



Company: Anadarko  
Site: Northglenn State  
Well: 13-36

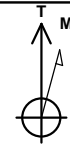
Project: Weld County, Colorado (NAD83)  
Rig Name: Xtreme 11



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
987.00	9.90	244.60	981.22	-22.49	-88.28	90.93	0.00	Last Survey - 987.00' MD
1087.00	9.90	244.60	1079.73	-29.86	-103.81	107.97	17.19	Begin 3.00°/100' Build & Turn
1645.31	26.51	252.33	1608.30	-88.69	-267.05	281.38	190.82	Hold 26.51° Inc, 252.33° Azm
5935.63	26.51	252.33	5447.52	-669.89	-2091.74	2196.38	2105.82	Begin 3.00°/100' Drop
6819.30	0.00	0.00	6300.00	-730.83	-2283.07	2397.19	2306.64	Begin Vertical Hold
9012.30	0.00	0.00	8493.00	-730.83	-2283.07	2397.19	2306.64	PBHL



Azimuths to True North  
Magnetic North: 8.84°

Magnetic Field  
Strength: 52843.5nT  
Dip Angle: 66.67°  
Date: 01/26/2012  
Model: WMM\_2010

US State Plane 1983  
Colorado Northern Zone

Created By: Megan Pope  
Date: 11:07, January 31 2012  
Plan: Design #2

#### SURFACE LOCATION

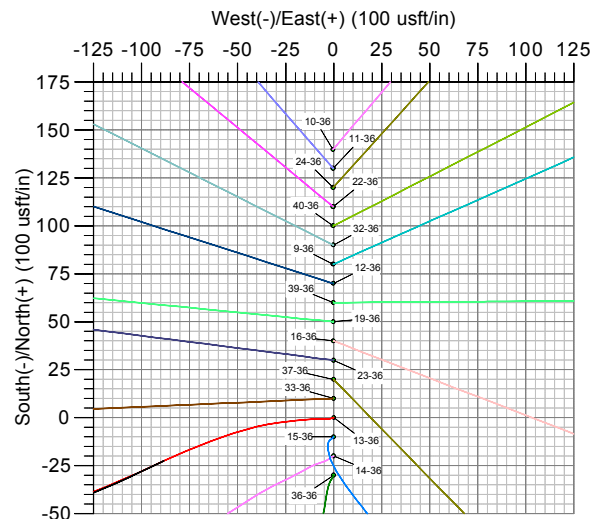
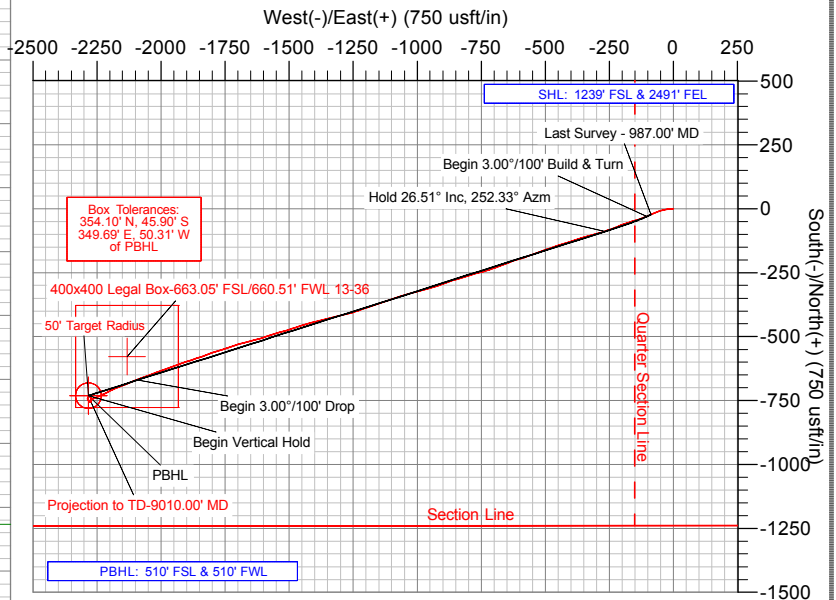
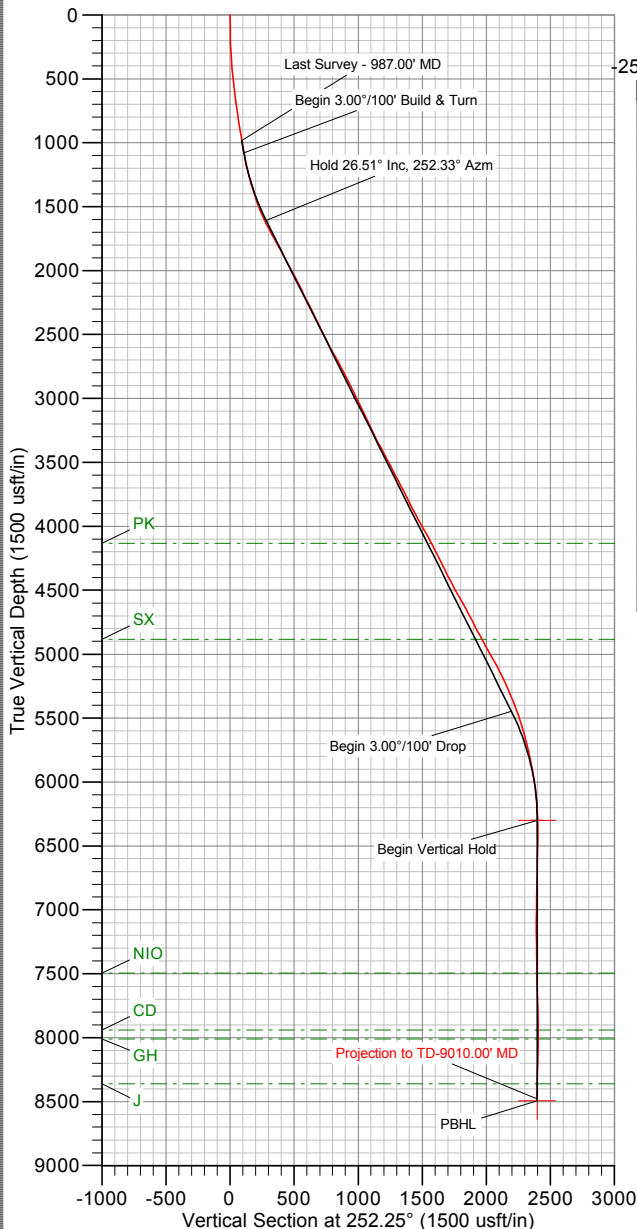
Northing: 1244683.51  
Easting: 3153672.48  
Latitude: 40° 0' 13.4537 N  
Longitude: 104° 57' 5.173 W  
Ground Elevation: 5118.00  
WELL @ 5133.00usft (Xtreme 11)

