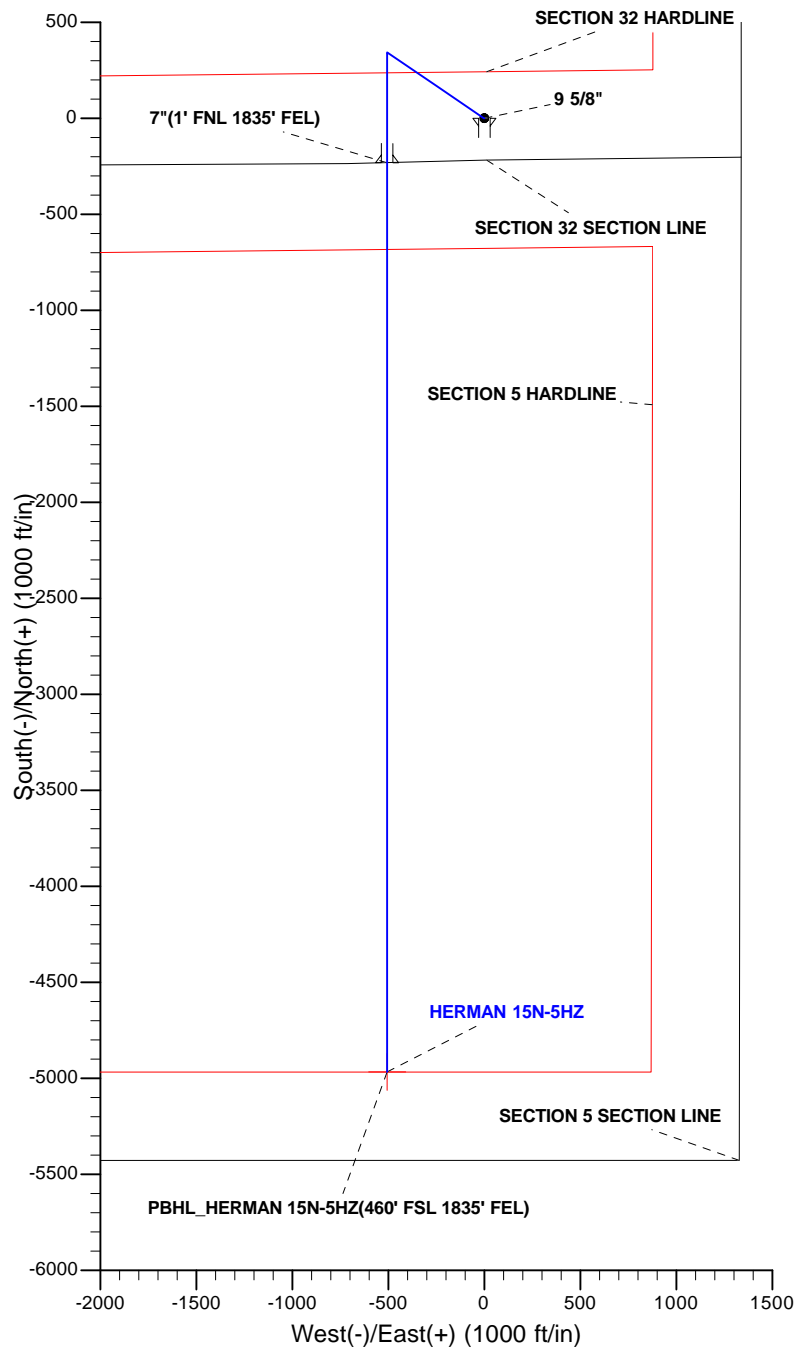
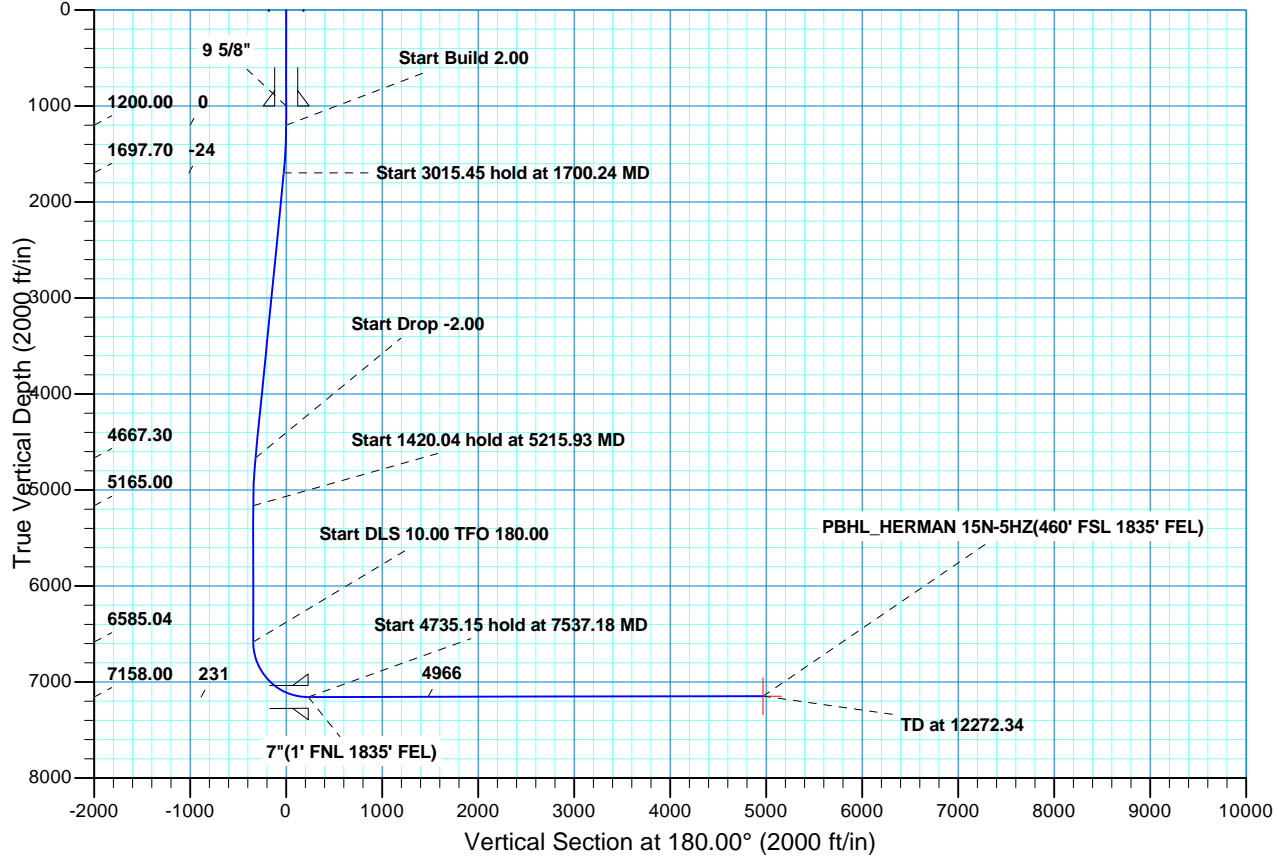


WELL DETAILS: HERMAN 15N-5HZ									
GL 4871' & KB 17' @ 4888.00ft (ASSUMED)									
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude				
0.00	0.00	1307281.73	3196603.62	40.1747429	-104.7964190				
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
1700.24	10.00	304.16	1697.70	24.46	-36.05	2.00	304.16	-24.46	
4715.69	10.00	304.16	4667.30	318.61	-469.55	0.00	0.00	-318.61	
5215.93	0.00	0.00	5165.00	343.07	-505.60	2.00	180.00	-343.07	
6635.97	0.00	0.00	6585.04	343.07	-505.60	0.00	0.00	-343.07	
7537.18	90.12	180.00	7158.00	-231.10	-505.60	10.00	180.00	231.10	
12272.33	90.12	180.00	7148.00	-4966.24	-505.60	0.00	0.00	4966.24	PBHL_HERMAN 15N-5HZ(460' FSL 1835' FEL)
FORMATION TOP DETAILS					CASING DETAILS				
TVDPath	MDPath	Formation	Inc	TVD	MD	Name	Size		
706.00	706.00	Fox Hills	0.00	1000.00	1000.00	9 5/8"	9.625		
4024.00	4062.46	Parkman	10.00	7158.00	7537.18	7"	7.000		
4413.00	4457.47	Sussex	10.00						
7025.00	7137.61	Sharon Springs	50.16						
7103.00	7282.88	Niobrara A	64.69						
7126.00	7343.58	Niobrara B	70.76						





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

HERMAN 37N-5HZ PAD

HERMAN 15N-5HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

15 April, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well HERMAN 15N-5HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Site:	HERMAN 37N-5HZ PAD	North Reference:	True
Well:	HERMAN 15N-5HZ	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	HERMAN 37N-5HZ PAD, SECTION 32 T3N R66W				
Site Position:	Northing:	1,307,281.91 usft	Latitude:	40.1747440	
From:	Lat/Long	Easting:	3,196,577.63 usft	Longitude:	-104.7965120
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.45 °

Well	HERMAN 15N-5HZ, 217' FSL 1338' FEL					
Well Position	+N/-S	-0.38 ft	Northing:	1,307,281.73 usft	Latitude:	40.1747430
	+E/-W	25.99 ft	Easting:	3,196,603.62 usft	Longitude:	-104.7964190
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,871.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	2013/04/15	8.67	66.77	52,720

