

Noble Energy (Rockies)

Garfield County, CO

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

Federal 7-33C - A 5

Plan #1

Plan: Plan #1 Proposal

Sperry Drilling Services

Proposal Report

22 June, 2009

Well Coordinates: 571,832.19 N, 1,282,898.83 E (39° 22' 33.51" N, 108° 02' 13.36" W)

Ground Level: 6,503.00 ft

Local Coordinate Origin:

Centered on Well Federal 7-33C - Slot A 5

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 7-33C - 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	98.21	299.99	-0.14	0.97	0.98	2.00	2.00	0.00	98.21
400.00	3.50	98.21	399.89	-0.76	5.29	5.34	2.00	2.00	0.00	0.00
500.00	5.50	98.21	499.58	-1.88	13.05	13.18	2.00	2.00	0.00	0.00
600.00	7.50	98.21	598.93	-3.50	24.26	24.49	2.00	2.00	0.00	0.00
654.00	8.58	98.21	652.40	-4.58	31.73	32.03	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
700.00	9.50	98.21	697.83	-5.61	38.89	39.25	2.00	2.00	0.00	0.00
800.00	11.50	98.21	796.15	-8.22	56.92	57.46	2.00	2.00	0.00	0.00
900.00	13.50	98.21	893.77	-11.31	78.34	79.08	2.00	2.00	0.00	0.00
1,000.00	15.50	98.21	990.58	-14.88	103.12	104.09	2.00	2.00	0.00	0.00
1,086.30	17.23	98.21	1,073.38	-18.36	127.18	128.38	2.00	2.00	0.00	0.00
End Build at 1086.30ft										
1,100.00	17.23	98.21	1,086.47	-18.94	131.20	132.43	0.00	0.00	0.00	0.00
1,200.00	17.23	98.21	1,181.98	-23.17	160.51	162.02	0.00	0.00	0.00	0.00
1,300.00	17.23	98.21	1,277.50	-27.40	189.82	191.60	0.00	0.00	0.00	0.00
1,400.00	17.23	98.21	1,373.01	-31.63	219.13	221.19	0.00	0.00	0.00	0.00
1,499.00	17.23	98.21	1,467.57	-35.82	248.15	250.48	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,500.00	17.23	98.21	1,468.53	-35.86	248.44	250.77	0.00	0.00	0.00	0.00
1,600.00	17.23	98.21	1,564.04	-40.09	277.75	280.36	0.00	0.00	0.00	0.00
1,700.00	17.23	98.21	1,659.55	-44.32	307.06	309.95	0.00	0.00	0.00	0.00
1,800.00	17.23	98.21	1,755.07	-48.55	336.37	339.53	0.00	0.00	0.00	0.00
1,883.00	17.23	98.21	1,834.35	-52.06	360.70	364.09	0.00	0.00	0.00	0.00
17.23 Inclination										
