

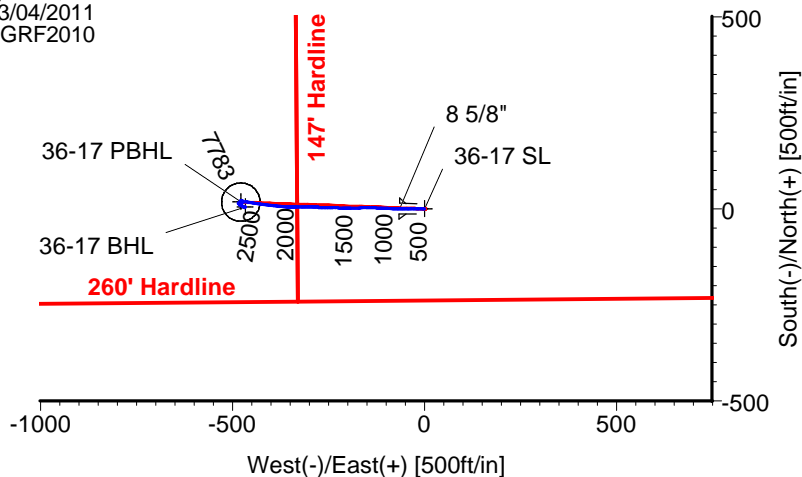
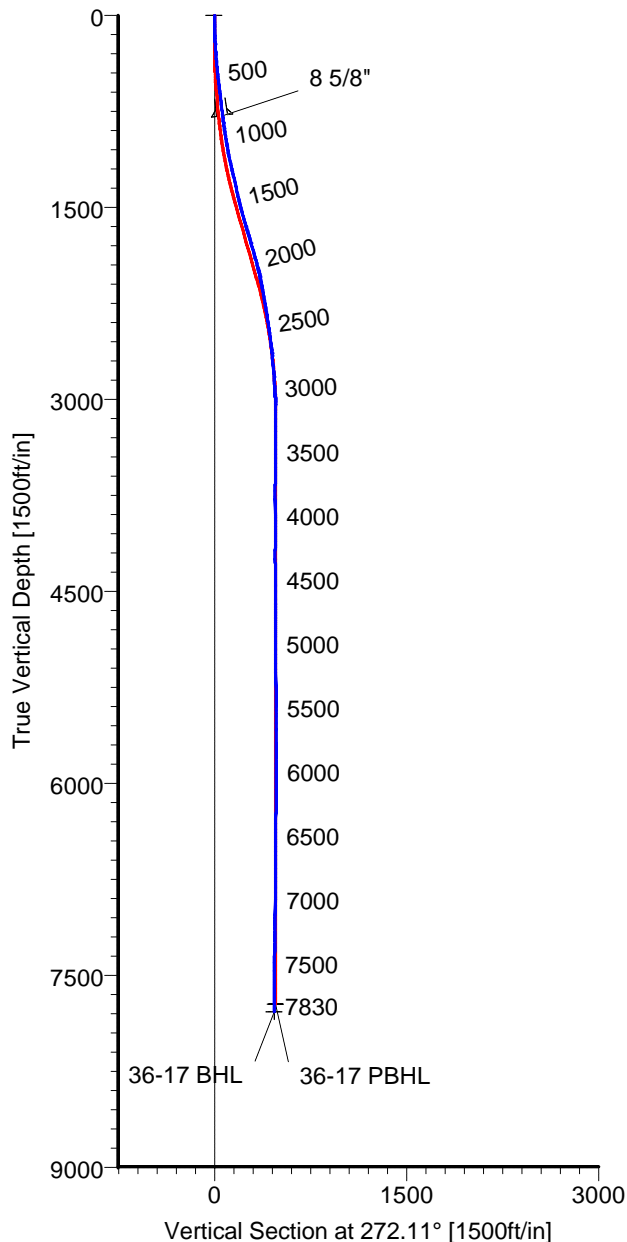
# ANADARKO PETROLEUM

Field: Weld County, CO  
Site: Sekich 15-17 Pad  
Well: 36-17  
Wellpath: Original Hole



Azimuths to Grid North  
True North: -0.38°  
Magnetic North: 8.59°

Magnetic Field  
Strength: 53089nT  
Dip Angle: 66.89°  
Date: 03/04/2011  
Model: IGRF2010



