

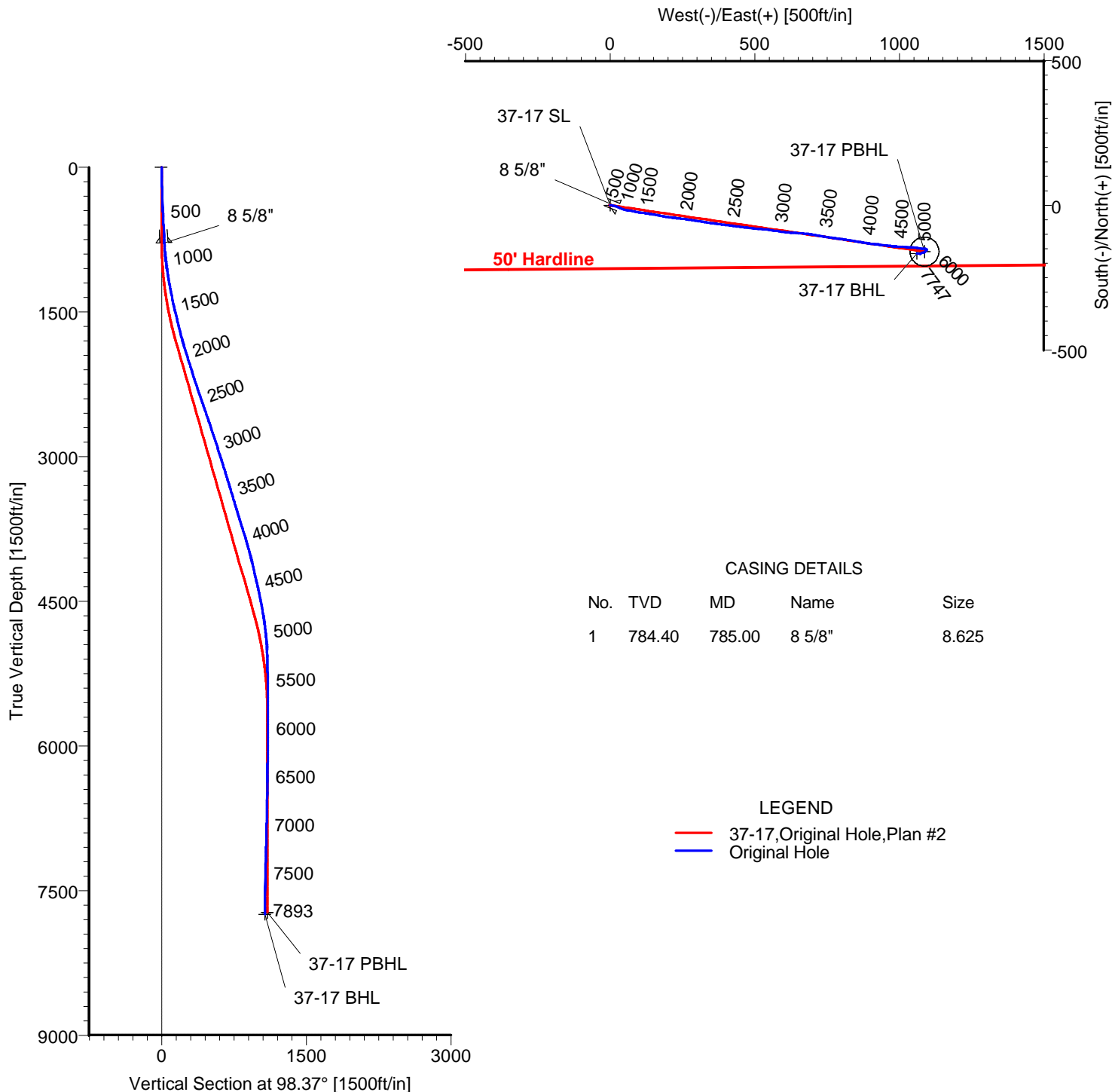
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Sekich 15-17 Pad
Well: 37-17
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.38°
Magnetic North: 8.58°

Magnetic Field
Strength: 53086nT
Dip Angle: 66.89°
Date: 03/16/2011
Model: IGRF2010



CASING DETAILS				
No.	TVD	MD	Name	Size
1	784.40	785.00	8 5/8"	8.625

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
37-17 SL	0.00	0.00	0.00	40°13'09.270N	104°54'45.771W	Point
37-17 PBHL	7723.00	-159.82	1086.22	40°13'07.620N	104°54'31.782W	Circle (Radius: 50)
37-17 BHL	7746.72	-166.99	1059.18	40°13'07.551N	104°54'32.131W	Point

