

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 19-T2N-R65W

Russian Fiddler 15N-18HZ

Plan C Rev 0

Plan: Plan C Rev 0 Permit

## Sperry Drilling Services

## Proposal Report

11 October, 2012

Well Coordinates: 1,286,705.86 N, 3,222,028.60 E (40° 07' 03.62" N, 104° 42' 21.94" W)

Ground Level: 4,989.00 ft

Local Coordinate Origin: Centered on Well Russian Fiddler 15N-18HZ

Viewing Datum: RKB=17 @ 5006.00ft (Drilling Rig)

TVDs to System: N

North Reference: True

Unit System: API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
Site: Sec. 19-T2N-R65W  
Well: Russian Fiddler 15N-18HZ  
Wellbore: Plan C Rev 0  
Design: Plan C Rev 0 Permit

# Anadarko Petroleum Corp.

**HALLIBURTON**  
Sperry Drilling

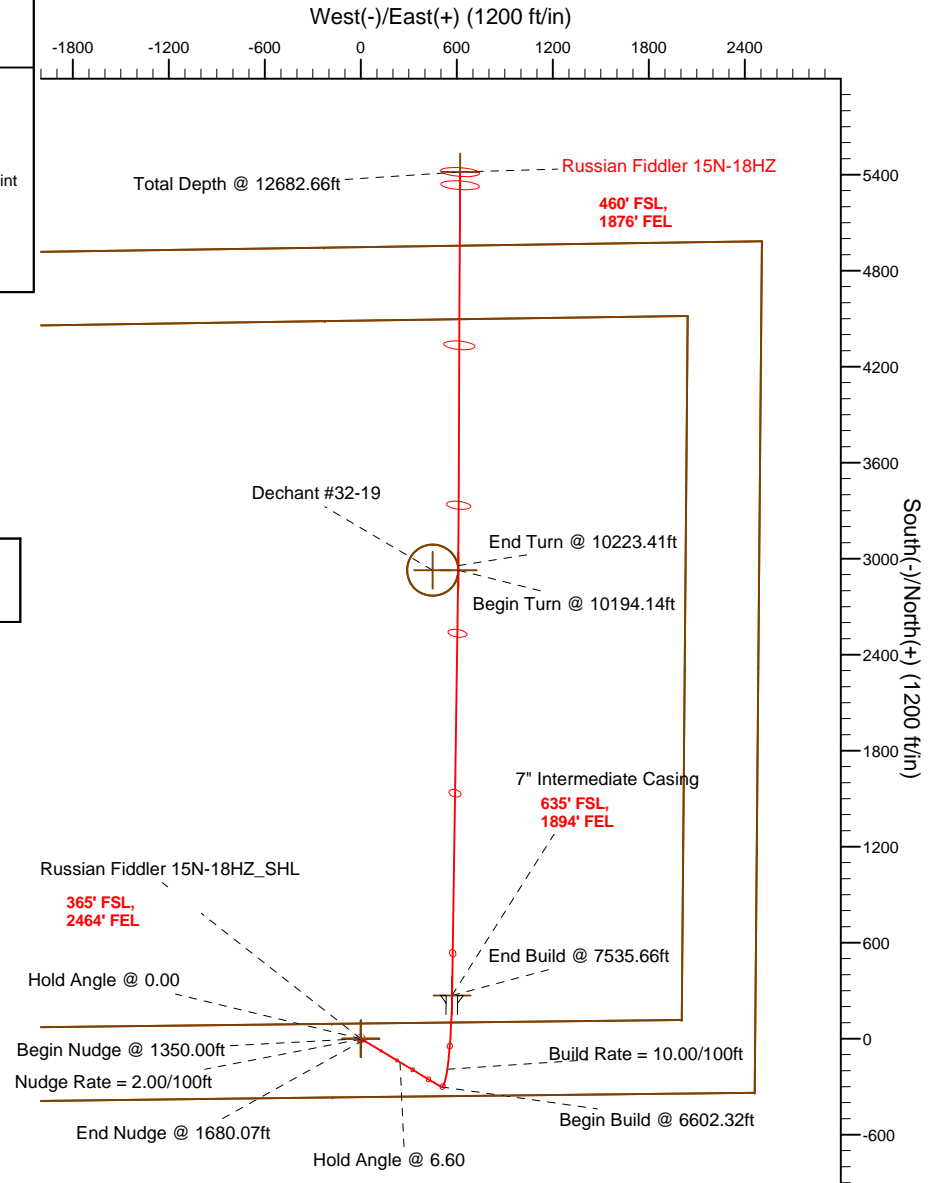
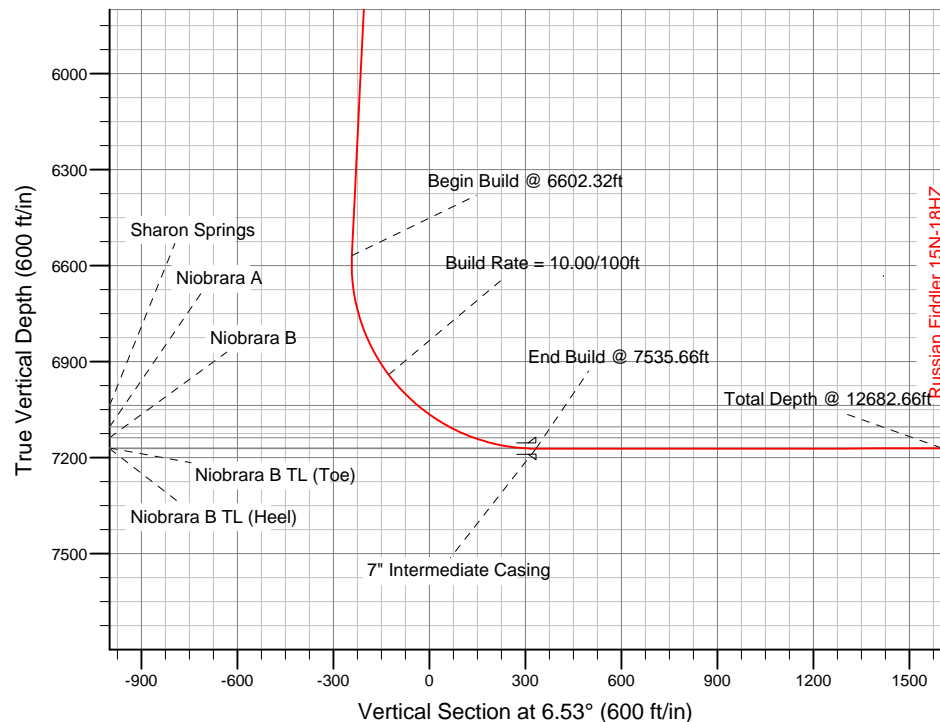
## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1350.00	0.00	0.00	1350.00	0.00	0.00	0.00	0.00	0.00	
3	1680.07	6.60	121.01	1679.34	-9.78	16.28	2.00	121.01	-7.87	
4	6602.32	6.60	121.01	6568.95	-301.28	501.29	0.00	0.00	-242.33	
