

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 22-T3N-R68W

McKinstry 28N-21HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

Sperry Drilling Services

Proposal Report

08 October, 2012

Well Coordinates: 1,322,240.47 N, 3,144,826.66 E (40° 13' 00.43" N, 104° 58' 53.02" W)

Ground Level: 4,970.00 ft

Local Coordinate Origin: Centered on Well McKinstry 28N-21HZ

Viewing Datum: RKB=17 @ 4987.00ft (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. 22-T3N-R68W
 Well: McKinstry 28N-21HZ
 Wellbore: Plan A Rev 0
 Design: Plan A Rev 0 Permit

Anadarko Petroleum Corp.



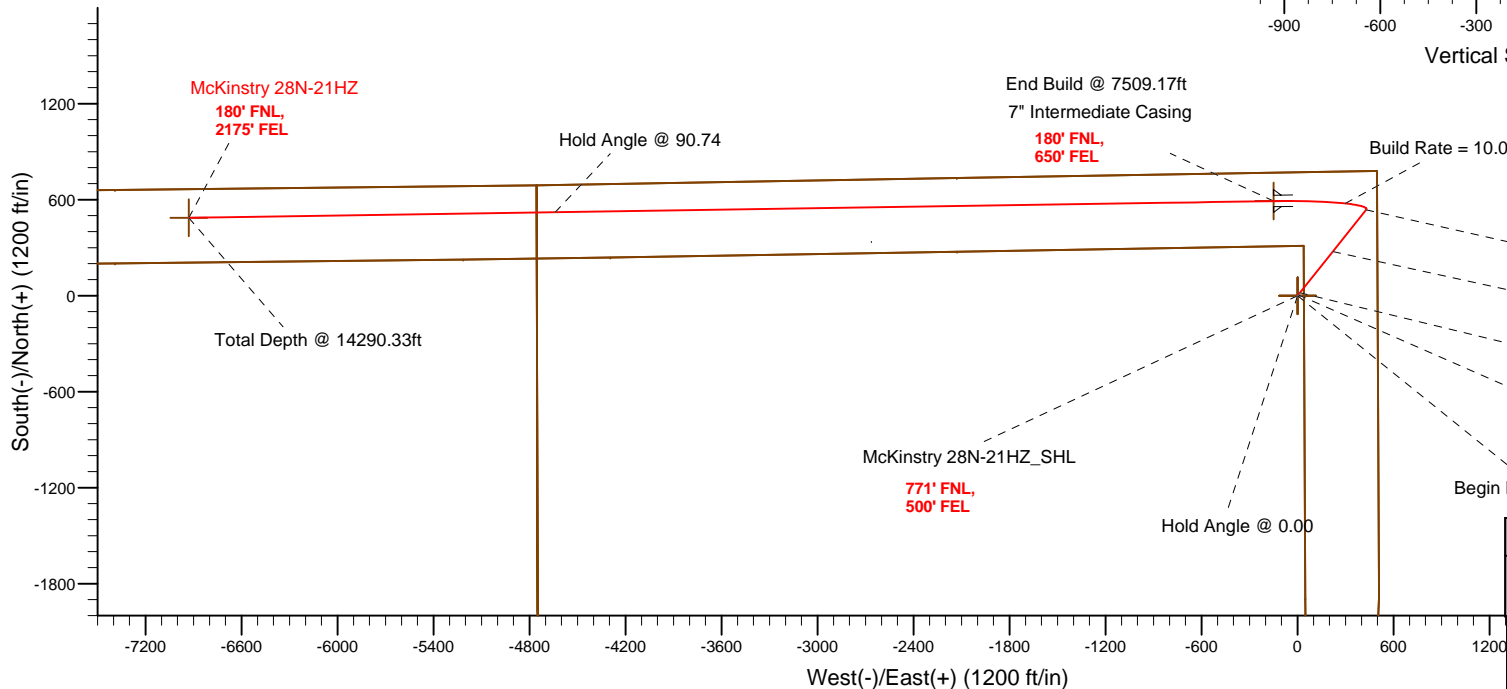
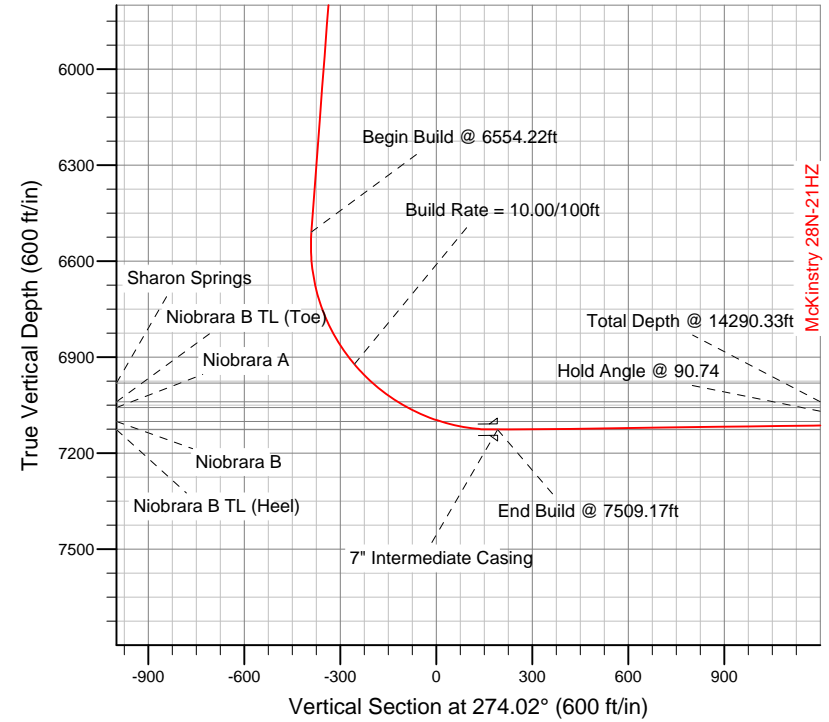
SECTION DETAILS

