

Noble Energy

Garfield County, CO

Sec. 19-T7S-R94W (Rulison 19I PAD)

Rulison Federal 19-43C

Plan#1

Plan: Plan #1 Proposal

Sperry Drilling Services Proposal Report

26 February, 2009

Well Coordinates: 587,683.98 N, 1,316,443.12 E (39° 25' 19.18" N, 107° 55' 11.70" W)

Ground Level: 8,080.00 ft

Local Coordinate Origin:

Centered on Well Rulison Federal 19-43C

Viewing Datum:

RKB-25' @ 8105.00ft (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: 43I

HALLIBURTON

Plan Report for Rulison Federal 19-43C - 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	291.85	299.99	0.37	-0.91	0.98	2.00	2.00	0.00	291.85
330.00	2.10	291.85	329.98	0.72	-1.79	1.92	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
400.00	3.50	291.85	399.89	1.99	-4.96	5.32	2.00	2.00	0.00	0.00
437.06	4.24	291.85	436.87	2.92	-7.28	7.82	2.00	2.00	0.00	0.00
End Build at 437.06ft										
500.00	4.24	291.85	499.63	4.65	-11.60	12.45	0.00	0.00	0.00	0.00
600.00	4.24	291.85	599.36	7.40	-18.47	19.82	0.00	0.00	0.00	0.00
700.00	4.24	291.85	699.09	10.16	-25.33	27.19	0.00	0.00	0.00	0.00
800.00	4.24	291.85	798.81	12.91	-32.20	34.56	0.00	0.00	0.00	0.00
900.00	4.24	291.85	898.54	15.66	-39.06	41.93	0.00	0.00	0.00	0.00
1,000.00	4.24	291.85	998.26	18.41	-45.93	49.29	0.00	0.00	0.00	0.00
1,100.00	4.24	291.85	1,097.99	21.16	-52.79	56.66	0.00	0.00	0.00	0.00
1,200.00	4.24	291.85	1,197.72	23.92	-59.65	64.03	0.00	0.00	0.00	0.00
1,300.00	4.24	291.85	1,297.44	26.67	-66.52	71.40	0.00	0.00	0.00	0.00
1,400.00	4.24	291.85	1,397.17	29.42	-73.38	78.77	0.00	0.00	0.00	0.00
1,500.00	4.24	291.85	1,496.90	32.17	-80.25	86.13	0.00	0.00	0.00	0.00
1,600.00	4.24	291.85	1,596.62	34.92	-87.11	93.50	0.00	0.00	0.00	0.00
1,700.00	4.24	291.85	1,696.35	37.68	-93.98	100.87	0.00	0.00	0.00	0.00
1,800.00	4.24	291.85	1,796.07	40.43	-100.84	108.24	0.00	0.00	0.00	0.00
1,900.00	4.24	291.85	1,895.80	43.18	-107.71	115.61	0.00	0.00	0.00	0.00
2,000.00	4.24	291.85	1,995.53	45.93	-114.57	122.98	0.00	0.00	0.00	0.00
2,100.00	4.24	291.85	2,095.25	48.68	-121.44	130.34	0.00	0.00	0.00	0.00
2,200.00	4.24	291.85	2,194.98	51.44	-128.30	137.71	0.00	0.00	0.00	0.00
2,300.00	4.24	291.85	2,294.70	54.19	-135.16	145.08	0.00	0.00	0.00	0.00
2,400.00	4.24	291.85	2,394.43	56.94	-142.03	152.45	0.00	0.00	0.00	0.00
2,500.00	4.24	291.85	2,494.16	59.69	-148.89	159.82	0.00	0.00	0.00	0.00
8 5/8" Casing Pt										
2,600.00	4.24	291.85	2,593.88	62.44	-155.76	167.18	0.00	0.00	0.00	0.00
2,700.00	4.24	291.85	2,693.61	65.20	-162.62	174.55	0.00	0.00	0.00	0.00
2,800.00	4.24	291.85	2,793.34	67.95	-169.49	181.92	0.00	0.00	0.00	0.00
2,900.00	4.24	291.85	2,893.06	70.70	-176.35	189.29	0.00	0.00	0.00	0.00
3,000.00	4.24	291.85	2,992.79	73.45	-183.22	196.66	0.00	0.00	0.00	0.00
3,100.00	4.24	291.85	3,092.51	76.20	-190.08	204.03	0.00	0.00	0.00	0.00
3,200.00	4.24	291.85	3,192.24	78.96	-196.95	211.39	0.00	0.00	0.00	0.00
3,300.00	4.24	291.85	3,291.97	81.71	-203.81	218.76	0.00	0.00	0.00	0.00
3,330.00	4.24	291.85	3,321.88	82.53	-205.87	220.97	0.00	0.00	0.00	0.00
4.24 Inclination										
3,400.00	4.24	291.85	3,391.69	84.46	-210.68	226.13	0.00	0.00	0.00	0.00
3,500.00	4.24	291.85	3,491.42	87.21	-217.54	233.50	0.00	0.00	0.00	0.00
3,600.00	4.24	291.85	3,591.14	89.96	-224.40	240.87	0.00	0.00	0.00	0.00
3,700.00	4.24	291.85	3,690.87	92.72	-231.27	248.23	0.00	0.00	0.00	0.00
3,800.00	4.24	291.85	3,790.60	95.47	-238.13	255.60	0.00	0.00	0.00	0.00
3,900.00	4.24	291.85	3,890.32	98.22	-245.00	262.97	0.00	0.00	0.00	0.00
4,000.00	4.24	291.85	3,990.05	100.97	-251.86	270.34	0.00	0.00	0.00	0.00
4,100.00	4.24	291.85	4,089.78	103.72	-258.73	277.71	0.00	0.00	0.00	0.00
4,200.00	4.24	291.85	4,189.50	106.48	-265.59	285.08	0.00	0.00	0.00	0.00
4,300.00	4.24	291.85	4,289.23	109.23	-272.46	292.44	0.00	0.00	0.00	0.00
4,400.00	4.24	291.85	4,388.95	111.98	-279.32	299.81	0.00	0.00	0.00	0.00
4,500.00	4.24	291.85	4,488.68	114.73	-286.19	307.18	0.00	0.00	0.00	0.00
4,600.00	4.24	291.85	4,588.41	117.48	-293.05	314.55	0.00	0.00	0.00	0.00
4,700.00	4.24	291.85	4,688.13	120.24	-299.91	321.92	0.00	0.00	0.00	0.00
4,800.00	4.24	291.85	4,787.86	122.99	-306.78	329.28	0.00	0.00	0.00	0.00

