



Company: Anadarko
Site: Morton
Well: 1-12

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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
550.00	6.00	58.01	549.45	8.31	13.31	15.69	15.69	Begin 6.00° Tangent
967.84	6.00	58.01	965.00	31.45	50.35	59.37	59.37	Begin 2.00°/100' Build
1867.86	24.00	58.01	1830.79	154.35	247.11	291.36	291.36	Begin 24.00° Tangent
3663.69	24.00	58.01	3471.35	541.32	866.63	1021.80	1021.80	Begin 1.50°/100' Drop
5263.72	0.00	0.00	5025.00	716.28	1146.72	1352.05	1352.05	Begin Vertical Hold
8288.72	0.00	0.00	8050.00	716.28	1146.72	1352.05	1352.05	PBHL



Azimuths to True North
Magnetic North: 8.79°
Magnetic Field
Strength: 52897.9nT
Dip Angle: 66.75°
Date: 01/07/2012
Model: WMM_2010

US State Plane 1983
Colorado Northern Zone

Created By: Megan Pope
Date: 9:31, January 12 2012
Plan: Design #2

SURFACE LOCATION

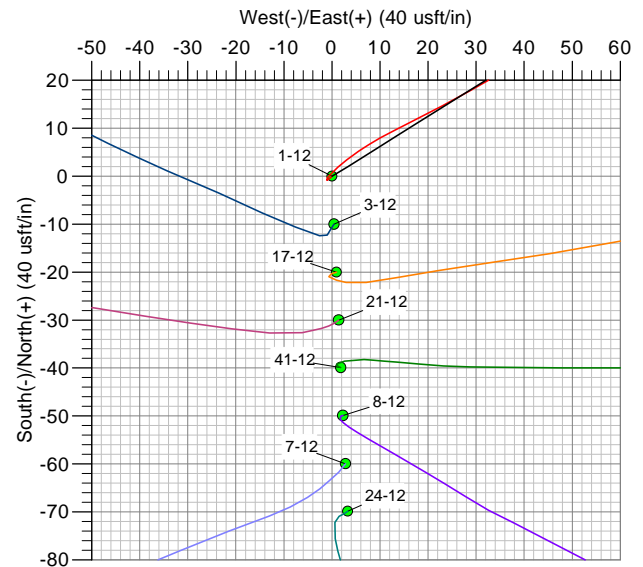
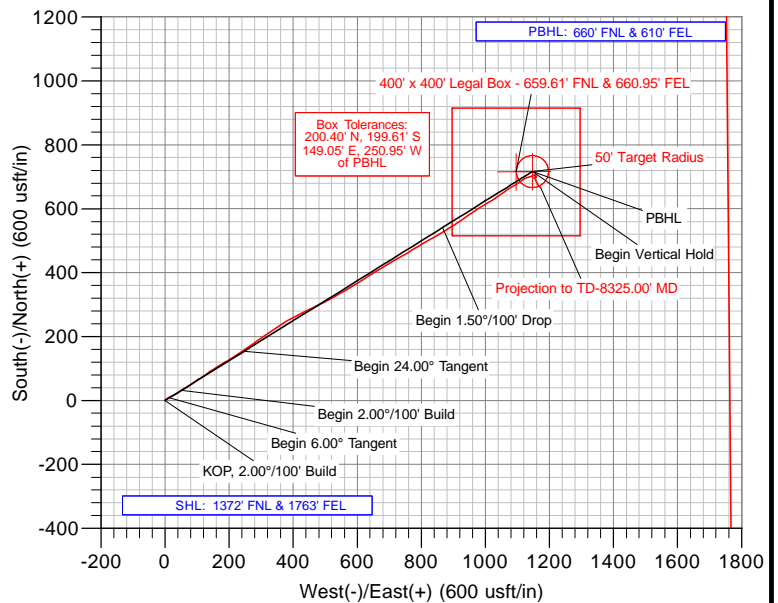
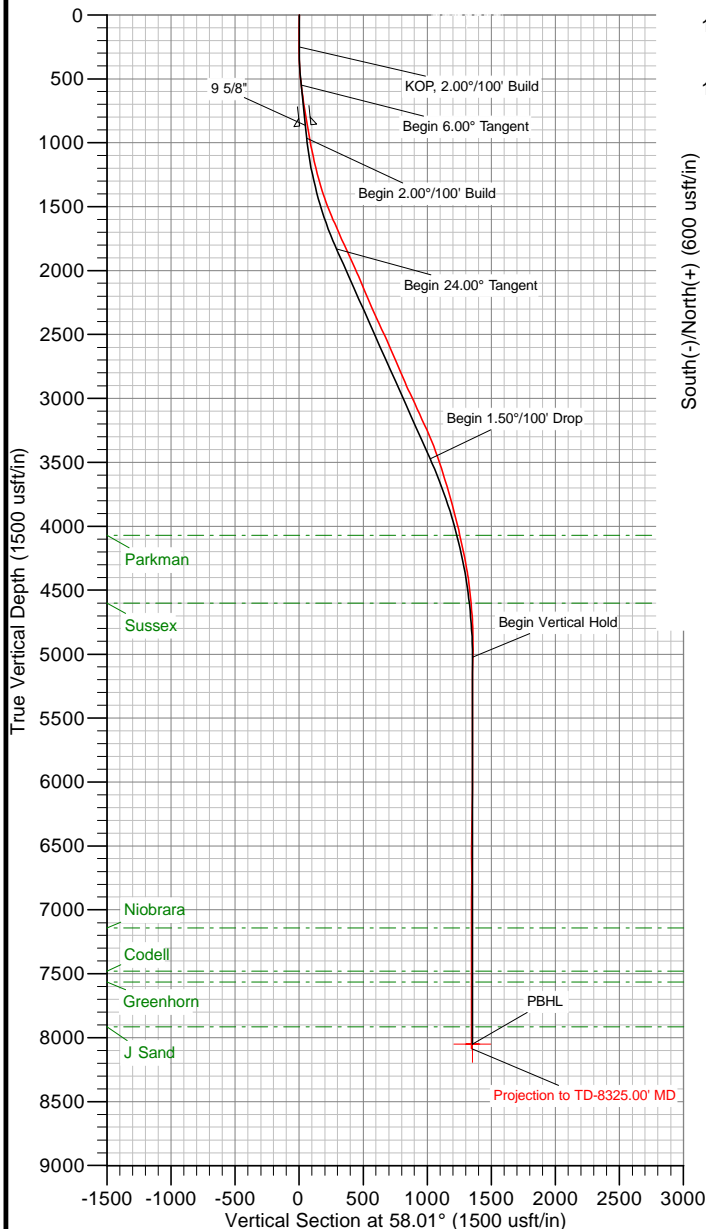
Northing: 1268667.28
Easting: 3185789.07
Latitude: 40° 4' 8.3014 N
Longitude: 104° 50' 10.154 W
Ground Elevation: 4905.00
WELL @ 4920.00usft (Xtreme 11)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
400' x 400' Legal Box - 659.61' FNL & 660.95' FEL	0.00	715.08	1095.78	40° 4' 15.3679 N	104° 49' 56.058 W
PBHL v2 - Morton 1-12	8050.00	716.28	1146.72	40° 4' 15.3798 N	104° 49' 55.403 W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4070.00	4298.48	Parkman
4600.00	4837.84	Sussex
7140.00	7378.72	Niobrara
7480.00	7718.72	Codell
7565.00	7803.72	Greenhorn
7915.00	8153.72	J Sand



