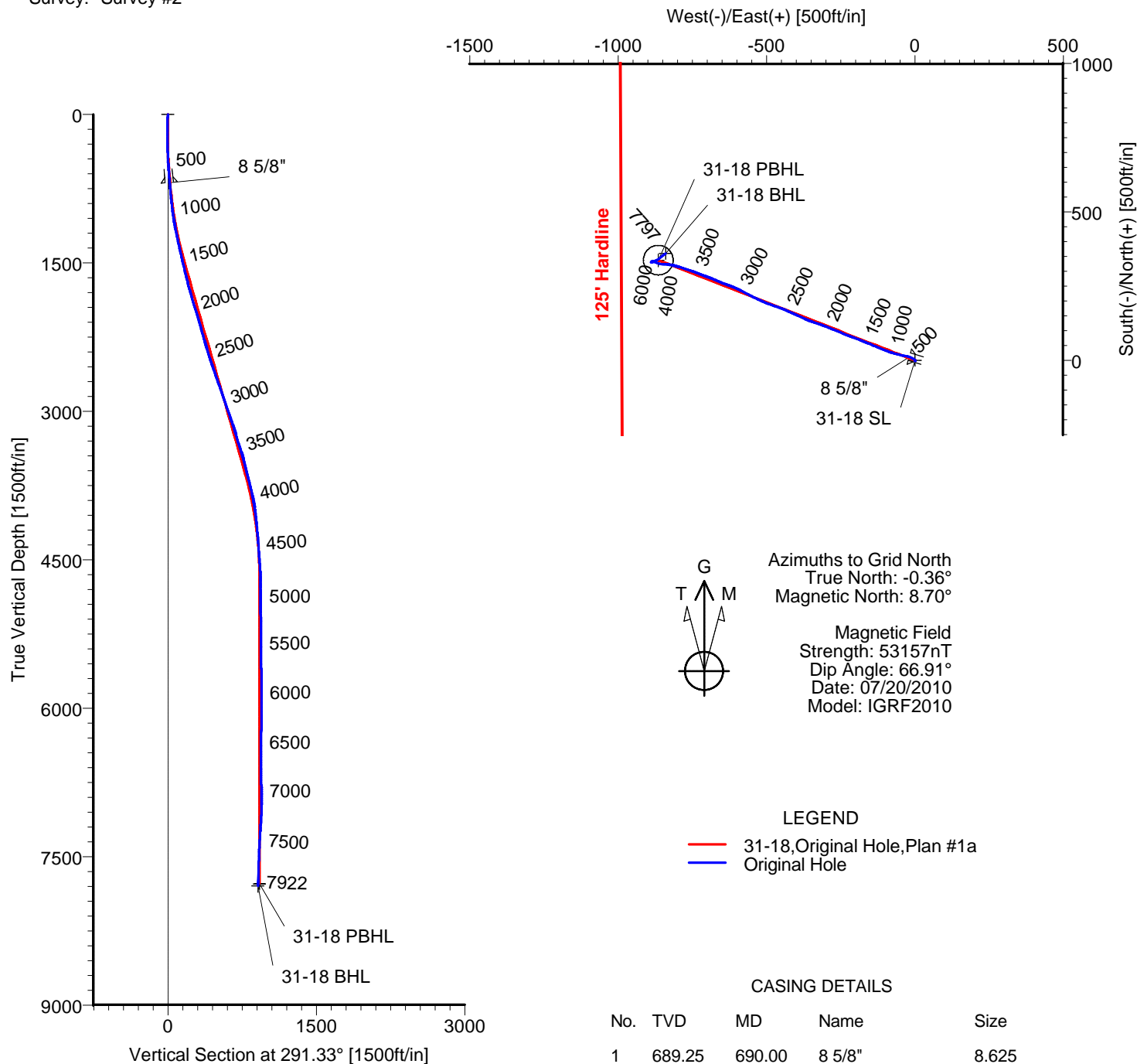


ANADARKO PETROLEUM

Field: Weld County, CO
Site: Ballinger 18-18 Pad
Well: 31-18
Wellpath: Original Hole
Survey: Survey #2