Wellpath: (37-17/Original Hole)

Created By: Ivonne Gonzalez

Date: 03/20/2011

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

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Sekich 15-17 Pad Well: 37-17 Wellpath: Original Hole	Date: 03/20/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 09:39:38 Well: 37-17, Grid North 4865'GL+13'KB 4878.0 Well (0.00N,0.00E,98.37Azi) Minimum Curvature	Page: 1 Db: Sybase
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Field: Weld County, CO	
Map System: US State Plane Coordinate System 1983 Geo Datum: GRS 1980 Sys Datum: Mean Sea Level	Map Zone: Colorado, Northern Zone Coordinate System: Well Centre Geomagnetic Model: IGRF2010

Site: Sekich 15-17 Pad Centered on 19-17	
Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4865.00 ft	Northing: 1323289.54 ft Easting: 3163967.97 ft Latitude: 40 13 9.588 N Longitude: 104 54 46.264 W North Reference: Grid Grid Convergence: 0.38 deg

Well: 37-17	Slot Name: 37-17
Well Position: +N/-S -31.88 ft +E/-W 38.48 ft Position Uncertainty: 0.00 ft	Northing: 1323257.66 ft Easting : 3164006.45 ft Latitude: 40 13 9.270 N Longitude: 104 54 45.771 W

Wellpath: Original Hole Current Datum: 4865'GL+13'KB Magnetic Data: 03/16/2011 Field Strength: 53086 nT Vertical Section: Depth From (TVD) ft	Height 4878.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.96 deg Mag Dip Angle: 66.89 deg +N/-S ft +E/-W ft Direction deg
0.00	0.00	0.00 98.37

Survey Program for Definitive Wellpath					
Date: 03/20/2011	Validated: No	Version: 0			
Actual From ft	To ft	Survey	Toolcode	Tool Name	
49.00	7848.00	Survey #1 (49.00-7848.00)	MWD	Std MWD	
7893.00	7893.00	Survey #2 (7893.00-7893.00)	MWD	Std MWD	

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
49.00	1.40	85.60	49.00	0.05	0.60	0.58	2.86	2.86	0.00	MWD
140.00	1.80	100.00	139.96	-0.12	3.11	3.10	0.62	0.44	15.82	MWD
229.00	1.90	99.30	228.91	-0.60	5.95	5.97	0.12	0.11	-0.79	MWD
319.00	2.10	99.70	318.86	-1.12	9.04	9.11	0.22	0.22	0.44	MWD
426.00	2.10	102.50	425.79	-1.87	12.89	13.02	0.10	0.00	2.62	MWD
516.00	2.50	105.70	515.71	-2.76	16.39	16.62	0.47	0.44	3.56	MWD
607.00	2.80	104.90	606.62	-3.87	20.45	20.79	0.33	0.33	-0.88	MWD
698.00	2.80	110.60	697.51	-5.22	24.68	25.17	0.31	0.00	6.26	MWD
740.00	2.80	110.90	739.46	-5.95	26.59	27.18	0.03	0.00	0.71	MWD
785.00	3.15	112.51	784.40	-6.81	28.76	29.45	0.81	0.78	3.58	8 5/8"
791.00	3.20	112.70	790.39	-6.94	29.07	29.77	0.81	0.79	3.13	MWD
882.00	4.60	115.80	881.18	-9.51	34.70	35.72	1.56	1.54	3.41	MWD
972.00	6.90	109.90	970.72	-12.92	43.03	44.46	2.64	2.56	-6.56	MWD
1063.00	8.80	101.40	1060.86	-16.16	55.00	56.77	2.44	2.09	-9.34	MWD
1154.00	9.50	101.80	1150.70	-19.07	69.17	71.21	0.77	0.77	0.44	MWD
1245.00	10.90	99.30	1240.26	-22.00	85.02	87.31	1.61	1.54	-2.75	MWD
1336.00	11.80	98.30	1329.48	-24.73	102.71	105.22	1.01	0.99	-1.10	MWD
1426.00	12.00	98.30	1417.55	-27.41	121.08	123.78	0.22	0.22	0.00	MWD
1517.00	13.50	97.90	1506.30	-30.24	140.96	143.86	1.65	1.65	-0.44	MWD
1607.00	13.20	101.40	1593.87	-33.71	161.44	164.63	0.96	-0.33	3.89	MWD
1698.00	14.10	100.00	1682.30	-37.69	182.54	186.08	1.05	0.99	-1.54	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM
Field: Weld County, CO
Site: Sekich 15-17 Pad
Well: 37-17
Wellpath: Original Hole

