



Project: COLORADO NORTHERN ZONE - 83  
Site: COBRA 12-23HZ PAD  
Well: COBRA 4N-14HZ  
Wellbore: OH  
Design: PLAN #1 PRELIMINARY

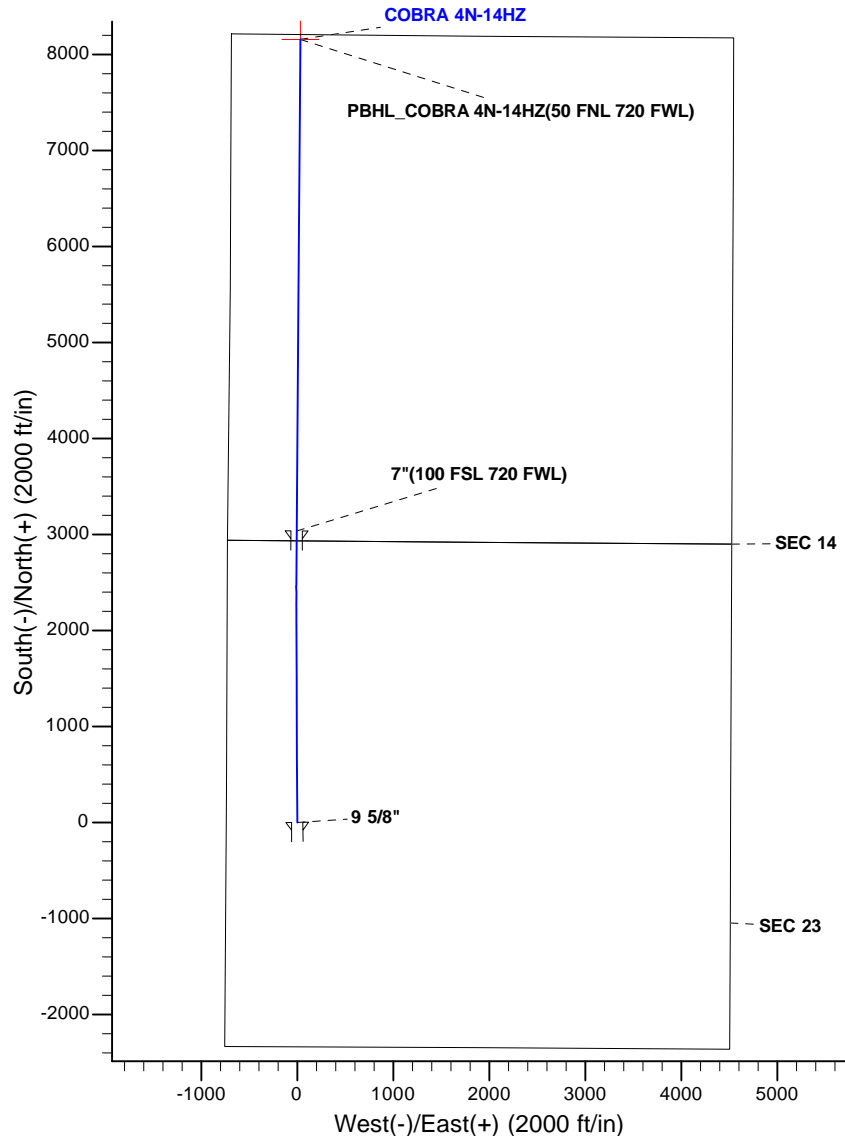
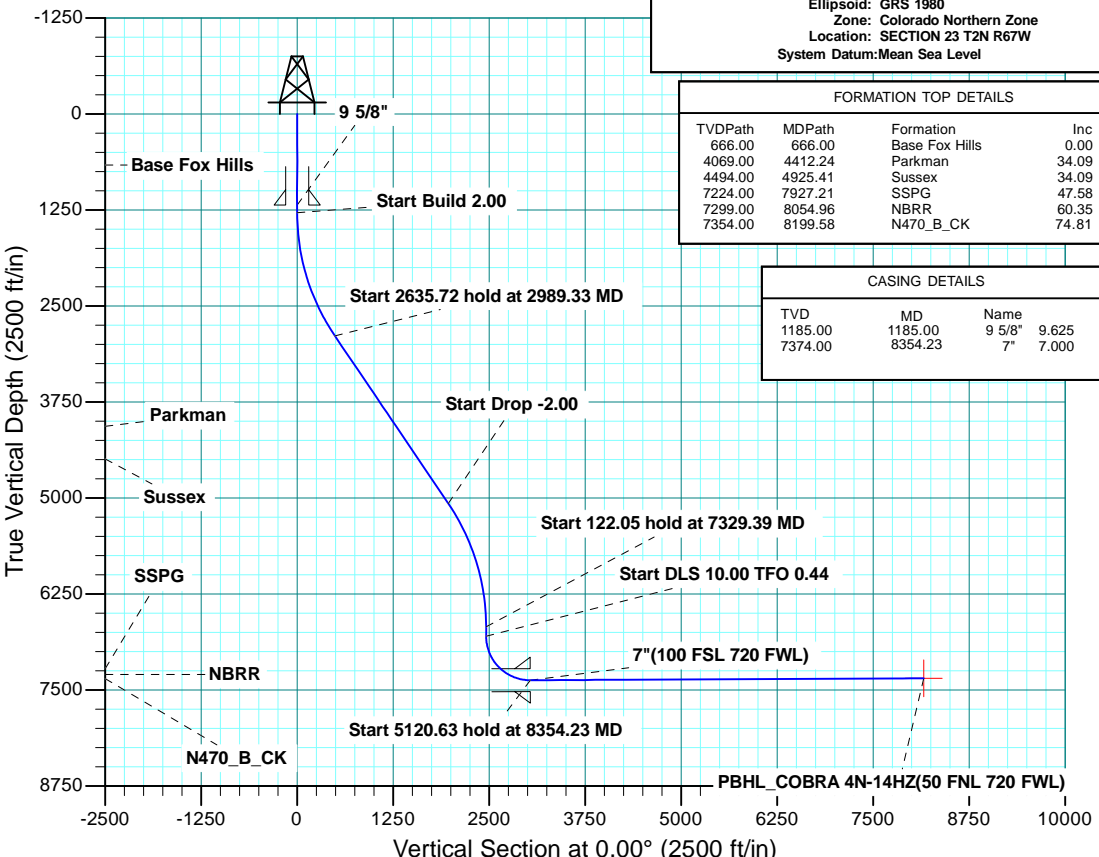


