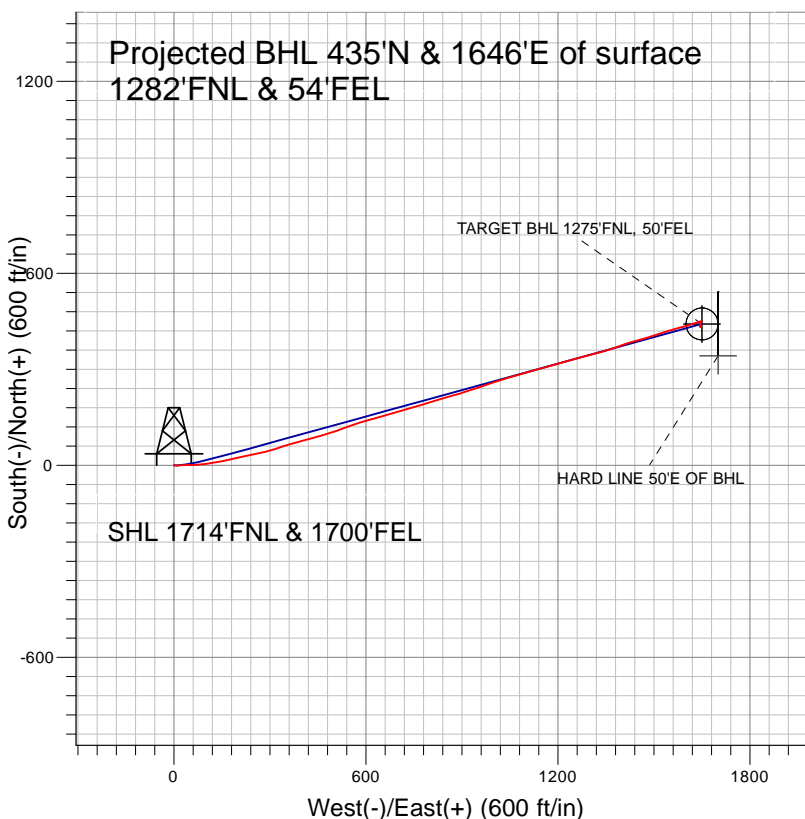


Anadarko, Weld County CO



LEGEND

- ◆ NRC 41-9, Wellbore #1, Plan #1 (8-20-10) V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
8544'MD & 8246'TVD @ 1703' VS
1.4 deg Inc 9.45 deg AZ

Project: SEC.9-T1N-R67W
Site: NRC 17-9 Pad Sec.9-T1N-R67W
Well: NRC 41-9
Plan: Wellbore #1



Anadarko, Weld County CO

SEC.9-T1N-R67W

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

NRC 41-9

Wellbore #1

Design: Wellbore #1

Standard Survey Report

16 September, 2010



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well NRC 41-9
Project:	SEC.9-T1N-R67W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site:	NRC 17-9 Pad Sec.9-T1N-R67W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Well:	NRC 41-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM den0-adp01 Server Data

Project	SEC.9-T1N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	NRC 17-9 Pad Sec.9-T1N-R67W		
Site Position:		Northing:	1,268,177.88 ft
From:	Lat/Long	Easting:	3,170,044.82 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 4' 4.580 N
		Longitude:	104° 53' 32.712 W
		Grid Convergence:	0.39 °

Well	NRC 41-9		
Well Position	+N-S	0.0 ft	Northing: 1,268,224.57 ft
	+E-W	0.0 ft	Easting: 3,170,055.69 ft
Position Uncertainty		0.0 ft	Wellhead Elevation: ft
			Latitude: 40° 4' 5.041 N
			Longitude: 104° 53' 32.568 W
			Ground Level: 4,997.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/20/2010	9.01	66.79	53,027

