



Final Survey Plot

Projected Final Survey -
 8360'MD & 8251'TVD @ 927' VS
 0.3 deg Inc 180.5 deg AZ

Project: SEC.9-T1N-R67W
 Site: NRC 17-9 Pad Sec.9-T1N-R67W
 Well: NRC 24-9
 Plan: Wellbore #1



Anadarko, Weld County CO

SEC.9-T1N-R67W

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

NRC 24-9

Wellbore #1

Survey: Survey #1

Standard Survey Report

03 September, 2010



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well NRC 24-9
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 24-9	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 24-9		
Well Position	+N-S	0.0 ft	Northing: 1,268,177.87 ft
	+E-W	0.0 ft	Easting: 3,170,044.82 ft
Position Uncertainty		0.0 ft	Wellhead Elevation: ft
			Latitude: 40° 4' 4.580 N
			Longitude: 104° 53' 32.712 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	157.44	

Survey Program	Date	9/3/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
84.0	8,360.0	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	
84.0	0.20	255.90	84.0	0.0	-0.1	0.0	0.24	0.24	0.00	
177.0	0.10	188.60	177.0	-0.2	-0.3	0.0	0.20	-0.11	-72.37	
270.0	0.10	231.50	270.0	-0.3	-0.4	0.1	0.08	0.00	46.13	
364.0	0.10	279.00	364.0	-0.3	-0.5	0.1	0.09	0.00	50.53	
457.0	0.40	292.00	457.0	-0.2	-0.9	-0.2	0.33	0.32	13.98	
550.0	0.90	308.30	550.0	0.4	-1.8	-1.0	0.57	0.54	17.53	
642.0	1.00	297.40	642.0	1.2	-3.1	-2.3	0.22	0.11	-11.85	
734.0	0.70	312.80	734.0	2.0	-4.2	-3.4	0.41	-0.33	16.74	
827.0	0.50	287.50	827.0	2.5	-5.0	-4.2	0.35	-0.22	-27.20	
919.0	0.50	223.60	919.0	2.3	-5.7	-4.3	0.58	0.00	-69.46	
980.0	1.10	187.10	980.0	1.5	-5.9	-3.7	1.24	0.98	-59.84	
1,058.0	1.70	180.20	1,057.9	-0.4	-6.0	-2.0	0.80	0.77	-8.85	

