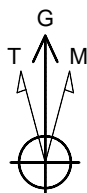


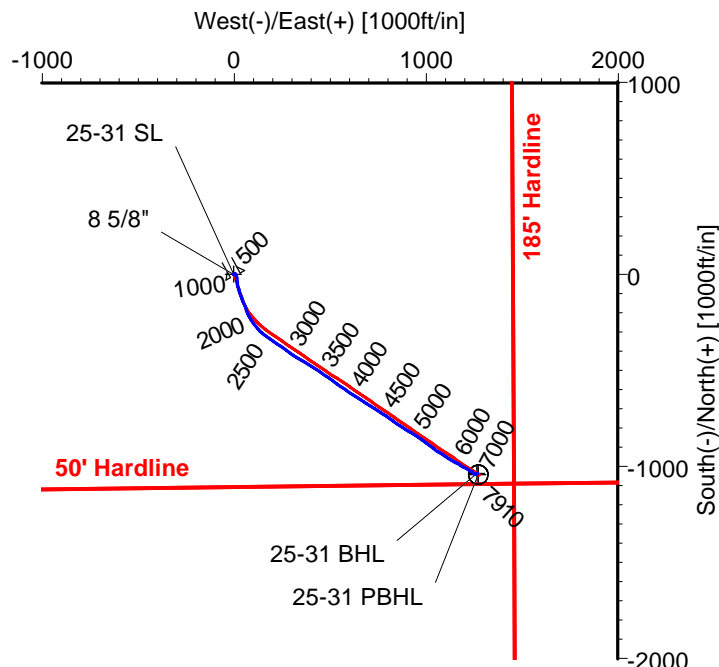
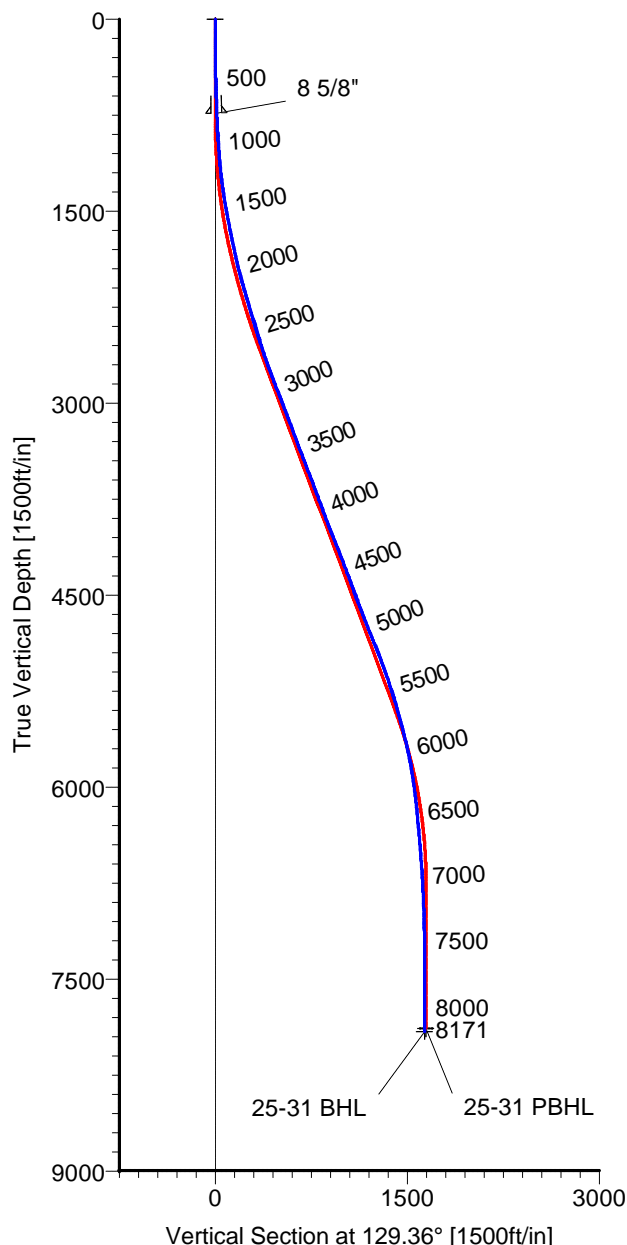
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Olin 18-31 Pad
Well: 25-31
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.44°
Magnetic North: 8.46°

Magnetic Field
Strength: 53064nT
Dip Angle: 66.87°
Date: 05/02/2011
Model: IGRF2010



