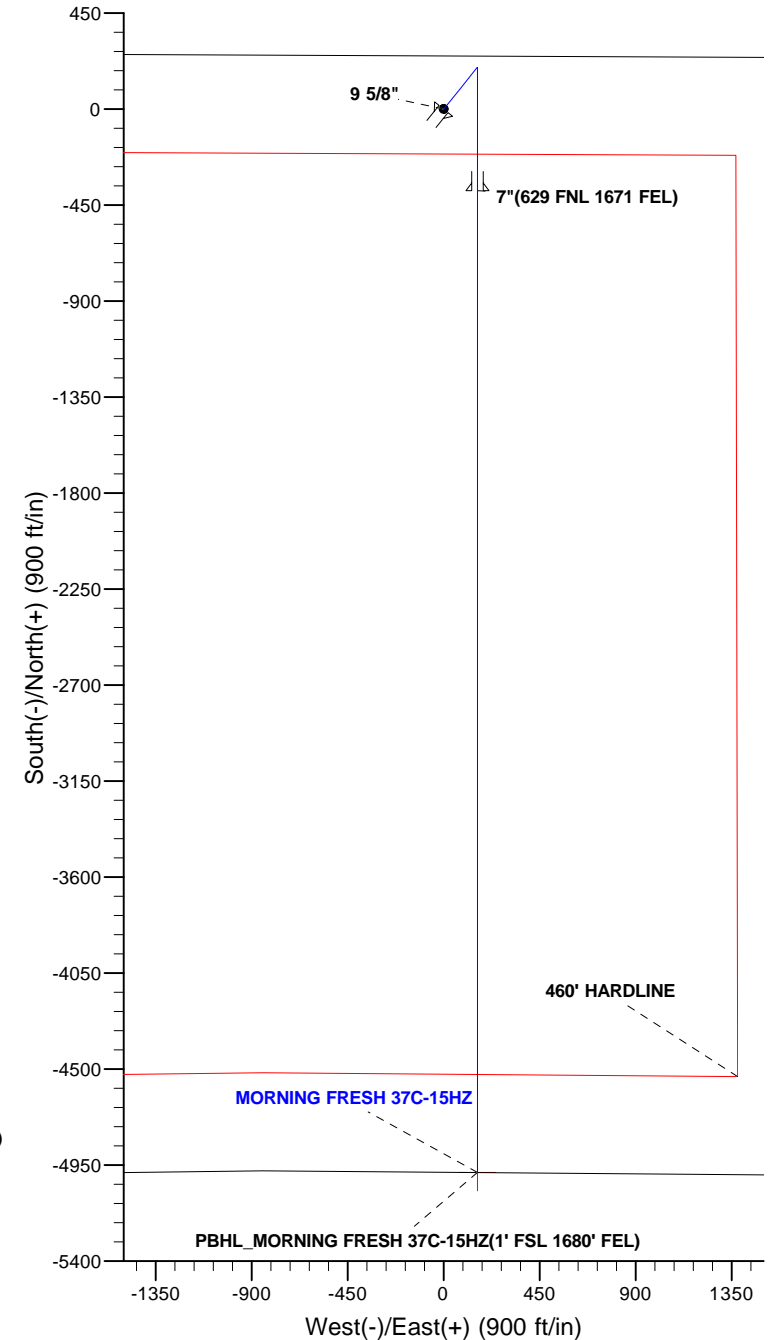
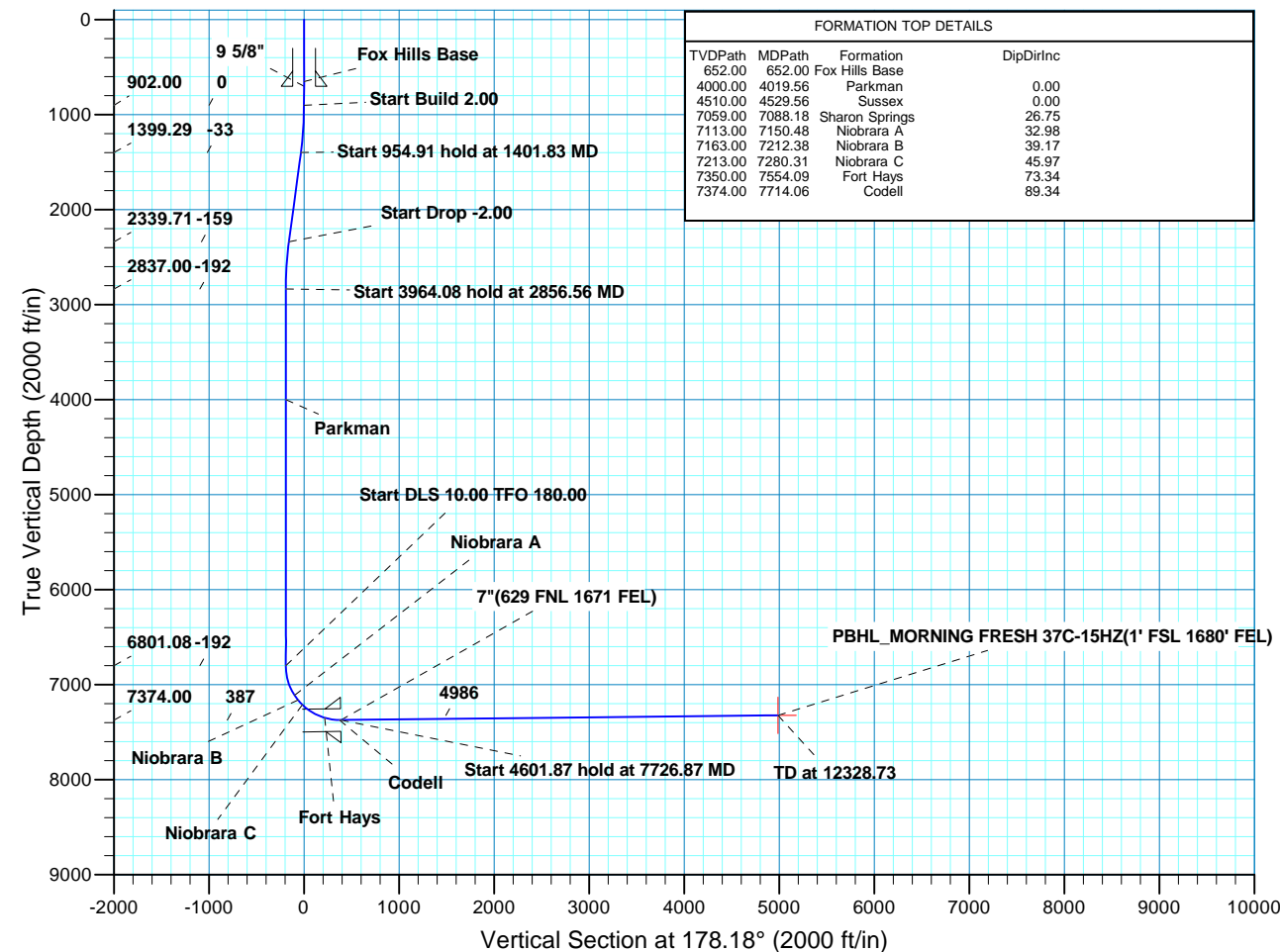


