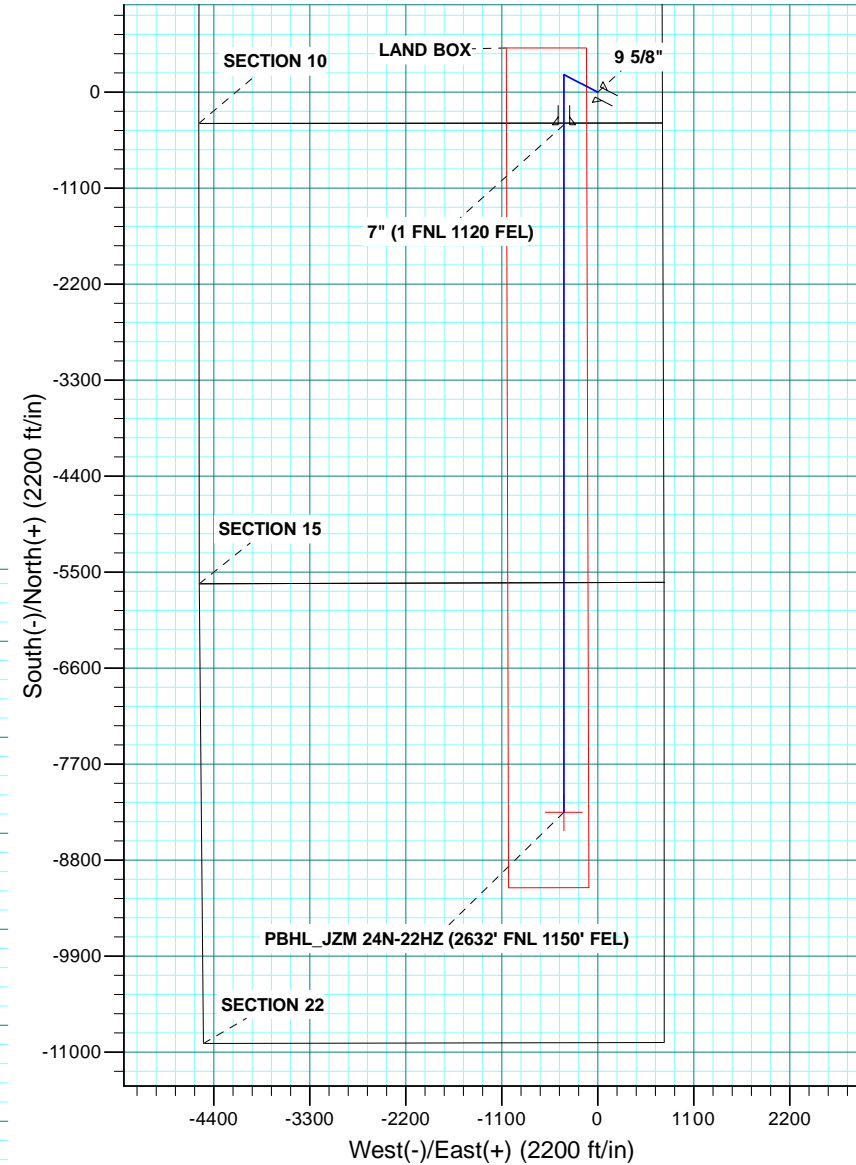
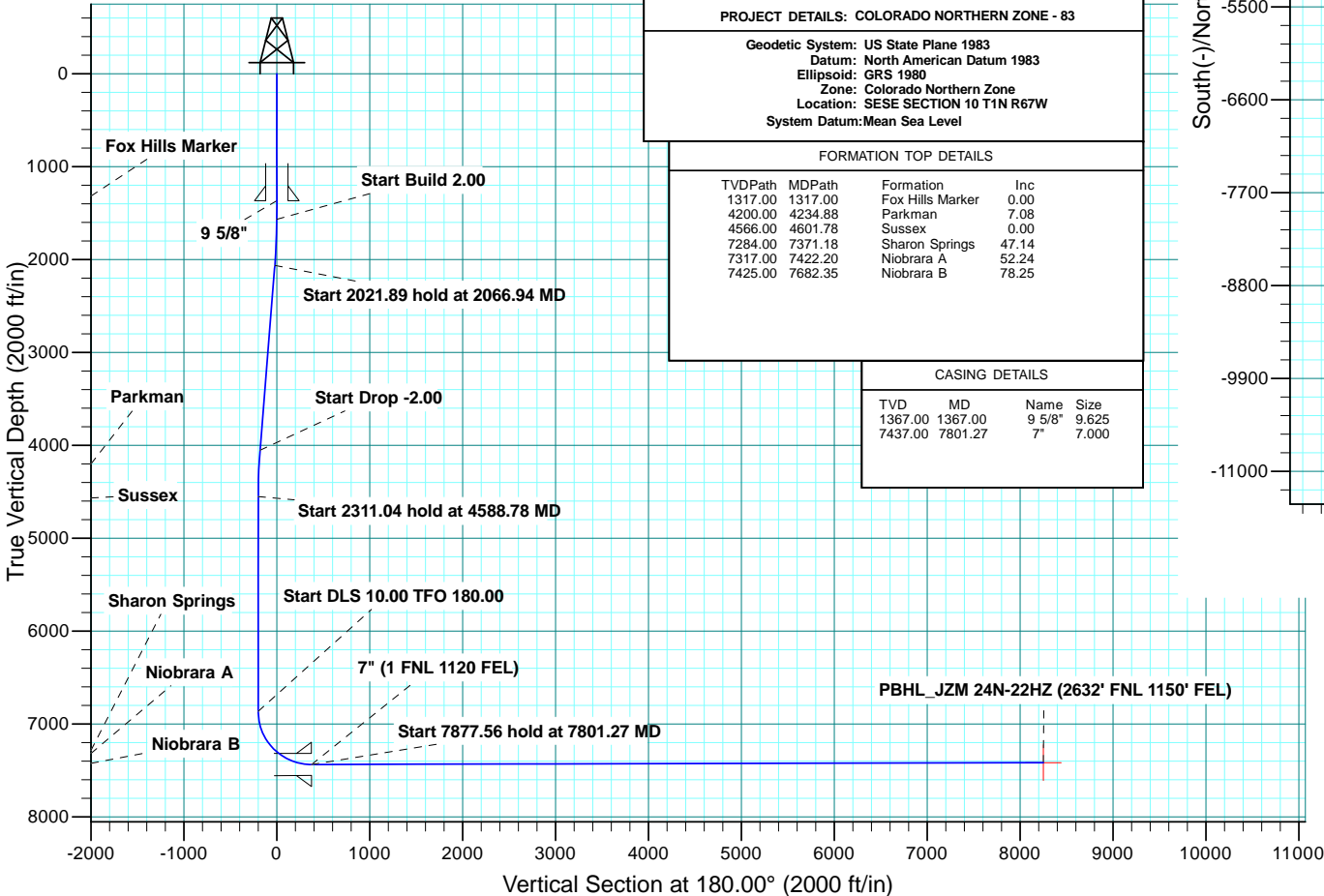


