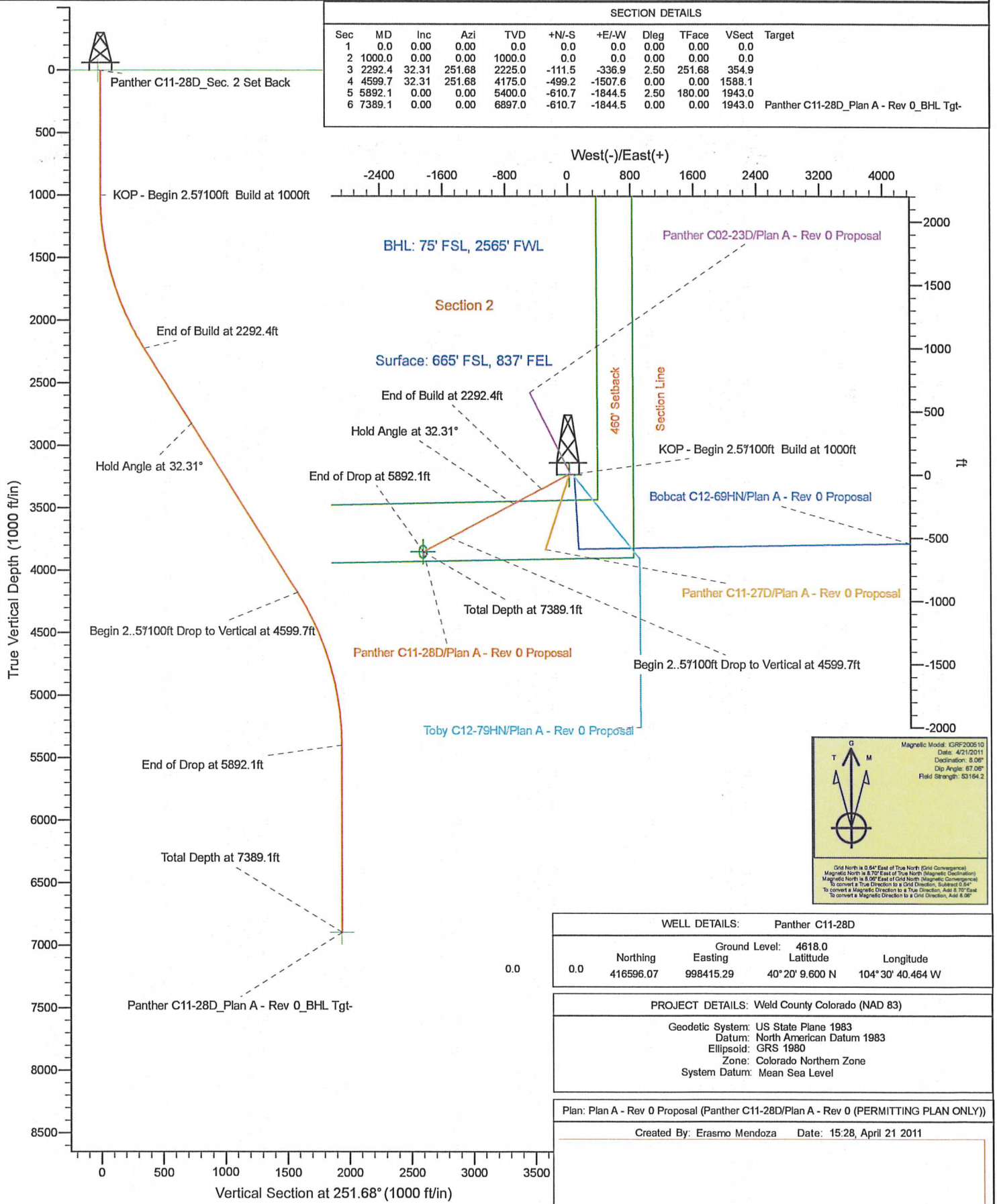
Project: Weld County Colorado (NAD 83)
Site: Sec2, T4N, R64W
Well: Panther C11-28D
Wellbore: Plan A - Rev 0 (PERMITTING PLAN ONLY)
Design: Plan A - Rev 0 Proposal

Noble Energy

HALLIBURTON
Sperry Drilling

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	2292.4	32.31	251.68	2225.0	-111.5	-336.9	2.50	251.68	354.9	
4	4599.7	32.31	251.68	4175.0	-499.2	-1507.6	0.00	0.00	1588.1	
5	5892.1	0.00	0.00	5400.0	-610.7	-1844.5	2.50	180.00	1943.0	
6	7389.1	0.00	0.00	6897.0	-610.7	-1844.5	0.00	0.00	1943.0	Panther C11-28D_Plan A - Rev 0_BHL Tgt-



