

Noble Energy

Garfield County, CO

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

SGV Federal 8-11C - A11

Plan #1

Plan: Plan #1 Proposal

Sperry Drilling Services

Proposal Report

07 April, 2009

Well Coordinates: 573,849.23 N, 1,286,220.14 E (39° 22' 54.35" N, 108° 01' 31.79" W)

Ground Level: 6,342.00 ft

Local Coordinate Origin:

Centered on Well SGV Federal 8-11C - Slot A11

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 8-11C - 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	44.45	299.99	0.70	0.69	0.98	2.00	2.00	0.00	44.45
400.00	3.50	44.45	399.89	3.81	3.74	5.34	2.00	2.00	0.00	0.00
418.00	3.86	44.45	417.85	4.64	4.55	6.49	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
500.00	5.50	44.45	499.58	9.42	9.24	13.18	2.00	2.00	0.00	0.00
600.00	7.50	44.45	598.93	17.50	17.16	24.49	2.00	2.00	0.00	0.00
611.91	7.74	44.45	610.73	18.62	18.27	26.07	2.00	2.00	0.00	0.00
End Build at 611.91ft										
700.00	7.74	44.45	698.02	27.09	26.57	37.93	0.00	0.00	0.00	0.00
800.00	7.74	44.45	797.11	36.70	36.00	51.38	0.00	0.00	0.00	0.00
900.00	7.74	44.45	896.20	46.32	45.43	64.84	0.00	0.00	0.00	0.00
1,000.00	7.74	44.45	995.29	55.93	54.86	78.30	0.00	0.00	0.00	0.00
1,100.00	7.74	44.45	1,094.38	65.54	64.29	91.75	0.00	0.00	0.00	0.00
1,200.00	7.74	44.45	1,193.47	75.15	73.72	105.21	0.00	0.00	0.00	0.00
1,300.00	7.74	44.45	1,292.56	84.76	83.15	118.67	0.00	0.00	0.00	0.00
1,400.00	7.74	44.45	1,391.65	94.38	92.58	132.12	0.00	0.00	0.00	0.00
1,500.00	7.74	44.45	1,490.74	103.99	102.01	145.58	0.00	0.00	0.00	0.00
8 5/8" Casing Pt										
1,600.00	7.74	44.45	1,589.83	113.60	111.44	159.04	0.00	0.00	0.00	0.00
1,700.00	7.74	44.45	1,688.92	123.21	120.86	172.49	0.00	0.00	0.00	0.00
1,800.00	7.74	44.45	1,788.01	132.83	130.29	185.95	0.00	0.00	0.00	0.00
1,900.00	7.74	44.45	1,887.09	142.44	139.72	199.41	0.00	0.00	0.00	0.00
2,000.00	7.74	44.45	1,986.18	152.05	149.15	212.87	0.00	0.00	0.00	0.00
2,100.00	7.74	44.45	2,085.27	161.66	158.58	226.32	0.00	0.00	0.00	0.00
2,200.00	7.74	44.45	2,184.36	171.28	168.01	239.78	0.00	0.00	0.00	0.00
2,300.00	7.74	44.45	2,283.45	180.89	177.44	253.24	0.00	0.00	0.00	0.00
2,400.00	7.74	44.45	2,382.54	190.50	186.87	266.69	0.00	0.00	0.00	0.00
2,500.00	7.74	44.45	2,481.63	200.11	196.30	280.15	0.00	0.00	0.00	0.00
2,543.00	7.74	44.45	2,524.24	204.25	200.35	285.94	0.00	0.00	0.00	0.00
7.74 Inclination										
2,600.00	7.74	44.45	2,580.72	209.72	205.72	293.61	0.00	0.00	0.00	0.00
2,700.00	7.74	44.45	2,679.81	219.34	215.15	307.06	0.00	0.00	0.00	0.00
2,800.00	7.74	44.45	2,778.90	228.95	224.58	320.52	0.00	0.00	0.00	0.00
2,900.00	7.74	44.45	2,877.99	238.56	234.01	333.98	0.00	0.00	0.00	0.00
3,000.00	7.74	44.45	2,977.08	248.17	243.44	347.43	0.00	0.00	0.00	0.00
3,100.00	7.74	44.45	3,076.17	257.79	252.87	360.89	0.00	0.00	0.00	0.00
3,200.00	7.74	44.45	3,175.26	267.40	262.30	374.35	0.00	0.00	0.00	0.00
3,300.00	7.74	44.45	3,274.35	277.01	271.73	387.80	0.00	0.00	0.00	0.00
3,400.00	7.74	44.45	3,373.43	286.62	281.16	401.26	0.00	0.00	0.00	0.00
3,500.00	7.74	44.45	3,472.52	296.23	290.59	414.72	0.00	0.00	0.00	0.00
3,600.00	7.74	44.45	3,571.61	305.85	300.01	428.18	0.00	0.00	0.00	0.00
3,700.00	7.74	44.45	3,670.70	315.46	309.44	441.63	0.00	0.00	0.00	0.00
3,800.00	7.74	44.45	3,769.79	325.07	318.87	455.09	0.00	0.00	0.00	0.00
3,900.00	7.74	44.45	3,868.88	334.68	328.30	468.55	0.00	0.00	0.00	0.00
3,967.74	7.74	44.45	3,936.00	341.19	334.69	477.66	0.00	0.00	0.00	0.00
Williams Fork										
4,000.00	7.74	44.45	3,967.97	344.30	337.73	482.00	0.00	0.00	0.00	0.00
4,100.00	7.74	44.45	4,067.06	353.91	347.16	495.46	0.00	0.00	0.00	0.00
4,200.00	7.74	44.45	4,166.15	363.52	356.59	508.92	0.00	0.00	0.00	0.00
4,300.00	7.74	44.45	4,265.24	373.13	366.02	522.37	0.00	0.00	0.00	0.00
4,400.00	7.74	44.45	4,364.33	382.75	375.45	535.83	0.00	0.00	0.00	0.00
4,475.04	7.74	44.45	4,438.69	389.96	382.52	545.93	0.00	0.00	0.00	0.00