WELL DETAILS: COBRA 4N-14HZ									
GL 4977 & KB 17 @ 4994.00ft (ASSUMED)									
+N/-S 0.00		+E/-W 0.00		Northing 1288221.65	Easting 3177634.36	Latitude 40.1228150	Longitude -104.8647900		
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1285.00	0.00	0.00	1285.00	0.00	0.00	0.00	0.00	0.00	
2989.33	34.09	359.75	2890.56	492.19	-2.15	2.00	359.75	492.19	
5625.05	34.09	359.75	5073.44	1969.36	-8.58	0.00	0.00	1969.36	
7329.39	0.00	0.00	6679.00	2461.55	-10.73	2.00	180.00	2461.55	
7451.44	0.00	0.00	6801.05	2461.55	-10.73	0.00	0.00	2461.55	
8354.23	90.28	0.44	7374.00	3037.29	-6.28	10.00	0.44	3037.29	
13474.86	90.28	0.44	7349.00	8157.70	33.27	0.00	0.00	8157.70	PBHL_COBRA 4N-14HZ(50 FNL 720 FWL)
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL	7349.00	8157.70	33.27	1296379.37	3177609.20	40.1452090	-104.8646710	Point	
- plan hits target center									

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 23 T2N R67W									
System Datum: Mean Sea Level									

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
666.00	666.00	Base Fox Hills	0.00
4069.00	4412.24	Parkman	34.09
4494.00	4925.41	Sussex	34.09
7224.00	7927.21	SSPG	47.58
7299.00	8054.96	NBRR	60.35
7354.00	8199.58	N470_B_CK	74.81

