

Noble Energy

Mesa County, CO (NAD 83)

Sec. 12-T8S-R96W

Hyrup 12-33A

Plan A - Rev 0 Proposal

Plan: Plan A - Rev 0 Proposal

Standard Planning Report

07 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 12-33A	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 12-33A					
Well Position	+N/-S	0.0 ft	Northing:	478,042.46 m	Latitude:	39° 21' 58.079 N
	+E/-W	0.0 ft	Easting:	694,523.52 m	Longitude:	108° 3' 6.876 W
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) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	239.36

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	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,046.5	16.93	239.14	1,034.2	-63.7	-106.6	2.00	2.00	0.00	239.14	
3,577.6	16.93	239.14	3,455.7	-441.8	-739.3	0.00	0.00	0.00	0.00	
4,706.3	0.00	0.00	4,568.0	-526.7	-881.4	1.50	-1.50	0.00	180.00	Hyrup 12-33A'_PlanA
6,866.3	2.97	243.39	6,727.0	-551.7	-931.4	0.14	0.14	-5.40	243.39	Hyrup 12-33A'_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 12-33A	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	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	2.00	239.14	300.0	-0.9	-1.5	1.7	2.00	2.00	0.00
400.0	4.00	239.14	399.8	-3.6	-6.0	7.0	2.00	2.00	0.00
500.0	6.00	239.14	499.5	-8.1	-13.5	15.7	2.00	2.00	0.00
600.0	8.00	239.14	598.7	-14.3	-23.9	27.9	2.00	2.00	0.00
700.0	10.00	239.14	697.5	-22.3	-37.4	43.5	2.00	2.00	0.00
800.0	12.00	239.14	795.6	-32.1	-53.7	62.6	2.00	2.00	0.00
900.0	14.00	239.14	893.1	-43.7	-73.0	85.1	2.00	2.00	0.00
1,000.0	16.00	239.14	989.6	-56.9	-95.3	111.0	2.00	2.00	0.00
1,046.5	16.93	239.14	1,034.2	-63.7	-106.6	124.2	2.00	2.00	0.00
1,100.0	16.93	239.14	1,085.4	-71.7	-120.0	139.7	0.00	0.00	0.00
1,200.0	16.93	239.14	1,181.1	-86.6	-144.9	168.9	0.00	0.00	0.00
1,300.0	16.93	239.14	1,276.7	-101.6	-169.9	198.0	0.00	0.00	0.00
1,400.0	16.93	239.14	1,372.4	-116.5	-194.9	227.1	0.00	0.00	0.00
1,500.0	16.93	239.14	1,468.1	-131.4	-219.9	256.2	0.00	0.00	0.00
1,600.0	16.93	239.14	1,563.7	-146.4	-244.9	285.3	0.00	0.00	0.00
1,700.0	16.93	239.14	1,659.4	-161.3	-269.9	314.5	0.00	0.00	0.00
1,800.0	16.93	239.14	1,755.1	-176.2	-294.9	343.6	0.00	0.00	0.00
1,900.0	16.93	239.14	1,850.7	-191.2	-319.9	372.7	0.00	0.00	0.00
2,000.0	16.93	239.14	1,946.4	-206.1	-344.9	401.8	0.00	0.00	0.00
2,100.0	16.93	239.14	2,042.1	-221.1	-369.9	430.9	0.00	0.00	0.00
2,200.0	16.93	239.14	2,137.7	-236.0	-394.9	460.1	0.00	0.00	0.00
2,300.0	16.93	239.14	2,233.4	-250.9	-419.9	489.2	0.00	0.00	0.00
2,400.0	16.93	239.14	2,329.1	-265.9	-444.9	518.3	0.00	0.00	0.00
