

# Noble Energy

Garfield County, CO

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

SGV Federal 8-11D - B11

Plan #1

Plan: Plan #1 Proposal

## Sperry Drilling Services

### Proposal Report

07 April, 2009

Well Coordinates: 573,840.33 N, 1,286,223.48 E (39° 22' 54.27" N, 108° 01' 31.75" W)

Ground Level: 6,342.00 ft

Local Coordinate Origin:

Centered on Well SGV Federal 8-11D - Slot B11

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 8-11D - 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	76.68	299.99	0.23	0.96	0.98	2.00	2.00	0.00	76.68
357.00	2.64	76.68	356.95	0.70	2.96	3.04	2.00	2.00	0.00	0.00
<b>Build Rate = 2.00°/100ft</b>										
400.00	3.50	76.68	399.89	1.23	5.20	5.34	2.00	2.00	0.00	0.00
489.88	5.30	76.68	489.50	2.82	11.91	12.23	2.00	2.00	0.00	0.00
<b>End Build at 489.88ft</b>										
500.00	5.30	76.68	499.58	3.04	12.82	13.16	0.00	0.00	0.00	0.00
600.00	5.30	76.68	599.15	5.16	21.80	22.39	0.00	0.00	0.00	0.00
700.00	5.30	76.68	698.73	7.29	30.79	31.62	0.00	0.00	0.00	0.00
800.00	5.30	76.68	798.30	9.42	39.77	40.84	0.00	0.00	0.00	0.00
900.00	5.30	76.68	897.87	11.55	48.75	50.07	0.00	0.00	0.00	0.00
1,000.00	5.30	76.68	997.44	13.67	57.74	59.30	0.00	0.00	0.00	0.00
1,100.00	5.30	76.68	1,097.02	15.80	66.72	68.52	0.00	0.00	0.00	0.00
1,200.00	5.30	76.68	1,196.59	17.93	75.71	77.75	0.00	0.00	0.00	0.00
1,300.00	5.30	76.68	1,296.16	20.06	84.69	86.98	0.00	0.00	0.00	0.00
1,400.00	5.30	76.68	1,395.74	22.18	93.68	96.20	0.00	0.00	0.00	0.00
1,500.00	5.30	76.68	1,495.31	24.31	102.66	105.43	0.00	0.00	0.00	0.00
<b>8 5/8" Casing Pt</b>										
1,600.00	5.30	76.68	1,594.88	26.44	111.64	114.66	0.00	0.00	0.00	0.00
1,700.00	5.30	76.68	1,694.45	28.57	120.63	123.88	0.00	0.00	0.00	0.00
1,800.00	5.30	76.68	1,794.03	30.69	129.61	133.11	0.00	0.00	0.00	0.00
1,900.00	5.30	76.68	1,893.60	32.82	138.60	142.34	0.00	0.00	0.00	0.00
2,000.00	5.30	76.68	1,993.17	34.95	147.58	151.56	0.00	0.00	0.00	0.00
2,100.00	5.30	76.68	2,092.75	37.08	156.57	160.79	0.00	0.00	0.00	0.00
2,200.00	5.30	76.68	2,192.32	39.20	165.55	170.02	0.00	0.00	0.00	0.00
2,300.00	5.30	76.68	2,291.89	41.33	174.53	179.24	0.00	0.00	0.00	0.00
2,400.00	5.30	76.68	2,391.46	43.46	183.52	188.47	0.00	0.00	0.00	0.00
2,500.00	5.30	76.68	2,491.04	45.59	192.50	197.70	0.00	0.00	0.00	0.00
2,536.00	5.30	76.68	2,526.88	46.35	195.74	201.02	0.00	0.00	0.00	0.00
<b>5.30 Inclination</b>										
2,600.00	5.30	76.68	2,590.61	47.72	201.49	206.92	0.00	0.00	0.00	0.00
2,700.00	5.30	76.68	2,690.18	49.84	210.47	216.15	0.00	0.00	0.00	0.00
2,800.00	5.30	76.68	2,789.76	51.97	219.46	225.38	0.00	0.00	0.00	0.00
2,900.00	5.30	76.68	2,889.33	54.10	228.44	234.60	0.00	0.00	0.00	0.00
3,000.00	5.30	76.68	2,988.90	56.23	237.42	243.83	0.00	0.00	0.00	0.00
3,100.00	5.30	76.68	3,088.47	58.35	246.41	253.06	0.00	0.00	0.00	0.00
3,200.00	5.30	76.68	3,188.05	60.48	255.39	262.28	0.00	0.00	0.00	0.00
3,300.00	5.30	76.68	3,287.62	62.61	264.38	271.51	0.00	0.00	0.00	0.00
3,400.00	5.30	76.68	3,387.19	64.74	273.36	280.74	0.00	0.00	0.00	0.00
3,500.00	5.30	76.68	3,486.77	66.86	282.35	289.96	0.00	0.00	0.00	0.00
3,600.00	5.30	76.68	3,586.34	68.99	291.33	299.19	0.00	0.00	0.00	0.00
3,700.00	5.30	76.68	3,685.91	71.12	300.31	308.42	0.00	0.00	0.00	0.00
3,800.00	5.30	76.68	3,785.48	73.25	309.30	317.64	0.00	0.00	0.00	0.00
3,900.00	5.30	76.68	3,885.06	75.37	318.28	326.87	0.00	0.00	0.00	0.00
3,916.01	5.30	76.68	3,901.00	75.72	319.72	328.35	0.00	0.00	0.00	0.00
<b>Williams Fork</b>										
4,000.00	5.30	76.68	3,984.63	77.50	327.27	336.10	0.00	0.00	0.00	0.00
4,100.00	5.30	76.68	4,084.20	79.63	336.25	345.32	0.00	0.00	0.00	0.00
4,200.00	5.30	76.68	4,183.78	81.76	345.24	354.55	0.00	0.00	0.00	0.00
4,300.00	5.30	76.68	4,283.35	83.88	354.22	363.78	0.00	0.00	0.00	0.00
4,400.00	5.30	76.68	4,382.92	86.01	363.20	373.00	0.00	0.00	0.00	0.00
4,500.00	5.30	76.68	4,482.49	88.14	372.19	382.23	0.00	0.00	0.00	0.00
4,583.19	5.30	76.68	4,565.33	89.91	379.66	389.91	0.00	0.00	0.00	0.00