Plan Report for Rulison Federal 19-43C - 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 (°)
4,900.00	4.24	291.85	4,887.58	125.74	-313.64	336.65	0.00	0.00	0.00	0.00
5,000.00	4.24	291.85	4,987.31	128.49	-320.51	344.02	0.00	0.00	0.00	0.00
5,100.00	4.24	291.85	5,087.04	131.24	-327.37	351.39	0.00	0.00	0.00	0.00
5,200.00	4.24	291.85	5,186.76	134.00	-334.24	358.76	0.00	0.00	0.00	0.00
5,300.00	4.24	291.85	5,286.49	136.75	-341.10	366.12	0.00	0.00	0.00	0.00
5,400.00	4.24	291.85	5,386.22	139.50	-347.97	373.49	0.00	0.00	0.00	0.00
5,500.00	4.24	291.85	5,485.94	142.25	-354.83	380.86	0.00	0.00	0.00	0.00
5,600.00	4.24	291.85	5,585.67	145.00	-361.70	388.23	0.00	0.00	0.00	0.00
5,700.00	4.24	291.85	5,685.39	147.76	-368.56	395.60	0.00	0.00	0.00	0.00
5,800.00	4.24	291.85	5,785.12	150.51	-375.42	402.97	0.00	0.00	0.00	0.00
5,900.00	4.24	291.85	5,884.85	153.26	-382.29	410.33	0.00	0.00	0.00	0.00
6,000.00	4.24	291.85	5,984.57	156.01	-389.15	417.70	0.00	0.00	0.00	0.00
6,100.00	4.24	291.85	6,084.30	158.77	-396.02	425.07	0.00	0.00	0.00	0.00
6,200.00	4.24	291.85	6,184.02	161.52	-402.88	432.44	0.00	0.00	0.00	0.00
6,222.54	4.24	291.85	6,206.50	162.14	-404.43	434.10	0.00	0.00	0.00	0.00
Begin Drop at 6222.54ft										
6,300.00	3.08	291.85	6,283.80	163.98	-409.02	439.03	1.50	-1.50	0.00	180.00
6,360.00	2.18	291.85	6,343.74	165.00	-411.58	441.77	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
6,400.00	1.58	291.85	6,383.72	165.49	-412.79	443.07	1.50	-1.50	0.00	-180.00
6,500.00	0.08	291.85	6,483.70	166.03	-414.14	444.52	1.50	-1.50	0.00	-180.00
6,505.30	0.00	0.00	6,489.00	166.03	-414.14	444.52	1.50	-1.50	1,286.99	180.00
End Drop at 6505.30ft - Williams Fork - Rulison Federal 19-43C Plan #1 Driller's TGT										
6,600.00	0.08	243.43	6,583.70	166.00	-414.20	444.57	0.08	0.08	-123.08	-116.57
6,700.00	0.16	243.43	6,683.70	165.91	-414.38	444.71	0.08	0.08	0.00	0.00
6,800.00	0.24	243.43	6,783.70	165.76	-414.68	444.96	0.08	0.08	0.00	0.00
6,900.00	0.32	243.43	6,883.70	165.54	-415.11	445.31	0.08	0.08	0.00	0.00
7,000.00	0.40	243.43	6,983.70	165.27	-415.67	445.76	0.08	0.08	0.00	0.00
7,100.00	0.48	243.43	7,083.70	164.93	-416.35	446.31	0.08	0.08	0.00	0.00