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	180.00

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	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.24	10.00	304.16	1,697.70	24.46	-36.05	2.00	2.00	0.00	304.16	
4,715.69	10.00	304.16	4,667.30	318.61	-469.55	0.00	0.00	0.00	0.00	
5,215.93	0.00	0.00	5,165.00	343.07	-505.60	2.00	-2.00	0.00	180.00	
6,635.97	0.00	0.00	6,585.04	343.07	-505.60	0.00	0.00	0.00	0.00	
7,537.18	90.12	180.00	7,158.00	-231.10	-505.60	10.00	10.00	-19.97	180.00	
12,272.33	90.12	180.00	7,148.00	-4,966.24	-505.60	0.00	0.00	0.00	0.00	PBHL_HERMAN 15N

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well HERMAN 15N-5HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Site:	HERMAN 37N-5HZ PAD	North Reference:	True
Well:	HERMAN 15N-5HZ	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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	0.00	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	0.00
500.00	0.00	0.00	500.00	0.00	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	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
706.00	0.00	0.00	706.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills										
800.00	0.00	0.00	800.00	0.00	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	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
1,100.00	0.00	0.00	1,100.00	0.00	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	0.00
Start Build 2.00										
1,300.00	2.00	304.16	1,299.98	0.98	-1.44	-0.98	2.00	2.00	2.00	0.00
1,400.00	4.00	304.16	1,399.84	3.92	-5.77	-3.92	2.00	2.00	2.00	0.00
1,500.00	6.00	304.16	1,499.45	8.81	-12.99	-8.81	2.00	2.00	2.00	0.00
1,600.00	8.00	304.16	1,598.70	15.65	-23.07	-15.65	2.00	2.00	2.00	0.00
1,700.00	10.00	304.16	1,697.47	24.44	-36.01	-24.44	2.00	2.00	2.00	0.00
1,700.24	10.00	304.16	1,697.70	24.46	-36.05	-24.46	2.00	2.00	2.00	0.00
Start 3015.45 hold at 1700.24 MD										
1,800.00	10.00	304.16	1,795.94	34.19	-50.39	-34.19	0.00	0.00	0.00	0.00
