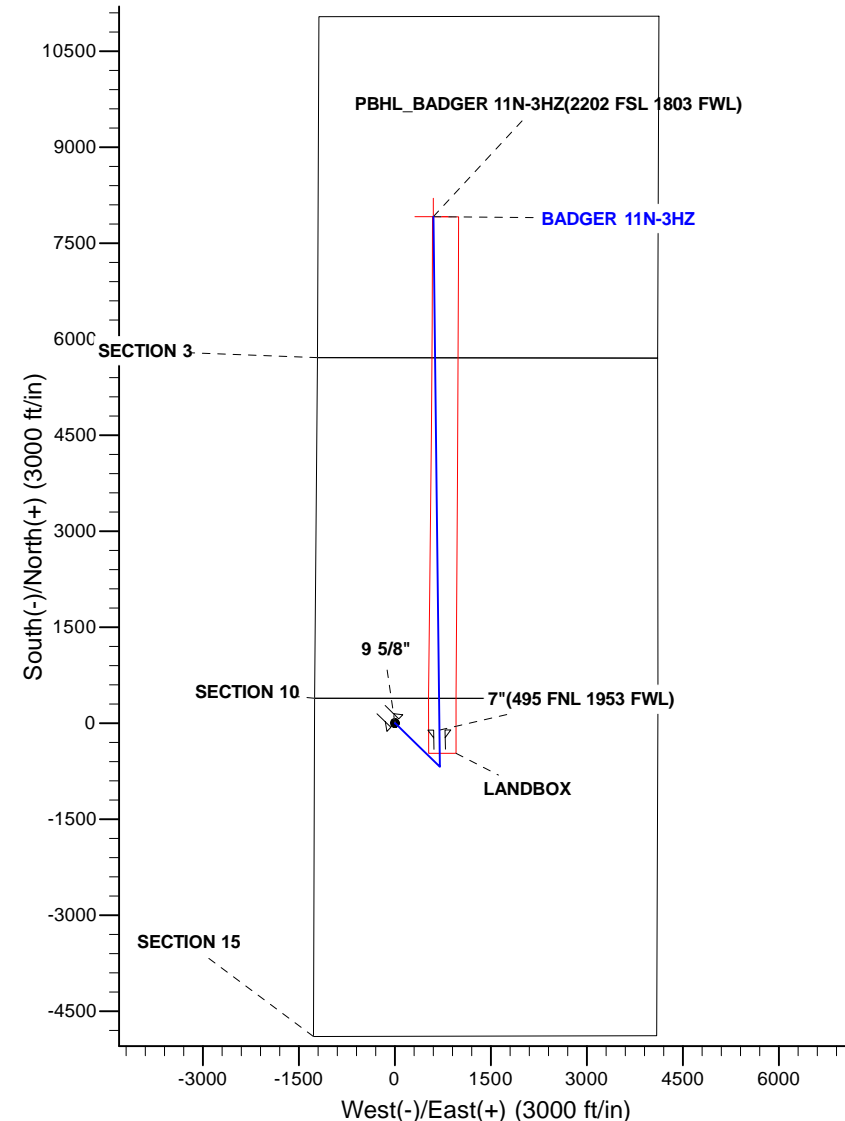
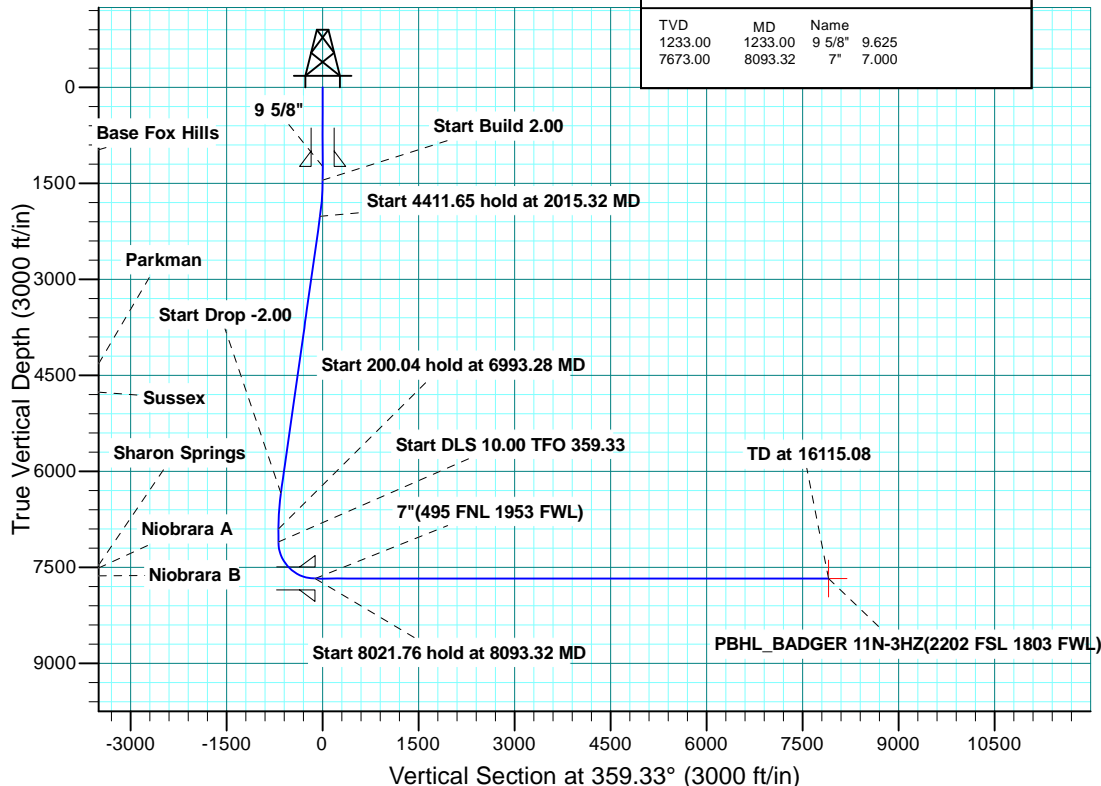


