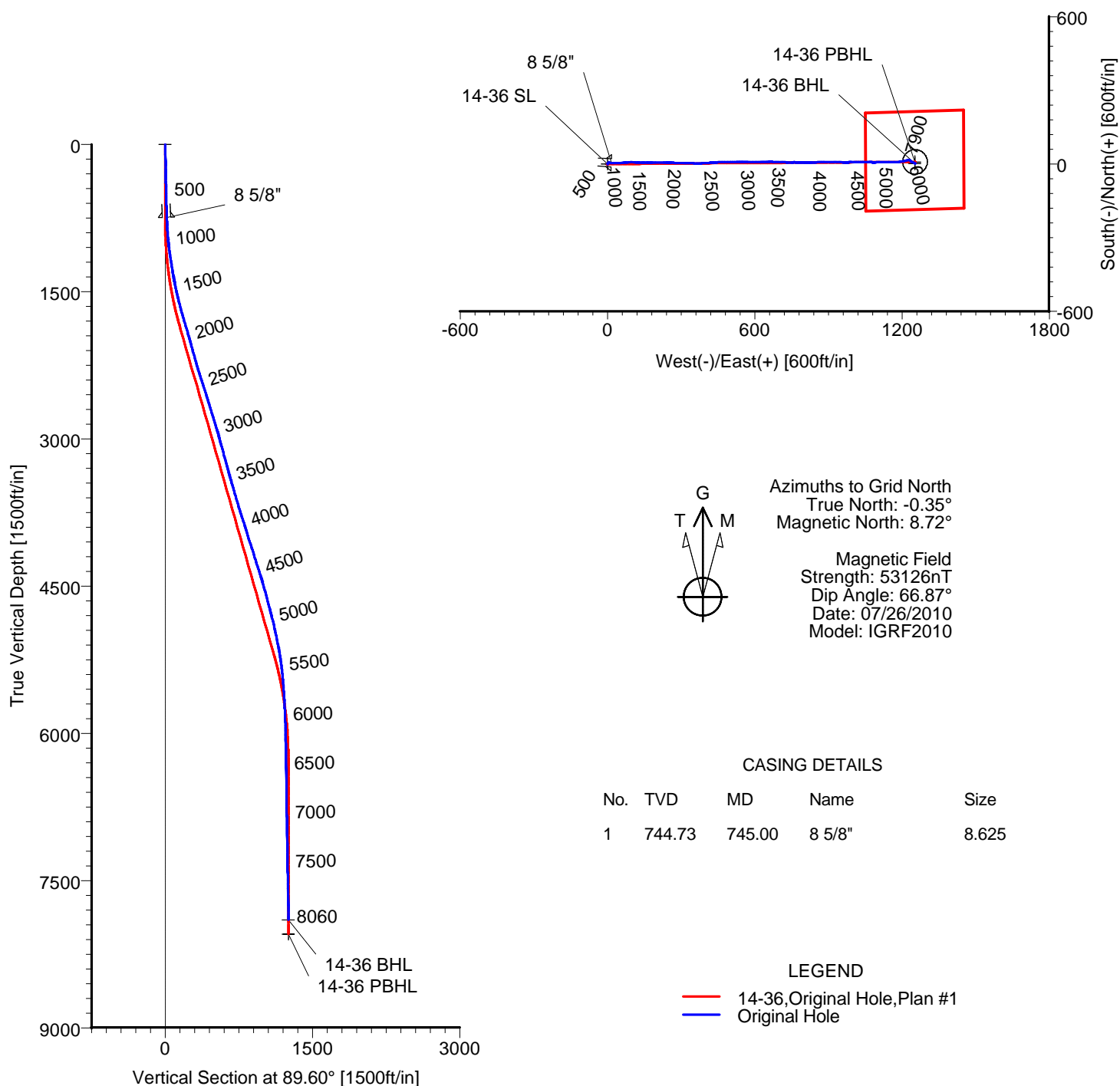


ANADARKO PETROLEUM

Field: Weld County, CO
Site: Vogl 13-36 Pad
Well: 14-36
Wellpath: Original Hole



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
14-36 SL	0.00	0.00	0.00	40°10'37.388N	104°57'29.046W	Point
14-36 BHL	7900.40	2.85	1253.94	40°10'37.340N	104°57'12.891W	Point
14-36 PBHL	8046.00	8.75	1253.45	40°10'37.399N	104°57'12.896W	Circle (Radius: 50)

