

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 19-T1N-R67W

Ralph 14C-19HZ

Plan B Rev 0

Plan: Plan B Rev 0 Permit

Sperry Drilling Services

Proposal Report

12 December, 2012

Well Coordinates: 1,259,047.39 N, 3,157,443.74 E (40° 02' 35.17" N, 104° 56' 15.54" W)

Ground Level: 5,119.00 ft

Local Coordinate Origin:	Centered on Well Ralph 14C-19HZ
Viewing Datum:	RKB=17 @ 5136.00ft (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-T1N-R67W
 Well: Ralph 14C-19HZ
 Wellbore: Plan B Rev 0
 Design: Plan B Rev 0 Permit

Anadarko Petroleum Corp.

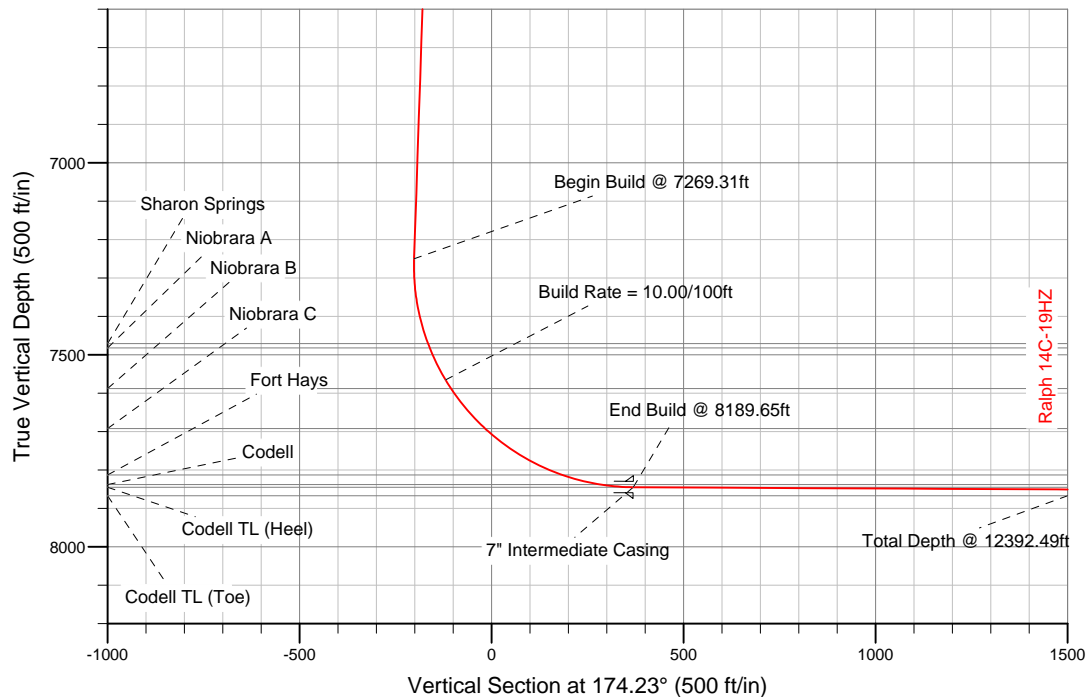
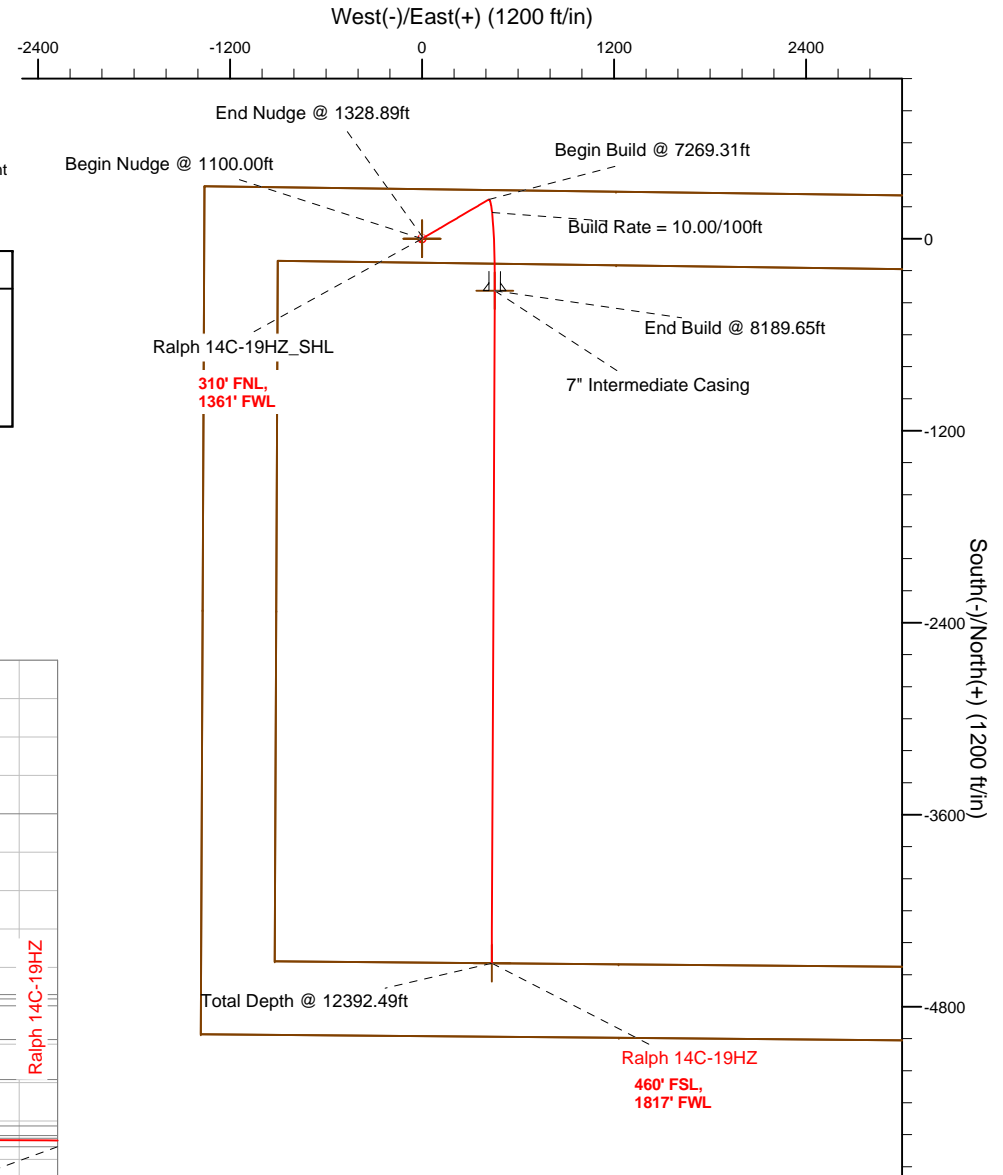


