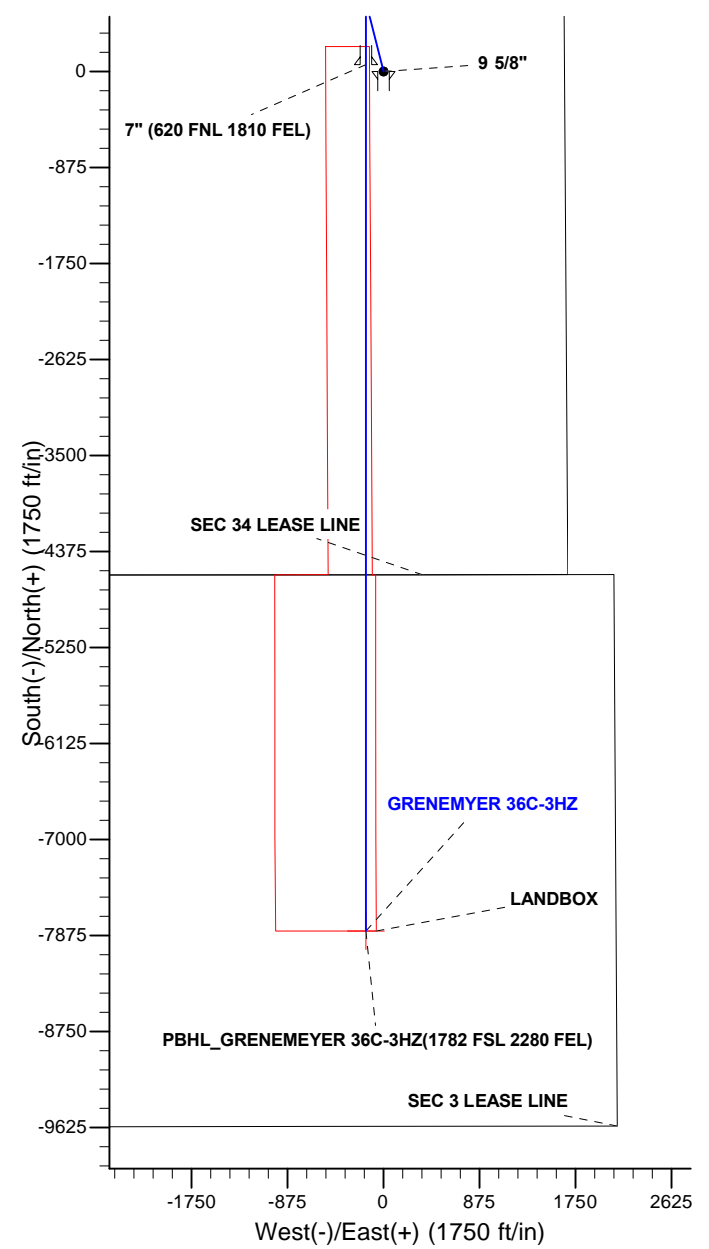
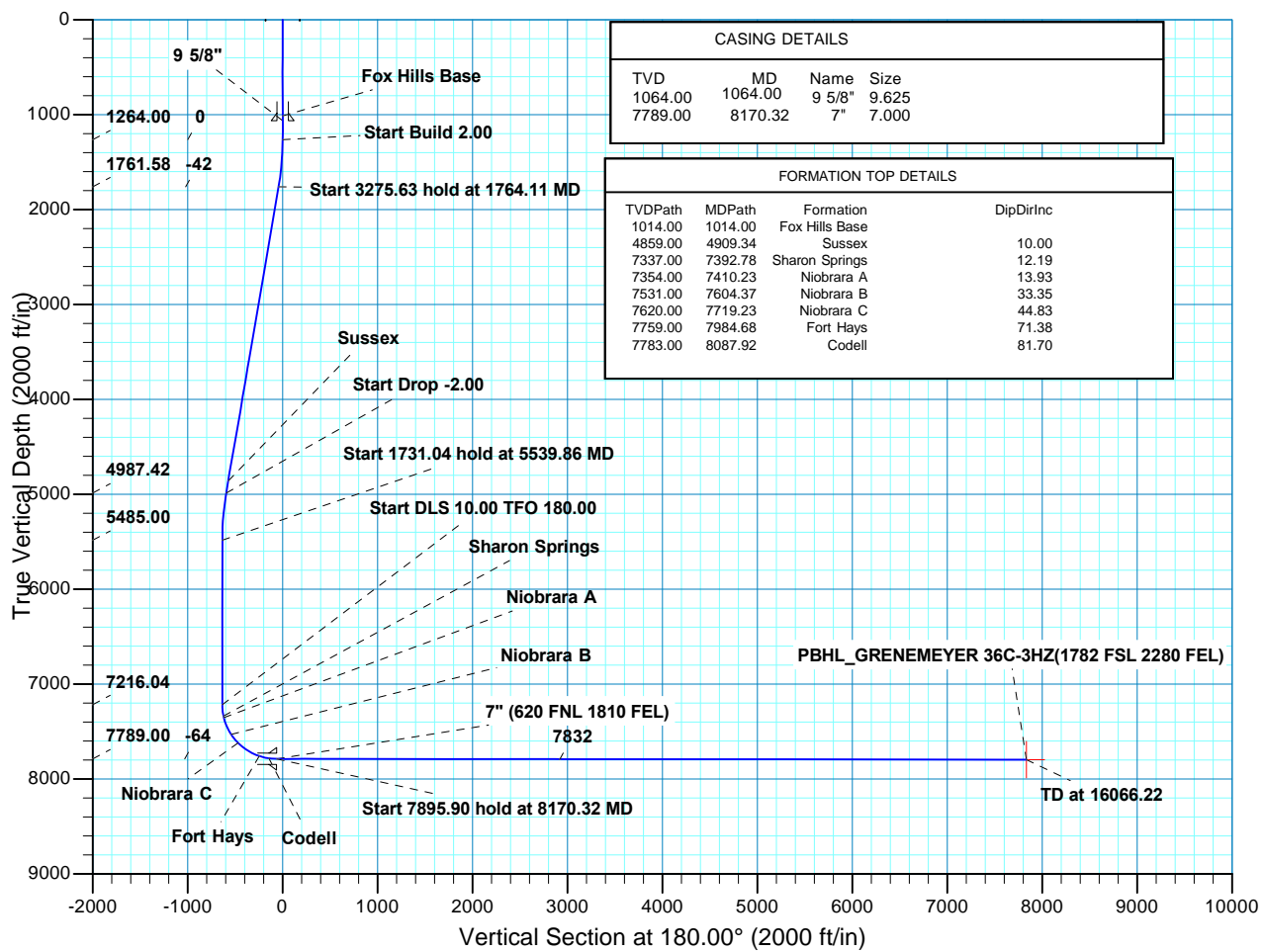


WELL DETAILS: GRENNEMYER 36C-3HZ									
GL 5052 & KB 17 @ 5069.00ft (ASSUMED)									
		+N/-S	+E/-W	Northing		Easting		Latitude	Longitude
		0.00	0.00	1248189.26		3175594.84		40.0129620	-104.8730950
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1264.00	0.00	0.00	1264.00	0.00	0.00	0.00	0.00	0.00	
1764.11	10.00	345.81	1761.58	42.21	-10.67	2.00	345.81	-42.21	
5039.75	10.00	345.81	4987.42	593.79	-150.15	0.00	0.00	-593.79	
5539.86	0.00	0.00	5485.00	636.00	-160.83	2.00	180.00	-636.00	
5539.86	0.00	0.00	5485.00	636.00	-160.83	0.00	0.00	-636.00	
7270.90	0.00	0.00	7216.04	636.00	-160.83	0.00	0.00	-636.00	
8170.32	89.94	180.00	7789.00	63.62	-160.83	10.00	180.00	-63.62	
16066.22	89.94	180.00	7797.00	-7832.27	-160.83	0.00	0.007832.27	PBHL_GRENNEMYER 36C-3HZ(1782 FSL 2280 FEL)	
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL	7797.00	-7832.27	-160.83	1240356.06	3175489.39	39.9914610	-104.8736690	Point	
- plan hits target center									





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

GRENNEMYER 2-34HZ PAD

GRENNEMYER 36C-3HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

26 August, 2013

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well GRENEMYER 36C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Site:	GRENEMYER 2-34HZ PAD	North Reference:	True
Well:	GRENEMYER 36C-3HZ	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	GRENEMYER 2-34HZ PAD, NWNE SEC 34 T1N R67W			
Site Position:		Northing:	1,248,189.25 usft	Latitude: 40.0129620
From:	Lat/Long	Easting:	3,175,594.84 usft	Longitude: -104.8730950
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.41 °

Well	GRENEMYER 36C-3HZ, 689 FNL 1650 FEL			
Well Position	+N/-S	0.00 ft	Northing:	1,248,189.25 usft
	+E/-W	0.00 ft	Easting:	3,175,594.84 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 5,052.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	2013/08/23	8.63	66.64	52,612

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	181.18

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	