WELL DETAILS: MORNING FRESH 37C-15HZ										
GL 4885 & KB 17 @ 4902.00ft (ASSUMED)										
			+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
			0.00	0.00	1328048.06	3206499.39	40.2315260	-104.7603870		
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
902.00	0.00	0.00	902.00	0.00	0.00	0.00	0.00	0.00	0.00	
1401.83	10.00	38.79	1399.29	33.90	27.25	2.00	38.79	-33.02		
2356.73	10.00	38.79	2339.71	163.10	131.09	0.00	0.00	-158.86		
2856.56	0.00	0.00	2837.00	197.00	158.34	2.00	180.00	-191.87		
6820.64	0.00	0.00	6801.08	197.00	158.34	0.00	0.00	-191.87		
7726.87	90.62	180.00	7374.00	-382.18	158.34	10.00	180.00	387.02		
12328.73	90.62	180.00	7324.00	-4983.78	158.34	0.00	0.00	4986.29	PBHL_MORNING FRESH 37C-15HZ(1' FSL 1680' FEL)	
DESIGN TARGET DETAILS								CASING DETAILS		
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
PBHL	7324.00	-4983.78	158.34	1323065.78	3206699.29	40.2178450	-104.7598200	Point		
- plan hits target center										
	TVD	MD	Name	Size						
	702.00	702.00	9 5/8"	9.625						
	7374.00	7726.87	7"	7.000						





