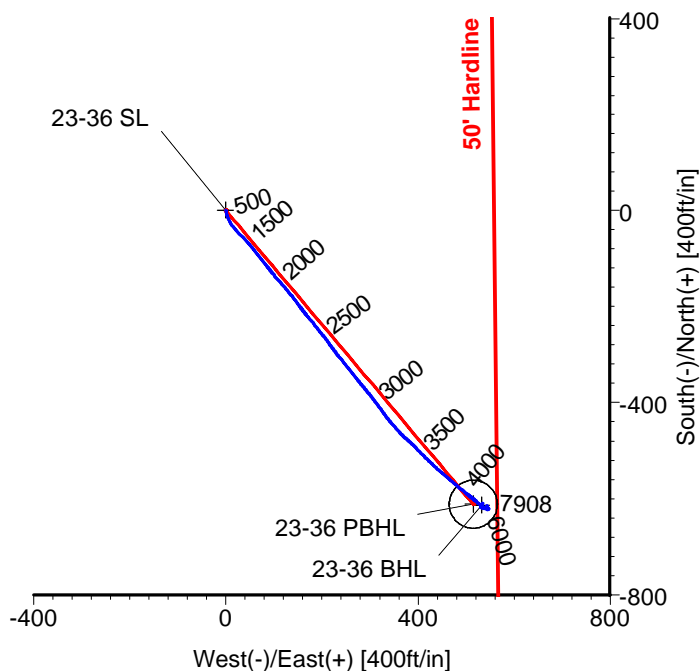
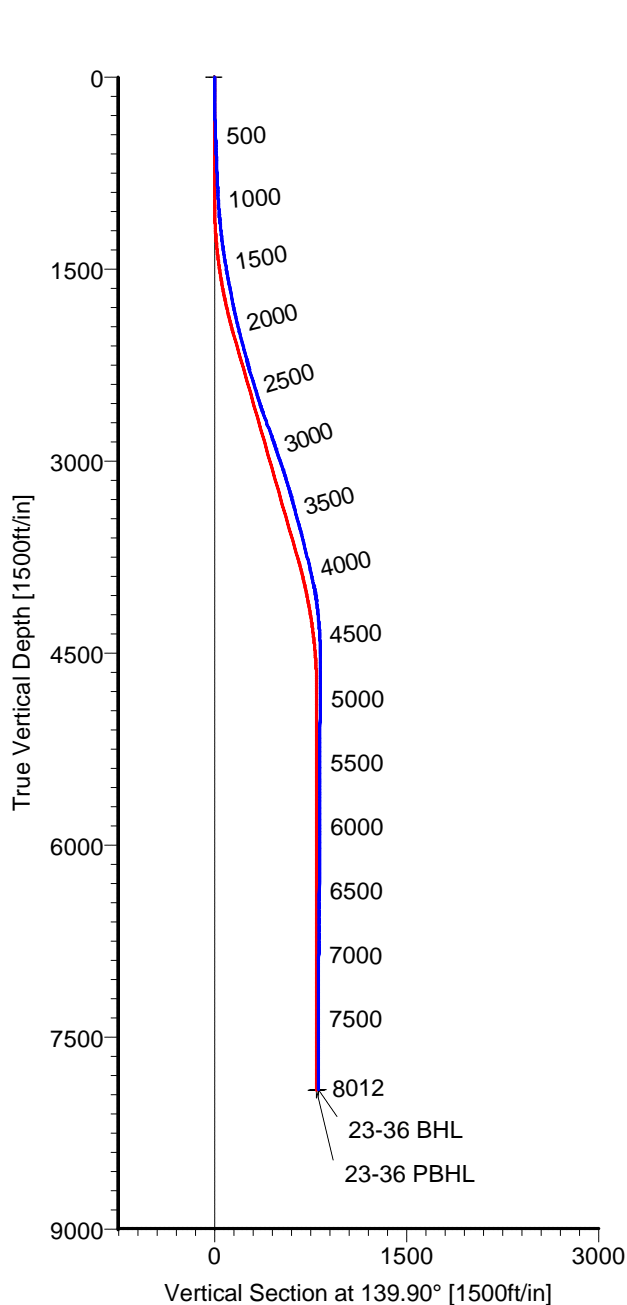


# ANADARKO PETROLEUM

Field: Weld County, CO  
Site: Bernhardt State 11-36 Pad  
Well: 23-36  
Wellpath: Original Hole



Azimuths to Grid North  
True North: -0.42°  
Magnetic North: 9.14°

Magnetic Field  
Strength: 53134nT  
Dip Angle: 66.86°  
Date: 06/01/2010  
Model: IGRF2010

## LEGEND

— 23-36,Original Hole,Plan #1  
— Original Hole

## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
23-36 SL	0.00	0.00	0.00	40°21'14.864N	104°50'36.510W	Point
23-36 BHL	7907.60	-613.79	533.08	40°21'08.759N	104°50'29.683W	Point
23-36 PBHL	7916.00	-611.69	515.16	40°21'08.781N	104°50'29.914W	Circle (Radius: 50)

Wellpath: (23-36/Original Hole)

ALLIS-CHALMERS DIRECTIONAL DRILLING SERVICES  
911 Regional Park Drive Houston, Texas 77060  
Phone: 713-934-9600 Fax: 713-934-9067