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)	
	0.0	0.0	0.0	75.19	

Survey Program	Date	9/16/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
146.0	8,544.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
146.0	0.10	151.30	146.0	-0.1	0.1	0.0	0.07	0.07	0.00	
239.0	1.00	99.00	239.0	-0.3	0.9	0.8	1.01	0.97	-56.24	
332.0	2.00	99.00	332.0	-0.7	3.3	3.0	1.08	1.08	0.00	
424.0	3.20	92.50	423.9	-1.1	7.5	6.9	1.34	1.30	-7.07	
514.0	4.70	81.90	513.7	-0.6	13.6	13.0	1.85	1.67	-11.78	
603.0	5.80	83.50	602.3	0.4	21.7	21.1	1.25	1.24	1.80	
690.0	7.30	87.80	688.7	1.1	31.6	30.8	1.81	1.72	4.94	
781.0	8.20	90.70	778.9	1.2	43.9	42.7	1.08	0.99	3.19	
871.0	10.00	89.70	867.7	1.2	58.1	56.5	2.01	2.00	-1.11	
962.0	11.20	85.80	957.2	1.9	74.8	72.8	1.54	1.32	-4.29	
1,062.0	10.80	81.40	1,055.3	4.0	93.8	91.7	0.93	-0.40	-4.40	
1,149.0	12.60	81.99	1,140.5	6.5	111.2	109.2	2.07	2.07	0.68	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well NRC 41-9
Project:	SEC.9-T1N-R67W	TVD Reference:	WELL @ 5012.0ft (Original Well Elev)
Site:	NRC 17-9 Pad Sec.9-T1N-R67W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Well:	NRC 41-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)	
1,240.0	14.50	81.90	1,229.0	9.5	132.3	130.4	2.09	2.09	-0.10	
1,330.0	15.70	77.50	1,315.9	13.7	155.4	153.7	1.84	1.33	-4.89	
1,420.0	18.30	77.50	1,402.0	19.4	181.1	180.0	2.89	2.89	0.00	
1,509.0	19.80	77.10	1,486.1	25.8	209.4	209.0	1.69	1.69	-0.45	
1,598.0	20.40	77.70	1,569.7	32.5	239.2	239.6	0.71	0.67	0.67	
1,689.0	21.20	77.90	1,654.7	39.3	270.8	271.9	0.88	0.88	0.22	
1,777.0	21.90	74.80	1,736.6	47.0	302.2	304.2	1.52	0.80	-3.52	
1,867.0	22.00	69.60	1,820.1	57.2	334.2	337.7	2.16	0.11	-5.78	
1,956.0	21.20	74.10	1,902.8	67.5	365.3	370.4	2.07	-0.90	5.06	
2,045.0	21.70	75.50	1,985.7	76.0	396.7	403.0	0.80	0.56	1.57	
2,135.0	22.10	76.40	2,069.2	84.1	429.3	436.5	0.58	0.44	1.00	
2,226.0	23.00	72.50	2,153.2	93.5	462.9	471.4	1.92	0.99	-4.29	
2,317.0	23.90	70.90	2,236.7	104.9	497.3	507.6	1.21	0.99	-1.76	
2,406.0	23.60	71.70	2,318.2	116.4	531.2	543.3	0.49	-0.34	0.90	
2,494.0	23.80	70.20	2,398.7	127.9	564.6	578.6	0.72	0.23	-1.70	
2,584.0	23.70	73.80	2,481.1	139.1	599.1	614.8	1.61	-0.11	4.00	
2,673.0	23.60	74.80	2,562.6	148.8	633.5	650.5	0.46	-0.11	1.12	
2,762.0	23.50	74.50	2,644.2	158.2	667.8	686.0	0.18	-0.11	-0.34	
2,851.0	24.70	74.20	2,725.5	168.0	702.8	722.4	1.36	1.35	-0.34	
2,941.0	23.90	73.30	2,807.5	178.4	738.3	759.4	0.98	-0.89	-1.00	
3,032.0	23.20	72.50	2,890.9	189.1	773.1	795.7	0.85	-0.77	-0.88	
3,120.0	22.80	72.50	2,971.9	199.4	805.9	830.1	0.45	-0.45	0.00	
3,211.0	22.00	75.30	3,056.1	209.0	839.2	864.7	1.47	-0.88	3.08	
3,299.0	22.40	74.00	3,137.5	217.8	871.2	898.0	0.72	0.45	-1.48	
3,389.0	20.50	72.10	3,221.3	227.4	902.7	930.8	2.25	-2.11	-2.11	
3,477.0	20.50	72.00	3,303.7	236.9	932.0	961.6	0.04	0.00	-0.11	
3,566.0	20.60	70.40	3,387.1	247.0	961.6	992.8	0.64	0.11	-1.80	
3,656.0	20.50	71.30	3,471.3	257.3	991.4	1,024.3	0.37	-0.11	1.00	
3,747.0	20.00	73.70	3,556.7	266.8	1,021.5	1,055.7	1.07	-0.55	2.64	
3,837.0	19.80	73.70	3,641.3	275.4	1,050.9	1,086.4	0.22	-0.22	0.00	
3,928.0	20.30	74.40	3,726.8	284.0	1,080.9	1,117.6	0.61	0.55	0.77	
4,018.0	21.80	72.50	3,810.8	293.2	1,111.8	1,149.9	1.83	1.67	-2.11	
4,107.0	20.80	76.20	3,893.7	301.9	1,143.0	1,182.2	1.88	-1.12	4.16	
4,197.0	20.60	74.00	3,977.9	310.1	1,173.7	1,214.0	0.89	-0.22	-2.44	
4,288.0	20.80	73.60	4,063.0	319.1	1,204.6	1,246.1	0.27	0.22	-0.44	
4,379.0	20.40	75.80	4,148.2	327.5	1,235.5	1,278.1	0.96	-0.44	2.42	
4,466.0	21.40	73.60	4,229.5	335.7	1,265.4	1,309.2	1.46	1.15	-2.53	
