



Company: Anadarko  
Site: Northglenn State  
Well: 12-36

Project: Weld County, Colorado (NAD83)  
Rig Name: Xtreme 11



Planning: 936.442.2510 Fax: 936.442.2515  
Operations: 936.442.2500 Fax: 936.442.2599

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
500.00	6.00	287.86	499.45	4.81	-14.94	15.69	15.69	Hold 6.00° Inc
1118.94	6.00	287.86	1115.00	24.66	-76.51	80.39	80.39	Begin 3.00°/100' Build
1910.56	29.75	287.86	1863.03	98.66	-306.12	321.62	321.62	Begin 29.75° Tangent
5480.32	29.75	287.86	4962.34	642.00	-1992.02	2092.92	2092.92	Begin 3.00°/100' Drop
6471.94	0.00	0.00	5910.00	719.21	-2231.58	2344.62	2344.62	Begin Vertical Hold
9055.94	0.00	0.00	8494.00	719.21	-2231.58	2344.62	2344.62	PBHL



Azimuths to True North  
Magnetic North: 8.83°  
  
Magnetic Field  
Strength: 52833.1nT  
Dip Angle: 66.67°  
Date: 03/02/2012  
Model: WMM\_2010

US State Plane 1983  
Colorado Northern Zone

Created By: Megan Pope  
Date: 9:34, March 07 2012  
Plan: Design #2

#### SURFACE LOCATION

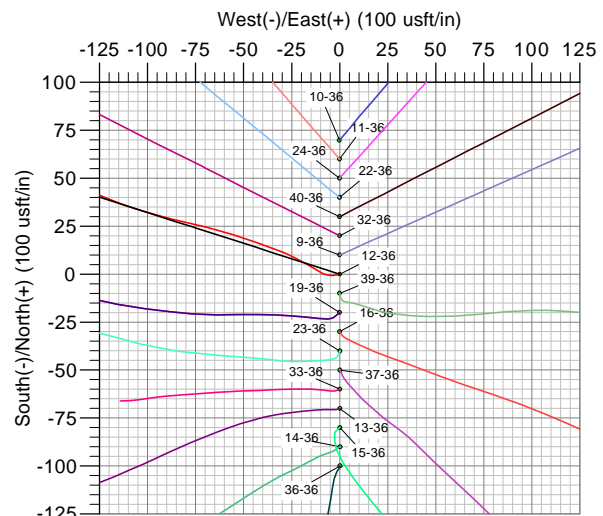
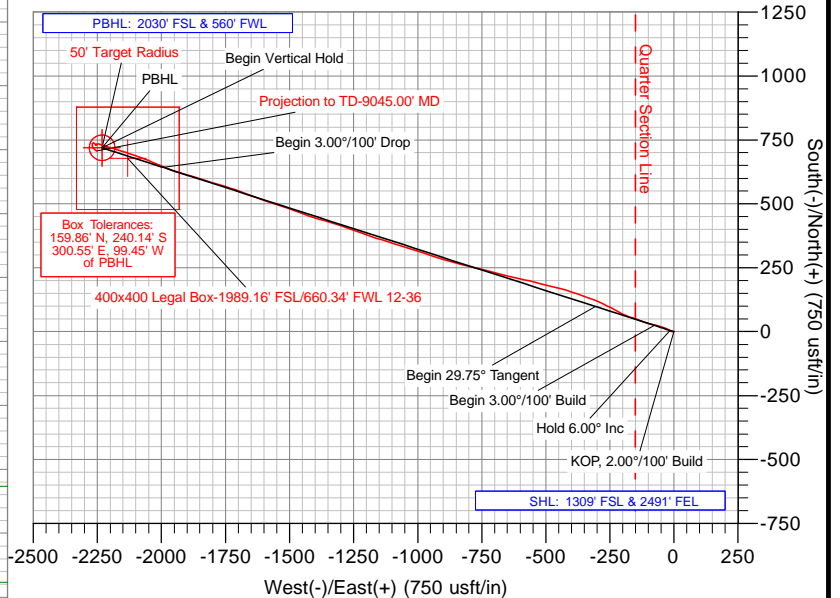
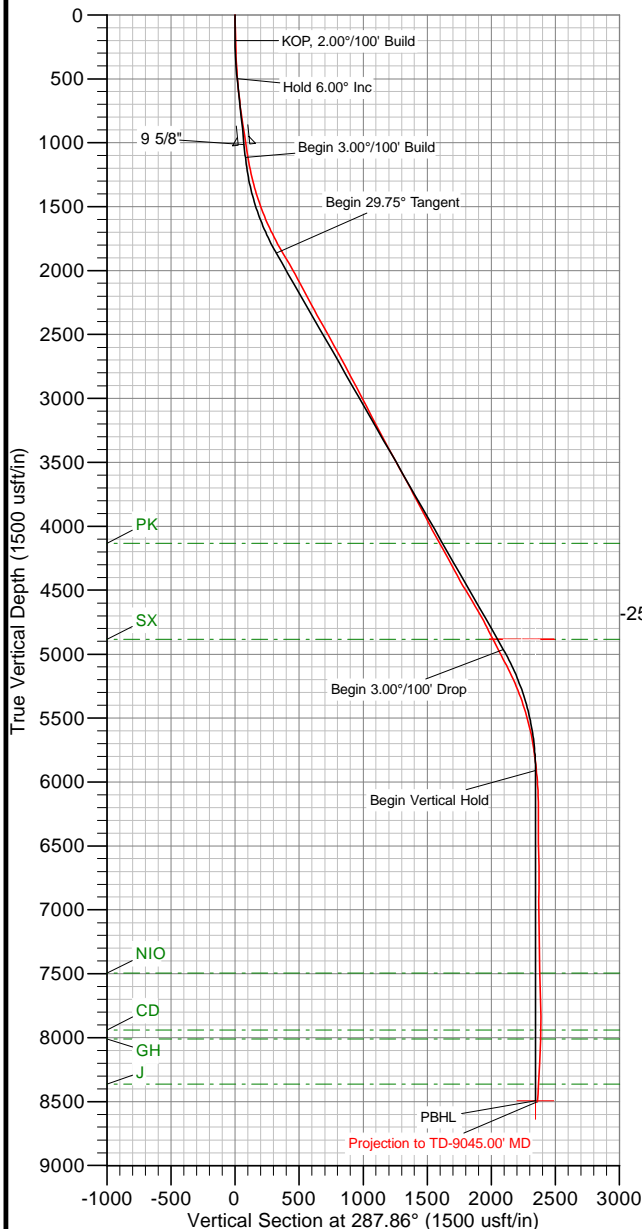
Northing: 1244753.51  
Easting: 3153671.85  
