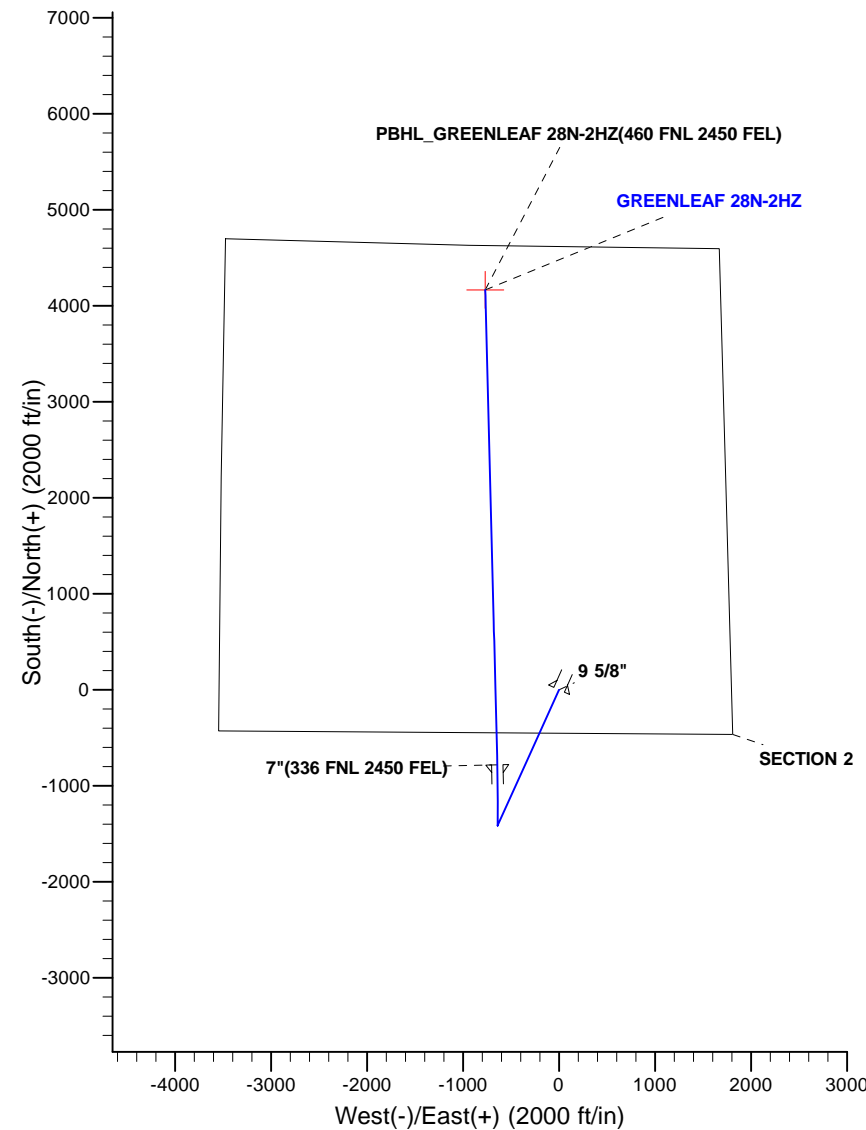
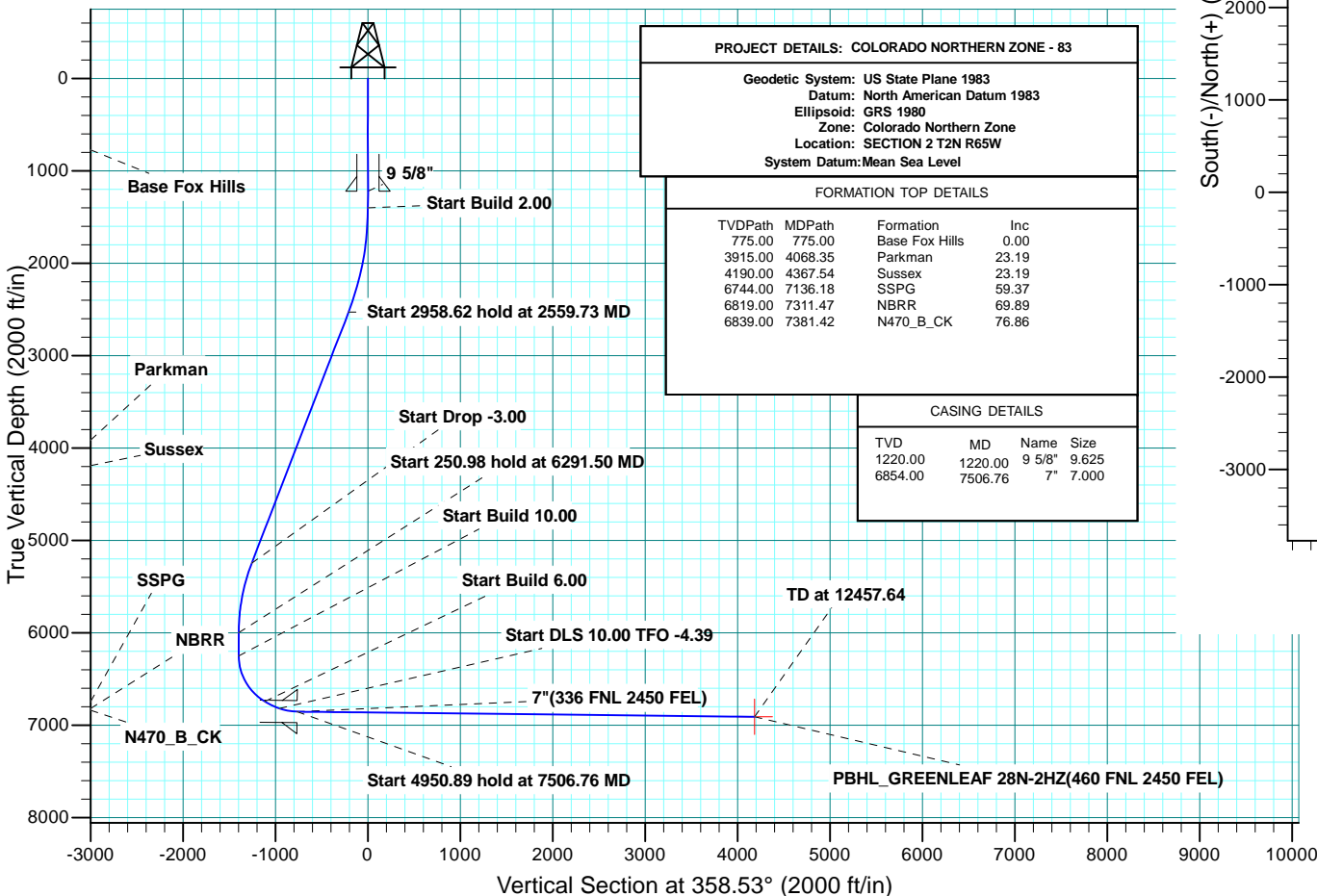