1,900.00	17.23	98.21	1,850.58	-52.78	365.68	369.12	0.00	0.00	0.00	0.00
2,000.00	17.23	98.21	1,946.10	-57.01	394.99	398.70	0.00	0.00	0.00	0.00
2,100.00	17.23	98.21	2,041.61	-61.24	424.30	428.29	0.00	0.00	0.00	0.00
2,200.00	17.23	98.21	2,137.13	-65.47	453.61	457.87	0.00	0.00	0.00	0.00
2,300.00	17.23	98.21	2,232.64	-69.70	482.92	487.46	0.00	0.00	0.00	0.00
2,400.00	17.23	98.21	2,328.16	-73.93	512.23	517.05	0.00	0.00	0.00	0.00
2,500.00	17.23	98.21	2,423.67	-78.16	541.55	546.63	0.00	0.00	0.00	0.00
2,600.00	17.23	98.21	2,519.18	-82.39	570.86	576.22	0.00	0.00	0.00	0.00
2,681.29	17.23	98.21	2,596.83	-85.83	594.68	600.27	0.00	0.00	0.00	0.00
Begin Drop at 2681.29ft										
2,700.00	16.95	98.21	2,614.71	-86.62	600.12	605.76	1.50	-1.50	0.00	180.00
2,800.00	15.45	98.21	2,710.74	-90.60	627.73	633.62	1.50	-1.50	0.00	180.00
2,900.00	13.95	98.21	2,807.47	-94.23	652.83	658.96	1.50	-1.50	0.00	180.00
3,000.00	12.45	98.21	2,904.82	-97.49	675.43	681.77	1.50	-1.50	0.00	180.00
3,100.00	10.95	98.21	3,002.75	-100.38	695.49	702.02	1.50	-1.50	0.00	180.00
3,200.00	9.45	98.21	3,101.16	-102.91	713.01	719.70	1.50	-1.50	0.00	180.00
3,255.00	8.62	98.21	3,155.48	-104.15	721.55	728.33	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
3,300.00	7.95	98.21	3,200.01	-105.07	727.97	734.81	1.50	-1.50	0.00	180.00
3,400.00	6.45	98.21	3,299.22	-106.86	740.37	747.32	1.50	-1.50	0.00	180.00
3,500.00	4.95	98.21	3,398.73	-108.28	750.19	757.23	1.50	-1.50	0.00	180.00
3,600.00	3.45	98.21	3,498.45	-109.32	757.43	764.54	1.50	-1.50	0.00	180.00
3,700.00	1.95	98.21	3,598.34	-110.00	762.08	769.24	1.50	-1.50	0.00	180.00
3,800.00	0.45	98.21	3,698.32	-110.29	764.15	771.32	1.50	-1.50	0.00	180.00
3,829.51	0.00	98.21	3,727.82	-110.31	764.26	771.44	1.50	-1.50	0.00	180.00
Federal 7-33C Plan #1 Zone Tgt										
3,829.68	0.00	0.00	3,728.00	-110.31	764.26	771.44	1.50	-1.50	0.00	-180.00
End Drop at 3829.68ft - Williams Fork - Federal 7-33C Plan #1 Driller's Tgt										
3,900.00	0.07	243.44	3,798.32	-110.33	764.22	771.40	0.11	0.11	0.00	243.44