4,555.0	22.60	75.50	4,312.0	344.6	1,297.5	1,342.5	1.57	1.35	2.13	
4,644.0	22.90	76.20	4,394.1	353.0	1,330.9	1,376.9	0.45	0.34	0.79	
4,733.0	21.40	70.90	4,476.5	362.5	1,363.1	1,410.4	2.81	-1.69	-5.96	
4,820.0	20.60	70.40	4,557.8	372.8	1,392.5	1,441.5	0.94	-0.92	-0.57	
4,911.0	19.80	72.40	4,643.2	382.8	1,422.3	1,472.9	1.16	-0.88	2.20	
4,998.0	18.80	75.50	4,725.3	390.8	1,449.9	1,501.6	1.65	-1.15	3.56	
5,089.0	20.10	72.90	4,811.1	399.1	1,479.0	1,531.9	1.72	1.43	-2.86	
5,179.0	18.50	71.90	4,896.0	408.0	1,507.4	1,561.6	1.82	-1.78	-1.11	
5,266.0	16.40	72.60	4,979.0	416.0	1,532.2	1,587.6	2.43	-2.41	0.80	
5,356.0	14.10	72.60	5,065.8	423.1	1,554.8	1,611.3	2.56	-2.56	0.00	
5,447.0	11.70	75.70	5,154.5	428.7	1,574.3	1,631.6	2.74	-2.64	3.41	
5,534.0	10.00	77.40	5,240.0	432.5	1,590.2	1,648.0	1.99	-1.95	1.95	
5,624.0	8.70	71.30	5,328.8	436.4	1,604.3	1,662.6	1.81	-1.44	-6.78	
5,713.0	7.70	72.90	5,416.9	440.3	1,616.4	1,675.2	1.15	-1.12	1.80	
5,804.0	5.90	72.40	5,507.2	443.5	1,626.7	1,686.0	1.98	-1.98	-0.55	
5,893.0	5.40	68.60	5,595.8	446.4	1,634.9	1,694.7	0.70	-0.56	-4.27	
5,982.0	3.80	71.10	5,684.5	448.9	1,641.6	1,701.8	1.81	-1.80	2.81	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well NRC 41-9
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Site:	NRC 17-9 Pad Sec.9-T1N-R67W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Well:	NRC 41-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)	
6,072.0	2.10	80.90	5,774.4	450.1	1,646.1	1,706.5	1.96	-1.89	10.89	
6,097.7	1.69	83.03	5,800.1	450.3	1,646.9	1,707.3	1.63	-1.61	8.30	
TARGET BHL 1275'FNL, 50'FEL										
6,161.0	0.70	99.00	5,863.4	450.3	1,648.2	1,708.6	1.63	-1.56	25.22	
6,250.0	0.90	208.10	5,952.4	449.6	1,648.4	1,708.6	1.47	0.22	122.58	
6,339.0	0.80	200.00	6,041.3	448.4	1,647.9	1,707.8	0.18	-0.11	-9.10	
6,429.0	0.60	201.70	6,131.3	447.4	1,647.5	1,707.1	0.22	-0.22	1.89	
6,517.0	0.60	180.90	6,219.3	446.5	1,647.3	1,706.7	0.25	0.00	-23.64	
6,607.0	0.50	226.10	6,309.3	445.7	1,647.0	1,706.3	0.48	-0.11	50.22	
6,695.0	0.80	249.30	6,397.3	445.3	1,646.2	1,705.3	0.45	0.34	26.36	
6,785.0	1.10	223.90	6,487.3	444.4	1,645.0	1,703.9	0.57	0.33	-28.22	
6,875.0	0.80	199.40	6,577.3	443.2	1,644.2	1,702.9	0.55	-0.33	-27.22	
6,964.0	1.10	189.20	6,666.3	441.8	1,643.8	1,702.2	0.39	0.34	-11.46	
7,054.0	1.00	138.50	6,756.3	440.3	1,644.2	1,702.2	1.00	-0.11	-56.33	
7,145.0	1.00	151.50	6,847.3	439.0	1,645.1	1,702.7	0.25	0.00	14.29	
7,235.0	0.80	180.50	6,937.2	437.7	1,645.5	1,702.7	0.55	-0.22	32.22	
7,325.0	0.20	243.00	7,027.2	437.0	1,645.4	1,702.4	0.81	-0.67	69.44	
7,415.0	0.20	184.70	7,117.2	436.8	1,645.2	1,702.2	0.22	0.00	-64.78	
7,506.0	0.40	184.90	7,208.2	436.3	1,645.2	1,702.0	0.22	0.22	0.22	
7,595.0	0.60	263.10	7,297.2	436.0	1,644.7	1,701.5	0.73	0.22	87.87	
7,684.0	0.60	171.70	7,386.2	435.4	1,644.3	1,701.0	0.96	0.00	-102.70	
7,819.0	0.50	157.30	7,521.2	434.2	1,644.6	1,701.0	0.13	-0.07	-10.67	
7,954.0	0.50	157.30	7,656.2	433.1	1,645.1	1,701.1	0.00	0.00	0.00	
8,044.0	0.20	150.00	7,746.2	432.6	1,645.3	1,701.2	0.34	-0.33	-8.11	
8,134.0	0.30	144.60	7,836.2	432.3	1,645.5	1,701.3	0.11	0.11	-6.00	
8,225.0	0.20	255.30	7,927.2	432.0	1,645.5	1,701.3	0.46	-0.11	121.65	
8,315.0	0.40	315.80	8,017.2	432.2	1,645.1	1,700.9	0.39	0.22	67.22	
8,405.0	0.60	57.00	8,107.2	432.7	1,645.3	1,701.2	0.87	0.22	112.44	
8,495.0	1.40	9.45	8,197.2	434.1	1,645.9	1,702.1	1.21	0.89	-52.83	
8,544.0	1.40	9.45	8,246.2	435.2	1,646.1	1,702.6	0.00	0.00	0.00	
TARGET CIRCLE 1275'FNL, 50'FEL - HARD LINE 50'E OF BHL										

