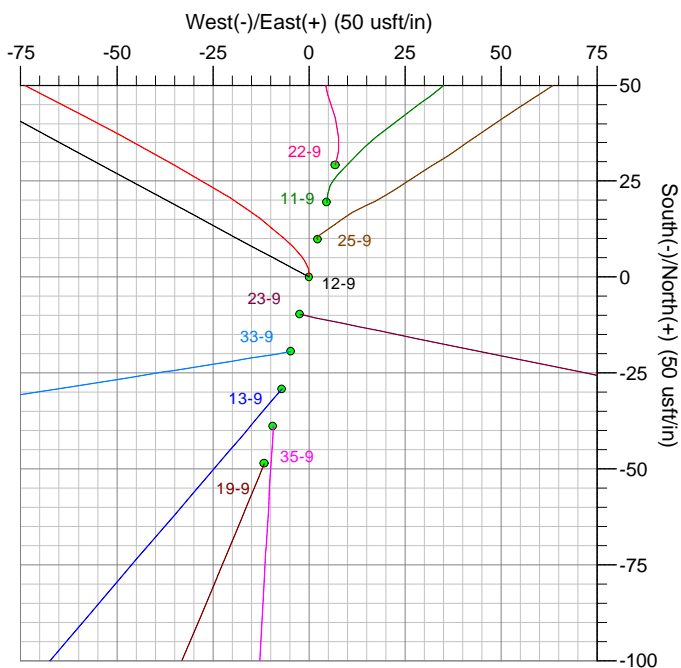
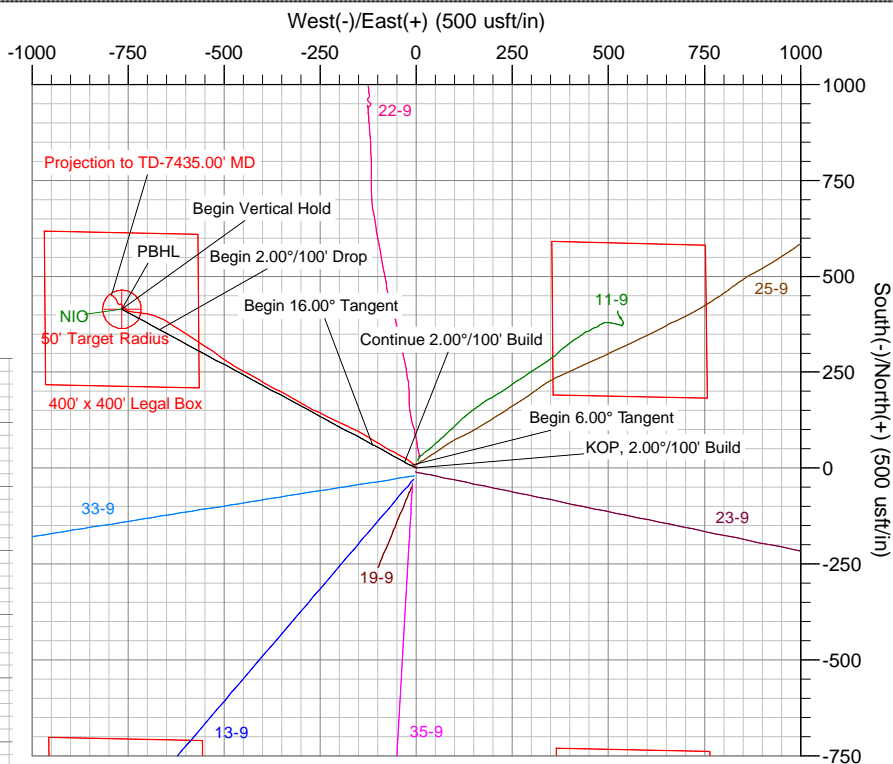
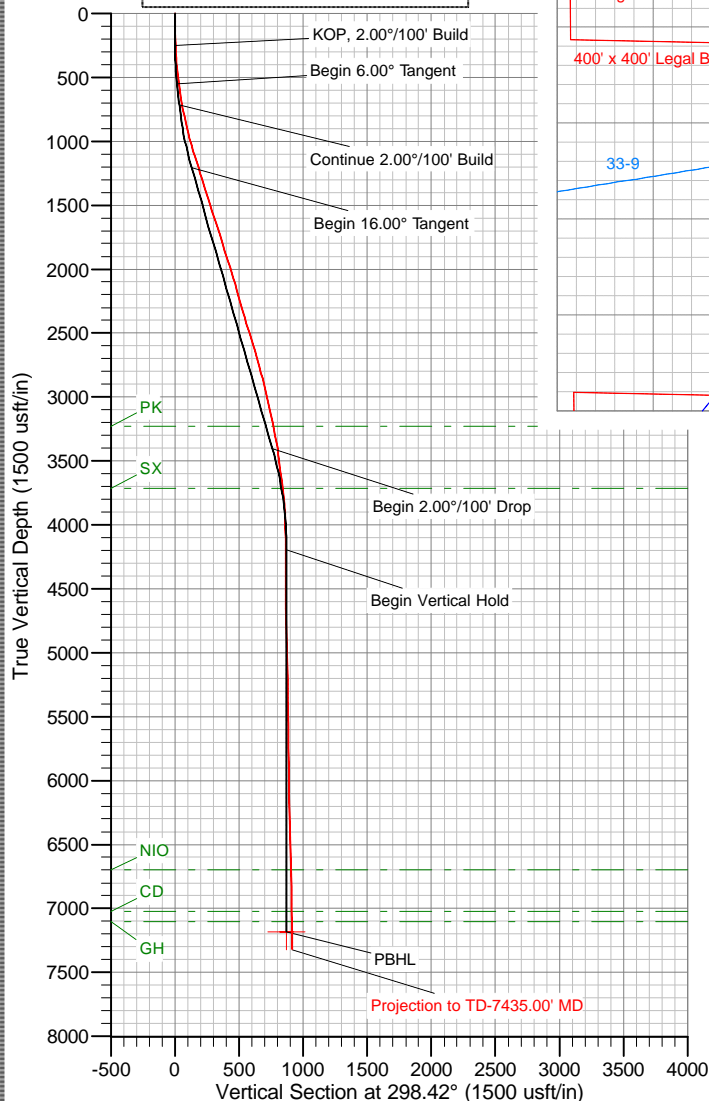
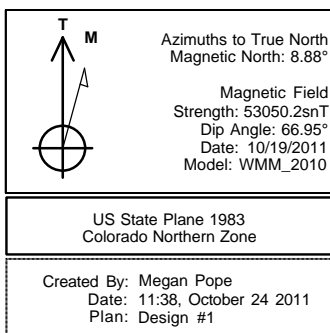


