Scientific Drilling

Project: COLORADO NORTHERN ZONE - 83
Site: VOGL STATE 13-36HZ PAD
Well: VOGL 34N-35HZ
Wellbore: OH
Design: PLAN #1 PRELIMINARY

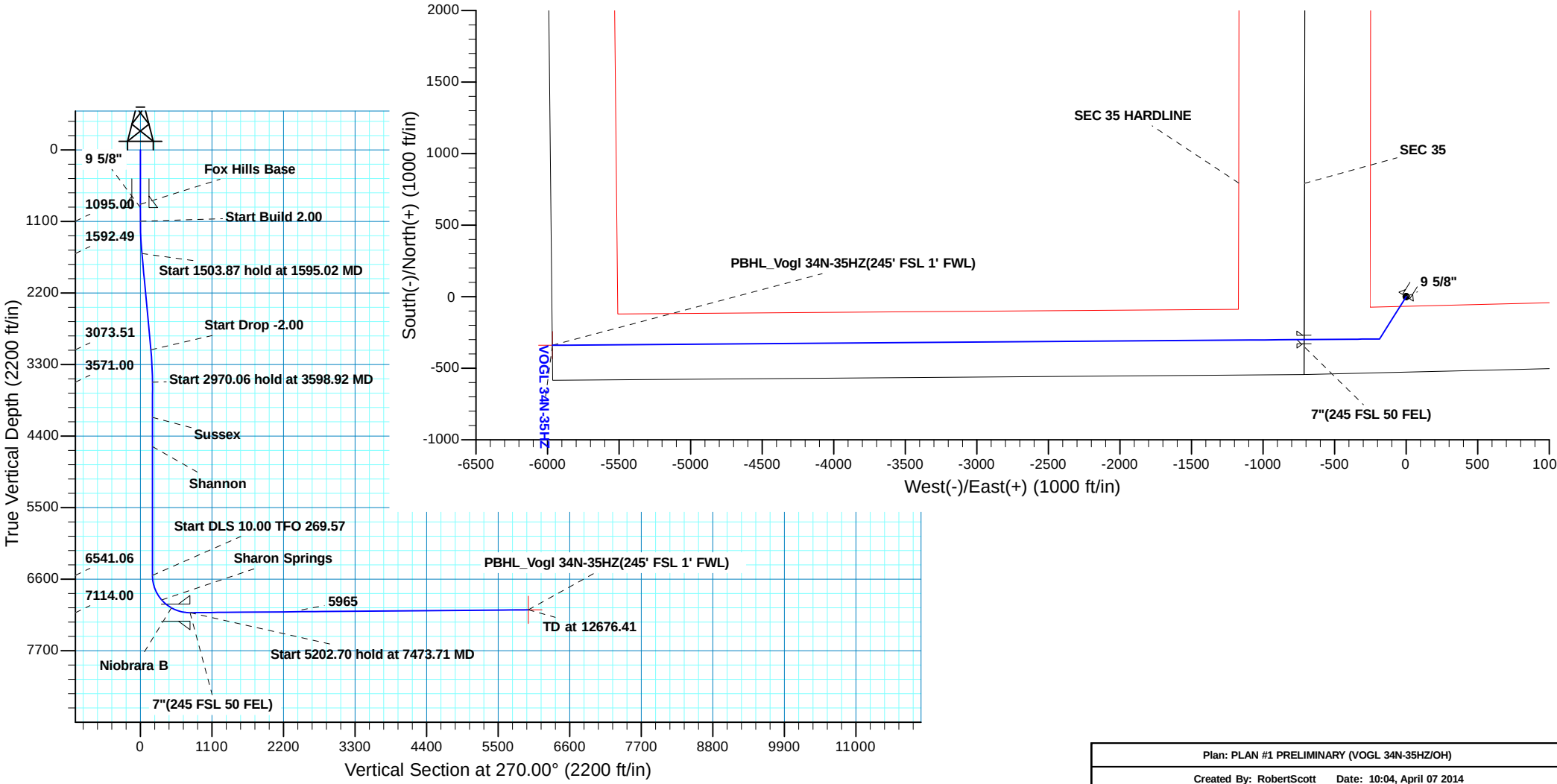
Anadarko Petroleum Corporation

WELL DETAILS: VOGL 34N-35HZ					
GL 4835 & KB 17 @ 4835.00ft (ASSUMED)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1307641.23	3151413.33	40.1766009	-104.9581280