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

MORNING FRESH 2-15HZ

MORNING FRESH 37C-15HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

04 October, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 37C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 37C-15HZ	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	MORNING FRESH 2-15HZ, NWNE SECTION 15 T3N R66W			
Site Position:		Northing:	1,328,048.20 usft	Latitude: 40.2315250
From:	Lat/Long	Easting:	3,206,559.42 usft	Longitude: -104.7601720
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.48 °

Well	MORNING FRESH 37C-15HZ, 250' FNL 1830' FEL					
Well Position	+N/-S	0.36 ft	Northing:	1,328,048.06 usft	Latitude:	40.2315260
	+E/-W	-60.03 ft	Easting:	3,206,499.39 usft	Longitude:	-104.7603870
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,885.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	10/03/13	8.57	66.83	52,728

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	178.18

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	
902.00	0.00	0.00	902.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,401.83	10.00	38.79	1,399.29	33.90	27.25	2.00	2.00	0.00	38.79	
2,356.73	10.00	38.79	2,339.71	163.10	131.09	0.00	0.00	0.00	0.00	
2,856.56	0.00	0.00	2,837.00	197.00	158.34	2.00	-2.00	0.00	180.00	
6,820.64	0.00	0.00	6,801.08	197.00	158.34	0.00	0.00	0.00	0.00	
7,726.87	90.62	180.00	7,374.00	-382.18	158.34	10.00	10.00	19.86	180.00	
12,328.73	90.62	180.00	7,324.00	-4,983.78	158.34	0.00	0.00	0.00	0.00	PBHL_MORNING FR

