

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 22-T3N-R68W

McKinstry 7C-21HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

Sperry Drilling Services

Proposal Report

09 October, 2012

Well Coordinates: 1,321,321.04 N, 3,144,835.39 E (40° 12' 51.34" N, 104° 58' 52.98" W)

Ground Level: 4,984.00 ft

Local Coordinate Origin:

Centered on Well McKinstry 7C-21HZ

Viewing Datum:

RKB=17 @ 5001.00ft (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. 22-T3N-R68W
Well: McKinstry 7C-21HZ
Wellbore: Plan A Rev 0
Design: Plan A Rev 0 Permit

Anadarko Petroleum Corp.

HALLIBURTON
Sperry Drilling

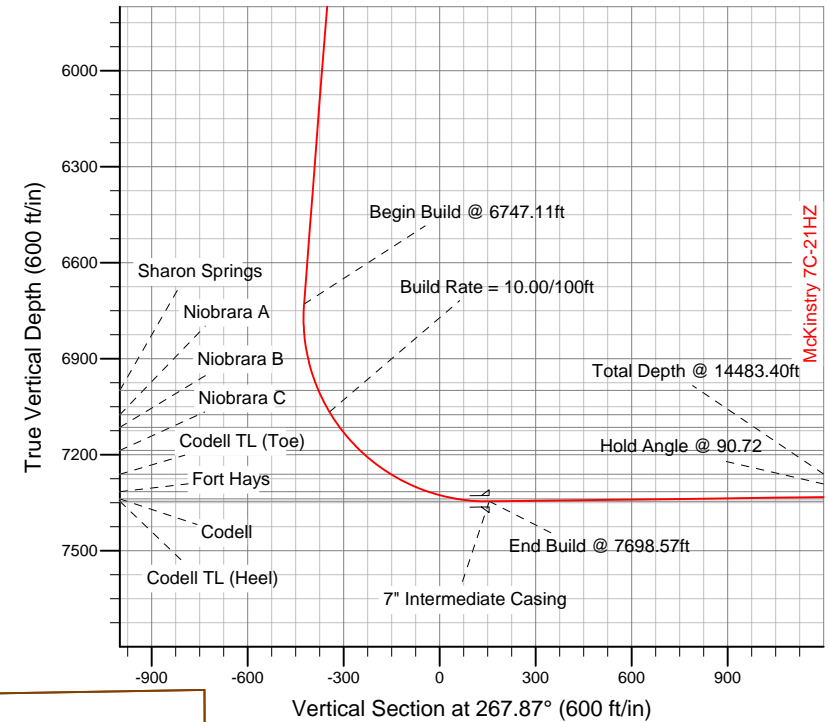
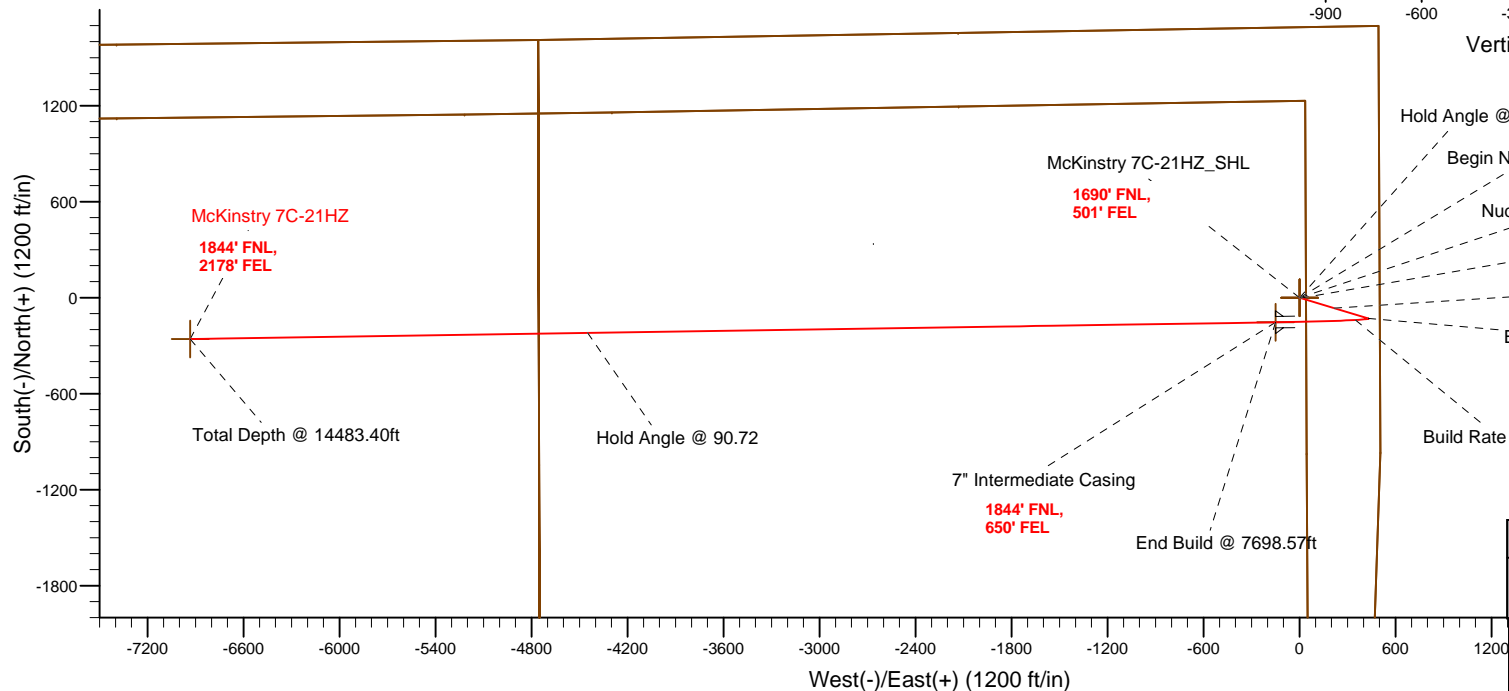
SECTION DETAILS

