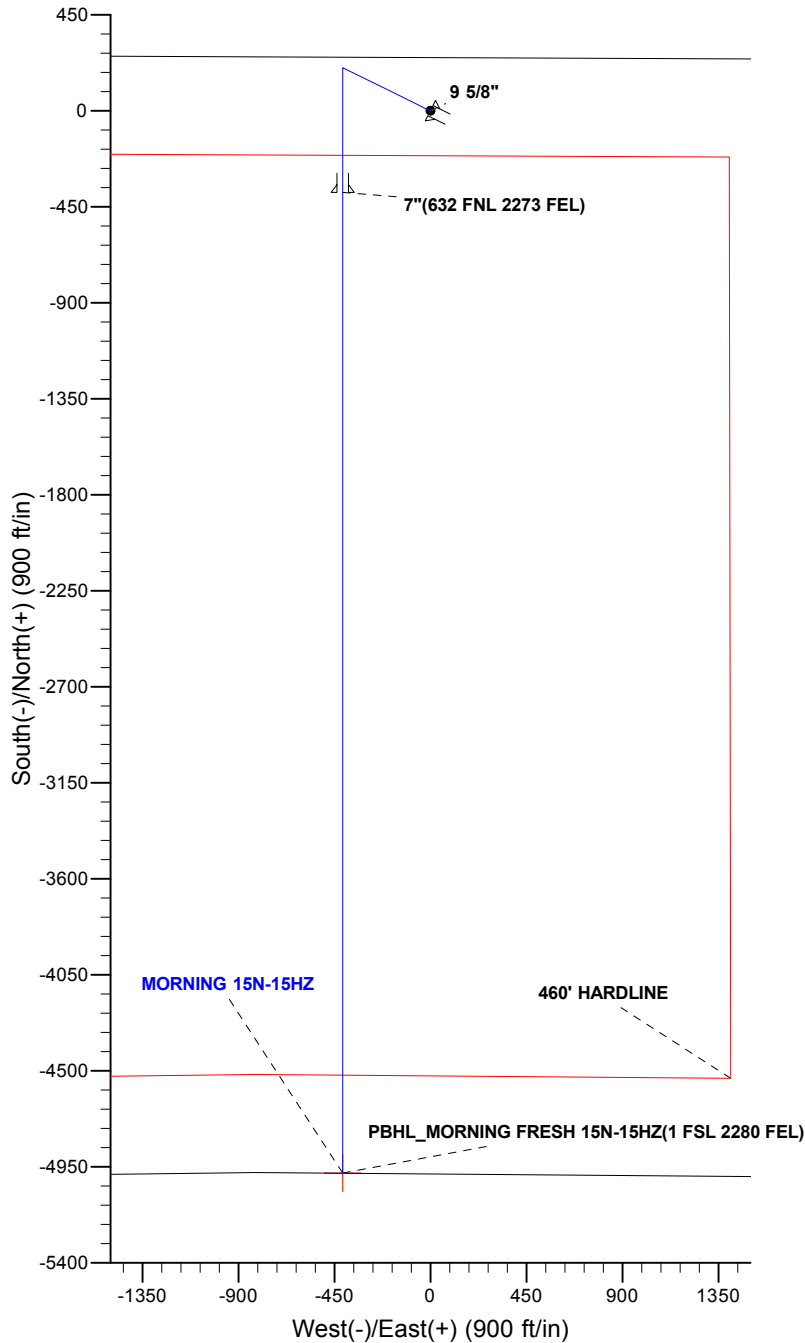
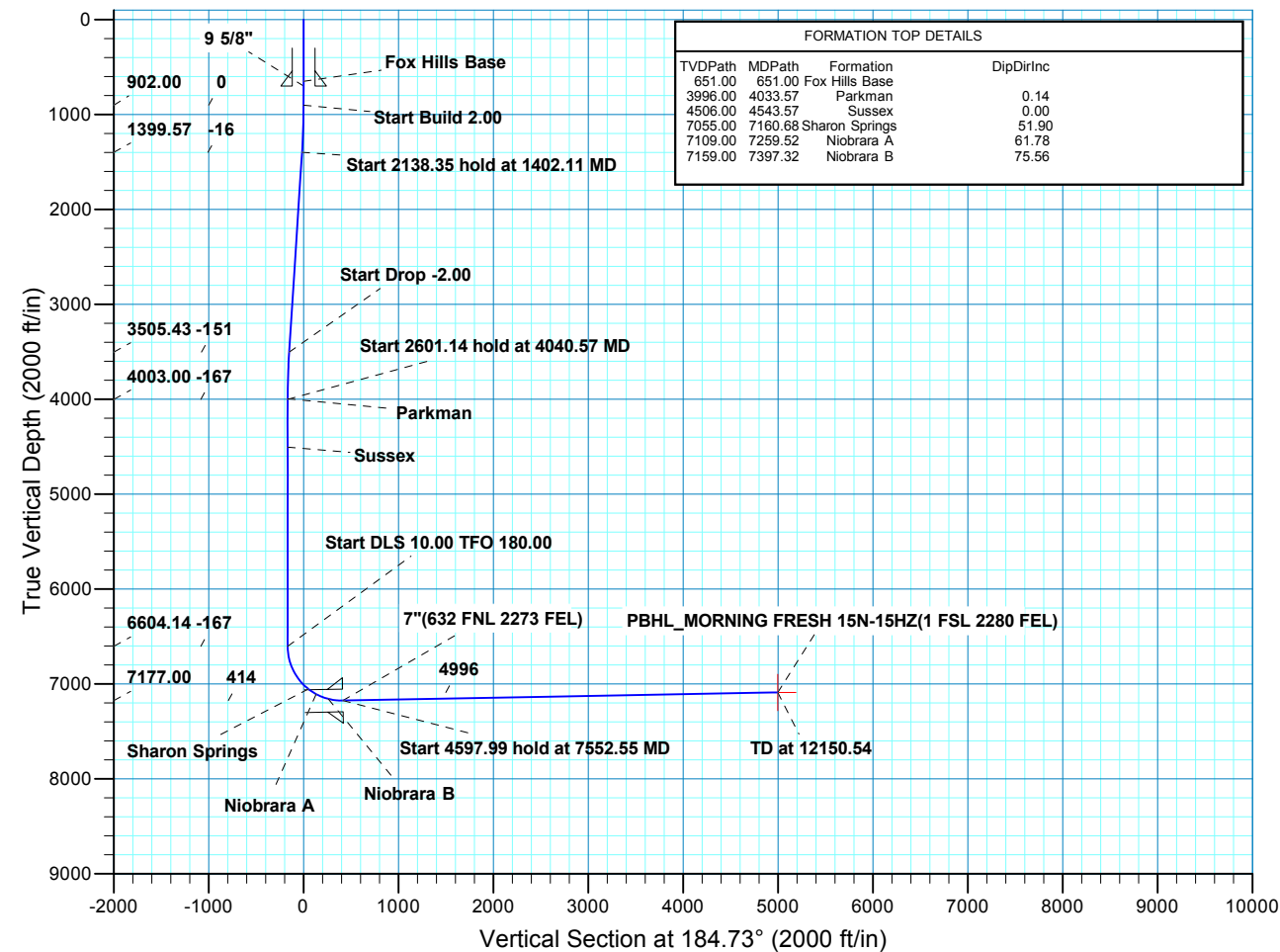