ANNOTATIONS

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	298.42	549.45	7.47	-13.80	15.69	15.69	Begin 6.00° Tangent
716.46	6.00	298.42	715.00	15.75	-29.10	33.09	33.09	Continue 2.00°/100' Build
1216.52	16.00	298.42	1205.24	61.11	-112.92	128.39	128.39	Begin 16.00° Tangent
3505.25	16.00	298.42	3405.30	361.41	-667.77	759.29	759.29	Begin 2.00°/100' Drop
4305.30	0.00	0.00	4195.00	414.24	-765.38	870.29	870.29	Begin Vertical Hold
7291.30	0.00	0.00	7181.00	414.24	-765.38	870.29	870.29	PBHL



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)**

**Johnstown Farms**

**12-9**

**Wellbore #1**

**Survey: MS MWD**

## **Standard Survey Report**

**24 October, 2011**

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 12-9
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 4795.00usft (Xtreme 11)
<b>Site:</b>	Johnstown Farms	<b>MD Reference:</b>	WELL @ 4795.00usft (Xtreme 11)
<b>Well:</b>	12-9	<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		

<b>Well</b>	12-9				
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,361,577.64 usft	<b>Latitude:</b> 40° 19' 27.7773 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	3,167,031.78 usft	<b>Longitude:</b> 104° 54' 3.351 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b> 4,780.00 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	10/19/11	8.88	66.95	53,050