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



Wellpath: (14-36/Original Hole)

Created By: Ivonne Gonzalez

Date: 09/16/2010

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Vogl 13-36 Pad Well: 14-36 Wellpath: Original Hole	Date: 09/16/2010 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 10:05:36 Well: 14-36, Grid North 4817'GL+13'KB 4830.0 Well (0.00N,0.00E,89.60Azi) Minimum Curvature	Page: 1 Db: Adapti
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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: Vogl 13-36 Pad	
Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4817.00 ft	Northing: 1307840.32 ft Easting: 3151437.43 ft Latitude: 40 10 37.704 N Longitude: 104 57 29.016 W North Reference: Grid Grid Convergence: 0.35 deg

Well: 14-36	Slot Name: 14-36
Well Position: +N/-S -31.96 ft +E/-W -2.11 ft Position Uncertainty: 0.00 ft	Northing: 1307808.36 ft Easting : 3151435.32 ft Latitude: 40 10 37.388 N Longitude: 104 57 29.046 W

Wellpath: Original Hole	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 9.07 deg Mag Dip Angle: 66.87 deg
Current Datum: 4817'GL+13'KB Magnetic Data: 07/26/2010 Field Strength: 53126 nT Vertical Section: Depth From (TVD) ft	Height 4830.00 ft +N/-S ft +E/-W ft Direction deg
0.00	0.00 0.00 89.60

Survey Program for Definitive Wellpath				
Date: 09/16/2010 Actual From ft 46.00 8060.00	To ft 8015.00 8060.00	Validated: No Survey Survey #1 (46.00-8015.00) Survey #2 (8060.00-8060.00)	Version: 0 Toolcode MWD MWD	Tool Name Std MWD Std MWD

