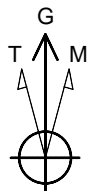


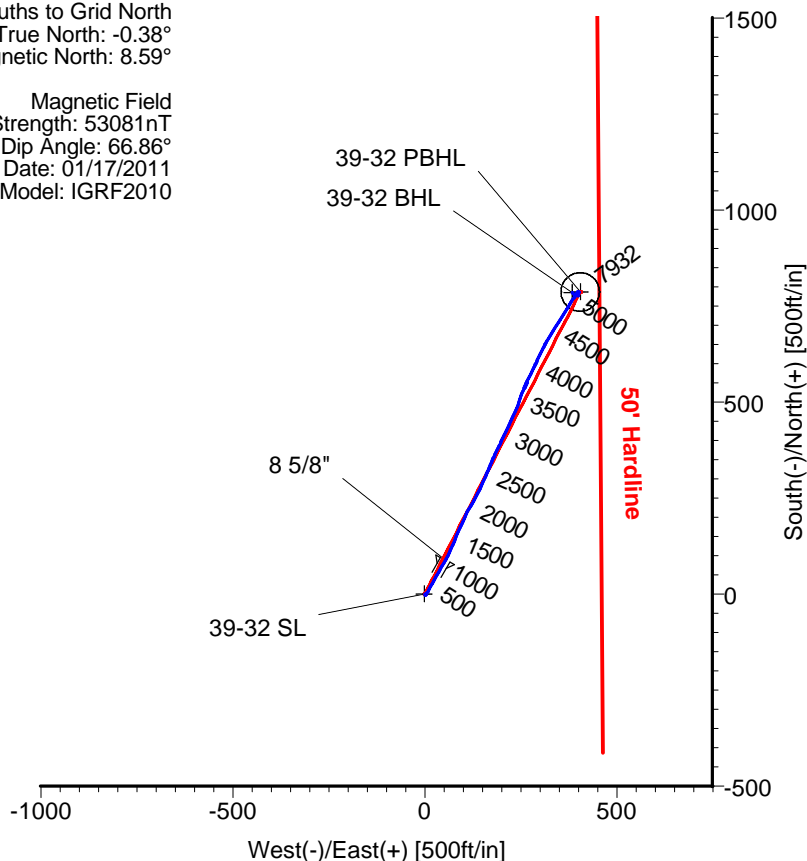
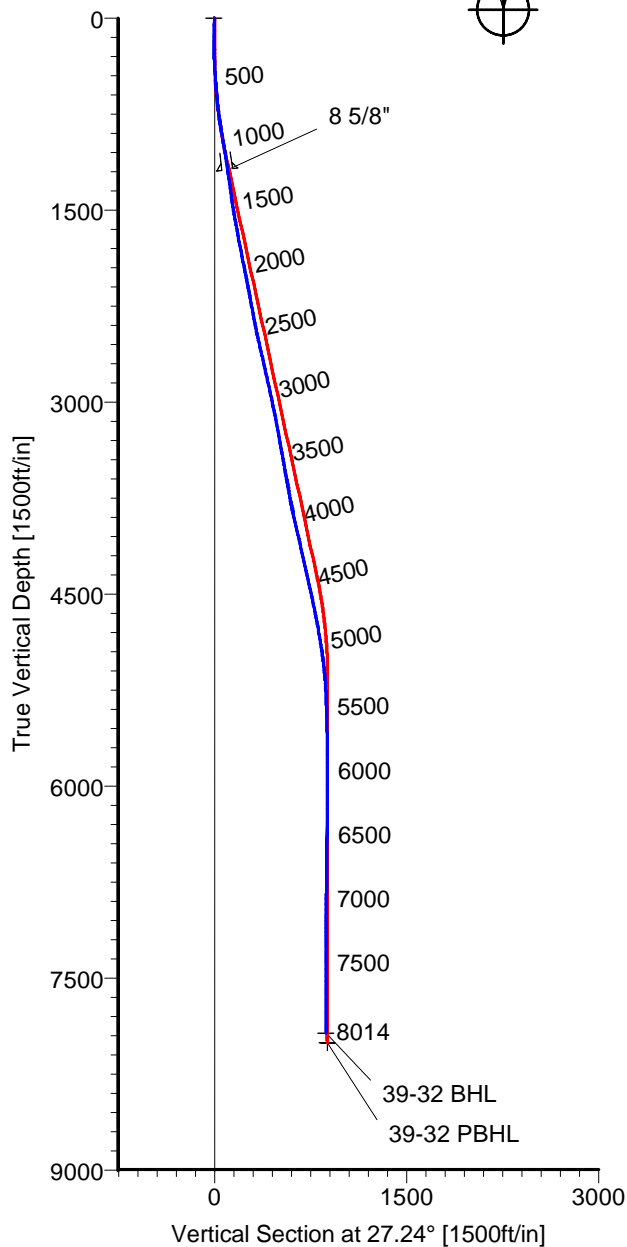
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Varra 16-32 Pad
Well: 39-32
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.38°
Magnetic North: 8.59°

