

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 19-T2N-65W

Russian Fiddler 13N-18HZ

Plan B Rev 0

Plan: Plan B Rev 0 Permit

Sperry Drilling Services

Proposal Report

15 August, 2012

Well Coordinates: 1,286,627.86 N, 3,220,514.54 E (40° 07' 02.98" N, 104° 42' 41.44" W)

Ground Level: 5,000.00 ft

Local Coordinate Origin: Centered on Well Russian Fiddler 13N-18HZ

Viewing Datum: RKB=17ft @ 5017.00ft (Drilling Rig)

TVDs to System: N

North Reference: True

Unit System: API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 19-T2N-65W
Well: Russian Fiddler 13N-18HZ
Wellbore: Plan B Rev 0
Design: Plan B Rev 0 Permit

Anadarko Petroleum Corp.

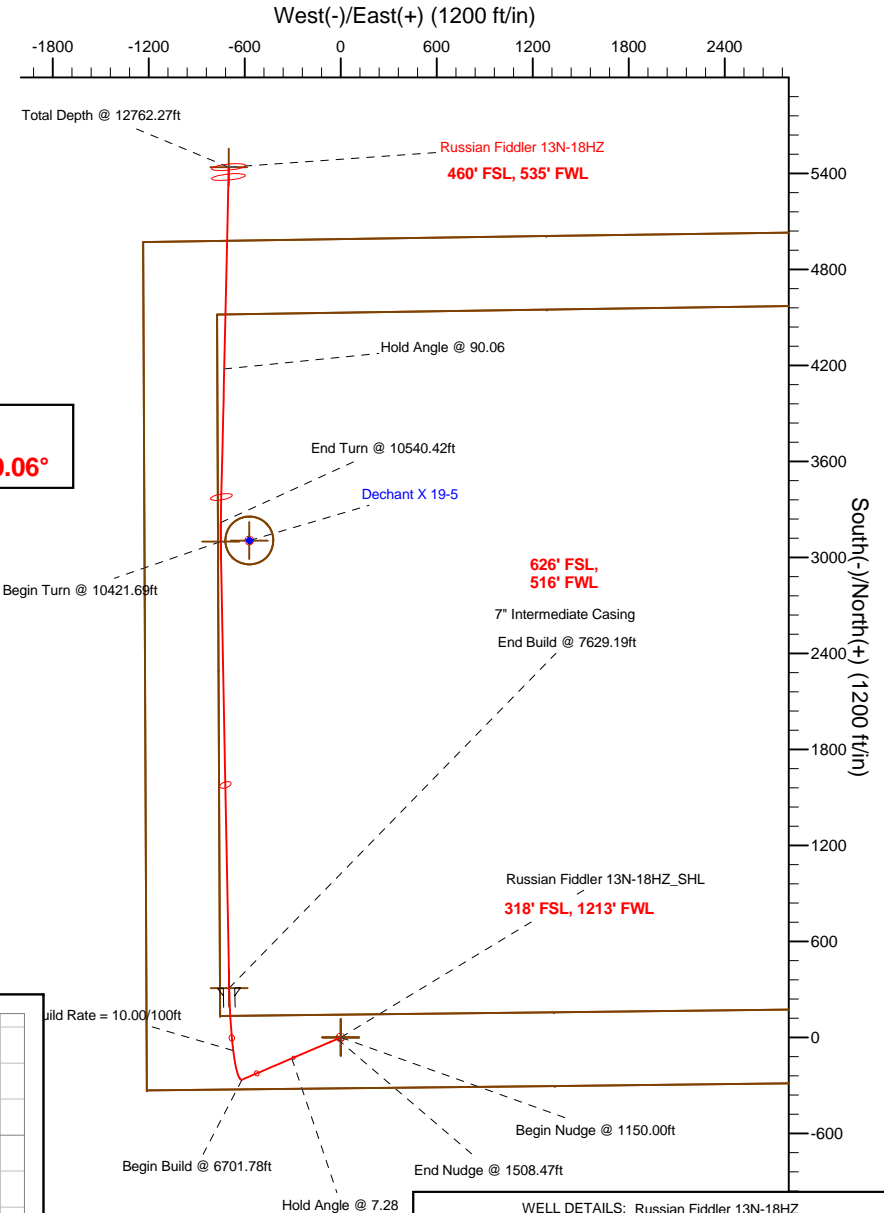
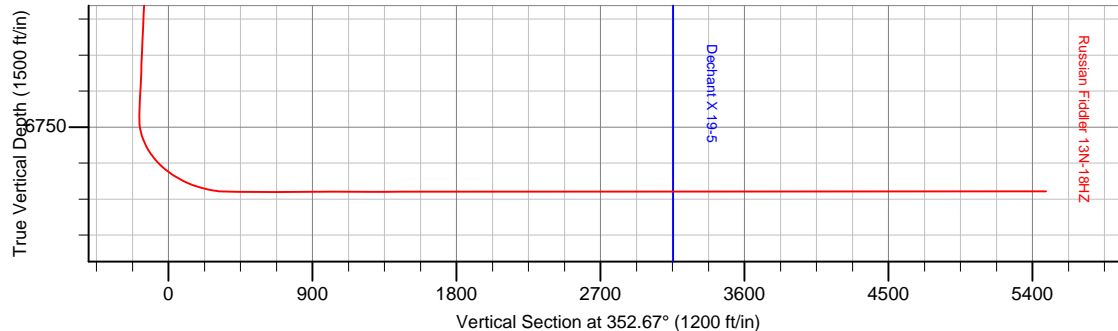
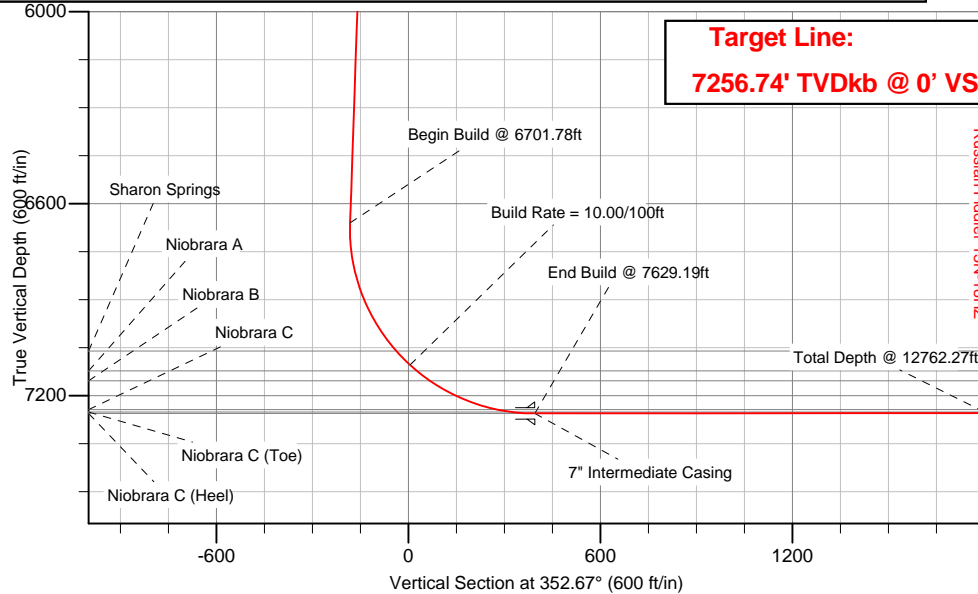
HALLIBURTON
Sperry Drilling