Date:	03/20/2011	Time:	09:39:38	Page:	2
Co-ordinate(NE) Reference:	Well: 37-17, Grid North				
Vertical (TVD) Reference:	4865'GL+13'KB 4878.0				
Section (VS) Reference:	Well (0.00N,0.00E,98.37Azi)				
Survey Calculation Method:	Minimum Curvature				Db: 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
1789.00	15.00	98.60	1770.38	-41.37	205.10	208.94	1.06	0.99	-1.54	MWD
1880.00	16.90	95.50	1857.88	-44.40	229.91	233.93	2.29	2.09	-3.41	MWD
1971.00	17.80	97.20	1944.74	-47.41	256.88	261.05	1.14	0.99	1.87	MWD
2061.00	17.60	99.00	2030.48	-51.27	283.97	288.41	0.65	-0.22	2.00	MWD
2152.00	16.90	98.60	2117.38	-55.40	310.64	315.39	0.78	-0.77	-0.44	MWD
2243.00	18.10	99.00	2204.17	-59.59	337.68	342.75	1.33	1.32	0.44	MWD
2334.00	18.50	97.60	2290.57	-63.71	365.95	371.32	0.65	0.44	-1.54	MWD
2424.00	19.20	96.20	2375.74	-67.19	394.81	400.39	0.93	0.78	-1.56	MWD
2515.00	19.50	98.30	2461.60	-71.00	424.72	430.53	0.83	0.33	2.31	MWD
2606.00	18.80	97.20	2547.57	-75.03	454.30	460.38	0.87	-0.77	-1.21	MWD
2697.00	19.20	95.50	2633.61	-78.31	483.74	489.99	0.75	0.44	-1.87	MWD
2787.00	18.10	95.50	2718.88	-81.06	512.39	518.73	1.22	-1.22	0.00	MWD
2878.00	18.10	96.90	2805.38	-84.12	540.49	546.98	0.48	0.00	1.54	MWD
2969.00	18.30	97.60	2891.83	-87.70	568.69	575.40	0.33	0.22	0.77	MWD
3060.00	17.80	97.90	2978.35	-91.51	596.63	603.59	0.56	-0.55	0.33	MWD
3150.00	17.40	94.00	3064.14	-94.34	623.68	630.76	1.38	-0.44	-4.33	MWD
3241.00	17.10	93.30	3151.04	-96.06	650.61	657.66	0.40	-0.33	-0.77	MWD
3332.00	17.20	95.80	3238.00	-98.18	677.35	684.43	0.82	0.11	2.75	MWD
3423.00	16.50	100.00	3325.09	-101.79	703.46	710.79	1.54	-0.77	4.62	MWD
3514.00	16.90	100.00	3412.26	-106.33	729.21	736.93	0.44	0.44	0.00	MWD
3604.00	17.40	98.60	3498.25	-110.61	755.40	763.46	0.72	0.56	-1.56	MWD
3695.00	16.20	97.90	3585.37	-114.39	781.43	789.76	1.34	-1.32	-0.77	MWD
3786.00	17.60	97.20	3672.44	-117.86	807.66	816.21	1.55	1.54	-0.77	MWD
3877.00	17.20	100.00	3759.27	-121.92	834.56	843.41	1.02	-0.44	3.08	MWD
3967.00	17.20	100.00	3845.25	-126.54	860.77	870.02	0.00	0.00	0.00	MWD
4058.00	15.80	98.60	3932.50	-130.73	886.27	895.86	1.60	-1.54	-1.54	MWD
4149.00	14.80	95.80	4020.27	-133.76	910.08	919.86	1.37	-1.10	-3.08	MWD
4239.00	12.70	96.90	4107.69	-136.11	931.34	941.23	2.35	-2.33	1.22	MWD
4330.00	12.70	96.90	4196.46	-138.51	951.20	961.23	0.00	0.00	0.00	MWD
4421.00	13.90	96.20	4285.02	-140.90	972.00	982.16	1.33	1.32	-0.77	MWD
4511.00	12.50	93.70	4372.64	-142.69	992.47	1002.67	1.68	-1.56	-2.78	MWD
4602.00	11.60	93.00	4461.64	-143.81	1011.43	1021.59	1.00	-0.99	-0.77	MWD
4693.00	10.40	92.60	4550.96	-144.66	1028.77	1038.87	1.32	-1.32	-0.44	MWD
4784.00	9.50	93.30	4640.59	-145.46	1044.48	1054.53	1.00	-0.99	0.77	MWD
4874.00	7.60	100.40	4729.59	-146.97	1057.75	1067.87	2.41	-2.11	7.89	MWD