2,500.0	16.93	239.14	2,424.7	-280.8	-469.9	547.4	0.00	0.00	0.00
2,600.0	16.93	239.14	2,520.4	-295.7	-494.9	576.5	0.00	0.00	0.00
2,700.0	16.93	239.14	2,616.1	-310.7	-519.9	605.7	0.00	0.00	0.00
2,800.0	16.93	239.14	2,711.7	-325.6	-544.9	634.8	0.00	0.00	0.00
2,900.0	16.93	239.14	2,807.4	-340.6	-569.9	663.9	0.00	0.00	0.00
3,000.0	16.93	239.14	2,903.1	-355.5	-594.9	693.0	0.00	0.00	0.00
3,100.0	16.93	239.14	2,998.7	-370.4	-619.9	722.1	0.00	0.00	0.00
3,200.0	16.93	239.14	3,094.4	-385.4	-644.9	751.3	0.00	0.00	0.00
3,300.0	16.93	239.14	3,190.1	-400.3	-669.9	780.4	0.00	0.00	0.00
3,400.0	16.93	239.14	3,285.7	-415.2	-694.9	809.5	0.00	0.00	0.00
3,500.0	16.93	239.14	3,381.4	-430.2	-719.9	838.6	0.00	0.00	0.00
3,577.6	16.93	239.14	3,455.7	-441.8	-739.3	861.2	0.00	0.00	0.00
3,600.0	16.59	239.14	3,477.1	-445.1	-744.8	867.7	1.50	-1.50	0.00
3,700.0	15.09	239.14	3,573.3	-459.1	-768.3	895.0	1.50	-1.50	0.00
3,800.0	13.59	239.14	3,670.2	-471.8	-789.5	919.8	1.50	-1.50	0.00
3,900.0	12.09	239.14	3,767.7	-483.2	-808.6	942.0	1.50	-1.50	0.00
4,000.0	10.59	239.14	3,865.7	-493.3	-825.5	961.7	1.50	-1.50	0.00
4,100.0	9.09	239.14	3,964.2	-502.1	-840.2	978.7	1.50	-1.50	0.00
4,200.0	7.59	239.14	4,063.2	-509.5	-852.6	993.3	1.50	-1.50	0.00
4,300.0	6.09	239.14	4,162.5	-515.6	-862.9	1,005.2	1.50	-1.50	0.00
4,400.0	4.59	239.14	4,262.0	-520.4	-870.9	1,014.5	1.50	-1.50	0.00
4,500.0	3.09	239.14	4,361.8	-523.8	-876.6	1,021.2	1.50	-1.50	0.00
4,600.0	1.59	239.14	4,461.7	-525.9	-880.1	1,025.3	1.50	-1.50	0.00
4,706.3	0.00	0.00	4,568.0	-526.7	-881.4	1,026.8	1.50	-1.50	0.00
4,800.0	0.13	243.39	4,661.7	-526.7	-881.5	1,026.9	0.14	0.14	0.00
4,900.0	0.27	243.39	4,761.7	-526.9	-881.8	1,027.2	0.14	0.14	0.00
5,000.0	0.40	243.39	4,861.7	-527.2	-882.3	1,027.8	0.14	0.14	0.00
5,100.0	0.54	243.39	4,961.7	-527.5	-883.1	1,028.6	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 12-33A	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)	
5,200.0	0.68	243.39	5,061.7	-528.0	-884.0	1,029.7	0.14	0.14	0.00	
5,300.0	0.82	243.39	5,161.7	-528.6	-885.2	1,031.0	0.14	0.14	0.00	
5,400.0	0.95	243.39	5,261.7	-529.3	-886.6	1,032.5	0.14	0.14	0.00	
5,500.0	1.09	243.39	5,361.6	-530.1	-888.2	1,034.3	0.14	0.14	0.00	
5,600.0	1.23	243.39	5,461.6	-531.0	-890.0	1,036.3	0.14	0.14	0.00	
5,700.0	1.36	243.39	5,561.6	-532.0	-892.0	1,038.6	0.14	0.14	0.00	
5,800.0	1.50	243.39	5,661.6	-533.1	-894.2	1,041.1	0.14	0.14	0.00	
5,900.0	1.64	243.39	5,761.5	-534.3	-896.7	1,043.8	0.14	0.14	0.00	
6,000.0	1.78	243.39	5,861.5	-535.7	-899.3	1,046.8	0.14	0.14	0.00	
