

Noble Energy

Garfield County, CO

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

Rulison Federal 20-14A

Plan #1

Plan: Plan #1 Proposal

Sperry Drilling Services Proposal Report

02 March, 2009

Well Coordinates: 587,670.73 N, 1,316,479.46 E (39° 25' 19.06" N, 107° 55' 11.24" W)

Ground Level: 8,080.00 ft

Local Coordinate Origin:

Centered on Well Rulison Federal 20-14A

Viewing Datum:

WELL @ 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: 431

HALLIBURTON

Plan Report for Rulison Federal 20-14A - 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	119.97	299.99	-0.49	0.85	0.98	2.00	2.00	0.00	119.97
400.00	3.50	119.97	399.89	-2.67	4.63	5.34	2.00	2.00	0.00	0.00
445.00	4.40	119.97	444.78	-4.22	7.31	8.44	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
500.00	5.50	119.97	499.58	-6.59	11.43	13.19	2.00	2.00	0.00	0.00
600.00	7.50	119.97	598.93	-12.24	21.23	24.51	2.00	2.00	0.00	0.00
700.00	9.50	119.97	697.83	-19.63	34.03	39.29	2.00	2.00	0.00	0.00
736.38	10.23	119.97	733.67	-22.74	39.43	45.52	2.00	2.00	0.00	0.00
End Build at 736.38ft										
800.00	10.23	119.97	796.28	-28.39	49.22	56.82	0.00	0.00	0.00	0.00
900.00	10.23	119.97	894.69	-37.26	64.60	74.57	0.00	0.00	0.00	0.00
1,000.00	10.23	119.97	993.10	-46.13	79.98	92.33	0.00	0.00	0.00	0.00
1,100.00	10.23	119.97	1,091.51	-55.00	95.36	110.08	0.00	0.00	0.00	0.00
1,200.00	10.23	119.97	1,189.92	-63.87	110.74	127.84	0.00	0.00	0.00	0.00
1,300.00	10.23	119.97	1,288.33	-72.74	126.13	145.60	0.00	0.00	0.00	0.00
1,400.00	10.23	119.97	1,386.74	-81.61	141.51	163.35	0.00	0.00	0.00	0.00
1,500.00	10.23	119.97	1,485.15	-90.48	156.89	181.11	0.00	0.00	0.00	0.00
1,600.00	10.23	119.97	1,583.57	-99.35	172.27	198.86	0.00	0.00	0.00	0.00
1,700.00	10.23	119.97	1,681.98	-108.22	187.65	216.62	0.00	0.00	0.00	0.00
1,800.00	10.23	119.97	1,780.39	-117.09	203.03	234.38	0.00	0.00	0.00	0.00
1,900.00	10.23	119.97	1,878.80	-125.96	218.41	252.13	0.00	0.00	0.00	0.00
2,000.00	10.23	119.97	1,977.21	-134.83	233.79	269.89	0.00	0.00	0.00	0.00
2,100.00	10.23	119.97	2,075.62	-143.70	249.18	287.64	0.00	0.00	0.00	0.00
2,200.00	10.23	119.97	2,174.03	-152.57	264.56	305.40	0.00	0.00	0.00	0.00
2,300.00	10.23	119.97	2,272.44	-161.44	279.94	323.15	0.00	0.00	0.00	0.00
2,400.00	10.23	119.97	2,370.85	-170.31	295.32	340.91	0.00	0.00	0.00	0.00
2,500.00	10.23	119.97	2,469.26	-179.18	310.70	358.67	0.00	0.00	0.00	0.00
8 5/8" Casing Pt										
2,600.00	10.23	119.97	2,567.68	-188.06	326.08	376.42	0.00	0.00	0.00	0.00
2,700.00	10.23	119.97	2,666.09	-196.93	341.46	394.18	0.00	0.00	0.00	0.00
2,800.00	10.23	119.97	2,764.50	-205.80	356.85	411.93	0.00	0.00	0.00	0.00
2,900.00	10.23	119.97	2,862.91	-214.67	372.23	429.69	0.00	0.00	0.00	0.00
3,000.00	10.23	119.97	2,961.32	-223.54	387.61	447.45	0.00	0.00	0.00	0.00
3,100.00	10.23	119.97	3,059.73	-232.41	402.99	465.20	0.00	0.00	0.00	0.00
3,200.00	10.23	119.97	3,158.14	-241.28	418.37	482.96	0.00	0.00	0.00	0.00
3,300.00	10.23	119.97	3,256.55	-250.15	433.75	500.71	0.00	0.00	0.00	0.00
3,340.00	10.23	119.97	3,295.92	-253.70	439.90	507.82	0.00	0.00	0.00	0.00
10.23 Inclination										
3,400.00	10.23	119.97	3,354.96	-259.02	449.13	518.47	0.00	0.00	0.00	0.00
3,500.00	10.23	119.97	3,453.38	-267.89	464.51	536.22	0.00	0.00	0.00	0.00
3,600.00	10.23	119.97	3,551.79	-276.76	479.90	553.98	0.00	0.00	0.00	0.00
3,700.00	10.23	119.97	3,650.20	-285.63	495.28	571.74	0.00	0.00	0.00	0.00
3,800.00	10.23	119.97	3,748.61	-294.50	510.66	589.49	0.00	0.00	0.00	0.00
3,900.00	10.23	119.97	3,847.02	-303.37	526.04	607.25	0.00	0.00	0.00	0.00
4,000.00	10.23	119.97	3,945.43	-312.24	541.42	625.00	0.00	0.00	0.00	0.00
4,100.00	10.23	119.97	4,043.84	-321.11	556.80	642.76	0.00	0.00	0.00	0.00
4,200.00	10.23	119.97	4,142.25	-329.98	572.18	660.52	0.00	0.00	0.00	0.00
4,300.00	10.23	119.97	4,240.66	-338.85	587.57	678.27	0.00	0.00	0.00	0.00
4,400.00	10.23	119.97	4,339.07	-347.73	602.95	696.03	0.00	0.00	0.00	0.00
4,500.00	10.23	119.97	4,437.49	-356.60	618.33	713.78	0.00	0.00	0.00	0.00
4,600.00	10.23	119.97	4,535.90	-365.47	633.71	731.54	0.00	0.00	0.00	0.00
4,700.00	10.23	119.97	4,634.31	-374.34	649.09	749.29	0.00	0.00	0.00	0.00
4,800.00	10.23	119.97	4,732.72	-383.21	664.47	767.05	0.00	0.00	0.00	0.00

