

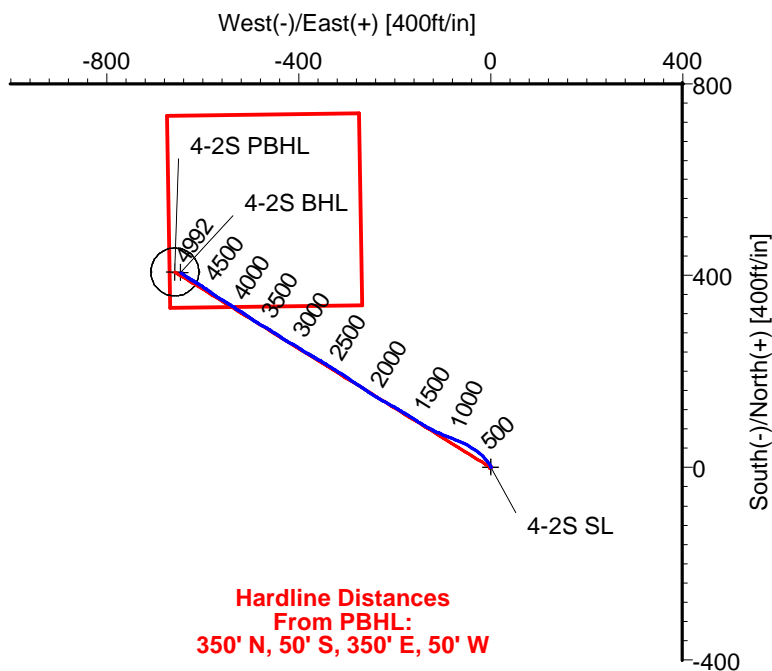
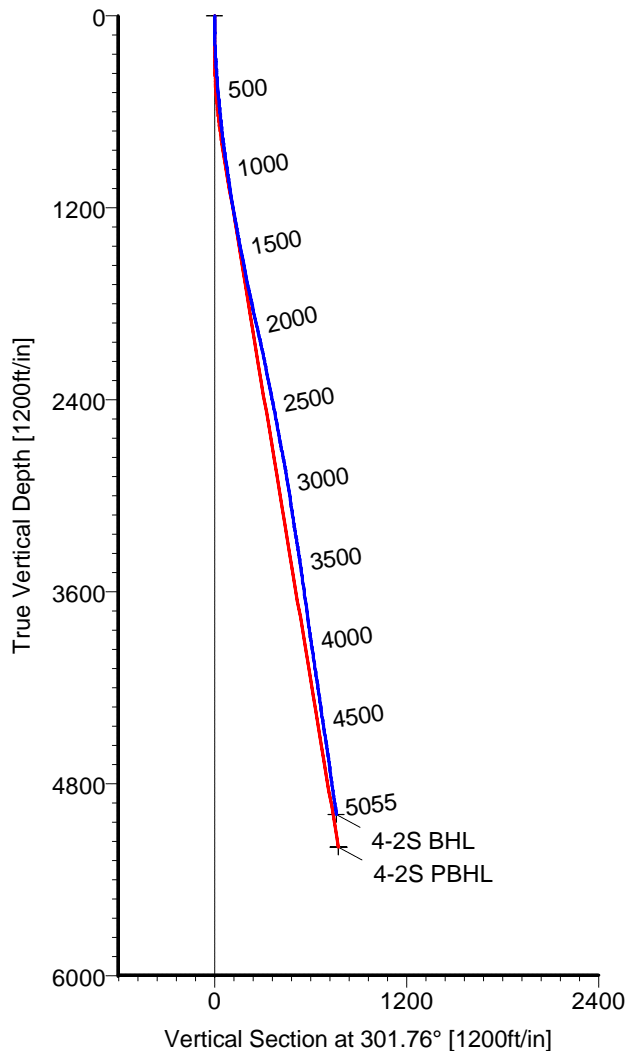
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Jesser 18-2 Pad
Well: 4-2S
Wellpath: Original Hole



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

Magnetic Field
Strength: 53058nT
Dip Angle: 66.81°
Date: 12/17/2010
Model: IGRF2010