1,264.00	0.00	0.00	1,264.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,764.11	10.00	345.81	1,761.58	42.21	-10.67	2.00	2.00	0.00	345.81	
5,039.75	10.00	345.81	4,987.42	593.79	-150.15	0.00	0.00	0.00	0.00	
5,539.86	0.00	0.00	5,485.00	636.00	-160.83	2.00	-2.00	0.00	180.00	
5,539.86	0.00	0.00	5,485.00	636.00	-160.83	0.00	0.00	0.00	0.00	
7,270.90	0.00	0.00	7,216.04	636.00	-160.83	0.00	0.00	0.00	0.00	
8,170.32	89.94	180.00	7,789.00	63.62	-160.83	10.00	10.00	20.01	180.00	
16,066.22	89.94	180.00	7,797.00	-7,832.27	-160.83	0.00	0.00	0.00	0.00	PBHL_GRENEMEYE

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well GRENEMYER 36C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Site:	GRENEMYER 2-34HZ PAD	North Reference:	True
Well:	GRENEMYER 36C-3HZ	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
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
1,014.00	0.00	0.00	1,014.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base									
1,064.00	0.00	0.00	1,064.00	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
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,264.00	0.00	0.00	1,264.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,300.00	0.72	345.81	1,300.00	0.22	-0.06	-0.22	2.00	2.00	0.00
1,400.00	2.72	345.81	1,399.95	3.13	-0.79	-3.11	2.00	2.00	0.00
1,500.00	4.72	345.81	1,499.73	9.42	-2.38	-9.37	2.00	2.00	0.00
1,600.00	6.72	345.81	1,599.23	19.08	-4.83	-18.98	2.00	2.00	0.00
1,700.00	8.72	345.81	1,698.32	32.10	-8.12	-31.93	2.00	2.00	0.00
1,764.11	10.00	345.81	1,761.58	42.21	-10.67	-41.99	2.00	2.00	0.00
Start 3275.63 hold at 1764.11 MD									
1,800.00	10.00	345.81	1,796.92	48.26	-12.20	-48.00	0.00	0.00	0.00
1,900.00	10.00	345.81	1,895.40	65.10	-16.46	-64.74	0.00	0.00	0.00
2,000.00	10.00	345.81	1,993.88	81.93	-20.72	-81.49	0.00	0.00	0.00
2,100.00	10.00	345.81	2,092.36	98.77	-24.98	-98.24	0.00	0.00	0.00
2,200.00	10.00	345.81	2,190.84	115.61	-29.24	-114.99	0.00	0.00	0.00
2,300.00	10.00	345.81	2,289.32	132.45	-33.49	-131.73	0.00	0.00	0.00
2,400.00	10.00	345.81	2,387.80	149.29	-37.75	-148.48	0.00	0.00	0.00
2,500.00	10.00	345.81	2,486.28	166.13	-42.01	-165.23	0.00	0.00	0.00
2,600.00	10.00	345.81	2,584.76	182.97	-46.27	-181.98	0.00	0.00	0.00
