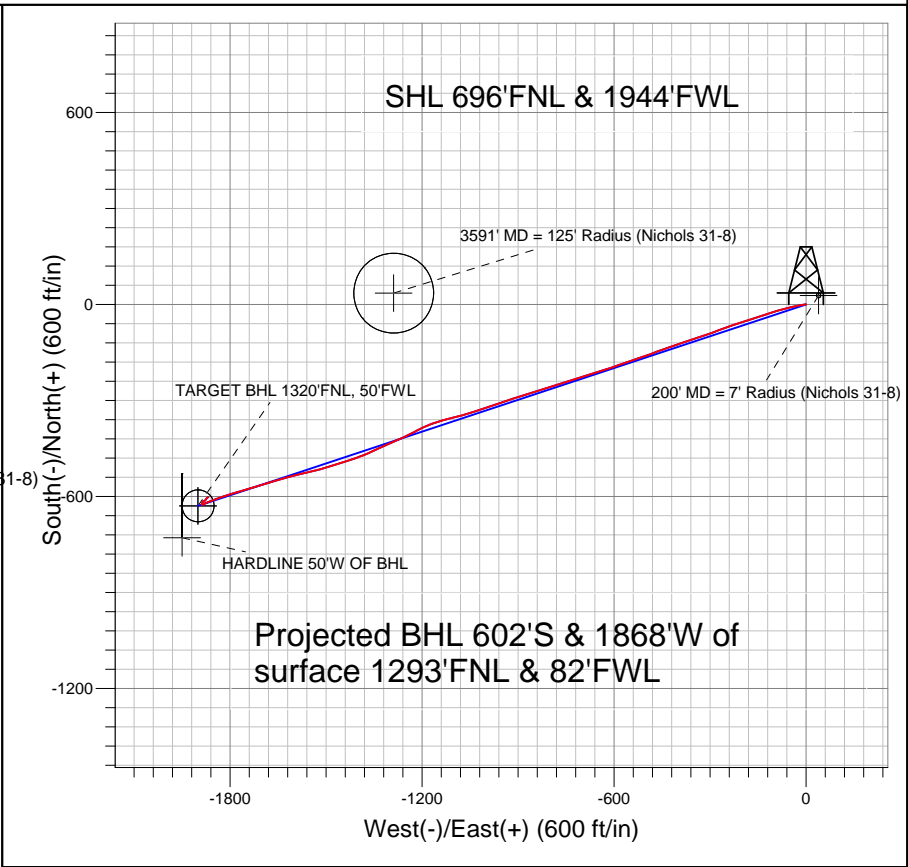


Anadarko, Weld County CO



LEGEND

- ◇ Nichols 31-8, Wellbore #1, Plan #1 (4-26-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 8240'MD & 7837'TVD @ 1963'VS
 1.0 deg Inc 60.3 deg AZ

Project: SEC.8-T2N-R65W
 Site: Nichols 3-8 Pad Sec.8-T2N-R65W
 Well: Nichols 31-8
 Plan: Wellbore #1



Directional

Anadarko, Weld County CO

SEC.8-T2N-R65W

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

Nichols 31-8

Wellbore #1

Survey: Survey #1

Standard Survey Report

03 June, 2011



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Nichols 31-8
Project:	SEC.8-T2N-R65W	TVD Reference:	WELL @ 4909.0ft (Original Well Elev)
Site:	Nichols 3-8 Pad Sec.8-T2N-R65W	MD Reference:	WELL @ 4909.0ft (Original Well Elev)
Well:	Nichols 31-8	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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

Well	Nichols 31-8					
Well Position	+N/-S	0.0 ft	Northing:	1,301,655.86 ft	Latitude:	40.158603
	+E/-W	0.0 ft	Easting:	3,226,349.07 ft	Longitude:	-104.690159
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,894.0 ft