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	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1332.44	4.65	106.81	1332.19	-2.73	9.02	2.00	106.81	-8.91	
4	6747.11	4.65	106.81	6729.04	-129.66	429.12	0.00	0.00	-423.99	
5	7698.57	90.72	269.12	7346.00	-154.00	-149.00	10.00	162.23	154.63	McKinstry 7C-21HZ_Casing Point
6	14483.40	90.72	269.12	7261.00	-258.41	-6932.49	0.00	0.00	6937.31	McKinstry 7C-21HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
McKinstry 7C-21HZ_Sec 21/22 Line	0.00	0.00	0.00	40.214261	-104.981382	Polygon
McKinstry 7C-21HZ_Section Line	0.00	0.00	0.00	40.214261	-104.981382	Polygon
McKinstry 7C-21HZ_Setback Line	0.00	0.00	0.00	40.214261	-104.981382	Polygon
McKinstry 7C-21HZ_SHL	0.00	0.00	0.00	40.214261	-104.981382	Point
McKinstry 7C-21HZ_BHL	7261.00	-258.41	-6932.49	40.213549	-105.006204	Point
McKinstry 7C-21HZ_Casing Point	7346.00	-154.00	-149.00	40.213838	-104.981916	Point

Target Line:
7347.15' TVDkb @ 0° VS Drilling 90.72°



WELL DETAILS: McKinstry 7C-21HZ

Ground Level 4984.00 RKB=17 @ 5001.00ft (Drilling Rig)

Plan: Plan A Rev 0 Permit (McKinstry 7C-21HZ/Plan A Rev 0)