7,200.00	0.56	243.43	7,183.69	164.52	-417.15	446.97	0.08	0.08	0.00	0.00
7,300.00	0.64	243.43	7,283.69	164.06	-418.08	447.72	0.08	0.08	0.00	0.00
7,323.31	0.65	243.43	7,307.00	163.94	-418.32	447.91	0.08	0.08	0.00	0.00
Top of gas										
7,400.00	0.72	243.43	7,383.68	163.53	-419.14	448.58	0.08	0.08	0.00	0.00
7,500.00	0.80	243.43	7,483.67	162.94	-420.32	449.53	0.08	0.08	0.00	0.00
7,600.00	0.88	243.43	7,583.66	162.29	-421.62	450.59	0.08	0.08	0.00	0.00
7,700.00	0.96	243.43	7,683.65	161.57	-423.05	451.75	0.08	0.08	0.00	0.00
7,800.00	1.04	243.43	7,783.63	160.80	-424.61	453.01	0.08	0.08	0.00	0.00
7,900.00	1.12	243.43	7,883.62	159.96	-426.29	454.38	0.08	0.08	0.00	0.00
8,000.00	1.20	243.43	7,983.60	159.05	-428.09	455.84	0.08	0.08	0.00	0.00
8,100.00	1.28	243.43	8,083.57	158.09	-430.02	457.41	0.08	0.08	0.00	0.00
8,200.00	1.36	243.43	8,183.55	157.06	-432.07	459.07	0.08	0.08	0.00	0.00
8,300.00	1.44	243.43	8,283.52	155.97	-434.25	460.84	0.08	0.08	0.00	0.00
8,400.00	1.52	243.43	8,383.48	154.82	-436.55	462.71	0.08	0.08	0.00	0.00
8,500.00	1.60	243.43	8,483.45	153.61	-438.98	464.68	0.08	0.08	0.00	0.00
8,532.98	1.62	243.43	8,516.41	153.19	-439.81	465.35	0.08	0.08	0.00	0.00
8,600.00	1.57	243.43	8,583.41	152.36	-441.48	466.70	0.08	-0.08	0.00	180.00
8,700.00	1.48	243.43	8,683.37	151.17	-443.86	468.63	0.08	-0.08	0.00	-180.00
8,800.00	1.40	243.43	8,783.34	150.05	-446.10	470.46	0.08	-0.08	0.00	180.00
8,900.00	1.31	243.43	8,883.31	148.99	-448.22	472.17	0.08	-0.08	0.00	180.00
9,000.00	1.23	243.43	8,983.29	148.00	-450.20	473.78	0.08	-0.08	0.00	-180.00
9,096.73	1.15	243.43	9,080.00	147.10	-451.99	475.24	0.08	-0.08	0.00	180.00
Cameo										
9,100.00	1.14	243.43	9,083.27	147.07	-452.05	475.28	0.08	-0.08	0.00	-180.00
9,200.00	1.06	243.43	9,183.25	146.21	-453.77	476.68	0.08	-0.08	0.00	180.00
9,300.00	0.97	243.43	9,283.23	145.42	-455.36	477.97	0.08	-0.08	0.00	180.00
9,400.00	0.89	243.43	9,383.22	144.69	-456.81	479.15	0.08	-0.08	0.00	180.00
9,500.00	0.81	243.43	9,483.21	144.03	-458.14	480.22	0.08	-0.08	0.00	-180.00
9,556.80	0.76	243.43	9,540.00	143.68	-458.83	480.78	0.08	-0.08	0.00	-180.00

