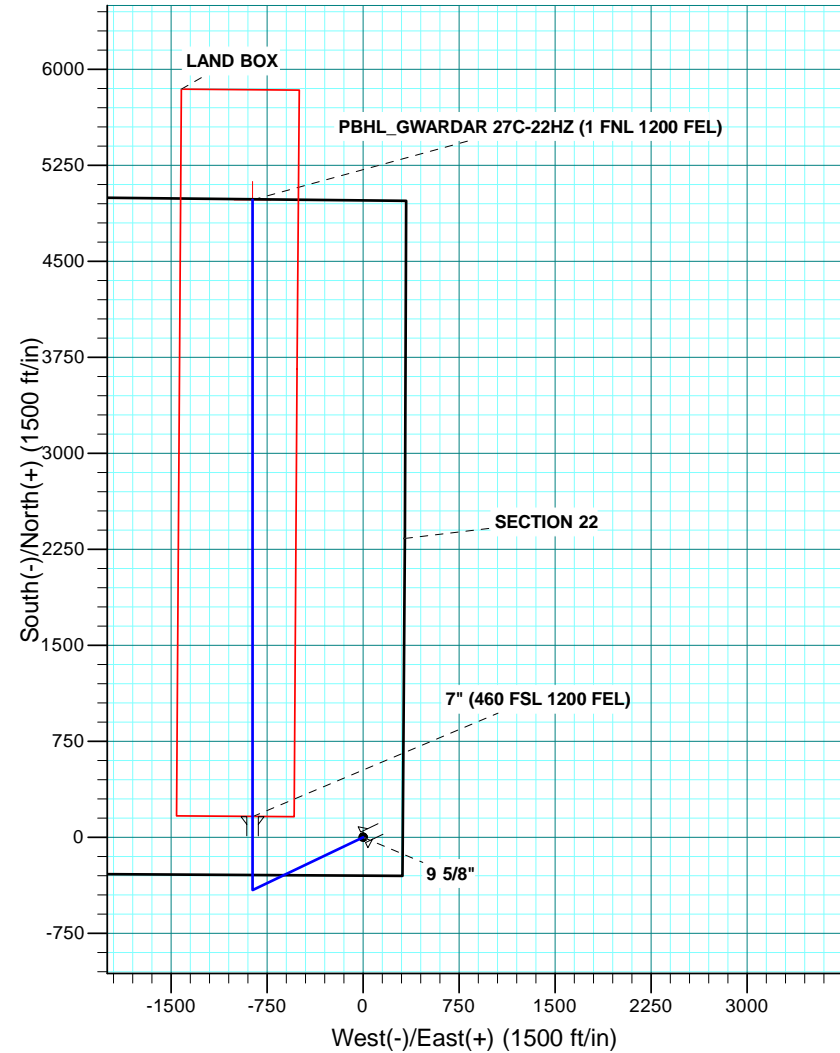
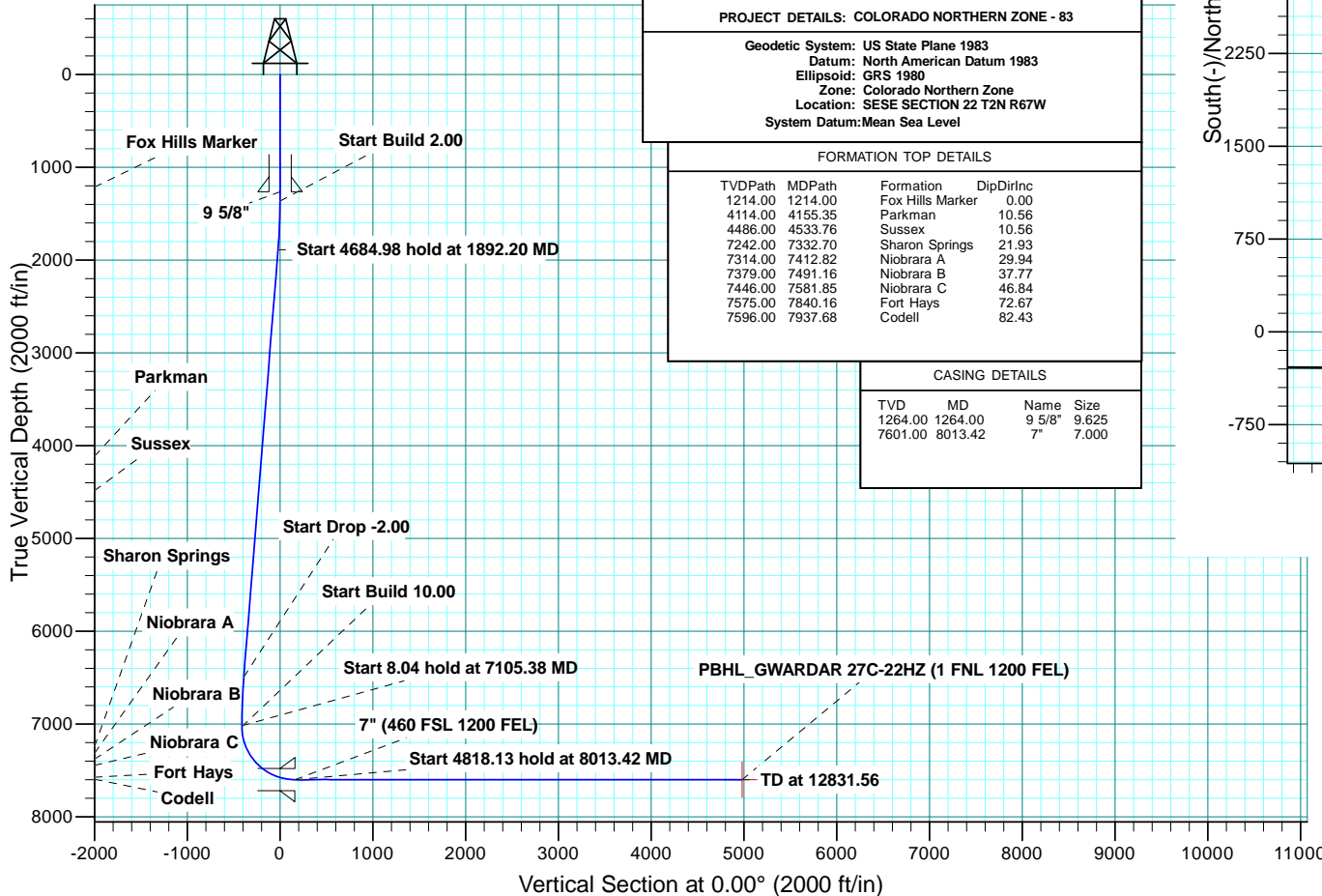