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Site:	NRC 17-9 Pad Sec.9-T1N-R67W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Well:	NRC 24-9	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)	
1,149.0	1.10	163.10	1,148.9	-2.6	-5.8	0.2	0.80	-0.66	-18.79	
1,239.0	3.50	172.20	1,238.8	-6.1	-5.1	3.7	2.69	2.67	10.11	
1,329.0	5.20	160.70	1,328.6	-12.7	-3.4	10.4	2.11	1.89	-12.78	
1,418.0	7.00	164.30	1,417.1	-21.7	-0.6	19.8	2.07	2.02	4.04	
1,507.0	9.20	170.30	1,505.2	-34.0	2.1	32.1	2.64	2.47	6.74	
1,598.0	10.20	163.20	1,594.9	-48.8	5.6	47.3	1.71	1.10	-7.80	
1,686.0	10.60	157.90	1,681.4	-63.8	10.9	63.1	1.18	0.45	-6.02	
1,776.0	11.40	153.90	1,769.8	-79.5	17.9	80.3	1.23	0.89	-4.44	
1,865.0	12.00	158.00	1,856.9	-95.9	25.3	98.3	1.15	0.67	4.61	
1,954.0	13.40	156.50	1,943.7	-114.0	32.8	117.8	1.62	1.57	-1.69	
2,044.0	15.80	156.40	2,030.8	-134.8	41.9	140.5	2.67	2.67	-0.11	
2,135.0	16.90	153.90	2,118.2	-158.0	52.7	166.1	1.43	1.21	-2.75	
2,226.0	15.70	149.20	2,205.5	-180.5	64.8	191.5	1.96	-1.32	-5.16	
2,315.0	15.50	148.20	2,291.2	-200.9	77.2	215.2	0.38	-0.22	-1.12	
2,403.0	15.40	147.50	2,376.0	-220.7	89.7	238.3	0.24	-0.11	-0.80	
2,493.0	17.10	150.70	2,462.4	-242.4	102.6	263.2	2.13	1.89	3.56	
2,582.0	15.90	153.00	2,547.8	-264.6	114.6	288.3	1.53	-1.35	2.58	
2,671.0	15.30	151.30	2,633.5	-285.8	125.7	312.2	0.85	-0.67	-1.91	
2,760.0	15.20	153.20	2,719.4	-306.5	136.6	335.5	0.57	-0.11	2.13	
2,850.0	14.90	153.90	2,806.3	-327.4	147.0	358.8	0.39	-0.33	0.78	
2,941.0	16.10	156.10	2,894.0	-349.5	157.3	383.1	1.47	1.32	2.42	
3,029.0	17.30	156.40	2,978.3	-372.6	167.5	408.4	1.37	1.36	0.34	
3,120.0	17.00	156.50	3,065.2	-397.2	178.2	435.2	0.33	-0.33	0.11	
3,208.0	16.40	155.80	3,149.5	-420.4	188.4	460.5	0.72	-0.68	-0.80	
3,298.0	16.80	152.50	3,235.7	-443.5	199.6	486.1	1.14	0.44	-3.67	
3,386.0	16.50	156.10	3,320.1	-466.2	210.6	511.3	1.22	-0.34	4.09	
3,475.0	16.60	155.80	3,405.4	-489.3	220.9	536.6	0.15	0.11	-0.34	
3,565.0	15.60	153.90	3,491.8	-511.9	231.5	561.6	1.26	-1.11	-2.11	
3,656.0	15.00	151.10	3,579.6	-533.2	242.6	585.5	1.05	-0.66	-3.08	
3,746.0	14.50	154.80	3,666.7	-553.6	253.0	608.3	1.18	-0.56	4.11	
3,837.0	14.70	159.70	3,754.7	-574.8	261.9	631.2	1.37	0.22	5.38	
3,927.0	15.50	163.30	3,841.6	-597.0	269.3	654.6	1.37	0.89	4.00	
4,016.0	14.50	159.30	3,927.6	-618.8	276.6	677.6	1.62	-1.12	-4.49	
4,106.0	12.00	155.60	4,015.2	-637.9	284.5	698.2	2.93	-2.78	-4.11	
4,197.0	10.60	149.90	4,104.4	-653.7	292.6	716.0	1.97	-1.54	-6.26	
4,288.0	9.80	144.00	4,194.0	-667.2	301.3	731.8	1.44	-0.88	-6.48	
4,375.0	9.80	149.00	4,279.7	-679.6	309.5	746.3	0.98	0.00	5.75	
4,464.0	11.40	156.30	4,367.2	-694.1	316.9	762.6	2.34	1.80	8.20	
4,553.0	11.40	163.00	4,454.4	-710.6	323.1	780.1	1.49	0.00	7.53	
4,642.0	10.50	163.30	4,541.8	-726.8	328.0	797.0	1.01	-1.01	0.34	
4,729.0	9.10	158.20	4,627.5	-740.7	332.8	811.7	1.89	-1.61	-5.86	
4,820.0	9.10	159.10	4,717.4	-754.2	338.0	826.1	0.16	0.00	0.99	
4,907.0	10.30	158.10	4,803.2	-767.8	343.4	840.8	1.39	1.38	-1.15	
4,998.0	9.60	158.30	4,892.8	-782.4	349.2	856.5	0.77	-0.77	0.22	
5,088.0	8.20	161.90	4,981.7	-795.5	354.0	870.4	1.67	-1.56	4.00	
5,175.0	6.80	163.90	5,068.0	-806.3	357.3	881.7	1.64	-1.61	2.30	
5,265.0	5.60	165.40	5,157.4	-815.7	359.9	891.4	1.35	-1.33	1.67	
5,309.4	5.35	164.41	5,201.6	-819.8	361.0	895.6	0.60	-0.56	-2.22	
TARGET BHL 2590'FNL, 1315'FEL										
5,355.0	5.10	163.30	5,247.0	-823.8	362.2	899.7	0.60	-0.55	-2.44	
5,443.0	4.00	162.70	5,334.8	-830.4	364.2	906.6	1.25	-1.25	-0.68	
5,533.0	3.30	163.20	5,424.6	-835.9	365.9	912.3	0.78	-0.78	0.56	
5,622.0	2.40	164.40	5,513.5	-840.2	367.1	916.7	1.01	-1.01	1.35	
5,713.0	1.80	157.90	5,604.4	-843.3	368.2	920.1	0.71	-0.66	-7.14	