CASING DETAILS			
TVD	MD	Name	
1185.00	1185.00	9 5/8"	9.625
7374.00	8354.23	7"	7.000





**Scientific Drilling**

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**COBRA 12-23HZ PAD**

**COBRA 4N-14HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**20 August, 2014**

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well COBRA 4N-14HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
<b>Site:</b>	COBRA 12-23HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	COBRA 4N-14HZ	<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>	COBRA 12-23HZ PAD, SECTION 23 T2N R67W			
<b>Site Position:</b>		<b>Northing:</b>	1,288,221.81 usft	<b>Latitude:</b> 40.1228160
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,177,604.44 usft	<b>Longitude:</b> -104.8648970
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.41 °

<b>Well</b>	COBRA 4N-14HZ, 2337 FSL 740 FWL			
<b>Well Position</b>	<b>+N/-S</b>	-0.37 ft	<b>Northing:</b>	1,288,221.65 usft
	<b>+E/-W</b>	29.92 ft	<b>Easting:</b>	3,177,634.37 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft
			<b>Ground Level:</b>	4,977.00 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	08/18/14	8.52	66.69	52,550

<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	0.00

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,285.00	0.00	0.00	1,285.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,989.33	34.09	359.75	2,890.56	492.19	-2.15	2.00	2.00	0.00	359.75	
5,625.05	34.09	359.75	5,073.44	1,969.36	-8.58	0.00	0.00	0.00	0.00	
7,329.39	0.00	0.00	6,679.00	2,461.55	-10.73	2.00	-2.00	0.00	180.00	
7,451.44	0.00	0.00	6,801.05	2,461.55	-10.73	0.00	0.00	0.00	0.00	
8,354.23	90.28	0.44	7,374.00	3,037.29	-6.28	10.00	10.00	0.05	0.44	
13,474.86	90.28	0.44	7,349.00	8,157.70	33.27	0.00	0.00	0.00	0.00	PBHL_COBRA 4N-14

