

# Noble Energy

Garfield County, CO

Sec. 8-T8S-R95W (SGV 8D PAD)

SGV Federal 8-11A - B 7

Plan #1

Plan: Plan #1 Proposal

## Sperry Drilling Services

### Proposal Report

06 April, 2009

Well Coordinates: 573,829.78 N, 1,286,195.39 E (39° 22' 54.16" N, 108° 01' 32.10" W)

Ground Level: 6,342.00 ft

Local Coordinate Origin:

Centered on Well SGV Federal 8-11A - Slot B 7

Viewing Datum:

RKB 25' @ 6367.00ft (Original Well Elev)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

**HALLIBURTON**

## Plan Report for SGV Federal 8-11A - 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
<b>Kickoff at 225.00ft</b>										
300.00	1.50	22.25	299.99	0.91	0.37	0.98	2.00	2.00	0.00	22.25
400.00	3.50	22.25	399.89	4.95	2.02	5.34	2.00	2.00	0.00	0.00
500.00	5.50	22.25	499.58	12.21	4.99	13.18	2.00	2.00	0.00	0.00
600.00	7.50	22.25	598.93	22.68	9.28	24.50	2.00	2.00	0.00	0.00
658.00	8.66	22.25	656.35	30.23	12.37	32.64	2.00	2.00	0.00	0.00
<b>Build Rate = 2.00°/100ft</b>										
700.00	9.50	22.25	697.83	36.36	14.88	39.27	2.00	2.00	0.00	0.00
800.00	11.50	22.25	796.15	53.23	21.77	57.48	2.00	2.00	0.00	0.00
900.00	13.50	22.25	893.77	73.26	29.97	79.11	2.00	2.00	0.00	0.00
1,000.00	15.50	22.25	990.58	96.43	39.45	104.14	2.00	2.00	0.00	0.00
1,089.95	17.30	22.25	1,076.87	119.94	49.06	129.52	2.00	2.00	0.00	0.00
<b>End Build at 1089.95ft</b>										
1,100.00	17.30	22.25	1,086.46	122.70	50.19	132.51	0.00	0.00	0.00	0.00
1,200.00	17.30	22.25	1,181.94	150.23	61.45	162.23	0.00	0.00	0.00	0.00
1,300.00	17.30	22.25	1,277.42	177.75	72.71	191.95	0.00	0.00	0.00	0.00
1,400.00	17.30	22.25	1,372.89	205.27	83.97	221.67	0.00	0.00	0.00	0.00
1,500.00	17.30	22.25	1,468.37	232.79	95.23	251.39	0.00	0.00	0.00	0.00
<b>8 5/8" Casing Pt</b>										
1,600.00	17.30	22.25	1,563.85	260.32	106.49	281.11	0.00	0.00	0.00	0.00
1,700.00	17.30	22.25	1,659.32	287.84	117.74	310.83	0.00	0.00	0.00	0.00
1,800.00	17.30	22.25	1,754.80	315.36	129.00	340.55	0.00	0.00	0.00	0.00
1,900.00	17.30	22.25	1,850.28	342.88	140.26	370.27	0.00	0.00	0.00	0.00
2,000.00	17.30	22.25	1,945.75	370.40	151.52	399.99	0.00	0.00	0.00	0.00
2,100.00	17.30	22.25	2,041.23	397.93	162.78	429.71	0.00	0.00	0.00	0.00
2,200.00	17.30	22.25	2,136.71	425.45	174.04	459.43	0.00	0.00	0.00	0.00
2,300.00	17.30	22.25	2,232.18	452.97	185.29	489.15	0.00	0.00	0.00	0.00
2,400.00	17.30	22.25	2,327.66	480.49	196.55	518.87	0.00	0.00	0.00	0.00
2,500.00	17.30	22.25	2,423.14	508.01	207.81	548.59	0.00	0.00	0.00	0.00
2,569.00	17.30	22.25	2,489.02	527.00	215.58	569.10	0.00	0.00	0.00	0.00
<b>17.30 Inclination</b>										
2,600.00	17.30	22.25	2,518.61	535.54	219.07	578.31	0.00	0.00	0.00	0.00
2,700.00	17.30	22.25	2,614.09	563.06	230.33	608.03	0.00	0.00	0.00	0.00
2,800.00	17.30	22.25	2,709.57	590.58	241.58	637.75	0.00	0.00	0.00	0.00
2,900.00	17.30	22.25	2,805.04	618.10	252.84	667.47	0.00	0.00	0.00	0.00
3,000.00	17.30	22.25	2,900.52	645.62	264.10	697.19	0.00	0.00	0.00	0.00
3,100.00	17.30	22.25	2,996.00	673.15	275.36	726.91	0.00	0.00	0.00	0.00
3,200.00	17.30	22.25	3,091.47	700.67	286.62	756.63	0.00	0.00	0.00	0.00
3,300.00	17.30	22.25	3,186.95	728.19	297.88	786.35	0.00	0.00	0.00	0.00
3,400.00	17.30	22.25	3,282.43	755.71	309.13	816.07	0.00	0.00	0.00	0.00
3,500.00	17.30	22.25	3,377.90	783.23	320.39	845.79	0.00	0.00	0.00	0.00
3,600.00	17.30	22.25	3,473.38	810.76	331.65	875.51	0.00	0.00	0.00	0.00
3,700.00	17.30	22.25	3,568.86	838.28	342.91	905.23	0.00	0.00	0.00	0.00
3,800.00	17.30	22.25	3,664.33	865.80	354.17	934.95	0.00	0.00	0.00	0.00
3,900.00	17.30	22.25	3,759.81	893.32	365.43	964.67	0.00	0.00	0.00	0.00
4,000.00	17.30	22.25	3,855.29	920.85	376.68	994.39	0.00	0.00	0.00	0.00
4,049.11	17.30	22.25	3,902.17	934.36	382.21	1,008.99	0.00	0.00	0.00	0.00
<b>Begin Drop at 4049.11ft</b>										
4,100.00	16.54	22.25	3,950.86	948.07	387.82	1,023.79	1.50	-1.50	0.00	180.00
4,172.96	15.44	22.25	4,021.00	966.67	395.43	1,043.87	1.50	-1.50	0.00	180.00
<b>Williams Fork</b>										
4,200.00	15.04	22.25	4,047.09	973.25	398.12	1,050.98	1.50	-1.50	0.00	-180.00
4,300.00	13.54	22.25	4,143.99	996.08	407.46	1,075.64	1.50	-1.50	0.00	180.00