Latitude: 40° 0' 14.1456 N  
Longitude: 104° 57' 5.176 W  
Ground Elevation: 5119.00  
WELL @ 5134.00usft (Xtreme 11)

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
400x400 Legal Box-1989.16' FSL/660.34' FWL 12-36	4884.00	678.45	-2131.27	40° 0' 20.8495 N	104° 57' 32.565 W
Vertical v1-Northglenn State 12-36	4884.00	719.21	-2231.58	40° 0' 21.2523 N	104° 57' 33.854 W
PBHL v1-Northglenn State 12-36	8494.00	719.21	-2231.58	40° 0' 21.2523 N	104° 57' 33.854 W

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4134.00	4526.25	PK
4884.00	5390.09	SX
7494.00	8055.94	NIO
7940.00	8501.94	CD
8010.00	8571.94	GH
8361.00	8922.94	J



The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



## **Anadarko**

**Weld County, Colorado (NAD83)**

**Northglenn State**

**12-36**

**Wellbore #1**

**Survey: MS MWD**

## **Standard Survey Report**

**07 March, 2012**

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 12-36
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5134.00usft (Xtreme 11)
<b>Site:</b>	Northglenn State	<b>MD Reference:</b>	WELL @ 5134.00usft (Xtreme 11)
<b>Well:</b>	12-36	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

