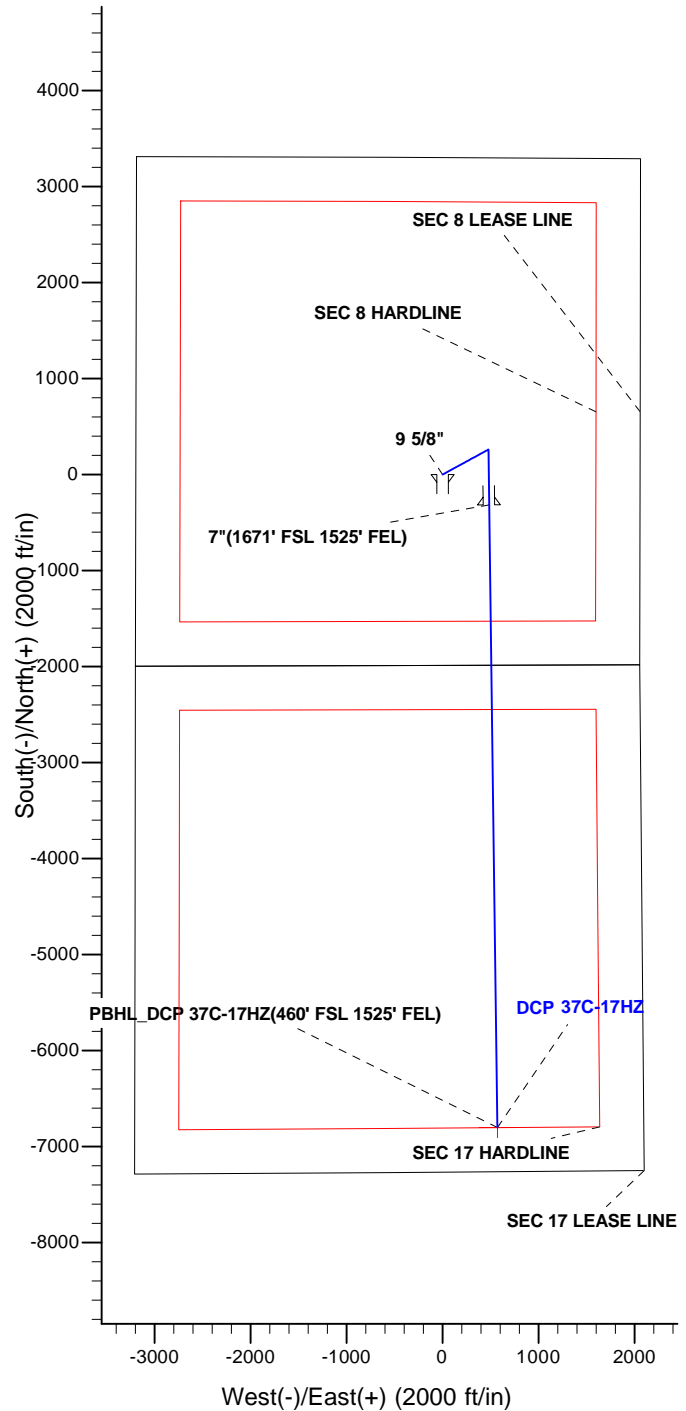
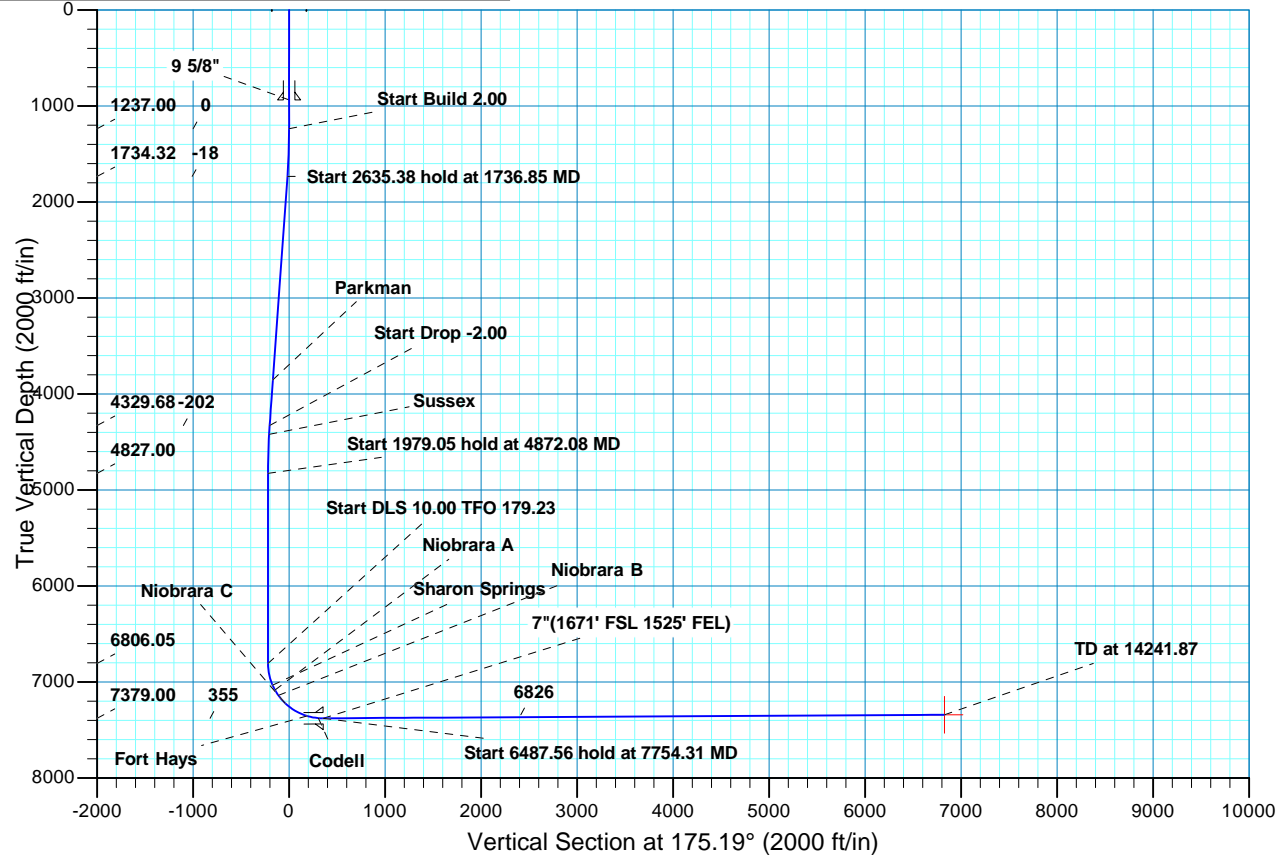