Plan Report for Rulison Federal 20-14A - 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	10.23	119.97	4,831.13	-392.08	679.85	784.81	0.00	0.00	0.00	0.00
5,000.00	10.23	119.97	4,929.54	-400.95	695.23	802.56	0.00	0.00	0.00	0.00
5,100.00	10.23	119.97	5,027.95	-409.82	710.62	820.32	0.00	0.00	0.00	0.00
5,200.00	10.23	119.97	5,126.36	-418.69	726.00	838.07	0.00	0.00	0.00	0.00
5,300.00	10.23	119.97	5,224.77	-427.56	741.38	855.83	0.00	0.00	0.00	0.00
5,400.00	10.23	119.97	5,323.18	-436.43	756.76	873.59	0.00	0.00	0.00	0.00
5,500.00	10.23	119.97	5,421.60	-445.30	772.14	891.34	0.00	0.00	0.00	0.00
5,600.00	10.23	119.97	5,520.01	-454.17	787.52	909.10	0.00	0.00	0.00	0.00
5,700.00	10.23	119.97	5,618.42	-463.04	802.90	926.85	0.00	0.00	0.00	0.00
5,800.00	10.23	119.97	5,716.83	-471.91	818.29	944.61	0.00	0.00	0.00	0.00
5,900.00	10.23	119.97	5,815.24	-480.78	833.67	962.36	0.00	0.00	0.00	0.00
5,941.19	10.23	119.97	5,855.77	-484.44	840.00	969.68	0.00	0.00	0.00	0.00
Begin Drop at 5941.19ft										
6,000.00	9.35	119.97	5,913.73	-489.43	848.66	979.67	1.50	-1.50	0.00	180.00
6,100.00	7.85	119.97	6,012.60	-496.90	861.61	994.62	1.50	-1.50	0.00	180.00
6,200.00	6.35	119.97	6,111.83	-503.07	872.31	1,006.97	1.50	-1.50	0.00	180.00
6,282.00	5.12	119.97	6,193.42	-507.16	879.40	1,015.16	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
6,300.00	4.85	119.97	6,211.35	-507.94	880.75	1,016.72	1.50	-1.50	0.00	-180.00
6,400.00	3.35	119.97	6,311.10	-511.51	886.94	1,023.86	1.50	-1.50	0.00	180.00
6,500.00	1.85	119.97	6,410.99	-513.77	890.86	1,028.39	1.50	-1.50	0.00	180.00
6,600.00	0.35	119.97	6,510.97	-514.73	892.52	1,030.30	1.50	-1.50	0.00	180.00
6,623.03	0.00	0.00	6,534.00	-514.76	892.58	1,030.37	1.50	-1.50	0.00	-180.00
End Drop at 6623.03ft - Williams Fork - Rulison Federal 20-14A Plan #1 Driller's TGT										
6,700.00	0.06	116.56	6,610.97	-514.78	892.62	1,030.41	0.08	0.08	0.00	116.56
6,800.00	0.14	116.56	6,710.97	-514.86	892.78	1,030.59	0.08	0.08	0.00	0.00
6,900.00	0.22	116.56	6,810.97	-515.00	893.06	1,030.91	0.08	0.08	0.00	0.00
7,000.00	0.30	116.56	6,910.97	-515.20	893.47	1,031.36	0.08	0.08	0.00	0.00
7,100.00	0.38	116.56	7,010.97	-515.47	894.00	1,031.96	0.08	0.08	0.00	0.00