Project: COLORADO NORTHERN ZONE - 83  
Site: GREENLEAF 15-2HZ PAD  
Well: GREENLEAF 28N-2HZ  
Wellbore: OH  
Design: PLAN #1 PRELIMINARY



WELL DETAILS: GREENLEAF 28N-2HZ									
GL 4847 & KB 17 @ 4864.00ft (ASSUMED)									
		+N/-S 0.00	+E/-W 0.00	Northing 1302940.30	Easting 3243777.93	Latitude 40.1616750	Longitude -104.6277600		
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	0.00	0.00	0.00
2559.73	23.19	204.37	2528.31	-210.92	-95.54	2.00	204.37	-208.40	
5518.35	23.19	204.37	5247.79	-1272.38	-576.31	0.00	0.00	-1257.18	
6291.50	0.00	0.00	6000.00	-1413.00	-640.00	3.00	180.00	-1396.12	
6542.48	0.00	0.00	6250.98	-1413.00	-640.00	0.00	0.00	-1396.12	
7136.18	59.37	0.00	6744.00	-1131.95	-640.00	10.00	0.00	-1115.16	
7311.47	69.89	0.00	6819.00	-973.80	-640.00	6.00	0.00	-957.06	
7506.76	89.36	358.53	6854.00	-782.65	-642.52	10.00	-4.39	-765.91	
12457.64	89.36	358.53	6909.00	4166.31	-769.25	0.00	0.00	4184.67	PBHL_GREENLEAF 28N-2HZ(460 FNL 2450 FEL)
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL 6909.00	4166.31	-769.25	1307098.83	3242967.74	40.1731120	-104.6305128		Point	
- plan hits target center									