WELL DETAILS: JZM 24N-22HZ										
GL 5040 & KB 17 @ 5057.00ft (ASSUMED)										
		+N/-S	+E/-W	Northing	Easting	Latitude	Longitude			
		0.00	0.00	1265058.02	3176344.45	40.0592540	-104.8699910			
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target	Annotation
0.00	0.00	0.00	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
2066.94	10.00	297.16	2064.41	19.87	-38.71	2.00	297.16	-19.87		Start 2021.89 hold at 2066.94 MD
4088.83	10.00	297.16	4055.59	180.13	-351.05	0.00	0.00	-180.13		Start Drop -2.00
4588.78	0.00	0.00	4553.00	200.00	-389.77	2.00	180.00	-200.00		Start 2311.04 hold at 4588.78 MD
6899.82	0.00	0.00	6864.04	200.00	-389.77	0.00	0.00	-200.00		Start DLS 10.00 TFO 180.00
7801.27	90.15	180.00	7437.00	-374.41	-389.77	10.00	180.00	374.41		Start 7877.56 hold at 7801.27 MD
15678.83	90.15	180.00	7417.00	-8251.95	-389.77	0.00	0.00	8251.95	PBHL_JZM 24N-22HZ	
DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
PBHL	7417.00	-8251.95	-389.77	1256803.53	3176013.32	40.0366010	-104.8713830	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	
4200.00	4234.88	Parkman	7.08	
4566.00	4601.78	Sussex	0.00	
7284.00	7371.18	Sharon Springs	47.14	
7317.00	7422.20	Niobrara A	52.24	
7425.00	7682.35	Niobrara B	78.25	

