

Noble Energy (Rockies)

Garfield County, CO

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

Federal 7-34D (7O PAD) - B 1

Wellbore #1

Plan: Plan #1 Proposal

Sperry Drilling Services Proposal Report

10 August, 2009

Well Coordinates: 571,802.10 N, 1,282,889.40 E (39° 22' 33.21" N, 108° 02' 13.47" W)

Ground Level: 6,503.00 ft

Local Coordinate Origin:	Centered on Well Federal 7-34D (7O PAD) - Slot B 1
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 7-34D (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	2.25	155.67	299.98	-1.34	0.61	1.47	3.00	3.00	0.00	155.67
400.00	5.25	155.67	399.76	-7.30	3.30	8.01	3.00	3.00	0.00	0.00
500.00	8.25	155.67	499.05	-18.01	8.14	19.76	3.00	3.00	0.00	0.00
600.00	11.25	155.67	597.60	-33.44	15.12	36.68	3.00	3.00	0.00	0.00
690.00	13.95	155.67	685.42	-51.33	23.21	56.30	3.00	3.00	0.00	0.00
Build Rate = 3.00°/100ft										
700.00	14.25	155.67	695.12	-53.55	24.21	58.74	3.00	3.00	0.00	0.00
800.00	17.25	155.67	791.35	-78.28	35.39	85.87	3.00	3.00	0.00	0.00
900.00	20.25	155.67	886.03	-107.56	48.63	117.99	3.00	3.00	0.00	0.00
1,000.00	23.25	155.67	978.91	-141.32	63.90	155.03	3.00	3.00	0.00	0.00
1,100.00	26.25	155.67	1,069.71	-179.47	81.14	196.87	3.00	3.00	0.00	0.00
1,156.30	27.94	155.67	1,119.83	-202.83	91.70	222.50	3.00	3.00	0.00	0.00
End Build at 1156.30ft										
1,200.00	27.94	155.67	1,158.44	-221.49	100.14	242.97	0.00	0.00	0.00	0.00
1,300.00	27.94	155.67	1,246.78	-264.18	119.44	289.80	0.00	0.00	0.00	0.00
1,400.00	27.94	155.67	1,335.12	-306.87	138.74	336.64	0.00	0.00	0.00	0.00
1,500.00	27.94	155.67	1,423.47	-349.57	158.05	383.47	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	27.94	155.67	1,511.81	-392.26	177.35	430.30	0.00	0.00	0.00	0.00
1,700.00	27.94	155.67	1,600.16	-434.95	196.65	477.13	0.00	0.00	0.00	0.00
1,800.00	27.94	155.67	1,688.50	-477.64	215.95	523.97	0.00	0.00	0.00	0.00
1,900.00	27.94	155.67	1,776.85	-520.34	235.25	570.80	0.00	0.00	0.00	0.00
2,000.00	27.94	155.67	1,865.19	-563.03	254.56	617.63	0.00	0.00	0.00	0.00
2,100.00	27.94	155.67	1,953.54	-605.72	273.86	664.47	0.00	0.00	0.00	0.00
2,200.00	27.94	155.67	2,041.88	-648.41	293.16	711.30	0.00	0.00	0.00	0.00
2,300.00	27.94	155.67	2,130.23	-691.11	312.46	758.13	0.00	0.00	0.00	0.00
2,400.00	27.94	155.67	2,218.57	-733.80	331.76	804.96	0.00	0.00	0.00	0.00
2,500.00	27.94	155.67	2,306.92	-776.49	351.07	851.80	0.00	0.00	0.00	0.00
2,600.00	27.94	155.67	2,395.26	-819.18	370.37	898.63	0.00	0.00	0.00	0.00
2,659.00	27.94	155.67	2,447.38	-844.37	381.76	926.26	0.00	0.00	0.00	0.00
27.94 Inclination										
2,700.00	27.94	155.67	2,483.61	-861.88	389.67	945.46	0.00	0.00	0.00	0.00
2,800.00	27.94	155.67	2,571.95	-904.57	408.97	992.30	0.00	0.00	0.00	0.00
2,900.00	27.94	155.67	2,660.30	-947.26	428.27	1,039.13	0.00	0.00	0.00	0.00
3,000.00	27.94	155.67	2,748.64	-989.95	447.58	1,085.96	0.00	0.00	0.00	0.00
3,100.00	27.94	155.67	2,836.98	-1,032.65	466.88	1,132.79	0.00	0.00	0.00	0.00
3,200.00	27.94	155.67	2,925.33	-1,075.34	486.18	1,179.63	0.00	0.00	0.00	0.00
3,300.00	27.94	155.67	3,013.67	-1,118.03	505.48	1,226.46	0.00	0.00	0.00	0.00
3,400.00	27.94	155.67	3,102.02	-1,160.72	524.78	1,273.29	0.00	0.00	0.00	0.00
3,500.00	27.94	155.67	3,190.36	-1,203.42	544.09	1,320.13	0.00	0.00	0.00	0.00
3,600.00	27.94	155.67	3,278.71	-1,246.11	563.39	1,366.96	0.00	0.00	0.00	0.00
3,700.00	27.94	155.67	3,367.05	-1,288.80	582.69	1,413.79	0.00	0.00	0.00	0.00
3,800.00	27.94	155.67	3,455.40	-1,331.49	601.99	1,460.63	0.00	0.00	0.00	0.00
3,900.00	27.94	155.67	3,543.74	-1,374.19	621.29	1,507.46	0.00	0.00	0.00	0.00
4,000.00	27.94	155.67	3,632.09	-1,416.88	640.60	1,554.29	0.00	0.00	0.00	0.00
4,097.25	27.94	155.67	3,718.00	-1,458.40	659.37	1,599.84	0.00	0.00	0.00	0.00
Williams Fork										
4,100.00	27.94	155.67	3,720.43	-1,459.57	659.90	1,601.12	0.00	0.00	0.00	0.00
4,162.00	27.94	155.67	3,775.21	-1,486.04	671.86	1,630.16	0.00	0.00	0.00	0.00
Begin Drop at 4162.00ft										
4,200.00	26.99	155.67	3,808.92	-1,502.01	679.08	1,647.68	2.50	-2.50	0.00	180.00
4,300.00	24.49	155.67	3,898.99	-1,541.58	696.97	1,691.08	2.50	-2.50	0.00	180.00