WELL DETAILS: GWARDAR 27C-22HZ										
GL 4979 & KB 17 @ 4996.00ft (ASSUMED)										
		+N/-S	+E/-W	Northing	Easting	Latitude	Longitude			
		0.00	0.00	1286183.25	3176585.07	40.1172400	-104.8685940			
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1364.00	0.00	0.00	1364.00	0.00	0.00	0.00	0.00	0.00		Start Build 2.00
1892.20	10.56	244.54	1892.22	-20.87	-43.84	2.00	244.54	-20.87		Start 4684.98 hold at 1892.20 MD
6577.18	10.56	244.54	6494.78	-390.13	-819.34	0.00	0.00	-390.13		Start Drop -2.00
7105.38	0.00	0.00	7020.00	-411.00	-863.18	2.00	189.00	-411.00		Start 8.04 hold at 7105.38 MD
7113.42	0.00	0.00	7028.04	-411.00	-863.18	0.00	0.00	-411.00		Start Build 10.00
8013.42	90.00	0.00	7601.00	161.96	-863.18	10.00	0.00	161.96		Start 4818.13 hold at 8013.42 MD
12831.56	90.00	0.00	7601.00	4980.09	-863.18	0.00	0.00	4980.09		PBHL_GWARDAR 27C-22HZ TD at 12831.56
DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
PBHL 7601.00	4980.09	-863.18	1291157.06	3175686.46	40.1309110	-104.8716810		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 22 T2N R67W
System Datum: Mean Sea Level