7,200.00	0.46	116.56	7,110.96	-515.80	894.66	1,032.69	0.08	0.08	0.00	0.00
7,300.00	0.54	116.56	7,210.96	-516.19	895.44	1,033.57	0.08	0.08	0.00	0.00
7,400.00	0.62	116.56	7,310.95	-516.64	896.35	1,034.58	0.08	0.08	0.00	0.00
7,441.05	0.65	116.56	7,352.00	-516.85	896.76	1,035.04	0.08	0.08	0.00	0.00
Top of gas										
7,500.00	0.70	116.56	7,410.95	-517.16	897.38	1,035.73	0.08	0.08	0.00	0.00
7,600.00	0.78	116.56	7,510.94	-517.74	898.54	1,037.02	0.08	0.08	0.00	0.00
7,700.00	0.86	116.56	7,610.93	-518.38	899.82	1,038.46	0.08	0.08	0.00	0.00
7,800.00	0.94	116.56	7,710.92	-519.08	901.23	1,040.03	0.08	0.08	0.00	0.00
7,900.00	1.02	116.56	7,810.90	-519.85	902.76	1,041.74	0.08	0.08	0.00	0.00
8,000.00	1.10	116.56	7,910.88	-520.68	904.42	1,043.59	0.08	0.08	0.00	0.00
8,100.00	1.18	116.56	8,010.86	-521.57	906.20	1,045.58	0.08	0.08	0.00	0.00
8,200.00	1.26	116.56	8,110.84	-522.52	908.11	1,047.71	0.08	0.08	0.00	0.00
8,300.00	1.34	116.56	8,210.82	-523.54	910.14	1,049.97	0.08	0.08	0.00	0.00
8,400.00	1.42	116.56	8,310.79	-524.62	912.30	1,052.38	0.08	0.08	0.00	0.00
8,500.00	1.50	116.56	8,410.75	-525.76	914.58	1,054.93	0.08	0.08	0.00	0.00
8,600.00	1.58	116.56	8,510.72	-526.96	916.98	1,057.61	0.08	0.08	0.00	0.00
8,650.70	1.62	116.56	8,561.40	-527.59	918.25	1,059.03	0.08	0.08	0.00	0.00
8,700.00	1.58	116.56	8,610.68	-528.21	919.48	1,060.40	0.08	-0.08	0.00	180.00
8,800.00	1.50	116.56	8,710.64	-529.41	921.89	1,063.08	0.08	-0.08	0.00	180.00
8,900.00	1.41	116.56	8,810.61	-530.54	924.16	1,065.62	0.08	-0.08	0.00	180.00
9,000.00	1.33	116.56	8,910.58	-531.61	926.29	1,068.00	0.08	-0.08	0.00	180.00
9,100.00	1.24	116.56	9,010.56	-532.62	928.30	1,070.24	0.08	-0.08	0.00	180.00
9,200.00	1.16	116.56	9,110.54	-533.55	930.17	1,072.33	0.08	-0.08	0.00	180.00
9,214.47	1.15	116.56	9,125.00	-533.68	930.43	1,072.62	0.08	-0.08	0.00	180.00
Cameo										
9,300.00	1.07	116.56	9,210.52	-534.42	931.92	1,074.28	0.08	-0.08	0.00	-180.00
9,400.00	0.99	116.56	9,310.50	-535.23	933.53	1,076.08	0.08	-0.08	0.00	180.00
9,500.00	0.91	116.56	9,410.49	-535.97	935.01	1,077.73	0.08	-0.08	0.00	180.00
9,600.00	0.82	116.56	9,510.48	-536.64	936.35	1,079.23	0.08	-0.08	0.00	180.00