Plan Report for Federal 7-34D (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 (°)
4,400.00	21.99	155.67	3,990.87	-1,577.53	713.23	1,730.52	2.50	-2.50	0.00	180.00
4,500.00	19.49	155.67	4,084.39	-1,609.79	727.81	1,765.91	2.50	-2.50	0.00	180.00
4,600.00	16.99	155.67	4,179.35	-1,638.31	740.71	1,797.19	2.50	-2.50	0.00	180.00
4,700.00	14.49	155.67	4,275.60	-1,663.02	751.88	1,824.31	2.50	-2.50	0.00	180.00
4,720.00	13.99	155.67	4,294.98	-1,667.51	753.91	1,829.22	2.50	-2.50	0.00	180.00
Drop Rate = 2.50°/100ft										
4,800.00	11.99	155.67	4,372.93	-1,683.89	761.32	1,847.20	2.50	-2.50	0.00	-180.00
4,900.00	9.49	155.67	4,471.17	-1,700.87	768.99	1,865.82	2.50	-2.50	0.00	180.00
5,000.00	6.99	155.67	4,570.13	-1,713.92	774.89	1,880.14	2.50	-2.50	0.00	180.00
5,100.00	4.49	155.67	4,669.62	-1,723.03	779.01	1,890.14	2.50	-2.50	0.00	180.00
5,200.00	1.99	155.67	4,769.46	-1,728.18	781.34	1,895.78	2.50	-2.50	0.00	180.00
5,279.56	0.00	0.00	4,849.00	-1,729.44	781.91	1,897.17	2.50	-2.50	-195.66	-180.00
End Drop at 5279.56ft - Federal 7-34D Plan #1 Driller's Tgt										
5,279.58	0.00	243.43	4,849.02	-1,729.44	781.91	1,897.17	0.07	0.00	-556,692.48	-148.28
Federal 7-34D Plan #1 Zone Tgt										
5,300.00	0.04	243.43	4,869.44	-1,729.44	781.90	1,897.17	0.21	0.21	0.00	0.00
5,379.56	0.21	243.43	4,949.00	-1,729.52	781.75	1,897.18	0.21	0.21	0.00	0.00
Top of Gas										
5,400.00	0.25	243.43	4,969.44	-1,729.56	781.67	1,897.18	0.21	0.21	0.00	0.00
5,500.00	0.46	243.43	5,069.44	-1,729.84	781.11	1,897.23	0.21	0.21	0.00	0.00
5,600.00	0.67	243.43	5,169.43	-1,730.28	780.23	1,897.29	0.21	0.21	0.00	0.00
5,700.00	0.88	243.43	5,269.42	-1,730.89	779.01	1,897.39	0.21	0.21	0.00	0.00
5,800.00	1.09	243.43	5,369.41	-1,731.66	777.47	1,897.50	0.21	0.21	0.00	0.00
5,900.00	1.30	243.43	5,469.39	-1,732.59	775.60	1,897.65	0.21	0.21	0.00	0.00
6,000.00	1.51	243.43	5,569.36	-1,733.69	773.40	1,897.82	0.21	0.21	0.00	0.00
6,100.00	1.72	243.43	5,669.32	-1,734.96	770.88	1,898.01	0.21	0.21	0.00	0.00
6,200.00	1.93	243.43	5,769.27	-1,736.38	768.02	1,898.23	0.21	0.21	0.00	0.00
6,300.00	2.14	243.43	5,869.20	-1,737.97	764.84	1,898.47	0.21	0.21	0.00	0.00
6,400.00	2.35	243.43	5,969.12	-1,739.73	761.34	1,898.74	0.21	0.21	0.00	0.00
6,500.00	2.56	243.43	6,069.03	-1,741.65	757.50	1,899.03	0.21	0.21	0.00	0.00
6,514.31	2.59	243.43	6,083.32	-1,741.93	756.92	1,899.08	0.21	0.21	0.00	0.00
6,600.00	2.41	243.43	6,168.94	-1,743.61	753.58	1,899.33	0.21	-0.21	0.00	180.00
6,635.09	2.34	243.43	6,204.00	-1,744.26	752.28	1,899.43	0.21	-0.21	0.00	180.00
Cameo										
6,700.00	2.20	243.43	6,268.86	-1,745.41	749.97	1,899.61	0.21	-0.21	0.00	-180.00
6,800.00	1.99	243.43	6,368.79	-1,747.05	746.70	1,899.86	0.21	-0.21	0.00	180.00
6,900.00	1.78	243.43	6,468.73	-1,748.52	743.75	1,900.08	0.21	-0.21	0.00	180.00
6,967.30	1.64	243.43	6,536.00	-1,749.42	741.95	1,900.22	0.21	-0.21	0.00	180.00
Rollins										
7,000.00	1.57	243.43	6,568.69	-1,749.83	741.13	1,900.28	0.21	-0.21	0.00	-180.00
7,100.00	1.36	243.43	6,668.66	-1,750.98	738.84	1,900.46	0.21	-0.21	0.00	180.00
7,200.00	1.15	243.43	6,768.63	-1,751.96	736.87	1,900.61	0.21	-0.21	0.00	180.00
7,300.00	0.94	243.43	6,868.62	-1,752.78	735.23	1,900.73	0.21	-0.21	0.00	180.00
7,400.00	0.74	243.43	6,968.61	-1,753.43	733.92	1,900.83	0.21	-0.21	0.00	180.00
7,500.00	0.53	243.43	7,068.60	-1,753.93	732.94	1,900.91	0.21	-0.21	0.00	180.00
7,600.00	0.32	243.43	7,168.60	-1,754.25	732.28	1,900.96	0.21	-0.21	0.00	180.00
7,700.00	0.11	243.43	7,268.60	-1,754.42	731.95	1,900.98	0.21	-0.21	0.00	180.00
7,750.40	0.00	0.00	7,319.00	-1,754.44	731.91	1,900.99	0.21	-0.21	231.28	180.00
Total Depth = 7750.40ft - Federal 7-34D Plan #1 BH Tgt										