CASING DETAILS

No.	TVD	MD	Name	Size
1	734.78	735.00	8 5/8"	8.625

LEGEND

- 25-31, Original Hole, Plan #3
- Original Hole

TARGET DETAILS

Name	TVD	+N-S	+E-W	Latitude	Longitude	Shape
25-31 SL	0.00	0.00	0.00	40°11'03.170N	104°49'30.565W	Point
25-31 PBHL	7885.00	-1043.58	1272.29	40°10'52.761N	104°49'14.275W	Circle (Radius: 50)
25-31 BHL	7910.02	-1037.59	1264.62	40°10'52.821N	104°49'14.373W	Point

Wellpath: (25-31/Original Hole)

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: Olin 18-31 Pad Well: 25-31 Wellpath: Original Hole	Date: 04/29/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 08:55:33 Well: 25-31, Grid North 4828'GL+15'KB 4843.0 Well (0.00N,0.00E,129.36Azi) 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: Olin 18-31 Pad Centered on 30-31 Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4828.00 ft	Northing: 1310710.95 ft Easting: 3188508.03 ft Latitude: 40 11 3.559 N Longitude: 104 49 31.148 W North Reference: Grid Grid Convergence: 0.44 deg
---	---

Well: 25-31 Well Position: +N/-S -39.06 ft +E/-W 45.55 ft Position Uncertainty: 0.00 ft	Slot Name: 25-31 Latitude: 40 11 3.170 N Longitude: 104 49 30.565 W
---	--

Wellpath: Original Hole Current Datum: 4828'GL+15'KB Magnetic Data: 05/02/2011 Field Strength: 53064 nT Vertical Section: Depth From (TVD) ft	Height 4843.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.90 deg Mag Dip Angle: 66.87 deg +E/-W ft Direction deg
0.00	0.00	0.00 129.36

