



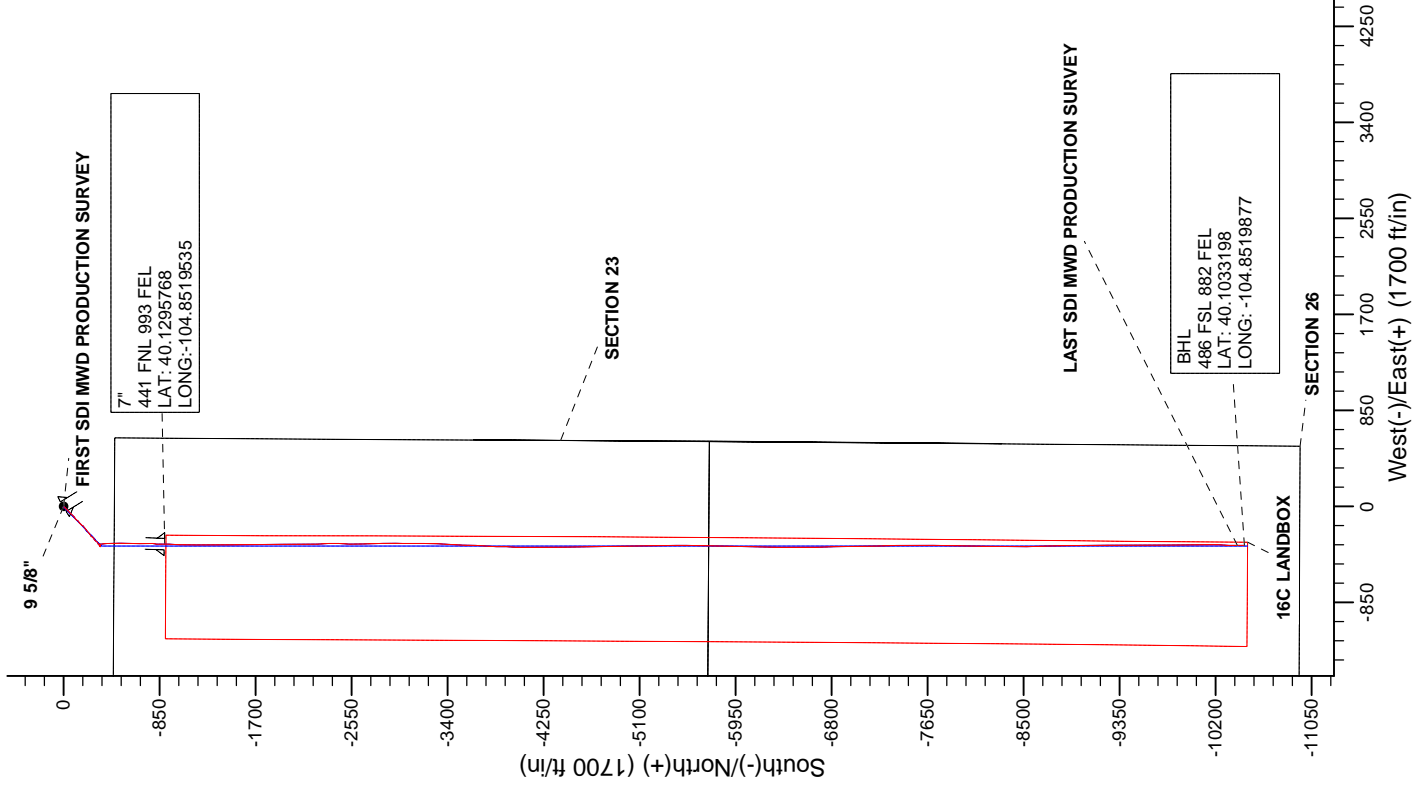
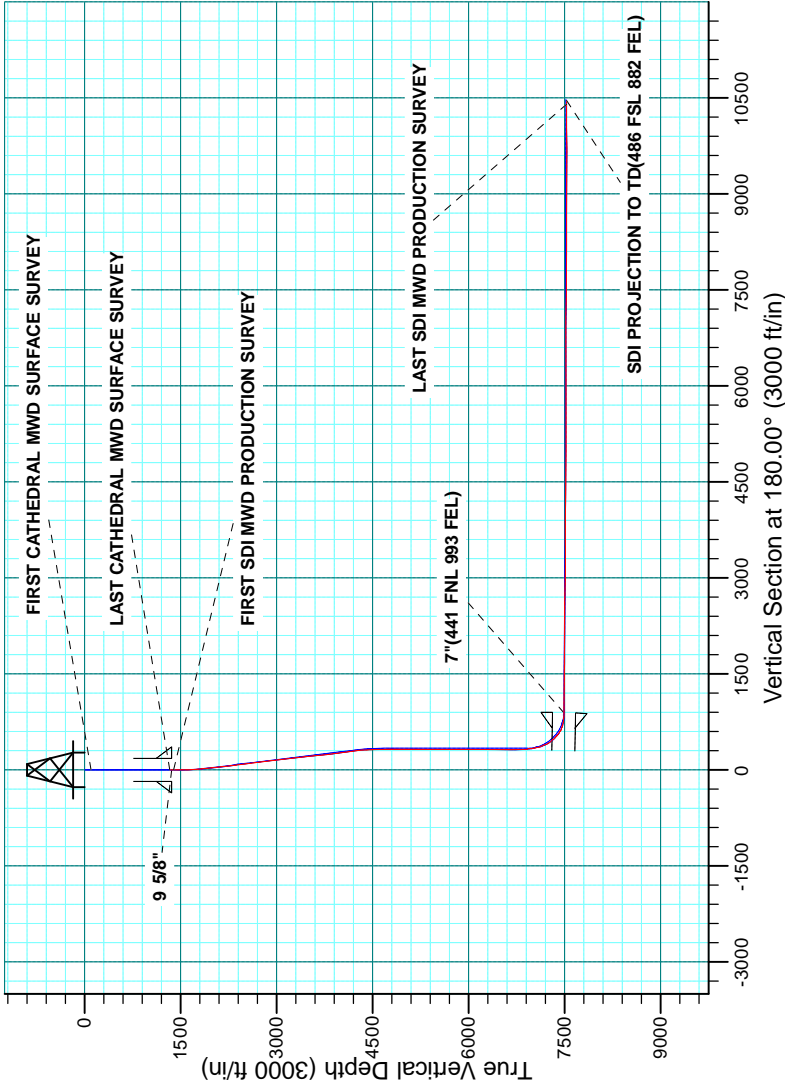
Project: COLORADO NORTHERN ZONE - 83
Site: BARCLAY 16-14HZ PAD
Well: BARCLAY 16C-26HZ
Wellbore: OH
Design: OH