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well COBRA 4N-14HZ
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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
<b>Site:</b>	COBRA 12-23HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	COBRA 4N-14HZ	<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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
666.00	0.00	0.00	666.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Fox Hills</b>									
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
1,185.00	0.00	0.00	1,185.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,285.00	0.00	0.00	1,285.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,300.00	0.30	359.75	1,300.00	0.04	0.00	0.04	2.00	2.00	0.00
1,400.00	2.30	359.75	1,399.97	2.31	-0.01	2.31	2.00	2.00	0.00
1,500.00	4.30	359.75	1,499.80	8.06	-0.04	8.06	2.00	2.00	0.00
1,600.00	6.30	359.75	1,599.37	17.30	-0.08	17.30	2.00	2.00	0.00
1,700.00	8.30	359.75	1,698.55	30.01	-0.13	30.01	2.00	2.00	0.00
1,800.00	10.30	359.75	1,797.23	46.17	-0.20	46.17	2.00	2.00	0.00
1,900.00	12.30	359.75	1,895.29	65.76	-0.29	65.76	2.00	2.00	0.00
2,000.00	14.30	359.75	1,992.60	88.76	-0.39	88.76	2.00	2.00	0.00
2,100.00	16.30	359.75	2,089.05	115.15	-0.50	115.15	2.00	2.00	0.00
2,200.00	18.30	359.75	2,184.52	144.88	-0.63	144.88	2.00	2.00	0.00
2,300.00	20.30	359.75	2,278.90	177.93	-0.78	177.93	2.00	2.00	0.00
2,400.00	22.30	359.75	2,372.06	214.26	-0.93	214.26	2.00	2.00	0.00
2,500.00	24.30	359.75	2,463.90	253.81	-1.11	253.81	2.00	2.00	0.00
2,600.00	26.30	359.75	2,554.31	296.54	-1.29	296.54	2.00	2.00	0.00
2,700.00	28.30	359.75	2,643.16	342.40	-1.49	342.40	2.00	2.00	0.00
2,800.00	30.30	359.75	2,730.37	391.34	-1.71	391.34	2.00	2.00	0.00
2,900.00	32.30	359.75	2,815.81	443.29	-1.93	443.29	2.00	2.00	0.00
2,989.33	34.09	359.75	2,890.56	492.19	-2.15	492.19	2.00	2.00	0.00
<b>Start 2635.72 hold at 2989.33 MD</b>									
3,000.00	34.09	359.75	2,899.39	498.17	-2.17	498.17	0.00	0.00	0.00
3,100.00	34.09	359.75	2,982.21	554.21	-2.42	554.21	0.00	0.00	0.00
3,200.00	34.09	359.75	3,065.03	610.26	-2.66	610.26	0.00	0.00	0.00
3,300.00	34.09	359.75	3,147.85	666.30	-2.90	666.30	0.00	0.00	0.00
3,400.00	34.09	359.75	3,230.67	722.35	-3.15	722.35	0.00	0.00	0.00
3,500.00	34.09	359.75	3,313.49	778.39	-3.39	778.39	0.00	0.00	0.00
3,600.00	34.09	359.75	3,396.31	834.44	-3.64	834.44	0.00	0.00	0.00
3,700.00	34.09	359.75	3,479.13	890.48	-3.88	890.48	0.00	0.00	0.00
3,800.00	34.09	359.75	3,561.95	946.52	-4.13	946.52	0.00	0.00	0.00
3,900.00	34.09	359.75	3,644.77	1,002.57	-4.37	1,002.57	0.00	0.00	0.00
4,000.00	34.09	359.75	3,727.59	1,058.61	-4.61	1,058.61	0.00	0.00	0.00
4,100.00	34.09	359.75	3,810.40	1,114.66	-4.86	1,114.66	0.00	0.00	0.00
4,200.00	34.09	359.75	3,893.22	1,170.70	-5.10	1,170.70	0.00	0.00	0.00
4,300.00	34.09	359.75	3,976.04	1,226.74	-5.35	1,226.74	0.00	0.00	0.00
4,400.00	34.09	359.75	4,058.86	1,282.79	-5.59	1,282.79	0.00	0.00	0.00
4,412.24	34.09	359.75	4,069.00	1,289.65	-5.62	1,289.65	0.00	0.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
<b>Site:</b>	COBRA 12-23HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	COBRA 4N-14HZ	<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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
<b>Parkman</b>									
4,500.00	34.09	359.75	4,141.68	1,338.83	-5.84	1,338.83	0.00	0.00	0.00
