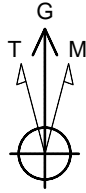


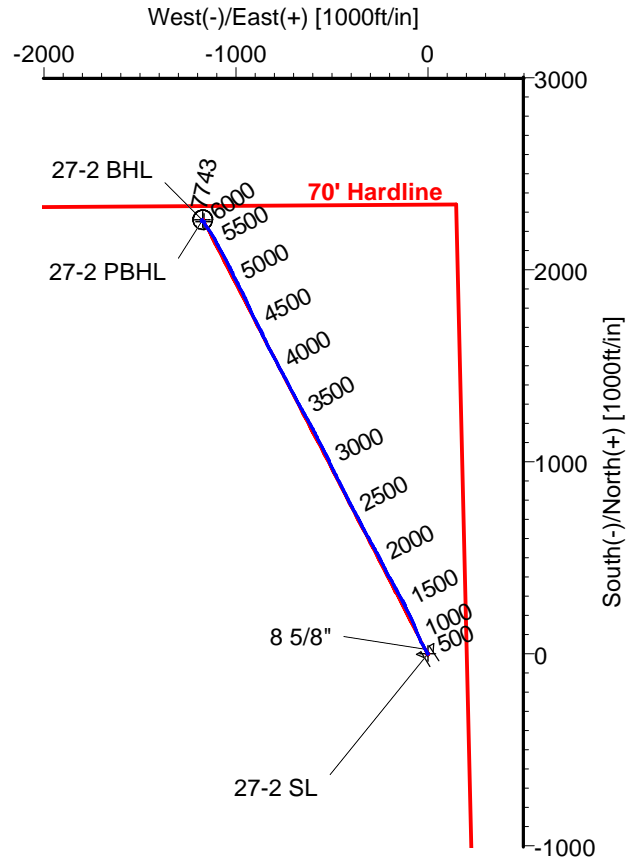
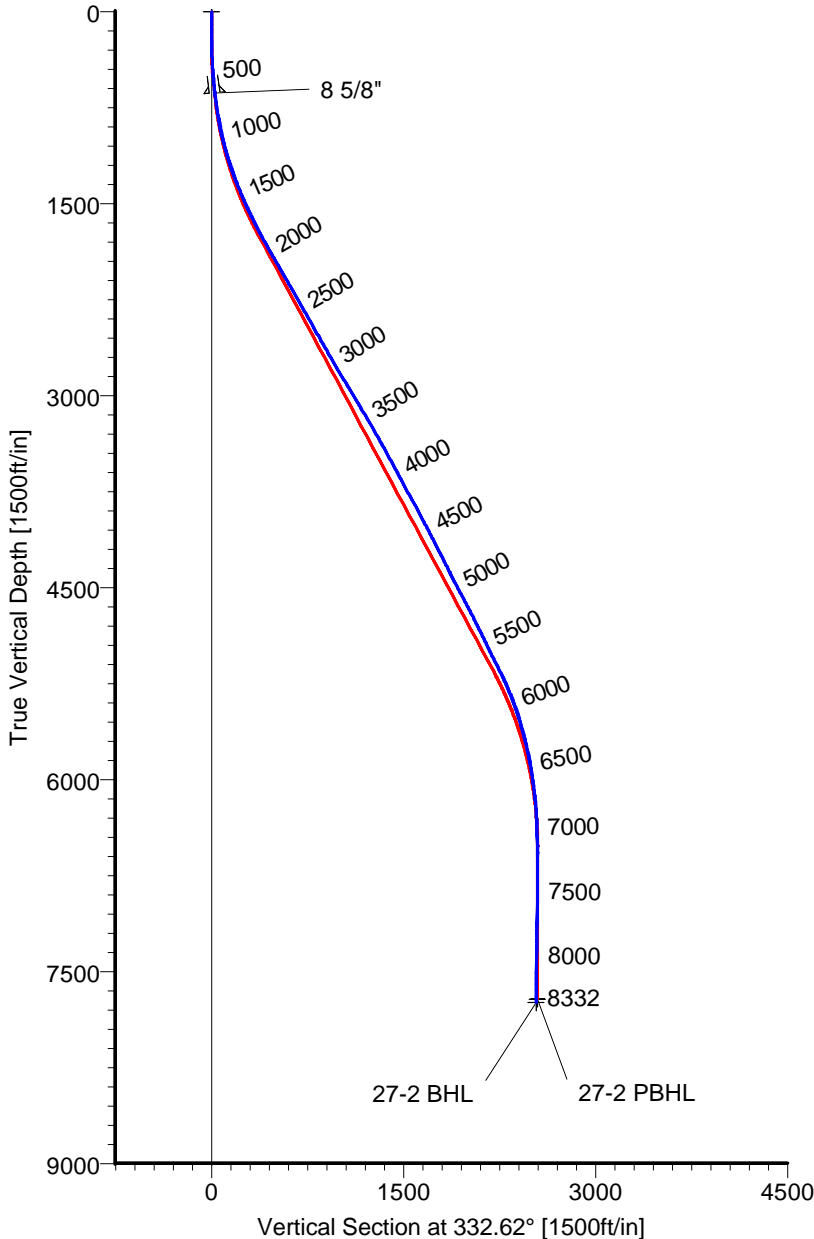
# ANADARKO PETROLEUM

