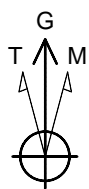


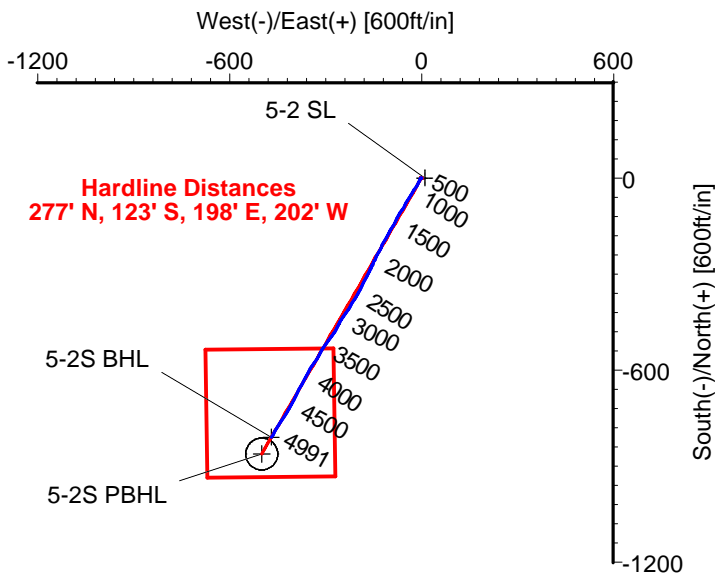
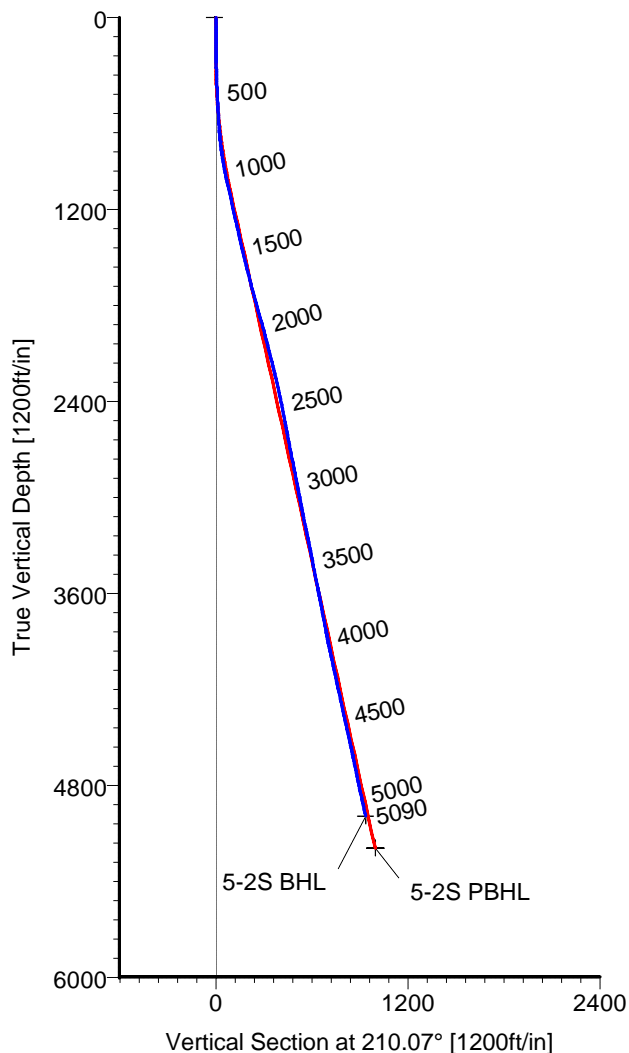
# ANADARKO PETROLEUM

Field: Weld County, CO  
Site: Jesser 18-2 Pad  
Well: Brown 5-2S  
Wellpath: Original Hole



Azimuths to Grid North  
True North: -0.49°  
Magnetic North: 8.41°

Magnetic Field  
Strength: 53060nT  
Dip Angle: 66.81°  
Date: 12/10/2010  
Model: IGRF2010