1,900.00	10.00	304.16	1,894.42	43.95	-64.77	-43.95	0.00	0.00	0.00	0.00
2,000.00	10.00	304.16	1,992.90	53.70	-79.14	-53.70	0.00	0.00	0.00	0.00
2,100.00	10.00	304.16	2,091.38	63.46	-93.52	-63.46	0.00	0.00	0.00	0.00
2,200.00	10.00	304.16	2,189.86	73.21	-107.89	-73.21	0.00	0.00	0.00	0.00
2,300.00	10.00	304.16	2,288.34	82.97	-122.27	-82.97	0.00	0.00	0.00	0.00
2,400.00	10.00	304.16	2,386.82	92.72	-136.65	-92.72	0.00	0.00	0.00	0.00
2,500.00	10.00	304.16	2,485.30	102.47	-151.02	-102.47	0.00	0.00	0.00	0.00
2,600.00	10.00	304.16	2,583.78	112.23	-165.40	-112.23	0.00	0.00	0.00	0.00
2,700.00	10.00	304.16	2,682.26	121.98	-179.78	-121.98	0.00	0.00	0.00	0.00
2,800.00	10.00	304.16	2,780.74	131.74	-194.15	-131.74	0.00	0.00	0.00	0.00
2,900.00	10.00	304.16	2,879.22	141.49	-208.53	-141.49	0.00	0.00	0.00	0.00
3,000.00	10.00	304.16	2,977.70	151.25	-222.90	-151.25	0.00	0.00	0.00	0.00
3,100.00	10.00	304.16	3,076.18	161.00	-237.28	-161.00	0.00	0.00	0.00	0.00
3,200.00	10.00	304.16	3,174.66	170.76	-251.66	-170.76	0.00	0.00	0.00	0.00
3,300.00	10.00	304.16	3,273.13	180.51	-266.03	-180.51	0.00	0.00	0.00	0.00
3,400.00	10.00	304.16	3,371.61	190.27	-280.41	-190.27	0.00	0.00	0.00	0.00
3,500.00	10.00	304.16	3,470.09	200.02	-294.78	-200.02	0.00	0.00	0.00	0.00
3,600.00	10.00	304.16	3,568.57	209.78	-309.16	-209.78	0.00	0.00	0.00	0.00
3,700.00	10.00	304.16	3,667.05	219.53	-323.54	-219.53	0.00	0.00	0.00	0.00
3,800.00	10.00	304.16	3,765.53	229.29	-337.91	-229.29	0.00	0.00	0.00	0.00
3,900.00	10.00	304.16	3,864.01	239.04	-352.29	-239.04	0.00	0.00	0.00	0.00
4,000.00	10.00	304.16	3,962.49	248.80	-366.66	-248.80	0.00	0.00	0.00	0.00
4,062.46	10.00	304.16	4,024.00	254.89	-375.64	-254.89	0.00	0.00	0.00	0.00
Parkman										
4,100.00	10.00	304.16	4,060.97	258.55	-381.04	-258.55	0.00	0.00	0.00	0.00
4,200.00	10.00	304.16	4,159.45	268.31	-395.42	-268.31	0.00	0.00	0.00	0.00
4,300.00	10.00	304.16	4,257.93	278.06	-409.79	-278.06	0.00	0.00	0.00	0.00
4,400.00	10.00	304.16	4,356.41	287.81	-424.17	-287.81	0.00	0.00	0.00	0.00
