

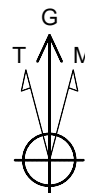
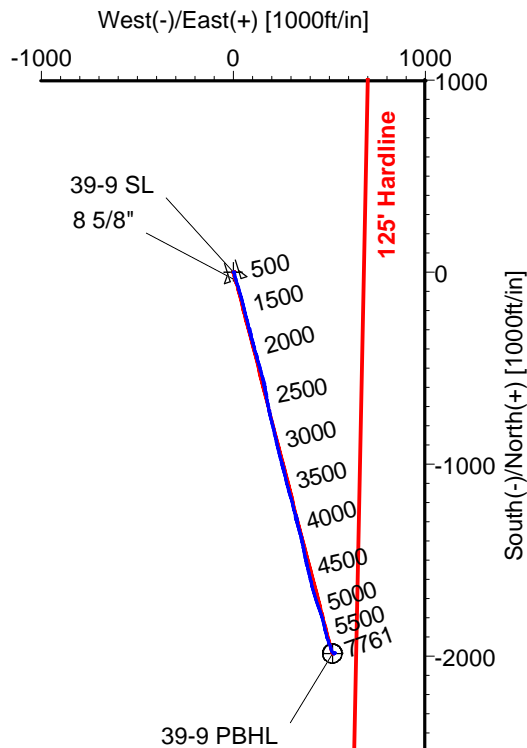
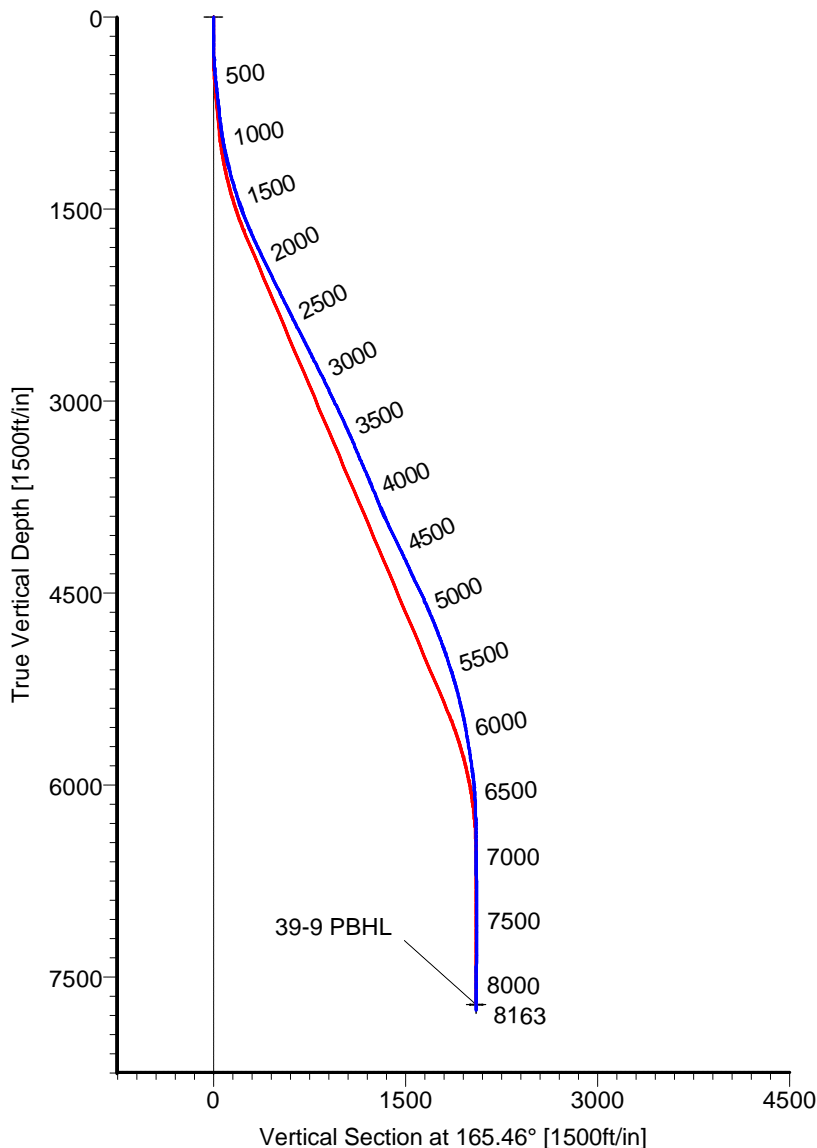
ANADARKO PETROLEUM

Field: Weld County, CO
Site: REI 8-9 Pad
Well: 39-9
Wellpath: Original Hole



LEGEND

- 39-9, Original Hole, Plan #1
- Original Hole



Azimuths to Grid North
True North: -0.54°
Magnetic North: 8.25°

Magnetic Field
Strength: 53093nT
Dip Angle: 66.94°
Date: 7/5/2011
Model: IGRF2010