Plan Report for Rulison Federal 20-14A - 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 (°)
9,674.53	0.76	116.56	9,585.00	-537.10	937.27	1,080.26	0.08	-0.08	0.00	180.00
Rollins										
9,700.00	0.74	116.56	9,610.47	-537.25	937.57	1,080.59	0.08	-0.08	0.00	-180.00
9,800.00	0.65	116.56	9,710.46	-537.79	938.65	1,081.80	0.08	-0.08	0.00	180.00
9,900.00	0.57	116.56	9,810.45	-538.27	939.61	1,082.86	0.08	-0.08	0.00	180.00
10,000.00	0.48	116.56	9,910.45	-538.68	940.43	1,083.78	0.08	-0.08	0.00	180.00
10,013.55	0.47	116.56	9,924.00	-538.73	940.53	1,083.89	0.08	-0.08	0.00	-180.00
Cozzette										
10,100.00	0.40	116.56	10,010.45	-539.02	941.11	1,084.55	0.08	-0.08	0.00	180.00
10,200.00	0.31	116.56	10,110.44	-539.30	941.67	1,085.17	0.08	-0.08	0.00	180.00
10,292.56	0.24	116.56	10,203.00	-539.50	942.07	1,085.61	0.08	-0.08	0.00	180.00
Corcoran										
10,300.00	0.23	116.56	10,210.44	-539.51	942.10	1,085.64	0.08	-0.08	0.00	-180.00
10,400.00	0.15	116.56	10,310.44	-539.66	942.39	1,085.97	0.08	-0.08	0.00	180.00
10,422.56	0.13	116.56	10,333.00	-539.68	942.44	1,086.02	0.08	-0.08	0.00	-180.00
Mancos										
10,500.00	0.06	116.56	10,410.44	-539.74	942.55	1,086.15	0.08	-0.08	0.00	180.00
10,572.56	0.00	0.00	10,483.00	-539.76	942.59	1,086.19	0.08	-0.08	0.00	-180.00
Rulison Federal 20-14A 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
445.00	444.78	-4.22	7.31	Build Rate = 2.00°/100ft
736.38	733.67	-22.74	39.43	End Build at 736.38ft
3,340.00	3,295.92	-253.70	439.90	10.23 Inclination
5,941.19	5,855.77	-484.44	840.00	Begin Drop at 5941.19ft
6,282.00	6,193.42	-507.16	879.40	Drop Rate = 1.50°/100ft
6,623.03	6,534.00	-514.76	892.58	End Drop at 6623.03ft
10,572.56	10,483.00	-539.76	942.59	Total Depth = 10572.56ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Rulison Federal 20-14A Plan #1 BH TGT	119.80	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,572.56	Plan #1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,500.00	2,469.26	8 5/8" Casing Pt	8-5/8	12-1/4