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	1150.00	0.00	0.00	1150.00	0.00	0.00	0.00	0.00	0.00	
3	1508.47	7.17	246.86	1507.53	-8.80	-20.60	2.00	246.86	-6.10	
4	6701.78	7.17	246.86	6660.24	-263.46	-616.61	0.00	0.00	-182.62	
5	7629.19	90.06	358.91	7256.00	308.00	-697.00	10.00	111.89	394.42	Russian Fiddler 13N-18HZ_Casing Point
6	10421.69	90.06	358.91	7253.28	3100.00	-750.00	0.00	0.00	3170.36	Russian Fiddler 13N-18HZ_WP
7	10540.42	90.06	1.29	7253.16	3218.71	-749.79	2.00	90.00	3288.08	
8	12762.27	90.06	1.29	7251.00	5440.01	-699.89	0.00	0.00	5484.85	Russian Fiddler 13N-18HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Dechant X 19-5 SHL	0.00	3106.25	-571.04	40.126022	-104.713553	Circle (Radius: 150.00)
Russian Fiddler 13N-18HZ_Section Lines	0.00	0.00	0.00	40.117495	-104.711511	Polygon
Russian Fiddler 13N-18HZ_Setback Lines	0.00	0.00	0.00	40.117495	-104.711511	Polygon
Russian Fiddler 13N-18HZ_SHL	0.00	0.00	0.00	40.117495	-104.711511	Point
Russian Fiddler 13N-18HZ_BHL	7251.00	5440.01	-699.89	40.132428	-104.714014	Point
Russian Fiddler 13N-18HZ_WP	7253.28	3100.00	-750.00	40.126005	-104.714193	Point
Russian Fiddler 13N-18HZ_Casing Point	7256.00	308.00	-697.00	40.118340	-104.714003	Point



WELL DETAILS: Russian Fiddler 13N-18HZ

Ground Level: 5000.00 RKB=17ft @ 5017.00ft (Drilling Rig)

Plan: Plan B Rev 0 Permit (Russian Fiddler 13N-18HZ/Plan B Rev 0)

