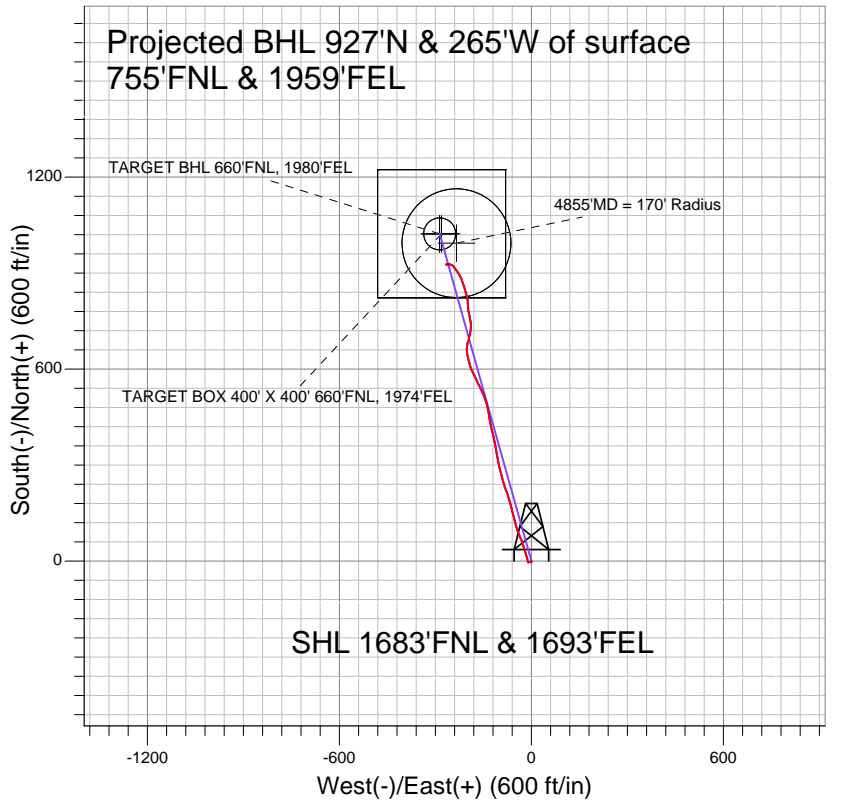


## Anadarko, Weld County CO



### LEGEND

- NRC 2-9, Wellbore #1, Plan #1 (8-20-10) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
8586' MD & 8490' TVD @ 965' VS  
0.4 deg Inc 21.6 deg AZ

Project: SEC.9-T1N-R67W  
Site: NRC 17-9 Pad Sec.9-T1N-R67W  
Well: NRC 2-9  
Plan: Wellbore #1



## **Directional**

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

**SEC.9-T1N-R67W**

**NRC 17-9 Pad Sec.9-T1N-R67W**

**NRC 2-9**

**Wellbore #1**

**Survey: Survey #1**

### **Standard Survey Report**

**23 September, 2010**

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well NRC 2-9
<b>Project:</b>	SEC.9-T1N-R67W	<b>TVD Reference:</b>	WELL @ 5012.0ft (Original Well Elev)
<b>Site:</b>	NRC 17-9 Pad Sec.9-T1N-R67W	<b>MD Reference:</b>	WELL @ 5012.0ft (Original Well Elev)
<b>Well:</b>	NRC 2-9	<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.9-T1N-R67W, 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>	NRC 17-9 Pad Sec.9-T1N-R67W		
<b>Site Position:</b>		<b>Northing:</b>	1,268,177.88 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,170,044.82 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 4' 4.580 N
		<b>Longitude:</b>	104° 53' 32.712 W
		<b>Grid Convergence:</b>	0.39 °

<b>Well</b>	NRC 2-9		
<b>Well Position</b>	<b>+N-S</b>	0.0 ft	<b>Northing:</b> 1,268,255.95 ft
	<b>+E-W</b>	0.0 ft	<b>Easting:</b> 3,170,062.75 ft
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b> ft
			<b>Latitude:</b> 40° 4' 5.351 N
			<b>Longitude:</b> 104° 53' 32.474 W
			<b>Ground Level:</b> 4,997.0 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	9/14/2010	9.00	66.79	53,020