5	7535.66	90.02	0.84	7172.00	270.00	570.00	10.00	-120.00	333.06	Russian Fiddler 15N-18HZ_Casing Point
6	10194.14	90.02	0.84	7170.97	2928.20	608.84	0.00	0.00	2978.43	Russian Fiddler 15N-18HZ_WPtgt 1
7	10223.41	90.02	0.25	7170.96	2957.47	609.12	2.00	-89.99	3007.55	
8	12682.66	90.02	0.25	7170.00	5416.69	619.92	0.00	0.00	5452.05	Russian Fiddler 15N-18HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Dechant #32-19	0.00	2928.20	448.84	40.125710	-104.704490	Circle (Radius: 160.00)
Russian Fiddler 15N-18HZ_Section Lines	0.00	0.00	0.00	40.117672	-104.706095	Polygon
Russian Fiddler 15N-18HZ_Setback Lines	0.00	0.00	0.00	40.117672	-104.706095	Polygon
Russian Fiddler 15N-18HZ_SHL	0.00	0.00	0.00	40.117672	-104.706095	Point
Russian Fiddler 15N-18HZ_BHL	7170.00	5416.69	619.92	40.132541	-104.703878	Point
Russian Fiddler 15N-18HZ_WPtgt 1	7170.97	2928.20	608.84	40.125710	-104.703918	Point
Russian Fiddler 15N-18HZ_Casing Point	7172.00	270.00	570.00	40.118413	-104.704057	Point