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Vertical v2-Northglenn State 13-36	6300.00	-730.83	-2283.07	1243938.57	3151393.97	40° 0' 6.2301 N 104° 57' 34.512 W	
PBHL v1-Northglenn State 13-36	8493.00	-730.83	-2283.07	1243938.57	3151393.97	40° 0' 6.2301 N 104° 57' 34.512 W	

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4133.00	4466.66	PK
4883.00	5304.78	SX
7493.00	8012.30	NIO
7939.00	8458.30	CD
8009.00	8528.30	GH
8360.00	8879.30	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**

**13-36**

**Wellbore #1**

**Survey: MS MWD**

## **Standard Survey Report**

**31 January, 2012**

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 13-36
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5133.00usft (Xtreme 11)
<b>Site:</b>	Northglenn State	<b>MD Reference:</b>	WELL @ 5133.00usft (Xtreme 11)
<b>Well:</b>	13-36	<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>Site</b>	Northglenn State				
<b>Site Position:</b>		<b>Northing:</b>	0.00 usft	<b>Latitude:</b>	36° 7' 5.9694 N
<b>From:</b>	Map	<b>Easting:</b>	0.00 usft	<b>Longitude:</b>	115° 39' 12.952 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-6.56 °

Well	13-36					
Well Position	+N/-S	0.00 usft	Northing:	1,244,683.51 usft	Latitude:	40° 0' 13.4537 N
	+E/-W	0.00 usft	Easting:	3,153,672.48 usft	Longitude:	104° 57' 5.173 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,118.00 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	01/26/12	8.84	66.67	52,843