WELL DETAILS: BADGER 11N-3HZ									
GL 5132 & KB @ 5153.00ft (UNIT 403)									
		+N-S 0.00	+E-W 0.00	Northing 1264142.91	Easting 3141460.54	Latitude 40.0573550	Longitude -104.9946330		
SECTION DETAILS									
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1449.00	0.00	0.00	1449.00	0.00	0.00	0.00	0.00	0.00	
2015.32	11.33	134.21	2011.64	-38.91	39.99	2.00	134.21	-39.37	
6426.96	11.33	134.21	6337.36	-643.09	661.01	0.00	0.00	-650.78	
6993.28	0.00	0.00	6900.00	-682.00	701.00	2.00	180.00	-690.15	
7193.32	0.00	0.00	7100.04	-682.00	701.00	0.00	0.00	-690.15	
8093.32	90.00	359.33	7673.00	-109.08	694.27	10.00	359.33	-117.19	
16115.08	90.00	359.33	7673.00	7912.12	600.00	0.00	7904.57		PBHL_BADGER 11N-3HZ(2202 FSL 1803 FWL)
DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL 7673.00		7912.12	600.00	1272058.31	3142015.44	40.0790750	-104.9924888	Point	
- plan hits target center									

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 15 T1N R68W	
System Datum: Mean Sea Level	

FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
973.00	973.00	Base Fox Hills	0.00
4315.00	4364.43	Parkman	11.33
4761.00	4819.29	Sussex	11.33
7463.00	7586.40	Sharon Springs	39.31
7507.00	7645.90	Niobrara A	45.26
7631.00	7872.58	Niobrara B	67.93