Created By: Fred Hartmann Date: 08/09/2012
Reviewed: _____ Date: _____

Plan Report for Russian Fiddler 13N-18HZ - Plan B 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
Tie-On to Surface @ 0.00ft - Dechant X 19-5 SHL - Russian Fiddler 13N-18HZ_SHL - Russian Fiddler 13N-18HZ_Section Lines - R										
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
Hold Angle @ 0.00										
700.00	0.00	0.00	700.00	0.00	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	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
1,150.00	0.00	0.00	1,150.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 1150.00ft										
1,200.00	1.00	246.86	1,200.00	-0.17	-0.40	-0.12	2.00	2.00	0.00	246.86
1,300.00	3.00	246.86	1,299.93	-1.54	-3.61	-1.07	2.00	2.00	0.00	0.00
Nudge Rate = 2.00/100ft										
1,400.00	5.00	246.86	1,399.68	-4.28	-10.02	-2.97	2.00	2.00	0.00	0.00
1,500.00	7.00	246.86	1,499.13	-8.39	-19.64	-5.82	2.00	2.00	0.00	0.00
1,508.47	7.17	246.86	1,507.54	-8.80	-20.60	-6.10	2.00	2.00	0.00	0.00
End Nudge @ 1508.47ft										
1,600.00	7.17	246.86	1,598.35	-13.29	-31.10	-9.21	0.00	0.00	0.00	0.00
1,700.00	7.17	246.86	1,697.57	-18.19	-42.58	-12.61	0.00	0.00	0.00	0.00
1,800.00	7.17	246.86	1,796.79	-23.10	-54.05	-16.01	0.00	0.00	0.00	0.00
1,900.00	7.17	246.86	1,896.00	-28.00	-65.53	-19.41	0.00	0.00	0.00	0.00
2,000.00	7.17	246.86	1,995.22	-32.90	-77.01	-22.81	0.00	0.00	0.00	0.00
2,100.00	7.17	246.86	2,094.44	-37.81	-88.48	-26.21	0.00	0.00	0.00	0.00
2,200.00	7.17	246.86	2,193.66	-42.71	-99.96	-29.61	0.00	0.00	0.00	0.00
2,300.00	7.17	246.86	2,292.88	-47.61	-111.44	-33.00	0.00	0.00	0.00	0.00
2,400.00	7.17	246.86	2,392.09	-52.52	-122.91	-36.40	0.00	0.00	0.00	0.00
2,500.00	7.17	246.86	2,491.31	-57.42	-134.39	-39.80	0.00	0.00	0.00	0.00
2,600.00	7.17	246.86	2,590.53	-62.32	-145.87	-43.20	0.00	0.00	0.00	0.00
2,700.00	7.17	246.86	2,689.75	-67.23	-157.34	-46.60	0.00	0.00	0.00	0.00
2,800.00	7.17	246.86	2,788.97	-72.13	-168.82	-50.00	0.00	0.00	0.00	0.00
2,900.00	7.17	246.86	2,888.19	-77.04	-180.30	-53.40	0.00	0.00	0.00	0.00
3,000.00	7.17	246.86	2,987.40	-81.94	-191.77	-56.80	0.00	0.00	0.00	0.00
3,100.00	7.17	246.86	3,086.62	-86.84	-203.25	-60.20	0.00	0.00	0.00	0.00
3,200.00	7.17	246.86	3,185.84	-91.75	-214.73	-63.60	0.00	0.00	0.00	0.00
3,300.00	7.17	246.86	3,285.06	-96.65	-226.20	-67.00	0.00	0.00	0.00	0.00
3,400.00	7.17	246.86	3,384.28	-101.55	-237.68	-70.39	0.00	0.00	0.00	0.00
3,500.00	7.17	246.86	3,483.49	-106.46	-249.16	-73.79	0.00	0.00	0.00	0.00
3,600.00	7.17	246.86	3,582.71	-111.36	-260.63	-77.19	0.00	0.00	0.00	0.00
3,700.00	7.17	246.86	3,681.93	-116.26	-272.11	-80.59	0.00	0.00	0.00	0.00
3,800.00	7.17	246.86	3,781.15	-121.17	-283.59	-83.99	0.00	0.00	0.00	0.00
3,900.00	7.17	246.86	3,880.37	-126.07	-295.06	-87.39	0.00	0.00	0.00	0.00
4,000.00	7.17	246.86	3,979.59	-130.98	-306.54	-90.79	0.00	0.00	0.00	0.00
Hold Angle @ 7.28										
4,093.14	7.17	246.86	4,072.00	-135.54	-317.23	-93.95	0.00	0.00	0.00	0.00
Parkman										
4,100.00	7.17	246.86	4,078.80	-135.88	-318.02	-94.19	0.00	0.00	0.00	0.00
4,200.00	7.17	246.86	4,178.02	-140.78	-329.49	-97.59	0.00	0.00	0.00	0.00
4,300.00	7.17	246.86	4,277.24	-145.69	-340.97	-100.99	0.00	0.00	0.00	0.00
4,400.00	7.17	246.86	4,376.46	-150.59	-352.45	-104.38	0.00	0.00	0.00	0.00
4,500.00	7.17	246.86	4,475.68	-155.49	-363.92	-107.78	0.00	0.00	0.00	0.00
4,600.00	7.17	246.86	4,574.89	-160.40	-375.40	-111.18	0.00	0.00	0.00	0.00