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
39-9 SL	0.00	0.00	0.00	40°14'28.252N	104°39'41.452W	Point
39-9 PBHL	7716.00	-1986.31	515.17	40°14'08.576N	104°39'35.051W	Circle (Radius: 50)

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



Wellpath: (39-9/Original Hole)

Created By: Ashley Wischnewsky

Date: 6/1/2011

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: REI 8-9 Pad Well: 39-9 Wellpath: Original Hole				Date: 6/1/2011 Co-ordinate(NE) Reference: Well: 39-9, Grid North Vertical (TVD) Reference: 4816'GL+13'KB 4829.0 Section (VS) Reference: Well (0.00N,0.00E,165.46Azi) Survey Calculation Method: Minimum Curvature Db: Adapti				Time: 09:23:56 Page: 1		
Field: Weld County, CO <div style="display: flex; justify-content: space-between;"> <div> Map System: US State Plane Coordinate System 1983 Geo Datum: GRS 1980 Sys Datum: Mean Sea Level </div> <div> Map Zone: Colorado, Northern Zone Coordinate System: Well Centre Geomagnetic Model: IGRF2010 </div> </div>										
Site: REI 8-9 Pad <div style="display: flex; justify-content: space-between;"> <div> Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4816.00 ft </div> <div> Northing: 1331813.57 ft Easting: 3234093.02 ft </div> <div> Latitude: 40 14 28.252 N Longitude: 104 39 41.245 W North Reference: Grid Grid Convergence: 0.54 deg </div> </div>										
<div style="display: flex; justify-content: space-between;"> <div> Well: 39-9 Well Position: +N/-S -0.12 ft +E/-W -16.03 ft Position Uncertainty: 0.00 ft </div> <div> Slot Name: 39-9 Well Position: +N/-S -0.12 ft +E/-W -16.03 ft Position Uncertainty: 0.00 ft </div> <div> Latitude: 40 14 28.252 N Longitude: 104 39 41.452 W </div> </div>										
<div style="display: flex; justify-content: space-between;"> <div> Wellpath: Original Hole Current Datum: 4816'GL+13'KB Magnetic Data: 7/5/2011 Field Strength: 53093 nT Vertical Section: Depth From (TVD) ft </div> <div> Height: 4829.00 ft +N/-S ft </div> <div> Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.79 deg Mag Dip Angle: 66.94 deg +E/-W ft Direction deg </div> </div>										
0.00				0.00		0.00		165.46		
Survey Program for Definitive Wellpath <div style="display: flex; justify-content: space-between;"> <div> Date: 6/1/2011 Actual From ft To ft </div> <div> Validated: No Survey </div> <div> Version: 0 Toolcode </div> <div> Tool Name </div> </div>										
49.00 8118.00				Survey #1 (49.00-8118.00)		MWD		Std MWD		
8163.00 8163.00				Survey #2 (8163.00-8163.00)		Project		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
49.00	1.10	84.40	49.00	0.05	0.47	0.07	2.24	2.24	0.00	MWD
140.00	0.70	84.70	139.99	0.18	1.89	0.30	0.44	-0.44	0.33	MWD
229.00	1.80	151.90	228.97	-1.00	3.09	1.74	1.86	1.24	75.51	MWD
319.00	2.60	158.60	318.90	-4.15	4.50	5.15	0.93	0.89	7.44	MWD
426.00	4.80	169.10	425.67	-10.80	6.23	12.02	2.14	2.06	9.81	MWD
517.00	6.30	168.00	516.24	-19.43	7.99	20.81	1.65	1.65	-1.21	MWD
607.00	6.00	166.60	605.72	-28.83	10.11	30.45	0.37	-0.33	-1.56	MWD
698.00	6.30	162.10	696.20	-38.21	12.75	40.19	0.62	0.33	-4.95	MWD
755.00	6.30	163.10	752.86	-44.18	14.62	46.43	0.19	0.00	1.75	MWD
833.00	6.90	159.60	830.34	-52.67	17.49	55.37	0.93	0.77	-4.49	MWD
923.00	8.80	164.20	919.49	-64.36	21.25	67.63	2.22	2.11	5.11	MWD
1014.00	10.60	161.00	1009.19	-78.97	25.87	82.94	2.06	1.98	-3.52	MWD
1105.00	12.70	163.50	1098.31	-96.48	31.44	101.28	2.37	2.31	2.75	MWD
1195.00	15.10	165.90	1185.67	-117.34	37.11	122.89	2.74	2.67	2.67	MWD
1286.00	16.00	164.50	1273.34	-140.92	43.35	147.29	1.07	0.99	-1.54	MWD
1377.00	17.20	167.70	1360.54	-166.15	49.56	173.27	1.66	1.32	3.52	MWD
1468.00	18.30	168.40	1447.21	-193.29	55.30	200.99	1.23	1.21	0.77	MWD
1559.00	21.30	164.90	1532.82	-223.25	62.48	231.79	3.54	3.30	-3.85	MWD
1649.00	22.70	163.10	1616.27	-255.65	71.79	265.49	1.73	1.56	-2.00	MWD
1740.00	23.90	166.30	1699.85	-290.37	81.26	301.47	1.92	1.32	3.52	MWD
1831.00	25.30	165.90	1782.59	-327.14	90.36	339.34	1.55	1.54	-0.44	MWD