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

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	251.67	

Survey Program	Date	6/3/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
144.0	8,240.0	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	
144.0	0.80	274.60	144.0	0.1	-1.0	0.9	0.56	0.56	0.00	
198.9	1.65	259.81	198.8	0.0	-2.2	2.1	1.64	1.55	-26.96	
200' MD = 7' Radius (Nichols 31-8)										
233.0	2.20	256.50	233.0	-0.3	-3.3	3.2	1.64	1.61	-9.70	
324.0	3.30	257.10	323.9	-1.3	-7.5	7.5	1.21	1.21	0.66	
415.0	5.10	263.20	414.6	-2.3	-14.1	14.1	2.04	1.98	6.70	
507.0	7.10	260.20	506.1	-3.8	-23.8	23.8	2.20	2.17	-3.26	
599.0	9.00	260.00	597.2	-6.0	-36.5	36.5	2.07	2.07	-0.22	
691.0	11.40	257.60	687.7	-9.2	-52.4	52.7	2.65	2.61	-2.61	
783.0	12.90	253.40	777.7	-14.1	-71.2	72.0	1.89	1.63	-4.57	
804.0	13.00	252.40	798.1	-15.5	-75.6	76.7	1.17	0.48	-4.76	
847.0	12.40	249.50	840.1	-18.5	-84.6	86.1	2.04	-1.40	-6.74	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Nichols 31-8
Project:	SEC.8-T2N-R65W	TVD Reference:	WELL @ 4909.0ft (Original Well Elev)
Site:	Nichols 3-8 Pad Sec.8-T2N-R65W	MD Reference:	WELL @ 4909.0ft (Original Well Elev)
Well:	Nichols 31-8	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)	
942.0	13.70	253.20	932.6	-25.4	-104.9	107.6	1.63	1.37	3.89	
1,037.0	15.80	253.10	1,024.5	-32.4	-128.1	131.7	2.21	2.21	-0.11	
1,133.0	18.10	252.90	1,116.3	-40.6	-154.8	159.7	2.40	2.40	-0.21	
1,228.0	20.30	252.30	1,206.0	-49.9	-184.6	191.0	2.33	2.32	-0.63	
1,323.0	23.20	251.30	1,294.2	-60.9	-218.1	226.2	3.08	3.05	-1.05	
1,418.0	25.70	249.50	1,380.7	-74.1	-255.1	265.5	2.75	2.63	-1.89	
1,513.0	27.40	250.60	1,465.7	-88.6	-295.0	307.9	1.86	1.79	1.16	
1,608.0	28.10	251.10	1,549.8	-103.1	-336.8	352.1	0.78	0.74	0.53	
1,703.0	29.20	251.70	1,633.1	-117.7	-380.0	397.7	1.20	1.16	0.63	
1,799.0	28.60	250.50	1,717.2	-132.7	-423.8	444.1	0.87	-0.63	-1.25	
1,894.0	28.10	250.00	1,800.8	-147.9	-466.3	489.2	0.58	-0.53	-0.53	
1,989.0	26.80	251.10	1,885.1	-162.5	-507.6	532.9	1.47	-1.37	1.16	
2,084.0	26.90	251.00	1,969.8	-176.4	-548.2	575.8	0.12	0.11	-0.11	
2,179.0	25.10	250.80	2,055.2	-190.1	-587.5	617.5	1.90	-1.89	-0.21	
2,277.0	23.80	253.10	2,144.4	-202.7	-626.1	658.0	1.64	-1.33	2.35	
2,372.0	23.20	252.20	2,231.6	-213.9	-662.2	695.9	0.74	-0.63	-0.95	
2,467.0	22.90	251.40	2,319.0	-225.6	-697.6	733.1	0.46	-0.32	-0.84	
2,562.0	23.80	251.90	2,406.2	-237.4	-733.3	770.8	0.97	0.95	0.53	