<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		298.42

<b>Survey Program</b>	<b>Date</b>	10/24/11			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
73.00	7,435.00	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	
73.00	1.00	359.00	73.00	0.64	-0.01	0.31	1.37	1.37	0.00	
162.00	1.10	350.80	161.98	2.26	-0.16	1.22	0.20	0.11	-9.21	
251.00	1.90	327.40	250.95	4.34	-1.09	3.03	1.11	0.90	-26.29	
343.00	4.00	314.90	342.82	7.89	-4.19	7.44	2.37	2.28	-13.59	
466.00	6.40	308.10	465.31	15.15	-12.62	18.31	2.01	1.95	-5.53	
585.00	8.50	300.30	583.30	23.68	-25.44	33.64	1.95	1.76	-6.55	
662.00	8.80	299.40	659.43	29.45	-35.48	45.22	0.43	0.39	-1.17	
754.00	11.00	298.70	750.05	37.12	-49.31	61.04	2.39	2.39	-0.76	
862.00	12.80	296.50	855.73	47.40	-69.06	83.30	1.72	1.67	-2.04	
952.00	14.20	302.30	943.24	57.75	-87.31	104.28	2.16	1.56	6.44	
1,043.00	16.30	301.00	1,031.03	70.29	-107.70	128.17	2.34	2.31	-1.43	
1,134.00	17.30	300.00	1,118.15	83.64	-130.36	154.46	1.14	1.10	-1.10	
1,225.00	16.80	298.20	1,205.15	96.62	-153.67	181.13	0.80	-0.55	-1.98	
1,315.00	18.10	296.60	1,291.01	109.02	-177.63	208.11	1.54	1.44	-1.78	

