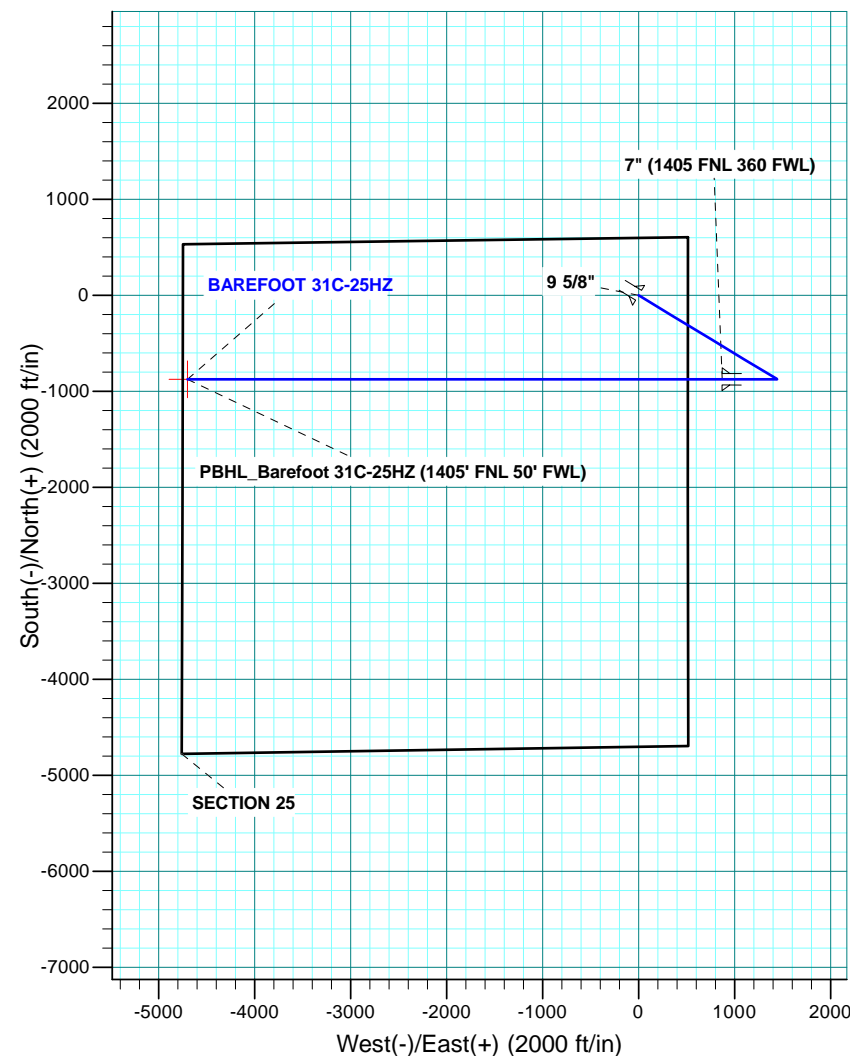
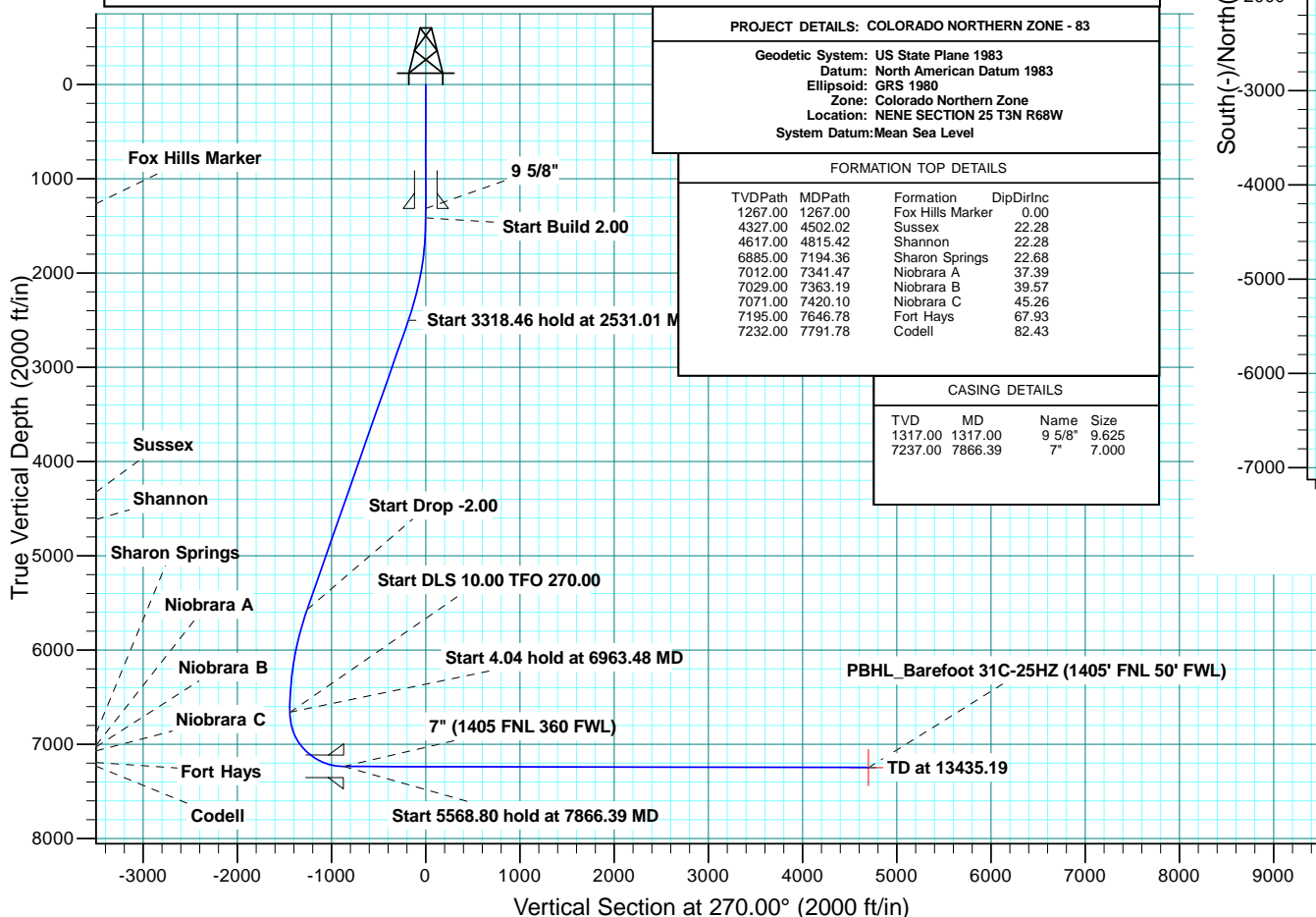