4965.00	6.20	98.30	4819.93	-148.76	1068.53	1078.80	1.56	-1.54	-2.31	MWD
5056.00	4.80	92.30	4910.51	-149.62	1077.20	1087.50	1.66	-1.54	-6.59	MWD
5147.00	2.30	89.10	5001.33	-149.75	1082.83	1093.09	2.75	-2.75	-3.52	MWD
5238.00	2.10	88.40	5092.26	-149.67	1086.32	1096.54	0.22	-0.22	-0.77	MWD
5328.00	1.20	112.70	5182.22	-149.99	1088.84	1099.07	1.25	-1.00	27.00	MWD
5419.00	0.90	99.70	5273.21	-150.48	1090.42	1100.71	0.42	-0.33	-14.29	MWD
5510.00	1.10	122.50	5364.20	-151.07	1091.86	1102.22	0.48	0.22	25.05	MWD
5601.00	1.10	136.60	5455.18	-152.17	1093.20	1103.71	0.30	0.00	15.49	MWD
5691.00	0.00	146.80	5545.17	-152.80	1093.79	1104.38	1.22	-1.22	0.00	MWD
5782.00	0.50	157.00	5636.17	-153.17	1093.95	1104.59	0.55	0.55	0.00	MWD
5873.00	0.70	211.80	5727.17	-154.00	1093.81	1104.58	0.64	0.22	60.22	MWD
5964.00	1.10	215.30	5818.16	-155.19	1093.01	1103.96	0.44	0.44	3.85	MWD
6100.00	0.90	224.80	5954.14	-157.01	1091.50	1102.73	0.19	-0.15	6.99	MWD
6236.00	1.40	227.30	6090.11	-158.90	1089.53	1101.06	0.37	0.37	1.84	MWD
6372.00	1.10	220.60	6226.08	-161.01	1087.46	1099.32	0.25	-0.22	-4.93	MWD
6508.00	1.20	214.30	6362.05	-163.18	1085.81	1098.00	0.12	0.07	-4.63	MWD
6644.00	1.10	281.80	6498.03	-164.09	1083.73	1096.07	0.94	-0.07	49.63	MWD
6781.00	1.20	275.10	6635.00	-163.70	1081.01	1093.33	0.12	0.07	-4.89	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Sekich 15-17 Pad Well: 37-17 Wellpath: Original Hole	Date: 03/20/2011 Co-ordinate(NE) Reference: Well: 37-17, Grid North Vertical (TVD) Reference: 4865'GL+13'KB 4878.0 Section (VS) Reference: Well (0.00N,0.00E,98.37Azi) Survey Calculation Method: Minimum Curvature Db: 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
6917.00	1.20	251.50	6770.97	-164.02	1078.24	1090.63	0.36	0.00	-17.35	MWD
7053.00	1.40	223.80	6906.94	-165.67	1075.74	1088.40	0.48	0.15	-20.37	MWD
7189.00	2.30	253.70	7042.87	-167.64	1071.97	1084.96	0.95	0.66	21.99	MWD
7325.00	1.60	300.40	7178.80	-167.44	1067.72	1080.72	1.23	-0.51	34.34	MWD
7507.00	0.90	275.80	7360.75	-166.01	1064.10	1076.93	0.48	-0.38	-13.52	MWD
7689.00	0.90	260.00	7542.73	-166.12	1061.27	1074.15	0.14	0.00	-8.68	MWD
7848.00	0.50	232.60	7701.72	-166.75	1059.49	1072.48	0.32	-0.25	-17.23	MWD
7869.28	0.50	232.60	7723.00	-166.87	1059.34	1072.35	0.00	0.00	0.00	37-17 PBHL
7893.00	0.50	232.60	7746.72	-166.99	1059.18	1072.21	0.00	0.00	0.00	37-17 BHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
37-17 SL			0.00	0.00	0.00	1323257.66	3164006.45	40	13	9.270 N	104	54	45.771 W
37-17 PBHL			7723.00	-159.82	1086.22	1323097.84	3165092.67	40	13	7.620 N	104	54	31.782 W
-Circle (Radius: 50)													
37-17 BHL			7746.72	-166.99	1059.18	1323090.67	3165065.63	40	13	7.551 N	104	54	32.131 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
785.00	784.40	8.625	9.875	8 5/8"