CASING DETAILS				
TVDPATH	MD	Name	Size	
1367.00	1367.00	9 5/8"	9.625	
7437.00	7801.27	7"	7.000	





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

JZM 16-10HZ PAD

JZM 24N-22HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

06 January, 2014

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well JZM 24N-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Site:	JZM 16-10HZ PAD	North Reference:	True
Well:	JZM 24N-22HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

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

Site	JZM 16-10HZ PAD, SESE SECTION 10 T1N R67W				
Site Position:	Northing:	1,265,058.02 usft	Latitude:	40.0592540	
From:	Lat/Long	Easting:	3,176,344.45 usft	Longitude:	-104.8699910
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.41 °

Well	JZM 24N-22HZ, 355' FSL 740' FEL					
Well Position	+N/-S	0.00 ft	Northing:	1,265,058.02 usft	Latitude:	40.0592540
	+E/-W	0.00 ft	Easting:	3,176,344.45 usft	Longitude:	-104.8699910
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,040.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	1/6/2014	8.59	66.66	52,591

Design	PLAN #1 PRELIMINARY			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	180.00

Plan Sections										
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	
2,066.94	10.00	297.16	2,064.41	19.87	-38.71	2.00	2.00	0.00	297.16	
4,088.83	10.00	297.16	4,055.59	180.13	-351.05	0.00	0.00	0.00	0.00	
4,588.78	0.00	0.00	4,553.00	200.00	-389.77	2.00	-2.00	0.00	180.00	
6,899.82	0.00	0.00	6,864.04	200.00	-389.77	0.00	0.00	0.00	0.00	
7,801.27	90.15	180.00	7,437.00	-374.41	-389.77	10.00	10.00	19.97	180.00	
15,678.83	90.15	180.00	7,417.00	-8,251.95	-389.77	0.00	0.00	0.00	0.00	PBHL_JZM 24N-22HZ

