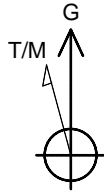


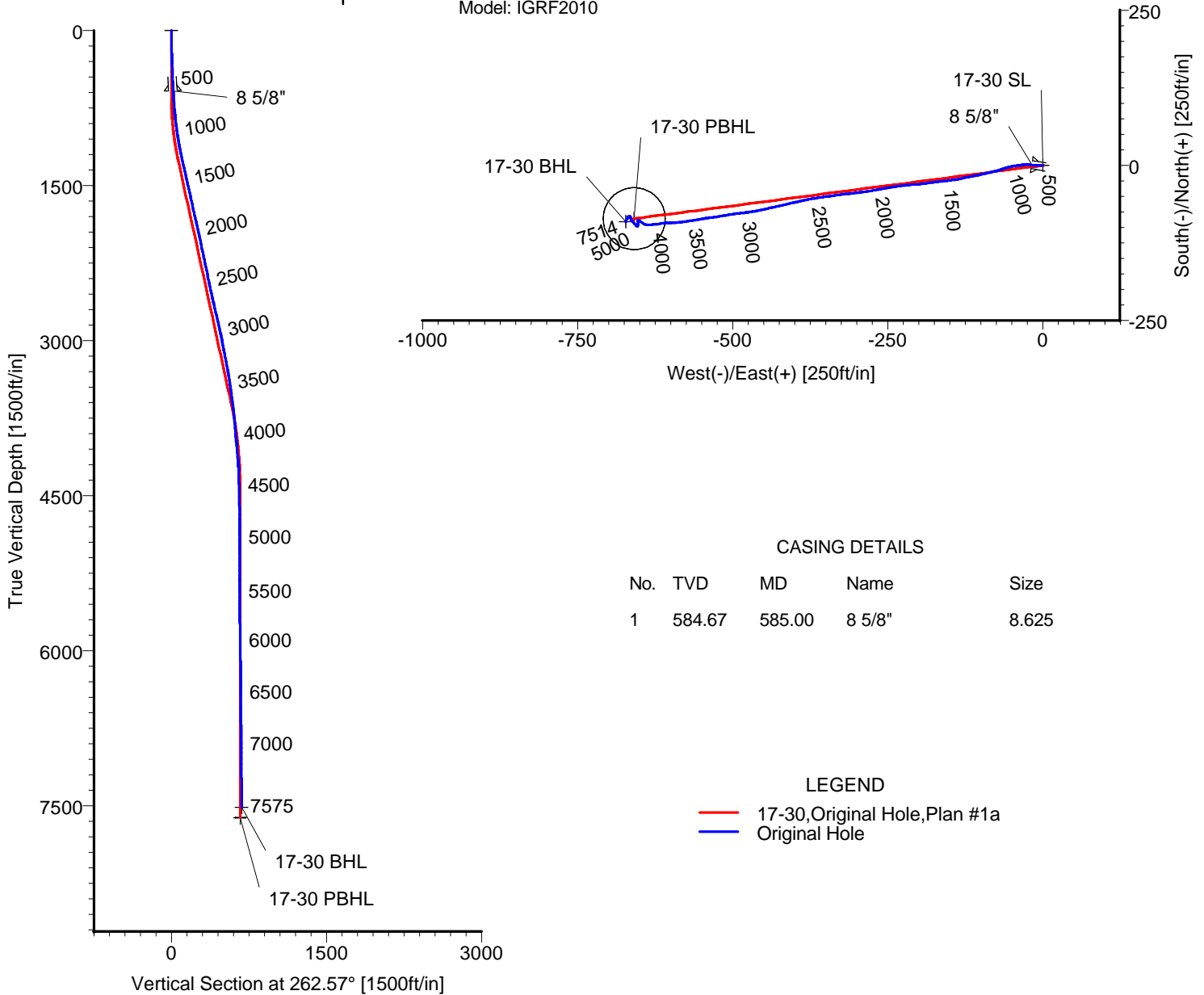
**ANADARKO PETROLEUM**

Field: Weld County, CO  
 Site: Miller 1-30 Pad  
 Well: 17-30  
 Wellpath: Original Hole



