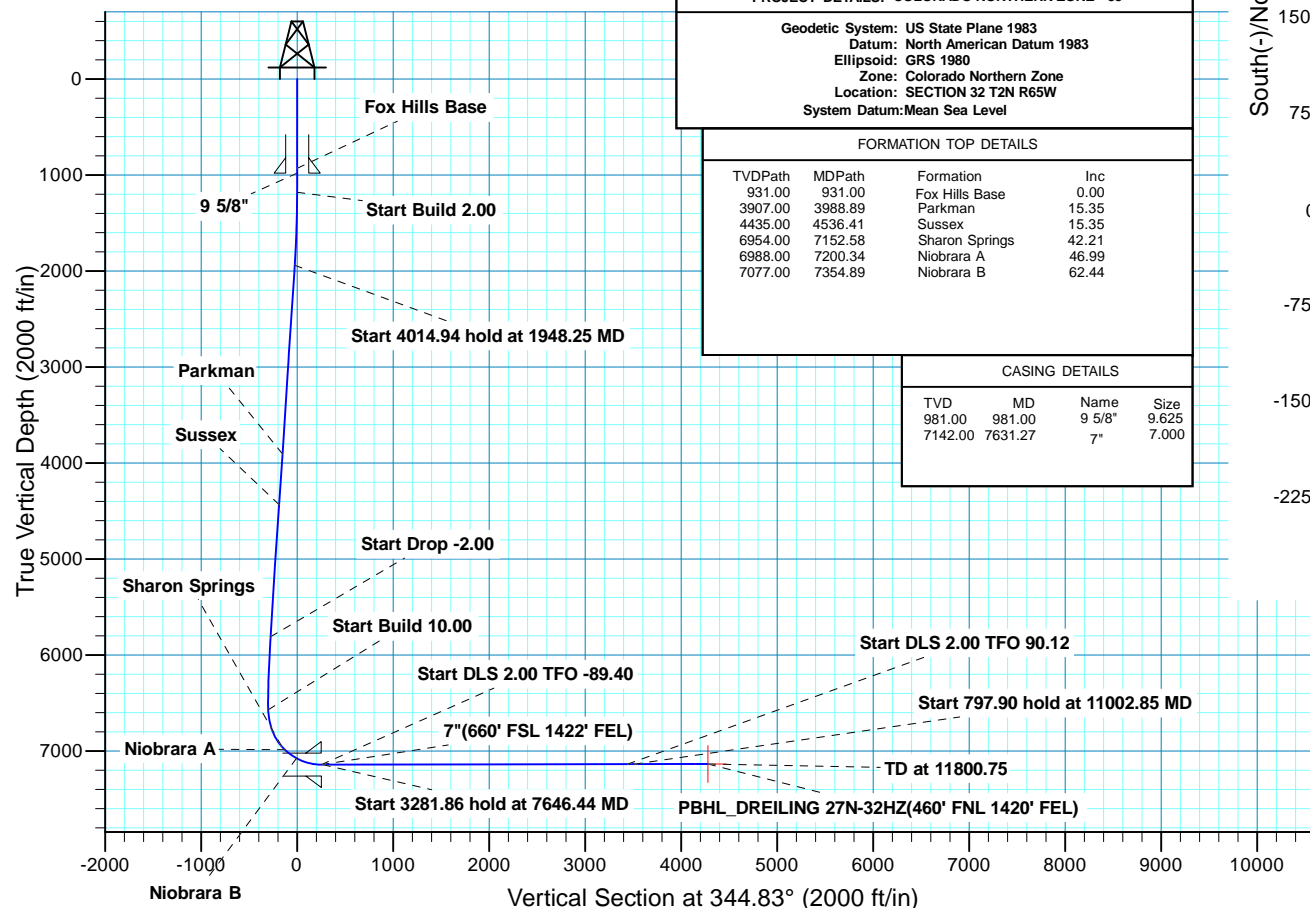
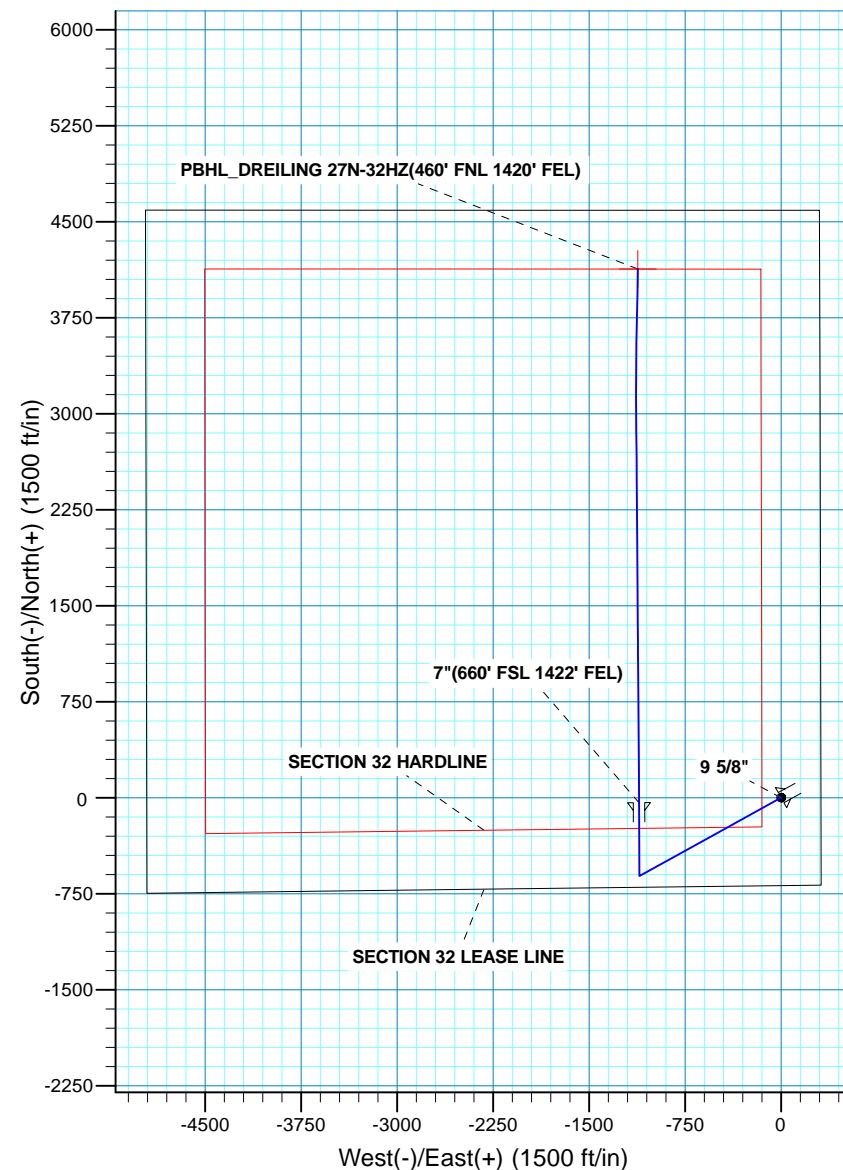