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)

Morton

1-12

Wellbore #1

Survey: MS MWD

Standard Survey Report

12 January, 2012

Company:	Anadarko	Local Co-ordinate Reference:	Well 1-12
Project:	Weld County, Colorado (NAD83)	TVD Reference:	WELL @ 4920.00usft (Xtreme 11)
Site:	Morton	MD Reference:	WELL @ 4920.00usft (Xtreme 11)
Well:	1-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Southern Region

Site	Morton
Site Position:	Northing: 0.00 usft Latitude: 36° 7' 5.9694 N
From: Map	Easting: 0.00 usft Longitude: 115° 39' 12.952 W
Position Uncertainty: 0.00 usft	Slot Radius: 13-3/16 " Grid Convergence: -6.56 °

Well	1-12
Well Position	+N/-S 0.00 usft Northing: 1,268,667.28 usft Latitude: 40° 4' 8.3014 N
	+E/-W 0.00 usft Easting: 3,185,789.07 usft Longitude: 104° 50' 10.154 W
Position Uncertainty	0.00 usft Wellhead Elevation: usft Ground Level: 4,905.00 usft

Wellbore		Wellbore #1			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	01/07/12	8.79	66.75	52,898

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	58.01	

Survey Program		Date	01/12/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
101.00	8,325.00	MS MWD (Wellbore #1)	MWD	MWD - Standard	

