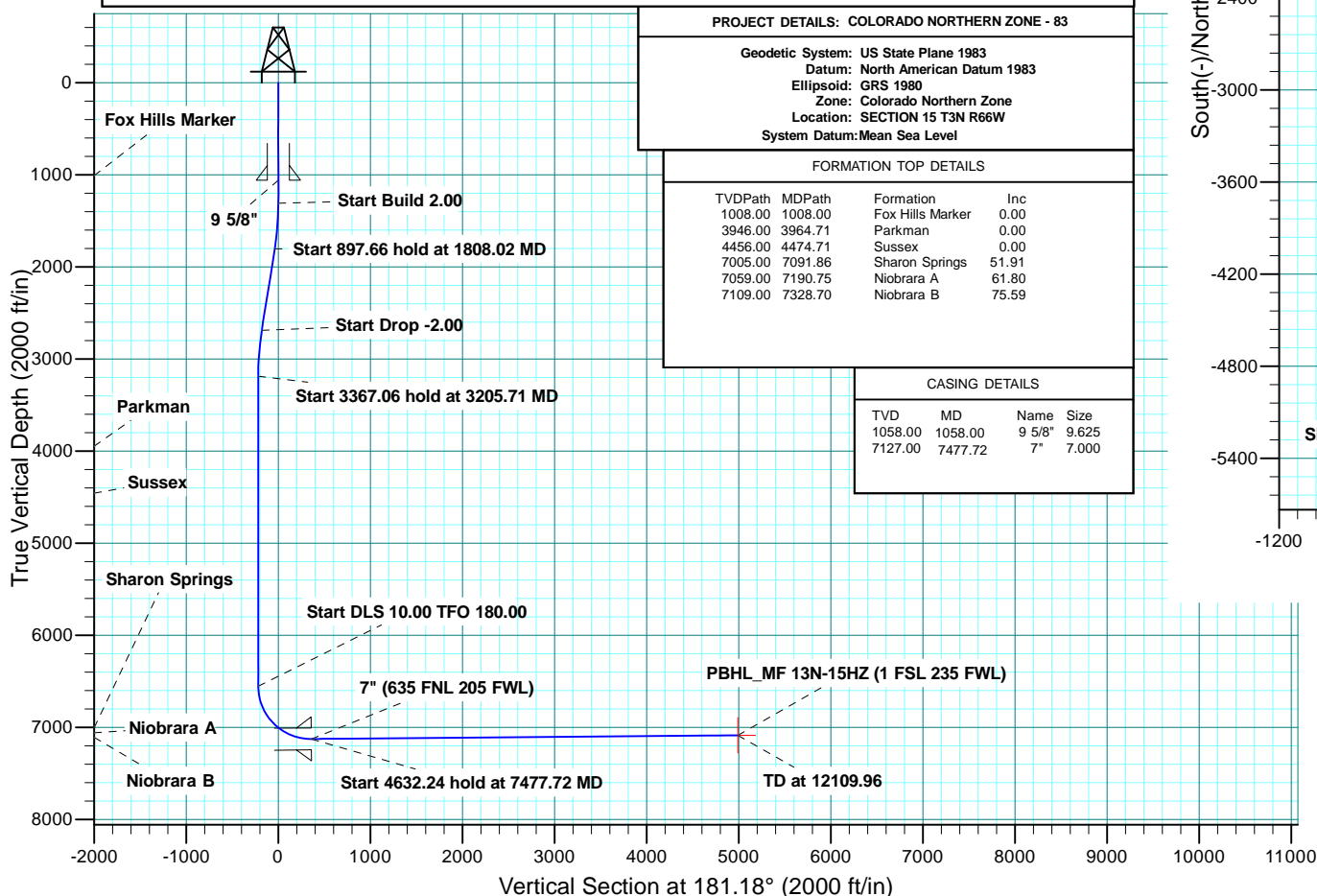
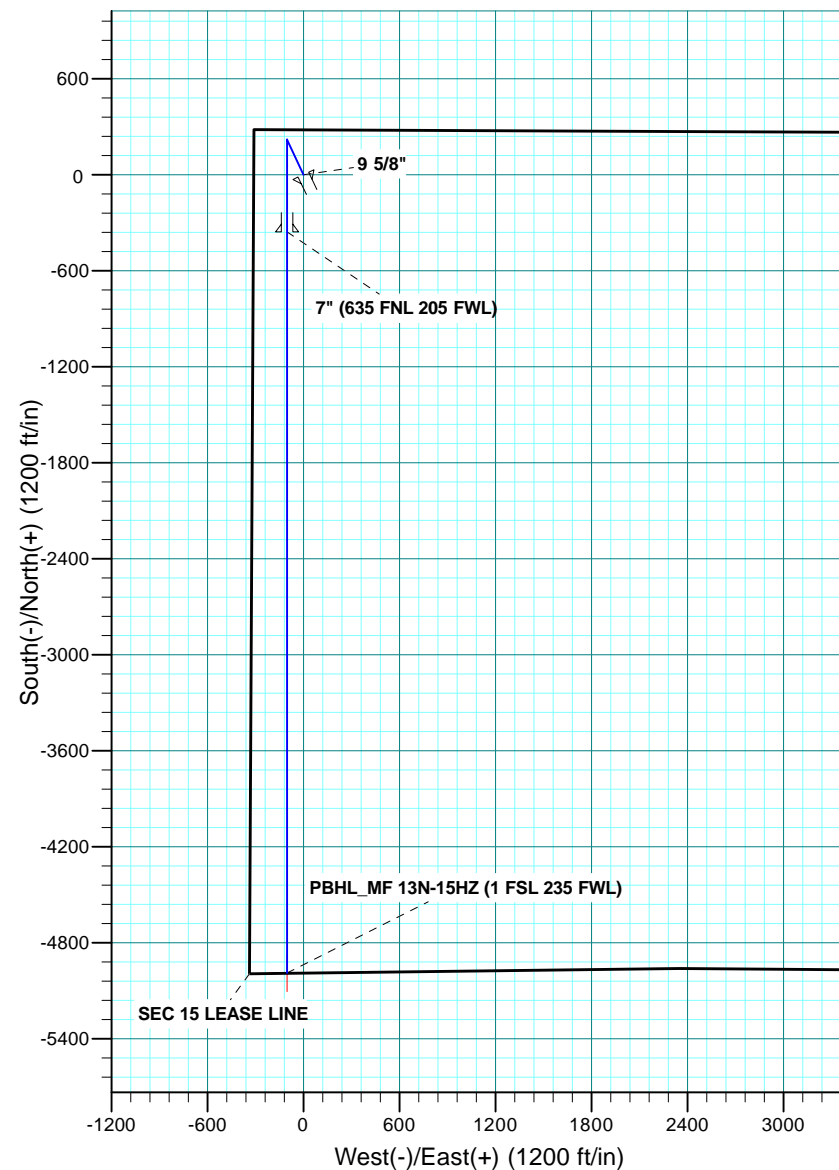


