

Noble Energy

Mesa County, CO (NAD 83)

Sec. 12-T8S-R96W

Hyrup 12-42D

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 12-42D	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 12-42D			
Well Position	+N/-S	0.3 ft	Northing:	478,042.55 m
	+E/-W	67.3 ft	Easting:	694,544.04 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	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.3	67.3	118.23

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	67.3	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.3	67.3	0.00	0.00	0.00	0.00	
519.0	6.38	112.46	518.3	-6.5	83.7	2.00	2.00	0.00	112.46	
4,237.2	6.38	112.46	4,213.6	-164.4	465.5	0.00	0.00	0.00	0.00	
4,662.6	0.00	0.00	4,638.0	-173.4	487.4	1.50	-1.50	0.00	180.00	Hyrup 12-42D'_PlanA
6,822.5	2.97	243.47	6,797.0	-198.4	437.4	0.14	0.14	-5.40	243.47	Hyrup 12-42D'_PlanA

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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 12-42D	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	67.3	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.3	67.3	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.3	67.3	0.0	0.00	0.00	0.00
300.0	2.00	112.46	300.0	-0.4	68.9	1.7	2.00	2.00	0.00
400.0	4.00	112.46	399.8	-2.4	73.8	6.9	2.00	2.00	0.00
500.0	6.00	112.46	499.5	-5.7	81.8	15.6	2.00	2.00	0.00
519.0	6.38	112.46	518.3	-6.5	83.7	17.7	2.00	2.00	0.00
600.0	6.38	112.46	598.8	-9.9	92.0	26.6	0.00	0.00	0.00
700.0	6.38	112.46	698.2	-14.2	102.3	37.7	0.00	0.00	0.00
800.0	6.38	112.46	797.6	-18.4	112.6	48.7	0.00	0.00	0.00
900.0	6.38	112.46	897.0	-22.7	122.8	59.8	0.00	0.00	0.00
1,000.0	6.38	112.46	996.4	-26.9	133.1	70.8	0.00	0.00	0.00
1,100.0	6.38	112.46	1,095.7	-31.2	143.4	81.9	0.00	0.00	0.00
1,200.0	6.38	112.46	1,195.1	-35.4	153.7	92.9	0.00	0.00	0.00
1,300.0	6.38	112.46	1,294.5	-39.7	163.9	104.0	0.00	0.00	0.00
1,400.0	6.38	112.46	1,393.9	-43.9	174.2	115.1	0.00	0.00	0.00
1,500.0	6.38	112.46	1,493.3	-48.1	184.5	126.1	0.00	0.00	0.00
1,600.0	6.38	112.46	1,592.6	-52.4	194.7	137.2	0.00	0.00	0.00
1,700.0	6.38	112.46	1,692.0	-56.6	205.0	148.2	0.00	0.00	0.00
1,800.0	6.38	112.46	1,791.4	-60.9	215.3	159.3	0.00	0.00	0.00
