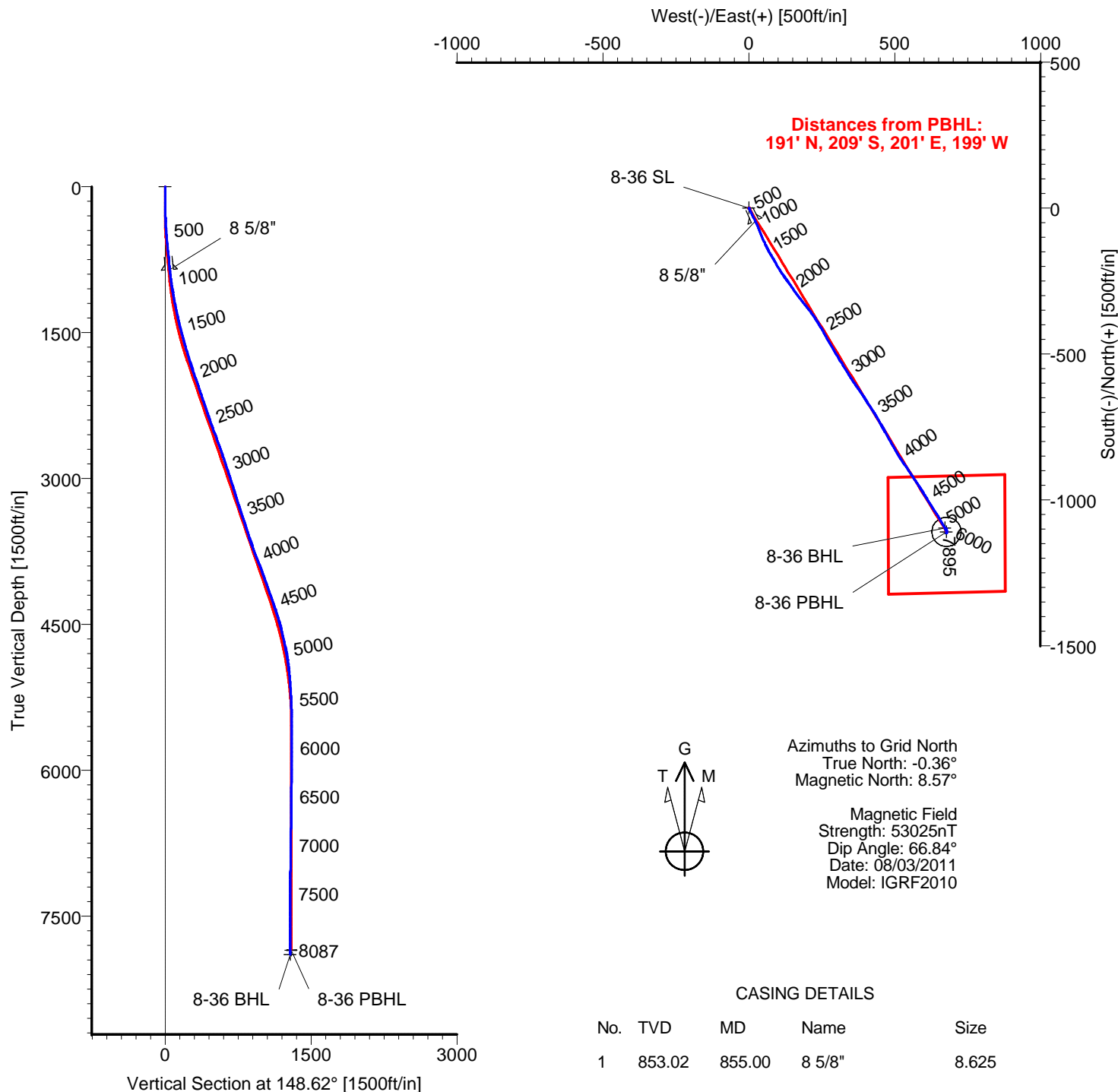


ANADARKO PETROLEUM

Field: Weld County, CO
Site: Carma 17-36 Pad
Well: 8-36
Wellpath: Original Hole



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
8-36 SL	0.00	0.00	0.00	40°11'15.363N	104°56'47.527W	Point
8-36 PBHL	7848.00	-1109.68	676.95	40°11'04.355N	104°56'38.894W	Circle (Radius: 50)
8-36 BHL	7895.10	-1097.38	670.91	40°11'04.477N	104°56'38.971W	Point