Plan Report for Federal 7-33C - 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 (°)
4,000.00	0.18	243.44	3,898.32	-110.43	764.02	771.22	0.11	0.11	0.00	0.00
4,100.00	0.29	243.44	3,998.31	-110.61	763.66	770.90	0.11	0.11	0.00	0.00
4,200.00	0.39	243.44	4,098.31	-110.88	763.13	770.43	0.11	0.11	0.00	0.00
4,300.00	0.50	243.44	4,198.31	-111.23	762.43	769.81	0.11	0.11	0.00	0.00
4,400.00	0.60	243.44	4,298.31	-111.66	761.57	769.04	0.11	0.11	0.00	0.00
4,500.00	0.71	243.44	4,398.30	-112.17	760.54	768.13	0.11	0.11	0.00	0.00
4,600.00	0.82	243.44	4,498.29	-112.76	759.35	767.07	0.11	0.11	0.00	0.00
4,700.00	0.92	243.44	4,598.28	-113.44	757.99	765.86	0.11	0.11	0.00	0.00
4,800.00	1.03	243.44	4,698.26	-114.20	756.47	764.51	0.11	0.11	0.00	0.00
4,900.00	1.13	243.44	4,798.25	-115.05	754.78	763.01	0.11	0.11	0.00	0.00
5,000.00	1.24	243.44	4,898.22	-115.98	752.93	761.36	0.11	0.11	0.00	0.00
5,060.79	1.30	243.44	4,959.00	-116.58	751.72	760.28	0.11	0.11	0.00	0.00
Top of Gas										
5,100.00	1.35	243.44	4,998.20	-116.98	750.91	759.56	0.11	0.11	0.00	0.00
5,200.00	1.45	243.44	5,098.17	-118.08	748.72	757.62	0.11	0.11	0.00	0.00
5,300.00	1.56	243.44	5,198.13	-119.25	746.37	755.53	0.11	0.11	0.00	0.00
5,400.00	1.66	243.44	5,298.10	-120.51	743.86	753.29	0.11	0.11	0.00	0.00
5,500.00	1.77	243.44	5,398.05	-121.85	741.18	750.91	0.11	0.11	0.00	0.00
5,565.44	1.84	243.44	5,463.46	-122.77	739.33	749.27	0.11	0.11	0.00	0.00
5,600.00	1.80	243.44	5,498.00	-123.26	738.35	748.39	0.11	-0.11	0.00	180.00
5,700.00	1.70	243.44	5,597.95	-124.63	735.62	745.96	0.11	-0.11	0.00	180.00
5,800.00	1.59	243.44	5,697.91	-125.91	733.05	743.68	0.11	-0.11	0.00	180.00
5,900.00	1.49	243.44	5,797.88	-127.12	730.65	741.54	0.11	-0.11	0.00	180.00
6,000.00	1.38	243.44	5,897.84	-128.24	728.41	739.55	0.11	-0.11	0.00	180.00
6,100.00	1.28	243.44	5,997.82	-129.27	726.33	737.70	0.11	-0.11	0.00	180.00
6,200.00	1.17	243.44	6,097.80	-130.23	724.42	736.00	0.11	-0.11	0.00	180.00
6,300.00	1.07	243.44	6,197.78	-131.10	722.68	734.45	0.11	-0.11	0.00	180.00
6,316.23	1.05	243.44	6,214.00	-131.23	722.41	734.21	0.11	-0.11	0.00	-180.00
Cameo										
6,400.00	0.96	243.44	6,297.76	-131.89	721.10	733.04	0.11	-0.11	0.00	180.00
6,500.00	0.85	243.44	6,397.75	-132.60	719.68	731.78	0.11	-0.11	0.00	180.00
6,600.00	0.75	243.44	6,497.74	-133.23	718.43	730.67	0.11	-0.11	0.00	180.00
6,648.27	0.70	243.44	6,546.00	-133.50	717.88	730.18	0.11	-0.11	0.00	-180.00
Rollins										
6,700.00	0.64	243.44	6,597.73	-133.77	717.34	729.70	0.11	-0.11	0.00	180.00
6,800.00	0.54	243.44	6,697.73	-134.23	716.41	728.88	0.11	-0.11	0.00	180.00
6,900.00	0.43	243.44	6,797.72	-134.61	715.66	728.20	0.11	-0.11	0.00	180.00
7,000.00	0.33	243.44	6,897.72	-134.91	715.06	727.68	0.11	-0.11	0.00	180.00
7,100.00	0.22	243.44	6,997.72	-135.12	714.63	727.29	0.11	-0.11	0.00	180.00
7,200.00	0.12	243.44	7,097.72	-135.26	714.37	727.06	0.11	-0.11	0.00	180.00
7,300.00	0.01	243.44	7,197.72	-135.31	714.27	726.97	0.11	-0.11	0.00	180.00
7,311.28	0.00	0.00	7,209.00	-135.31	714.26	726.97	0.11	-0.11	1,033.37	179.99
Total Depth = 7311.28ft - Federal 7-33C Plan #1 BH Tgt										

