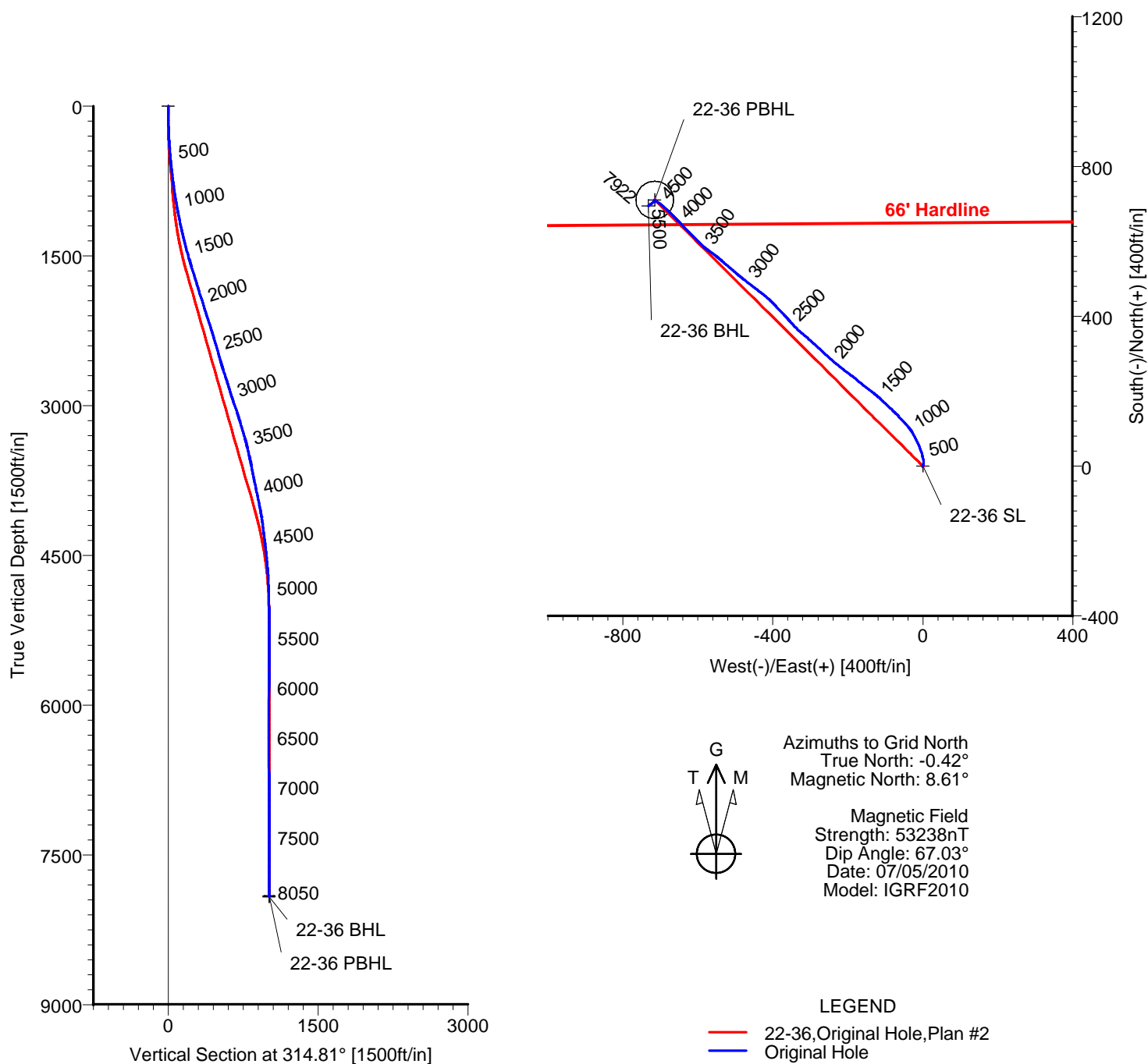


ANADARKO PETROLEUM

Field: Weld County, CO
Site: Bernhardt State 11-36 Pad
Well: 22-36
Wellpath: Original Hole