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 12-9
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 4795.00usft (Xtreme 11)
<b>Site:</b>	Johnstown Farms	<b>MD Reference:</b>	WELL @ 4795.00usft (Xtreme 11)
<b>Well:</b>	12-9	<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)	
1,406.00	17.90	294.30	1,377.55	121.11	-203.02	236.19	0.81	-0.22	-2.53	
1,497.00	18.00	296.50	1,464.12	133.14	-228.35	264.19	0.75	0.11	2.42	
1,588.00	17.50	294.90	1,550.79	145.17	-253.34	291.90	0.77	-0.55	-1.76	
1,679.00	17.90	299.40	1,637.49	157.80	-277.94	319.54	1.57	0.44	4.95	
1,770.00	16.90	298.60	1,724.32	171.00	-301.74	346.75	1.13	-1.10	-0.88	
1,860.00	16.70	301.20	1,810.48	183.96	-324.28	372.75	0.86	-0.22	2.89	
1,951.00	18.20	297.50	1,897.30	197.29	-348.07	400.02	2.05	1.65	-4.07	
2,042.00	16.90	296.80	1,984.06	209.82	-372.49	427.45	1.45	-1.43	-0.77	
2,133.00	17.10	301.70	2,071.09	222.81	-395.68	454.03	1.59	0.22	5.38	
2,223.00	16.10	299.10	2,157.34	235.84	-417.84	479.72	1.38	-1.11	-2.89	
2,314.00	15.50	298.20	2,244.90	247.72	-439.58	504.50	0.71	-0.66	-0.99	
2,405.00	16.00	299.40	2,332.48	259.62	-461.22	529.20	0.66	0.55	1.32	
2,496.00	17.10	303.80	2,419.71	273.22	-483.27	555.06	1.83	1.21	4.84	
2,587.00	17.60	304.50	2,506.57	288.46	-505.72	582.06	0.60	0.55	0.77	
2,677.00	17.00	304.00	2,592.50	303.52	-527.85	608.69	0.69	-0.67	-0.56	
2,768.00	15.90	304.20	2,679.77	317.97	-549.18	634.33	1.21	-1.21	0.22	
2,859.00	15.20	303.80	2,767.44	331.61	-569.41	658.61	0.78	-0.77	-0.44	
2,950.00	14.20	303.00	2,855.46	344.33	-588.68	681.61	1.12	-1.10	-0.88	
3,041.00	13.90	303.10	2,943.74	356.37	-607.20	703.63	0.33	-0.33	0.11	
3,132.00	13.10	303.00	3,032.23	367.96	-625.01	724.81	0.88	-0.88	-0.11	
3,223.00	12.00	300.70	3,121.05	378.41	-641.79	744.54	1.33	-1.21	-2.53	
3,314.00	11.60	294.90	3,210.13	387.09	-658.22	763.12	1.37	-0.44	-6.37	
3,404.00	10.70	293.80	3,298.43	394.27	-674.08	780.48	1.03	-1.00	-1.22	
3,495.00	9.50	288.20	3,388.02	400.02	-688.94	796.29	1.70	-1.32	-6.15	
3,586.00	8.10	275.70	3,477.96	403.01	-702.45	809.60	2.60	-1.54	-13.74	
3,677.00	8.20	275.40	3,568.04	404.26	-715.29	821.49	0.12	0.11	-0.33	
3,768.00	7.60	278.20	3,658.17	405.72	-727.71	833.11	0.78	-0.66	3.08	
3,859.00	6.40	283.80	3,748.49	407.79	-738.59	843.66	1.52	-1.32	6.15	
3,949.00	4.70	281.90	3,838.07	409.75	-747.07	852.05	1.90	-1.89	-2.11	
4,040.00	2.30	297.20	3,928.89	411.35	-752.35	857.45	2.81	-2.64	16.81	
4,131.00	0.80	339.30	4,019.86	412.78	-754.20	859.76	1.97	-1.65	46.26	
4,222.00	0.80	338.50	4,110.85	413.97	-754.65	860.72	0.01	0.00	-0.88	
4,403.00	1.10	323.50	4,291.83	416.54	-756.15	863.26	0.21	0.17	-8.29	
4,585.00	0.60	189.60	4,473.82	417.00	-757.35	864.54	0.87	-0.27	-73.57	
4,767.00	0.50	274.80	4,655.81	416.13	-758.30	864.96	0.41	-0.05	46.81	
4,948.00	1.10	320.70	4,836.79	417.54	-760.19	867.29	0.46	0.33	25.36	
5,129.00	1.70	322.80	5,017.74	421.02	-762.91	871.34	0.33	0.33	1.16	
5,311.00	1.90	322.30	5,199.65	425.56	-766.39	876.56	0.11	0.11	-0.27	
5,492.00	1.00	253.90	5,380.60	427.50	-769.74	880.43	0.99	-0.50	-37.79	
5,674.00	0.60	254.30	5,562.58	426.80	-772.18	882.25	0.22	-0.22	0.22	
5,855.00	0.80	316.80	5,743.57	427.46	-773.96	884.13	0.41	0.11	34.53	
6,037.00	1.10	327.40	5,925.55	429.86	-775.77	886.86	0.19	0.16	5.82	
6,219.00	1.40	334.40	6,107.50	433.34	-777.67	890.19	0.18	0.16	3.85	
6,400.00	1.80	333.20	6,288.43	437.87	-779.91	894.31	0.22	0.22	-0.66	

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 12-9
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 4795.00usft (Xtreme 11)
<b>Site:</b>	Johnstown Farms	<b>MD Reference:</b>	WELL @ 4795.00usft (Xtreme 11)
<b>Well:</b>	12-9	<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)	
6,582.00	1.80	326.50	6,470.34	442.81	-782.78	899.18	0.12	0.00	-3.68	
6,763.00	1.50	316.70	6,651.27	446.90	-785.97	903.94	0.23	-0.17	-5.41	
6,945.00	1.20	290.70	6,833.22	449.31	-789.39	908.09	0.37	-0.16	-14.29	
7,127.00	0.40	242.80	7,015.20	449.69	-791.73	910.34	0.54	-0.44	-26.32	
7,308.00	0.60	330.20	7,196.20	450.22	-792.77	911.50	0.39	0.11	48.29	
7,390.00	0.80	335.70	7,278.19	451.12	-793.22	912.32	0.26	0.24	6.71	
7,435.00	0.80	335.70	7,323.19	451.69	-793.47	912.82	0.00	0.00	0.00	
Projection to TD-7435.00' MD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
7,435.00	7,323.19	451.69	-793.47	Projection to TD-7435.00' MD	