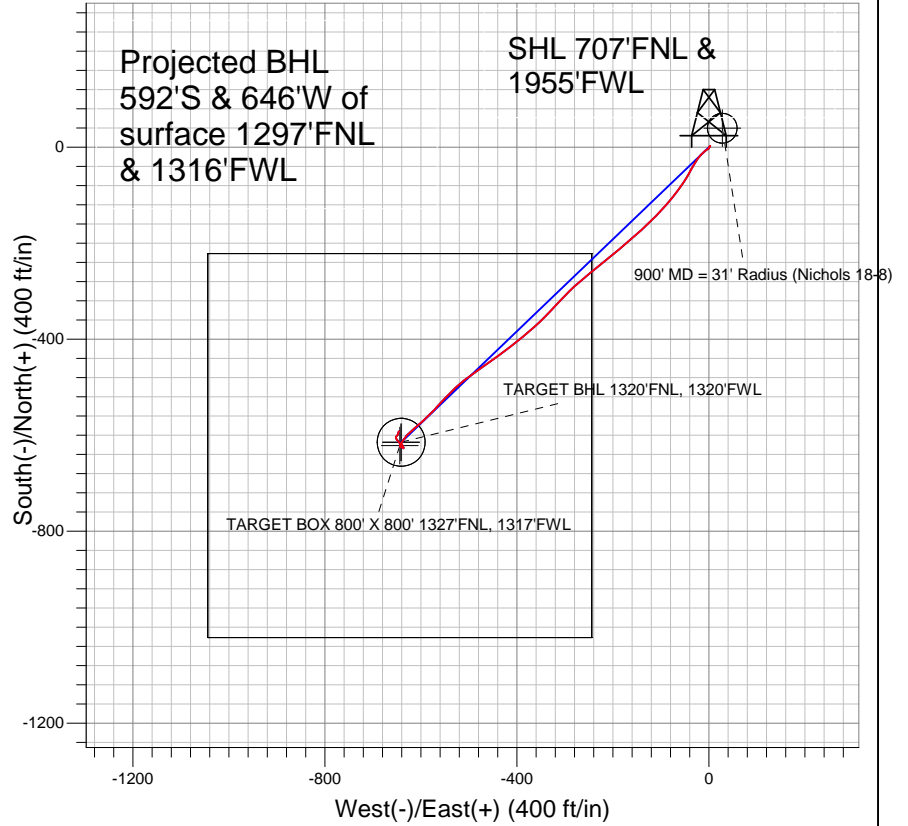
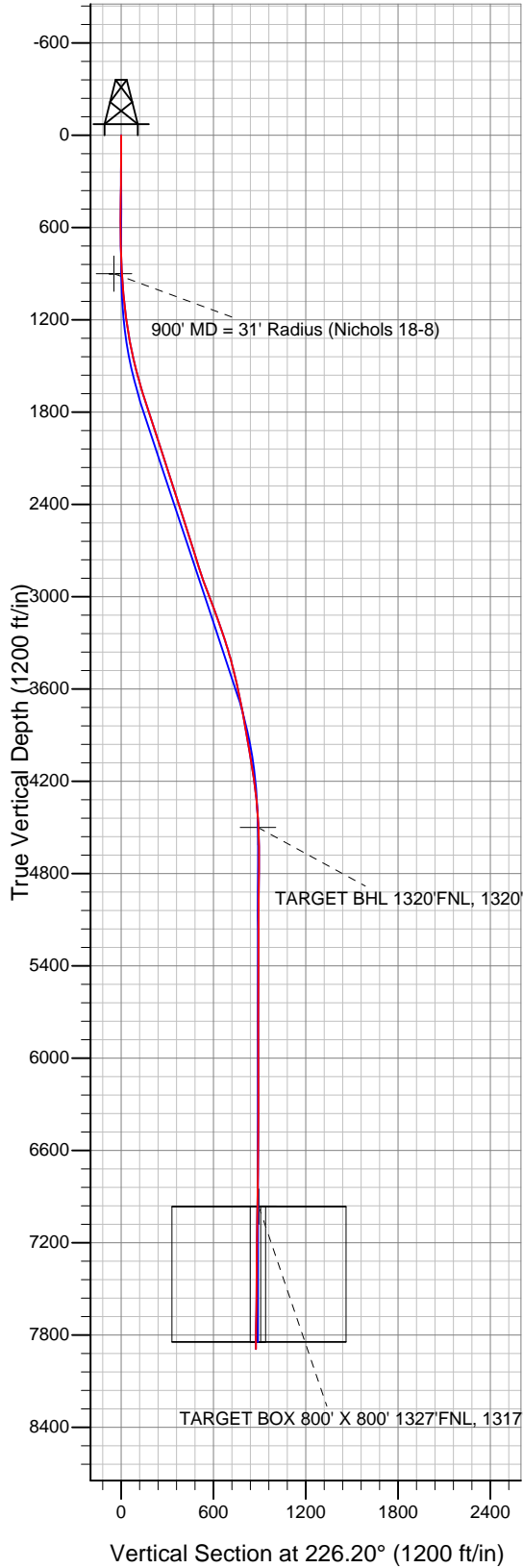