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well JZM 24N-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Site:	JZM 16-10HZ PAD	North Reference:	True
Well:	JZM 24N-22HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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
Fox Hills Marker										
1,367.00	0.00	0.00	1,367.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
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
Start Build 2.00										
1,600.00	0.66	297.16	1,600.00	0.09	-0.17	-0.09	2.00	2.00	0.00	0.00
1,700.00	2.66	297.16	1,699.95	1.41	-2.75	-1.41	2.00	2.00	0.00	0.00
1,800.00	4.66	297.16	1,799.74	4.32	-8.43	-4.32	2.00	2.00	0.00	0.00
1,900.00	6.66	297.16	1,899.25	8.83	-17.20	-8.83	2.00	2.00	0.00	0.00
2,000.00	8.66	297.16	1,998.35	14.91	-29.06	-14.91	2.00	2.00	0.00	0.00
2,066.94	10.00	297.16	2,064.41	19.87	-38.71	-19.87	2.00	2.00	0.00	0.00
Start 2021.89 hold at 2066.94 MD										
2,100.00	10.00	297.16	2,096.96	22.49	-43.82	-22.49	0.00	0.00	0.00	0.00
2,200.00	10.00	297.16	2,195.45	30.41	-59.27	-30.41	0.00	0.00	0.00	0.00
2,300.00	10.00	297.16	2,293.93	38.34	-74.72	-38.34	0.00	0.00	0.00	0.00
2,400.00	10.00	297.16	2,392.41	46.27	-90.16	-46.27	0.00	0.00	0.00	0.00
2,500.00	10.00	297.16	2,490.89	54.19	-105.61	-54.19	0.00	0.00	0.00	0.00
2,600.00	10.00	297.16	2,589.37	62.12	-121.06	-62.12	0.00	0.00	0.00	0.00
2,700.00	10.00	297.16	2,687.85	70.05	-136.51	-70.05	0.00	0.00	0.00	0.00
2,800.00	10.00	297.16	2,786.33	77.97	-151.95	-77.97	0.00	0.00	0.00	0.00
2,900.00	10.00	297.16	2,884.81	85.90	-167.40	-85.90	0.00	0.00	0.00	0.00
3,000.00	10.00	297.16	2,983.29	93.83	-182.85	-93.83	0.00	0.00	0.00	0.00
3,100.00	10.00	297.16	3,081.78	101.75	-198.30	-101.75	0.00	0.00	0.00	0.00
3,200.00	10.00	297.16	3,180.26	109.68	-213.75	-109.68	0.00	0.00	0.00	0.00
3,300.00	10.00	297.16	3,278.74	117.61	-229.19	-117.61	0.00	0.00	0.00	0.00
3,400.00	10.00	297.16	3,377.22	125.53	-244.64	-125.53	0.00	0.00	0.00	0.00
3,500.00	10.00	297.16	3,475.70	133.46	-260.09	-133.46	0.00	0.00	0.00	0.00
3,600.00	10.00	297.16	3,574.18	141.39	-275.54	-141.39	0.00	0.00	0.00	0.00
3,700.00	10.00	297.16	3,672.66	149.31	-290.99	-149.31	0.00	0.00	0.00	0.00
3,800.00	10.00	297.16	3,771.14	157.24	-306.43	-157.24	0.00	0.00	0.00	0.00
3,900.00	10.00	297.16	3,869.62	165.17	-321.88	-165.17	0.00	0.00	0.00	0.00
4,000.00	10.00	297.16	3,968.11	173.09	-337.33	-173.09	0.00	0.00	0.00	0.00
4,088.83	10.00	297.16	4,055.59	180.13	-351.05	-180.13	0.00	0.00	0.00	0.00
Start Drop -2.00										
4,100.00	9.78	297.16	4,066.59	181.01	-352.76	-181.01	2.00	-2.00	0.00	0.00
4,200.00	7.78	297.16	4,165.41	187.97	-366.33	-187.97	2.00	-2.00	0.00	0.00
4,234.88	7.08	297.16	4,200.00	190.03	-370.34	-190.03	2.00	-2.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well JZM 24N-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Site:	JZM 16-10HZ PAD	North Reference:	True
Well:	JZM 24N-22HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)
Parkman									
4,300.00	5.78	297.16	4,264.71	193.36	-376.83	-193.36	2.00	-2.00	0.00
4,400.00	3.78	297.16	4,364.36	197.16	-384.23	-197.16	2.00	-2.00	0.00
4,500.00	1.78	297.16	4,464.24	199.37	-388.54	-199.37	2.00	-2.00	0.00
4,588.78	0.00	0.00	4,553.00	200.00	-389.77	-200.00	2.00	-2.00	70.78
Start 2311.04 hold at 4588.78 MD									
4,600.00	0.00	0.00	4,564.22	200.00	-389.77	-200.00	0.00	0.00	0.00
4,601.78	0.00	0.00	4,566.00	200.00	-389.77	-200.00	0.00	0.00	0.00