Plan Report for Rulison Federal 20-14A - Plan #1 Proposal

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,623.03	6,534.00	Williams Fork		0.00	
7,441.05	7,352.00	Top of gas		0.00	
9,214.47	9,125.00	Cameo		0.00	
9,674.53	9,585.00	Rollins		0.00	
10,013.55	9,924.00	Cozzette		0.00	
10,292.56	10,203.00	Corcoran		0.00	
10,422.56	10,333.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Rulison Federal 20-14A 100' FNL Hardline	0.00	0.00	0.00	Polygon
Rulison Federal 20-14A Plan #1 Driller's TGT	6,534.00	-514.76	892.58	Rectangle
Rulison Federal 20-14A Plan #1 Zone TGT	6,534.00	-539.76	942.59	Rectangle
Rulison Federal 20-14A Plan #1 BH TGT	10,483.00	-539.76	942.59	Point

**North Reference Sheet for Sec. 19-T7S-R94W (Rulison 19I PAD) - Rulison Federal
20-14A - 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 WELL @ 8105.00ft (Original Well Elev). Northing and Easting are relative to Rulison Federal 20-14A

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

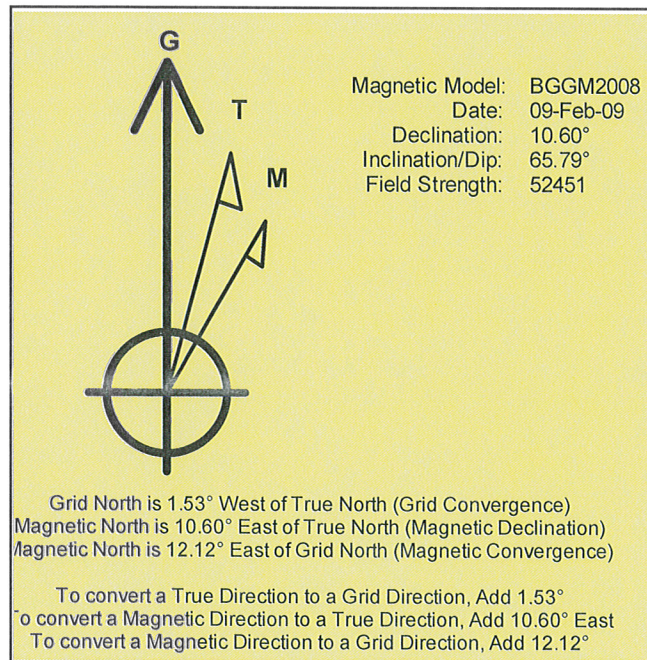
Grid Coordinates of Well: 587,670.73 ft N, 1,316,479.46 ft E

Geographical Coordinates of Well: 39° 25' 19.06" N, 107° 55' 11.24" W

Grid Convergence at Surface is: -1.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,572.56ft
the Bottom Hole Displacement is 1,086.19ft in the Direction of 119.80° (Grid).

Magnetic Convergence at surface is: -12.12° (9 February 2009, , BGGM2008)



Project: Garfield County, CO
 Site: Sec. 19-T7S-R94W (Rulison 19I PAD)
 Well: Rulison Federal 20-14A
 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
736.38	10.23	119.97	733.67	-22.74	39.43	2.00	119.97	45.52
5941.19	10.23	119.97	5855.77	-484.44	840.00	0.00	0.00	969.68
6623.03	0.00	0.00	6534.00	-514.76	892.58	1.50	180.00	1030.37
8650.70	1.62	116.56	8561.40	-527.59	918.25	0.08	116.56	1059.03
10572.56	0.00	0.00	10483.00	-539.76	942.59	0.08	180.00	1086.19

