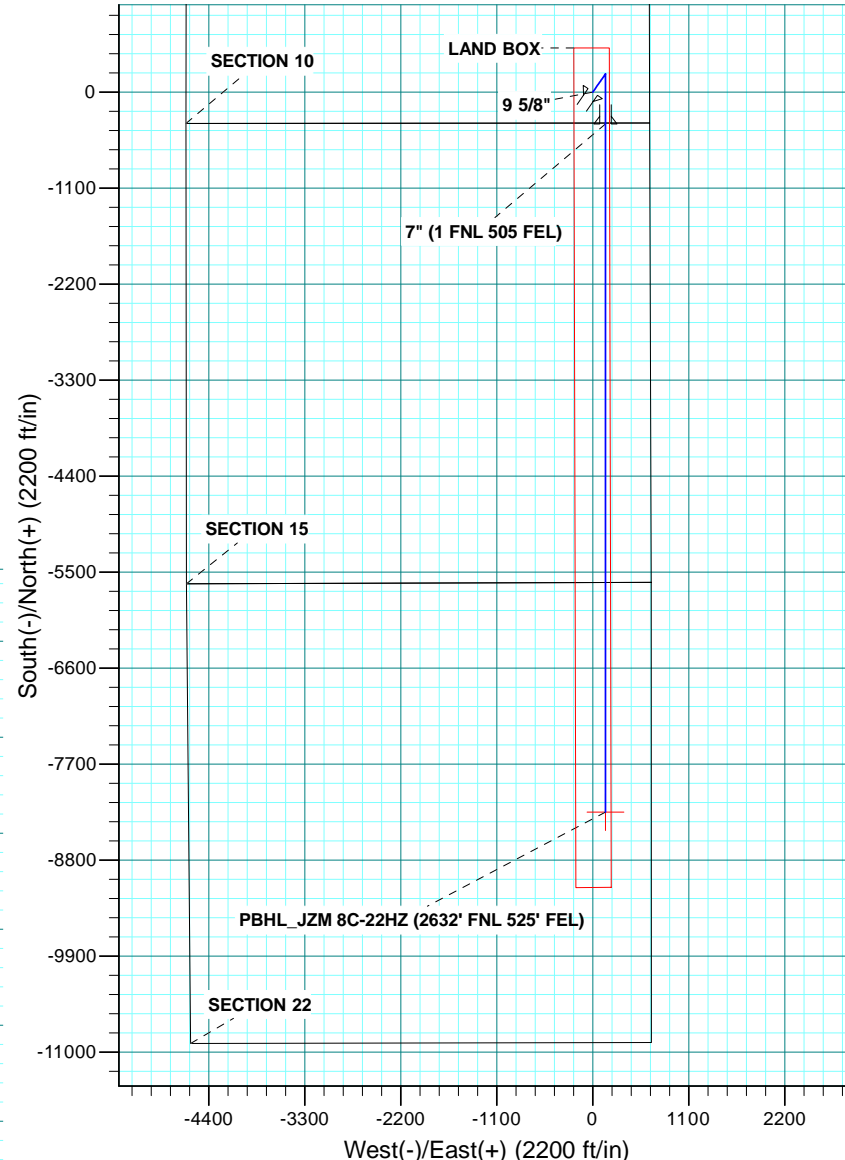
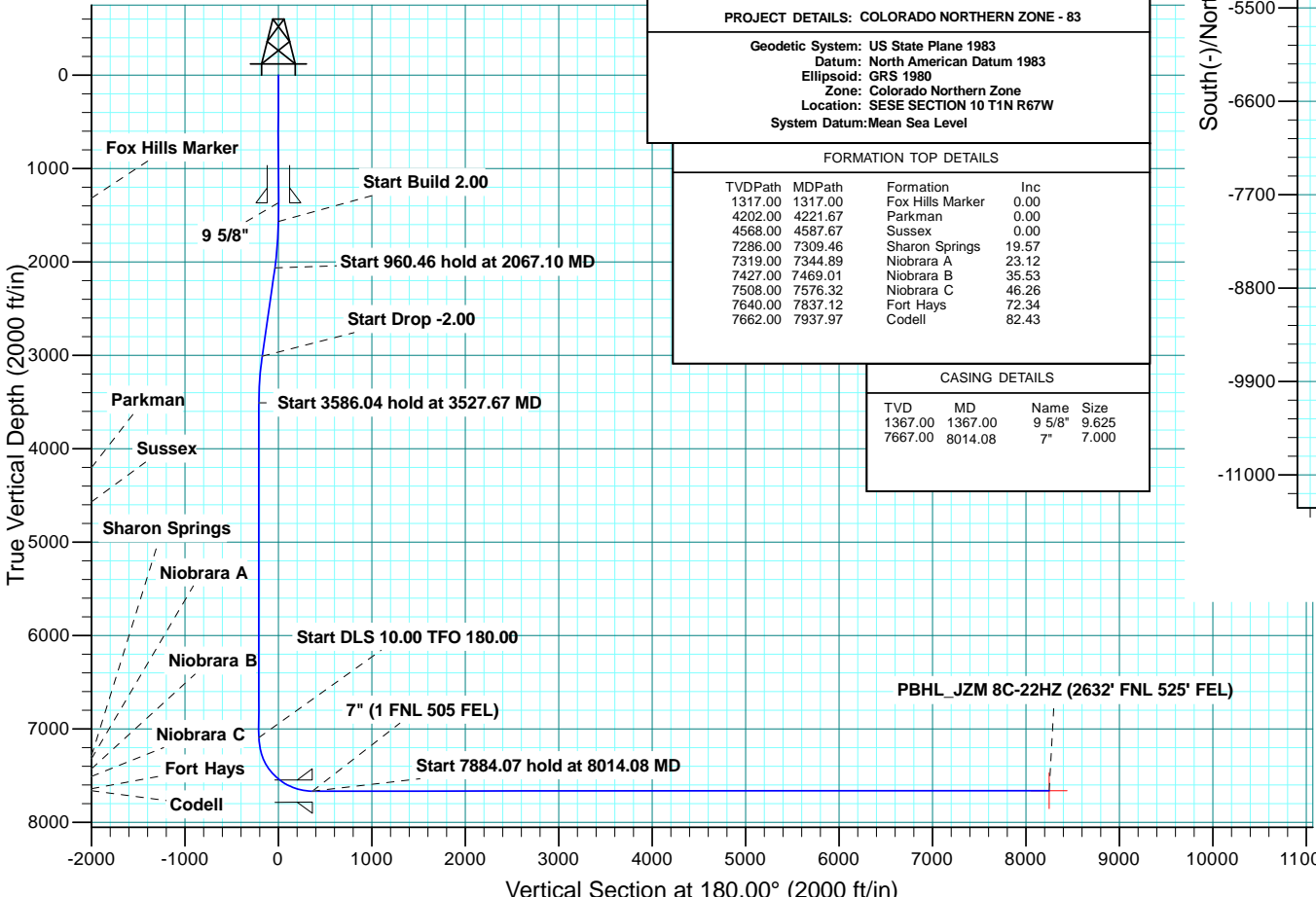