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	
1095.00	0.00	0.00	1095.00	0.00	0.00	0.00	0.00	0.00	
1595.02	10.00	212.09	1592.49	-36.88	-23.13	2.00	212.09	23.13	
3098.90	10.00	212.09	3073.51	-258.12	-161.87	0.00	0.00	161.87	
3598.92	0.00	0.00	3571.00	-295.00	-185.00	2.00	180.00	185.00	
6568.98	0.00	0.00	6541.06	-295.00	-185.00	0.00	0.00	185.00	
7473.71	90.47	269.57	7114.00	-299.38	-762.68	10.00	269.57	762.68	
12676.41	90.47	269.57	7071.00	-338.78	-5965.05	0.00	0.00	5965.05	PBHL_Vogl 34N-35HZ(245' FSL 1' FWL)

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	DipDirInc
835.00	835.00	Fox Hills Base	
4111.00	4138.92	Sussex	0.00
4561.00	4588.92	Shannon	0.00
6919.00	6981.70	Sharon Springs	41.27
7020.00	7136.08	Niobrara	56.71
7041.00	7176.55	Niobrara B	60.76

CASING DETAILS			
TVD	MD	Name	Size
885.00	885.00	9 5/8"	9.625
7114.00	7473.71	7"	7.000



Plan: PLAN #1 PRELIMINARY (VOGL 34N-35HZ/OH)	
Created By: RobertScott	Date: 10:04, April 07 2014

Scientific Drilling

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83
VOGL STATE 13-36HZ PAD
VOGL 34N-35HZ

OH

Plan: PLAN #1 PRELIMINARY

Standard Planning Report

07 April, 2014

Anadarko Petroleum Corporation

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well VOGL 34N-35HZ
Company:	US ROCKIES REGION PLANNING	**TVD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	**MD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	**North Reference:**	True
Well:	VOGL 34N-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 34N-35HZ, 526' FSL 711' FWL

Well Position	**+N/-S**	-60.12 ft	**Northing:**	1,307,641.22 usft	**Latitude:**	40.1766010
	+E/-W	-5.03 ft	**Easting:**	3,151,413.33 usft	**Longitude:**	-104.9581280
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	
1,095.00	0.00	0.00	1,095.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,595.02	10.00	212.09	1,592.49	-36.88	-23.13	2.00	2.00	0.00	212.09	
3,098.90	10.00	212.09	3,073.51	-258.12	-161.87	0.00	0.00	0.00	0.00	
3,598.92	0.00	0.00	3,571.00	-295.00	-185.00	2.00	-2.00	0.00	180.00	
6,568.98	0.00	0.00	6,541.06	-295.00	-185.00	0.00	0.00	0.00	0.00	
7,473.71	90.47	269.57	7,114.00	-299.38	-762.68	10.00	10.00	-10.00	269.57	
12,676.41	90.47	269.57	7,071.00	-338.78	-5,965.05	0.00	0.00	0.00	0.00	PBHL_Vogl 34N-35H