## CASING DETAILS

No.	TVD	MD	Name	Size
1	1132.98	1140.00	8 5/8"	8.625

## LEGEND

— Brown 5-2S, Original Hole, Plan #5  
— Original Hole

## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
5-2 SL	0.00	0.13	10.04	40°05'02.657N	104°44'58.481W	Point
5-2S BHL	4990.68	-810.60	-468.38	40°04'54.685N	104°45'04.724W	Point
5-2S PBHL	5192.45	-862.35	-499.28	40°04'54.177N	104°45'05.128W	Circle (Radius: 50)

Wellpath: (Brown 5-2S/Original Hole)

Created By: Ivonne Gonzalez

Date: 01/06/2011

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

<b>Company:</b> ANADARKO PETROLEUM <b>Field:</b> Weld County, CO <b>Site:</b> Jesser 18-2 Pad <b>Well:</b> Brown 5-2S <b>Wellpath:</b> Original Hole	<b>Date:</b> 01/06/2011 <b>Co-ordinate(NE) Reference:</b> <b>Vertical (TVD) Reference:</b> <b>Section (VS) Reference:</b> <b>Survey Calculation Method:</b>	<b>Time:</b> 09:43:04 <b>Well:</b> Brown 5-2S, Grid North 5144'GL+13'KB 5157.0 <b>Well (0.00N,0.00E,210.07Azi)</b> <b>Minimum Curvature</b>	<b>Page:</b> 1 <b>Db:</b> Adapti
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<b>Field:</b> Weld County, CO  <b>Map System:</b> US State Plane Coordinate System 1983 <b>Geo Datum:</b> GRS 1980 <b>Sys Datum:</b> Mean Sea Level	<b>Map Zone:</b> Colorado, Northern Zone <b>Coordinate System:</b> Well Centre <b>Geomagnetic Model:</b> IGRF2010
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<b>Site:</b> Jesser 18-2 Pad  Centered on Jesser 21-2 <b>Site Position:</b> <b>From:</b> Geographic <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 5144.00 ft	<b>Northing:</b> 1274364.19 ft <b>Easting:</b> 3210048.09 ft  <b>Latitude:</b> 40 5 2.663 N <b>Longitude:</b> 104 44 57.581 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 0.49 deg
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<b>Well:</b> Brown 5-2S  <b>Well Position:</b> +N/-S -1.30 ft +E/-W -80.00 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Slot Name:</b> 5-2S  <b>Latitude:</b> 40 5 2.657 N <b>Longitude:</b> 104 44 58.610 W
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<b>Wellpath:</b> Original Hole  <b>Current Datum:</b> 5144'GL+13'KB <b>Magnetic Data:</b> 12/10/2010 <b>Field Strength:</b> 53060 nT <b>Vertical Section:</b> Depth From (TVD) ft	<b>Drilled From:</b> Surface <b>Tie-on Depth:</b> 0.00 ft <b>Above System Datum:</b> Mean Sea Level <b>Declination:</b> 8.90 deg <b>Mag Dip Angle:</b> 66.81 deg <b>Direction</b> deg
0.00	0.00

