



Project: COLORADO NORTHERN ZONE - 83
Site: COBRA 12-23HZ PAD
Well: COBRA 30C-14HZ
Wellbore: OH
Design: PLAN #1 PRELIMINARY

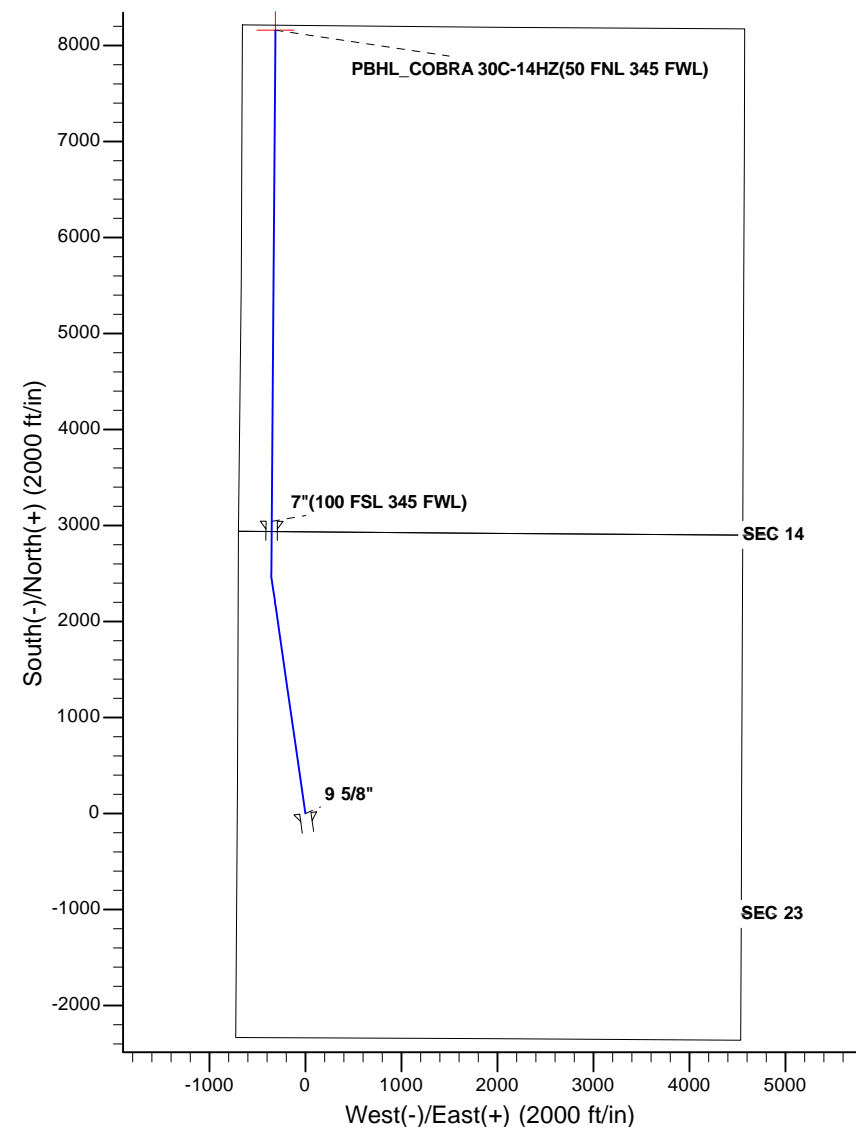
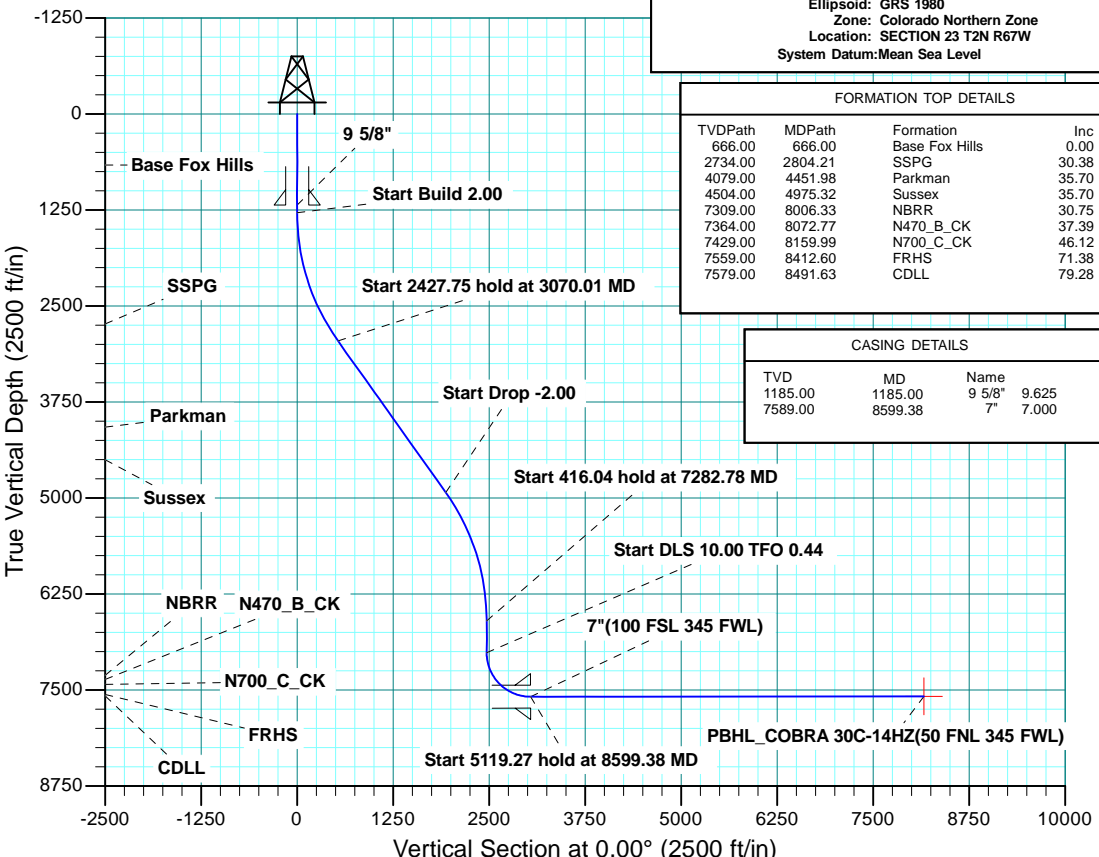


