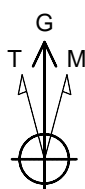


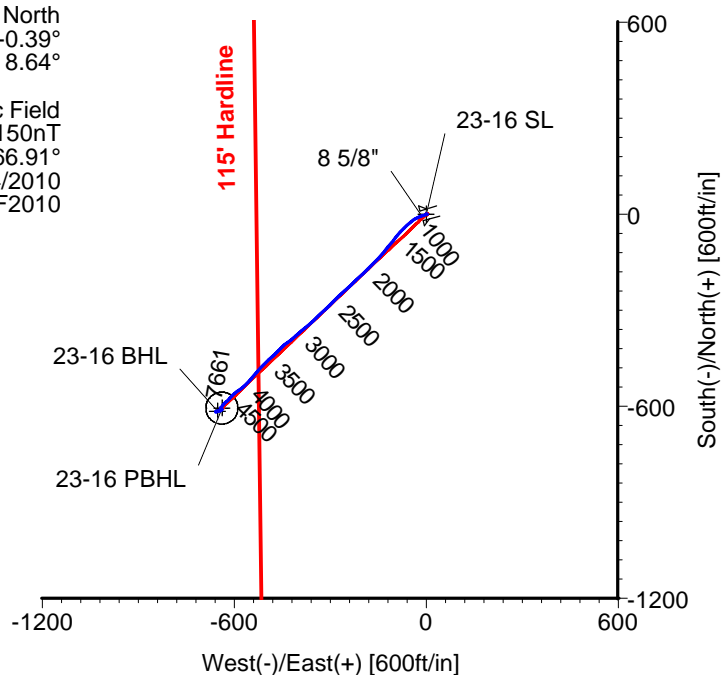
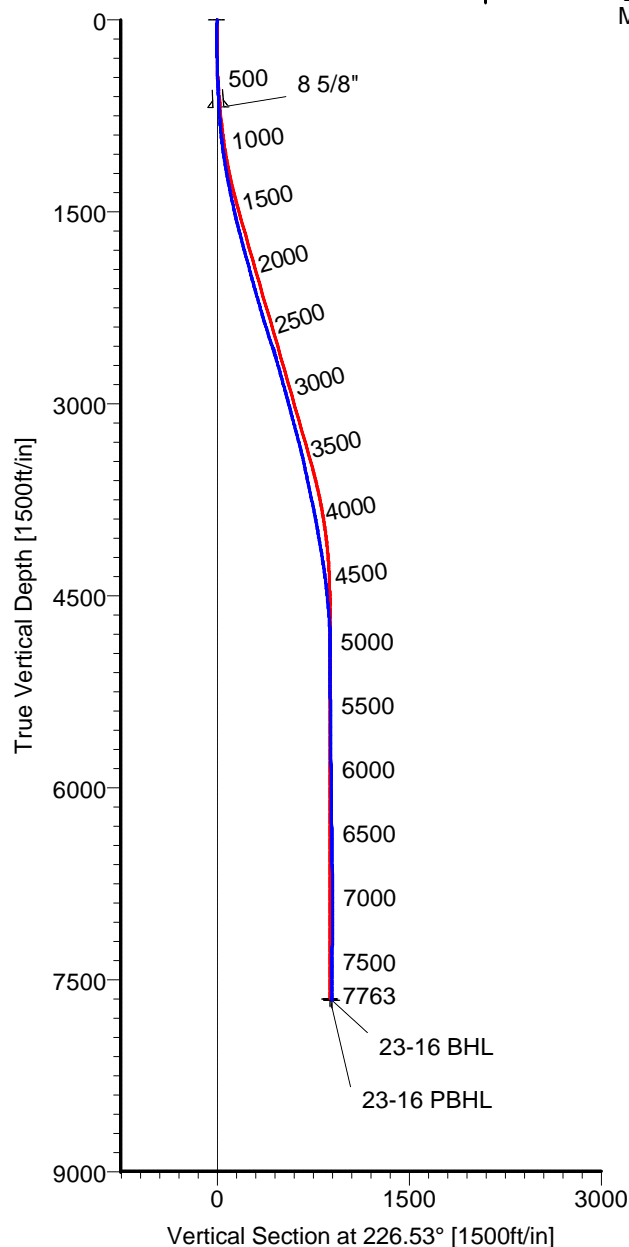
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Burchfield 10-16 Pad
Well: 23-16
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.39°
Magnetic North: 8.64°

Magnetic Field
Strength: 53150nT
Dip Angle: 66.91°
Date: 08/24/2010
Model: IGRF2010



