

Noble Energy

Garfield County, CO

Sec. 17-T7S-R94W (Rulison 17M PAD) NAD 83

Jones 17-24D

Plan A Rev 1

Plan: Plan A Rev 1 Proposal

Sperry Drilling Services

Proposal Report

04 February, 2011

Well Coordinates: 1,591,832.26 N, 2,317,175.06 E (39° 26' 00.24" N, 107° 55' 04.01" W)

Ground Level: 7,545.00 ft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

Centered on Well Jones 17-24D

RKB 24' @ 7569.00ft (H&P 322)

N

Grid

API - US Survey Feet - Custom

HALLIBURTON

Plan Report for Jones 17-24D - Plan A Rev 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	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green River										
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150.00	0.00	0.000	150.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kickoff at 150.00ft										
200.00	1.00	105.669	200.00	-0.12	0.42	0.44	2.00	2.00	0.00	105.67
300.00	3.00	105.669	299.93	-1.06	3.78	3.93	2.00	2.00	0.00	0.00
400.00	5.00	105.669	399.68	-2.94	10.50	10.90	2.00	2.00	0.00	0.00
500.00	7.00	105.669	499.13	-5.77	20.56	21.35	2.00	2.00	0.00	0.00
600.00	9.00	105.669	598.15	-9.53	33.96	35.26	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
700.00	11.00	105.669	696.63	-14.22	50.68	52.62	2.00	2.00	0.00	0.00
800.00	13.00	105.669	794.44	-19.83	70.70	73.40	2.00	2.00	0.00	0.00
814.95	13.30	105.669	809.00	-20.75	73.97	76.81	2.00	2.00	0.00	0.00
Wasatch										
900.00	15.00	105.669	891.46	-26.36	93.99	97.59	2.00	2.00	0.00	0.00
1,000.00	17.00	105.669	987.58	-33.81	120.53	125.14	2.00	2.00	0.00	0.00
1,100.00	19.00	105.669	1,082.68	-42.15	150.28	156.03	2.00	2.00	0.00	0.00
1,111.42	19.23	105.669	1,093.47	-43.16	153.88	159.77	2.00	2.00	0.00	0.00
End Build at 1111.42ft										
1,200.00	19.23	105.669	1,177.11	-51.04	181.97	188.94	0.00	0.00	0.00	0.00
1,300.00	19.23	105.669	1,271.53	-59.94	213.68	221.86	0.00	0.00	0.00	0.00
1,400.00	19.23	105.669	1,365.96	-68.83	245.39	254.79	0.00	0.00	0.00	0.00
1,500.00	19.23	105.669	1,460.38	-77.73	277.10	287.71	0.00	0.00	0.00	0.00
8-5/8" Casing Point										
1,600.00	19.23	105.669	1,554.80	-86.62	308.81	320.64	0.00	0.00	0.00	0.00
1,700.00	19.23	105.669	1,649.22	-95.52	340.51	353.56	0.00	0.00	0.00	0.00
1,800.00	19.23	105.669	1,743.64	-104.41	372.22	386.49	0.00	0.00	0.00	0.00
1,900.00	19.23	105.669	1,838.06	-113.31	403.93	419.41	0.00	0.00	0.00	0.00
2,000.00	19.23	105.669	1,932.48	-122.20	435.64	452.33	0.00	0.00	0.00	0.00
2,100.00	19.23	105.669	2,026.90	-131.10	467.35	485.26	0.00	0.00	0.00	0.00
2,200.00	19.23	105.669	2,121.33	-139.99	499.06	518.18	0.00	0.00	0.00	0.00
2,300.00	19.23	105.669	2,215.75	-148.88	530.77	551.11	0.00	0.00	0.00	0.00
2,400.00	19.23	105.669	2,310.17	-157.78	562.48	584.03	0.00	0.00	0.00	0.00
2,500.00	19.23	105.669	2,404.59	-166.67	594.19	616.96	0.00	0.00	0.00	0.00
2,600.00	19.23	105.669	2,499.01	-175.57	625.90	649.88	0.00	0.00	0.00	0.00
2,700.00	19.23	105.669	2,593.43	-184.46	657.61	682.81	0.00	0.00	0.00	0.00
2,800.00	19.23	105.669	2,687.85	-193.36	689.32	715.73	0.00	0.00	0.00	0.00
2,900.00	19.23	105.669	2,782.27	-202.25	721.03	748.65	0.00	0.00	0.00	0.00
3,000.00	19.23	105.669	2,876.70	-211.15	752.74	781.58	0.00	0.00	0.00	0.00
19.23 Inclination										
3,100.00	19.23	105.669	2,971.12	-220.04	784.45	814.50	0.00	0.00	0.00	0.00
3,200.00	19.23	105.669	3,065.54	-228.94	816.16	847.43	0.00	0.00	0.00	0.00
3,300.00	19.23	105.669	3,159.96	-237.83	847.87	880.35	0.00	0.00	0.00	0.00
3,400.00	19.23	105.669	3,254.38	-246.73	879.58	913.28	0.00	0.00	0.00	0.00
3,500.00	19.23	105.669	3,348.80	-255.62	911.29	946.20	0.00	0.00	0.00	0.00
3,600.00	19.23	105.669	3,443.22	-264.52	943.00	979.13	0.00	0.00	0.00	0.00
3,700.00	19.23	105.669	3,537.65	-273.41	974.71	1,012.05	0.00	0.00	0.00	0.00
3,800.00	19.23	105.669	3,632.07	-282.31	1,006.42	1,044.98	0.00	0.00	0.00	0.00
3,900.00	19.23	105.669	3,726.49	-291.20	1,038.13	1,077.90	0.00	0.00	0.00	0.00
4,000.00	19.23	105.669	3,820.91	-300.10	1,069.84	1,110.82	0.00	0.00	0.00	0.00
4,100.00	19.23	105.669	3,915.33	-308.99	1,101.55	1,143.75	0.00	0.00	0.00	0.00
4,200.00	19.23	105.669	4,009.75	-317.89	1,133.26	1,176.67	0.00	0.00	0.00	0.00
4,300.00	19.23	105.669	4,104.17	-326.78	1,164.97	1,209.60	0.00	0.00	0.00	0.00
4,400.00	19.23	105.669	4,198.59	-335.67	1,196.68	1,242.52	0.00	0.00	0.00	0.00
4,500.00	19.23	105.669	4,293.02	-344.57	1,228.38	1,275.45	0.00	0.00	0.00	0.00
4,600.00	19.23	105.669	4,387.44	-353.46	1,260.09	1,308.37	0.00	0.00	0.00	0.00