SECTION DETAILS

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	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1328.89	4.58	59.58	1328.64	4.63	7.88	2.00	59.58	-3.81	
4	7269.31	4.58	59.58	7250.12	244.66	416.74	0.00	0.00	-201.51	Ralph 14C-19HZ_Casing Point
5	8189.65	89.70	180.25	7845.00	-325.00	455.00	10.00	120.61	369.11	Ralph 14C-19HZ_newBHL
6	12392.49	89.70	180.25	7867.00	-4527.74	436.58	0.00	0.00	4548.69	

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Ralph 14C-19HZ_Section Lines	0.00	0.00	0.00	40.043103	-104.937650	Polygon
Ralph 14C-19HZ_Setback Lines	0.00	0.00	0.00	40.043103	-104.937650	Polygon
Ralph 14C-19HZ_SHL	0.00	0.00	0.00	40.043103	-104.937650	Point
Ralph 14C-19HZ_Casing Point	7845.00	-325.00	455.00	40.042211	-104.936025	Point
Ralph 14C-19HZ_newBHL	7867.00	-4527.74	436.58	40.030674	-104.936091	Point



WELL DETAILS: Ralph 14C-19HZ	
Ground Level	5119.00 RKB=17 @ 5136.00ft (Drilling Rig)
Plan: Plan B Rev 0 Permit (Ralph 14C-19HZ/Plan B Rev 0)	
Created By: Fred Hartmann	Date: 12/03/2012
Reviewed: _____	Date: _____

Plan Report for Ralph 14C-19HZ - 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
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
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
Begin Nudge @ 1100.00ft										
1,200.00	2.00	59.58	1,199.98	0.88	1.50	-0.73	2.00	2.00	0.00	59.58
1,300.00	4.00	59.58	1,299.84	3.53	6.02	-2.91	2.00	2.00	0.00	0.00
1,328.89	4.58	59.58	1,328.65	4.63	7.88	-3.81	2.00	2.00	0.00	0.00
End Nudge @ 1328.89ft										
1,400.00	4.58	59.58	1,399.53	7.50	12.78	-6.18	0.00	0.00	0.00	0.00
1,500.00	4.58	59.58	1,499.21	11.54	19.66	-9.51	0.00	0.00	0.00	0.00
1,600.00	4.58	59.58	1,598.89	15.58	26.54	-12.83	0.00	0.00	0.00	0.00
1,700.00	4.58	59.58	1,698.57	19.62	33.42	-16.16	0.00	0.00	0.00	0.00
1,800.00	4.58	59.58	1,798.25	23.66	40.31	-19.49	0.00	0.00	0.00	0.00
1,900.00	4.58	59.58	1,897.93	27.70	47.19	-22.82	0.00	0.00	0.00	0.00
2,000.00	4.58	59.58	1,997.62	31.74	54.07	-26.15	0.00	0.00	0.00	0.00
2,100.00	4.58	59.58	2,097.30	35.79	60.95	-29.47	0.00	0.00	0.00	0.00
2,200.00	4.58	59.58	2,196.98	39.83	67.84	-32.80	0.00	0.00	0.00	0.00
