

Noble Energy

Mesa County, CO (NAD 83)

Sec. 12-T8S-R96W

Hyrup 12-43B

Plan A - Rev 0 Proposal

Plan: Plan A - Rev 0 Proposal

Standard Planning Report

08 July, 2011

Halliburton Company

Planning Report

Database:	Noble Database	Local Co-ordinate Reference:	Site Sec. 12-T8S-R96W
Company:	Noble Energy	TVD Reference:	WELL @ 6175.0ft (Original Well Elev)
Project:	Mesa County, CO (NAD 83)	MD Reference:	WELL @ 6175.0ft (Original Well Elev)
Site:	Sec. 12-T8S-R96W	North Reference:	Grid
Well:	Hyrup 12-43B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A - Rev 0 Proposal		
Design:	Plan A - Rev 0 Proposal		

Project	Mesa County, CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	Sec. 12-T8S-R96W			
Site Position:		Northing:	478,042.46 m	Latitude: 39° 21' 58.079 N
From:	Lat/Long	Easting:	694,523.52 m	Longitude: 108° 3' 6.876 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.61 °

Well	Hyrup 12-43B			
Well Position	+N/-S	0.3 ft	Northing:	478,042.57 m
	+E/-W	52.3 ft	Easting:	694,539.48 m
Position Uncertainty		0.0 ft	Wellhead Elevation:	Ground Level: 6,151.0 ft

Wellbore	Plan A - Rev 0 Proposal				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/6/2011	10.35	65.62	52,165

Design	Plan A - Rev 0 Proposal			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.3	52.3	157.93

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.3	52.3	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.3	52.3	0.00	0.00	0.00	0.00	
930.3	14.61	154.48	922.4	-83.2	92.2	2.00	2.00	0.00	154.48	
3,743.6	14.61	154.48	3,644.8	-723.4	397.9	0.00	0.00	0.00	0.00	
4,717.3	0.00	0.00	4,608.0	-834.8	451.1	1.50	-1.50	0.00	180.00	Hyrup 12-43B'_PlanA
6,877.3	2.97	243.41	6,767.0	-859.8	401.1	0.14	0.14	-5.40	243.41	Hyrup 12-43B'_PlanA

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Site:	Sec. 12-T8S-R96W	North Reference:	Grid
Well:	Hyrup 12-43B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A - Rev 0 Proposal		
Design:	Plan A - Rev 0 Proposal		