Project: COLORADO NORTHERN ZONE - 83
 Site: DCP 10-8HZ PAD
 Well: DCP 37C-17HZ
 Wellbore: OH
 Design: PLAN #1 PRELIMINARY



WELL DETAILS: DCP 37C-17HZ									
GL 4868 & KB 17 @ 4885.00ft (ASSUMED)									
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude				
0.00	0.00	1330135.30	3195621.02	40.2374980	-104.7992890				
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1237.00	0.00	0.00	1237.00	0.00	0.00	0.00	0.00	0.00	
1736.85	10.00	61.40	1734.32	20.82	38.19	2.00	61.40	-17.55	
4372.23	10.00	61.40	4329.68	239.84	439.85	0.00	0.00	-202.11	
4872.08	0.00	0.00	4827.00	260.66	478.04	2.00	180.00	-219.65	
6851.13	0.00	0.00	6806.05	260.66	478.04	0.00	0.00	-219.65	
7754.31	90.32	179.23	7379.00	-315.43	485.74	10.00	179.23	355.05	
14241.86	90.32	179.23	7343.00	-6802.30	572.47	0.00	0.006826.35		PBHL_DCP 37C-17HZ(460' FSL 1525' FEL)
FORMATION TOP DETAILS					CASING DETAILS				
TVDPath	MDPath	Formation	Inc	TVD	MD	Name	Size		
851.00	851.00	Fox Hills	0.00	937.00	937.00	9 5/8"	9.625		
3854.00	3889.21	Parkman	10.00	7379.00	754.31	7"	7.000		
4421.00	4464.71	Sussex	8.15						
7035.00	7086.66	Sharon Springs	23.55						
7085.00	7142.47	Niobrara A	29.13						
7140.00	7207.64	Niobrara B	35.65						
7223.00	7318.08	Niobrara C	46.70						
7355.00	7584.68	Fort Hays	73.36						
7377.00	7703.15	Codell	85.20						