WELL DETAILS: JZM 8C-22HZ										
GL 5040 & KB 17 @ 5057.00ft (ASSUMED)										
		+N/-S	+E/-W	Northing	Easting	Latitude	Longitude			
		0.00	0.00	1265058.65	3176434.30	40.0592540	-104.8696700			
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1567.00	0.00	0.00	1567.00	0.00	0.00	0.00	0.00	0.00		Start Build 2.00
2067.10	10.00	34.99	2064.57	35.67	24.97	2.00	34.99	-35.67		Start 960.46 hold at 2067.10 MD
3027.57	10.00	34.99	3010.43	172.33	120.63	0.00	0.00	-172.33		Start Drop -2.00
3527.67	0.00	0.00	3508.00	208.00	145.60	2.00	180.00	-208.00		Start 3586.04 hold at 3527.67 MD
7113.71	0.00	0.00	7094.04	208.00	145.60	0.00	0.00	-208.00		Start DLS 10.00 TFO 180.00
8014.08	90.04	180.00	7667.00	-365.32	145.60	10.00	180.00	365.32		Start 7884.07 hold at 8014.08 MD
15898.15	90.04	180.00	7662.00	-8249.40	145.60	0.00	0.00	8249.40		PBHL_JZM 8C-22HZ
DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
PBHL 7662.00		-8249.40	145.60	1256810.52	3176638.53	40.0366080	-104.8691500	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: SESE SECTION 10 T1N R67W									
System Datum: Mean Sea Level									