Plan Report for SGV Federal 8-11C - 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 (°)
Begin Drop at 4475.04ft										
4,500.00	7.36	44.45	4,463.43	392.30	384.82	549.21	1.50	-1.50	0.00	180.00
4,600.00	5.86	44.45	4,562.76	400.52	392.88	560.72	1.50	-1.50	0.00	180.00
4,700.00	4.36	44.45	4,662.36	406.88	399.13	569.62	1.50	-1.50	0.00	180.00
4,733.00	3.87	44.45	4,695.27	408.58	400.78	571.99	1.50	-1.50	0.00	-180.00
Drop Rate = 1.50°/100ft										
4,800.00	2.86	44.45	4,762.16	411.38	403.54	575.92	1.50	-1.50	0.00	180.00
4,900.00	1.36	44.45	4,862.09	414.02	406.12	579.61	1.50	-1.50	0.00	180.00
4,990.92	0.00	0.00	4,953.00	414.79	406.88	580.69	1.50	-1.50	-48.89	-180.00
End Drop at 4990.92ft - Top of gas - SGV Federal 8-11C Plan #1 Driller's Tgt										
5,000.00	0.02	243.44	4,962.08	414.79	406.88	580.69	0.19	0.19	-1,284.00	-116.57
5,100.00	0.21	243.44	5,062.08	414.70	406.70	580.51	0.19	0.19	0.00	0.00
5,200.00	0.40	243.44	5,162.08	414.47	406.23	580.01	0.19	0.19	0.00	0.00
5,300.00	0.59	243.44	5,262.07	414.08	405.46	579.21	0.19	0.19	0.00	0.00
5,400.00	0.78	243.44	5,362.07	413.55	404.40	578.10	0.19	0.19	0.00	0.00
5,500.00	0.97	243.44	5,462.05	412.87	403.04	576.68	0.19	0.19	0.00	0.00
5,600.00	1.16	243.44	5,562.04	412.04	401.38	574.95	0.19	0.19	0.00	0.00
5,700.00	1.35	243.44	5,662.01	411.06	399.42	572.91	0.19	0.19	0.00	0.00
5,800.00	1.54	243.44	5,761.98	409.94	397.17	570.56	0.19	0.19	0.00	0.00
5,900.00	1.73	243.44	5,861.94	408.66	394.62	567.90	0.19	0.19	0.00	0.00
6,000.00	1.92	243.44	5,961.89	407.24	391.78	564.93	0.19	0.19	0.00	0.00
6,100.00	2.11	243.44	6,061.83	405.67	388.64	561.65	0.19	0.19	0.00	0.00
6,200.00	2.30	243.44	6,161.75	403.95	385.20	558.06	0.19	0.19	0.00	0.00
6,287.48	2.46	243.44	6,249.16	402.33	381.95	554.67	0.19	0.19	0.00	0.00
6,300.00	2.44	243.44	6,261.67	402.09	381.47	554.17	0.19	-0.19	0.00	180.00
6,381.40	2.29	243.44	6,343.00	400.59	378.47	551.03	0.19	-0.19	0.00	-180.00
Cameo										
6,400.00	2.25	243.44	6,361.58	400.26	377.81	550.34	0.19	-0.19	0.00	180.00
6,500.00	2.06	243.44	6,461.51	398.57	374.45	546.83	0.19	-0.19	0.00	180.00
6,600.00	1.87	243.44	6,561.45	397.04	371.38	543.62	0.19	-0.19	0.00	180.00
6,700.00	1.68	243.44	6,661.41	395.65	368.60	540.73	0.19	-0.19	0.00	180.00
6,720.60	1.65	243.44	6,682.00	395.38	368.07	540.17	0.19	-0.19	0.00	-180.00
Rollins										
6,800.00	1.50	243.44	6,761.37	394.41	366.12	538.14	0.19	-0.19	0.00	180.00
6,900.00	1.31	243.44	6,861.34	393.32	363.93	535.85	0.19	-0.19	0.00	180.00
6,989.68	1.14	243.44	6,951.00	392.46	362.22	534.07	0.19	-0.19	0.00	180.00
Cozzette										
7,000.00	1.12	243.44	6,961.31	392.37	362.04	533.88	0.19	-0.19	0.00	-180.00
7,100.00	0.93	243.44	7,061.30	391.57	360.44	532.21	0.19	-0.19	0.00	180.00
7,200.00	0.74	243.44	7,161.29	390.92	359.14	530.85	0.19	-0.19	0.00	180.00
7,227.71	0.69	243.44	7,189.00	390.77	358.83	530.53	0.19	-0.19	0.00	-180.00
Corcoran										
7,300.00	0.55	243.44	7,261.28	390.42	358.13	529.80	0.19	-0.19	0.00	180.00
7,341.72	0.47	243.44	7,303.00	390.25	357.80	529.45	0.19	-0.19	0.00	-180.00
Mancos										
7,400.00	0.36	243.44	7,361.28	390.06	357.42	529.05	0.19	-0.19	0.00	180.00
7,500.00	0.17	243.44	7,461.28	389.85	357.00	528.62	0.19	-0.19	0.00	180.00
7,591.72	0.00	0.00	7,553.00	389.79	356.88	528.49	0.19	-0.19	127.09	180.00
Total Depth = 7591.72ft - SGV Federal 8-11C Plan #1 BH Tgt										