1,900.0	6.38	112.46	1,890.8	-65.1	225.5	170.3	0.00	0.00	0.00
2,000.0	6.38	112.46	1,990.2	-69.4	235.8	181.4	0.00	0.00	0.00
2,100.0	6.38	112.46	2,089.6	-73.6	246.1	192.4	0.00	0.00	0.00
2,200.0	6.38	112.46	2,188.9	-77.9	256.3	203.5	0.00	0.00	0.00
2,300.0	6.38	112.46	2,288.3	-82.1	266.6	214.6	0.00	0.00	0.00
2,400.0	6.38	112.46	2,387.7	-86.4	276.9	225.6	0.00	0.00	0.00
2,500.0	6.38	112.46	2,487.1	-90.6	287.1	236.7	0.00	0.00	0.00
2,600.0	6.38	112.46	2,586.5	-94.8	297.4	247.7	0.00	0.00	0.00
2,700.0	6.38	112.46	2,685.8	-99.1	307.7	258.8	0.00	0.00	0.00
2,800.0	6.38	112.46	2,785.2	-103.3	318.0	269.8	0.00	0.00	0.00
2,900.0	6.38	112.46	2,884.6	-107.6	328.2	280.9	0.00	0.00	0.00
3,000.0	6.38	112.46	2,984.0	-111.8	338.5	291.9	0.00	0.00	0.00
3,100.0	6.38	112.46	3,083.4	-116.1	348.8	303.0	0.00	0.00	0.00
3,200.0	6.38	112.46	3,182.7	-120.3	359.0	314.1	0.00	0.00	0.00
3,300.0	6.38	112.46	3,282.1	-124.6	369.3	325.1	0.00	0.00	0.00
3,400.0	6.38	112.46	3,381.5	-128.8	379.6	336.2	0.00	0.00	0.00
3,500.0	6.38	112.46	3,480.9	-133.1	389.8	347.2	0.00	0.00	0.00
3,600.0	6.38	112.46	3,580.3	-137.3	400.1	358.3	0.00	0.00	0.00
3,700.0	6.38	112.46	3,679.6	-141.6	410.4	369.3	0.00	0.00	0.00
3,800.0	6.38	112.46	3,779.0	-145.8	420.6	380.4	0.00	0.00	0.00
3,900.0	6.38	112.46	3,878.4	-150.0	430.9	391.4	0.00	0.00	0.00
4,000.0	6.38	112.46	3,977.8	-154.3	441.2	402.5	0.00	0.00	0.00
4,100.0	6.38	112.46	4,077.2	-158.5	451.4	413.6	0.00	0.00	0.00
4,200.0	6.38	112.46	4,176.5	-162.8	461.7	424.6	0.00	0.00	0.00
4,237.2	6.38	112.46	4,213.6	-164.4	465.5	428.7	0.00	0.00	0.00
4,300.0	5.44	112.46	4,276.0	-166.8	471.5	435.2	1.50	-1.50	0.00
4,400.0	3.94	112.46	4,375.6	-170.0	479.1	443.3	1.50	-1.50	0.00
4,500.0	2.44	112.46	4,475.5	-172.1	484.2	448.8	1.50	-1.50	0.00
4,600.0	0.94	112.46	4,575.4	-173.2	486.9	451.8	1.50	-1.50	0.00
4,662.6	0.00	0.00	4,638.0	-173.4	487.4	452.3	1.50	-1.50	0.00
4,700.0	0.05	243.47	4,675.4	-173.4	487.4	452.3	0.14	0.14	0.00
4,800.0	0.19	243.47	4,775.4	-173.5	487.2	452.1	0.14	0.14	0.00
4,900.0	0.33	243.47	4,875.4	-173.7	486.8	451.9	0.14	0.14	0.00
5,000.0	0.46	243.47	4,975.4	-174.0	486.2	451.5	0.14	0.14	0.00