WELL DETAILS: DREILING 27N-32HZ									
GL 4924' & KB 17' @ 4941.00ft (ASSUMED)									
+N/-S 0.00		+E/-W 0.00		Northing 1276560.65	Easting 3229591.68	Latitude 40.0896340	Longitude -104.6793890		
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1181.00	0.00	0.00	1181.00	0.00	0.00	0.00	0.00	0.00	
1948.25	15.35	241.05	1939.11	-49.44	-89.37	2.00	241.05	-24.33	
5963.19	15.35	241.05	5810.92	-563.72	-1019.08	0.00	0.00	-277.46	
6730.44	0.00	0.00	6569.03	-613.16	-1108.45	2.00	180.00	-301.79	
7631.27	90.08	359.87	7142.00	-39.39	-1109.75	10.00	359.87	252.34	
7646.44	90.08	359.57	7141.98	-24.22	-1109.83	2.00	-89.40	267.00	
10928.30	90.08	359.57	7137.22	3257.55	-1134.65	0.00	0.00	3440.94	
11002.85	90.08	1.06	7137.11	3332.10	-1134.24	2.00	90.12	3512.79	
11800.75	90.08	1.06	7136.00	4129.86	-1119.52	0.00	0.00	4278.91	PBHL_DREILING 27N-32HZ
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL	7136.00	4129.86	-1119.52	1280679.96	3228434.00	40.1009710	-104.6833910	Point	
- plan hits target center									

