

Noble Energy

Mesa County, CO (NAD 83)

Sec. 12-T8S-R96W

Hyrup 12-43A

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 12-43A	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
From:	Lat/Long	Easting:	694,523.52 m
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in
		Latitude:	39° 21' 58.079 N
		Longitude:	108° 3' 6.876 W
		Grid Convergence:	-1.61 °

Well	Hyrup 12-43A		
Well Position	+N/-S	0.1 ft	Northing:
	+E/-W	60.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	
		Latitude:	39° 21' 58.097 N
		Longitude:	108° 3' 6.113 W
		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	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.1	60.0	144.47

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.1	60.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.1	60.0	0.00	0.00	0.00	0.00	
583.2	9.58	139.67	581.5	-24.2	80.7	2.50	2.50	0.00	139.67	
4,037.2	9.58	139.67	3,987.2	-462.5	452.7	0.00	0.00	0.00	0.00	
4,675.9	0.00	0.00	4,623.0	-503.1	487.2	1.50	-1.50	0.00	180.00	Hyrup 12-43A'_PlanA
6,835.9	2.97	243.41	6,782.0	-528.1	437.2	0.14	0.14	-5.40	243.41	Hyrup 12-43A'_PlanA

Halliburton Company

Planning Report

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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 12-43A	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	0.1	60.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.1	60.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.1	60.0	0.0	0.00	0.00	0.00
300.0	2.50	139.67	300.0	-1.5	61.4	2.2	2.50	2.50	0.00
400.0	5.00	139.67	399.7	-6.5	65.6	8.7	2.50	2.50	0.00
500.0	7.50	139.67	499.1	-14.8	72.7	19.5	2.50	2.50	0.00
583.2	9.58	139.67	581.5	-24.2	80.7	31.9	2.50	2.50	0.00
600.0	9.58	139.67	598.0	-26.4	82.5	34.6	0.00	0.00	0.00
700.0	9.58	139.67	696.6	-39.1	93.2	51.2	0.00	0.00	0.00
800.0	9.58	139.67	795.2	-51.7	104.0	67.8	0.00	0.00	0.00
900.0	9.58	139.67	893.8	-64.4	114.8	84.4	0.00	0.00	0.00
1,000.0	9.58	139.67	992.4	-77.1	125.6	101.0	0.00	0.00	0.00
1,100.0	9.58	139.67	1,091.0	-89.8	136.3	117.6	0.00	0.00	0.00
1,200.0	9.58	139.67	1,189.6	-102.5	147.1	134.1	0.00	0.00	0.00
1,300.0	9.58	139.67	1,288.2	-115.2	157.9	150.7	0.00	0.00	0.00
1,400.0	9.58	139.67	1,386.8	-127.9	168.6	167.3	0.00	0.00	0.00
1,500.0	9.58	139.67	1,485.4	-140.6	179.4	183.9	0.00	0.00	0.00
