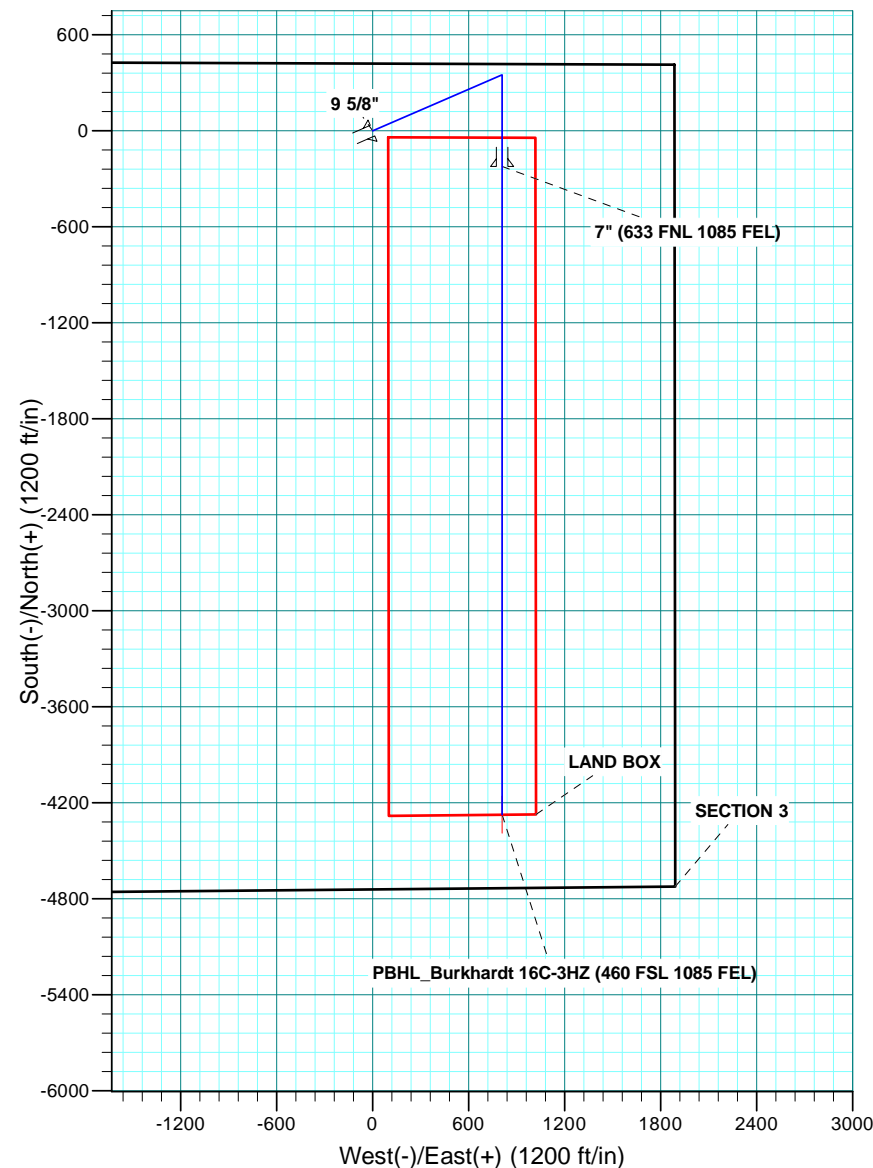
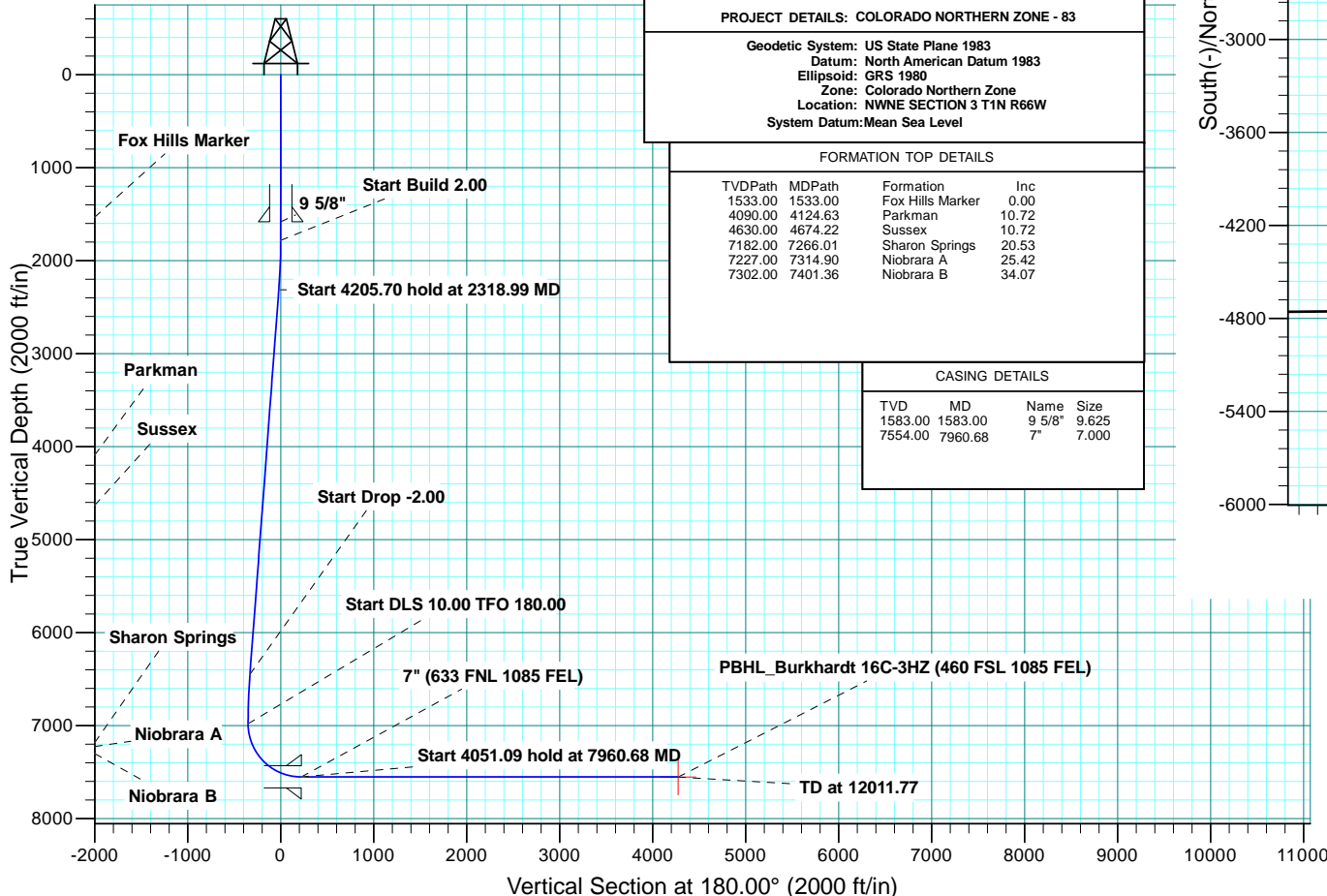