<b>Survey Program for Definitive Wellpath</b>				
<b>Date:</b> 01/06/2011	<b>Validated:</b> No	<b>Version:</b> 0		
<b>Actual From</b> ft	<b>To</b> ft	<b>Survey</b>	<b>Toolcode</b>	<b>Tool Name</b>
50.00	5045.00	Survey #1 (50.00-5045.00)	MWD	Std MWD
5090.00	5090.00	Survey #2 (5090.00-5090.00)	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	0.50	261.00	50.00	-0.03	-0.22	0.14	1.00	1.00	0.00	MWD
110.00	0.70	262.70	110.00	-0.12	-0.84	0.52	0.33	0.33	2.83	MWD
170.00	0.90	255.40	169.99	-0.29	-1.66	1.08	0.37	0.33	-12.17	MWD
230.00	1.20	233.20	229.98	-0.78	-2.62	1.99	0.83	0.50	-37.00	MWD
291.00	1.20	213.90	290.97	-1.69	-3.48	3.21	0.66	0.00	-31.64	MWD
350.00	1.80	203.30	349.95	-3.06	-4.20	4.75	1.12	1.02	-17.97	MWD
427.00	2.50	208.20	426.89	-5.65	-5.47	7.63	0.94	0.91	6.36	MWD
518.00	3.00	203.30	517.79	-9.59	-7.35	11.98	0.61	0.55	-5.38	MWD
608.00	2.80	195.20	607.67	-13.87	-8.85	16.44	0.51	-0.22	-9.00	MWD
699.00	4.20	210.70	698.50	-18.88	-11.14	21.92	1.84	1.54	17.03	MWD
790.00	6.50	214.20	789.10	-26.01	-15.74	30.39	2.55	2.53	3.85	MWD
880.00	9.20	213.50	878.25	-36.22	-22.57	42.66	3.00	3.00	-0.78	MWD
971.00	10.90	209.70	967.85	-49.76	-30.85	58.52	2.00	1.87	-4.18	MWD
1062.00	12.80	211.10	1056.91	-65.87	-40.32	77.21	2.11	2.09	1.54	MWD
1196.00	12.70	211.80	1187.60	-91.10	-55.75	106.77	0.14	-0.07	0.52	MWD
1287.00	13.00	213.20	1276.32	-108.16	-66.63	126.99	0.48	0.33	1.54	MWD
1378.00	12.70	206.10	1365.05	-125.71	-76.63	147.19	1.77	-0.33	-7.80	MWD
1468.00	12.70	210.40	1452.85	-143.13	-85.99	166.95	1.05	0.00	4.78	MWD
1559.00	14.10	210.40	1541.37	-161.32	-96.66	188.04	1.54	1.54	0.00	MWD
1650.00	14.60	207.50	1629.53	-181.05	-107.57	210.58	0.96	0.55	-3.19	MWD
1741.00	15.30	207.50	1717.45	-201.88	-118.41	234.04	0.77	0.77	0.00	MWD

# Allis-Chalmers Energy, Inc.

## Survey Report

**Company:** ANADARKO PETROLEUM  
**Field:** Weld County, CO  
**Site:** Jesser 18-2 Pad  
**Well:** Brown 5-2S  
**Wellpath:** Original Hole

