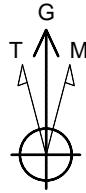


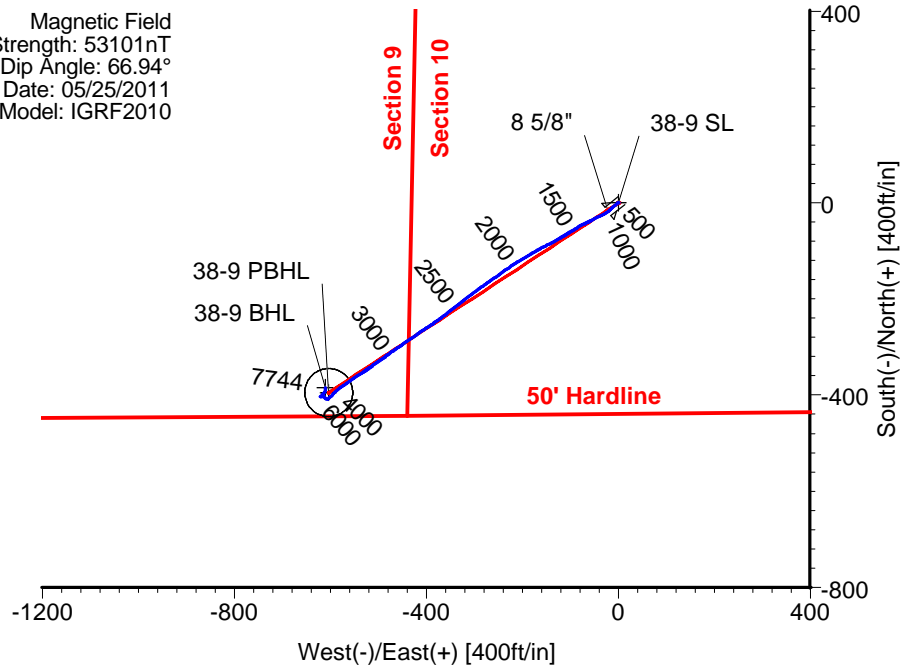
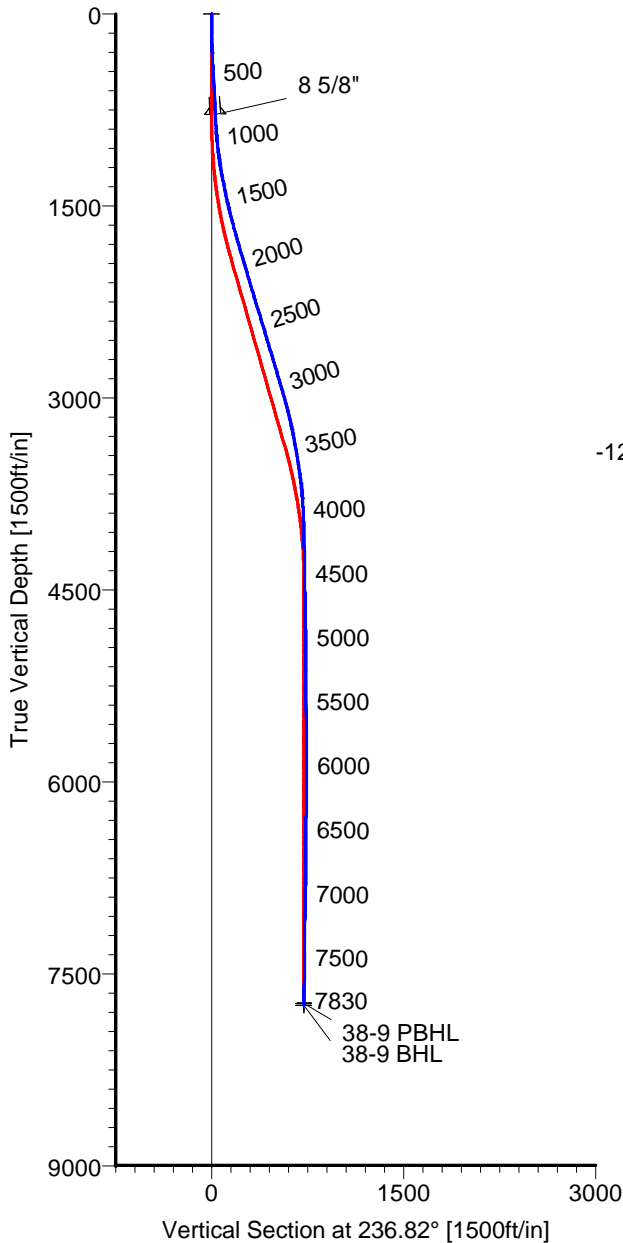
# ANADARKO PETROLEUM