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: SECTION 32 T2N R65W			
System Datum: Mean Sea Level			
FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
931.00	931.00	Fox Hills Base	0.00
3907.00	3988.89	Parkman	15.35
4435.00	4536.41	Sussex	15.35
6954.00	7152.58	Sharon Springs	42.21
6988.00	7200.34	Niobrara A	46.99
7077.00	7354.89	Niobrara B	62.44
CASING DETAILS			
TVD	MD	Name	Size
981.00	981.00	9 5/8"	9.625
7142.00	7631.27	7"	7.000





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

DREILING 16-32HZ PAD

DREILING 27N-32HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

13 August, 2013

Database:	Denver Sales Office	Local Co-ordinate Reference	Well DREILING 27N-32HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Site:	DREILING 16-32HZ PAD	North Reference:	True
Well:	DREILING 27N-32HZ	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						DREILING 16-32HZ PAD, SECTION 32 T2N R65W											
Site Position:			Northing:			1,276,561.30 usft			Latitude:			40.0896350					
From:			Lat/Long			Easting:			3,229,621.61 usft			Longitude:			-104.6792820		
Position Uncertainty:			0.00 ft			Slot Radius:			13.200 in			Grid Convergence:			0.53		

Well	DREILING 27N-32HZ, 687' FSL 310' FEL					
Well Position	+N/-S	-0.37 ft	Northing:	1,276,560.65 usft	Latitude:	40.0896340
	+E/-W	-29.94 ft	Easting:	3,229,591.68 usft	Longitude:	-104.6793890
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,924.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	6/3/2013	8.55	66.74	52,702

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	344.83

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	
1,181.00	0.00	0.00	1,181.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,948.25	15.35	241.05	1,939.11	-49.44	-89.37	2.00	2.00	0.00	241.05	
5,963.19	15.35	241.05	5,810.92	-563.72	-1,019.08	0.00	0.00	0.00	0.00	
6,730.44	0.00	0.00	6,569.03	-613.16	-1,108.45	2.00	-2.00	0.00	180.00	
7,631.27	90.08	359.87	7,142.01	-39.39	-1,109.75	10.00	10.00	0.00	359.87	
7,646.44	90.08	359.57	7,141.98	-24.22	-1,109.83	2.00	0.02	-2.00	-89.40	
10,928.30	90.08	359.57	7,137.22	3,257.55	-1,134.65	0.00	0.00	0.00	0.00	
11,002.85	90.08	1.06	7,137.11	3,332.10	-1,134.24	2.00	0.00	2.00	90.12	
11,800.75	90.08	1.06	7,136.00	4,129.86	-1,119.52	0.00	0.00	0.00	0.00	PBHL_DREILING 27N