WELL DETAILS: BAREFOOT 31C-25HZ										
GL 4891 & KB 17 @ 4908.00ft (ASSUMED)										
		+N/S 0.00	+E/W 0.00	Northing 1317248.62	Easting 3155409.02	Latitude 40.2029060	Longitude -104.9436130			
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	VSect	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1417.00	0.00	0.00	1417.00	0.00	0.00	0.00	0.00	0.00		
2531.01	22.28	121.20	2503.15	-110.81	182.94	2.00	121.20	-182.94		Start Build 2.00
5849.47	22.28	121.20	5573.85	-762.66	1259.06	0.00	0.00	-1259.06		Start 3318.46 hold at 2531.01 MD
6963.48	0.00	0.00	6660.00	-873.47	1442.00	2.00	180.00	-1442.00		Start Drop -2.00
6967.52	0.00	0.00	6664.04	-873.47	1442.00	0.00	0.00	-1442.00		Start 4.04 hold at 6963.48 MD
7866.39	89.89	270.00	7237.00	-873.47	870.17	10.00	270.00	-870.17		Start DLS 10.00 TFO 270.00
13435.19	89.89	270.00	7248.00	-873.46	-4698.62	0.00	0.00	4698.62	PBHL_Barefoot 31C-25HZ	Start 5568.80 hold at 7866.39 MD
										TD at 13435.19
DESIGN TARGET DETAILS										
Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude	Shape		
PBHL	7248.00	-873.46	-4698.62	1316345.69	3150715.99	40.2005070	-104.9604340	Point		

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83			
Geodetic System: US State Plane 1983			
Datum: North American Datum 1983			
Ellipsoid: GRS 1980			
Zone: Colorado Northern Zone			
Location: NENE SECTION 25 T3N R68W			
System Datum: Mean Sea Level			