4,600.00	34.09	359.75	4,224.50	1,394.88	-6.08	1,394.88	0.00	0.00	0.00
4,700.00	34.09	359.75	4,307.32	1,450.92	-6.32	1,450.92	0.00	0.00	0.00
4,800.00	34.09	359.75	4,390.14	1,506.96	-6.57	1,506.96	0.00	0.00	0.00
4,900.00	34.09	359.75	4,472.96	1,563.01	-6.81	1,563.01	0.00	0.00	0.00
4,925.41	34.09	359.75	4,494.00	1,577.25	-6.88	1,577.25	0.00	0.00	0.00
<b>Sussex</b>									
5,000.00	34.09	359.75	4,555.78	1,619.05	-7.06	1,619.05	0.00	0.00	0.00
5,100.00	34.09	359.75	4,638.60	1,675.10	-7.30	1,675.10	0.00	0.00	0.00
5,200.00	34.09	359.75	4,721.41	1,731.14	-7.55	1,731.14	0.00	0.00	0.00
5,300.00	34.09	359.75	4,804.23	1,787.18	-7.79	1,787.18	0.00	0.00	0.00
5,400.00	34.09	359.75	4,887.05	1,843.23	-8.03	1,843.23	0.00	0.00	0.00
5,500.00	34.09	359.75	4,969.87	1,899.27	-8.28	1,899.27	0.00	0.00	0.00
5,600.00	34.09	359.75	5,052.69	1,955.32	-8.52	1,955.32	0.00	0.00	0.00
5,625.05	34.09	359.75	5,073.44	1,969.36	-8.58	1,969.36	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,700.00	32.59	359.75	5,136.05	2,010.54	-8.76	2,010.54	2.00	-2.00	0.00
5,800.00	30.59	359.75	5,221.23	2,062.92	-8.99	2,062.92	2.00	-2.00	0.00
5,900.00	28.59	359.75	5,308.19	2,112.29	-9.21	2,112.29	2.00	-2.00	0.00
6,000.00	26.59	359.75	5,396.81	2,158.60	-9.41	2,158.60	2.00	-2.00	0.00
6,100.00	24.59	359.75	5,487.00	2,201.79	-9.60	2,201.79	2.00	-2.00	0.00
6,200.00	22.59	359.75	5,578.64	2,241.80	-9.77	2,241.80	2.00	-2.00	0.00
6,300.00	20.59	359.75	5,671.62	2,278.59	-9.93	2,278.59	2.00	-2.00	0.00
6,400.00	18.59	359.75	5,765.83	2,312.11	-10.08	2,312.11	2.00	-2.00	0.00
6,500.00	16.59	359.75	5,861.15	2,342.33	-10.21	2,342.33	2.00	-2.00	0.00
6,600.00	14.59	359.75	5,957.47	2,369.20	-10.33	2,369.20	2.00	-2.00	0.00
6,700.00	12.59	359.75	6,054.66	2,392.69	-10.43	2,392.69	2.00	-2.00	0.00
6,800.00	10.59	359.75	6,152.62	2,412.78	-10.52	2,412.78	2.00	-2.00	0.00
6,900.00	8.59	359.75	6,251.22	2,429.43	-10.59	2,429.43	2.00	-2.00	0.00
7,000.00	6.59	359.75	6,350.34	2,442.64	-10.65	2,442.64	2.00	-2.00	0.00
7,100.00	4.59	359.75	6,449.86	2,452.37	-10.69	2,452.37	2.00	-2.00	0.00
7,200.00	2.59	359.75	6,549.66	2,458.63	-10.72	2,458.63	2.00	-2.00	0.00
7,300.00	0.59	359.75	6,649.61	2,461.40	-10.73	2,461.40	2.00	-2.00	0.00
7,329.39	0.00	0.00	6,679.00	2,461.55	-10.73	2,461.55	2.00	-2.00	0.00
<b>Start 122.05 hold at 7329.39 MD</b>									
7,400.00	0.00	0.00	6,749.61	2,461.55	-10.73	2,461.55	0.00	0.00	0.00
7,451.44	0.00	0.00	6,801.05	2,461.55	-10.73	2,461.55	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 0.44</b>									
7,500.00	4.86	0.44	6,849.56	2,463.61	-10.71	2,463.61	10.00	10.00	0.00
7,600.00	14.86	0.44	6,947.95	2,480.70	-10.58	2,480.70	10.00	10.00	0.00
7,700.00	24.86	0.44	7,041.89	2,514.62	-10.32	2,514.62	10.00	10.00	0.00
7,800.00	34.86	0.44	7,128.51	2,564.34	-9.94	2,564.34	10.00	10.00	0.00
7,900.00	44.86	0.44	7,205.18	2,628.35	-9.44	2,628.35	10.00	10.00	0.00
7,927.21	47.58	0.44	7,224.00	2,647.99	-9.29	2,647.99	10.00	10.00	0.00
<b>SSPG</b>									
8,000.00	54.86	0.44	7,269.56	2,704.69	-8.85	2,704.69	10.00	10.00	0.00
8,054.96	60.35	0.44	7,299.00	2,751.08	-8.49	2,751.08	10.00	10.00	0.00
<b>NBRR</b>									
8,100.00	64.86	0.44	7,319.72	2,791.05	-8.18	2,791.05	10.00	10.00	0.00
8,199.58	74.81	0.44	7,354.00	2,884.41	-7.46	2,884.41	10.00	10.00	0.00
<b>N470_B_CK</b>									
8,200.00	74.86	0.44	7,354.11	2,884.82	-7.46	2,884.82	10.00	10.00	0.00