<b>Project</b>	Weld County, Colorado (NAD83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Well	12-36					
Well Position	+N/-S	0.00 usft	Northing:	1,244,753.51 usft	Latitude:	40° 0' 14.1456 N
	+E/-W	0.00 usft	Easting:	3,153,671.85 usft	Longitude:	104° 57' 5.176 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,119.00 usft

<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>
	WMM_2010	03/02/12	8.83	66.67	52,833

<b>Design</b>	Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00		287.86

<b>Survey Program</b>	<b>Date</b>	03/07/12			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
104.00	9,045.00	MS MWD (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
104.00	1.60	259.30	103.99	-0.27	-1.43	1.28	1.54	1.54	0.00	
193.00	1.80	262.70	192.95	-0.68	-4.03	3.63	0.25	0.22	3.82	
280.00	1.90	288.30	279.90	-0.40	-6.76	6.31	0.95	0.11	29.43	
369.00	2.90	299.00	368.82	1.16	-10.13	10.00	1.23	1.12	12.02	
492.00	4.60	301.00	491.56	5.21	-17.08	17.85	1.39	1.38	1.63	
582.00	5.70	295.70	581.19	9.00	-24.20	25.79	1.33	1.22	-5.89	
673.00	6.60	291.00	671.67	12.84	-33.15	35.49	1.13	0.99	-5.16	
764.00	7.60	289.90	761.97	16.76	-43.69	46.73	1.11	1.10	-1.21	
855.00	8.40	286.60	852.08	20.71	-55.72	59.39	1.01	0.88	-3.63	
945.00	8.80	284.60	941.07	24.32	-68.69	72.83	0.55	0.44	-2.22	
1,069.00	9.40	283.00	1,063.51	28.99	-87.73	92.39	0.53	0.48	-1.29	
1,160.00	9.80	286.70	1,153.24	32.89	-102.39	107.54	0.81	0.44	4.07	
1,251.00	12.30	291.80	1,242.55	38.71	-118.81	124.96	2.95	2.75	5.60	
1,341.00	14.90	289.70	1,330.01	46.17	-138.61	146.09	2.94	2.89	-2.33	