WELL DETAILS: COBRA 30C-14HZ																	
GL 4977 & KB 17 @ 4994.00ft (ASSUMED)																	
+N/-S 0.00		+E/-W 0.00		Northing 1288221.80		Easting 3177604.44		Latitude 40.1228160		Longitude -104.8648970							
SECTION DETAILS																	
MD		Inc		Azi		TVD		+N/-S		+E/-W		Dleg		TFace		Vsect	
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	
3070.01		35.70		351.81		2956.73		532.86		-76.65		2.00		351.81		532.86	
5497.77		35.70		351.81		4928.27		1935.14		-278.35		0.00		0.00		1935.14	
7282.78		0.00		0.00		6600.00		2468.00		-355.00		2.00		180.00		2468.00	
7282.78		0.00		0.00		6600.00		2468.00		-355.00		0.00		0.00		2468.00	
7698.82		0.00		0.00		7016.04		2468.00		-355.00		0.00		0.00		2468.00	
8599.38		90.06		0.44		7589.00		3041.50		-350.64		10.00		0.44		3041.50	
13718.65		90.06		0.44		7584.00		8160.62		-311.71		0.00		0.00		8160.62	
PBHL_COBRA 30C-14HZ(50 FNL 345 FWL)																	
DESIGN TARGET DETAILS																	
Name		TVD		+N/-S		+E/-W		Northing		Easting		Latitude		Longitude		Shape	
PBHL		7584.00		8160.62		-311.71		1296379.96		3177234.30		40.1452180		-104.8660120		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	
2734.00	2804.21	SSPG	30.38	
4079.00	4451.98	Parkman	35.70	
4504.00	4975.32	Sussex	35.70	
7309.00	8006.33	NBRR	30.75	
7364.00	8072.77	N470_B_CK	37.39	
7429.00	8159.99	N700_C_CK	46.12	
7559.00	8412.60	FRHS	71.38	
7579.00	8491.63	CDLL	79.28	