<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	343.63	

<b>Survey Program</b>	<b>Date</b>	9/23/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
177.0	8,586.0	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	
177.0	0.60	143.60	177.0	-0.7	0.5	-0.9	0.34	0.34	0.00	
270.0	0.40	177.30	270.0	-1.5	0.9	-1.6	0.37	-0.22	36.24	
365.0	0.50	211.40	365.0	-2.1	0.7	-2.2	0.30	0.11	35.89	
455.0	0.60	234.40	455.0	-2.8	0.1	-2.7	0.27	0.11	25.56	
545.0	0.60	253.40	545.0	-3.2	-0.8	-2.8	0.22	0.00	21.11	
634.0	1.10	269.30	634.0	-3.3	-2.1	-2.6	0.62	0.56	17.87	
721.0	1.00	259.20	721.0	-3.5	-3.7	-2.3	0.24	-0.11	-11.61	
812.0	0.80	264.00	811.9	-3.7	-5.1	-2.1	0.23	-0.22	5.27	
902.0	0.90	285.70	901.9	-3.6	-6.4	-1.6	0.37	0.11	24.11	
977.0	1.00	263.60	976.9	-3.5	-7.6	-1.2	0.50	0.13	-29.47	
1,062.0	1.50	255.70	1,061.9	-3.8	-9.4	-1.0	0.62	0.59	-9.29	
1,149.0	1.20	355.00	1,148.9	-3.2	-10.6	-0.1	2.38	-0.34	114.14	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well NRC 2-9
<b>Project:</b>	SEC.9-T1N-R67W	<b>TVD Reference:</b>	WELL @ 5012.0ft (Original Well Elev)
<b>Site:</b>	NRC 17-9 Pad Sec.9-T1N-R67W	<b>MD Reference:</b>	WELL @ 5012.0ft (Original Well Elev)
<b>Well:</b>	NRC 2-9	<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)	
1,239.0	2.90	356.50	1,238.8	0.0	-10.8	3.1	1.89	1.89	1.67	
1,330.0	5.30	339.70	1,329.6	6.3	-12.4	9.5	2.92	2.64	-18.46	
1,420.0	7.00	344.90	1,419.1	15.5	-15.3	19.1	1.99	1.89	5.78	
1,509.0	9.00	343.90	1,507.2	27.4	-18.6	31.5	2.25	2.25	-1.12	
1,598.0	10.20	341.90	1,595.0	41.6	-23.0	46.4	1.40	1.35	-2.25	
1,688.0	10.50	340.60	1,683.5	56.9	-28.2	62.5	0.42	0.33	-1.44	
1,777.0	12.30	337.90	1,770.7	73.3	-34.5	80.0	2.11	2.02	-3.03	
1,867.0	12.70	339.80	1,858.6	91.5	-41.5	99.4	0.64	0.44	2.11	
1,956.0	13.30	344.50	1,945.3	110.5	-47.6	119.4	1.37	0.67	5.28	
2,045.0	13.50	345.00	2,031.9	130.4	-53.0	140.1	0.26	0.22	0.56	
2,135.0	16.00	346.60	2,118.9	152.6	-58.6	163.0	2.81	2.78	1.78	
2,225.0	15.20	345.30	2,205.6	176.1	-64.5	187.1	0.97	-0.89	-1.44	
2,317.0	14.70	341.50	2,294.5	198.8	-71.2	210.9	1.20	-0.54	-4.13	
2,405.0	14.50	339.70	2,379.7	219.8	-78.6	233.0	0.56	-0.23	-2.05	
2,494.0	15.00	343.90	2,465.7	241.3	-85.7	255.6	1.33	0.56	4.72	
2,584.0	16.20	346.10	2,552.4	264.7	-91.9	279.8	1.49	1.33	2.44	
2,673.0	15.00	343.00	2,638.1	287.7	-98.3	303.8	1.64	-1.35	-3.48	
2,762.0	15.20	350.40	2,724.1	310.2	-103.6	326.9	2.18	0.22	8.31	
2,851.0	15.20	351.00	2,810.0	333.3	-107.4	350.0	0.18	0.00	0.67	
2,941.0	16.40	349.10	2,896.5	357.4	-111.6	374.4	1.45	1.33	-2.11	