Magnetic Field
Strength: 53081nT
Dip Angle: 66.86°
Date: 01/17/2011
Model: IGRF2010



CASING DETAILS

No.	TVD	MD	Name	Size
1	1182.95	1190.00	8 5/8"	8.625

LEGEND

- 39-32, Original Hole, Plan #2a
- Original Hole

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
39-32 SL	0.00	0.00	0.00	40°10'34.604N	104°54'21.583W	Point
39-32 BHL	7931.93	785.58	384.30	40°10'42.342N	104°54'16.564W	Point
39-32 PBHL	8006.00	786.71	405.05	40°10'42.352N	104°54'16.297W	Circle (Radius: 50)

Wellpath: (39-32/Original Hole)

Created By: Ivonne Gonzalez

Date: 01/19/2011

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: Varra 16-32 Pad Well: 39-32 Wellpath: Original Hole	Date: 01/19/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 08:53:24 Well: 39-32, Grid North SITE 4848.0 Well (0.00N,0.00E,27.24Azi) 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: Varra 16-32 Pad Currently centered on 37-32			
Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4835.00 ft	Northing: 1307620.01 ft Easting: 3165955.44 ft	Latitude: 40 10 34.608 N Longitude: 104 54 21.996 W North Reference: Grid Grid Convergence: 0.38 deg	

Well: 39-32	Slot Name: 39-32
Well Position: +N/-S -0.19 ft +E/-W 32.03 ft Position Uncertainty: 0.00 ft	Northing: 1307619.82 ft Easting : 3165987.47 ft Latitude: 40 10 34.604 N Longitude: 104 54 21.583 W

Wellpath: Original Hole Current Datum: SITE Magnetic Data: 01/17/2011 Field Strength: 53081 nT Vertical Section: Depth From (TVD) ft	Height 4848.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.98 deg Mag Dip Angle: 66.86 deg +N/-S ft +E/-W ft Direction deg
0.00	0.00	0.00 27.24