Planned Survey									
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)
0.0	0.00	0.00	0.0	0.3	52.3	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.3	52.3	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.3	52.3	0.0	0.00	0.00	0.00
300.0	2.00	154.48	300.0	-1.2	53.1	1.7	2.00	2.00	0.00
400.0	4.00	154.48	399.8	-6.0	55.3	7.0	2.00	2.00	0.00
500.0	6.00	154.48	499.5	-13.8	59.1	15.7	2.00	2.00	0.00
600.0	8.00	154.48	598.7	-24.8	64.3	27.8	2.00	2.00	0.00
700.0	10.00	154.48	697.5	-38.9	71.1	43.4	2.00	2.00	0.00
800.0	12.00	154.48	795.6	-56.2	79.3	62.5	2.00	2.00	0.00
900.0	14.00	154.48	893.1	-76.4	89.0	84.9	2.00	2.00	0.00
930.3	14.61	154.48	922.4	-83.2	92.2	92.4	2.00	2.00	0.00
1,000.0	14.61	154.48	989.9	-99.1	99.8	110.0	0.00	0.00	0.00
1,100.0	14.61	154.48	1,086.6	-121.8	110.7	135.1	0.00	0.00	0.00
1,200.0	14.61	154.48	1,183.4	-144.6	121.5	160.3	0.00	0.00	0.00
1,300.0	14.61	154.48	1,280.2	-167.3	132.4	185.5	0.00	0.00	0.00
1,400.0	14.61	154.48	1,376.9	-190.1	143.3	210.6	0.00	0.00	0.00
1,500.0	14.61	154.48	1,473.7	-212.8	154.1	235.8	0.00	0.00	0.00
1,600.0	14.61	154.48	1,570.5	-235.6	165.0	261.0	0.00	0.00	0.00
1,700.0	14.61	154.48	1,667.2	-258.4	175.9	286.2	0.00	0.00	0.00
1,800.0	14.61	154.48	1,764.0	-281.1	186.7	311.3	0.00	0.00	0.00
1,900.0	14.61	154.48	1,860.8	-303.9	197.6	336.5	0.00	0.00	0.00
2,000.0	14.61	154.48	1,957.5	-326.6	208.5	361.7	0.00	0.00	0.00
2,100.0	14.61	154.48	2,054.3	-349.4	219.3	386.8	0.00	0.00	0.00
2,200.0	14.61	154.48	2,151.1	-372.1	230.2	412.0	0.00	0.00	0.00
2,300.0	14.61	154.48	2,247.8	-394.9	241.1	437.2	0.00	0.00	0.00
2,400.0	14.61	154.48	2,344.6	-417.7	251.9	462.4	0.00	0.00	0.00
2,500.0	14.61	154.48	2,441.4	-440.4	262.8	487.5	0.00	0.00	0.00
2,600.0	14.61	154.48	2,538.2	-463.2	273.7	512.7	0.00	0.00	0.00
2,700.0	14.61	154.48	2,634.9	-485.9	284.5	537.9	0.00	0.00	0.00
2,800.0	14.61	154.48	2,731.7	-508.7	295.4	563.0	0.00	0.00	0.00
2,900.0	14.61	154.48	2,828.5	-531.4	306.2	588.2	0.00	0.00	0.00
3,000.0	14.61	154.48	2,925.2	-554.2	317.1	613.4	0.00	0.00	0.00
3,100.0	14.61	154.48	3,022.0	-576.9	328.0	638.6	0.00	0.00	0.00
3,200.0	14.61	154.48	3,118.8	-599.7	338.8	663.7	0.00	0.00	0.00
3,300.0	14.61	154.48	3,215.5	-622.5	349.7	688.9	0.00	0.00	0.00
3,400.0	14.61	154.48	3,312.3	-645.2	360.6	714.1	0.00	0.00	0.00
3,500.0	14.61	154.48	3,409.1	-668.0	371.4	739.2	0.00	0.00	0.00
3,600.0	14.61	154.48	3,505.8	-690.7	382.3	764.4	0.00	0.00	0.00
3,700.0	14.61	154.48	3,602.6	-713.5	393.2	789.6	0.00	0.00	0.00
3,743.6	14.61	154.48	3,644.8	-723.4	397.9	800.6	0.00	0.00	0.00
3,800.0	13.76	154.48	3,699.5	-735.9	403.9	814.4	1.50	-1.50	0.00
3,900.0	12.26	154.48	3,796.9	-756.2	413.6	836.8	1.50	-1.50	0.00
4,000.0	10.76	154.48	3,894.9	-774.2	422.2	856.7	1.50	-1.50	0.00
4,100.0	9.26	154.48	3,993.4	-789.9	429.7	874.1	1.50	-1.50	0.00
4,200.0	7.76	154.48	4,092.3	-803.2	436.0	888.9	1.50	-1.50	0.00
4,300.0	6.26	154.48	4,191.5	-814.2	441.3	901.0	1.50	-1.50	0.00
4,400.0	4.76	154.48	4,291.0	-822.9	445.4	910.6	1.50	-1.50	0.00
4,500.0	3.26	154.48	4,390.8	-829.2	448.4	917.6	1.50	-1.50	0.00
4,600.0	1.76	154.48	4,490.7	-833.2	450.3	922.0	1.50	-1.50	0.00
4,700.0	0.26	154.48	4,590.7	-834.8	451.1	923.7	1.50	-1.50	0.00
4,717.3	0.00	0.00	4,608.0	-834.8	451.1	923.8	1.50	-1.50	0.00
4,800.0	0.11	243.41	4,690.7	-834.8	451.0	923.8	0.14	0.14	0.00
4,900.0	0.25	243.41	4,790.7	-835.0	450.7	923.8	0.14	0.14	0.00
5,000.0	0.39	243.41	4,890.7	-835.2	450.2	923.9	0.14	0.14	0.00

Halliburton Company

Planning Report

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Project:	Mesa County, CO (NAD 83)	MD Reference:	WELL @ 6175.0ft (Original Well Elev)
Site:	Sec. 12-T8S-R96W	North Reference:	Grid
Well:	Hyrup 12-43B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A - Rev 0 Proposal		
Design:	Plan A - Rev 0 Proposal		