**Scientific Drilling**

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**GREENLEAF 15-2HZ PAD**

**GREENLEAF 28N-2HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**03 September, 2014**

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well GREENLEAF 28N-2HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Site:</b>	GREENLEAF 15-2HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GREENLEAF 28N-2HZ	<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>	GREENLEAF 15-2HZ PAD, SECTION 2 T2N R65W			
<b>Site Position:</b>		<b>Northing:</b>	1,302,940.31 usft	<b>Latitude:</b> 40.1616750
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,243,777.93 usft	<b>Longitude:</b> -104.6277600
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.56 °

<b>Well</b>	GREENLEAF 28N-2HZ, 452 FSL 1795 FEL			
<b>Well Position</b>	<b>+N/-S</b>	-0.01 ft	<b>Northing:</b>	1,302,940.30 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	3,243,777.93 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft
			<b>Ground Level:</b>	4,847.00 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>
	BGGM2014	8/20/2014	8.43	66.77	52,581

<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	358.53

<b>Plan Sections</b>										
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	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,559.73	23.19	204.37	2,528.31	-210.92	-95.54	2.00	2.00	0.00	204.37	
5,518.35	23.19	204.37	5,247.79	-1,272.38	-576.31	0.00	0.00	0.00	0.00	
6,291.50	0.00	0.00	6,000.00	-1,413.00	-640.00	3.00	-3.00	0.00	180.00	
6,542.48	0.00	0.00	6,250.98	-1,413.00	-640.00	0.00	0.00	0.00	0.00	
7,136.19	59.37	0.00	6,744.00	-1,131.95	-640.00	10.00	10.00	0.00	0.00	
7,311.47	69.89	0.00	6,819.00	-973.80	-640.00	6.00	6.00	0.00	0.00	
7,506.76	89.36	358.53	6,854.00	-782.65	-642.52	10.00	9.97	-0.75	-4.39	
12,457.64	89.36	358.53	6,909.00	4,166.31	-769.25	0.00	0.00	0.00	0.00	PBHL_GREENLEAF :