**Hardline Distances
From PBHL:
350' N, 50' S, 350' E, 50' W**

LEGEND

- 4-2S, Original Hole, Plan #5
- Original Hole

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
4-2S SL	0.00	0.00	0.00	40°05'02.655N	104°44'58.868W	Point
4-2S BHL	4991.63	405.67	-646.17	40°05'06.718N	104°45'07.137W	Point
4-2S PBHL	5195.25	407.42	-658.12	40°05'06.736N	104°45'07.291W	Circle (Radius: 50)

Wellpath: (4-2S/Original Hole)

Created By: Ivonne Gonzalez

Date: 01/13/2011

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: Jesser 18-2 Pad Well: 4-2S Wellpath: Original Hole	Date: 01/13/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 08:27:58 Well: 4-2S, Grid North 5144'GL+13'KB 5157.0 Well (0.00N,0.00E,301.76Azi) 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: Jesser 18-2 Pad			
Centered on Jesser 21-2			
Site Position:	Northing: 1274364.19 ft	Latitude: 40 5 2.663 N	
From: Geographic	Easting: 3210048.09 ft	Longitude: 104 44 57.581 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 5144.00 ft		Grid Convergence: 0.49 deg	

Well: 4-2S	Slot Name: 4-2S
Well Position: +N/-S -1.66 ft	Latitude: 40 5 2.655 N
+E/-W -100.02 ft	Longitude: 104 44 58.868 W
Position Uncertainty: 0.00 ft	

Wellpath: Original Hole	Drilled From: Surface
Current Datum: 5144'GL+13'KB	Tie-on Depth: 0.00 ft
Magnetic Data: 12/17/2010	Above System Datum: Mean Sea Level
Field Strength: 53058 nT	Declination: 8.90 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 66.81 deg
ft	+N/-S ft
	+E/-W ft
	Direction deg
0.00	0.00 0.00 301.76

Survey Program for Definitive Wellpath				
Date: 01/13/2011	Validated: No	Version: 0		
Actual From ft	To ft	Survey	Toolcode	Tool Name
50.00	5010.00	Survey #1 (50.00-5010.00)	MWD	Std MWD
5055.00	5055.00	Survey #2 (5055.00-5055.00)	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	1.10	7.20	50.00	0.48	0.06	0.20	2.20	2.20	0.00	MWD
110.00	2.50	347.50	109.97	2.33	-0.15	1.35	2.52	2.33	-32.83	MWD
170.00	2.60	335.20	169.91	4.84	-1.00	3.40	0.93	0.17	-20.50	MWD
230.00	3.20	322.50	229.83	7.40	-2.60	6.10	1.46	1.00	-21.17	MWD
291.00	3.70	318.60	290.72	10.23	-4.93	9.58	0.91	0.82	-6.39	MWD
350.00	4.40	321.80	349.57	13.44	-7.59	13.53	1.25	1.19	5.42	MWD
427.00	5.10	317.90	426.31	18.30	-11.71	19.59	1.00	0.91	-5.06	MWD
518.00	5.10	315.80	516.95	24.20	-17.24	27.40	0.21	0.00	-2.31	MWD
608.00	5.50	307.70	606.56	29.70	-23.45	35.57	0.94	0.44	-9.00	MWD
699.00	6.20	302.80	697.09	35.03	-31.03	44.82	0.94	0.77	-5.38	MWD
790.00	7.00	307.00	787.49	41.03	-39.59	55.26	1.03	0.88	4.62	MWD
881.00	8.30	295.80	877.68	47.23	-49.93	67.31	2.17	1.43	-12.31	MWD
971.00	8.30	295.10	966.74	52.81	-61.66	80.22	0.11	0.00	-0.78	MWD
1062.00	9.30	291.60	1056.67	58.30	-74.45	93.99	1.25	1.10	-3.85	MWD
1095.00	9.50	289.80	1089.22	60.21	-79.49	99.28	1.08	0.61	-5.45	MWD
1148.00	9.50	292.60	1141.50	63.37	-87.64	107.87	0.87	0.00	5.28	MWD
1284.00	10.00	292.30	1275.53	72.16	-108.93	130.60	0.37	0.37	-0.22	MWD
1421.00	11.00	299.70	1410.24	83.15	-131.29	155.40	1.22	0.73	5.40	MWD
1557.00	11.10	302.80	1543.72	96.67	-153.56	181.45	0.44	0.07	2.28	MWD
1693.00	11.30	301.80	1677.13	110.79	-175.89	207.87	0.20	0.15	-0.74	MWD
1830.00	12.70	300.00	1811.13	125.39	-200.34	236.34	1.06	1.02	-1.31	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM
Field: Weld County, CO
Site: Jesser 18-2 Pad
Well: 4-2S
Wellpath: Original Hole