Plan Report for Russian Fiddler 13N-18HZ - Plan B 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 (°)
4,625.30	7.17	246.86	4,600.00	-161.64	-378.30	-112.04	0.00	0.00	0.00	0.00
Sussex										
4,700.00	7.17	246.86	4,674.11	-165.30	-386.88	-114.58	0.00	0.00	0.00	0.00
4,800.00	7.17	246.86	4,773.33	-170.20	-398.35	-117.98	0.00	0.00	0.00	0.00
4,900.00	7.17	246.86	4,872.55	-175.11	-409.83	-121.38	0.00	0.00	0.00	0.00
5,000.00	7.17	246.86	4,971.77	-180.01	-421.31	-124.78	0.00	0.00	0.00	0.00
5,100.00	7.17	246.86	5,070.99	-184.92	-432.78	-128.18	0.00	0.00	0.00	0.00
5,200.00	7.17	246.86	5,170.20	-189.82	-444.26	-131.58	0.00	0.00	0.00	0.00
5,300.00	7.17	246.86	5,269.42	-194.72	-455.74	-134.98	0.00	0.00	0.00	0.00
5,400.00	7.17	246.86	5,368.64	-199.63	-467.21	-138.38	0.00	0.00	0.00	0.00
5,500.00	7.17	246.86	5,467.86	-204.53	-478.69	-141.77	0.00	0.00	0.00	0.00
5,600.00	7.17	246.86	5,567.08	-209.43	-490.17	-145.17	0.00	0.00	0.00	0.00
5,700.00	7.17	246.86	5,666.29	-214.34	-501.64	-148.57	0.00	0.00	0.00	0.00
5,800.00	7.17	246.86	5,765.51	-219.24	-513.12	-151.97	0.00	0.00	0.00	0.00
5,900.00	7.17	246.86	5,864.73	-224.14	-524.60	-155.37	0.00	0.00	0.00	0.00
6,000.00	7.17	246.86	5,963.95	-229.05	-536.07	-158.77	0.00	0.00	0.00	0.00
6,100.00	7.17	246.86	6,063.17	-233.95	-547.55	-162.17	0.00	0.00	0.00	0.00
6,200.00	7.17	246.86	6,162.38	-238.85	-559.03	-165.57	0.00	0.00	0.00	0.00
6,300.00	7.17	246.86	6,261.60	-243.76	-570.50	-168.97	0.00	0.00	0.00	0.00
6,400.00	7.17	246.86	6,360.82	-248.66	-581.98	-172.37	0.00	0.00	0.00	0.00
6,500.00	7.17	246.86	6,460.04	-253.57	-593.46	-175.77	0.00	0.00	0.00	0.00
6,600.00	7.17	246.86	6,559.26	-258.47	-604.93	-179.16	0.00	0.00	0.00	0.00
6,700.00	7.17	246.86	6,658.48	-263.37	-616.41	-182.56	0.00	0.00	0.00	0.00
6,701.78	7.17	246.86	6,660.24	-263.46	-616.61	-182.62	0.00	0.00	0.00	0.00
Begin Build @ 6701.78ft										
6,800.00	9.74	316.14	6,757.61	-259.87	-628.04	-177.60	10.00	2.62	70.53	111.89
6,900.00	18.35	338.32	6,854.59	-239.09	-639.74	-155.50	10.00	8.60	22.18	43.18
7,000.00	27.88	346.17	6,946.48	-201.66	-651.17	-116.92	10.00	9.53	7.85	21.59