2,700.00	10.00	345.81	2,683.24	199.80	-50.53	-198.73	0.00	0.00	0.00
2,800.00	10.00	345.81	2,781.72	216.64	-54.78	-215.47	0.00	0.00	0.00
2,900.00	10.00	345.81	2,880.20	233.48	-59.04	-232.22	0.00	0.00	0.00
3,000.00	10.00	345.81	2,978.68	250.32	-63.30	-248.97	0.00	0.00	0.00
3,100.00	10.00	345.81	3,077.16	267.16	-67.56	-265.72	0.00	0.00	0.00
3,200.00	10.00	345.81	3,175.64	284.00	-71.82	-282.46	0.00	0.00	0.00
3,300.00	10.00	345.81	3,274.12	300.84	-76.07	-299.21	0.00	0.00	0.00
3,400.00	10.00	345.81	3,372.60	317.68	-80.33	-315.96	0.00	0.00	0.00
3,500.00	10.00	345.81	3,471.08	334.51	-84.59	-332.71	0.00	0.00	0.00
3,600.00	10.00	345.81	3,569.56	351.35	-88.85	-349.45	0.00	0.00	0.00
3,700.00	10.00	345.81	3,668.04	368.19	-93.11	-366.20	0.00	0.00	0.00
3,800.00	10.00	345.81	3,766.52	385.03	-97.36	-382.95	0.00	0.00	0.00
3,900.00	10.00	345.81	3,865.00	401.87	-101.62	-399.70	0.00	0.00	0.00
4,000.00	10.00	345.81	3,963.48	418.71	-105.88	-416.45	0.00	0.00	0.00
4,100.00	10.00	345.81	4,061.96	435.55	-110.14	-433.19	0.00	0.00	0.00
4,200.00	10.00	345.81	4,160.44	452.38	-114.40	-449.94	0.00	0.00	0.00
4,300.00	10.00	345.81	4,258.92	469.22	-118.65	-466.69	0.00	0.00	0.00
4,400.00	10.00	345.81	4,357.40	486.06	-122.91	-483.44	0.00	0.00	0.00
4,500.00	10.00	345.81	4,455.88	502.90	-127.17	-500.18	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well GRENEMYER 36C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Site:	GRENEMYER 2-34HZ PAD	North Reference:	True
Well:	GRENEMYER 36C-3HZ	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)
4,600.00	10.00	345.81	4,554.36	519.74	-131.43	-516.93	0.00	0.00	0.00
4,700.00	10.00	345.81	4,652.84	536.58	-135.69	-533.68	0.00	0.00	0.00
4,800.00	10.00	345.81	4,751.32	553.42	-139.95	-550.43	0.00	0.00	0.00
4,900.00	10.00	345.81	4,849.80	570.26	-144.20	-567.17	0.00	0.00	0.00
4,909.34	10.00	345.81	4,859.00	571.83	-144.60	-568.74	0.00	0.00	0.00
Sussex									
5,000.00	10.00	345.81	4,948.28	587.09	-148.46	-583.92	0.00	0.00	0.00
5,039.75	10.00	345.81	4,987.42	593.79	-150.15	-590.58	0.00	0.00	0.00
Start Drop -2.00									
5,100.00	8.80	345.81	5,046.87	603.33	-152.57	-600.07	2.00	-2.00	0.00
