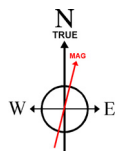


ANADARKO PETROLEUM

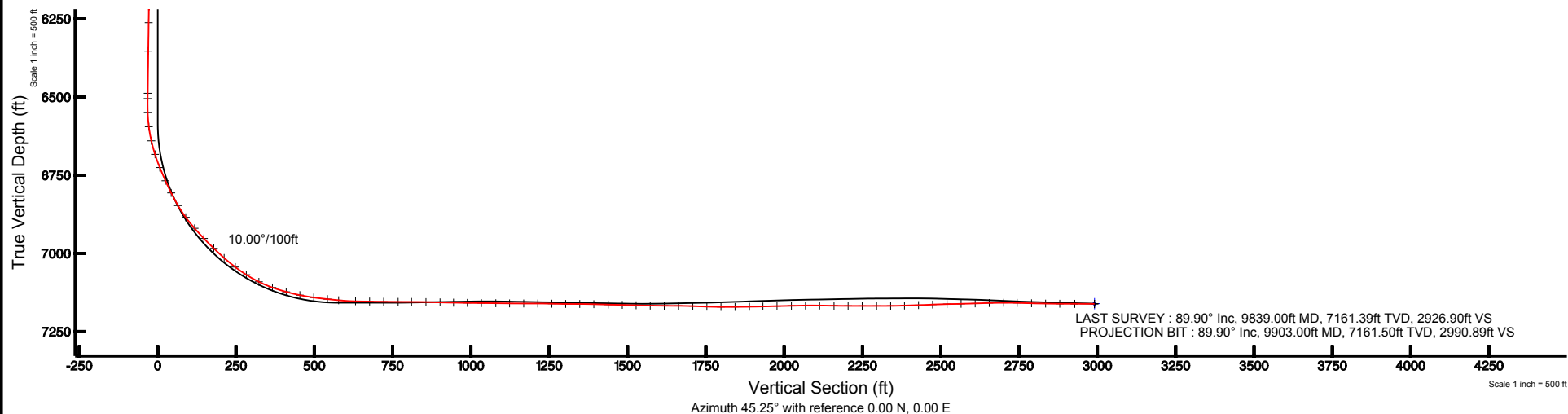
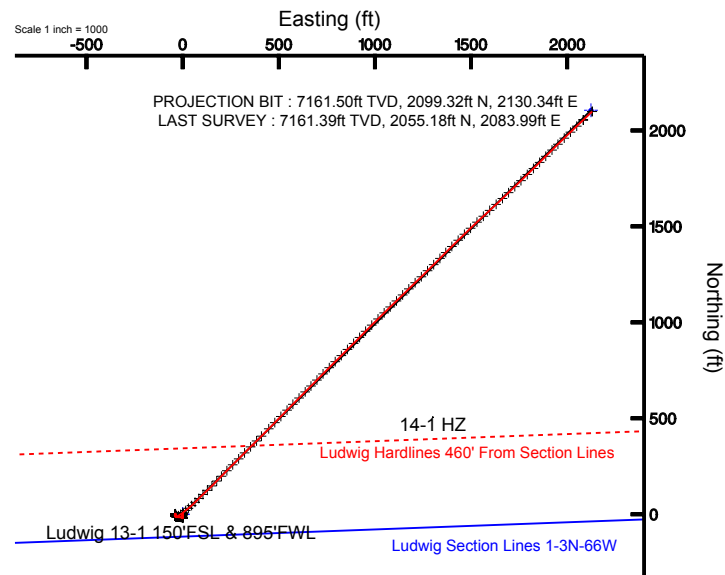
Location: COLORADO Slot: Ludwig 13-1 150'FSL & 895'FWL
 Field: WELD COUNTY (ANADARKO) Well: Ludwig 13-1
 Facility: SEC.01-T3N-R66W Wellbore: Ludwig 13-1 PWB

Plot reference wellpath is Ludwig 13-1 PWP Rev-G.0	
True vertical depths are referenced to Xtreme 8 (RT)	Grid System: NAD83 / Lambert Colorado State Planes, Northern Zone (501), US feet
Measured depths are referenced to Xtreme 8 (RT)	North Reference: True north
Xtreme 8 (RT) to Mean Sea Level: 4958 feet	Scale: True distance
Mean Sea Level to Mud line (Facility: SEC.01-T3N-R66W): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: cookdanm on 2/2/2009



BGGM (1945.0 to 2010.0) Dip: 67.04° Field: 53351.5 nT
 Magnetic North is 9.14 degrees East of True North (at 12/4/2008)