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
22-36 SL	0.00	0.00	0.00	40°21'15.444N	104°50'36.672W	Point
22-36 PBHL	7910.00	710.68	-715.41	40°21'22.519N	104°50'45.845W	Circle (Radius: 50)
22-36 BHL	7922.07	694.68	-732.66	40°21'22.362N	104°50'46.069W	Point

Wellpath: (22-36/Original Hole)

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

Created By: Ivonne Gonzalez

Date: 06/27/2010



Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM		Date: 06/27/2010	Time: 08:55:07	Page: 1
Field: Weld County, CO		Co-ordinate(NE) Reference: Well: 22-36, Grid North		
Site: Bernhardt State 11-36 Pad		Vertical (TVD) Reference: 4834'GL+13'KB 4847.0		
Well: 22-36		Section (VS) Reference: Well (0.00N,0.00E,314.81Azi)		
Wellpath: Original Hole		Survey Calculation Method: Minimum Curvature Db: Sybase		

Field: Weld County, CO	
Map System: US State Plane Coordinate System 1983	Map Zone: Colorado, Northern Zone
Geo Datum: GRS 1980	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Bernhardt State 11-36 Pad	
Site Position:	Northing: 1372588.45 ft
From: Geographic	Easting: 3182964.45 ft
Position Uncertainty: 0.00 ft	Latitude: 40 21 15.444 N
Ground Level: 4834.00 ft	Longitude: 104 50 36.672 W
	North Reference: Grid
	Grid Convergence: 0.42 deg

Well: 22-36	Slot Name: 22-36
Well Position: +N/-S 0.00 ft	Latitude: 40 21 15.444 N
+E/-W 0.00 ft	Longitude: 104 50 36.672 W
Position Uncertainty: 0.00 ft	

Wellpath: Original Hole		Drilled From: Surface
Current Datum: 4834'GL+13'KB	Height: 4847.00 ft	Tie-on Depth: 0.00 ft
Magnetic Data: 07/05/2010		Above System Datum: Mean Sea Level
Field Strength: 53238 nT		Declination: 9.03 deg
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 67.03 deg
ft	ft	+E/-W
		ft
		Direction
		deg
0.00	0.00	0.00
		314.81

Survey Program for Definitive Wellpath			Version: 0	
Date: 06/27/2010	Validated: No	Survey	Toolcode	Tool Name
Actual From	To			
ft	ft			
77.00	8005.00	Survey #1 (77.00-8005.00)	MWD	Std MWD
8050.00	8050.00	Survey #2 (8050.00-8050.00)	Project	Projection

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
77.00	1.40	22.40	76.99	0.87	0.36	0.36	1.82	1.82	0.00	MWD
139.00	1.90	12.90	138.97	2.57	0.88	1.19	0.92	0.81	-15.32	MWD
198.00	2.50	14.00	197.92	4.77	1.41	2.37	1.02	1.02	1.86	MWD
258.00	3.00	8.00	257.85	7.60	1.94	3.98	0.96	0.83	-10.00	MWD
320.00	3.90	357.40	319.74	11.31	2.07	6.50	1.77	1.45	-17.10	MWD
383.00	4.80	350.10	382.56	16.05	1.52	10.23	1.67	1.43	-11.59	MWD
473.00	5.80	346.20	472.17	24.17	-0.21	17.19	1.18	1.11	-4.33	MWD
562.00	6.30	345.80	560.68	33.28	-2.48	25.21	0.56	0.56	-0.45	MWD
650.00	7.20	340.20	648.07	43.15	-5.53	34.33	1.27	1.02	-6.36	MWD
740.00	7.90	338.80	737.29	54.22	-9.68	45.08	0.80	0.78	-1.56	MWD
828.00	9.00	332.10	824.33	65.94	-15.09	57.18	1.68	1.25	-7.61	MWD
917.00	9.00	331.80	912.24	78.23	-21.64	70.48	0.05	0.00	-0.34	MWD
1005.00	10.40	328.30	998.98	91.05	-29.06	84.79	1.73	1.59	-3.98	MWD
1096.00	11.10	319.50	1088.39	104.70	-39.07	101.51	1.96	0.77	-9.67	MWD
1187.00	11.80	318.10	1177.57	118.29	-50.97	119.53	0.83	0.77	-1.54	MWD
1277.00	13.00	316.70	1265.47	132.51	-64.06	138.83	1.37	1.33	-1.56	MWD
1365.00	14.10	312.10	1351.03	146.90	-78.80	159.43	1.75	1.25	-5.23	MWD
1455.00	15.30	313.80	1438.08	162.47	-95.51	182.26	1.42	1.33	1.89	MWD
1545.00	15.80	313.10	1524.78	179.06	-113.03	206.38	0.59	0.56	-0.78	MWD
1635.00	17.20	307.50	1611.08	195.53	-132.53	231.83	2.35	1.56	-6.22	MWD
1725.00	17.20	307.90	1697.06	211.81	-153.59	258.23	0.13	0.00	0.44	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM	Date: 06/27/2010	Time: 08:55:07	Page: 2
Field: Weld County, CO	Co-ordinate(NE) Reference: Well: 22-36, Grid North		
Site: Bernhardt State 11-36 Pad	Vertical (TVD) Reference: 4834'GL+13'KB 4847.0		
Well: 22-36	Section (VS) Reference: Well (0.00N,0.00E,314.81Azi)		
Wellpath: Original Hole	Survey Calculation Method: Minimum Curvature		Db: Sybase