WELL DETAILS: MORNING FRESH 13N-15HZ										
GL 4851 & KB 17 @ 4868.00ft (ASSUMED)										
		+N/-S	+E/-W	Northing	Easting	Latitude		Longitude		
		0.00	0.00	1328005.56	3203301.92	40.2314820		-104.7718400		
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1308.00	0.00	0.00	1308.00	0.00	0.00	0.00	0.00	0.00		Start Build 2.00
1808.02	10.00	334.90	1805.49	39.42	-18.46	2.00	334.90	-39.03		Start 897.66 hold at 1808.02 MD
2705.68	10.00	334.90	2689.51	180.58	-84.58	0.00	0.00	-178.80		Start Drop -2.00
3205.71	0.00	0.00	3187.00	220.00	-103.05	2.00	180.00	-217.83		Start 3367.06 hold at 3205.71 MD
6572.77	0.00	0.00	6554.06	220.00	-103.05	0.00	0.00	-217.83		Start DLS 10.00 TFO 180.00
7477.72	90.49	180.00	7127.00	-357.91	-103.05	10.00	180.00	359.96		Start 4632.24 hold at 7477.72 MD
12109.96	90.49	180.00	7087.00	-4989.97	-103.05	0.00	0.00	4991.04	PBHL	TD at 12109.96
DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude		Longitude		Shape
PBHL	7087.00	-4989.97	-103.05	1323014.92	3203239.85	40.2177840		-104.7722090		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: SECTION 15 T3N R66W			
System Datum: Mean Sea Level			
FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
1008.00	1008.00	Fox Hills Marker	0.00
3946.00	3964.71	Parkman	0.00
4456.00	4474.71	Sussex	0.00
7005.00	7091.86	Sharon Springs	51.91
7059.00	7190.75	Niobrara A	61.80
7109.00	7328.70	Niobrara B	75.59
CASING DETAILS			
TVD	MD	Name	Size
1058.00	1058.00	9 5/8"	9.625
7127.00	7477.72	7"	7.000