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

Plan Report for McKinstry 7C-21HZ - Plan A 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
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
Begin Nudge @ 1100.00ft										
1,200.00	2.00	106.81	1,199.98	-0.50	1.67	-1.65	2.00	2.00	0.00	106.81
Nudge Rate = 2.00/100ft										
1,300.00	4.00	106.81	1,299.84	-2.02	6.68	-6.60	2.00	2.00	0.00	0.00
1,332.44	4.65	106.81	1,332.19	-2.73	9.02	-8.91	2.00	2.00	0.00	0.00
End Nudge @ 1332.44ft										
1,400.00	4.65	106.81	1,399.52	-4.31	14.26	-14.09	0.00	0.00	0.00	0.00
1,500.00	4.65	106.81	1,499.19	-6.65	22.02	-21.76	0.00	0.00	0.00	0.00
1,600.00	4.65	106.81	1,598.86	-9.00	29.78	-29.42	0.00	0.00	0.00	0.00
1,700.00	4.65	106.81	1,698.54	-11.34	37.54	-37.09	0.00	0.00	0.00	0.00
1,800.00	4.65	106.81	1,798.21	-13.69	45.30	-44.76	0.00	0.00	0.00	0.00
1,900.00	4.65	106.81	1,897.88	-16.03	53.06	-52.42	0.00	0.00	0.00	0.00
2,000.00	4.65	106.81	1,997.55	-18.38	60.81	-60.09	0.00	0.00	0.00	0.00
2,100.00	4.65	106.81	2,097.22	-20.72	68.57	-67.75	0.00	0.00	0.00	0.00
2,200.00	4.65	106.81	2,196.89	-23.06	76.33	-75.42	0.00	0.00	0.00	0.00
2,300.00	4.65	106.81	2,296.56	-25.41	84.09	-83.08	0.00	0.00	0.00	0.00
2,400.00	4.65	106.81	2,396.23	-27.75	91.85	-90.75	0.00	0.00	0.00	0.00
2,500.00	4.65	106.81	2,495.90	-30.10	99.61	-98.42	0.00	0.00	0.00	0.00
2,600.00	4.65	106.81	2,595.57	-32.44	107.36	-106.08	0.00	0.00	0.00	0.00
2,700.00	4.65	106.81	2,695.25	-34.78	115.12	-113.75	0.00	0.00	0.00	0.00
2,800.00	4.65	106.81	2,794.92	-37.13	122.88	-121.41	0.00	0.00	0.00	0.00
2,900.00	4.65	106.81	2,894.59	-39.47	130.64	-129.08	0.00	0.00	0.00	0.00
3,000.00	4.65	106.81	2,994.26	-41.82	138.40	-136.75	0.00	0.00	0.00	0.00
3,100.00	4.65	106.81	3,093.93	-44.16	146.16	-144.41	0.00	0.00	0.00	0.00
3,200.00	4.65	106.81	3,193.60	-46.51	153.92	-152.08	0.00	0.00	0.00	0.00
3,300.00	4.65	106.81	3,293.27	-48.85	161.67	-159.74	0.00	0.00	0.00	0.00
3,400.00	4.65	106.81	3,392.94	-51.19	169.43	-167.41	0.00	0.00	0.00	0.00
3,500.00	4.65	106.81	3,492.61	-53.54	177.19	-175.07	0.00	0.00	0.00	0.00
3,600.00	4.65	106.81	3,592.29	-55.88	184.95	-182.74	0.00	0.00	0.00	0.00
3,623.79	4.65	106.81	3,616.00	-56.44	186.80	-184.56	0.00	0.00	0.00	0.00
Parkman										
3,700.00	4.65	106.81	3,691.96	-58.23	192.71	-190.41	0.00	0.00	0.00	0.00
3,800.00	4.65	106.81	3,791.63	-60.57	200.47	-198.07	0.00	0.00	0.00	0.00
3,900.00	4.65	106.81	3,891.30	-62.92	208.22	-205.74	0.00	0.00	0.00	0.00
4,000.00	4.65	106.81	3,990.97	-65.26	215.98	-213.40	0.00	0.00	0.00	0.00
Hold Angle @ 4.65										
4,100.00	4.65	106.81	4,090.64	-67.60	223.74	-221.07	0.00	0.00	0.00	0.00
4,122.43	4.65	106.81	4,113.00	-68.13	225.48	-222.79	0.00	0.00	0.00	0.00
Sussex										
4,200.00	4.65	106.81	4,190.31	-69.95	231.50	-228.73	0.00	0.00	0.00	0.00
4,300.00	4.65	106.81	4,289.98	-72.29	239.26	-236.40	0.00	0.00	0.00	0.00
4,400.00	4.65	106.81	4,389.65	-74.64	247.02	-244.07	0.00	0.00	0.00	0.00
4,500.00	4.65	106.81	4,489.32	-76.98	254.78	-251.73	0.00	0.00	0.00	0.00
4,600.00	4.65	106.81	4,589.00	-79.32	262.53	-259.40	0.00	0.00	0.00	0.00