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	1474.75	7.49	38.66	1473.68	19.11	15.29	2.00	38.66	-13.91	
4	6554.22	7.49	38.66	6509.76	536.47	429.20	0.00	0.00	-390.57	
5	7509.17	90.74	269.12	7127.00	591.00	-150.00	10.00	-129.23	191.03	McKinstry 28N-21HZ_Casing Point
6	14290.33	90.74	269.12	7040.00	486.58	-6929.79	0.00	0.00	6946.86	McKinstry 28N-21HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
McKinstry 28N-21HZ_Sec 21/22 Line	0.00	0.00	0.00	40.216785	-104.981394	Polygon
McKinstry 28N-21HZ_Section Line	0.00	0.00	0.00	40.216785	-104.981394	Polygon
McKinstry 28N-21HZ_Setback Line	0.00	0.00	0.00	40.216785	-104.981394	Polygon
McKinstry 28N-21HZ_SHL	0.00	0.00	0.00	40.216785	-104.981394	Point
McKinstry 28N-21HZ_BHL	7040.00	486.58	-6929.79	40.218118	-105.006208	Point
McKinstry 28N-21HZ_Casing Point	7127.00	591.00	-150.00	40.218407	-104.981931	Point

Target Line:
7129.73' TVDkb @ 0° VS Drilling 90.74°



WELL DETAILS: McKinstry 28N-21HZ	
Ground Level: 4970.00 RKB=17 @ 4987.00ft (Drilling Rig)	
Plan: Plan A Rev 0 Permit (McKinstry 28N-21HZ/Plan A Rev 0)	
Created By: Fred Hartmann	Date: 10/08/2012
Reviewed: _____	Date: _____