1,600.0	9.58	139.67	1,584.0	-153.3	190.2	200.5	0.00	0.00	0.00
1,700.0	9.58	139.67	1,682.6	-165.9	201.0	217.1	0.00	0.00	0.00
1,800.0	9.58	139.67	1,781.2	-178.6	211.7	233.7	0.00	0.00	0.00
1,900.0	9.58	139.67	1,879.8	-191.3	222.5	250.2	0.00	0.00	0.00
2,000.0	9.58	139.67	1,978.5	-204.0	233.3	266.8	0.00	0.00	0.00
2,100.0	9.58	139.67	2,077.1	-216.7	244.0	283.4	0.00	0.00	0.00
2,200.0	9.58	139.67	2,175.7	-229.4	254.8	300.0	0.00	0.00	0.00
2,300.0	9.58	139.67	2,274.3	-242.1	265.6	316.6	0.00	0.00	0.00
2,400.0	9.58	139.67	2,372.9	-254.8	276.4	333.2	0.00	0.00	0.00
2,500.0	9.58	139.67	2,471.5	-267.4	287.1	349.8	0.00	0.00	0.00
2,600.0	9.58	139.67	2,570.1	-280.1	297.9	366.3	0.00	0.00	0.00
2,700.0	9.58	139.67	2,668.7	-292.8	308.7	382.9	0.00	0.00	0.00
2,800.0	9.58	139.67	2,767.3	-305.5	319.4	399.5	0.00	0.00	0.00
2,900.0	9.58	139.67	2,865.9	-318.2	330.2	416.1	0.00	0.00	0.00
3,000.0	9.58	139.67	2,964.5	-330.9	341.0	432.7	0.00	0.00	0.00
3,100.0	9.58	139.67	3,063.1	-343.6	351.8	449.3	0.00	0.00	0.00
3,200.0	9.58	139.67	3,161.7	-356.3	362.5	465.9	0.00	0.00	0.00
3,300.0	9.58	139.67	3,260.3	-368.9	373.3	482.4	0.00	0.00	0.00
3,400.0	9.58	139.67	3,358.9	-381.6	384.1	499.0	0.00	0.00	0.00
3,500.0	9.58	139.67	3,457.5	-394.3	394.8	515.6	0.00	0.00	0.00
3,600.0	9.58	139.67	3,556.1	-407.0	405.6	532.2	0.00	0.00	0.00
3,700.0	9.58	139.67	3,654.7	-419.7	416.4	548.8	0.00	0.00	0.00
3,800.0	9.58	139.67	3,753.3	-432.4	427.2	565.4	0.00	0.00	0.00
3,900.0	9.58	139.67	3,852.0	-445.1	437.9	582.0	0.00	0.00	0.00
4,000.0	9.58	139.67	3,950.6	-457.8	448.7	598.5	0.00	0.00	0.00
4,037.2	9.58	139.67	3,987.2	-462.5	452.7	604.7	0.00	0.00	0.00
4,100.0	8.64	139.67	4,049.2	-470.1	459.2	614.6	1.50	-1.50	0.00
4,200.0	7.14	139.67	4,148.3	-480.5	468.0	628.3	1.50	-1.50	0.00
4,300.0	5.64	139.67	4,247.7	-489.0	475.2	639.4	1.50	-1.50	0.00
4,400.0	4.14	139.67	4,347.3	-495.5	480.8	647.9	1.50	-1.50	0.00
4,500.0	2.64	139.67	4,447.1	-500.0	484.6	653.8	1.50	-1.50	0.00
4,600.0	1.14	139.67	4,547.1	-502.5	486.7	657.1	1.50	-1.50	0.00
4,675.9	0.00	0.00	4,623.0	-503.1	487.2	657.8	1.50	-1.50	0.00
4,700.0	0.03	243.41	4,647.1	-503.1	487.2	657.8	0.14	0.14	0.00
4,800.0	0.17	243.41	4,747.1	-503.2	487.0	657.8	0.14	0.14	0.00
4,900.0	0.31	243.41	4,847.1	-503.4	486.7	657.7	0.14	0.14	0.00
5,000.0	0.45	243.41	4,947.1	-503.7	486.1	657.6	0.14	0.14	0.00