WELL DETAILS: MORNING FRESH 15N-15HZ										
GL 4884 & KB 17 @ 4901.00ft (ASSUMED)										
			+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
			0.00	0.00	1328047.81	3206469.23	40.2315260	-104.7604950		
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	
0.00	0.00	0.00	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	
1402.11	10.00	296.13	1399.57	19.18	-39.09	2.00	296.13	-15.89		
3540.46	10.00	296.13	3505.43	182.74	-372.54	0.00	0.00	-151.43		
4040.57	0.00	0.00	4003.00	201.92	-411.63	2.00	180.00	-167.32		
6641.71	0.00	0.00	6604.14	201.92	-411.63	0.00	0.00	-167.32		
7552.55	91.08	180.00	7177.00	-381.88	-411.63	10.00	180.00	414.49		
12150.54	91.08	180.00	7090.00	-4979.04	-411.63	0.00	0.004996.03		PBHL_MORNING FRESH 15N-15HZ(1 FSL 2280 FEL)	
DESIGN TARGET DETAILS								CASING DETAILS		
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	TVD	MD
PBHL	7090.00	-4979.04	-411.63	1323065.51	3206099.14	40.2178580	-104.7619690	Point	701.00	701.00
- plan hits target center									7177.00	7552.55
									9 5/8"	9.625
									7"	7.000





