515.97	0.00	0.00	0.00	0.00
3,600.00	31.65	108.76	3,176.18	-504.59	1,485.28	1,568.43	0.00	0.00	0.00	0.00
3,700.00	31.65	108.76	3,261.32	-521.46	1,534.96	1,620.89	0.00	0.00	0.00	0.00
3,800.00	31.65	108.76	3,346.45	-538.34	1,584.64	1,673.35	0.00	0.00	0.00	0.00
3,900.00	31.65	108.76	3,431.58	-555.22	1,634.31	1,725.80	0.00	0.00	0.00	0.00
4,000.00	31.65	108.76	3,516.71	-572.10	1,683.99	1,778.26	0.00	0.00	0.00	0.00
4,100.00	31.65	108.76	3,601.84	-588.97	1,733.67	1,830.72	0.00	0.00	0.00	0.00
4,200.00	31.65	108.76	3,686.97	-605.85	1,783.35	1,883.18	0.00	0.00	0.00	0.00
4,236.45	31.65	108.76	3,718.00	-612.00	1,801.46	1,902.30	0.00	0.00	0.00	0.00
Williams Fork										
4,300.00	31.65	108.76	3,772.10	-622.73	1,833.03	1,935.64	0.00	0.00	0.00	0.00
4,400.00	31.65	108.76	3,857.23	-639.60	1,882.70	1,988.10	0.00	0.00	0.00	0.00
4,500.00	31.65	108.76	3,942.36	-656.48	1,932.38	2,040.56	0.00	0.00	0.00	0.00
4,600.00	31.65	108.76	4,027.49	-673.36	1,982.06	2,093.02	0.00	0.00	0.00	0.00