**Scientific Drilling**

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**MORNING FRESH 30-15HZ**

**MORNING FRESH 13N-15HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**13 November, 2013**

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well MORNING FRESH 13N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Site:</b>	MORNING FRESH 30-15HZ	<b>North Reference:</b>	True
<b>Well:</b>	MORNING FRESH 13N-15HZ	<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>	MORNING FRESH 30-15HZ, SECTION 15 T3N R66W			
<b>Site Position:</b>		<b>Northing:</b>	1,328,023.62 usft	<b>Latitude:</b> 40.2315310
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,203,325.79 usft	<b>Longitude:</b> -104.7717540
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.47 °

<b>Well</b>	MORNING FRESH 13N-15HZ, 280 FNL 310 FWL			
<b>Well Position</b>	<b>+N/-S</b>	-17.86 ft	<b>Northing:</b>	1,328,005.56 usft
	<b>+E/-W</b>	-24.01 ft	<b>Easting:</b>	3,203,301.92 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft	<b>Ground Level:</b> 4,851.00 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>
	BGGM2013	11/12/2013	8.56	66.82	52,714

<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	181.18

<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	
1,308.00	0.00	0.00	1,308.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,808.02	10.00	334.90	1,805.49	39.42	-18.46	2.00	2.00	0.00	334.90	
2,705.68	10.00	334.90	2,689.51	180.58	-84.58	0.00	0.00	0.00	0.00	
3,205.71	0.00	0.00	3,187.00	220.00	-103.05	2.00	-2.00	0.00	180.00	
6,572.77	0.00	0.00	6,554.06	220.00	-103.05	0.00	0.00	0.00	0.00	
7,477.72	90.49	180.00	7,127.00	-357.91	-103.05	10.00	10.00	19.89	180.00	
12,109.96	90.49	180.00	7,087.00	-4,989.97	-103.05	0.00	0.00	0.00	0.00	PBHL_MF 13N-15HZ