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

MORNING FRESH 2-15HZ

MORNING FRESH 15N-15HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

04 October, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 15N-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 15N-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 15N-15HZ, 250' FNL 1860' FEL			
Well Position	+N/-S	0.36 ft	Northing:	1,328,047.81 usft
	+E/-W	-90.18 ft	Easting:	3,206,469.24 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	4,884.00 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	184.73

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	
1,402.11	10.00	296.13	1,399.57	19.18	-39.09	2.00	2.00	0.00	296.13	
3,540.46	10.00	296.13	3,505.43	182.74	-372.54	0.00	0.00	0.00	0.00	
4,040.57	0.00	0.00	4,003.00	201.92	-411.63	2.00	-2.00	0.00	180.00	
6,641.71	0.00	0.00	6,604.14	201.92	-411.63	0.00	0.00	0.00	0.00	
7,552.55	91.08	180.00	7,177.00	-381.88	-411.63	10.00	10.00	19.76	180.00	
12,150.54	91.08	180.00	7,090.00	-4,979.04	-411.63	0.00	0.00	0.00	0.00	PBHL_MORNING FR

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 15N-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 15N-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
651.00	0.00	0.00	651.00	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
701.00	0.00	0.00	701.00	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	296.13	999.98	0.74	-1.50	-0.61	2.00	2.00	0.00
1,100.00	3.96	296.13	1,099.84	3.01	-6.14	-2.50	2.00	2.00	0.00
1,200.00	5.96	296.13	1,199.46	6.82	-13.90	-5.65	2.00	2.00	0.00
1,300.00	7.96	296.13	1,298.72	12.16	-24.78	-10.07	2.00	2.00	0.00
1,400.00	9.96	296.13	1,397.50	19.01	-38.76	-15.76	2.00	2.00	0.00
1,402.11	10.00	296.13	1,399.57	19.18	-39.09	-15.89	2.00	2.00	0.00
Start 2138.35 hold at 1402.11 MD									
1,500.00	10.00	296.13	1,495.98	26.66	-54.36	-22.09	0.00	0.00	0.00
1,600.00	10.00	296.13	1,594.46	34.31	-69.95	-28.43	0.00	0.00	0.00
1,700.00	10.00	296.13	1,692.94	41.96	-85.54	-34.77	0.00	0.00	0.00
1,800.00	10.00	296.13	1,791.42	49.61	-101.14	-41.11	0.00	0.00	0.00
1,900.00	10.00	296.13	1,889.90	57.26	-116.73	-47.45	0.00	0.00	0.00
2,000.00	10.00	296.13	1,988.38	64.91	-132.32	-53.79	0.00	0.00	0.00
2,100.00	10.00	296.13	2,086.86	72.56	-147.92	-60.13	0.00	0.00	0.00
2,200.00	10.00	296.13	2,185.34	80.21	-163.51	-66.46	0.00	0.00	0.00
2,300.00	10.00	296.13	2,283.82	87.86	-179.10	-72.80	0.00	0.00	0.00
2,400.00	10.00	296.13	2,382.30	95.51	-194.70	-79.14	0.00	0.00	0.00
2,500.00	10.00	296.13	2,480.78	103.16	-210.29	-85.48	0.00	0.00	0.00
2,600.00	10.00	296.13	2,579.26	110.81	-225.88	-91.82	0.00	0.00	0.00
2,700.00	10.00	296.13	2,677.74	118.45	-241.48	-98.16	0.00	0.00	0.00
2,800.00	10.00	296.13	2,776.22	126.10	-257.07	-104.49	0.00	0.00	0.00
2,900.00	10.00	296.13	2,874.70	133.75	-272.67	-110.83	0.00	0.00	0.00
3,000.00	10.00	296.13	2,973.18	141.40	-288.26	-117.17	0.00	0.00	0.00
3,100.00	10.00	296.13	3,071.66	149.05	-303.85	-123.51	0.00	0.00	0.00
3,200.00	10.00	296.13	3,170.14	156.70	-319.45	-129.85	0.00	0.00	0.00
3,300.00	10.00	296.13	3,268.62	164.35	-335.04	-136.19	0.00	0.00	0.00
3,400.00	10.00	296.13	3,367.10	172.00	-350.63	-142.53	0.00	0.00	0.00
3,500.00	10.00	296.13	3,465.58	179.65	-366.23	-148.86	0.00	0.00	0.00
3,540.46	10.00	296.13	3,505.43	182.74	-372.54	-151.43	0.00	0.00	0.00
Start Drop -2.00									
3,600.00	8.81	296.13	3,564.16	187.03	-381.27	-154.98	2.00	-2.00	0.00
3,700.00	6.81	296.13	3,663.23	193.01	-393.47	-159.94	2.00	-2.00	0.00
3,800.00	4.81	296.13	3,762.71	197.47	-402.56	-163.63	2.00	-2.00	0.00
3,900.00	2.81	296.13	3,862.48	200.40	-408.53	-166.06	2.00	-2.00	0.00
4,000.00	0.81	296.13	3,962.43	201.79	-411.37	-167.21	2.00	-2.00	0.00
4,033.57	0.14	296.13	3,996.00	201.92	-411.62	-167.32	2.00	-2.00	0.00
Parkman									