Field: Weld County, CO  
Site: Shelton 40-2 Pad  
Well: 27-2  
Wellpath: Original Hole



Azimuths to Grid North  
True North: -0.57°  
Magnetic North: 8.17°

Magnetic Field  
Strength: 53072nT  
Dip Angle: 66.93°  
Date: 09/26/2011  
Model: IGRF2010



## CASING DETAILS

No.	TVD	MD	Name	Size
1	637.03	638.00	8 5/8"	8.625

## LEGEND

- 27-2, Original Hole, Plan #2
- Original Hole

## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
27-2 SL	0.00	0.00	0.00	40°15'18.302N	104°37'17.497W	Point
27-2 PBHL	7717.00	2262.28	-1171.65	40°15'40.772N	104°37'32.321W	Circle (Radius: 50)
27-2 BHL	7742.88	2252.74	-1165.57	40°15'40.677N	104°37'32.244W	Point

Wellpath: (27-2/Original Hole)

Created By: Ivonne Gonzalez

Date: 08/31/2011

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> Shelton 40-2 Pad <b>Well:</b> 27-2 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/31/2011 <b>Co-ordinate(NE) Reference:</b> <b>Vertical (TVD) Reference:</b> <b>Section (VS) Reference:</b> <b>Survey Calculation Method:</b>	<b>Time:</b> 07:50:17 Well: 27-2, Grid North 4817'GL+15'KB 4832.0 Well (0.00N,0.00E,332.62Azi) 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> Shelton 40-2 Pad  Centered on 27-2 <b>Site Position:</b> <b>From:</b> Geographic <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 4817.00 ft	<b>Northing:</b> 1336985.84 ft <b>Easting:</b> 3245189.31 ft  <b>Latitude:</b> 40 15 18.302 N <b>Longitude:</b> 104 37 17.497 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 0.57 deg
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<b>Well:</b> 27-2  <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> 27-2  <b>Latitude:</b> 40 15 18.302 N <b>Longitude:</b> 104 37 17.497 W
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<b>Wellpath:</b> Original Hole  <b>Current Datum:</b> 4817'GL+15'KB <b>Magnetic Data:</b> 09/26/2011 <b>Field Strength:</b> 53072 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> 8.74 deg <b>Mag Dip Angle:</b> 66.93 deg <b>+N/-S</b> ft <b>+E/-W</b> ft <b>Direction</b> deg
0.00	0.00

