

Noble Energy (Rockies)

Garfield County, CO

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

Federal 7-33B - A11

Wellbore #1

Plan: Plan #1 Proposal

Sperry Drilling Services

Proposal Report

10 August, 2009

Well Coordinates: 571,877.19 N, 1,282,898.94 E (39° 22' 33.96" N, 108° 02' 13.37" W)

Ground Level: 6,503.00 ft

Local Coordinate Origin:

Centered on Well Federal 7-33B - Slot A11

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 7-33B - 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	1.50	77.10	299.99	0.22	0.96	0.98	2.00	2.00	0.00	77.10
400.00	3.50	77.10	399.89	1.19	5.21	5.34	2.00	2.00	0.00	0.00
494.00	5.38	77.10	493.60	2.82	12.30	12.62	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
500.00	5.50	77.10	499.58	2.94	12.86	13.19	2.00	2.00	0.00	0.00
600.00	7.50	77.10	598.93	5.47	23.89	24.50	2.00	2.00	0.00	0.00
700.00	9.50	77.10	697.83	8.77	38.30	39.28	2.00	2.00	0.00	0.00
763.83	10.78	77.10	760.66	11.28	49.25	50.52	2.00	2.00	0.00	0.00
End Build at 763.83ft										
800.00	10.78	77.10	796.19	12.79	55.84	57.28	0.00	0.00	0.00	0.00
900.00	10.78	77.10	894.43	16.96	74.07	75.97	0.00	0.00	0.00	0.00
1,000.00	10.78	77.10	992.66	21.14	92.29	94.67	0.00	0.00	0.00	0.00
1,100.00	10.78	77.10	1,090.90	25.31	110.52	113.36	0.00	0.00	0.00	0.00
1,200.00	10.78	77.10	1,189.14	29.49	128.75	132.06	0.00	0.00	0.00	0.00
1,300.00	10.78	77.10	1,287.37	33.66	146.97	150.75	0.00	0.00	0.00	0.00
1,400.00	10.78	77.10	1,385.61	37.83	165.20	169.45	0.00	0.00	0.00	0.00
1,500.00	10.78	77.10	1,483.85	42.01	183.42	188.14	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	10.78	77.10	1,582.08	46.18	201.65	206.84	0.00	0.00	0.00	0.00
1,700.00	10.78	77.10	1,680.32	50.36	219.88	225.53	0.00	0.00	0.00	0.00
1,800.00	10.78	77.10	1,778.55	54.53	238.10	244.23	0.00	0.00	0.00	0.00
1,900.00	10.78	77.10	1,876.79	58.71	256.33	262.92	0.00	0.00	0.00	0.00
2,000.00	10.78	77.10	1,975.03	62.88	274.55	281.62	0.00	0.00	0.00	0.00