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
46.00	1.60	32.60	45.99	0.54	0.35	0.35	3.48	3.48	0.00	MWD
107.00	1.90	37.90	106.97	2.06	1.43	1.44	0.56	0.49	8.69	MWD
168.00	1.90	41.40	167.93	3.61	2.72	2.74	0.19	0.00	5.74	MWD
228.00	1.90	40.70	227.90	5.11	4.02	4.06	0.04	0.00	-1.17	MWD
288.00	1.20	51.60	287.88	6.26	5.16	5.21	1.26	-1.17	18.17	MWD
349.00	1.10	101.90	348.87	6.53	6.24	6.28	1.61	-0.16	82.46	MWD
430.00	1.40	110.30	429.85	6.03	7.93	7.97	0.43	0.37	10.37	MWD
520.00	1.40	124.00	519.82	5.03	9.87	9.90	0.37	0.00	15.22	MWD
611.00	1.60	100.50	610.79	4.18	12.04	12.07	0.70	0.22	-25.82	MWD
695.00	1.80	98.70	694.75	3.77	14.50	14.52	0.25	0.24	-2.14	MWD
745.00	1.96	92.59	744.73	3.61	16.12	16.15	0.51	0.31	-12.21	8 5/8"
787.00	2.10	88.20	786.70	3.60	17.61	17.63	0.51	0.35	-10.46	MWD
878.00	3.70	86.40	877.58	3.84	22.21	22.23	1.76	1.76	-1.98	MWD
969.00	5.30	84.00	968.30	4.46	29.32	29.35	1.77	1.76	-2.64	MWD
1060.00	7.40	89.20	1058.73	4.98	39.36	39.39	2.39	2.31	5.71	MWD
1151.00	8.60	92.00	1148.85	4.83	52.02	52.05	1.39	1.32	3.08	MWD
1242.00	9.20	85.70	1238.75	5.14	66.07	66.11	1.26	0.66	-6.92	MWD
1333.00	9.30	83.60	1328.57	6.50	80.63	80.68	0.39	0.11	-2.31	MWD
1424.00	11.60	91.70	1418.06	7.05	97.09	97.14	2.99	2.53	8.90	MWD
1514.00	12.70	88.90	1506.04	6.97	116.03	116.07	1.39	1.22	-3.11	MWD
1605.00	14.30	92.70	1594.53	6.63	137.25	137.30	2.01	1.76	4.18	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Vogt 13-36 Pad Well: 14-36 Wellpath: Original Hole	Date: 09/16/2010 Co-ordinate(NE) Reference: Well: 14-36, Grid North Vertical (TVD) Reference: 4817'GL+13'KB 4830.0 Section (VS) Reference: Well (0.00N,0.00E,89.60Azi) Survey Calculation Method: Minimum Curvature	Time: 10:05:36 Page: 2 Db: 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
1696.00	15.30	91.30	1682.51	5.83	160.48	160.52	1.17	1.10	-1.54	MWD
1787.00	16.20	87.50	1770.09	6.11	185.17	185.21	1.50	0.99	-4.18	MWD
1877.00	16.50	89.60	1856.45	6.75	210.49	210.54	0.74	0.33	2.33	MWD
1968.00	16.70	91.30	1943.66	6.54	236.49	236.53	0.58	0.22	1.87	MWD
2059.00	15.10	93.40	2031.18	5.54	261.39	261.43	1.87	-1.76	2.31	MWD
2150.00	15.70	91.70	2118.91	4.48	285.53	285.56	0.83	0.66	-1.87	MWD
2241.00	15.50	89.90	2206.56	4.13	310.00	310.02	0.58	-0.22	-1.98	MWD
2331.00	16.90	92.40	2292.98	3.60	335.10	335.11	1.74	1.56	2.78	MWD
2422.00	18.10	91.00	2379.77	2.80	362.45	362.46	1.40	1.32	-1.54	MWD
2513.00	17.80	86.80	2466.35	3.33	390.47	390.48	1.46	-0.33	-4.62	MWD
2604.00	17.80	85.40	2552.99	5.23	418.22	418.25	0.47	0.00	-1.54	MWD
2695.00	16.40	87.80	2639.97	6.83	444.92	444.96	1.72	-1.54	2.64	MWD
2786.00	17.10	88.90	2727.10	7.58	471.14	471.18	0.84	0.77	1.21	MWD
2877.00	17.60	90.60	2813.96	7.70	498.27	498.31	0.78	0.55	1.87	MWD
2967.00	16.70	89.20	2899.96	7.73	524.81	524.85	1.10	-1.00	-1.56	MWD
3058.00	14.60	86.80	2987.58	8.56	549.34	549.38	2.41	-2.31	-2.64	MWD
3149.00	15.70	92.00	3075.42	8.77	573.09	573.14	1.92	1.21	5.71	MWD
3240.00	15.30	91.00	3163.11	8.13	597.40	597.45	0.53	-0.44	-1.10	MWD
3331.00	16.00	90.30	3250.74	7.85	621.95	621.99	0.80	0.77	-0.77	MWD
3422.00	14.80	86.40	3338.47	8.52	646.09	646.14	1.74	-1.32	-4.29	MWD
3513.00	16.40	91.00	3426.12	9.02	670.54	670.59	2.22	1.76	5.05	MWD
3604.00	16.00	93.10	3513.51	8.12	695.91	695.95	0.78	-0.44	2.31	MWD