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	Inc	
1317.00	1317.00	Fox Hills Marker	0.00	
4202.00	4221.67	Parkman	0.00	
4568.00	4587.67	Sussex	0.00	
7286.00	7309.46	Sharon Springs	19.57	
7319.00	7344.89	Niobrara A	23.12	
7427.00	7469.01	Niobrara B	35.53	
7508.00	7576.32	Niobrara C	46.26	
7640.00	7837.12	Fort Hays	72.34	
7662.00	7937.97	Codell	82.43	

CASING DETAILS				
TVD	MD	Name	Size	
1367.00	1367.00	9 5/8"	9.625	
7667.00	8014.08	7"	7.000	





**Scientific Drilling**

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**JZM 16-10HZ PAD**

**JZM 8C-22HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**06 January, 2014**

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well JZM 8C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Site:</b>	JZM 16-10HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JZM 8C-22HZ	<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>	JZM 16-10HZ PAD, SESE SECTION 10 T1N R67W				
<b>Site Position:</b>	<b>Northing:</b>	1,265,058.02 usft	<b>Latitude:</b>	40.0592540	
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,176,344.45 usft	<b>Longitude:</b>	-104.8699910
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	0.41 °

<b>Well</b>	JZM 8C-22HZ, 355' FSL 650' FEL					
<b>Well Position</b>	<b>+N/-S</b>	-0.01 ft	<b>Northing:</b>	1,265,058.65 usft	<b>Latitude:</b>	40.0592540
	<b>+E/-W</b>	89.85 ft	<b>Easting:</b>	3,176,434.30 usft	<b>Longitude:</b>	-104.8696700
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft	<b>Ground Level:</b>	5,040.00 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	1/6/2014	8.59	66.66	52,591

<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 (°/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	
1,567.00	0.00	0.00	1,567.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,067.10	10.00	34.99	2,064.57	35.67	24.97	2.00	2.00	0.00	34.99	
3,027.57	10.00	34.99	3,010.43	172.33	120.63	0.00	0.00	0.00	0.00	
3,527.67	0.00	0.00	3,508.00	208.00	145.60	2.00	-2.00	0.00	180.00	
7,113.71	0.00	0.00	7,094.04	208.00	145.60	0.00	0.00	0.00	0.00	
8,014.08	90.04	180.00	7,667.00	-365.32	145.60	10.00	10.00	19.99	180.00	
15,898.15	90.04	180.00	7,662.00	-8,249.40	145.60	0.00	0.00	0.00	0.00	PBHL_JZM 8C-22HZ