LEGEND

- 23-16,Original Hole,Plan #1
- Original Hole

CASING DETAILS

No.	TVD	MD	Name	Size
1	684.66	685.00	8 5/8"	8.625

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
23-16 SL	0.00	0.00	0.00	40°13'25.990N	104°53'36.706W	Point
23-16 PBHL	7651.00	-605.64	-638.89	40°13'20.048N	104°53'44.995W	Circle (Radius: 50)
23-16 BHL	7660.57	-615.80	-651.32	40°13'19.949N	104°53'45.157W	Point

Wellpath: (23-16/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	Date: 08/23/2010	Time: 10:12:39	Page: 1
Field: Weld County, CO	Co-ordinate(NE) Reference: Well: 23-16, Grid North		
Site: Burchfield 10-16 Pad	Vertical (TVD) Reference: 4784'GL+13'KB 4797.0		
Well: 23-16	Section (VS) Reference: Well (0.00N,0.00E,226.53Azi)		
Wellpath: Original Hole	Survey Calculation Method: Minimum Curvature		Db: Adapti

Field: Weld County, CO

Map SystemUS State Plane Coordinate System 1983
Geo DatumGRS 1980
Sys Datum:Mean Sea Level

Map Zone: Colorado, Northern Zone
Coordinate System: Well Centre
Geomagnetic Model: IGRF2010

Site: Burchfield 10-16 Pad

Centered on 25-16

Site Position:	Northing: 1325001.52 ft	Latitude: 40 13 26.148 N
From: Geographic	Easting: 3169351.87 ft	Longitude: 104 53 36.708 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 4784.00 ft		Grid Convergence: 0.39 deg

Well:	23-16				Slot Name:	23-16			
Well Position:	+N/S	-15.97 ft	Northing:	1324985.55 ft	Latitude:	40	13	25.990 N	
	+E/W	0.29 ft	Easting :	3169352.16 ft	Longitude:	104	53	36.706 W	
Position Uncertainty:		0.00 ft							

Wellpath: Original Hole		Drilled From: Surface	
Current Datum: 4784'GL+13'KB	Height 4797.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 08/24/2010		Above System Datum: Mean Sea Level	
Field Strength: 53150 nT		Declination: 9.03 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 66.91 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	226.53

Survey Program for Definitive Wellpath			Version: 0	
Date: 08/23/2010		Validated: No		
Actual From	To	Survey	Toolcode	Tool Name
ft	ft			
47.00	7718.00	Survey #1 (47.00-7718.00)	MWD	Std MWD
7763.00	7763.00	Survey #2 (7763.00-7763.00)	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
47.00	0.20	16.80	47.00	0.08	0.02	-0.07	0.43	0.43	0.00	MWD
107.00	0.20	341.30	107.00	0.28	0.02	-0.21	0.20	0.00	-59.17	MWD
168.00	0.40	11.50	168.00	0.59	0.03	-0.43	0.41	0.33	49.51	MWD
229.00	0.20	178.80	229.00	0.69	0.07	-0.53	0.98	-0.33	274.26	MWD
289.00	0.90	254.10	289.00	0.46	-0.38	-0.04	1.45	1.17	125.50	MWD
369.00	1.80	240.00	368.97	-0.34	-2.07	1.74	1.19	1.12	-17.62	MWD
460.00	2.10	245.60	459.92	-1.75	-4.83	4.70	0.39	0.33	6.15	MWD
550.00	2.60	241.80	549.84	-3.39	-8.13	8.23	0.58	0.56	-4.22	MWD
635.00	3.00	252.30	634.74	-4.98	-11.94	12.10	0.76	0.47	12.35	MWD
685.00	3.75	254.12	684.66	-5.83	-14.76	14.72	1.51	1.50	3.64	8 5/8"
695.00	3.90	254.40	694.63	-6.01	-15.41	15.31	1.51	1.50	2.80	MWD
786.00	4.90	253.40	785.36	-7.95	-22.11	21.52	1.10	1.10	-1.10	MWD
876.00	6.00	244.90	874.96	-11.04	-30.05	29.41	1.51	1.22	-9.44	MWD
967.00	7.00	234.40	965.37	-16.29	-38.87	39.42	1.70	1.10	-11.54	MWD
1058.00	8.60	231.20	1055.53	-23.78	-48.68	51.69	1.82	1.76	-3.52	MWD
1149.00	9.30	224.50	1145.42	-33.29	-59.14	65.82	1.38	0.77	-7.36	MWD
1239.00	10.40	223.80	1234.10	-44.34	-69.86	81.20	1.23	1.22	-0.78	MWD
1330.00	11.30	221.00	1323.47	-57.00	-81.39	98.28	1.15	0.99	-3.08	MWD
1421.00	12.10	222.10	1412.58	-70.80	-93.64	116.67	0.91	0.88	1.21	MWD
1512.00	12.80	220.00	1501.44	-85.60	-106.51	136.19	0.92	0.77	-2.31	MWD
1602.00	14.40	217.50	1588.91	-102.12	-119.73	157.15	1.89	1.78	-2.78	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM
Field: Weld County, CO
Site: Burchfield 10-16 Pad
Well: 23-16
Wellpath: Original Hole