3695.00	16.40	91.30	3600.90	7.15	721.27	721.31	0.71	0.44	-1.98	MWD
3786.00	16.70	89.60	3688.13	6.95	747.19	747.22	0.63	0.33	-1.87	MWD
3877.00	18.10	90.30	3774.96	6.97	774.40	774.43	1.56	1.54	0.77	MWD
3968.00	18.50	90.30	3861.36	6.82	802.98	803.00	0.44	0.44	0.00	MWD
4059.00	17.00	89.90	3948.02	6.77	830.72	830.74	1.65	-1.65	-0.44	MWD
4150.00	16.70	88.90	4035.12	7.04	857.09	857.12	0.46	-0.33	-1.10	MWD
4241.00	17.60	90.30	4122.07	7.22	883.92	883.95	1.09	0.99	1.54	MWD
4332.00	17.40	90.30	4208.86	7.08	911.29	911.31	0.22	-0.22	0.00	MWD
4423.00	17.70	89.90	4295.62	7.03	938.73	938.75	0.36	0.33	-0.44	MWD
4514.00	18.00	90.60	4382.24	6.91	966.62	966.65	0.41	0.33	0.77	MWD
4605.00	16.00	87.50	4469.26	7.31	993.21	993.24	2.41	-2.20	-3.41	MWD
4696.00	15.30	89.20	4556.89	8.02	1017.75	1017.78	0.92	-0.77	1.87	MWD
4787.00	14.80	92.00	4644.77	7.78	1041.37	1041.40	0.97	-0.55	3.08	MWD
4878.00	15.20	91.00	4732.67	7.17	1064.91	1064.94	0.52	0.44	-1.10	MWD
4969.00	13.40	89.90	4820.85	6.98	1087.39	1087.41	2.00	-1.98	-1.21	MWD
5060.00	13.20	88.90	4909.41	7.20	1108.32	1108.34	0.33	-0.22	-1.10	MWD
5151.00	11.80	90.30	4998.25	7.35	1128.01	1128.04	1.57	-1.54	1.54	MWD
5242.00	11.60	89.60	5087.36	7.36	1146.47	1146.49	0.27	-0.22	-0.77	MWD
5333.00	9.70	87.80	5176.78	7.72	1163.28	1163.30	2.12	-2.09	-1.98	MWD
5470.00	7.00	86.80	5312.32	8.63	1183.15	1183.18	1.97	-1.97	-0.73	MWD
5606.00	5.30	84.70	5447.53	9.67	1197.68	1197.72	1.26	-1.25	-1.54	MWD
5742.00	3.90	77.60	5583.09	11.25	1208.45	1208.50	1.11	-1.03	-5.22	MWD
5923.00	2.30	75.50	5763.82	13.48	1217.98	1218.04	0.89	-0.88	-1.16	MWD
6105.00	1.60	75.90	5945.71	15.01	1223.98	1224.05	0.38	-0.38	0.22	MWD
6286.00	0.90	81.10	6126.67	15.85	1227.83	1227.92	0.39	-0.39	2.87	MWD
6467.00	0.90	100.10	6307.65	15.82	1230.64	1230.72	0.16	0.00	10.50	MWD
6649.00	0.90	117.30	6489.63	14.91	1233.32	1233.39	0.15	0.00	9.45	MWD
6831.00	0.90	140.20	6671.60	13.16	1235.50	1235.56	0.20	0.00	12.58	MWD
7012.00	1.20	136.30	6852.57	10.70	1237.72	1237.77	0.17	0.17	-2.15	MWD
7194.00	1.20	112.40	7034.54	8.59	1240.80	1240.83	0.27	0.00	-13.13	MWD
7375.00	1.10	106.80	7215.50	7.37	1244.21	1244.24	0.08	-0.06	-3.09	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Vogl 13-36 Pad Well: 14-36 Wellpath: Original Hole	Date: 09/16/2010 Co-ordinate(NE) Reference: Well: 14-36, Grid North Vertical (TVD) Reference: 4817'GL+13'KB 4830.0 Section (VS) Reference: Well (0.00N,0.00E,89.60Azi) Survey Calculation Method: Minimum Curvature	Page: 3 Db: 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
7557.00	1.20	125.80	7397.46	5.75	1247.43	1247.44	0.22	0.05	10.44	MWD
7738.00	0.90	118.40	7578.43	3.96	1250.22	1250.22	0.18	-0.17	-4.09	MWD
7920.00	0.90	99.10	7760.41	3.06	1252.89	1252.88	0.17	0.00	-10.60	MWD
8015.00	0.20	105.80	7855.41	2.89	1253.79	1253.78	0.74	-0.74	7.05	MWD
8060.00	0.20	105.80	7900.40	2.85	1253.94	1253.93	0.00	0.00	0.00	14-36 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		
14-36 SL			0.00	0.00	0.00	1307808.36	3151435.32	40	10	37.388 N	104	57	29.046 W
14-36 BHL			7900.40	2.85	1253.94	1307811.21	3152689.26	40	10	37.340 N	104	57	12.891 W
14-36 PBHL			8046.00	8.75	1253.45	1307817.11	3152688.77	40	10	37.399 N	104	57	12.896 W
-Circle (Radius: 50)													

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
745.00	744.73	8.625	9.875	8 5/8"