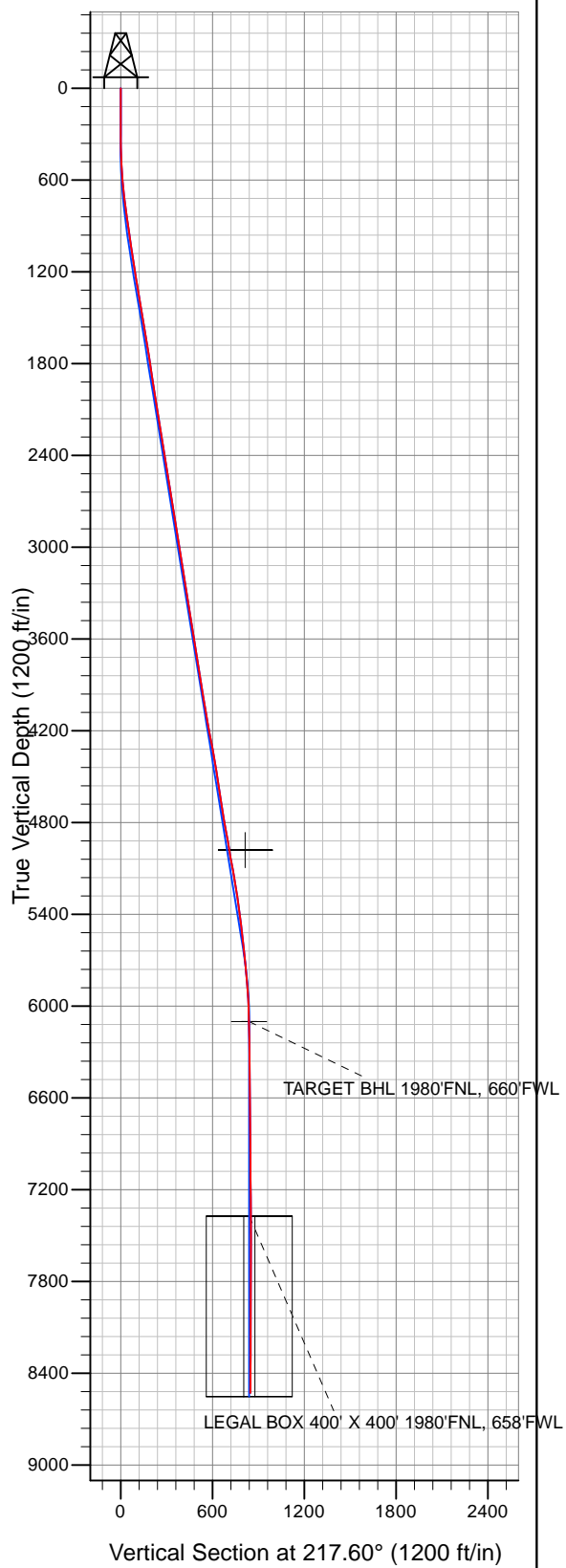


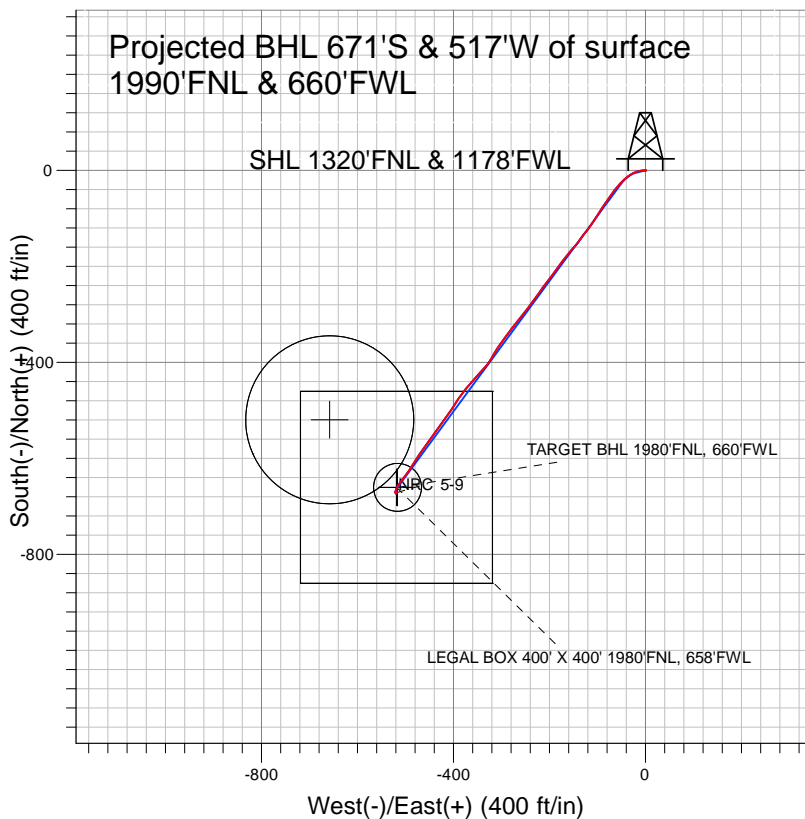
Surface Location: NRC 18-9 Pad Sec.9-T1N-R67W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5021.0