**Target Line:**  
**7171.64' TVDkb @ 0° VS Drilling 90.02°**



WELL DETAILS: Russian Fiddler 15N-18HZ

Ground Level#989.00 RKB=17 @ 5006.00ft (Drilling Rig)

Plan: Plan C Rev 0 Permit (Russian Fiddler 15N-18HZ/Plan C Rev 0)

Created By: Fred Hartmann Date: 10/08/2012  
Reviewed: Date:

**Plan Report for Russian Fiddler 15N-18HZ - Plan C Rev 0 Permit**

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)	Toolface Azimuth (°)
0.00	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	0.00
200.00	0.00	0.00	200.00	0.00	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	0.00
400.00	0.00	0.00	400.00	0.00	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	0.00
600.00	0.00	0.00	600.00	0.00	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	0.00
<b>Hold Angle @ 0.00</b>										
800.00	0.00	0.00	800.00	0.00	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	0.00
1,000.00	0.00	0.00	1,000.00	0.00	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	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,350.00	0.00	0.00	1,350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 1350.00ft</b>										
1,400.00	1.00	121.01	1,400.00	-0.22	0.37	-0.18	2.00	2.00	0.00	121.01
1,500.00	3.00	121.01	1,499.93	-2.02	3.37	-1.63	2.00	2.00	0.00	0.00
<b>Nudge Rate = 2.00/100ft</b>										
1,600.00	5.00	121.01	1,599.68	-5.62	9.34	-4.52	2.00	2.00	0.00	0.00
1,680.07	6.60	121.01	1,679.34	-9.78	16.28	-7.87	2.00	2.00	0.00	0.00
<b>End Nudge @ 1680.07ft</b>										
1,700.00	6.60	121.01	1,699.14	-10.96	18.24	-8.82	0.00	0.00	0.00	0.00
1,800.00	6.60	121.01	1,798.48	-16.89	28.10	-13.58	0.00	0.00	0.00	0.00
1,900.00	6.60	121.01	1,897.81	-22.81	37.95	-18.35	0.00	0.00	0.00	0.00
2,000.00	6.60	121.01	1,997.15	-28.73	47.80	-23.11	0.00	0.00	0.00	0.00
2,100.00	6.60	121.01	2,096.49	-34.65	57.66	-27.87	0.00	0.00	0.00	0.00
2,200.00	6.60	121.01	2,195.82	-40.57	67.51	-32.64	0.00	0.00	0.00	0.00
2,300.00	6.60	121.01	2,295.16	-46.50	77.36	-37.40	0.00	0.00	0.00	0.00
2,400.00	6.60	121.01	2,394.50	-52.42	87.22	-42.16	0.00	0.00	0.00	0.00
2,500.00	6.60	121.01	2,493.83	-58.34	97.07	-46.92	0.00	0.00	0.00	0.00
2,600.00	6.60	121.01	2,593.17	-64.26	106.92	-51.69	0.00	0.00	0.00	0.00
2,700.00	6.60	121.01	2,692.51	-70.18	116.78	-56.45	0.00	0.00	0.00	0.00
2,800.00	6.60	121.01	2,791.85	-76.11	126.63	-61.21	0.00	0.00	0.00	0.00
2,900.00	6.60	121.01	2,891.18	-82.03	136.48	-65.98	0.00	0.00	0.00	0.00
3,000.00	6.60	121.01	2,990.52	-87.95	146.34	-70.74	0.00	0.00	0.00	0.00
3,100.00	6.60	121.01	3,089.86	-93.87	156.19	-75.50	0.00	0.00	0.00	0.00
3,200.00	6.60	121.01	3,189.19	-99.79	166.04	-80.27	0.00	0.00	0.00	0.00
3,300.00	6.60	121.01	3,288.53	-105.72	175.90	-85.03	0.00	0.00	0.00	0.00
3,400.00	6.60	121.01	3,387.87	-111.64	185.75	-89.79	0.00	0.00	0.00	0.00
3,500.00	6.60	121.01	3,487.20	-117.56	195.60	-94.56	0.00	0.00	0.00	0.00
3,600.00	6.60	121.01	3,586.54	-123.48	205.46	-99.32	0.00	0.00	0.00	0.00
3,700.00	6.60	121.01	3,685.88	-129.40	215.31	-104.08	0.00	0.00	0.00	0.00
3,800.00	6.60	121.01	3,785.22	-135.33	225.16	-108.85	0.00	0.00	0.00	0.00
3,900.00	6.60	121.01	3,884.55	-141.25	235.02	-113.61	0.00	0.00	0.00	0.00
4,000.00	6.60	121.01	3,983.89	-147.17	244.87	-118.37	0.00	0.00	0.00	0.00
<b>Hold Angle @ 6.60</b>										
4,083.67	6.60	121.01	4,067.00	-152.12	253.11	-122.36	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,100.00	6.60	121.01	4,083.23	-153.09	254.72	-123.14	0.00	0.00	0.00	0.00
4,200.00	6.60	121.01	4,182.56	-159.01	264.58	-127.90	0.00	0.00	0.00	0.00
4,300.00	6.60	121.01	4,281.90	-164.94	274.43	-132.66	0.00	0.00	0.00	0.00
4,400.00	6.60	121.01	4,381.24	-170.86	284.28	-137.43	0.00	0.00	0.00	0.00
4,500.00	6.60	121.01	4,480.57	-176.78	294.14	-142.19	0.00	0.00	0.00	0.00
4,600.00	6.60	121.01	4,579.91	-182.70	303.99	-146.95	0.00	0.00	0.00	0.00
4,624.25	6.60	121.01	4,604.00	-184.14	306.38	-148.11	0.00	0.00	0.00	0.00

