

## WELL DETAILS: DREILING 27C-32HZ

GL 4924' & KB 17' @ 4941.00ft (ASSUMED)

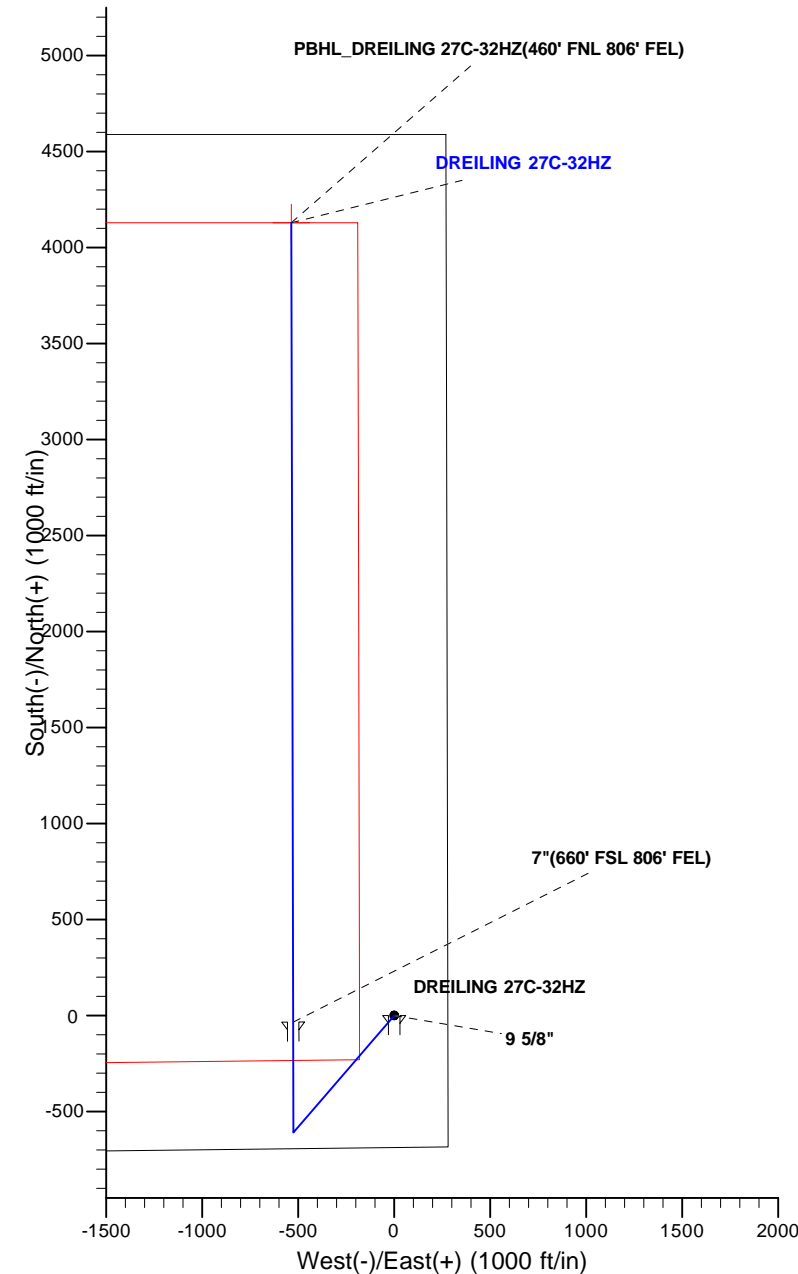
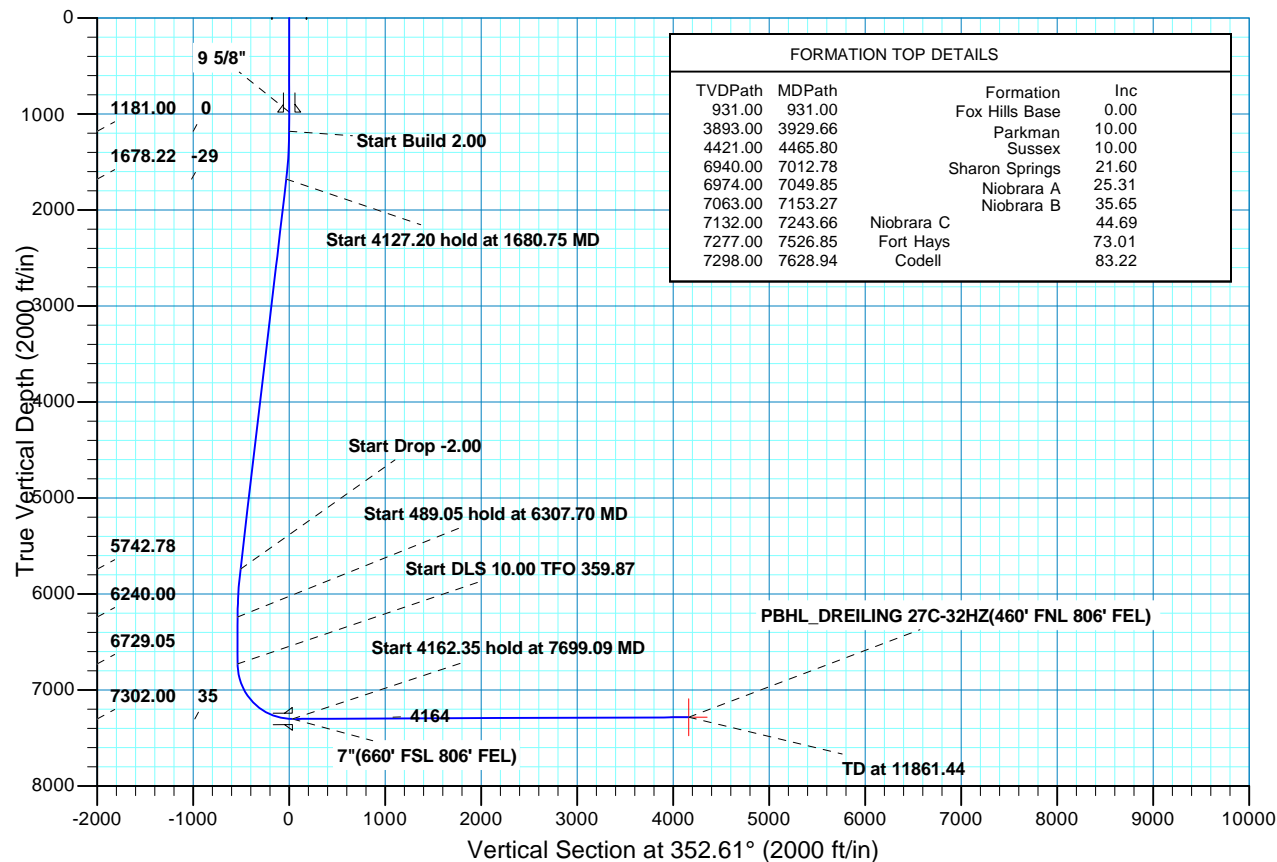
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1276561.30	3229621.61	40.0896350	-104.6792820