Azimuths to Grid North  
 True North: -0.44°  
 Magnetic North: -0.44°

Magnetic Field  
 Strength: 0nT  
 Dip Angle: 0.00°  
 Date: 06/14/2010  
 Model: IGRF2010



CASING DETAILS

No.	TVD	MD	Name	Size
1	584.67	585.00	8 5/8"	8.625

LEGEND  
 — 17-30, Original Hole, Plan #1a  
 — Original Hole

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
17-30 SL	0.00	0.00	0.00	40°12'03.697N	104°48'46.775W	Point
17-30 BHL	7513.85	-90.47	-672.28	40°12'02.854N	104°48'55.448W	Point
17-30 PBHL	7613.00	-85.91	-658.44	40°12'02.898N	104°48'55.269W	Circle (Radius: 50)

Wellpath: (17-30/Original Hole)

Created By: Ivonne Gonzalez

Date: 11/13/2010

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



**DIRECTIONAL DRILLING SERVICES**

# Allis-Chalmers Energy, Inc.

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM	<b>Date:</b> 11/13/2010	<b>Time:</b> 10:18:54	<b>Page:</b> 1
<b>Field:</b> Weld County, CO	<b>Co-ordinate(NE) Reference:</b> Well: 17-30, Grid North		
<b>Site:</b> Miller 1-30 Pad	<b>Vertical (TVD) Reference:</b> SITE 4933.0		
<b>Well:</b> 17-30	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,262.57Azi)		
<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> Miller 1-30 Pad Currently centered on 17-30		
<b>Site Position:</b>	<b>Northing:</b> 1316822.56 ft	<b>Latitude:</b> 40 12 3.697 N
<b>From:</b> Geographic	<b>Easting:</b> 3191904.58 ft	<b>Longitude:</b> 104 48 46.775 W
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid
<b>Ground Level:</b> 4920.00 ft		<b>Grid Convergence:</b> 0.44 deg

<b>Well:</b> 17-30	<b>Slot Name:</b> 17-30	
<b>Well Position:</b>	<b>Northing:</b> 1316822.56 ft	<b>Latitude:</b> 40 12 3.697 N
<b>Position Uncertainty:</b> 0.00 ft	<b>Easting:</b> 3191904.58 ft	<b>Longitude:</b> 104 48 46.775 W

<b>Wellpath:</b> Original Hole	<b>Drilled From:</b> Surface		
<b>Current Datum:</b> SITE	<b>Tie-on Depth:</b> 0.00 ft		
<b>Magnetic Data:</b> 06/14/2010	<b>Above System Datum:</b> Mean Sea Level		
<b>Field Strength:</b> 0 nT	<b>Declination:</b> 0.00 deg		
<b>Vertical Section:</b>	<b>Mag Dip Angle:</b> 0.00 deg		
<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
ft	ft	ft	deg
0.00	0.00	0.00	262.57