Survey Program for Definitive Wellpath Date: 01/19/2011 Validated: No Version: 0				
Actual From	To	Survey	Toolcode	Tool Name
50.00	7969.00	Survey #1 (50.00-7969.00)	MWD	Std MWD
8014.00	8014.00	Survey #2 (8014.00-8014.00)	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	1.40	151.00	50.00	-0.53	0.30	-0.34	2.80	2.80	0.00	MWD
141.00	1.60	157.00	140.96	-2.68	1.33	-1.77	0.28	0.22	6.59	MWD
230.00	0.70	83.90	229.95	-3.76	2.36	-2.27	1.74	-1.01	-82.13	MWD
320.00	2.30	26.20	319.92	-2.08	3.70	-0.16	2.24	1.78	-64.11	MWD
427.00	3.30	29.70	426.79	2.52	6.18	5.07	0.95	0.93	3.27	MWD
517.00	4.00	32.20	516.61	7.43	9.13	10.78	0.80	0.78	2.78	MWD
608.00	5.80	28.00	607.27	14.17	12.98	18.54	2.02	1.98	-4.62	MWD
699.00	6.20	28.70	697.77	22.54	17.50	28.05	0.45	0.44	0.77	MWD
790.00	7.70	27.60	788.10	32.25	22.69	39.06	1.65	1.65	-1.21	MWD
881.00	9.90	29.70	878.02	44.45	29.39	52.97	2.44	2.42	2.31	MWD
971.00	10.00	28.70	966.67	58.03	36.97	68.52	0.22	0.11	-1.11	MWD
1062.00	9.00	29.40	1056.42	71.16	44.26	83.53	1.11	-1.10	0.77	MWD
1145.00	8.60	30.10	1138.44	82.19	50.56	96.21	0.50	-0.48	0.84	MWD
1190.00	8.42	29.47	1182.95	87.96	53.87	102.87	0.45	-0.40	-1.40	8 5/8"
1195.00	8.40	29.40	1187.89	88.60	54.23	103.60	0.45	-0.40	-1.43	MWD
1286.00	8.30	28.00	1277.93	100.19	60.57	116.81	0.25	-0.11	-1.54	MWD
1377.00	7.40	25.50	1368.08	111.28	66.18	129.23	1.06	-0.99	-2.75	MWD
1467.00	8.60	24.10	1457.20	122.65	71.42	141.74	1.35	1.33	-1.56	MWD
1558.00	9.90	20.60	1547.01	136.19	76.95	156.31	1.56	1.43	-3.85	MWD
1649.00	10.60	23.40	1636.56	151.19	83.03	172.43	0.94	0.77	3.08	MWD
1740.00	11.10	24.40	1725.94	166.85	89.97	189.53	0.59	0.55	1.10	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Varra 16-32 Pad Well: 39-32 Wellpath: Original Hole	Date: 01/19/2011 Co-ordinate(NE) Reference: Well: 39-32, Grid North Vertical (TVD) Reference: SITE 4848.0 Section (VS) Reference: Well (0.00N,0.00E,27.24Azi) Survey Calculation Method: Minimum Curvature	Time: 08:53:24 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
1831.00	11.10	23.40	1815.23	182.87	97.07	207.02	0.21	0.00	-1.10	MWD
1921.00	11.30	24.10	1903.52	198.87	104.11	224.47	0.27	0.22	0.78	MWD
2012.00	10.90	25.80	1992.82	214.75	111.50	241.97	0.57	-0.44	1.87	MWD
2103.00	11.30	32.90	2082.12	229.99	120.09	259.45	1.56	0.44	7.80	MWD
2194.00	10.00	28.70	2171.55	244.40	128.72	276.22	1.66	-1.43	-4.62	MWD
2285.00	10.50	27.50	2261.10	258.69	136.35	292.41	0.60	0.55	-1.32	MWD
2376.00	11.10	27.50	2350.49	273.81	144.22	309.46	0.66	0.66	0.00	MWD
2466.00	11.40	21.60	2438.76	289.77	151.49	326.97	1.32	0.33	-6.56	MWD
2556.00	12.70	24.10	2526.77	307.07	158.81	345.70	1.56	1.44	2.78	MWD
2647.00	13.40	22.30	2615.42	325.96	166.89	366.20	0.89	0.77	-1.98	MWD
2738.00	12.80	22.70	2704.06	345.01	174.79	386.75	0.67	-0.66	0.44	MWD
2829.00	12.10	24.80	2792.92	362.97	182.68	406.33	0.92	-0.77	2.31	MWD
2920.00	12.30	26.50	2881.86	380.30	191.00	425.55	0.45	0.22	1.87	MWD
3012.00	12.50	26.20	2971.71	398.01	199.77	445.31	0.23	0.22	-0.33	MWD
3102.00	12.00	23.40	3059.67	415.33	207.79	464.38	0.86	-0.56	-3.11	MWD
3192.00	10.70	26.50	3147.90	431.40	215.23	482.07	1.60	-1.44	3.44	MWD
3283.00	10.20	24.10	3237.40	446.31	222.29	498.56	0.73	-0.55	-2.64	MWD
3374.00	10.40	26.90	3326.93	460.99	229.30	514.82	0.59	0.22	3.08	MWD
3465.00	10.00	24.10	3416.49	475.53	236.24	530.92	0.70	-0.44	-3.08	MWD
3555.00	9.90	17.10	3505.14	490.06	241.70	546.34	1.35	-0.11	-7.78	MWD
3646.00	11.30	19.90	3594.59	505.92	247.04	562.89	1.64	1.54	3.08	MWD
3737.00	9.30	24.40	3684.12	521.00	253.11	579.07	2.37	-2.20	4.95	MWD