2,300.00	4.58	59.58	2,296.66	43.87	74.72	-36.13	0.00	0.00	0.00	0.00
2,400.00	4.58	59.58	2,396.34	47.91	81.60	-39.46	0.00	0.00	0.00	0.00
2,500.00	4.58	59.58	2,496.02	51.95	88.49	-42.79	0.00	0.00	0.00	0.00
2,600.00	4.58	59.58	2,595.70	55.99	95.37	-46.11	0.00	0.00	0.00	0.00
2,700.00	4.58	59.58	2,695.38	60.03	102.25	-49.44	0.00	0.00	0.00	0.00
2,800.00	4.58	59.58	2,795.06	64.07	109.13	-52.77	0.00	0.00	0.00	0.00
2,900.00	4.58	59.58	2,894.74	68.11	116.02	-56.10	0.00	0.00	0.00	0.00
3,000.00	4.58	59.58	2,994.43	72.15	122.90	-59.43	0.00	0.00	0.00	0.00
3,100.00	4.58	59.58	3,094.11	76.19	129.78	-62.76	0.00	0.00	0.00	0.00
3,200.00	4.58	59.58	3,193.79	80.23	136.66	-66.08	0.00	0.00	0.00	0.00
3,300.00	4.58	59.58	3,293.47	84.27	143.55	-69.41	0.00	0.00	0.00	0.00
3,400.00	4.58	59.58	3,393.15	88.32	150.43	-72.74	0.00	0.00	0.00	0.00
3,500.00	4.58	59.58	3,492.83	92.36	157.31	-76.07	0.00	0.00	0.00	0.00
3,600.00	4.58	59.58	3,592.51	96.40	164.19	-79.40	0.00	0.00	0.00	0.00
3,700.00	4.58	59.58	3,692.19	100.44	171.08	-82.72	0.00	0.00	0.00	0.00
3,800.00	4.58	59.58	3,791.87	104.48	177.96	-86.05	0.00	0.00	0.00	0.00
3,900.00	4.58	59.58	3,891.55	108.52	184.84	-89.38	0.00	0.00	0.00	0.00
4,000.00	4.58	59.58	3,991.24	112.56	191.73	-92.71	0.00	0.00	0.00	0.00
4,100.00	4.58	59.58	4,090.92	116.60	198.61	-96.04	0.00	0.00	0.00	0.00
4,200.00	4.58	59.58	4,190.60	120.64	205.49	-99.36	0.00	0.00	0.00	0.00
4,300.00	4.58	59.58	4,290.28	124.68	212.37	-102.69	0.00	0.00	0.00	0.00
4,400.00	4.58	59.58	4,389.96	128.72	219.26	-106.02	0.00	0.00	0.00	0.00
4,500.00	4.58	59.58	4,489.64	132.76	226.14	-109.35	0.00	0.00	0.00	0.00
4,600.00	4.58	59.58	4,589.32	136.80	233.02	-112.68	0.00	0.00	0.00	0.00
4,700.00	4.58	59.58	4,689.00	140.84	239.90	-116.01	0.00	0.00	0.00	0.00
4,800.00	4.58	59.58	4,788.68	144.89	246.79	-119.33	0.00	0.00	0.00	0.00
4,897.63	4.58	59.58	4,886.00	148.83	253.51	-122.58	0.00	0.00	0.00	0.00
Sussex										
4,900.00	4.58	59.58	4,888.36	148.93	253.67	-122.66	0.00	0.00	0.00	0.00
5,000.00	4.58	59.58	4,988.05	152.97	260.55	-125.99	0.00	0.00	0.00	0.00
5,100.00	4.58	59.58	5,087.73	157.01	267.43	-129.32	0.00	0.00	0.00	0.00
5,200.00	4.58	59.58	5,187.41	161.05	274.32	-132.65	0.00	0.00	0.00	0.00