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	DipDirInc
1267.00	1267.00	Fox Hills Marker	0.00
4327.00	4502.02	Sussex	22.28
4617.00	4815.42	Shannon	22.28
6885.00	7194.36	Sharon Springs	22.68
7012.00	7341.47	Niobrara A	37.39
7029.00	7363.19	Niobrara B	39.57
7071.00	7420.10	Niobrara C	45.26
7195.00	7646.78	Fort Hays	67.93
7232.00	7791.78	Codell	82.43

CASING DETAILS			
TVD	MD	Name	Size
1317.00	1317.00	9 5/8"	9.625
7237.00	7866.39	7"	7.000





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

BAREFOOT 1-25HZ PAD

BAREFOOT 31C-25HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

25 February, 2014

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BAREFOOT 31C-25HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Site:	BAREFOOT 1-25HZ PAD	North Reference:	True
Well:	BAREFOOT 31C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Project	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	BAREFOOT 1-25HZ PAD, NENE SECTION 25 T3N R68W			
Site Position:		Northing:	1,317,308.36 usft	Latitude: 40.2030700
From:	Lat/Long	Easting:	3,155,408.65 usft	Longitude: -104.9436130
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.36 °

Well	BAREFOOT 31C-25HZ, 599' FNL 514' FEL			
Well Position	+N/-S	-59.75 ft	Northing:	1,317,248.61 usft
	+E/-W	0.00 ft	Easting:	3,155,409.03 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	4,891.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	2/5/2014	8.63	66.76	52,652

Design	PLAN #1 PRELIMINARY			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	270.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,417.00	0.00	0.00	1,417.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,531.01	22.28	121.20	2,503.15	-110.81	182.94	2.00	2.00	0.00	121.20	
5,849.47	22.28	121.20	5,573.85	-762.66	1,259.06	0.00	0.00	0.00	0.00	
6,963.48	0.00	0.00	6,660.00	-873.47	1,442.00	2.00	-2.00	0.00	180.00	
6,967.52	0.00	0.00	6,664.04	-873.47	1,442.00	0.00	0.00	0.00	0.00	
7,866.39	89.89	270.00	7,237.00	-873.47	870.17	10.00	10.00	-10.01	270.00	
13,435.19	89.89	270.00	7,248.00	-873.46	-4,698.62	0.00	0.00	0.00	0.00	PBHL_Barefoot 31C-2