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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)	
5,802.0	1.70	158.30	5,693.4	-845.8	369.2	922.8	0.11	-0.11	0.45	
5,891.0	0.90	88.60	5,782.3	-847.1	370.4	924.3	1.82	-0.90	-78.31	
5,981.0	0.60	78.80	5,872.3	-846.9	371.6	924.7	0.36	-0.33	-10.89	
6,070.0	0.40	120.40	5,961.3	-847.0	372.3	925.0	0.45	-0.22	46.74	
6,159.0	0.10	73.60	6,050.3	-847.2	372.6	925.3	0.38	-0.34	-52.58	
6,249.0	0.30	170.70	6,140.3	-847.4	372.7	925.5	0.36	0.22	107.89	
6,338.0	0.40	54.60	6,229.3	-847.4	373.0	925.7	0.67	0.11	-130.45	
6,426.0	1.40	348.70	6,317.3	-846.2	373.1	924.6	1.47	1.14	-74.89	
6,516.0	1.40	330.80	6,407.3	-844.1	372.3	922.4	0.48	0.00	-19.89	
6,604.0	0.70	322.60	6,495.3	-842.8	371.5	920.8	0.81	-0.80	-9.32	
6,694.0	0.60	314.80	6,585.3	-842.0	370.8	919.8	0.15	-0.11	-8.67	
6,784.0	0.60	221.60	6,675.3	-842.0	370.2	919.6	0.97	0.00	-103.56	
6,873.0	0.90	217.20	6,764.3	-842.9	369.4	920.2	0.34	0.34	-4.94	
6,963.0	0.90	207.40	6,854.2	-844.1	368.7	921.0	0.17	0.00	-10.89	
7,054.0	1.20	222.50	6,945.2	-845.5	367.7	921.8	0.45	0.33	16.59	
7,144.0	1.10	218.70	7,035.2	-846.8	366.5	922.6	0.14	-0.11	-4.22	
7,234.0	1.50	225.70	7,125.2	-848.3	365.1	923.5	0.48	0.44	7.78	
7,324.0	1.90	266.20	7,215.2	-849.2	362.8	923.5	1.37	0.44	45.00	
7,415.0	2.20	268.90	7,306.1	-849.4	359.6	922.3	0.35	0.33	2.97	
7,504.0	1.50	249.00	7,395.1	-849.8	356.8	921.7	1.06	-0.79	-22.36	
7,593.0	1.20	244.60	7,484.0	-850.6	354.8	921.7	0.36	-0.34	-4.94	
7,683.0	0.80	225.20	7,574.0	-851.5	353.5	922.0	0.58	-0.44	-21.56	
7,773.0	0.40	156.10	7,664.0	-852.2	353.2	922.5	0.84	-0.44	-76.78	
7,863.0	0.70	145.60	7,754.0	-853.0	353.7	923.4	0.35	0.33	-11.67	
7,953.0	1.00	141.60	7,844.0	-854.0	354.5	924.7	0.34	0.33	-4.44	
8,042.0	0.40	131.90	7,933.0	-854.9	355.2	925.7	0.68	-0.67	-10.90	
8,134.0	0.60	152.40	8,025.0	-855.5	355.6	926.5	0.29	0.22	22.28	
8,224.0	0.40	166.20	8,115.0	-856.2	355.9	927.2	0.26	-0.22	15.33	
8,311.0	0.30	180.50	8,202.0	-856.7	356.0	927.8	0.15	-0.11	16.44	
8,357.9	0.30	180.50	8,248.8	-857.0	356.0	928.0	0.00	0.00	0.00	
TARGET CIRCLE 2590'FNL, 1315'FEL										
8,358.1	0.30	180.50	8,249.1	-857.0	356.0	928.0	0.00	0.00	0.00	
HARDLINE 52'S OF BHL										
8,360.0	0.30	180.50	8,251.0	-857.0	356.0	928.0	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	
TARGET BHL 2590'F	0.00	0.00	5,200.0	-828.4	394.9	1,267,352.24	3,170,445.40	40° 3' 56.394 N	104° 53' 27.632 W	
- survey misses target center by 35.0ft at 5309.4ft MD (5201.6 TVD, -819.8 N, 361.0 E)										
- Point										
HARDLINE 52'S OF E	0.00	0.00	8,249.0	-880.4	294.9	1,267,299.55	3,170,345.73	40° 3' 55.880 N	104° 53' 28.919 W	
- survey misses target center by 65.4ft at 8358.1ft MD (8249.1 TVD, -857.0 N, 356.0 E)										
- Polygon										
Point 1			8,249.0	0.0	0.0	1,267,299.55	3,170,345.73			
Point 2			8,249.0	0.0	200.0	1,267,300.92	3,170,545.72			
TARGET CIRCLE 2590'F	0.00	0.00	8,249.0	-828.4	394.9	1,267,352.23	3,170,445.37	40° 3' 56.394 N	104° 53' 27.633 W	
- survey misses target center by 48.3ft at 8357.9ft MD (8248.8 TVD, -857.0 N, 356.0 E)										
- Circle (radius 50.0)										

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well NRC 24-9
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Site:	NRC 17-9 Pad Sec.9-T1N-R67W	MD Reference:	WELL @ 5012.0ft (Original Well Elev)
Well:	NRC 24-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM den0-adp01 Server Data

Checked By: _____ Approved By: _____ Date: _____