+N/-S+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1268598.83	3167667.18	40° 4' 8.900 N 104° 54' 3.258 W	
		Original Well Elev	WELL @ 5036.0ft	(Original Well Elev)	



# Anadarko, Weld County CO



## LEGEND

-  NRC 5-9, Wellbore #1, Plan #1 (5-27-10) V0
-  Wellbore #1
-  Survey #1

## Final Survey Plot

Projected Final Survey -  
8595'MD & 8529.45'TVD @ 847.45' VS  
1.0 deg Inc 99.0 deg AZ

Project: SEC.9-T1N-R67W  
Site: NRC 18-9 Pad Sec.9-T1N-R67W  
Well: NRC 5-9  
Plan: Wellbore #1



# **Anadarko, Weld County CO**

**SEC.9-T1N-R67W**

**NRC 18-9 Pad Sec.9-T1N-R67W**

**NRC 5-9**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**19 August, 2010**



<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well NRC 5-9
<b>Project:</b>	SEC.9-T1N-R67W	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NRC 18-9 Pad Sec.9-T1N-R67W	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Well:</b>	NRC 5-9	<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>	EDM den0-adp01 Server Data

<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 18-9 Pad Sec.9-T1N-R67W		
<b>Site Position:</b>		<b>Northing:</b>	1,268,598.84 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,167,667.18 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 4' 8.900 N
		<b>Longitude:</b>	104° 54' 3.258 W
		<b>Grid Convergence:</b>	0.39 °

<b>Well</b>	NRC 5-9		
<b>Well Position</b>	<b>+N-S</b>	0.0 ft	<b>Northing:</b> 1,268,598.83 ft
	<b>+E-W</b>	0.0 ft	<b>Easting:</b> 3,167,667.18 ft
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b> ft
			<b>Latitude:</b> 40° 4' 8.900 N
			<b>Longitude:</b> 104° 54' 3.258 W
			<b>Ground Level:</b> 5,021.0 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	5/21/2010	9.05	66.80	53,053

<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	217.60	

<b>Survey Program</b>	<b>Date</b>	8/19/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
53.0	8,595.0	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	
53.0	0.40	117.90	53.0	-0.1	0.2	0.0	0.75	0.75	0.00	
146.0	0.70	99.00	146.0	-0.3	1.0	-0.4	0.37	0.32	-20.32	
238.0	0.30	144.40	238.0	-0.6	1.7	-0.6	0.58	-0.43	49.35	
331.0	1.20	274.50	331.0	-0.7	0.9	0.0	1.52	0.97	139.89	
409.0	2.40	271.70	408.9	-0.6	-1.6	1.4	1.54	1.54	-3.59	
498.0	4.40	267.00	497.8	-0.7	-6.8	4.8	2.27	2.25	-5.28	
587.0	5.60	256.30	586.4	-2.0	-14.5	10.4	1.70	1.35	-12.02	
676.0	6.90	247.60	674.9	-5.0	-23.6	18.4	1.80	1.46	-9.78	
764.0	7.60	234.50	762.2	-10.4	-33.3	28.5	2.03	0.80	-14.89	
855.0	8.30	230.50	852.3	-18.1	-43.2	40.7	0.98	0.77	-4.40	
943.0	8.40	220.40	939.4	-27.0	-52.3	53.3	1.67	0.11	-11.48	
1,059.0	8.50	216.70	1,054.2	-40.3	-62.9	70.3	0.48	0.09	-3.19	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well NRC 5-9
<b>Project:</b>	SEC.9-T1N-R67W	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NRC 18-9 Pad Sec.9-T1N-R67W	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Well:</b>	NRC 5-9	<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>	EDM den0-adp01 Server Data