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well MORNING FRESH 13N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Site:</b>	MORNING FRESH 30-15HZ	<b>North Reference:</b>	True
<b>Well:</b>	MORNING FRESH 13N-15HZ	<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
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
1,008.00	0.00	0.00	1,008.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Marker</b>									
1,058.00	0.00	0.00	1,058.00	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
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,308.00	0.00	0.00	1,308.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,400.00	1.84	334.90	1,399.98	1.34	-0.63	-1.32	2.00	2.00	0.00
1,500.00	3.84	334.90	1,499.86	5.82	-2.73	-5.77	2.00	2.00	0.00
1,600.00	5.84	334.90	1,599.49	13.46	-6.31	-13.33	2.00	2.00	0.00
1,700.00	7.84	334.90	1,698.78	24.25	-11.36	-24.01	2.00	2.00	0.00
1,800.00	9.84	334.90	1,797.59	38.17	-17.88	-37.79	2.00	2.00	0.00
1,808.02	10.00	334.90	1,805.49	39.42	-18.46	-39.03	2.00	2.00	0.00
<b>Start 897.66 hold at 1808.02 MD</b>									
1,900.00	10.00	334.90	1,896.07	53.88	-25.24	-53.35	0.00	0.00	0.00
2,000.00	10.00	334.90	1,994.55	69.61	-32.60	-68.92	0.00	0.00	0.00
2,100.00	10.00	334.90	2,093.03	85.33	-39.97	-84.49	0.00	0.00	0.00
2,200.00	10.00	334.90	2,191.51	101.06	-47.34	-100.06	0.00	0.00	0.00
2,300.00	10.00	334.90	2,289.99	116.79	-54.70	-115.63	0.00	0.00	0.00
2,400.00	10.00	334.90	2,388.47	132.51	-62.07	-131.20	0.00	0.00	0.00
2,500.00	10.00	334.90	2,486.95	148.24	-69.43	-146.77	0.00	0.00	0.00
2,600.00	10.00	334.90	2,585.43	163.96	-76.80	-162.34	0.00	0.00	0.00
2,700.00	10.00	334.90	2,683.91	179.69	-84.17	-177.91	0.00	0.00	0.00
2,705.68	10.00	334.90	2,689.51	180.58	-84.58	-178.80	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
2,800.00	8.11	334.90	2,782.65	194.03	-90.88	-192.11	2.00	-2.00	0.00
2,900.00	6.11	334.90	2,881.87	205.24	-96.13	-203.21	2.00	-2.00	0.00
3,000.00	4.11	334.90	2,981.47	213.31	-99.92	-211.21	2.00	-2.00	0.00
3,100.00	2.11	334.90	3,081.32	218.23	-102.22	-216.08	2.00	-2.00	0.00
3,200.00	0.11	334.90	3,181.29	219.99	-103.04	-217.82	2.00	-2.00	0.00
3,205.71	0.00	0.00	3,187.00	220.00	-103.05	-217.83	2.00	-2.00	0.00
<b>Start 3367.06 hold at 3205.71 MD</b>									
3,300.00	0.00	0.00	3,281.29	220.00	-103.05	-217.83	0.00	0.00	0.00
3,400.00	0.00	0.00	3,381.29	220.00	-103.05	-217.83	0.00	0.00	0.00
3,500.00	0.00	0.00	3,481.29	220.00	-103.05	-217.83	0.00	0.00	0.00
3,600.00	0.00	0.00	3,581.29	220.00	-103.05	-217.83	0.00	0.00	0.00
3,700.00	0.00	0.00	3,681.29	220.00	-103.05	-217.83	0.00	0.00	0.00
3,800.00	0.00	0.00	3,781.29	220.00	-103.05	-217.83	0.00	0.00	0.00
3,900.00	0.00	0.00	3,881.29	220.00	-103.05	-217.83	0.00	0.00	0.00
3,964.71	0.00	0.00	3,946.00	220.00	-103.05	-217.83	0.00	0.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Site:</b>	MORNING FRESH 30-15HZ	<b>North Reference:</b>	True
<b>Well:</b>	MORNING FRESH 13N-15HZ	<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>Parkman</b>									
4,000.00	0.00	0.00	3,981.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,100.00	0.00	0.00	4,081.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,200.00	0.00	0.00	4,181.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,300.00	0.00	0.00	4,281.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,400.00	0.00	0.00	4,381.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,474.71	0.00	0.00	4,456.00	220.00	-103.05	-217.83	0.00	0.00	0.00
<b>Sussex</b>									
4,500.00	0.00	0.00	4,481.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,600.00	0.00	0.00	4,581.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,700.00	0.00	0.00	4,681.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,800.00	0.00	0.00	4,781.29	220.00	-103.05	-217.83	0.00	0.00	0.00
4,900.00	0.00	0.00	4,881.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,000.00	0.00	0.00	4,981.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,100.00	0.00	0.00	5,081.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,200.00	0.00	0.00	5,181.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,300.00	0.00	0.00	5,281.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,400.00	0.00	0.00	5,381.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,500.00	0.00	0.00	5,481.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,600.00	0.00	0.00	5,581.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,700.00	0.00	0.00	5,681.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,800.00	0.00	0.00	5,781.29	220.00	-103.05	-217.83	0.00	0.00	0.00
5,900.00	0.00	0.00	5,881.29	220.00	-103.05	-217.83	0.00	0.00	0.00
6,000.00	0.00	0.00	5,981.29	220.00	-103.05	-217.83	0.00	0.00	0.00
6,100.00	0.00	0.00	6,081.29	220.00	-103.05	-217.83	0.00	0.00	0.00
6,200.00	0.00	0.00	6,181.29	220.00	-103.05	-217.83	0.00	0.00	0.00
6,300.00	0.00	0.00	6,281.29	220.00	-103.05	-217.83	0.00	0.00	0.00
6,400.00	0.00	0.00	6,381.29	220.00	-103.05	-217.83	0.00	0.00	0.00
6,500.00	0.00	0.00	6,481.29	220.00	-103.05	-217.83	0.00	0.00	0.00
6,572.77	0.00	0.00	6,554.06	220.00	-103.05	-217.83	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 180.00</b>									
6,600.00	2.72	180.00	6,581.28	219.35	-103.05	-217.18	10.00	10.00	0.00
6,700.00	12.72	180.00	6,680.25	205.93	-103.05	-203.76	10.00	10.00	0.00
6,800.00	22.72	180.00	6,775.38	175.53	-103.05	-173.36	10.00	10.00	0.00
6,900.00	32.72	180.00	6,863.79	129.07	-103.05	-126.91	10.00	10.00	0.00
7,000.00	42.72	180.00	6,942.79	67.96	-103.05	-65.82	10.00	10.00	0.00
7,091.86	51.91	180.00	7,005.00	0.50	-103.05	1.63	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,100.00	52.72	180.00	7,009.97	-5.94	-103.05	8.06	10.00	10.00	0.00
7,190.75	61.80	180.00	7,059.00	-82.19	-103.05	84.30	10.00	10.00	0.00
<b>Niobrara A</b>									
7,200.00	62.72	180.00	7,063.31	-90.38	-103.05	92.48	10.00	10.00	0.00
7,300.00	72.72	180.00	7,101.17	-182.79	-103.05	184.88	10.00	10.00	0.00
7,328.70	75.59	180.00	7,109.00	-210.40	-103.05	212.48	10.00	10.00	0.00
<b>Niobrara B</b>									
7,400.00	82.72	180.00	7,122.40	-280.38	-103.05	282.45	10.00	10.00	0.00
7,477.72	90.49	180.00	7,127.00	-357.91	-103.05	359.96	10.00	10.00	0.00
<b>Start 4632.24 hold at 7477.72 MD - 7" (635 FNL 205 FWL)</b>									
7,500.00	90.49	180.00	7,126.81	-380.19	-103.05	382.23	0.00	0.00	0.00
7,600.00	90.49	180.00	7,125.94	-480.18	-103.05	482.21	0.00	0.00	0.00
7,700.00	90.49	180.00	7,125.08	-580.18	-103.05	582.18	0.00	0.00	0.00
7,800.00	90.49	180.00	7,124.21	-680.18	-103.05	682.16	0.00	0.00	0.00
7,900.00	90.49	180.00	7,123.35	-780.17	-103.05	782.13	0.00	0.00	0.00