## 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	
1680.75	10.00	220.75	1678.22	-32.94	-28.38	2.00	220.75	-29.01	
5807.95	10.00	220.75	5742.78	-575.56	-496.02	0.00	0.00	-507.00	
6307.70	0.00	0.00	6240.00	-608.50	-524.40	2.00	180.00	-536.01	
6796.75	0.00	0.00	6729.05	-608.50	-524.40	0.00	0.00	-536.01	
7699.09	90.23	359.87	7302.00	-33.20	-525.74	10.00	359.87	34.68	
11861.44	90.23	359.87	7285.00	4129.10	-535.42	0.00	0.00	4163.67	PBHL_DREILING 27C-32HZ(460' FNL 806' FEL)

## CASING DETAILS

TVD	MD	Name	Size
981.00	981.00	9 5/8"	9.625
7302.00	7699.09	7"	7.000





# Scientific Drilling

## **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**DREILING 16-32HZ PAD**

**DREILING 27C-32HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**03 June, 2013**

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well DREILING 27C-32HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Site:</b>	DREILING 16-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DREILING 27C-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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

<b>Site</b>	DREILING 16-32HZ PAD, SECTION 32 T2N R65W			
<b>Site Position:</b>		<b>Northing:</b>	1,276,561.30 usft	<b>Latitude:</b> 40.0896350
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,229,621.61 usft	<b>Longitude:</b> -104.6792820
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.53 °

<b>Well</b>	DREILING 27C-32HZ, 687' FSL 280' FEL			
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	1,276,561.30 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	3,229,621.61 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 4,924.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2012	2013/06/03	8.59	66.72	52,668