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well JZM 8C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Site:</b>	JZM 16-10HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JZM 8C-22HZ	<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	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
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
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
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,317.00	0.00	0.00	1,317.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Marker</b>										
1,367.00	0.00	0.00	1,367.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,567.00	0.00	0.00	1,567.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>										
1,600.00	0.66	34.99	1,600.00	0.16	0.11	-0.16	2.00	2.00	0.00	0.00
1,700.00	2.66	34.99	1,699.95	2.53	1.77	-2.53	2.00	2.00	0.00	0.00
1,800.00	4.66	34.99	1,799.74	7.76	5.43	-7.76	2.00	2.00	0.00	0.00
1,900.00	6.66	34.99	1,899.25	15.84	11.09	-15.84	2.00	2.00	0.00	0.00
2,000.00	8.66	34.99	1,998.35	26.76	18.73	-26.76	2.00	2.00	0.00	0.00
2,067.10	10.00	34.99	2,064.57	35.67	24.97	-35.67	2.00	2.00	0.00	0.00
<b>Start 960.46 hold at 2067.10 MD</b>										
2,100.00	10.00	34.99	2,096.96	40.35	28.25	-40.35	0.00	0.00	0.00	0.00
2,200.00	10.00	34.99	2,195.44	54.58	38.21	-54.58	0.00	0.00	0.00	0.00
2,300.00	10.00	34.99	2,293.92	68.81	48.17	-68.81	0.00	0.00	0.00	0.00
2,400.00	10.00	34.99	2,392.40	83.04	58.13	-83.04	0.00	0.00	0.00	0.00
2,500.00	10.00	34.99	2,490.88	97.26	68.09	-97.26	0.00	0.00	0.00	0.00
2,600.00	10.00	34.99	2,589.36	111.49	78.05	-111.49	0.00	0.00	0.00	0.00
2,700.00	10.00	34.99	2,687.84	125.72	88.01	-125.72	0.00	0.00	0.00	0.00
2,800.00	10.00	34.99	2,786.32	139.95	97.97	-139.95	0.00	0.00	0.00	0.00
2,900.00	10.00	34.99	2,884.81	154.18	107.93	-154.18	0.00	0.00	0.00	0.00
3,000.00	10.00	34.99	2,983.29	168.41	117.89	-168.41	0.00	0.00	0.00	0.00
3,027.57	10.00	34.99	3,010.43	172.33	120.63	-172.33	0.00	0.00	0.00	0.00
<b>Start Drop -2.00</b>										
3,100.00	8.55	34.99	3,081.92	181.90	127.33	-181.90	2.00	-2.00	0.00	0.00
3,200.00	6.55	34.99	3,181.04	192.67	134.87	-192.67	2.00	-2.00	0.00	0.00
3,300.00	4.55	34.99	3,280.57	200.59	140.42	-200.59	2.00	-2.00	0.00	0.00
3,400.00	2.55	34.99	3,380.37	205.67	143.97	-205.67	2.00	-2.00	0.00	0.00
3,500.00	0.55	34.99	3,480.33	207.89	145.53	-207.89	2.00	-2.00	0.00	0.00
3,527.67	0.00	0.00	3,508.00	208.00	145.60	-208.00	2.00	-2.00	0.00	0.00
<b>Start 3586.04 hold at 3527.67 MD</b>										
3,600.00	0.00	0.00	3,580.33	208.00	145.60	-208.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,680.33	208.00	145.60	-208.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,780.33	208.00	145.60	-208.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,880.33	208.00	145.60	-208.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,980.33	208.00	145.60	-208.00	0.00	0.00	0.00	0.00

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well JZM 8C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Site:</b>	JZM 16-10HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JZM 8C-22HZ	<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)
4,100.00	0.00	0.00	4,080.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,180.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,221.67	0.00	0.00	4,202.00	208.00	145.60	-208.00	0.00	0.00	0.00
<b>Parkman</b>									
4,300.00	0.00	0.00	4,280.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,380.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,480.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,587.67	0.00	0.00	4,568.00	208.00	145.60	-208.00	0.00	0.00	0.00
<b>Sussex</b>									
4,600.00	0.00	0.00	4,580.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,680.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,780.33	208.00	145.60	-208.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,880.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,980.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,080.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,180.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,280.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,380.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,480.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,580.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,680.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,780.33	208.00	145.60	-208.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,880.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,980.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,080.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,180.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,280.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,380.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,480.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,580.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,680.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,780.33	208.00	145.60	-208.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,880.33	208.00	145.60	-208.00	0.00	0.00	0.00
7,000.00	0.00	0.00	6,980.33	208.00	145.60	-208.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,080.33	208.00	145.60	-208.00	0.00	0.00	0.00
7,113.71	0.00	0.00	7,094.04	208.00	145.60	-208.00	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 180.00</b>									
7,200.00	8.63	180.00	7,180.00	201.51	145.60	-201.51	10.00	10.00	0.00
7,300.00	18.63	180.00	7,277.07	177.98	145.60	-177.98	10.00	10.00	0.00
7,309.46	19.57	180.00	7,286.00	174.89	145.60	-174.89	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,344.89	23.12	180.00	7,319.00	161.99	145.60	-161.99	10.00	10.00	0.00
<b>Niobrara A</b>									
7,400.00	28.63	180.00	7,368.57	137.95	145.60	-137.95	10.00	10.00	0.00
7,469.01	35.53	180.00	7,427.00	101.32	145.60	-101.32	10.00	10.00	0.00
<b>Niobrara B</b>									
7,500.00	38.63	180.00	7,451.72	82.64	145.60	-82.64	10.00	10.00	0.00
7,576.32	46.26	180.00	7,508.00	31.17	145.60	-31.17	10.00	10.00	0.00
<b>Niobrara C</b>									
7,600.00	48.63	180.00	7,524.01	13.73	145.60	-13.73	10.00	10.00	0.00
7,700.00	58.63	180.00	7,583.24	-66.69	145.60	66.69	10.00	10.00	0.00
7,800.00	68.63	180.00	7,627.60	-156.17	145.60	156.17	10.00	10.00	0.00
7,837.12	72.34	180.00	7,640.00	-191.15	145.60	191.15	10.00	10.00	0.00