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well COBRA 4N-14HZ
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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
<b>Site:</b>	COBRA 12-23HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	COBRA 4N-14HZ	<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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,300.00	84.86	0.44	7,371.70	2,983.12	-6.70	2,983.12	10.00	10.00	0.00
8,354.23	90.28	0.44	7,374.00	3,037.28	-6.28	3,037.28	10.00	10.00	0.00
Start 5120.63 hold at 8354.23 MD - 7"(100 FSL 720 FWL)									
8,400.00	90.28	0.44	7,373.78	3,083.05	-5.93	3,083.05	0.00	0.00	0.00
8,500.00	90.28	0.44	7,373.29	3,183.05	-5.16	3,183.05	0.00	0.00	0.00
8,600.00	90.28	0.44	7,372.80	3,283.04	-4.38	3,283.04	0.00	0.00	0.00
8,700.00	90.28	0.44	7,372.31	3,383.04	-3.61	3,383.04	0.00	0.00	0.00
8,800.00	90.28	0.44	7,371.82	3,483.04	-2.84	3,483.04	0.00	0.00	0.00
8,900.00	90.28	0.44	7,371.34	3,583.03	-2.07	3,583.03	0.00	0.00	0.00
9,000.00	90.28	0.44	7,370.85	3,683.03	-1.30	3,683.03	0.00	0.00	0.00
9,100.00	90.28	0.44	7,370.36	3,783.02	-0.52	3,783.02	0.00	0.00	0.00
9,200.00	90.28	0.44	7,369.87	3,883.02	0.25	3,883.02	0.00	0.00	0.00
9,300.00	90.28	0.44	7,369.38	3,983.01	1.02	3,983.01	0.00	0.00	0.00
9,400.00	90.28	0.44	7,368.90	4,083.01	1.79	4,083.01	0.00	0.00	0.00
9,500.00	90.28	0.44	7,368.41	4,183.01	2.57	4,183.01	0.00	0.00	0.00
9,600.00	90.28	0.44	7,367.92	4,283.00	3.34	4,283.00	0.00	0.00	0.00
9,700.00	90.28	0.44	7,367.43	4,383.00	4.11	4,383.00	0.00	0.00	0.00
9,800.00	90.28	0.44	7,366.94	4,482.99	4.88	4,482.99	0.00	0.00	0.00
9,900.00	90.28	0.44	7,366.45	4,582.99	5.66	4,582.99	0.00	0.00	0.00
10,000.00	90.28	0.44	7,365.97	4,682.99	6.43	4,682.99	0.00	0.00	0.00
10,100.00	90.28	0.44	7,365.48	4,782.98	7.20	4,782.98	0.00	0.00	0.00
10,200.00	90.28	0.44	7,364.99	4,882.98	7.97	4,882.98	0.00	0.00	0.00
10,300.00	90.28	0.44	7,364.50	4,982.97	8.75	4,982.97	0.00	0.00	0.00
10,400.00	90.28	0.44	7,364.01	5,082.97	9.52	5,082.97	0.00	0.00	0.00
10,500.00	90.28	0.44	7,363.52	5,182.96	10.29	5,182.96	0.00	0.00	0.00
10,600.00	90.28	0.44	7,363.04	5,282.96	11.06	5,282.96	0.00	0.00	0.00
10,700.00	90.28	0.44	7,362.55	5,382.96	11.84	5,382.96	0.00	0.00	0.00
10,800.00	90.28	0.44	7,362.06	5,482.95	12.61	5,482.95	0.00	0.00	0.00
10,900.00	90.28	0.44	7,361.57	5,582.95	13.38	5,582.95	0.00	0.00	0.00
11,000.00	90.28	0.44	7,361.08	5,682.94	14.15	5,682.94	0.00	0.00	0.00
11,100.00	90.28	0.44	7,360.60	5,782.94	14.92	5,782.94	0.00	0.00	0.00
11,200.00	90.28	0.44	7,360.11	5,882.94	15.70	5,882.94	0.00	0.00	0.00
11,300.00	90.28	0.44	7,359.62	5,982.93	16.47	5,982.93	0.00	0.00	0.00
11,400.00	90.28	0.44	7,359.13	6,082.93	17.24	6,082.93	0.00	0.00	0.00
11,500.00	90.28	0.44	7,358.64	6,182.92	18.01	6,182.92	0.00	0.00	0.00
11,600.00	90.28	0.44	7,358.15	6,282.92	18.79	6,282.92	0.00	0.00	0.00
11,700.00	90.28	0.44	7,357.67	6,382.91	19.56	6,382.91	0.00	0.00	0.00
11,800.00	90.28	0.44	7,357.18	6,482.91	20.33	6,482.91	0.00	0.00	0.00
11,900.00	90.28	0.44	7,356.69	6,582.91	21.10	6,582.91	0.00	0.00	0.00
12,000.00	90.28	0.44	7,356.20	6,682.90	21.88	6,682.90	0.00	0.00	0.00
12,100.00	90.28	0.44	7,355.71	6,782.90	22.65	6,782.90	0.00	0.00	0.00
12,200.00	90.28	0.44	7,355.22	6,882.89	23.42	6,882.89	0.00	0.00	0.00
12,300.00	90.28	0.44	7,354.74	6,982.89	24.19	6,982.89	0.00	0.00	0.00
12,400.00	90.28	0.44	7,354.25	7,082.89	24.97	7,082.89	0.00	0.00	0.00
12,500.00	90.28	0.44	7,353.76	7,182.88	25.74	7,182.88	0.00	0.00	0.00
12,600.00	90.28	0.44	7,353.27	7,282.88	26.51	7,282.88	0.00	0.00	0.00
12,700.00	90.28	0.44	7,352.78	7,382.87	27.28	7,382.87	0.00	0.00	0.00
12,800.00	90.28	0.44	7,352.30	7,482.87	28.05	7,482.87	0.00	0.00	0.00
12,900.00	90.28	0.44	7,351.81	7,582.86	28.83	7,582.86	0.00	0.00	0.00
13,000.00	90.28	0.44	7,351.32	7,682.86	29.60	7,682.86	0.00	0.00	0.00
13,100.00	90.28	0.44	7,350.83	7,782.86	30.37	7,782.86	0.00	0.00	0.00
13,200.00	90.28	0.44	7,350.34	7,882.85	31.14	7,882.85	0.00	0.00	0.00
13,300.00	90.28	0.44	7,349.85	7,982.85	31.92	7,982.85	0.00	0.00	0.00