<b>Design</b>	PLAN #1 PRELIMINARY			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	352.61

<b>Plan Sections</b>										
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
0.00	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	
1,680.75	10.00	220.75	1,678.22	-32.94	-28.38	2.00	2.00	0.00	220.75	
5,807.95	10.00	220.75	5,742.78	-575.56	-496.02	0.00	0.00	0.00	0.00	
6,307.70	0.00	0.00	6,240.00	-608.50	-524.40	2.00	-2.00	0.00	180.00	
6,796.75	0.00	0.00	6,729.05	-608.50	-524.40	0.00	0.00	0.00	0.00	
7,699.09	90.23	359.87	7,302.00	-33.20	-525.74	10.00	10.00	-0.01	359.87	
11,861.44	90.23	359.87	7,285.00	4,129.10	-535.42	0.00	0.00	0.00	0.00	PBHL_DREILING 27C

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well DREILING 27C-32HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Site:</b>	DREILING 16-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DREILING 27C-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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)
0.00	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
<b>Fox Hills Base</b>									
981.00	0.00	0.00	981.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
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
<b>Start Build 2.00</b>									
1,200.00	0.38	220.75	1,200.00	-0.05	-0.04	-0.04	2.00	2.00	0.00
1,300.00	2.38	220.75	1,299.97	-1.87	-1.61	-1.65	2.00	2.00	0.00
1,400.00	4.38	220.75	1,399.79	-6.34	-5.46	-5.58	2.00	2.00	0.00
1,500.00	6.38	220.75	1,499.34	-13.44	-11.58	-11.84	2.00	2.00	0.00
1,600.00	8.38	220.75	1,598.51	-23.17	-19.97	-20.41	2.00	2.00	0.00
1,680.75	10.00	220.75	1,678.22	-32.94	-28.38	-29.01	2.00	2.00	0.00
<b>Start 4127.20 hold at 1680.75 MD</b>									
1,700.00	10.00	220.75	1,697.18	-35.47	-30.57	-31.24	0.00	0.00	0.00
1,800.00	10.00	220.75	1,795.66	-48.61	-41.90	-42.82	0.00	0.00	0.00
1,900.00	10.00	220.75	1,894.14	-61.76	-53.23	-54.40	0.00	0.00	0.00
2,000.00	10.00	220.75	1,992.62	-74.91	-64.56	-65.99	0.00	0.00	0.00
2,100.00	10.00	220.75	2,091.11	-88.06	-75.89	-77.57	0.00	0.00	0.00
2,200.00	10.00	220.75	2,189.59	-101.21	-87.22	-89.15	0.00	0.00	0.00
2,300.00	10.00	220.75	2,288.07	-114.35	-98.55	-100.73	0.00	0.00	0.00
2,400.00	10.00	220.75	2,386.55	-127.50	-109.88	-112.31	0.00	0.00	0.00
2,500.00	10.00	220.75	2,485.04	-140.65	-121.21	-123.89	0.00	0.00	0.00
2,600.00	10.00	220.75	2,583.52	-153.80	-132.54	-135.47	0.00	0.00	0.00
2,700.00	10.00	220.75	2,682.00	-166.94	-143.87	-147.06	0.00	0.00	0.00
2,800.00	10.00	220.75	2,780.48	-180.09	-155.20	-158.64	0.00	0.00	0.00
2,900.00	10.00	220.75	2,878.96	-193.24	-166.53	-170.22	0.00	0.00	0.00
3,000.00	10.00	220.75	2,977.45	-206.39	-177.86	-181.80	0.00	0.00	0.00
3,100.00	10.00	220.75	3,075.93	-219.53	-189.19	-193.38	0.00	0.00	0.00
3,200.00	10.00	220.75	3,174.41	-232.68	-200.52	-204.96	0.00	0.00	0.00
3,300.00	10.00	220.75	3,272.89	-245.83	-211.85	-216.54	0.00	0.00	0.00
3,400.00	10.00	220.75	3,371.38	-258.98	-223.18	-228.13	0.00	0.00	0.00
3,500.00	10.00	220.75	3,469.86	-272.12	-234.51	-239.71	0.00	0.00	0.00
3,600.00	10.00	220.75	3,568.34	-285.27	-245.84	-251.29	0.00	0.00	0.00
3,700.00	10.00	220.75	3,666.82	-298.42	-257.17	-262.87	0.00	0.00	0.00
3,800.00	10.00	220.75	3,765.31	-311.57	-268.51	-274.45	0.00	0.00	0.00
3,900.00	10.00	220.75	3,863.79	-324.71	-279.84	-286.03	0.00	0.00	0.00
3,929.66	10.00	220.75	3,893.00	-328.61	-283.20	-289.47	0.00	0.00	0.00
<b>Parkman</b>									
4,000.00	10.00	220.75	3,962.27	-337.86	-291.17	-297.61	0.00	0.00	0.00
4,100.00	10.00	220.75	4,060.75	-351.01	-302.50	-309.20	0.00	0.00	0.00
4,200.00	10.00	220.75	4,159.23	-364.16	-313.83	-320.78	0.00	0.00	0.00
4,300.00	10.00	220.75	4,257.72	-377.30	-325.16	-332.36	0.00	0.00	0.00