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BAREFOOT 31C-25HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Site:	BAREFOOT 1-25HZ PAD	North Reference:	True
Well:	BAREFOOT 31C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,267.00	0.00	0.00	1,267.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Marker									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,317.00	0.00	0.00	1,317.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,417.00	0.00	0.00	1,417.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,500.00	1.66	121.20	1,499.99	-0.62	1.03	-1.03	2.00	2.00	0.00
1,600.00	3.66	121.20	1,599.88	-3.03	5.00	-5.00	2.00	2.00	0.00
1,700.00	5.66	121.20	1,699.54	-7.24	11.95	-11.95	2.00	2.00	0.00
1,800.00	7.66	121.20	1,798.86	-13.24	21.87	-21.87	2.00	2.00	0.00
1,900.00	9.66	121.20	1,897.72	-21.05	34.74	-34.74	2.00	2.00	0.00
2,000.00	11.66	121.20	1,995.98	-30.63	50.56	-50.56	2.00	2.00	0.00
2,100.00	13.66	121.20	2,093.55	-41.98	69.31	-69.31	2.00	2.00	0.00
2,200.00	15.66	121.20	2,190.29	-55.09	90.95	-90.95	2.00	2.00	0.00
2,300.00	17.66	121.20	2,286.09	-69.95	115.47	-115.47	2.00	2.00	0.00
2,400.00	19.66	121.20	2,380.82	-86.52	142.84	-142.84	2.00	2.00	0.00
2,500.00	21.66	121.20	2,474.39	-104.80	173.02	-173.02	2.00	2.00	0.00
2,531.01	22.28	121.20	2,503.15	-110.81	182.94	-182.94	2.00	2.00	0.00
Start 3318.46 hold at 2531.01 MD									
2,600.00	22.28	121.20	2,566.99	-124.36	205.31	-205.31	0.00	0.00	0.00
2,700.00	22.28	121.20	2,659.52	-144.01	237.74	-237.74	0.00	0.00	0.00
2,800.00	22.28	121.20	2,752.05	-163.65	270.17	-270.17	0.00	0.00	0.00
2,900.00	22.28	121.20	2,844.59	-183.29	302.60	-302.60	0.00	0.00	0.00
3,000.00	22.28	121.20	2,937.12	-202.94	335.02	-335.02	0.00	0.00	0.00
3,100.00	22.28	121.20	3,029.66	-222.58	367.45	-367.45	0.00	0.00	0.00
3,200.00	22.28	121.20	3,122.19	-242.22	399.88	-399.88	0.00	0.00	0.00
3,300.00	22.28	121.20	3,214.72	-261.86	432.31	-432.31	0.00	0.00	0.00
3,400.00	22.28	121.20	3,307.26	-281.51	464.74	-464.74	0.00	0.00	0.00
3,500.00	22.28	121.20	3,399.79	-301.15	497.17	-497.17	0.00	0.00	0.00
3,600.00	22.28	121.20	3,492.33	-320.79	529.59	-529.59	0.00	0.00	0.00
3,700.00	22.28	121.20	3,584.86	-340.44	562.02	-562.02	0.00	0.00	0.00
3,800.00	22.28	121.20	3,677.39	-360.08	594.45	-594.45	0.00	0.00	0.00
3,900.00	22.28	121.20	3,769.93	-379.72	626.88	-626.88	0.00	0.00	0.00
4,000.00	22.28	121.20	3,862.46	-399.36	659.31	-659.31	0.00	0.00	0.00
4,100.00	22.28	121.20	3,955.00	-419.01	691.74	-691.74	0.00	0.00	0.00
4,200.00	22.28	121.20	4,047.53	-438.65	724.16	-724.16	0.00	0.00	0.00
4,300.00	22.28	121.20	4,140.06	-458.29	756.59	-756.59	0.00	0.00	0.00
4,400.00	22.28	121.20	4,232.60	-477.94	789.02	-789.02	0.00	0.00	0.00
4,500.00	22.28	121.20	4,325.13	-497.58	821.45	-821.45	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BAREFOOT 31C-25HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Site:	BAREFOOT 1-25HZ PAD	North Reference:	True
Well:	BAREFOOT 31C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,502.02	22.28	121.20	4,327.00	-497.98	822.10	-822.10	0.00	0.00	0.00
Sussex									
4,600.00	22.28	121.20	4,417.67	-517.22	853.88	-853.88	0.00	0.00	0.00
4,700.00	22.28	121.20	4,510.20	-536.87	886.31	-886.31	0.00	0.00	0.00
4,800.00	22.28	121.20	4,602.73	-556.51	918.73	-918.73	0.00	0.00	0.00
4,815.42	22.28	121.20	4,617.00	-559.54	923.73	-923.73	0.00	0.00	0.00
Shannon									
4,900.00	22.28	121.20	4,695.27	-576.15	951.16	-951.16	0.00	0.00	0.00
5,000.00	22.28	121.20	4,787.80	-595.79	983.59	-983.59	0.00	0.00	0.00
5,100.00	22.28	121.20	4,880.34	-615.44	1,016.02	-1,016.02	0.00	0.00	0.00
5,200.00	22.28	121.20	4,972.87	-635.08	1,048.45	-1,048.45	0.00	0.00	0.00
5,300.00	22.28	121.20	5,065.41	-654.72	1,080.88	-1,080.88	0.00	0.00	0.00
5,400.00	22.28	121.20	5,157.94	-674.37	1,113.31	-1,113.31	0.00	0.00	0.00