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	DipDirInc
1214.00	1214.00	Fox Hills Marker	0.00
4114.00	4155.35	Parkman	10.56
4486.00	4533.76	Sussex	10.56
7242.00	7332.70	Sharon Springs	21.93
7314.00	7412.82	Niobrara A	29.94
7379.00	7491.16	Niobrara B	37.77
7446.00	7581.85	Niobrara C	46.84
7575.00	7840.16	Fort Hays	72.67
7596.00	7937.68	Codell	82.43

CASING DETAILS			
TVD	MD	Name	Size
1264.00	1264.00	9 5/8"	9.625
7601.00	8013.42	7"	7.000





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WARDAR 16-22HZ PAD

WARDAR 27C-22HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

18 February, 2014



Database:	Denver Sales Office	Local Co-ordinate Reference:	Well GWARDAR 27C-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Site:	WARDAR 16-22HZ PAD	North Reference:	True
Well:	WARDAR 27C-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	WARDAR 16-22HZ PAD, SESE SECTION 22 T2N R67W				
Site Position:	Northing:	1,286,183.11 usft	Latitude:	40.1172390	
From:	Lat/Long	Easting:	3,176,615.00 usft	Longitude:	-104.8684870
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.41 °

Well	WARDAR 27C-22HZ, 300 FSL 310 FEL					
Well Position	+N/-S	0.36 ft	Northing:	1,286,183.25 usft	Latitude:	40.1172400
	+E/-W	-29.92 ft	Easting:	3,176,585.07 usft	Longitude:	-104.8685940
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,979.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	2/18/2014	8.58	66.70	52,608

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	0.00

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	
1,364.00	0.00	0.00	1,364.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,892.20	10.56	244.54	1,889.22	-20.87	-43.84	2.00	2.00	0.00	244.54	
6,577.18	10.56	244.54	6,494.78	-390.13	-819.34	0.00	0.00	0.00	0.00	
7,105.38	0.00	0.00	7,020.00	-411.00	-863.18	2.00	-2.00	0.00	180.00	
7,113.42	0.00	0.00	7,028.04	-411.00	-863.18	0.00	0.00	0.00	0.00	
8,013.42	90.00	0.00	7,601.00	161.96	-863.18	10.00	10.00	0.00	0.00	
12,831.56	90.00	0.00	7,601.00	4,980.09	-863.18	0.00	0.00	0.00	0.00	PBHL_GWARDAR 27