Plan Report for McKinstry 28N-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	38.66	1,199.98	1.36	1.09	-0.99	2.00	2.00	0.00	38.66
1,300.00	4.00	38.66	1,299.84	5.45	4.36	-3.97	2.00	2.00	0.00	0.00
Nudge Rate = 2.00/100ft										
1,400.00	6.00	38.66	1,399.45	12.25	9.80	-8.92	2.00	2.00	0.00	0.00
1,474.75	7.49	38.66	1,473.68	19.11	15.29	-13.91	2.00	2.00	0.00	0.00
End Nudge @ 1474.75ft										
1,500.00	7.49	38.66	1,498.72	21.68	17.35	-15.79	0.00	0.00	0.00	0.00
1,600.00	7.49	38.66	1,597.86	31.87	25.50	-23.20	0.00	0.00	0.00	0.00
1,700.00	7.49	38.66	1,697.01	42.05	33.65	-30.62	0.00	0.00	0.00	0.00
1,800.00	7.49	38.66	1,796.15	52.24	41.79	-38.03	0.00	0.00	0.00	0.00
1,900.00	7.49	38.66	1,895.30	62.43	49.94	-45.45	0.00	0.00	0.00	0.00
2,000.00	7.49	38.66	1,994.44	72.61	58.09	-52.86	0.00	0.00	0.00	0.00
2,100.00	7.49	38.66	2,093.59	82.80	66.24	-60.28	0.00	0.00	0.00	0.00
2,200.00	7.49	38.66	2,192.74	92.98	74.39	-67.69	0.00	0.00	0.00	0.00
2,300.00	7.49	38.66	2,291.88	103.17	82.54	-75.11	0.00	0.00	0.00	0.00
2,400.00	7.49	38.66	2,391.03	113.35	90.69	-82.52	0.00	0.00	0.00	0.00
2,500.00	7.49	38.66	2,490.17	123.54	98.83	-89.94	0.00	0.00	0.00	0.00
2,600.00	7.49	38.66	2,589.32	133.72	106.98	-97.35	0.00	0.00	0.00	0.00
2,700.00	7.49	38.66	2,688.46	143.91	115.13	-104.77	0.00	0.00	0.00	0.00
2,800.00	7.49	38.66	2,787.61	154.09	123.28	-112.18	0.00	0.00	0.00	0.00
2,900.00	7.49	38.66	2,886.76	164.28	131.43	-119.60	0.00	0.00	0.00	0.00
3,000.00	7.49	38.66	2,985.90	174.46	139.58	-127.02	0.00	0.00	0.00	0.00
3,100.00	7.49	38.66	3,085.05	184.65	147.73	-134.43	0.00	0.00	0.00	0.00
3,200.00	7.49	38.66	3,184.19	194.83	155.88	-141.85	0.00	0.00	0.00	0.00
3,300.00	7.49	38.66	3,283.34	205.02	164.02	-149.26	0.00	0.00	0.00	0.00
3,400.00	7.49	38.66	3,382.48	215.20	172.17	-156.68	0.00	0.00	0.00	0.00
3,500.00	7.49	38.66	3,481.63	225.39	180.32	-164.09	0.00	0.00	0.00	0.00
3,600.00	7.49	38.66	3,580.77	235.58	188.47	-171.51	0.00	0.00	0.00	0.00
3,621.41	7.49	38.66	3,602.00	237.76	190.21	-173.09	0.00	0.00	0.00	0.00
Parkman										
3,700.00	7.49	38.66	3,679.92	245.76	196.62	-178.92	0.00	0.00	0.00	0.00
3,800.00	7.49	38.66	3,779.07	255.95	204.77	-186.34	0.00	0.00	0.00	0.00
3,900.00	7.49	38.66	3,878.21	266.13	212.92	-193.75	0.00	0.00	0.00	0.00
4,000.00	7.49	38.66	3,977.36	276.32	221.06	-201.17	0.00	0.00	0.00	0.00
Hold Angle @ 7.49										
4,100.00	7.49	38.66	4,076.50	286.50	229.21	-208.58	0.00	0.00	0.00	0.00
4,122.69	7.49	38.66	4,099.00	288.81	231.06	-210.27	0.00	0.00	0.00	0.00
Sussex										
4,200.00	7.49	38.66	4,175.65	296.69	237.36	-216.00	0.00	0.00	0.00	0.00
4,300.00	7.49	38.66	4,274.79	306.87	245.51	-223.41	0.00	0.00	0.00	0.00
4,400.00	7.49	38.66	4,373.94	317.06	253.66	-230.83	0.00	0.00	0.00	0.00
4,500.00	7.49	38.66	4,473.09	327.24	261.81	-238.24	0.00	0.00	0.00	0.00
4,600.00	7.49	38.66	4,572.23	337.43	269.96	-245.66	0.00	0.00	0.00	0.00