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)	
1,149.0	8.50	219.40	1,143.2	-50.8	-71.1	83.6	0.44	0.00	3.00	
1,238.0	9.50	212.60	1,231.1	-62.1	-79.2	97.5	1.64	1.12	-7.64	
1,328.0	9.40	212.80	1,319.9	-74.5	-87.2	112.3	0.12	-0.11	0.22	
1,415.0	9.60	215.30	1,405.7	-86.4	-95.3	126.6	0.53	0.23	2.87	
1,504.0	9.70	214.40	1,493.4	-98.7	-103.8	141.5	0.20	0.11	-1.01	
1,593.0	9.80	212.30	1,581.1	-111.2	-112.1	156.5	0.42	0.11	-2.36	
1,682.0	8.70	218.20	1,669.0	-122.9	-120.3	170.8	1.63	-1.24	6.63	
1,769.0	9.10	217.90	1,754.9	-133.5	-128.6	184.3	0.46	0.46	-0.34	
1,858.0	8.60	213.00	1,842.9	-144.7	-136.5	197.9	1.02	-0.56	-5.51	
1,945.0	8.80	220.20	1,928.9	-155.2	-144.4	211.1	1.27	0.23	8.28	
2,035.0	9.40	222.90	2,017.7	-165.9	-153.8	225.3	0.82	0.67	3.00	
2,125.0	9.40	218.60	2,106.5	-177.0	-163.4	239.9	0.78	0.00	-4.78	
2,216.0	9.40	216.70	2,196.3	-188.7	-172.5	254.8	0.34	0.00	-2.09	
2,307.0	8.40	218.30	2,286.2	-199.9	-181.0	268.9	1.13	-1.10	1.76	
2,396.0	8.60	212.90	2,374.2	-210.6	-188.7	282.0	0.92	0.22	-6.07	
2,485.0	9.70	218.70	2,462.1	-222.1	-197.0	296.1	1.61	1.24	6.52	
2,575.0	9.30	217.10	2,550.9	-233.8	-206.1	311.0	0.53	-0.44	-1.78	
2,663.0	8.90	215.90	2,637.7	-245.0	-214.4	324.9	0.50	-0.45	-1.36	
2,752.0	8.60	213.70	2,725.7	-256.1	-222.1	338.4	0.50	-0.34	-2.47	
2,841.0	9.00	217.40	2,813.7	-267.1	-230.0	352.0	0.78	0.45	4.16	
2,931.0	10.10	218.30	2,902.4	-278.9	-239.2	366.9	1.23	1.22	1.00	
3,022.0	9.80	215.80	2,992.0	-291.5	-248.7	382.7	0.58	-0.33	-2.75	
3,111.0	9.40	216.60	3,079.8	-303.4	-257.4	397.5	0.47	-0.45	0.90	
3,201.0	8.40	220.70	3,168.7	-314.3	-266.1	411.4	1.32	-1.11	4.56	
3,290.0	8.50	218.10	3,256.8	-324.4	-274.4	424.5	0.44	0.11	-2.92	
3,379.0	8.90	218.50	3,344.7	-335.0	-282.8	437.9	0.45	0.45	0.45	
3,468.0	7.80	213.70	3,432.8	-345.4	-290.4	450.8	1.46	-1.24	-5.39	
3,556.0	9.50	217.80	3,519.8	-356.1	-298.2	464.1	2.05	1.93	4.66	
3,647.0	9.50	213.40	3,609.5	-368.3	-306.9	479.1	0.80	0.00	-4.84	
3,737.0	9.70	211.00	3,698.3	-381.0	-314.9	494.0	0.50	0.22	-2.67	
3,828.0	8.80	209.10	3,788.1	-393.7	-322.2	508.5	1.04	-0.99	-2.09	
3,918.0	10.00	218.70	3,876.9	-405.8	-330.5	523.1	2.19	1.33	10.67	
4,008.0	8.80	223.00	3,965.7	-416.9	-340.0	537.8	1.54	-1.33	4.78	
4,097.0	9.70	222.40	4,053.5	-427.4	-349.7	552.0	1.02	1.01	-0.67	
4,188.0	10.30	222.70	4,143.1	-439.1	-360.4	567.8	0.66	0.66	0.33	
4,278.0	9.50	218.80	4,231.8	-450.8	-370.5	583.2	1.16	-0.89	-4.33	
4,369.0	11.00	216.70	4,321.3	-463.6	-380.4	599.4	1.70	1.65	-2.31	
4,457.0	10.50	213.70	4,407.8	-477.0	-389.9	615.8	0.85	-0.57	-3.41	
4,545.0	9.00	212.80	4,494.5	-489.5	-398.1	630.7	1.71	-1.70	-1.02	
4,634.0	7.50	216.60	4,582.6	-500.0	-405.3	643.4	1.79	-1.69	4.27	
4,723.0	9.30	215.20	4,670.6	-510.5	-412.9	656.4	2.04	2.02	-1.57	
4,811.0	9.60	215.00	4,757.4	-522.3	-421.2	670.8	0.34	0.34	-0.23	
4,901.0	10.30	216.20	4,846.1	-535.0	-430.3	686.4	0.81	0.78	1.33	
4,988.0	9.70	214.40	4,931.8	-547.3	-439.0	701.5	0.78	-0.69	-2.07	
5,052.4	9.35	214.96	4,995.3	-556.1	-445.1	712.1	0.57	-0.55	0.87	
<b>5000' MD = 175' Radius</b>										
5,079.0	9.20	215.20	5,021.5	-559.6	-447.5	716.4	0.57	-0.55	0.91	
5,169.0	10.20	217.40	5,110.2	-571.8	-456.5	731.6	1.18	1.11	2.44	
5,256.0	10.00	214.80	5,195.9	-584.1	-465.5	746.8	0.57	-0.23	-2.99	
5,347.0	8.90	212.90	5,285.7	-596.5	-473.9	761.7	1.26	-1.21	-2.09	
5,437.0	7.70	212.90	5,374.7	-607.4	-480.9	774.7	1.33	-1.33	0.00	
5,524.0	6.60	211.60	5,461.0	-616.6	-486.7	785.4	1.28	-1.26	-1.49	
5,615.0	6.20	214.10	5,551.5	-625.1	-492.2	795.6	0.54	-0.44	2.75	
5,703.0	6.50	215.10	5,638.9	-633.1	-497.7	805.3	0.36	0.34	1.14	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well NRC 5-9
<b>Project:</b>	SEC.9-T1N-R67W	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NRC 18-9 Pad Sec.9-T1N-R67W	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Well:</b>	NRC 5-9	<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>	EDM den0-adp01 Server Data