Plan Report for Ralph 14C-19HZ - 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 (°)
5,300.00	4.58	59.58	5,287.09	165.09	281.20	-135.97	0.00	0.00	0.00	0.00
5,400.00	4.58	59.58	5,386.77	169.13	288.08	-139.30	0.00	0.00	0.00	0.00
5,500.00	4.58	59.58	5,486.45	173.17	294.97	-142.63	0.00	0.00	0.00	0.00
5,600.00	4.58	59.58	5,586.13	177.21	301.85	-145.96	0.00	0.00	0.00	0.00
5,700.00	4.58	59.58	5,685.81	181.25	308.73	-149.29	0.00	0.00	0.00	0.00
5,800.00	4.58	59.58	5,785.49	185.29	315.61	-152.61	0.00	0.00	0.00	0.00
5,900.00	4.58	59.58	5,885.17	189.33	322.50	-155.94	0.00	0.00	0.00	0.00
6,000.00	4.58	59.58	5,984.86	193.37	329.38	-159.27	0.00	0.00	0.00	0.00
6,100.00	4.58	59.58	6,084.54	197.41	336.26	-162.60	0.00	0.00	0.00	0.00
6,200.00	4.58	59.58	6,184.22	201.46	343.14	-165.93	0.00	0.00	0.00	0.00
6,300.00	4.58	59.58	6,283.90	205.50	350.03	-169.25	0.00	0.00	0.00	0.00
6,400.00	4.58	59.58	6,383.58	209.54	356.91	-172.58	0.00	0.00	0.00	0.00
6,500.00	4.58	59.58	6,483.26	213.58	363.79	-175.91	0.00	0.00	0.00	0.00
6,600.00	4.58	59.58	6,582.94	217.62	370.68	-179.24	0.00	0.00	0.00	0.00
6,700.00	4.58	59.58	6,682.62	221.66	377.56	-182.57	0.00	0.00	0.00	0.00
6,800.00	4.58	59.58	6,782.30	225.70	384.44	-185.90	0.00	0.00	0.00	0.00
6,900.00	4.58	59.58	6,881.98	229.74	391.32	-189.22	0.00	0.00	0.00	0.00
7,000.00	4.58	59.58	6,981.67	233.78	398.21	-192.55	0.00	0.00	0.00	0.00
7,100.00	4.58	59.58	7,081.35	237.82	405.09	-195.88	0.00	0.00	0.00	0.00
7,200.00	4.58	59.58	7,181.03	241.86	411.97	-199.21	0.00	0.00	0.00	0.00
7,269.31	4.58	59.58	7,250.12	244.66	416.74	-201.51	0.00	0.00	0.00	0.00
Begin Build @ 7269.31ft										
7,300.00	4.01	100.84	7,280.73	245.08	418.85	-201.72	10.00	-1.86	134.42	120.61
7,400.00	11.43	160.35	7,379.87	235.07	425.63	-191.08	10.00	7.42	59.52	79.46
7,494.90	20.59	169.71	7,471.00	209.74	431.78	-165.26	10.00	9.65	9.86	20.29
Sharon Springs										
7,500.00	21.09	169.99	7,475.77	207.96	432.10	-163.45	10.00	9.81	5.43	11.26
7,506.69	21.75	170.33	7,482.00	205.55	432.52	-161.01	10.00	9.82	5.15	11.01
Niobrara A										
7,600.00	30.96	173.68	7,565.52	164.56	438.08	-119.68	10.00	9.88	3.59	10.68
Build Rate = 10.00/100ft										
7,626.59	33.60	174.32	7,588.00	150.44	439.56	-105.48	10.00	9.92	2.41	7.67
Niobrara B										
7,700.00	40.89	175.71	7,646.40	106.21	443.37	-61.08	10.00	9.93	1.89	7.13
7,763.47	47.21	176.62	7,692.00	62.20	446.30	-17.00	10.00	9.95	1.43	6.02
Niobrara C										
7,800.00	50.84	177.06	7,715.95	34.67	447.82	10.54	10.00	9.96	1.21	5.37
7,900.00	60.81	178.07	7,772.05	-47.89	451.29	93.03	10.00	9.97	1.01	5.08
8,000.00	70.78	178.90	7,813.00	-138.95	453.68	183.87	10.00	9.97	0.83	4.51
8,000.01	70.78	178.90	7,813.00	-138.96	453.68	183.88	0.00	0.00	0.00	30.16
Fort Hays										
8,100.00	80.76	179.63	7,837.55	-235.75	454.91	280.30	10.00	9.98	0.73	4.17
8,102.85	81.04	179.65	7,838.00	-238.56	454.93	283.10	10.00	9.98	0.70	3.99
Codell										
8,189.65	89.70	180.25	7,845.00	-325.00	455.00	369.11	10.00	9.98	0.69	3.99
End Build @ 8189.65ft - Codell TL (Heel) - 7" Intermediate Casing - Ralph 14C-19HZ Casing Point										
8,200.00	89.70	180.25	7,845.05	-335.35	454.95	379.40	0.00	0.00	0.00	3.94
8,300.00	89.70	180.25	7,845.58	-435.35	454.52	478.85	0.00	0.00	0.00	0.00
8,400.00	89.70	180.25	7,846.10	-535.34	454.08	578.29	0.00	0.00	0.00	0.00
8,500.00	89.70	180.25	7,846.62	-635.34	453.64	677.74	0.00	0.00	0.00	0.00
8,600.00	89.70	180.25	7,847.15	-735.34	453.20	777.19	0.00	0.00	0.00	0.00
8,700.00	89.70	180.25	7,847.67	-835.34	452.76	876.63	0.00	0.00	0.00	0.00
8,800.00	89.70	180.25	7,848.19	-935.33	452.32	976.08	0.00	0.00	0.00	0.00
8,900.00	89.70	180.25	7,848.72	-1,035.33	451.89	1,075.53	0.00	0.00	0.00	0.00
9,000.00	89.70	180.25	7,849.24	-1,135.33	451.45	1,174.97	0.00	0.00	0.00	0.00
9,100.00	89.70	180.25	7,849.77	-1,235.33	451.01	1,274.42	0.00	0.00	0.00	0.00
9,200.00	89.70	180.25	7,850.29	-1,335.32	450.57	1,373.87	0.00	0.00	0.00	0.00
9,300.00	89.70	180.25	7,850.81	-1,435.32	450.13	1,473.31	0.00	0.00	0.00	0.00
9,400.00	89.70	180.25	7,851.34	-1,535.32	449.70	1,572.76	0.00	0.00	0.00	0.00