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well GREENLEAF 28N-2HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Site:</b>	GREENLEAF 15-2HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GREENLEAF 28N-2HZ	<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 (°/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
775.00	0.00	0.00	775.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Fox Hills</b>									
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
1,220.00	0.00	0.00	1,220.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,500.00	2.00	204.37	1,499.98	-1.59	-0.72	-1.57	2.00	2.00	0.00
1,600.00	4.00	204.37	1,599.84	-6.36	-2.88	-6.28	2.00	2.00	0.00
1,700.00	6.00	204.37	1,699.45	-14.30	-6.47	-14.12	2.00	2.00	0.00
1,800.00	8.00	204.37	1,798.70	-25.40	-11.50	-25.09	2.00	2.00	0.00
1,900.00	10.00	204.37	1,897.47	-39.65	-17.96	-39.17	2.00	2.00	0.00
2,000.00	12.00	204.37	1,995.62	-57.03	-25.83	-56.34	2.00	2.00	0.00
2,100.00	14.00	204.37	2,093.06	-77.52	-35.11	-76.59	2.00	2.00	0.00
2,200.00	16.00	204.37	2,189.64	-101.09	-45.79	-99.88	2.00	2.00	0.00
2,300.00	18.00	204.37	2,285.27	-127.72	-57.85	-126.20	2.00	2.00	0.00
2,400.00	20.00	204.37	2,379.82	-157.38	-71.28	-155.50	2.00	2.00	0.00
2,500.00	22.00	204.37	2,473.17	-190.02	-86.07	-187.75	2.00	2.00	0.00
2,559.73	23.19	204.37	2,528.31	-210.92	-95.54	-208.40	2.00	2.00	0.00
<b>Start 2958.62 hold at 2559.73 MD</b>									
2,600.00	23.19	204.37	2,565.33	-225.37	-102.08	-222.68	0.00	0.00	0.00
2,700.00	23.19	204.37	2,657.24	-261.25	-118.33	-258.13	0.00	0.00	0.00
2,800.00	23.19	204.37	2,749.16	-297.13	-134.58	-293.58	0.00	0.00	0.00
2,900.00	23.19	204.37	2,841.08	-333.00	-150.83	-329.03	0.00	0.00	0.00
3,000.00	23.19	204.37	2,933.00	-368.88	-167.08	-364.47	0.00	0.00	0.00
3,100.00	23.19	204.37	3,024.91	-404.76	-183.33	-399.92	0.00	0.00	0.00
3,200.00	23.19	204.37	3,116.83	-440.63	-199.58	-435.37	0.00	0.00	0.00
3,300.00	23.19	204.37	3,208.75	-476.51	-215.83	-470.82	0.00	0.00	0.00
3,400.00	23.19	204.37	3,300.67	-512.39	-232.08	-506.27	0.00	0.00	0.00
3,500.00	23.19	204.37	3,392.58	-548.26	-248.33	-541.71	0.00	0.00	0.00
3,600.00	23.19	204.37	3,484.50	-584.14	-264.58	-577.16	0.00	0.00	0.00
3,700.00	23.19	204.37	3,576.42	-620.02	-280.83	-612.61	0.00	0.00	0.00
3,800.00	23.19	204.37	3,668.34	-655.90	-297.08	-648.06	0.00	0.00	0.00
3,900.00	23.19	204.37	3,760.25	-691.77	-313.33	-683.51	0.00	0.00	0.00
4,000.00	23.19	204.37	3,852.17	-727.65	-329.58	-718.95	0.00	0.00	0.00
4,068.35	23.19	204.37	3,915.00	-752.17	-340.69	-743.19	0.00	0.00	0.00
<b>Parkman</b>									
4,100.00	23.19	204.37	3,944.09	-763.53	-345.83	-754.40	0.00	0.00	0.00
4,200.00	23.19	204.37	4,036.00	-799.40	-362.08	-789.85	0.00	0.00	0.00
4,300.00	23.19	204.37	4,127.92	-835.28	-378.33	-825.30	0.00	0.00	0.00
4,367.54	23.19	204.37	4,190.00	-859.51	-389.30	-849.24	0.00	0.00	0.00