Plan Report for Federal 7-34D (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
690.00	685.42	-51.33	23.21	Build Rate = 3.00°/100ft
1,156.30	1,119.83	-202.83	91.70	End Build at 1156.30ft
2,659.00	2,447.38	-844.37	381.76	27.94 Inclination
4,162.00	3,775.21	-1,486.04	671.86	Begin Drop at 4162.00ft
4,720.00	4,294.98	-1,667.51	753.91	Drop Rate = 2.50°/100ft
5,279.56	4,849.00	-1,729.44	781.91	End Drop at 5279.56ft
7,750.40	7,319.00	-1,754.44	731.91	Total Depth = 7750.40ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Federal 7-34D Plan #1 BH Tgt	157.36	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,750.40	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,423.47	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,097.25	3,718.00	Williams Fork		0.00	
5,379.56	4,949.00	Top of Gas		0.00	
6,635.09	6,204.00	Cameo		0.00	
6,967.30	6,536.00	Rollins		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Federal 7-34D Plan #1 BH Tgt	7,319.00	-1,754.44	731.91	Point
Federal 7-34D Plan #1 Driller's Tgt	4,849.00	-1,729.44	781.91	Rectangle
Federal 7-34D Plan #1 Zone Tgt	4,849.00	-1,754.44	731.91	Rectangle