Rulison Federal 20-14A Plan #1 Driller's TGT

Rulison Federal 20-14A Plan #1 BH TGT

WELLBORE TARGET DETAILS

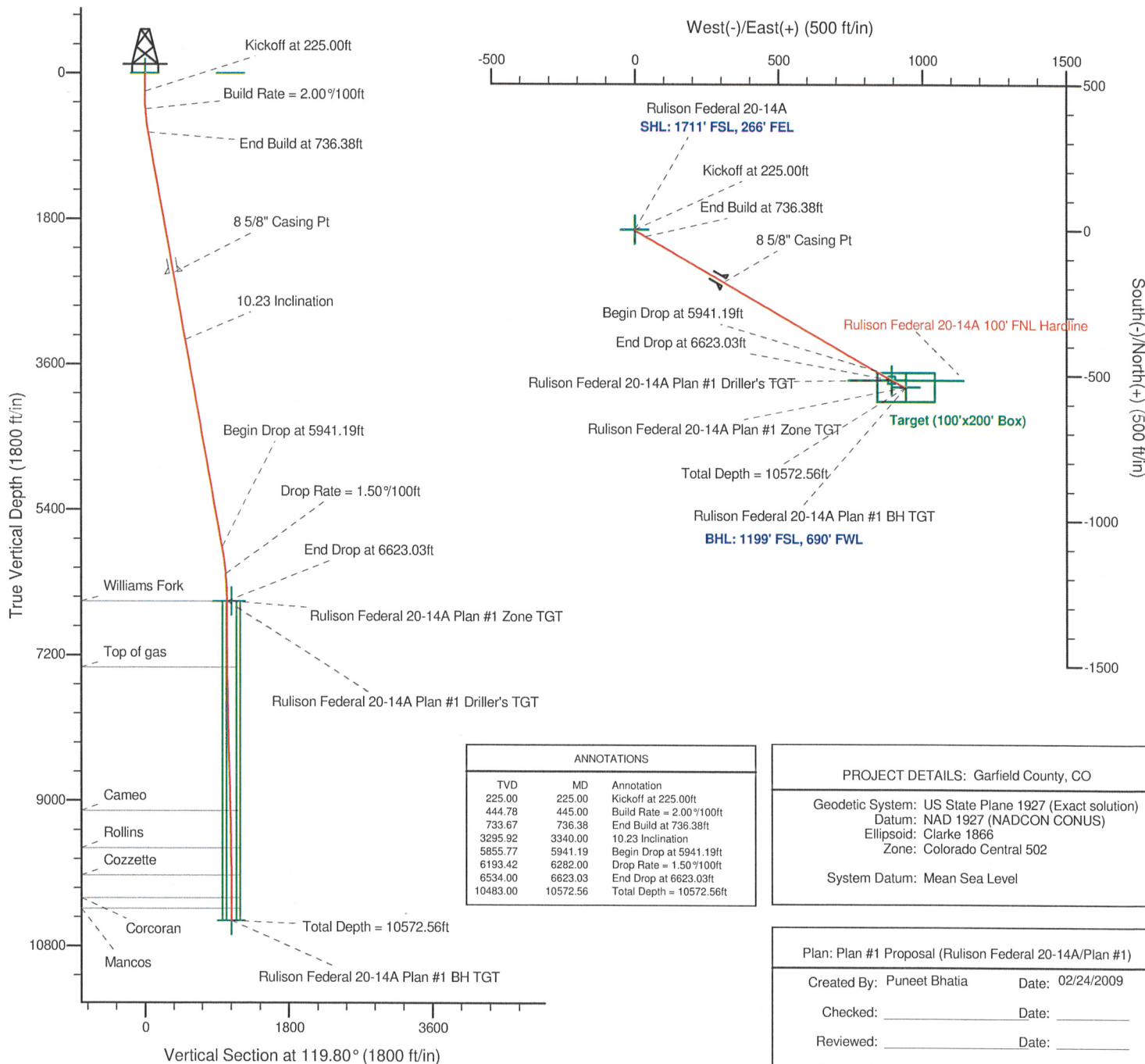
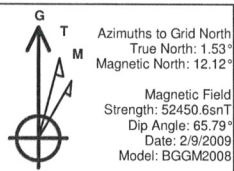
Name	TVD	+N/-S	+E/-W	Shape
Rulison Federal 20-14A 100' FNL Hardline	0.00	0.00	0.00	Polygon
Rulison Federal 20-14A Plan #1 Driller's TGT	6534.00	-514.76	892.58	Rectangle (Sides: L25.00 W25.00)
Rulison Federal 20-14A Plan #1 Zone TGT	6534.00	-539.76	942.59	Rectangle (Sides: L100.00 W200.00)
Rulison Federal 20-14A Plan #1 BH TGT	10483.00	-539.76	942.59	Point

WELL DETAILS: Rulison Federal 20-14A

Ground Level:	8080.00
North	587670.73
East	1316479.46
Latitude	39° 25' 19.056 N
Longitude	107° 55' 11.237 W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6534.00	6623.03	Williams Fork
7352.00	7441.05	Top of gas
9125.00	9214.47	Cameo
9585.00	9674.53	Rollins
9924.00	10013.55	Cozzette
10203.00	10292.56	Corcoran
10333.00	10422.56	Mancos



ANNOTATIONS

TVD	MD	Annotation
225.00	225.00	Kickoff at 225.00ft
444.78	445.00	Build Rate = 2.00%/100ft
736.38	736.38	End Build at 736.38ft
3295.92	3340.00	10.23 Inclination
5855.77	5941.19	Begin Drop at 5941.19ft
6193.42	6282.00	Drop Rate = 1.50%/100ft
6534.00	6623.03	End Drop at 6623.03ft
10483.00	10572.56	Total Depth = 10572.56ft

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 20-14A/Plan #1)

Created By: Puneet Bhatia Date: 02/24/2009
 Checked: _____ Date: _____
 Reviewed: _____ Date: _____
 Approved: _____ Date: _____