2,100.00	10.78	77.10	2,073.26	67.05	292.78	300.31	0.00	0.00	0.00	0.00
2,200.00	10.78	77.10	2,171.50	71.23	311.01	319.01	0.00	0.00	0.00	0.00
2,300.00	10.78	77.10	2,269.74	75.40	329.23	337.70	0.00	0.00	0.00	0.00
2,400.00	10.78	77.10	2,367.97	79.58	347.46	356.40	0.00	0.00	0.00	0.00
2,500.00	10.78	77.10	2,466.21	83.75	365.68	375.09	0.00	0.00	0.00	0.00
2,541.00	10.78	77.10	2,506.49	85.46	373.16	382.76	0.00	0.00	0.00	0.00
10.78 Inclination										
2,600.00	10.78	77.10	2,564.45	87.93	383.91	393.79	0.00	0.00	0.00	0.00
2,700.00	10.78	77.10	2,662.68	92.10	402.14	412.48	0.00	0.00	0.00	0.00
2,800.00	10.78	77.10	2,760.92	96.27	420.36	431.18	0.00	0.00	0.00	0.00
2,900.00	10.78	77.10	2,859.15	100.45	438.59	449.87	0.00	0.00	0.00	0.00
3,000.00	10.78	77.10	2,957.39	104.62	456.81	468.57	0.00	0.00	0.00	0.00
3,100.00	10.78	77.10	3,055.63	108.80	475.04	487.26	0.00	0.00	0.00	0.00
3,200.00	10.78	77.10	3,153.86	112.97	493.27	505.95	0.00	0.00	0.00	0.00
3,300.00	10.78	77.10	3,252.10	117.15	511.49	524.65	0.00	0.00	0.00	0.00
3,400.00	10.78	77.10	3,350.34	121.32	529.72	543.34	0.00	0.00	0.00	0.00
3,500.00	10.78	77.10	3,448.57	125.49	547.94	562.04	0.00	0.00	0.00	0.00
3,600.00	10.78	77.10	3,546.81	129.67	566.17	580.73	0.00	0.00	0.00	0.00
3,700.00	10.78	77.10	3,645.05	133.84	584.40	599.43	0.00	0.00	0.00	0.00
3,794.62	10.78	77.10	3,738.00	137.79	601.64	617.12	0.00	0.00	0.00	0.00
Williams Fork										
3,800.00	10.78	77.10	3,743.28	138.02	602.62	618.12	0.00	0.00	0.00	0.00
3,900.00	10.78	77.10	3,841.52	142.19	620.85	636.82	0.00	0.00	0.00	0.00
4,000.00	10.78	77.10	3,939.75	146.37	639.07	655.51	0.00	0.00	0.00	0.00
4,100.00	10.78	77.10	4,037.99	150.54	657.30	674.21	0.00	0.00	0.00	0.00
4,200.00	10.78	77.10	4,136.23	154.71	675.53	692.90	0.00	0.00	0.00	0.00
4,300.00	10.78	77.10	4,234.46	158.89	693.75	711.60	0.00	0.00	0.00	0.00
4,320.69	10.78	77.10	4,254.79	159.75	697.52	715.47	0.00	0.00	0.00	0.00
Begin Drop at 4320.69ft										