3,031.0	14.60	345.10	2,983.3	380.8	-116.9	398.4	2.32	-2.00	-4.44	
3,120.0	15.10	347.70	3,069.3	403.0	-122.3	421.1	0.94	0.56	2.92	
3,210.0	13.50	349.60	3,156.5	424.8	-126.7	443.3	1.85	-1.78	2.11	
3,299.0	13.20	349.40	3,243.1	445.0	-130.4	463.7	0.34	-0.34	-0.22	
3,388.0	14.50	350.10	3,329.5	466.0	-134.2	484.9	1.47	1.46	0.79	
3,477.0	14.20	346.70	3,415.7	487.6	-138.6	506.9	1.00	-0.34	-3.82	
3,566.0	12.30	339.70	3,502.4	507.1	-144.4	527.2	2.79	-2.13	-7.87	
3,656.0	12.00	336.40	3,590.4	524.7	-151.5	546.1	0.84	-0.33	-3.67	
3,747.0	12.90	331.30	3,679.2	542.2	-160.2	565.4	1.56	0.99	-5.60	
3,837.0	10.50	336.50	3,767.3	558.6	-168.3	583.3	2.91	-2.67	5.78	
3,928.0	10.20	336.00	3,856.9	573.5	-174.8	599.6	0.34	-0.33	-0.55	
4,018.0	10.00	332.40	3,945.5	587.7	-181.7	615.1	0.74	-0.22	-4.00	
4,107.0	9.30	337.90	4,033.2	601.2	-188.0	629.9	1.30	-0.79	6.18	
4,197.0	10.20	345.50	4,121.9	615.7	-192.7	645.1	1.74	1.00	8.44	
4,288.0	9.20	345.80	4,211.6	630.6	-196.5	660.4	1.10	-1.10	0.33	
4,379.0	8.90	348.40	4,301.5	644.5	-199.7	674.7	0.56	-0.33	2.86	
4,466.0	8.10	353.70	4,387.5	657.2	-201.7	687.4	1.29	-0.92	6.09	
4,555.0	7.30	10.30	4,475.7	669.0	-201.4	698.6	2.64	-0.90	18.65	
4,644.0	6.20	10.90	4,564.1	679.3	-199.5	708.0	1.24	-1.24	0.67	
4,733.0	5.40	20.70	4,652.7	687.9	-197.1	715.6	1.43	-0.90	11.01	
4,820.0	6.80	12.30	4,739.2	696.8	-194.6	723.4	1.90	1.61	-9.66	
4,911.0	8.30	10.00	4,829.4	708.5	-192.3	734.0	1.68	1.65	-2.53	
4,983.9	8.72	10.00	4,901.5	719.1	-190.4	743.6	0.57	0.57	0.00	
<b>4855' MD = 170' Radius</b>										
4,998.0	8.80	10.00	4,915.4	721.2	-190.0	745.6	0.57	0.57	0.00	
5,089.0	7.70	1.50	5,005.5	734.2	-188.7	757.6	1.80	-1.21	-9.34	
5,179.0	8.30	350.40	5,094.6	746.6	-189.6	769.8	1.84	0.67	-12.33	
5,266.0	9.20	350.40	5,180.6	759.7	-191.8	782.9	1.03	1.03	0.00	
5,356.0	9.10	345.80	5,269.4	773.7	-194.7	797.2	0.82	-0.11	-5.11	
5,447.0	8.70	354.60	5,359.4	787.5	-197.2	811.1	1.56	-0.44	9.67	
5,534.0	7.90	356.90	5,445.4	800.0	-198.1	823.4	1.00	-0.92	2.64	
5,624.0	7.00	354.90	5,534.7	811.7	-198.9	834.8	1.04	-1.00	-2.22	
5,713.0	7.00	352.00	5,623.0	822.4	-200.2	845.5	0.40	0.00	-3.26	
5,804.0	8.20	341.90	5,713.2	834.1	-203.0	857.5	1.97	1.32	-11.10	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well NRC 2-9
<b>Project:</b>	SEC.9-T1N-R67W	<b>TVD Reference:</b>	WELL @ 5012.0ft (Original Well Elev)
<b>Site:</b>	NRC 17-9 Pad Sec.9-T1N-R67W	<b>MD Reference:</b>	WELL @ 5012.0ft (Original Well Elev)