<b>Survey Program for Definitive Wellpath</b>				
<b>Date:</b> 08/31/2011	<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>
50.00	8287.00	Survey #1 (50.00-8287.00)	MWD	Std MWD
8332.00	8332.00	Survey #2 (8332.00-8332.00)	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
50.00	0.50	311.40	50.00	0.14	-0.16	0.20	1.00	1.00	0.00	MWD
139.00	0.20	13.70	139.00	0.55	-0.42	0.68	0.50	-0.34	70.00	MWD
228.00	0.50	328.70	228.00	1.03	-0.58	1.19	0.43	0.34	-50.56	MWD
319.00	2.10	335.00	318.97	2.89	-1.49	3.25	1.76	1.76	6.92	MWD
397.00	3.20	334.60	396.89	6.15	-3.03	6.85	1.41	1.41	-0.51	MWD
487.00	4.20	338.90	486.70	11.49	-5.30	12.64	1.15	1.11	4.78	MWD
578.00	5.50	326.20	577.37	18.22	-8.92	20.29	1.84	1.43	-13.96	MWD
608.00	6.20	327.30	607.22	20.78	-10.60	23.33	2.36	2.33	3.67	MWD
638.00	6.66	328.25	637.03	23.62	-12.39	26.67	1.57	1.52	3.18	8 5/8"
745.00	8.30	330.80	743.11	35.64	-19.42	40.58	1.57	1.54	2.38	MWD
836.00	9.30	332.90	833.04	47.92	-25.97	54.50	1.15	1.10	2.31	MWD
927.00	12.00	332.50	922.46	62.86	-33.69	71.31	2.97	2.97	-0.44	MWD
1018.00	14.10	336.40	1011.11	81.41	-42.50	91.84	2.50	2.31	4.29	MWD
1109.00	16.00	336.40	1098.99	103.06	-51.96	115.41	2.09	2.09	0.00	MWD
1199.00	17.80	340.30	1185.10	127.38	-61.56	141.43	2.36	2.00	4.33	MWD
1290.00	20.20	337.10	1271.14	154.96	-72.37	170.88	2.87	2.64	-3.52	MWD
1381.00	22.30	335.30	1355.95	185.12	-85.70	203.79	2.42	2.31	-1.98	MWD
1472.00	23.10	335.30	1439.90	217.02	-100.37	238.87	0.88	0.88	0.00	MWD
1563.00	24.30	331.80	1523.22	249.75	-116.68	275.43	2.03	1.32	-3.85	MWD
1653.00	26.20	331.10	1604.62	283.46	-135.03	313.81	2.14	2.11	-0.78	MWD
1744.00	27.80	331.80	1685.70	319.75	-154.77	355.11	1.79	1.76	0.77	MWD

