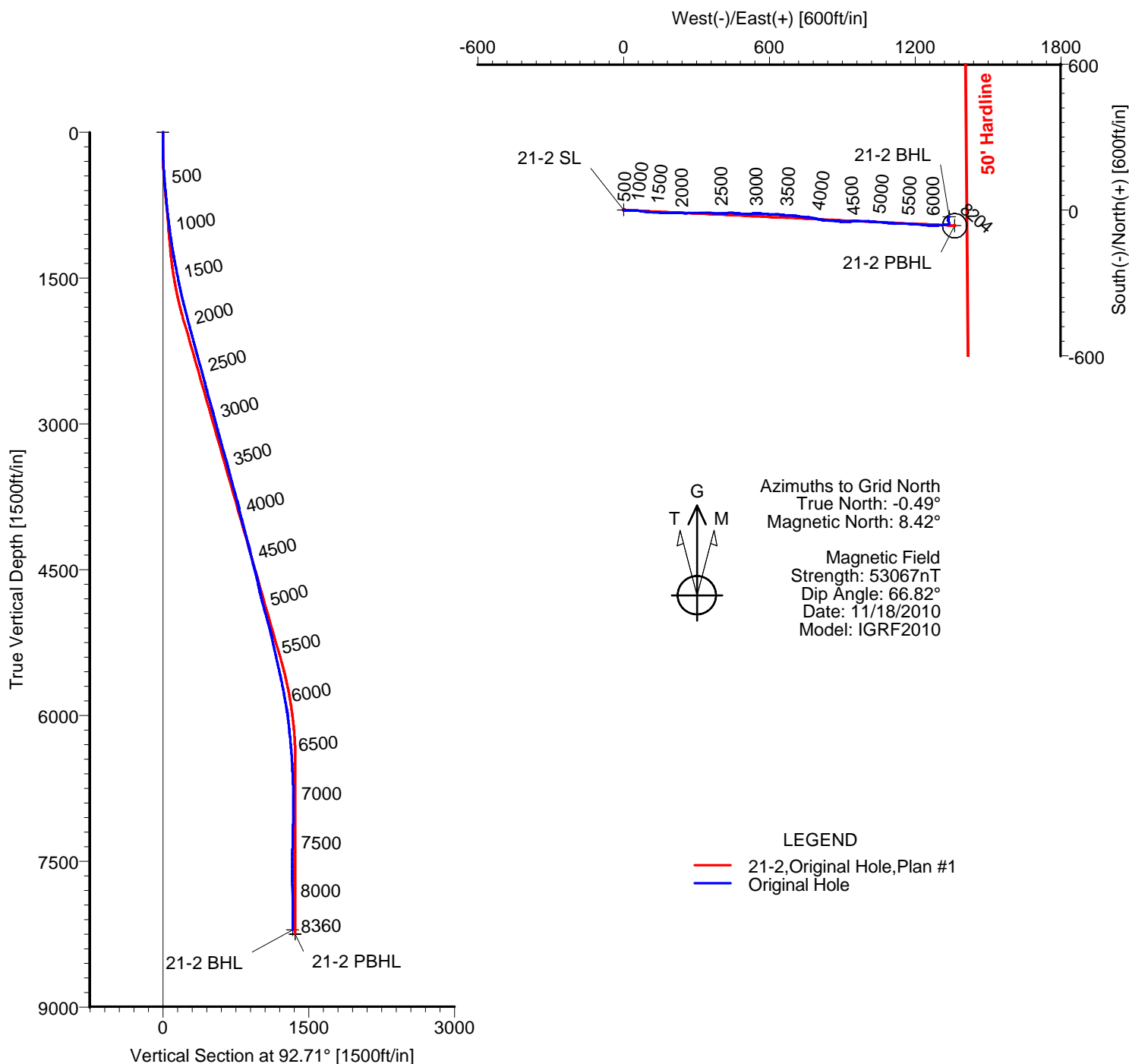


ANADARKO PETROLEUM

Field: Weld County, CO
Site: Jesser 18-2 Pad
Well: 21-2
Wellpath: Original Hole



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
21-2 SL	0.00	0.00	0.00	40°05'02.663N	104°44'57.581W	Point
21-2 BHL	8204.46	-27.56	1339.24	40°05'02.278N	104°44'40.354W	Point
21-2 PBHL	8250.00	-64.49	1362.42	40°05'01.911N	104°44'40.060W	Circle (Radius: 50)