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

DCP 10-8HZ PAD

DCP 37C-17HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

15 May, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well DCP 37C-17HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Site:	DCP 10-8HZ PAD	North Reference:	True
Well:	DCP 37C-17HZ	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	DCP 10-8HZ PAD, SECTION 8 T3N R66W				
Site Position:	Northing:	1,330,135.06 usft	Latitude:	40.2374980	
From:	Lat/Long	Easting:	3,195,590.87 usft	Longitude:	-104.7993970
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.45 °

Well	DCP 37C-17HZ, 1988' FSL 2087' FEL					
Well Position	+N/-S	0.00 ft	Northing:	1,330,135.30 usft	Latitude:	40.2374980
	+E/-W	30.15 ft	Easting:	3,195,621.02 usft	Longitude:	-104.7992890
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,868.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	2013/05/02	8.67	66.82	52,746

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	175.19

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	
1,237.00	0.00	0.00	1,237.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,736.85	10.00	61.40	1,734.32	20.82	38.19	2.00	2.00	0.00	61.40	
4,372.23	10.00	61.40	4,329.68	239.84	439.85	0.00	0.00	0.00	0.00	
4,872.08	0.00	0.00	4,827.00	260.66	478.04	2.00	-2.00	0.00	180.00	
6,851.13	0.00	0.00	6,806.05	260.66	478.04	0.00	0.00	0.00	0.00	
7,754.31	90.32	179.23	7,379.00	-315.43	485.74	10.00	10.00	19.84	179.23	
14,241.86	90.32	179.23	7,343.00	-6,802.30	572.47	0.00	0.00	0.00	0.00	PBHL_DCP 37C-17H