Survey Program for Definitive Wellpath					
Date: 04/29/2011	Validated: No	Version: 0			
Actual From ft	To ft	Survey	Toolcode	Tool Name	
51.00	8126.00	Survey #1 (51.00-8126.00)	MWD	Std MWD	
8171.00	8171.00	Survey #2 (8171.00-8171.00)	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	0.70	353.10	51.00	0.31	-0.04	-0.23	1.37	1.37	0.00	MWD
142.00	0.90	1.50	141.99	1.58	-0.09	-1.07	0.25	0.22	9.23	MWD
231.00	0.50	36.70	230.98	2.59	0.16	-1.51	0.64	-0.45	39.55	MWD
321.00	1.10	89.40	320.98	2.91	1.26	-0.87	0.99	0.67	58.56	MWD
428.00	1.60	121.80	427.95	2.13	3.56	1.40	0.83	0.47	30.28	MWD
519.00	1.90	139.30	518.90	0.32	5.62	4.15	0.67	0.33	19.23	MWD
610.00	2.10	146.70	609.85	-2.22	7.52	7.22	0.36	0.22	8.13	MWD
690.00	1.80	151.30	689.80	-4.54	8.93	9.79	0.42	-0.37	5.75	MWD
746.00	2.10	151.30	745.77	-6.22	9.85	11.55	0.54	0.54	0.00	MWD
837.00	3.00	159.00	836.68	-9.90	11.50	15.17	1.06	0.99	8.46	MWD
927.00	4.80	161.80	926.47	-15.68	13.52	20.40	2.01	2.00	3.11	MWD
1018.00	5.50	175.50	1017.10	-23.64	15.05	26.63	1.55	0.77	15.05	MWD
1109.00	6.90	175.50	1107.57	-33.44	15.82	33.44	1.54	1.54	0.00	MWD
1200.00	8.30	171.00	1197.77	-45.38	17.28	42.14	1.67	1.54	-4.95	MWD
1290.00	9.90	167.80	1286.63	-59.36	19.93	53.05	1.86	1.78	-3.56	MWD
1381.00	11.40	166.00	1376.06	-75.73	23.76	66.40	1.69	1.65	-1.98	MWD
1472.00	11.40	162.90	1465.27	-93.05	28.58	81.11	0.67	0.00	-3.41	MWD
1563.00	12.50	159.70	1554.30	-110.89	34.64	97.11	1.41	1.21	-3.52	MWD
1654.00	12.70	156.20	1643.11	-129.27	42.09	114.53	0.87	0.22	-3.85	MWD
1744.00	13.50	161.10	1730.77	-148.27	49.49	132.29	1.52	0.89	5.44	MWD
1835.00	13.70	156.20	1819.22	-168.17	57.28	150.94	1.28	0.22	-5.38	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Olin 18-31 Pad Well: 25-31 Wellpath: Original Hole	Date: 04/29/2011 Co-ordinate(NE) Reference: Well: 25-31, Grid North Vertical (TVD) Reference: 4828'GL+15'KB 4843.0 Section (VS) Reference: Well (0.00N,0.00E,129.36Azi) 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
1926.00	15.00	157.30	1907.38	-188.90	66.17	170.96	1.46	1.43	1.21	MWD
2017.00	16.70	157.30	1994.91	-211.83	75.76	192.92	1.87	1.87	0.00	MWD
2107.00	17.20	150.60	2081.01	-235.35	87.29	216.75	2.24	0.56	-7.44	MWD
2198.00	16.90	144.30	2168.02	-257.82	101.61	242.07	2.06	-0.33	-6.92	MWD
2289.00	16.20	138.60	2255.25	-278.08	117.73	267.38	1.94	-0.77	-6.26	MWD
2380.00	17.40	136.20	2342.37	-297.43	135.54	293.42	1.52	1.32	-2.64	MWD
2470.00	16.50	127.40	2428.47	-314.90	155.01	319.56	3.02	-1.00	-9.78	MWD
2561.00	18.10	122.50	2515.36	-330.35	177.20	346.51	2.38	1.76	-5.38	MWD
2652.00	18.70	124.90	2601.71	-346.29	201.09	375.09	1.06	0.66	2.64	MWD
2742.00	19.40	125.30	2686.78	-363.18	225.12	404.39	0.79	0.78	0.44	MWD
2833.00	20.90	126.70	2772.21	-381.62	250.47	435.68	1.73	1.65	1.54	MWD
2924.00	21.10	122.80	2857.17	-400.19	277.25	468.17	1.55	0.22	-4.29	MWD
3015.00	21.60	124.20	2941.92	-418.48	304.88	501.12	0.78	0.55	1.54	MWD
3105.00	20.80	120.30	3025.83	-435.86	332.38	533.40	1.80	-0.89	-4.33	MWD
3196.00	21.50	121.80	3110.70	-452.80	360.50	565.89	0.97	0.77	1.65	MWD
3287.00	20.40	122.80	3195.69	-470.18	388.00	598.18	1.27	-1.21	1.10	MWD
3377.00	20.80	122.10	3279.93	-487.16	414.73	629.61	0.52	0.44	-0.78	MWD
3469.00	20.80	123.90	3365.94	-504.96	442.12	662.08	0.69	0.00	1.96	MWD
3559.00	21.10	124.60	3449.99	-523.07	468.72	694.13	0.43	0.33	0.78	MWD
3650.00	21.10	124.20	3534.89	-541.58	495.75	726.77	0.16	0.00	-0.44	MWD
3741.00	20.60	124.20	3619.93	-559.78	522.54	759.02	0.55	-0.55	0.00	MWD
3832.00	20.80	126.30	3705.05	-578.35	548.80	791.10	0.84	0.22	2.31	MWD
3923.00	20.20	124.90	3790.29	-596.90	574.71	822.90	0.85	-0.66	-1.54	MWD
4013.00	20.90	125.30	3874.56	-615.07	600.56	854.41	0.79	0.78	0.44	MWD
4104.00	20.80	124.20	3959.61	-633.53	627.17	886.69	0.44	-0.11	-1.21	MWD
4195.00	22.00	121.00	4044.33	-651.39	655.14	919.65	1.84	1.32	-3.52	MWD