5,200.00	6.80	345.81	5,145.94	616.48	-155.89	-613.15	2.00	-2.00	0.00
5,300.00	4.80	345.81	5,245.42	626.27	-158.37	-622.89	2.00	-2.00	0.00
5,400.00	2.80	345.81	5,345.20	632.69	-159.99	-629.27	2.00	-2.00	0.00
5,500.00	0.80	345.81	5,445.14	635.73	-160.76	-632.30	2.00	-2.00	0.00
5,539.86	0.00	0.00	5,485.00	636.00	-160.83	-632.56	2.00	-2.00	0.00
Start 1731.04 hold at 5539.86 MD									
5,600.00	0.00	0.00	5,545.14	636.00	-160.83	-632.56	0.00	0.00	0.00
5,700.00	0.00	0.00	5,645.14	636.00	-160.83	-632.56	0.00	0.00	0.00
5,800.00	0.00	0.00	5,745.14	636.00	-160.83	-632.56	0.00	0.00	0.00
5,900.00	0.00	0.00	5,845.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,000.00	0.00	0.00	5,945.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,100.00	0.00	0.00	6,045.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,200.00	0.00	0.00	6,145.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,300.00	0.00	0.00	6,245.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,400.00	0.00	0.00	6,345.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,500.00	0.00	0.00	6,445.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,600.00	0.00	0.00	6,545.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,700.00	0.00	0.00	6,645.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,800.00	0.00	0.00	6,745.14	636.00	-160.83	-632.56	0.00	0.00	0.00
6,900.00	0.00	0.00	6,845.14	636.00	-160.83	-632.56	0.00	0.00	0.00
7,000.00	0.00	0.00	6,945.14	636.00	-160.83	-632.56	0.00	0.00	0.00
7,100.00	0.00	0.00	7,045.14	636.00	-160.83	-632.56	0.00	0.00	0.00
7,200.00	0.00	0.00	7,145.14	636.00	-160.83	-632.56	0.00	0.00	0.00
7,270.90	0.00	0.00	7,216.04	636.00	-160.83	-632.56	0.00	0.00	0.00
Start DLS 10.00 TFO 180.00									
7,300.00	2.91	180.00	7,245.13	635.26	-160.83	-631.83	10.00	10.00	0.00
7,392.78	12.19	180.00	7,337.00	623.09	-160.83	-619.65	10.00	10.00	0.00
Sharon Springs									
7,400.00	12.91	180.00	7,344.05	621.52	-160.83	-618.08	10.00	10.00	0.00
7,410.23	13.93	180.00	7,354.00	619.14	-160.83	-615.71	10.00	10.00	0.00
Niobrara A									
7,500.00	22.91	180.00	7,439.08	590.80	-160.83	-587.38	10.00	10.00	0.00
7,600.00	32.91	180.00	7,527.34	544.05	-160.83	-540.64	10.00	10.00	0.00