Date: 08/23/2010 **Time:** 10:12:39 **Page:** 2
Co-ordinate(NE) Reference: Well: 23-16, Grid North
Vertical (TVD) Reference: 4784'GL+13'KB 4797.0
Section (VS) Reference: Well (0.00N,0.00E,226.53Azi)
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
1693.00	15.10	221.40	1676.92	-119.99	-134.46	180.13	1.33	0.77	4.29	MWD
1784.00	14.10	222.10	1764.98	-137.10	-149.73	202.99	1.12	-1.10	0.77	MWD
1875.00	15.30	223.50	1853.00	-154.04	-165.43	226.03	1.38	1.32	1.54	MWD
1966.00	15.30	227.00	1940.77	-170.93	-182.47	250.03	1.01	0.00	3.85	MWD
2057.00	15.50	224.50	2028.51	-187.80	-199.78	274.18	0.76	0.22	-2.75	MWD
2148.00	15.70	227.00	2116.15	-204.87	-217.30	298.65	0.77	0.22	2.75	MWD
2239.00	16.50	227.70	2203.58	-221.96	-235.87	323.88	0.90	0.88	0.77	MWD
2330.00	15.80	228.40	2290.99	-238.88	-254.69	349.18	0.80	-0.77	0.77	MWD
2421.00	17.40	225.60	2378.20	-256.63	-273.68	375.17	1.97	1.76	-3.08	MWD
2512.00	18.10	226.70	2464.87	-275.84	-293.69	402.91	0.85	0.77	1.21	MWD
2603.00	18.30	225.90	2551.31	-295.48	-314.23	431.33	0.35	0.22	-0.88	MWD
2693.00	16.20	225.20	2637.26	-314.16	-333.29	458.02	2.34	-2.33	-0.78	MWD
2785.00	15.80	227.40	2725.70	-331.68	-351.62	483.37	0.79	-0.43	2.39	MWD
2876.00	15.50	231.20	2813.33	-347.69	-370.21	507.88	1.17	-0.33	4.18	MWD
2966.00	16.00	229.80	2899.95	-363.23	-389.06	532.25	0.70	0.56	-1.56	MWD
3057.00	14.60	227.40	2987.72	-379.09	-407.08	556.24	1.69	-1.54	-2.64	MWD
3148.00	15.00	232.20	3075.71	-394.07	-424.83	579.43	1.42	0.44	5.27	MWD
3239.00	14.80	229.80	3163.65	-408.79	-443.01	602.75	0.71	-0.22	-2.64	MWD
3329.00	15.10	226.30	3250.60	-424.31	-460.27	625.95	1.06	0.33	-3.89	MWD
3420.00	14.30	226.30	3338.62	-440.26	-476.96	649.04	0.88	-0.88	0.00	MWD
3511.00	12.80	227.00	3427.09	-454.90	-492.46	670.36	1.66	-1.65	0.77	MWD
3602.00	11.80	224.90	3516.00	-468.37	-506.40	689.74	1.20	-1.10	-2.31	MWD
3693.00	11.60	223.10	3605.11	-481.64	-519.22	708.17	0.46	-0.22	-1.98	MWD
3783.00	12.10	221.40	3693.19	-495.32	-531.64	726.60	0.68	0.56	-1.89	MWD
3874.00	12.30	222.40	3782.13	-509.64	-544.49	745.77	0.32	0.22	1.10	MWD
3965.00	11.10	222.40	3871.24	-523.26	-556.93	764.17	1.32	-1.32	0.00	MWD
4056.00	9.90	224.50	3960.72	-535.31	-568.32	780.73	1.38	-1.32	2.31	MWD
4146.00	9.30	234.00	4049.46	-545.10	-579.63	795.67	1.88	-0.67	10.56	MWD
4237.00	10.00	231.20	4139.17	-554.38	-591.73	810.84	0.93	0.77	-3.08	MWD
4328.00	9.00	229.80	4228.92	-563.92	-603.33	825.82	1.13	-1.10	-1.54	MWD
4419.00	7.60	223.10	4318.97	-572.91	-612.88	838.93	1.87	-1.54	-7.36	MWD
4510.00	7.00	224.20	4409.23	-581.28	-620.85	850.48	0.68	-0.66	1.21	MWD
4601.00	5.60	222.80	4499.68	-588.51	-627.74	860.45	1.55	-1.54	-1.54	MWD
4691.00	5.10	224.20	4589.29	-594.60	-633.51	868.83	0.57	-0.56	1.56	MWD