Survey Report

Company: ANADARKO PETROLEUM

Field: Weld County, CO

Site: REI 8-9 Pad

Well: 39-9

Wellpath: Original Hole

Date: 6/1/2011

Time: 09:23:56

Page: 2

Co-ordinate(NE) Reference: Well: 39-9, Grid North

Vertical (TVD) Reference: 4816'GL+13'KB 4829.0

Section (VS) Reference: Well (0.00N,0.00E,165.46Azi)

Survey Calculation Method: Minimum Curvature

Db: Adapti

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
1921.00	25.50	163.50	1863.89	-364.36	100.55	377.94	1.17	0.22	-2.67	MWD
2012.00	26.20	164.20	1945.79	-402.48	111.59	417.60	0.84	0.77	0.77	MWD
2103.00	26.40	164.90	2027.37	-441.34	122.33	457.91	0.41	0.22	0.77	MWD
2194.00	26.20	164.20	2108.95	-480.20	133.07	498.23	0.41	-0.22	-0.77	MWD
2284.00	26.90	165.20	2189.46	-519.00	143.68	538.45	0.92	0.78	1.11	MWD
2375.00	26.60	165.90	2270.72	-558.66	153.90	579.41	0.48	-0.33	0.77	MWD
2466.00	25.90	169.10	2352.34	-597.94	162.62	619.62	1.73	-0.77	3.52	MWD
2557.00	27.30	169.80	2433.70	-638.00	170.07	660.26	1.58	1.54	0.77	MWD
2648.00	27.40	169.10	2514.53	-679.10	177.73	701.97	0.37	0.11	-0.77	MWD
2738.00	26.40	168.80	2594.79	-719.06	185.53	742.61	1.12	-1.11	-0.33	MWD
2829.00	27.30	166.60	2675.98	-759.21	194.30	783.67	1.47	0.99	-2.42	MWD
2920.00	26.70	165.90	2757.06	-799.34	204.11	824.98	0.75	-0.66	-0.77	MWD
3011.00	25.90	166.30	2838.64	-838.48	213.80	865.30	0.90	-0.88	0.44	MWD
3102.00	25.30	167.70	2920.71	-876.78	222.65	904.60	0.94	-0.66	1.54	MWD
3192.00	25.90	166.60	3001.87	-914.70	231.30	943.47	0.85	0.67	-1.22	MWD
3283.00	25.30	165.90	3083.94	-952.89	240.65	982.79	0.74	-0.66	-0.77	MWD
3374.00	25.30	164.90	3166.21	-990.52	250.45	1021.67	0.47	0.00	-1.10	MWD
3465.00	23.90	165.60	3248.95	-1027.15	260.10	1059.55	1.57	-1.54	0.77	MWD
3556.00	22.90	165.20	3332.47	-1062.12	269.21	1095.69	1.11	-1.10	-0.44	MWD
3647.00	22.70	166.30	3416.36	-1096.30	277.89	1130.96	0.52	-0.22	1.21	MWD
3737.00	23.60	165.60	3499.11	-1130.62	286.48	1166.34	1.05	1.00	-0.78	MWD
3828.00	23.80	164.20	3582.43	-1165.94	296.01	1202.91	0.66	0.22	-1.54	MWD
3919.00	22.20	165.90	3666.20	-1200.28	305.20	1238.46	1.90	-1.76	1.87	MWD
4010.00	21.80	164.90	3750.57	-1233.27	313.79	1272.55	0.60	-0.44	-1.10	MWD
4100.00	22.50	166.60	3833.93	-1266.15	322.13	1306.48	1.05	0.78	1.89	MWD
4191.00	25.50	165.50	3917.05	-1302.07	331.08	1343.48	3.33	3.30	-1.21	MWD
4282.00	25.90	163.80	3999.05	-1340.12	341.52	1382.94	0.92	0.44	-1.87	MWD
4373.00	25.90	165.90	4080.92	-1378.48	351.91	1422.68	1.01	0.00	2.31	MWD
4464.00	25.90	168.80	4162.78	-1417.25	360.61	1462.39	1.39	0.00	3.19	MWD
4554.00	25.00	169.50	4244.04	-1455.23	367.90	1500.99	1.05	-1.00	0.78	MWD
4645.00	24.50	168.00	4326.69	-1492.60	375.33	1539.02	0.88	-0.55	-1.65	MWD
4736.00	25.70	165.90	4409.09	-1530.19	384.06	1577.60	1.64	1.32	-2.31	MWD
4827.00	25.20	167.30	4491.26	-1568.23	393.12	1616.70	0.86	-0.55	1.54	MWD
4917.00	24.60	166.30	4572.90	-1605.12	401.77	1654.58	0.81	-0.67	-1.11	MWD
5008.00	23.20	163.80	4656.09	-1640.74	411.26	1691.44	1.90	-1.54	-2.75	MWD
5098.00	22.20	163.80	4739.12	-1674.09	420.95	1726.15	1.11	-1.11	0.00	MWD
5190.00	20.90	161.00	4824.69	-1706.30	431.14	1759.89	1.80	-1.41	-3.04	MWD
5281.00	20.10	162.10	4909.93	-1736.53	441.23	1791.68	0.98	-0.88	1.21	MWD
5371.00	18.30	161.70	4994.92	-1764.66	450.42	1821.22	2.01	-2.00	-0.44	MWD
5462.00	18.30	162.40	5081.32	-1791.84	459.23	1849.74	0.24	0.00	0.77	MWD
5553.00	16.70	165.20	5168.10	-1818.10	466.89	1877.09	1.99	-1.76	3.08	MWD
5643.00	15.10	167.70	5254.66	-1842.06	472.69	1901.73	1.93	-1.78	2.78	MWD
5734.00	14.10	166.30	5342.72	-1864.41	477.84	1924.66	1.17	-1.10	-1.54	MWD
5825.00	12.50	164.20	5431.27	-1884.66	483.15	1945.59	1.84	-1.76	-2.31	MWD
5916.00	10.70	163.80	5520.41	-1902.25	488.18	1963.88	1.98	-1.98	-0.44	MWD
6006.00	9.70	163.50	5608.99	-1917.54	492.67	1979.81	1.11	-1.11	-0.33	MWD
6097.00	9.20	158.90	5698.76	-1931.68	497.47	1994.70	0.99	-0.55	-5.05	MWD
6188.00	8.40	158.90	5788.68	-1944.67	502.48	2008.53	0.88	-0.88	0.00	MWD
6279.00	8.10	159.30	5878.74	-1956.86	507.14	2021.51	0.34	-0.33	0.44	MWD
6369.00	6.20	160.70	5968.04	-1967.38	510.98	2032.66	2.12	-2.11	1.56	MWD
6460.00	4.40	153.30	6058.65	-1975.14	514.18	2040.97	2.11	-1.98	-8.13	MWD
6551.00	2.80	153.30	6149.46	-1980.25	516.74	2046.55	1.76	-1.76	0.00	MWD
6642.00	1.40	129.00	6240.40	-1982.93	518.61	2049.62	1.79	-1.54	-26.70	MWD