Planned Survey										
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)	
5,100.0	0.53	243.41	4,990.7	-835.6	449.5	923.9	0.14	0.14	0.00	
5,200.0	0.66	243.41	5,090.7	-836.0	448.6	924.0	0.14	0.14	0.00	
5,300.0	0.80	243.41	5,190.7	-836.6	447.5	924.1	0.14	0.14	0.00	
5,400.0	0.94	243.41	5,290.7	-837.3	446.1	924.2	0.14	0.14	0.00	
5,500.0	1.07	243.41	5,390.6	-838.1	444.5	924.4	0.14	0.14	0.00	
5,600.0	1.21	243.41	5,490.6	-839.0	442.8	924.5	0.14	0.14	0.00	
5,700.0	1.35	243.41	5,590.6	-840.0	440.8	924.7	0.14	0.14	0.00	
5,800.0	1.49	243.41	5,690.6	-841.1	438.5	924.9	0.14	0.14	0.00	
5,900.0	1.62	243.41	5,790.5	-842.3	436.1	925.1	0.14	0.14	0.00	
6,000.0	1.76	243.41	5,890.5	-843.6	433.5	925.3	0.14	0.14	0.00	
6,100.0	1.90	243.41	5,990.4	-845.1	430.6	925.6	0.14	0.14	0.00	
6,200.0	2.04	243.41	6,090.4	-846.6	427.5	925.9	0.14	0.14	0.00	
6,300.0	2.17	243.41	6,190.3	-848.2	424.3	926.1	0.14	0.14	0.00	
6,400.0	2.31	243.41	6,290.2	-850.0	420.8	926.5	0.14	0.14	0.00	
6,500.0	2.45	243.41	6,390.1	-851.8	417.1	926.8	0.14	0.14	0.00	
6,600.0	2.59	243.41	6,490.0	-853.8	413.1	927.1	0.14	0.14	0.00	
6,700.0	2.72	243.41	6,589.9	-855.9	409.0	927.5	0.14	0.14	0.00	
6,800.0	2.86	243.41	6,689.8	-858.1	404.6	927.9	0.14	0.14	0.00	
6,877.3	2.97	243.41	6,767.0	-859.8	401.1	928.2	0.14	0.14	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (m)	Easting (m)	Latitude	Longitude	
Hyrup 12-43B'_PlanA - F	0.00	0.00	4,608.0	-859.8	401.1	477,780.40	694,645.78	39° 21' 49.695 N	108° 3' 1.463 W	
- plan misses target center by 55.9ft at 4717.4ft MD (4608.1 TVD, -834.8 N, 451.1 E)										
- Rectangle (sides W200.0 H100.0 D2,159.0)										
Hyrup 12-43B'_PlanA - F	0.00	360.00	4,608.0	-834.8	451.1	477,788.03	694,661.01	39° 21' 49.957 N	108° 3' 0.836 W	
- plan hits target center										
- Rectangle (sides W25.0 H25.0 D0.0)										
Hyrup 12-43B'_PlanA - F	0.00	0.00	6,767.0	-859.8	401.1	477,780.40	694,645.78	39° 21' 49.695 N	108° 3' 1.463 W	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,500.0	1,473.7	8 5/8" Surface Casing	8.625	12.250	
6,877.3	6,767.0	4 1/2" Production Casing	4.500	6.000	

Halliburton Company

Planning Report

Database:	Noble Database	Local Co-ordinate Reference:	Site Sec. 12-T8S-R96W
Company:	Noble Energy	TVD Reference:	WELL @ 6175.0ft (Original Well Elev)
Project:	Mesa County, CO (NAD 83)	MD Reference:	WELL @ 6175.0ft (Original Well Elev)
Site:	Sec. 12-T8S-R96W	North Reference:	Grid
Well:	Hyrup 12-43B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A - Rev 0 Proposal		
Design:	Plan A - Rev 0 Proposal		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,193.0	3,112.0	Williams Fork				
4,717.3	4,608.0	Top of Gas				
5,608.4	5,499.0	Cameo				
5,994.5	5,885.0	Rollins				
6,275.7	6,166.0	Cozzette				
6,511.9	6,402.0	Corcoran				
6,627.0	6,517.0	Mancos				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.3	52.3	Kick Off Point at 200.00 ft	
500.0	499.5	-13.8	59.1	Build Rate = 2.00°/100 ft	
930.3	922.4	-83.2	92.2	End Build at 930.3 ft	
2,000.0	1,957.5	-326.6	208.5	Hold Angle 14.61°	
3,743.6	3,644.8	-723.4	397.9	Begin Drop at 3743.6 ft	
4,000.0	3,894.9	-774.2	422.2	Drop Rate = 1.50°/100 ft	
4,717.3	4,608.0	-834.8	451.1	End Drop at 4717.3 ft	
6,877.3	6,767.0	-859.8	401.1	Total Depth at 6877.3 ft	

Project: Mesa County, CO (NAD 83)
Site: Sec. 12-T8S-R96W
Well: Hyrup 12-43B
Wellbore: Plan A - Rev 0 Proposal
Design: Plan A - Rev 0 Proposal

Noble Energy

HALLIBURTON

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.3	52.3	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.3	52.3	0.00	0.00	0.0	
3	930.3	14.61	154.48	922.4	-83.2	92.2	2.00	154.48	92.4	
4	3743.6	14.61	154.48	3644.8	-723.4	397.9	0.00	0.00	800.6	
5	4717.3	0.00	0.00	4608.0	-834.8	451.1	1.50	180.00	923.8	Hyrup 12-43B'_PlanA - Rev0_Driller's Tgt
6	6877.3	2.97	243.41	6767.0	-859.8	401.1	0.14	243.41	928.2	Hyrup 12-43B'_PlanA - Rev0_BHL Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Hyrup 12-43B'_PlanA - Rev0_Driller's Tgt	4608.0	-834.8	451.1	Rectangle (Sides: L25.0 W25.0)
Hyrup 12-43B'_PlanA - Rev0_Zone Tgt	4608.0	-859.8	401.1	Rectangle (Sides: L100.0 W200.0)
Hyrup 12-43B'_PlanA - Rev0_BHL Tgt	6767.0	-859.8	401.1	Point

WELL DETAILS: Hyrup 12-43B

Ground Level: 6151.0			
Northing	Easting	Latitude	Longitude
478042.56	694539.48	39° 21' 58.097 N	108° 3' 6.210 W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3112.0	3193.0	Williams Fork
4608.0	4717.3	Top of Gas
5499.0	5608.4	Cameo
5885.0	5994.5	Rollins
6166.0	6275.7	Cozzette
6402.0	6511.9	Corcoran
6517.0	6627.0	Mancos