Plan Report for McKinstry 28N-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 (°)
4,630.03	7.49	38.66	4,602.00	340.49	272.40	-247.89	0.00	0.00	0.00	0.00
Shannon										
4,700.00	7.49	38.66	4,671.38	347.61	278.11	-253.07	0.00	0.00	0.00	0.00
4,800.00	7.49	38.66	4,770.52	357.80	286.25	-260.49	0.00	0.00	0.00	0.00
4,900.00	7.49	38.66	4,869.67	367.98	294.40	-267.90	0.00	0.00	0.00	0.00
5,000.00	7.49	38.66	4,968.81	378.17	302.55	-275.32	0.00	0.00	0.00	0.00
5,100.00	7.49	38.66	5,067.96	388.35	310.70	-282.74	0.00	0.00	0.00	0.00
5,200.00	7.49	38.66	5,167.11	398.54	318.85	-290.15	0.00	0.00	0.00	0.00
5,300.00	7.49	38.66	5,266.25	408.72	327.00	-297.57	0.00	0.00	0.00	0.00
5,400.00	7.49	38.66	5,365.40	418.91	335.15	-304.98	0.00	0.00	0.00	0.00
5,500.00	7.49	38.66	5,464.54	429.10	343.29	-312.40	0.00	0.00	0.00	0.00
5,600.00	7.49	38.66	5,563.69	439.28	351.44	-319.81	0.00	0.00	0.00	0.00
5,700.00	7.49	38.66	5,662.83	449.47	359.59	-327.23	0.00	0.00	0.00	0.00
5,800.00	7.49	38.66	5,761.98	459.65	367.74	-334.64	0.00	0.00	0.00	0.00
5,900.00	7.49	38.66	5,861.12	469.84	375.89	-342.06	0.00	0.00	0.00	0.00
6,000.00	7.49	38.66	5,960.27	480.02	384.04	-349.47	0.00	0.00	0.00	0.00
6,100.00	7.49	38.66	6,059.42	490.21	392.19	-356.89	0.00	0.00	0.00	0.00
6,200.00	7.49	38.66	6,158.56	500.39	400.34	-364.30	0.00	0.00	0.00	0.00
6,300.00	7.49	38.66	6,257.71	510.58	408.48	-371.72	0.00	0.00	0.00	0.00
6,400.00	7.49	38.66	6,356.85	520.76	416.63	-379.13	0.00	0.00	0.00	0.00
6,500.00	7.49	38.66	6,456.00	530.95	424.78	-386.55	0.00	0.00	0.00	0.00
6,554.22	7.49	38.66	6,509.76	536.47	429.20	-390.57	0.00	0.00	0.00	0.00
Begin Build @ 6554.22ft										
6,600.00	5.80	0.96	6,555.25	541.12	431.10	-392.14	10.00	-3.70	-82.36	-129.23
6,700.00	11.39	299.46	6,654.26	551.05	422.57	-382.93	10.00	5.59	-61.49	-91.76
6,800.00	20.62	284.85	6,750.31	560.45	396.89	-356.65	10.00	9.23	-14.61	-30.77
6,900.00	30.33	279.19	6,840.50	569.02	354.83	-314.11	10.00	9.71	-5.66	-16.67
7,000.00	40.17	276.10	6,922.07	576.50	297.69	-256.58	10.00	9.84	-3.09	-11.54
Build Rate = 10.00/100ft										
7,082.34	48.32	274.38	6,981.00	581.68	240.53	-199.20	10.00	9.89	-2.09	-9.01
Sharon Springs										
7,100.00	50.07	274.07	6,992.54	582.66	227.20	-185.83	10.00	9.91	-1.76	-7.78
7,200.00	59.99	272.55	7,049.79	587.32	145.49	-104.00	10.00	9.92	-1.51	-7.57
7,216.85	61.67	272.33	7,058.00	587.95	130.80	-89.29	10.00	9.93	-1.33	-6.70
Niobrara A										
7,300.00	69.93	271.32	7,092.06	590.34	55.06	-13.57	10.00	9.94	-1.22	-6.59
7,327.91	72.70	271.00	7,101.00	590.88	28.63	12.83	10.00	9.94	-1.13	-6.18
Niobrara B										
7,400.00	79.87	270.23	7,118.08	591.63	-41.36	82.70	10.00	9.95	-1.07	-6.07
7,494.40	89.26	269.27	7,127.00	591.21	-135.22	176.30	10.00	9.95	-1.02	-5.89
Niobrara B TL (Heel)										
7,500.00	89.82	269.21	7,127.04	591.13	-140.83	181.89	10.00	9.95	-1.01	-5.80
7,509.17	90.73	269.12	7,127.00	591.00	-150.00	191.03	10.00	9.95	-1.01	-5.80
End Build @ 7509.17ft - 7" Intermediate Casing - McKinstry 28N-21HZ_Casing Point										
7,600.00	90.74	269.12	7,125.83	589.60	-240.81	281.51	0.00	0.00	0.00	-5.80
7,700.00	90.74	269.12	7,124.55	588.06	-340.79	381.14	0.00	0.00	0.00	0.00
7,800.00	90.74	269.12	7,123.27	586.52	-440.77	480.77	0.00	0.00	0.00	0.00
7,900.00	90.74	269.12	7,121.99	584.98	-540.75	580.39	0.00	0.00	0.00	0.00
8,000.00	90.74	269.12	7,120.70	583.44	-640.73	680.02	0.00	0.00	0.00	0.00
8,100.00	90.74	269.12	7,119.42	581.90	-740.71	779.65	0.00	0.00	0.00	0.00
8,200.00	90.74	269.12	7,118.14	580.36	-840.69	879.27	0.00	0.00	0.00	0.00
8,300.00	90.74	269.12	7,116.85	578.82	-940.67	978.90	0.00	0.00	0.00	0.00
8,400.00	90.74	269.12	7,115.57	577.28	-1,040.65	1,078.53	0.00	0.00	0.00	0.00
8,500.00	90.74	269.12	7,114.29	575.74	-1,140.63	1,178.15	0.00	0.00	0.00	0.00
8,600.00	90.74	269.12	7,113.01	574.20	-1,240.61	1,277.78	0.00	0.00	0.00	0.00
8,700.00	90.74	269.12	7,111.72	572.66	-1,340.59	1,377.41	0.00	0.00	0.00	0.00
8,800.00	90.74	269.12	7,110.44	571.12	-1,440.57	1,477.03	0.00	0.00	0.00	0.00
8,900.00	90.74	269.12	7,109.16	569.58	-1,540.55	1,576.66	0.00	0.00	0.00	0.00
9,000.00	90.74	269.12	7,107.87	568.04	-1,640.53	1,676.29	0.00	0.00	0.00	0.00