WELL DETAILS: BARCLAY 16C-26HZ					
GL 4908 & KB 25 @ 4833.00ft (HP 311)					
+N/-S 0.00	+E/-W 0.00	Northing 1291606.81	Easting 3181532.32	Latitude 40.1320300	Longitude -104.8507630

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83	
Geodetic System: US State Plane 1983	
Datum: North American Datum 1983	
Ellipsoid: GRS 1980	
Zone: Colorado Northern Zone	
Location: SECTION 14 T2N R67W	
System Datum: Mean Sea Level	

CASING DETAILS		
TVD	MD	Name
1362.97	1363.00	9 5/8" 9.625
7494.00	7864.00	7" 7.000



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BARCLAY 16C-26HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Site:	BARCLAY 16-14HZ PAD	MD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Well:	BARCLAY 16C-26HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales

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	BARCLAY 16-14HZ PAD, SECTION 14 T2N R67W				
Site Position:		Northing:	1,291,606.81 usft	Latitude:	40.1320300
From:	Lat/Long	Easting:	3,181,532.32 usft	Longitude:	-104.8507630
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.42 °

Well	BARCLAY 16C-26HZ, 451 FSL 606 FEL					
Well Position	+N/-S	0.00 ft	Northing:	1,291,606.81 usft	Latitude:	40.1320300
	+E/-W	0.00 ft	Easting:	3,181,532.32 usft	Longitude:	-104.8507630
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,908.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	2/25/2015	8.50	66.68	52,473

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	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	