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well GWARDAR 27C-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Site:	GWARDAR 16-22HZ PAD	North Reference:	True
Well:	GWARDAR 27C-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
1,214.00	0.00	0.00	1,214.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Marker										
1,264.00	0.00	0.00	1,264.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,364.00	0.00	0.00	1,364.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00										
1,400.00	0.72	244.54	1,400.00	-0.10	-0.20	-0.10	2.00	2.00	0.00	0.00
1,500.00	2.72	244.54	1,499.95	-1.39	-2.91	-1.39	2.00	2.00	0.00	0.00
1,600.00	4.72	244.54	1,599.73	-4.18	-8.77	-4.18	2.00	2.00	0.00	0.00
1,700.00	6.72	244.54	1,699.23	-8.46	-17.77	-8.46	2.00	2.00	0.00	0.00
1,800.00	8.72	244.54	1,798.32	-14.24	-29.90	-14.24	2.00	2.00	0.00	0.00
1,892.20	10.56	244.54	1,889.22	-20.87	-43.84	-20.87	2.00	2.00	0.00	0.00
Start 4684.98 hold at 1892.20 MD										
1,900.00	10.56	244.54	1,896.88	-21.49	-45.13	-21.49	0.00	0.00	0.00	0.00
2,000.00	10.56	244.54	1,995.19	-29.37	-61.68	-29.37	0.00	0.00	0.00	0.00
2,100.00	10.56	244.54	2,093.49	-37.25	-78.24	-37.25	0.00	0.00	0.00	0.00
2,200.00	10.56	244.54	2,191.80	-45.13	-94.79	-45.13	0.00	0.00	0.00	0.00
2,300.00	10.56	244.54	2,290.10	-53.02	-111.34	-53.02	0.00	0.00	0.00	0.00
2,400.00	10.56	244.54	2,388.41	-60.90	-127.90	-60.90	0.00	0.00	0.00	0.00
2,500.00	10.56	244.54	2,486.71	-68.78	-144.45	-68.78	0.00	0.00	0.00	0.00
2,600.00	10.56	244.54	2,585.02	-76.66	-161.00	-76.66	0.00	0.00	0.00	0.00
2,700.00	10.56	244.54	2,683.32	-84.54	-177.55	-84.54	0.00	0.00	0.00	0.00
2,800.00	10.56	244.54	2,781.63	-92.42	-194.11	-92.42	0.00	0.00	0.00	0.00
2,900.00	10.56	244.54	2,879.93	-100.31	-210.66	-100.31	0.00	0.00	0.00	0.00
3,000.00	10.56	244.54	2,978.24	-108.19	-227.21	-108.19	0.00	0.00	0.00	0.00
3,100.00	10.56	244.54	3,076.54	-116.07	-243.76	-116.07	0.00	0.00	0.00	0.00
3,200.00	10.56	244.54	3,174.85	-123.95	-260.32	-123.95	0.00	0.00	0.00	0.00
3,300.00	10.56	244.54	3,273.15	-131.83	-276.87	-131.83	0.00	0.00	0.00	0.00
3,400.00	10.56	244.54	3,371.46	-139.71	-293.42	-139.71	0.00	0.00	0.00	0.00
3,500.00	10.56	244.54	3,469.76	-147.59	-309.98	-147.59	0.00	0.00	0.00	0.00
3,600.00	10.56	244.54	3,568.07	-155.48	-326.53	-155.48	0.00	0.00	0.00	0.00
3,700.00	10.56	244.54	3,666.37	-163.36	-343.08	-163.36	0.00	0.00	0.00	0.00
3,800.00	10.56	244.54	3,764.68	-171.24	-359.63	-171.24	0.00	0.00	0.00	0.00
3,900.00	10.56	244.54	3,862.98	-179.12	-376.19	-179.12	0.00	0.00	0.00	0.00
4,000.00	10.56	244.54	3,961.29	-187.00	-392.74	-187.00	0.00	0.00	0.00	0.00
4,100.00	10.56	244.54	4,059.59	-194.88	-409.29	-194.88	0.00	0.00	0.00	0.00
4,155.35	10.56	244.54	4,114.00	-199.25	-418.45	-199.25	0.00	0.00	0.00	0.00
Parkman										
4,200.00	10.56	244.54	4,157.90	-202.77	-425.85	-202.77	0.00	0.00	0.00	0.00
4,300.00	10.56	244.54	4,256.20	-210.65	-442.40	-210.65	0.00	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well GWARDAR 27C-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Site:	GWARDAR 16-22HZ PAD	North Reference:	True
Well:	GWARDAR 27C-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)
4,400.00	10.56	244.54	4,354.51	-218.53	-458.95	-218.53	0.00	0.00	0.00