3828.00	10.60	20.60	3773.75	535.53	259.10	594.73	1.60	1.43	-4.18	MWD
3919.00	13.20	25.50	3862.79	552.75	266.52	613.44	3.06	2.86	5.38	MWD
4009.00	13.20	25.80	3950.41	571.27	275.41	633.98	0.08	0.00	0.33	MWD
4100.00	13.20	25.80	4039.00	589.98	284.46	654.75	0.00	0.00	0.00	MWD
4191.00	12.10	26.50	4127.79	607.87	293.23	674.68	1.22	-1.21	0.77	MWD
4282.00	12.10	25.80	4216.77	625.00	301.64	693.75	0.16	0.00	-0.77	MWD
4372.00	12.10	25.10	4304.77	642.03	309.75	712.60	0.16	0.00	-0.78	MWD
4463.00	12.70	29.70	4393.65	659.36	318.75	732.13	1.27	0.66	5.05	MWD
4554.00	12.80	30.40	4482.41	676.74	328.81	752.19	0.20	0.11	0.77	MWD
4645.00	11.80	32.90	4571.32	693.25	338.96	771.51	1.24	-1.10	2.75	MWD
4735.00	11.30	33.60	4659.50	708.32	348.84	789.43	0.58	-0.56	0.78	MWD
4826.00	10.00	32.20	4748.93	722.43	357.98	806.17	1.46	-1.43	-1.54	MWD
4917.00	9.70	31.50	4838.59	735.65	366.20	821.68	0.35	-0.33	-0.77	MWD
5008.00	9.00	29.70	4928.38	748.37	373.73	836.44	0.83	-0.77	-1.98	MWD
5098.00	7.20	33.60	5017.48	759.19	380.34	849.08	2.09	-2.00	4.33	MWD
5189.00	5.60	32.90	5107.91	767.66	385.91	859.17	1.76	-1.76	-0.77	MWD
5280.00	3.90	33.60	5198.59	773.97	390.03	866.66	1.87	-1.87	0.77	MWD
5371.00	2.80	39.20	5289.43	778.27	393.15	871.91	1.26	-1.21	6.15	MWD
5462.00	1.60	35.70	5380.36	781.02	395.30	875.34	1.33	-1.32	-3.85	MWD
5553.00	1.60	7.00	5471.33	783.32	396.19	877.79	0.87	0.00	-31.54	MWD
5643.00	0.90	30.80	5561.31	785.17	396.71	879.68	0.95	-0.78	26.44	MWD
5734.00	0.70	39.90	5652.30	786.21	397.43	880.93	0.26	-0.22	10.00	MWD
5825.00	0.90	79.30	5743.29	786.77	398.49	881.91	0.63	0.22	43.30	MWD
5916.00	0.50	73.70	5834.28	787.02	399.57	882.63	0.45	-0.44	-6.15	MWD
6007.00	0.50	102.10	5925.28	787.04	400.34	883.00	0.27	0.00	31.21	MWD
6097.00	0.40	125.30	6015.28	786.78	400.98	883.06	0.23	-0.11	25.78	MWD
6188.00	0.40	164.00	6106.28	786.29	401.33	882.79	0.29	0.00	42.53	MWD
6279.00	0.50	204.10	6197.27	785.62	401.26	882.16	0.35	0.11	44.07	MWD
6370.00	0.50	205.50	6288.27	784.90	400.92	881.36	0.01	0.00	1.54	MWD
6551.00	0.50	223.10	6469.26	783.61	400.04	879.82	0.08	0.00	9.72	MWD
6733.00	0.90	168.20	6651.25	781.63	399.79	877.94	0.40	0.22	-30.16	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Varra 16-32 Pad Well: 39-32 Wellpath: Original Hole	Date: 01/19/2011 Co-ordinate(NE) Reference: Well: 39-32, Grid North Vertical (TVD) Reference: SITE 4848.0 Section (VS) Reference: Well (0.00N,0.00E,27.24Azi) Survey Calculation Method: Minimum Curvature 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
6914.00	1.20	190.70	6832.22	778.38	399.73	875.02	0.28	0.17	12.43	MWD
7096.00	0.90	97.00	7014.20	776.33	400.80	873.69	0.85	-0.16	-51.48	MWD
7277.00	2.10	273.30	7195.17	776.35	398.90	872.83	1.66	0.66	97.40	MWD
7459.00	1.80	290.00	7377.07	777.52	392.88	871.12	0.35	-0.16	9.18	MWD
7640.00	1.20	320.10	7558.01	779.95	388.99	871.50	0.54	-0.33	16.63	MWD
7822.00	1.10	318.30	7739.97	782.71	386.61	872.87	0.06	-0.05	-0.99	MWD
7969.00	1.10	322.90	7886.94	784.89	384.82	873.98	0.06	0.00	3.13	MWD
8014.00	1.10	322.90	7931.93	785.58	384.30	874.36	0.00	0.00	0.00	39-32 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		
39-32 SL			0.00	0.00	0.00	1307619.82	3165987.47	40	10	34.604 N	104	54	21.583 W
39-32 BHL			7931.93	785.58	384.30	1308405.40	3166371.77	40	10	42.342 N	104	54	16.564 W
39-32 PBHL			8006.00	786.71	405.05	1308406.53	3166392.52	40	10	42.352 N	104	54	16.297 W
-Circle (Radius: 50)													

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1190.00	1182.95	8.625	9.875	8 5/8"