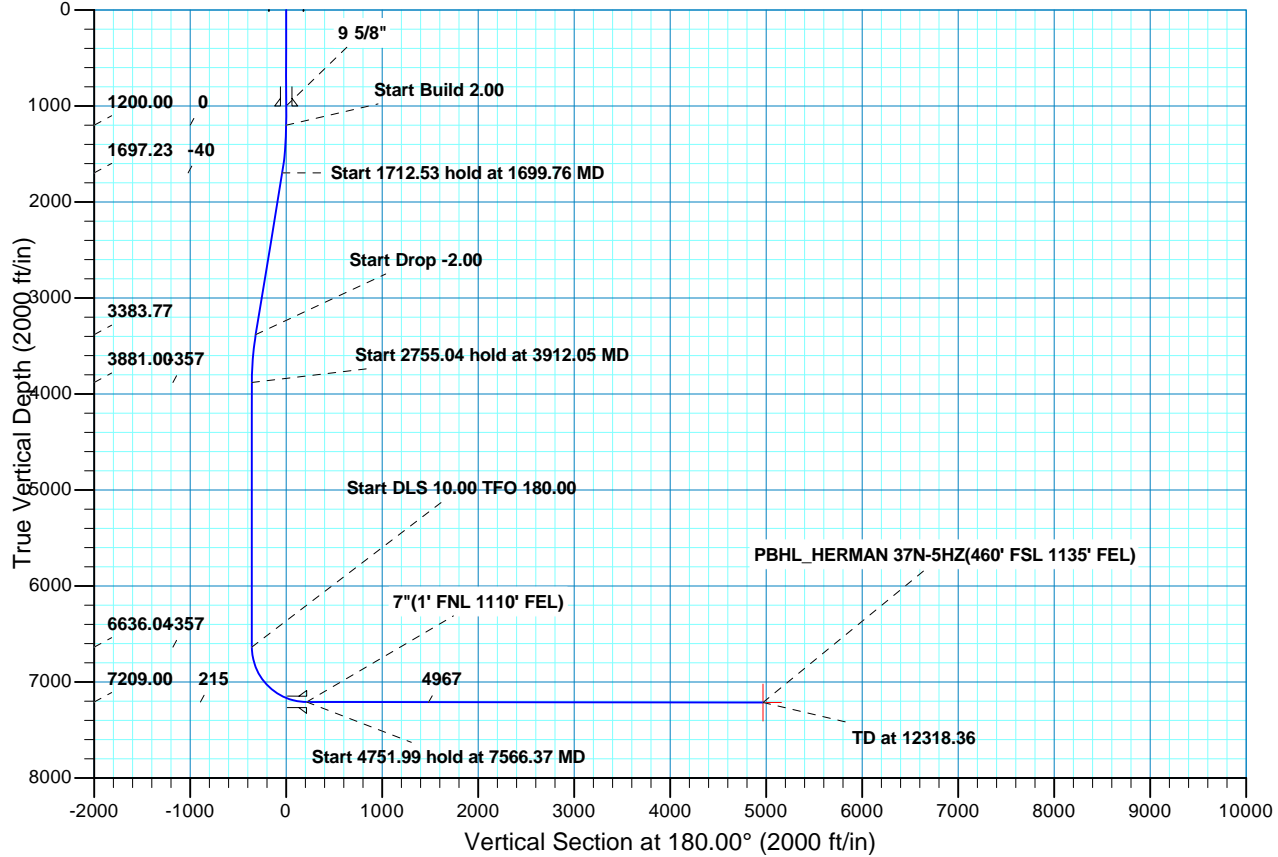
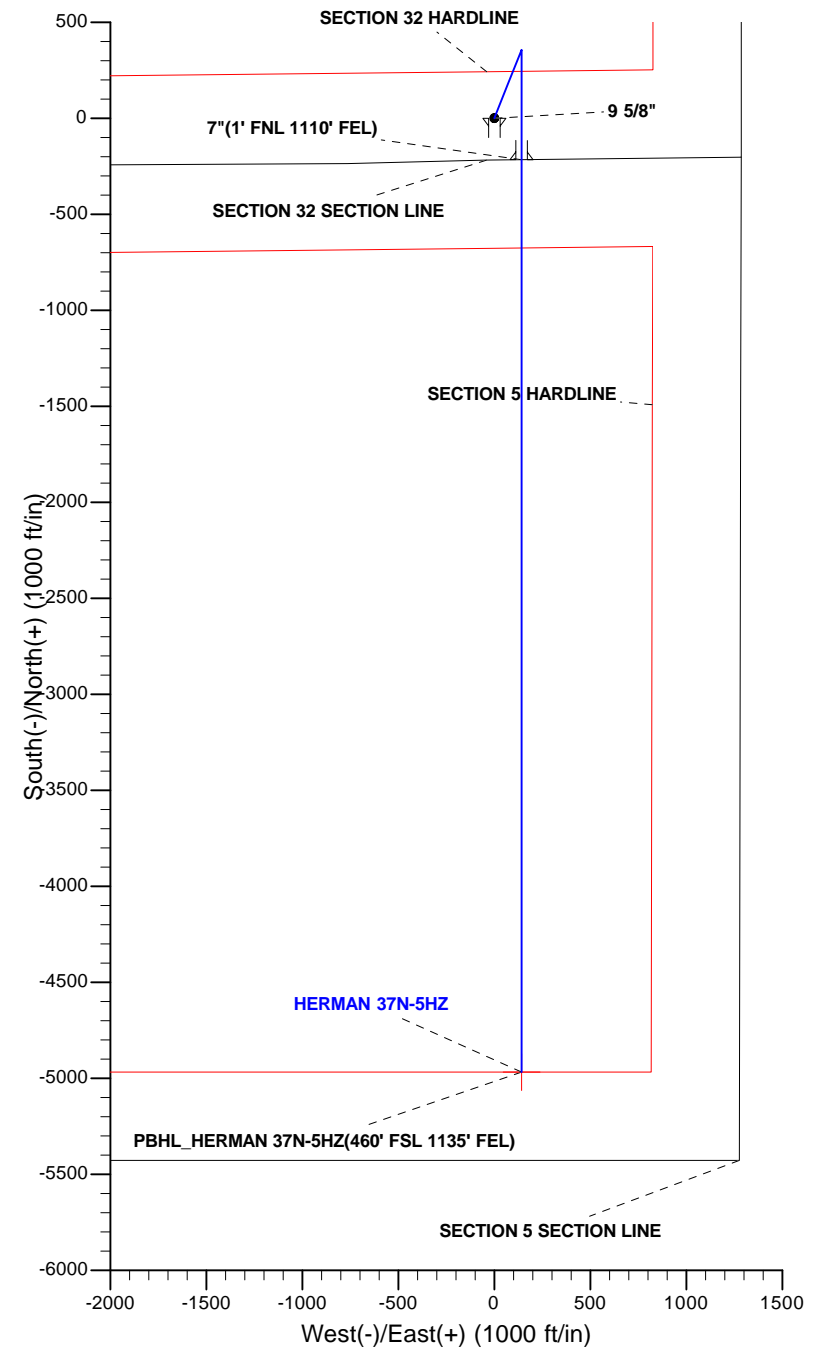