<b>Date:</b> 01/06/2011	<b>Time:</b> 09:43:04	<b>Page:</b> 2
<b>Co-ordinate(NE) Reference:</b>	Well: Brown 5-2S, Grid North	
<b>Vertical (TVD) Reference:</b>	5144'GL+13'KB 5157.0	
<b>Section (VS) Reference:</b>	Well (0.00N,0.00E,210.07Azi)	
<b>Survey Calculation Method:</b>	Minimum Curvature	<b>Db:</b> 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
1832.00	15.50	207.20	1805.18	-223.34	-129.51	258.17	0.24	0.22	-0.33	MWD
1922.00	15.30	206.80	1891.95	-244.64	-140.36	282.04	0.25	-0.22	-0.44	MWD
2013.00	15.50	205.80	1979.69	-266.30	-151.07	306.15	0.37	0.22	-1.10	MWD
2104.00	14.40	203.70	2067.60	-287.61	-160.91	329.52	1.35	-1.21	-2.31	MWD
2195.00	14.30	207.90	2155.77	-307.90	-170.71	352.00	1.15	-0.11	4.62	MWD
2285.00	12.70	205.80	2243.28	-326.63	-180.22	372.97	1.86	-1.78	-2.33	MWD
2376.00	12.70	208.20	2332.05	-344.46	-189.30	392.95	0.58	0.00	2.64	MWD
2467.00	11.60	208.90	2421.01	-361.28	-198.45	412.09	1.22	-1.21	0.77	MWD
2558.00	10.70	212.80	2510.30	-376.39	-207.45	429.68	1.29	-0.99	4.29	MWD
2648.00	10.90	208.60	2598.70	-390.89	-216.05	446.53	0.90	0.22	-4.67	MWD
2739.00	11.10	213.50	2688.03	-405.75	-225.00	463.88	1.05	0.22	5.38	MWD
2830.00	11.30	214.60	2777.30	-420.39	-234.90	481.51	0.32	0.22	1.21	MWD
2920.00	10.90	211.80	2865.62	-434.88	-244.39	498.80	0.75	-0.44	-3.11	MWD
2996.00	10.90	213.90	2940.25	-446.95	-252.18	513.16	0.52	0.00	2.76	MWD
3086.00	10.70	201.90	3028.66	-461.77	-260.05	529.92	2.50	-0.22	-13.33	MWD
3177.00	11.40	212.50	3117.98	-477.19	-268.03	547.27	2.36	0.77	11.65	MWD
3268.00	12.50	215.60	3207.01	-492.79	-278.60	566.06	1.40	1.21	3.41	MWD
3359.00	11.60	222.30	3296.01	-507.56	-290.49	584.80	1.83	-0.99	7.36	MWD
3450.00	10.70	214.20	3385.30	-521.32	-301.39	602.17	1.98	-0.99	-8.90	MWD
3540.00	11.10	211.40	3473.67	-535.62	-310.60	619.17	0.74	0.44	-3.11	MWD
3631.00	11.10	202.60	3562.98	-551.19	-318.54	636.61	1.86	0.00	-9.67	MWD
3722.00	11.40	215.60	3652.24	-566.59	-327.14	654.25	2.80	0.33	14.29	MWD
3813.00	10.70	214.20	3741.56	-580.89	-337.12	671.63	0.82	-0.77	-1.54	MWD
3904.00	10.40	214.20	3831.02	-594.67	-346.49	688.24	0.33	-0.33	0.00	MWD
3994.00	12.30	202.60	3919.27	-610.24	-354.74	705.86	3.29	2.11	-12.89	MWD
4085.00	12.50	214.20	4008.16	-627.34	-364.00	725.29	2.74	0.22	12.75	MWD
4176.00	12.00	205.40	4097.09	-644.03	-373.59	744.55	2.12	-0.55	-9.67	MWD
4267.00	12.10	209.30	4186.09	-660.89	-382.32	763.51	0.90	0.11	4.29	MWD
4357.00	12.50	207.50	4274.02	-677.76	-391.43	782.67	0.62	0.44	-2.00	MWD
4448.00	11.80	205.40	4362.98	-694.90	-399.97	801.78	0.91	-0.77	-2.31	MWD
4538.00	13.20	208.90	4450.85	-712.21	-408.89	821.23	1.77	1.56	3.89	MWD
4629.00	12.30	207.20	4539.61	-729.93	-418.34	841.30	1.07	-0.99	-1.87	MWD
4720.00	11.10	217.40	4628.72	-745.51	-428.09	859.67	2.62	-1.32	11.21	MWD
4811.00	12.10	217.00	4717.86	-760.09	-439.15	877.83	1.10	1.10	-0.44	MWD
4902.00	12.00	208.90	4806.86	-775.99	-449.46	896.76	1.86	-0.11	-8.90	MWD
4992.00	12.50	207.90	4894.82	-792.78	-458.54	915.84	0.60	0.56	-1.11	MWD
5045.00	11.80	209.30	4946.63	-802.58	-463.88	926.99	1.43	-1.32	2.64	MWD
5090.00	11.80	209.30	4990.68	-810.60	-468.38	936.19	0.00	0.00	0.00	5-2S BHL

## Targets

Name	Description		TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
	Dip.	Dir.						Deg	Min	Sec	Deg	Min	Sec
5-2 SL			0.00	0.13	10.04	1274363.02	3209978.13	40	5	2.657 N	104	44	58.481 W
5-2S BHL			4990.68	-810.60	-468.38	1273552.29	3209499.71	40	4	54.685 N	104	45	4.724 W
5-2S PBHL			5192.45	-862.35	-499.28	1273500.54	3209468.81	40	4	54.177 N	104	45	5.128 W
-Circle (Radius: 50)													