WELL DETAILS: BURKHARDT 16C-3HZ										
GL 5062 & KB 17 @ 5079.00ft (ASSUMED)										
		+N/-S 0.00	+E/-W 0.00	Northing 1275090.16	Easting 3206917.04	Latitude 40.0861450	Longitude -104.7604730			
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1783.00	0.00	0.00	1783.00	0.00	0.00	0.00	0.00	0.00		Start Build 2.00
2318.99	10.72	66.63	2315.87	19.83	45.89	2.00	66.63	-19.83		Start 4205.70 hold at 2318.99 MD
6524.69	10.72	66.63	6448.17	330.17	763.99	0.00	0.00	-330.17		Start Drop -2.00
7060.68	0.00	0.00	6981.04	350.00	809.88	2.00	180.00	-350.00		Start DLS 10.00 TFO 180.00
7960.68	90.00	180.00	7554.00	-222.96	809.88	10.00	180.00	222.96		Start 4051.09 hold at 7960.68 MD
12011.77	90.00	180.00	7554.00	-4274.05	809.88	0.00	0.00	4274.05	PBHL_Burkhardt 16C-3HZ	
DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
PBHL	7554.00	-4274.05	809.88	1270823.02	3207762.54	40.0744120	-104.7575790	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: NWNE SECTION 3 T1N R66W			
System Datum: Mean Sea Level			
FORMATION TOP DETAILS			
TVDPATH	MDPATH	Formation	Inc
1533.00	1533.00	Fox Hills Marker	0.00
4090.00	4124.63	Parkman	10.72
4630.00	4674.22	Sussex	10.72
7182.00	7266.01	Sharon Springs	20.53
7227.00	7314.90	Niobrara A	25.42
7302.00	7401.36	Niobrara B	34.07
CASING DETAILS			
TVD	MD	Name	Size
1583.00	1583.00	9 5/8"	9.625
7554.00	7960.68	7"	7.000