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well COBRA 4N-14HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
<b>Site:</b>	COBRA 12-23HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	COBRA 4N-14HZ	<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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,400.00	90.28	0.44	7,349.37	8,082.84	32.69	8,082.84	0.00	0.00	0.00
13,474.86	90.28	0.44	7,349.00	8,157.70	33.27	8,157.70	0.00	0.00	0.00
TD at 13474.86 - PBHL_COBRA 4N-14HZ(50 FNL 720 FWL)									

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_COBRA 4N-14HZ	0.00	0.00	7,349.00	8,157.70	33.27	1,296,379.37	3,177,609.20	40.1452090	-104.8646710
- plan hits target center									
- Point									

Casing Points						Casing Diameter (in)	Hole Diameter (in)
Measured Depth (ft)	Vertical Depth (ft)	Name					
1,185.00	1,185.00	9 5/8"				9.625	13.500
8,354.23	7,374.00	7"(100 FSL 720 FWL)				7.000	8.750

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
666.00	666.00	Base Fox Hills				
4,412.24	4,069.00	Parkman				
4,925.41	4,494.00	Sussex				
7,927.21	7,224.00	SSPG				
8,054.96	7,299.00	NBRR				
8,199.58	7,354.00	N470_B_CK				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,285.00	1,285.00	0.00	0.00	Start Build 2.00
2,989.33	2,890.56	492.19	-2.15	Start 2635.72 hold at 2989.33 MD
5,625.05	5,073.44	1,969.36	-8.58	Start Drop -2.00
7,329.39	6,679.00	2,461.55	-10.73	Start 122.05 hold at 7329.39 MD
7,451.44	6,801.05	2,461.55	-10.73	Start DLS 10.00 TFO 0.44
8,354.23	7,374.00	3,037.29	-6.28	Start 5120.63 hold at 8354.23 MD
13,474.86	7,349.00	8,157.70	33.27	TD at 13474.86