**Plan Report for Russian Fiddler 15N-18HZ - Plan C Rev 0 Permit**

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)	Toolface Azimuth (°)
<b>Sussex</b>										
4,700.00	6.60	121.01	4,679.25	-188.62	313.84	-151.72	0.00	0.00	0.00	0.00
4,800.00	6.60	121.01	4,778.59	-194.55	323.70	-156.48	0.00	0.00	0.00	0.00
4,900.00	6.60	121.01	4,877.92	-200.47	333.55	-161.24	0.00	0.00	0.00	0.00
5,000.00	6.60	121.01	4,977.26	-206.39	343.40	-166.00	0.00	0.00	0.00	0.00
5,100.00	6.60	121.01	5,076.60	-212.31	353.26	-170.77	0.00	0.00	0.00	0.00
5,200.00	6.60	121.01	5,175.93	-218.23	363.11	-175.53	0.00	0.00	0.00	0.00
5,300.00	6.60	121.01	5,275.27	-224.16	372.96	-180.29	0.00	0.00	0.00	0.00
5,400.00	6.60	121.01	5,374.61	-230.08	382.82	-185.06	0.00	0.00	0.00	0.00
5,500.00	6.60	121.01	5,473.94	-236.00	392.67	-189.82	0.00	0.00	0.00	0.00
5,600.00	6.60	121.01	5,573.28	-241.92	402.52	-194.58	0.00	0.00	0.00	0.00
5,700.00	6.60	121.01	5,672.62	-247.84	412.38	-199.35	0.00	0.00	0.00	0.00
5,800.00	6.60	121.01	5,771.96	-253.77	422.23	-204.11	0.00	0.00	0.00	0.00
5,900.00	6.60	121.01	5,871.29	-259.69	432.09	-208.87	0.00	0.00	0.00	0.00
6,000.00	6.60	121.01	5,970.63	-265.61	441.94	-213.64	0.00	0.00	0.00	0.00
6,100.00	6.60	121.01	6,069.97	-271.53	451.79	-218.40	0.00	0.00	0.00	0.00
6,200.00	6.60	121.01	6,169.30	-277.45	461.65	-223.16	0.00	0.00	0.00	0.00
6,300.00	6.60	121.01	6,268.64	-283.38	471.50	-227.93	0.00	0.00	0.00	0.00
6,400.00	6.60	121.01	6,367.98	-289.30	481.35	-232.69	0.00	0.00	0.00	0.00
6,500.00	6.60	121.01	6,467.31	-295.22	491.21	-237.45	0.00	0.00	0.00	0.00
6,600.00	6.60	121.01	6,566.65	-301.14	501.06	-242.22	0.00	0.00	0.00	0.00
6,602.32	6.60	121.01	6,568.96	-301.28	501.29	-242.33	0.00	0.00	0.00	0.00
<b>Begin Build @ 6602.32ft</b>										
6,700.00	8.61	42.18	6,666.00	-298.74	511.03	-238.70	10.00	2.06	-80.70	-120.00
6,800.00	17.39	19.47	6,763.39	-279.05	521.07	-217.99	10.00	8.78	-22.71	-41.66
6,900.00	27.02	12.15	6,855.88	-242.66	530.86	-180.72	10.00	9.63	-7.31	-19.45
7,000.00	36.84	8.51	6,940.66	-190.67	540.10	-128.02	10.00	9.82	-3.64	-12.66
<b>Build Rate = 10.00/100ft</b>										
7,100.00	46.73	6.24	7,015.13	-124.66	548.52	-61.49	10.00	9.89	-2.27	-9.56