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well VOGL 34N-35HZ
Company:	US ROCKIES REGION PLANNING	**TVD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	**MD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	**North Reference:**	True
Well:	VOGL 34N-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
1,095.00	0.00	0.00	1,095.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	0.10	212.09	1,100.00	0.00	0.00	0.00	2.00	2.00	0.00
1,200.00	2.10	212.09	1,199.98	-1.63	-1.02	1.02	2.00	2.00	0.00
1,300.00	4.10	212.09	1,299.83	-6.21	-3.90	3.90	2.00	2.00	0.00
1,400.00	6.10	212.09	1,399.42	-13.74	-8.62	8.62	2.00	2.00	0.00
1,500.00	8.10	212.09	1,498.65	-24.21	-15.18	15.18	2.00	2.00	0.00
1,595.02	10.00	212.09	1,592.49	-36.88	-23.13	23.13	2.00	2.00	0.00
Start 1503.87 hold at 1595.02 MD									
1,600.00	10.00	212.09	1,597.39	-37.61	-23.58	23.58	0.00	0.00	0.00
1,700.00	10.00	212.09	1,695.87	-52.32	-32.81	32.81	0.00	0.00	0.00
1,800.00	10.00	212.09	1,794.35	-67.03	-42.04	42.04	0.00	0.00	0.00
1,900.00	10.00	212.09	1,892.83	-81.74	-51.26	51.26	0.00	0.00	0.00
2,000.00	10.00	212.09	1,991.31	-96.46	-60.49	60.49	0.00	0.00	0.00
2,100.00	10.00	212.09	2,089.79	-111.17	-69.72	69.72	0.00	0.00	0.00
2,200.00	10.00	212.09	2,188.27	-125.88	-78.94	78.94	0.00	0.00	0.00
2,300.00	10.00	212.09	2,286.75	-140.59	-88.17	88.17	0.00	0.00	0.00
2,400.00	10.00	212.09	2,385.23	-155.30	-97.39	97.39	0.00	0.00	0.00
2,500.00	10.00	212.09	2,483.72	-170.02	-106.62	106.62	0.00	0.00	0.00
2,600.00	10.00	212.09	2,582.20	-184.73	-115.85	115.85	0.00	0.00	0.00
2,700.00	10.00	212.09	2,680.68	-199.44	-125.07	125.07	0.00	0.00	0.00
2,800.00	10.00	212.09	2,779.16	-214.15	-134.30	134.30	0.00	0.00	0.00
2,900.00	10.00	212.09	2,877.64	-228.86	-143.52	143.52	0.00	0.00	0.00
3,000.00	10.00	212.09	2,976.12	-243.58	-152.75	152.75	0.00	0.00	0.00
3,098.90	10.00	212.09	3,073.51	-258.12	-161.87	161.87	0.00	0.00	0.00
Start Drop -2.00									
3,100.00	9.98	212.09	3,074.60	-258.29	-161.98	161.98	2.00	-2.00	0.00
3,200.00	7.98	212.09	3,173.37	-271.51	-170.27	170.27	2.00	-2.00	0.00
3,300.00	5.98	212.09	3,272.62	-281.80	-176.72	176.72	2.00	-2.00	0.00
3,400.00	3.98	212.09	3,372.24	-289.15	-181.33	181.33	2.00	-2.00	0.00
3,500.00	1.98	212.09	3,472.10	-293.55	-184.09	184.09	2.00	-2.00	0.00
3,598.92	0.00	0.00	3,571.00	-295.00	-185.00	185.00	2.00	-2.00	0.00
Start 2970.06 hold at 3598.92 MD									
3,600.00	0.00	0.00	3,572.08	-295.00	-185.00	185.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,672.08	-295.00	-185.00	185.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,772.08	-295.00	-185.00	185.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,872.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,000.00	0.00	0.00	3,972.08	-295.00	-185.00	185.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well VOGL 34N-35HZ
Company:	US ROCKIES REGION PLANNING	**TVD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	**MD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	**North Reference:**	True
Well:	VOGL 34N-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	4,072.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,138.92	0.00	0.00	4,111.00	-295.00	-185.00	185.00	0.00	0.00	0.00
Sussex									
4,200.00	0.00	0.00	4,172.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,272.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,372.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,472.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,588.92	0.00	0.00	4,561.00	-295.00	-185.00	185.00	0.00	0.00	0.00
Shannon									
4,600.00	0.00	0.00	4,572.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,672.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,772.08	-295.00	-185.00	185.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,872.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,972.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,072.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,172.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,272.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,372.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,472.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,572.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,672.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,772.08	-295.00	-185.00	185.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,872.08	-295.00	-185.00	185.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,972.08	-295.00	-185.00	185.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,072.08	-295.00	-185.00	185.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,172.08	-295.00	-185.00	185.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,272.08	-295.00	-185.00	185.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,372.08	-295.00	-185.00	185.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,472.08	-295.00	-185.00	185.00	0.00	0.00	0.00
6,568.98	0.00	0.00	6,541.06	-295.00	-185.00	185.00	0.00	0.00	0.00
Start DLS 10.00 TFO 269.57									
6,600.00	3.10	269.57	6,572.07	-295.01	-185.84	185.84	10.00	10.00	0.00
6,700.00	13.10	269.57	6,670.94	-295.11	-199.91	199.91	10.00	10.00	0.00