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well DCP 37C-17HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Site:	DCP 10-8HZ PAD	North Reference:	True
Well:	DCP 37C-17HZ	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	
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	
851.00	0.00	0.00	851.00	0.00	0.00	0.00	0.00	0.00	0.00	
Fox Hills										
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
937.00	0.00	0.00	937.00	0.00	0.00	0.00	0.00	0.00	0.00	
9 5/8"										
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	
1,237.00	0.00	0.00	1,237.00	0.00	0.00	0.00	0.00	0.00	0.00	
Start Build 2.00										
1,300.00	1.26	61.40	1,299.99	0.33	0.61	-0.28	2.00	2.00	0.00	
1,400.00	3.26	61.40	1,399.91	2.22	4.07	-1.87	2.00	2.00	0.00	
1,500.00	5.26	61.40	1,499.63	5.78	10.59	-4.87	2.00	2.00	0.00	
1,600.00	7.26	61.40	1,599.03	11.00	20.16	-9.27	2.00	2.00	0.00	
1,700.00	9.26	61.40	1,697.99	17.87	32.78	-15.06	2.00	2.00	0.00	
1,736.85	10.00	61.40	1,734.32	20.82	38.19	-17.55	2.00	2.00	0.00	
Start 2635.38 hold at 1736.85 MD										
1,800.00	10.00	61.40	1,796.51	26.07	47.81	-21.97	0.00	0.00	0.00	
1,900.00	10.00	61.40	1,894.99	34.38	63.05	-28.97	0.00	0.00	0.00	
2,000.00	10.00	61.40	1,993.47	42.69	78.30	-35.98	0.00	0.00	0.00	
2,100.00	10.00	61.40	2,091.95	51.00	93.54	-42.98	0.00	0.00	0.00	
2,200.00	10.00	61.40	2,190.44	59.31	108.78	-49.98	0.00	0.00	0.00	
2,300.00	10.00	61.40	2,288.92	67.62	124.02	-56.98	0.00	0.00	0.00	
2,400.00	10.00	61.40	2,387.40	75.93	139.26	-63.99	0.00	0.00	0.00	
2,500.00	10.00	61.40	2,485.88	84.24	154.50	-70.99	0.00	0.00	0.00	
2,600.00	10.00	61.40	2,584.36	92.56	169.74	-77.99	0.00	0.00	0.00	
2,700.00	10.00	61.40	2,682.84	100.87	184.98	-85.00	0.00	0.00	0.00	
2,800.00	10.00	61.40	2,781.33	109.18	200.23	-92.00	0.00	0.00	0.00	
2,900.00	10.00	61.40	2,879.81	117.49	215.47	-99.00	0.00	0.00	0.00	
3,000.00	10.00	61.40	2,978.29	125.80	230.71	-106.01	0.00	0.00	0.00	
3,100.00	10.00	61.40	3,076.77	134.11	245.95	-113.01	0.00	0.00	0.00	
3,200.00	10.00	61.40	3,175.25	142.42	261.19	-120.01	0.00	0.00	0.00	
3,300.00	10.00	61.40	3,273.73	150.73	276.43	-127.02	0.00	0.00	0.00	
3,400.00	10.00	61.40	3,372.22	159.04	291.67	-134.02	0.00	0.00	0.00	
3,500.00	10.00	61.40	3,470.70	167.35	306.91	-141.02	0.00	0.00	0.00	
3,600.00	10.00	61.40	3,569.18	175.66	322.15	-148.03	0.00	0.00	0.00	
3,700.00	10.00	61.40	3,667.66	183.97	337.40	-155.03	0.00	0.00	0.00	
3,800.00	10.00	61.40	3,766.14	192.28	352.64	-162.03	0.00	0.00	0.00	
3,889.21	10.00	61.40	3,854.00	199.70	366.23	-168.28	0.00	0.00	0.00	
Parkman										
3,900.00	10.00	61.40	3,864.62	200.59	367.88	-169.03	0.00	0.00	0.00	
4,000.00	10.00	61.40	3,963.11	208.90	383.12	-176.04	0.00	0.00	0.00	
4,100.00	10.00	61.40	4,061.59	217.21	398.36	-183.04	0.00	0.00	0.00	
4,200.00	10.00	61.40	4,160.07	225.52	413.60	-190.04	0.00	0.00	0.00	
4,300.00	10.00	61.40	4,258.55	233.83	428.84	-197.05	0.00	0.00	0.00	