Plan Report for McKinstry 7C-21HZ - Plan A 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 (°)
4,627.09	4.65	106.81	4,616.00	-79.96	264.64	-261.47	0.00	0.00	0.00	0.00
Shannon										
4,700.00	4.65	106.81	4,688.67	-81.67	270.29	-267.06	0.00	0.00	0.00	0.00
4,800.00	4.65	106.81	4,788.34	-84.01	278.05	-274.73	0.00	0.00	0.00	0.00
4,900.00	4.65	106.81	4,888.01	-86.36	285.81	-282.39	0.00	0.00	0.00	0.00
5,000.00	4.65	106.81	4,987.68	-88.70	293.57	-290.06	0.00	0.00	0.00	0.00
5,100.00	4.65	106.81	5,087.35	-91.05	301.33	-297.73	0.00	0.00	0.00	0.00
5,200.00	4.65	106.81	5,187.02	-93.39	309.09	-305.39	0.00	0.00	0.00	0.00
5,300.00	4.65	106.81	5,286.69	-95.73	316.84	-313.06	0.00	0.00	0.00	0.00
5,400.00	4.65	106.81	5,386.36	-98.08	324.60	-320.72	0.00	0.00	0.00	0.00
5,500.00	4.65	106.81	5,486.03	-100.42	332.36	-328.39	0.00	0.00	0.00	0.00
5,600.00	4.65	106.81	5,585.71	-102.77	340.12	-336.05	0.00	0.00	0.00	0.00
5,700.00	4.65	106.81	5,685.38	-105.11	347.88	-343.72	0.00	0.00	0.00	0.00
5,800.00	4.65	106.81	5,785.05	-107.46	355.64	-351.39	0.00	0.00	0.00	0.00
5,900.00	4.65	106.81	5,884.72	-109.80	363.39	-359.05	0.00	0.00	0.00	0.00
6,000.00	4.65	106.81	5,984.39	-112.14	371.15	-366.72	0.00	0.00	0.00	0.00
6,100.00	4.65	106.81	6,084.06	-114.49	378.91	-374.38	0.00	0.00	0.00	0.00
6,200.00	4.65	106.81	6,183.73	-116.83	386.67	-382.05	0.00	0.00	0.00	0.00
6,300.00	4.65	106.81	6,283.40	-119.18	394.43	-389.72	0.00	0.00	0.00	0.00
6,400.00	4.65	106.81	6,383.07	-121.52	402.19	-397.38	0.00	0.00	0.00	0.00
6,500.00	4.65	106.81	6,482.74	-123.87	409.95	-405.05	0.00	0.00	0.00	0.00
6,600.00	4.65	106.81	6,582.42	-126.21	417.70	-412.71	0.00	0.00	0.00	0.00
6,700.00	4.65	106.81	6,682.09	-128.55	425.46	-420.38	0.00	0.00	0.00	0.00
6,747.11	4.65	106.81	6,729.04	-129.66	429.12	-423.99	0.00	0.00	0.00	0.00
Begin Build @ 6747.11ft										
6,800.00	1.66	210.39	6,781.87	-130.94	430.78	-425.61	10.00	-5.65	195.84	162.23
6,900.00	10.95	261.76	6,881.19	-133.56	420.62	-415.36	10.00	9.29	51.37	58.72
7,000.00	20.91	265.39	6,977.23	-136.36	393.37	-388.02	10.00	9.95	3.63	7.48
7,023.49	23.25	265.80	6,999.00	-137.04	384.56	-379.19	10.00	9.98	1.76	3.97
Sharon Springs										
7,100.00	30.89	266.73	7,067.08	-139.27	349.84	-344.41	10.00	9.98	1.22	3.59
Build Rate = 10.00/100ft										
7,109.28	31.82	266.82	7,075.00	-139.54	345.02	-339.59	10.00	9.99	0.91	2.76
Niobrara A										
7,157.68	36.65	267.20	7,115.00	-140.95	317.84	-312.37	10.00	9.99	0.78	2.69
Niobrara B										
7,200.00	40.88	267.46	7,147.99	-142.19	291.38	-285.88	10.00	9.99	0.63	2.37
7,253.86	46.26	267.74	7,187.00	-143.73	254.30	-248.77	10.00	9.99	0.52	2.17
Niobrara C										
7,300.00	50.88	267.95	7,217.52	-145.03	219.74	-214.18	10.00	9.99	0.44	1.96
7,400.00	60.87	268.31	7,273.55	-147.72	137.11	-131.51	10.00	10.00	0.36	1.83
7,500.00	70.87	268.61	7,314.39	-150.16	45.99	-40.37	10.00	10.00	0.30	1.62
7,504.99	71.37	268.62	7,316.00	-150.27	41.27	-35.65	10.00	10.00	0.28	1.50
Fort Hays										
7,595.25	80.39	268.86	7,338.00	-152.19	-46.14	51.78	10.00	10.00	0.26	1.50
Codell										
7,600.00	80.86	268.87	7,338.77	-152.28	-50.83	56.47	10.00	10.00	0.25	1.44
7,698.57	90.72	269.12	7,346.00	-154.00	-149.00	154.63	10.00	10.00	0.25	1.44
End Build @ 7698.57ft - Codell TL (Heel) - 7" Intermediate Casing - McKinstry 7C-21HZ_Casing Point										
7,700.00	90.72	269.12	7,345.98	-154.02	-150.43	156.06	0.01	0.01	0.00	1.42
7,800.00	90.72	269.12	7,344.73	-155.56	-250.41	256.03	0.00	0.00	0.00	0.00
7,900.00	90.72	269.12	7,343.48	-157.10	-350.39	356.00	0.00	0.00	0.00	0.00
8,000.00	90.72	269.12	7,342.22	-158.64	-450.37	455.97	0.00	0.00	0.00	0.00
8,100.00	90.72	269.12	7,340.97	-160.18	-550.35	555.94	0.00	0.00	0.00	0.00
8,200.00	90.72	269.12	7,339.72	-161.72	-650.33	655.90	0.00	0.00	0.00	0.00
8,300.00	90.72	269.12	7,338.47	-163.25	-750.31	755.87	0.00	0.00	0.00	0.00
8,400.00	90.72	269.12	7,337.21	-164.79	-850.29	855.84	0.00	0.00	0.00	0.00
8,500.00	90.72	269.12	7,335.96	-166.33	-950.27	955.81	0.00	0.00	0.00	0.00
8,600.00	90.72	269.12	7,334.71	-167.87	-1,050.25	1,055.78	0.00	0.00	0.00	0.00