<b>Survey Program for Definitive Wellpath</b>			
<b>Date:</b> 11/13/2010	<b>Validated:</b> No	<b>Version:</b> 0	
<b>Actual From</b>	<b>To</b>	<b>Survey</b>	<b>Toolcode</b> <b>Tool Name</b>
ft	ft		
44.00	7530.00	Survey #1 (44.00-7530.00)	MWD      Std MWD
7575.00	7575.00	Survey #2 (7575.00-7575.00)	Project      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
44.00	0.30	279.00	44.00	0.02	-0.11	0.11	0.68	0.68	0.00	MWD
105.00	0.80	265.60	105.00	0.01	-0.70	0.69	0.84	0.82	-21.97	MWD
166.00	0.90	269.90	165.99	-0.02	-1.60	1.59	0.19	0.16	7.05	MWD
226.00	1.20	267.40	225.98	-0.05	-2.70	2.68	0.51	0.50	-4.17	MWD
286.00	1.90	275.50	285.96	0.01	-4.32	4.28	1.22	1.17	13.50	MWD
347.00	2.30	270.90	346.92	0.13	-6.55	6.47	0.71	0.66	-7.54	MWD
425.00	2.50	269.20	424.85	0.13	-9.81	9.71	0.27	0.26	-2.18	MWD
535.00	2.80	271.60	534.73	0.17	-14.90	14.75	0.29	0.27	2.18	MWD
585.00	2.88	279.81	584.67	0.42	-17.36	17.16	0.83	0.16	16.42	8 5/8"
630.00	3.00	286.70	629.61	0.95	-19.60	19.31	0.83	0.27	15.31	MWD
694.00	3.70	273.30	693.50	1.55	-23.26	22.87	1.63	1.09	-20.94	MWD
785.00	5.10	260.30	784.23	1.04	-30.18	29.79	1.88	1.54	-14.29	MWD
875.00	7.20	264.50	873.71	-0.18	-39.74	39.43	2.38	2.33	4.67	MWD
966.00	8.10	257.50	963.90	-2.11	-51.68	51.52	1.42	0.99	-7.69	MWD
1057.00	9.50	250.80	1053.83	-5.97	-65.03	65.25	1.90	1.54	-7.36	MWD
1148.00	10.90	256.80	1143.39	-10.40	-80.50	81.17	1.93	1.54	6.59	MWD
1239.00	12.00	257.50	1232.58	-14.41	-98.11	99.15	1.22	1.21	0.77	MWD
1329.00	12.70	258.60	1320.50	-18.39	-116.94	118.34	0.82	0.78	1.22	MWD
1420.00	13.00	259.60	1409.22	-22.22	-136.82	138.54	0.41	0.33	1.10	MWD
1511.00	12.70	264.90	1497.94	-24.96	-156.85	158.76	1.34	-0.33	5.82	MWD
1601.00	12.70	261.70	1585.74	-27.26	-176.49	178.54	0.78	0.00	-3.56	MWD

# Allis-Chalmers Energy, Inc.

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM	<b>Date:</b> 11/13/2010	<b>Time:</b> 10:18:54	<b>Page:</b> 2
<b>Field:</b> Weld County, CO	<b>Co-ordinate(NE) Reference:</b> Well: 17-30, Grid North		
<b>Site:</b> Miller 1-30 Pad	<b>Vertical (TVD) Reference:</b> SITE 4933.0		
<b>Well:</b> 17-30	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,262.57Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

### Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1692.00	12.80	263.80	1674.50	-29.80	-196.41	198.62	0.52	0.11	2.31	MWD
1783.00	12.70	264.90	1763.25	-31.77	-216.40	218.69	0.29	-0.11	1.21	MWD
1874.00	12.80	262.40	1852.01	-34.00	-236.35	238.76	0.62	0.11	-2.75	MWD
1965.00	12.70	258.90	1940.77	-37.26	-256.16	258.83	0.86	-0.11	-3.85	MWD
2055.00	11.60	261.40	2028.75	-40.51	-274.82	277.75	1.35	-1.22	2.78	MWD
2146.00	11.60	261.70	2117.89	-43.20	-292.91	296.04	0.07	0.00	0.33	MWD
2237.00	12.10	264.20	2206.95	-45.49	-311.46	314.72	0.79	0.55	2.75	MWD
2328.00	12.00	261.70	2295.95	-47.82	-330.31	333.72	0.58	-0.11	-2.75	MWD
2419.00	11.80	262.80	2384.99	-50.35	-348.90	352.48	0.33	-0.22	1.21	MWD
2509.00	12.00	261.00	2473.06	-52.97	-367.27	371.03	0.47	0.22	-2.00	MWD
2600.00	11.80	257.20	2562.11	-56.51	-385.69	389.76	0.89	-0.22	-4.18	MWD
2691.00	13.70	257.50	2650.86	-60.90	-405.28	409.75	2.09	2.09	0.33	MWD
2781.00	13.60	257.20	2738.32	-65.55	-426.01	430.91	0.14	-0.11	-0.33	MWD
2871.00	12.80	256.50	2825.94	-70.22	-446.02	451.35	0.91	-0.89	-0.78	MWD
2963.00	12.50	260.70	2915.71	-74.21	-465.75	471.44	1.05	-0.33	4.57	MWD
3054.00	10.70	263.80	3004.84	-76.72	-483.87	489.73	2.09	-1.98	3.41	MWD
3145.00	11.10	261.40	3094.20	-78.94	-500.93	506.93	0.66	0.44	-2.64	MWD
3235.00	10.70	260.00	3182.58	-81.68	-517.73	523.94	0.53	-0.44	-1.56	MWD
3326.00	10.60	263.80	3272.01	-84.06	-534.37	540.75	0.78	-0.11	4.18	MWD
3417.00	9.00	259.30	3361.68	-86.28	-549.68	556.23	1.95	-1.76	-4.95	MWD
3508.00	8.30	261.70	3451.65	-88.55	-563.18	569.90	0.87	-0.77	2.64	MWD
3598.00	7.60	260.70	3540.78	-90.45	-575.48	582.34	0.79	-0.78	-1.11	MWD
3689.00	6.70	265.90	3631.08	-91.80	-586.71	593.66	1.22	-0.99	5.71	MWD
3780.00	6.70	267.40	3721.45	-92.42	-597.31	604.25	0.19	0.00	1.65	MWD
3871.00	4.90	268.10	3811.98	-92.79	-606.50	613.41	1.98	-1.98	0.77	MWD
3962.00	4.10	258.20	3902.70	-93.59	-613.57	620.52	1.22	-0.88	-10.88	MWD
4052.00	5.80	264.20	3992.37	-94.70	-621.24	628.27	1.97	1.89	6.67	MWD
4143.00	5.50	266.60	4082.92	-95.43	-630.17	637.22	0.42	-0.33	2.64	MWD
4234.00	3.90	268.10	4173.61	-95.79	-637.62	644.65	1.76	-1.76	1.65	MWD
4325.00	2.60	303.90	4264.48	-94.74	-642.42	649.28	2.58	-1.43	39.34	MWD
4415.00	1.90	308.10	4354.41	-92.68	-645.29	651.86	0.80	-0.78	4.67	MWD
4506.00	1.80	305.70	4445.36	-90.92	-647.64	653.96	0.14	-0.11	-2.64	MWD
4596.00	1.80	300.40	4535.31	-89.38	-650.01	656.11	0.18	0.00	-5.89	MWD
4687.00	0.90	285.30	4626.29	-88.46	-651.93	657.89	1.06	-0.99	-16.59	MWD
4778.00	0.40	235.00	4717.28	-88.46	-652.88	658.84	0.78	-0.55	-55.27	MWD
4869.00	0.50	159.10	4808.28	-89.01	-653.00	659.02	0.61	0.11	-83.41	MWD
4960.00	0.50	162.60	4899.28	-89.76	-652.74	658.86	0.03	0.00	3.85	MWD
5050.00	1.10	146.10	4989.27	-90.85	-652.14	658.41	0.71	0.67	-18.33	MWD
5141.00	1.10	217.10	5080.25	-92.27	-652.18	658.63	1.40	0.00	78.02	MWD
5232.00	1.60	173.50	5171.23	-94.23	-652.56	659.27	1.21	0.55	-47.91	MWD
5323.00	0.90	184.40	5262.21	-96.21	-652.47	659.43	0.81	-0.77	11.98	MWD
5413.00	1.10	185.10	5352.20	-97.77	-652.60	659.77	0.22	0.22	0.78	MWD
5504.00	0.20	333.80	5443.19	-98.50	-652.75	660.01	1.40	-0.99	163.41	MWD
5595.00	0.90	294.80	5534.19	-98.06	-653.47	660.66	0.83	0.77	-42.86	MWD
5685.00	0.50	287.00	5624.18	-97.65	-654.49	661.62	0.46	-0.44	-8.67	MWD
5776.00	0.70	313.40	5715.17	-97.15	-655.27	662.33	0.37	0.22	29.01	MWD
5867.00	1.60	327.50	5806.16	-95.70	-656.36	663.22	1.03	0.99	15.49	MWD
5958.00	1.10	307.40	5897.13	-94.09	-657.73	664.38	0.75	-0.55	-22.09	MWD
6048.00	1.10	301.50	5987.11	-93.12	-659.16	665.66	0.13	0.00	-6.56	MWD
6139.00	1.40	313.10	6078.09	-91.90	-660.71	667.05	0.43	0.33	12.75	MWD
6230.00	1.60	309.90	6169.06	-90.33	-662.50	668.62	0.24	0.22	-3.52	MWD
6321.00	1.10	5.40	6260.04	-88.64	-663.39	669.28	1.46	-0.55	60.99	MWD
6411.00	1.20	7.90	6350.02	-86.85	-663.18	668.84	0.12	0.11	2.78	MWD