Created By: Ivonne Gonzalez

Date: 07/03/2010



DIRECTIONAL  
DRILLING SERVICES

# Allis-Chalmers Energy, Inc.

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM		<b>Date:</b> 07/03/2010	<b>Time:</b> 10:12:37	<b>Page:</b> 1
<b>Field:</b> Weld County, CO		<b>Co-ordinate(NE) Reference:</b> Well: 23-36, Grid North		
<b>Site:</b> Bernhardt State 11-36 Pad		<b>Vertical (TVD) Reference:</b> 4834'GL+13'KB 4847.0		
<b>Well:</b> 23-36		<b>Section (VS) Reference:</b> Well (0.00N,0.00E,139.90Azi)		
<b>Wellpath:</b> Original Hole		<b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase		

<b>Field:</b> Weld County, CO	
<b>Map System:</b> US State Plane Coordinate System 1983	<b>Map Zone:</b> Colorado, Northern Zone
<b>Geo Datum:</b> GRS 1980	<b>Coordinate System:</b> Well Centre
<b>Sys Datum:</b> Mean Sea Level	<b>Geomagnetic Model:</b> IGRF2010

<b>Site:</b> Bernhardt State 11-36 Pad	
<b>Site Position:</b>	<b>Northings:</b> 1372588.45 ft
<b>From:</b> Geographic	<b>Easting:</b> 3182964.45 ft
<b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 40 21 15.444 N
<b>Ground Level:</b> 4834.00 ft	<b>Longitude:</b> 104 50 36.672 W
	<b>North Reference:</b> Grid
	<b>Grid Convergence:</b> 0.42 deg

<b>Well:</b> 23-36	<b>Slot Name:</b> 23-36
<b>Well Position:</b> +N/-S -58.63 ft	<b>Latitude:</b> 40 21 14.864 N
+E/-W 13.00 ft	<b>Longitude:</b> 104 50 36.510 W
<b>Position Uncertainty:</b> 0.00 ft	

<b>Wellpath:</b> Original Hole	<b>Drilled From:</b> Surface
<b>Current Datum:</b> 4834'GL+13'KB	<b>Tie-on Depth:</b> 0.00 ft
<b>Magnetic Data:</b> 06/01/2010	<b>Above System Datum:</b> Mean Sea Level
<b>Field Strength:</b> 53134 nT	<b>Declination:</b> 9.57 deg
<b>Vertical Section: Depth From (TVD)</b>	<b>Mag Dip Angle:</b> 66.86 deg
ft	<b>+N/-S</b>
	<b>+E/-W</b>
	<b>Direction</b>
	deg
0.00	0.00
0.00	0.00
0.00	139.90

<b>Survey Program for Definitive Wellpath</b>		<b>Version:</b> 0
<b>Date:</b> 07/03/2010	<b>Validated:</b> No	<b>Toolcode</b>
<b>Actual From</b>	<b>To</b>	<b>Tool Name</b>
ft	ft	
76.00	7967.00	Survey #1 (76.00-7967.00)
8012.00	8012.00	Survey #2 (8012.00-8012.00)
		MWD
		Project
		Std MWD
		Projection

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
76.00	0.50	139.80	76.00	-0.25	0.21	0.33	0.66	0.66	0.00	MWD
197.00	1.20	175.70	196.99	-1.92	0.65	1.89	0.70	0.58	29.67	MWD
318.00	1.90	170.10	317.94	-5.16	1.09	4.65	0.59	0.58	-4.63	MWD
472.00	2.10	163.40	471.85	-10.38	2.33	9.44	0.20	0.13	-4.35	MWD
652.00	2.50	150.40	651.70	-16.95	5.22	16.33	0.36	0.22	-7.22	MWD
833.00	2.60	160.90	832.52	-24.26	8.51	24.04	0.26	0.06	5.80	MWD
962.00	3.30	138.10	961.36	-29.79	11.95	30.48	1.05	0.54	-17.67	MWD
1053.00	4.10	147.60	1052.17	-34.49	15.44	36.33	1.10	0.88	10.44	MWD
1143.00	6.20	141.90	1141.80	-41.03	20.16	44.37	2.40	2.33	-6.33	MWD
1233.00	6.30	132.40	1231.27	-48.19	26.81	54.13	1.15	0.11	-10.56	MWD
1324.00	7.90	133.80	1321.57	-55.88	35.01	65.29	1.77	1.76	1.54	MWD
1414.00	9.20	136.70	1410.57	-65.40	44.41	78.63	1.52	1.44	3.22	MWD
1503.00	9.50	138.40	1498.38	-76.07	54.16	93.07	0.46	0.34	1.91	MWD
1593.00	10.70	144.40	1586.99	-88.42	63.96	108.83	1.77	1.33	6.67	MWD
1683.00	11.10	142.30	1675.37	-102.07	74.12	125.81	0.63	0.44	-2.33	MWD
1773.00	11.10	141.60	1763.68	-115.71	84.80	143.13	0.15	0.00	-0.78	MWD
1864.00	12.70	140.50	1852.72	-130.29	96.60	161.89	1.78	1.76	-1.21	MWD
1954.00	13.70	140.20	1940.34	-146.12	109.72	182.44	1.11	1.11	-0.33	MWD
2044.00	14.60	138.10	2027.61	-162.75	124.12	204.44	1.15	1.00	-2.33	MWD
2135.00	14.80	141.90	2115.64	-180.43	138.95	227.52	1.08	0.22	4.18	MWD
2225.00	14.60	143.70	2202.69	-198.62	152.76	250.32	0.55	-0.22	2.00	MWD