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 15N-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 15N-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)	
4,040.57	0.00	0.00	4,003.00	201.92	-411.63	-167.32	2.00	-2.00	0.00	
Start 2601.14 hold at 4040.57 MD										
4,100.00	0.00	0.00	4,062.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,162.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,300.00	0.00	0.00	4,262.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,362.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,462.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,543.57	0.00	0.00	4,506.00	201.92	-411.63	-167.32	0.00	0.00	0.00	
Sussex										
4,600.00	0.00	0.00	4,562.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,662.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,762.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,862.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,962.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,062.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,162.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,262.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,362.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,462.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,562.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,662.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,762.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,862.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,962.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,062.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,162.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,262.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,362.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,462.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,562.43	201.92	-411.63	-167.32	0.00	0.00	0.00	
6,641.71	0.00	0.00	6,604.14	201.92	-411.63	-167.32	0.00	0.00	0.00	
Start DLS 10.00 TFO 180.00										
6,700.00	5.83	180.00	6,662.33	198.96	-411.63	-164.37	10.00	10.00	0.00	
6,800.00	15.83	180.00	6,760.42	180.19	-411.63	-145.67	10.00	10.00	0.00	
6,900.00	25.83	180.00	6,853.77	144.68	-411.63	-110.28	10.00	10.00	0.00	
7,000.00	35.83	180.00	6,939.53	93.50	-411.63	-59.27	10.00	10.00	0.00	
7,100.00	45.83	180.00	7,015.10	28.20	-411.63	5.81	10.00	10.00	0.00	
7,160.68	51.90	180.00	7,055.00	-17.48	-411.63	51.33	10.00	10.00	0.00	
Sharon Springs										
7,200.00	55.83	180.00	7,078.18	-49.22	-411.63	82.97	10.00	10.00	0.00	
7,259.52	61.78	180.00	7,109.00	-100.12	-411.63	133.69	10.00	10.00	0.00	
Niobrara A										
7,300.00	65.83	180.00	7,126.86	-136.43	-411.63	169.88	10.00	10.00	0.00	
7,397.32	75.56	180.00	7,159.00	-228.17	-411.63	261.31	10.00	10.00	0.00	
Niobrara B										
7,400.00	75.83	180.00	7,159.66	-230.76	-411.63	263.89	10.00	10.00	0.00	
7,500.00	85.83	180.00	7,175.58	-329.36	-411.63	362.16	10.00	10.00	0.00	
7,552.55	91.08	180.00	7,177.00	-381.87	-411.63	414.49	10.00	10.00	0.00	
Start 4597.99 hold at 7552.55 MD - 7"(632 FNL 2273 FEL)										
7,600.00	91.08	180.00	7,176.10	-429.32	-411.63	461.77	0.00	0.00	0.00	
7,700.00	91.08	180.00	7,174.21	-529.30	-411.63	561.41	0.00	0.00	0.00	
7,800.00	91.08	180.00	7,172.31	-629.28	-411.63	661.05	0.00	0.00	0.00	
7,900.00	91.08	180.00	7,170.42	-729.26	-411.63	760.70	0.00	0.00	0.00	