<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	252.25	

<b>Survey Program</b>	<b>Date</b>	01/31/12			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
192.00	9,010.00	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
192.00	1.30	254.80	191.98	-0.57	-2.10	2.18	0.68	0.68	0.00
280.00	3.20	273.90	279.91	-0.67	-5.52	5.46	2.29	2.16	21.70
371.00	4.20	265.30	370.72	-0.77	-11.37	11.06	1.25	1.10	-9.45
462.00	5.80	264.30	461.37	-1.50	-19.27	18.81	1.76	1.76	-1.10
552.00	6.50	263.00	550.85	-2.57	-28.85	28.26	0.79	0.78	-1.44
643.00	7.70	257.60	641.16	-4.51	-39.92	39.39	1.51	1.32	-5.93
734.00	7.70	250.90	731.34	-7.81	-51.63	51.55	0.99	0.00	-7.36
825.00	8.80	249.50	821.39	-12.24	-63.91	64.60	1.23	1.21	-1.54
915.00	9.50	247.20	910.25	-17.53	-77.21	78.88	0.88	0.78	-2.56
987.00	9.90	244.60	981.22	-22.49	-88.28	90.93	0.82	0.56	-3.61
1,074.00	10.40	245.60	1,066.86	-28.94	-102.18	106.14	0.61	0.57	1.15
1,165.00	11.80	247.40	1,156.15	-35.91	-118.26	123.57	1.58	1.54	1.98
1,256.00	14.20	254.20	1,244.82	-42.53	-137.59	144.00	3.12	2.64	7.47
1,347.00	16.90	253.50	1,332.48	-49.32	-161.02	168.39	2.97	2.97	-0.77