4,500.00	10.56	244.54	4,452.81	-226.41	-475.50	-226.41	0.00	0.00	0.00
4,533.76	10.56	244.54	4,486.00	-229.07	-481.09	-229.07	0.00	0.00	0.00
Sussex									
4,600.00	10.56	244.54	4,551.12	-234.29	-492.06	-234.29	0.00	0.00	0.00
4,700.00	10.56	244.54	4,649.42	-242.17	-508.61	-242.17	0.00	0.00	0.00
4,800.00	10.56	244.54	4,747.73	-250.06	-525.16	-250.06	0.00	0.00	0.00
4,900.00	10.56	244.54	4,846.03	-257.94	-541.72	-257.94	0.00	0.00	0.00
5,000.00	10.56	244.54	4,944.34	-265.82	-558.27	-265.82	0.00	0.00	0.00
5,100.00	10.56	244.54	5,042.64	-273.70	-574.82	-273.70	0.00	0.00	0.00
5,200.00	10.56	244.54	5,140.95	-281.58	-591.37	-281.58	0.00	0.00	0.00
5,300.00	10.56	244.54	5,239.25	-289.46	-607.93	-289.46	0.00	0.00	0.00
5,400.00	10.56	244.54	5,337.56	-297.34	-624.48	-297.34	0.00	0.00	0.00
5,500.00	10.56	244.54	5,435.86	-305.23	-641.03	-305.23	0.00	0.00	0.00
5,600.00	10.56	244.54	5,534.17	-313.11	-657.58	-313.11	0.00	0.00	0.00
5,700.00	10.56	244.54	5,632.47	-320.99	-674.14	-320.99	0.00	0.00	0.00
5,800.00	10.56	244.54	5,730.78	-328.87	-690.69	-328.87	0.00	0.00	0.00
5,900.00	10.56	244.54	5,829.08	-336.75	-707.24	-336.75	0.00	0.00	0.00
6,000.00	10.56	244.54	5,927.39	-344.63	-723.80	-344.63	0.00	0.00	0.00
6,100.00	10.56	244.54	6,025.69	-352.52	-740.35	-352.52	0.00	0.00	0.00
6,200.00	10.56	244.54	6,124.00	-360.40	-756.90	-360.40	0.00	0.00	0.00
6,300.00	10.56	244.54	6,222.30	-368.28	-773.45	-368.28	0.00	0.00	0.00
6,400.00	10.56	244.54	6,320.61	-376.16	-790.01	-376.16	0.00	0.00	0.00
6,500.00	10.56	244.54	6,418.91	-384.04	-806.56	-384.04	0.00	0.00	0.00
6,577.18	10.56	244.54	6,494.79	-390.13	-819.34	-390.13	0.00	0.00	0.00
Start Drop -2.00									
6,600.00	10.11	244.54	6,517.23	-391.89	-823.03	-391.89	2.00	-2.00	0.00
6,700.00	8.11	244.54	6,615.97	-398.69	-837.32	-398.69	2.00	-2.00	0.00
6,800.00	6.11	244.54	6,715.20	-404.01	-848.49	-404.01	2.00	-2.00	0.00
6,900.00	4.11	244.54	6,814.79	-407.84	-856.53	-407.84	2.00	-2.00	0.00
7,000.00	2.11	244.54	6,914.64	-410.17	-861.43	-410.17	2.00	-2.00	0.00
7,100.00	0.11	244.54	7,014.62	-411.00	-863.17	-411.00	2.00	-2.00	0.00
7,105.38	0.00	0.00	7,020.00	-411.00	-863.18	-411.00	2.00	-2.00	2,145.04
Start 8.04 hold at 7105.38 MD									
7,113.42	0.00	0.00	7,028.04	-411.00	-863.18	-411.00	0.00	0.00	0.00
Start Build 10.00									
7,200.00	8.66	0.00	7,114.29	-404.47	-863.18	-404.47	10.00	10.00	0.00
7,300.00	18.66	0.00	7,211.34	-380.89	-863.18	-380.89	10.00	10.00	0.00
7,332.70	21.93	0.00	7,242.00	-369.55	-863.18	-369.55	10.00	10.00	0.00
Sharon Springs									
7,400.00	28.66	0.00	7,302.82	-340.81	-863.18	-340.81	10.00	10.00	0.00
7,412.82	29.94	0.00	7,314.00	-334.54	-863.18	-334.54	10.00	10.00	0.00
Niobrara A									
7,491.16	37.77	0.00	7,379.00	-290.93	-863.18	-290.93	10.00	10.00	0.00
Niobrara B									
7,500.00	38.66	0.00	7,385.95	-285.46	-863.18	-285.46	10.00	10.00	0.00
7,581.85	46.84	0.00	7,446.00	-229.95	-863.18	-229.95	10.00	10.00	0.00
Niobrara C									
7,600.00	48.66	0.00	7,458.20	-216.51	-863.18	-216.51	10.00	10.00	0.00
7,700.00	58.66	0.00	7,517.39	-136.07	-863.18	-136.07	10.00	10.00	0.00
7,800.00	68.66	0.00	7,561.71	-46.56	-863.18	-46.56	10.00	10.00	0.00
7,840.16	72.67	0.00	7,575.00	-8.68	-863.18	-8.68	10.00	10.00	0.00
Fort Hays									