## Plan Report for SGV Federal 8-11A - 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	12.04	22.25	4,241.51	1,016.57	415.84	1,097.76	1.50	-1.50	0.00	180.00
4,500.00	10.54	22.25	4,339.57	1,034.68	423.25	1,117.32	1.50	-1.50	0.00	180.00
4,600.00	9.04	22.25	4,438.12	1,050.41	429.68	1,134.30	1.50	-1.50	0.00	180.00
4,626.00	8.65	22.25	4,463.81	1,054.11	431.20	1,138.30	1.50	-1.50	0.00	180.00
<b>Drop Rate = 1.50°/100ft</b>										
4,700.00	7.54	22.25	4,537.07	1,063.75	435.14	1,148.71	1.50	-1.50	0.00	-180.00
4,800.00	6.04	22.25	4,636.37	1,074.68	439.61	1,160.52	1.50	-1.50	0.00	180.00
4,900.00	4.54	22.25	4,735.94	1,083.21	443.10	1,169.72	1.50	-1.50	0.00	180.00
5,000.00	3.04	22.25	4,835.72	1,089.32	445.60	1,176.32	1.50	-1.50	0.00	180.00
5,100.00	1.54	22.25	4,935.63	1,093.01	447.11	1,180.31	1.50	-1.50	0.00	180.00
5,200.00	0.04	22.25	5,035.62	1,094.28	447.63	1,181.68	1.50	-1.50	0.00	-180.00
5,202.38	0.00	0.00	5,038.00	1,094.28	447.63	1,181.68	1.50	-1.50	-935.85	-180.00
<b>End Drop at 5202.38ft - Top of gas - SGV Federal 8-11A Plan #1 Driller's Tgt</b>										
5,300.00	0.19	243.43	5,135.62	1,094.21	447.49	1,181.56	0.19	0.19	-119.41	-116.57
5,400.00	0.38	243.43	5,235.62	1,093.99	447.05	1,181.21	0.19	0.19	0.00	0.00
5,500.00	0.57	243.43	5,335.62	1,093.62	446.32	1,180.61	0.19	0.19	0.00	0.00
5,600.00	0.76	243.43	5,435.61	1,093.11	445.29	1,179.76	0.19	0.19	0.00	0.00
5,700.00	0.95	243.43	5,535.60	1,092.44	443.96	1,178.68	0.19	0.19	0.00	0.00
5,800.00	1.14	243.43	5,635.58	1,091.63	442.33	1,177.35	0.19	0.19	0.00	0.00
5,900.00	1.33	243.43	5,735.56	1,090.67	440.41	1,175.78	0.19	0.19	0.00	0.00
6,000.00	1.52	243.43	5,835.53	1,089.56	438.20	1,173.97	0.19	0.19	0.00	0.00
6,100.00	1.71	243.43	5,935.49	1,088.31	435.68	1,171.91	0.19	0.19	0.00	0.00
6,200.00	1.90	243.43	6,035.44	1,086.90	432.87	1,169.62	0.19	0.19	0.00	0.00
6,300.00	2.09	243.43	6,135.38	1,085.35	429.77	1,167.08	0.19	0.19	0.00	0.00
6,400.00	2.28	243.43	6,235.31	1,083.64	426.36	1,164.30	0.19	0.19	0.00	0.00
6,498.94	2.46	243.43	6,334.16	1,081.81	422.70	1,161.31	0.19	0.19	0.00	0.00
6,500.00	2.46	243.43	6,335.22	1,081.79	422.66	1,161.27	0.19	-0.19	0.00	180.00
6,592.86	2.29	243.43	6,428.00	1,080.07	419.22	1,158.46	0.19	-0.19	0.00	-180.00
<b>Cameo</b>										
6,600.00	2.27	243.43	6,435.14	1,079.95	418.97	1,158.26	0.19	-0.19	0.00	180.00
6,700.00	2.08	243.43	6,535.06	1,078.25	415.57	1,155.48	0.19	-0.19	0.00	180.00
6,800.00	1.89	243.43	6,635.00	1,076.69	412.47	1,152.94	0.19	-0.19	0.00	180.00
6,900.00	1.71	243.43	6,734.95	1,075.29	409.66	1,150.64	0.19	-0.19	0.00	180.00
6,932.06	1.65	243.43	6,767.00	1,074.87	408.82	1,149.96	0.19	-0.19	0.00	-180.00
<b>Rollins</b>										
7,000.00	1.52	243.43	6,834.92	1,074.03	407.14	1,148.59	0.19	-0.19	0.00	180.00
7,100.00	1.33	243.43	6,934.88	1,072.92	404.92	1,146.77	0.19	-0.19	0.00	180.00
7,200.00	1.14	243.43	7,034.86	1,071.96	402.99	1,145.20	0.19	-0.19	0.00	180.00
7,201.14	1.14	243.43	7,036.00	1,071.95	402.97	1,145.18	0.19	-0.19	0.00	180.00
<b>Cozzette</b>										
7,300.00	0.95	243.43	7,134.84	1,071.14	401.36	1,143.87	0.19	-0.19	0.00	-180.00
7,400.00	0.76	243.43	7,234.83	1,070.47	400.03	1,142.77	0.19	-0.19	0.00	180.00
7,439.17	0.69	243.43	7,274.00	1,070.25	399.58	1,142.41	0.19	-0.19	0.00	-180.00
<b>Corcoran</b>										
7,500.00	0.57	243.43	7,334.83	1,069.95	398.99	1,141.92	0.19	-0.19	0.00	180.00
7,553.18	0.47	243.43	7,388.00	1,069.74	398.55	1,141.57	0.19	-0.19	0.00	180.00
<b>Mancos</b>										
7,600.00	0.38	243.43	7,434.82	1,069.58	398.24	1,141.31	0.19	-0.19	0.00	-180.00
7,700.00	0.19	243.43	7,534.82	1,069.35	397.79	1,140.94	0.19	-0.19	0.00	180.00
7,800.00	0.01	243.43	7,634.82	1,069.28	397.63	1,140.82	0.19	-0.19	0.00	-180.00
7,803.18	0.00	1.60	7,638.00	1,069.28	397.63	1,140.82	0.19	-0.19	0.00	180.00
<b>SGV Federal 8-11A Plan #1 BH Tgt</b>										