4285.00	22.20	122.10	4127.72	-669.11	684.00	953.19	0.51	0.22	1.22	MWD
4376.00	20.90	122.80	4212.36	-687.04	712.20	986.37	1.46	-1.43	0.77	MWD
4467.00	21.30	122.50	4297.26	-704.71	739.79	1018.91	0.46	0.44	-0.33	MWD
4558.00	20.60	122.10	4382.24	-722.10	767.29	1051.20	0.79	-0.77	-0.44	MWD
4649.00	19.40	123.90	4467.75	-739.03	793.40	1082.12	1.48	-1.32	1.98	MWD
4740.00	21.60	124.60	4552.98	-756.98	819.73	1113.86	2.43	2.42	0.77	MWD
4830.00	20.80	126.00	4636.89	-775.78	846.29	1146.33	1.05	-0.89	1.56	MWD
4921.00	21.50	123.90	4721.76	-794.58	873.21	1179.06	1.13	0.77	-2.31	MWD
5012.00	22.20	121.80	4806.23	-812.94	901.66	1212.70	1.15	0.77	-2.31	MWD
5103.00	23.10	122.10	4890.21	-831.48	931.39	1247.45	1.00	0.99	0.33	MWD
5194.00	20.90	122.80	4974.58	-849.76	960.16	1281.29	2.43	-2.42	0.77	MWD
5285.00	20.20	126.00	5059.79	-867.79	986.52	1313.10	1.45	-0.77	3.52	MWD
5375.00	18.80	127.00	5144.62	-885.65	1010.67	1343.10	1.60	-1.56	1.11	MWD
5466.00	18.30	127.00	5230.90	-903.08	1033.79	1372.03	0.55	-0.55	0.00	MWD
5557.00	16.70	122.00	5317.69	-918.60	1056.29	1399.27	2.41	-1.76	-5.49	MWD
5647.00	16.00	123.90	5404.05	-932.38	1077.56	1424.45	0.98	-0.78	2.11	MWD
5738.00	15.10	124.60	5491.72	-946.10	1097.72	1448.74	1.01	-0.99	0.77	MWD
5829.00	14.10	121.40	5579.78	-958.61	1116.94	1471.53	1.41	-1.10	-3.52	MWD
5920.00	13.40	120.30	5668.17	-969.70	1135.51	1492.92	0.82	-0.77	-1.21	MWD
6011.00	11.80	120.00	5756.97	-979.68	1152.67	1512.52	1.76	-1.76	-0.33	MWD
6101.00	10.00	121.00	5845.35	-988.30	1167.34	1529.33	2.01	-2.00	1.11	MWD
6192.00	8.60	119.60	5935.15	-995.73	1180.03	1543.85	1.56	-1.54	-1.54	MWD
6283.00	7.60	118.20	6025.24	-1001.94	1191.25	1556.46	1.12	-1.10	-1.54	MWD
6374.00	6.50	117.50	6115.55	-1007.16	1201.12	1567.41	1.21	-1.21	-0.77	MWD
6465.00	5.30	117.50	6206.07	-1011.48	1209.42	1576.56	1.32	-1.32	0.00	MWD
6555.00	5.50	119.30	6295.67	-1015.51	1216.87	1584.88	0.29	0.22	2.00	MWD
6646.00	4.80	128.10	6386.30	-1019.99	1223.67	1592.98	1.16	-0.77	9.67	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Olin 18-31 Pad Well: 25-31 Wellpath: Original Hole	Date: 04/29/2011 Co-ordinate(NE) Reference: Well: 25-31, Grid North Vertical (TVD) Reference: 4828'GL+15'KB 4843.0 Section (VS) Reference: Well (0.00N,0.00E,129.36Azi) 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
6737.00	4.60	125.30	6477.00	-1024.45	1229.64	1600.43	0.33	-0.22	-3.08	MWD
6828.00	4.20	122.10	6567.73	-1028.33	1235.44	1607.37	0.52	-0.44	-3.52	MWD
6918.00	3.70	120.30	6657.51	-1031.55	1240.74	1613.51	0.57	-0.56	-2.00	MWD
7009.00	3.20	120.70	6748.35	-1034.32	1245.46	1618.92	0.55	-0.55	0.44	MWD
7100.00	2.50	121.40	6839.23	-1036.66	1249.34	1623.40	0.77	-0.77	0.77	MWD
7191.00	2.10	118.90	6930.16	-1038.49	1252.49	1627.00	0.45	-0.44	-2.75	MWD
7282.00	1.80	116.80	7021.11	-1039.95	1255.23	1630.03	0.34	-0.33	-2.31	MWD
7372.00	1.20	107.30	7111.08	-1040.86	1257.39	1632.29	0.72	-0.67	-10.56	MWD
7463.00	0.90	105.20	7202.06	-1041.33	1258.99	1633.82	0.33	-0.33	-2.31	MWD
7554.00	0.90	65.50	7293.05	-1041.22	1260.33	1634.79	0.67	0.00	-43.63	MWD
7735.00	0.40	46.50	7474.04	-1040.20	1262.08	1635.49	0.30	-0.28	-10.50	MWD
7917.00	0.50	41.90	7656.03	-1039.17	1263.07	1635.61	0.06	0.05	-2.53	MWD
8099.00	0.50	48.30	7838.03	-1038.05	1264.19	1635.77	0.03	0.00	3.52	MWD
8126.00	0.50	41.90	7865.03	-1037.89	1264.36	1635.79	0.21	0.00	-23.70	MWD
8145.98	0.50	41.90	7885.00	-1037.76	1264.48	1635.80	0.00	0.00	0.00	25-31 PBHL
8171.00	0.50	41.90	7910.02	-1037.59	1264.62	1635.81	0.00	0.00	0.00	25-31 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		
25-31 SL			0.00	0.00	0.00	1310671.89	3188553.58	40	11	3.170	N	104	49	30.565	W
25-31 PBHL			7885.00	-1043.58	1272.29	1309628.31	3189825.86	40	10	52.761	N	104	49	14.275	W
-Circle (Radius: 50)															
25-31 BHL			7910.02	-1037.59	1264.62	1309634.30	3189818.20	40	10	52.821	N	104	49	14.373	W