Project: COLORADO NORTHERN ZONE - 83  
 Site: HERMAN 37N-5HZ PAD  
 Well: HERMAN 37N-5HZ  
 Wellbore: OH  
 Design: PLAN #1 PRELIMINARY



WELL DETAILS: HERMAN 37N-5HZ									
GL 4871' & KB 17' @ 4888.00ft (ASSUMED)									
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude			
	0.00	0.00	1307282.14	3196655.59	40.1747429	-104.7962330			
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
1699.76	10.00	21.73	1697.23	40.39	16.10	2.00	21.73	-40.39	
3412.29	10.00	21.73	3383.77	316.50	126.16	0.00	0.00	-316.50	
3912.05	0.00	0.00	3881.00	356.89	142.26	2.00	180.00	-356.89	
6667.09	0.00	0.00	6636.04	356.89	142.26	0.00	0.00	-356.89	
7566.37	89.93	180.00	7209.00	-215.34	142.26	10.00	180.00	215.34	
12318.36	89.93	180.00	7215.00	-4967.33	142.26	0.00	0.00	4967.33	PBHL_HERMAN 37N-5HZ(460' FSL 1135' FEL)
FORMATION TOP DETAILS					CASING DETAILS				
TVDPath	MDPath	Formation	Inc	TVD	MD	Name	Size		
706.00	706.00	Fox Hills	0.00	1000.00	1000.00	9 5/8"	9.625		
4024.00	4055.05	Parkman	0.00	7209.00	7566.37	7"	7.000		
4393.00	4424.05	Sussex	0.00						
7005.00	7067.97	Sharon Springs	40.09						
7083.00	7179.78	Niobrara A	51.27						
7106.00	7218.18	Niobrara B	55.11						
7197.00	7449.63	Niobrara C	78.25						