5,500.00	22.28	121.20	5,250.47	-694.01	1,145.73	-1,145.73	0.00	0.00	0.00
5,600.00	22.28	121.20	5,343.01	-713.65	1,178.16	-1,178.16	0.00	0.00	0.00
5,700.00	22.28	121.20	5,435.54	-733.29	1,210.59	-1,210.59	0.00	0.00	0.00
5,800.00	22.28	121.20	5,528.08	-752.94	1,243.02	-1,243.02	0.00	0.00	0.00
5,849.47	22.28	121.20	5,573.85	-762.66	1,259.06	-1,259.06	0.00	0.00	0.00
Start Drop -2.00									
5,900.00	21.27	121.20	5,620.78	-772.37	1,275.09	-1,275.09	2.00	-2.00	0.00
6,000.00	19.27	121.20	5,714.58	-790.31	1,304.72	-1,304.72	2.00	-2.00	0.00
6,100.00	17.27	121.20	5,809.53	-806.56	1,331.54	-1,331.54	2.00	-2.00	0.00
6,200.00	15.27	121.20	5,905.52	-821.07	1,355.50	-1,355.50	2.00	-2.00	0.00
6,300.00	13.27	121.20	6,002.43	-833.84	1,376.58	-1,376.58	2.00	-2.00	0.00
6,400.00	11.27	121.20	6,100.14	-844.85	1,394.75	-1,394.75	2.00	-2.00	0.00
6,500.00	9.27	121.20	6,198.54	-854.09	1,410.00	-1,410.00	2.00	-2.00	0.00
6,600.00	7.27	121.20	6,297.49	-861.54	1,422.30	-1,422.30	2.00	-2.00	0.00
6,700.00	5.27	121.20	6,396.89	-867.19	1,431.64	-1,431.64	2.00	-2.00	0.00
6,800.00	3.27	121.20	6,496.61	-871.05	1,438.01	-1,438.01	2.00	-2.00	0.00
6,900.00	1.27	121.20	6,596.52	-873.10	1,441.40	-1,441.40	2.00	-2.00	0.00
6,963.48	0.00	0.00	6,660.00	-873.47	1,442.00	-1,442.00	2.00	-2.00	0.00
Start 4.04 hold at 6963.48 MD									
6,967.52	0.00	0.00	6,664.04	-873.47	1,442.00	-1,442.00	0.00	0.00	0.00
Start DLS 10.00 TFO 270.00									
7,000.00	3.25	270.00	6,696.50	-873.47	1,441.08	-1,441.08	10.00	10.00	0.00
7,100.00	13.25	270.00	6,795.34	-873.47	1,426.75	-1,426.75	10.00	10.00	0.00
7,194.36	22.68	270.00	6,885.00	-873.47	1,397.68	-1,397.68	10.00	10.00	0.00
Sharon Springs									
7,200.00	23.25	270.00	6,890.19	-873.47	1,395.48	-1,395.48	10.00	10.00	0.00
7,300.00	33.25	270.00	6,978.17	-873.47	1,348.21	-1,348.21	10.00	10.00	0.00
7,341.47	37.39	270.00	7,012.00	-873.47	1,324.24	-1,324.24	10.00	10.00	0.00
Niobrara A									
7,363.19	39.57	270.00	7,029.00	-873.47	1,310.73	-1,310.73	10.00	10.00	0.00
Niobrara B									
7,400.00	43.25	270.00	7,056.61	-873.47	1,286.38	-1,286.38	10.00	10.00	0.00
7,420.10	45.26	270.00	7,071.00	-873.47	1,272.36	-1,272.36	10.00	10.00	0.00
Niobrara C									
7,500.00	53.25	270.00	7,123.11	-873.47	1,211.88	-1,211.88	10.00	10.00	0.00
7,600.00	63.25	270.00	7,175.67	-873.47	1,126.95	-1,126.95	10.00	10.00	0.00
7,646.78	67.93	270.00	7,195.00	-873.47	1,084.36	-1,084.36	10.00	10.00	0.00
Fort Hays									
7,700.00	73.25	270.00	7,212.68	-873.47	1,034.19	-1,034.19	10.00	10.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BAREFOOT 31C-25HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Site:	BAREFOOT 1-25HZ PAD	North Reference:	True
Well:	BAREFOOT 31C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,791.78	82.43	270.00	7,232.00	-873.47	944.56	-944.56	10.00	10.00	0.00
Codell									
7,800.00	83.25	270.00	7,233.02	-873.47	936.41	-936.41	10.00	10.00	0.00
7,866.39	89.89	270.00	7,237.00	-873.47	870.17	-870.17	10.00	10.00	0.00
Start 5568.80 hold at 7866.39 MD - 7" (1405 FNL 360 FWL)									
7,900.00	89.89	270.00	7,237.06	-873.47	836.57	-836.57	0.00	0.00	0.00
8,000.00	89.89	270.00	7,237.26	-873.47	736.57	-736.57	0.00	0.00	0.00
8,100.00	89.89	270.00	7,237.46	-873.47	636.57	-636.57	0.00	0.00	0.00
8,200.00	89.89	270.00	7,237.66	-873.47	536.57	-536.57	0.00	0.00	0.00
8,300.00	89.89	270.00	7,237.85	-873.47	436.57	-436.57	0.00	0.00	0.00
8,400.00	89.89	270.00	7,238.05	-873.47	336.57	-336.57	0.00	0.00	0.00
8,500.00	89.89	270.00	7,238.25	-873.47	236.57	-236.57	0.00	0.00	0.00
8,600.00	89.89	270.00	7,238.45	-873.47	136.57	-136.57	0.00	0.00	0.00
8,700.00	89.89	270.00	7,238.64	-873.47	36.57	-36.57	0.00	0.00	0.00
8,800.00	89.89	270.00	7,238.84	-873.47	-63.43	63.43	0.00	0.00	0.00
8,900.00	89.89	270.00	7,239.04	-873.47	-163.43	163.43	0.00	0.00	0.00
9,000.00	89.89	270.00	7,239.24	-873.47	-263.43	263.43	0.00	0.00	0.00