CASING DETAILS			
TVD	MD	Name	
1233.00	1233.00	9 5/8"	9.625
7673.00	8093.32	7"	7.000





Scientific Drilling

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83  
BUFFALO & BADGER 4E-15HZ PAD  
BADGER 11N-3HZ**

**OH**

**Plan: PLAN #2 PRELIMINARY**

## **Standard Planning Report**

**03 October, 2014**

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well BADGER 11N-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Site:</b>	BUFFALO & BADGER 4E-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11N-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #2 PRELIMINARY		

<b>Project</b>	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	BUFFALO & BADGER 4E-15HZ PAD, SECTION 15 T1N R68W			
<b>Site Position:</b>		<b>Northing:</b>	1,264,140.95 usft	<b>Latitude:</b> 40.0573510
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,141,370.70 usft	<b>Longitude:</b> -104.9949540
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.33 °

<b>Well</b>	BADGER 11N-3HZ, 387 FNL 1259 FWL			
<b>Well Position</b>	<b>+N/-S</b>	1.44 ft	<b>Northing:</b>	1,264,142.91 usft
	<b>+E/-W</b>	89.85 ft	<b>Easting:</b>	3,141,460.54 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft	<b>Ground Level:</b> 5,132.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2013	6/5/2014	8.61	66.62	52,526

<b>Design</b>	PLAN #2 PRELIMINARY			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	359.33

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,449.00	0.00	0.00	1,449.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,015.32	11.33	134.21	2,011.64	-38.91	39.99	2.00	2.00	0.00	134.21	
6,426.96	11.33	134.21	6,337.36	-643.09	661.01	0.00	0.00	0.00	0.00	
6,993.28	0.00	0.00	6,900.00	-682.00	701.00	2.00	-2.00	0.00	180.00	
7,193.32	0.00	0.00	7,100.04	-682.00	701.00	0.00	0.00	0.00	0.00	
8,093.32	90.00	359.33	7,673.00	-109.08	694.27	10.00	10.00	-0.07	359.33	
16,115.08	90.00	359.33	7,673.00	7,912.12	600.00	0.00	0.00	0.00	0.00	PBHL_BADGER 11N-

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well BADGER 11N-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Site:</b>	BUFFALO & BADGER 4E-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11N-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #2 PRELIMINARY		