Field: Weld County, CO  
Site: REI 13-10 Pad  
Well: 38-9  
Wellpath: Original Hole



Azimuths to Grid North  
True North:  $-0.54^{\circ}$   
Magnetic North:  $8.26^{\circ}$

Magnetic Field  
Strength: 53101nT  
Dip Angle:  $66.94^{\circ}$   
Date: 05/25/2011  
Model: IGRF2010



## CASING DETAILS

No.	TVD	MD	Name	Size
1	784.29	785.00	8 5/8"	8.625

## LEGEND

- 38-9, Original Hole, Plan #2
- Original Hole

## TARGET DETAILS

Name	TVD	+N-S	+E-W	Latitude	Longitude	Shape
38-9 SL	0.00	0.00	0.00	40°14'01.748N	104°39'28.145W	Point
38-9 PBHL	7731.00	-394.78	-603.75	40°13'57.903N	104°39'35.978W	Circle (Radius: 50)
38-9 BHL	7743.51	-384.92	-610.24	40°13'58.001N	104°39'36.060W	Circle (Radius: 50)

Wellpath: (38-9/Original Hole)

Created By: Ivonne Gonzalez

Date: 06/13/2011

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

**Archer**

# ARCHER

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM <b>Field:</b> Weld County, CO <b>Site:</b> REI 13-10 Pad <b>Well:</b> 38-9 <b>Wellpath:</b> Original Hole	<b>Date:</b> 06/13/2011 <b>Co-ordinate(NE) Reference:</b> <b>Vertical (TVD) Reference:</b> <b>Section (VS) Reference:</b> <b>Survey Calculation Method:</b>	<b>Time:</b> 08:14:28 Well: 38-9, Grid North 4816'GL+15'KB 4831.0 Well (0.00N,0.00E,236.82Azi) Minimum Curvature	<b>Page:</b> 1 <b>Db:</b> Adapti
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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
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<b>Site:</b> REI 13-10 Pad  Centered on 38-9 <b>Site Position:</b> <b>From:</b> Geographic <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 4816.00 ft	<b>Northing:</b> 1329141.36 ft <b>Easting:</b> 3235134.29 ft  <b>Latitude:</b> 40 14 1.748 N <b>Longitude:</b> 104 39 28.145 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 0.54 deg
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<b>Well:</b> 38-9  <b>Well Position:</b> +N/-S 0.00 ft +E/-W 0.00 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Slot Name:</b> 38-9  <b>Latitude:</b> 40 14 1.748 N <b>Longitude:</b> 104 39 28.145 W
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<b>Wellpath:</b> Original Hole  <b>Current Datum:</b> 4816'GL+15'KB <b>Magnetic Data:</b> 05/25/2011 <b>Field Strength:</b> 53101 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> 8.80 deg <b>Mag Dip Angle:</b> 66.94 deg <b>Direction</b> deg
Height 4831.00 ft +N/-S ft 0.00	+E/-W ft 0.00