## Plan Report for Federal 7-44A (7O PAD) - 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 (°)
4,700.00	31.65	108.76	4,112.62	-690.23	2,031.74	2,145.48	0.00	0.00	0.00	0.00
4,770.30	31.65	108.76	4,172.47	-702.10	2,066.66	2,182.36	0.00	0.00	0.00	0.00
Begin Drop at 4770.30ft										
4,800.00	30.46	108.76	4,197.91	-707.03	2,081.17	2,197.67	4.00	-4.00	0.00	180.00
4,900.00	26.46	108.76	4,285.81	-722.35	2,126.28	2,245.31	4.00	-4.00	0.00	180.00
5,000.00	22.46	108.76	4,376.82	-735.67	2,165.47	2,286.70	4.00	-4.00	0.00	180.00
5,100.00	18.46	108.76	4,470.49	-746.91	2,198.56	2,321.64	4.00	-4.00	0.00	180.00
5,166.00	15.82	108.76	4,533.56	-753.16	2,216.97	2,341.08	4.00	-4.00	0.00	180.00
Drop Rate = 4.00°/100ft										
5,200.00	14.46	108.76	4,566.38	-756.02	2,225.38	2,349.96	4.00	-4.00	0.00	-180.00
5,300.00	10.46	108.76	4,664.00	-762.96	2,245.80	2,371.52	4.00	-4.00	0.00	180.00
5,400.00	6.46	108.76	4,762.90	-767.69	2,259.72	2,386.23	4.00	-4.00	0.00	180.00
5,500.00	2.46	108.76	4,862.57	-770.19	2,267.08	2,394.00	4.00	-4.00	0.00	180.00
5,560.60	0.03	108.76	4,923.16	-770.61	2,268.33	2,395.31	4.00	-4.00	0.00	-180.00
Federal 7-44A Plan #1 Zone Tgt										
5,561.45	0.00	108.76	4,924.00	-770.61	2,268.33	2,395.31	4.00	-4.00	0.00	-180.00
End Drop at 5561.45ft - Federal 7-44A Plan #1 Driller's Tgt										
5,586.45	0.05	243.43	4,949.00	-770.62	2,268.32	2,395.31	0.21	0.21	538.67	134.78
Top of Gas										
5,600.00	0.08	243.43	4,962.55	-770.62	2,268.31	2,395.29	0.21	0.21	0.00	0.00
5,700.00	0.29	243.43	5,062.55	-770.77	2,268.02	2,395.07	0.21	0.21	0.00	0.00
5,800.00	0.50	243.43	5,162.55	-771.08	2,267.40	2,394.59	0.21	0.21	0.00	0.00
5,900.00	0.71	243.43	5,262.55	-771.55	2,266.45	2,393.86	0.21	0.21	0.00	0.00
6,000.00	0.92	243.43	5,362.53	-772.19	2,265.18	2,392.88	0.21	0.21	0.00	0.00
6,100.00	1.13	243.43	5,462.52	-772.99	2,263.58	2,391.64	0.21	0.21	0.00	0.00
6,200.00	1.34	243.43	5,562.50	-773.95	2,261.65	2,390.15	0.21	0.21	0.00	0.00
6,300.00	1.55	243.43	5,662.46	-775.08	2,259.39	2,388.41	0.21	0.21	0.00	0.00
6,400.00	1.76	243.43	5,762.42	-776.37	2,256.81	2,386.41	0.21	0.21	0.00	0.00
6,500.00	1.97	243.43	5,862.37	-777.83	2,253.89	2,384.16	0.21	0.21	0.00	0.00
6,600.00	2.18	243.43	5,962.30	-779.45	2,250.65	2,381.66	0.21	0.21	0.00	0.00
6,700.00	2.39	243.43	6,062.22	-781.23	2,247.09	2,378.90	0.21	0.21	0.00	0.00
6,796.28	2.59	243.43	6,158.41	-783.11	2,243.34	2,376.01	0.21	0.21	0.00	0.00
6,800.00	2.59	243.43	6,162.13	-783.18	2,243.19	2,375.89	0.21	-0.21	0.00	180.00
6,841.91	2.50	243.43	6,204.00	-784.01	2,241.53	2,374.61	0.21	-0.21	0.00	-180.00
Cameo										
6,900.00	2.38	243.43	6,262.03	-785.12	2,239.32	2,372.90	0.21	-0.21	0.00	180.00
7,000.00	2.17	243.43	6,361.96	-786.89	2,235.78	2,370.17	0.21	-0.21	0.00	180.00
7,100.00	1.96	243.43	6,461.89	-788.50	2,232.56	2,367.68	0.21	-0.21	0.00	180.00
7,174.15	1.80	243.43	6,536.00	-789.58	2,230.39	2,366.00	0.21	-0.21	0.00	180.00
Rollins										
7,200.00	1.75	243.43	6,561.84	-789.94	2,229.67	2,365.45	0.21	-0.21	0.00	-180.00
7,300.00	1.54	243.43	6,661.80	-791.22	2,227.11	2,363.47	0.21	-0.21	0.00	180.00
7,400.00	1.33	243.43	6,761.77	-792.34	2,224.88	2,361.75	0.21	-0.21	0.00	180.00
7,500.00	1.12	243.43	6,861.74	-793.29	2,222.97	2,360.27	0.21	-0.21	0.00	180.00
7,600.00	0.91	243.43	6,961.73	-794.08	2,221.39	2,359.05	0.21	-0.21	0.00	180.00
7,700.00	0.70	243.43	7,061.72	-794.71	2,220.14	2,358.09	0.21	-0.21	0.00	180.00
7,800.00	0.49	243.43	7,161.71	-795.17	2,219.21	2,357.37	0.21	-0.21	0.00	180.00
7,900.00	0.28	243.43	7,261.71	-795.47	2,218.62	2,356.91	0.21	-0.21	0.00	180.00
8,000.00	0.07	243.43	7,361.71	-795.61	2,218.35	2,356.70	0.21	-0.21	0.00	180.00
8,032.29	0.00	0.00	7,394.00	-795.61	2,218.33	2,356.69	0.21	-0.21	0.00	180.00
Federal 7-44A Plan #1 BH Tgt										

## Plan Report for Federal 7-44A (7O PAD) - 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
621.00	615.97	-17.50	51.50	Build Rate = 4.00°/100ft
1,016.15	976.53	-68.51	201.67	End Build at 1016.15ft
2,893.00	2,574.31	-385.27	1,134.05	31.65 Inclination
4,770.30	4,172.47	-702.10	2,066.66	Begin Drop at 4770.30ft
5,166.00	4,533.56	-753.16	2,216.97	Drop Rate = 4.00°/100ft
5,561.45	4,924.00	-770.61	2,268.33	End Drop at 5561.45ft
8,032.29	7,394.00	-795.61	2,218.33	Total Depth = 8032.29ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Federal 7-44A Plan #1 BH Tgt	109.73	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	8,032.29	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,388.44	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,236.45	3,718.00	Williams Fork		0.00	
5,586.45	4,949.00	Top of Gas		0.00	
6,841.91	6,204.00	Cameo		0.00	
7,174.15	6,536.00	Rollins		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Federal 7-44A Plan #1 Zone Tgt	4,924.00	-795.61	2,218.33	Rectangle
Federal 7-44A Plan #1 Driller's Tgt	4,924.00	-770.61	2,268.33	Rectangle
Federal 7-44A Plan #1 BH Tgt	7,394.00	-795.61	2,218.33	Point