## Plan Report for SGV Federal 8-11A - 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
658.00	656.35	30.23	12.37	Build Rate = 2.00°/100ft
1,089.95	1,076.87	119.94	49.06	End Build at 1089.95ft
2,569.00	2,489.02	527.00	215.58	17.30 Inclination
4,049.11	3,902.17	934.36	382.21	Begin Drop at 4049.11ft
4,626.00	4,463.81	1,054.11	431.20	Drop Rate = 1.50°/100ft
5,202.38	5,038.00	1,094.28	447.63	End Drop at 5202.38ft
7,803.18	7,638.00	1,069.28	397.63	Total Depth = 7803.18ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	SGV Federal 8-11A Plan #1 BH Tgt	20.40	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,803.18	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,468.37	8 5/8" Casing Pt	8-5/8	12-1/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,172.96	4,021.00	Williams Fork		0.00	
5,202.38	5,038.00	Top of gas		0.00	
6,592.86	6,428.00	Cameo		0.00	
6,932.06	6,767.00	Rollins		0.00	
7,201.14	7,036.00	Cozzette		0.00	
7,439.17	7,274.00	Corcoran		0.00	
7,553.18	7,388.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
SGV Federal 8-11A Plan #1 BH Tgt	7,638.00	1,069.28	397.63	Point
SGV Federal 8-11A Plan #1 Driller's Tgt	5,038.00	1,094.28	447.63	Rectangle
SGV Federal 8-11A Plan #1 Zone Tgt	5,038.00	1,069.28	397.63	Rectangle

**North Reference Sheet for Sec. 8-T8S-R95W (SGV 8D PAD) - SGV Federal 8-11A - Plan #1**

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

Vertical Depths are relative to RKB 25' @ 6367.00ft (Original Well Elev). Northing and Easting are relative to SGV Federal 8-11A - Slot B 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: 0.99994788

Grid Coordinates of Well: 573,829.78 ft N, 1,286,195.39 ft E

Geographical Coordinates of Well: 39° 22' 54.16" N, 108° 01' 32.10" W

Grid Convergence at Surface is: -1.59°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,803.18ft  
the Bottom Hole Displacement is 1,140.82ft in the Direction of 20.40° (Grid).

Magnetic Convergence at surface is: -12.19° ( 3 June 2009 , BGGM2008)