7,132.91	49.99	5.66	7,037.00	-100.21	551.07	-36.90	10.00	9.91	-1.78	-7.86
<b>Sharon Springs</b>										
7,200.00	56.64	4.62	7,077.06	-46.65	555.86	16.86	10.00	9.92	-1.55	-7.47
7,252.73	61.88	3.90	7,104.00	-1.46	559.22	62.13	10.00	9.93	-1.35	-6.85
<b>Niobrara A</b>										
7,300.00	66.58	3.32	7,124.54	41.01	561.90	104.63	10.00	9.94	-1.23	-6.48
7,336.56	70.22	2.90	7,138.00	74.94	563.74	138.56	10.00	9.94	-1.15	-6.23
<b>Niobrara B</b>										
7,400.00	76.53	2.21	7,156.15	135.64	566.45	199.16	10.00	9.95	-1.09	-6.07
7,500.00	86.47	1.19	7,170.91	234.37	569.37	297.59	10.00	9.95	-1.02	-5.88
7,535.66	90.02	0.84	7,172.00	270.00	570.00	333.06	10.00	9.95	-1.00	-5.72
<b>End Build @ 7535.66ft - Niobrara B TL (Heel) - 7" Intermediate Casing - Russian Fiddler 15N-18HZ Casing Point</b>										
7,600.00	90.02	0.84	7,171.98	334.33	570.94	397.08	0.00	0.00	0.00	-5.71
7,700.00	90.02	0.84	7,171.94	434.32	572.40	496.59	0.00	0.00	0.00	0.00
7,800.00	90.02	0.84	7,171.90	534.31	573.86	596.10	0.00	0.00	0.00	0.00
7,900.00	90.02	0.84	7,171.86	634.30	575.32	695.61	0.00	0.00	0.00	0.00
8,000.00	90.02	0.84	7,171.82	734.29	576.78	795.11	0.00	0.00	0.00	0.00
8,100.00	90.02	0.84	7,171.78	834.28	578.24	894.62	0.00	0.00	0.00	0.00
8,200.00	90.02	0.84	7,171.74	934.27	579.71	994.13	0.00	0.00	0.00	0.00
8,300.00	90.02	0.84	7,171.70	1,034.26	581.17	1,093.63	0.00	0.00	0.00	0.00
8,400.00	90.02	0.84	7,171.67	1,134.25	582.63	1,193.14	0.00	0.00	0.00	0.00
8,500.00	90.02	0.84	7,171.63	1,234.24	584.09	1,292.65	0.00	0.00	0.00	0.00
8,600.00	90.02	0.84	7,171.59	1,334.23	585.55	1,392.15	0.00	0.00	0.00	0.00
8,700.00	90.02	0.84	7,171.55	1,434.22	587.01	1,491.66	0.00	0.00	0.00	0.00
8,800.00	90.02	0.84	7,171.51	1,534.21	588.47	1,591.17	0.00	0.00	0.00	0.00
8,900.00	90.02	0.84	7,171.47	1,634.20	589.93	1,690.67	0.00	0.00	0.00	0.00
9,000.00	90.02	0.84	7,171.43	1,734.18	591.39	1,790.18	0.00	0.00	0.00	0.00
9,100.00	90.02	0.84	7,171.39	1,834.17	592.85	1,889.69	0.00	0.00	0.00	0.00
9,200.00	90.02	0.84	7,171.36	1,934.16	594.32	1,989.20	0.00	0.00	0.00	0.00
9,300.00	90.02	0.84	7,171.32	2,034.15	595.78	2,088.70	0.00	0.00	0.00	0.00