## North Reference Sheet for Sec. 7-T8S-R95W (SGV 7K PAD) - Federal 7-44A (7O PAD) - 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 (Original Well Elev). Northing and Easting are relative to Federal 7-44A (7O PAD) - Slot A 7

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

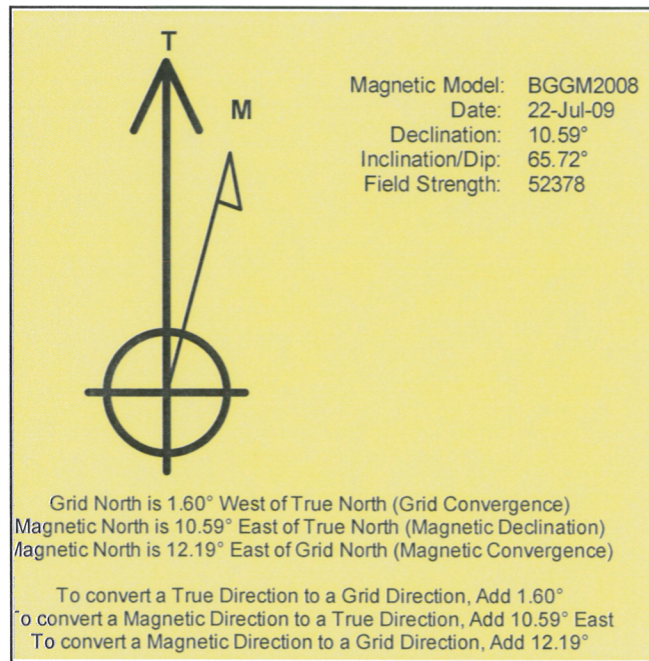
Grid Coordinates of Well: 571,847.20 ft N, 1,282,898.87 ft E

Geographical Coordinates of Well: 39° 22' 33.66" N, 108° 02' 13.36" W

Grid Convergence at Surface is: -1.60°

Based upon Minimum Curvature type calculations, at a Measured Depth of 8,032.29ft  
the Bottom Hole Displacement is 2,356.69ft in the Direction of 109.73° (True).

Magnetic Convergence at surface is: -12.19° (22 July 2009, , BGGM2008)





Project: Garfield County, CO  
Site: Sec. 7-T8S-R95W (SGV 7K PAD)  
Well: Federal 7-44A (70 PAD)  
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	1016.15	31.65	108.76	976.53	-68.51	201.67	4.00	108.76	212.96	
4	4770.30	31.65	108.76	4172.47	-702.10	2066.66	0.00	0.00	2182.36	
5	5561.45	0.00	0.00	4924.00	-770.61	2268.33	4.00	180.00	2395.31	Federal 7-44A Plan #1 Driller's Tgt
6	6796.28	2.59	243.43	6158.41	-783.11	2243.34	0.21	243.43	2376.01	
7	8032.29	0.00	0.00	7394.00	-795.61	2218.33	0.21	180.00	2356.69	Federal 7-44A Plan #1 BH Tgt

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Federal 7-44A Plan #1 Driller's Tgt	4924.00	-770.61	2268.33	Rectangle (Sides: L25.00 W25.00)
Federal 7-44A Plan #1 Zone Tgt	4924.00	-795.61	2218.33	Rectangle (Sides: L100.00 W200.00)
Federal 7-44A Plan #1 BH Tgt	7394.00	-795.61	2218.33	Point

## WELL DETAILS: Federal 7-44A (70 PAD)

North	East	Ground Level	Latitude	Longitude	
571847.20	1282898.87	6503.00	39° 22' 33.6808" N	107° 13.363 W	A 7



Azimuths to True North  
Magnetic North: 10.59°  
Magnetic Field  
Strength: 52378.2snT  
Dip Angle: 65.72°  
Date: 7/22/2009  
Model: BGGM2008

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3718.00	4236.45	Williams Fork
4949.00	5586.45	Top of Gas
6204.00	6841.91	Cameo
6536.00	7174.15	Rollins

West(-)/East(+) (750 ft/in)