To correct azimuth from Magnetic to True add 9.14 degrees
 For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 9.14 = 99.14



Actual Wellpath Report

LUDWIG 13-1 AWP

Page 1 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWB
Facility	SEC.01-T3N-R66W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado State Planes, Northern Zone (501), US feet	Software System	WellArchitect® 2.0
North Reference	True	User	Cookdanm
Scale	0.999957	Report Generated	2/2/2009 at 4:27:13 PM
Convergence at slot	0.50° East	Database/Source file	WellArchitect_Denver/LUDWIG_13-1_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	3214473.13	1333818.59	40°14'49.848"N	104°43'53.940"W
Facility Reference Pt			3214473.13	1333818.59	40°14'49.848"N	104°43'53.940"W
Field Reference Pt			3197771.84	1268891.29	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM

Calculation method	Minimum curvature	Xtreme 8 (RT) to Facility Vertical Datum	4958.00ft
Horizontal Reference Pt	Slot	Xtreme 8 (RT) to Mean Sea Level	4958.00ft
Vertical Reference Pt	Xtreme 8 (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Xtreme 8 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	45.25°

Actual Wellpath Report

LUDWIG 13-1 AWP

Page 2 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWB
Facility	SEC.01-T3N-R66W		

WELLPATH DATA (138 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	36.700	0.00	0.00	0.00	0.00	0.00	
20.00	0.000	36.700	20.00	0.00	0.00	0.00	0.00	
155.00	0.600	36.700	155.00	0.70	0.57	0.42	0.44	
248.00	0.300	105.900	248.00	1.30	0.89	0.95	0.61	
341.00	0.300	139.700	340.99	1.40	0.64	1.34	0.19	
434.00	0.400	148.700	433.99	1.31	0.17	1.67	0.12	
529.00	0.200	171.300	528.99	1.13	-0.27	1.86	0.24	
628.00	0.400	203.300	627.99	0.71	-0.76	1.75	0.26	
742.00	0.800	202.600	741.98	-0.39	-1.86	1.29	0.35	
929.00	0.600	217.300	928.97	-2.57	-3.84	0.19	0.14	
1115.00	0.800	213.800	1114.96	-4.81	-5.70	-1.12	0.11	
1300.00	0.900	189.200	1299.94	-7.25	-8.21	-2.07	0.20	
1486.00	0.700	184.600	1485.92	-9.29	-10.78	-2.39	0.11	
1672.00	0.700	176.200	1671.90	-10.90	-13.05	-2.41	0.06	
1870.00	0.700	174.400	1869.89	-12.45	-15.46	-2.21	0.01	
2052.00	1.100	167.400	2051.87	-14.08	-18.27	-1.72	0.23	
2232.00	0.400	119.600	2231.85	-14.83	-20.27	-0.80	0.49	
2410.00	0.400	91.100	2409.85	-14.23	-20.58	0.36	0.11	
2589.00	1.200	19.100	2588.83	-12.12	-18.82	1.60	0.64	
2676.00	1.000	333.700	2675.82	-11.06	-17.28	1.56	1.00	
2765.00	1.100	307.300	2764.80	-10.93	-16.07	0.54	0.55	
2855.00	1.000	265.500	2854.79	-11.65	-15.61	-0.93	0.84	
2942.00	1.200	270.100	2941.77	-12.87	-15.67	-2.60	0.25	
3033.00	1.300	271.100	3032.75	-14.27	-15.64	-4.58	0.11	
3123.00	1.100	269.400	3122.73	-15.60	-15.63	-6.47	0.23	
3213.00	1.200	269.000	3212.71	-16.90	-15.66	-8.27	0.11	
3304.00	0.800	277.800	3303.70	-17.98	-15.59	-9.86	0.47	
3394.00	1.000	279.900	3393.69	-18.81	-15.37	-11.25	0.23	
3483.00	1.400	277.500	3482.67	-19.93	-15.09	-13.10	0.45	
3573.00	1.800	270.400	3572.63	-21.60	-14.94	-15.60	0.50	

Actual Wellpath Report

LUDWIG 13-1 AWP

Page 3 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWB
Facility	SEC.01-T3N-R66W		