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Site:</b>	MORNING FRESH 30-15HZ	<b>North Reference:</b>	True
<b>Well:</b>	MORNING FRESH 13N-15HZ	<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)	
8,000.00	90.49	180.00	7,122.49	-880.17	-103.05	882.11	0.00	0.00	0.00	
8,100.00	90.49	180.00	7,121.62	-980.17	-103.05	982.08	0.00	0.00	0.00	
8,200.00	90.49	180.00	7,120.76	-1,080.16	-103.05	1,082.06	0.00	0.00	0.00	
8,300.00	90.49	180.00	7,119.90	-1,180.16	-103.05	1,182.03	0.00	0.00	0.00	
8,400.00	90.49	180.00	7,119.03	-1,280.15	-103.05	1,282.01	0.00	0.00	0.00	
8,500.00	90.49	180.00	7,118.17	-1,380.15	-103.05	1,381.98	0.00	0.00	0.00	
8,600.00	90.49	180.00	7,117.31	-1,480.15	-103.05	1,481.96	0.00	0.00	0.00	
8,700.00	90.49	180.00	7,116.44	-1,580.14	-103.05	1,581.93	0.00	0.00	0.00	
8,800.00	90.49	180.00	7,115.58	-1,680.14	-103.05	1,681.91	0.00	0.00	0.00	
8,900.00	90.49	180.00	7,114.72	-1,780.14	-103.05	1,781.88	0.00	0.00	0.00	
9,000.00	90.49	180.00	7,113.85	-1,880.13	-103.05	1,881.86	0.00	0.00	0.00	
9,100.00	90.49	180.00	7,112.99	-1,980.13	-103.05	1,981.83	0.00	0.00	0.00	
9,200.00	90.49	180.00	7,112.13	-2,080.12	-103.05	2,081.81	0.00	0.00	0.00	
9,300.00	90.49	180.00	7,111.26	-2,180.12	-103.05	2,181.78	0.00	0.00	0.00	
9,400.00	90.49	180.00	7,110.40	-2,280.12	-103.05	2,281.76	0.00	0.00	0.00	
9,500.00	90.49	180.00	7,109.54	-2,380.11	-103.05	2,381.73	0.00	0.00	0.00	
9,600.00	90.49	180.00	7,108.67	-2,480.11	-103.05	2,481.71	0.00	0.00	0.00	
9,700.00	90.49	180.00	7,107.81	-2,580.11	-103.05	2,581.68	0.00	0.00	0.00	
9,800.00	90.49	180.00	7,106.95	-2,680.10	-103.05	2,681.66	0.00	0.00	0.00	
9,900.00	90.49	180.00	7,106.08	-2,780.10	-103.05	2,781.63	0.00	0.00	0.00	
10,000.00	90.49	180.00	7,105.22	-2,880.09	-103.05	2,881.61	0.00	0.00	0.00	
10,100.00	90.49	180.00	7,104.36	-2,980.09	-103.05	2,981.58	0.00	0.00	0.00	
10,200.00	90.49	180.00	7,103.49	-3,080.09	-103.05	3,081.56	0.00	0.00	0.00	
10,300.00	90.49	180.00	7,102.63	-3,180.08	-103.05	3,181.53	0.00	0.00	0.00	
10,400.00	90.49	180.00	7,101.76	-3,280.08	-103.05	3,281.51	0.00	0.00	0.00	
10,500.00	90.49	180.00	7,100.90	-3,380.08	-103.05	3,381.48	0.00	0.00	0.00	
10,600.00	90.49	180.00	7,100.04	-3,480.07	-103.05	3,481.46	0.00	0.00	0.00	
10,700.00	90.49	180.00	7,099.17	-3,580.07	-103.05	3,581.43	0.00	0.00	0.00	
10,800.00	90.49	180.00	7,098.31	-3,680.06	-103.05	3,681.41	0.00	0.00	0.00	
10,900.00	90.49	180.00	7,097.45	-3,780.06	-103.05	3,781.38	0.00	0.00	0.00	
11,000.00	90.49	180.00	7,096.58	-3,880.06	-103.05	3,881.36	0.00	0.00	0.00	
11,100.00	90.49	180.00	7,095.72	-3,980.05	-103.05	3,981.33	0.00	0.00	0.00	
11,200.00	90.49	180.00	7,094.86	-4,080.05	-103.05	4,081.31	0.00	0.00	0.00	
11,300.00	90.49	180.00	7,093.99	-4,180.05	-103.05	4,181.28	0.00	0.00	0.00	
11,400.00	90.49	180.00	7,093.13	-4,280.04	-103.05	4,281.26	0.00	0.00	0.00	
11,500.00	90.49	180.00	7,092.27	-4,380.04	-103.05	4,381.23	0.00	0.00	0.00	
11,600.00	90.49	180.00	7,091.40	-4,480.03	-103.05	4,481.21	0.00	0.00	0.00	
11,700.00	90.49	180.00	7,090.54	-4,580.03	-103.05	4,581.18	0.00	0.00	0.00	
11,800.00	90.49	180.00	7,089.68	-4,680.03	-103.05	4,681.16	0.00	0.00	0.00	
11,900.00	90.49	180.00	7,088.81	-4,780.02	-103.05	4,781.13	0.00	0.00	0.00	
12,000.00	90.49	180.00	7,087.95	-4,880.02	-103.05	4,881.11	0.00	0.00	0.00	
12,100.00	90.49	180.00	7,087.09	-4,980.02	-103.05	4,981.08	0.00	0.00	0.00	
12,109.96	90.49	180.00	7,087.00	-4,989.97	-103.05	4,991.04	0.00	0.00	0.00	
TD at 12109.96 - PBHL_MF 13N-15HZ (1 FSL 235 FWL)										