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 12-36
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5134.00usft (Xtreme 11)
<b>Site:</b>	Northglenn State	<b>MD Reference:</b>	WELL @ 5134.00usft (Xtreme 11)
<b>Well:</b>	12-36	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,387.00	16.20	286.60	1,374.33	50.00	-150.33	158.42	3.35	2.83	-6.74	
1,478.00	19.50	289.90	1,460.94	58.80	-176.78	186.29	3.79	3.63	3.63	
1,568.00	21.40	298.70	1,545.28	71.80	-205.32	217.44	4.01	2.11	9.78	
1,659.00	24.10	298.70	1,629.20	88.70	-236.18	252.00	2.97	2.97	0.00	
1,750.00	27.10	295.00	1,711.26	106.39	-271.27	290.83	3.73	3.30	-4.07	
1,841.00	28.90	291.70	1,791.61	123.28	-310.50	333.34	2.61	1.98	-3.63	
1,932.00	30.50	290.30	1,870.65	139.42	-352.59	378.36	1.92	1.76	-1.54	
2,022.00	30.20	287.90	1,948.32	154.30	-395.55	423.81	1.39	-0.33	-2.67	
2,113.00	28.80	284.30	2,027.53	166.75	-438.58	468.58	2.48	-1.54	-3.96	
2,204.00	27.70	284.30	2,107.69	177.39	-480.31	511.57	1.21	-1.21	0.00	
2,295.00	27.90	284.50	2,188.19	187.95	-521.42	553.94	0.24	0.22	0.22	
2,386.00	27.80	283.20	2,268.65	198.13	-562.69	596.34	0.68	-0.11	-1.43	
2,476.00	29.50	281.60	2,347.63	207.37	-604.84	639.29	2.07	1.89	-1.78	
2,567.00	29.50	283.80	2,426.83	217.22	-648.54	683.91	1.19	0.00	2.42	
2,658.00	29.00	285.50	2,506.23	228.46	-691.56	728.30	1.07	-0.55	1.87	
2,749.00	28.80	284.80	2,585.90	239.96	-734.01	772.23	0.43	-0.22	-0.77	
2,840.00	28.90	282.20	2,665.60	250.20	-776.70	816.00	1.38	0.11	-2.86	
2,930.00	28.20	283.90	2,744.66	259.91	-818.60	858.86	1.19	-0.78	1.89	
3,021.00	28.20	285.70	2,824.86	270.89	-860.17	901.80	0.93	0.00	1.98	
3,112.00	27.40	286.60	2,905.36	282.69	-900.93	944.22	0.99	-0.88	0.99	
3,203.00	27.10	288.70	2,986.26	295.32	-940.63	985.88	1.11	-0.33	2.31	
3,294.00	27.30	288.10	3,067.20	308.45	-980.10	1,027.47	0.37	0.22	-0.66	
3,384.00	28.10	287.10	3,146.88	321.09	-1,019.98	1,069.30	1.03	0.89	-1.11	
3,475.00	27.70	288.10	3,227.31	333.97	-1,060.57	1,111.88	0.68	-0.44	1.10	
3,565.00	28.10	288.30	3,306.84	347.12	-1,100.58	1,154.00	0.46	0.44	0.22	
3,656.00	28.00	286.00	3,387.16	359.74	-1,141.46	1,196.78	1.19	-0.11	-2.53	
3,747.00	28.30	289.00	3,467.40	372.65	-1,182.39	1,239.70	1.59	0.33	3.30	
3,838.00	29.10	290.10	3,547.22	387.28	-1,223.57	1,283.38	1.05	0.88	1.21	
3,928.00	28.50	289.00	3,626.09	401.79	-1,264.42	1,326.71	0.89	-0.67	-1.22	
4,019.00	28.80	287.80	3,705.95	415.56	-1,305.82	1,370.34	0.71	0.33	-1.32	
4,110.00	27.50	288.00	3,786.18	428.75	-1,346.67	1,413.27	1.43	-1.43	0.22	
4,201.00	26.70	286.20	3,867.19	440.95	-1,386.29	1,454.72	1.26	-0.88	-1.98	
4,292.00	27.50	289.20	3,948.20	453.56	-1,425.76	1,496.16	1.74	0.88	3.30	
4,382.00	28.50	291.00	4,027.67	468.09	-1,465.43	1,538.37	1.45	1.11	2.00	
4,473.00	29.30	288.80	4,107.34	483.05	-1,506.78	1,582.32	1.46	0.88	-2.42	
4,564.00	29.20	288.00	4,186.73	497.08	-1,548.97	1,626.78	0.44	-0.11	-0.88	
4,655.00	28.40	288.10	4,266.48	510.67	-1,590.66	1,670.62	0.88	-0.88	0.11	
4,745.00	28.10	291.30	4,345.76	525.02	-1,630.75	1,713.18	1.72	-0.33	3.56	
4,836.00	29.40	289.90	4,425.54	540.41	-1,671.72	1,756.90	1.61	1.43	-1.54	
4,927.00	30.50	289.90	4,504.39	555.87	-1,714.44	1,802.30	1.21	1.21	0.00	
5,018.00	31.10	285.90	4,582.56	570.17	-1,758.76	1,848.87	2.34	0.66	-4.40	
5,109.00	29.50	287.40	4,661.13	583.31	-1,802.75	1,894.77	1.94	-1.76	1.65	
5,199.00	28.80	287.30	4,739.73	596.38	-1,844.59	1,938.61	0.78	-0.78	-0.11	
5,290.00	26.90	285.20	4,820.19	608.30	-1,885.39	1,981.09	2.35	-2.09	-2.31	

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<b>Well:</b>	12-36	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	Southern Region