# Scientific Drilling

## **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**HERMAN 37N-5HZ PAD**

**HERMAN 37N-5HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**15 April, 2013**

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HERMAN 37N-5HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Site:</b>	HERMAN 37N-5HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HERMAN 37N-5HZ	<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>	HERMAN 37N-5HZ PAD, SECTION 32 T3N R66W				
<b>Site Position:</b>	<b>Northing:</b>	1,307,281.91 usft	<b>Latitude:</b>	40.1747440	
<b>From:</b> Lat/Long	<b>Easting:</b>	3,196,577.63 usft	<b>Longitude:</b>	-104.7965120	
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	0.45 °

<b>Well</b>	HERMAN 37N-5HZ, 217' FSL 1286' FEL					
<b>Well Position</b>	<b>+N/-S</b>	-0.38 ft	<b>Northing:</b>	1,307,282.14 usft	<b>Latitude:</b>	40.1747430
	<b>+E/-W</b>	77.96 ft	<b>Easting:</b>	3,196,655.59 usft	<b>Longitude:</b>	-104.7962330
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	4,871.00 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	2013/04/15	8.67	66.77	52,720

<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	180.00

<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	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,699.76	10.00	21.73	1,697.23	40.39	16.10	2.00	2.00	0.00	21.73	
3,412.29	10.00	21.73	3,383.77	316.50	126.16	0.00	0.00	0.00	0.00	
3,912.05	0.00	0.00	3,881.00	356.89	142.26	2.00	-2.00	0.00	180.00	
6,667.09	0.00	0.00	6,636.04	356.89	142.26	0.00	0.00	0.00	0.00	
7,566.37	89.93	180.00	7,209.00	-215.34	142.26	10.00	10.00	-20.02	180.00	
12,318.36	89.93	180.00	7,215.00	-4,967.33	142.26	0.00	0.00	0.00	0.00	PBHL_HERMAN 37N

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HERMAN 37N-5HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Site:</b>	HERMAN 37N-5HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HERMAN 37N-5HZ	<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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	0.00	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	0.00
500.00	0.00	0.00	500.00	0.00	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	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
706.00	0.00	0.00	706.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills</b>										
800.00	0.00	0.00	800.00	0.00	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	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
1,100.00	0.00	0.00	1,100.00	0.00	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	0.00
<b>Start Build 2.00</b>										
1,300.00	2.00	21.73	1,299.98	1.62	0.65	-1.62	2.00	2.00	0.00	0.00
1,400.00	4.00	21.73	1,399.84	6.48	2.58	-6.48	2.00	2.00	0.00	0.00
1,500.00	6.00	21.73	1,499.45	14.58	5.81	-14.58	2.00	2.00	0.00	0.00
1,600.00	8.00	21.73	1,598.70	25.90	10.32	-25.90	2.00	2.00	0.00	0.00
1,699.76	10.00	21.73	1,697.23	40.39	16.10	-40.39	2.00	2.00	0.00	0.00
<b>Start 1712.53 hold at 1699.76 MD</b>										
1,700.00	10.00	21.73	1,697.47	40.43	16.12	-40.43	0.00	0.00	0.00	0.00
1,800.00	10.00	21.73	1,795.95	56.55	22.54	-56.55	0.00	0.00	0.00	0.00
1,900.00	10.00	21.73	1,894.43	72.67	28.97	-72.67	0.00	0.00	0.00	0.00
2,000.00	10.00	21.73	1,992.91	88.80	35.40	-88.80	0.00	0.00	0.00	0.00
2,100.00	10.00	21.73	2,091.39	104.92	41.82	-104.92	0.00	0.00	0.00	0.00
2,200.00	10.00	21.73	2,189.88	121.04	48.25	-121.04	0.00	0.00	0.00	0.00
2,300.00	10.00	21.73	2,288.36	137.17	54.68	-137.17	0.00	0.00	0.00	0.00
2,400.00	10.00	21.73	2,386.84	153.29	61.10	-153.29	0.00	0.00	0.00	0.00
2,500.00	10.00	21.73	2,485.32	169.41	67.53	-169.41	0.00	0.00	0.00	0.00
2,600.00	10.00	21.73	2,583.81	185.53	73.96	-185.53	0.00	0.00	0.00	0.00
2,700.00	10.00	21.73	2,682.29	201.66	80.38	-201.66	0.00	0.00	0.00	0.00
2,800.00	10.00	21.73	2,780.77	217.78	86.81	-217.78	0.00	0.00	0.00	0.00
2,900.00	10.00	21.73	2,879.25	233.90	93.24	-233.90	0.00	0.00	0.00	0.00
3,000.00	10.00	21.73	2,977.73	250.03	99.66	-250.03	0.00	0.00	0.00	0.00
3,100.00	10.00	21.73	3,076.22	266.15	106.09	-266.15	0.00	0.00	0.00	0.00
3,200.00	10.00	21.73	3,174.70	282.27	112.52	-282.27	0.00	0.00	0.00	0.00
3,300.00	10.00	21.73	3,273.18	298.39	118.94	-298.39	0.00	0.00	0.00	0.00
3,400.00	10.00	21.73	3,371.66	314.52	125.37	-314.52	0.00	0.00	0.00	0.00
3,412.29	10.00	21.73	3,383.77	316.50	126.16	-316.50	0.00	0.00	0.00	0.00
<b>Start Drop -2.00</b>										
3,500.00	8.24	21.73	3,470.37	329.41	131.31	-329.41	2.00	-2.00	0.00	0.00
3,600.00	6.24	21.73	3,569.56	341.12	135.97	-341.12	2.00	-2.00	0.00	0.00
3,700.00	4.24	21.73	3,669.14	349.60	139.36	-349.60	2.00	-2.00	0.00	0.00
3,800.00	2.24	21.73	3,768.97	354.85	141.45	-354.85	2.00	-2.00	0.00	0.00
3,900.00	0.24	21.73	3,868.95	356.87	142.25	-356.87	2.00	-2.00	0.00	0.00
3,912.05	0.00	0.00	3,881.00	356.89	142.26	-356.89	2.00	-2.00	0.00	0.00
<b>Start 2755.04 hold at 3912.05 MD</b>										
4,000.00	0.00	0.00	3,968.95	356.89	142.26	-356.89	0.00	0.00	0.00	0.00
4,055.05	0.00	0.00	4,024.00	356.89	142.26	-356.89	0.00	0.00	0.00	0.00
<b>Parkman</b>										