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well DCP 37C-17HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Site:	DCP 10-8HZ PAD	North Reference:	True
Well:	DCP 37C-17HZ	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)	
4,372.23	10.00	61.40	4,329.68	239.84	439.85	-202.11	0.00	0.00	0.00	
Start Drop -2.00										
4,400.00	9.44	61.40	4,357.06	242.08	443.97	-204.00	2.00	-2.00	0.00	
4,464.71	8.15	61.40	4,421.00	246.82	452.65	-207.99	2.00	-2.00	0.00	
Sussex										
4,500.00	7.44	61.40	4,455.97	249.11	456.86	-209.92	2.00	-2.00	0.00	
4,600.00	5.44	61.40	4,555.33	254.48	466.71	-214.44	2.00	-2.00	0.00	
4,700.00	3.44	61.40	4,655.03	258.19	473.50	-217.57	2.00	-2.00	0.00	
4,800.00	1.44	61.40	4,754.93	260.23	477.24	-219.29	2.00	-2.00	0.00	
4,872.08	0.00	0.00	4,827.00	260.66	478.04	-219.65	2.00	-2.00	0.00	
Start 1979.05 hold at 4872.08 MD										
4,900.00	0.00	0.00	4,854.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,954.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,054.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,154.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,254.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,354.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,454.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,554.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,654.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,754.92	260.66	478.04	-219.65	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,854.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,954.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,054.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,154.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,254.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,354.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,454.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,554.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,654.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,754.92	260.66	478.04	-219.65	0.00	0.00	0.00	
6,851.13	0.00	0.00	6,806.05	260.66	478.04	-219.65	0.00	0.00	0.00	
Start DLS 10.00 TFO 179.23										
6,900.00	4.89	179.23	6,854.86	258.58	478.07	-217.57	10.00	10.00	0.00	
7,000.00	14.89	179.23	6,953.25	241.43	478.30	-200.47	10.00	10.00	0.00	
7,086.66	23.55	179.23	7,035.00	212.93	478.68	-172.04	10.00	10.00	0.00	
Sharon Springs										
7,100.00	24.89	179.23	7,047.17	207.46	478.75	-166.58	10.00	10.00	0.00	
7,142.47	29.13	179.23	7,085.00	188.18	479.01	-147.34	10.00	10.00	0.00	
Niobrara A										
7,200.00	34.89	179.23	7,133.76	157.70	479.42	-116.94	10.00	10.00	0.00	
7,207.64	35.65	179.23	7,140.00	153.28	479.48	-112.53	10.00	10.00	0.00	
Niobrara B										
7,300.00	44.89	179.23	7,210.39	93.66	480.27	-53.05	10.00	10.00	0.00	
7,318.08	46.70	179.23	7,223.00	80.70	480.45	-40.12	10.00	10.00	0.00	
Niobrara C										
7,400.00	54.89	179.23	7,274.74	17.28	481.29	23.14	10.00	10.00	0.00	
7,500.00	64.89	179.23	7,324.85	-69.10	482.45	109.32	10.00	10.00	0.00	
7,584.68	73.36	179.23	7,355.00	-148.14	483.51	188.17	10.00	10.00	0.00	
Fort Hays										
7,600.00	74.89	179.23	7,359.19	-162.88	483.70	202.87	10.00	10.00	0.00	
7,700.00	84.89	179.23	7,376.73	-261.19	485.02	300.95	10.00	10.00	0.00	
7,703.15	85.20	179.23	7,377.00	-264.33	485.06	304.07	10.00	10.00	0.00	