Wellpath: (21-2/Original Hole)

Created By: Ivonne Gonzalez

Date: 11/27/2010

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: 21-2 Wellpath: Original Hole	Date: 11/27/2010 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 08:50:54 Well: 21-2, Grid North 5144'GL+13'KB 5157.0 Well (0.00N,0.00E,92.71Azi) Minimum Curvature	Page: 1 Db: Sybase
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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: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 5144.00 ft	Northing: 1274364.19 ft Easting: 3210048.09 ft Latitude: 40 5 2.663 N Longitude: 104 44 57.581 W North Reference: Grid Grid Convergence: 0.49 deg

Well: 21-2	Slot Name: 21-2
Well Position: +N/-S 0.00 ft +E/-W 0.00 ft Position Uncertainty: 0.00 ft	Latitude: 40 5 2.663 N Longitude: 104 44 57.581 W Northing: 1274364.19 ft Easting : 3210048.09 ft

Wellpath: Original Hole Current Datum: 5144'GL+13'KB Magnetic Data: 11/18/2010 Field Strength: 53067 nT Vertical Section: Depth From (TVD) ft	Height 5157.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.91 deg Mag Dip Angle: 66.82 deg +N/-S ft +E/-W ft Direction deg
0.00	0.00	0.00 92.71

Survey Program for Definitive Wellpath				
Date: 11/27/2010 Actual From ft 44.00 8360.00	To ft 8315.00 8360.00	Validated: No Survey Survey #1 (44.00-8315.00) Survey #2 (8360.00-8360.00)	Version: 0 Toolcode MWD Project	Tool Name Std MWD 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
44.00	0.70	74.70	44.00	0.07	0.26	0.26	1.59	1.59	0.00	MWD
105.00	0.70	111.60	104.99	0.03	0.97	0.96	0.73	0.00	60.49	MWD
166.00	0.90	124.60	165.99	-0.38	1.71	1.72	0.44	0.33	21.31	MWD
226.00	1.40	96.50	225.98	-0.73	2.82	2.85	1.23	0.83	-46.83	MWD
286.00	2.10	94.70	285.95	-0.90	4.65	4.68	1.17	1.17	-3.00	MWD
347.00	3.00	93.30	346.89	-1.08	7.35	7.40	1.48	1.48	-2.30	MWD
425.00	4.10	90.80	424.74	-1.24	12.18	12.22	1.42	1.41	-3.21	MWD
516.00	4.90	92.20	515.46	-1.44	19.32	19.36	0.89	0.88	1.54	MWD
607.00	5.30	90.80	606.10	-1.64	27.40	27.45	0.46	0.44	-1.54	MWD
697.00	5.10	89.80	695.72	-1.69	35.56	35.60	0.24	-0.22	-1.11	MWD
788.00	6.00	94.00	786.30	-2.00	44.35	44.39	1.08	0.99	4.62	MWD
879.00	6.90	95.80	876.72	-2.89	54.53	54.61	1.01	0.99	1.98	MWD
970.00	7.40	96.80	967.01	-4.14	65.79	65.91	0.57	0.55	1.10	MWD
1060.00	8.10	97.90	1056.19	-5.69	77.82	78.01	0.80	0.78	1.22	MWD
1162.00	8.80	95.80	1157.08	-7.47	92.70	92.95	0.75	0.69	-2.06	MWD
1253.00	9.30	92.90	1246.95	-8.54	106.97	107.26	0.74	0.55	-3.19	MWD
1343.00	11.20	91.50	1335.51	-9.14	122.97	123.27	2.13	2.11	-1.56	MWD
1434.00	11.10	94.30	1424.79	-10.03	140.54	140.86	0.61	-0.11	3.08	MWD
1525.00	11.40	96.10	1514.04	-11.64	158.22	158.60	0.51	0.33	1.98	MWD
1616.00	12.00	90.50	1603.16	-12.68	176.63	177.03	1.41	0.66	-6.15	MWD
1706.00	13.00	89.90	1691.02	-12.74	196.10	196.49	1.12	1.11	-0.67	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM
Field: Weld County, CO
Site: Jesser 18-2 Pad
Well: 21-2
Wellpath: Original Hole