Wellpath: (8-36/Original Hole)

Created By: Ivonne Gonzalez

Date: 08/02/2011

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

Archer

ARCHER

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Carma 17-36 Pad Well: 8-36 Wellpath: Original Hole	Date: 08/02/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 08:27:24 Well: 8-36, Grid North 4831'GL+15'KB 4846.0 Well (0.00N,0.00E,148.62Azi) Minimum Curvature	Page: 1 Db: Adapti
------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------	-------------------------------------

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: Carma 17-36 Pad Currently centered on 28-36 Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4831.00 ft	Northing: 1311692.24 ft Easting: 3154610.09 ft Latitude: 40 11 15.576 N Longitude: 104 56 47.832 W North Reference: Grid Grid Convergence: 0.36 deg
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Well: 8-36 Well Position: +N/-S -21.43 ft +E/-W 23.78 ft Position Uncertainty: 0.00 ft	Slot Name: 8-36 Latitude: 40 11 15.363 N Longitude: 104 56 47.527 W
--------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

Wellpath: Original Hole Current Datum: 4831'GL+15'KB Magnetic Data: 08/03/2011 Field Strength: 53025 nT Vertical Section: Depth From (TVD) ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.93 deg Mag Dip Angle: 66.84 deg Direction: deg
0.00	0.00

Survey Program for Definitive Wellpath				
Date: 08/02/2011	Validated: No	Version: 0		
Actual From ft	To ft	Survey	Toolcode	Tool Name
51.00	8042.00	Survey #1 (51.00-8042.00)	MWD	Std MWD
8087.00	8087.00	Survey #2 (8087.00-8087.00)	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
51.00	0.50	161.50	51.00	-0.21	0.07	0.22	0.98	0.98	0.00	MWD
141.00	0.50	150.60	141.00	-0.93	0.39	0.99	0.11	0.00	-12.11	MWD
229.00	1.20	159.80	228.99	-2.12	0.89	2.28	0.81	0.80	10.45	MWD
320.00	2.30	156.20	319.94	-4.69	1.96	5.02	1.21	1.21	-3.96	MWD
443.00	3.70	150.60	442.77	-10.41	4.91	11.44	1.16	1.14	-4.55	MWD
534.00	5.30	153.40	533.49	-16.72	8.23	18.56	1.77	1.76	3.08	MWD
625.00	5.30	153.80	624.10	-24.25	11.97	26.94	0.04	0.00	0.44	MWD
716.00	5.60	154.80	714.69	-32.04	15.71	35.54	0.35	0.33	1.10	MWD
810.00	5.50	154.10	808.25	-40.24	19.63	44.58	0.13	-0.11	-0.74	MWD
922.00	7.00	156.20	919.58	-51.32	24.73	56.69	1.35	1.34	1.87	MWD
1013.00	8.10	154.10	1009.79	-62.16	29.77	68.57	1.25	1.21	-2.31	MWD
1104.00	10.20	157.60	1099.62	-75.37	35.64	82.91	2.39	2.31	3.85	MWD
1195.00	11.40	158.70	1189.01	-91.20	41.98	99.72	1.34	1.32	1.21	MWD
1286.00	12.30	156.60	1278.07	-108.48	49.10	118.18	1.10	0.99	-2.31	MWD
1376.00	12.80	155.20	1365.92	-126.33	57.08	137.57	0.65	0.56	-1.56	MWD
1467.00	14.30	151.80	1454.39	-145.38	66.62	158.81	1.87	1.65	-3.74	MWD
1558.00	15.10	148.10	1542.41	-165.35	78.20	181.89	1.36	0.88	-4.07	MWD
1649.00	16.40	149.90	1629.99	-186.53	90.91	206.58	1.53	1.43	1.98	MWD
1740.00	16.70	149.60	1717.22	-208.92	103.96	232.50	0.34	0.33	-0.33	MWD
1830.00	16.50	145.70	1803.47	-230.63	117.71	258.19	1.26	-0.22	-4.33	MWD
1921.00	19.00	143.20	1890.14	-253.17	133.87	285.85	2.87	2.75	-2.75	MWD