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										
TARGET BHL 1275'F	0.00	0.00	5,800.0	441.9	1,650.2	1,268,677.80	3,171,702.73	40° 4' 9.408 N 104° 53' 11.342 W		
- actual wellpath misses target center by 8.9ft at 6097.7ft MD (5800.1 TVD, 450.3 N, 1646.9 E)										
- Point										
TARGET CIRCLE 127	0.00	0.00	8,249.0	441.9	1,650.2	1,268,677.75	3,171,702.76	40° 4' 9.407 N 104° 53' 11.342 W		
- actual wellpath misses target center by 8.3ft at 8544.0ft MD (8246.2 TVD, 435.2 N, 1646.1 E)										
- Circle (radius 50.0)										
HARD LINE 50'E OF I	0.00	0.00	8,249.0	341.9	1,700.2	1,268,578.10	3,171,753.44	40° 4' 8.419 N 104° 53' 10.699 W		
- actual wellpath misses target center by 107.9ft at 8544.0ft MD (8246.2 TVD, 435.2 N, 1646.1 E)										
- Polygon										
Point 1			8,249.0	0.0	0.0	1,268,578.10	3,171,753.44			
Point 2			8,249.0	200.0	0.0	1,268,778.09	3,171,752.07			

Checked By: _____	Approved By: _____	Date: _____
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