Plan Report for McKinstry 7C-21HZ - Plan A 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 (°)
8,700.00	90.72	269.12	7,333.45	-169.41	-1,150.23	1,155.75	0.00	0.00	0.00	0.00
8,800.00	90.72	269.12	7,332.20	-170.95	-1,250.21	1,255.71	0.00	0.00	0.00	0.00
8,900.00	90.72	269.12	7,330.95	-172.49	-1,350.19	1,355.68	0.00	0.00	0.00	0.00
9,000.00	90.72	269.12	7,329.70	-174.03	-1,450.17	1,455.65	0.00	0.00	0.00	0.00
9,100.00	90.72	269.12	7,328.44	-175.57	-1,550.16	1,555.62	0.00	0.00	0.00	0.00
9,200.00	90.72	269.12	7,327.19	-177.10	-1,650.14	1,655.59	0.00	0.00	0.00	0.00
9,300.00	90.72	269.12	7,325.94	-178.64	-1,750.12	1,755.56	0.00	0.00	0.00	0.00
9,400.00	90.72	269.12	7,324.68	-180.18	-1,850.10	1,855.52	0.00	0.00	0.00	0.00
9,500.00	90.72	269.12	7,323.43	-181.72	-1,950.08	1,955.49	0.00	0.00	0.00	0.00
9,600.00	90.72	269.12	7,322.18	-183.26	-2,050.06	2,055.46	0.00	0.00	0.00	0.00
9,700.00	90.72	269.12	7,320.93	-184.80	-2,150.04	2,155.43	0.00	0.00	0.00	0.00
9,800.00	90.72	269.12	7,319.67	-186.34	-2,250.02	2,255.40	0.00	0.00	0.00	0.00
9,900.00	90.72	269.12	7,318.42	-187.88	-2,350.00	2,355.36	0.00	0.00	0.00	0.00
10,000.00	90.72	269.12	7,317.17	-189.42	-2,449.98	2,455.33	0.00	0.00	0.00	0.00
10,100.00	90.72	269.12	7,315.91	-190.95	-2,549.96	2,555.30	0.00	0.00	0.00	0.00
10,200.00	90.72	269.12	7,314.66	-192.49	-2,649.94	2,655.27	0.00	0.00	0.00	0.00
10,300.00	90.72	269.12	7,313.41	-194.03	-2,749.92	2,755.24	0.00	0.00	0.00	0.00
10,400.00	90.72	269.12	7,312.16	-195.57	-2,849.90	2,855.21	0.00	0.00	0.00	0.00
10,500.00	90.72	269.12	7,310.90	-197.11	-2,949.88	2,955.17	0.00	0.00	0.00	0.00
10,600.00	90.72	269.12	7,309.65	-198.65	-3,049.86	3,055.14	0.00	0.00	0.00	0.00
10,700.00	90.72	269.12	7,308.40	-200.19	-3,149.84	3,155.11	0.00	0.00	0.00	0.00
10,800.00	90.72	269.12	7,307.15	-201.73	-3,249.82	3,255.08	0.00	0.00	0.00	0.00
10,900.00	90.72	269.12	7,305.89	-203.26	-3,349.80	3,355.05	0.00	0.00	0.00	0.00
11,000.00	90.72	269.12	7,304.64	-204.80	-3,449.78	3,455.02	0.00	0.00	0.00	0.00
11,100.00	90.72	269.12	7,303.39	-206.34	-3,549.76	3,554.98	0.00	0.00	0.00	0.00
11,200.00	90.72	269.12	7,302.13	-207.88	-3,649.74	3,654.95	0.00	0.00	0.00	0.00
11,300.00	90.72	269.12	7,300.88	-209.42	-3,749.72	3,754.92	0.00	0.00	0.00	0.00
11,400.00	90.72	269.12	7,299.63	-210.96	-3,849.70	3,854.89	0.00	0.00	0.00	0.00
11,500.00	90.72	269.12	7,298.38	-212.50	-3,949.68	3,954.86	0.00	0.00	0.00	0.00
11,600.00	90.72	269.12	7,297.12	-214.04	-4,049.66	4,054.83	0.00	0.00	0.00	0.00
11,700.00	90.72	269.12	7,295.87	-215.58	-4,149.64	4,154.79	0.00	0.00	0.00	0.00
11,800.00	90.72	269.12	7,294.62	-217.11	-4,249.62	4,254.76	0.00	0.00	0.00	0.00
11,900.00	90.72	269.12	7,293.36	-218.65	-4,349.60	4,354.73	0.00	0.00	0.00	0.00
12,000.00	90.72	269.12	7,292.11	-220.19	-4,449.58	4,454.70	0.00	0.00	0.00	0.00
Hold Angle @ 90.72										
12,100.00	90.72	269.12	7,290.86	-221.73	-4,549.56	4,554.67	0.00	0.00	0.00	0.00
12,200.00	90.72	269.12	7,289.61	-223.27	-4,649.54	4,654.63	0.00	0.00	0.00	0.00
12,300.00	90.72	269.12	7,288.35	-224.81	-4,749.53	4,754.60	0.00	0.00	0.00	0.00
12,400.00	90.72	269.12	7,287.10	-226.35	-4,849.51	4,854.57	0.00	0.00	0.00	0.00
12,500.00	90.72	269.12	7,285.85	-227.89	-4,949.49	4,954.54	0.00	0.00	0.00	0.00
12,600.00	90.72	269.12	7,284.60	-229.42	-5,049.47	5,054.51	0.00	0.00	0.00	0.00
12,700.00	90.72	269.12	7,283.34	-230.96	-5,149.45	5,154.48	0.00	0.00	0.00	0.00
12,800.00	90.72	269.12	7,282.09	-232.50	-5,249.43	5,254.44	0.00	0.00	0.00	0.00
12,900.00	90.72	269.12	7,280.84	-234.04	-5,349.41	5,354.41	0.00	0.00	0.00	0.00
13,000.00	90.72	269.12	7,279.58	-235.58	-5,449.39	5,454.38	0.00	0.00	0.00	0.00
13,100.00	90.72	269.12	7,278.33	-237.12	-5,549.37	5,554.35	0.00	0.00	0.00	0.00
13,200.00	90.72	269.12	7,277.08	-238.66	-5,649.35	5,654.32	0.00	0.00	0.00	0.00
13,300.00	90.72	269.12	7,275.83	-240.20	-5,749.33	5,754.29	0.00	0.00	0.00	0.00
13,400.00	90.72	269.12	7,274.57	-241.74	-5,849.31	5,854.25	0.00	0.00	0.00	0.00
13,500.00	90.72	269.12	7,273.32	-243.27	-5,949.29	5,954.22	0.00	0.00	0.00	0.00
13,600.00	90.72	269.12	7,272.07	-244.81	-6,049.27	6,054.19	0.00	0.00	0.00	0.00
13,700.00	90.72	269.12	7,270.81	-246.35	-6,149.25	6,154.16	0.00	0.00	0.00	0.00
13,800.00	90.72	269.12	7,269.56	-247.89	-6,249.23	6,254.13	0.00	0.00	0.00	0.00
13,900.00	90.72	269.12	7,268.31	-249.43	-6,349.21	6,354.09	0.00	0.00	0.00	0.00
14,000.00	90.72	269.12	7,267.06	-250.97	-6,449.19	6,454.06	0.00	0.00	0.00	0.00
14,100.00	90.72	269.12	7,265.80	-252.51	-6,549.17	6,554.03	0.00	0.00	0.00	0.00
14,200.00	90.72	269.12	7,264.55	-254.05	-6,649.15	6,654.00	0.00	0.00	0.00	0.00
14,300.00	90.72	269.12	7,263.30	-255.58	-6,749.13	6,753.97	0.00	0.00	0.00	0.00
14,400.00	90.72	269.12	7,262.04	-257.12	-6,849.11	6,853.94	0.00	0.00	0.00	0.00