Survey Program	Date	4/14/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
19.00	1,328.00	Survey #1 CATHEDRAL MWD SURFACE	MWD	MWD - Standard	
1,385.00	17,431.00	Survey #2 SDI MWD PRODUCTION (OH)	MWD+IFR	MWD + IFR correction	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19.00	0.00	0.00	19.00	0.00	0.00	0.00	0.00	0.00	0.00	
102.00	1.10	218.30	101.99	-0.63	-0.49	0.63	1.33	1.33	0.00	
FIRST CATHEDRAL MWD SURFACE SURVEY										
181.00	0.50	243.30	180.99	-1.38	-1.27	1.38	0.86	-0.76	31.65	
271.00	0.20	213.70	270.99	-1.68	-1.71	1.68	0.38	-0.33	-32.89	
351.00	0.10	67.20	350.99	-1.77	-1.72	1.77	0.36	-0.13	-183.13	
431.00	0.20	86.90	430.98	-1.74	-1.52	1.74	0.14	0.13	24.63	
511.00	0.40	98.40	510.98	-1.77	-1.10	1.77	0.26	0.25	14.38	
591.00	0.50	65.60	590.98	-1.67	-0.51	1.67	0.34	0.13	-41.00	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BARCLAY 16C-26HZ
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Site:	BARCLAY 16-14HZ PAD	MD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Well:	BARCLAY 16C-26HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
671.00	0.50	98.40	670.98	-1.57	0.15	1.57	0.35	0.00	41.00	
751.00	0.40	77.00	750.98	-1.56	0.77	1.56	0.24	-0.13	-26.75	
831.00	0.30	88.90	830.97	-1.49	1.25	1.49	0.15	-0.13	14.88	
911.00	0.01	175.80	910.97	-1.50	1.46	1.50	0.37	-0.36	108.63	
991.00	0.30	329.70	990.97	-1.32	1.36	1.32	0.39	0.36	192.38	
1,071.00	0.20	309.00	1,070.97	-1.06	1.14	1.06	0.17	-0.13	-25.88	
1,151.00	0.30	326.90	1,150.97	-0.79	0.92	0.79	0.16	0.13	22.38	
1,231.00	0.30	319.50	1,230.97	-0.46	0.67	0.46	0.05	0.00	-9.25	
1,328.00	0.60	315.60	1,327.97	0.10	0.15	-0.10	0.31	0.31	-4.02	
LAST CATHEDRAL MWD SURFACE SURVEY										
1,363.00	0.51	329.05	1,362.97	0.36	-0.06	-0.36	0.45	-0.26	38.43	
9 5/8"										
1,385.00	0.47	339.81	1,384.97	0.53	-0.14	-0.53	0.45	-0.18	48.90	
FIRST SDI MWD PRODUCTION SURVEY										
1,447.00	0.64	279.39	1,446.96	0.83	-0.57	-0.83	0.93	0.27	-97.45	
1,542.00	2.45	208.48	1,541.93	-0.87	-2.06	0.87	2.44	1.91	-74.64	
1,636.00	3.39	212.20	1,635.81	-4.99	-4.50	4.99	1.02	1.00	3.96	
1,730.00	4.22	215.65	1,729.60	-10.15	-8.00	10.15	0.92	0.88	3.67	
1,824.00	6.22	219.77	1,823.20	-16.88	-13.27	16.88	2.16	2.13	4.38	
1,918.00	7.64	227.56	1,916.52	-25.01	-21.14	25.01	1.81	1.51	8.29	
2,013.00	10.39	227.66	2,010.34	-35.04	-32.13	35.04	2.89	2.89	0.11	
2,107.00	10.47	226.46	2,102.78	-46.63	-44.59	46.63	0.25	0.09	-1.28	
2,201.00	8.67	228.47	2,195.47	-57.22	-56.09	57.22	1.95	-1.91	2.14	
2,295.00	9.69	225.18	2,288.27	-67.49	-67.00	67.49	1.22	1.09	-3.50	
2,390.00	11.30	228.86	2,381.67	-79.25	-79.68	79.25	1.83	1.69	3.87	
2,484.00	10.49	226.09	2,473.98	-91.24	-92.79	91.24	1.03	-0.86	-2.95	
2,578.00	10.37	219.83	2,566.43	-103.68	-104.37	103.68	1.21	-0.13	-6.66	
2,673.00	9.27	223.25	2,660.04	-115.82	-115.09	115.82	1.31	-1.16	3.60	
2,767.00	9.80	229.16	2,752.74	-126.56	-126.33	126.56	1.18	0.56	6.29	
2,862.00	11.28	228.90	2,846.14	-137.96	-139.45	137.96	1.56	1.56	-0.27	
2,956.00	9.87	230.03	2,938.54	-149.18	-152.55	149.18	1.52	-1.50	1.20	
3,050.00	10.60	224.54	3,031.04	-160.51	-164.79	160.51	1.30	0.78	-5.84	
3,144.00	8.51	221.68	3,123.73	-171.87	-175.48	171.87	2.28	-2.22	-3.04	
3,239.00	9.64	225.67	3,217.54	-182.68	-185.84	182.68	1.36	1.19	4.20	
3,333.00	9.94	232.15	3,310.18	-193.16	-197.88	193.16	1.21	0.32	6.89	
3,427.00	9.09	229.49	3,402.88	-202.96	-209.93	202.96	1.02	-0.90	-2.83	
3,521.00	9.34	225.98	3,495.67	-213.09	-221.06	213.09	0.65	0.27	-3.73	
3,616.00	9.81	234.56	3,589.35	-223.14	-233.20	223.14	1.58	0.49	9.03	
3,709.00	9.40	233.94	3,681.05	-232.20	-245.80	232.20	0.45	-0.44	-0.67	
3,804.00	9.99	226.58	3,774.70	-242.43	-258.05	242.43	1.44	0.62	-7.75	
3,898.00	10.20	226.55	3,867.24	-253.76	-270.02	253.76	0.22	0.22	-0.03	
3,992.00	10.11	227.82	3,959.77	-265.02	-282.17	265.02	0.26	-0.10	1.35	
4,086.00	10.56	227.30	4,052.24	-276.40	-294.62	276.40	0.49	0.48	-0.55	
4,181.00	12.48	227.14	4,145.32	-289.29	-308.54	289.29	2.02	2.02	-0.17	