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

BURKHARDT 2-3HZ PAD

BURKHARDT 16C-3HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

19 December, 2013

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BURKHARDT 16C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Site:	BURKHARDT 2-3HZ PAD	North Reference:	True
Well:	BURKHARDT 16C-3HZ	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	BURKHARDT 2-3HZ PAD, NWN SECTION 3 T1N R66W			
Site Position:		Northing:	1,275,089.69 usft	Latitude: 40.0861450
From:	Lat/Long	Easting:	3,206,859.13 usft	Longitude: -104.7606800
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.48 °

Well	BURKHARDT 16C-3HZ			
Well Position	+N/-S	-0.01 ft	Northing:	1,275,090.16 usft
	+E/-W	57.92 ft	Easting:	3,206,917.04 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	5,062.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	12/19/2013	8.54	66.70	52,623

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	
1,783.00	0.00	0.00	1,783.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,318.99	10.72	66.63	2,315.87	19.83	45.89	2.00	2.00	0.00	66.63	
6,524.69	10.72	66.63	6,448.17	330.17	763.99	0.00	0.00	0.00	0.00	
7,060.68	0.00	0.00	6,981.04	350.00	809.88	2.00	-2.00	0.00	180.00	
7,960.68	90.00	180.00	7,554.00	-222.96	809.88	10.00	10.00	20.00	180.00	
12,011.77	90.00	180.00	7,554.00	-4,274.05	809.88	0.00	0.00	0.00	0.00	PBHL_Burkhardt 16C