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well DCP 37C-17HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Site:	DCP 10-8HZ PAD	North Reference:	True
Well:	DCP 37C-17HZ	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)
Codell									
7,754.31	90.32	179.23	7,379.00	-315.43	485.74	355.05	10.00	10.00	0.00
Start 6487.56 hold at 7754.31 MD - 7"(1671' FSL 1525' FEL)									
7,800.00	90.32	179.23	7,378.75	-361.11	486.35	400.63	0.00	0.00	0.00
7,900.00	90.32	179.23	7,378.19	-461.10	487.69	500.38	0.00	0.00	0.00
8,000.00	90.32	179.23	7,377.64	-561.09	489.03	600.13	0.00	0.00	0.00
8,100.00	90.32	179.23	7,377.08	-661.08	490.36	699.88	0.00	0.00	0.00
8,200.00	90.32	179.23	7,376.53	-761.07	491.70	799.63	0.00	0.00	0.00
8,300.00	90.32	179.23	7,375.97	-861.06	493.04	899.38	0.00	0.00	0.00
8,400.00	90.32	179.23	7,375.42	-961.05	494.37	999.12	0.00	0.00	0.00
8,500.00	90.32	179.23	7,374.86	-1,061.04	495.71	1,098.87	0.00	0.00	0.00
8,600.00	90.32	179.23	7,374.31	-1,161.03	497.05	1,198.62	0.00	0.00	0.00
8,700.00	90.32	179.23	7,373.75	-1,261.02	498.39	1,298.37	0.00	0.00	0.00
8,800.00	90.32	179.23	7,373.20	-1,361.01	499.72	1,398.12	0.00	0.00	0.00
8,900.00	90.32	179.23	7,372.64	-1,461.00	501.06	1,497.87	0.00	0.00	0.00
9,000.00	90.32	179.23	7,372.09	-1,560.99	502.40	1,597.62	0.00	0.00	0.00
9,100.00	90.32	179.23	7,371.53	-1,660.98	503.73	1,697.37	0.00	0.00	0.00
9,200.00	90.32	179.23	7,370.98	-1,760.97	505.07	1,797.12	0.00	0.00	0.00
9,300.00	90.32	179.23	7,370.42	-1,860.96	506.41	1,896.87	0.00	0.00	0.00
9,400.00	90.32	179.23	7,369.87	-1,960.95	507.74	1,996.62	0.00	0.00	0.00
9,500.00	90.32	179.23	7,369.31	-2,060.94	509.08	2,096.37	0.00	0.00	0.00
9,600.00	90.32	179.23	7,368.76	-2,160.92	510.42	2,196.12	0.00	0.00	0.00
9,700.00	90.32	179.23	7,368.20	-2,260.91	511.75	2,295.87	0.00	0.00	0.00
9,800.00	90.32	179.23	7,367.65	-2,360.90	513.09	2,395.62	0.00	0.00	0.00
9,900.00	90.32	179.23	7,367.09	-2,460.89	514.43	2,495.37	0.00	0.00	0.00
10,000.00	90.32	179.23	7,366.54	-2,560.88	515.77	2,595.12	0.00	0.00	0.00
10,100.00	90.32	179.23	7,365.98	-2,660.87	517.10	2,694.86	0.00	0.00	0.00
10,200.00	90.32	179.23	7,365.43	-2,760.86	518.44	2,794.61	0.00	0.00	0.00
10,300.00	90.32	179.23	7,364.87	-2,860.85	519.78	2,894.36	0.00	0.00	0.00
10,400.00	90.32	179.23	7,364.32	-2,960.84	521.11	2,994.11	0.00	0.00	0.00
10,500.00	90.32	179.23	7,363.76	-3,060.83	522.45	3,093.86	0.00	0.00	0.00
10,600.00	90.32	179.23	7,363.21	-3,160.82	523.79	3,193.61	0.00	0.00	0.00
10,700.00	90.32	179.23	7,362.65	-3,260.81	525.12	3,293.36	0.00	0.00	0.00
10,800.00	90.32	179.23	7,362.10	-3,360.80	526.46	3,393.11	0.00	0.00	0.00
10,900.00	90.32	179.23	7,361.54	-3,460.79	527.80	3,492.86	0.00	0.00	0.00
11,000.00	90.32	179.23	7,360.99	-3,560.78	529.13	3,592.61	0.00	0.00	0.00
11,100.00	90.32	179.23	7,360.43	-3,660.77	530.47	3,692.36	0.00	0.00	0.00
11,200.00	90.32	179.23	7,359.88	-3,760.76	531.81	3,792.11	0.00	0.00	0.00
11,300.00	90.32	179.23	7,359.32	-3,860.75	533.14	3,891.86	0.00	0.00	0.00
11,400.00	90.32	179.23	7,358.77	-3,960.74	534.48	3,991.61	0.00	0.00	0.00
11,500.00	90.32	179.23	7,358.21	-4,060.73	535.82	4,091.36	0.00	0.00	0.00
11,600.00	90.32	179.23	7,357.66	-4,160.72	537.16	4,191.11	0.00	0.00	0.00
11,700.00	90.32	179.23	7,357.10	-4,260.70	538.49	4,290.86	0.00	0.00	0.00
11,800.00	90.32	179.23	7,356.55	-4,360.69	539.83	4,390.60	0.00	0.00	0.00
11,900.00	90.32	179.23	7,355.99	-4,460.68	541.17	4,490.35	0.00	0.00	0.00
12,000.00	90.32	179.23	7,355.44	-4,560.67	542.50	4,590.10	0.00	0.00	0.00
12,100.00	90.32	179.23	7,354.89	-4,660.66	543.84	4,689.85	0.00	0.00	0.00
12,200.00	90.32	179.23	7,354.33	-4,760.65	545.18	4,789.60	0.00	0.00	0.00
12,300.00	90.32	179.23	7,353.78	-4,860.64	546.51	4,889.35	0.00	0.00	0.00
12,400.00	90.32	179.23	7,353.22	-4,960.63	547.85	4,989.10	0.00	0.00	0.00
12,500.00	90.32	179.23	7,352.67	-5,060.62	549.19	5,088.85	0.00	0.00	0.00
12,600.00	90.32	179.23	7,352.11	-5,160.61	550.52	5,188.60	0.00	0.00	0.00
12,700.00	90.32	179.23	7,351.56	-5,260.60	551.86	5,288.35	0.00	0.00	0.00
12,800.00	90.32	179.23	7,351.00	-5,360.59	553.20	5,388.10	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well DCP 37C-17HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Site:	DCP 10-8HZ PAD	North Reference:	True
Well:	DCP 37C-17HZ	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)
12,900.00	90.32	179.23	7,350.45	-5,460.58	554.54	5,487.85	0.00	0.00	0.00
13,000.00	90.32	179.23	7,349.89	-5,560.57	555.87	5,587.60	0.00	0.00	0.00
13,100.00	90.32	179.23	7,349.34	-5,660.56	557.21	5,687.35	0.00	0.00	0.00
13,200.00	90.32	179.23	7,348.78	-5,760.55	558.55	5,787.10	0.00	0.00	0.00
13,300.00	90.32	179.23	7,348.23	-5,860.54	559.88	5,886.85	0.00	0.00	0.00
13,400.00	90.32	179.23	7,347.67	-5,960.53	561.22	5,986.60	0.00	0.00	0.00
13,500.00	90.32	179.23	7,347.12	-6,060.52	562.56	6,086.34	0.00	0.00	0.00
13,600.00	90.32	179.23	7,346.56	-6,160.51	563.89	6,186.09	0.00	0.00	0.00
13,700.00	90.32	179.23	7,346.01	-6,260.50	565.23	6,285.84	0.00	0.00	0.00
13,800.00	90.32	179.23	7,345.45	-6,360.48	566.57	6,385.59	0.00	0.00	0.00
13,900.00	90.32	179.23	7,344.90	-6,460.47	567.90	6,485.34	0.00	0.00	0.00
14,000.00	90.32	179.23	7,344.34	-6,560.46	569.24	6,585.09	0.00	0.00	0.00
14,100.00	90.32	179.23	7,343.79	-6,660.45	570.58	6,684.84	0.00	0.00	0.00
14,200.00	90.32	179.23	7,343.23	-6,760.44	571.91	6,784.59	0.00	0.00	0.00
14,241.86	90.32	179.23	7,343.00	-6,802.30	572.47	6,826.35	0.00	0.00	0.00
PBHL_DCP 37C-17HZ(460' FSL 1525' FEL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_DCP 37C-17HZ(460' FSL 1525' FEL) - hit/miss target - Shape - Point	0.00	0.00	7,343.00	-6,802.30	572.47	1,323,337.75	3,196,247.23	40.2188250	-104.7972390