4,457.47	10.00	304.16	4,413.00	293.42	-432.43	-293.42	0.00	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well HERMAN 15N-5HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Site:	HERMAN 37N-5HZ PAD	North Reference:	True
Well:	HERMAN 15N-5HZ	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)
Sussex									
4,500.00	10.00	304.16	4,454.89	297.57	-438.54	-297.57	0.00	0.00	0.00
4,600.00	10.00	304.16	4,553.37	307.32	-452.92	-307.32	0.00	0.00	0.00
4,700.00	10.00	304.16	4,651.84	317.08	-467.30	-317.08	0.00	0.00	0.00
4,715.69	10.00	304.16	4,667.30	318.61	-469.55	-318.61	0.00	0.00	0.00
Start Drop -2.00									
4,800.00	8.32	304.16	4,750.53	326.15	-480.66	-326.15	2.00	-2.00	0.00
4,900.00	6.32	304.16	4,849.71	333.30	-491.20	-333.30	2.00	-2.00	0.00
5,000.00	4.32	304.16	4,949.27	338.50	-498.87	-338.50	2.00	-2.00	0.00
5,100.00	2.32	304.16	5,049.10	341.75	-503.66	-341.75	2.00	-2.00	0.00
5,200.00	0.32	304.16	5,149.07	343.05	-505.56	-343.05	2.00	-2.00	0.00
5,215.93	0.00	0.00	5,165.00	343.07	-505.60	-343.07	2.00	-2.00	0.00
Start 1420.04 hold at 5215.93 MD									
5,300.00	0.00	0.00	5,249.07	343.07	-505.60	-343.07	0.00	0.00	0.00
5,400.00	0.00	0.00	5,349.07	343.07	-505.60	-343.07	0.00	0.00	0.00
5,500.00	0.00	0.00	5,449.07	343.07	-505.60	-343.07	0.00	0.00	0.00
5,600.00	0.00	0.00	5,549.07	343.07	-505.60	-343.07	0.00	0.00	0.00
5,700.00	0.00	0.00	5,649.07	343.07	-505.60	-343.07	0.00	0.00	0.00
5,800.00	0.00	0.00	5,749.07	343.07	-505.60	-343.07	0.00	0.00	0.00
5,900.00	0.00	0.00	5,849.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,000.00	0.00	0.00	5,949.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,100.00	0.00	0.00	6,049.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,200.00	0.00	0.00	6,149.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,300.00	0.00	0.00	6,249.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,400.00	0.00	0.00	6,349.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,500.00	0.00	0.00	6,449.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,600.00	0.00	0.00	6,549.07	343.07	-505.60	-343.07	0.00	0.00	0.00