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 13-36
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>TVD Reference:</b>	WELL @ 5133.00usft (Xtreme 11)
<b>Site:</b>	Northglenn State	<b>MD Reference:</b>	WELL @ 5133.00usft (Xtreme 11)
<b>Well:</b>	13-36	<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)
1,438.00	17.90	250.20	1,419.32	-57.82	-186.86	195.59	1.54	1.10	-3.63
1,529.00	21.00	248.40	1,505.12	-68.56	-215.18	225.84	3.47	3.41	-1.98
1,620.00	24.60	249.10	1,588.99	-81.32	-248.05	261.03	3.97	3.96	0.77
1,711.00	27.70	254.10	1,670.68	-93.88	-286.10	301.10	4.18	3.41	5.49
1,802.00	29.20	254.80	1,750.69	-105.49	-327.86	344.42	1.69	1.65	0.77
1,893.00	28.50	251.80	1,830.39	-118.10	-369.91	388.31	1.77	-0.77	-3.30
1,984.00	28.10	253.40	1,910.52	-131.00	-411.07	431.44	0.94	-0.44	1.76
2,075.00	29.10	251.80	1,990.42	-144.03	-452.64	475.00	1.38	1.10	-1.76
2,165.00	26.60	250.00	2,069.99	-157.76	-492.37	517.02	2.93	-2.78	-2.00
2,256.00	26.00	250.00	2,151.57	-171.55	-530.25	557.31	0.66	-0.66	0.00
2,347.00	27.10	250.20	2,232.97	-185.40	-568.50	597.96	1.21	1.21	0.22
2,438.00	26.50	253.50	2,314.20	-198.18	-607.47	638.97	1.76	-0.66	3.63
2,528.00	26.00	249.30	2,394.92	-210.86	-645.18	678.75	2.14	-0.56	-4.67
2,619.00	25.40	247.70	2,476.92	-225.32	-681.90	718.13	1.01	-0.66	-1.76
2,710.00	27.10	253.00	2,558.55	-238.79	-719.78	758.32	3.18	1.87	5.82
2,801.00	30.20	254.80	2,638.40	-250.85	-761.70	801.92	3.54	3.41	1.98
2,892.00	27.80	253.00	2,717.98	-263.06	-804.09	846.01	2.81	-2.64	-1.98
2,982.00	26.70	253.40	2,797.99	-274.97	-843.54	887.21	1.24	-1.22	0.44
3,073.00	26.90	250.70	2,879.22	-287.62	-882.56	928.23	1.36	0.22	-2.97
3,164.00	26.50	250.40	2,960.52	-301.23	-921.11	969.10	0.46	-0.44	-0.33
3,255.00	25.10	253.90	3,042.45	-313.39	-958.79	1,008.69	2.27	-1.54	3.85
3,346.00	25.70	257.40	3,124.66	-323.05	-996.59	1,047.64	1.78	0.66	3.85
3,436.00	26.00	253.20	3,205.66	-333.01	-1,034.52	1,086.80	2.06	0.33	-4.67
3,527.00	25.40	251.60	3,287.66	-344.94	-1,072.14	1,126.26	1.01	-0.66	-1.76
3,618.00	28.70	251.80	3,368.69	-357.93	-1,111.42	1,167.63	3.63	3.63	0.22
3,709.00	27.70	251.90	3,448.89	-371.32	-1,152.29	1,210.64	1.10	-1.10	0.11
3,800.00	28.00	251.10	3,529.35	-384.81	-1,192.60	1,253.14	0.53	0.33	-0.88
3,890.00	26.20	249.70	3,609.47	-398.55	-1,231.22	1,294.12	2.12	-2.00	-1.56
3,981.00	28.60	255.50	3,690.27	-410.98	-1,271.16	1,335.94	3.94	2.64	6.37
4,072.00	26.70	255.80	3,770.87	-421.44	-1,312.07	1,378.10	2.09	-2.09	0.33
4,163.00	26.70	256.70	3,852.17	-431.16	-1,351.79	1,418.89	0.44	0.00	0.99
4,254.00	28.60	256.70	3,932.77	-440.88	-1,392.89	1,460.99	2.09	2.09	0.00
4,345.00	29.30	254.10	4,012.40	-451.99	-1,435.50	1,504.96	1.58	0.77	-2.86
4,435.00	28.80	250.40	4,091.09	-465.30	-1,477.11	1,548.64	2.07	-0.56	-4.11
4,526.00	27.20	254.90	4,171.44	-478.07	-1,517.84	1,591.33	2.91	-1.76	4.95
4,617.00	26.80	252.80	4,252.52	-489.55	-1,557.52	1,632.62	1.14	-0.44	-2.31
4,708.00	25.70	250.70	4,334.14	-502.14	-1,595.74	1,672.86	1.58	-1.21	-2.31
4,799.00	27.60	256.20	4,415.48	-513.70	-1,634.85	1,713.63	3.42	2.09	6.04
4,889.00	29.20	255.50	4,494.65	-524.17	-1,676.35	1,756.35	1.82	1.78	-0.78
4,980.00	28.90	252.30	4,574.20	-536.41	-1,718.79	1,800.50	1.74	-0.33	-3.52
5,071.00	28.70	251.40	4,653.95	-550.06	-1,760.45	1,844.34	0.52	-0.22	-0.99
5,162.00	27.30	251.10	4,734.29	-563.79	-1,800.90	1,887.05	1.55	-1.54	-0.33
5,253.00	27.50	250.20	4,815.09	-577.67	-1,840.41	1,928.91	0.51	0.22	-0.99
5,344.00	28.70	252.30	4,895.36	-591.43	-1,881.00	1,971.76	1.71	1.32	2.31