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well GWARDAR 27C-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Site:	GWARDAR 16-22HZ PAD	North Reference:	True
Well:	GWARDAR 27C-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)
7,900.00	78.66	0.00	7,589.81	49.27	-863.18	49.27	10.00	10.00	0.00
7,937.68	82.43	0.00	7,596.00	86.44	-863.18	86.44	10.00	10.00	0.00
Codell									
8,000.00	88.66	0.00	7,600.84	148.54	-863.18	148.54	10.00	10.00	0.00
8,013.42	90.00	0.00	7,601.00	161.95	-863.18	161.95	10.00	10.00	0.00
Start 4818.13 hold at 8013.42 MD - 7" (460 FSL 1200 FEL)									
8,100.00	90.00	0.00	7,601.00	248.53	-863.18	248.53	0.00	0.00	0.00
8,200.00	90.00	0.00	7,601.00	348.53	-863.18	348.53	0.00	0.00	0.00
8,300.00	90.00	0.00	7,601.00	448.53	-863.18	448.53	0.00	0.00	0.00
8,400.00	90.00	0.00	7,601.00	548.53	-863.18	548.53	0.00	0.00	0.00
8,500.00	90.00	0.00	7,601.00	648.53	-863.18	648.53	0.00	0.00	0.00
8,600.00	90.00	0.00	7,601.00	748.53	-863.18	748.53	0.00	0.00	0.00
8,700.00	90.00	0.00	7,601.00	848.53	-863.18	848.53	0.00	0.00	0.00
8,800.00	90.00	0.00	7,601.00	948.53	-863.18	948.53	0.00	0.00	0.00
8,900.00	90.00	0.00	7,601.00	1,048.53	-863.18	1,048.53	0.00	0.00	0.00
9,000.00	90.00	0.00	7,601.00	1,148.53	-863.18	1,148.53	0.00	0.00	0.00
9,100.00	90.00	0.00	7,601.00	1,248.53	-863.18	1,248.53	0.00	0.00	0.00
9,200.00	90.00	0.00	7,601.00	1,348.53	-863.18	1,348.53	0.00	0.00	0.00
9,300.00	90.00	0.00	7,601.00	1,448.53	-863.18	1,448.53	0.00	0.00	0.00
9,400.00	90.00	0.00	7,601.00	1,548.53	-863.18	1,548.53	0.00	0.00	0.00
9,500.00	90.00	0.00	7,601.00	1,648.53	-863.18	1,648.53	0.00	0.00	0.00
9,600.00	90.00	0.00	7,601.00	1,748.53	-863.18	1,748.53	0.00	0.00	0.00
9,700.00	90.00	0.00	7,601.00	1,848.53	-863.18	1,848.53	0.00	0.00	0.00
9,800.00	90.00	0.00	7,601.00	1,948.53	-863.18	1,948.53	0.00	0.00	0.00
9,900.00	90.00	0.00	7,601.00	2,048.53	-863.18	2,048.53	0.00	0.00	0.00
10,000.00	90.00	0.00	7,601.00	2,148.53	-863.18	2,148.53	0.00	0.00	0.00
10,100.00	90.00	0.00	7,601.00	2,248.53	-863.18	2,248.53	0.00	0.00	0.00
10,200.00	90.00	0.00	7,601.00	2,348.53	-863.18	2,348.53	0.00	0.00	0.00
10,300.00	90.00	0.00	7,601.00	2,448.53	-863.18	2,448.53	0.00	0.00	0.00
10,400.00	90.00	0.00	7,601.00	2,548.53	-863.18	2,548.53	0.00	0.00	0.00
10,500.00	90.00	0.00	7,601.00	2,648.53	-863.18	2,648.53	0.00	0.00	0.00
10,600.00	90.00	0.00	7,601.00	2,748.53	-863.18	2,748.53	0.00	0.00	0.00
10,700.00	90.00	0.00	7,601.00	2,848.53	-863.18	2,848.53	0.00	0.00	0.00
10,800.00	90.00	0.00	7,601.00	2,948.53	-863.18	2,948.53	0.00	0.00	0.00
10,900.00	90.00	0.00	7,601.00	3,048.53	-863.18	3,048.53	0.00	0.00	0.00
11,000.00	90.00	0.00	7,601.00	3,148.53	-863.18	3,148.53	0.00	0.00	0.00
11,100.00	90.00	0.00	7,601.00	3,248.53	-863.18	3,248.53	0.00	0.00	0.00