7,100.00	37.64	350.21	7,030.48	-148.73	-661.98	-63.05	10.00	9.76	4.04	14.34
7,139.61	41.54	351.34	7,061.00	-123.82	-666.01	-37.82	10.00	9.83	2.86	10.93
Sharon Springs										
7,200.00	47.49	352.77	7,104.04	-81.90	-671.83	4.50	10.00	9.86	2.36	10.06
Build Rate = 10.00/100ft										
7,228.85	50.35	353.36	7,123.00	-60.32	-674.46	26.24	10.00	9.88	2.04	9.04
Niobrara A										
7,280.25	55.43	354.30	7,154.00	-19.58	-678.85	67.20	10.00	9.89	1.82	8.65
Niobrara B										
7,300.00	57.39	354.63	7,164.93	-3.20	-680.44	83.65	10.00	9.90	1.67	8.08
7,400.00	67.30	356.11	7,211.29	84.97	-687.53	172.01	10.00	9.91	1.48	7.90
7,500.00	77.23	357.39	7,241.72	179.94	-692.89	266.89	10.00	9.93	1.28	7.21
7,510.76	78.29	357.52	7,244.00	190.45	-693.36	277.36	10.00	9.93	1.21	6.82
Niobrara C										
7,552.62	82.45	358.02	7,251.00	231.68	-694.96	318.46	10.00	9.93	1.19	6.79
Niobrara C (Toe)										
7,600.00	87.16	358.57	7,255.29	278.83	-696.36	365.41	10.00	9.93	1.17	6.71
7,629.19	90.06	358.91	7,256.00	308.00	-697.00	394.42	10.00	9.93	1.16	6.66
End Build @ 7629.19ft - Niobrara C (Heel) - 7" Intermediate Casing - Russian Fiddler 13N-18HZ_Casing Point										
7,700.00	90.06	358.91	7,255.93	378.80	-698.34	464.81	0.00	0.00	0.00	6.65
7,800.00	90.06	358.91	7,255.83	478.78	-700.24	564.22	0.00	0.00	0.00	0.00
7,900.00	90.06	358.91	7,255.74	578.76	-702.14	663.63	0.00	0.00	0.00	0.00
8,000.00	90.06	358.91	7,255.64	678.74	-704.04	763.03	0.00	0.00	0.00	0.00
8,100.00	90.06	358.91	7,255.54	778.73	-705.94	862.44	0.00	0.00	0.00	0.00
8,200.00	90.06	358.91	7,255.44	878.71	-707.83	961.85	0.00	0.00	0.00	0.00
8,300.00	90.06	358.91	7,255.35	978.69	-709.73	1,061.25	0.00	0.00	0.00	0.00
8,400.00	90.06	358.91	7,255.25	1,078.67	-711.63	1,160.66	0.00	0.00	0.00	0.00
8,500.00	90.06	358.91	7,255.15	1,178.65	-713.53	1,260.07	0.00	0.00	0.00	0.00
8,600.00	90.06	358.91	7,255.05	1,278.64	-715.43	1,359.48	0.00	0.00	0.00	0.00
8,700.00	90.06	358.91	7,254.96	1,378.62	-717.32	1,458.88	0.00	0.00	0.00	0.00
8,800.00	90.06	358.91	7,254.86	1,478.60	-719.22	1,558.29	0.00	0.00	0.00	0.00