ARCHER

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Carma 17-36 Pad Well: 8-36 Wellpath: Original Hole	Date: 08/02/2011 Co-ordinate(NE) Reference: Well: 8-36, Grid North Vertical (TVD) Reference: 4831'GL+15'KB 4846.0 Section (VS) Reference: Well (0.00N,0.00E,148.62Azi) Survey Calculation Method: Minimum Curvature	Time: 08:27:24 Page: 2 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
2012.00	19.40	145.30	1976.08	-277.46	151.35	315.69	0.88	0.44	2.31	MWD
2102.00	19.40	143.20	2060.97	-301.72	168.81	345.49	0.78	0.00	-2.33	MWD
2193.00	19.20	141.10	2146.85	-325.47	187.26	375.37	0.79	-0.22	-2.31	MWD
2281.00	18.50	141.80	2230.13	-347.70	204.98	403.58	0.84	-0.80	0.80	MWD
2375.00	18.30	145.30	2319.33	-371.55	222.61	433.12	1.19	-0.21	3.72	MWD
2466.00	19.90	148.90	2405.32	-396.56	238.74	462.87	2.18	1.76	3.96	MWD
2557.00	20.40	151.00	2490.75	-423.70	254.43	494.21	0.97	0.55	2.31	MWD
2648.00	20.10	149.60	2576.13	-451.05	270.03	525.69	0.63	-0.33	-1.54	MWD
2738.00	19.40	149.60	2660.83	-477.29	285.42	556.10	0.78	-0.78	0.00	MWD
2829.00	19.50	149.60	2746.64	-503.42	300.75	586.39	0.11	0.11	0.00	MWD
2920.00	18.80	148.50	2832.60	-529.02	316.10	616.24	0.87	-0.77	-1.21	MWD
3011.00	18.50	147.40	2918.83	-553.69	331.54	645.34	0.51	-0.33	-1.21	MWD
3102.00	17.60	147.80	3005.35	-577.49	346.65	673.53	1.00	-0.99	0.44	MWD
3192.00	17.80	146.00	3091.09	-600.41	361.59	700.88	0.65	0.22	-2.00	MWD
3283.00	16.50	143.90	3178.04	-622.39	376.99	727.65	1.58	-1.43	-2.31	MWD
3374.00	17.40	147.40	3265.09	-644.29	391.93	754.14	1.49	0.99	3.85	MWD
3464.00	19.50	147.80	3350.46	-668.34	407.19	782.61	2.34	2.33	0.44	MWD
3555.00	18.70	146.70	3436.45	-693.39	423.29	812.38	0.96	-0.88	-1.21	MWD
3646.00	17.10	149.20	3523.04	-717.07	438.15	840.34	1.95	-1.76	2.75	MWD
3737.00	17.60	151.30	3609.90	-740.63	451.61	867.46	0.88	0.55	2.31	MWD
3828.00	20.90	150.30	3695.80	-766.81	466.26	897.44	3.64	3.63	-1.10	MWD
3918.00	20.90	150.30	3779.88	-794.70	482.17	929.53	0.00	0.00	0.00	MWD
4009.00	21.50	150.60	3864.72	-823.32	498.40	962.42	0.67	0.66	0.33	MWD
4100.00	20.60	148.10	3949.65	-851.44	515.05	995.10	1.40	-0.99	-2.75	MWD
4190.00	19.40	144.60	4034.22	-877.07	532.07	1025.84	1.88	-1.33	-3.89	MWD
4281.00	19.10	147.10	4120.14	-901.89	548.91	1055.80	0.96	-0.33	2.75	MWD
4372.00	19.20	146.00	4206.10	-926.80	565.37	1085.63	0.41	0.11	-1.21	MWD
4463.00	19.70	146.40	4291.91	-951.98	582.22	1115.91	0.57	0.55	0.44	MWD
4554.00	17.90	148.90	4378.05	-976.73	597.94	1145.22	2.17	-1.98	2.75	MWD
4644.00	16.40	148.10	4464.05	-999.36	611.80	1171.76	1.69	-1.67	-0.89	MWD
4735.00	13.90	148.10	4551.88	-1019.55	624.36	1195.54	2.75	-2.75	0.00	MWD
4826.00	12.80	147.40	4640.42	-1037.32	635.57	1216.55	1.22	-1.21	-0.77	MWD
4917.00	12.00	148.50	4729.29	-1053.88	645.94	1236.08	0.92	-0.88	1.21	MWD
5007.00	9.50	147.40	4817.71	-1068.12	654.84	1252.87	2.79	-2.78	-1.22	MWD
5098.00	7.70	152.00	4907.68	-1079.83	661.74	1266.46	2.12	-1.98	5.05	MWD
5189.00	5.60	150.30	4998.06	-1089.07	666.81	1276.99	2.32	-2.31	-1.87	MWD
5280.00	4.80	150.60	5088.69	-1096.24	670.88	1285.23	0.88	-0.88	0.33	MWD
5371.00	3.70	152.40	5179.44	-1102.16	674.11	1291.97	1.22	-1.21	1.98	MWD
5461.00	2.30	152.40	5269.31	-1106.34	676.29	1296.67	1.56	-1.56	0.00	MWD
5552.00	1.60	155.50	5360.26	-1109.11	677.66	1299.75	0.78	-0.77	3.41	MWD
5643.00	1.10	214.60	5451.24	-1110.99	677.69	1301.37	1.54	-0.55	64.95	MWD
5734.00	0.70	211.10	5542.22	-1112.18	676.91	1301.98	0.44	-0.44	-3.85	MWD
5825.00	0.20	201.60	5633.22	-1112.81	676.56	1302.33	0.55	-0.55	-10.44	MWD
5915.00	0.00	72.90	5723.22	-1112.95	676.50	1302.43	0.22	-0.22	0.00	MWD
6006.00	0.40	28.30	5814.22	-1112.67	676.66	1302.27	0.44	0.44	0.00	MWD
6097.00	0.50	25.80	5905.22	-1112.03	676.98	1301.89	0.11	0.11	-2.75	MWD
6188.00	0.70	27.20	5996.21	-1111.18	677.41	1301.39	0.22	0.22	1.54	MWD
6370.00	0.90	18.10	6178.19	-1108.84	678.36	1299.88	0.13	0.11	-5.00	MWD
6551.00	0.40	316.90	6359.18	-1107.02	678.37	1298.34	0.44	-0.28	-33.81	MWD
6733.00	0.90	352.10	6541.17	-1105.14	677.74	1296.40	0.34	0.27	19.34	MWD
6915.00	1.20	350.30	6723.14	-1101.85	677.22	1293.32	0.17	0.16	-0.99	MWD
7097.00	0.50	300.30	6905.12	-1099.57	676.21	1290.85	0.53	-0.38	-27.47	MWD
7278.00	0.40	1.20	7086.12	-1098.54	675.54	1289.62	0.26	-0.06	33.65	MWD