CASING DETAILS				
TVD	MD	Name		
1185.00	1185.00	9 5/8"	9.625	
7589.00	8599.38	7"	7.000	





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

COBRA 12-23HZ PAD

COBRA 30C-14HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

20 August, 2014

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well COBRA 30C-14HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
Site:	COBRA 12-23HZ PAD	North Reference:	True
Well:	COBRA 30C-14HZ	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	COBRA 12-23HZ PAD, SECTION 23 T2N R67W			
Site Position:		Northing:	1,288,221.81 usft	Latitude: 40.1228160
From:	Lat/Long	Easting:	3,177,604.44 usft	Longitude: -104.8648970
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.41 °

Well	COBRA 30C-14HZ, 2337 FSL 710 FWL			
Well Position	+N/-S	-0.01 ft	Northing:	1,288,221.80 usft
	+E/-W	0.00 ft	Easting:	3,177,604.44 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	4,977.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	08/18/14	8.56	66.70	52,537

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 (°/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	
3,070.01	35.70	351.81	2,956.73	532.86	-76.65	2.00	2.00	0.00	351.81	
5,497.77	35.70	351.81	4,928.27	1,935.14	-278.35	0.00	0.00	0.00	0.00	
7,282.78	0.00	0.00	6,600.00	2,468.00	-355.00	2.00	-2.00	0.00	180.00	
7,282.78	0.00	0.00	6,600.00	2,468.00	-355.00	0.00	0.00	0.00	0.00	
7,698.82	0.00	0.00	7,016.04	2,468.00	-355.00	0.00	0.00	0.00	0.00	
8,599.38	90.06	0.44	7,589.00	3,041.50	-350.64	10.00	10.00	0.05	0.44	
13,718.65	90.06	0.44	7,584.00	8,160.62	-311.71	0.00	0.00	0.00	0.00	PBHL_COBRA 30C-1

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
Site:	COBRA 12-23HZ PAD	North Reference:	True
Well:	COBRA 30C-14HZ	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 (°/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
Base Fox Hills									
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
9 5/8"									
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
Start Build 2.00									
1,300.00	0.30	351.81	1,300.00	0.04	-0.01	0.04	2.00	2.00	0.00
1,400.00	2.30	351.81	1,399.97	2.28	-0.33	2.28	2.00	2.00	0.00
1,500.00	4.30	351.81	1,499.80	7.98	-1.15	7.98	2.00	2.00	0.00
1,600.00	6.30	351.81	1,599.37	17.12	-2.46	17.12	2.00	2.00	0.00
1,700.00	8.30	351.81	1,698.55	29.70	-4.27	29.70	2.00	2.00	0.00
1,800.00	10.30	351.81	1,797.23	45.70	-6.57	45.70	2.00	2.00	0.00
1,900.00	12.30	351.81	1,895.29	65.09	-9.36	65.09	2.00	2.00	0.00
2,000.00	14.30	351.81	1,992.60	87.86	-12.64	87.86	2.00	2.00	0.00
2,100.00	16.30	351.81	2,089.05	113.98	-16.39	113.98	2.00	2.00	0.00
2,200.00	18.30	351.81	2,184.52	143.41	-20.63	143.41	2.00	2.00	0.00
2,300.00	20.30	351.81	2,278.90	176.12	-25.33	176.12	2.00	2.00	0.00
2,400.00	22.30	351.81	2,372.06	212.08	-30.51	212.08	2.00	2.00	0.00
2,500.00	24.30	351.81	2,463.90	251.23	-36.14	251.23	2.00	2.00	0.00
2,600.00	26.30	351.81	2,554.31	293.52	-42.22	293.52	2.00	2.00	0.00
2,700.00	28.30	351.81	2,643.16	338.92	-48.75	338.92	2.00	2.00	0.00
2,800.00	30.30	351.81	2,730.37	387.36	-55.72	387.36	2.00	2.00	0.00
2,804.21	30.38	351.81	2,734.00	389.46	-56.02	389.46	2.00	2.00	0.00
SSPG									
2,900.00	32.30	351.81	2,815.81	438.78	-63.11	438.78	2.00	2.00	0.00
3,000.00	34.30	351.81	2,899.38	493.12	-70.93	493.12	2.00	2.00	0.00
3,070.01	35.70	351.81	2,956.73	532.86	-76.65	532.86	2.00	2.00	0.00
Start 2427.75 hold at 3070.01 MD									
3,100.00	35.70	351.81	2,981.08	550.18	-79.14	550.18	0.00	0.00	0.00
3,200.00	35.70	351.81	3,062.29	607.94	-87.45	607.94	0.00	0.00	0.00
3,300.00	35.70	351.81	3,143.50	665.70	-95.76	665.70	0.00	0.00	0.00
3,400.00	35.70	351.81	3,224.71	723.46	-104.06	723.46	0.00	0.00	0.00
3,500.00	35.70	351.81	3,305.92	781.22	-112.37	781.22	0.00	0.00	0.00
3,600.00	35.70	351.81	3,387.13	838.98	-120.68	838.98	0.00	0.00	0.00
3,700.00	35.70	351.81	3,468.33	896.74	-128.99	896.74	0.00	0.00	0.00
3,800.00	35.70	351.81	3,549.54	954.50	-137.30	954.50	0.00	0.00	0.00
3,900.00	35.70	351.81	3,630.75	1,012.26	-145.61	1,012.26	0.00	0.00	0.00
4,000.00	35.70	351.81	3,711.96	1,070.02	-153.91	1,070.02	0.00	0.00	0.00
4,100.00	35.70	351.81	3,793.17	1,127.78	-162.22	1,127.78	0.00	0.00	0.00
4,200.00	35.70	351.81	3,874.37	1,185.54	-170.53	1,185.54	0.00	0.00	0.00
4,300.00	35.70	351.81	3,955.58	1,243.31	-178.84	1,243.31	0.00	0.00	0.00