11,200.00	90.00	0.00	7,601.00	3,348.53	-863.18	3,348.53	0.00	0.00	0.00
11,300.00	90.00	0.00	7,601.00	3,448.53	-863.18	3,448.53	0.00	0.00	0.00
11,400.00	90.00	0.00	7,601.00	3,548.53	-863.18	3,548.53	0.00	0.00	0.00
11,500.00	90.00	0.00	7,601.00	3,648.53	-863.18	3,648.53	0.00	0.00	0.00
11,600.00	90.00	0.00	7,601.00	3,748.53	-863.18	3,748.53	0.00	0.00	0.00
11,700.00	90.00	0.00	7,601.00	3,848.53	-863.18	3,848.53	0.00	0.00	0.00
11,800.00	90.00	0.00	7,601.00	3,948.53	-863.18	3,948.53	0.00	0.00	0.00
11,900.00	90.00	0.00	7,601.00	4,048.53	-863.18	4,048.53	0.00	0.00	0.00
12,000.00	90.00	0.00	7,601.00	4,148.53	-863.18	4,148.53	0.00	0.00	0.00
12,100.00	90.00	0.00	7,601.00	4,248.53	-863.18	4,248.53	0.00	0.00	0.00
12,200.00	90.00	0.00	7,601.00	4,348.53	-863.18	4,348.53	0.00	0.00	0.00
12,300.00	90.00	0.00	7,601.00	4,448.53	-863.18	4,448.53	0.00	0.00	0.00
12,400.00	90.00	0.00	7,601.00	4,548.53	-863.18	4,548.53	0.00	0.00	0.00
12,500.00	90.00	0.00	7,601.00	4,648.53	-863.18	4,648.53	0.00	0.00	0.00
12,600.00	90.00	0.00	7,601.00	4,748.53	-863.18	4,748.53	0.00	0.00	0.00
12,700.00	90.00	0.00	7,601.00	4,848.53	-863.18	4,848.53	0.00	0.00	0.00
12,800.00	90.00	0.00	7,601.00	4,948.53	-863.18	4,948.53	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well GWARDAR 27C-22HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4979 & KB 17 @ 4996.00ft (ASSUMED)
Site:	GWARDAR 16-22HZ PAD	North Reference:	True
Well:	GWARDAR 27C-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)
12,831.56	90.00	0.00	7,601.00	4,980.09	-863.18	4,980.09	0.00	0.00	0.00
TD at 12831.56 - PBHL_GWARDAR 27C-22HZ (1 FNL 1200 FEL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_GWARDAR 27C- - hit/miss target - Shape - Point	0.00	0.00	7,601.00	4,980.09	-863.18	1,291,157.06	3,175,686.46	40.1309110	-104.8716810

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
1,264.00	1,264.00	9 5/8"	9.625	12.250		
8,013.42	7,601.00	7" (460 FSL 1200 FEL)	7.000	7.500		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,214.00	1,214.00	Fox Hills Marker				
4,155.35	4,114.00	Parkman				
4,533.76	4,486.00	Sussex				
7,332.70	7,242.00	Sharon Springs				
7,412.82	7,314.00	Niobrara A				
7,491.16	7,379.00	Niobrara B				
7,581.85	7,446.00	Niobrara C				
7,840.16	7,575.00	Fort Hays				
7,937.68	7,596.00	Codell				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,364.00	1,364.00	0.00	0.00	Start Build 2.00	
1,892.20	1,889.22	-20.87	-43.84	Start 4684.98 hold at 1892.20 MD	
6,577.18	6,494.79	-390.13	-819.34	Start Drop -2.00	
7,105.38	7,020.00	-411.00	-863.18	Start 8.04 hold at 7105.38 MD	
7,113.42	7,028.04	-411.00	-863.18	Start Build 10.00	
8,013.42	7,601.00	161.96	-863.18	Start 4818.13 hold at 8013.42 MD	
12,831.56	7,601.00	4,980.09	-863.18	TD at 12831.56	