Plan Report for Russian Fiddler 13N-18HZ - Plan B 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 (°)
8,900.00	90.06	358.91	7,254.76	1,578.58	-721.12	1,657.70	0.00	0.00	0.00	0.00
9,000.00	90.06	358.91	7,254.66	1,678.56	-723.02	1,757.10	0.00	0.00	0.00	0.00
9,100.00	90.06	358.91	7,254.57	1,778.55	-724.92	1,856.51	0.00	0.00	0.00	0.00
9,200.00	90.06	358.91	7,254.47	1,878.53	-726.81	1,955.92	0.00	0.00	0.00	0.00
9,300.00	90.06	358.91	7,254.37	1,978.51	-728.71	2,055.32	0.00	0.00	0.00	0.00
9,400.00	90.06	358.91	7,254.28	2,078.49	-730.61	2,154.73	0.00	0.00	0.00	0.00
9,500.00	90.06	358.91	7,254.18	2,178.47	-732.51	2,254.14	0.00	0.00	0.00	0.00
9,600.00	90.06	358.91	7,254.08	2,278.46	-734.40	2,353.54	0.00	0.00	0.00	0.00
9,700.00	90.06	358.91	7,253.98	2,378.44	-736.30	2,452.95	0.00	0.00	0.00	0.00
9,800.00	90.06	358.91	7,253.89	2,478.42	-738.20	2,552.36	0.00	0.00	0.00	0.00
9,900.00	90.06	358.91	7,253.79	2,578.40	-740.10	2,651.76	0.00	0.00	0.00	0.00
10,000.00	90.06	358.91	7,253.69	2,678.38	-742.00	2,751.17	0.00	0.00	0.00	0.00
10,100.00	90.06	358.91	7,253.59	2,778.37	-743.89	2,850.58	0.00	0.00	0.00	0.00
10,200.00	90.06	358.91	7,253.50	2,878.35	-745.79	2,949.98	0.00	0.00	0.00	0.00
10,300.00	90.06	358.91	7,253.40	2,978.33	-747.69	3,049.39	0.00	0.00	0.00	0.00
10,400.00	90.06	358.91	7,253.30	3,078.31	-749.59	3,148.80	0.00	0.00	0.00	0.00
10,421.69	90.06	358.91	7,253.28	3,100.00	-750.00	3,170.36	0.00	0.00	0.00	0.00
Begin Turn @ 10421.69ft - Russian Fiddler 13N-18HZ_WP										
10,500.00	90.06	0.48	7,253.20	3,178.30	-750.42	3,248.08	2.00	0.00	2.00	90.00
10,540.42	90.06	1.29	7,253.16	3,218.72	-749.79	3,288.08	2.00	0.00	2.00	90.00
End Turn @ 10540.42ft										
10,600.00	90.06	1.29	7,253.11	3,278.28	-748.46	3,346.99	0.00	0.00	0.00	0.00
10,700.00	90.06	1.29	7,253.01	3,378.26	-746.21	3,445.86	0.00	0.00	0.00	0.00
10,800.00	90.06	1.29	7,252.91	3,478.23	-743.96	3,544.73	0.00	0.00	0.00	0.00
10,900.00	90.06	1.29	7,252.81	3,578.21	-741.72	3,643.60	0.00	0.00	0.00	0.00
11,000.00	90.06	1.29	7,252.72	3,678.18	-739.47	3,742.47	0.00	0.00	0.00	0.00
11,100.00	90.06	1.29	7,252.62	3,778.16	-737.23	3,841.34	0.00	0.00	0.00	0.00
11,200.00	90.06	1.29	7,252.52	3,878.13	-734.98	3,940.22	0.00	0.00	0.00	0.00
11,300.00	90.06	1.29	7,252.42	3,978.11	-732.73	4,039.09	0.00	0.00	0.00	0.00
11,400.00	90.06	1.29	7,252.33	4,078.08	-730.49	4,137.96	0.00	0.00	0.00	0.00
11,500.00	90.06	1.29	7,252.23	4,178.06	-728.24	4,236.83	0.00	0.00	0.00	0.00
Hold Angle @ 90.06										
11,600.00	90.06	1.29	7,252.13	4,278.03	-726.00	4,335.70	0.00	0.00	0.00	0.00
11,700.00	90.06	1.29	7,252.03	4,378.01	-723.75	4,434.57	0.00	0.00	0.00	0.00
11,800.00	90.06	1.29	7,251.94	4,477.98	-721.50	4,533.44	0.00	0.00	0.00	0.00
11,900.00	90.06	1.29	7,251.84	4,577.95	-719.26	4,632.31	0.00	0.00	0.00	0.00
12,000.00	90.06	1.29	7,251.74	4,677.93	-717.01	4,731.18	0.00	0.00	0.00	0.00
12,100.00	90.06	1.29	7,251.65	4,777.90	-714.77	4,830.05	0.00	0.00	0.00	0.00
12,200.00	90.06	1.29	7,251.55	4,877.88	-712.52	4,928.92	0.00	0.00	0.00	0.00
12,300.00	90.06	1.29	7,251.45	4,977.85	-710.27	5,027.79	0.00	0.00	0.00	0.00
12,400.00	90.06	1.29	7,251.35	5,077.83	-708.03	5,126.67	0.00	0.00	0.00	0.00
12,500.00	90.06	1.29	7,251.26	5,177.80	-705.78	5,225.54	0.00	0.00	0.00	0.00
12,600.00	90.06	1.29	7,251.16	5,277.78	-703.54	5,324.41	0.00	0.00	0.00	0.00
12,700.00	90.06	1.29	7,251.06	5,377.75	-701.29	5,423.28	0.00	0.00	0.00	0.00
12,762.27	90.06	1.29	7,251.00	5,440.01	-699.89	5,484.84	0.00	0.00	0.00	0.00
Total Depth @ 12762.27ft - Russian Fiddler 13N-18HZ_BHL										