<b>Survey Program for Definitive Wellpath</b>				
<b>Date:</b> 06/13/2011	<b>Validated:</b> No	<b>Version:</b> 0		
<b>Actual From</b> ft	<b>To</b> ft	<b>Survey</b>	<b>Toolcode</b>	<b>Tool Name</b>
49.00	7777.00	Survey #1 (49.00-7777.00)	MWD	Std MWD
7830.00	7830.00	Survey #2 (7830.00-7830.00)	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	0.70	283.70	49.00	0.07	-0.29	0.20	1.43	1.43	0.00	MWD
140.00	0.20	253.80	140.00	0.16	-0.98	0.74	0.59	-0.55	-32.86	MWD
229.00	0.40	261.90	228.99	0.07	-1.44	1.17	0.23	0.22	9.10	MWD
319.00	2.60	230.30	318.96	-1.28	-3.32	3.48	2.52	2.44	-35.11	MWD
425.00	3.00	229.20	424.83	-4.63	-7.27	8.62	0.38	0.38	-1.04	MWD
516.00	3.20	225.70	515.70	-7.96	-10.89	13.47	0.30	0.22	-3.85	MWD
607.00	3.20	225.70	606.56	-11.50	-14.53	18.45	0.00	0.00	0.00	MWD
698.00	3.20	226.10	697.42	-15.04	-18.18	23.44	0.02	0.00	0.44	MWD
740.00	3.00	233.10	739.35	-16.51	-19.90	25.69	1.02	-0.48	16.67	MWD
833.00	3.00	230.60	832.23	-19.52	-23.73	30.54	0.14	0.00	-2.69	MWD
923.00	4.00	242.20	922.06	-22.48	-28.32	36.00	1.36	1.11	12.89	MWD
1014.00	6.00	245.40	1012.71	-25.94	-35.46	43.87	2.22	2.20	3.52	MWD
1105.00	7.40	243.30	1103.08	-30.55	-45.02	54.39	1.56	1.54	-2.31	MWD
1196.00	9.70	244.70	1193.07	-36.46	-57.18	67.81	2.54	2.53	1.54	MWD
1287.00	11.10	242.60	1282.57	-43.77	-71.89	84.12	1.59	1.54	-2.31	MWD
1377.00	11.40	240.10	1370.84	-52.19	-87.29	101.62	0.64	0.33	-2.78	MWD
1468.00	12.50	238.00	1459.87	-61.89	-103.44	120.45	1.30	1.21	-2.31	MWD
1559.00	14.40	239.80	1548.37	-72.80	-121.58	141.60	2.14	2.09	1.98	MWD
1650.00	15.00	241.90	1636.39	-84.04	-141.74	164.63	0.88	0.66	2.31	MWD
1741.00	15.50	242.60	1724.19	-95.18	-162.93	188.45	0.59	0.55	0.77	MWD
1831.00	16.40	239.10	1810.72	-107.24	-184.51	213.12	1.46	1.00	-3.89	MWD