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HERMAN 37N-5HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Site:</b>	HERMAN 37N-5HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HERMAN 37N-5HZ	<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)
4,100.00	0.00	0.00	4,068.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,200.00	0.00	0.00	4,168.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,300.00	0.00	0.00	4,268.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,400.00	0.00	0.00	4,368.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,424.05	0.00	0.00	4,393.00	356.89	142.26	-356.89	0.00	0.00	0.00
<b>Sussex</b>									
4,500.00	0.00	0.00	4,468.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,600.00	0.00	0.00	4,568.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,700.00	0.00	0.00	4,668.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,800.00	0.00	0.00	4,768.95	356.89	142.26	-356.89	0.00	0.00	0.00
4,900.00	0.00	0.00	4,868.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,000.00	0.00	0.00	4,968.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,100.00	0.00	0.00	5,068.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,200.00	0.00	0.00	5,168.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,300.00	0.00	0.00	5,268.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,400.00	0.00	0.00	5,368.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,500.00	0.00	0.00	5,468.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,600.00	0.00	0.00	5,568.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,700.00	0.00	0.00	5,668.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,800.00	0.00	0.00	5,768.95	356.89	142.26	-356.89	0.00	0.00	0.00
5,900.00	0.00	0.00	5,868.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,000.00	0.00	0.00	5,968.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,100.00	0.00	0.00	6,068.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,200.00	0.00	0.00	6,168.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,300.00	0.00	0.00	6,268.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,400.00	0.00	0.00	6,368.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,500.00	0.00	0.00	6,468.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,600.00	0.00	0.00	6,568.95	356.89	142.26	-356.89	0.00	0.00	0.00
6,667.09	0.00	0.00	6,636.04	356.89	142.26	-356.89	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 180.00</b>									
6,700.00	3.29	180.00	6,668.93	355.95	142.26	-355.95	10.00	10.00	0.00
6,800.00	13.29	180.00	6,767.76	341.54	142.26	-341.54	10.00	10.00	0.00
6,900.00	23.29	180.00	6,862.58	310.20	142.26	-310.20	10.00	10.00	0.00
7,000.00	33.29	180.00	6,950.53	262.87	142.26	-262.87	10.00	10.00	0.00
7,067.97	40.09	180.00	7,005.00	222.28	142.26	-222.28	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,100.00	43.29	180.00	7,028.92	200.98	142.26	-200.98	10.00	10.00	0.00
7,179.78	51.27	180.00	7,083.00	142.41	142.26	-142.41	10.00	10.00	0.00
<b>Niobrara A</b>									
7,200.00	53.29	180.00	7,095.37	126.42	142.26	-126.42	10.00	10.00	0.00
7,218.18	55.11	180.00	7,106.00	111.68	142.26	-111.68	10.00	10.00	0.00
<b>Niobrara B</b>									
7,300.00	63.29	180.00	7,147.86	41.46	142.26	-41.46	10.00	10.00	0.00
7,400.00	73.29	180.00	7,184.80	-51.33	142.26	51.33	10.00	10.00	0.00
7,449.64	78.25	180.00	7,197.00	-99.43	142.26	99.43	10.00	10.00	0.00
<b>Niobrara C</b>									
7,500.00	83.29	180.00	7,205.07	-149.13	142.26	149.13	10.00	10.00	0.00
7,566.37	89.93	180.00	7,209.00	-215.34	142.26	215.34	10.00	10.00	0.00
<b>Start 4751.99 hold at 7566.37 MD - 7"(1' FNL 1110' FEL)</b>									
7,600.00	89.93	180.00	7,209.04	-248.97	142.26	248.97	0.00	0.00	0.00
7,700.00	89.93	180.00	7,209.17	-348.97	142.26	348.97	0.00	0.00	0.00
7,800.00	89.93	180.00	7,209.29	-448.97	142.26	448.97	0.00	0.00	0.00
7,900.00	89.93	180.00	7,209.42	-548.97	142.26	548.97	0.00	0.00	0.00