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Site:	BARCLAY 16-14HZ PAD	MD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Well:	BARCLAY 16C-26HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,275.00	10.57	234.04	4,237.43	-301.26	-322.97	301.26	2.50	-2.03	7.34
4,369.00	7.42	232.08	4,330.26	-310.06	-334.74	310.06	3.37	-3.35	-2.09
4,557.00	3.33	236.99	4,517.40	-320.50	-348.90	320.50	2.19	-2.18	2.61
4,651.00	2.84	237.54	4,611.26	-323.24	-353.15	323.24	0.52	-0.52	0.59
4,745.00	0.43	173.30	4,705.22	-324.84	-355.08	324.84	2.85	-2.56	-68.34
4,840.00	0.55	96.12	4,800.21	-325.24	-354.58	325.24	0.65	0.13	-81.24
4,934.00	0.97	59.08	4,894.21	-324.88	-353.45	324.88	0.67	0.45	-39.40
5,028.00	1.21	41.42	4,988.19	-323.73	-352.11	323.73	0.44	0.26	-18.79
5,122.00	0.76	51.36	5,082.18	-322.59	-350.97	322.59	0.51	-0.48	10.57
5,217.00	0.35	65.57	5,177.17	-322.08	-350.21	322.08	0.45	-0.43	14.96
5,311.00	0.50	67.53	5,271.17	-321.80	-349.57	321.80	0.16	0.16	2.09
5,405.00	0.64	80.94	5,365.16	-321.56	-348.67	321.56	0.20	0.15	14.27
5,500.00	0.70	88.13	5,460.16	-321.46	-347.57	321.46	0.11	0.06	7.57
5,594.00	0.90	81.02	5,554.15	-321.33	-346.27	321.33	0.24	0.21	-7.56
5,688.00	0.87	89.42	5,648.14	-321.20	-344.82	321.20	0.14	-0.03	8.94
5,782.00	1.02	86.72	5,742.12	-321.15	-343.27	321.15	0.17	0.16	-2.87
5,877.00	1.21	78.02	5,837.11	-320.89	-341.45	320.89	0.27	0.20	-9.16
5,971.00	1.55	101.37	5,931.08	-320.94	-339.23	320.94	0.69	0.36	24.84
6,066.00	0.80	359.86	6,026.07	-320.53	-337.97	320.53	1.98	-0.79	-106.85
6,160.00	0.88	356.71	6,120.06	-319.15	-338.02	319.15	0.10	0.09	-3.35
6,254.00	1.01	16.43	6,214.04	-317.64	-337.82	317.64	0.37	0.14	20.98
6,348.00	1.20	67.44	6,308.03	-316.46	-336.68	316.46	1.03	0.20	54.27
6,442.00	0.74	237.36	6,402.02	-316.41	-336.28	316.41	2.06	-0.49	180.77
6,537.00	0.34	131.92	6,497.02	-316.93	-336.59	316.93	0.94	-0.42	-110.99
6,631.00	0.96	127.70	6,591.01	-317.60	-335.76	317.60	0.66	0.66	-4.49
6,725.00	1.13	194.11	6,685.00	-318.98	-335.36	318.98	1.23	0.18	70.65
6,819.00	1.18	163.69	6,778.98	-320.81	-335.31	320.81	0.65	0.05	-32.36
6,913.00	1.23	137.76	6,872.96	-322.48	-334.36	322.48	0.58	0.05	-27.59
7,007.00	9.08	175.25	6,966.52	-330.64	-333.07	330.64	8.66	8.35	39.88
7,101.00	12.46	172.96	7,058.85	-348.10	-331.21	348.10	3.62	3.60	-2.44
7,196.00	20.19	175.95	7,149.95	-374.66	-328.79	374.66	8.18	8.14	3.15
7,290.00	30.14	176.76	7,234.93	-414.51	-326.31	414.51	10.59	10.59	0.86
7,384.00	39.49	184.16	7,312.05	-468.02	-327.15	468.02	10.90	9.95	7.87
7,478.00	49.17	180.90	7,379.22	-533.55	-329.88	533.55	10.58	10.30	-3.47
7,572.00	61.90	178.79	7,432.31	-610.89	-329.56	610.89	13.67	13.54	-2.24
7,667.00	75.18	180.14	7,466.99	-699.10	-328.79	699.10	14.04	13.98	1.42
7,761.00	81.21	181.51	7,486.21	-791.05	-330.12	791.05	6.57	6.41	1.46
7,795.00	85.29	181.44	7,490.21	-824.80	-330.99	824.80	12.00	12.00	-0.21
7,864.00	88.40	181.71	7,494.00	-893.66	-332.89	893.66	4.53	4.51	0.40
7"(441 FNL 993 FEL)									
7,901.00	90.07	181.86	7,494.49	-930.64	-334.04	930.64	4.53	4.51	0.40
7,996.00	90.13	181.22	7,494.33	-1,025.60	-336.59	1,025.60	0.68	0.06	-0.67
8,090.00	90.77	181.44	7,493.59	-1,119.57	-338.77	1,119.57	0.72	0.68	0.23