Plan Report for SGV Federal 8-11C - 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
418.00	417.85	4.64	4.55	Build Rate = 2.00°/100ft
611.91	610.73	18.62	18.27	End Build at 611.91ft
2,543.00	2,524.24	204.25	200.35	7.74 Inclination
4,475.04	4,438.69	389.96	382.52	Begin Drop at 4475.04ft
4,733.00	4,695.27	408.58	400.78	Drop Rate = 1.50°/100ft
4,990.92	4,953.00	414.79	406.88	End Drop at 4990.92ft
7,591.72	7,553.00	389.79	356.88	Total Depth = 7591.72ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	SGV Federal 8-11C Plan #1 BH Tgt	42.48	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,591.72	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,490.74	8 5/8" Casing Pt	8-5/8	12-1/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,967.74	3,936.00	Williams Fork		0.00	
4,990.92	4,953.00	Top of gas		0.00	
6,381.40	6,343.00	Cameo		0.00	
6,720.60	6,682.00	Rollins		0.00	
6,989.68	6,951.00	Cozzette		0.00	
7,227.71	7,189.00	Corcoran		0.00	
7,341.72	7,303.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
SGV Federal 8-11C Plan #1 Driller's Tgt	4,953.00	414.79	406.88	Rectangle
SGV Federal 8-11C Plan #1 Zone Tgt	4,953.00	389.79	356.88	Rectangle
SGV Federal 8-11C Plan #1 BH Tgt	7,553.00	389.79	356.88	Point