Plan Report for Jones 17-24D - Plan A Rev 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 (°)
4,700.00	19.23	105.669	4,481.86	-362.36	1,291.80	1,341.30	0.00	0.00	0.00	0.00
4,800.00	19.23	105.669	4,576.28	-371.25	1,323.51	1,374.22	0.00	0.00	0.00	0.00
4,900.00	19.23	105.669	4,670.70	-380.15	1,355.22	1,407.15	0.00	0.00	0.00	0.00
4,975.54	19.23	105.669	4,742.03	-386.87	1,379.18	1,432.02	0.00	0.00	0.00	0.00
Begin Drop at 4975.54ft										
5,000.00	18.86	105.669	4,765.15	-389.02	1,386.86	1,440.00	1.50	-1.50	0.00	180.00
5,100.00	17.36	105.669	4,860.19	-397.42	1,416.79	1,471.07	1.50	-1.50	0.00	180.00
5,200.00	15.86	105.669	4,956.01	-405.14	1,444.32	1,499.65	1.50	-1.50	0.00	180.00
5,300.00	14.36	105.669	5,052.55	-412.18	1,469.42	1,525.71	1.50	-1.50	0.00	180.00
5,400.00	12.86	105.669	5,149.74	-418.54	1,492.08	1,549.24	1.50	-1.50	0.00	180.00
5,500.00	11.36	105.669	5,247.51	-424.20	1,512.28	1,570.22	1.50	-1.50	0.00	180.00
5,600.00	9.86	105.669	5,345.80	-429.18	1,530.01	1,588.63	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
5,700.00	8.36	105.669	5,444.54	-433.45	1,545.26	1,604.46	1.50	-1.50	0.00	-180.00
5,800.00	6.86	105.669	5,543.65	-437.03	1,558.01	1,617.70	1.50	-1.50	0.00	180.00
5,900.00	5.36	105.669	5,643.08	-439.91	1,568.26	1,628.34	1.50	-1.50	0.00	180.00
6,000.00	3.86	105.669	5,742.75	-442.08	1,576.00	1,636.38	1.50	-1.50	0.00	180.00
6,100.00	2.36	105.669	5,842.60	-443.54	1,581.23	1,641.81	1.50	-1.50	0.00	180.00
6,200.00	0.86	105.669	5,942.56	-444.30	1,583.93	1,644.62	1.50	-1.50	0.00	180.00
6,257.44	0.00	0.000	6,000.00	-444.42	1,584.35	1,645.05	1.50	-1.50	-183.96	-180.00
End Drop at 6257.44ft - Williams Fork - Jones 17-24D Plan A Rev 1 Driller's Tgt										
6,300.00	0.02	243.438	6,042.56	-444.42	1,584.34	1,645.04	0.06	0.06	-273.88	-116.56
6,400.00	0.08	243.438	6,142.56	-444.47	1,584.26	1,644.98	0.06	0.06	0.00	0.00
6,500.00	0.14	243.438	6,242.56	-444.55	1,584.09	1,644.84	0.06	0.06	0.00	0.00
6,600.00	0.20	243.438	6,342.56	-444.68	1,583.83	1,644.63	0.06	0.06	0.00	0.00
6,700.00	0.25	243.438	6,442.56	-444.86	1,583.47	1,644.34	0.06	0.06	0.00	0.00
6,800.00	0.31	243.438	6,542.56	-445.08	1,583.03	1,643.98	0.06	0.06	0.00	0.00
6,900.00	0.37	243.438	6,642.55	-445.34	1,582.50	1,643.56	0.06	0.06	0.00	0.00