# ARCHER

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM <b>Field:</b> Weld County, CO <b>Site:</b> REI 13-10 Pad <b>Well:</b> 38-9 <b>Wellpath:</b> Original Hole	<b>Date:</b> 06/13/2011 <b>Co-ordinate(NE) Reference:</b> Well: 38-9, Grid North <b>Vertical (TVD) Reference:</b> 4816'GL+15'KB 4831.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,236.82Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Adapti
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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
1922.00	16.70	239.10	1897.95	-120.55	-206.75	239.02	0.33	0.33	0.00	MWD
2013.00	16.50	234.50	1985.16	-134.77	-228.49	264.99	1.46	-0.22	-5.05	MWD
2104.00	16.40	233.80	2072.44	-149.87	-249.38	290.73	0.24	-0.11	-0.77	MWD
2194.00	16.40	235.20	2158.78	-164.62	-270.06	316.12	0.44	0.00	1.56	MWD
2285.00	17.10	234.50	2245.92	-179.72	-291.50	342.33	0.80	0.77	-0.77	MWD
2376.00	16.90	232.70	2332.94	-195.51	-312.92	368.89	0.62	-0.22	-1.98	MWD
2467.00	17.10	232.00	2419.96	-211.76	-333.98	395.42	0.31	0.22	-0.77	MWD
2557.00	16.50	232.00	2506.12	-227.77	-354.48	421.34	0.67	-0.67	0.00	MWD
2648.00	16.40	234.20	2593.40	-243.24	-375.08	447.05	0.69	-0.11	2.42	MWD
2739.00	16.90	237.00	2680.58	-257.96	-396.60	473.11	1.04	0.55	3.08	MWD
2830.00	16.40	234.50	2767.77	-272.63	-418.15	499.17	0.96	-0.55	-2.75	MWD
2921.00	16.70	236.30	2855.00	-287.34	-439.48	525.08	0.65	0.33	1.98	MWD
3012.00	16.40	234.90	2942.23	-301.98	-460.87	551.00	0.55	-0.33	-1.54	MWD
3102.00	15.30	233.80	3028.81	-316.30	-480.85	575.55	1.27	-1.22	-1.22	MWD
3193.00	13.90	234.50	3116.87	-329.74	-499.44	598.47	1.55	-1.54	0.77	MWD
3284.00	12.70	234.90	3205.42	-341.84	-516.52	619.39	1.32	-1.32	0.44	MWD
3375.00	10.70	237.30	3294.53	-352.16	-531.82	637.83	2.26	-2.20	2.64	MWD
3465.00	10.20	235.90	3383.04	-361.14	-545.45	654.16	0.62	-0.56	-1.56	MWD
3556.00	9.30	235.90	3472.72	-369.78	-558.21	669.56	0.99	-0.99	0.00	MWD
3647.00	8.50	232.40	3562.63	-378.01	-569.62	683.62	1.06	-0.88	-3.85	MWD
3737.00	7.00	236.60	3651.80	-385.08	-579.47	695.74	1.78	-1.67	4.67	MWD
3873.00	3.90	223.30	3787.18	-393.01	-589.57	708.53	2.45	-2.28	-9.78	MWD
4010.00	2.40	227.10	3923.96	-398.36	-594.86	715.88	1.10	-1.09	2.77	MWD
4146.00	1.30	220.40	4059.89	-401.47	-597.95	720.17	0.82	-0.81	-4.93	MWD
4282.00	1.10	227.10	4195.86	-403.53	-599.91	722.94	0.18	-0.15	4.93	MWD
4419.00	0.80	233.80	4332.84	-404.99	-601.64	725.19	0.23	-0.22	4.89	MWD
4555.00	0.80	218.30	4468.83	-406.30	-603.00	727.04	0.16	0.00	-11.40	MWD
4737.00	1.20	242.20	4650.80	-408.19	-605.47	730.14	0.31	0.22	13.13	MWD
4918.00	0.90	298.10	4831.78	-408.40	-608.40	732.71	0.56	-0.17	30.88	MWD
5100.00	0.70	324.20	5013.76	-406.82	-610.31	733.45	0.23	-0.11	14.34	MWD
5281.00	1.20	310.10	5194.73	-404.71	-612.41	734.04	0.30	0.28	-7.79	MWD
5463.00	0.90	256.70	5376.71	-403.81	-615.26	735.93	0.54	-0.16	-29.34	MWD
5644.00	0.90	278.40	5557.69	-403.93	-618.05	738.33	0.19	0.00	11.99	MWD
5826.00	0.40	278.40	5739.67	-403.63	-620.09	739.88	0.27	-0.27	0.00	MWD
6007.00	0.20	263.00	5920.67	-403.57	-621.03	740.64	0.12	-0.11	-8.51	MWD
6189.00	0.90	58.00	6102.66	-402.85	-620.13	739.49	0.60	0.38	85.16	MWD
6370.00	0.50	44.00	6283.65	-401.53	-618.38	737.30	0.24	-0.22	-7.73	MWD
6552.00	0.40	25.30	6465.64	-400.39	-617.55	735.98	0.10	-0.05	-10.27	MWD
6733.00	0.40	59.10	6646.64	-399.49	-616.74	734.81	0.13	0.00	18.67	MWD
6915.00	1.10	40.80	6828.62	-397.84	-615.05	732.50	0.40	0.38	-10.05	MWD
7096.00	1.20	34.50	7009.59	-394.97	-612.84	729.08	0.09	0.06	-3.48	MWD
7278.00	1.10	17.20	7191.55	-391.73	-611.25	725.97	0.20	-0.05	-9.51	MWD
7459.00	0.70	357.20	7372.53	-388.96	-610.79	724.07	0.28	-0.22	-11.05	MWD
7641.00	0.70	14.10	7554.52	-386.77	-610.57	722.69	0.11	0.00	9.29	MWD
7777.00	0.50	7.00	7690.51	-385.38	-610.30	721.70	0.16	-0.15	-5.22	MWD
7817.49	0.50	7.00	7731.00	-385.03	-610.25	721.47	0.00	0.00	0.00	38-9 PBHL
7830.00	0.50	7.00	7743.51	-384.92	-610.24	721.40	0.00	0.00	0.00	38-9 BHL

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec			<--- Longitude ---> Deg Min Sec		
38-9 SL			0.00	0.00	0.00	1329141.36	3235134.29	40	14	1.748 N	104	39	28.145 W
38-9 PBHL			7731.00	-394.78	-603.75	1328746.58	3234530.53	40	13	57.903 N	104	39	35.978 W

# ARCHER

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM	<b>Date:</b> 06/13/2011	<b>Time:</b> 08:14:28	<b>Page:</b> 3
<b>Field:</b> Weld County, CO	<b>Co-ordinate(NE) Reference:</b>	Well: 38-9, Grid North	
<b>Site:</b> REI 13-10 Pad	<b>Vertical (TVD) Reference:</b>	4816'GL+15'KB 4831.0	
<b>Well:</b> 38-9	<b>Section (VS) Reference:</b>	Well (0.00N,0.00E,236.82Azi)	
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature	<b>Db:</b> Adapti

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
								Deg	Min	Sec	Deg	Min	Sec
-Circle (Radius: 50) 38-9 BHL			7743.51	-384.92	-610.24	1328756.44	3234524.05	40	13	58.001 N	104	39	36.060 W