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 37C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 37C-15HZ	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
652.00	0.00	0.00	652.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
702.00	0.00	0.00	702.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
902.00	0.00	0.00	902.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,000.00	1.96	38.79	999.98	1.31	1.05	-1.27	2.00	2.00	0.00
1,100.00	3.96	38.79	1,099.84	5.33	4.28	-5.19	2.00	2.00	0.00
1,200.00	5.96	38.79	1,199.46	12.07	9.70	-11.76	2.00	2.00	0.00
1,300.00	7.96	38.79	1,298.72	21.51	17.29	-20.95	2.00	2.00	0.00
1,400.00	9.96	38.79	1,397.50	33.65	27.05	-32.78	2.00	2.00	0.00
1,401.83	10.00	38.79	1,399.29	33.90	27.25	-33.02	2.00	2.00	0.00
Start 954.91 hold at 1401.83 MD									
1,500.00	10.00	38.79	1,495.98	47.18	37.92	-45.95	0.00	0.00	0.00
1,600.00	10.00	38.79	1,594.46	60.71	48.80	-59.13	0.00	0.00	0.00
1,700.00	10.00	38.79	1,692.94	74.24	59.67	-72.31	0.00	0.00	0.00
1,800.00	10.00	38.79	1,791.42	87.77	70.55	-85.49	0.00	0.00	0.00
1,900.00	10.00	38.79	1,889.90	101.30	81.42	-98.67	0.00	0.00	0.00
2,000.00	10.00	38.79	1,988.39	114.83	92.30	-111.84	0.00	0.00	0.00
2,100.00	10.00	38.79	2,086.87	128.36	103.17	-125.02	0.00	0.00	0.00
2,200.00	10.00	38.79	2,185.35	141.89	114.05	-138.20	0.00	0.00	0.00
2,300.00	10.00	38.79	2,283.83	155.42	124.92	-151.38	0.00	0.00	0.00
2,356.73	10.00	38.79	2,339.71	163.10	131.09	-158.86	0.00	0.00	0.00
Start Drop -2.00									
2,400.00	9.13	38.79	2,382.37	168.70	135.60	-164.31	2.00	-2.00	0.00
2,500.00	7.13	38.79	2,481.36	179.73	144.46	-175.05	2.00	-2.00	0.00
2,600.00	5.13	38.79	2,580.78	188.05	151.15	-183.16	2.00	-2.00	0.00
2,700.00	3.13	38.79	2,680.52	193.67	155.66	-188.63	2.00	-2.00	0.00
2,800.00	1.13	38.79	2,780.44	196.56	157.99	-191.45	2.00	-2.00	0.00
2,856.56	0.00	0.00	2,837.00	197.00	158.34	-191.87	2.00	-2.00	0.00
Start 3964.08 hold at 2856.56 MD									
2,900.00	0.00	0.00	2,880.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,000.00	0.00	0.00	2,980.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,100.00	0.00	0.00	3,080.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,200.00	0.00	0.00	3,180.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,300.00	0.00	0.00	3,280.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,400.00	0.00	0.00	3,380.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,500.00	0.00	0.00	3,480.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,600.00	0.00	0.00	3,580.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,700.00	0.00	0.00	3,680.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,800.00	0.00	0.00	3,780.44	197.00	158.34	-191.87	0.00	0.00	0.00
3,900.00	0.00	0.00	3,880.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,000.00	0.00	0.00	3,980.44	197.00	158.34	-191.87	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 37C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 37C-15HZ	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)
4,019.56	0.00	0.00	4,000.00	197.00	158.34	-191.87	0.00	0.00	0.00
Parkman									
4,100.00	0.00	0.00	4,080.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,200.00	0.00	0.00	4,180.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,300.00	0.00	0.00	4,280.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,400.00	0.00	0.00	4,380.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,500.00	0.00	0.00	4,480.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,529.56	0.00	0.00	4,510.00	197.00	158.34	-191.87	0.00	0.00	0.00
Sussex									
4,600.00	0.00	0.00	4,580.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,700.00	0.00	0.00	4,680.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,800.00	0.00	0.00	4,780.44	197.00	158.34	-191.87	0.00	0.00	0.00
4,900.00	0.00	0.00	4,880.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,000.00	0.00	0.00	4,980.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,100.00	0.00	0.00	5,080.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,200.00	0.00	0.00	5,180.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,300.00	0.00	0.00	5,280.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,400.00	0.00	0.00	5,380.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,500.00	0.00	0.00	5,480.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,600.00	0.00	0.00	5,580.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,700.00	0.00	0.00	5,680.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,800.00	0.00	0.00	5,780.44	197.00	158.34	-191.87	0.00	0.00	0.00
5,900.00	0.00	0.00	5,880.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,000.00	0.00	0.00	5,980.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,100.00	0.00	0.00	6,080.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,200.00	0.00	0.00	6,180.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,300.00	0.00	0.00	6,280.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,400.00	0.00	0.00	6,380.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,500.00	0.00	0.00	6,480.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,600.00	0.00	0.00	6,580.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,700.00	0.00	0.00	6,680.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,800.00	0.00	0.00	6,780.44	197.00	158.34	-191.87	0.00	0.00	0.00