Plan Report for McKinstry 7C-21HZ - Plan A 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 (°)
14,483.39	90.72	269.12	7,261.00	-258.41	-6,932.49	6,937.30	0.00	0.00	0.00	0.00
Codell TL (Toe)										
14,483.40	90.72	269.12	7,261.00	-258.41	-6,932.49	6,937.31	0.00	0.00	0.00	0.00
McKinstry 7C-21HZ_BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.00	600.00	0.00	0.00	Hold Angle @ 0.00
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,200.00	1,199.98	-0.50	1.67	Nudge Rate = 2.00/100ft
1,332.44	1,332.19	-2.73	9.02	End Nudge @ 1332.44ft
4,000.00	3,990.97	-65.26	215.98	Hold Angle @ 4.65
6,747.11	6,729.04	-129.66	429.12	Begin Build @ 6747.11ft
7,100.00	7,067.08	-139.27	349.84	Build Rate = 10.00/100ft
7,698.57	7,346.00	-154.00	-149.00	End Build @ 7698.57ft
12,000.00	7,292.11	-220.19	-4,449.58	Hold Angle @ 90.72
14,483.40	7,261.00	-258.41	-6,932.50	Total Depth @ 14483.40ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	McKinstry 7C-21HZ_BHL	267.87	Slot	0.00	0.00	7,261.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,698.57	Plan A Rev 0 Permit	MWD
7,698.57	14,483.40	Plan A Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,698.57	7,346.00	7" Intermediate Casing	7	8-3/4