## Plan Report for SGV Federal 8-11D - 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 (°)
<b>Begin Drop at 4583.19ft</b>										
4,600.00	5.05	76.68	4,582.07	90.26	381.14	391.42	1.50	-1.50	0.00	180.00
4,700.00	3.55	76.68	4,681.79	91.99	388.43	398.91	1.50	-1.50	0.00	180.00
4,760.00	2.65	76.68	4,741.70	92.73	391.58	402.14	1.50	-1.50	0.00	180.00
<b>Drop Rate = 1.50°/100ft</b>										
4,800.00	2.05	76.68	4,781.66	93.11	393.17	403.78	1.50	-1.50	0.00	-180.00
4,900.00	0.55	76.68	4,881.64	93.63	395.37	406.04	1.50	-1.50	0.00	180.00
4,936.36	0.00	0.00	4,918.00	93.67	395.54	406.21	1.50	-1.50	-210.86	-180.00
<b>End Drop at 4936.36ft - Top of gas - SGV Federal 8-11D Plan #1 Driller's Tgt</b>										
5,000.00	0.12	243.44	4,981.64	93.64	395.48	406.15	0.19	0.18	-183.17	-116.56
5,100.00	0.30	243.44	5,081.63	93.48	395.15	405.79	0.19	0.19	0.00	0.00
5,200.00	0.49	243.44	5,181.63	93.17	394.54	405.13	0.19	0.19	0.00	0.00
5,300.00	0.67	243.44	5,281.63	92.72	393.63	404.15	0.19	0.19	0.00	0.00
5,400.00	0.86	243.44	5,381.62	92.12	392.44	402.86	0.19	0.19	0.00	0.00
5,500.00	1.04	243.44	5,481.60	91.38	390.95	401.27	0.19	0.19	0.00	0.00
5,600.00	1.23	243.44	5,581.58	90.49	389.18	399.35	0.19	0.19	0.00	0.00
5,700.00	1.41	243.44	5,681.56	89.46	387.12	397.13	0.19	0.19	0.00	0.00
5,800.00	1.60	243.44	5,781.52	88.29	384.77	394.60	0.19	0.19	0.00	0.00
5,900.00	1.78	243.44	5,881.48	86.97	382.13	391.75	0.19	0.19	0.00	0.00
6,000.00	1.97	243.44	5,981.43	85.50	379.20	388.60	0.19	0.19	0.00	0.00
6,100.00	2.15	243.44	6,081.36	83.90	375.99	385.13	0.19	0.19	0.00	0.00
6,200.00	2.34	243.44	6,181.29	82.14	372.49	381.35	0.19	0.19	0.00	0.00
6,267.94	2.46	243.44	6,249.17	80.87	369.94	378.61	0.19	0.19	0.00	0.00
6,300.00	2.40	243.44	6,281.20	80.26	368.72	377.30	0.19	-0.19	0.00	180.00
6,326.83	2.35	243.44	6,308.00	79.77	367.73	376.22	0.19	-0.19	0.00	-180.00
<b>Cameo</b>										
6,400.00	2.21	243.44	6,381.12	78.47	365.13	373.42	0.19	-0.19	0.00	180.00
6,500.00	2.01	243.44	6,481.05	76.82	361.83	369.87	0.19	-0.19	0.00	180.00
6,600.00	1.82	243.44	6,580.99	75.32	358.84	366.64	0.19	-0.19	0.00	180.00
6,666.04	1.69	243.44	6,647.00	74.42	357.03	364.69	0.19	-0.19	0.00	180.00
<b>Rollins</b>										
6,700.00	1.62	243.44	6,680.95	73.98	356.16	363.74	0.19	-0.19	0.00	-180.00
6,800.00	1.43	243.44	6,780.91	72.79	353.77	361.17	0.19	-0.19	0.00	180.00
6,900.00	1.24	243.44	6,880.88	71.75	351.69	358.93	0.19	-0.19	0.00	180.00
6,935.12	1.17	243.44	6,916.00	71.42	351.03	358.22	0.19	-0.19	0.00	-180.00
<b>Cozzette</b>										
7,000.00	1.04	243.44	6,980.86	70.86	349.91	357.01	0.19	-0.19	0.00	180.00
7,100.00	0.85	243.44	7,080.85	70.12	348.43	355.42	0.19	-0.19	0.00	180.00
7,173.16	0.71	243.44	7,154.00	69.68	347.55	354.46	0.19	-0.19	0.00	-180.00
<b>Corcoran</b>										
7,200.00	0.65	243.44	7,180.84	69.53	347.26	354.15	0.19	-0.19	0.00	180.00
7,287.16	0.49	243.44	7,268.00	69.15	346.48	353.32	0.19	-0.19	0.00	-180.00
<b>Mancos</b>										
7,300.00	0.46	243.44	7,280.84	69.10	346.39	353.21	0.19	-0.19	0.00	180.00
7,400.00	0.27	243.44	7,380.84	68.82	345.82	352.60	0.19	-0.19	0.00	180.00
7,500.00	0.07	243.44	7,480.83	68.68	345.56	352.32	0.19	-0.19	0.00	180.00
7,537.16	0.00	0.00	7,517.99	68.67	345.54	352.30	0.19	-0.19	313.67	179.99
<b>Total Depth = 7537.16ft</b>										
7,537.17	0.00	1.60	7,518.00	68.67	345.54	352.30	0.19	-0.19	0.00	180.00
<b>SGV Federal 8-11D Plan #1 BH Tgt</b>										