North Reference Sheet for Sec. 7-T8S-R95W (SGV 7K PAD) - Federal 7-34D (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 7-34D (7O PAD) - Slot B 1

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: 0.99994739

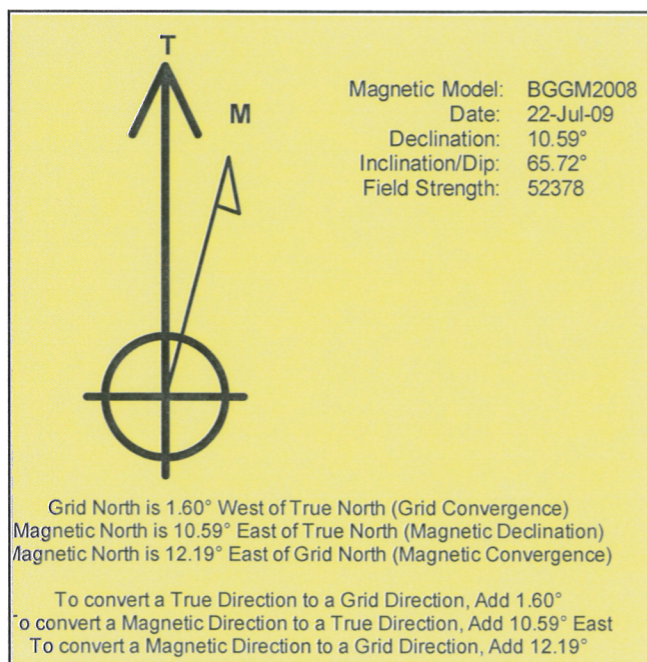
Grid Coordinates of Well: 571,802.10 ft N, 1,282,889.40 ft E

Geographical Coordinates of Well: 39° 22' 33.21" N, 108° 02' 13.47" W

Grid Convergence at Surface is: -1.60°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,750.40ft
the Bottom Hole Displacement is 1,900.99ft in the Direction of 157.36° (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 7-34D (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	1156.30	27.94	155.67	1119.83	-202.83	91.70	3.00	155.67	222.50	
4	4162.00	27.94	155.67	3775.21	-1486.04	671.86	0.00	0.00	1630.16	
5	5279.56	0.00	0.00	4849.00	-1729.44	781.91	2.50	180.00	1897.17	Federal 7-34D Plan #1 Driller's Tgt
6	6514.31	2.59	243.43	6083.32	-1741.93	756.92	0.21	243.43	1899.08	
7	7750.40	0.00	0.00	7319.00	-1754.44	731.91	0.21	180.00	1900.99	Federal 7-34D Plan #1 BH Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Federal 7-34D Plan #1 Driller's Tgt	4849.00	-1729.44	781.91	Rectangle (Sides: L25.00 W25.00)
Federal 7-34D Plan #1 Zone Tgt	4849.00	-1754.44	731.91	Rectangle (Sides: L100.00 W200.00)
Federal 7-34D Plan #1 BH Tgt	7319.00	-1754.44	731.91	Point

WELL DETAILS: Federal 7-34D (70 PAD)

North	East	Ground Level	Latitude	Longitude	
571802.10	1282889.40	6503.00	39° 22' 33.210000 N	107° 2' 13.467 W	B 1



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	4097.25	Williams Fork
4949.00	5379.56	Top of Gas
6204.00	6635.09	Cameo
6536.00	6967.30	Rollins

