

Azimuths to True North
Magnetic North: 8.82°
Magnetic Field
Strength: 52827.0snT
Dip Angle: 66.67°
Date: 03/23/2012
Model: WMM_2010

US State Plane 1983
Colorado Northern Zone

Created By: Megan Pope
Date: 11:15, March 26 2012
Plan: Design #1

SURFACE LOCATION

Northing: 1244793.54
Easting: 3153671.56
Latitude: 40° 0' 14.5412 N
Longitude: 104° 57' 5.176 W
Ground Elevation: 5120.00
WELL @ 5135.00usft (Xtreme 11)

ANNOTATIONS

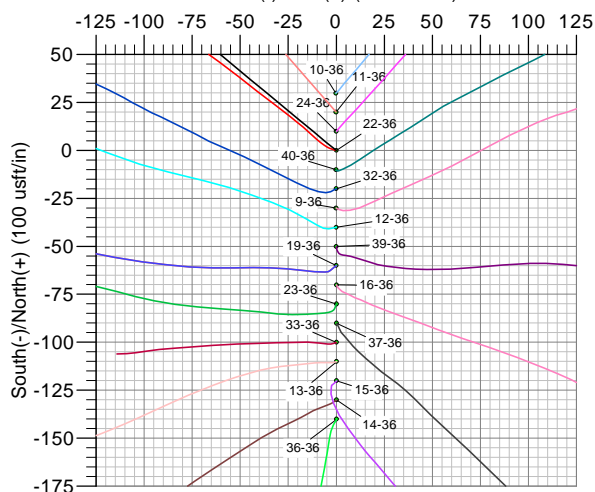
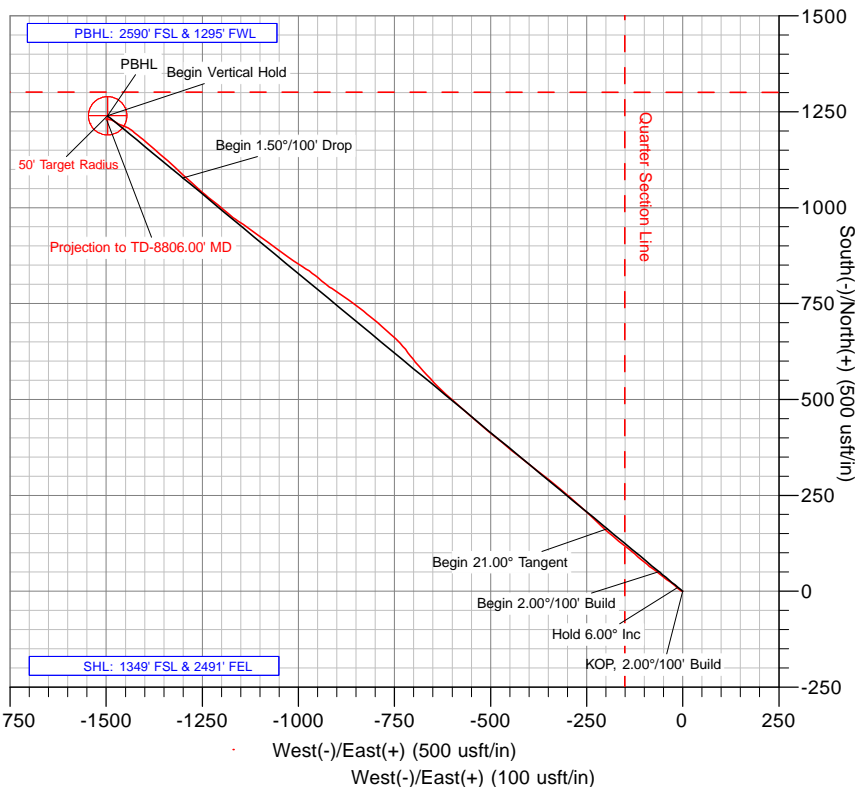
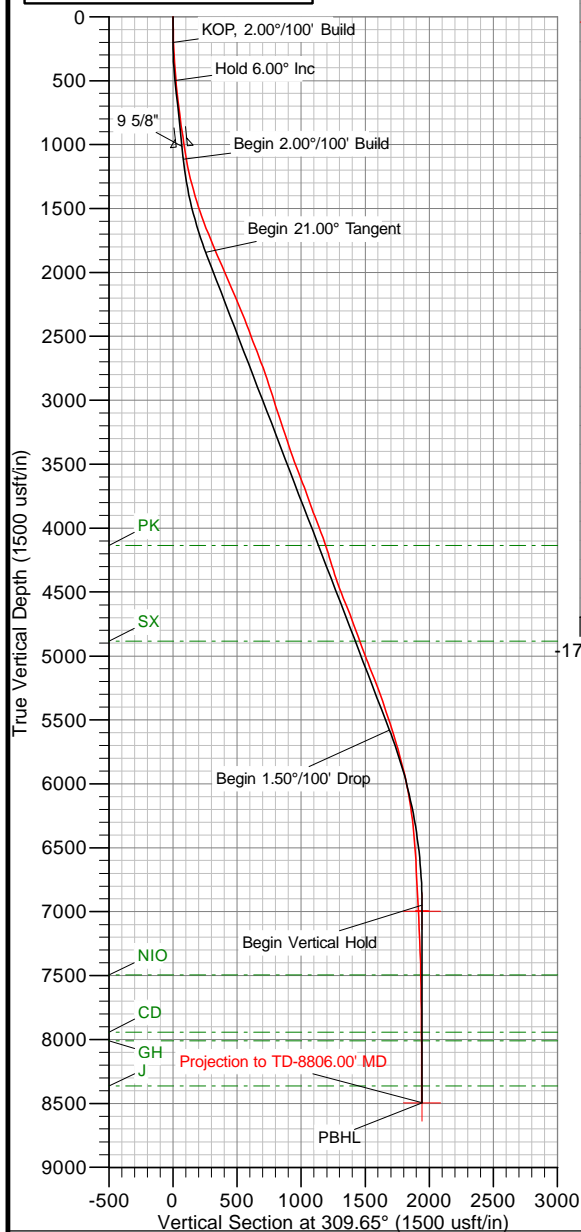
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
500.00	6.00	309.65	499.45	10.01	-12.08	15.69	15.69	Hold 6.00° Inc
1118.94	6.00	309.65	1115.00	51.29	-61.90	80.39	80.39	Begin 2.00°/100' Build
1868.82	21.00	309.65	1842.09	162.66	-196.29	254.93	254.93	Begin 21.00° Tangent
5871.83	21.00	309.65	5579.28	1077.90	-1300.75	1689.33	1689.33	Begin 1.50°/100' Drop
7271.68	0.00	0.00	6948.00	1239.75	-1496.06	1942.98	1942.98	Begin Vertical Hold
8818.68	0.00	0.00	8495.00	1239.75	-1496.06	1942.98	1942.98	PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4135.00	4324.82	PK
4885.00	5128.17	SX
7495.00	7818.68	NIO
7941.00	8264.68	CD
8011.00	8334.68	GH
8362.00	8685.68	J