6,635.97	0.00	0.00	6,585.04	343.07	-505.60	-343.07	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
6,700.00	6.40	180.00	6,648.93	339.50	-505.60	-339.50	10.00	10.00	0.00
6,800.00	16.40	180.00	6,746.84	319.75	-505.60	-319.75	10.00	10.00	0.00
6,900.00	26.40	180.00	6,839.82	283.30	-505.60	-283.30	10.00	10.00	0.00
7,000.00	36.40	180.00	6,925.07	231.27	-505.60	-231.27	10.00	10.00	0.00
7,100.00	46.40	180.00	6,999.98	165.22	-505.60	-165.22	10.00	10.00	0.00
7,137.61	50.16	180.00	7,025.00	137.15	-505.60	-137.15	10.00	10.00	0.00
Sharon Springs									
7,200.00	56.40	180.00	7,062.28	87.16	-505.60	-87.16	10.00	10.00	0.00
7,282.88	64.69	180.00	7,103.00	15.06	-505.60	-15.06	10.00	10.00	0.00
Niobrara A									
7,300.00	66.40	180.00	7,110.09	-0.53	-505.60	0.53	10.00	10.00	0.00
7,343.58	70.76	180.00	7,126.00	-41.09	-505.60	41.09	10.00	10.00	0.00
Niobrara B									
7,400.00	76.40	180.00	7,141.94	-95.19	-505.60	95.19	10.00	10.00	0.00
7,500.00	86.40	180.00	7,156.87	-193.94	-505.60	193.94	10.00	10.00	0.00
7,537.18	90.12	180.00	7,158.00	-231.10	-505.60	231.10	10.00	10.00	0.00
Start 4735.15 hold at 7537.18 MD - 7"(1' FNL 1835' FEL)									
7,600.00	90.12	180.00	7,157.86	-293.92	-505.60	293.92	0.00	0.00	0.00
7,700.00	90.12	180.00	7,157.65	-393.92	-505.60	393.92	0.00	0.00	0.00
7,800.00	90.12	180.00	7,157.44	-493.91	-505.60	493.91	0.00	0.00	0.00
7,900.00	90.12	180.00	7,157.23	-593.91	-505.60	593.91	0.00	0.00	0.00
8,000.00	90.12	180.00	7,157.02	-693.91	-505.60	693.91	0.00	0.00	0.00
8,100.00	90.12	180.00	7,156.81	-793.91	-505.60	793.91	0.00	0.00	0.00
8,200.00	90.12	180.00	7,156.60	-893.91	-505.60	893.91	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well HERMAN 15N-5HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Site:	HERMAN 37N-5HZ PAD	North Reference:	True
Well:	HERMAN 15N-5HZ	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)
8,300.00	90.12	180.00	7,156.39	-993.91	-505.60	993.91	0.00	0.00	0.00
8,400.00	90.12	180.00	7,156.18	-1,093.91	-505.60	1,093.91	0.00	0.00	0.00
8,500.00	90.12	180.00	7,155.96	-1,193.91	-505.60	1,193.91	0.00	0.00	0.00