Planned 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
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
973.00	0.00	0.00	973.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Fox Hills</b>									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
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
1,233.00	0.00	0.00	1,233.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,449.00	0.00	0.00	1,449.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,500.00	1.02	134.21	1,500.00	-0.32	0.33	-0.32	2.00	2.00	0.00
1,600.00	3.02	134.21	1,599.93	-2.77	2.85	-2.81	2.00	2.00	0.00
1,700.00	5.02	134.21	1,699.68	-7.66	7.88	-7.75	2.00	2.00	0.00
1,800.00	7.02	134.21	1,799.12	-14.98	15.39	-15.15	2.00	2.00	0.00
1,900.00	9.02	134.21	1,898.14	-24.70	25.39	-25.00	2.00	2.00	0.00
2,000.00	11.02	134.21	1,996.61	-36.84	37.86	-37.28	2.00	2.00	0.00
2,015.32	11.33	134.21	2,011.64	-38.91	39.99	-39.37	2.00	2.00	0.00
<b>Start 4411.65 hold at 2015.32 MD</b>									
2,100.00	11.33	134.21	2,094.67	-50.50	51.91	-51.11	0.00	0.00	0.00
2,200.00	11.33	134.21	2,192.72	-64.20	65.99	-64.97	0.00	0.00	0.00
2,300.00	11.33	134.21	2,290.77	-77.89	80.06	-78.83	0.00	0.00	0.00
2,400.00	11.33	134.21	2,388.83	-91.59	94.14	-92.68	0.00	0.00	0.00
2,500.00	11.33	134.21	2,486.88	-105.28	108.22	-106.54	0.00	0.00	0.00
2,600.00	11.33	134.21	2,584.93	-118.98	122.29	-120.40	0.00	0.00	0.00
2,700.00	11.33	134.21	2,682.98	-132.68	136.37	-134.26	0.00	0.00	0.00
2,800.00	11.33	134.21	2,781.04	-146.37	150.45	-148.12	0.00	0.00	0.00
2,900.00	11.33	134.21	2,879.09	-160.07	164.53	-161.98	0.00	0.00	0.00
3,000.00	11.33	134.21	2,977.14	-173.76	178.60	-175.84	0.00	0.00	0.00
3,100.00	11.33	134.21	3,075.19	-187.46	192.68	-189.70	0.00	0.00	0.00
3,200.00	11.33	134.21	3,173.25	-201.15	206.76	-203.56	0.00	0.00	0.00
3,300.00	11.33	134.21	3,271.30	-214.85	220.83	-217.41	0.00	0.00	0.00
3,400.00	11.33	134.21	3,369.35	-228.54	234.91	-231.27	0.00	0.00	0.00
3,500.00	11.33	134.21	3,467.40	-242.24	248.99	-245.13	0.00	0.00	0.00
3,600.00	11.33	134.21	3,565.46	-255.93	263.06	-258.99	0.00	0.00	0.00
3,700.00	11.33	134.21	3,663.51	-269.63	277.14	-272.85	0.00	0.00	0.00
3,800.00	11.33	134.21	3,761.56	-283.32	291.22	-286.71	0.00	0.00	0.00
3,900.00	11.33	134.21	3,859.61	-297.02	305.29	-300.57	0.00	0.00	0.00
4,000.00	11.33	134.21	3,957.67	-310.71	319.37	-314.43	0.00	0.00	0.00
4,100.00	11.33	134.21	4,055.72	-324.41	333.45	-328.29	0.00	0.00	0.00
4,200.00	11.33	134.21	4,153.77	-338.10	347.52	-342.15	0.00	0.00	0.00
4,300.00	11.33	134.21	4,251.82	-351.80	361.60	-356.00	0.00	0.00	0.00
4,364.43	11.33	134.21	4,315.00	-360.62	370.67	-364.93	0.00	0.00	0.00
<b>Parkman</b>									

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well BADGER 11N-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Site:</b>	BUFFALO & BADGER 4E-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11N-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #2 PRELIMINARY		

