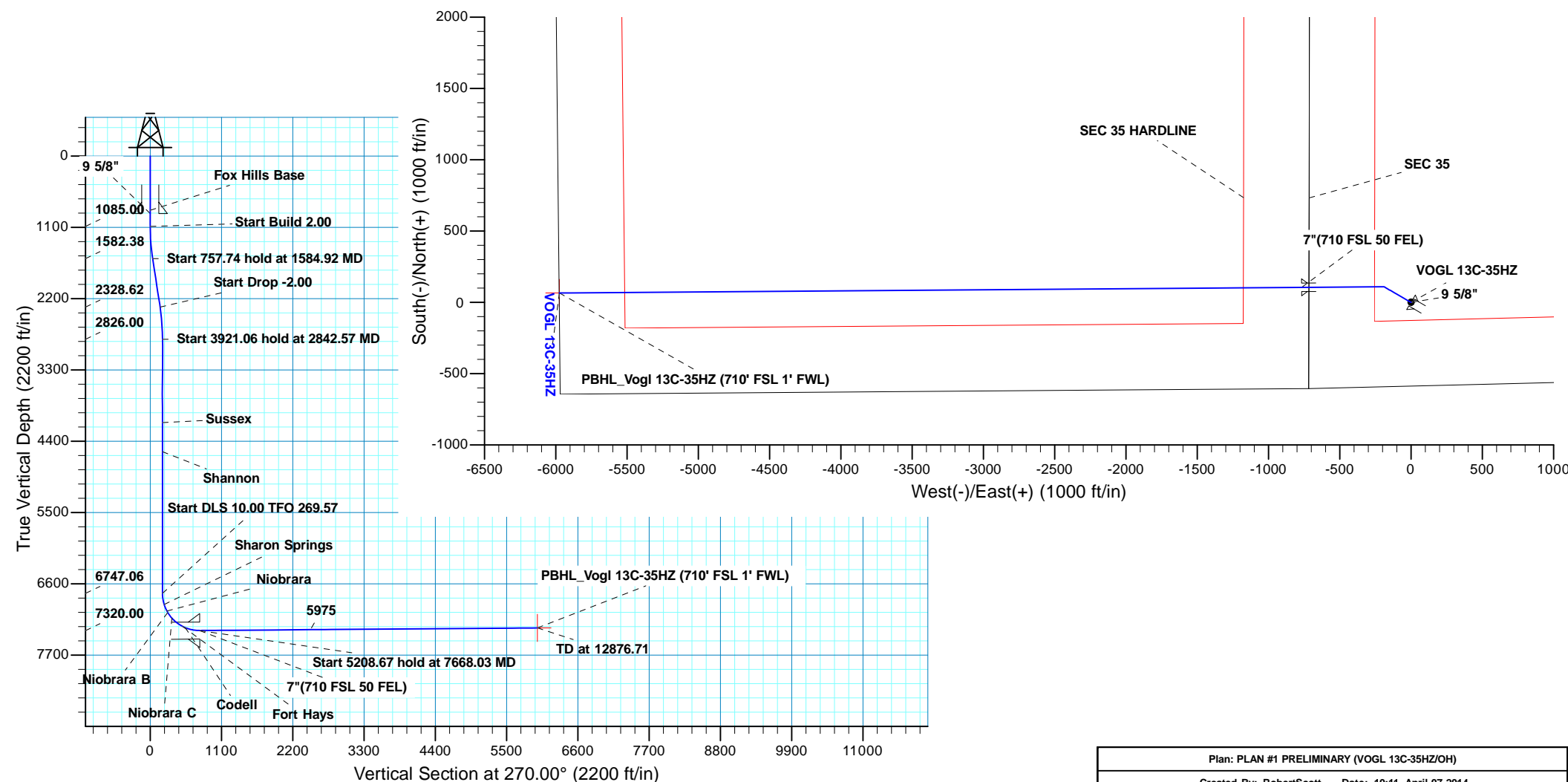


WELL DETAILS: VOGL 13C-35HZ						
GL 4818 & KB 17 @ 4835.00ft (ASSUMED)						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	1307701.38	3151417.99	40.1767660	-104.9581100	
SECTION DETAILS						
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg
0.00	0.00	0.00	0.00	0.00	0.00	0.00
1085.00	0.00	0.00	1085.00	0.00	0.00	0.00
1584.92	10.00	300.15	1582.38	21.85	-37.62	2.00
2342.66	10.00	300.15	2328.62	87.94	-151.38	0.00
2842.57	0.00	0.00	2826.00	109.79	-189.00	2.00
6763.63	0.00	0.00	6747.06	109.79	-189.00	0.00
7668.03	90.44	269.57	7320.00	105.45	-766.34	10.00
12876.71	90.44	269.57	7280.00	66.29	-5974.71	0.00