4782.00	4.10	225.60	4680.00	-599.78	-638.65	876.13	1.11	-1.10	1.54	MWD
4873.00	2.50	210.10	4770.84	-603.77	-641.97	881.28	2.00	-1.76	-17.03	MWD
4964.00	1.10	185.20	4861.80	-606.36	-643.05	883.84	1.73	-1.54	-27.36	MWD
5055.00	1.10	126.50	4952.78	-607.75	-642.42	884.35	1.18	0.00	-64.51	MWD
5146.00	0.70	131.00	5043.77	-608.63	-641.30	884.14	0.45	-0.44	4.95	MWD
5236.00	0.50	127.90	5133.77	-609.24	-640.58	884.03	0.23	-0.22	-3.44	MWD
5327.00	0.40	189.00	5224.76	-609.79	-640.31	884.22	0.51	-0.11	67.14	MWD
5418.00	0.70	221.00	5315.76	-610.53	-640.73	885.03	0.46	0.33	35.16	MWD
5509.00	0.70	231.60	5406.75	-611.29	-641.53	886.13	0.14	0.00	11.65	MWD
5599.00	0.50	239.30	5496.75	-611.83	-642.30	887.06	0.24	-0.22	8.56	MWD
5690.00	0.70	223.80	5587.74	-612.44	-643.02	888.01	0.28	0.22	-17.03	MWD
5781.00	0.50	236.50	5678.74	-613.06	-643.74	888.95	0.26	-0.22	13.96	MWD
5872.00	0.90	251.60	5769.73	-613.50	-644.75	889.99	0.48	0.44	16.59	MWD
5963.00	0.90	249.90	5860.72	-613.97	-646.10	891.29	0.03	0.00	-1.87	MWD
6054.00	1.10	250.90	5951.71	-614.51	-647.59	892.75	0.22	0.22	1.10	MWD
6145.00	0.30	279.00	6042.70	-614.75	-648.66	893.69	0.93	-0.88	30.88	MWD
6327.00	0.50	260.40	6224.69	-614.81	-649.91	894.64	0.13	0.11	-10.22	MWD
6508.00	0.80	256.00	6405.68	-615.25	-651.91	896.39	0.17	0.17	-2.43	MWD
6690.00	1.00	233.70	6587.66	-616.50	-654.43	899.07	0.22	0.11	-12.25	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Burchfield 10-16 Pad Well: 23-16 Wellpath: Original Hole	Date: 08/23/2010 Time: 10:12:39 Page: 3 Co-ordinate(NE) Reference: Well: 23-16, Grid North Vertical (TVD) Reference: 4784'GL+13'KB 4797.0 Section (VS) Reference: Well (0.00N,0.00E,226.53Azi) 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
6873.00	0.90	239.30	6770.64	-618.18	-656.95	902.06	0.07	-0.05	3.06	MWD
7054.00	0.50	317.70	6951.62	-618.32	-658.70	903.43	0.52	-0.22	43.31	MWD
7236.00	1.20	66.00	7133.61	-616.96	-657.50	901.62	0.79	0.38	59.51	MWD
7418.00	0.50	75.80	7315.59	-615.99	-654.99	899.13	0.39	-0.38	5.38	MWD
7600.00	0.90	88.10	7497.58	-615.74	-652.79	897.37	0.23	0.22	6.76	MWD
7718.00	0.30	99.70	7615.57	-615.76	-651.56	896.49	0.52	-0.51	9.83	MWD
7753.43	0.30	99.70	7651.00	-615.80	-651.37	896.38	0.00	0.00	0.00	23-16 PBHL
7763.00	0.30	99.70	7660.57	-615.80	-651.32	896.35	0.00	0.00	0.00	23-16 BHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ----><--- Longitude --->		
23-16 SL			0.00	0.00	0.00	1324985.553169352.16		40	13	25.990 N
23-16 PBHL			7651.00	-605.64	-638.89	1324379.913168713.27		40	13	20.048 N
-Circle (Radius: 50)										
23-16 BHL			7660.57	-615.80	-651.32	1324369.753168700.84		40	13	19.949 N

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
685.00	684.66	8.625	9.875	8 5/8"