Plan Report for Federal 7-33B - 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	9.59	77.10	4,332.85	162.88	711.19	729.48	1.50	-1.50	0.00	180.00
4,500.00	8.09	77.10	4,431.66	166.31	726.16	744.84	1.50	-1.50	0.00	180.00
4,600.00	6.59	77.10	4,530.84	169.16	738.61	757.61	1.50	-1.50	0.00	180.00
4,679.00	5.40	77.10	4,609.40	171.00	746.65	765.86	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
4,700.00	5.09	77.10	4,630.32	171.43	748.52	767.78	1.50	-1.50	0.00	-180.00
4,800.00	3.59	77.10	4,730.03	173.12	755.90	775.34	1.50	-1.50	0.00	180.00
4,900.00	2.09	77.10	4,829.90	174.23	760.72	780.29	1.50	-1.50	0.00	180.00
5,000.00	0.59	77.10	4,929.87	174.75	762.99	782.62	1.50	-1.50	0.00	180.00
5,038.85	0.00	77.07	4,968.72	174.79	763.19	782.82	1.50	-1.50	-0.07	-180.00
Federal 7-33B Plan #1 Zone Tgt										
5,039.13	0.00	0.00	4,969.00	174.79	763.19	782.82	1.50	-1.50	-27,703.12	-179.97
End Drop at 5039.13ft - Top of Gas - Federal 7-33B Plan #1 Driller's Tgt										
5,100.00	0.15	243.43	5,029.87	174.76	763.12	782.74	0.25	0.25	-191.50	-116.57
5,200.00	0.41	243.43	5,129.87	174.54	762.68	782.27	0.25	0.25	0.00	0.00
5,300.00	0.66	243.43	5,229.86	174.12	761.84	781.36	0.25	0.25	0.00	0.00
5,400.00	0.92	243.43	5,329.86	173.50	760.61	780.03	0.25	0.25	0.00	0.00
5,500.00	1.17	243.43	5,429.84	172.69	758.98	778.27	0.25	0.25	0.00	0.00
5,600.00	1.42	243.43	5,529.81	171.67	756.95	776.08	0.25	0.25	0.00	0.00
5,700.00	1.68	243.43	5,629.78	170.46	754.53	773.46	0.25	0.25	0.00	0.00
5,800.00	1.93	243.43	5,729.73	169.05	751.71	770.41	0.25	0.25	0.00	0.00
5,900.00	2.19	243.43	5,829.66	167.45	748.50	766.93	0.25	0.25	0.00	0.00
6,000.00	2.44	243.43	5,929.58	165.64	744.89	763.03	0.25	0.25	0.00	0.00
6,100.00	2.69	243.43	6,029.48	163.64	740.88	758.70	0.25	0.25	0.00	0.00
6,159.74	2.85	243.43	6,089.15	162.34	738.30	755.90	0.25	0.25	0.00	0.00
6,200.00	2.74	243.43	6,129.36	161.47	736.54	754.00	0.25	-0.25	0.00	180.00
6,294.74	2.51	243.43	6,224.00	159.53	732.66	749.81	0.25	-0.25	0.00	180.00
Cameo										
6,300.00	2.49	243.43	6,229.26	159.42	732.46	749.58	0.25	-0.25	0.00	-180.00
6,400.00	2.24	243.43	6,329.17	157.58	728.76	745.59	0.25	-0.25	0.00	180.00
6,500.00	1.99	243.43	6,429.10	155.92	725.46	742.02	0.25	-0.25	0.00	180.00
6,600.00	1.74	243.43	6,529.05	154.47	722.55	738.87	0.25	-0.25	0.00	180.00
6,626.96	1.67	243.43	6,556.00	154.11	721.83	738.10	0.25	-0.25	0.00	-180.00
Rollins										
6,700.00	1.49	243.43	6,629.01	153.21	720.04	736.15	0.25	-0.25	0.00	180.00
6,800.00	1.23	243.43	6,728.98	152.15	717.91	733.86	0.25	-0.25	0.00	180.00
6,900.00	0.98	243.43	6,828.96	151.29	716.18	731.99	0.25	-0.25	0.00	180.00
7,000.00	0.73	243.43	6,928.95	150.62	714.85	730.54	0.25	-0.25	0.00	180.00
7,100.00	0.48	243.43	7,028.95	150.14	713.90	729.52	0.25	-0.25	0.00	180.00
7,200.00	0.23	243.43	7,128.95	149.87	713.35	728.93	0.25	-0.25	0.00	180.00
7,290.06	0.00	0.00	7,219.00	149.79	713.19	728.75	0.25	-0.25	0.00	180.00
Federal 7-33B Plan #1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
225.00	225.00	0.00	0.00	Kickoff at 225.00ft
494.00	493.60	2.82	12.30	Build Rate = 2.00°/100ft
763.83	760.66	11.28	49.25	End Build at 763.83ft
2,541.00	2,506.49	85.46	373.16	10.78 Inclination
4,320.69	4,254.79	159.75	697.52	Begin Drop at 4320.69ft
4,679.00	4,609.40	171.00	746.65	Drop Rate = 1.50°/100ft
5,039.13	4,969.00	174.79	763.19	End Drop at 5039.13ft
7,290.06	7,219.00	149.79	713.19	Total Depth = 7290.06ft