7,604.37	33.35	180.00	7,531.00	541.67	-160.83	-538.25	10.00	10.00	0.00
Niobrara B									
7,700.00	42.91	180.00	7,606.14	482.69	-160.83	-479.29	10.00	10.00	0.00
7,719.23	44.83	180.00	7,620.00	469.36	-160.83	-465.96	10.00	10.00	0.00
Niobrara C									
7,800.00	52.91	180.00	7,673.08	408.57	-160.83	-405.19	10.00	10.00	0.00
7,900.00	62.91	180.00	7,726.14	323.96	-160.83	-320.59	10.00	10.00	0.00
7,984.68	71.38	180.00	7,759.00	246.00	-160.83	-242.65	10.00	10.00	0.00
Fort Hays									
8,000.00	72.91	180.00	7,763.70	231.42	-160.83	-228.07	10.00	10.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well GRENEMYER 36C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Site:	GRENEMYER 2-34HZ PAD	North Reference:	True
Well:	GRENEMYER 36C-3HZ	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)
8,087.92	81.70	180.00	7,783.00	145.73	-160.83	-142.40	10.00	10.00	0.00
Codell									
8,100.00	82.91	180.00	7,784.62	133.76	-160.83	-130.43	10.00	10.00	0.00
8,170.32	89.94	180.00	7,789.00	63.62	-160.83	-60.31	10.00	10.00	0.00
Start 7895.90 hold at 8170.32 MD - 7" (620 FNL 1810 FEL)									
8,200.00	89.94	180.00	7,789.03	33.94	-160.83	-30.63	0.00	0.00	0.00
8,300.00	89.94	180.00	7,789.13	-66.06	-160.83	69.35	0.00	0.00	0.00
8,400.00	89.94	180.00	7,789.23	-166.06	-160.83	169.33	0.00	0.00	0.00
8,500.00	89.94	180.00	7,789.33	-266.06	-160.83	269.30	0.00	0.00	0.00
8,600.00	89.94	180.00	7,789.43	-366.06	-160.83	369.28	0.00	0.00	0.00
8,700.00	89.94	180.00	7,789.53	-466.06	-160.83	469.26	0.00	0.00	0.00
8,800.00	89.94	180.00	7,789.64	-566.06	-160.83	569.24	0.00	0.00	0.00
8,900.00	89.94	180.00	7,789.74	-666.06	-160.83	669.22	0.00	0.00	0.00
9,000.00	89.94	180.00	7,789.84	-766.06	-160.83	769.20	0.00	0.00	0.00
9,100.00	89.94	180.00	7,789.94	-866.06	-160.83	869.18	0.00	0.00	0.00
9,200.00	89.94	180.00	7,790.04	-966.06	-160.83	969.16	0.00	0.00	0.00
9,300.00	89.94	180.00	7,790.14	-1,066.06	-160.83	1,069.13	0.00	0.00	0.00
9,400.00	89.94	180.00	7,790.24	-1,166.06	-160.83	1,169.11	0.00	0.00	0.00
9,500.00	89.94	180.00	7,790.35	-1,266.06	-160.83	1,269.09	0.00	0.00	0.00
9,600.00	89.94	180.00	7,790.45	-1,366.06	-160.83	1,369.07	0.00	0.00	0.00