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	DipDirInc
835.00	835.00	Fox Hills Base	
4111.00	4127.57	Sussex	0.00
4561.00	4577.57	Shannon	0.00
6919.00	6938.27	Sharon Springs	17.46
7020.00	7048.12	Niobrara	28.45
7041.00	7072.29	Niobrara B	30.87
7128.00	7180.35	Niobrara C	41.67
7255.00	7388.03	Fort Hays	62.44
7275.00	7434.99	Codell	67.14

CASING DETAILS			
TVD	MD	Name	Size
885.00	885.00	9 5/8"	9.625
7320.00	7668.03	7"	7.000





Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

VOGL STATE 13-36HZ PAD

VOGL 13C-35HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

07 April, 2014

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VOGL 13C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	North Reference:	True
Well:	VOGL 13C-35HZ	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	VOGL STATE 13-36HZ PAD, SECTION 36 T3N R68W			
Site Position:		Northing:	1,307,701.38 usft	Latitude: 40.1767660
From:	Lat/Long	Easting:	3,151,417.99 usft	Longitude: -104.9581100
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.35 °

Well	VOGL 13C-35HZ, 586' FSL 716' FWL			
Well Position	+N/-S	0.00 ft	Northing:	1,307,701.38 usft
	+E/-W	0.00 ft	Easting:	3,151,417.99 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	4,818.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	04/02/14	8.62	66.73	52,618

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	270.00

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	
1,085.00	0.00	0.00	1,085.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,584.92	10.00	300.15	1,582.38	21.85	-37.62	2.00	2.00	0.00	300.15	
2,342.66	10.00	300.15	2,328.62	87.94	-151.38	0.00	0.00	0.00	0.00	
2,842.57	0.00	0.00	2,826.00	109.79	-189.00	2.00	-2.00	0.00	180.00	
6,763.63	0.00	0.00	6,747.06	109.79	-189.00	0.00	0.00	0.00	0.00	
7,668.04	90.44	269.57	7,320.00	105.45	-766.34	10.00	10.00	-10.00	269.57	
12,876.71	90.44	269.57	7,280.00	66.29	-5,974.71	0.00	0.00	0.00	0.00	PBHL_Vogl 13C-35H;