**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)
5,794.0	5.80	219.10	5,729.4	-640.9	-503.6	815.0	0.90	-0.77	4.40
5,883.0	4.80	217.00	5,818.0	-647.3	-508.7	823.2	1.14	-1.12	-2.36
5,972.0	4.00	219.20	5,906.8	-652.7	-512.9	830.1	0.92	-0.90	2.47
6,063.0	2.50	210.80	5,997.6	-656.9	-515.9	835.2	1.73	-1.65	-9.23
6,151.0	1.10	190.80	6,085.6	-659.4	-517.0	837.9	1.72	-1.59	-22.73
6,165.4	1.08	192.77	6,100.0	-659.6	-517.1	838.1	0.29	-0.14	13.66
<b>TARGET BHL 1980'FNL, 660'FWL</b>									
6,241.0	1.00	204.20	6,175.6	-660.9	-517.5	839.4	0.29	-0.11	15.12
6,330.0	0.80	210.40	6,264.5	-662.2	-518.1	840.8	0.25	-0.22	6.97
6,419.0	0.70	201.50	6,353.5	-663.2	-518.7	841.9	0.17	-0.11	-10.00
6,507.0	0.70	208.20	6,441.5	-664.2	-519.1	843.0	0.09	0.00	7.61
6,597.0	0.60	196.10	6,531.5	-665.1	-519.5	843.9	0.19	-0.11	-13.44
6,686.0	0.50	195.10	6,620.5	-665.9	-519.7	844.7	0.11	-0.11	-1.12
6,775.0	0.30	211.20	6,709.5	-666.5	-519.9	845.3	0.26	-0.22	18.09
6,865.0	0.40	210.90	6,799.5	-667.0	-520.2	845.9	0.11	0.11	-0.33
6,954.0	0.50	210.90	6,888.5	-667.6	-520.6	846.6	0.11	0.11	0.00
7,090.0	0.50	185.90	7,024.5	-668.7	-521.0	847.7	0.16	0.00	-18.38
7,180.0	0.50	202.90	7,114.5	-669.4	-521.1	848.4	0.16	0.00	18.89
7,315.0	0.50	200.50	7,249.5	-670.5	-521.6	849.5	0.02	0.00	-1.78
7,406.0	0.60	158.00	7,340.5	-671.3	-521.5	850.1	0.45	0.11	-46.70
7,438.4	0.57	152.36	7,372.9	-671.6	-521.4	850.3	0.21	-0.11	-17.38
<b>LEGAL BOX 400' X 400' 1980'FNL, 658'FWL</b>									
7,540.0	0.50	130.70	7,474.5	-672.4	-520.8	850.5	0.21	-0.06	-21.33
7,674.0	0.70	151.50	7,608.5	-673.5	-520.0	850.9	0.22	0.15	15.52
7,764.0	0.00	99.00	7,698.5	-674.0	-519.7	851.1	0.78	-0.78	0.00
7,809.0	0.70	68.00	7,743.5	-673.9	-519.5	850.9	1.56	1.56	0.00
7,899.0	1.00	321.80	7,833.5	-673.0	-519.5	850.2	1.52	0.33	-118.00
7,989.0	0.10	39.00	7,923.5	-672.4	-519.9	849.9	1.09	-1.00	85.78
8,080.0	0.00	336.30	8,014.5	-672.3	-519.8	849.8	0.11	-0.11	0.00
8,170.0	0.10	328.40	8,104.5	-672.2	-519.9	849.8	0.11	0.11	0.00
8,260.0	0.40	81.50	8,194.5	-672.1	-519.6	849.6	0.50	0.33	125.67
8,351.0	0.50	323.70	8,285.5	-671.8	-519.5	849.2	0.85	0.11	-129.45
8,447.0	0.60	75.70	8,381.5	-671.3	-519.3	848.7	0.95	0.10	116.67
8,546.0	1.00	99.00	8,480.5	-671.3	-517.9	847.9	0.51	0.40	23.54
8,595.0	1.00	99.00	8,529.5	-671.4	-517.1	847.5	0.00	0.00	0.00