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Site:	COBRA 12-23HZ PAD	North Reference:	True
Well:	COBRA 30C-14HZ	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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,400.00	35.70	351.81	4,036.79	1,301.07	-187.15	1,301.07	0.00	0.00	0.00
4,451.98	35.70	351.81	4,079.00	1,331.09	-191.47	1,331.09	0.00	0.00	0.00
Parkman									
4,500.00	35.70	351.81	4,118.00	1,358.83	-195.45	1,358.83	0.00	0.00	0.00
4,600.00	35.70	351.81	4,199.21	1,416.59	-203.76	1,416.59	0.00	0.00	0.00
4,700.00	35.70	351.81	4,280.41	1,474.35	-212.07	1,474.35	0.00	0.00	0.00
4,800.00	35.70	351.81	4,361.62	1,532.11	-220.38	1,532.11	0.00	0.00	0.00
4,900.00	35.70	351.81	4,442.83	1,589.87	-228.69	1,589.87	0.00	0.00	0.00
4,975.32	35.70	351.81	4,504.00	1,633.37	-234.95	1,633.37	0.00	0.00	0.00
Sussex									
5,000.00	35.70	351.81	4,524.04	1,647.63	-237.00	1,647.63	0.00	0.00	0.00
5,100.00	35.70	351.81	4,605.25	1,705.39	-245.30	1,705.39	0.00	0.00	0.00
5,200.00	35.70	351.81	4,686.45	1,763.15	-253.61	1,763.15	0.00	0.00	0.00
5,300.00	35.70	351.81	4,767.66	1,820.91	-261.92	1,820.91	0.00	0.00	0.00
5,400.00	35.70	351.81	4,848.87	1,878.67	-270.23	1,878.67	0.00	0.00	0.00
5,497.77	35.70	351.81	4,928.27	1,935.14	-278.35	1,935.14	0.00	0.00	0.00
Start Drop -2.00									
5,500.00	35.66	351.81	4,930.08	1,936.42	-278.54	1,936.42	2.00	-2.00	0.00
5,600.00	33.66	351.81	5,012.33	1,992.71	-286.63	1,992.71	2.00	-2.00	0.00
5,700.00	31.66	351.81	5,096.52	2,046.11	-294.32	2,046.11	2.00	-2.00	0.00
5,800.00	29.66	351.81	5,182.54	2,096.58	-301.57	2,096.58	2.00	-2.00	0.00
5,900.00	27.66	351.81	5,270.29	2,144.04	-308.40	2,144.04	2.00	-2.00	0.00
6,000.00	25.66	351.81	5,359.66	2,188.45	-314.79	2,188.45	2.00	-2.00	0.00
6,100.00	23.66	351.81	5,450.54	2,229.73	-320.73	2,229.73	2.00	-2.00	0.00
6,200.00	21.66	351.81	5,542.82	2,267.86	-326.21	2,267.86	2.00	-2.00	0.00
6,300.00	19.66	351.81	5,636.38	2,302.77	-331.23	2,302.77	2.00	-2.00	0.00
6,400.00	17.66	351.81	5,731.12	2,334.43	-335.79	2,334.43	2.00	-2.00	0.00
6,500.00	15.66	351.81	5,826.92	2,362.80	-339.87	2,362.80	2.00	-2.00	0.00
6,600.00	13.66	351.81	5,923.66	2,387.84	-343.47	2,387.84	2.00	-2.00	0.00
6,700.00	11.66	351.81	6,021.23	2,409.53	-346.59	2,409.53	2.00	-2.00	0.00
6,800.00	9.66	351.81	6,119.50	2,427.83	-349.22	2,427.83	2.00	-2.00	0.00
6,900.00	7.66	351.81	6,218.36	2,442.73	-351.36	2,442.73	2.00	-2.00	0.00
7,000.00	5.66	351.81	6,317.68	2,454.20	-353.01	2,454.20	2.00	-2.00	0.00
7,100.00	3.66	351.81	6,417.34	2,462.23	-354.17	2,462.23	2.00	-2.00	0.00
7,200.00	1.66	351.81	6,517.23	2,466.82	-354.83	2,466.82	2.00	-2.00	0.00
7,282.78	0.00	0.00	6,600.00	2,468.00	-355.00	2,468.00	2.00	-2.00	0.00
Start 416.04 hold at 7282.78 MD									
7,300.00	0.00	0.00	6,617.22	2,468.00	-355.00	2,468.00	0.00	0.00	0.00
7,400.00	0.00	0.00	6,717.22	2,468.00	-355.00	2,468.00	0.00	0.00	0.00
7,500.00	0.00	0.00	6,817.22	2,468.00	-355.00	2,468.00	0.00	0.00	0.00
7,600.00	0.00	0.00	6,917.22	2,468.00	-355.00	2,468.00	0.00	0.00	0.00
7,698.82	0.00	0.00	7,016.04	2,468.00	-355.00	2,468.00	0.00	0.00	0.00
Start DLS 10.00 TFO 0.44									
7,700.00	0.12	0.44	7,017.22	2,468.00	-355.00	2,468.00	10.00	10.00	0.00
7,800.00	10.12	0.44	7,116.69	2,476.91	-354.93	2,476.91	10.00	10.00	0.00
7,900.00	20.12	0.44	7,213.11	2,502.96	-354.73	2,502.96	10.00	10.00	0.00
8,000.00	30.12	0.44	7,303.54	2,545.35	-354.41	2,545.35	10.00	10.00	0.00
8,006.33	30.75	0.44	7,309.00	2,548.56	-354.39	2,548.56	10.00	10.00	0.00
NBRR									
8,072.77	37.39	0.44	7,364.00	2,585.76	-354.10	2,585.76	10.00	10.00	0.00
N470_B_CK									
8,100.00	40.12	0.44	7,385.23	2,602.80	-353.97	2,602.80	10.00	10.00	0.00
8,159.99	46.12	0.44	7,429.00	2,643.78	-353.66	2,643.78	10.00	10.00	0.00