Plan Report for McKinstry 28N-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 (°)
9,100.00	90.74	269.12	7,106.59	566.50	-1,740.51	1,775.91	0.00	0.00	0.00	0.00
9,200.00	90.74	269.12	7,105.31	564.96	-1,840.49	1,875.54	0.00	0.00	0.00	0.00
9,300.00	90.74	269.12	7,104.02	563.42	-1,940.47	1,975.17	0.00	0.00	0.00	0.00
9,400.00	90.74	269.12	7,102.74	561.88	-2,040.45	2,074.79	0.00	0.00	0.00	0.00
9,500.00	90.74	269.12	7,101.46	560.34	-2,140.43	2,174.42	0.00	0.00	0.00	0.00
9,600.00	90.74	269.12	7,100.18	558.80	-2,240.41	2,274.04	0.00	0.00	0.00	0.00
9,700.00	90.74	269.12	7,098.89	557.26	-2,340.39	2,373.67	0.00	0.00	0.00	0.00
9,800.00	90.74	269.12	7,097.61	555.73	-2,440.37	2,473.30	0.00	0.00	0.00	0.00
9,900.00	90.74	269.12	7,096.33	554.19	-2,540.35	2,572.92	0.00	0.00	0.00	0.00
10,000.00	90.74	269.12	7,095.04	552.65	-2,640.33	2,672.55	0.00	0.00	0.00	0.00
10,100.00	90.74	269.12	7,093.76	551.11	-2,740.31	2,772.18	0.00	0.00	0.00	0.00
10,200.00	90.74	269.12	7,092.48	549.57	-2,840.29	2,871.80	0.00	0.00	0.00	0.00
10,300.00	90.74	269.12	7,091.19	548.03	-2,940.27	2,971.43	0.00	0.00	0.00	0.00
10,400.00	90.74	269.12	7,089.91	546.49	-3,040.25	3,071.06	0.00	0.00	0.00	0.00
10,500.00	90.74	269.12	7,088.63	544.95	-3,140.23	3,170.68	0.00	0.00	0.00	0.00
10,600.00	90.74	269.12	7,087.35	543.41	-3,240.21	3,270.31	0.00	0.00	0.00	0.00
10,700.00	90.74	269.12	7,086.06	541.87	-3,340.19	3,369.94	0.00	0.00	0.00	0.00
10,800.00	90.74	269.12	7,084.78	540.33	-3,440.17	3,469.56	0.00	0.00	0.00	0.00
10,900.00	90.74	269.12	7,083.50	538.79	-3,540.15	3,569.19	0.00	0.00	0.00	0.00
11,000.00	90.74	269.12	7,082.21	537.25	-3,640.13	3,668.82	0.00	0.00	0.00	0.00
11,100.00	90.74	269.12	7,080.93	535.71	-3,740.11	3,768.44	0.00	0.00	0.00	0.00
11,200.00	90.74	269.12	7,079.65	534.17	-3,840.09	3,868.07	0.00	0.00	0.00	0.00
11,300.00	90.74	269.12	7,078.36	532.63	-3,940.07	3,967.70	0.00	0.00	0.00	0.00
11,400.00	90.74	269.12	7,077.08	531.09	-4,040.05	4,067.32	0.00	0.00	0.00	0.00
11,500.00	90.74	269.12	7,075.80	529.55	-4,140.03	4,166.95	0.00	0.00	0.00	0.00
11,600.00	90.74	269.12	7,074.52	528.01	-4,240.01	4,266.57	0.00	0.00	0.00	0.00
11,700.00	90.74	269.12	7,073.23	526.47	-4,339.99	4,366.20	0.00	0.00	0.00	0.00
11,800.00	90.74	269.12	7,071.95	524.93	-4,439.96	4,465.83	0.00	0.00	0.00	0.00
11,900.00	90.74	269.12	7,070.67	523.39	-4,539.94	4,565.45	0.00	0.00	0.00	0.00
12,000.00	90.74	269.12	7,069.38	521.85	-4,639.92	4,665.08	0.00	0.00	0.00	0.00
Hold Angle @ 90.74										
12,100.00	90.74	269.12	7,068.10	520.31	-4,739.90	4,764.71	0.00	0.00	0.00	0.00
12,200.00	90.74	269.12	7,066.82	518.77	-4,839.88	4,864.33	0.00	0.00	0.00	0.00
12,300.00	90.74	269.12	7,065.54	517.23	-4,939.86	4,963.96	0.00	0.00	0.00	0.00
12,400.00	90.74	269.12	7,064.25	515.69	-5,039.84	5,063.59	0.00	0.00	0.00	0.00
12,500.00	90.74	269.12	7,062.97	514.15	-5,139.82	5,163.21	0.00	0.00	0.00	0.00
12,600.00	90.74	269.12	7,061.69	512.61	-5,239.80	5,262.84	0.00	0.00	0.00	0.00
12,700.00	90.74	269.12	7,060.40	511.07	-5,339.78	5,362.47	0.00	0.00	0.00	0.00
12,800.00	90.74	269.12	7,059.12	509.53	-5,439.76	5,462.09	0.00	0.00	0.00	0.00
12,900.00	90.74	269.12	7,057.84	507.99	-5,539.74	5,561.72	0.00	0.00	0.00	0.00
13,000.00	90.74	269.12	7,056.55	506.45	-5,639.72	5,661.35	0.00	0.00	0.00	0.00
13,100.00	90.74	269.12	7,055.27	504.91	-5,739.70	5,760.97	0.00	0.00	0.00	0.00
13,200.00	90.74	269.12	7,053.99	503.37	-5,839.68	5,860.60	0.00	0.00	0.00	0.00
13,300.00	90.74	269.12	7,052.71	501.83	-5,939.66	5,960.23	0.00	0.00	0.00	0.00
13,400.00	90.74	269.12	7,051.42	500.29	-6,039.64	6,059.85	0.00	0.00	0.00	0.00
13,500.00	90.74	269.12	7,050.14	498.75	-6,139.62	6,159.48	0.00	0.00	0.00	0.00
13,600.00	90.74	269.12	7,048.86	497.21	-6,239.60	6,259.10	0.00	0.00	0.00	0.00
13,700.00	90.74	269.12	7,047.57	495.67	-6,339.58	6,358.73	0.00	0.00	0.00	0.00
13,800.00	90.74	269.12	7,046.29	494.13	-6,439.56	6,458.36	0.00	0.00	0.00	0.00
13,900.00	90.74	269.12	7,045.01	492.59	-6,539.54	6,557.98	0.00	0.00	0.00	0.00
14,000.00	90.74	269.12	7,043.72	491.05	-6,639.52	6,657.61	0.00	0.00	0.00	0.00
14,100.00	90.74	269.12	7,042.44	489.51	-6,739.50	6,757.24	0.00	0.00	0.00	0.00
14,200.00	90.74	269.12	7,041.16	487.97	-6,839.48	6,856.86	0.00	0.00	0.00	0.00
14,290.32	90.74	269.12	7,040.00	486.58	-6,929.78	6,946.85	0.00	0.00	0.00	0.00
Niobrara B TL (Toe)										
14,290.33	90.74	269.12	7,040.00	486.58	-6,929.79	6,946.86	0.00	0.00	0.00	0.00
Total Depth @ 14290.33ft - McKinstry 28N-21HZ_BHL										