**Plan Report for Russian Fiddler 15N-18HZ - Plan C Rev 0 Permit**

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)	Toolface Azimuth (°)
9,400.00	90.02	0.84	7,171.28	2,134.14	597.24	2,188.21	0.00	0.00	0.00	0.00
9,500.00	90.02	0.84	7,171.24	2,234.13	598.70	2,287.72	0.00	0.00	0.00	0.00
9,600.00	90.02	0.84	7,171.20	2,334.12	600.16	2,387.22	0.00	0.00	0.00	0.00
9,700.00	90.02	0.84	7,171.16	2,434.11	601.62	2,486.73	0.00	0.00	0.00	0.00
9,800.00	90.02	0.84	7,171.12	2,534.10	603.08	2,586.24	0.00	0.00	0.00	0.00
9,900.00	90.02	0.84	7,171.08	2,634.09	604.54	2,685.74	0.00	0.00	0.00	0.00
10,000.00	90.02	0.84	7,171.05	2,734.08	606.00	2,785.25	0.00	0.00	0.00	0.00
10,100.00	90.02	0.84	7,171.01	2,834.07	607.46	2,884.76	0.00	0.00	0.00	0.00
10,194.14	90.02	0.84	7,170.97	2,928.20	608.84	2,978.43	0.00	0.00	0.00	0.00
<b>Begin Turn @ 10194.14ft - Russian Fiddler 15N-18HZ_WPtgt 1</b>										
10,200.00	90.02	0.72	7,170.97	2,934.06	608.92	2,984.27	2.00	0.00	-2.00	-89.99
10,223.41	90.02	0.25	7,170.96	2,957.47	609.12	3,007.54	2.00	0.00	-2.00	-89.99
<b>End Turn @ 10223.41ft</b>										
10,300.00	90.02	0.25	7,170.93	3,034.06	609.45	3,083.68	0.00	0.00	0.00	-89.99
10,400.00	90.02	0.25	7,170.89	3,134.05	609.89	3,183.08	0.00	0.00	0.00	0.00
10,500.00	90.02	0.25	7,170.85	3,234.05	610.33	3,282.48	0.00	0.00	0.00	0.00
10,600.00	90.02	0.25	7,170.81	3,334.05	610.77	3,381.88	0.00	0.00	0.00	0.00
10,700.00	90.02	0.25	7,170.77	3,434.05	611.21	3,481.28	0.00	0.00	0.00	0.00
10,800.00	90.02	0.25	7,170.73	3,534.05	611.65	3,580.68	0.00	0.00	0.00	0.00
10,900.00	90.02	0.25	7,170.69	3,634.05	612.09	3,680.08	0.00	0.00	0.00	0.00
11,000.00	90.02	0.25	7,170.66	3,734.05	612.53	3,779.48	0.00	0.00	0.00	0.00
11,100.00	90.02	0.25	7,170.62	3,834.05	612.97	3,878.88	0.00	0.00	0.00	0.00
11,200.00	90.02	0.25	7,170.58	3,934.05	613.41	3,978.28	0.00	0.00	0.00	0.00
11,300.00	90.02	0.25	7,170.54	4,034.05	613.85	4,077.68	0.00	0.00	0.00	0.00
11,400.00	90.02	0.25	7,170.50	4,134.04	614.29	4,177.08	0.00	0.00	0.00	0.00
11,500.00	90.02	0.25	7,170.46	4,234.04	614.72	4,276.48	0.00	0.00	0.00	0.00
11,600.00	90.02	0.25	7,170.42	4,334.04	615.16	4,375.88	0.00	0.00	0.00	0.00
11,700.00	90.02	0.25	7,170.38	4,434.04	615.60	4,475.28	0.00	0.00	0.00	0.00
11,800.00	90.02	0.25	7,170.34	4,534.04	616.04	4,574.68	0.00	0.00	0.00	0.00
11,900.00	90.02	0.25	7,170.31	4,634.04	616.48	4,674.08	0.00	0.00	0.00	0.00
12,000.00	90.02	0.25	7,170.27	4,734.04	616.92	4,773.48	0.00	0.00	0.00	0.00
12,100.00	90.02	0.25	7,170.23	4,834.04	617.36	4,872.88	0.00	0.00	0.00	0.00
12,200.00	90.02	0.25	7,170.19	4,934.04	617.80	4,972.28	0.00	0.00	0.00	0.00
12,300.00	90.02	0.25	7,170.15	5,034.04	618.24	5,071.68	0.00	0.00	0.00	0.00
12,400.00	90.02	0.25	7,170.11	5,134.03	618.68	5,171.08	0.00	0.00	0.00	0.00
12,500.00	90.02	0.25	7,170.07	5,234.03	619.12	5,270.49	0.00	0.00	0.00	0.00
12,600.00	90.02	0.25	7,170.03	5,334.03	619.56	5,369.89	0.00	0.00	0.00	0.00
12,682.65	90.02	0.25	7,170.00	5,416.68	619.92	5,452.04	0.00	0.00	0.00	0.00
<b>Niobrara B TL (Toe)</b>										
12,682.66	90.02	0.25	7,170.00	5,416.69	619.92	5,452.05	0.00	0.00	0.00	0.00
<b>Total Depth @ 12682.66ft - Russian Fiddler 15N-18HZ_BHL</b>										