Plan Report for Ralph 14C-19HZ - 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)	Toothface Azimuth (°)
9,500.00	89.70	180.25	7,851.86	-1,635.32	449.26	1,672.21	0.00	0.00	0.00	0.00
9,600.00	89.70	180.25	7,852.38	-1,735.31	448.82	1,771.65	0.00	0.00	0.00	0.00
9,700.00	89.70	180.25	7,852.91	-1,835.31	448.38	1,871.10	0.00	0.00	0.00	0.00
9,800.00	89.70	180.25	7,853.43	-1,935.31	447.94	1,970.55	0.00	0.00	0.00	0.00
9,900.00	89.70	180.25	7,853.95	-2,035.31	447.50	2,069.99	0.00	0.00	0.00	0.00
10,000.00	89.70	180.25	7,854.48	-2,135.31	447.07	2,169.44	0.00	0.00	0.00	0.00
10,100.00	89.70	180.25	7,855.00	-2,235.30	446.63	2,268.89	0.00	0.00	0.00	0.00
10,200.00	89.70	180.25	7,855.52	-2,335.30	446.19	2,368.33	0.00	0.00	0.00	0.00
10,300.00	89.70	180.25	7,856.05	-2,435.30	445.75	2,467.78	0.00	0.00	0.00	0.00
10,400.00	89.70	180.25	7,856.57	-2,535.30	445.31	2,567.23	0.00	0.00	0.00	0.00
10,500.00	89.70	180.25	7,857.09	-2,635.29	444.87	2,666.67	0.00	0.00	0.00	0.00
10,600.00	89.70	180.25	7,857.62	-2,735.29	444.44	2,766.12	0.00	0.00	0.00	0.00
10,700.00	89.70	180.25	7,858.14	-2,835.29	444.00	2,865.57	0.00	0.00	0.00	0.00
10,800.00	89.70	180.25	7,858.66	-2,935.29	443.56	2,965.01	0.00	0.00	0.00	0.00
10,900.00	89.70	180.25	7,859.19	-3,035.28	443.12	3,064.46	0.00	0.00	0.00	0.00
11,000.00	89.70	180.25	7,859.71	-3,135.28	442.68	3,163.91	0.00	0.00	0.00	0.00
11,100.00	89.70	180.25	7,860.23	-3,235.28	442.24	3,263.35	0.00	0.00	0.00	0.00
11,200.00	89.70	180.25	7,860.76	-3,335.28	441.81	3,362.80	0.00	0.00	0.00	0.00
11,300.00	89.70	180.25	7,861.28	-3,435.28	441.37	3,462.25	0.00	0.00	0.00	0.00
11,400.00	89.70	180.25	7,861.80	-3,535.27	440.93	3,561.69	0.00	0.00	0.00	0.00
11,500.00	89.70	180.25	7,862.33	-3,635.27	440.49	3,661.14	0.00	0.00	0.00	0.00
11,600.00	89.70	180.25	7,862.85	-3,735.27	440.05	3,760.59	0.00	0.00	0.00	0.00
11,700.00	89.70	180.25	7,863.38	-3,835.27	439.61	3,860.03	0.00	0.00	0.00	0.00
11,800.00	89.70	180.25	7,863.90	-3,935.26	439.18	3,959.48	0.00	0.00	0.00	0.00
11,900.00	89.70	180.25	7,864.42	-4,035.26	438.74	4,058.93	0.00	0.00	0.00	0.00
12,000.00	89.70	180.25	7,864.95	-4,135.26	438.30	4,158.37	0.00	0.00	0.00	0.00
12,100.00	89.70	180.25	7,865.47	-4,235.26	437.86	4,257.82	0.00	0.00	0.00	0.00
12,200.00	89.70	180.25	7,865.99	-4,335.25	437.42	4,357.27	0.00	0.00	0.00	0.00
12,300.00	89.70	180.25	7,866.52	-4,435.25	436.98	4,456.71	0.00	0.00	0.00	0.00
12,392.49	89.70	180.25	7,867.00	-4,527.74	436.58	4,548.69	0.00	0.00	0.00	0.00