Sussex									
4,700.00	0.00	0.00	4,664.22	200.00	-389.77	-200.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,764.22	200.00	-389.77	-200.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,864.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,964.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,064.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,164.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,264.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,364.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,464.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,564.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,664.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,764.22	200.00	-389.77	-200.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,864.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,964.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,064.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,164.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,264.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,364.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,464.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,564.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,664.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,764.22	200.00	-389.77	-200.00	0.00	0.00	0.00
6,899.82	0.00	0.00	6,864.04	200.00	-389.77	-200.00	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
6,900.00	0.00	180.00	6,864.22	200.00	-389.77	-200.00	0.00	0.00	0.00
7,000.00	10.02	180.00	6,963.71	191.26	-389.77	-191.26	10.02	10.02	0.00
7,100.00	20.02	180.00	7,060.17	165.38	-389.77	-165.38	10.00	10.00	0.00
7,200.00	30.02	180.00	7,150.68	123.15	-389.77	-123.15	10.00	10.00	0.00
7,300.00	40.02	180.00	7,232.47	65.84	-389.77	-65.84	10.00	10.00	0.00
7,371.18	47.14	180.00	7,284.00	16.80	-389.77	-16.80	10.00	10.00	0.00
Sharon Springs									
7,400.00	50.02	180.00	7,303.07	-4.81	-389.77	4.81	10.00	10.00	0.00
7,422.20	52.24	180.00	7,317.00	-22.09	-389.77	22.09	10.00	10.00	0.00
Niobrara A									
7,500.00	60.02	180.00	7,360.33	-86.64	-389.77	86.64	10.00	10.00	0.00
7,600.00	70.02	180.00	7,402.51	-177.17	-389.77	177.17	10.00	10.00	0.00
7,682.35	78.25	180.00	7,425.00	-256.31	-389.77	256.31	10.00	10.00	0.00
Niobrara B									
7,700.00	80.02	180.00	7,428.33	-273.64	-389.77	273.64	10.00	10.00	0.00
7,800.00	90.02	180.00	7,437.00	-373.14	-389.77	373.14	10.00	10.00	0.00
7,801.27	90.15	180.00	7,437.00	-374.41	-389.77	374.41	10.00	10.00	0.00
Start 7877.56 hold at 7801.27 MD - 7" (1 FNL 1120 FEL)									
7,900.00	90.15	180.00	7,436.75	-473.14	-389.77	473.14	0.00	0.00	0.00
8,000.00	90.15	180.00	7,436.49	-573.14	-389.77	573.14	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well JZM 24N-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Site:	JZM 16-10HZ PAD	North Reference:	True
Well:	JZM 24N-22HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)
8,100.00	90.15	180.00	7,436.24	-673.14	-389.77	673.14	0.00	0.00	0.00
8,200.00	90.15	180.00	7,435.99	-773.14	-389.77	773.14	0.00	0.00	0.00
8,300.00	90.15	180.00	7,435.73	-873.14	-389.77	873.14	0.00	0.00	0.00
8,400.00	90.15	180.00	7,435.48	-973.14	-389.77	973.14	0.00	0.00	0.00
8,500.00	90.15	180.00	7,435.22	-1,073.14	-389.77	1,073.14	0.00	0.00	0.00
8,600.00	90.15	180.00	7,434.97	-1,173.14	-389.77	1,173.14	0.00	0.00	0.00