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
700.00	700.00	0.00	0.00	Hold Angle @ 0.00
1,350.00	1,350.00	0.00	0.00	Begin Nudge @ 1350.00ft
1,500.00	1,499.93	-2.02	3.37	Nudge Rate = 2.00/100ft
1,680.07	1,679.34	-9.78	16.28	End Nudge @ 1680.07ft
4,000.00	3,983.89	-147.17	244.87	Hold Angle @ 6.60
6,602.32	6,568.96	-301.28	501.29	Begin Build @ 6602.32ft
7,000.00	6,940.66	-190.67	540.10	Build Rate = 10.00/100ft
7,535.66	7,172.00	270.00	570.00	End Build @ 7535.66ft
10,194.14	7,170.97	2,928.20	608.84	Begin Turn @ 10194.14ft
10,223.41	7,170.96	2,957.47	609.12	End Turn @ 10223.41ft
12,682.66	7,170.00	5,416.69	619.92	Total Depth @ 12682.66ft

## Plan Report for Russian Fiddler 15N-18HZ - Plan C Rev 0 Permit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Russian Fiddler 15N-18HZ_BHL	6.53	Slot	0.00	0.00	7,170.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,535.66	Plan C Rev 0 Permit	MWD
7,535.66	12,682.66	Plan C Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,535.66	7,172.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,083.67	4,067.00	Parkman		0.00	
4,624.25	4,604.00	Sussex		0.00	
7,132.91	7,037.00	Sharon Springs		0.00	
7,252.73	7,104.00	Niobrara A		0.00	
7,336.56	7,138.00	Niobrara B		0.00	
7,535.66	7,172.00	Niobrara B TL (Heel)		0.00	
12,682.65	7,170.00	Niobrara B TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Russian Fiddler 15N-18HZ_Setback Lines	0.00	0.00	0.00	Polygon
Russian Fiddler 15N-18HZ_BHL	7,170.00	5,416.69	619.92	Point
Russian Fiddler 15N-18HZ_Section Lines	0.00	0.00	0.00	Polygon
Russian Fiddler 15N-18HZ_WPtgt 1	7,170.97	2,928.20	608.84	Point
Russian Fiddler 15N-18HZ_Casing Point	7,172.00	270.00	570.00	Point
Russian Fiddler 15N-18HZ_SHL	0.00	0.00	0.00	Point
Dechant #32-19	0.00	2,928.20	448.84	Circle

## North Reference Sheet for Sec. 19-T2N-R65W - Russian Fiddler 15N-18HZ - Plan C Rev 0

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB=17 @ 5006.00ft (Drilling Rig). Northing and Easting are relative to Russian Fiddler 15N-18HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995953

Grid Coordinates of Well: 1,286,705.86 ft N, 3,222,028.60 ft E

Geographical Coordinates of Well: 40° 07' 03.62" N, 104° 42' 21.94" W

Grid Convergence at Surface is: 0.51°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,682.66ft  
the Bottom Hole Displacement is 5,452.05ft in the Direction of 6.53° (True).

Magnetic Convergence at surface is: -8.17° (11 October 2012, , BGGM2012)