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
654.00	652.40	-4.58	31.73	Build Rate = 2.00°/100ft
1,086.30	1,073.38	-18.36	127.18	End Build at 1086.30ft
1,883.00	1,834.35	-52.06	360.70	17.23 Inclination
2,681.29	2,596.83	-85.83	594.68	Begin Drop at 2681.29ft
3,255.00	3,155.48	-104.15	721.55	Drop Rate = 1.50°/100ft
3,829.68	3,728.00	-110.31	764.26	End Drop at 3829.68ft
7,311.28	7,209.00	-135.31	714.26	Total Depth = 7311.28ft

Plan Report for Federal 7-33C - 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 7-33C Plan #1 BH Tgt	100.73	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,311.28	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,499.00	1,467.57	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,829.68	3,728.00	Williams Fork		0.00	
5,060.79	4,959.00	Top of Gas		0.00	
6,316.23	6,214.00	Cameo		0.00	
6,648.27	6,546.00	Rollins		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Federal 7-33C Plan #1 Zone Tgt	3,728.00	-135.31	714.26	Rectangle
Federal 7-33C Plan #1 BH Tgt	7,209.00	-135.31	714.26	Point
Federal 7-33C Plan #1 Driller's Tgt	3,728.00	-110.31	764.26	Rectangle

North Reference Sheet for Sec. 7-T8S-R95W (SGV 7K PAD) - Federal 7-33C - Plan #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 7-33C - Slot A 5

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

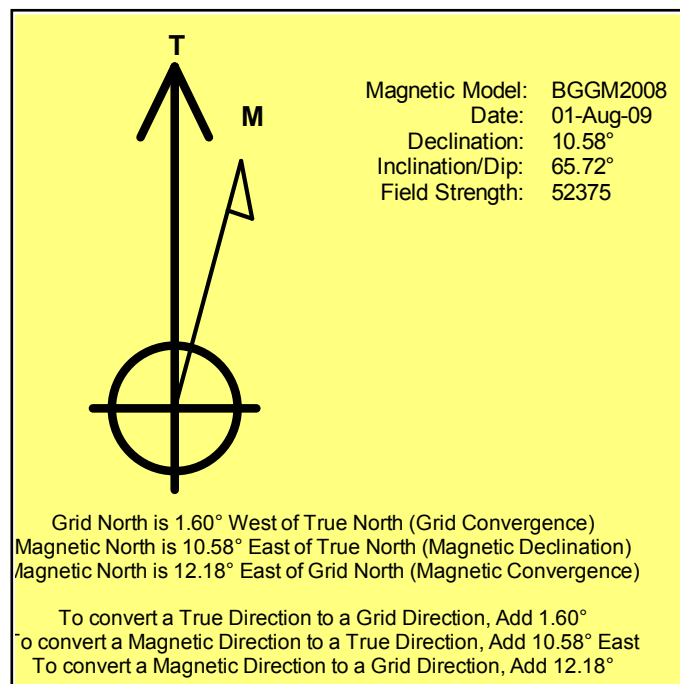
Grid Coordinates of Well: 571,832.19 ft N, 1,282,898.83 ft E

Geographical Coordinates of Well: 39° 22' 33.51" N, 108° 02' 13.36" W

Grid Convergence at Surface is: -1.60°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,311.28ft
the Bottom Hole Displacement is 726.97ft in the Direction of 100.73° (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 7-33C
Wellbore: Plan #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	1086.30	17.23	98.21	1073.38	-18.36	127.18	2.00	98.21	128.38
4	2681.29	17.23	98.21	2596.83	-85.83	594.68	0.00	0.00	600.27
5	3829.68	0.00	0.00	3728.00	-110.31	764.26	1.50	180.00	771.44
6	5565.44	1.84	243.44	5463.46	-122.77	739.33	0.11	243.44	749.27
7	7311.28	0.00	0.00	7209.00	-135.31	714.26	0.11	180.00	726.97

Federal 7-33C Plan #1 Driller's Tgt
Federal 7-33C Plan #1 BH Tgt

WELL DETAILS: Federal 7-33C

Northing	Easting	Ground Level:	Latitude	Longitude	
571832.19	1282898.83	6503.00	39° 22' 33.511 N	108° 2' 13.358 W	A 5

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3728.00	3829.68	Williams Fork
4959.00	5060.79	Top of Gas
6214.00	6316.23	Cameo
6546.00	6648.27	Rollins

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Federal 7-33C Plan #1 Driller's Tgt	3728.00	-110.31	764.26	Rectangle (Sides: L25.00 W25.00)
Federal 7-33C Plan #1 Zone Tgt	3728.00	-135.31	714.26	Rectangle (Sides: L100.00 W200.00)
Federal 7-33C Plan #1 BH Tgt	7209.00	-135.31	714.26	Point



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