Planned 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)
4,400.00	11.33	134.21	4,349.88	-365.50	375.68	-369.86	0.00	0.00	0.00
4,500.00	11.33	134.21	4,447.93	-379.19	389.75	-383.72	0.00	0.00	0.00
4,600.00	11.33	134.21	4,545.98	-392.89	403.83	-397.58	0.00	0.00	0.00
4,700.00	11.33	134.21	4,644.03	-406.58	417.91	-411.44	0.00	0.00	0.00
4,800.00	11.33	134.21	4,742.09	-420.28	431.99	-425.30	0.00	0.00	0.00
4,819.29	11.33	134.21	4,761.00	-422.92	434.70	-427.97	0.00	0.00	0.00
<b>Sussex</b>									
4,900.00	11.33	134.21	4,840.14	-433.97	446.06	-439.16	0.00	0.00	0.00
5,000.00	11.33	134.21	4,938.19	-447.67	460.14	-453.02	0.00	0.00	0.00
5,100.00	11.33	134.21	5,036.24	-461.36	474.22	-466.88	0.00	0.00	0.00
5,200.00	11.33	134.21	5,134.30	-475.06	488.29	-480.73	0.00	0.00	0.00
5,300.00	11.33	134.21	5,232.35	-488.75	502.37	-494.59	0.00	0.00	0.00
5,400.00	11.33	134.21	5,330.40	-502.45	516.45	-508.45	0.00	0.00	0.00
5,500.00	11.33	134.21	5,428.45	-516.14	530.52	-522.31	0.00	0.00	0.00
5,600.00	11.33	134.21	5,526.51	-529.84	544.60	-536.17	0.00	0.00	0.00
5,700.00	11.33	134.21	5,624.56	-543.53	558.68	-550.03	0.00	0.00	0.00
5,800.00	11.33	134.21	5,722.61	-557.23	572.75	-563.89	0.00	0.00	0.00
5,900.00	11.33	134.21	5,820.66	-570.92	586.83	-577.75	0.00	0.00	0.00
6,000.00	11.33	134.21	5,918.72	-584.62	600.91	-591.61	0.00	0.00	0.00
6,100.00	11.33	134.21	6,016.77	-598.32	614.98	-605.47	0.00	0.00	0.00
6,200.00	11.33	134.21	6,114.82	-612.01	629.06	-619.32	0.00	0.00	0.00
6,300.00	11.33	134.21	6,212.87	-625.71	643.14	-633.18	0.00	0.00	0.00
6,400.00	11.33	134.21	6,310.92	-639.40	657.21	-647.04	0.00	0.00	0.00
6,426.96	11.33	134.21	6,337.36	-643.09	661.01	-650.78	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
6,500.00	9.87	134.21	6,409.15	-652.46	670.64	-660.26	2.00	-2.00	0.00
6,600.00	7.87	134.21	6,507.95	-663.21	681.68	-671.13	2.00	-2.00	0.00
6,700.00	5.87	134.21	6,607.23	-671.54	690.25	-679.57	2.00	-2.00	0.00
6,800.00	3.87	134.21	6,706.87	-677.46	696.33	-685.55	2.00	-2.00	0.00
6,900.00	1.87	134.21	6,806.73	-680.94	699.91	-689.08	2.00	-2.00	0.00
6,993.28	0.00	0.00	6,900.00	-682.00	701.00	-690.15	2.00	-2.00	0.00
<b>Start 200.04 hold at 6993.28 MD</b>									
7,000.00	0.00	0.00	6,906.72	-682.00	701.00	-690.15	0.00	0.00	0.00
7,100.00	0.00	0.00	7,006.72	-682.00	701.00	-690.15	0.00	0.00	0.00
7,193.32	0.00	0.00	7,100.04	-682.00	701.00	-690.15	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 359.33</b>									
7,200.00	0.67	359.33	7,106.72	-681.96	701.00	-690.11	10.00	10.00	0.00
7,300.00	10.67	359.33	7,206.10	-672.10	700.88	-680.25	10.00	10.00	0.00
7,400.00	20.67	359.33	7,302.27	-645.13	700.57	-653.28	10.00	10.00	0.00
7,500.00	30.67	359.33	7,392.28	-601.87	700.06	-610.02	10.00	10.00	0.00
7,586.40	39.31	359.33	7,463.00	-552.38	699.48	-560.52	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,600.00	40.67	359.33	7,473.42	-543.64	699.37	-551.78	10.00	10.00	0.00
7,645.90	45.26	359.33	7,507.00	-512.37	699.01	-520.51	10.00	10.00	0.00
<b>Niobrara A</b>									
7,700.00	50.67	359.33	7,543.21	-472.21	698.53	-480.34	10.00	10.00	0.00
7,800.00	60.67	359.33	7,599.54	-389.74	697.57	-397.87	10.00	10.00	0.00
7,872.58	67.93	359.33	7,631.00	-324.39	696.80	-332.51	10.00	10.00	0.00
<b>Niobrara B</b>									
7,900.00	70.67	359.33	7,640.69	-298.74	696.50	-306.87	10.00	10.00	0.00
8,000.00	80.67	359.33	7,665.42	-201.99	695.36	-210.10	10.00	10.00	0.00
8,093.32	90.00	359.33	7,673.00	-109.08	694.27	-117.20	10.00	10.00	0.00
<b>Start 8021.76 hold at 8093.32 MD - 7"(495 FNL 1953 FWL)</b>									