# ARCHER

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM <b>Field:</b> Weld County, CO <b>Site:</b> Shelton 40-2 Pad <b>Well:</b> 27-2 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/31/2011 <b>Co-ordinate(NE) Reference:</b> Well: 27-2, Grid North <b>Vertical (TVD) Reference:</b> 4817'GL+15'KB 4832.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,332.62Azi) <b>Survey Calculation Method:</b> Minimum Curvature	<b>Time:</b> 07:50:17 <b>Page:</b> 2 <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
1835.00	29.00	331.10	1765.75	357.77	-175.46	398.38	1.37	1.32	-0.77	MWD
1926.00	29.20	331.80	1845.26	396.64	-196.61	442.63	0.43	0.22	0.77	MWD
2016.00	29.60	332.50	1923.67	435.71	-217.25	486.81	0.59	0.44	0.78	MWD
2107.00	29.70	333.20	2002.76	475.76	-237.79	531.82	0.40	0.11	0.77	MWD
2198.00	30.10	331.80	2081.64	516.00	-258.74	577.18	0.88	0.44	-1.54	MWD
2288.00	29.90	331.10	2159.59	555.52	-280.24	622.17	0.45	-0.22	-0.78	MWD
2379.00	29.90	330.40	2238.47	595.10	-302.41	667.51	0.38	0.00	-0.77	MWD
2470.00	29.90	331.50	2317.36	634.76	-324.43	712.85	0.60	0.00	1.21	MWD
2561.00	29.40	332.50	2396.45	674.50	-345.57	757.87	0.77	-0.55	1.10	MWD
2652.00	29.20	332.50	2475.81	714.00	-366.13	802.40	0.22	-0.22	0.00	MWD
2742.00	29.60	331.10	2554.22	752.94	-387.01	846.57	0.88	0.44	-1.56	MWD
2833.00	29.70	333.20	2633.30	792.74	-408.04	891.58	1.15	0.11	2.31	MWD
2924.00	30.60	332.90	2711.99	833.48	-428.76	937.29	1.00	0.99	-0.33	MWD
3015.00	30.60	333.60	2790.32	874.84	-449.61	983.61	0.39	0.00	0.77	MWD
3106.00	30.60	332.90	2868.65	916.21	-470.45	1029.93	0.39	0.00	-0.77	MWD
3196.00	31.10	334.60	2945.91	957.60	-490.86	1076.06	1.12	0.56	1.89	MWD
3287.00	31.00	334.60	3023.87	1000.00	-510.99	1122.97	0.11	-0.11	0.00	MWD
3378.00	30.30	332.90	3102.16	1041.60	-531.50	1169.35	1.22	-0.77	-1.87	MWD
3469.00	30.60	332.90	3180.61	1082.66	-552.51	1215.47	0.33	0.33	0.00	MWD
3560.00	30.30	332.90	3259.06	1123.71	-573.52	1261.58	0.33	-0.33	0.00	MWD
3650.00	29.60	332.50	3337.04	1163.64	-594.13	1306.52	0.81	-0.78	-0.44	MWD
3741.00	28.90	330.80	3416.44	1202.77	-615.23	1350.97	1.19	-0.77	-1.87	MWD
3832.00	28.90	330.40	3496.11	1241.08	-636.82	1394.92	0.21	0.00	-0.44	MWD
3923.00	28.20	330.10	3576.04	1278.84	-658.40	1438.37	0.79	-0.77	-0.33	MWD
4014.00	28.30	332.20	3656.20	1316.56	-679.18	1481.43	1.10	0.11	2.31	MWD
4104.00	28.20	332.20	3735.48	1354.25	-699.05	1524.02	0.11	-0.11	0.00	MWD
4195.00	28.30	332.90	3815.64	1392.47	-718.90	1567.09	0.38	0.11	0.77	MWD
4286.00	28.20	332.50	3895.81	1430.74	-738.66	1610.17	0.24	-0.11	-0.44	MWD
4377.00	28.20	330.40	3976.01	1468.51	-759.21	1653.15	1.09	0.00	-2.31	MWD
4468.00	27.40	331.80	4056.50	1505.66	-779.72	1695.58	1.13	-0.88	1.54	MWD
4559.00	26.90	332.50	4137.48	1542.37	-799.12	1737.10	0.65	-0.55	0.77	MWD
4650.00	27.60	332.90	4218.38	1579.40	-818.23	1778.77	0.80	0.77	0.44	MWD
4740.00	26.60	333.20	4298.49	1615.95	-836.81	1819.76	1.12	-1.11	0.33	MWD
4831.00	26.20	333.90	4380.00	1652.17	-854.84	1860.22	0.56	-0.44	0.77	MWD
4922.00	27.80	333.20	4461.08	1689.15	-873.24	1901.52	1.79	1.76	-0.77	MWD
5013.00	28.30	333.90	4541.39	1727.47	-892.30	1944.31	0.66	0.55	0.77	MWD
5103.00	28.00	335.00	4620.75	1765.77	-910.62	1986.75	0.67	-0.33	1.22	MWD
5194.00	26.90	335.00	4701.50	1803.79	-928.34	2028.66	1.21	-1.21	0.00	MWD
5285.00	26.70	336.00	4782.73	1841.12	-945.36	2069.64	0.54	-0.22	1.10	MWD
5376.00	26.20	333.60	4864.21	1877.80	-962.61	2110.13	1.30	-0.55	-2.64	MWD
5467.00	25.50	332.00	4946.10	1913.09	-980.74	2149.80	1.09	-0.77	-1.76	MWD
5557.00	26.60	332.30	5026.96	1948.03	-999.20	2189.33	1.23	1.22	0.33	MWD
5648.00	26.90	334.30	5108.22	1984.62	-1017.60	2230.28	1.04	0.33	2.20	MWD
5739.00	25.70	332.50	5189.80	2020.67	-1035.63	2270.59	1.58	-1.32	-1.98	MWD
5830.00	23.60	332.90	5272.50	2054.40	-1053.05	2308.54	2.31	-2.31	0.44	MWD
5921.00	21.60	333.20	5356.51	2085.57	-1068.90	2343.51	2.20	-2.20	0.33	MWD
6012.00	19.50	332.50	5441.71	2113.99	-1083.46	2375.45	2.32	-2.31	-0.77	MWD
6102.00	17.10	330.40	5527.16	2138.82	-1096.94	2403.70	2.77	-2.67	-2.33	MWD
6193.00	15.50	330.40	5614.50	2161.03	-1109.55	2429.22	1.76	-1.76	0.00	MWD
6284.00	13.70	327.60	5702.56	2180.70	-1121.33	2452.10	2.12	-1.98	-3.08	MWD
6375.00	12.50	326.20	5791.19	2197.99	-1132.59	2472.63	1.36	-1.32	-1.54	MWD
6465.00	10.20	325.80	5879.42	2212.67	-1142.49	2490.22	2.56	-2.56	-0.44	MWD
6556.00	8.80	324.80	5969.17	2225.03	-1151.03	2505.12	1.55	-1.54	-1.10	MWD