6,100.0	1.91	243.39	5,961.4	-537.1	-902.2	1,050.0	0.14	0.14	0.00	
6,200.0	2.05	243.39	6,061.4	-538.7	-905.3	1,053.4	0.14	0.14	0.00	
6,300.0	2.19	243.39	6,161.3	-540.3	-908.6	1,057.1	0.14	0.14	0.00	
6,400.0	2.33	243.39	6,261.2	-542.1	-912.1	1,061.1	0.14	0.14	0.00	
6,500.0	2.46	243.39	6,361.1	-544.0	-915.9	1,065.2	0.14	0.14	0.00	
6,600.0	2.60	243.39	6,461.0	-545.9	-919.8	1,069.6	0.14	0.14	0.00	
6,700.0	2.74	243.39	6,560.9	-548.0	-924.0	1,074.3	0.14	0.14	0.00	
6,800.0	2.88	243.39	6,660.8	-550.2	-928.4	1,079.2	0.14	0.14	0.00	
6,866.3	2.97	243.39	6,727.0	-551.7	-931.4	1,082.5	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 12-33A'_PlanA - F - hit/miss target - Shape	0.00	360.00	0.0	-458.7	-1,131.4	477,902.66	694,178.69	39° 21' 53.233 N	108° 3' 21.112 W	
- plan misses target center by 1220.8ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)										
- Polygon										
Point 1			0.0	0.0	0.0	477,902.66	694,178.69			
Point 2			0.0	0.0	400.0	477,902.66	694,300.61			
Hyrup 12-33A'_PlanA - F - plan hits target center - Rectangle (sides W25.0 H25.0 D0.0)	0.00	360.00	4,568.0	-526.7	-881.4	477,881.93	694,254.89	39° 21' 52.630 N	108° 3' 17.906 W	
Hyrup 12-33A'_PlanA - F - plan misses target center by 55.9ft at 4706.4ft MD (4568.1 TVD, -526.7 N, -881.4 E) - Rectangle (sides W200.0 H100.0 D2,159.0)	0.00	360.00	4,568.0	-551.7	-931.4	477,874.30	694,239.65	39° 21' 52.369 N	108° 3' 18.533 W	
Hyrup 12-33A'_PlanA - F - plan hits target center - Point	0.00	360.00	6,727.0	-551.7	-931.4	477,874.30	694,239.65	39° 21' 52.369 N	108° 3' 18.533 W	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
1,500.0	1,468.1	8 5/8" Surface Casing	8.625	12.250		
6,866.3	6,727.0	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 12-33A	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 (°)
3,176.6	3,072.0	Williams Fork			
4,706.3	4,568.0	Top of Gas			
5,597.4	5,459.0	Cameo			
5,983.5	5,845.0	Rollins			
6,264.7	6,126.0	Cozzette			
6,500.9	6,362.0	Corcoran			
6,616.0	6,477.0	Mancos			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			Comment
		+N/-S (ft)	+E/-W (ft)		
200.0	200.0	0.0	0.0		Kick Off Point at 200.00 ft
500.0	499.5	-8.1	-13.5		Build Rate = 2.00°/100 ft
1,046.5	1,034.2	-63.7	-106.6		End Build at 1046.5 ft
2,500.0	2,424.7	-280.8	-469.9		Hold Angle 16.93°
3,577.6	3,455.6	-441.8	-739.3		Begin Drop at 3577.6 ft
4,100.0	3,964.2	-502.1	-840.2		Drop Rate = 1.50°/100 ft
4,706.3	4,568.0	-526.7	-881.4		End Drop at 4706.3 ft
6,866.3	6,727.0	-551.7	-931.4		Total Depth at 6866.3 ft