Date:	11/27/2010	Time:	08:50:54	Page:	2
Co-ordinate(NE) Reference:	Well: 21-2, Grid North				
Vertical (TVD) Reference:	5144'GL+13'KB 5157.0				
Section (VS) Reference:	Well (0.00N,0.00E,92.71Azi)				
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
1797.00	14.30	89.10	1779.45	-12.55	217.58	217.93	1.44	1.43	-0.88	MWD
1888.00	14.60	92.20	1867.57	-12.81	240.28	240.61	0.91	0.33	3.41	MWD
1979.00	14.60	88.70	1955.64	-12.99	263.20	263.52	0.97	0.00	-3.85	MWD
2070.00	15.10	89.40	2043.60	-12.61	286.52	286.80	0.58	0.55	0.77	MWD
2161.00	15.70	89.90	2131.33	-12.46	310.69	310.93	0.68	0.66	0.55	MWD
2251.00	14.60	89.10	2218.20	-12.26	334.21	334.41	1.24	-1.22	-0.89	MWD
2342.00	15.80	92.60	2306.02	-12.65	358.05	358.25	1.66	1.32	3.85	MWD
2433.00	15.80	90.80	2393.58	-13.38	382.81	383.02	0.54	0.00	-1.98	MWD
2524.00	15.00	90.10	2481.31	-13.57	406.98	407.17	0.90	-0.88	-0.77	MWD
2614.00	14.30	86.30	2568.39	-12.88	429.72	429.85	1.32	-0.78	-4.22	MWD
2705.00	14.60	94.00	2656.51	-12.95	452.38	452.48	2.14	0.33	8.46	MWD
2796.00	16.20	94.70	2744.24	-14.79	476.47	476.64	1.77	1.76	0.77	MWD
2887.00	16.20	91.10	2831.63	-16.08	501.81	502.01	1.10	0.00	-3.96	MWD
2977.00	15.00	85.20	2918.32	-15.34	525.98	526.11	2.21	-1.33	-6.56	MWD
3068.00	14.10	89.80	3006.41	-14.32	548.80	548.86	1.61	-0.99	5.05	MWD
3159.00	14.80	96.50	3094.53	-15.60	571.43	571.53	1.99	0.77	7.36	MWD
3250.00	16.50	90.50	3182.16	-17.02	595.90	596.04	2.58	1.87	-6.59	MWD
3340.00	15.80	91.90	3268.61	-17.54	620.93	621.07	0.89	-0.78	1.56	MWD
3431.00	16.00	97.50	3356.13	-19.59	645.75	645.95	1.70	0.22	6.15	MWD
3522.00	15.30	90.50	3443.77	-21.33	670.19	670.45	2.21	-0.77	-7.69	MWD
3612.00	14.30	95.40	3530.78	-22.48	693.13	693.42	1.78	-1.11	5.44	MWD
3704.00	15.30	100.30	3619.73	-25.72	716.39	716.80	1.74	1.09	5.33	MWD
3794.00	15.80	95.40	3706.44	-29.00	740.27	740.81	1.56	0.56	-5.44	MWD
3885.00	14.30	92.90	3794.32	-30.73	763.83	764.43	1.80	-1.65	-2.75	MWD
3975.00	13.00	105.90	3881.80	-34.07	784.67	785.40	3.69	-1.44	14.44	MWD
4066.00	14.60	101.70	3970.17	-39.20	805.75	806.70	2.07	1.76	-4.62	MWD
4157.00	16.00	93.60	4057.95	-42.31	829.50	830.57	2.80	1.54	-8.90	MWD
4247.00	15.10	92.60	4144.66	-43.62	853.59	854.70	1.04	-1.00	-1.11	MWD
4338.00	14.40	97.90	4232.66	-45.72	876.64	877.82	1.67	-0.77	5.82	MWD
4429.00	13.20	89.80	4321.04	-47.24	898.24	899.47	2.50	-1.32	-8.90	MWD
4520.00	14.30	90.80	4409.43	-47.36	919.87	921.08	1.24	1.21	1.10	MWD
4611.00	15.70	85.20	4497.33	-46.48	943.38	944.52	2.21	1.54	-6.15	MWD
4702.00	13.60	90.50	4585.38	-45.55	966.35	967.42	2.74	-2.31	5.82	MWD
4792.00	11.10	87.70	4673.29	-45.29	985.59	986.63	2.86	-2.78	-3.11	MWD
4883.00	13.70	97.50	4762.17	-46.35	1005.03	1006.10	3.67	2.86	10.77	MWD
4974.00	14.80	93.30	4850.37	-48.42	1027.32	1028.46	1.66	1.21	-4.62	MWD
5064.00	15.70	93.60	4937.20	-49.85	1050.95	1052.13	1.00	1.00	0.33	MWD
5155.00	16.20	96.10	5024.69	-51.97	1075.86	1077.11	0.93	0.55	2.75	MWD
5246.00	14.60	95.00	5112.42	-54.32	1099.91	1101.25	1.79	-1.76	-1.21	MWD
5337.00	12.30	92.90	5200.92	-55.81	1121.02	1122.40	2.58	-2.53	-2.31	MWD
5428.00	12.70	90.10	5289.77	-56.32	1140.70	1142.09	0.80	0.44	-3.08	MWD
5518.00	12.00	91.50	5377.68	-56.58	1159.95	1161.33	0.85	-0.78	1.56	MWD
5609.00	12.70	94.00	5466.58	-57.52	1179.38	1180.79	0.97	0.77	2.75	MWD
5700.00	13.20	91.90	5555.26	-58.57	1199.75	1201.17	0.75	0.55	-2.31	MWD
5791.00	11.60	95.40	5644.14	-59.77	1219.24	1220.70	1.94	-1.76	3.85	MWD
5882.00	10.90	96.50	5733.39	-61.61	1236.90	1238.43	0.80	-0.77	1.21	MWD
5972.00	10.00	95.80	5821.90	-63.36	1253.13	1254.72	1.01	-1.00	-0.78	MWD
6063.00	9.90	89.10	5911.53	-64.04	1268.81	1270.42	1.28	-0.11	-7.36	MWD
6154.00	7.70	89.10	6001.45	-63.82	1282.73	1284.31	2.42	-2.42	0.00	MWD
6245.00	6.70	86.60	6091.74	-63.41	1294.13	1295.68	1.15	-1.10	-2.75	MWD
6335.00	5.30	82.40	6181.24	-62.55	1303.49	1304.99	1.63	-1.56	-4.67	MWD
6426.00	5.50	83.40	6271.84	-61.49	1311.98	1313.42	0.24	0.22	1.10	MWD
6517.00	4.80	84.90	6362.47	-60.65	1320.11	1321.50	0.78	-0.77	1.65	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM
Field: Weld County, CO
Site: Jesser 18-2 Pad
Well: 21-2
Wellpath: Original Hole