Database:	Denver Sales Office	Local Co-ordinate Reference	Well DREILING 27N-32HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Site:	DREILING 16-32HZ PAD	North Reference:	True
Well:	DREILING 27N-32HZ	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
931.00	0.00	0.00	931.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base									
981.00	0.00	0.00	981.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
1,181.00	0.00	0.00	1,181.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,200.00	0.38	241.05	1,200.00	-0.03	-0.06	-0.02	2.00	2.00	0.00
1,300.00	2.38	241.05	1,299.97	-1.20	-2.16	-0.59	2.00	2.00	0.00
1,400.00	4.38	241.05	1,399.79	-4.05	-7.32	-1.99	2.00	2.00	0.00
1,500.00	6.38	241.05	1,499.34	-8.59	-15.53	-4.23	2.00	2.00	0.00
1,600.00	8.38	241.05	1,598.51	-14.81	-26.76	-7.29	2.00	2.00	0.00
1,700.00	10.38	241.05	1,697.17	-22.69	-41.03	-11.17	2.00	2.00	0.00
1,800.00	12.38	241.05	1,795.19	-32.24	-58.29	-15.87	2.00	2.00	0.00
1,900.00	14.38	241.05	1,892.48	-43.45	-78.54	-21.38	2.00	2.00	0.00
1,948.25	15.35	241.05	1,939.11	-49.44	-89.37	-24.33	2.00	2.00	0.00
Start 4014.94 hold at 1948.25 MD									
2,000.00	15.35	241.05	1,989.02	-56.06	-101.35	-27.59	0.00	0.00	0.00
2,100.00	15.35	241.05	2,085.45	-68.87	-124.51	-33.90	0.00	0.00	0.00
2,200.00	15.35	241.05	2,181.89	-81.68	-147.66	-40.20	0.00	0.00	0.00
2,300.00	15.35	241.05	2,278.32	-94.49	-170.82	-46.51	0.00	0.00	0.00
2,400.00	15.35	241.05	2,374.76	-107.30	-193.98	-52.81	0.00	0.00	0.00
2,500.00	15.35	241.05	2,471.19	-120.11	-217.13	-59.12	0.00	0.00	0.00
2,600.00	15.35	241.05	2,567.63	-132.92	-240.29	-65.42	0.00	0.00	0.00
2,700.00	15.35	241.05	2,664.06	-145.73	-263.45	-71.73	0.00	0.00	0.00
2,800.00	15.35	241.05	2,760.50	-158.54	-286.60	-78.03	0.00	0.00	0.00
2,900.00	15.35	241.05	2,856.93	-171.35	-309.76	-84.34	0.00	0.00	0.00
3,000.00	15.35	241.05	2,953.37	-184.16	-332.91	-90.64	0.00	0.00	0.00
3,100.00	15.35	241.05	3,049.80	-196.97	-356.07	-96.95	0.00	0.00	0.00
3,200.00	15.35	241.05	3,146.24	-209.78	-379.23	-103.25	0.00	0.00	0.00
3,300.00	15.35	241.05	3,242.67	-222.59	-402.38	-109.55	0.00	0.00	0.00
3,400.00	15.35	241.05	3,339.11	-235.40	-425.54	-115.86	0.00	0.00	0.00
3,500.00	15.35	241.05	3,435.54	-248.21	-448.70	-122.16	0.00	0.00	0.00
3,600.00	15.35	241.05	3,531.98	-261.01	-471.85	-128.47	0.00	0.00	0.00
3,700.00	15.35	241.05	3,628.41	-273.82	-495.01	-134.77	0.00	0.00	0.00
3,800.00	15.35	241.05	3,724.85	-286.63	-518.17	-141.08	0.00	0.00	0.00
3,900.00	15.35	241.05	3,821.28	-299.44	-541.32	-147.38	0.00	0.00	0.00
3,988.89	15.35	241.05	3,907.00	-310.83	-561.91	-152.99	0.00	0.00	0.00
Parkman									
4,000.00	15.35	241.05	3,917.72	-312.25	-564.48	-153.69	0.00	0.00	0.00
4,100.00	15.35	241.05	4,014.15	-325.06	-587.63	-159.99	0.00	0.00	0.00
4,200.00	15.35	241.05	4,110.59	-337.87	-610.79	-166.30	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference	Well DREILING 27N-32HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Site:	DREILING 16-32HZ PAD	North Reference:	True
Well:	DREILING 27N-32HZ	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)	
4,300.00	15.35	241.05	4,207.02	-350.68	-633.95	-172.60	0.00	0.00	0.00	
4,400.00	15.35	241.05	4,303.46	-363.49	-657.10	-178.91	0.00	0.00	0.00	
4,500.00	15.35	241.05	4,399.89	-376.30	-680.26	-185.21	0.00	0.00	0.00	