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well JZM 8C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Site:</b>	JZM 16-10HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JZM 8C-22HZ	<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>Fort Hays</b>									
7,900.00	78.63	180.00	7,655.75	-251.99	145.60	251.99	10.00	10.00	0.00
7,937.97	82.43	180.00	7,662.00	-289.44	145.60	289.44	10.00	10.00	0.00
<b>Codell</b>									
8,000.00	88.63	180.00	7,666.84	-351.25	145.60	351.25	10.00	10.00	0.00
8,014.08	90.04	180.00	7,667.00	-365.33	145.60	365.33	10.00	10.00	0.00
<b>Start 7884.07 hold at 8014.08 MD - 7" (1 FNL 505 FEL)</b>									
8,100.00	90.04	180.00	7,666.94	-451.25	145.60	451.25	0.00	0.00	0.00
8,200.00	90.04	180.00	7,666.88	-551.25	145.60	551.25	0.00	0.00	0.00
8,300.00	90.04	180.00	7,666.82	-651.25	145.60	651.25	0.00	0.00	0.00
8,400.00	90.04	180.00	7,666.75	-751.25	145.60	751.25	0.00	0.00	0.00
8,500.00	90.04	180.00	7,666.69	-851.25	145.60	851.25	0.00	0.00	0.00
8,600.00	90.04	180.00	7,666.63	-951.25	145.60	951.25	0.00	0.00	0.00
8,700.00	90.04	180.00	7,666.56	-1,051.25	145.60	1,051.25	0.00	0.00	0.00
8,800.00	90.04	180.00	7,666.50	-1,151.25	145.60	1,151.25	0.00	0.00	0.00
8,900.00	90.04	180.00	7,666.44	-1,251.25	145.60	1,251.25	0.00	0.00	0.00
9,000.00	90.04	180.00	7,666.37	-1,351.25	145.60	1,351.25	0.00	0.00	0.00
9,100.00	90.04	180.00	7,666.31	-1,451.25	145.60	1,451.25	0.00	0.00	0.00
9,200.00	90.04	180.00	7,666.25	-1,551.25	145.60	1,551.25	0.00	0.00	0.00
9,300.00	90.04	180.00	7,666.18	-1,651.25	145.60	1,651.25	0.00	0.00	0.00
9,400.00	90.04	180.00	7,666.12	-1,751.25	145.60	1,751.25	0.00	0.00	0.00
9,500.00	90.04	180.00	7,666.06	-1,851.25	145.60	1,851.25	0.00	0.00	0.00
9,600.00	90.04	180.00	7,665.99	-1,951.25	145.60	1,951.25	0.00	0.00	0.00
9,700.00	90.04	180.00	7,665.93	-2,051.25	145.60	2,051.25	0.00	0.00	0.00
9,800.00	90.04	180.00	7,665.87	-2,151.25	145.60	2,151.25	0.00	0.00	0.00
9,900.00	90.04	180.00	7,665.80	-2,251.25	145.60	2,251.25	0.00	0.00	0.00
10,000.00	90.04	180.00	7,665.74	-2,351.25	145.60	2,351.25	0.00	0.00	0.00
10,100.00	90.04	180.00	7,665.68	-2,451.25	145.60	2,451.25	0.00	0.00	0.00
10,200.00	90.04	180.00	7,665.61	-2,551.25	145.60	2,551.25	0.00	0.00	0.00
10,300.00	90.04	180.00	7,665.55	-2,651.25	145.60	2,651.25	0.00	0.00	0.00
10,400.00	90.04	180.00	7,665.49	-2,751.25	145.60	2,751.25	0.00	0.00	0.00
10,500.00	90.04	180.00	7,665.42	-2,851.25	145.60	2,851.25	0.00	0.00	0.00
10,600.00	90.04	180.00	7,665.36	-2,951.25	145.60	2,951.25	0.00	0.00	0.00
10,700.00	90.04	180.00	7,665.30	-3,051.25	145.60	3,051.25	0.00	0.00	0.00
10,800.00	90.04	180.00	7,665.23	-3,151.25	145.60	3,151.25	0.00	0.00	0.00
10,900.00	90.04	180.00	7,665.17	-3,251.25	145.60	3,251.25	0.00	0.00	0.00
11,000.00	90.04	180.00	7,665.11	-3,351.25	145.60	3,351.25	0.00	0.00	0.00
11,100.00	90.04	180.00	7,665.04	-3,451.25	145.60	3,451.25	0.00	0.00	0.00
11,200.00	90.04	180.00	7,664.98	-3,551.25	145.60	3,551.25	0.00	0.00	0.00
11,300.00	90.04	180.00	7,664.92	-3,651.25	145.60	3,651.25	0.00	0.00	0.00
11,400.00	90.04	180.00	7,664.85	-3,751.25	145.60	3,751.25	0.00	0.00	0.00
11,500.00	90.04	180.00	7,664.79	-3,851.25	145.60	3,851.25	0.00	0.00	0.00
11,600.00	90.04	180.00	7,664.73	-3,951.25	145.60	3,951.25	0.00	0.00	0.00
11,700.00	90.04	180.00	7,664.66	-4,051.25	145.60	4,051.25	0.00	0.00	0.00
11,800.00	90.04	180.00	7,664.60	-4,151.25	145.60	4,151.25	0.00	0.00	0.00
11,900.00	90.04	180.00	7,664.54	-4,251.25	145.60	4,251.25	0.00	0.00	0.00
12,000.00	90.04	180.00	7,664.47	-4,351.25	145.60	4,351.25	0.00	0.00	0.00
12,100.00	90.04	180.00	7,664.41	-4,451.25	145.60	4,451.25	0.00	0.00	0.00
12,200.00	90.04	180.00	7,664.34	-4,551.25	145.60	4,551.25	0.00	0.00	0.00
12,300.00	90.04	180.00	7,664.28	-4,651.25	145.60	4,651.25	0.00	0.00	0.00
12,400.00	90.04	180.00	7,664.22	-4,751.25	145.60	4,751.25	0.00	0.00	0.00
12,500.00	90.04	180.00	7,664.15	-4,851.25	145.60	4,851.25	0.00	0.00	0.00
12,600.00	90.04	180.00	7,664.09	-4,951.25	145.60	4,951.25	0.00	0.00	0.00