North Reference Sheet for Sec. 8-T8S-R95W (SGV 8D PAD) - SGV Federal 8-11C - 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 8-11C - 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: 0.99994788

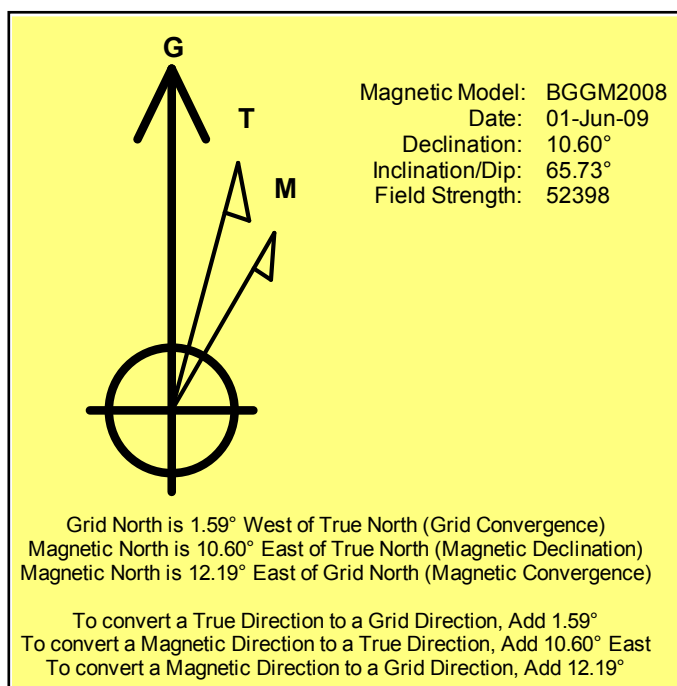
Grid Coordinates of Well: 573,849.23 ft N, 1,286,220.14 ft E

Geographical Coordinates of Well: 39° 22' 54.35" N, 108° 01' 31.79" W

Grid Convergence at Surface is: -1.59°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,591.72ft
the Bottom Hole Displacement is 528.49ft in the Direction of 42.48° (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 8-11C
Wellbore: Plan #1
Plan: Plan #1 Proposal

Noble Energy

HALLIBURTON

SECTION DETAILS

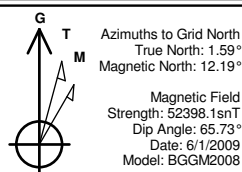
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	
611.91	7.74	44.45	610.74	18.62	18.27	2.00	44.45	26.07	
4475.04	7.74	44.45	4438.68	389.96	382.52	0.00	0.00	545.93	
4990.92	0.00	0.00	4953.00	414.79	406.88	1.50	180.00	580.69	SGV Federal 8-11C Plan #1 Driller's Tgt
6267.48	2.46	243.44	6249.16	402.33	381.95	0.19	243.44	554.67	
7591.72	0.00	1.60	7553.00	389.79	356.88	0.19	180.00	528.49	SGV Federal 8-11C Plan #1 BH Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SGV Federal 8-11C Plan #1 Driller's Tgt	4953.00	414.79	406.88	Rectangle (Sides: L25.00 W25.00)
SGV Federal 8-11C Plan #1 Zone Tgt	4953.00	389.79	356.88	Rectangle (Sides: L100.00 W200.00)
SGV Federal 8-11C Plan #1 BH Tgt	7553.00	389.79	356.88	Point