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well BADGER 11N-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Site:</b>	BUFFALO & BADGER 4E-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11N-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #2 PRELIMINARY		

Planned 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)
8,100.00	90.00	359.33	7,673.00	-102.40	694.19	-110.52	0.01	0.01	0.00
8,200.00	90.00	359.33	7,673.00	-2.41	693.01	-10.52	0.00	0.00	0.00
8,300.00	90.00	359.33	7,673.00	97.58	691.84	89.48	0.00	0.00	0.00
8,400.00	90.00	359.33	7,673.00	197.57	690.66	189.48	0.00	0.00	0.00
8,500.00	90.00	359.33	7,673.00	297.57	689.49	289.48	0.00	0.00	0.00
8,600.00	90.00	359.33	7,673.00	397.56	688.31	389.48	0.00	0.00	0.00
8,700.00	90.00	359.33	7,673.00	497.55	687.14	489.48	0.00	0.00	0.00
8,800.00	90.00	359.33	7,673.00	597.55	685.96	589.48	0.00	0.00	0.00
8,900.00	90.00	359.33	7,673.00	697.54	684.79	689.48	0.00	0.00	0.00
9,000.00	90.00	359.33	7,673.00	797.53	683.61	789.48	0.00	0.00	0.00
9,100.00	90.00	359.33	7,673.00	897.53	682.44	889.48	0.00	0.00	0.00
9,200.00	90.00	359.33	7,673.00	997.52	681.26	989.48	0.00	0.00	0.00
9,300.00	90.00	359.33	7,673.00	1,097.51	680.09	1,089.48	0.00	0.00	0.00
9,400.00	90.00	359.33	7,673.00	1,197.51	678.91	1,189.48	0.00	0.00	0.00
9,500.00	90.00	359.33	7,673.00	1,297.50	677.74	1,289.48	0.00	0.00	0.00
9,600.00	90.00	359.33	7,673.00	1,397.49	676.56	1,389.48	0.00	0.00	0.00
9,700.00	90.00	359.33	7,673.00	1,497.48	675.39	1,489.48	0.00	0.00	0.00
9,800.00	90.00	359.33	7,673.00	1,597.48	674.21	1,589.48	0.00	0.00	0.00
9,900.00	90.00	359.33	7,673.00	1,697.47	673.04	1,689.48	0.00	0.00	0.00
10,000.00	90.00	359.33	7,673.00	1,797.46	671.86	1,789.48	0.00	0.00	0.00
10,100.00	90.00	359.33	7,673.00	1,897.46	670.69	1,889.48	0.00	0.00	0.00
10,200.00	90.00	359.33	7,673.00	1,997.45	669.51	1,989.48	0.00	0.00	0.00
10,300.00	90.00	359.33	7,673.00	2,097.44	668.34	2,089.48	0.00	0.00	0.00
10,400.00	90.00	359.33	7,673.00	2,197.44	667.16	2,189.49	0.00	0.00	0.00
10,500.00	90.00	359.33	7,673.00	2,297.43	665.99	2,289.49	0.00	0.00	0.00