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 15N-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 15N-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)	
8,000.00	91.08	180.00	7,168.53	-829.24	-411.63	860.34	0.00	0.00	0.00	
8,100.00	91.08	180.00	7,166.64	-929.23	-411.63	959.98	0.00	0.00	0.00	
8,200.00	91.08	180.00	7,164.75	-1,029.21	-411.63	1,059.62	0.00	0.00	0.00	
8,300.00	91.08	180.00	7,162.85	-1,129.19	-411.63	1,159.27	0.00	0.00	0.00	
8,400.00	91.08	180.00	7,160.96	-1,229.17	-411.63	1,258.91	0.00	0.00	0.00	
8,500.00	91.08	180.00	7,159.07	-1,329.15	-411.63	1,358.55	0.00	0.00	0.00	
8,600.00	91.08	180.00	7,157.18	-1,429.14	-411.63	1,458.19	0.00	0.00	0.00	
8,700.00	91.08	180.00	7,155.29	-1,529.12	-411.63	1,557.83	0.00	0.00	0.00	
8,800.00	91.08	180.00	7,153.39	-1,629.10	-411.63	1,657.48	0.00	0.00	0.00	
8,900.00	91.08	180.00	7,151.50	-1,729.08	-411.63	1,757.12	0.00	0.00	0.00	
9,000.00	91.08	180.00	7,149.61	-1,829.06	-411.63	1,856.76	0.00	0.00	0.00	
9,100.00	91.08	180.00	7,147.72	-1,929.05	-411.63	1,956.40	0.00	0.00	0.00	
9,200.00	91.08	180.00	7,145.83	-2,029.03	-411.63	2,056.04	0.00	0.00	0.00	
9,300.00	91.08	180.00	7,143.93	-2,129.01	-411.63	2,155.69	0.00	0.00	0.00	
9,400.00	91.08	180.00	7,142.04	-2,228.99	-411.63	2,255.33	0.00	0.00	0.00	
9,500.00	91.08	180.00	7,140.15	-2,328.98	-411.63	2,354.97	0.00	0.00	0.00	
9,600.00	91.08	180.00	7,138.26	-2,428.96	-411.63	2,454.61	0.00	0.00	0.00	
9,700.00	91.08	180.00	7,136.37	-2,528.94	-411.63	2,554.26	0.00	0.00	0.00	
9,800.00	91.08	180.00	7,134.47	-2,628.92	-411.63	2,653.90	0.00	0.00	0.00	
9,900.00	91.08	180.00	7,132.58	-2,728.90	-411.63	2,753.54	0.00	0.00	0.00	
10,000.00	91.08	180.00	7,130.69	-2,828.89	-411.63	2,853.18	0.00	0.00	0.00	
10,100.00	91.08	180.00	7,128.80	-2,928.87	-411.63	2,952.82	0.00	0.00	0.00	
10,200.00	91.08	180.00	7,126.90	-3,028.85	-411.63	3,052.47	0.00	0.00	0.00	
10,300.00	91.08	180.00	7,125.01	-3,128.83	-411.63	3,152.11	0.00	0.00	0.00	
10,400.00	91.08	180.00	7,123.12	-3,228.81	-411.63	3,251.75	0.00	0.00	0.00	
10,500.00	91.08	180.00	7,121.23	-3,328.80	-411.63	3,351.39	0.00	0.00	0.00	
10,600.00	91.08	180.00	7,119.34	-3,428.78	-411.63	3,451.04	0.00	0.00	0.00	
10,700.00	91.08	180.00	7,117.44	-3,528.76	-411.63	3,550.68	0.00	0.00	0.00	
10,800.00	91.08	180.00	7,115.55	-3,628.74	-411.63	3,650.32	0.00	0.00	0.00	
10,900.00	91.08	180.00	7,113.66	-3,728.72	-411.63	3,749.96	0.00	0.00	0.00	
11,000.00	91.08	180.00	7,111.77	-3,828.71	-411.63	3,849.60	0.00	0.00	0.00	
11,100.00	91.08	180.00	7,109.88	-3,928.69	-411.63	3,949.25	0.00	0.00	0.00	
11,200.00	91.08	180.00	7,107.98	-4,028.67	-411.63	4,048.89	0.00	0.00	0.00	
11,300.00	91.08	180.00	7,106.09	-4,128.65	-411.63	4,148.53	0.00	0.00	0.00	
11,400.00	91.08	180.00	7,104.20	-4,228.64	-411.63	4,248.17	0.00	0.00	0.00	
11,500.00	91.08	180.00	7,102.31	-4,328.62	-411.63	4,347.81	0.00	0.00	0.00	
11,600.00	91.08	180.00	7,100.42	-4,428.60	-411.63	4,447.46	0.00	0.00	0.00	
11,700.00	91.08	180.00	7,098.52	-4,528.58	-411.63	4,547.10	0.00	0.00	0.00	
11,800.00	91.08	180.00	7,096.63	-4,628.56	-411.63	4,646.74	0.00	0.00	0.00	
11,900.00	91.08	180.00	7,094.74	-4,728.55	-411.63	4,746.38	0.00	0.00	0.00	
12,000.00	91.08	180.00	7,092.85	-4,828.53	-411.63	4,846.03	0.00	0.00	0.00	
12,100.00	91.08	180.00	7,090.96	-4,928.51	-411.63	4,945.67	0.00	0.00	0.00	
12,150.54	91.08	180.00	7,090.00	-4,979.04	-411.63	4,996.03	0.00	0.00	0.00	
TD at 12150.54 - PBHL_MORNING FRESH 15N-15HZ(1 FSL 2280 FEL)										