**Wellbore Targets**

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
5000'MD = 175' Radius	0.00	0.00	4,980.0	-520.0	-658.0	1,268,074.43	3,167,012.74	40° 4' 3.762 N	104° 54' 11.721 W
- survey misses target center by 216.5ft at 5052.4ft MD (4995.3 TVD, -556.1 N, -445.1 E)									
- Circle (radius 175.0)									
TARGET BHL 1980'F	0.00	0.00	6,100.0	-660.8	-516.7	1,267,934.57	3,167,155.01	40° 4' 2.370 N	104° 54' 9.904 W
- survey misses target center by 1.3ft at 6165.4ft MD (6100.0 TVD, -659.6 N, -517.1 E)									
- Circle (radius 50.0)									
LEGAL BOX 400' X 400'	0.00	0.00	7,373.0	-660.8	-518.7	1,267,934.57	3,167,152.98	40° 4' 2.370 N	104° 54' 9.930 W
- survey misses target center by 11.2ft at 7438.4ft MD (7372.9 TVD, -671.6 N, -521.4 E)									
- Rectangle (sides W400.0 H400.0 D1,180.0)									

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well NRC 5-9
<b>Project:</b>	SEC.9-T1N-R67W	<b>TVD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Site:</b>	NRC 18-9 Pad Sec.9-T1N-R67W	<b>MD Reference:</b>	WELL @ 5036.0ft (Original Well Elev)
<b>Well:</b>	NRC 5-9	<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>	EDM den0-adp01 Server Data

Checked By: _____	Approved By: _____	Date: _____
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