Date:	11/27/2010	Time:	08:50:54	Page:	3
Co-ordinate(NE) Reference:	Well: 21-2, Grid North				
Vertical (TVD) Reference:	5144'GL+13'KB 5157.0				
Section (VS) Reference:	Well (0.00N,0.00E,92.71Azi)				
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
6607.00	3.70	87.00	6452.22	-60.16	1326.76	1328.12	1.23	-1.22	2.33	MWD
6789.00	2.30	81.00	6633.97	-59.28	1336.23	1337.54	0.79	-0.77	-3.30	MWD
6970.00	1.20	32.50	6814.89	-57.12	1340.84	1342.04	0.97	-0.61	-26.80	MWD
7152.00	1.60	339.00	6996.84	-53.14	1340.95	1341.96	0.72	0.22	-29.40	MWD
7333.00	1.80	314.10	7177.76	-48.80	1338.00	1338.82	0.42	0.11	-13.76	MWD
7515.00	2.00	334.80	7359.67	-43.94	1334.60	1335.18	0.39	0.11	11.37	MWD
7697.00	1.20	357.70	7541.59	-39.16	1333.17	1333.53	0.55	-0.44	12.58	MWD
7878.00	1.10	21.90	7722.56	-35.65	1333.74	1333.94	0.27	-0.06	13.37	MWD
8060.00	1.10	28.30	7904.53	-32.49	1335.22	1335.27	0.07	0.00	3.52	MWD
8241.00	1.20	44.80	8085.49	-29.62	1337.38	1337.29	0.19	0.06	9.12	MWD
8315.00	1.40	40.90	8159.47	-28.39	1338.52	1338.36	0.30	0.27	-5.27	MWD
8360.00	1.40	40.90	8204.46	-27.56	1339.24	1339.04	0.00	0.00	0.00	21-2 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
21-2 SL			0.00	0.00	0.00	1274364.19	3210048.09	40	5	2.663 N	104	44	57.581 W
21-2 BHL			8204.46	-27.56	1339.24	1274336.63	3211387.33	40	5	2.278 N	104	44	40.354 W
21-2 PBHL			8250.00	-64.49	1362.42	1274299.70	3211410.52	40	5	1.911 N	104	44	40.060 W
-Circle (Radius: 50)													