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
1815.00	18.00	310.00	1782.84	228.92	-174.74	285.30	1.13	0.89	2.33	MWD
1904.00	17.40	306.50	1867.63	245.67	-195.97	312.17	1.37	-0.67	-3.93	MWD
1992.00	17.40	307.90	1951.61	261.58	-216.93	338.26	0.48	0.00	1.59	MWD
2083.00	17.40	310.30	2038.44	278.74	-238.05	365.33	0.79	0.00	2.64	MWD
2173.00	18.50	313.50	2124.06	297.28	-258.67	393.02	1.64	1.22	3.56	MWD
2264.00	17.80	311.40	2210.54	316.41	-279.57	421.34	1.05	-0.77	-2.31	MWD
2355.00	16.40	312.80	2297.51	334.34	-299.44	448.06	1.60	-1.54	1.54	MWD
2445.00	16.20	309.30	2383.90	350.93	-318.47	473.26	1.11	-0.22	-3.89	MWD
2535.00	16.20	314.50	2470.33	367.68	-337.14	498.31	1.61	0.00	5.78	MWD
2624.00	15.70	319.50	2555.90	385.54	-353.82	522.73	1.64	-0.56	5.62	MWD
2713.00	18.10	316.70	2641.06	404.76	-371.13	548.55	2.85	2.70	-3.15	MWD
2804.00	18.50	316.70	2727.45	425.55	-390.72	577.11	0.44	0.44	0.00	MWD
2894.00	17.10	312.40	2813.15	444.87	-410.29	604.60	2.13	-1.56	-4.78	MWD
2983.00	17.20	307.50	2898.19	461.70	-430.39	630.73	1.63	0.11	-5.51	MWD
3074.00	18.90	307.90	2984.71	478.95	-452.70	658.71	1.87	1.87	0.44	MWD
3164.00	19.10	307.50	3069.81	496.87	-475.88	687.78	0.27	0.22	-0.44	MWD
3254.00	17.20	311.00	3155.33	514.56	-497.61	715.67	2.43	-2.11	3.89	MWD
3345.00	16.40	310.30	3242.45	531.70	-517.56	741.90	0.91	-0.88	-0.77	MWD
3434.00	15.70	310.70	3327.98	547.68	-536.27	766.44	0.80	-0.79	0.45	MWD
3525.00	13.30	307.90	3416.07	562.14	-553.87	789.11	2.75	-2.64	-3.08	MWD
3615.00	13.20	304.30	3503.68	574.29	-570.53	809.49	0.92	-0.11	-4.00	MWD
3705.00	11.40	312.10	3591.61	586.05	-585.62	828.48	2.72	-2.00	8.67	MWD
3796.00	10.70	316.70	3680.93	598.22	-598.08	845.91	1.24	-0.77	5.05	MWD
3886.00	12.10	315.20	3769.15	611.00	-610.46	863.70	1.59	1.56	-1.67	MWD
3976.00	12.00	315.60	3857.17	624.38	-623.65	882.48	0.14	-0.11	0.44	MWD
4066.00	11.80	315.20	3945.23	637.59	-636.68	901.04	0.24	-0.22	-0.44	MWD
4156.00	10.80	317.00	4033.49	650.29	-648.92	918.67	1.18	-1.11	2.00	MWD
4246.00	9.00	315.60	4122.14	661.48	-659.60	934.14	2.02	-2.00	-1.56	MWD
4335.00	7.70	313.80	4210.20	670.59	-668.77	947.06	1.49	-1.46	-2.02	MWD
4470.00	7.00	313.50	4344.09	682.51	-681.27	964.33	0.52	-0.52	-0.22	MWD
4606.00	5.90	313.10	4479.23	692.99	-692.38	979.60	0.81	-0.81	-0.29	MWD
4741.00	4.60	310.30	4613.66	701.23	-701.58	991.93	0.98	-0.96	-2.07	MWD