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Well:	BARCLAY 16C-26HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,185.00	90.44	180.08	7,492.59	-1,214.56	-340.03	1,214.56	1.47	-0.35	-1.43
8,279.00	90.13	179.62	7,492.12	-1,308.56	-339.79	1,308.56	0.59	-0.33	-0.49
8,373.00	90.57	179.89	7,491.55	-1,402.55	-339.39	1,402.55	0.55	0.47	0.29
8,467.00	88.92	179.92	7,491.96	-1,496.55	-339.23	1,496.55	1.76	-1.76	0.03
8,561.00	88.46	179.41	7,494.11	-1,590.52	-338.68	1,590.52	0.73	-0.49	-0.54
8,656.00	88.59	179.07	7,496.56	-1,685.48	-337.42	1,685.48	0.38	0.14	-0.36
8,750.00	88.76	179.16	7,498.73	-1,779.45	-335.97	1,779.45	0.20	0.18	0.10
8,845.00	89.83	179.05	7,499.90	-1,874.43	-334.49	1,874.43	1.13	1.13	-0.12
8,939.00	89.97	179.81	7,500.07	-1,968.42	-333.55	1,968.42	0.82	0.15	0.81
9,033.00	89.53	179.06	7,500.48	-2,062.41	-332.62	2,062.41	0.93	-0.47	-0.80
9,128.00	89.93	179.44	7,500.92	-2,157.40	-331.38	2,157.40	0.58	0.42	0.40
9,222.00	90.37	179.80	7,500.68	-2,251.40	-330.76	2,251.40	0.60	0.47	0.38
9,316.00	90.07	179.64	7,500.32	-2,345.40	-330.30	2,345.40	0.36	-0.32	-0.17
9,410.00	89.73	180.41	7,500.48	-2,439.40	-330.34	2,439.40	0.90	-0.36	0.82
9,504.00	89.80	180.21	7,500.87	-2,533.40	-330.85	2,533.40	0.23	0.07	-0.21
9,598.00	89.63	179.71	7,501.33	-2,627.40	-330.78	2,627.40	0.56	-0.18	-0.53
9,693.00	88.56	178.25	7,502.83	-2,722.36	-329.09	2,722.36	1.91	-1.13	-1.54
9,787.00	88.72	178.81	7,505.06	-2,816.31	-326.68	2,816.31	0.62	0.17	0.60
9,881.00	88.92	179.89	7,507.00	-2,910.28	-325.61	2,910.28	1.17	0.21	1.15
9,975.00	88.99	180.54	7,508.71	-3,004.26	-325.97	3,004.26	0.70	0.07	0.69
10,069.00	88.56	180.67	7,510.72	-3,098.24	-326.96	3,098.24	0.48	-0.46	0.14
10,161.00	88.82	180.76	7,512.83	-3,190.20	-328.11	3,190.20	0.30	0.28	0.10
10,253.00	89.19	181.44	7,514.43	-3,282.17	-329.87	3,282.17	0.84	0.40	0.74
10,344.00	90.64	182.73	7,514.56	-3,373.11	-333.18	3,373.11	2.13	1.59	1.42
10,436.00	90.60	182.76	7,513.56	-3,465.00	-337.59	3,465.00	0.05	-0.04	0.03
10,528.00	90.57	183.16	7,512.63	-3,556.87	-342.34	3,556.87	0.44	-0.03	0.43
10,620.00	90.81	182.89	7,511.52	-3,648.73	-347.19	3,648.73	0.39	0.26	-0.29
10,712.00	89.93	181.99	7,510.92	-3,740.65	-351.11	3,740.65	1.37	-0.96	-0.98
10,804.00	90.44	182.56	7,510.63	-3,832.57	-354.76	3,832.57	0.83	0.55	0.62
10,896.00	88.99	180.89	7,511.08	-3,924.53	-357.53	3,924.53	2.40	-1.58	-1.82
10,987.00	89.13	180.74	7,512.58	-4,015.50	-358.83	4,015.50	0.23	0.15	-0.16
11,079.00	89.03	181.24	7,514.05	-4,107.48	-360.42	4,107.48	0.55	-0.11	0.54
11,170.00	89.16	179.18	7,515.49	-4,198.46	-360.75	4,198.46	2.27	0.14	-2.26
11,261.00	89.36	179.59	7,516.67	-4,289.45	-359.77	4,289.45	0.50	0.22	0.45
11,356.00	89.46	179.97	7,517.65	-4,384.44	-359.41	4,384.44	0.41	0.11	0.40
11,450.00	89.66	179.40	7,518.37	-4,478.44	-358.89	4,478.44	0.64	0.21	-0.61
11,544.00	89.50	178.58	7,519.06	-4,572.42	-357.23	4,572.42	0.89	-0.17	-0.87
11,639.00	90.10	179.03	7,519.39	-4,667.40	-355.25	4,667.40	0.79	0.63	0.47
11,733.00	90.03	178.72	7,519.28	-4,761.38	-353.41	4,761.38	0.34	-0.07	-0.33
11,827.00	90.03	179.69	7,519.23	-4,855.37	-352.10	4,855.37	1.03	0.00	1.03
11,921.00	90.34	179.81	7,518.93	-4,949.37	-351.69	4,949.37	0.35	0.33	0.13
12,015.00	89.97	179.24	7,518.67	-5,043.36	-350.91	5,043.36	0.72	-0.39	-0.61
12,110.00	90.00	179.56	7,518.70	-5,138.36	-349.92	5,138.36	0.34	0.03	0.34