<b>Well:</b>	NRC 2-9	<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)	
5,893.0	7.80	343.30	5,801.4	845.9	-206.7	869.9	0.50	-0.45	1.57	
5,982.0	7.30	343.10	5,889.6	857.1	-210.0	881.6	0.56	-0.56	-0.22	
6,072.0	7.50	343.70	5,978.8	868.2	-213.3	893.1	0.24	0.22	0.67	
6,161.0	7.40	336.70	6,067.1	879.0	-217.2	904.6	1.03	-0.11	-7.87	
6,250.0	6.20	334.60	6,155.5	888.7	-221.6	915.1	1.38	-1.35	-2.36	
6,339.0	4.80	323.20	6,244.0	896.0	-225.9	923.3	1.99	-1.57	-12.81	
6,428.0	4.20	324.00	6,332.8	901.6	-230.0	929.9	0.68	-0.67	0.90	
6,517.0	3.40	329.40	6,421.6	906.5	-233.3	935.5	0.98	-0.90	6.07	
6,607.0	3.40	324.30	6,511.4	911.0	-236.2	940.6	0.34	0.00	-5.67	
6,695.0	3.10	332.50	6,599.3	915.2	-238.8	945.4	0.63	-0.34	9.32	
6,785.0	2.60	320.70	6,689.2	918.9	-241.2	949.7	0.85	-0.56	-13.11	
6,875.0	2.20	315.80	6,779.1	921.8	-243.7	953.1	0.50	-0.44	-5.44	
6,964.0	1.90	310.00	6,868.0	923.9	-246.0	955.8	0.41	-0.34	-6.52	
7,054.0	1.80	285.00	6,958.0	925.3	-248.6	957.8	0.90	-0.11	-27.78	
7,145.0	1.40	289.30	7,048.9	926.0	-251.0	959.2	0.46	-0.44	4.73	
7,235.0	1.20	300.00	7,138.9	926.8	-252.8	960.5	0.35	-0.22	11.89	
7,297.4	1.25	285.04	7,201.3	927.3	-254.1	961.3	0.52	0.08	-23.96	
TARGET BHL 660'FNL, 1980'FEL										
7,325.0	1.30	279.00	7,228.9	927.5	-254.7	961.6	0.52	0.17	-21.91	
7,415.0	1.10	266.00	7,318.9	927.6	-256.5	962.3	0.37	-0.22	-14.44	
7,455.3	1.19	262.90	7,359.2	927.5	-257.3	962.4	0.26	0.22	-7.69	
TARGET BOX 400' X 400' 660'FNL, 1974'FEL										
7,506.0	1.30	259.60	7,409.9	927.3	-258.4	962.5	0.26	0.22	-6.51	
7,595.0	0.88	259.90	7,498.8	927.0	-260.1	962.7	0.47	-0.47	0.34	
7,684.0	0.90	265.00	7,587.8	926.8	-261.5	962.9	0.09	0.02	5.73	
7,774.0	0.50	291.80	7,677.8	926.9	-262.5	963.3	0.56	-0.44	29.78	
7,864.0	0.40	279.00	7,767.8	927.1	-263.2	963.7	0.16	-0.11	-14.22	
7,954.0	0.40	288.30	7,857.8	927.3	-263.8	964.0	0.07	0.00	10.33	
8,044.0	0.20	295.70	7,947.8	927.4	-264.2	964.3	0.23	-0.22	8.22	
8,134.0	0.50	264.10	8,037.8	927.4	-264.8	964.5	0.38	0.33	-35.11	
8,225.0	0.50	232.70	8,128.8	927.2	-265.5	964.4	0.30	0.00	-34.51	
8,315.0	0.40	0.00	8,218.8	927.2	-265.8	964.6	0.90	-0.11	141.44	
8,405.0	0.80	144.50	8,308.8	927.0	-265.4	964.3	1.28	0.44	160.56	
8,495.0	0.50	325.50	8,398.8	926.9	-265.3	964.1	1.44	-0.33	-198.89	
8,537.0	0.40	21.60	8,440.8	927.1	-265.3	964.3	1.03	-0.24	133.57	
8,586.0	0.40	21.60	8,489.8	927.5	-265.2	964.6	0.00	0.00	0.00	
TARGET CIRCLE 660'FNL, 1980'FEL										

Checked By: _____	Approved By: _____	Date: _____
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