9,700.00	89.94	180.00	7,790.55	-1,466.06	-160.83	1,469.05	0.00	0.00	0.00
9,800.00	89.94	180.00	7,790.65	-1,566.06	-160.83	1,569.03	0.00	0.00	0.00
9,900.00	89.94	180.00	7,790.75	-1,666.06	-160.83	1,669.01	0.00	0.00	0.00
10,000.00	89.94	180.00	7,790.85	-1,766.06	-160.83	1,768.99	0.00	0.00	0.00
10,100.00	89.94	180.00	7,790.95	-1,866.06	-160.83	1,868.97	0.00	0.00	0.00
10,200.00	89.94	180.00	7,791.05	-1,966.06	-160.83	1,968.94	0.00	0.00	0.00
10,300.00	89.94	180.00	7,791.16	-2,066.06	-160.83	2,068.92	0.00	0.00	0.00
10,400.00	89.94	180.00	7,791.26	-2,166.06	-160.83	2,168.90	0.00	0.00	0.00
10,500.00	89.94	180.00	7,791.36	-2,266.06	-160.83	2,268.88	0.00	0.00	0.00
10,600.00	89.94	180.00	7,791.46	-2,366.06	-160.83	2,368.86	0.00	0.00	0.00
10,700.00	89.94	180.00	7,791.56	-2,466.06	-160.83	2,468.84	0.00	0.00	0.00
10,800.00	89.94	180.00	7,791.66	-2,566.06	-160.83	2,568.82	0.00	0.00	0.00
10,900.00	89.94	180.00	7,791.76	-2,666.06	-160.83	2,668.80	0.00	0.00	0.00
11,000.00	89.94	180.00	7,791.87	-2,766.06	-160.83	2,768.78	0.00	0.00	0.00
11,100.00	89.94	180.00	7,791.97	-2,866.06	-160.83	2,868.75	0.00	0.00	0.00
11,200.00	89.94	180.00	7,792.07	-2,966.06	-160.83	2,968.73	0.00	0.00	0.00
11,300.00	89.94	180.00	7,792.17	-3,066.06	-160.83	3,068.71	0.00	0.00	0.00
11,400.00	89.94	180.00	7,792.27	-3,166.06	-160.83	3,168.69	0.00	0.00	0.00
11,500.00	89.94	180.00	7,792.37	-3,266.06	-160.83	3,268.67	0.00	0.00	0.00
11,600.00	89.94	180.00	7,792.47	-3,366.06	-160.83	3,368.65	0.00	0.00	0.00
11,700.00	89.94	180.00	7,792.58	-3,466.06	-160.83	3,468.63	0.00	0.00	0.00
11,800.00	89.94	180.00	7,792.68	-3,566.06	-160.83	3,568.61	0.00	0.00	0.00
11,900.00	89.94	180.00	7,792.78	-3,666.06	-160.83	3,668.59	0.00	0.00	0.00
12,000.00	89.94	180.00	7,792.88	-3,766.06	-160.83	3,768.56	0.00	0.00	0.00
12,100.00	89.94	180.00	7,792.98	-3,866.06	-160.83	3,868.54	0.00	0.00	0.00
12,200.00	89.94	180.00	7,793.08	-3,966.06	-160.83	3,968.52	0.00	0.00	0.00
12,300.00	89.94	180.00	7,793.18	-4,066.06	-160.83	4,068.50	0.00	0.00	0.00
12,400.00	89.94	180.00	7,793.28	-4,166.06	-160.83	4,168.48	0.00	0.00	0.00
12,500.00	89.94	180.00	7,793.39	-4,266.06	-160.83	4,268.46	0.00	0.00	0.00