2,658.0	23.80	252.40	2,494.0	-249.3	-770.2	809.5	0.21	0.00	0.52	
2,753.0	23.40	253.60	2,581.1	-260.4	-806.6	847.5	0.66	-0.42	1.26	
2,848.0	23.30	253.30	2,668.3	-271.1	-842.6	885.2	0.16	-0.11	-0.32	
2,943.0	23.40	252.60	2,755.5	-282.2	-878.6	922.8	0.31	0.11	-0.74	
3,039.0	25.90	251.20	2,842.8	-294.6	-916.7	962.8	2.67	2.60	-1.46	
3,133.0	26.70	251.30	2,927.0	-308.0	-956.1	1,004.5	0.85	0.85	0.11	
3,229.0	26.60	251.30	3,012.8	-321.8	-996.9	1,047.5	0.10	-0.10	0.00	
3,324.0	26.30	252.40	3,097.9	-335.0	-1,037.1	1,089.9	0.60	-0.32	1.16	
3,419.0	24.90	254.70	3,183.6	-346.7	-1,076.5	1,130.9	1.81	-1.47	2.42	
3,514.0	24.00	256.10	3,270.1	-356.6	-1,114.5	1,170.1	1.13	-0.95	1.47	
3,610.0	25.00	252.30	3,357.4	-367.4	-1,152.8	1,209.9	1.94	1.04	-3.96	
3,704.0	24.40	245.90	3,442.8	-381.4	-1,189.5	1,249.0	2.91	-0.64	-6.81	
3,798.2	23.61	242.33	3,528.9	-398.1	-1,223.9	1,287.0	1.76	-0.84	-3.79	
3591' MD = 125' Radius (Nichols 31-8)										
3,799.0	23.60	242.30	3,529.6	-398.3	-1,224.2	1,287.3	1.76	-0.80	-3.91	
3,895.0	24.80	245.00	3,617.2	-415.7	-1,259.5	1,326.3	1.70	1.25	2.81	
3,990.0	25.20	245.90	3,703.3	-432.4	-1,296.0	1,366.2	0.58	0.42	0.95	
4,085.0	24.50	246.20	3,789.5	-448.6	-1,332.5	1,405.9	0.75	-0.74	0.32	
4,180.0	25.50	245.90	3,875.6	-464.9	-1,369.2	1,445.9	1.06	1.05	-0.32	
4,275.0	25.10	250.90	3,961.5	-479.8	-1,406.9	1,486.4	2.29	-0.42	5.26	
4,370.0	25.00	252.60	4,047.5	-492.4	-1,445.1	1,526.6	0.76	-0.11	1.79	
4,466.0	23.10	252.50	4,135.2	-504.2	-1,482.4	1,565.7	1.98	-1.98	-0.10	
4,561.0	23.30	254.70	4,222.5	-514.7	-1,518.3	1,603.1	0.94	0.21	2.32	
4,656.0	24.30	257.40	4,309.4	-523.9	-1,555.5	1,641.3	1.56	1.05	2.84	
4,751.0	24.60	255.40	4,395.9	-533.2	-1,593.7	1,680.5	0.93	0.32	-2.11	
4,846.0	25.40	253.70	4,482.0	-543.9	-1,632.4	1,720.6	1.13	0.84	-1.79	
4,941.0	23.80	254.20	4,568.4	-554.8	-1,670.4	1,760.1	1.70	-1.68	0.53	
5,037.0	21.80	252.60	4,656.9	-565.4	-1,706.0	1,797.3	2.18	-2.08	-1.67	
5,132.0	18.60	253.30	4,746.0	-575.1	-1,737.4	1,830.1	3.38	-3.37	0.74	
5,226.0	16.40	254.30	4,835.7	-583.0	-1,764.5	1,858.3	2.36	-2.34	1.06	
5,321.0	14.10	254.30	4,927.3	-589.7	-1,788.6	1,883.3	2.42	-2.42	0.00	
5,417.0	12.80	251.20	5,020.7	-596.3	-1,809.9	1,905.6	1.55	-1.35	-3.23	
5,512.0	10.90	250.20	5,113.7	-602.7	-1,828.3	1,925.1	2.01	-2.00	-1.05	
5,607.0	8.50	251.00	5,207.3	-608.1	-1,843.4	1,941.1	2.53	-2.53	0.84	
5,702.0	7.30	249.50	5,301.4	-612.5	-1,855.7	1,954.2	1.28	-1.26	-1.58	