10,600.00	90.00	359.33	7,673.00	2,397.42	664.81	2,389.49	0.00	0.00	0.00
10,700.00	90.00	359.33	7,673.00	2,497.42	663.63	2,489.49	0.00	0.00	0.00
10,800.00	90.00	359.33	7,673.00	2,597.41	662.46	2,589.49	0.00	0.00	0.00
10,900.00	90.00	359.33	7,673.00	2,697.40	661.28	2,689.49	0.00	0.00	0.00
11,000.00	90.00	359.33	7,673.00	2,797.40	660.11	2,789.49	0.00	0.00	0.00
11,100.00	90.00	359.33	7,673.00	2,897.39	658.93	2,889.49	0.00	0.00	0.00
11,200.00	90.00	359.33	7,673.00	2,997.38	657.76	2,989.49	0.00	0.00	0.00
11,300.00	90.00	359.33	7,673.00	3,097.37	656.58	3,089.49	0.00	0.00	0.00
11,400.00	90.00	359.33	7,673.00	3,197.37	655.41	3,189.49	0.00	0.00	0.00
11,500.00	90.00	359.33	7,673.00	3,297.36	654.23	3,289.49	0.00	0.00	0.00
11,600.00	90.00	359.33	7,673.00	3,397.35	653.06	3,389.49	0.00	0.00	0.00
11,700.00	90.00	359.33	7,673.00	3,497.35	651.88	3,489.49	0.00	0.00	0.00
11,800.00	90.00	359.33	7,673.00	3,597.34	650.71	3,589.49	0.00	0.00	0.00
11,900.00	90.00	359.33	7,673.00	3,697.33	649.53	3,689.49	0.00	0.00	0.00
12,000.00	90.00	359.33	7,673.00	3,797.33	648.36	3,789.49	0.00	0.00	0.00
12,100.00	90.00	359.33	7,673.00	3,897.32	647.18	3,889.49	0.00	0.00	0.00
12,200.00	90.00	359.33	7,673.00	3,997.31	646.01	3,989.49	0.00	0.00	0.00
12,300.00	90.00	359.33	7,673.00	4,097.31	644.83	4,089.49	0.00	0.00	0.00
12,400.00	90.00	359.33	7,673.00	4,197.30	643.66	4,189.49	0.00	0.00	0.00
12,500.00	90.00	359.33	7,673.00	4,297.29	642.48	4,289.49	0.00	0.00	0.00
12,600.00	90.00	359.33	7,673.00	4,397.28	641.31	4,389.49	0.00	0.00	0.00
12,700.00	90.00	359.33	7,673.00	4,497.28	640.13	4,489.49	0.00	0.00	0.00
12,800.00	90.00	359.33	7,673.00	4,597.27	638.96	4,589.49	0.00	0.00	0.00
12,900.00	90.00	359.33	7,673.00	4,697.26	637.78	4,689.49	0.00	0.00	0.00
13,000.00	90.00	359.33	7,673.00	4,797.26	636.61	4,789.49	0.00	0.00	0.00
13,100.00	90.00	359.33	7,673.00	4,897.25	635.43	4,889.49	0.00	0.00	0.00
13,200.00	90.00	359.33	7,673.00	4,997.24	634.26	4,989.49	0.00	0.00	0.00
13,300.00	90.00	359.33	7,673.00	5,097.24	633.08	5,089.49	0.00	0.00	0.00
13,400.00	90.00	359.33	7,673.00	5,197.23	631.91	5,189.49	0.00	0.00	0.00