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BARCLAY 16C-26HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Site:	BARCLAY 16-14HZ PAD	MD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Well:	BARCLAY 16C-26HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,204.00	90.07	179.00	7,518.64	-5,232.35	-348.74	5,232.35	0.60	0.07	-0.60
12,298.00	89.50	179.71	7,518.99	-5,326.34	-347.68	5,326.34	0.97	-0.61	0.76
12,393.00	89.53	179.87	7,519.80	-5,421.34	-347.33	5,421.34	0.17	0.03	0.17
12,487.00	90.07	181.25	7,520.13	-5,515.33	-348.25	5,515.33	1.58	0.57	1.47
12,581.00	90.17	180.85	7,519.93	-5,609.31	-349.97	5,609.31	0.44	0.11	-0.43
12,675.00	89.83	180.28	7,519.93	-5,703.31	-350.90	5,703.31	0.71	-0.36	-0.61
12,769.00	90.10	180.07	7,519.99	-5,797.31	-351.19	5,797.31	0.36	0.29	-0.22
12,863.00	90.13	181.72	7,519.80	-5,891.29	-352.66	5,891.29	1.76	0.03	1.76
12,957.00	90.07	181.50	7,519.63	-5,985.26	-355.30	5,985.26	0.24	-0.06	-0.23
13,052.00	90.03	181.23	7,519.55	-6,080.23	-357.56	6,080.23	0.29	-0.04	-0.28
13,146.00	90.07	180.96	7,519.47	-6,174.21	-359.36	6,174.21	0.29	0.04	-0.29
13,240.00	89.83	180.60	7,519.55	-6,268.20	-360.64	6,268.20	0.46	-0.26	-0.38
13,334.00	89.67	180.16	7,519.96	-6,362.20	-361.26	6,362.20	0.50	-0.17	-0.47
13,428.00	89.50	179.62	7,520.64	-6,456.20	-361.08	6,456.20	0.60	-0.18	-0.57
13,522.00	89.66	179.58	7,521.33	-6,550.19	-360.42	6,550.19	0.18	0.17	-0.04
13,617.00	89.50	179.45	7,522.03	-6,645.19	-359.62	6,645.19	0.22	-0.17	-0.14
13,710.00	89.46	179.07	7,522.87	-6,738.17	-358.42	6,738.17	0.41	-0.04	-0.41
13,805.00	89.70	179.04	7,523.57	-6,833.16	-356.85	6,833.16	0.25	0.25	-0.03
13,899.00	90.03	179.21	7,523.79	-6,927.15	-355.41	6,927.15	0.39	0.35	0.18
13,992.00	89.93	179.25	7,523.82	-7,020.14	-354.16	7,020.14	0.12	-0.11	0.04
14,086.00	89.66	178.57	7,524.16	-7,114.12	-352.38	7,114.12	0.78	-0.29	-0.72
14,181.00	89.90	178.19	7,524.52	-7,209.08	-349.69	7,209.08	0.47	0.25	-0.40
14,275.00	89.80	178.75	7,524.77	-7,303.05	-347.18	7,303.05	0.61	-0.11	0.60
14,369.00	89.09	179.80	7,525.68	-7,397.03	-345.99	7,397.03	1.35	-0.76	1.12
14,464.00	88.89	179.77	7,527.35	-7,492.02	-345.64	7,492.02	0.21	-0.21	-0.03
14,558.00	89.06	180.52	7,529.04	-7,586.00	-345.87	7,586.00	0.82	0.18	0.80
14,652.00	89.50	179.87	7,530.22	-7,679.99	-346.19	7,679.99	0.83	0.47	-0.69
14,747.00	90.24	180.49	7,530.43	-7,774.99	-346.49	7,774.99	1.02	0.78	0.65
14,841.00	90.34	180.60	7,529.96	-7,868.99	-347.39	7,868.99	0.16	0.11	0.12
14,936.00	90.40	180.89	7,529.34	-7,963.98	-348.62	7,963.98	0.31	0.06	0.31
15,030.00	90.47	180.98	7,528.63	-8,057.96	-350.15	8,057.96	0.12	0.07	0.10
15,124.00	90.80	181.13	7,527.59	-8,151.94	-351.89	8,151.94	0.39	0.35	0.16
15,313.00	90.74	181.40	7,525.05	-8,340.88	-356.06	8,340.88	0.15	-0.03	0.14
15,407.00	89.09	179.91	7,525.19	-8,434.86	-357.13	8,434.86	2.37	-1.76	-1.59
15,502.00	88.12	180.00	7,527.50	-8,529.83	-357.06	8,529.83	1.03	-1.02	0.09
15,596.00	88.56	178.34	7,530.22	-8,623.78	-355.70	8,623.78	1.83	0.47	-1.77
15,690.00	89.67	178.37	7,531.68	-8,717.73	-353.00	8,717.73	1.18	1.18	0.03
15,785.00	89.97	178.82	7,531.97	-8,812.70	-350.67	8,812.70	0.57	0.32	0.47
15,879.00	90.47	179.16	7,531.61	-8,906.68	-349.01	8,906.68	0.64	0.53	0.36
15,974.00	90.91	179.75	7,530.47	-9,001.67	-348.11	9,001.67	0.77	0.46	0.62
16,069.00	89.73	179.90	7,529.94	-9,096.67	-347.82	9,096.67	1.25	-1.24	0.16
16,163.00	89.36	179.28	7,530.68	-9,190.66	-347.15	9,190.66	0.77	-0.39	-0.66
16,257.00	89.40	179.36	7,531.70	-9,284.65	-346.03	9,284.65	0.10	0.04	0.09
16,351.00	90.03	179.98	7,532.17	-9,378.65	-345.49	9,378.65	0.94	0.67	0.66