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101.00	0.50	224.30	101.00	-0.32	-0.31	-0.43	0.50	0.50	0.00
190.00	0.70	242.60	189.99	-0.84	-1.06	-1.35	0.31	0.22	20.56
278.00	1.30	36.00	277.99	-0.28	-0.95	-0.96	2.22	0.68	174.32
369.00	2.60	49.20	368.93	1.90	1.22	2.04	1.50	1.43	14.51
460.00	4.30	54.80	459.77	5.22	5.57	7.49	1.90	1.87	6.15
551.00	6.40	62.60	550.37	9.52	12.86	15.95	2.44	2.31	8.57
641.00	8.20	62.80	639.63	14.76	23.02	27.35	2.00	2.00	0.22
732.00	9.20	59.20	729.58	21.45	35.04	41.09	1.25	1.10	-3.96
839.00	9.80	57.10	835.12	30.78	50.04	58.74	0.65	0.56	-1.96
939.00	9.80	57.10	933.66	40.02	64.33	75.76	0.00	0.00	0.00
1,030.00	10.60	55.90	1,023.22	48.92	77.76	91.87	0.91	0.88	-1.32
1,121.00	12.12	56.40	1,112.43	58.90	92.65	109.78	1.67	1.67	0.55
1,212.00	14.40	58.50	1,201.00	70.10	110.26	130.65	2.56	2.51	2.31
1,302.00	15.70	54.30	1,287.92	83.06	129.69	154.00	1.88	1.44	-4.67

Company:	Anadarko	Local Co-ordinate Reference:	Well 1-12
Project:	Weld County, Colorado (NAD83)	TVD Reference:	WELL @ 4920.00usft (Xtreme 11)
Site:	Morton	MD Reference:	WELL @ 4920.00usft (Xtreme 11)
Well:	1-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)	
1,393.00	17.40	56.30	1,375.14	97.79	151.01	179.88	1.97	1.87	2.20	
1,484.00	20.00	59.90	1,461.33	113.15	175.80	209.04	3.12	2.86	3.96	
1,575.00	22.20	58.00	1,546.23	130.07	203.84	241.79	2.53	2.42	-2.09	
1,666.00	24.10	55.90	1,629.90	149.59	233.81	277.56	2.28	2.09	-2.31	
1,756.00	23.10	55.90	1,712.37	169.79	263.65	313.56	1.11	-1.11	0.00	
1,847.00	24.80	54.30	1,795.53	190.94	293.93	350.45	2.00	1.87	-1.76	
1,938.00	24.10	56.30	1,878.37	212.39	324.89	388.07	1.19	-0.77	2.20	
2,029.00	24.70	55.50	1,961.25	233.47	356.01	425.63	0.75	0.66	-0.88	
2,120.00	23.30	61.20	2,044.39	252.91	387.46	462.60	2.97	-1.54	6.26	
2,211.00	22.20	64.20	2,128.31	269.06	418.71	497.67	1.76	-1.21	3.30	
2,301.00	24.00	63.30	2,211.09	284.69	450.37	532.80	2.04	2.00	-1.00	
2,392.00	23.70	64.70	2,294.32	300.82	483.44	569.39	0.70	-0.33	1.54	
2,483.00	24.20	59.80	2,377.49	318.02	516.10	606.20	2.25	0.55	-5.38	
2,574.00	26.00	61.70	2,459.90	336.86	549.78	644.75	2.17	1.98	2.09	
2,665.00	23.70	58.50	2,542.47	355.87	582.95	682.95	2.93	-2.53	-3.52	
2,755.00	23.50	57.50	2,624.94	374.97	613.50	718.98	0.50	-0.22	-1.11	
2,846.00	23.40	57.30	2,708.43	394.48	644.01	755.19	0.14	-0.11	-0.22	
2,937.00	22.90	58.70	2,792.10	413.44	674.34	790.97	0.82	-0.55	1.54	
3,028.00	23.50	59.60	2,875.74	431.82	705.12	826.81	0.77	0.66	0.99	
3,119.00	25.80	60.10	2,958.44	450.87	737.94	864.74	2.54	2.53	0.55	
3,209.00	25.10	58.00	3,039.71	470.75	771.11	903.40	1.27	-0.78	-2.33	
3,300.00	23.40	59.60	3,122.68	490.12	803.07	940.77	2.00	-1.87	1.76	
3,391.00	24.40	60.80	3,205.88	508.44	835.06	977.61	1.22	1.10	1.32	
3,482.00	23.00	58.90	3,289.20	526.79	866.69	1,014.16	1.75	-1.54	-2.09	
3,573.00	22.20	57.50	3,373.21	545.21	896.42	1,049.13	1.06	-0.88	-1.54	
3,664.00	18.70	54.80	3,458.47	562.87	922.85	1,080.89	3.98	-3.85	-2.97	
3,754.00	17.10	54.50	3,544.11	578.87	945.41	1,108.51	1.78	-1.78	-0.33	
3,845.00	18.50	57.10	3,630.75	594.48	968.42	1,136.30	1.77	1.54	2.86	
3,936.00	15.70	59.40	3,717.72	608.59	991.15	1,163.05	3.16	-3.08	2.53	
4,026.00	16.50	58.90	3,804.19	621.39	1,012.57	1,188.00	0.90	0.89	-0.56	
4,117.00	13.90	55.00	3,892.00	634.34	1,032.60	1,211.84	3.07	-2.86	-4.29	
4,208.00	13.50	54.80	3,980.41	646.73	1,050.23	1,233.36	0.44	-0.44	-0.22	
4,299.00	12.00	56.10	4,069.17	658.13	1,066.76	1,253.42	1.68	-1.65	1.43	
4,390.00	12.90	59.80	4,158.03	668.52	1,083.39	1,273.03	1.32	0.99	4.07	
4,481.00	11.30	57.30	4,247.00	678.44	1,099.68	1,292.10	1.85	-1.76	-2.75	
4,571.00	10.30	52.00	4,335.41	688.16	1,113.44	1,308.92	1.56	-1.11	-5.89	
4,662.00	7.10	65.70	4,425.36	695.49	1,124.98	1,322.59	4.17	-3.52	15.05	
4,753.00	6.30	73.80	4,515.74	699.20	1,134.90	1,332.97	1.36	-0.88	8.90	
4,844.00	5.50	71.90	4,606.26	701.94	1,143.84	1,342.01	0.90	-0.88	-2.09	
4,935.00	4.40	64.30	4,696.92	704.81	1,151.13	1,349.71	1.40	-1.21	-8.35	
5,026.00	1.70	67.50	4,787.78	706.84	1,155.52	1,354.51	2.97	-2.97	3.52	
5,207.00	0.80	193.20	4,968.75	706.64	1,157.72	1,356.26	1.25	-0.50	69.45	
5,389.00	1.50	186.00	5,150.72	703.03	1,157.18	1,353.90	0.39	0.38	-3.96	
5,570.00	0.60	113.60	5,331.69	700.30	1,157.80	1,352.97	0.79	-0.50	-40.00	