## CASING DETAILS

No.	TVD	MD	Name	Size
1	783.71	787.00	8 5/8"	8.625

## LEGEND

- 36-17, Original Hole, Plan #2
- Original Hole

## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
36-17 SL	0.00	0.00	0.00	40°13'09.461N	104°54'46.068W	Point
36-17 PBHL	7725.00	17.60	-477.64	40°13'09.666N	104°54'52.224W	Circle (Radius: 50)
36-17 BHL	7782.78	5.36	-466.62	40°13'09.544N	104°54'52.083W	Point

Wellpath: (36-17/Original Hole)

Created By: Ivonne Gonzalez

Date: 03/10/2011

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>Field:</b> Weld County, CO <b>Site:</b> Sekich 15-17 Pad <b>Well:</b> 36-17 <b>Wellpath:</b> Original Hole	<b>Date:</b> 03/10/2011 <b>Co-ordinate(NE) Reference:</b> <b>Vertical (TVD) Reference:</b> <b>Section (VS) Reference:</b> <b>Survey Calculation Method:</b>	<b>Time:</b> 10:16:46 Well: 36-17, Grid North 4865'GL+13'KB 4878.0 Well (0.00N,0.00E,272.11Azi) Minimum Curvature	<b>Page:</b> 1 <b>Db:</b> Sybase
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<b>Field:</b> Weld County, CO	
<b>Map System:</b> US State Plane Coordinate System 1983 <b>Geo Datum:</b> GRS 1980 <b>Sys Datum:</b> Mean Sea Level	<b>Map Zone:</b> Colorado, Northern Zone <b>Coordinate System:</b> Well Centre <b>Geomagnetic Model:</b> IGRF2010

<b>Site:</b> Sekich 15-17 Pad  Centered on 19-17 <b>Site Position:</b> <b>From:</b> Geographic <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 4865.00 ft	<b>Northing:</b> 1323289.54 ft <b>Easting:</b> 3163967.97 ft  <b>Latitude:</b> 40 13 9.588 N <b>Longitude:</b> 104 54 46.264 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 0.38 deg
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<b>Well:</b> 36-17  <b>Well Position:</b> +N/-S -12.76 ft +E/-W 15.27 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Slot Name:</b> 36-17  <b>Well Position:</b> +N/-S -12.76 ft +E/-W 15.27 ft <b>Position Uncertainty:</b> 0.00 ft
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<b>Wellpath:</b> Original Hole  <b>Current Datum:</b> 4865'GL+13'KB <b>Magnetic Data:</b> 03/04/2011 <b>Field Strength:</b> 53089 nT <b>Vertical Section:</b> Depth From (TVD) ft	<b>Drilled From:</b> Surface <b>Tie-on Depth:</b> 0.00 ft <b>Above System Datum:</b> Mean Sea Level <b>Declination:</b> 8.97 deg <b>Mag Dip Angle:</b> 66.89 deg <b>Direction:</b> deg
0.00	0.00

<b>Survey Program for Definitive Wellpath</b>			
<b>Date:</b> 03/10/2011 <b>Actual From</b> ft 51.00 7830.00	<b>To</b> ft 7785.00 7830.00	<b>Validated:</b> No <b>Survey</b> Survey #1 (51.00-7785.00) Survey #2 (7830.00-7830.00)	<b>Version:</b> 0 <b>Toolcode</b> MWD Project
		<b>Tool Name</b> Std MWD Projection	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
51.00	0.50	247.30	51.00	-0.09	-0.21	0.20	0.98	0.98	0.00	MWD
142.00	1.80	258.60	141.98	-0.52	-1.97	1.95	1.44	1.43	12.42	MWD
231.00	3.90	270.90	230.86	-0.75	-6.37	6.34	2.44	2.36	13.82	MWD
321.00	4.60	269.80	320.62	-0.71	-13.04	13.00	0.78	0.78	-1.22	MWD
428.00	5.60	269.80	427.19	-0.75	-22.55	22.51	0.93	0.93	0.00	MWD
518.00	6.30	270.20	516.71	-0.75	-31.88	31.83	0.78	0.78	0.44	MWD
609.00	6.90	270.50	607.10	-0.68	-42.34	42.29	0.66	0.66	0.33	MWD
700.00	7.20	272.60	697.41	-0.37	-53.50	53.45	0.43	0.33	2.31	MWD
742.00	7.40	272.60	739.07	-0.13	-58.83	58.79	0.48	0.48	0.00	MWD
787.00	7.12	270.55	783.71	0.03	-64.52	64.47	0.85	-0.63	-4.55	8 5/8"
823.00	6.90	268.80	819.44	0.00	-68.91	68.86	0.85	-0.61	-4.87	MWD
914.00	8.60	275.50	909.61	0.54	-81.15	81.11	2.11	1.87	7.36	MWD
1004.00	9.50	270.90	998.49	1.30	-95.27	95.26	1.28	1.00	-5.11	MWD
1095.00	11.30	273.00	1087.99	1.89	-111.69	111.68	2.02	1.98	2.31	MWD
1186.00	12.30	272.30	1177.07	2.74	-130.27	130.29	1.11	1.10	-0.77	MWD
1277.00	13.00	268.40	1265.86	2.84	-150.19	150.19	1.21	0.77	-4.29	MWD
1367.00	13.00	269.10	1353.56	2.40	-170.43	170.40	0.17	0.00	0.78	MWD
1458.00	13.50	268.80	1442.13	2.02	-191.29	191.23	0.55	0.55	-0.33	MWD
1549.00	15.10	271.90	1530.31	2.19	-213.75	213.69	1.95	1.76	3.41	MWD
1639.00	15.80	270.50	1617.06	2.69	-237.72	237.66	0.88	0.78	-1.56	MWD
1730.00	17.60	273.30	1704.22	3.59	-263.85	263.80	2.17	1.98	3.08	MWD