4,536.41	15.35	241.05	4,435.00	-380.96	-688.69	-187.51	0.00	0.00	0.00	
Sussex										
4,600.00	15.35	241.05	4,496.33	-389.11	-703.42	-191.51	0.00	0.00	0.00	
4,700.00	15.35	241.05	4,592.76	-401.92	-726.57	-197.82	0.00	0.00	0.00	
4,800.00	15.35	241.05	4,689.20	-414.73	-749.73	-204.12	0.00	0.00	0.00	
4,900.00	15.35	241.05	4,785.63	-427.54	-772.89	-210.43	0.00	0.00	0.00	
5,000.00	15.35	241.05	4,882.07	-440.35	-796.04	-216.73	0.00	0.00	0.00	
5,100.00	15.35	241.05	4,978.50	-453.15	-819.20	-223.04	0.00	0.00	0.00	
5,200.00	15.35	241.05	5,074.93	-465.96	-842.35	-229.34	0.00	0.00	0.00	
5,300.00	15.35	241.05	5,171.37	-478.77	-865.51	-235.65	0.00	0.00	0.00	
5,400.00	15.35	241.05	5,267.80	-491.58	-888.67	-241.95	0.00	0.00	0.00	
5,500.00	15.35	241.05	5,364.24	-504.39	-911.82	-248.26	0.00	0.00	0.00	
5,600.00	15.35	241.05	5,460.67	-517.20	-934.98	-254.56	0.00	0.00	0.00	
5,700.00	15.35	241.05	5,557.11	-530.01	-958.14	-260.87	0.00	0.00	0.00	
5,800.00	15.35	241.05	5,653.54	-542.82	-981.29	-267.17	0.00	0.00	0.00	
5,900.00	15.35	241.05	5,749.98	-555.63	-1,004.45	-273.48	0.00	0.00	0.00	
5,963.19	15.35	241.05	5,810.92	-563.72	-1,019.08	-277.46	0.00	0.00	0.00	
Start Drop -2.00										
6,000.00	14.61	241.05	5,846.48	-568.33	-1,027.41	-279.73	2.00	-2.00	0.00	
6,100.00	12.61	241.05	5,943.66	-579.72	-1,047.99	-285.33	2.00	-2.00	0.00	
6,200.00	10.61	241.05	6,041.61	-589.46	-1,065.60	-290.12	2.00	-2.00	0.00	
6,300.00	8.61	241.05	6,140.21	-597.54	-1,080.21	-294.10	2.00	-2.00	0.00	
6,400.00	6.61	241.05	6,239.32	-603.95	-1,091.79	-297.26	2.00	-2.00	0.00	
6,500.00	4.61	241.05	6,338.84	-608.68	-1,100.34	-299.58	2.00	-2.00	0.00	
6,600.00	2.61	241.05	6,438.63	-611.72	-1,105.85	-301.08	2.00	-2.00	0.00	
6,700.00	0.61	241.05	6,538.59	-613.08	-1,108.31	-301.75	2.00	-2.00	0.00	
6,730.44	0.00	0.00	6,569.03	-613.16	-1,108.45	-301.79	2.00	-2.00	0.00	
Start Build 10.00										
6,800.00	6.96	359.87	6,638.42	-608.94	-1,108.46	-297.72	10.00	10.00	0.00	
6,900.00	16.96	359.87	6,736.12	-588.25	-1,108.51	-277.74	10.00	10.00	0.00	
7,000.00	26.95	359.87	6,828.75	-550.91	-1,108.59	-241.68	10.00	10.00	0.00	
7,100.00	36.95	359.87	6,913.49	-498.06	-1,108.71	-190.63	10.00	10.00	0.00	
7,152.58	42.21	359.87	6,954.00	-464.57	-1,108.79	-158.28	10.00	10.00	0.00	
Sharon Springs										
7,200.00	46.95	359.87	6,987.77	-431.29	-1,108.86	-126.15	10.00	10.00	0.00	
7,200.34	46.99	359.87	6,988.00	-431.04	-1,108.86	-125.90	10.00	10.00	0.00	
Niobrara A										
7,300.00	56.95	359.87	7,049.32	-352.64	-1,109.04	-50.19	10.00	10.00	0.00	
7,354.89	62.44	359.87	7,077.00	-305.27	-1,109.15	-4.44	10.00	10.00	0.00	
Niobrara B										
7,400.00	66.95	359.87	7,096.28	-264.49	-1,109.24	34.94	10.00	10.00	0.00	
7,500.00	76.95	359.87	7,127.22	-169.53	-1,109.46	126.65	10.00	10.00	0.00	
7,600.00	86.95	359.87	7,141.20	-70.64	-1,109.68	222.15	10.00	10.00	0.00	
7,631.27	90.08	359.87	7,142.01	-39.39	-1,109.75	252.34	10.00	10.00	0.00	
Start DLS 2.00 TFO -89.40 - 7"(660' FSL 1422' FEL)										
7,646.44	90.08	359.57	7,141.98	-24.22	-1,109.83	267.00	2.00	0.02	-2.00	
Start 3281.86 hold at 7646.44 MD										
7,700.00	90.08	359.57	7,141.91	29.34	-1,110.23	318.80	0.00	0.00	0.00	
7,800.00	90.08	359.57	7,141.76	129.34	-1,110.99	415.51	0.00	0.00	0.00	