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
937.00	937.00	9 5/8"	9.625	12.250	
7,754.31	7,379.00	7"(1671' FSL 1525' FEL)	7.000	7.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
851.00	851.00	Fox Hills			
3,889.21	3,854.00	Parkman			
4,464.71	4,421.00	Sussex			
7,086.66	7,035.00	Sharon Springs			
7,142.47	7,085.00	Niobrara A			
7,207.64	7,140.00	Niobrara B			
7,318.08	7,223.00	Niobrara C			
7,584.68	7,355.00	Fort Hays			
7,703.15	7,377.00	Codell			

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well DCP 37C-17HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4868 & KB 17 @ 4885.00ft (ASSUMED)
Site:	DCP 10-8HZ PAD	North Reference:	True
Well:	DCP 37C-17HZ	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)	
1,237.00	1,237.00	0.00	0.00	Start Build 2.00
1,736.85	1,734.32	20.82	38.19	Start 2635.38 hold at 1736.85 MD
4,372.23	4,329.68	239.84	439.85	Start Drop -2.00
4,872.08	4,827.00	260.66	478.04	Start 1979.05 hold at 4872.08 MD
6,851.13	6,806.05	260.66	478.04	Start DLS 10.00 TFO 179.23
7,754.31	7,379.00	-315.43	485.74	Start 6487.56 hold at 7754.31 MD
14,241.87	7,343.00	-6,802.30	572.47	TD at 14241.87