WELLPATH DATA (138 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
3664.00	1.800	259.200	3663.59	-23.79	-15.20	-18.43	0.39	
3755.00	1.200	280.300	3754.56	-25.52	-15.30	-20.77	0.89	
3843.00	1.300	287.300	3842.54	-26.52	-14.83	-22.63	0.21	
3934.00	1.700	275.600	3933.50	-27.86	-14.40	-24.96	0.55	
4025.00	1.000	269.700	4024.48	-29.29	-14.27	-27.10	0.78	
4115.00	1.100	257.400	4114.46	-30.58	-14.46	-28.73	0.27	
4205.00	0.500	253.500	4204.45	-31.66	-14.76	-29.95	0.67	
4295.00	0.800	270.100	4294.45	-32.45	-14.87	-30.95	0.39	
4383.00	1.300	282.400	4382.43	-33.43	-14.66	-32.54	0.62	
4474.00	1.800	310.500	4473.40	-34.11	-13.51	-34.64	0.98	
4564.00	1.500	313.000	4563.36	-34.27	-11.78	-36.57	0.34	
4654.00	1.200	303.800	4653.34	-34.50	-10.46	-38.22	0.41	
4743.00	0.400	321.000	4742.33	-34.66	-9.70	-39.19	0.93	
4832.00	0.500	332.600	4831.33	-34.51	-9.11	-39.56	0.15	
4921.00	1.300	345.600	4920.32	-33.88	-7.79	-39.99	0.92	
5010.00	1.200	343.500	5009.29	-32.93	-5.92	-40.51	0.12	
5099.00	0.800	358.900	5098.28	-32.06	-4.40	-40.78	0.54	
5189.00	0.500	34.500	5188.28	-31.24	-3.45	-40.57	0.54	
5280.00	0.600	25.000	5279.27	-30.41	-2.69	-40.15	0.15	
5371.00	0.900	355.400	5370.26	-29.50	-1.55	-40.00	0.53	
5459.00	0.900	33.800	5458.25	-28.38	-0.28	-39.68	0.67	
5550.00	0.700	55.900	5549.24	-27.13	0.62	-38.82	0.40	
5637.00	0.600	45.700	5636.24	-26.15	1.24	-38.05	0.18	
5725.00	0.400	84.000	5724.24	-25.45	1.59	-37.42	0.43	
5815.00	0.200	23.200	5814.23	-25.06	1.77	-37.04	0.39	
5906.00	0.600	353.300	5905.23	-24.62	2.39	-37.03	0.48	
5994.00	0.700	220.800	5993.23	-24.87	2.44	-37.44	1.35	
6084.00	1.800	166.600	6083.21	-26.15	0.65	-37.47	1.67	
6173.00	2.000	163.100	6172.16	-27.61	-2.20	-36.70	0.26	
6263.00	2.000	160.300	6262.11	-29.01	-5.18	-35.71	0.11	

Actual Wellpath Report

LUDWIG 13-1 AWP

Page 4 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWP
Facility	SEC.01-T3N-R66W		

WELLPATH DATA (138 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
6354.00	1.700	159.600	6353.06	-30.23	-7.94	-34.70	0.33	
6489.00	1.900	159.300	6487.99	-31.97	-11.91	-33.22	0.15	
6506.00	2.100	160.200	6504.98	-32.22	-12.47	-33.01	1.19	
6551.00	2.400	93.400	6549.95	-31.94	-13.30	-31.79	5.53	
6596.00	7.400	60.300	6594.78	-28.51	-11.92	-28.33	12.32	
6642.00	13.400	57.500	6640.01	-20.43	-7.58	-21.25	13.09	
6687.00	17.600	56.100	6683.36	-8.65	-0.98	-11.21	9.37	
6732.00	22.500	51.900	6725.62	6.60	8.13	1.23	11.34	
6778.00	24.200	51.600	6767.85	24.71	19.42	15.54	3.70	
6821.00	26.300	51.300	6806.74	42.94	30.85	29.88	4.89	
6867.00	30.400	47.100	6847.22	64.72	45.15	46.37	9.91	
6912.00	36.100	45.200	6884.84	89.38	62.26	64.13	12.88	
6957.00	41.400	44.900	6919.92	117.54	82.16	84.06	11.79	
7001.00	43.800	46.600	6952.31	147.31	102.93	105.40	6.05	
7046.00	46.000	46.900	6984.18	179.06	124.69	128.53	4.91	
7091.00	48.400	45.100	7014.75	212.07	147.63	152.27	6.09	
7137.00	52.700	44.000	7043.98	247.58	172.94	177.18	9.53	
7180.00	57.600	44.400	7068.54	282.85	198.23	201.77	11.42	
7226.00	63.700	44.300	7091.08	322.93	226.89	229.79	13.26	
7273.00	70.500	45.400	7109.36	366.19	257.56	260.31	14.63	
7319.00	74.500	44.500	7123.19	410.05	288.60	291.30	8.89	
7364.00	78.300	44.600	7133.77	453.78	319.77	321.97	8.45	
7409.00	82.400	45.300	7141.31	498.13	351.15	353.31	9.24	
7453.00	84.200	45.500	7146.44	541.83	381.84	384.42	4.12	
7489.00	84.200	45.000	7150.08	577.65	407.05	409.86	1.38	
7543.00	88.800	44.300	7153.37	631.53	445.39	447.73	8.62	
7588.00	89.000	44.700	7154.24	676.52	477.48	479.26	0.99	
7633.00	89.500	44.300	7154.83	721.51	509.57	510.80	1.42	
7679.00	89.600	44.700	7155.19	767.50	542.38	543.04	0.90	
7722.00	89.900	44.300	7155.38	810.50	573.05	573.18	1.16	