Plan Report for McKinstry 28N-21HZ - Plan A Rev 0 Permit**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
1,300.00	1,299.84	5.45	4.36	Nudge Rate = 2.00/100ft
1,474.75	1,473.68	19.11	15.29	End Nudge @ 1474.75ft
4,000.00	3,977.36	276.32	221.06	Hold Angle @ 7.49
6,554.22	6,509.76	536.47	429.20	Begin Build @ 6554.22ft
7,000.00	6,922.07	576.50	297.69	Build Rate = 10.00/100ft
7,509.17	7,127.00	591.00	-150.00	End Build @ 7509.17ft
12,000.00	7,069.38	521.85	-4,639.92	Hold Angle @ 90.74
14,290.33	7,040.00	486.58	-6,929.79	Total Depth @ 14290.33ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	McKinstry 28N-21HZ_BHL	274.02	Slot	0.00	0.00	7,040.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	7,509.17	Plan A Rev 0 Permit	MWD
7,509.17	14,290.33	Plan A Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,509.17	7,127.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,621.41	3,602.00	Parkman		0.00	
4,122.69	4,099.00	Sussex		0.00	
4,630.03	4,602.00	Shannon		0.00	
7,082.34	6,981.00	Sharon Springs		0.00	
7,216.85	7,058.00	Niobrara A		0.00	
7,327.91	7,101.00	Niobrara B		0.00	
7,494.40	7,127.00	Niobrara B TL (Heel)		0.00	
14,290.32	7,040.00	Niobrara B TL (Toe)		0.00	