8,700.00	90.15	180.00	7,434.72	-1,273.14	-389.77	1,273.14	0.00	0.00	0.00
8,800.00	90.15	180.00	7,434.46	-1,373.14	-389.77	1,373.14	0.00	0.00	0.00
8,900.00	90.15	180.00	7,434.21	-1,473.14	-389.77	1,473.14	0.00	0.00	0.00
9,000.00	90.15	180.00	7,433.95	-1,573.14	-389.77	1,573.14	0.00	0.00	0.00
9,100.00	90.15	180.00	7,433.70	-1,673.14	-389.77	1,673.14	0.00	0.00	0.00
9,200.00	90.15	180.00	7,433.45	-1,773.14	-389.77	1,773.14	0.00	0.00	0.00
9,300.00	90.15	180.00	7,433.19	-1,873.13	-389.77	1,873.13	0.00	0.00	0.00
9,400.00	90.15	180.00	7,432.94	-1,973.13	-389.77	1,973.13	0.00	0.00	0.00
9,500.00	90.15	180.00	7,432.69	-2,073.13	-389.77	2,073.13	0.00	0.00	0.00
9,600.00	90.15	180.00	7,432.43	-2,173.13	-389.77	2,173.13	0.00	0.00	0.00
9,700.00	90.15	180.00	7,432.18	-2,273.13	-389.77	2,273.13	0.00	0.00	0.00
9,800.00	90.15	180.00	7,431.92	-2,373.13	-389.77	2,373.13	0.00	0.00	0.00
9,900.00	90.15	180.00	7,431.67	-2,473.13	-389.77	2,473.13	0.00	0.00	0.00
10,000.00	90.15	180.00	7,431.42	-2,573.13	-389.77	2,573.13	0.00	0.00	0.00
10,100.00	90.15	180.00	7,431.16	-2,673.13	-389.77	2,673.13	0.00	0.00	0.00
10,200.00	90.15	180.00	7,430.91	-2,773.13	-389.77	2,773.13	0.00	0.00	0.00
10,300.00	90.15	180.00	7,430.65	-2,873.13	-389.77	2,873.13	0.00	0.00	0.00
10,400.00	90.15	180.00	7,430.40	-2,973.13	-389.77	2,973.13	0.00	0.00	0.00
10,500.00	90.15	180.00	7,430.15	-3,073.13	-389.77	3,073.13	0.00	0.00	0.00
10,600.00	90.15	180.00	7,429.89	-3,173.13	-389.77	3,173.13	0.00	0.00	0.00
10,700.00	90.15	180.00	7,429.64	-3,273.13	-389.77	3,273.13	0.00	0.00	0.00
10,800.00	90.15	180.00	7,429.39	-3,373.13	-389.77	3,373.13	0.00	0.00	0.00
10,900.00	90.15	180.00	7,429.13	-3,473.13	-389.77	3,473.13	0.00	0.00	0.00
11,000.00	90.15	180.00	7,428.88	-3,573.13	-389.77	3,573.13	0.00	0.00	0.00
11,100.00	90.15	180.00	7,428.62	-3,673.13	-389.77	3,673.13	0.00	0.00	0.00
11,200.00	90.15	180.00	7,428.37	-3,773.13	-389.77	3,773.13	0.00	0.00	0.00
11,300.00	90.15	180.00	7,428.12	-3,873.13	-389.77	3,873.13	0.00	0.00	0.00
11,400.00	90.15	180.00	7,427.86	-3,973.13	-389.77	3,973.13	0.00	0.00	0.00
11,500.00	90.15	180.00	7,427.61	-4,073.13	-389.77	4,073.13	0.00	0.00	0.00
11,600.00	90.15	180.00	7,427.35	-4,173.13	-389.77	4,173.13	0.00	0.00	0.00
11,700.00	90.15	180.00	7,427.10	-4,273.13	-389.77	4,273.13	0.00	0.00	0.00
11,800.00	90.15	180.00	7,426.85	-4,373.13	-389.77	4,373.13	0.00	0.00	0.00
11,900.00	90.15	180.00	7,426.59	-4,473.13	-389.77	4,473.13	0.00	0.00	0.00
12,000.00	90.15	180.00	7,426.34	-4,573.13	-389.77	4,573.13	0.00	0.00	0.00
12,100.00	90.15	180.00	7,426.08	-4,673.13	-389.77	4,673.13	0.00	0.00	0.00
12,200.00	90.15	180.00	7,425.83	-4,773.13	-389.77	4,773.13	0.00	0.00	0.00
12,300.00	90.15	180.00	7,425.58	-4,873.13	-389.77	4,873.13	0.00	0.00	0.00
12,400.00	90.15	180.00	7,425.32	-4,973.12	-389.77	4,973.12	0.00	0.00	0.00
12,500.00	90.15	180.00	7,425.07	-5,073.12	-389.77	5,073.12	0.00	0.00	0.00
12,600.00	90.15	180.00	7,424.82	-5,173.12	-389.77	5,173.12	0.00	0.00	0.00
12,700.00	90.15	180.00	7,424.56	-5,273.12	-389.77	5,273.12	0.00	0.00	0.00
12,800.00	90.15	180.00	7,424.31	-5,373.12	-389.77	5,373.12	0.00	0.00	0.00
12,900.00	90.15	180.00	7,424.05	-5,473.12	-389.77	5,473.12	0.00	0.00	0.00
13,000.00	90.15	180.00	7,423.80	-5,573.12	-389.77	5,573.12	0.00	0.00	0.00
13,100.00	90.15	180.00	7,423.55	-5,673.12	-389.77	5,673.12	0.00	0.00	0.00