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well BADGER 11N-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Site:</b>	BUFFALO & BADGER 4E-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11N-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #2 PRELIMINARY		

Planned 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)
13,500.00	90.00	359.33	7,673.00	5,297.22	630.73	5,289.49	0.00	0.00	0.00
13,600.00	90.00	359.33	7,673.00	5,397.22	629.56	5,389.49	0.00	0.00	0.00
13,700.00	90.00	359.33	7,673.00	5,497.21	628.38	5,489.49	0.00	0.00	0.00
13,800.00	90.00	359.33	7,673.00	5,597.20	627.21	5,589.49	0.00	0.00	0.00
13,900.00	90.00	359.33	7,673.00	5,697.20	626.03	5,689.49	0.00	0.00	0.00
14,000.00	90.00	359.33	7,673.00	5,797.19	624.86	5,789.49	0.00	0.00	0.00
14,100.00	90.00	359.33	7,673.00	5,897.18	623.68	5,889.49	0.00	0.00	0.00
14,200.00	90.00	359.33	7,673.00	5,997.17	622.50	5,989.49	0.00	0.00	0.00
14,300.00	90.00	359.33	7,673.00	6,097.17	621.33	6,089.49	0.00	0.00	0.00
14,400.00	90.00	359.33	7,673.00	6,197.16	620.15	6,189.49	0.00	0.00	0.00
14,500.00	90.00	359.33	7,673.00	6,297.15	618.98	6,289.49	0.00	0.00	0.00
14,600.00	90.00	359.33	7,673.00	6,397.15	617.80	6,389.49	0.00	0.00	0.00
14,700.00	90.00	359.33	7,673.00	6,497.14	616.63	6,489.49	0.00	0.00	0.00
14,800.00	90.00	359.33	7,673.00	6,597.13	615.45	6,589.49	0.00	0.00	0.00
14,900.00	90.00	359.33	7,673.00	6,697.13	614.28	6,689.49	0.00	0.00	0.00
15,000.00	90.00	359.33	7,673.00	6,797.12	613.10	6,789.49	0.00	0.00	0.00
15,100.00	90.00	359.33	7,673.00	6,897.11	611.93	6,889.49	0.00	0.00	0.00
15,200.00	90.00	359.33	7,673.00	6,997.11	610.75	6,989.49	0.00	0.00	0.00
15,300.00	90.00	359.33	7,673.00	7,097.10	609.58	7,089.49	0.00	0.00	0.00
15,400.00	90.00	359.33	7,673.00	7,197.09	608.40	7,189.49	0.00	0.00	0.00
15,500.00	90.00	359.33	7,673.00	7,297.08	607.23	7,289.49	0.00	0.00	0.00
15,600.00	90.00	359.33	7,673.00	7,397.08	606.05	7,389.49	0.00	0.00	0.00
15,700.00	90.00	359.33	7,673.00	7,497.07	604.88	7,489.49	0.00	0.00	0.00
15,800.00	90.00	359.33	7,673.00	7,597.06	603.70	7,589.49	0.00	0.00	0.00
15,900.00	90.00	359.33	7,673.00	7,697.06	602.53	7,689.49	0.00	0.00	0.00
16,000.00	90.00	359.33	7,673.00	7,797.05	601.35	7,789.49	0.00	0.00	0.00
16,100.00	90.00	359.33	7,673.00	7,897.04	600.18	7,889.49	0.00	0.00	0.00
16,115.08	90.00	359.33	7,673.00	7,912.12	600.00	7,904.57	0.00	0.00	0.00
TD at 16115.08 - PBHL_BADGER 11N-3HZ(2202 FSL 1803 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_BADGER 11N-3H	0.00	0.00	7,673.00	7,912.12	600.00	1,272,058.30	3,142,015.44	40.0790750	-104.9924888
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,233.00	1,233.00	9 5/8"	9.625	12.250	
8,093.32	7,673.00	7"(495 FNL 1953 FWL)	7.000	8.750	

<b>Database:</b>	Denver Sales	<b>Local Co-ordinate Reference:</b>	Well BADGER 11N-3HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5132 & KB @ 5153.00ft (UNIT 403)
<b>Site:</b>	BUFFALO & BADGER 4E-15HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	BADGER 11N-3HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #2 PRELIMINARY		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
973.00	979.00	Base Fox Hills				
4,364.43	4,321.00	Parkman				
4,819.29	4,767.00	Sussex				
7,586.40	7,469.00	Sharon Springs				
7,645.90	7,513.00	Niobrara A				
7,872.58	7,637.00	Niobrara B				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,449.00	1,449.00	0.00	0.00	Start Build 2.00	
2,015.32	2,011.64	-38.91	39.99	Start 4411.65 hold at 2015.32 MD	
6,426.96	6,337.36	-643.09	661.01	Start Drop -2.00	
6,993.28	6,900.00	-682.00	701.00	Start 200.04 hold at 6993.28 MD	
7,193.32	7,100.04	-682.00	701.00	Start DLS 10.00 TFO 359.33	
8,093.32	7,673.00	-109.08	694.27	Start 8021.76 hold at 8093.32 MD	
16,115.08	7,673.00	7,912.12	600.00	TD at 16115.08	