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Well:	COBRA 30C-14HZ	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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
N700_C_CK									
8,200.00	50.12	0.44	7,455.71	2,673.57	-353.44	2,673.57	10.00	10.00	0.00
8,300.00	60.12	0.44	7,512.82	2,755.49	-352.81	2,755.49	10.00	10.00	0.00
8,400.00	70.12	0.44	7,554.85	2,846.09	-352.12	2,846.09	10.00	10.00	0.00
8,412.60	71.38	0.44	7,559.00	2,857.98	-352.03	2,857.98	10.00	10.00	0.00
FRHS									
8,491.63	79.28	0.44	7,579.00	2,934.38	-351.45	2,934.38	10.00	10.00	0.00
CDLL									
8,500.00	80.12	0.44	7,580.50	2,942.61	-351.39	2,942.61	10.00	10.00	0.00
8,599.38	90.06	0.44	7,589.00	3,041.50	-350.64	3,041.50	10.00	10.00	0.00
Start 5119.27 hold at 8599.38 MD - 7"(100 FSL 345 FWL)									
8,600.00	90.06	0.44	7,589.00	3,042.12	-350.63	3,042.12	0.02	0.02	0.00
8,700.00	90.06	0.44	7,588.90	3,142.12	-349.87	3,142.12	0.00	0.00	0.00
8,800.00	90.06	0.44	7,588.80	3,242.11	-349.11	3,242.11	0.00	0.00	0.00
8,900.00	90.06	0.44	7,588.70	3,342.11	-348.35	3,342.11	0.00	0.00	0.00
9,000.00	90.06	0.44	7,588.61	3,442.11	-347.59	3,442.11	0.00	0.00	0.00
9,100.00	90.06	0.44	7,588.51	3,542.10	-346.83	3,542.10	0.00	0.00	0.00
9,200.00	90.06	0.44	7,588.41	3,642.10	-346.07	3,642.10	0.00	0.00	0.00
9,300.00	90.06	0.44	7,588.31	3,742.10	-345.31	3,742.10	0.00	0.00	0.00
9,400.00	90.06	0.44	7,588.22	3,842.10	-344.55	3,842.10	0.00	0.00	0.00
9,500.00	90.06	0.44	7,588.12	3,942.09	-343.79	3,942.09	0.00	0.00	0.00
9,600.00	90.06	0.44	7,588.02	4,042.09	-343.03	4,042.09	0.00	0.00	0.00
9,700.00	90.06	0.44	7,587.92	4,142.09	-342.27	4,142.09	0.00	0.00	0.00
9,800.00	90.06	0.44	7,587.83	4,242.08	-341.51	4,242.08	0.00	0.00	0.00
9,900.00	90.06	0.44	7,587.73	4,342.08	-340.75	4,342.08	0.00	0.00	0.00
10,000.00	90.06	0.44	7,587.63	4,442.08	-339.99	4,442.08	0.00	0.00	0.00
10,100.00	90.06	0.44	7,587.53	4,542.08	-339.23	4,542.08	0.00	0.00	0.00
10,200.00	90.06	0.44	7,587.44	4,642.07	-338.47	4,642.07	0.00	0.00	0.00
10,300.00	90.06	0.44	7,587.34	4,742.07	-337.71	4,742.07	0.00	0.00	0.00
10,400.00	90.06	0.44	7,587.24	4,842.07	-336.94	4,842.07	0.00	0.00	0.00
10,500.00	90.06	0.44	7,587.14	4,942.06	-336.18	4,942.06	0.00	0.00	0.00
10,600.00	90.06	0.44	7,587.04	5,042.06	-335.42	5,042.06	0.00	0.00	0.00
10,700.00	90.06	0.44	7,586.95	5,142.06	-334.66	5,142.06	0.00	0.00	0.00
10,800.00	90.06	0.44	7,586.85	5,242.06	-333.90	5,242.06	0.00	0.00	0.00
10,900.00	90.06	0.44	7,586.75	5,342.05	-333.14	5,342.05	0.00	0.00	0.00
11,000.00	90.06	0.44	7,586.65	5,442.05	-332.38	5,442.05	0.00	0.00	0.00