## Plan Report for SGV Federal 8-11D - 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
357.00	356.95	0.70	2.96	Build Rate = 2.00°/100ft
489.88	489.50	2.82	11.91	End Build at 489.88ft
2,536.00	2,526.88	46.35	195.74	5.30 Inclination
4,583.19	4,565.33	89.91	379.66	Begin Drop at 4583.19ft
4,760.00	4,741.70	92.73	391.58	Drop Rate = 1.50°/100ft
4,936.36	4,918.00	93.67	395.54	End Drop at 4936.36ft
7,537.16	7,517.99	68.67	345.54	Total Depth = 7537.16ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	SGV Federal 8-11D Plan #1 BH Tgt	78.76	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,537.17	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,495.31	8 5/8" Casing Pt	8-5/8	12-1/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,916.01	3,901.00	Williams Fork		0.00	
4,936.36	4,918.00	Top of gas		0.00	
6,326.83	6,308.00	Cameo		0.00	
6,666.04	6,647.00	Rollins		0.00	
6,935.12	6,916.00	Cozzette		0.00	
7,173.16	7,154.00	Corcoran		0.00	
7,287.16	7,268.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
SGV Federal 8-11D Plan #1 BH Tgt	7,518.00	68.67	345.54	Point
SGV Federal 8-11D Plan #1 Driller's Tgt	4,918.00	93.67	395.54	Rectangle
SGV Federal 8-11D Plan #1 Zone Tgt	4,918.00	68.67	345.54	Rectangle