8,600.00	90.12	180.00	7,155.75	-1,293.91	-505.60	1,293.91	0.00	0.00	0.00
8,700.00	90.12	180.00	7,155.54	-1,393.91	-505.60	1,393.91	0.00	0.00	0.00
8,800.00	90.12	180.00	7,155.33	-1,493.91	-505.60	1,493.91	0.00	0.00	0.00
8,900.00	90.12	180.00	7,155.12	-1,593.91	-505.60	1,593.91	0.00	0.00	0.00
9,000.00	90.12	180.00	7,154.91	-1,693.91	-505.60	1,693.91	0.00	0.00	0.00
9,100.00	90.12	180.00	7,154.70	-1,793.91	-505.60	1,793.91	0.00	0.00	0.00
9,200.00	90.12	180.00	7,154.49	-1,893.91	-505.60	1,893.91	0.00	0.00	0.00
9,300.00	90.12	180.00	7,154.28	-1,993.91	-505.60	1,993.91	0.00	0.00	0.00
9,400.00	90.12	180.00	7,154.06	-2,093.91	-505.60	2,093.91	0.00	0.00	0.00
9,500.00	90.12	180.00	7,153.85	-2,193.91	-505.60	2,193.91	0.00	0.00	0.00
9,600.00	90.12	180.00	7,153.64	-2,293.91	-505.60	2,293.91	0.00	0.00	0.00
9,700.00	90.12	180.00	7,153.43	-2,393.91	-505.60	2,393.91	0.00	0.00	0.00
9,800.00	90.12	180.00	7,153.22	-2,493.91	-505.60	2,493.91	0.00	0.00	0.00
9,900.00	90.12	180.00	7,153.01	-2,593.91	-505.60	2,593.91	0.00	0.00	0.00
10,000.00	90.12	180.00	7,152.80	-2,693.91	-505.60	2,693.91	0.00	0.00	0.00
10,100.00	90.12	180.00	7,152.59	-2,793.91	-505.60	2,793.91	0.00	0.00	0.00
10,200.00	90.12	180.00	7,152.38	-2,893.91	-505.60	2,893.91	0.00	0.00	0.00
10,300.00	90.12	180.00	7,152.16	-2,993.91	-505.60	2,993.91	0.00	0.00	0.00
10,400.00	90.12	180.00	7,151.95	-3,093.91	-505.60	3,093.91	0.00	0.00	0.00
10,500.00	90.12	180.00	7,151.74	-3,193.91	-505.60	3,193.91	0.00	0.00	0.00
10,600.00	90.12	180.00	7,151.53	-3,293.91	-505.60	3,293.91	0.00	0.00	0.00
10,700.00	90.12	180.00	7,151.32	-3,393.91	-505.60	3,393.91	0.00	0.00	0.00
10,800.00	90.12	180.00	7,151.11	-3,493.91	-505.60	3,493.91	0.00	0.00	0.00
10,900.00	90.12	180.00	7,150.90	-3,593.91	-505.60	3,593.91	0.00	0.00	0.00
11,000.00	90.12	180.00	7,150.69	-3,693.91	-505.60	3,693.91	0.00	0.00	0.00
11,100.00	90.12	180.00	7,150.48	-3,793.91	-505.60	3,793.91	0.00	0.00	0.00
11,200.00	90.12	180.00	7,150.26	-3,893.91	-505.60	3,893.91	0.00	0.00	0.00
11,300.00	90.12	180.00	7,150.05	-3,993.91	-505.60	3,993.91	0.00	0.00	0.00