Plan Report for Federal 7-33B - Plan #1 Proposal

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Federal 7-33B Plan #1 BH Tgt	78.14	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,290.06	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,483.85	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,794.62	3,738.00	Williams Fork		0.00	
5,039.13	4,969.00	Top of Gas		0.00	
6,294.74	6,224.00	Cameo		0.00	
6,626.96	6,556.00	Rollins		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Federal 7-33B Plan #1 Zone Tgt	4,969.00	149.79	713.19	Rectangle
Federal 7-33B Plan #1 BH Tgt	7,219.00	149.79	713.19	Point
Federal 7-33B Plan #1 Driller's Tgt	4,969.00	174.79	763.19	Rectangle

North Reference Sheet for Sec. 7-T8S-R95W (SGV 7K PAD) - Federal 7-33B - 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 7-33B - Slot A11

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: 0.99994741

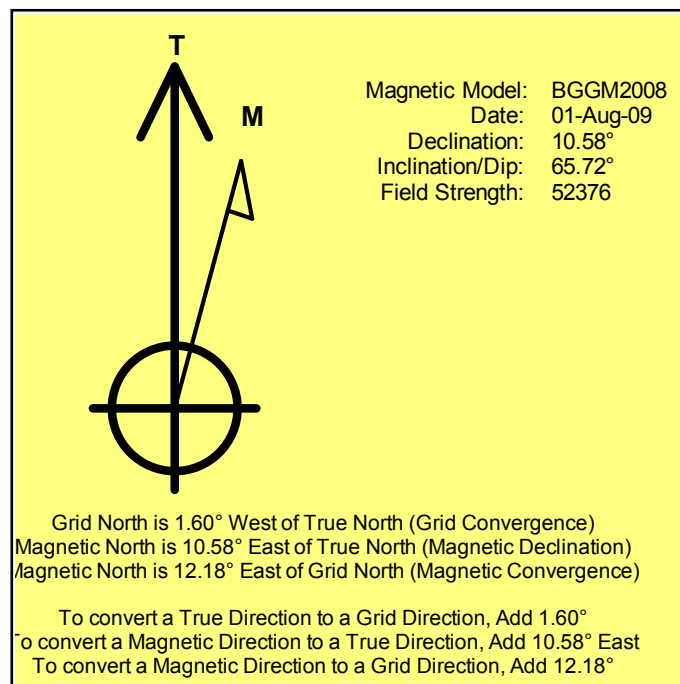
Grid Coordinates of Well: 571,877.19 ft N, 1,282,898.94 ft E

Geographical Coordinates of Well: 39° 22' 33.96" N, 108° 02' 13.37" W

Grid Convergence at Surface is: -1.60°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,290.06ft the Bottom Hole Displacement is 728.75ft in the Direction of 78.14° (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 7-33B
Wellbore: Wellbore #1
Plan: Plan #1 Proposal

Noble Energy (Rockies)

HALLIBURTON

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect
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	763.83	10.78	77.10	760.66	11.28	49.25	2.00	77.10	50.52
4	4320.69	10.78	77.10	4254.79	159.75	697.52	0.00	0.00	715.47
5	5039.13	0.00	0.00	4969.00	174.79	763.19	1.50	180.00	782.82
6	6159.74	2.85	243.43	6089.15	162.34	738.30	0.25	243.43	755.90
7	7290.06	0.00	0.00	7219.00	149.79	713.19	0.25	180.00	728.75

Federal 7-33B Plan #1 Driller's Tgt

Federal 7-33B Plan #1 BH Tgt

WELL DETAILS: Federal 7-33B

Ground Level:	6503.00
Latitude	39° 22' 33.95" N
Longitude	107° 13.372' W
North	A11

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3738.00	3794.62	Williams Fork
4969.00	5039.13	Top of Gas
6224.00	6294.74	Cameo
6556.00	6626.96	Rollins

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Federal 7-33B Plan #1 Driller's Tgt	4969.00	174.79	763.19	Rectangle (Sides: L25.00 W25.00)
Federal 7-33B Plan #1 Zone Tgt	4969.00	149.79	713.19	Rectangle (Sides: L100.00 W200.00)
Federal 7-33B Plan #1 BH Tgt	7219.00	149.79	713.19	Point



Azimuths to True North
Magnetic North: 10.58°
Magnetic Field
Strength: 52375.6snT
Dip Angle: 65.72°
Date: 8/1/2009
Model: BGGM2008