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Site:</b>	DREILING 16-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DREILING 27C-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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)
4,400.00	10.00	220.75	4,356.20	-390.45	-336.49	-343.94	0.00	0.00	0.00
4,465.80	10.00	220.75	4,421.00	-399.10	-343.94	-351.56	0.00	0.00	0.00
<b>Sussex</b>									
4,500.00	10.00	220.75	4,454.68	-403.60	-347.82	-355.52	0.00	0.00	0.00
4,600.00	10.00	220.75	4,553.16	-416.75	-359.15	-367.10	0.00	0.00	0.00
4,700.00	10.00	220.75	4,651.65	-429.89	-370.48	-378.68	0.00	0.00	0.00
4,800.00	10.00	220.75	4,750.13	-443.04	-381.81	-390.27	0.00	0.00	0.00
4,900.00	10.00	220.75	4,848.61	-456.19	-393.14	-401.85	0.00	0.00	0.00
5,000.00	10.00	220.75	4,947.09	-469.34	-404.47	-413.43	0.00	0.00	0.00
5,100.00	10.00	220.75	5,045.57	-482.49	-415.80	-425.01	0.00	0.00	0.00
5,200.00	10.00	220.75	5,144.06	-495.63	-427.13	-436.59	0.00	0.00	0.00
5,300.00	10.00	220.75	5,242.54	-508.78	-438.46	-448.17	0.00	0.00	0.00
5,400.00	10.00	220.75	5,341.02	-521.93	-449.79	-459.75	0.00	0.00	0.00
5,500.00	10.00	220.75	5,439.50	-535.08	-461.12	-471.34	0.00	0.00	0.00
5,600.00	10.00	220.75	5,537.99	-548.22	-472.45	-482.92	0.00	0.00	0.00
5,700.00	10.00	220.75	5,636.47	-561.37	-483.78	-494.50	0.00	0.00	0.00
5,800.00	10.00	220.75	5,734.95	-574.52	-495.12	-506.08	0.00	0.00	0.00
5,807.95	10.00	220.75	5,742.78	-575.56	-496.02	-507.00	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,900.00	8.15	220.75	5,833.67	-586.56	-505.49	-516.69	2.00	-2.00	0.00
6,000.00	6.15	220.75	5,932.89	-595.99	-513.62	-525.00	2.00	-2.00	0.00
6,100.00	4.15	220.75	6,032.48	-602.80	-519.49	-530.99	2.00	-2.00	0.00
6,200.00	2.15	220.75	6,132.32	-606.97	-523.08	-534.66	2.00	-2.00	0.00
6,300.00	0.15	220.75	6,232.30	-608.49	-524.39	-536.01	2.00	-2.00	0.00
6,307.70	0.00	0.00	6,240.00	-608.50	-524.40	-536.01	2.00	-2.00	0.00
<b>Start 489.05 hold at 6307.70 MD</b>									
6,400.00	0.00	0.00	6,332.30	-608.50	-524.40	-536.01	0.00	0.00	0.00
6,500.00	0.00	0.00	6,432.30	-608.50	-524.40	-536.01	0.00	0.00	0.00
6,600.00	0.00	0.00	6,532.30	-608.50	-524.40	-536.01	0.00	0.00	0.00
6,700.00	0.00	0.00	6,632.30	-608.50	-524.40	-536.01	0.00	0.00	0.00
6,796.75	0.00	0.00	6,729.05	-608.50	-524.40	-536.01	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 359.87</b>									
6,800.00	0.32	359.87	6,732.30	-608.49	-524.40	-536.00	10.00	10.00	0.00
6,900.00	10.32	359.87	6,831.74	-599.22	-524.42	-526.81	10.00	10.00	0.00
7,000.00	20.32	359.87	6,928.06	-572.83	-524.48	-500.63	10.00	10.00	0.00
7,012.78	21.60	359.87	6,940.00	-568.25	-524.49	-496.09	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,049.85	25.31	359.87	6,974.00	-553.50	-524.53	-481.45	10.00	10.00	0.00
<b>Niobrara A</b>									
7,100.00	30.32	359.87	7,018.34	-530.11	-524.58	-458.25	10.00	10.00	0.00
7,153.27	35.65	359.87	7,063.00	-501.12	-524.65	-429.49	10.00	10.00	0.00
<b>Niobrara B</b>									
7,200.00	40.32	359.87	7,099.82	-472.36	-524.72	-400.96	10.00	10.00	0.00
7,243.66	44.69	359.87	7,132.00	-442.87	-524.79	-371.70	10.00	10.00	0.00
<b>Niobrara C</b>									
7,300.00	50.32	359.87	7,170.04	-401.34	-524.88	-330.51	10.00	10.00	0.00
7,400.00	60.32	359.87	7,226.86	-319.20	-525.07	-249.03	10.00	10.00	0.00
7,500.00	70.32	359.87	7,268.56	-228.45	-525.28	-159.01	10.00	10.00	0.00
7,526.85	73.01	359.87	7,277.00	-202.97	-525.34	-133.73	10.00	10.00	0.00
<b>Fort Hays</b>									
7,600.00	80.32	359.87	7,293.86	-131.84	-525.51	-63.16	10.00	10.00	0.00
7,628.94	83.22	359.87	7,298.00	-103.19	-525.58	-34.75	10.00	10.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Site:</b>	DREILING 16-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DREILING 27C-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