Plan Report for McKinstry 7C-21HZ - Plan A Rev 0 Permit**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,623.79	3,616.00	Parkman		0.00	
4,122.43	4,113.00	Sussex		0.00	
4,627.09	4,616.00	Shannon		0.00	
7,023.49	6,999.00	Sharon Springs		0.00	
7,109.28	7,075.00	Niobrara A		0.00	
7,157.68	7,115.00	Niobrara B		0.00	
7,253.86	7,187.00	Niobrara C		0.00	
7,504.99	7,316.00	Fort Hays		0.00	
7,595.25	7,338.00	Codell		0.00	
7,698.57	7,346.00	Codell TL (Heel)		0.00	
14,483.39	7,261.00	Codell TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
McKinstry 7C-21HZ_Setback Line	0.00	0.00	0.00	Polygon
McKinstry 7C-21HZ_BHL	7,261.00	-258.41	-6,932.49	Point
McKinstry 7C-21HZ_Casing Point	7,346.00	-154.00	-149.00	Point
McKinstry 7C-21HZ_Sec 21/22 Line	0.00	0.00	0.00	Polygon
McKinstry 7C-21HZ_SHL	0.00	0.00	0.00	Point
McKinstry 7C-21HZ_Section Line	0.00	0.00	0.00	Polygon

North Reference Sheet for Sec. 22-T3N-R68W - McKinstry 7C-21HZ - Plan A 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 @ 5001.00ft (Drilling Rig). Northing and Easting are relative to McKinstry 7C-21HZ

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: 0.99995705

Grid Coordinates of Well: 1,321,321.04 ft N, 3,144,835.39 ft E

Geographical Coordinates of Well: 40° 12' 51.34" N, 104° 58' 52.98" W

Grid Convergence at Surface is: 0.34°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,483.40ft
the Bottom Hole Displacement is 6,937.31ft in the Direction of 267.87° (True).

Magnetic Convergence at surface is: -8.49° (9 October 2012, , BGGM2012)