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
31-18 SL	0.00	0.00	0.00	40°13'44.080N	104°56'17.542W	Point
31-18 PBHL	7775.00	337.41	-864.08	40°13'47.468N	104°56'28.655W	Circle (Radius: 50)
31-18 BHL	7797.03	360.81	-839.65	40°13'47.698N	104°56'28.338W	Point

Wellpath: (31-18/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: 08/01/2010



**DIRECTIONAL
DRILLING SERVICES**

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM		Date: 08/01/2010		Time: 09:36:05		Page: 1	
Field: Weld County, CO		Co-ordinate(NE) Reference: Well: 31-18, Grid North					
Site: Ballinger 18-18 Pad		Vertical (TVD) Reference: 4866'GL+13'KB 4879.0					
Well: 31-18		Section (VS) Reference: Well (0.00N,0.00E,291.33Azi)					
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: Ballinger 18-18 Pad	
Site Position:	Northing: 1326733.86 ft
From: Geographic	Latitude: 40 13 44.080 N
Position Uncertainty: 0.00 ft	Longitude: 104 56 17.542 W
Ground Level: 4866.00 ft	North Reference: Grid
	Grid Convergence: 0.36 deg

Well: 31-18		Slot Name: 31-18	
Well Position: +N/-S 0.00 ft	Northing: 1326733.86 ft	Latitude: 40 13 44.080 N	
+E/-W 0.00 ft	Easting: 3156865.54 ft	Longitude: 104 56 17.542 W	
Position Uncertainty: 0.00 ft			

Wellpath: Original Hole		Drilled From: Surface	
Current Datum: 4866'GL+13'KB	Height: 4879.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 07/20/2010		Above System Datum: Mean Sea Level	
Field Strength: 53157 nT		Declination: 9.07 deg	
Vertical Section: Depth From (TVD)	+N/-S	+E/-W	Direction
ft	ft	ft	deg
0.00	0.00	0.00	291.33