Database:	Denver Sales Office	Local Co-ordinate Reference	Well DREILING 27N-32HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Site:	DREILING 16-32HZ PAD	North Reference:	True
Well:	DREILING 27N-32HZ	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)	
7,900.00	90.08	359.57	7,141.62	229.34	-1,111.74	512.22	0.00	0.00	0.00	
8,000.00	90.08	359.57	7,141.47	329.33	-1,112.50	608.93	0.00	0.00	0.00	
8,100.00	90.08	359.57	7,141.33	429.33	-1,113.26	705.64	0.00	0.00	0.00	
8,200.00	90.08	359.57	7,141.18	529.33	-1,114.01	802.35	0.00	0.00	0.00	
8,300.00	90.08	359.57	7,141.03	629.32	-1,114.77	899.07	0.00	0.00	0.00	
8,400.00	90.08	359.57	7,140.89	729.32	-1,115.53	995.78	0.00	0.00	0.00	
8,500.00	90.08	359.57	7,140.74	829.32	-1,116.28	1,092.49	0.00	0.00	0.00	
8,600.00	90.08	359.57	7,140.60	929.32	-1,117.04	1,189.20	0.00	0.00	0.00	
8,700.00	90.08	359.57	7,140.45	1,029.31	-1,117.80	1,285.91	0.00	0.00	0.00	
8,800.00	90.08	359.57	7,140.31	1,129.31	-1,118.55	1,382.63	0.00	0.00	0.00	
8,900.00	90.08	359.57	7,140.16	1,229.31	-1,119.31	1,479.34	0.00	0.00	0.00	
9,000.00	90.08	359.57	7,140.02	1,329.30	-1,120.06	1,576.05	0.00	0.00	0.00	
9,100.00	90.08	359.57	7,139.87	1,429.30	-1,120.82	1,672.76	0.00	0.00	0.00	
9,200.00	90.08	359.57	7,139.73	1,529.30	-1,121.58	1,769.47	0.00	0.00	0.00	
9,300.00	90.08	359.57	7,139.58	1,629.29	-1,122.33	1,866.18	0.00	0.00	0.00	
9,400.00	90.08	359.57	7,139.44	1,729.29	-1,123.09	1,962.90	0.00	0.00	0.00	
9,500.00	90.08	359.57	7,139.29	1,829.29	-1,123.85	2,059.61	0.00	0.00	0.00	
9,600.00	90.08	359.57	7,139.15	1,929.29	-1,124.60	2,156.32	0.00	0.00	0.00	
9,700.00	90.08	359.57	7,139.00	2,029.28	-1,125.36	2,253.03	0.00	0.00	0.00	
9,800.00	90.08	359.57	7,138.86	2,129.28	-1,126.12	2,349.74	0.00	0.00	0.00	
9,900.00	90.08	359.57	7,138.71	2,229.28	-1,126.87	2,446.45	0.00	0.00	0.00	
10,000.00	90.08	359.57	7,138.57	2,329.27	-1,127.63	2,543.17	0.00	0.00	0.00	
10,100.00	90.08	359.57	7,138.42	2,429.27	-1,128.38	2,639.88	0.00	0.00	0.00	
10,200.00	90.08	359.57	7,138.28	2,529.27	-1,129.14	2,736.59	0.00	0.00	0.00	
10,300.00	90.08	359.57	7,138.13	2,629.26	-1,129.90	2,833.30	0.00	0.00	0.00	
10,400.00	90.08	359.57	7,137.99	2,729.26	-1,130.65	2,930.01	0.00	0.00	0.00	
10,500.00	90.08	359.57	7,137.84	2,829.26	-1,131.41	3,026.72	0.00	0.00	0.00	
10,600.00	90.08	359.57	7,137.70	2,929.26	-1,132.17	3,123.44	0.00	0.00	0.00	
10,700.00	90.08	359.57	7,137.55	3,029.25	-1,132.92	3,220.15	0.00	0.00	0.00	
10,800.00	90.08	359.57	7,137.41	3,129.25	-1,133.68	3,316.86	0.00	0.00	0.00	
10,900.00	90.08	359.57	7,137.26	3,229.25	-1,134.44	3,413.57	0.00	0.00	0.00	
10,928.30	90.08	359.57	7,137.22	3,257.55	-1,134.65	3,440.94	0.00	0.00	0.00	
Start DLS 2.00 TFO 90.12										
11,000.00	90.08	1.00	7,137.12	3,329.24	-1,134.30	3,510.05	2.00	0.00	2.00	
11,002.85	90.08	1.06	7,137.11	3,332.10	-1,134.24	3,512.79	2.00	0.00	2.00	
Start 797.90 hold at 11002.85 MD										
11,100.00	90.08	1.06	7,136.98	3,429.23	-1,132.45	3,606.06	0.00	0.00	0.00	
11,200.00	90.08	1.06	7,136.84	3,529.21	-1,130.61	3,702.08	0.00	0.00	0.00	
11,300.00	90.08	1.06	7,136.70	3,629.19	-1,128.76	3,798.10	0.00	0.00	0.00	
11,400.00	90.08	1.06	7,136.56	3,729.17	-1,126.91	3,894.12	0.00	0.00	0.00	
11,500.00	90.08	1.06	7,136.42	3,829.16	-1,125.07	3,990.13	0.00	0.00	0.00	
11,600.00	90.08	1.06	7,136.28	3,929.14	-1,123.22	4,086.15	0.00	0.00	0.00	
11,700.00	90.08	1.06	7,136.14	4,029.12	-1,121.38	4,182.17	0.00	0.00	0.00	
11,800.00	90.08	1.06	7,136.00	4,129.11	-1,119.53	4,278.19	0.00	0.00	0.00	
11,800.75	90.08	1.06	7,136.00	4,129.86	-1,119.52	4,278.91	0.00	0.00	0.00	
TD at 11800.75 - PBHL_DREILING 27N-32HZ(460' FNL 1420' FEL)										