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VOGL 13C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	North Reference:	True
Well:	VOGL 13C-35HZ	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
835.00	0.00	0.00	835.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base									
885.00	0.00	0.00	885.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
1,085.00	0.00	0.00	1,085.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	0.30	300.15	1,100.00	0.02	-0.03	0.03	2.00	2.00	0.00
1,200.00	2.30	300.15	1,199.97	1.16	-2.00	2.00	2.00	2.00	0.00
1,300.00	4.30	300.15	1,299.80	4.05	-6.97	6.97	2.00	2.00	0.00
1,400.00	6.30	300.15	1,399.37	8.69	-14.96	14.96	2.00	2.00	0.00
1,500.00	8.30	300.15	1,498.55	15.07	-25.95	25.95	2.00	2.00	0.00
1,584.92	10.00	300.15	1,582.38	21.85	-37.62	37.62	2.00	2.00	0.00
Start 757.74 hold at 1584.92 MD									
1,600.00	10.00	300.15	1,597.24	23.17	-39.89	39.89	0.00	0.00	0.00
1,700.00	10.00	300.15	1,695.72	31.89	-54.90	54.90	0.00	0.00	0.00
1,800.00	10.00	300.15	1,794.20	40.61	-69.91	69.91	0.00	0.00	0.00
1,900.00	10.00	300.15	1,892.68	49.33	-84.92	84.92	0.00	0.00	0.00
2,000.00	10.00	300.15	1,991.16	58.05	-99.94	99.94	0.00	0.00	0.00
2,100.00	10.00	300.15	2,089.64	66.77	-114.95	114.95	0.00	0.00	0.00
2,200.00	10.00	300.15	2,188.13	75.49	-129.96	129.96	0.00	0.00	0.00
2,300.00	10.00	300.15	2,286.61	84.22	-144.97	144.97	0.00	0.00	0.00
2,342.66	10.00	300.15	2,328.62	87.94	-151.38	151.38	0.00	0.00	0.00
Start Drop -2.00									
2,400.00	8.85	300.15	2,385.18	92.65	-159.50	159.50	2.00	-2.00	0.00
2,500.00	6.85	300.15	2,484.24	99.51	-171.31	171.31	2.00	-2.00	0.00
2,600.00	4.85	300.15	2,583.72	104.63	-180.12	180.12	2.00	-2.00	0.00
2,700.00	2.85	300.15	2,683.48	108.01	-185.93	185.93	2.00	-2.00	0.00
2,800.00	0.85	300.15	2,783.43	109.63	-188.73	188.73	2.00	-2.00	0.00
2,842.57	0.00	0.00	2,826.00	109.79	-189.00	189.00	2.00	-2.00	0.00
Start 3921.06 hold at 2842.57 MD									
2,900.00	0.00	0.00	2,883.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,000.00	0.00	0.00	2,983.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,083.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,183.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,283.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,383.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,483.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,583.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,683.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,783.43	109.79	-189.00	189.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,883.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,983.43	109.79	-189.00	189.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VOGL 13C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	North Reference:	True
Well:	VOGL 13C-35HZ	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)
4,100.00	0.00	0.00	4,083.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,127.57	0.00	0.00	4,111.00	109.79	-189.00	189.00	0.00	0.00	0.00
Sussex									
4,200.00	0.00	0.00	4,183.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,283.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,383.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,483.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,577.57	0.00	0.00	4,561.00	109.79	-189.00	189.00	0.00	0.00	0.00
Shannon									
4,600.00	0.00	0.00	4,583.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,683.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,783.43	109.79	-189.00	189.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,883.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,983.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,083.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,183.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,283.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,383.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,483.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,583.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,683.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,783.43	109.79	-189.00	189.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,883.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,983.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,083.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,183.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,283.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,383.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,483.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,583.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,683.43	109.79	-189.00	189.00	0.00	0.00	0.00
6,763.63	0.00	0.00	6,747.06	109.79	-189.00	189.00	0.00	0.00	0.00
Start DLS 10.00 TFO 269.57									
6,800.00	3.64	269.57	6,783.40	109.78	-190.15	190.15	10.00	10.00	0.00
6,900.00	13.64	269.57	6,882.14	109.67	-205.15	205.15	10.00	10.00	0.00
6,938.27	17.46	269.57	6,919.00	109.59	-215.41	215.41	10.00	10.00	0.00
Sharon Springs									
7,000.00	23.64	269.57	6,976.78	109.43	-237.07	237.07	10.00	10.00	0.00
7,048.12	28.45	269.57	7,020.00	109.27	-258.19	258.19	10.00	10.00	0.00
Niobrara									