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well MORNING FRESH 13N-15HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4851 & KB 17 @ 4868.00ft (ASSUMED)
<b>Site:</b>	MORNING FRESH 30-15HZ	<b>North Reference:</b>	True
<b>Well:</b>	MORNING FRESH 13N-15HZ	<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_MF 13N-15HZ (1	0.00	0.00	7,087.00	-4,989.97	-103.05	1,323,014.92	3,203,239.85	40.2177840	-104.7722090
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,058.00	1,058.00	9 5/8"	9.625	12.250	
7,477.72	7,127.00	7" (635 FNL 205 FWL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,008.00	1,008.00	Fox Hills Marker				
3,964.71	3,946.00	Parkman				
4,474.71	4,456.00	Sussex				
7,091.86	7,005.00	Sharon Springs				
7,190.75	7,059.00	Niobrara A				
7,328.70	7,109.00	Niobrara B				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,308.00	1,308.00	0.00	0.00	Start Build 2.00	
1,808.02	1,805.49	39.42	-18.46	Start 897.66 hold at 1808.02 MD	
2,705.68	2,689.51	180.58	-84.58	Start Drop -2.00	
3,205.71	3,187.00	220.00	-103.05	Start 3367.06 hold at 3205.71 MD	
6,572.77	6,554.06	220.00	-103.05	Start DLS 10.00 TFO 180.00	
7,477.72	7,127.00	-357.91	-103.05	Start 4632.24 hold at 7477.72 MD	
12,109.96	7,087.00	-4,989.97	-103.05	TD at 12109.96	