## Anadarko, Weld County CO



### LEGEND

- Nichols 18-8, Wellbore #1, Plan #1 (4-26-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 8015'MD & 7890'TVD @ 875'VS  
 0.5 deg Inc 20.2 deg AZ

Project: SEC.8-T2N-R65W  
 Site: Nichols 3-8 Pad Sec.8-T2N-R65W  
 Well: Nichols 18-8  
 Plan: Wellbore #1



## Directional

### **Anadarko, Weld County CO**

**SEC.8-T2N-R65W**

**Nichols 3-8 Pad Sec.8-T2N-R65W**

**Nichols 18-8**

**Wellbore #1**

**Survey: Survey #1**

### **Standard Survey Report**

**06 June, 2011**



<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Nichols 18-8
<b>Project:</b>	SEC.8-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4909.0ft (Original Well Elev)
<b>Site:</b>	Nichols 3-8 Pad Sec.8-T2N-R65W	<b>MD Reference:</b>	WELL @ 4909.0ft (Original Well Elev)
<b>Well:</b>	Nichols 18-8	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.8-T2N-R65W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Nichols 3-8 Pad Sec.8-T2N-R65W				
<b>Site Position:</b>		<b>Northing:</b>	1,301,655.88ft	<b>Latitude:</b>	40.158603
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,226,349.07ft	<b>Longitude:</b>	-104.690159
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	0.52 °

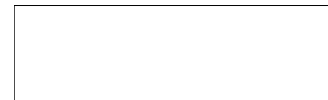
<b>Well</b>	Nichols 18-8					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,301,644.68 ft	<b>Latitude:</b>	40.158572
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,226,360.35 ft	<b>Longitude:</b>	-104.690119
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,894.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/26/2011	8.82	66.87	53,026

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	226.20	

<b>Survey Program</b>	<b>Date</b>	6/6/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
144.0	8,015.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
144.0	0.40	64.30	144.0	0.2	0.5	-0.5	0.28	0.28	0.00	
233.0	0.20	44.70	233.0	0.5	0.8	-0.9	0.25	-0.22	-22.02	
324.0	0.40	43.20	324.0	0.8	1.2	-1.4	0.22	0.22	-1.65	
415.0	0.50	16.60	415.0	1.4	1.5	-2.1	0.25	0.11	-29.23	
507.0	0.60	35.40	507.0	2.2	1.9	-2.9	0.22	0.11	20.43	
599.0	0.40	100.20	599.0	2.5	2.5	-3.6	0.61	-0.22	70.43	
691.0	1.10	206.00	691.0	1.7	2.4	-2.9	1.38	0.76	115.00	
783.0	2.30	219.20	782.9	-0.5	0.9	-0.2	1.36	1.30	14.35	
797.0	2.30	219.20	796.9	-1.0	0.5	0.3	0.00	0.00	0.00	
880.0	2.00	223.60	879.9	-3.3	-1.5	3.4	0.41	-0.36	5.30	
897.6	2.35	228.61	897.4	-3.8	-2.0	4.1	2.26	1.99	28.49	
<b>900' MD = 31' Radius (Nichols 18-8)</b>										