11,100.00	90.06	0.44	7,586.56	5,542.05	-331.62	5,542.05	0.00	0.00	0.00
11,200.00	90.06	0.44	7,586.46	5,642.04	-330.86	5,642.04	0.00	0.00	0.00
11,300.00	90.06	0.44	7,586.36	5,742.04	-330.10	5,742.04	0.00	0.00	0.00
11,400.00	90.06	0.44	7,586.26	5,842.04	-329.34	5,842.04	0.00	0.00	0.00
11,500.00	90.06	0.44	7,586.17	5,942.03	-328.58	5,942.03	0.00	0.00	0.00
11,600.00	90.06	0.44	7,586.07	6,042.03	-327.82	6,042.03	0.00	0.00	0.00
11,700.00	90.06	0.44	7,585.97	6,142.03	-327.06	6,142.03	0.00	0.00	0.00
11,800.00	90.06	0.44	7,585.87	6,242.03	-326.30	6,242.03	0.00	0.00	0.00
11,900.00	90.06	0.44	7,585.78	6,342.02	-325.54	6,342.02	0.00	0.00	0.00
12,000.00	90.06	0.44	7,585.68	6,442.02	-324.78	6,442.02	0.00	0.00	0.00
12,100.00	90.06	0.44	7,585.58	6,542.02	-324.02	6,542.02	0.00	0.00	0.00
12,200.00	90.06	0.44	7,585.48	6,642.01	-323.26	6,642.01	0.00	0.00	0.00
12,300.00	90.06	0.44	7,585.39	6,742.01	-322.50	6,742.01	0.00	0.00	0.00
12,400.00	90.06	0.44	7,585.29	6,842.01	-321.73	6,842.01	0.00	0.00	0.00
12,500.00	90.06	0.44	7,585.19	6,942.01	-320.97	6,942.01	0.00	0.00	0.00
12,600.00	90.06	0.44	7,585.09	7,042.00	-320.21	7,042.00	0.00	0.00	0.00
12,700.00	90.06	0.44	7,584.99	7,142.00	-319.45	7,142.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well COBRA 30C-14HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
Site:	COBRA 12-23HZ PAD	North Reference:	True
Well:	COBRA 30C-14HZ	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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
12,800.00	90.06	0.44	7,584.90	7,242.00	-318.69	7,242.00	0.00	0.00	0.00	
12,900.00	90.06	0.44	7,584.80	7,341.99	-317.93	7,341.99	0.00	0.00	0.00	
13,000.00	90.06	0.44	7,584.70	7,441.99	-317.17	7,441.99	0.00	0.00	0.00	
13,100.00	90.06	0.44	7,584.60	7,541.99	-316.41	7,541.99	0.00	0.00	0.00	
13,200.00	90.06	0.44	7,584.51	7,641.98	-315.65	7,641.98	0.00	0.00	0.00	
13,300.00	90.06	0.44	7,584.41	7,741.98	-314.89	7,741.98	0.00	0.00	0.00	
13,400.00	90.06	0.44	7,584.31	7,841.98	-314.13	7,841.98	0.00	0.00	0.00	
13,500.00	90.06	0.44	7,584.21	7,941.98	-313.37	7,941.98	0.00	0.00	0.00	
13,600.00	90.06	0.44	7,584.12	8,041.97	-312.61	8,041.97	0.00	0.00	0.00	
13,700.00	90.06	0.44	7,584.02	8,141.97	-311.85	8,141.97	0.00	0.00	0.00	
13,718.65	90.06	0.44	7,584.00	8,160.62	-311.71	8,160.62	0.00	0.00	0.00	
TD at 13718.65 - PBHL_COBRA 30C-14HZ(50 FNL 345 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 30C-14H-	0.00	0.00	7,584.00	8,160.62	-311.71	1,296,379.96	3,177,234.30	40.1452180	-104.8660120
- plan hits target center									
- Point									