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well GREENLEAF 28N-2HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Site:</b>	GREENLEAF 15-2HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GREENLEAF 28N-2HZ	<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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>Sussex</b>									
4,400.00	23.19	204.37	4,219.84	-871.16	-394.58	-860.75	0.00	0.00	0.00
4,500.00	23.19	204.37	4,311.76	-907.03	-410.83	-896.20	0.00	0.00	0.00
4,600.00	23.19	204.37	4,403.67	-942.91	-427.08	-931.64	0.00	0.00	0.00
4,700.00	23.19	204.37	4,495.59	-978.79	-443.33	-967.09	0.00	0.00	0.00
4,800.00	23.19	204.37	4,587.51	-1,014.66	-459.58	-1,002.54	0.00	0.00	0.00
4,900.00	23.19	204.37	4,679.43	-1,050.54	-475.83	-1,037.99	0.00	0.00	0.00
5,000.00	23.19	204.37	4,771.34	-1,086.42	-492.08	-1,073.44	0.00	0.00	0.00
5,100.00	23.19	204.37	4,863.26	-1,122.29	-508.33	-1,108.88	0.00	0.00	0.00
5,200.00	23.19	204.37	4,955.18	-1,158.17	-524.58	-1,144.33	0.00	0.00	0.00
5,300.00	23.19	204.37	5,047.10	-1,194.05	-540.83	-1,179.78	0.00	0.00	0.00
5,400.00	23.19	204.37	5,139.01	-1,229.92	-557.08	-1,215.23	0.00	0.00	0.00
5,500.00	23.19	204.37	5,230.93	-1,265.80	-573.33	-1,250.68	0.00	0.00	0.00
5,518.35	23.19	204.37	5,247.79	-1,272.38	-576.31	-1,257.18	0.00	0.00	0.00
<b>Start Drop -3.00</b>									
5,600.00	20.74	204.37	5,323.51	-1,300.21	-588.91	-1,284.67	3.00	-3.00	0.00
5,700.00	17.74	204.37	5,417.91	-1,330.23	-602.51	-1,314.33	3.00	-3.00	0.00
5,800.00	14.74	204.37	5,513.91	-1,355.71	-614.05	-1,339.51	3.00	-3.00	0.00
5,900.00	11.74	204.37	5,611.24	-1,376.58	-623.50	-1,360.13	3.00	-3.00	0.00
6,000.00	8.74	204.37	5,709.63	-1,392.78	-630.84	-1,376.13	3.00	-3.00	0.00
6,100.00	5.74	204.37	5,808.82	-1,404.26	-636.04	-1,387.48	3.00	-3.00	0.00
6,200.00	2.74	204.37	5,908.54	-1,411.00	-639.10	-1,394.14	3.00	-3.00	0.00
6,291.50	0.00	0.00	6,000.00	-1,413.00	-640.00	-1,396.12	3.00	-3.00	0.00
<b>Start 250.98 hold at 6291.50 MD</b>									
6,300.00	0.00	0.00	6,008.50	-1,413.00	-640.00	-1,396.12	0.00	0.00	0.00
6,400.00	0.00	0.00	6,108.50	-1,413.00	-640.00	-1,396.12	0.00	0.00	0.00
6,500.00	0.00	0.00	6,208.50	-1,413.00	-640.00	-1,396.12	0.00	0.00	0.00
6,542.48	0.00	0.00	6,250.98	-1,413.00	-640.00	-1,396.12	0.00	0.00	0.00
<b>Start Build 10.00</b>									
6,600.00	5.75	0.00	6,308.41	-1,410.12	-640.00	-1,393.23	10.00	10.00	0.00
6,700.00	15.75	0.00	6,406.53	-1,391.48	-640.00	-1,374.61	10.00	10.00	0.00
6,800.00	25.75	0.00	6,499.92	-1,356.09	-640.00	-1,339.23	10.00	10.00	0.00
6,900.00	35.75	0.00	6,585.75	-1,305.03	-640.00	-1,288.18	10.00	10.00	0.00
7,000.00	45.75	0.00	6,661.41	-1,239.83	-640.00	-1,223.00	10.00	10.00	0.00
7,100.00	55.75	0.00	6,724.59	-1,162.49	-640.00	-1,145.69	10.00	10.00	0.00
7,136.19	59.37	0.00	6,744.00	-1,131.95	-640.00	-1,115.16	10.00	10.00	0.00
<b>Start Build 6.00 - SSPG</b>									
7,200.00	63.20	0.00	6,774.65	-1,076.00	-640.00	-1,059.23	6.00	6.00	0.00
7,300.00	69.20	0.00	6,814.99	-984.54	-640.00	-967.80	6.00	6.00	0.00
7,311.47	69.89	0.00	6,819.00	-973.80	-640.00	-957.06	6.00	6.00	0.00
<b>Start DLS 10.00 TFO -4.39 - NBRR</b>									
7,381.42	76.86	359.45	6,839.00	-906.82	-640.33	-890.09	10.00	9.97	-0.78
<b>N470_B_CK</b>									
7,400.00	78.72	359.31	6,842.93	-888.66	-640.52	-871.93	10.00	9.97	-0.75
7,500.00	88.69	358.58	6,853.89	-789.40	-642.35	-772.66	10.00	9.97	-0.73
7,506.76	89.36	358.53	6,854.00	-782.65	-642.52	-765.90	10.00	9.97	-0.72
<b>Start 4950.89 hold at 7506.76 MD - 7"(336 FNL 2450 FEL)</b>									
7,600.00	89.36	358.53	6,855.04	-689.44	-644.91	-672.67	0.00	0.00	0.00
7,700.00	89.36	358.53	6,856.15	-589.48	-647.47	-572.68	0.00	0.00	0.00
7,800.00	89.36	358.53	6,857.26	-489.52	-650.03	-472.68	0.00	0.00	0.00
7,900.00	89.36	358.53	6,858.37	-389.56	-652.59	-372.69	0.00	0.00	0.00
8,000.00	89.36	358.53	6,859.48	-289.60	-655.15	-272.70	0.00	0.00	0.00
8,100.00	89.36	358.53	6,860.59	-189.64	-657.71	-172.70	0.00	0.00	0.00