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well JZM 8C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Site:</b>	JZM 16-10HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JZM 8C-22HZ	<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)	
12,700.00	90.04	180.00	7,664.03	-5,051.25	145.60	5,051.25	0.00	0.00	0.00	
12,800.00	90.04	180.00	7,663.96	-5,151.25	145.60	5,151.25	0.00	0.00	0.00	
12,900.00	90.04	180.00	7,663.90	-5,251.25	145.60	5,251.25	0.00	0.00	0.00	
13,000.00	90.04	180.00	7,663.84	-5,351.25	145.60	5,351.25	0.00	0.00	0.00	
13,100.00	90.04	180.00	7,663.77	-5,451.25	145.60	5,451.25	0.00	0.00	0.00	
13,200.00	90.04	180.00	7,663.71	-5,551.25	145.60	5,551.25	0.00	0.00	0.00	
13,300.00	90.04	180.00	7,663.65	-5,651.25	145.60	5,651.25	0.00	0.00	0.00	
13,400.00	90.04	180.00	7,663.58	-5,751.25	145.60	5,751.25	0.00	0.00	0.00	
13,500.00	90.04	180.00	7,663.52	-5,851.25	145.60	5,851.25	0.00	0.00	0.00	
13,600.00	90.04	180.00	7,663.46	-5,951.25	145.60	5,951.25	0.00	0.00	0.00	
13,700.00	90.04	180.00	7,663.39	-6,051.25	145.60	6,051.25	0.00	0.00	0.00	
13,800.00	90.04	180.00	7,663.33	-6,151.25	145.60	6,151.25	0.00	0.00	0.00	
13,900.00	90.04	180.00	7,663.27	-6,251.25	145.60	6,251.25	0.00	0.00	0.00	
14,000.00	90.04	180.00	7,663.20	-6,351.25	145.60	6,351.25	0.00	0.00	0.00	
14,100.00	90.04	180.00	7,663.14	-6,451.25	145.60	6,451.25	0.00	0.00	0.00	
14,200.00	90.04	180.00	7,663.08	-6,551.25	145.60	6,551.25	0.00	0.00	0.00	
14,300.00	90.04	180.00	7,663.01	-6,651.25	145.60	6,651.25	0.00	0.00	0.00	
14,400.00	90.04	180.00	7,662.95	-6,751.25	145.60	6,751.25	0.00	0.00	0.00	
14,500.00	90.04	180.00	7,662.89	-6,851.25	145.60	6,851.25	0.00	0.00	0.00	
14,600.00	90.04	180.00	7,662.82	-6,951.25	145.60	6,951.25	0.00	0.00	0.00	
14,700.00	90.04	180.00	7,662.76	-7,051.25	145.60	7,051.25	0.00	0.00	0.00	
14,800.00	90.04	180.00	7,662.70	-7,151.25	145.60	7,151.25	0.00	0.00	0.00	
14,900.00	90.04	180.00	7,662.63	-7,251.25	145.60	7,251.25	0.00	0.00	0.00	
15,000.00	90.04	180.00	7,662.57	-7,351.25	145.60	7,351.25	0.00	0.00	0.00	
15,100.00	90.04	180.00	7,662.51	-7,451.25	145.60	7,451.25	0.00	0.00	0.00	
15,200.00	90.04	180.00	7,662.44	-7,551.25	145.60	7,551.25	0.00	0.00	0.00	
15,300.00	90.04	180.00	7,662.38	-7,651.25	145.60	7,651.25	0.00	0.00	0.00	
15,400.00	90.04	180.00	7,662.32	-7,751.25	145.60	7,751.25	0.00	0.00	0.00	
15,500.00	90.04	180.00	7,662.25	-7,851.25	145.60	7,851.25	0.00	0.00	0.00	
15,600.00	90.04	180.00	7,662.19	-7,951.25	145.60	7,951.25	0.00	0.00	0.00	
15,700.00	90.04	180.00	7,662.13	-8,051.25	145.60	8,051.25	0.00	0.00	0.00	
15,800.00	90.04	180.00	7,662.06	-8,151.25	145.60	8,151.25	0.00	0.00	0.00	
15,898.15	90.04	180.00	7,662.00	-8,249.40	145.60	8,249.40	0.00	0.00	0.00	
TD at 15898.15 - PBHL_JZM 8C-22HZ (2632' FNL 525' FEL)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL_JZM 8C-22HZ (2632' FNL 525' FEL) - hit/miss target - Shape - Point	0.00	0.00	7,662.00	-8,249.40	145.60	1,256,810.51	3,176,638.53	40.0366080	-104.8691500	