WELL DETAILS: Panther C11-28D

Ground Level: 4618.0

	Northing	Easting	Latittude	Longitude
0.0	416596.07	998415.29	40° 20' 9.600 N	104° 30' 40.464 W

0.0

PROJECT DETAILS: Weld County Colorado (NAD 83)

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

Plan: Plan A - Rev 0 Proposal (Panther C11-28D/Plan A - Rev 0 (PERMITTING PLAN ONLY))

Created By: Erasmo Mendoza Date: 15:28, April 21 2011

Noble Energy

Weld County Colorado (NAD 83)
Sec2, T4N, R64W
Panther C11-28D

Plan A - Rev 0 (PERMITTING PLAN ONLY)

Plan: Plan A - Rev 0 Proposal

Standard Planning Report

21 April, 2011

Halliburton Company

Planning Report

Database:	Noble Single User Db	**Local Co-ordinate Reference:**	Site Sec2, T4N, R64W
Company:	Noble Energy	**TVD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Project:	Weld County Colorado (NAD 83)	**MD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Site:	Sec2, T4N, R64W	**North Reference:**	Grid
Well:	Panther C11-28D	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Plan A - Rev 0 (PERMITTING PLAN ONLY)		
Design:	Plan A - Rev 0 Proposal		

Project	Weld County Colorado (NAD 83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Sec2, T4N, R64W						
Site Position:			**Northing:**	416,596.14 m	**Latitude:**	40° 20' 9.600 N	
From:	Lat/Long		**Easting:**	998,421.24 m	**Longitude:**	104° 30' 40.212 W	
Position Uncertainty:		0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.64 °	

Well	Panther C11-28D						
Well Position	**+N/-S**	-0.2 ft	**Northing:**	416,596.07 m	**Latitude:**	40° 20' 9.600 N	
	+E/-W	-19.5 ft	**Easting:**	998,415.29 m	**Longitude:**	104° 30' 40.464 W	
Position Uncertainty		0.0 ft	**Wellhead Elevation:**		**Ground Level:**	4,618.0 ft	

Wellbore	Plan A - Rev 0 (PERMITTING PLAN ONLY)				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	4/20/2011	8.70	67.06	53,164

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	-0.2	-19.5	251.68	

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	-0.2	-19.5	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	-0.2	-19.5	0.00	0.00	0.00	0.00	
2,292.4	32.31	251.68	2,225.0	-111.8	-356.4	2.50	2.50	0.00	251.68	
4,599.7	32.31	251.68	4,175.0	-499.4	-1,527.1	0.00	0.00	0.00	0.00	
5,892.1	0.00	0.00	5,400.0	-610.9	-1,864.0	2.50	-2.50	0.00	180.00	
7,389.1	0.00	0.00	6,897.0	-610.9	-1,864.0	0.00	0.00	0.00	0.00	Panther C11-28D_Pla