Survey Program for Definitive Wellpath			
Date: 08/01/2010	Validated: No	Version: 0	
Actual From	To	Survey	Tool Name
ft	ft		
45.00	7776.00	Survey #1 (45.00-7776.00)	MWD
7922.00	7922.00	Survey #2 (7922.00-7922.00)	Std MWD
		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
45.00	0.50	118.10	45.00	-0.09	0.17	-0.19	1.11	1.11	0.00	MWD
106.00	0.50	165.20	106.00	-0.48	0.48	-0.62	0.65	0.00	77.21	MWD
167.00	0.50	152.90	167.00	-0.97	0.67	-0.97	0.18	0.00	-20.16	MWD
227.00	0.40	126.50	226.99	-1.33	0.95	-1.37	0.38	-0.17	-44.00	MWD
288.00	0.40	338.50	287.99	-1.26	1.05	-1.43	1.26	0.00	-242.62	MWD
349.00	1.20	322.70	348.99	-0.55	0.58	-0.74	1.35	1.31	-25.90	MWD
429.00	2.60	318.10	428.94	1.47	-1.14	1.59	1.76	1.75	-5.75	MWD
520.00	4.10	313.50	519.78	5.24	-4.88	6.45	1.67	1.65	-5.05	MWD
610.00	4.60	293.50	609.53	8.90	-10.52	13.04	1.76	0.56	-22.22	MWD
690.00	4.88	286.81	689.25	11.16	-16.72	19.64	0.78	0.36	-8.36	8 5/8"
694.00	4.90	286.50	693.24	11.26	-17.05	19.98	0.78	0.40	-7.83	MWD
785.00	5.10	275.90	783.90	12.78	-24.80	27.75	1.04	0.22	-11.65	MWD
876.00	6.30	283.30	874.45	14.34	-33.68	36.59	1.54	1.32	8.13	MWD
966.00	7.00	281.50	963.84	16.57	-43.86	46.89	0.81	0.78	-2.00	MWD
1057.00	8.60	285.50	1054.00	19.50	-55.85	59.12	1.86	1.76	4.40	MWD
1148.00	11.30	286.10	1143.62	23.79	-70.98	74.77	2.97	2.97	0.66	MWD
1239.00	12.10	290.30	1232.73	29.57	-88.49	93.18	1.28	0.88	4.62	MWD
1330.00	12.50	290.00	1321.64	36.25	-106.69	112.57	0.45	0.44	-0.33	MWD
1420.00	12.70	293.50	1409.47	43.52	-124.91	132.19	0.88	0.22	3.89	MWD
1511.00	13.20	294.20	1498.16	51.77	-143.56	152.56	0.58	0.55	0.77	MWD
1602.00	13.40	290.00	1586.72	59.64	-162.95	173.48	1.08	0.22	-4.62	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM	Date: 08/01/2010	Time: 09:36:05	Page: 2
Field: Weld County, CO	Co-ordinate(NE) Reference: Well: 31-18, Grid North		
Site: Ballinger 18-18 Pad	Vertical (TVD) Reference: 4866'GL+13'KB 4879.0		
Well: 31-18	Section (VS) Reference: Well (0.00N,0.00E,291.33Azi)		
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
1693.00	14.80	292.10	1674.98	67.62	-183.63	195.65	1.64	1.54	2.31	MWD
1784.00	15.10	290.70	1762.90	76.18	-205.49	219.12	0.52	0.33	-1.54	MWD
1874.00	16.70	291.00	1849.45	84.96	-228.53	243.77	1.78	1.78	0.33	MWD
1965.00	16.70	292.40	1936.61	94.63	-252.82	269.92	0.44	0.00	1.54	MWD
2056.00	16.90	292.80	2023.73	104.73	-277.10	296.22	0.25	0.22	0.44	MWD
2147.00	16.00	291.70	2111.00	114.50	-300.95	321.98	1.05	-0.99	-1.21	MWD
2238.00	15.10	287.50	2198.67	122.70	-323.91	346.35	1.58	-0.99	-4.62	MWD
2328.00	15.70	289.30	2285.44	130.25	-346.58	370.22	0.85	0.67	2.00	MWD
2419.00	17.60	294.50	2372.63	140.02	-370.72	396.26	2.65	2.09	5.71	MWD
2510.00	17.60	294.20	2459.37	151.37	-395.79	423.74	0.10	0.00	-0.33	MWD
2601.00	19.40	294.90	2545.66	163.37	-422.05	452.57	1.99	1.98	0.77	MWD
2692.00	18.70	290.30	2631.68	174.80	-449.44	482.24	1.82	-0.77	-5.05	MWD
2782.00	19.90	288.90	2716.62	184.77	-477.47	511.97	1.43	1.33	-1.56	MWD
2873.00	19.50	292.80	2802.30	195.67	-506.12	542.63	1.51	-0.44	4.29	MWD
2964.00	18.10	296.00	2888.45	207.75	-532.83	571.90	1.91	-1.54	3.52	MWD
3055.00	19.30	297.70	2974.64	220.94	-558.85	600.94	1.45	1.32	1.87	MWD
3145.00	19.50	297.40	3059.53	234.77	-585.36	630.65	0.25	0.22	-0.33	MWD