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,367.00	1,367.00	9 5/8"	9.625	12.250	
8,014.08	7,667.00	7" (1 FNL 505 FEL)	7.000	7.500	

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well JZM 8C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
<b>Site:</b>	JZM 16-10HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	JZM 8C-22HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,317.00	1,317.00	Fox Hills Marker				
4,221.67	4,202.00	Parkman				
4,587.67	4,568.00	Sussex				
7,309.46	7,286.00	Sharon Springs				
7,344.89	7,319.00	Niobrara A				
7,469.01	7,427.00	Niobrara B				
7,576.32	7,508.00	Niobrara C				
7,837.12	7,640.00	Fort Hays				
7,937.97	7,662.00	Codell				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,567.00	1,567.00	0.00	0.00	Start Build 2.00	
2,067.10	2,064.57	35.67	24.97	Start 960.46 hold at 2067.10 MD	
3,027.57	3,010.43	172.33	120.63	Start Drop -2.00	
3,527.67	3,508.00	208.00	145.60	Start 3586.04 hold at 3527.67 MD	
7,113.71	7,094.04	208.00	145.60	Start DLS 10.00 TFO 180.00	
8,014.08	7,667.00	-365.32	145.60	Start 7884.07 hold at 8014.08 MD	
15,898.15	7,662.00	-8,249.40	145.60	TD at 15898.15	