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Vertical v1-Northglenn State 22-36	6995.00	1239.75	-1496.06	40° 0' 26.7927 N	104° 57' 24.403 W
PBHL v1-Northglenn State 22-36	8495.00	1239.75	-1496.06	40° 0' 26.7927 N	104° 57' 24.403 W



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

22-36

Wellbore #1

Survey: MS MWD

Standard Survey Report

26 March, 2012

Company:	Anadarko	Local Co-ordinate Reference:	Well 22-36
Project:	Weld County, Colorado (NAD83)	TVD Reference:	WELL @ 5135.00usft (Xtreme 11)
Site:	Northglenn State	MD Reference:	WELL @ 5135.00usft (Xtreme 11)
Well:	22-36	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Southern Region

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

Well	22-36					
Well Position	+N/-S	0.00 usft	Northing:	1,244,793.54 usft	Latitude:	40° 0' 14.5412 N
	+E/-W	0.00 usft	Easting:	3,153,671.56 usft	Longitude:	104° 57' 5.176 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,120.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	03/23/12	8.82	66.67	52,827

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		309.65

Survey Program	Date	03/26/12			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	8,806.00	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	
100.00	1.50	290.40	99.99	0.46	-1.23	1.24	1.50	1.50	0.00	
189.00	1.70	287.10	188.95	1.25	-3.58	3.55	0.25	0.22	-3.71	
277.00	2.60	306.80	276.89	2.83	-6.43	6.75	1.31	1.02	22.39	
366.00	3.80	310.60	365.75	5.96	-10.28	11.72	1.37	1.35	4.27	
488.00	5.00	312.60	487.39	12.19	-17.27	21.07	0.99	0.98	1.64	
579.00	6.30	307.60	577.95	17.92	-24.14	30.02	1.53	1.43	-5.49	
669.00	6.70	306.60	667.37	24.06	-32.27	40.20	0.46	0.44	-1.11	
760.00	7.40	308.20	757.68	30.85	-41.14	51.36	0.80	0.77	1.76	
851.00	8.00	307.60	847.86	38.34	-50.76	63.55	0.67	0.66	-0.66	
941.00	8.60	307.10	936.92	46.22	-61.09	76.53	0.67	0.67	-0.56	
1,001.00	9.00	305.70	996.21	51.66	-68.48	85.69	0.76	0.67	-2.33	
1,094.00	9.10	307.10	1,088.05	60.35	-80.25	100.29	0.26	0.11	1.51	
1,185.00	10.50	310.10	1,177.72	70.03	-92.33	115.78	1.64	1.54	3.30	
1,276.00	14.20	309.20	1,266.60	82.43	-107.33	135.23	4.07	4.07	-0.99	

Company:	Anadarko	Local Co-ordinate Reference:	Well 22-36
Project:	Weld County, Colorado (NAD83)	TVD Reference:	WELL @ 5135.00usft (Xtreme 11)
Site:	Northglenn State	MD Reference:	WELL @ 5135.00usft (Xtreme 11)
Well:	22-36	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)	
1,367.00	15.50	311.50	1,354.56	97.54	-125.09	158.55	1.57	1.43	2.53	
1,458.00	17.30	307.30	1,441.86	113.80	-144.96	184.23	2.37	1.98	-4.62	
1,548.00	18.50	309.40	1,527.50	130.97	-166.64	211.88	1.51	1.33	2.33	
1,639.00	20.80	311.50	1,613.20	150.84	-189.90	242.47	2.64	2.53	2.31	
1,730.00	22.20	312.90	1,697.86	173.25	-214.60	275.78	1.64	1.54	1.54	