Database:	Noble Single User Db	**Local Co-ordinate Reference:**	Site Sec2, T4N, R64W
Company:	Noble Energy	**TVD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Project:	Weld County Colorado (NAD 83)	**MD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Site:	Sec2, T4N, R64W	**North Reference:**	Grid
Well:	Panther C11-28D	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Plan A - Rev 0 (PERMITTING PLAN ONLY)		
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	-0.2	-19.5	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	-0.2	-19.5	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	-0.2	-19.5	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	-0.2	-19.5	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	-0.2	-19.5	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	-0.2	-19.5	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	-0.2	-19.5	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	-0.2	-19.5	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	-0.2	-19.5	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	-0.2	-19.5	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	-0.2	-19.5	0.0	0.00	0.00	0.00
KOP - Begin 2.5°/100ft Build at 1000ft									
1,100.0	2.50	251.68	1,100.0	-0.9	-21.6	2.2	2.50	2.50	0.00
1,200.0	5.00	251.68	1,199.7	-3.0	-27.8	8.7	2.50	2.50	0.00
1,300.0	7.50	251.68	1,299.1	-6.4	-38.1	19.6	2.50	2.50	0.00
1,400.0	10.00	251.68	1,398.0	-11.2	-52.6	34.8	2.50	2.50	0.00
1,500.0	12.50	251.68	1,496.0	-17.3	-71.1	54.3	2.50	2.50	0.00
1,600.0	15.00	251.68	1,593.2	-24.8	-93.6	78.1	2.50	2.50	0.00
1,700.0	17.50	251.68	1,689.2	-33.6	-120.2	106.1	2.50	2.50	0.00
1,800.0	20.00	251.68	1,783.9	-43.7	-150.7	138.2	2.50	2.50	0.00
1,900.0	22.50	251.68	1,877.0	-55.1	-185.1	174.5	2.50	2.50	0.00
2,000.0	25.00	251.68	1,968.6	-67.7	-223.4	214.7	2.50	2.50	0.00
2,100.0	27.50	251.68	2,058.2	-81.6	-265.3	259.0	2.50	2.50	0.00
2,200.0	30.00	251.68	2,145.9	-96.7	-311.0	307.0	2.50	2.50	0.00
2,292.4	32.31	251.68	2,225.0	-111.8	-356.4	354.8	2.50	2.50	0.00
End of Build at 2292.4ft									
2,300.0	32.31	251.68	2,231.4	-113.0	-360.2	358.9	0.01	0.01	0.00
2,400.0	32.31	251.68	2,315.9	-129.8	-411.0	412.4	0.00	0.00	0.00
2,500.0	32.31	251.68	2,400.4	-146.6	-461.7	465.8	0.00	0.00	0.00
2,600.0	32.31	251.68	2,485.0	-163.4	-512.5	519.3	0.00	0.00	0.00
2,700.0	32.31	251.68	2,569.5	-180.2	-563.2	572.7	0.00	0.00	0.00
2,800.0	32.31	251.68	2,654.0	-197.0	-613.9	626.2	0.00	0.00	0.00
2,900.0	32.31	251.68	2,738.5	-213.8	-664.7	679.6	0.00	0.00	0.00
3,000.0	32.31	251.68	2,823.0	-230.6	-715.4	733.1	0.00	0.00	0.00
Hold Angle at 32.31°									
3,100.0	32.31	251.68	2,907.5	-247.4	-766.2	786.5	0.00	0.00	0.00
3,200.0	32.31	251.68	2,992.1	-264.2	-816.9	840.0	0.00	0.00	0.00
3,300.0	32.31	251.68	3,076.6	-281.0	-867.7	893.4	0.00	0.00	0.00
3,400.0	32.31	251.68	3,161.1	-297.8	-918.4	946.9	0.00	0.00	0.00
3,500.0	32.31	251.68	3,245.6	-314.6	-969.1	1,000.3	0.00	0.00	0.00
3,600.0	32.31	251.68	3,330.1	-331.4	-1,019.9	1,053.8	0.00	0.00	0.00
3,700.0	32.31	251.68	3,414.6	-348.2	-1,070.6	1,107.2	0.00	0.00	0.00
3,800.0	32.31	251.68	3,499.2	-365.0	-1,121.4	1,160.7	0.00	0.00	0.00
3,900.0	32.31	251.68	3,583.7	-381.8	-1,172.1	1,214.1	0.00	0.00	0.00
4,000.0	32.31	251.68	3,668.2	-398.6	-1,222.8	1,267.6	0.00	0.00	0.00
4,100.0	32.31	251.68	3,752.7	-415.4	-1,273.6	1,321.0	0.00	0.00	0.00
4,200.0	32.31	251.68	3,837.2	-432.2	-1,324.3	1,374.5	0.00	0.00	0.00
4,300.0	32.31	251.68	3,921.7	-449.0	-1,375.1	1,427.9	0.00	0.00	0.00
4,400.0	32.31	251.68	4,006.2	-465.8	-1,425.8	1,481.4	0.00	0.00	0.00
4,500.0	32.31	251.68	4,090.8	-482.6	-1,476.6	1,534.8	0.00	0.00	0.00
4,599.7	32.31	251.68	4,175.0	-499.4	-1,527.1	1,588.1	0.00	0.00	0.00
Begin 2..5°/100ft Drop to Vertical at 4599.7ft									
4,600.0	32.30	251.68	4,175.3	-499.5	-1,527.3	1,588.3	2.81	-2.81	0.00
4,700.0	29.80	251.68	4,260.9	-515.7	-1,576.3	1,639.9	2.50	-2.50	0.00