12,600.00	89.94	180.00	7,793.49	-4,366.06	-160.83	4,368.44	0.00	0.00	0.00
12,700.00	89.94	180.00	7,793.59	-4,466.06	-160.83	4,468.42	0.00	0.00	0.00
12,800.00	89.94	180.00	7,793.69	-4,566.06	-160.83	4,568.40	0.00	0.00	0.00
12,900.00	89.94	180.00	7,793.79	-4,666.06	-160.83	4,668.37	0.00	0.00	0.00

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well GRENEMYER 36C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Site:	GRENEMYER 2-34HZ PAD	North Reference:	True
Well:	GRENEMYER 36C-3HZ	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)	
13,000.00	89.94	180.00	7,793.89	-4,766.06	-160.83	4,768.35	0.00	0.00	0.00	
13,100.00	89.94	180.00	7,793.99	-4,866.06	-160.83	4,868.33	0.00	0.00	0.00	
13,200.00	89.94	180.00	7,794.10	-4,966.06	-160.83	4,968.31	0.00	0.00	0.00	
13,300.00	89.94	180.00	7,794.20	-5,066.06	-160.83	5,068.29	0.00	0.00	0.00	
13,400.00	89.94	180.00	7,794.30	-5,166.06	-160.83	5,168.27	0.00	0.00	0.00	
13,500.00	89.94	180.00	7,794.40	-5,266.06	-160.83	5,268.25	0.00	0.00	0.00	
13,600.00	89.94	180.00	7,794.50	-5,366.06	-160.83	5,368.23	0.00	0.00	0.00	
13,700.00	89.94	180.00	7,794.60	-5,466.06	-160.83	5,468.21	0.00	0.00	0.00	
13,800.00	89.94	180.00	7,794.70	-5,566.06	-160.83	5,568.18	0.00	0.00	0.00	
13,900.00	89.94	180.00	7,794.80	-5,666.06	-160.83	5,668.16	0.00	0.00	0.00	
14,000.00	89.94	180.00	7,794.91	-5,766.06	-160.83	5,768.14	0.00	0.00	0.00	
14,100.00	89.94	180.00	7,795.01	-5,866.06	-160.83	5,868.12	0.00	0.00	0.00	
14,200.00	89.94	180.00	7,795.11	-5,966.06	-160.83	5,968.10	0.00	0.00	0.00	
14,300.00	89.94	180.00	7,795.21	-6,066.06	-160.83	6,068.08	0.00	0.00	0.00	
14,400.00	89.94	180.00	7,795.31	-6,166.06	-160.83	6,168.06	0.00	0.00	0.00	
14,500.00	89.94	180.00	7,795.41	-6,266.06	-160.83	6,268.04	0.00	0.00	0.00	
14,600.00	89.94	180.00	7,795.51	-6,366.06	-160.83	6,368.02	0.00	0.00	0.00	
14,700.00	89.94	180.00	7,795.62	-6,466.06	-160.83	6,467.99	0.00	0.00	0.00	
14,800.00	89.94	180.00	7,795.72	-6,566.06	-160.83	6,567.97	0.00	0.00	0.00	
14,900.00	89.94	180.00	7,795.82	-6,666.06	-160.83	6,667.95	0.00	0.00	0.00	
15,000.00	89.94	180.00	7,795.92	-6,766.06	-160.83	6,767.93	0.00	0.00	0.00	
15,100.00	89.94	180.00	7,796.02	-6,866.05	-160.83	6,867.91	0.00	0.00	0.00	