1,821.00	22.80	313.40	1,781.94	197.07	-240.00	310.54	0.69	0.66	0.55	
1,911.00	23.10	311.90	1,864.81	220.84	-265.81	345.58	0.73	0.33	-1.67	
2,002.00	23.70	311.30	1,948.33	244.84	-292.84	381.70	0.71	0.66	-0.66	
2,093.00	23.30	309.40	2,031.78	268.33	-320.49	417.98	0.94	-0.44	-2.09	
2,183.00	23.40	308.50	2,114.41	290.75	-348.23	453.65	0.41	0.11	-1.00	
2,274.00	23.50	307.80	2,197.89	313.12	-376.70	489.85	0.33	0.11	-0.77	
2,365.00	21.80	307.60	2,281.87	334.55	-404.43	524.87	1.87	-1.87	-0.22	
2,456.00	21.90	309.20	2,366.34	355.59	-430.97	558.73	0.66	0.11	1.76	
2,546.00	20.20	311.20	2,450.33	376.44	-455.67	591.05	2.05	-1.89	2.22	
2,637.00	20.70	308.20	2,535.60	396.73	-480.13	622.83	1.28	0.55	-3.30	
2,728.00	20.90	309.20	2,620.67	416.94	-505.35	655.14	0.45	0.22	1.10	
2,818.00	21.00	311.30	2,704.72	437.73	-529.90	687.31	0.84	0.11	2.33	
2,909.00	19.30	311.70	2,790.14	458.49	-553.38	718.64	1.87	-1.87	0.44	
3,000.00	18.30	310.80	2,876.29	477.83	-575.43	747.96	1.14	-1.10	-0.99	
3,091.00	17.90	312.20	2,962.79	496.56	-596.60	776.21	0.65	-0.44	1.54	
3,181.00	17.40	312.20	3,048.55	514.89	-616.82	803.47	0.56	-0.56	0.00	
3,272.00	18.10	314.30	3,135.22	533.91	-637.01	831.16	1.04	0.77	2.31	
3,363.00	17.60	318.50	3,221.84	554.08	-656.25	858.84	1.52	-0.55	4.62	
3,454.00	19.50	316.60	3,308.11	575.42	-675.80	887.51	2.19	2.09	-2.09	
3,545.00	18.90	320.80	3,394.05	597.88	-695.55	917.05	1.65	-0.66	4.62	
3,636.00	20.80	323.10	3,479.64	622.23	-714.57	947.23	2.26	2.09	2.53	
3,726.00	21.20	316.60	3,563.67	646.83	-735.35	978.93	2.62	0.44	-7.22	
3,817.00	21.40	311.30	3,648.47	669.75	-759.13	1,011.86	2.13	0.22	-5.82	
3,908.00	19.20	312.70	3,733.81	690.86	-782.60	1,043.40	2.48	-2.42	1.54	
3,999.00	19.40	307.80	3,819.70	710.27	-805.54	1,073.45	1.79	0.22	-5.38	
4,090.00	21.50	310.10	3,904.96	730.27	-830.24	1,105.24	2.47	2.31	2.53	
4,181.00	21.10	306.10	3,989.75	750.67	-856.24	1,138.26	1.66	-0.44	-4.40	
4,272.00	19.50	303.40	4,075.10	768.68	-882.15	1,169.71	2.04	-1.76	-2.97	
4,362.00	19.10	304.00	4,160.04	785.18	-906.90	1,199.30	0.50	-0.44	0.67	
4,453.00	16.10	307.50	4,246.77	801.19	-929.26	1,226.73	3.49	-3.30	3.85	
4,544.00	17.30	311.20	4,333.94	817.79	-949.45	1,252.87	1.76	1.32	4.07	
4,635.00	19.20	304.30	4,420.36	835.14	-972.00	1,281.30	3.16	2.09	-7.58	
4,725.00	21.50	302.40	4,504.74	852.32	-998.15	1,312.40	2.66	2.56	-2.11	
4,816.00	22.60	305.40	4,589.09	871.38	-1,026.49	1,346.38	1.73	1.21	3.30	
4,907.00	21.20	306.40	4,673.52	891.28	-1,053.99	1,380.24	1.59	-1.54	1.10	
4,998.00	20.10	306.60	4,758.67	910.36	-1,079.78	1,412.29	1.21	-1.21	0.22	
5,089.00	20.80	305.70	4,843.94	929.12	-1,105.46	1,444.02	0.84	0.77	-0.99	
5,179.00	19.90	306.80	4,928.32	947.62	-1,130.70	1,475.26	1.09	-1.00	1.22	
5,270.00	20.00	302.60	5,013.86	965.28	-1,156.21	1,506.18	1.58	0.11	-4.62	