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1046.5	16.93	239.14	1034.2	-63.7	-106.6	2.00	239.14	124.2	
4	3577.6	16.93	239.14	3455.7	-441.8	-739.3	0.00	0.00	861.2	
5	4706.3	0.00	0.00	4568.0	-526.7	-881.4	1.50	180.00	1026.8	Hyrup 12-33A'_PlanA - Rev0_Drillers Tgt
6	6866.3	2.97	243.39	6727.0	-551.7	-931.4	0.14	243.39	1082.5	Hyrup 12-33A'_PlanA - Rev0_BHL Tgt

WELL DETAILS: Hyrup 12-33A

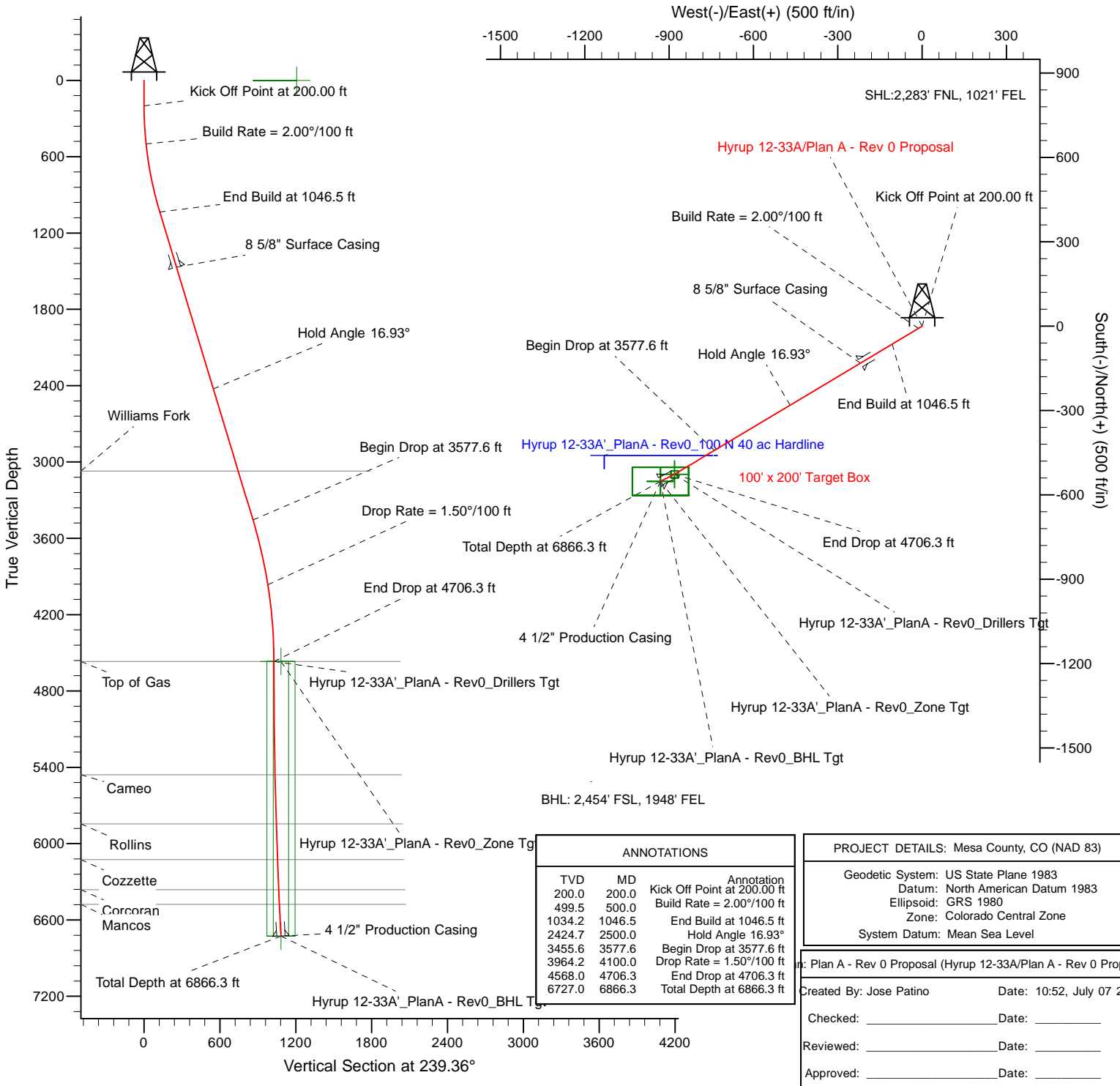
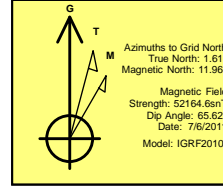
Ground Level:	6151.0
Northing	478042.46
Easting	694523.53
Latitude	39° 21' 58.079 N
Longitude	108° 3' 6.876 W

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
3072.0	3176.6	Williams Fork
4568.0	4706.3	Top of Gas
5459.0	5597.4	Cameo
5845.0	5983.5	Rollins
6126.0	6264.7	Cozzette
6362.0	6500.9	Corcoran
6477.0	6616.0	Mancos

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Hyrup 12-33A'_100 N 40 ac Hardline	0.0	-458.7	-1131.4	Polygon
Hyrup 12-33A'_PlanA - Rev0_Drillers Tgt	4568.0	-526.7	-881.4	Rectangle (Sides: L25.0 W25.0)
Hyrup 12-33A'_PlanA - Rev0_Zone Tgt	4568.0	-551.7	-931.4	Rectangle (Sides: L100.0 W200.0)
Hyrup 12-33A'_PlanA - Rev0_BHL Tgt	6727.0	-551.7	-931.4	Point



ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	Kick Off Point at 200.00 ft
499.5	500.0	Build Rate = 2.00°/100 ft
1034.2	1046.5	End Build at 1046.5 ft
2424.7	2500.0	Hold Angle 16.93°
3455.6	3577.6	Begin Drop at 3577.6 ft
3964.2	4100.0	Drop Rate = 1.50°/100 ft
4568.0	4706.3	End Drop at 4706.3 ft
6727.0	6866.3	Total Depth at 6866.3 ft

PROJECT DETAILS: Mesa County, CO (NAD 83)

Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	Colorado Central Zone
System Datum:	Mean Sea Level

Well: Plan A - Rev 0 Proposal (Hyrup 12-33A/Plan A - Rev 0 Proposal)	
Created By: Jose Patino	Date: 10:52, July 07 2011
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____