# ARCHER

## Survey Report

<b>Company:</b> ANADARKO PETROLEUM <b>Field:</b> Weld County, CO <b>Site:</b> Shelton 40-2 Pad <b>Well:</b> 27-2 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/31/2011 <b>Co-ordinate(NE) Reference:</b> Well: 27-2, Grid North <b>Vertical (TVD) Reference:</b> 4817'GL+15'KB 4832.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,332.62Azi) <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
6647.00	7.40	326.00	6059.26	2235.57	-1158.32	2517.83	1.55	-1.54	1.32	MWD
6738.00	5.80	325.00	6149.65	2244.20	-1164.23	2528.21	1.76	-1.76	-1.10	MWD
6828.00	4.00	325.10	6239.32	2250.50	-1168.64	2535.83	2.00	-2.00	0.11	MWD
6919.00	2.80	325.80	6330.16	2254.94	-1171.70	2541.19	1.32	-1.32	0.77	MWD
7010.00	1.60	330.80	6421.09	2257.89	-1173.57	2544.66	1.33	-1.32	5.49	MWD
7100.00	1.60	324.40	6511.06	2260.01	-1174.92	2547.16	0.20	0.00	-7.11	MWD
7191.00	0.40	178.20	6602.05	2260.72	-1175.65	2548.13	2.14	-1.32	-160.66	MWD
7282.00	0.70	219.30	6693.04	2259.97	-1175.99	2547.63	0.52	0.33	45.16	MWD
7373.00	0.70	222.10	6784.03	2259.13	-1176.71	2547.21	0.04	0.00	3.08	MWD
7464.00	0.70	219.00	6875.03	2258.29	-1177.44	2546.79	0.04	0.00	-3.41	MWD
7554.00	0.70	210.90	6965.02	2257.39	-1178.06	2546.29	0.11	0.00	-9.00	MWD
7736.00	0.70	116.70	7147.01	2255.93	-1177.64	2544.80	0.56	0.00	-51.76	MWD
7918.00	1.40	99.80	7328.98	2255.06	-1174.46	2542.56	0.42	0.38	-9.29	MWD
8099.00	1.40	105.40	7509.93	2254.09	-1170.15	2539.72	0.08	0.00	3.09	MWD
8281.00	1.10	109.60	7691.88	2252.92	-1166.36	2536.93	0.17	-0.16	2.31	MWD
8287.00	0.90	102.30	7697.88	2252.89	-1166.26	2536.86	3.95	-3.33	-121.67	MWD
8306.12	0.90	102.30	7717.00	2252.82	-1165.96	2536.67	0.00	0.00	0.00	27-2 PBHL
8332.00	0.90	102.30	7742.88	2252.74	-1165.57	2536.41	0.00	0.00	0.00	27-2 BHL

### 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		
27-2 SL			0.00	0.00	0.00	1336985.84	3245189.31	40	15	18.302	N	104	37	17.497	W
27-2 PBHL			7717.00	2262.28	-1171.65	1339248.12	3244017.66	40	15	40.772	N	104	37	32.321	W
-Circle (Radius: 50)															
27-2 BHL			7742.88	2252.74	-1165.57	1339238.58	3244023.74	40	15	40.677	N	104	37	32.244	W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
638.00	637.03	8.625	9.875	8 5/8"