7,072.29	30.87	269.57	7,041.00	109.18	-270.14	270.14	10.00	10.00	0.00
Niobrara B									
7,100.00	33.64	269.57	7,064.43	109.07	-284.93	284.93	10.00	10.00	0.00
7,180.36	41.67	269.57	7,128.00	108.70	-333.98	333.98	10.00	10.00	0.00
Niobrara C									
7,200.00	43.64	269.57	7,142.45	108.60	-347.29	347.29	10.00	10.00	0.00
7,300.00	53.64	269.57	7,208.45	108.04	-422.24	422.24	10.00	10.00	0.00
7,388.03	62.44	269.57	7,255.00	107.48	-496.85	496.85	10.00	10.00	0.00
Fort Hays									
7,400.00	63.64	269.57	7,260.43	107.40	-507.52	507.52	10.00	10.00	0.00
7,434.99	67.14	269.57	7,275.00	107.16	-539.33	539.33	10.00	10.00	0.00
Codell									
7,500.00	73.64	269.57	7,296.81	106.70	-600.53	600.53	10.00	10.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VOGL 13C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	North Reference:	True
Well:	VOGL 13C-35HZ	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)
7,600.00	83.64	269.57	7,316.49	105.96	-698.44	698.44	10.00	10.00	0.00
7,668.03	90.44	269.57	7,320.00	105.45	-766.34	766.34	10.00	10.00	0.00
Start 5208.67 hold at 7668.03 MD - 7"(710 FSL 50 FEL)									
7,700.00	90.44	269.57	7,319.76	105.21	-798.30	798.30	0.00	0.00	0.00
7,800.00	90.44	269.57	7,318.99	104.46	-898.30	898.30	0.00	0.00	0.00
7,900.00	90.44	269.57	7,318.22	103.71	-998.29	998.29	0.00	0.00	0.00
8,000.00	90.44	269.57	7,317.45	102.95	-1,098.29	1,098.29	0.00	0.00	0.00
8,100.00	90.44	269.57	7,316.68	102.20	-1,198.28	1,198.28	0.00	0.00	0.00
8,200.00	90.44	269.57	7,315.92	101.45	-1,298.28	1,298.28	0.00	0.00	0.00
8,300.00	90.44	269.57	7,315.15	100.70	-1,398.27	1,398.27	0.00	0.00	0.00
8,400.00	90.44	269.57	7,314.38	99.95	-1,498.26	1,498.26	0.00	0.00	0.00
8,500.00	90.44	269.57	7,313.61	99.19	-1,598.26	1,598.26	0.00	0.00	0.00
8,600.00	90.44	269.57	7,312.84	98.44	-1,698.25	1,698.25	0.00	0.00	0.00
8,700.00	90.44	269.57	7,312.08	97.69	-1,798.25	1,798.25	0.00	0.00	0.00
8,800.00	90.44	269.57	7,311.31	96.94	-1,898.24	1,898.24	0.00	0.00	0.00
8,900.00	90.44	269.57	7,310.54	96.19	-1,998.24	1,998.24	0.00	0.00	0.00
9,000.00	90.44	269.57	7,309.77	95.44	-2,098.23	2,098.23	0.00	0.00	0.00
9,100.00	90.44	269.57	7,309.00	94.68	-2,198.22	2,198.22	0.00	0.00	0.00
9,200.00	90.44	269.57	7,308.24	93.93	-2,298.22	2,298.22	0.00	0.00	0.00
9,300.00	90.44	269.57	7,307.47	93.18	-2,398.21	2,398.21	0.00	0.00	0.00
9,400.00	90.44	269.57	7,306.70	92.43	-2,498.21	2,498.21	0.00	0.00	0.00
9,500.00	90.44	269.57	7,305.93	91.68	-2,598.20	2,598.20	0.00	0.00	0.00
9,600.00	90.44	269.57	7,305.16	90.93	-2,698.20	2,698.20	0.00	0.00	0.00
9,700.00	90.44	269.57	7,304.40	90.17	-2,798.19	2,798.19	0.00	0.00	0.00
9,800.00	90.44	269.57	7,303.63	89.42	-2,898.18	2,898.18	0.00	0.00	0.00
9,900.00	90.44	269.57	7,302.86	88.67	-2,998.18	2,998.18	0.00	0.00	0.00
10,000.00	90.44	269.57	7,302.09	87.92	-3,098.17	3,098.17	0.00	0.00	0.00
10,100.00	90.44	269.57	7,301.32	87.17	-3,198.17	3,198.17	0.00	0.00	0.00
10,200.00	90.44	269.57	7,300.56	86.41	-3,298.16	3,298.16	0.00	0.00	0.00
10,300.00	90.44	269.57	7,299.79	85.66	-3,398.15	3,398.15	0.00	0.00	0.00
10,400.00	90.44	269.57	7,299.02	84.91	-3,498.15	3,498.15	0.00	0.00	0.00
10,500.00	90.44	269.57	7,298.25	84.16	-3,598.14	3,598.14	0.00	0.00	0.00
10,600.00	90.44	269.57	7,297.48	83.41	-3,698.14	3,698.14	0.00	0.00	0.00
10,700.00	90.44	269.57	7,296.72	82.66	-3,798.13	3,798.13	0.00	0.00	0.00
10,800.00	90.44	269.57	7,295.95	81.90	-3,898.13	3,898.13	0.00	0.00	0.00
10,900.00	90.44	269.57	7,295.18	81.15	-3,998.12	3,998.12	0.00	0.00	0.00
11,000.00	90.44	269.57	7,294.41	80.40	-4,098.11	4,098.11	0.00	0.00	0.00
11,100.00	90.44	269.57	7,293.64	79.65	-4,198.11	4,198.11	0.00	0.00	0.00
11,200.00	90.44	269.57	7,292.88	78.90	-4,298.10	4,298.10	0.00	0.00	0.00
11,300.00	90.44	269.57	7,292.11	78.14	-4,398.10	4,398.10	0.00	0.00	0.00
11,400.00	90.44	269.57	7,291.34	77.39	-4,498.09	4,498.09	0.00	0.00	0.00
11,500.00	90.44	269.57	7,290.57	76.64	-4,598.09	4,598.09	0.00	0.00	0.00
11,600.00	90.44	269.57	7,289.80	75.89	-4,698.08	4,698.08	0.00	0.00	0.00
11,700.00	90.44	269.57	7,289.04	75.14	-4,798.07	4,798.07	0.00	0.00	0.00
11,800.00	90.44	269.57	7,288.27	74.39	-4,898.07	4,898.07	0.00	0.00	0.00
11,900.00	90.44	269.57	7,287.50	73.63	-4,998.06	4,998.06	0.00	0.00	0.00
12,000.00	90.44	269.57	7,286.73	72.88	-5,098.06	5,098.06	0.00	0.00	0.00
12,100.00	90.44	269.57	7,285.97	72.13	-5,198.05	5,198.05	0.00	0.00	0.00
12,200.00	90.44	269.57	7,285.20	71.38	-5,298.05	5,298.05	0.00	0.00	0.00
12,300.00	90.44	269.57	7,284.43	70.63	-5,398.04	5,398.04	0.00	0.00	0.00
12,400.00	90.44	269.57	7,283.66	69.88	-5,498.03	5,498.03	0.00	0.00	0.00
12,500.00	90.44	269.57	7,282.89	69.12	-5,598.03	5,598.03	0.00	0.00	0.00
12,600.00	90.44	269.57	7,282.13	68.37	-5,698.02	5,698.02	0.00	0.00	0.00
12,700.00	90.44	269.57	7,281.36	67.62	-5,798.02	5,798.02	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well VOGL 13C-35HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL 4818 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	North Reference:	True
Well:	VOGL 13C-35HZ	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)
12,800.00	90.44	269.57	7,280.59	66.87	-5,898.01	5,898.01	0.00	0.00	0.00
12,876.71	90.44	269.57	7,280.00	66.29	-5,974.71	5,974.71	0.00	0.00	0.00
TD at 12876.71 - PBHL_Vogl 13C-35HZ (710' FSL 1' FWL)									