<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Nichols 18-8
<b>Project:</b>	SEC.8-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4909.0ft (Original Well Elev)
<b>Site:</b>	Nichols 3-8 Pad Sec.8-T2N-R65W	<b>MD Reference:</b>	WELL @ 4909.0ft (Original Well Elev)
<b>Well:</b>	Nichols 18-8	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
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)	
975.0	4.00	239.70	974.7	-6.2	-5.5	8.3	2.26	2.13	14.32	
1,070.0	6.70	225.50	1,069.3	-11.7	-12.4	17.1	3.14	2.84	-14.95	
1,166.0	8.00	220.80	1,164.5	-20.7	-20.7	29.3	1.49	1.35	-4.90	
1,261.0	8.90	210.30	1,258.5	-32.1	-28.7	43.0	1.88	0.95	-11.05	
1,356.0	11.40	208.20	1,352.0	-46.7	-36.9	59.0	2.66	2.63	-2.21	
1,451.0	13.50	210.70	1,444.8	-64.5	-47.0	78.6	2.28	2.21	2.63	
1,546.0	14.50	215.00	1,536.9	-83.8	-59.5	100.9	1.52	1.05	4.53	
1,641.0	16.40	220.50	1,628.5	-103.7	-75.0	125.9	2.52	2.00	5.79	
1,736.0	17.40	221.20	1,719.4	-124.6	-93.1	153.4	1.07	1.05	0.74	
1,832.0	17.70	224.70	1,810.9	-145.8	-112.8	182.3	1.14	0.31	3.65	
1,927.0	18.50	227.20	1,901.2	-166.3	-134.0	211.8	1.17	0.84	2.63	
2,022.0	19.10	229.40	1,991.2	-186.7	-156.9	242.4	0.98	0.63	2.32	
2,117.0	17.60	229.60	2,081.3	-206.1	-179.6	272.3	1.58	-1.58	0.21	
2,213.0	17.80	228.50	2,172.8	-225.2	-201.7	301.4	0.41	0.21	-1.15	
2,310.0	17.50	232.50	2,265.2	-243.9	-224.3	330.7	1.29	-0.31	4.12	
2,405.0	18.30	230.80	2,355.6	-262.0	-247.2	359.8	1.01	0.84	-1.79	
2,500.0	18.20	229.50	2,445.9	-281.1	-270.1	389.5	0.44	-0.11	-1.37	
2,595.0	17.80	224.70	2,536.2	-301.1	-291.6	418.8	1.62	-0.42	-5.05	
2,691.0	17.40	223.40	2,627.7	-321.9	-311.7	447.8	0.58	-0.42	-1.35	
2,786.0	17.30	222.80	2,718.4	-342.6	-331.1	476.1	0.22	-0.11	-0.63	
2,881.0	17.50	226.10	2,809.1	-362.9	-351.0	504.5	1.06	0.21	3.47	
2,976.0	20.10	229.80	2,899.0	-383.3	-373.8	535.1	3.01	2.74	3.89	
3,071.0	20.80	231.40	2,988.0	-404.4	-399.4	568.2	0.94	0.74	1.68	
3,167.0	20.70	232.90	3,077.8	-425.2	-426.3	602.0	0.56	-0.10	1.56	
3,262.0	20.00	234.40	3,166.8	-444.8	-452.9	634.7	0.92	-0.74	1.58	
3,357.0	18.90	234.70	3,256.4	-463.2	-478.6	666.0	1.16	-1.16	0.32	
3,452.0	16.70	234.00	3,346.9	-480.1	-502.2	694.8	2.33	-2.32	-0.74	
3,547.0	14.30	228.50	3,438.4	-495.9	-522.1	720.0	2.96	-2.53	-5.79	
3,643.0	13.10	224.60	3,531.7	-511.5	-538.6	742.8	1.58	-1.25	-4.06	
3,737.0	12.50	222.90	3,623.3	-526.5	-553.0	763.6	0.75	-0.64	-1.81	
3,832.0	11.00	222.20	3,716.3	-540.8	-566.1	782.9	1.59	-1.58	-0.74	
3,928.0	10.20	226.70	3,810.7	-553.4	-578.4	800.5	1.20	-0.83	4.69	
4,023.0	9.80	222.70	3,904.3	-565.1	-590.0	817.0	0.84	-0.42	-4.21	
4,118.0	8.80	232.50	3,998.0	-575.5	-601.3	832.3	1.97	-1.05	10.32	
4,213.0	9.80	228.00	4,091.8	-585.3	-613.0	847.6	1.30	1.05	-4.74	
4,308.0	8.00	227.00	4,185.6	-595.2	-623.9	862.3	1.90	-1.89	-1.05	
4,404.0	6.40	216.80	4,280.9	-604.1	-632.0	874.2	2.13	-1.67	-10.63	
4,499.0	5.30	216.90	4,375.4	-611.8	-637.8	883.8	1.16	-1.16	0.11	
4,594.0	3.20	204.30	4,470.1	-617.7	-641.5	890.6	2.41	-2.21	-13.26	
4,623.7	2.88	206.18	4,499.8	-619.2	-642.2	892.1	1.12	-1.07	6.33	