11,400.00	90.12	180.00	7,149.84	-4,093.91	-505.60	4,093.91	0.00	0.00	0.00
11,500.00	90.12	180.00	7,149.63	-4,193.91	-505.60	4,193.91	0.00	0.00	0.00
11,600.00	90.12	180.00	7,149.42	-4,293.91	-505.60	4,293.91	0.00	0.00	0.00
11,700.00	90.12	180.00	7,149.21	-4,393.91	-505.60	4,393.91	0.00	0.00	0.00
11,800.00	90.12	180.00	7,149.00	-4,493.91	-505.60	4,493.91	0.00	0.00	0.00
11,900.00	90.12	180.00	7,148.79	-4,593.91	-505.60	4,593.91	0.00	0.00	0.00
12,000.00	90.12	180.00	7,148.58	-4,693.91	-505.60	4,693.91	0.00	0.00	0.00
12,100.00	90.12	180.00	7,148.36	-4,793.91	-505.60	4,793.91	0.00	0.00	0.00
12,200.00	90.12	180.00	7,148.15	-4,893.91	-505.60	4,893.91	0.00	0.00	0.00
12,272.33	90.12	180.00	7,148.00	-4,966.24	-505.60	4,966.24	0.00	0.00	0.00
PBHL_HERMAN 15N-5HZ(460' FSL 1835' FEL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_HERMAN 15N-5H - hit/miss target - Shape - Point	0.00	0.00	7,148.00	-4,966.24	-505.60	1,302,311.65	3,196,137.44	40.1611100	-104.7982280

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well HERMAN 15N-5HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4871' & KB 17' @ 4888.00ft (ASSUMED)
Site:	HERMAN 37N-5HZ PAD	North Reference:	True
Well:	HERMAN 15N-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	1,000.00	9 5/8"	9.625	12.250	
7,537.18	7,158.00	7"(1' FNL 1835' FEL)	7.000	7.500	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
706.00	706.00	Fox Hills			
4,062.46	4,024.00	Parkman			
4,457.47	4,413.00	Sussex			
7,137.61	7,025.00	Sharon Springs			
7,282.88	7,103.00	Niobrara A			
7,343.58	7,126.00	Niobrara B			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,200.00	1,200.00	0.00	0.00	Start Build 2.00	
1,700.24	1,697.70	24.46	-36.05	Start 3015.45 hold at 1700.24 MD	
4,715.69	4,667.30	318.61	-469.55	Start Drop -2.00	
5,215.93	5,165.00	343.07	-505.60	Start 1420.04 hold at 5215.93 MD	
6,635.97	6,585.04	343.07	-505.60	Start DLS 10.00 TFO 180.00	
7,537.18	7,158.00	-231.10	-505.60	Start 4735.15 hold at 7537.18 MD	
12,272.34	7,148.00	-4,966.24	-505.60	TD at 12272.34	