Plan Report for McKinstry 28N-21HZ - Plan A Rev 0 Permit

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
McKinstry 28N-21HZ_Section Line	0.00	0.00	0.00	Point
McKinstry 28N-21HZ_Setback Line	0.00	0.00	0.00	Point
McKinstry 28N-21HZ_SHL	0.00	0.00	0.00	Point
McKinstry 28N-21HZ_BHL	7,040.00	486.58	-6,929.79	Point
McKinstry 28N-21HZ_Sec 21/22 Line	0.00	0.00	0.00	Point
McKinstry 28N-21HZ_Casing Point	7,127.00	591.00	-150.00	Point

North Reference Sheet for Sec. 22-T3N-R68W - McKinstry 28N-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 @ 4987.00ft (Drilling Rig). Northing and Easting are relative to McKinstry 28N-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: 0.99995702

Grid Coordinates of Well: 1,322,240.47 ft N, 3,144,826.66 ft E
 Geographical Coordinates of Well: 40° 13' 00.43" N, 104° 58' 53.02" W
 Grid Convergence at Surface is: 0.34°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,290.33ft
 the Bottom Hole Displacement is 6,946.86ft in the Direction of 274.02° (True).

Magnetic Convergence at surface is: -8.49° (8 October 2012, , BGGM2012)