6,820.64	0.00	0.00	6,801.08	197.00	158.34	-191.87	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
6,900.00	7.94	180.00	6,880.19	191.51	158.34	-186.39	10.00	10.00	0.00
7,000.00	17.94	180.00	6,977.52	169.16	158.34	-164.04	10.00	10.00	0.00
7,088.18	26.75	180.00	7,059.00	135.67	158.34	-130.57	10.00	10.00	0.00
Sharon Springs									
7,100.00	27.94	180.00	7,069.50	130.23	158.34	-125.14	10.00	10.00	0.00
7,150.48	32.98	180.00	7,113.00	104.65	158.34	-99.57	10.00	10.00	0.00
Niobrara A									
7,200.00	37.94	180.00	7,153.32	75.93	158.34	-70.87	10.00	10.00	0.00
7,212.38	39.17	180.00	7,163.00	68.22	158.34	-63.16	10.00	10.00	0.00
Niobrara B									
7,280.31	45.97	180.00	7,213.00	22.29	158.34	-17.25	10.00	10.00	0.00
Niobrara C									
7,300.00	47.94	180.00	7,226.44	7.90	158.34	-2.87	10.00	10.00	0.00
7,400.00	57.94	180.00	7,286.64	-71.79	158.34	76.78	10.00	10.00	0.00
7,500.00	67.94	180.00	7,332.08	-160.73	158.34	165.68	10.00	10.00	0.00
7,554.09	73.34	180.00	7,350.00	-211.74	158.34	216.66	10.00	10.00	0.00
Fort Hays									
7,600.00	77.94	180.00	7,361.38	-256.21	158.34	261.10	10.00	10.00	0.00
7,700.00	87.94	180.00	7,373.67	-355.32	158.34	360.17	10.00	10.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 37C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 37C-15HZ	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)
7,714.06	89.34	180.00	7,374.00	-369.38	158.34	374.22	10.00	10.00	0.00
Codell									
7,726.87	90.62	180.00	7,374.00	-382.19	158.34	387.02	10.00	10.00	0.00
Start 4601.87 hold at 7726.87 MD - 7"(629 FNL 1671 FEL)									
7,800.00	90.62	180.00	7,373.21	-455.31	158.34	460.11	0.00	0.00	0.00
7,900.00	90.62	180.00	7,372.12	-555.31	158.34	560.05	0.00	0.00	0.00
8,000.00	90.62	180.00	7,371.04	-655.30	158.34	660.00	0.00	0.00	0.00
8,100.00	90.62	180.00	7,369.95	-755.29	158.34	759.94	0.00	0.00	0.00
8,200.00	90.62	180.00	7,368.86	-855.29	158.34	859.89	0.00	0.00	0.00
8,300.00	90.62	180.00	7,367.78	-955.28	158.34	959.83	0.00	0.00	0.00
8,400.00	90.62	180.00	7,366.69	-1,055.28	158.34	1,059.77	0.00	0.00	0.00
8,500.00	90.62	180.00	7,365.60	-1,155.27	158.34	1,159.72	0.00	0.00	0.00
8,600.00	90.62	180.00	7,364.52	-1,255.26	158.34	1,259.66	0.00	0.00	0.00
8,700.00	90.62	180.00	7,363.43	-1,355.26	158.34	1,359.60	0.00	0.00	0.00
8,800.00	90.62	180.00	7,362.34	-1,455.25	158.34	1,459.55	0.00	0.00	0.00
8,900.00	90.62	180.00	7,361.26	-1,555.25	158.34	1,559.49	0.00	0.00	0.00
9,000.00	90.62	180.00	7,360.17	-1,655.24	158.34	1,659.43	0.00	0.00	0.00
9,100.00	90.62	180.00	7,359.08	-1,755.24	158.34	1,759.38	0.00	0.00	0.00
9,200.00	90.62	180.00	7,358.00	-1,855.23	158.34	1,859.32	0.00	0.00	0.00
9,300.00	90.62	180.00	7,356.91	-1,955.22	158.34	1,959.27	0.00	0.00	0.00
9,400.00	90.62	180.00	7,355.82	-2,055.22	158.34	2,059.21	0.00	0.00	0.00
9,500.00	90.62	180.00	7,354.74	-2,155.21	158.34	2,159.15	0.00	0.00	0.00
9,600.00	90.62	180.00	7,353.65	-2,255.21	158.34	2,259.10	0.00	0.00	0.00
9,700.00	90.62	180.00	7,352.56	-2,355.20	158.34	2,359.04	0.00	0.00	0.00
9,800.00	90.62	180.00	7,351.48	-2,455.19	158.34	2,458.98	0.00	0.00	0.00
9,900.00	90.62	180.00	7,350.39	-2,555.19	158.34	2,558.93	0.00	0.00	0.00
10,000.00	90.62	180.00	7,349.30	-2,655.18	158.34	2,658.87	0.00	0.00	0.00
10,100.00	90.62	180.00	7,348.22	-2,755.18	158.34	2,758.82	0.00	0.00	0.00
10,200.00	90.62	180.00	7,347.13	-2,855.17	158.34	2,858.76	0.00	0.00	0.00
10,300.00	90.62	180.00	7,346.04	-2,955.16	158.34	2,958.70	0.00	0.00	0.00
10,400.00	90.62	180.00	7,344.96	-3,055.16	158.34	3,058.65	0.00	0.00	0.00
10,500.00	90.62	180.00	7,343.87	-3,155.15	158.34	3,158.59	0.00	0.00	0.00
10,600.00	90.62	180.00	7,342.78	-3,255.15	158.34	3,258.53	0.00	0.00	0.00
10,700.00	90.62	180.00	7,341.70	-3,355.14	158.34	3,358.48	0.00	0.00	0.00
10,800.00	90.62	180.00	7,340.61	-3,455.14	158.34	3,458.42	0.00	0.00	0.00
10,900.00	90.62	180.00	7,339.52	-3,555.13	158.34	3,558.36	0.00	0.00	0.00
11,000.00	90.62	180.00	7,338.44	-3,655.12	158.34	3,658.31	0.00	0.00	0.00
11,100.00	90.62	180.00	7,337.35	-3,755.12	158.34	3,758.25	0.00	0.00	0.00
11,200.00	90.62	180.00	7,336.27	-3,855.11	158.34	3,858.20	0.00	0.00	0.00
11,300.00	90.62	180.00	7,335.18	-3,955.11	158.34	3,958.14	0.00	0.00	0.00
11,400.00	90.62	180.00	7,334.09	-4,055.10	158.34	4,058.08	0.00	0.00	0.00
11,500.00	90.62	180.00	7,333.01	-4,155.09	158.34	4,158.03	0.00	0.00	0.00
11,600.00	90.62	180.00	7,331.92	-4,255.09	158.34	4,257.97	0.00	0.00	0.00
11,700.00	90.62	180.00	7,330.83	-4,355.08	158.34	4,357.91	0.00	0.00	0.00
11,800.00	90.62	180.00	7,329.75	-4,455.08	158.34	4,457.86	0.00	0.00	0.00
11,900.00	90.62	180.00	7,328.66	-4,555.07	158.34	4,557.80	0.00	0.00	0.00
12,000.00	90.62	180.00	7,327.57	-4,655.06	158.34	4,657.74	0.00	0.00	0.00
12,100.00	90.62	180.00	7,326.49	-4,755.06	158.34	4,757.69	0.00	0.00	0.00
12,200.00	90.62	180.00	7,325.40	-4,855.05	158.34	4,857.63	0.00	0.00	0.00
12,300.00	90.62	180.00	7,324.31	-4,955.05	158.34	4,957.58	0.00	0.00	0.00
12,328.73	90.62	180.00	7,324.00	-4,983.78	158.34	4,986.29	0.00	0.00	0.00
TD at 12328.73 - PBHL_MORNING FRESH 37C-15HZ(1' FSL 1680' FEL)									