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_Vogl 13C-35HZ ('	0.00	0.00	7,280.00	66.29	-5,974.71	1,307,731.16	3,145,443.00	40.1769460	-104.9794920
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
885.00	885.00	9 5/8"	9.625	12.250	
7,668.03	7,320.00	7"(710 FSL 50 FEL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
835.00	835.00	Fox Hills Base				
4,127.57	4,111.00	Sussex				
4,577.57	4,561.00	Shannon				
6,938.27	6,919.00	Sharon Springs				
7,048.12	7,020.00	Niobrara				
7,072.29	7,041.00	Niobrara B				
7,180.36	7,128.00	Niobrara C				
7,388.03	7,255.00	Fort Hays				
7,434.99	7,275.00	Codell				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,085.00	1,085.00	0.00	0.00	Start Build 2.00
1,584.92	1,582.38	21.85	-37.62	Start 757.74 hold at 1584.92 MD
2,342.66	2,328.62	87.94	-151.38	Start Drop -2.00
2,842.57	2,826.00	109.79	-189.00	Start 3921.06 hold at 2842.57 MD
6,763.63	6,747.06	109.79	-189.00	Start DLS 10.00 TFO 269.57
7,668.04	7,320.00	105.45	-766.34	Start 5208.67 hold at 7668.03 MD
12,876.71	7,280.00	66.29	-5,974.71	TD at 12876.71