9,100.00	89.89	270.00	7,239.44	-873.47	-363.43	363.43	0.00	0.00	0.00
9,200.00	89.89	270.00	7,239.63	-873.47	-463.43	463.43	0.00	0.00	0.00
9,300.00	89.89	270.00	7,239.83	-873.47	-563.43	563.43	0.00	0.00	0.00
9,400.00	89.89	270.00	7,240.03	-873.47	-663.43	663.43	0.00	0.00	0.00
9,500.00	89.89	270.00	7,240.23	-873.47	-763.43	763.43	0.00	0.00	0.00
9,600.00	89.89	270.00	7,240.42	-873.47	-863.43	863.43	0.00	0.00	0.00
9,700.00	89.89	270.00	7,240.62	-873.47	-963.43	963.43	0.00	0.00	0.00
9,800.00	89.89	270.00	7,240.82	-873.47	-1,063.43	1,063.43	0.00	0.00	0.00
9,900.00	89.89	270.00	7,241.02	-873.47	-1,163.43	1,163.43	0.00	0.00	0.00
10,000.00	89.89	270.00	7,241.21	-873.47	-1,263.43	1,263.43	0.00	0.00	0.00
10,100.00	89.89	270.00	7,241.41	-873.47	-1,363.43	1,363.43	0.00	0.00	0.00
10,200.00	89.89	270.00	7,241.61	-873.47	-1,463.43	1,463.43	0.00	0.00	0.00
10,300.00	89.89	270.00	7,241.81	-873.47	-1,563.43	1,563.43	0.00	0.00	0.00
10,400.00	89.89	270.00	7,242.00	-873.47	-1,663.43	1,663.43	0.00	0.00	0.00
10,500.00	89.89	270.00	7,242.20	-873.47	-1,763.43	1,763.43	0.00	0.00	0.00
10,600.00	89.89	270.00	7,242.40	-873.47	-1,863.43	1,863.43	0.00	0.00	0.00
10,700.00	89.89	270.00	7,242.60	-873.47	-1,963.43	1,963.43	0.00	0.00	0.00
10,800.00	89.89	270.00	7,242.79	-873.47	-2,063.43	2,063.43	0.00	0.00	0.00
10,900.00	89.89	270.00	7,242.99	-873.47	-2,163.43	2,163.43	0.00	0.00	0.00
11,000.00	89.89	270.00	7,243.19	-873.47	-2,263.43	2,263.43	0.00	0.00	0.00
11,100.00	89.89	270.00	7,243.39	-873.46	-2,363.43	2,363.43	0.00	0.00	0.00
11,200.00	89.89	270.00	7,243.58	-873.46	-2,463.43	2,463.43	0.00	0.00	0.00
11,300.00	89.89	270.00	7,243.78	-873.46	-2,563.43	2,563.43	0.00	0.00	0.00
11,400.00	89.89	270.00	7,243.98	-873.46	-2,663.43	2,663.43	0.00	0.00	0.00
11,500.00	89.89	270.00	7,244.18	-873.46	-2,763.43	2,763.43	0.00	0.00	0.00
11,600.00	89.89	270.00	7,244.37	-873.46	-2,863.43	2,863.43	0.00	0.00	0.00
11,700.00	89.89	270.00	7,244.57	-873.46	-2,963.43	2,963.43	0.00	0.00	0.00
11,800.00	89.89	270.00	7,244.77	-873.46	-3,063.43	3,063.43	0.00	0.00	0.00
11,900.00	89.89	270.00	7,244.97	-873.46	-3,163.43	3,163.43	0.00	0.00	0.00
12,000.00	89.89	270.00	7,245.16	-873.46	-3,263.43	3,263.43	0.00	0.00	0.00
12,100.00	89.89	270.00	7,245.36	-873.46	-3,363.43	3,363.43	0.00	0.00	0.00
12,200.00	89.89	270.00	7,245.56	-873.46	-3,463.43	3,463.43	0.00	0.00	0.00
12,300.00	89.89	270.00	7,245.76	-873.46	-3,563.43	3,563.43	0.00	0.00	0.00
12,400.00	89.89	270.00	7,245.95	-873.46	-3,663.43	3,663.43	0.00	0.00	0.00
12,500.00	89.89	270.00	7,246.15	-873.46	-3,763.43	3,763.43	0.00	0.00	0.00
12,600.00	89.89	270.00	7,246.35	-873.46	-3,863.43	3,863.43	0.00	0.00	0.00
12,700.00	89.89	270.00	7,246.55	-873.46	-3,963.43	3,963.43	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BAREFOOT 31C-25HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Site:	BAREFOOT 1-25HZ PAD	North Reference:	True
Well:	BAREFOOT 31C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,800.00	89.89	270.00	7,246.75	-873.46	-4,063.43	4,063.43	0.00	0.00	0.00
12,900.00	89.89	270.00	7,246.94	-873.46	-4,163.43	4,163.43	0.00	0.00	0.00
13,000.00	89.89	270.00	7,247.14	-873.46	-4,263.43	4,263.43	0.00	0.00	0.00
13,100.00	89.89	270.00	7,247.34	-873.46	-4,363.42	4,363.42	0.00	0.00	0.00
13,200.00	89.89	270.00	7,247.54	-873.46	-4,463.42	4,463.42	0.00	0.00	0.00
13,300.00	89.89	270.00	7,247.73	-873.46	-4,563.42	4,563.42	0.00	0.00	0.00
13,400.00	89.89	270.00	7,247.93	-873.46	-4,663.42	4,663.42	0.00	0.00	0.00
13,435.19	89.89	270.00	7,248.00	-873.46	-4,698.62	4,698.62	0.00	0.00	0.00
TD at 13435.19 - PBHL_Barefoot 31C-25HZ (1405' FNL 50' FWL)									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_Barefoot 31C-25H - plan hits target center - Point	0.00	0.00	7,248.00	-873.46	-4,698.62	1,316,345.69	3,150,715.99	40.2005070	-104.9604340