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BURKHARDT 16C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Site:	BURKHARDT 2-3HZ PAD	North Reference:	True
Well:	BURKHARDT 16C-3HZ	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
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
1,100.00	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
1,400.00	0.00	0.00	1,400.00	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
1,533.00	0.00	0.00	1,533.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Marker									
1,583.00	0.00	0.00	1,583.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,783.00	0.00	0.00	1,783.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,800.00	0.34	66.63	1,800.00	0.02	0.05	-0.02	2.00	2.00	0.00
1,900.00	2.34	66.63	1,899.97	0.95	2.19	-0.95	2.00	2.00	0.00
2,000.00	4.34	66.63	1,999.79	3.26	7.54	-3.26	2.00	2.00	0.00
2,100.00	6.34	66.63	2,099.35	6.95	16.08	-6.95	2.00	2.00	0.00
2,200.00	8.34	66.63	2,198.53	12.02	27.81	-12.02	2.00	2.00	0.00
2,300.00	10.34	66.63	2,297.20	18.46	42.71	-18.46	2.00	2.00	0.00
2,318.99	10.72	66.63	2,315.87	19.83	45.89	-19.83	2.00	2.00	0.00
Start 4205.70 hold at 2318.99 MD									
2,400.00	10.72	66.63	2,395.46	25.81	59.72	-25.81	0.00	0.00	0.00
2,500.00	10.72	66.63	2,493.72	33.19	76.80	-33.19	0.00	0.00	0.00
2,600.00	10.72	66.63	2,591.97	40.57	93.87	-40.57	0.00	0.00	0.00
2,700.00	10.72	66.63	2,690.23	47.95	110.95	-47.95	0.00	0.00	0.00
2,800.00	10.72	66.63	2,788.48	55.33	128.02	-55.33	0.00	0.00	0.00
2,900.00	10.72	66.63	2,886.74	62.71	145.10	-62.71	0.00	0.00	0.00
3,000.00	10.72	66.63	2,984.99	70.08	162.17	-70.08	0.00	0.00	0.00
3,100.00	10.72	66.63	3,083.25	77.46	179.24	-77.46	0.00	0.00	0.00
3,200.00	10.72	66.63	3,181.50	84.84	196.32	-84.84	0.00	0.00	0.00
3,300.00	10.72	66.63	3,279.76	92.22	213.39	-92.22	0.00	0.00	0.00
3,400.00	10.72	66.63	3,378.01	99.60	230.47	-99.60	0.00	0.00	0.00
3,500.00	10.72	66.63	3,476.27	106.98	247.54	-106.98	0.00	0.00	0.00
3,600.00	10.72	66.63	3,574.52	114.36	264.62	-114.36	0.00	0.00	0.00
3,700.00	10.72	66.63	3,672.78	121.74	281.69	-121.74	0.00	0.00	0.00
3,800.00	10.72	66.63	3,771.03	129.12	298.77	-129.12	0.00	0.00	0.00
3,900.00	10.72	66.63	3,869.29	136.49	315.84	-136.49	0.00	0.00	0.00
4,000.00	10.72	66.63	3,967.54	143.87	332.91	-143.87	0.00	0.00	0.00
4,100.00	10.72	66.63	4,065.80	151.25	349.99	-151.25	0.00	0.00	0.00
4,124.63	10.72	66.63	4,090.00	153.07	354.19	-153.07	0.00	0.00	0.00
Parkman									
4,200.00	10.72	66.63	4,164.05	158.63	367.06	-158.63	0.00	0.00	0.00
4,300.00	10.72	66.63	4,262.31	166.01	384.14	-166.01	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BURKHARDT 16C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Site:	BURKHARDT 2-3HZ PAD	North Reference:	True
Well:	BURKHARDT 16C-3HZ	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	10.72	66.63	4,360.56	173.39	401.21	-173.39	0.00	0.00	0.00
4,500.00	10.72	66.63	4,458.82	180.77	418.29	-180.77	0.00	0.00	0.00
4,600.00	10.72	66.63	4,557.07	188.15	435.36	-188.15	0.00	0.00	0.00
4,674.22	10.72	66.63	4,630.00	193.62	448.03	-193.62	0.00	0.00	0.00
Sussex									
4,700.00	10.72	66.63	4,655.33	195.53	452.43	-195.53	0.00	0.00	0.00
4,800.00	10.72	66.63	4,753.58	202.90	469.51	-202.90	0.00	0.00	0.00
4,900.00	10.72	66.63	4,851.84	210.28	486.58	-210.28	0.00	0.00	0.00
5,000.00	10.72	66.63	4,950.09	217.66	503.66	-217.66	0.00	0.00	0.00
5,100.00	10.72	66.63	5,048.35	225.04	520.73	-225.04	0.00	0.00	0.00
5,200.00	10.72	66.63	5,146.60	232.42	537.81	-232.42	0.00	0.00	0.00
5,300.00	10.72	66.63	5,244.86	239.80	554.88	-239.80	0.00	0.00	0.00
5,400.00	10.72	66.63	5,343.11	247.18	571.96	-247.18	0.00	0.00	0.00
5,500.00	10.72	66.63	5,441.37	254.56	589.03	-254.56	0.00	0.00	0.00
5,600.00	10.72	66.63	5,539.62	261.94	606.10	-261.94	0.00	0.00	0.00
5,700.00	10.72	66.63	5,637.88	269.31	623.18	-269.31	0.00	0.00	0.00
5,800.00	10.72	66.63	5,736.13	276.69	640.25	-276.69	0.00	0.00	0.00
5,900.00	10.72	66.63	5,834.38	284.07	657.33	-284.07	0.00	0.00	0.00
6,000.00	10.72	66.63	5,932.64	291.45	674.40	-291.45	0.00	0.00	0.00
6,100.00	10.72	66.63	6,030.89	298.83	691.48	-298.83	0.00	0.00	0.00
6,200.00	10.72	66.63	6,129.15	306.21	708.55	-306.21	0.00	0.00	0.00
6,300.00	10.72	66.63	6,227.40	313.59	725.62	-313.59	0.00	0.00	0.00
6,400.00	10.72	66.63	6,325.66	320.97	742.70	-320.97	0.00	0.00	0.00
6,500.00	10.72	66.63	6,423.91	328.35	759.77	-328.35	0.00	0.00	0.00
6,524.69	10.72	66.63	6,448.17	330.17	763.99	-330.17	0.00	0.00	0.00
Start Drop -2.00									
6,600.00	9.21	66.63	6,522.34	335.34	775.95	-335.34	2.00	-2.00	0.00
6,700.00	7.21	66.63	6,621.31	341.00	789.07	-341.00	2.00	-2.00	0.00
6,800.00	5.21	66.63	6,720.72	345.30	799.00	-345.30	2.00	-2.00	0.00
6,900.00	3.21	66.63	6,820.45	348.21	805.75	-348.21	2.00	-2.00	0.00
7,000.00	1.21	66.63	6,920.37	349.75	809.29	-349.75	2.00	-2.00	0.00
7,060.68	0.00	0.00	6,981.04	350.00	809.88	-350.00	2.00	-2.00	0.00
Start DLS 10.00 TFO 180.00									
7,100.00	3.93	180.00	7,020.33	348.65	809.88	-348.65	10.00	10.00	0.00
7,200.00	13.93	180.00	7,118.99	333.14	809.88	-333.14	10.00	10.00	0.00
7,266.01	20.53	180.00	7,182.00	313.60	809.88	-313.60	10.00	10.00	0.00
Sharon Springs									
7,300.00	23.93	180.00	7,213.46	300.74	809.88	-300.74	10.00	10.00	0.00
7,314.90	25.42	180.00	7,227.00	294.52	809.88	-294.52	10.00	10.00	0.00
Niobrara A									
7,400.00	33.93	180.00	7,300.87	252.43	809.88	-252.43	10.00	10.00	0.00
7,401.36	34.07	180.00	7,302.00	251.66	809.88	-251.66	10.00	10.00	0.00
Niobrara B									
7,500.00	43.93	180.00	7,378.56	189.66	809.88	-189.66	10.00	10.00	0.00
7,600.00	53.93	180.00	7,444.17	114.37	809.88	-114.37	10.00	10.00	0.00
7,700.00	63.93	180.00	7,495.71	28.82	809.88	-28.82	10.00	10.00	0.00
7,800.00	73.93	180.00	7,531.62	-64.38	809.88	64.38	10.00	10.00	0.00
7,900.00	83.93	180.00	7,550.79	-162.39	809.88	162.39	10.00	10.00	0.00
7,960.68	90.00	180.00	7,554.00	-222.96	809.88	222.96	10.00	10.00	0.00
Start 4051.09 hold at 7960.68 MD - 7" (633 FNL 1085 FEL)									
8,000.00	90.00	180.00	7,554.00	-262.28	809.88	262.28	0.00	0.00	0.00
8,100.00	90.00	180.00	7,554.00	-362.28	809.88	362.28	0.00	0.00	0.00
8,200.00	90.00	180.00	7,554.00	-462.28	809.88	462.28	0.00	0.00	0.00