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)
<b>Codell</b>									
7,699.09	90.23	359.87	7,302.00	-33.20	-525.74	34.68	10.00	10.00	0.00
<b>Start 4162.35 hold at 7699.09 MD - 7"(660' FSL 806' FEL)</b>									
7,700.00	90.23	359.87	7,302.00	-32.29	-525.74	35.58	0.01	0.01	0.00
7,800.00	90.23	359.87	7,301.59	67.70	-525.97	134.78	0.00	0.00	0.00
7,900.00	90.23	359.87	7,301.18	167.70	-526.21	233.98	0.00	0.00	0.00
8,000.00	90.23	359.87	7,300.77	267.70	-526.44	333.18	0.00	0.00	0.00
8,100.00	90.23	359.87	7,300.37	367.70	-526.67	432.37	0.00	0.00	0.00
8,200.00	90.23	359.87	7,299.96	467.70	-526.90	531.57	0.00	0.00	0.00
8,300.00	90.23	359.87	7,299.55	567.70	-527.14	630.77	0.00	0.00	0.00
8,400.00	90.23	359.87	7,299.14	667.70	-527.37	729.97	0.00	0.00	0.00
8,500.00	90.23	359.87	7,298.73	767.70	-527.60	829.17	0.00	0.00	0.00
8,600.00	90.23	359.87	7,298.32	867.70	-527.83	928.37	0.00	0.00	0.00
8,700.00	90.23	359.87	7,297.91	967.69	-528.07	1,027.57	0.00	0.00	0.00
8,800.00	90.23	359.87	7,297.51	1,067.69	-528.30	1,126.76	0.00	0.00	0.00
8,900.00	90.23	359.87	7,297.10	1,167.69	-528.53	1,225.96	0.00	0.00	0.00
9,000.00	90.23	359.87	7,296.69	1,267.69	-528.76	1,325.16	0.00	0.00	0.00
9,100.00	90.23	359.87	7,296.28	1,367.69	-529.00	1,424.36	0.00	0.00	0.00
9,200.00	90.23	359.87	7,295.87	1,467.69	-529.23	1,523.56	0.00	0.00	0.00
9,300.00	90.23	359.87	7,295.46	1,567.69	-529.46	1,622.76	0.00	0.00	0.00
9,400.00	90.23	359.87	7,295.06	1,667.69	-529.70	1,721.96	0.00	0.00	0.00
9,500.00	90.23	359.87	7,294.65	1,767.69	-529.93	1,821.15	0.00	0.00	0.00
9,600.00	90.23	359.87	7,294.24	1,867.68	-530.16	1,920.35	0.00	0.00	0.00
9,700.00	90.23	359.87	7,293.83	1,967.68	-530.39	2,019.55	0.00	0.00	0.00
9,800.00	90.23	359.87	7,293.42	2,067.68	-530.63	2,118.75	0.00	0.00	0.00
9,900.00	90.23	359.87	7,293.01	2,167.68	-530.86	2,217.95	0.00	0.00	0.00
10,000.00	90.23	359.87	7,292.60	2,267.68	-531.09	2,317.15	0.00	0.00	0.00
10,100.00	90.23	359.87	7,292.20	2,367.68	-531.32	2,416.35	0.00	0.00	0.00
10,200.00	90.23	359.87	7,291.79	2,467.68	-531.56	2,515.54	0.00	0.00	0.00
10,300.00	90.23	359.87	7,291.38	2,567.68	-531.79	2,614.74	0.00	0.00	0.00
10,400.00	90.23	359.87	7,290.97	2,667.68	-532.02	2,713.94	0.00	0.00	0.00
10,500.00	90.23	359.87	7,290.56	2,767.67	-532.25	2,813.14	0.00	0.00	0.00
10,600.00	90.23	359.87	7,290.15	2,867.67	-532.49	2,912.34	0.00	0.00	0.00
10,700.00	90.23	359.87	7,289.74	2,967.67	-532.72	3,011.54	0.00	0.00	0.00
10,800.00	90.23	359.87	7,289.34	3,067.67	-532.95	3,110.74	0.00	0.00	0.00
10,900.00	90.23	359.87	7,288.93	3,167.67	-533.18	3,209.93	0.00	0.00	0.00
11,000.00	90.23	359.87	7,288.52	3,267.67	-533.42	3,309.13	0.00	0.00	0.00
11,100.00	90.23	359.87	7,288.11	3,367.67	-533.65	3,408.33	0.00	0.00	0.00
11,200.00	90.23	359.87	7,287.70	3,467.67	-533.88	3,507.53	0.00	0.00	0.00
11,300.00	90.23	359.87	7,287.29	3,567.67	-534.12	3,606.73	0.00	0.00	0.00
11,400.00	90.23	359.87	7,286.89	3,667.66	-534.35	3,705.93	0.00	0.00	0.00
11,500.00	90.23	359.87	7,286.48	3,767.66	-534.58	3,805.13	0.00	0.00	0.00
11,600.00	90.23	359.87	7,286.07	3,867.66	-534.81	3,904.32	0.00	0.00	0.00
11,700.00	90.23	359.87	7,285.66	3,967.66	-535.05	4,003.52	0.00	0.00	0.00
11,800.00	90.23	359.87	7,285.25	4,067.66	-535.28	4,102.72	0.00	0.00	0.00
11,861.44	90.23	359.87	7,285.00	4,129.10	-535.42	4,163.67	0.00	0.00	0.00
<b>TD at 11861.44 - PBHL_DREILING 27C-32HZ(460' FNL 806' FEL)</b>									