Halliburton Company

Planning Report

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Site:	Sec. 12-T8S-R96W	North Reference:	Grid
Well:	Hyrup 12-43A	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	0.58	243.41	5,047.1	-504.1	485.3	657.5	0.14	0.14	0.00	
5,200.0	0.72	243.41	5,147.1	-504.6	484.3	657.3	0.14	0.14	0.00	
5,300.0	0.86	243.41	5,247.0	-505.2	483.0	657.1	0.14	0.14	0.00	
5,400.0	1.00	243.41	5,347.0	-505.9	481.6	656.8	0.14	0.14	0.00	
5,500.0	1.13	243.41	5,447.0	-506.7	479.9	656.5	0.14	0.14	0.00	
5,600.0	1.27	243.41	5,547.0	-507.7	478.0	656.2	0.14	0.14	0.00	
5,700.0	1.41	243.41	5,647.0	-508.7	476.0	655.8	0.14	0.14	0.00	
5,800.0	1.55	243.41	5,746.9	-509.9	473.6	655.4	0.14	0.14	0.00	
5,900.0	1.68	243.41	5,846.9	-511.1	471.1	655.0	0.14	0.14	0.00	
6,000.0	1.82	243.41	5,946.8	-512.5	468.4	654.5	0.14	0.14	0.00	
6,100.0	1.96	243.41	6,046.8	-514.0	465.4	654.0	0.14	0.14	0.00	
6,200.0	2.10	243.41	6,146.7	-515.6	462.3	653.5	0.14	0.14	0.00	
6,300.0	2.23	243.41	6,246.7	-517.3	458.9	652.9	0.14	0.14	0.00	
6,400.0	2.37	243.41	6,346.6	-519.1	455.3	652.3	0.14	0.14	0.00	
6,500.0	2.51	243.41	6,446.5	-521.0	451.5	651.6	0.14	0.14	0.00	
6,600.0	2.65	243.41	6,546.4	-523.0	447.5	650.9	0.14	0.14	0.00	
6,700.0	2.78	243.41	6,646.3	-525.1	443.3	650.2	0.14	0.14	0.00	
6,800.0	2.92	243.41	6,746.1	-527.3	438.8	649.4	0.14	0.14	0.00	
6,835.9	2.97	243.41	6,782.0	-528.1	437.2	649.1	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 12-43A'_101 N 4C	0.00	0.00	0.0	-464.1	237.2	477,901.01	694,595.82	39° 21' 53.560 N	108° 3' 3.691 W	
- plan misses target center by 496.9ft at 0.0ft MD (0.0 TVD, 0.1 N, 60.0 E)										
- Polygon										
Point 1			0.0	0.0	0.0	477,901.01	694,595.82			
Point 2			0.0	0.0	400.0	477,901.01	694,717.73			
Hyrup 12-43A'_PlanA - F	0.00	0.00	4,623.0	-503.1	487.2	477,889.12	694,672.02	39° 21' 53.244 N	108° 3' 0.495 W	
- plan hits target center										
- Rectangle (sides W25.0 H25.0 D0.0)										
Hyrup 12-43A'_PlanA - F	0.00	0.00	4,623.0	-528.1	437.2	477,881.49	694,656.76	39° 21' 52.982 N	108° 3' 1.123 W	
- plan misses target center by 56.0ft at 4675.8ft MD (4622.9 TVD, -503.1 N, 487.2 E)										
- Rectangle (sides W200.0 H100.0 D2,159.0)										
Hyrup 12-43A'_PlanA - F	0.00	0.00	6,782.0	-528.1	437.2	477,881.49	694,656.76	39° 21' 52.982 N	108° 3' 1.123 W	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,500.0	1,485.4	8 5/8" Surface Casing	8.625	12.250	
6,835.9	6,782.0	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 12-43A	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 (°)	
3,164.8	3,127.0	Williams Fork				
4,675.9	4,623.0	Top of Gas				
5,567.0	5,514.0	Cameo				
5,953.1	5,900.0	Rollins				
6,234.3	6,181.0	Cozzette				
6,470.5	6,417.0	Corcoran				
6,585.6	6,532.0	Mancos				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.1	60.0	Kick Off Point at 200.00 ft	
350.0	349.9	-3.6	63.1	Build Rate = 2.00°/100 ft	
583.2	581.4	-24.2	80.7	End Build at 583.2 ft	
2,500.0	2,471.5	-267.4	287.1	Hold Angle 9.58°	
4,037.2	3,987.2	-462.5	452.7	Begin Drop at 4037.2 ft	
4,250.0	4,197.9	-485.0	471.8	Drop Rate = 1.50°/100 ft	
4,675.9	4,623.0	-503.1	487.2	End Drop at 4675.9 ft	
6,835.9	6,782.0	-528.1	437.2	Total Depth at 6835.9 ft	

Project: Mesa County, CO (NAD 83)
Site: Sec. 12-T8S-R96W
Well: Hyrup 12-43A
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	0.1	60.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.1	60.0	0.00	0.00	0.0	
3	583.2	9.58	139.67	581.5	-24.2	80.7	2.50	139.67	31.9	
4	4037.2	9.58	139.67	3987.2	-462.5	452.7	0.00	0.00	604.7	
5	4675.9	0.00	0.00	4623.0	-503.1	487.2	1.50	180.00	657.8	Hyrup 12-43A'_PlanA - Rev0_Driller's Tgt
6	6835.9	2.97	243.41	6782.0	-528.1	437.2	0.14	243.41	649.1	Hyrup 12-43A'_PlanA - Rev0_BHL Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Hyrup 12-43A'_101 N 40 ac Hardline	0.0	-464.1	237.2	Polygon
Hyrup 12-43A'_PlanA - Rev0_Driller's Tgt	4623.0	-503.1	487.2	Rectangle (Sides: L25.0 W25.0)
Hyrup 12-43A'_PlanA - Rev0_Zone Tgt	4623.0	-528.1	437.2	Rectangle (Sides: L100.0 W200.0)
Hyrup 12-43A'_PlanA - Rev0_BHL Tgt	6782.0	-528.1	437.2	Point

WELL DETAILS: Hyrup 12-43A

Ground Level:	6151.0
Northing	694541.81
Easting	694541.81
Latitude	39° 21' 58.097 N
Longitude	108° 3' 6.113 W

FORMATION TOP DETAILS

TVDPth	MDPath	Formation
3127.0	3164.8	Williams Fork
4623.0	4675.9	Top of Gas
5514.0	5567.0	Cameo
5900.0	5953.1	Rollins
6181.0	6234.3	Cozzette
6417.0	6470.5	Corcoran
6532.0	6585.6	Mancos