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,381.00	26.20	288.00	4,901.60	619.91	-1,924.36	2,021.75	1.58	-0.77	3.08	
5,472.00	27.20	289.90	4,982.89	633.19	-1,963.03	2,062.62	1.44	1.10	2.09	
5,563.00	28.40	294.10	5,063.40	649.11	-2,002.34	2,104.92	2.52	1.32	4.62	
5,651.00	26.00	292.20	5,141.66	664.95	-2,039.31	2,144.97	2.90	-2.73	-2.16	
5,744.00	23.40	290.80	5,226.15	679.21	-2,075.45	2,183.74	2.87	-2.80	-1.51	
5,835.00	20.70	288.70	5,310.48	690.78	-2,107.59	2,217.88	3.09	-2.97	-2.31	
5,926.00	18.50	286.90	5,396.21	700.14	-2,136.64	2,248.40	2.51	-2.42	-1.98	
6,017.00	15.70	288.70	5,483.18	708.29	-2,162.12	2,275.15	3.13	-3.08	1.98	
6,108.00	13.50	287.10	5,571.23	715.36	-2,183.94	2,298.09	2.46	-2.42	-1.76	
6,199.00	10.70	286.60	5,660.20	720.90	-2,202.19	2,317.16	3.08	-3.08	-0.55	
6,289.00	8.40	286.20	5,748.95	725.12	-2,216.51	2,332.08	2.56	-2.56	-0.44	
6,380.00	6.80	289.70	5,839.15	728.79	-2,227.97	2,344.11	1.83	-1.76	3.85	
6,471.00	5.40	286.90	5,929.63	731.85	-2,237.14	2,353.78	1.57	-1.54	-3.08	
6,562.00	3.40	282.00	6,020.36	733.65	-2,243.87	2,360.74	2.23	-2.20	-5.38	
6,652.00	2.00	263.20	6,110.26	734.02	-2,248.04	2,364.83	1.82	-1.56	-20.89	
6,743.00	0.80	240.00	6,201.23	733.52	-2,250.17	2,366.70	1.43	-1.32	-25.49	
6,834.00	0.40	245.80	6,292.22	733.07	-2,251.01	2,367.36	0.44	-0.44	6.37	
6,924.00	0.40	231.00	6,382.22	732.74	-2,251.54	2,367.76	0.11	0.00	-16.44	
7,015.00	0.70	237.20	6,473.22	732.24	-2,252.26	2,368.29	0.34	0.33	6.81	
7,106.00	0.80	280.90	6,564.21	732.06	-2,253.35	2,369.27	0.62	0.11	48.02	
7,196.00	0.90	268.60	6,654.20	732.16	-2,254.67	2,370.56	0.23	0.11	-13.67	
7,287.00	0.70	178.50	6,745.19	731.59	-2,255.37	2,371.05	1.25	-0.22	-99.01	
7,378.00	0.70	161.20	6,836.19	730.51	-2,255.18	2,370.54	0.23	0.00	-19.01	
7,469.00	0.30	169.70	6,927.18	729.75	-2,254.95	2,370.09	0.45	-0.44	9.34	
7,650.00	0.90	298.00	7,108.18	729.95	-2,256.13	2,371.27	0.61	0.33	70.88	
7,832.00	1.10	323.50	7,290.15	732.02	-2,258.43	2,374.10	0.27	0.11	14.01	
8,013.00	1.30	338.80	7,471.11	735.33	-2,260.20	2,376.80	0.21	0.11	8.45	
8,194.00	2.00	296.40	7,652.04	738.65	-2,263.77	2,381.22	0.75	0.39	-23.43	
8,376.00	2.60	217.70	7,833.93	736.80	-2,269.14	2,385.76	1.62	0.33	-43.24	
8,558.00	3.50	173.50	8,015.70	728.01	-2,271.04	2,384.87	1.34	0.49	-24.29	
8,739.00	3.80	132.90	8,196.36	718.44	-2,266.02	2,377.16	1.41	0.17	-22.43	
8,921.00	3.30	133.50	8,378.01	710.73	-2,257.80	2,366.97	0.28	-0.27	0.33	
8,983.00	2.60	128.40	8,439.92	708.62	-2,255.41	2,364.04	1.20	-1.13	-8.23	
9,045.00	2.60	128.40	8,501.86	706.88	-2,253.20	2,361.41	0.00	0.00	0.00	
Projection to TD-9045.00' MD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
9,045.00	8,501.86	706.88	-2,253.20	Projection to TD-9045.00' MD	