Company:	Anadarko	Local Co-ordinate Reference:	Well 22-36
Project:	Weld County, Colorado (NAD83)	TVD Reference:	WELL @ 5135.00usft (Xtreme 11)
Site:	Northglenn State	MD Reference:	WELL @ 5135.00usft (Xtreme 11)
Well:	22-36	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)	
5,361.00	22.10	310.80	5,098.80	984.86	-1,182.29	1,538.75	3.97	2.31	9.01	
5,452.00	21.40	308.50	5,183.33	1,006.38	-1,208.24	1,572.46	1.21	-0.77	-2.53	
5,543.00	20.70	309.60	5,268.25	1,026.96	-1,233.63	1,605.14	0.88	-0.77	1.21	
5,633.00	18.60	311.50	5,353.01	1,046.62	-1,256.64	1,635.40	2.44	-2.33	2.11	
5,724.00	18.60	312.00	5,439.25	1,065.94	-1,278.29	1,664.40	0.18	0.00	0.55	
5,815.00	17.90	312.60	5,525.68	1,085.12	-1,299.37	1,692.87	0.80	-0.77	0.66	
5,906.00	17.30	314.20	5,612.42	1,104.02	-1,319.37	1,720.32	0.85	-0.66	1.76	
5,996.00	17.20	310.60	5,698.37	1,122.01	-1,339.06	1,746.97	1.19	-0.11	-4.00	
6,087.00	14.90	311.20	5,785.82	1,138.47	-1,358.08	1,772.12	2.53	-2.53	0.66	
6,178.00	14.00	310.60	5,873.94	1,153.34	-1,375.25	1,794.82	1.00	-0.99	-0.66	
6,268.00	12.30	310.50	5,961.58	1,166.65	-1,390.80	1,815.30	1.89	-1.89	-0.11	
6,359.00	10.40	308.70	6,050.79	1,178.09	-1,404.58	1,833.20	2.12	-2.09	-1.98	
6,450.00	9.10	310.10	6,140.48	1,187.86	-1,416.50	1,848.61	1.45	-1.43	1.54	
6,541.00	7.50	309.20	6,230.52	1,196.25	-1,426.61	1,861.75	1.76	-1.76	-0.99	
6,631.00	6.00	307.60	6,319.89	1,202.83	-1,434.89	1,872.32	1.68	-1.67	-1.78	
6,721.00	5.20	296.60	6,409.47	1,207.53	-1,442.26	1,881.00	1.48	-0.89	-12.22	
6,813.00	4.40	294.30	6,501.14	1,210.84	-1,449.20	1,888.46	0.89	-0.87	-2.50	
6,904.00	3.70	292.90	6,591.92	1,213.42	-1,455.09	1,894.64	0.78	-0.77	-1.54	
6,994.00	2.90	290.60	6,681.77	1,215.35	-1,459.90	1,899.57	0.90	-0.89	-2.56	
7,085.00	2.60	280.40	6,772.66	1,216.54	-1,464.08	1,903.55	0.63	-0.33	-11.21	
7,176.00	3.20	300.80	6,863.55	1,218.21	-1,468.29	1,907.86	1.30	0.66	22.42	
7,267.00	2.60	299.00	6,954.43	1,220.51	-1,472.28	1,912.40	0.67	-0.66	-1.98	
7,357.00	3.20	306.80	7,044.31	1,223.01	-1,476.08	1,916.91	0.80	0.67	8.67	
7,448.00	2.80	304.10	7,135.19	1,225.77	-1,479.95	1,921.66	0.47	-0.44	-2.97	
7,539.00	2.50	294.80	7,226.09	1,227.85	-1,483.59	1,925.79	0.58	-0.33	-10.22	
7,629.00	2.00	285.70	7,316.02	1,229.10	-1,486.89	1,929.12	0.68	-0.56	-10.11	
7,720.00	1.70	278.80	7,406.98	1,229.74	-1,489.75	1,931.73	0.41	-0.33	-7.58	
7,811.00	1.00	288.00	7,497.95	1,230.19	-1,491.84	1,933.63	0.80	-0.77	10.11	
7,902.00	1.30	275.70	7,588.93	1,230.54	-1,493.62	1,935.22	0.43	0.33	-13.52	
7,993.00	1.00	276.20	7,679.91	1,230.73	-1,495.44	1,936.74	0.33	-0.33	0.55	
8,083.00	0.70	265.50	7,769.90	1,230.77	-1,496.77	1,937.79	0.38	-0.33	-11.89	
8,174.00	0.40	252.10	7,860.90	1,230.63	-1,497.62	1,938.36	0.36	-0.33	-14.73	
8,265.00	0.40	269.20	7,951.90	1,230.52	-1,498.24	1,938.77	0.13	0.00	18.79	
8,356.00	0.40	264.10	8,042.89	1,230.49	-1,498.88	1,939.24	0.04	0.00	-5.60	
8,447.00	0.40	253.00	8,133.89	1,230.36	-1,499.50	1,939.64	0.09	0.00	-12.20	
8,537.00	0.30	292.50	8,223.89	1,230.36	-1,500.01	1,940.03	0.28	-0.11	43.89	
8,628.00	0.10	135.70	8,314.89	1,230.39	-1,500.18	1,940.18	0.43	-0.22	-172.31	
8,719.00	0.40	75.60	8,405.89	1,230.42	-1,499.82	1,939.92	0.40	0.33	-66.04	
8,746.00	0.50	63.50	8,432.89	1,230.49	-1,499.62	1,939.81	0.51	0.37	-44.81	
8,806.00	0.50	63.50	8,492.89	1,230.73	-1,499.15	1,939.60	0.00	0.00	0.00	
Projection to TD-8806.00' MD										

Company:	Anadarko	Local Co-ordinate Reference:	Well 22-36
Project:	Weld County, Colorado (NAD83)	TVD Reference:	WELL @ 5135.00usft (Xtreme 11)
Site:	Northglenn State	MD Reference:	WELL @ 5135.00usft (Xtreme 11)
Well:	22-36	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Southern Region

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,806.00	8,492.89	1,230.73	-1,499.15	Projection to TD-8806.00' MD