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HERMAN 37N-5HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Site:</b>	HERMAN 37N-5HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HERMAN 37N-5HZ	<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)	
8,000.00	89.93	180.00	7,209.55	-648.97	142.26	648.97	0.00	0.00	0.00	
8,100.00	89.93	180.00	7,209.67	-748.97	142.26	748.97	0.00	0.00	0.00	
8,200.00	89.93	180.00	7,209.80	-848.97	142.26	848.97	0.00	0.00	0.00	
8,300.00	89.93	180.00	7,209.92	-948.97	142.26	948.97	0.00	0.00	0.00	
8,400.00	89.93	180.00	7,210.05	-1,048.97	142.26	1,048.97	0.00	0.00	0.00	
8,500.00	89.93	180.00	7,210.18	-1,148.97	142.26	1,148.97	0.00	0.00	0.00	
8,600.00	89.93	180.00	7,210.30	-1,248.97	142.26	1,248.97	0.00	0.00	0.00	
8,700.00	89.93	180.00	7,210.43	-1,348.97	142.26	1,348.97	0.00	0.00	0.00	
8,800.00	89.93	180.00	7,210.56	-1,448.97	142.26	1,448.97	0.00	0.00	0.00	
8,900.00	89.93	180.00	7,210.68	-1,548.97	142.26	1,548.97	0.00	0.00	0.00	
9,000.00	89.93	180.00	7,210.81	-1,648.97	142.26	1,648.97	0.00	0.00	0.00	
9,100.00	89.93	180.00	7,210.93	-1,748.97	142.26	1,748.97	0.00	0.00	0.00	
9,200.00	89.93	180.00	7,211.06	-1,848.97	142.26	1,848.97	0.00	0.00	0.00	
9,300.00	89.93	180.00	7,211.19	-1,948.97	142.26	1,948.97	0.00	0.00	0.00	
9,400.00	89.93	180.00	7,211.31	-2,048.97	142.26	2,048.97	0.00	0.00	0.00	
9,500.00	89.93	180.00	7,211.44	-2,148.97	142.26	2,148.97	0.00	0.00	0.00	
9,600.00	89.93	180.00	7,211.57	-2,248.97	142.26	2,248.97	0.00	0.00	0.00	
9,700.00	89.93	180.00	7,211.69	-2,348.97	142.26	2,348.97	0.00	0.00	0.00	
9,800.00	89.93	180.00	7,211.82	-2,448.97	142.26	2,448.97	0.00	0.00	0.00	
9,900.00	89.93	180.00	7,211.95	-2,548.97	142.26	2,548.97	0.00	0.00	0.00	
10,000.00	89.93	180.00	7,212.07	-2,648.97	142.26	2,648.97	0.00	0.00	0.00	
10,100.00	89.93	180.00	7,212.20	-2,748.97	142.26	2,748.97	0.00	0.00	0.00	
10,200.00	89.93	180.00	7,212.32	-2,848.97	142.26	2,848.97	0.00	0.00	0.00	
10,300.00	89.93	180.00	7,212.45	-2,948.97	142.26	2,948.97	0.00	0.00	0.00	
10,400.00	89.93	180.00	7,212.58	-3,048.97	142.26	3,048.97	0.00	0.00	0.00	
10,500.00	89.93	180.00	7,212.70	-3,148.97	142.26	3,148.97	0.00	0.00	0.00	
10,600.00	89.93	180.00	7,212.83	-3,248.97	142.26	3,248.97	0.00	0.00	0.00	
10,700.00	89.93	180.00	7,212.96	-3,348.97	142.26	3,348.97	0.00	0.00	0.00	
10,800.00	89.93	180.00	7,213.08	-3,448.97	142.26	3,448.97	0.00	0.00	0.00	
10,900.00	89.93	180.00	7,213.21	-3,548.97	142.26	3,548.97	0.00	0.00	0.00	
11,000.00	89.93	180.00	7,213.33	-3,648.97	142.26	3,648.97	0.00	0.00	0.00	
11,100.00	89.93	180.00	7,213.46	-3,748.97	142.26	3,748.97	0.00	0.00	0.00	
11,200.00	89.93	180.00	7,213.59	-3,848.97	142.26	3,848.97	0.00	0.00	0.00	
11,300.00	89.93	180.00	7,213.71	-3,948.97	142.26	3,948.97	0.00	0.00	0.00	
11,400.00	89.93	180.00	7,213.84	-4,048.97	142.26	4,048.97	0.00	0.00	0.00	
11,500.00	89.93	180.00	7,213.97	-4,148.97	142.26	4,148.97	0.00	0.00	0.00	
11,600.00	89.93	180.00	7,214.09	-4,248.97	142.26	4,248.97	0.00	0.00	0.00	
11,700.00	89.93	180.00	7,214.22	-4,348.97	142.26	4,348.97	0.00	0.00	0.00	
11,800.00	89.93	180.00	7,214.35	-4,448.97	142.26	4,448.97	0.00	0.00	0.00	
11,900.00	89.93	180.00	7,214.47	-4,548.97	142.26	4,548.97	0.00	0.00	0.00	
12,000.00	89.93	180.00	7,214.60	-4,648.97	142.26	4,648.97	0.00	0.00	0.00	
12,100.00	89.93	180.00	7,214.72	-4,748.97	142.26	4,748.97	0.00	0.00	0.00	
12,200.00	89.93	180.00	7,214.85	-4,848.97	142.26	4,848.97	0.00	0.00	0.00	
12,300.00	89.93	180.00	7,214.98	-4,948.97	142.26	4,948.97	0.00	0.00	0.00	
12,318.36	89.93	180.00	7,215.00	-4,967.33	142.26	4,967.33	0.00	0.00	0.00	
<b>PBHL_HERMAN 37N-5HZ(460' FSL 1135' FEL)</b>										