7,000.00	0.43	243.438	6,742.55	-445.65	1,581.89	1,643.05	0.06	0.06	0.00	0.00
7,100.00	0.48	243.438	6,842.55	-446.01	1,581.18	1,642.48	0.06	0.06	0.00	0.00
7,200.00	0.54	243.438	6,942.54	-446.41	1,580.38	1,641.83	0.06	0.06	0.00	0.00
7,300.00	0.60	243.438	7,042.54	-446.85	1,579.49	1,641.11	0.06	0.06	0.00	0.00
7,382.46	0.64	243.438	7,125.00	-447.25	1,578.69	1,640.47	0.06	0.06	0.00	0.00
Top of Gas										
7,400.00	0.65	243.438	7,142.53	-447.34	1,578.51	1,640.32	0.06	0.06	0.00	0.00
7,500.00	0.71	243.438	7,242.53	-447.87	1,577.45	1,639.46	0.06	0.06	0.00	0.00
7,600.00	0.77	243.438	7,342.52	-448.45	1,576.29	1,638.52	0.06	0.06	0.00	0.00
7,700.00	0.83	243.438	7,442.51	-449.07	1,575.05	1,637.52	0.06	0.06	0.00	0.00
7,800.00	0.88	243.438	7,542.50	-449.74	1,573.71	1,636.44	0.06	0.06	0.00	0.00
7,900.00	0.94	243.438	7,642.49	-450.45	1,572.29	1,635.28	0.06	0.06	0.00	0.00
8,000.00	1.00	243.438	7,742.47	-451.21	1,570.78	1,634.06	0.06	0.06	0.00	0.00
8,100.00	1.06	243.438	7,842.45	-452.01	1,569.18	1,632.76	0.06	0.06	0.00	0.00
8,200.00	1.11	243.438	7,942.44	-452.85	1,567.48	1,631.39	0.06	0.06	0.00	0.00
8,300.00	1.17	243.438	8,042.42	-453.74	1,565.70	1,629.95	0.06	0.06	0.00	0.00
8,400.00	1.23	243.438	8,142.40	-454.68	1,563.83	1,628.43	0.06	0.06	0.00	0.00
8,500.00	1.28	243.438	8,242.37	-455.66	1,561.87	1,626.84	0.06	0.06	0.00	0.00
8,600.00	1.34	243.438	8,342.34	-456.68	1,559.82	1,625.18	0.06	0.06	0.00	0.00
8,700.00	1.40	243.438	8,442.32	-457.75	1,557.68	1,623.45	0.06	0.06	0.00	0.00
8,800.00	1.46	243.438	8,542.29	-458.87	1,555.46	1,621.65	0.06	0.06	0.00	0.00
8,862.74	1.49	243.438	8,605.00	-459.59	1,554.01	1,620.48	0.06	0.06	0.00	0.00
Cameo										
8,900.00	1.51	243.438	8,642.25	-460.02	1,553.14	1,619.77	0.06	0.06	0.00	0.00
9,000.00	1.57	243.438	8,742.22	-461.23	1,550.73	1,617.82	0.06	0.06	0.00	0.00
9,100.00	1.63	243.438	8,842.18	-462.47	1,548.24	1,615.80	0.06	0.06	0.00	0.00
9,200.00	1.69	243.438	8,942.13	-463.77	1,545.65	1,613.70	0.06	0.06	0.00	0.00
9,300.00	1.74	243.438	9,042.09	-465.10	1,542.97	1,611.54	0.06	0.06	0.00	0.00
9,400.00	1.80	243.438	9,142.04	-466.49	1,540.21	1,609.30	0.06	0.06	0.00	0.00
9,451.98	1.83	243.438	9,194.00	-467.22	1,538.74	1,608.10	0.06	0.06	0.00	0.00
Rollins										