4876.00	3.00	286.80	4748.36	705.75	-709.09	1000.45	1.63	-1.19	-17.41	MWD
5011.00	1.60	289.20	4883.25	707.40	-714.25	1005.27	1.04	-1.04	1.78	MWD
5147.00	0.50	336.70	5019.23	708.56	-716.28	1007.53	0.97	-0.81	34.93	MWD
5280.00	0.30	325.10	5152.22	709.38	-716.71	1008.41	0.16	-0.15	-8.72	MWD
5416.00	0.30	337.70	5288.22	710.00	-717.05	1009.09	0.05	0.00	9.26	MWD
5551.00	0.30	25.20	5423.22	710.65	-717.03	1009.53	0.18	0.00	35.19	MWD
5729.00	0.50	132.40	5601.22	710.55	-716.26	1008.91	0.37	0.11	60.22	MWD
5909.00	0.70	195.40	5781.21	708.96	-715.97	1007.59	0.36	0.11	35.00	MWD
6090.00	0.70	217.90	5962.20	707.02	-716.94	1006.91	0.15	0.00	12.43	MWD
6270.00	0.90	233.70	6142.18	705.32	-718.76	1007.00	0.16	0.11	8.78	MWD
6451.00	0.90	218.90	6323.16	703.37	-720.80	1007.07	0.13	0.00	-8.18	MWD
6631.00	0.90	231.20	6503.14	701.38	-722.78	1007.08	0.11	0.00	6.83	MWD
6812.00	0.70	241.80	6684.12	699.97	-724.87	1007.56	0.14	-0.11	5.86	MWD
6993.00	0.70	252.30	6865.10	699.11	-726.89	1008.40	0.07	0.00	5.80	MWD
7173.00	0.50	248.10	7045.09	698.48	-728.67	1009.22	0.11	-0.11	-2.33	MWD
7353.00	0.20	210.50	7225.09	697.92	-729.56	1009.45	0.20	-0.17	-20.89	MWD
7534.00	0.30	258.60	7406.09	697.55	-730.18	1009.63	0.12	0.06	26.57	MWD
7712.00	0.30	220.70	7584.09	697.11	-730.94	1009.86	0.11	0.00	-21.29	MWD
7892.00	0.50	208.40	7764.08	696.06	-731.63	1009.60	0.12	0.11	-6.83	MWD
8005.00	0.70	220.30	7877.08	695.10	-732.31	1009.41	0.21	0.18	10.53	MWD
8037.93	0.70	220.30	7910.00	694.79	-732.57	1009.38	0.00	0.00	0.00	22-36 PBHL

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Bernhardt State 11-36 Pad Well: 22-36 Wellpath: Original Hole	Date: 06/27/2010 Time: 08:55:07 Page: 3 Co-ordinate(NE) Reference: Well: 22-36, Grid North Vertical (TVD) Reference: 4834'GL+13'KB 4847.0 Section (VS) Reference: Well (0.00N,0.00E,314.81Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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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
8050.00	0.70	220.30	7922.07	694.68	-732.66	1009.37	0.00	0.00	0.00	22-36 BHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
22-36 SL			0.00	0.00	0.00	1372588.45	13182964.45	40	21	15.444	N	104	50 36.672 W
22-36 PBHL			7910.00	710.68	-715.41	1373299.13	13182249.04	40	21	22.519	N	104	50 45.845 W
-Circle (Radius: 50)													
22-36 BHL			7922.07	694.68	-732.66	1373283.13	13182231.79	40	21	22.362	N	104	50 46.069 W