Database:	Noble Single User Db	**Local Co-ordinate Reference:**	Site Sec2, T4N, R64W
Company:	Noble Energy	**TVD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Project:	Weld County Colorado (NAD 83)	**MD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Site:	Sec2, T4N, R64W	**North Reference:**	Grid
Well:	Panther C11-28D	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Plan A - Rev 0 (PERMITTING PLAN ONLY)		
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)
4,800.0	27.30	251.68	4,348.8	-530.7	-1,621.6	1,687.6	2.50	-2.50	0.00
4,900.0	24.80	251.68	4,438.6	-544.5	-1,663.3	1,731.6	2.50	-2.50	0.00
5,000.0	22.30	251.68	4,530.3	-557.0	-1,701.2	1,771.5	2.50	-2.50	0.00
5,100.0	19.80	251.68	4,623.6	-568.3	-1,735.3	1,807.4	2.50	-2.50	0.00
5,200.0	17.30	251.68	4,718.4	-578.3	-1,765.5	1,839.3	2.50	-2.50	0.00
5,300.0	14.80	251.68	4,814.5	-587.0	-1,791.8	1,866.9	2.50	-2.50	0.00
5,400.0	12.30	251.68	4,911.7	-594.4	-1,814.0	1,890.3	2.50	-2.50	0.00
5,500.0	9.80	251.68	5,009.8	-600.4	-1,832.2	1,909.5	2.50	-2.50	0.00
5,600.0	7.30	251.68	5,108.7	-605.1	-1,846.4	1,924.4	2.50	-2.50	0.00
5,700.0	4.80	251.68	5,208.1	-608.4	-1,856.4	1,934.9	2.50	-2.50	0.00
5,800.0	2.30	251.68	5,307.9	-610.4	-1,862.2	1,941.1	2.50	-2.50	0.00
5,892.1	0.00	0.00	5,400.0	-610.9	-1,864.0	1,943.0	2.50	-2.50	0.00
End of Drop at 5892.1ft									
5,900.0	0.00	0.00	5,407.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,507.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,100.0	0.00	0.00	5,607.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,200.0	0.00	0.00	5,707.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,300.0	0.00	0.00	5,807.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,400.0	0.00	0.00	5,907.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,007.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,107.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,207.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,307.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,407.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
6,969.1	0.00	0.00	6,477.0	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
Niobrara									
7,000.0	0.00	0.00	6,507.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
7,100.0	0.00	0.00	6,607.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,707.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
7,239.1	0.00	0.00	6,747.0	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
Codell									
7,300.0	0.00	0.00	6,807.9	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00
7,389.1	0.00	0.00	6,897.0	-610.9	-1,864.0	1,943.0	0.00	0.00	0.00

Database:	Noble Single User Db	**Local Co-ordinate Reference:**	Site Sec2, T4N, R64W
Company:	Noble Energy	**TVD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Project:	Weld County Colorado (NAD 83)	**MD Reference:**	WELL @ 4642.0ft (Original Well Elev)
Site:	Sec2, T4N, R64W	**North Reference:**	Grid
Well:	Panther C11-28D	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Plan A - Rev 0 (PERMITTING PLAN ONLY)		
Design:	Plan A - Rev 0 Proposal		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (m)	Easting (m)	Latitude	Longitude
Panther C11-28D_Sec. :	0.00	0.00	0.0	0.0	0.0	416,596.14	998,421.24	40° 20' 9.600 N	104° 30' 40.212 W
- plan misses target center by 19.5ft at 0.0ft MD (0.0 TVD, -0.2 N, -19.5 E)									
- Polygon									
Point 1			0.0	-713.5	-4,427.9	416,378.67	997,071.67		
Point 2			0.0	4,541.0	-4,446.5	417,980.18	997,066.00		
Point 3			0.0	4,616.9	795.4	418,003.31	998,663.67		
Point 4			0.0	-655.7	820.6	416,396.29	998,671.35		
Point 5			0.0	-713.5	-4,427.9	416,378.67	997,071.67		
Panther C11-28D_Sec. :	0.00	0.00	0.0	0.0	0.0	416,596.14	998,421.24	40° 20' 9.600 N	104° 30' 40.212 W
- plan misses target center by 19.5ft at 0.0ft MD (0.0 TVD, -0.2 N, -19.5 E)									
- Polygon									
Point 1			0.0	-253.5	-3,967.9	416,518.87	997,211.87		
Point 2			0.0	4,081.0	-3,986.5	417,839.97	997,206.20		
Point 3			0.0	4,156.9	335.4	417,863.11	998,523.46		
Point 4			0.0	-195.7	360.6	416,536.49	998,531.14		
Point 5			0.0	-253.5	-3,967.9	416,518.87	997,211.87		
Panther C11-28D_Plan ,	0.00	0.00	6,897.0	-610.9	-1,864.0	416,409.93	997,853.12	40° 20' 3.768 N	104° 31' 4.368 W
- plan hits target center									
- Circle (radius 50.0)									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,969.1	6,477.0	Niobrara		0.00	
7,239.1	6,747.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,000.0	1,000.0	-0.2	-19.5	KOP - Begin 2.5°/100ft Build at 1000ft
2,292.4	2,225.0	-111.8	-356.4	End of Build at 2292.4ft
3,000.0	2,823.0	-230.6	-715.4	Hold Angle at 32.31°
4,599.7	4,175.0	-499.4	-1,527.1	Begin 2..5°/100ft Drop to Vertical at 4599.7ft
5,892.1	5,400.0	-610.9	-1,864.0	End of Drop at 5892.1ft
7,389.1	6,897.0	-610.9	-1,864.0	Total Depth at 7389.1ft