6,800.00	23.10	269.57	6,765.87	-295.35	-230.95	230.95	10.00	10.00	0.00
6,900.00	33.10	269.57	6,853.97	-295.70	-277.99	277.99	10.00	10.00	0.00
6,981.70	41.27	269.57	6,919.00	-296.08	-327.32	327.32	10.00	10.00	0.00
Sharon Springs									
7,000.00	43.10	269.57	6,932.56	-296.17	-339.62	339.62	10.00	10.00	0.00
7,100.00	53.10	269.57	6,999.26	-296.73	-413.95	413.95	10.00	10.00	0.00
7,136.08	56.71	269.57	7,020.00	-296.96	-443.47	443.47	10.00	10.00	0.00
Niobrara									
7,176.55	60.76	269.57	7,041.00	-297.22	-478.06	478.06	10.00	10.00	0.00
Niobrara B									
7,200.00	63.10	269.57	7,052.03	-297.38	-498.74	498.74	10.00	10.00	0.00
7,300.00	73.10	269.57	7,089.28	-298.08	-591.41	591.41	10.00	10.00	0.00
7,400.00	83.10	269.57	7,109.87	-298.82	-689.13	689.13	10.00	10.00	0.00
7,473.71	90.47	269.57	7,114.00	-299.38	-762.67	762.67	10.00	10.00	0.00
Start 5202.70 hold at 7473.71 MD - 7"(245 FSL 50 FEL)									
7,500.00	90.47	269.57	7,113.78	-299.57	-788.96	788.96	0.00	0.00	0.00
7,600.00	90.47	269.57	7,112.95	-300.33	-888.95	888.95	0.00	0.00	0.00
7,700.00	90.47	269.57	7,112.13	-301.09	-988.95	988.95	0.00	0.00	0.00
7,800.00	90.47	269.57	7,111.30	-301.85	-1,088.94	1,088.94	0.00	0.00	0.00
7,900.00	90.47	269.57	7,110.48	-302.60	-1,188.94	1,188.94	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well VOGL 34N-35HZ
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Project:	COLORADO NORTHERN ZONE - 83	**MD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	**North Reference:**	True
Well:	VOGL 34N-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)
8,000.00	90.47	269.57	7,109.65	-303.36	-1,288.93	1,288.93	0.00	0.00	0.00
8,100.00	90.47	269.57	7,108.82	-304.12	-1,388.92	1,388.92	0.00	0.00	0.00
8,200.00	90.47	269.57	7,108.00	-304.88	-1,488.92	1,488.92	0.00	0.00	0.00
8,300.00	90.47	269.57	7,107.17	-305.63	-1,588.91	1,588.91	0.00	0.00	0.00
8,400.00	90.47	269.57	7,106.34	-306.39	-1,688.90	1,688.90	0.00	0.00	0.00
8,500.00	90.47	269.57	7,105.52	-307.15	-1,788.90	1,788.90	0.00	0.00	0.00
8,600.00	90.47	269.57	7,104.69	-307.90	-1,888.89	1,888.89	0.00	0.00	0.00
8,700.00	90.47	269.57	7,103.86	-308.66	-1,988.88	1,988.88	0.00	0.00	0.00
8,800.00	90.47	269.57	7,103.04	-309.42	-2,088.88	2,088.88	0.00	0.00	0.00
8,900.00	90.47	269.57	7,102.21	-310.18	-2,188.87	2,188.87	0.00	0.00	0.00
9,000.00	90.47	269.57	7,101.38	-310.93	-2,288.87	2,288.87	0.00	0.00	0.00
9,100.00	90.47	269.57	7,100.56	-311.69	-2,388.86	2,388.86	0.00	0.00	0.00
9,200.00	90.47	269.57	7,099.73	-312.45	-2,488.85	2,488.85	0.00	0.00	0.00
9,300.00	90.47	269.57	7,098.90	-313.21	-2,588.85	2,588.85	0.00	0.00	0.00
9,400.00	90.47	269.57	7,098.08	-313.96	-2,688.84	2,688.84	0.00	0.00	0.00
9,500.00	90.47	269.57	7,097.25	-314.72	-2,788.83	2,788.83	0.00	0.00	0.00
9,600.00	90.47	269.57	7,096.43	-315.48	-2,888.83	2,888.83	0.00	0.00	0.00
9,700.00	90.47	269.57	7,095.60	-316.24	-2,988.82	2,988.82	0.00	0.00	0.00
9,800.00	90.47	269.57	7,094.77	-316.99	-3,088.82	3,088.82	0.00	0.00	0.00
9,900.00	90.47	269.57	7,093.95	-317.75	-3,188.81	3,188.81	0.00	0.00	0.00
10,000.00	90.47	269.57	7,093.12	-318.51	-3,288.80	3,288.80	0.00	0.00	0.00
10,100.00	90.47	269.57	7,092.29	-319.26	-3,388.80	3,388.80	0.00	0.00	0.00
10,200.00	90.47	269.57	7,091.47	-320.02	-3,488.79	3,488.79	0.00	0.00	0.00
10,300.00	90.47	269.57	7,090.64	-320.78	-3,588.78	3,588.78	0.00	0.00	0.00
10,400.00	90.47	269.57	7,089.81	-321.54	-3,688.78	3,688.78	0.00	0.00	0.00
10,500.00	90.47	269.57	7,088.99	-322.29	-3,788.77	3,788.77	0.00	0.00	0.00
10,600.00	90.47	269.57	7,088.16	-323.05	-3,888.77	3,888.77	0.00	0.00	0.00
10,700.00	90.47	269.57	7,087.33	-323.81	-3,988.76	3,988.76	0.00	0.00	0.00
10,800.00	90.47	269.57	7,086.51	-324.57	-4,088.75	4,088.75	0.00	0.00	0.00
10,900.00	90.47	269.57	7,085.68	-325.32	-4,188.75	4,188.75	0.00	0.00	0.00
11,000.00	90.47	269.57	7,084.86	-326.08	-4,288.74	4,288.74	0.00	0.00	0.00
11,100.00	90.47	269.57	7,084.03	-326.84	-4,388.73	4,388.73	0.00	0.00	0.00
11,200.00	90.47	269.57	7,083.20	-327.60	-4,488.73	4,488.73	0.00	0.00	0.00
11,300.00	90.47	269.57	7,082.38	-328.35	-4,588.72	4,588.72	0.00	0.00	0.00
11,400.00	90.47	269.57	7,081.55	-329.11	-4,688.72	4,688.72	0.00	0.00	0.00
11,500.00	90.47	269.57	7,080.72	-329.87	-4,788.71	4,788.71	0.00	0.00	0.00
11,600.00	90.47	269.57	7,079.90	-330.62	-4,888.70	4,888.70	0.00	0.00	0.00
11,700.00	90.47	269.57	7,079.07	-331.38	-4,988.70	4,988.70	0.00	0.00	0.00
11,800.00	90.47	269.57	7,078.24	-332.14	-5,088.69	5,088.69	0.00	0.00	0.00
11,900.00	90.47	269.57	7,077.42	-332.90	-5,188.68	5,188.68	0.00	0.00	0.00
12,000.00	90.47	269.57	7,076.59	-333.65	-5,288.68	5,288.68	0.00	0.00	0.00
12,100.00	90.47	269.57	7,075.76	-334.41	-5,388.67	5,388.67	0.00	0.00	0.00
12,200.00	90.47	269.57	7,074.94	-335.17	-5,488.67	5,488.67	0.00	0.00	0.00
12,300.00	90.47	269.57	7,074.11	-335.93	-5,588.66	5,588.66	0.00	0.00	0.00
12,400.00	90.47	269.57	7,073.28	-336.68	-5,688.65	5,688.65	0.00	0.00	0.00
12,500.00	90.47	269.57	7,072.46	-337.44	-5,788.65	5,788.65	0.00	0.00	0.00
12,600.00	90.47	269.57	7,071.63	-338.20	-5,888.64	5,888.64	0.00	0.00	0.00
12,676.41	90.47	269.57	7,071.00	-338.78	-5,965.05	5,965.05	0.00	0.00	0.00