Plan Report for Russian Fiddler 13N-18HZ - Plan B Rev 0 Permit

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
0.00	0.00	0.00	0.00	Tie-On to Surface @ 0.00ft
600.00	600.00	0.00	0.00	Hold Angle @ 0.00
1,150.00	1,150.00	0.00	0.00	Begin Nudge @ 1150.00ft
1,300.00	1,299.93	-1.54	-3.61	Nudge Rate = 2.00/100ft
1,508.47	1,507.54	-8.80	-20.60	End Nudge @ 1508.47ft
4,000.00	3,979.59	-130.98	-306.54	Hold Angle @ 7.28
6,701.78	6,660.24	-263.46	-616.61	Begin Build @ 6701.78ft
7,200.00	7,104.04	-81.90	-671.83	Build Rate = 10.00/100ft
7,629.19	7,256.00	308.00	-697.00	End Build @ 7629.19ft
10,421.69	7,253.28	3,100.00	-750.00	Begin Turn @ 10421.69ft
10,540.42	7,253.16	3,218.72	-749.79	End Turn @ 10540.42ft
11,500.00	7,252.23	4,178.06	-728.24	Hold Angle @ 90.06
12,762.27	7,251.00	5,440.01	-699.89	Total Depth @ 12762.27ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	Russian Fiddler 13N-18HZ_BHL	352.67	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,762.27	Plan B Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,629.19	7,256.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,093.14	4,072.00	Parkman		0.00	
4,625.30	4,600.00	Sussex		0.00	
7,139.61	7,061.00	Sharon Springs		0.00	
7,228.85	7,123.00	Niobrara A		0.00	
7,280.25	7,154.00	Niobrara B		0.00	
7,510.76	7,244.00	Niobrara C		0.00	
7,552.62	7,251.00	Niobrara C (Toe)		0.00	
7,629.19	7,256.00	Niobrara C (Heel)		0.00	

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Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Russian Fiddler 13N-18HZ_Setback Lines	0.00	0.00	0.00	Polygon
Russian Fiddler 13N-18HZ_Section Lines	0.00	0.00	0.00	Polygon
Dechant X 19-5 SHL	0.00	3,106.25	-571.04	Circle
Russian Fiddler 13N-18HZ_Casing Point	7,256.00	308.00	-697.00	Point
Russian Fiddler 13N-18HZ_BHL	7,251.00	5,440.01	-699.89	Point
Russian Fiddler 13N-18HZ_SHL	0.00	0.00	0.00	Point
Russian Fiddler 13N-18HZ_WP	7,253.28	3,100.00	-750.00	Point

North Reference Sheet for Sec. 19-T2N-65W - Russian Fiddler 13N-18HZ - Plan B 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=17ft @ 5017.00ft (Drilling Rig). Northing and Easting are relative to Russian Fiddler 13N-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: 3,000,000.000644ft, False Northing: 1,000,000.001308ft, Scale Reduction: 0.99995954

Grid Coordinates of Well: 1,286,627.859967 ft N, 3,220,514.539684 ft E
Geographical Coordinates of Well: 40° 07' 02.98" N, 104° 42' 41.44" W
Grid Convergence at Surface is: 0.51°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,762.27ft
the Bottom Hole Displacement is 5,484.84ft in the Direction of 352.67° (True).

Magnetic Convergence at surface is: -8.16° (21 June 2012, , BGGM2011)