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,317.00	1,317.00	9 5/8"	9.625	12.250	
7,866.39	7,237.00	7" (1405 FNL 360 FWL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,267.00	1,267.00	Fox Hills Marker				
4,502.02	4,327.00	Sussex				
4,815.42	4,617.00	Shannon				
7,194.36	6,885.00	Sharon Springs				
7,341.47	7,012.00	Niobrara A				
7,363.19	7,029.00	Niobrara B				
7,420.10	7,071.00	Niobrara C				
7,646.78	7,195.00	Fort Hays				
7,791.78	7,232.00	Codell				

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BAREFOOT 31C-25HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4891 & KB 17 @ 4908.00ft (ASSUMED)
Site:	BAREFOOT 1-25HZ PAD	North Reference:	True
Well:	BAREFOOT 31C-25HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,417.00	1,417.00	0.00	0.00	Start Build 2.00
2,531.01	2,503.15	-110.81	182.94	Start 3318.46 hold at 2531.01 MD
5,849.47	5,573.85	-762.66	1,259.06	Start Drop -2.00
6,963.48	6,660.00	-873.47	1,442.00	Start 4.04 hold at 6963.48 MD
6,967.52	6,664.04	-873.47	1,442.00	Start DLS 10.00 TFO 270.00
7,866.39	7,237.00	-873.47	870.17	Start 5568.80 hold at 7866.39 MD
13,435.19	7,248.00	-873.46	-4,698.62	TD at 13435.19