# Allis-Chalmers Energy, Inc.

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM <b>Field:</b> Weld County, CO <b>Site:</b> Sekich 15-17 Pad <b>Well:</b> 36-17 <b>Wellpath:</b> Original Hole	<b>Date:</b> 03/10/2011 <b>Co-ordinate(NE) Reference:</b> Well: 36-17, Grid North <b>Vertical (TVD) Reference:</b> 4865'GL+13'KB 4878.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,272.11Azi) <b>Survey Calculation Method:</b> Minimum Curvature	<b>Time:</b> 10:16:46 <b>Page:</b> 2 <b>Db:</b> Sybase
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### 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
1821.00	15.80	271.20	1791.38	4.64	-289.97	289.95	2.09	-1.98	-2.31	MWD
1912.00	15.70	270.50	1878.96	5.00	-314.67	314.64	0.24	-0.11	-0.77	MWD
2003.00	14.40	268.80	1966.84	4.88	-338.29	338.24	1.51	-1.43	-1.87	MWD
2093.00	12.00	273.70	2054.46	5.24	-358.82	358.77	2.94	-2.67	5.44	MWD
2184.00	10.20	271.90	2143.75	6.12	-376.32	376.29	2.01	-1.98	-1.98	MWD
2275.00	10.00	278.60	2233.34	7.57	-392.18	392.20	1.31	-0.22	7.36	MWD
2366.00	8.80	277.20	2323.12	9.63	-406.90	406.98	1.34	-1.32	-1.54	MWD
2457.00	8.40	277.20	2413.10	11.33	-420.40	420.54	0.44	-0.44	0.00	MWD
2547.00	7.70	279.00	2502.21	13.10	-432.88	433.07	0.83	-0.78	2.00	MWD
2638.00	7.20	278.60	2592.44	14.90	-444.54	444.79	0.55	-0.55	-0.44	MWD
2729.00	5.10	280.40	2682.91	16.49	-454.16	454.46	2.32	-2.31	1.98	MWD
2820.00	5.10	282.10	2773.55	18.07	-462.09	462.44	0.17	0.00	1.87	MWD
2910.00	3.30	270.90	2863.31	18.94	-468.59	468.97	2.19	-2.00	-12.44	MWD
3001.00	2.80	271.60	2954.18	19.05	-473.43	473.81	0.55	-0.55	0.77	MWD
3092.00	0.90	325.00	3045.13	19.70	-476.07	476.47	2.61	-2.09	58.68	MWD
3182.00	1.10	337.00	3135.12	21.07	-476.81	477.26	0.32	0.22	13.33	MWD
3273.00	0.40	277.60	3226.11	21.92	-477.47	477.95	1.06	-0.77	-65.27	MWD
3409.00	0.20	132.40	3362.11	21.82	-477.76	478.24	0.42	-0.15	-106.76	MWD
3545.00	0.50	94.80	3498.11	21.61	-476.99	477.47	0.27	0.22	-27.65	MWD
3682.00	1.10	97.90	3635.09	21.38	-475.10	475.56	0.44	0.44	2.26	MWD
3818.00	0.40	264.60	3771.09	21.15	-474.28	474.73	1.10	-0.51	122.57	MWD
3954.00	0.40	283.90	3907.08	21.22	-475.21	475.67	0.10	0.00	14.19	MWD
4090.00	0.70	151.40	4043.08	20.61	-475.27	475.71	0.75	0.22	-97.43	MWD
4226.00	1.40	170.70	4179.06	18.24	-474.61	474.96	0.57	0.51	14.19	MWD
4363.00	0.70	231.20	4316.04	16.06	-474.99	475.26	0.89	-0.51	44.16	MWD
4499.00	0.70	173.90	4452.03	14.72	-475.55	475.77	0.49	0.00	-42.13	MWD
4635.00	1.10	161.50	4588.01	12.65	-475.04	475.19	0.33	0.29	-9.12	MWD
4771.00	1.60	260.30	4723.99	11.09	-476.50	476.59	1.53	0.37	72.65	MWD
4907.00	0.50	2.30	4859.97	11.37	-478.35	478.44	1.30	-0.81	75.00	MWD