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BURKHARDT 16C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Site:	BURKHARDT 2-3HZ PAD	North Reference:	True
Well:	BURKHARDT 16C-3HZ	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)
8,300.00	90.00	180.00	7,554.00	-562.28	809.88	562.28	0.00	0.00	0.00
8,400.00	90.00	180.00	7,554.00	-662.28	809.88	662.28	0.00	0.00	0.00
8,500.00	90.00	180.00	7,554.00	-762.28	809.88	762.28	0.00	0.00	0.00
8,600.00	90.00	180.00	7,554.00	-862.28	809.88	862.28	0.00	0.00	0.00
8,700.00	90.00	180.00	7,554.00	-962.28	809.88	962.28	0.00	0.00	0.00
8,800.00	90.00	180.00	7,554.00	-1,062.28	809.88	1,062.28	0.00	0.00	0.00
8,900.00	90.00	180.00	7,554.00	-1,162.28	809.88	1,162.28	0.00	0.00	0.00
9,000.00	90.00	180.00	7,554.00	-1,262.28	809.88	1,262.28	0.00	0.00	0.00
9,100.00	90.00	180.00	7,554.00	-1,362.28	809.88	1,362.28	0.00	0.00	0.00
9,200.00	90.00	180.00	7,554.00	-1,462.28	809.88	1,462.28	0.00	0.00	0.00
9,300.00	90.00	180.00	7,554.00	-1,562.28	809.88	1,562.28	0.00	0.00	0.00
9,400.00	90.00	180.00	7,554.00	-1,662.28	809.88	1,662.28	0.00	0.00	0.00
9,500.00	90.00	180.00	7,554.00	-1,762.28	809.88	1,762.28	0.00	0.00	0.00
9,600.00	90.00	180.00	7,554.00	-1,862.28	809.88	1,862.28	0.00	0.00	0.00
9,700.00	90.00	180.00	7,554.00	-1,962.28	809.88	1,962.28	0.00	0.00	0.00
9,800.00	90.00	180.00	7,554.00	-2,062.28	809.88	2,062.28	0.00	0.00	0.00
9,900.00	90.00	180.00	7,554.00	-2,162.28	809.88	2,162.28	0.00	0.00	0.00
10,000.00	90.00	180.00	7,554.00	-2,262.28	809.88	2,262.28	0.00	0.00	0.00
10,100.00	90.00	180.00	7,554.00	-2,362.28	809.88	2,362.28	0.00	0.00	0.00
10,200.00	90.00	180.00	7,554.00	-2,462.28	809.88	2,462.28	0.00	0.00	0.00
10,300.00	90.00	180.00	7,554.00	-2,562.28	809.88	2,562.28	0.00	0.00	0.00
10,400.00	90.00	180.00	7,554.00	-2,662.28	809.88	2,662.28	0.00	0.00	0.00
10,500.00	90.00	180.00	7,554.00	-2,762.28	809.88	2,762.28	0.00	0.00	0.00
10,600.00	90.00	180.00	7,554.00	-2,862.28	809.88	2,862.28	0.00	0.00	0.00
10,700.00	90.00	180.00	7,554.00	-2,962.28	809.88	2,962.28	0.00	0.00	0.00
10,800.00	90.00	180.00	7,554.00	-3,062.28	809.88	3,062.28	0.00	0.00	0.00
10,900.00	90.00	180.00	7,554.00	-3,162.28	809.88	3,162.28	0.00	0.00	0.00
11,000.00	90.00	180.00	7,554.00	-3,262.28	809.88	3,262.28	0.00	0.00	0.00
11,100.00	90.00	180.00	7,554.00	-3,362.28	809.88	3,362.28	0.00	0.00	0.00
11,200.00	90.00	180.00	7,554.00	-3,462.28	809.88	3,462.28	0.00	0.00	0.00
11,300.00	90.00	180.00	7,554.00	-3,562.28	809.88	3,562.28	0.00	0.00	0.00
11,400.00	90.00	180.00	7,554.00	-3,662.28	809.88	3,662.28	0.00	0.00	0.00
11,500.00	90.00	180.00	7,554.00	-3,762.28	809.88	3,762.28	0.00	0.00	0.00
11,600.00	90.00	180.00	7,554.00	-3,862.28	809.88	3,862.28	0.00	0.00	0.00
11,700.00	90.00	180.00	7,554.00	-3,962.28	809.88	3,962.28	0.00	0.00	0.00
11,800.00	90.00	180.00	7,554.00	-4,062.28	809.88	4,062.28	0.00	0.00	0.00
11,900.00	90.00	180.00	7,554.00	-4,162.28	809.88	4,162.28	0.00	0.00	0.00
12,000.00	90.00	180.00	7,554.00	-4,262.28	809.88	4,262.28	0.00	0.00	0.00
12,011.77	90.00	180.00	7,554.00	-4,274.05	809.88	4,274.05	0.00	0.00	0.00
TD at 12011.77 - PBHL_Burkhardt 16C-3HZ (460 FSL 1085 FEL)									