Survey Report

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Field: Weld County, CO

Site: REI 8-9 Pad

Well: 39-9

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Date: 6/1/2011

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Survey Calculation Method: Minimum Curvature

Db: Adapti

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
6733.00	1.20	117.10	6331.38	-1984.06	520.32	2051.15	0.37	-0.22	-13.08	MWD
6823.00	1.10	128.70	6421.36	-1985.03	521.83	2052.47	0.28	-0.11	12.89	MWD
6914.00	0.40	146.60	6512.35	-1985.85	522.69	2053.47	0.80	-0.77	19.67	MWD
7096.00	0.40	159.30	6694.35	-1986.97	523.26	2054.70	0.05	0.00	6.98	MWD
7277.00	0.20	169.50	6875.34	-1987.87	523.54	2055.64	0.11	-0.11	5.64	MWD
7459.00	0.00	1.80	7057.34	-1988.18	523.60	2055.96	0.11	-0.11	0.00	MWD
7640.00	0.20	59.80	7238.34	-1988.02	523.87	2055.88	0.11	0.11	0.00	MWD
7822.00	0.70	18.30	7420.34	-1986.81	524.50	2054.86	0.31	0.27	-22.80	MWD
8003.00	0.90	21.80	7601.32	-1984.44	525.37	2052.78	0.11	0.11	1.93	MWD
8095.00	0.90	8.80	7693.31	-1983.06	525.75	2051.54	0.22	0.00	-14.13	MWD
8118.00	0.90	9.50	7716.31	-1982.70	525.81	2051.21	0.05	0.00	3.04	MWD
8163.00	0.90	9.50	7761.30	-1982.00	525.93	2050.56	0.00	0.00	0.00	PROJECTED to TD