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well BARCLAY 16C-26HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Site:	BARCLAY 16-14HZ PAD	MD Reference:	GL 4908 & KB 25 @ 4933.00ft (HP 311)
Well:	BARCLAY 16C-26HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
16,446.00	89.60	178.93	7,532.48	-9,473.64	-344.58	9,473.64	1.19	-0.45	-1.11	
16,540.00	89.16	179.27	7,533.49	-9,567.62	-343.11	9,567.62	0.59	-0.47	0.36	
16,634.00	90.67	179.86	7,533.63	-9,661.62	-342.39	9,661.62	1.72	1.61	0.63	
16,728.00	90.94	180.04	7,532.31	-9,755.61	-342.31	9,755.61	0.35	0.29	0.19	
16,822.00	91.41	180.08	7,530.38	-9,849.59	-342.41	9,849.59	0.50	0.50	0.04	
16,916.00	89.60	179.97	7,529.56	-9,943.58	-342.45	9,943.58	1.93	-1.93	-0.12	
17,010.00	89.29	179.59	7,530.47	-10,037.58	-342.09	10,037.58	0.52	-0.33	-0.40	
17,104.00	89.26	179.77	7,531.66	-10,131.57	-341.57	10,131.57	0.19	-0.03	0.19	
17,198.00	90.13	180.32	7,532.16	-10,225.56	-341.64	10,225.56	1.09	0.93	0.59	
17,292.00	90.47	180.71	7,531.66	-10,319.56	-342.49	10,319.56	0.55	0.36	0.41	
17,369.00	90.37	179.79	7,531.10	-10,396.55	-342.82	10,396.55	1.20	-0.13	-1.19	
LAST SDI MWD PRODUCTION SURVEY										
17,431.00	90.37	179.79	7,530.70	-10,458.55	-342.59	10,458.55	0.00	0.00	0.00	
SDI PROJECTION TO TD(486 FSL 882 FEL)										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,363.00	1,362.97	9 5/8"	9.625	13.500	
7,864.00	7,494.00	7"(441 FNL 993 FEL)	7.000	8.750	

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
102.00	101.99	-0.63	-0.49	FIRST CATHEDRAL MWD SURFACE SURVEY	
1,328.00	1,327.97	0.10	0.15	LAST CATHEDRAL MWD SURFACE SURVEY	
1,385.00	1,384.97	0.53	-0.14	FIRST SDI MWD PRODUCTION SURVEY	
17,369.00	7,531.10	-10,396.55	-342.82	LAST SDI MWD PRODUCTION SURVEY	
17,431.00	7,530.70	-10,458.55	-342.59	SDI PROJECTION TO TD(486 FSL 882 FEL)	

Checked By: _____ Approved By: _____ Date: _____