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_Burkhardt 16C-3H - plan hits target center - Point	0.00	0.00	7,554.00	-4,274.05	809.88	1,270,823.02	3,207,762.54	40.0744120	-104.7575790

Database:	Denver Sales Office	Local Co-ordinate Reference:	Well BURKHARDT 16C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5062 & KB 17 @ 5079.00ft (ASSUMED)
Site:	BURKHARDT 2-3HZ PAD	North Reference:	True
Well:	BURKHARDT 16C-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,583.00	1,583.00	9 5/8"	9.625	12.250	
7,960.68	7,554.00	7" (633 FNL 1085 FEL)	7.000	7.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,533.00	1,533.00	Fox Hills Marker			
4,124.63	4,090.00	Parkman			
4,674.22	4,630.00	Sussex			
7,266.01	7,182.00	Sharon Springs			
7,314.90	7,227.00	Niobrara A			
7,401.36	7,302.00	Niobrara B			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,783.00	1,783.00	0.00	0.00	Start Build 2.00	
2,318.99	2,315.87	19.83	45.89	Start 4205.70 hold at 2318.99 MD	
6,524.69	6,448.17	330.17	763.99	Start Drop -2.00	
7,060.68	6,981.04	350.00	809.88	Start DLS 10.00 TFO 180.00	
7,960.68	7,554.00	-222.96	809.88	Start 4051.09 hold at 7960.68 MD	
12,011.77	7,554.00	-4,274.05	809.88	TD at 12011.77	