Plan Report for Jones 17-24D - Plan A Rev 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 (°)
9,500.00	1.86	243.438	9,241.99	-467.91	1,537.36	1,606.99	0.06	0.06	0.00	0.00
9,600.00	1.91	243.438	9,341.94	-469.38	1,534.41	1,604.60	0.06	0.06	0.00	0.00
9,602.06	1.92	243.438	9,344.00	-469.42	1,534.35	1,604.55	0.06	0.06	0.00	0.00
Total Depth = 9602.06ft - Jones 17-24D Plan A Rev 1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
150.00	150.00	0.00	0.00	Kickoff at 150.00ft
600.00	598.15	-9.53	33.96	Build Rate = 2.00°/100ft
1,111.42	1,093.47	-43.16	153.88	End Build at 1111.42ft
3,000.00	2,876.70	-211.15	752.74	19.23 Inclination
4,975.54	4,742.03	-386.87	1,379.18	Begin Drop at 4975.54ft
5,600.00	5,345.80	-429.18	1,530.01	Drop Rate = 1.50°/100ft
6,257.44	6,000.00	-444.42	1,584.35	End Drop at 6257.44ft
9,602.06	9,344.00	-469.42	1,534.35	Total Depth = 9602.06ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	Jones 17-24D Plan A Rev 1 BH Tgt	107.011	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	9,602.06	Plan A Rev 1 Proposal	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,460.38	8-5/8" Casing Point	8-5/8	12-1/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
0.00	0.00	Green River		0.00	
814.95	809.00	Wasatch		0.00	
6,257.44	6,000.00	Williams Fork		0.00	
7,382.46	7,125.00	Top of Gas		0.00	
8,862.74	8,605.00	Cameo		0.00	
9,451.98	9,194.00	Rollins		0.00	