<b>Company:</b>	Anadarko	<b>Local Co-ordinate Reference:</b>	Well 13-36
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<b>Site:</b>	Northglenn State	<b>MD Reference:</b>	WELL @ 5133.00usft (Xtreme 11)
<b>Well:</b>	13-36	<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)	
5,434.00	29.80	250.70	4,973.89	-605.39	-1,922.70	2,015.73	1.50	1.22	-1.78	
5,525.00	29.50	249.00	5,052.97	-620.90	-1,964.96	2,060.71	0.98	-0.33	-1.87	
5,616.00	26.60	250.40	5,133.27	-635.76	-2,005.07	2,103.45	3.27	-3.19	1.54	
5,707.00	24.40	249.30	5,215.41	-649.24	-2,041.85	2,142.59	2.47	-2.42	-1.21	
5,798.00	23.30	249.30	5,298.63	-662.25	-2,076.27	2,179.33	1.21	-1.21	0.00	
5,889.00	21.50	248.30	5,382.76	-674.78	-2,108.61	2,213.94	2.02	-1.98	-1.10	
5,980.00	20.00	247.60	5,467.86	-686.88	-2,138.49	2,246.09	1.67	-1.65	-0.77	
6,070.00	17.00	249.00	5,553.20	-697.46	-2,165.01	2,274.58	3.37	-3.33	1.56	
6,162.00	14.90	246.30	5,641.65	-707.03	-2,188.40	2,299.77	2.42	-2.28	-2.93	
6,252.00	14.10	241.60	5,728.79	-716.90	-2,208.64	2,322.05	1.58	-0.89	-5.22	
6,343.00	11.50	244.20	5,817.52	-726.12	-2,226.56	2,341.93	2.93	-2.86	2.86	
6,434.00	11.00	244.20	5,906.77	-733.85	-2,242.54	2,359.51	0.55	-0.55	0.00	
6,525.00	8.40	248.40	5,996.46	-740.07	-2,256.54	2,374.74	2.96	-2.86	4.62	
6,616.00	7.00	245.10	6,086.64	-744.86	-2,267.75	2,386.88	1.61	-1.54	-3.63	
6,707.00	3.20	237.90	6,177.27	-748.54	-2,274.93	2,394.84	4.23	-4.18	-7.91	
6,797.00	2.80	237.50	6,267.14	-751.06	-2,278.92	2,399.40	0.45	-0.44	-0.44	
6,888.00	2.70	201.80	6,358.04	-754.24	-2,281.59	2,402.92	1.85	-0.11	-39.23	
6,979.00	1.80	98.10	6,449.00	-756.43	-2,280.97	2,402.99	3.94	-0.99	-113.96	
7,070.00	1.80	54.90	6,539.96	-755.81	-2,278.38	2,400.34	1.46	0.00	-47.47	
7,161.00	1.20	68.10	6,630.93	-754.64	-2,276.33	2,398.03	0.76	-0.66	14.51	
7,251.00	0.90	83.40	6,720.91	-754.20	-2,274.75	2,396.40	0.45	-0.33	17.00	
7,342.00	1.50	31.20	6,811.90	-753.10	-2,273.43	2,394.80	1.30	0.66	-57.36	
7,432.00	3.50	3.20	6,901.81	-749.35	-2,272.66	2,392.93	2.54	2.22	-31.11	
7,523.00	2.60	353.70	6,992.68	-744.53	-2,272.73	2,391.52	1.13	-0.99	-10.44	
7,613.00	2.40	349.70	7,082.59	-740.64	-2,273.30	2,390.87	0.29	-0.22	-4.44	
7,704.00	1.30	334.60	7,173.54	-737.84	-2,274.08	2,390.76	1.31	-1.21	-16.59	
7,795.00	1.80	316.50	7,264.51	-735.87	-2,275.51	2,391.52	0.76	0.55	-19.89	
7,886.00	1.40	303.30	7,355.48	-734.22	-2,277.42	2,392.84	0.59	-0.44	-14.51	
7,977.00	1.10	300.60	7,446.45	-733.16	-2,279.10	2,394.12	0.34	-0.33	-2.97	
8,067.00	1.40	245.40	7,536.44	-733.18	-2,280.84	2,395.79	1.32	0.33	-61.33	
8,158.00	1.80	219.40	7,627.40	-734.75	-2,282.76	2,398.09	0.90	0.44	-28.57	
8,294.00	2.20	211.20	7,763.32	-738.63	-2,285.47	2,401.85	0.36	0.29	-6.03	
8,430.00	2.10	168.60	7,899.23	-743.31	-2,286.33	2,404.10	1.15	-0.07	-31.32	
8,566.00	2.20	153.00	8,035.14	-748.08	-2,284.65	2,403.95	0.44	0.07	-11.47	
8,703.00	2.20	122.70	8,172.04	-751.84	-2,281.24	2,401.86	0.84	0.00	-22.12	
8,839.00	1.70	114.00	8,307.96	-754.07	-2,277.20	2,398.69	0.43	-0.37	-6.40	
8,950.00	1.40	117.70	8,418.92	-755.37	-2,274.50	2,396.51	0.28	-0.27	3.33	
9,010.00	1.40	117.70	8,478.90	-756.05	-2,273.20	2,395.48	0.00	0.00	0.00	
Projection to TD-9010.00' MD										

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<b>Site:</b>	Northglenn State	<b>MD Reference:</b>	WELL @ 5133.00usft (Xtreme 11)
<b>Well:</b>	13-36	<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 Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,010.00	8,478.90	-756.05	-2,273.20	Projection to TD-9010.00' MD	