13,200.00	90.15	180.00	7,423.29	-5,773.12	-389.77	5,773.12	0.00	0.00	0.00
13,300.00	90.15	180.00	7,423.04	-5,873.12	-389.77	5,873.12	0.00	0.00	0.00
13,400.00	90.15	180.00	7,422.78	-5,973.12	-389.77	5,973.12	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well JZM 24N-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Site:	JZM 16-10HZ PAD	North Reference:	True
Well:	JZM 24N-22HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)	
13,500.00	90.15	180.00	7,422.53	-6,073.12	-389.77	6,073.12	0.00	0.00	0.00	
13,600.00	90.15	180.00	7,422.28	-6,173.12	-389.77	6,173.12	0.00	0.00	0.00	
13,700.00	90.15	180.00	7,422.02	-6,273.12	-389.77	6,273.12	0.00	0.00	0.00	
13,800.00	90.15	180.00	7,421.77	-6,373.12	-389.77	6,373.12	0.00	0.00	0.00	
13,900.00	90.15	180.00	7,421.52	-6,473.12	-389.77	6,473.12	0.00	0.00	0.00	
14,000.00	90.15	180.00	7,421.26	-6,573.12	-389.77	6,573.12	0.00	0.00	0.00	
14,100.00	90.15	180.00	7,421.01	-6,673.12	-389.77	6,673.12	0.00	0.00	0.00	
14,200.00	90.15	180.00	7,420.75	-6,773.12	-389.77	6,773.12	0.00	0.00	0.00	
14,300.00	90.15	180.00	7,420.50	-6,873.12	-389.77	6,873.12	0.00	0.00	0.00	
14,400.00	90.15	180.00	7,420.25	-6,973.12	-389.77	6,973.12	0.00	0.00	0.00	
14,500.00	90.15	180.00	7,419.99	-7,073.12	-389.77	7,073.12	0.00	0.00	0.00	
14,600.00	90.15	180.00	7,419.74	-7,173.12	-389.77	7,173.12	0.00	0.00	0.00	
14,700.00	90.15	180.00	7,419.48	-7,273.12	-389.77	7,273.12	0.00	0.00	0.00	
14,800.00	90.15	180.00	7,419.23	-7,373.12	-389.77	7,373.12	0.00	0.00	0.00	
14,900.00	90.15	180.00	7,418.98	-7,473.12	-389.77	7,473.12	0.00	0.00	0.00	
15,000.00	90.15	180.00	7,418.72	-7,573.12	-389.77	7,573.12	0.00	0.00	0.00	
15,100.00	90.15	180.00	7,418.47	-7,673.12	-389.77	7,673.12	0.00	0.00	0.00	
15,200.00	90.15	180.00	7,418.22	-7,773.12	-389.77	7,773.12	0.00	0.00	0.00	
15,300.00	90.15	180.00	7,417.96	-7,873.12	-389.77	7,873.12	0.00	0.00	0.00	
15,400.00	90.15	180.00	7,417.71	-7,973.12	-389.77	7,973.12	0.00	0.00	0.00	
15,500.00	90.15	180.00	7,417.45	-8,073.11	-389.77	8,073.11	0.00	0.00	0.00	
15,600.00	90.15	180.00	7,417.20	-8,173.11	-389.77	8,173.11	0.00	0.00	0.00	
15,678.83	90.15	180.00	7,417.00	-8,251.95	-389.77	8,251.95	0.00	0.00	0.00	
TD at 15678.83 - PBHL_JZM 24N-22HZ (2632' FNL 1150' 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 24N-22HZ (; - hit/miss target - Shape - Point	0.00	0.00	7,417.00	-8,251.95	-389.77	1,256,803.52	3,176,013.32	40.0366010	-104.8713830

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	
7,801.27	7,437.00	7" (1 FNL 1120 FEL)	7.000	7.500	

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well JZM 24N-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5040 & KB 17 @ 5057.00ft (ASSUMED)
Site:	JZM 16-10HZ PAD	North Reference:	True
Well:	JZM 24N-22HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,317.00	1,317.00	Fox Hills Marker			
4,234.88	4,200.00	Parkman			
4,601.78	4,566.00	Sussex			
7,371.18	7,284.00	Sharon Springs			
7,422.20	7,317.00	Niobrara A			
7,682.35	7,425.00	Niobrara B			

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	
2,066.94	2,064.41	19.87	-38.71	Start 2021.89 hold at 2066.94 MD	
4,088.83	4,055.59	180.13	-351.05	Start Drop -2.00	
4,588.78	4,553.00	200.00	-389.77	Start 2311.04 hold at 4588.78 MD	
6,899.82	6,864.04	200.00	-389.77	Start DLS 10.00 TFO 180.00	
7,801.27	7,437.00	-374.41	-389.77	Start 7877.56 hold at 7801.27 MD	
15,678.83	7,417.00	-8,251.95	-389.77	TD at 15678.83	