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Well:	1-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
5,752.00	0.60	170.70	5,513.68	698.98	1,158.82	1,353.14	0.32	0.00	31.37
5,933.00	0.40	325.70	5,694.68	698.56	1,158.62	1,352.75	0.54	-0.11	85.64
6,115.00	0.40	304.80	5,876.67	699.45	1,157.74	1,352.48	0.08	0.00	-11.48
6,297.00	0.30	297.20	6,058.67	700.03	1,156.80	1,351.98	0.06	-0.05	-4.18
6,433.00	0.80	243.10	6,194.67	699.76	1,155.63	1,350.85	0.49	0.37	-39.78
6,613.00	1.40	242.10	6,374.63	698.17	1,152.57	1,347.41	0.33	0.33	-0.56
6,797.00	1.10	112.50	6,558.61	696.44	1,152.21	1,346.19	1.23	-0.16	-70.43
6,977.00	1.10	151.50	6,738.58	694.26	1,154.64	1,347.09	0.41	0.00	21.67
7,160.00	1.30	150.10	6,921.54	690.92	1,156.51	1,346.91	0.11	0.11	-0.77
7,342.00	1.70	164.00	7,103.48	686.53	1,158.28	1,346.09	0.30	0.22	7.64
7,523.00	1.70	149.40	7,284.40	681.64	1,160.39	1,345.28	0.24	0.00	-8.07
7,705.00	1.70	149.20	7,466.32	677.00	1,163.14	1,345.16	0.00	0.00	-0.11
7,887.00	1.60	143.40	7,648.24	672.64	1,166.04	1,345.31	0.11	-0.05	-3.19
8,068.00	1.10	142.70	7,829.19	669.23	1,168.60	1,345.68	0.28	-0.28	-0.39
8,204.00	1.10	130.60	7,965.17	667.34	1,170.38	1,346.19	0.17	0.00	-8.90
8,280.00	1.20	131.70	8,041.15	666.33	1,171.53	1,346.63	0.13	0.13	1.45
8,325.00	1.20	131.70	8,086.14	665.71	1,172.24	1,346.89	0.00	0.00	0.00
Projection to TD-8325.00' MD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,325.00	8,086.14	665.71	1,172.24	Projection to TD-8325.00' MD