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well HERMAN 37N-5HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
<b>Site:</b>	HERMAN 37N-5HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	HERMAN 37N-5HZ	<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
PBHL_HERMAN 37N-5H - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	7,215.00	-4,967.33	142.26	1,302,316.10	3,196,837.27	40.1611070	-104.7957240

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	1,000.00	9 5/8"	9.625	12.250	
7,566.37	7,209.00	7"(1' FNL 1110' FEL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
706.00	706.00	Fox Hills				
4,055.05	4,024.00	Parkman				
4,424.05	4,393.00	Sussex				
7,067.97	7,005.00	Sharon Springs				
7,179.78	7,083.00	Niobrara A				
7,218.18	7,106.00	Niobrara B				
7,449.64	7,197.00	Niobrara C				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
1,200.00	1,200.00	0.00	0.00	Start Build 2.00	
1,699.76	1,697.23	40.39	16.10	Start 1712.53 hold at 1699.76 MD	
3,412.29	3,383.77	316.50	126.16	Start Drop -2.00	
3,912.05	3,881.00	356.89	142.26	Start 2755.04 hold at 3912.05 MD	
6,667.09	6,636.04	356.89	142.26	Start DLS 10.00 TFO 180.00	
7,566.37	7,209.00	-215.34	142.26	Start 4751.99 hold at 7566.37 MD	
12,318.36	7,215.00	-4,967.33	142.26	TD at 12318.36	