Plan Report for Rulison Federal 19-43C - 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 (°)
Rollins										
9,600.00	0.72	243.43	9,583.20	143.43	-459.33	481.19	0.08	-0.08	0.00	180.00
9,700.00	0.64	243.43	9,683.19	142.90	-460.39	482.05	0.08	-0.08	0.00	180.00
9,800.00	0.55	243.43	9,783.19	142.44	-461.32	482.80	0.08	-0.08	0.00	180.00
9,895.82	0.47	243.43	9,879.00	142.06	-462.08	483.42	0.08	-0.08	0.00	180.00
Cozzette										
9,900.00	0.47	243.43	9,883.18	142.04	-462.11	483.45	0.08	-0.08	0.00	-180.00
10,000.00	0.38	243.43	9,983.18	141.71	-462.78	483.99	0.08	-0.08	0.00	180.00
10,100.00	0.30	243.43	10,083.18	141.44	-463.31	484.42	0.08	-0.08	0.00	180.00
10,174.82	0.24	243.43	10,158.00	141.29	-463.63	484.68	0.08	-0.08	0.00	180.00
Corcoran										
10,200.00	0.22	243.43	10,183.18	141.24	-463.71	484.75	0.08	-0.08	0.00	-180.00
10,300.00	0.13	243.43	10,283.18	141.11	-463.98	484.97	0.08	-0.08	0.00	180.00
10,304.82	0.13	243.43	10,288.00	141.10	-463.99	484.97	0.09	-0.09	0.00	-180.00
Mancos										
10,400.00	0.05	243.43	10,383.18	141.04	-464.12	485.08	0.08	-0.08	0.00	180.00
10,454.82	0.00	0.00	10,438.00	141.03	-464.14	485.09	0.08	-0.08	212.64	180.00
Total Depth = 10454.82ft - Rulison Federal 19-43C 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
330.00	329.98	0.72	-1.79	Build Rate = 2.00°/100ft
437.06	436.87	2.92	-7.28	End Build at 437.06ft
3,330.00	3,321.88	82.53	-205.87	4.24 Inclination
6,222.54	6,206.50	162.14	-404.43	Begin Drop at 6222.54ft
6,360.00	6,343.74	165.00	-411.58	Drop Rate = 1.50°/100ft
6,505.30	6,489.00	166.03	-414.14	End Drop at 6505.30ft
10,454.82	10,438.00	141.03	-464.14	Total Depth = 10454.82ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	Rulison Federal 19-43C Plan #1 BH TGT	286.90	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,454.82	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,500.00	2,494.16	8 5/8" Casing Pt	8-5/8	12-1/4