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well MORNING FRESH 15N-15HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4884 & KB 17 @ 4901.00ft (ASSUMED)
Site:	MORNING FRESH 2-15HZ	North Reference:	True
Well:	MORNING FRESH 15N-15HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

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_MORNING FRES	0.00	0.00	7,090.00	-4,979.04	-411.63	1,323,065.51	3,206,099.14	40.2178580	-104.7619690
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
701.00	701.00	9 5/8"	9.625	12.250	
7,552.55	7,177.00	7"(632 FNL 2273 FEL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
651.00	652.00	Fox Hills Base				
4,033.57	3,997.00	Parkman				
4,543.57	4,507.00	Sussex				
7,160.68	7,056.00	Sharon Springs				
7,259.52	7,110.00	Niobrara A				
7,397.32	7,160.00	Niobrara B				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
902.00	902.00	0.00	0.00	Start Build 2.00	
1,402.11	1,399.57	19.18	-39.09	Start 2138.35 hold at 1402.11 MD	
3,540.46	3,505.43	182.74	-372.54	Start Drop -2.00	
4,040.57	4,003.00	201.92	-411.63	Start 2601.14 hold at 4040.57 MD	
6,641.71	6,604.14	201.92	-411.63	Start DLS 10.00 TFO 180.00	
7,552.55	7,177.00	-381.88	-411.63	Start 4597.99 hold at 7552.55 MD	
12,150.54	7,090.00	-4,979.04	-411.63	TD at 12150.54	