Date:	01/13/2011	Time:	08:27:58	Page:	2
Co-ordinate(NE) Reference:	Well: 4-2S, Grid North				
Vertical (TVD) Reference:	5144'GL+13'KB 5157.0				
Section (VS) Reference:	Well (0.00N,0.00E,301.76Azi)				
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
1966.00	12.50	298.60	1943.86	139.91	-226.21	265.98	0.27	-0.15	-1.03	MWD
2102.00	12.70	304.20	2076.59	155.36	-251.50	295.61	0.91	0.15	4.12	MWD
2238.00	11.10	302.10	2209.66	170.72	-274.95	323.64	1.22	-1.18	-1.54	MWD
2374.00	11.30	305.30	2343.07	185.38	-296.92	350.03	0.48	0.15	2.35	MWD
2511.00	10.60	301.40	2477.58	199.70	-318.63	376.03	0.74	-0.51	-2.85	MWD
2646.00	10.40	302.80	2610.32	212.77	-339.47	400.63	0.24	-0.15	1.04	MWD
2782.00	11.30	299.30	2743.89	225.94	-361.41	426.22	0.82	0.66	-2.57	MWD
2918.00	9.30	300.70	2877.69	238.07	-382.48	450.52	1.48	-1.47	1.03	MWD
3055.00	8.80	302.80	3012.99	249.40	-400.81	472.06	0.44	-0.36	1.53	MWD
3191.00	8.60	298.20	3147.42	259.84	-418.51	492.62	0.53	-0.15	-3.38	MWD
3327.00	9.50	304.90	3281.73	271.07	-436.68	513.97	1.02	0.66	4.93	MWD
3463.00	8.30	301.10	3416.09	282.56	-454.29	534.99	0.98	-0.88	-2.79	MWD
3599.00	7.70	301.80	3550.77	292.43	-470.44	553.92	0.45	-0.44	0.51	MWD
3735.00	7.90	298.20	3685.51	301.65	-486.42	572.36	0.39	0.15	-2.65	MWD
3871.00	7.90	308.40	3820.23	311.87	-501.98	590.97	1.03	0.00	7.50	MWD
4007.00	8.50	301.00	3954.84	322.85	-517.92	610.31	0.89	0.44	-5.44	MWD
4143.00	8.80	304.60	4089.29	333.94	-535.10	630.75	0.46	0.22	2.65	MWD
4280.00	7.90	299.70	4224.84	344.55	-551.91	650.62	0.84	-0.66	-3.58	MWD
4416.00	8.30	303.20	4359.49	354.56	-568.24	669.78	0.47	0.29	2.57	MWD
4552.00	9.00	306.00	4493.94	366.19	-585.06	690.20	0.60	0.51	2.06	MWD
4688.00	8.30	302.10	4628.39	377.66	-601.98	710.62	0.67	-0.51	-2.87	MWD
4825.00	7.40	301.10	4764.11	387.47	-617.91	729.34	0.66	-0.66	-0.73	MWD
4961.00	9.00	302.50	4898.71	397.71	-634.38	748.73	1.19	1.18	1.03	MWD
5010.00	8.60	304.60	4947.14	401.85	-640.63	756.22	1.05	-0.82	4.29	MWD
5055.00	8.60	304.60	4991.63	405.67	-646.17	762.94	0.00	0.00	0.00	4-2S 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
4-2S SL			0.00	0.00	0.00	1274362.53	3209948.07	40	5	2.655 N	104	44	58.868 W
4-2S BHL			4991.63	405.67	-646.17	1274768.20	3209301.90	40	5	6.718 N	104	45	7.137 W
4-2S PBHL			5195.25	407.42	-658.12	1274769.95	3209289.95	40	5	6.736 N	104	45	7.291 W
-Circle (Radius: 50)													