Halliburton Company

Planning Report

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Site:	Sec. 12-T8S-R96W	North Reference:	Grid
Well:	Hyrup 12-42D	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	0.60	243.47	5,075.4	-174.4	485.3	450.9	0.14	0.14	0.00
5,200.0	0.74	243.47	5,175.4	-174.9	484.3	450.3	0.14	0.14	0.00
5,300.0	0.88	243.47	5,275.4	-175.6	483.0	449.5	0.14	0.14	0.00
5,400.0	1.01	243.47	5,375.4	-176.3	481.6	448.5	0.14	0.14	0.00
5,500.0	1.15	243.47	5,475.4	-177.2	479.9	447.4	0.14	0.14	0.00
5,600.0	1.29	243.47	5,575.4	-178.1	478.0	446.2	0.14	0.14	0.00
5,700.0	1.43	243.47	5,675.3	-179.2	475.9	444.8	0.14	0.14	0.00
5,800.0	1.56	243.47	5,775.3	-180.3	473.5	443.3	0.14	0.14	0.00
5,900.0	1.70	243.47	5,875.3	-181.6	471.0	441.7	0.14	0.14	0.00
6,000.0	1.84	243.47	5,975.2	-183.0	468.2	439.9	0.14	0.14	0.00
6,100.0	1.97	243.47	6,075.2	-184.5	465.2	438.0	0.14	0.14	0.00
6,200.0	2.11	243.47	6,175.1	-186.1	462.0	435.9	0.14	0.14	0.00
6,300.0	2.25	243.47	6,275.0	-187.8	458.6	433.7	0.14	0.14	0.00
6,400.0	2.39	243.47	6,374.9	-189.6	455.0	431.4	0.14	0.14	0.00
6,500.0	2.52	243.47	6,474.8	-191.5	451.2	428.9	0.14	0.14	0.00
6,600.0	2.66	243.47	6,574.7	-193.5	447.1	426.3	0.14	0.14	0.00
6,700.0	2.80	243.47	6,674.6	-195.6	442.9	423.6	0.14	0.14	0.00
6,800.0	2.94	243.47	6,774.5	-197.9	438.4	420.7	0.14	0.14	0.00
6,822.5	2.97	243.47	6,797.0	-198.4	437.4	420.0	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 12-42D'_PlanA - I	0.00	360.00	0.0	-263.4	237.4	477,962.18	694,595.88	39° 21' 55.542 N	108° 3' 3.760 W
- plan misses target center by 313.8ft at 0.0ft MD (0.0 TVD, 0.3 N, 67.3 E)									
- Polygon									
Point 1			0.0	0.0	0.0	477,962.18	694,595.88		
Point 2			0.0	0.0	400.0	477,962.18	694,717.79		
Hyrup 12-42D'_PlanA - I	0.00	0.00	4,638.0	-198.4	437.4	477,982.00	694,656.83	39° 21' 56.240 N	108° 3' 1.238 W
- plan misses target center by 55.9ft at 4662.3ft MD (4637.7 TVD, -173.4 N, 487.4 E)									
- Rectangle (sides W200.0 H100.0 D2,159.0)									
Hyrup 12-42D'_PlanA - I	0.00	0.00	4,638.0	-173.4	487.4	477,989.61	694,672.08	39° 21' 56.501 N	108° 3' 0.611 W
- plan hits target center									
- Rectangle (sides W25.0 H25.0 D0.0)									
Hyrup 12-42D'_PlanA - I	0.00	0.00	6,797.0	-198.4	437.4	477,982.00	694,656.83	39° 21' 56.240 N	108° 3' 1.238 W
- plan hits target center									
- Point									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,500.0	1,493.3	8 5/8" Surface Casing	8.625	12.250
6,822.5	6,797.0	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 12-42D	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 (°)	
3,159.0	-3,033.0	Williams Fork				
4,662.6	-1,537.0	Top of Gas				
5,553.6	-646.0	Cameo				
5,939.8	-260.0	Rollins				
6,220.9	21.0	Cozzette				
6,457.1	257.0	Corcoran				
6,572.2	372.0	Mancos				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.3	67.3	Kick Off Point at 200.00 ft	
350.0	349.9	-1.2	71.0	Build Rate = 2.00°/100 ft	
519.0	518.3	-6.5	83.7	End Build at 519 ft	
2,100.0	2,089.6	-73.6	246.1	Hold Angle 6.38°	
4,237.2	4,213.5	-164.4	465.5	Begin Drop at 4237.2 ft	
4,350.0	4,325.8	-168.5	475.6	Drop Rate = 1.50°/100 ft	
4,662.6	4,638.0	-173.4	487.4	End Drop at 4662.6 ft	
6,822.5	6,797.0	-198.4	437.4	Total Depth at 6822.5 ft	

Project: Mesa County, CO (NAD 83)
Site: Sec. 12-T8S-R96W
Well: Hyrup 12-42D
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	VSect	Target
1	0.0	0.00	0.00	0.0	0.3	67.3	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.3	67.3	0.00	0.00	0.0	
3	519.0	6.38	112.46	518.3	-6.5	83.7	2.00	112.46	17.7	
4	4237.2	6.38	112.46	4213.6	-164.4	465.5	0.00	0.00	428.7	
5	4662.6	0.00	0.00	4638.0	-173.4	487.4	1.50	180.00	452.3	Hyrup 12-42D'_PlanA - Rev0_Driller's Tgt
6	6822.5	2.97	243.47	6797.0	-198.4	437.4	0.14	243.47	420.0	Hyrup 12-42D'_PlanA - Rev0_BHL Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Hyrup 12-42D' 100 N 40 ac Hardline	0.0	-263.4	237.4	Polygon
Hyrup 12-42D'_PlanA - Rev0_Driller's Tgt	4638.0	-173.4	487.4	Rectangle (Sides: L25.0 W25.0)
Hyrup 12-42D'_PlanA - Rev0_Zone Tgt	4638.0	-198.4	437.4	Rectangle (Sides: L100.0 W200.0)
Hyrup 12-42D'_PlanA - Rev0_BHL Tgt	6797.0	-198.4	437.4	Point

WELL DETAILS: Hyrup 12-42D

Ground Level:	6151.0
Northing	478042.55
Easting	694544.05
Latitude	39° 21' 58.100 N
Longitude	108° 3' 6.019 W

FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation
3142.0	3159.0	Williams Fork
4638.0	4662.6	Top of Gas
5529.0	5553.6	Cameo
5915.0	5939.8	Rollins
6196.0	6220.9	Cozzette
6432.0	6457.1	Corcoran
6547.0	6572.2	Mancos