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well DREILING 27C-32HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4924' & KB 17' @ 4941.00ft (ASSUMED)
<b>Site:</b>	DREILING 16-32HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	DREILING 27C-32HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_DREILING 27C-3	0.00	0.00	7,285.00	4,129.10	-535.42	1,280,685.26	3,229,048.00	40.1009700	-104.6811960
- 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	
7,699.09	7,302.00	7"(660' FSL 806' FEL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
931.00	931.00	Fox Hills Base				
3,929.66	3,893.00	Parkman				
4,465.80	4,421.00	Sussex				
7,012.78	6,940.00	Sharon Springs				
7,049.85	6,974.00	Niobrara A				
7,153.27	7,063.00	Niobrara B				
7,243.66	7,132.00	Niobrara C				
7,526.85	7,277.00	Fort Hays				
7,628.94	7,298.00	Codell				

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	
1,680.75	1,678.22	-32.94	-28.38	Start 4127.20 hold at 1680.75 MD	
5,807.95	5,742.78	-575.56	-496.02	Start Drop -2.00	
6,307.70	6,240.00	-608.50	-524.40	Start 489.05 hold at 6307.70 MD	
6,796.75	6,729.05	-608.50	-524.40	Start DLS 10.00 TFO 359.87	
7,699.09	7,302.00	-33.20	-525.74	Start 4162.35 hold at 7699.09 MD	
11,861.44	7,285.00	4,129.10	-535.42	TD at 11861.44	