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 37C-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4885 & KB 17 @ 4902.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 37C-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
PBHL_MORNING FRES	0.00	0.00	7,324.00	-4,983.78	158.34	1,323,065.78	3,206,699.29	40.2178450	-104.7598200
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(in)	(in)
702.00	702.00	9 5/8"		9.625	12.250
7,726.87	7,374.00	7"(629 FNL 1671 FEL)		7.000	7.500

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
652.00	652.00	Fox Hills Base				
4,019.56	4,000.00	Parkman				
4,529.56	4,510.00	Sussex				
7,088.18	7,059.00	Sharon Springs				
7,150.48	7,113.00	Niobrara A				
7,212.38	7,163.00	Niobrara B				
7,280.31	7,213.00	Niobrara C				
7,554.09	7,350.00	Fort Hays				
7,714.06	7,374.00	Codell				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
902.00	902.00	0.00	0.00	Start Build 2.00
1,401.83	1,399.29	33.90	27.25	Start 954.91 hold at 1401.83 MD
2,356.73	2,339.71	163.10	131.09	Start Drop -2.00
2,856.56	2,837.00	197.00	158.34	Start 3964.08 hold at 2856.56 MD
6,820.64	6,801.08	197.00	158.34	Start DLS 10.00 TFO 180.00
7,726.87	7,374.00	-382.18	158.34	Start 4601.87 hold at 7726.87 MD
12,328.73	7,324.00	-4,983.78	158.34	TD at 12328.73