Plan Report for Rulison Federal 19-43C - Plan #1 Proposal

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,505.30	6,489.00	Williams Fork		0.00	
7,323.31	7,307.00	Top of gas		0.00	
9,096.73	9,080.00	Cameo		0.00	
9,556.80	9,540.00	Rollins		0.00	
9,895.82	9,879.00	Cozzette		0.00	
10,174.82	10,158.00	Corcoran		0.00	
10,304.82	10,288.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Rulison Federal 19-43C Plan #1 Zone TGT	6,489.00	141.03	-464.14	Rectangle
Rulison Federal 19-43C Plan #1 BH TGT	10,438.00	141.03	-464.14	Point
Rulison Federal 19-43C Plan #1 Driller's TGT	6,489.00	166.03	-414.14	Rectangle

North Reference Sheet for Sec. 19-T7S-R94W (Rulison 19I PAD) - Rulison Federal 19-43C - 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' @ 8105.00ft (Original Well Elev). Northing and Easting are relative to Rulison Federal 19-43C

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: 0.99995156

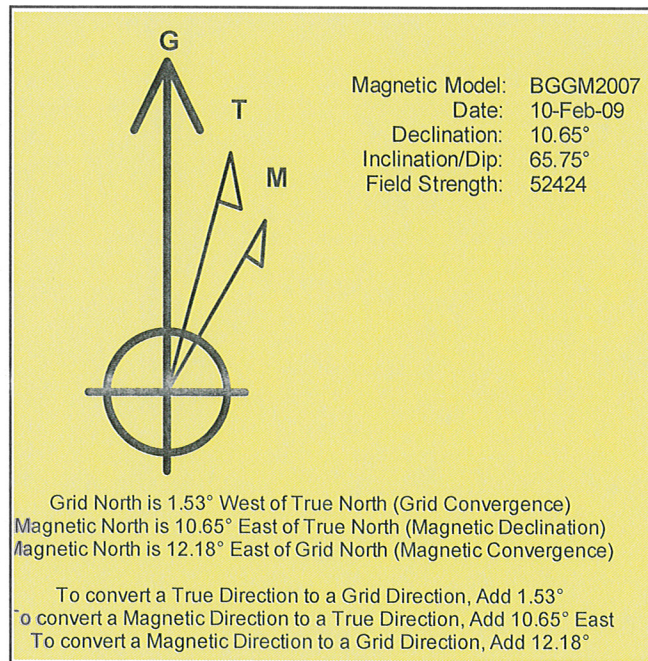
Grid Coordinates of Well: 587,683.98 ft N, 1,316,443.12 ft E

Geographical Coordinates of Well: 39° 25' 19.18" N, 107° 55' 11.70" W

Grid Convergence at Surface is: -1.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,454.82ft
the Bottom Hole Displacement is 485.09ft in the Direction of 286.90° (Grid).

Magnetic Convergence at surface is: -12.18° (10 February 2009, , BGGM2007)



Project: Garfield County, CO
Site: Sec. 19-T7S-R94W (Rulison 19I PAD)
Well: Rulison Federal 19-43C
Wellbore: Plan#1
Plan: Plan #1 Proposal

Noble Energy

HALLIBURTON

SECTION DETAILS

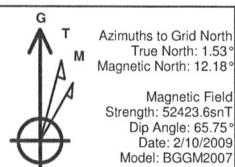
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	
437.06	4.24	291.85	436.87	2.92	-7.28	2.00	291.85	7.82	
6222.54	4.24	291.85	6206.51	162.14	-404.43	0.00	0.00	434.10	
6505.30	0.00	0.00	6489.00	166.03	-414.14	1.50	180.00	444.52	Rulison Federal 19-43C Plan #1 Driller's TGT
8532.98	1.62	243.43	8516.41	153.19	-439.81	0.08	243.43	465.35	
10454.82	0.00	360.00	10438.00	141.03	-464.14	0.08	180.00	485.09	Rulison Federal 19-43C Plan #1 BH TGT

WELL DETAILS: Rulison Federal 19-43C

Ground Level:	8080.00		
Northing	587683.98	Easting	1316443.12
Latitude	39° 25' 19.177 N	Longitude	107° 55' 11.705 W