**North Reference Sheet for Sec. 8-T8S-R95W (SGV 8D PAD) - SGV Federal 8-11D - 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 8-11D - Slot B11

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

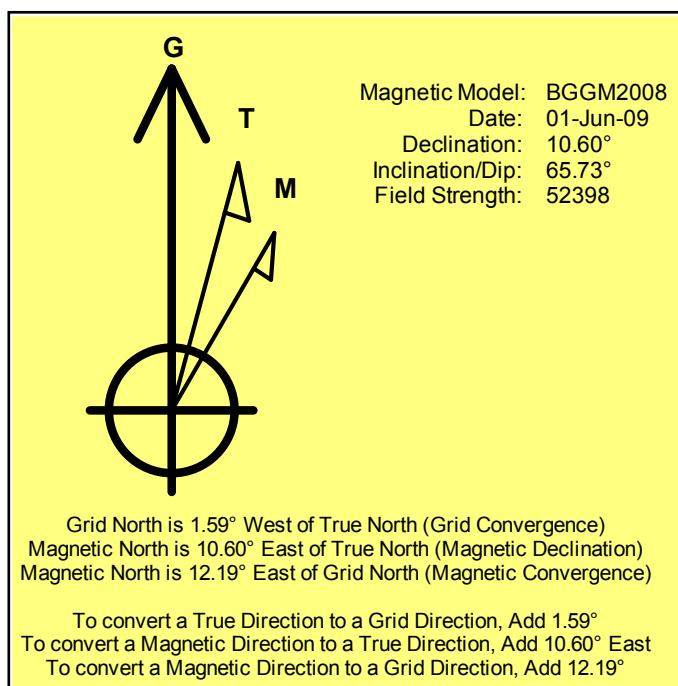
Grid Coordinates of Well: 573,840.33 ft N, 1,286,223.48 ft E

Geographical Coordinates of Well: 39° 22' 54.27" N, 108° 01' 31.75" W

Grid Convergence at Surface is: -1.59°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,537.17ft  
the Bottom Hole Displacement is 352.30ft in the Direction of 78.76° (Grid).

Magnetic Convergence at surface is: -12.19° ( 1 June 2009 , BGGM2008)



Project: Garfield County, CO  
Site: Sec. 8-T8S-R95W (SGV 8D PAD)  
Well: SGV Federal 8-11D  
Wellbore: Plan #1  
Plan: Plan #1 Proposal

# Noble Energy

HALLIBURTON

## SECTION DETAILS

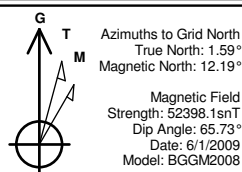
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	
489.88	5.30	76.68	489.50	2.82	11.91	2.00	76.68	12.23	
4583.19	5.30	76.68	4565.33	89.91	379.66	0.00	0.00	389.91	
4936.36	0.00	0.00	4918.00	93.67	395.54	1.50	180.00	406.21	SGV Federal 8-11D Plan #1 Driller's Tgt
6267.94	2.46	243.44	6249.17	80.87	369.94	0.19	243.44	378.61	
7537.17	0.00	1.60	7518.00	68.67	345.54	0.19	180.00	352.30	SGV Federal 8-11D Plan #1 BH Tgt

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SGV Federal 8-11D Plan #1 Driller's Tgt	4918.00	93.67	395.54	Rectangle (Sides: L25.00 W25.00)
SGV Federal 8-11D Plan #1 Zone Tgt	4918.00	68.67	345.54	Rectangle (Sides: L100.00 W200.00)
SGV Federal 8-11D Plan #1 BH Tgt	7518.00	68.67	345.54	Point

## WELL DETAILS: SGV Federal 8-11D

Northings	Easting	Ground Level:	Latitude	Longitude	B11
573840.33	1286223.48	6342.00	39° 22' 54.268 N	108° 1' 31.746 W	



Azimuths to Grid North  
True North: 1.59°  
Magnetic North: 12.19°  
Magnetic Field  
Strength: 52398.1snT  
Dip Angle: 65.73°  
Date: 6/1/2009  
Model: BGGM2008

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3901.00	3916.01	Williams Fork
4918.00	4936.36	Top of gas
6308.00	6326.83	Cameo
6847.00	6868.04	Rollins
6916.00	6935.12	Cozzette
7154.00	7173.16	Corcoran
7268.00	7287.16	Mancos