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well GREENLEAF 28N-2HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Site:</b>	GREENLEAF 15-2HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GREENLEAF 28N-2HZ	<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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,200.00	89.36	358.53	6,861.70	-89.68	-660.27	-72.71	0.00	0.00	0.00	
8,300.00	89.36	358.53	6,862.81	10.29	-662.83	27.29	0.00	0.00	0.00	
8,400.00	89.36	358.53	6,863.92	110.25	-665.39	127.28	0.00	0.00	0.00	
8,500.00	89.36	358.53	6,865.03	210.21	-667.95	227.27	0.00	0.00	0.00	
8,600.00	89.36	358.53	6,866.15	310.17	-670.51	327.27	0.00	0.00	0.00	
8,700.00	89.36	358.53	6,867.26	410.13	-673.07	427.26	0.00	0.00	0.00	
8,800.00	89.36	358.53	6,868.37	510.09	-675.63	527.26	0.00	0.00	0.00	
8,900.00	89.36	358.53	6,869.48	610.05	-678.19	627.25	0.00	0.00	0.00	
9,000.00	89.36	358.53	6,870.59	710.01	-680.75	727.24	0.00	0.00	0.00	
9,100.00	89.36	358.53	6,871.70	809.97	-683.31	827.24	0.00	0.00	0.00	
9,200.00	89.36	358.53	6,872.81	909.94	-685.87	927.23	0.00	0.00	0.00	
9,300.00	89.36	358.53	6,873.92	1,009.90	-688.42	1,027.22	0.00	0.00	0.00	
9,400.00	89.36	358.53	6,875.03	1,109.86	-690.98	1,127.22	0.00	0.00	0.00	
9,500.00	89.36	358.53	6,876.14	1,209.82	-693.54	1,227.21	0.00	0.00	0.00	
9,600.00	89.36	358.53	6,877.25	1,309.78	-696.10	1,327.21	0.00	0.00	0.00	
9,700.00	89.36	358.53	6,878.37	1,409.74	-698.66	1,427.20	0.00	0.00	0.00	
9,800.00	89.36	358.53	6,879.48	1,509.70	-701.22	1,527.19	0.00	0.00	0.00	
9,900.00	89.36	358.53	6,880.59	1,609.66	-703.78	1,627.19	0.00	0.00	0.00	
10,000.00	89.36	358.53	6,881.70	1,709.62	-706.34	1,727.18	0.00	0.00	0.00	
10,100.00	89.36	358.53	6,882.81	1,809.59	-708.90	1,827.18	0.00	0.00	0.00	
10,200.00	89.36	358.53	6,883.92	1,909.55	-711.46	1,927.17	0.00	0.00	0.00	
10,300.00	89.36	358.53	6,885.03	2,009.51	-714.02	2,027.16	0.00	0.00	0.00	
10,400.00	89.36	358.53	6,886.14	2,109.47	-716.58	2,127.16	0.00	0.00	0.00	
10,500.00	89.36	358.53	6,887.25	2,209.43	-719.14	2,227.15	0.00	0.00	0.00	
10,600.00	89.36	358.53	6,888.36	2,309.39	-721.70	2,327.14	0.00	0.00	0.00	
10,700.00	89.36	358.53	6,889.47	2,409.35	-724.26	2,427.14	0.00	0.00	0.00	
10,800.00	89.36	358.53	6,890.59	2,509.31	-726.82	2,527.13	0.00	0.00	0.00	
10,900.00	89.36	358.53	6,891.70	2,609.27	-729.38	2,627.13	0.00	0.00	0.00	
11,000.00	89.36	358.53	6,892.81	2,709.23	-731.94	2,727.12	0.00	0.00	0.00	
11,100.00	89.36	358.53	6,893.92	2,809.20	-734.50	2,827.11	0.00	0.00	0.00	
11,200.00	89.36	358.53	6,895.03	2,909.16	-737.06	2,927.11	0.00	0.00	0.00	
11,300.00	89.36	358.53	6,896.14	3,009.12	-739.62	3,027.10	0.00	0.00	0.00	
11,400.00	89.36	358.53	6,897.25	3,109.08	-742.18	3,127.10	0.00	0.00	0.00	
11,500.00	89.36	358.53	6,898.36	3,209.04	-744.74	3,227.09	0.00	0.00	0.00	
11,600.00	89.36	358.53	6,899.47	3,309.00	-747.30	3,327.08	0.00	0.00	0.00	
11,700.00	89.36	358.53	6,900.58	3,408.96	-749.86	3,427.08	0.00	0.00	0.00	
11,800.00	89.36	358.53	6,901.69	3,508.92	-752.42	3,527.07	0.00	0.00	0.00	
11,900.00	89.36	358.53	6,902.81	3,608.88	-754.98	3,627.06	0.00	0.00	0.00	
12,000.00	89.36	358.53	6,903.92	3,708.85	-757.54	3,727.06	0.00	0.00	0.00	
12,100.00	89.36	358.53	6,905.03	3,808.81	-760.10	3,827.05	0.00	0.00	0.00	
12,200.00	89.36	358.53	6,906.14	3,908.77	-762.66	3,927.05	0.00	0.00	0.00	
12,300.00	89.36	358.53	6,907.25	4,008.73	-765.21	4,027.04	0.00	0.00	0.00	
12,400.00	89.36	358.53	6,908.36	4,108.69	-767.77	4,127.03	0.00	0.00	0.00	
12,457.64	89.36	358.53	6,909.00	4,166.31	-769.25	4,184.67	0.00	0.00	0.00	
TD at 12457.64 - PBHL_GREENLEAF 28N-2HZ(460 FNL 2450 FEL)										