ARCHER

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Carma 17-36 Pad Well: 8-36 Wellpath: Original Hole	Date: 08/02/2011 Co-ordinate(NE) Reference: Well: 8-36, Grid North Vertical (TVD) Reference: 4831'GL+15'KB 4846.0 Section (VS) Reference: Well (0.00N,0.00E,148.62Azi) 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
7460.00	0.20	261.40	7268.12	-1097.95	675.24	1288.96	0.26	-0.11	-54.84	MWD
7641.00	0.20	312.70	7449.12	-1097.78	674.70	1288.54	0.10	0.00	28.34	MWD
7823.00	0.40	284.90	7631.11	-1097.41	673.85	1287.77	0.13	0.11	-15.27	MWD
8005.00	0.70	264.90	7813.10	-1097.34	672.13	1286.82	0.19	0.16	-10.99	MWD
8039.90	0.89	268.91	7848.00	-1097.37	671.65	1286.59	0.56	0.54	11.50	8-36 PBHL
8042.00	0.90	269.10	7850.10	-1097.37	671.61	1286.57	0.56	0.55	8.94	MWD
8087.00	0.90	269.10	7895.10	-1097.38	670.91	1286.22	0.00	0.00	0.00	8-36 BHL

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
8-36 SL			0.00	0.00	0.00	1311670.81	3154633.87	40	11	15.363 N	104	56	47.527 W
8-36 PBHL			7848.00	-1109.68	676.95	1310561.13	3155310.82	40	11	4.355 N	104	56	38.894 W
-Circle (Radius: 50)													
8-36 BHL			7895.10	-1097.38	670.91	1310573.43	3155304.78	40	11	4.477 N	104	56	38.971 W