5,797.0	6.90	247.50	5,395.7	-616.8	-1,866.6	1,965.9	0.49	-0.42	-2.11	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Nichols 31-8
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Site:	Nichols 3-8 Pad Sec.8-T2N-R65W	MD Reference:	WELL @ 4909.0ft (Original Well Elev)
Well:	Nichols 31-8	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
5,892.0	4.80	244.60	5,490.2	-620.7	-1,875.5	1,975.5	2.23	-2.21	-3.05
5,988.0	3.20	245.90	5,585.9	-623.5	-1,881.6	1,982.2	1.67	-1.67	1.35
6,083.0	1.60	245.10	5,680.9	-625.1	-1,885.2	1,986.1	1.68	-1.68	-0.84
6,178.0	0.90	249.30	5,775.8	-625.9	-1,887.1	1,988.2	0.74	-0.74	4.42
6,273.0	0.20	243.80	5,870.8	-626.3	-1,887.9	1,989.1	0.74	-0.74	-5.79
6,368.0	0.60	1.10	5,965.8	-625.9	-1,888.1	1,989.1	0.75	0.42	123.47
6,402.1	0.67	2.43	5,999.9	-625.5	-1,888.1	1,989.0	0.21	0.21	3.89
TARGET BHL 1320'FNL, 50'FWL									
6,463.0	0.80	4.20	6,060.8	-624.7	-1,888.0	1,988.7	0.21	0.21	2.91
6,559.0	0.80	1.90	6,156.8	-623.4	-1,888.0	1,988.2	0.03	0.00	-2.40
6,654.0	1.00	21.30	6,251.8	-621.9	-1,887.6	1,987.4	0.38	0.21	20.42
6,749.0	0.80	25.50	6,346.8	-620.6	-1,887.0	1,986.5	0.22	-0.21	4.42
6,844.0	0.70	19.50	6,441.8	-619.4	-1,886.6	1,985.6	0.13	-0.11	-6.32
6,939.0	0.80	18.40	6,536.8	-618.2	-1,886.2	1,984.9	0.11	0.11	-1.16
7,034.0	0.60	33.30	6,631.8	-617.2	-1,885.7	1,984.1	0.28	-0.21	15.68
7,129.0	0.40	2.50	6,726.8	-616.4	-1,885.4	1,983.6	0.35	-0.21	-32.42
7,225.0	0.60	25.30	6,822.8	-615.7	-1,885.2	1,983.1	0.29	0.21	23.75
7,320.0	1.20	86.70	6,917.7	-615.1	-1,884.0	1,981.8	1.11	0.63	64.63
7,365.9	1.15	89.19	6,963.7	-615.1	-1,883.0	1,980.9	0.16	-0.11	5.43
TARGET CIRCLE 1320'FNL, 50'FWL									
7,415.0	1.10	92.10	7,012.7	-615.1	-1,882.1	1,980.0	0.16	-0.10	5.92
7,510.0	2.50	43.90	7,107.7	-613.7	-1,879.7	1,977.3	2.05	1.47	-50.74
7,605.0	2.00	40.30	7,202.6	-610.9	-1,877.2	1,974.1	0.55	-0.53	-3.79
7,700.0	1.60	32.60	7,297.6	-608.5	-1,875.4	1,971.6	0.49	-0.42	-8.11
7,796.0	1.20	36.10	7,393.5	-606.6	-1,874.1	1,969.8	0.43	-0.42	3.65
7,891.0	1.10	52.20	7,488.5	-605.2	-1,872.8	1,968.1	0.35	-0.11	16.95
7,986.0	0.90	58.60	7,583.5	-604.3	-1,871.4	1,966.5	0.24	-0.21	6.74
8,076.0	0.70	50.90	7,673.5	-603.6	-1,870.4	1,965.3	0.25	-0.22	-8.56
8,190.0	1.00	60.30	7,787.5	-602.6	-1,869.0	1,963.7	0.29	0.26	8.25
8,240.0	1.00	60.30	7,837.5	-602.2	-1,868.2	1,962.8	0.00	0.00	0.00
HARDLINE 50'W OF BHL									

Checked By: _____ Approved By: _____ Date: _____