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well GREENLEAF 28N-2HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4847 & KB 17 @ 4864.00ft (ASSUMED)
<b>Site:</b>	GREENLEAF 15-2HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	GREENLEAF 28N-2HZ	<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_GREENLEAF 28I	0.00	0.00	6,909.00	4,166.31	-769.25	1,307,098.83	3,242,967.74	40.1731120	-104.6305128
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,220.00	1,220.00	9 5/8"	9.625	13.500	
7,506.76	6,854.00	7"(336 FNL 2450 FEL)	7.000	8.750	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
775.00	775.00	Base Fox Hills				
4,068.35	3,915.00	Parkman				
4,367.54	4,190.00	Sussex				
7,136.19	6,744.00	SSPG				
7,311.47	6,819.00	NBRR				
7,381.42	6,839.00	N470_B_CK				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,400.00	1,400.00	0.00	0.00	Start Build 2.00	
2,559.73	2,528.31	-210.92	-95.54	Start 2958.62 hold at 2559.73 MD	
5,518.35	5,247.79	-1,272.38	-576.31	Start Drop -3.00	
6,291.50	6,000.00	-1,413.00	-640.00	Start 250.98 hold at 6291.50 MD	
6,542.48	6,250.98	-1,413.00	-640.00	Start Build 10.00	
7,136.19	6,744.00	-1,131.95	-640.00	Start Build 6.00	
7,311.47	6,819.00	-973.80	-640.00	Start DLS 10.00 TFO -4.39	
7,506.76	6,854.00	-782.65	-642.52	Start 4950.89 hold at 7506.76 MD	
12,457.64	6,909.00	4,166.31	-769.25	TD at 12457.64	