Codell TL (Toe) - Ralph 14C-19HZ_newBHL

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,328.89	1,328.65	4.63	7.88	End Nudge @ 1328.89ft
7,269.31	7,250.12	244.66	416.74	Begin Build @ 7269.31ft
7,600.00	7,565.52	164.56	438.08	Build Rate = 10.00/100ft
8,189.65	7,845.00	-325.00	455.00	End Build @ 8189.65ft
12,392.49	7,867.00	-4,527.74	436.58	Total Depth @ 12392.49ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	Ralph 14C-19HZ_newBHL	174.23	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,392.49	Plan B Rev 0 Permit	MWD

Plan Report for Ralph 14C-19HZ - Plan B Rev 0 Permit**Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,189.65	7,845.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,897.63	4,886.00	Sussex		0.00	
7,494.90	7,471.00	Sharon Springs		0.00	
7,506.69	7,482.00	Niobrara A		0.00	
7,626.59	7,588.00	Niobrara B		0.00	
7,763.47	7,692.00	Niobrara C		0.00	
8,000.01	7,813.00	Fort Hays		0.00	
8,102.85	7,838.00	Codell		0.00	
8,189.65	7,845.00	Codell TL (Heel)		0.00	
12,392.49	7,867.00	Codell TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N-S (ft)	+E-W (ft)	Shape
Ralph 14C-19HZ_newBHL	7,867.00	-4,527.74	436.58	Point
Ralph 14C-19HZ_SHL	0.00	0.00	0.00	Point
Ralph 14C-19HZ_Setback Lines	0.00	0.00	0.00	Polygon
Ralph 14C-19HZ_Casing Point	7,845.00	-325.00	455.00	Point
Ralph 14C-19HZ_Section Lines	0.00	0.00	0.00	Polygon

North Reference Sheet for Sec. 19-T1N-R67W - Ralph 14C-19HZ - 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=17 @ 5136.00ft (Drilling Rig). Northing and Easting are relative to Ralph 14C-19HZ
 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: 0.99996338

Grid Coordinates of Well: 1,259,047.39 ft N, 3,157,443.74 ft E
 Geographical Coordinates of Well: 40° 02' 35.17" N, 104° 56' 15.54" W
 Grid Convergence at Surface is: 0.36°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,392.49ft
 the Bottom Hole Displacement is 4,548.74ft in the Direction of 174.49° (True).

Magnetic Convergence at surface is: -8.40° (24 August 2012, , BGGM2011)