Database:	Denver Sales Office	Local Co-ordinate Reference	Well DREILING 27N-32HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
Site:	DREILING 16-32HZ PAD	North Reference:	True
Well:	DREILING 27N-32HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Design Targets
Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
PBHL_DREILING 27N-3	0.00	0.00	7,136.00	4,129.86	-1,119.52	1,280,679.96	3,228,434.00	40.1009710	-104.6833910
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
981.00	981.00	9 5/8"	9.625	12.250
7,631.27	7,142.01	7"(660' FSL 1422' FEL)	7.000	7.500

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
931.00	931.00	Fox Hills Base			
3,988.89	3,907.00	Parkman			
4,536.41	4,435.00	Sussex			
7,152.58	6,954.00	Sharon Springs			
7,200.34	6,988.00	Niobrara A			
7,354.89	7,077.00	Niobrara B			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,181.00	1,181.00	0.00	0.00	Start Build 2.00
1,948.25	1,939.11	-49.44	-89.37	Start 4014.94 hold at 1948.25 MD
5,963.19	5,810.92	-563.72	-1,019.08	Start Drop -2.00
6,730.44	6,569.03	-613.16	-1,108.45	Start Build 10.00
7,631.27	7,142.01	-39.39	-1,109.75	Start DLS 2.00 TFO -89.40
7,646.44	7,141.98	-24.22	-1,109.83	Start 3281.86 hold at 7646.44 MD
10,928.30	7,137.22	3,257.55	-1,134.65	Start DLS 2.00 TFO 90.12
11,002.85	7,137.11	3,332.10	-1,134.24	Start 797.90 hold at 11002.85 MD
11,800.75	7,136.00	4,129.86	-1,119.52	TD at 11800.75