<b>TARGET BHL 1320'FNL, 1320'FWL</b>										
4,689.0	2.20	212.20	4,565.0	-621.7	-643.6	894.8	1.12	-1.05	9.22	
4,784.0	1.60	126.20	4,660.0	-624.0	-643.5	896.3	2.77	-0.63	-90.53	
4,879.0	2.00	115.70	4,754.9	-625.5	-640.9	895.5	0.54	0.42	-11.05	
4,974.0	1.50	111.90	4,849.9	-626.7	-638.3	894.4	0.54	-0.53	-4.00	
5,070.0	0.80	93.00	4,945.9	-627.2	-636.4	893.5	0.82	-0.73	-19.69	
5,164.0	0.70	337.10	5,039.9	-626.7	-636.0	892.8	1.35	-0.11	-123.30	
5,259.0	0.60	340.50	5,134.8	-625.7	-636.4	892.4	0.11	-0.11	3.58	
5,354.0	0.60	333.90	5,229.8	-624.8	-636.8	892.0	0.07	0.00	-6.95	
5,450.0	0.70	327.40	5,325.8	-623.9	-637.3	891.8	0.13	0.10	-6.77	
5,545.0	0.80	335.40	5,420.8	-622.8	-637.9	891.5	0.15	0.11	8.42	
5,640.0	0.70	347.20	5,515.8	-621.6	-638.3	890.9	0.19	-0.11	12.42	
5,735.0	0.90	328.50	5,610.8	-620.4	-638.8	890.5	0.34	0.21	-19.68	
5,830.0	0.70	309.10	5,705.8	-619.4	-639.7	890.4	0.35	-0.21	-20.42	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Nichols 18-8
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<b>Site:</b>	Nichols 3-8 Pad Sec.8-T2N-R65W	<b>MD Reference:</b>	WELL @ 4909.0ft (Original Well Elev)
<b>Well:</b>	Nichols 18-8	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
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)	
5,925.0	0.60	288.90	5,800.8	-618.9	-640.6	890.7	0.26	-0.11	-21.26	
6,020.0	1.00	297.30	5,895.8	-618.3	-641.8	891.2	0.44	0.42	8.84	
6,116.0	1.20	316.40	5,991.8	-617.2	-643.2	891.5	0.43	0.21	19.90	
6,211.0	1.50	313.10	6,086.7	-615.6	-644.8	891.5	0.33	0.32	-3.47	
6,306.0	1.50	319.00	6,181.7	-613.9	-646.5	891.5	0.16	0.00	6.21	
6,401.0	1.50	319.20	6,276.7	-612.0	-648.2	891.4	0.01	0.00	0.21	
6,496.0	1.60	322.50	6,371.6	-610.0	-649.8	891.2	0.14	0.11	3.47	
6,623.0	1.20	331.40	6,498.6	-607.4	-651.5	890.6	0.36	-0.31	7.01	
6,718.0	1.10	351.70	6,593.6	-605.6	-652.1	889.9	0.44	-0.11	21.37	
6,814.0	0.80	21.50	6,689.6	-604.1	-652.0	888.7	0.59	-0.31	31.04	
6,909.0	0.80	25.90	6,784.6	-602.9	-651.5	887.5	0.06	0.00	4.63	
7,004.0	0.70	49.40	6,879.6	-601.9	-650.7	886.3	0.34	-0.11	24.74	
7,088.3	0.70	51.89	6,963.9	-601.3	-649.9	885.3	0.04	0.00	2.95	
<b>TARGET BOX 800' X 800' 1327'FNL, 1317'FWL</b>										
7,088.4	0.70	51.89	6,964.0	-601.3	-649.9	885.3	0.04	0.00	2.95	
<b>TARGET CIRCLE 1320'FNL, 1320'FWL</b>										
7,099.0	0.70	52.20	6,974.5	-601.2	-649.8	885.1	0.04	0.00	2.95	
7,194.0	0.70	42.50	7,069.5	-600.4	-649.0	884.0	0.12	0.00	-10.21	
7,289.0	0.60	22.10	7,164.5	-599.5	-648.4	882.9	0.26	-0.11	-21.47	
7,385.0	0.70	22.40	7,260.5	-598.5	-648.0	881.9	0.10	0.10	0.31	
7,480.0	0.70	16.50	7,355.5	-597.4	-647.6	880.9	0.08	0.00	-6.21	
7,575.0	0.70	16.70	7,450.5	-596.3	-647.3	879.9	0.00	0.00	0.21	
7,670.0	0.60	10.90	7,545.5	-595.2	-647.0	879.0	0.13	-0.11	-6.11	
7,765.0	0.70	15.00	7,640.5	-594.2	-646.8	878.1	0.12	0.11	4.32	
7,860.0	0.80	35.70	7,735.5	-593.1	-646.2	876.9	0.30	0.11	21.79	
7,956.0	0.50	20.20	7,831.5	-592.2	-645.7	875.9	0.36	-0.31	-16.15	
8,015.0	0.50	20.20	7,890.5	-591.7	-645.5	875.4	0.00	0.00	0.00	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_