3236.00	19.00	291.70	3145.45	247.23	-612.61	660.57	2.14	-0.55	-6.26	MWD
3327.00	16.70	289.30	3232.07	257.03	-638.72	688.46	2.65	-2.53	-2.64	MWD
3418.00	16.70	294.50	3319.23	266.78	-662.95	714.58	1.64	0.00	5.71	MWD
3509.00	17.90	290.70	3406.12	277.14	-687.94	741.62	1.81	1.32	-4.18	MWD
3600.00	15.10	289.70	3493.36	286.09	-712.18	767.46	3.09	-3.08	-1.10	MWD
3690.00	13.60	292.40	3580.55	294.07	-733.00	789.76	1.82	-1.67	3.00	MWD
3782.00	14.50	287.50	3669.80	301.66	-753.99	812.06	1.62	0.98	-5.33	MWD
3872.00	13.50	287.50	3757.13	308.20	-774.75	833.79	1.11	-1.11	0.00	MWD
3963.00	12.40	287.50	3845.81	314.33	-794.20	854.14	1.21	-1.21	0.00	MWD
4098.00	8.60	281.50	3978.53	320.71	-817.93	878.55	2.93	-2.81	-4.44	MWD
4235.00	6.00	272.40	4114.41	323.05	-835.12	895.42	2.07	-1.90	-6.64	MWD
4371.00	5.30	272.00	4249.75	323.57	-848.50	908.07	0.52	-0.51	-0.29	MWD
4508.00	4.00	286.10	4386.30	325.11	-859.42	918.80	1.26	-0.95	10.29	MWD
4644.00	4.40	295.60	4521.94	328.68	-868.68	928.73	0.59	0.29	6.99	MWD
4780.00	2.50	283.30	4657.69	331.62	-876.27	936.87	1.49	-1.40	-9.04	MWD
4915.00	0.00	6.60	4792.64	332.30	-879.14	939.79	1.85	-1.85	0.00	MWD
5098.00	0.00	124.40	4975.64	332.30	-879.14	939.79	0.00	0.00	0.00	MWD
5280.00	0.50	310.40	5157.64	332.81	-879.74	940.54	0.27	0.27	0.00	MWD
5461.00	0.70	295.70	5338.63	333.80	-881.34	942.39	0.14	0.11	-8.12	MWD
5642.00	0.50	297.00	5519.62	334.64	-883.04	944.27	0.11	-0.11	0.72	MWD
5824.00	1.10	236.50	5701.61	334.04	-885.20	946.07	0.53	0.33	-33.24	MWD
6006.00	0.90	245.30	5883.58	332.48	-887.96	948.07	0.14	-0.11	4.84	MWD
6187.00	1.10	74.10	6064.57	332.36	-887.58	947.67	1.10	0.11	-94.59	MWD
6369.00	1.40	86.80	6246.53	332.96	-883.68	944.26	0.22	0.16	6.98	MWD
6550.00	0.70	112.10	6427.50	332.67	-880.45	941.14	0.45	-0.39	13.98	MWD
6732.00	1.10	216.80	6609.48	330.85	-880.46	940.50	0.79	0.22	57.53	MWD
6913.00	3.20	272.00	6790.36	329.64	-886.55	945.73	1.51	1.16	30.50	MWD
7095.00	1.40	80.80	6972.29	330.17	-889.44	948.61	2.52	-0.99	92.75	MWD
7276.00	4.90	69.90	7152.99	333.18	-879.99	940.90	1.95	1.93	-6.02	MWD
7458.00	5.80	57.60	7334.20	340.78	-864.93	929.64	0.80	0.49	-6.76	MWD
7640.00	3.90	50.50	7515.54	349.64	-852.39	921.18	1.09	-1.04	-3.90	MWD
7776.00	3.30	48.10	7651.27	355.20	-845.90	917.16	0.45	-0.44	-1.76	MWD
7899.94	3.30	48.10	7775.00	359.97	-840.59	913.95	0.00	0.00	0.00	31-18 PBHL
7922.00	3.30	48.10	7797.03	360.81	-839.65	913.37	0.00	0.00	0.00	31-18 BHL

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Ballinger 18-18 Pad Well: 31-18 Wellpath: Original Hole	Date: 08/01/2010 Time: 09:36:05 Page: 3 Co-ordinate(NE) Reference: Well: 31-18, Grid North Vertical (TVD) Reference: 4866'GL+13'KB 4879.0 Section (VS) Reference: Well (0.00N,0.00E,291.33Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Targets

Name	Description Dip. Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
							Deg	Min	Sec	Deg	Min	Sec
31-18 SL		0.00	0.00	0.00	1326733.863156865.54		40	13	44.080	N	104	56 17.542 W
31-18 PBHL		7775.00	337.41	-864.08	1327071.273156001.46		40	13	47.468	N	104	56 28.655 W
-Circle (Radius: 50)												
31-18 BHL		7797.03	360.81	-839.65	1327094.673156025.89		40	13	47.698	N	104	56 28.338 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
690.00	689.25	8.625	9.875	8 5/8"