Plan Report for Jones 17-24D - Plan A Rev 1 Proposal

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Jones 17-24D Plan A Rev 1 Driller's Tgt	6,000.00	-444.42	1,584.35	Rectangle
Jones 17-24D Plan A Rev 1 BH Tgt	9,344.00	-469.42	1,534.35	Point
Jones 17-24D South Hardline	0.00	0.00	0.00	Polygon
Jones 17-24D Plan A Rev 1 Zone Tgt	7,125.00	-469.42	1,534.35	Rectangle

**North Reference Sheet for Sec. 17-T7S-R94W (Rulison 17M PAD) NAD 83 - Jones
17-24D - Plan A Rev 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 24' @ 7569.00ft (H&P 322). Northing and Easting are relative to Jones 17-24D

Coordinate System is US State Plane 1983, Colorado Central Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0.000000°, Latitude Origin:39.750000°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995269

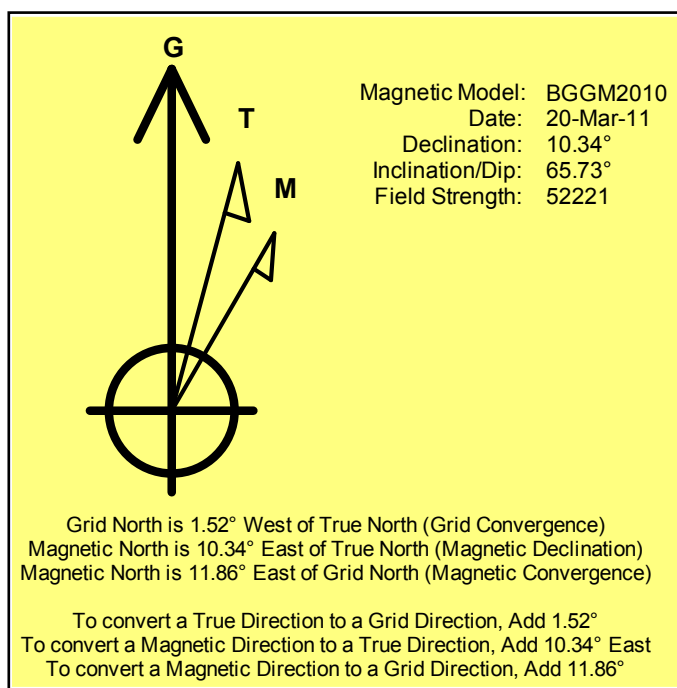
Grid Coordinates of Well: 1,591,832.26 ft N, 2,317,175.06 ft E

Geographical Coordinates of Well: 39° 26' 00.24" N, 107° 55' 04.01" W

Grid Convergence at Surface is: -1.52°

Based upon Minimum Curvature type calculations, at a Measured Depth of 9,602.06ft
the Bottom Hole Displacement is 1,604.55ft in the Direction of 107.01° (Grid).

Magnetic Convergence at surface is: -11.86° (20 March 2011, , BGGM2010)



Project: Garfield County, CO
Site: Sec. 17-T7S-R94W (Rulison 17M PAD) NAD 83
Well: Jones 17-24D
Wellbore: Plan A Rev 1
Plan: Plan A Rev 1 Proposal

Noble Energy

HALLIBURTON
Sperry Drilling

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
2	150.00	0.00	0.000	150.00	0.00	0.00	0.00	0.00	0.00	
3	1111.42	19.23	105.669	1093.48	-43.16	153.88	2.00	105.67	159.77	
4	4975.54	19.23	105.669	4742.03	-386.87	1379.18	0.00	0.00	1432.02	Jones 17-24D Plan A Rev 1 Driller's Tgt
5	6257.44	0.00	0.000	6000.00	-444.42	1584.35	1.50	180.00	1645.05	Jones 17-24D Plan A Rev 1 BH Tgt
6	9602.06	1.92	243.438	9344.00	-469.42	1534.35	0.06	243.44	1604.55	

WELL DETAILS: Jones 17-24D

Ground Level:	7545.00	Latitude	39.433399	Longitude	-107.917780
Northing	1591832.26	Easting	2317175.06		



Azimuths to Grid North
True North: 1.52°
Magnetic North: 11.86°
Magnetic Field
Strength: 52220.9snT
Dip Angle: 65.73°
Date: 3/20/2011
Model: BGGM2010

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
0.00	0.00	Green River
809.00	814.95	Wasatch
6000.00	6257.44	Williams Fork
7125.00	7382.46	Top of Gas
8605.00	8862.74	Cameo
9194.00	9451.98	Rollins

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Jones 17-24D South Hardline	0.00	0.00	0.00	Polygon
Jones 17-24D Plan A Rev 1 Driller's Tgt	6000.00	-444.42	1584.35	Rectangle (Sides: L25.00 W25.00)
Jones 17-24D Plan A Rev 1 Zone Tgt	7125.00	-469.42	1534.35	Rectangle (Sides: L100.00 W200.00)
Jones 17-24D Plan A Rev 1 BH Tgt	9344.00	-469.42	1534.35	Point