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
1,185.00	1,185.00	9 5/8"	9.625	13.500		
8,599.38	7,589.00	7"(100 FSL 345 FWL)	7.000	8.750		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
666.00	666.00	Base Fox Hills				
2,804.21	2,734.00	SSPG				
4,451.98	4,079.00	Parkman				
4,975.32	4,504.00	Sussex				
8,006.33	7,309.00	NBRR				
8,072.77	7,364.00	N470_B_CK				
8,159.99	7,429.00	N700_C_CK				
8,412.60	7,559.00	FRHS				
8,491.63	7,579.00	CDLL				

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well COBRA 30C-14HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4977 & KB 17 @ 4994.00ft (ASSUMED)
Site:	COBRA 12-23HZ PAD	North Reference:	True
Well:	COBRA 30C-14HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

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
3,070.01	2,956.73	532.86	-76.65	Start 2427.75 hold at 3070.01 MD
5,497.77	4,928.27	1,935.14	-278.35	Start Drop -2.00
7,282.78	6,600.00	2,468.00	-355.00	Start 416.04 hold at 7282.78 MD
7,698.82	7,016.04	2,468.00	-355.00	Start DLS 10.00 TFO 0.44
8,599.38	7,589.00	3,041.50	-350.64	Start 5119.27 hold at 8599.38 MD
13,718.65	7,584.00	8,160.62	-311.71	TD at 13718.65