TD at 12676.41 - PBHL_Vogl 34N-35HZ(245' FSL 1' FWL)

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well VOGL 34N-35HZ
Company:	US ROCKIES REGION PLANNING	**TVD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Project:	COLORADO NORTHERN ZONE - 83	**MD Reference:**	GL 4835 & KB 17 @ 4835.00ft (ASSUMED)
Site:	VOGL STATE 13-36HZ PAD	**North Reference:**	True
Well:	VOGL 34N-35HZ	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1 PRELIMINARY		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL_Vogl 34N-35HZ(2 - plan hits target center - Point	0.00	0.00	7,071.00	-338.78	-5,965.05	1,307,266.00	3,145,450.48	40.1756690	-104.9794750

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
7,473.71	7,114.00	7"(245 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			
4,138.92	4,111.00	Sussex			
4,588.92	4,561.00	Shannon			
6,981.70	6,919.00	Sharon Springs			
7,136.08	7,020.00	Niobrara			
7,176.55	7,041.00	Niobrara B			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,095.00	1,095.00	0.00	0.00	Start Build 2.00
1,595.02	1,592.49	-36.88	-23.13	Start 1503.87 hold at 1595.02 MD
3,098.90	3,073.51	-258.12	-161.87	Start Drop -2.00
3,598.92	3,571.00	-295.00	-185.00	Start 2970.06 hold at 3598.92 MD
6,568.98	6,541.06	-295.00	-185.00	Start DLS 10.00 TFO 269.57
7,473.71	7,114.00	-299.38	-762.68	Start 5202.70 hold at 7473.71 MD
12,676.41	7,071.00	-338.78	-5,965.05	TD at 12676.41