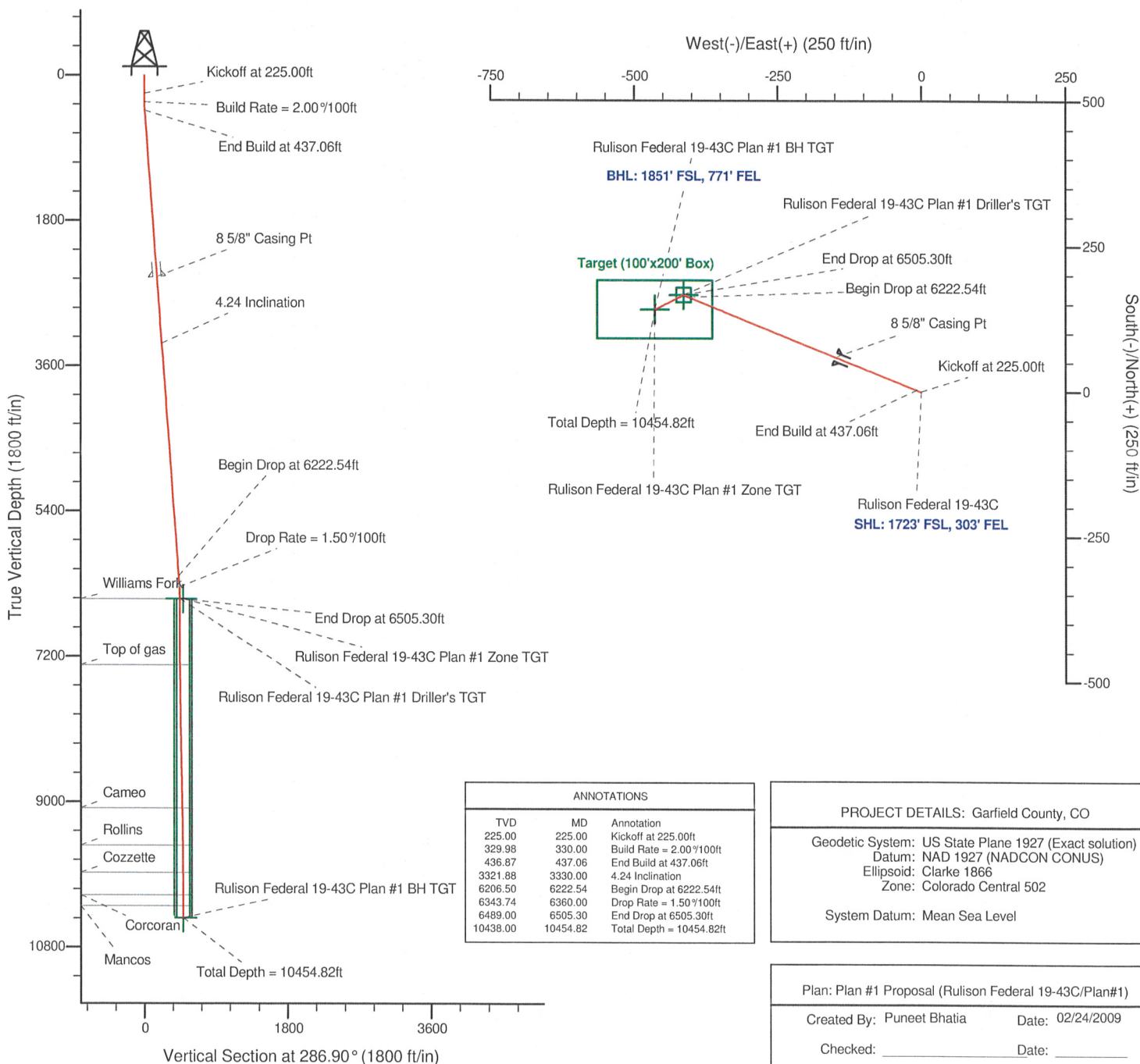
WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Rulison Federal 19-43C Plan #1 Driller's TGT	6489.00	166.03	-414.14	Rectangle (Sides: L25.00 W25.00)
Rulison Federal 19-43C Plan #1 Zone TGT	6489.00	141.03	-464.14	Rectangle (Sides: L100.00 W200.00)
Rulison Federal 19-43C Plan #1 BH TGT	10438.00	141.03	-464.14	Point



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6489.00	6505.30	Williams Fork
7307.00	7323.31	Top of gas
9080.00	9096.73	Cameo
9540.00	9556.80	Rollins
9879.00	9895.82	Cozzette
10158.00	10174.82	Corcoran
10288.00	10304.82	Mancos



ANNOTATIONS

TVD	MD	Annotation
225.00	225.00	Kickoff at 225.00ft
329.98	330.00	Build Rate = 2.00°/100ft
436.87	437.06	End Build at 437.06ft
3321.88	3330.00	4.24 Inclination
6206.50	6222.54	Begin Drop at 6222.54ft
6343.74	6360.00	Drop Rate = 1.50°/100ft
6489.00	6505.30	End Drop at 6505.30ft
10438.00	10454.82	Total Depth = 10454.82ft

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 (Rulison Federal 19-43C/Plan#1)

Created By: Puneet Bhatia Date: 02/24/2009

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____