5043.00	0.70	346.80	4995.96	12.77	-478.52	478.66	0.19	0.15	-11.40	MWD
5180.00	0.90	311.00	5132.95	14.29	-479.52	479.72	0.38	0.15	-26.13	MWD
5316.00	0.90	288.10	5268.93	15.32	-481.34	481.58	0.26	0.00	-16.84	MWD
5452.00	0.70	300.80	5404.92	16.08	-483.07	483.33	0.20	-0.15	9.34	MWD
5588.00	1.10	196.70	5540.91	15.25	-484.16	484.39	1.06	0.29	-76.54	MWD
5724.00	0.50	103.90	5676.90	13.86	-483.96	484.14	0.90	-0.44	-68.24	MWD
5860.00	0.50	102.80	5812.89	13.59	-482.80	482.97	0.01	0.00	-0.81	MWD
5997.00	0.40	141.20	5949.89	13.08	-481.92	482.07	0.23	-0.07	28.03	MWD
6133.00	0.70	149.60	6085.88	12.00	-481.20	481.32	0.23	0.22	6.18	MWD
6269.00	0.70	133.40	6221.87	10.71	-480.18	480.25	0.15	0.00	-11.91	MWD
6406.00	0.50	141.50	6358.87	9.67	-479.20	479.23	0.16	-0.15	5.91	MWD
6542.00	0.40	89.50	6494.86	9.21	-478.35	478.37	0.30	-0.07	-38.24	MWD
6678.00	0.20	146.10	6630.86	9.01	-477.75	477.75	0.25	-0.15	41.62	MWD
6814.00	0.50	137.60	6766.86	8.38	-477.21	477.20	0.22	0.22	-6.25	MWD
6950.00	0.70	121.80	6902.85	7.50	-476.11	476.06	0.19	0.15	-11.62	MWD
7086.00	0.70	108.10	7038.84	6.81	-474.61	474.54	0.12	0.00	-10.07	MWD
7222.00	1.10	116.20	7174.82	5.97	-472.65	472.55	0.31	0.29	5.96	MWD
7358.00	0.90	115.80	7310.80	4.93	-470.52	470.38	0.15	-0.15	-0.29	MWD
7495.00	0.70	114.80	7447.79	4.11	-468.79	468.62	0.15	-0.15	-0.73	MWD
7631.00	0.50	48.00	7583.78	4.16	-467.59	467.43	0.50	-0.15	-49.12	MWD
7767.00	0.50	16.70	7719.78	5.12	-466.98	466.85	0.20	0.00	-23.01	MWD
7772.22	0.44	28.02	7725.00	5.16	-466.97	466.84	2.10	-1.13	216.70	36-17 PBHL
7785.00	0.40	64.90	7737.78	5.23	-466.90	466.78	2.10	-0.32	288.65	MWD
7830.00	0.40	64.90	7782.78	5.36	-466.62	466.50	0.00	0.00	0.00	36-17 BHL

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## Survey Report

<b>Company:</b> ANADARKO PETROLEUM <b>Field:</b> Weld County, CO <b>Site:</b> Sekich 15-17 Pad <b>Well:</b> 36-17 <b>Wellpath:</b> Original Hole	<b>Date:</b> 03/10/2011 <b>Co-ordinate(NE) Reference:</b> Well: 36-17, Grid North <b>Vertical (TVD) Reference:</b> 4865'GL+13'KB 4878.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,272.11Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase
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### Targets

Name	Description	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->				
								Deg	Min	Sec	Deg	Min	Sec		
36-17 SL			0.00	0.00	0.00	1323276.78	3163983.24	40	13	9.461	N	104	54	46.068	W
36-17 PBHL			7725.00	17.60	-477.64	1323294.38	3163505.60	40	13	9.666	N	104	54	52.224	W
-Circle (Radius: 50)															
36-17 BHL			7782.78	5.36	-466.62	1323282.14	3163516.62	40	13	9.544	N	104	54	52.083	W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
787.00	783.71	8.625	9.875	8 5/8"