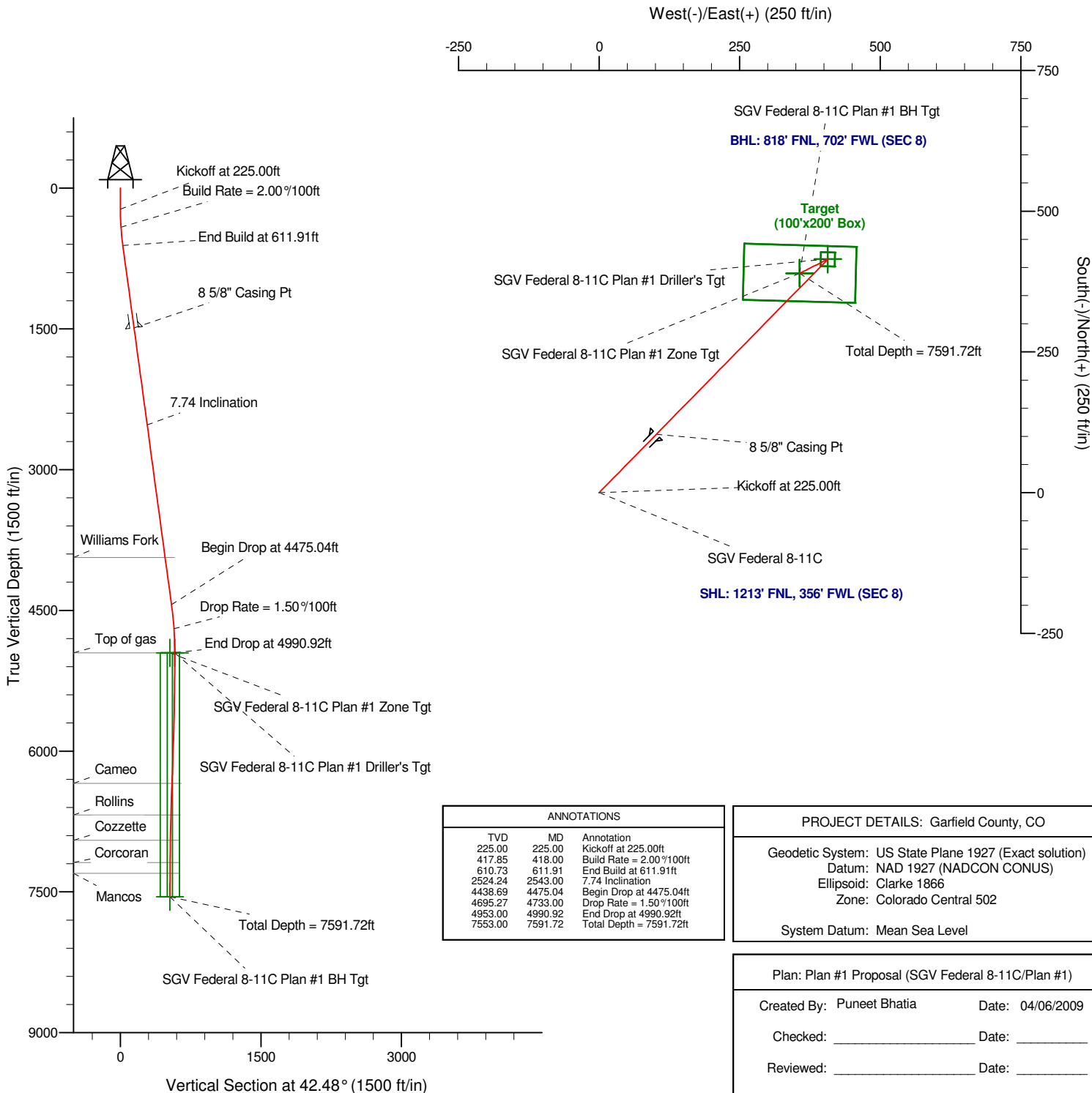
WELL DETAILS: SGV Federal 8-11C

Ground Level:	6342.00	Latitude	39° 22' 54.355 N	Longitude	108° 1' 31.792 W	A11
Northing	573849.23	Easting	1286220.14			



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3936.00	3967.74	Williams Fork
4953.00	4990.92	Top of gas
6343.00	6381.40	Cameo
6882.00	6720.60	Rollins
6951.00	6989.88	Cozzette
7189.00	7227.71	Corcoran
7303.00	7341.72	Mancos



ANNOTATIONS		
TVD	MD	Annotation
225.00	225.00	Kickoff at 225.00ft
417.85	418.00	Build Rate = 2.00°/100ft
610.73	611.91	End Build at 611.91ft
2524.24	2543.00	7.74 Inclination
4438.69	4475.04	Begin Drop at 4475.04ft
4695.27	4733.00	Drop Rate = 1.50°/100ft
4953.00	4990.92	End Drop at 4990.92ft
7553.00	7591.72	Total Depth = 7591.72ft

PROJECT DETAILS: Garfield County, CO

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502

System Datum: Mean Sea Level

Plan: Plan #1 Proposal (SGV Federal 8-11C/Plan #1)

Created By: Puneet Bhatia Date: 04/06/2009

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____