# Allis-Chalmers Energy, Inc.

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM	<b>Date:</b> 11/13/2010	<b>Time:</b> 10:18:54	<b>Page:</b> 3
<b>Field:</b> Weld County, CO	<b>Co-ordinate(NE) Reference:</b> Well: 17-30, Grid North		
<b>Site:</b> Miller 1-30 Pad	<b>Vertical (TVD) Reference:</b> SITE 4933.0		
<b>Well:</b> 17-30	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,262.57Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Sybase	

### Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6502.00	1.40	343.60	6441.00	-84.84	-663.36	668.76	0.64	0.22	-26.70	MWD
6593.00	1.70	314.50	6531.97	-82.83	-664.64	669.77	0.91	0.33	-31.98	MWD
6684.00	0.80	268.00	6622.95	-81.90	-666.24	671.23	1.41	-0.99	-51.10	MWD
6820.00	0.70	238.50	6758.93	-82.37	-667.89	672.94	0.29	-0.07	-21.69	MWD
6956.00	0.70	207.60	6894.92	-83.54	-668.99	674.17	0.27	0.00	-22.72	MWD
7092.00	1.40	194.60	7030.90	-85.88	-669.79	675.27	0.54	0.51	-9.56	MWD
7228.00	1.10	213.20	7166.87	-88.58	-670.92	676.75	0.37	-0.22	13.68	MWD
7364.00	0.50	202.30	7302.85	-90.23	-671.86	677.89	0.45	-0.44	-8.01	MWD
7530.00	0.20	341.90	7468.85	-90.62	-672.23	678.30	0.40	-0.18	84.10	MWD
7575.00	0.20	341.90	7513.85	-90.47	-672.28	678.33	0.00	0.00	0.00	17-30 BHL

### Targets

Name	Description		TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->				
	Dip.	Dir.						Deg	Min	Sec	Deg	Min	Sec		
17-30 SL			0.00	0.00	0.00	1316822.56	3191904.58	40	12	3.697	N	104	48	46.775	W
17-30 BHL			7513.85	-90.47	-672.28	1316732.09	3191232.30	40	12	2.854	N	104	48	55.448	W
17-30 PBHL			7613.00	-85.91	-658.44	1316736.65	3191246.14	40	12	2.898	N	104	48	55.269	W
-Circle (Radius: 50)															

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
585.00	584.67	8.625	9.875	8 5/8"