15,200.00	89.94	180.00	7,796.12	-6,966.05	-160.83	6,967.89	0.00	0.00	0.00	
15,300.00	89.94	180.00	7,796.22	-7,066.05	-160.83	7,067.87	0.00	0.00	0.00	
15,400.00	89.94	180.00	7,796.32	-7,166.05	-160.83	7,167.85	0.00	0.00	0.00	
15,500.00	89.94	180.00	7,796.43	-7,266.05	-160.83	7,267.83	0.00	0.00	0.00	
15,600.00	89.94	180.00	7,796.53	-7,366.05	-160.83	7,367.80	0.00	0.00	0.00	
15,700.00	89.94	180.00	7,796.63	-7,466.05	-160.83	7,467.78	0.00	0.00	0.00	
15,800.00	89.94	180.00	7,796.73	-7,566.05	-160.83	7,567.76	0.00	0.00	0.00	
15,900.00	89.94	180.00	7,796.83	-7,666.05	-160.83	7,667.74	0.00	0.00	0.00	
16,000.00	89.94	180.00	7,796.93	-7,766.05	-160.83	7,767.72	0.00	0.00	0.00	
16,066.22	89.94	180.00	7,797.00	-7,832.27	-160.83	7,833.92	0.00	0.00	0.00	
TD at 16066.22 - PBHL_GRENEMYER 36C-3HZ(1782 FSL 2280 FEL)										

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_GRENEMYER :	0.00	0.00	7,797.00	-7,832.27	-160.83	1,240,356.06	3,175,489.39	39.9914610	-104.8736690
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,064.00	1,064.00	9 5/8"	9.625	12.250	
8,170.32	7,789.00	7" (620 FNL 1810 FEL)	7.000	7.500	

Database:	EDM5000-RobertS-Local	Local Co-ordinate Reference:	Well GRENEMYER 36C-3HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 5052 & KB 17 @ 5069.00ft (ASSUMED)
Site:	GRENEMYER 2-34HZ PAD	North Reference:	True
Well:	GRENEMYER 36C-3HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,014.00	1,014.00	Fox Hills Base				
4,909.34	4,859.00	Sussex				
7,392.78	7,337.00	Sharon Springs				
7,410.23	7,354.00	Niobrara A				
7,604.37	7,531.00	Niobrara B				
7,719.23	7,620.00	Niobrara C				
7,984.68	7,759.00	Fort Hays				
8,087.92	7,783.00	Codell				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,264.00	1,264.00	0.00	0.00	Start Build 2.00	
1,764.11	1,761.58	42.21	-10.67	Start 3275.63 hold at 1764.11 MD	
5,039.75	4,987.42	593.79	-150.15	Start Drop -2.00	
5,539.86	5,485.00	636.00	-160.83	Start 1731.04 hold at 5539.86 MD	
7,270.90	7,216.04	636.00	-160.83	Start DLS 10.00 TFO 180.00	
8,170.32	7,789.00	63.62	-160.83	Start 7895.90 hold at 8170.32 MD	
16,066.22	7,797.00	-7,832.27	-160.83	TD at 16066.22	