Actual Wellpath Report

LUDWIG 13-1 AWP

Page 5 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWP
Facility	SEC.01-T3N-R66W		

WELLPATH DATA (138 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
7768.00	88.700	45.000	7155.94	856.49	605.77	605.51	3.02	
7813.00	88.800	44.700	7156.92	901.48	637.67	637.23	0.70	
7856.00	88.900	44.700	7157.78	944.47	668.22	667.47	0.23	
7900.00	89.200	44.700	7158.51	988.46	699.49	698.42	0.68	
7945.00	89.400	44.700	7159.06	1033.46	731.48	730.07	0.44	
7991.00	89.300	45.000	7159.58	1079.45	764.09	762.51	0.69	
8035.00	89.300	45.000	7160.12	1123.45	795.20	793.62	0.00	
8080.00	89.900	45.000	7160.44	1168.45	827.02	825.44	1.33	
8125.00	90.000	45.000	7160.47	1213.45	858.84	857.26	0.22	
8170.00	88.400	45.700	7161.10	1258.44	890.46	889.27	3.88	
8214.00	89.700	44.300	7161.83	1302.43	921.56	920.37	4.34	
8259.00	90.000	44.300	7161.95	1347.43	953.77	951.80	0.67	
8304.00	88.200	45.400	7162.66	1392.42	985.67	983.53	4.69	
8350.00	88.500	45.400	7163.98	1438.40	1017.95	1016.27	0.65	
8395.00	88.800	45.400	7165.04	1483.38	1049.54	1048.31	0.67	
8439.00	88.200	46.100	7166.19	1527.37	1080.23	1079.81	2.09	
8484.00	89.200	45.700	7167.21	1572.35	1111.54	1112.12	2.39	
8529.00	89.500	45.700	7167.72	1617.35	1142.97	1144.32	0.67	
8574.00	89.700	45.400	7168.04	1662.35	1174.48	1176.45	0.80	
8620.00	88.100	46.100	7168.92	1708.33	1206.57	1209.39	3.80	
8665.00	87.900	46.100	7170.49	1753.30	1237.75	1241.79	0.44	
8710.00	89.600	45.000	7171.47	1798.29	1269.26	1273.91	4.50	
8755.00	90.600	45.400	7171.40	1843.29	1300.97	1305.84	2.39	
8801.00	90.900	44.700	7170.79	1889.28	1333.46	1338.39	1.66	
8844.00	91.300	44.700	7169.97	1932.27	1364.02	1368.63	0.93	
8889.00	91.500	45.400	7168.87	1977.26	1395.80	1400.47	1.62	
8935.00	91.100	45.700	7167.83	2023.25	1428.01	1433.30	1.09	
8980.00	91.100	45.700	7166.96	2068.24	1459.43	1465.50	0.00	
9025.00	88.900	46.100	7166.96	2113.23	1490.75	1497.81	4.97	
9071.00	89.400	46.800	7167.64	2159.21	1522.43	1531.15	1.87	

Actual Wellpath Report

LUDWIG 13-1 AWP

Page 6 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWB
Facility	SEC.01-T3N-R66W		

WELLPATH DATA (138 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
9116.00	89.500	47.100	7168.08	2204.19	1553.15	1564.03	0.70	
9161.00	90.000	47.100	7168.27	2249.17	1583.78	1596.99	1.11	
9207.00	90.000	47.100	7168.27	2295.14	1615.10	1630.69	0.00	
9252.00	90.600	46.800	7168.04	2340.12	1645.82	1663.57	1.49	
9296.00	91.800	45.700	7167.11	2384.11	1676.23	1695.35	3.70	
9341.00	91.900	46.100	7165.66	2429.08	1707.53	1727.65	0.92	
9386.00	92.600	45.700	7163.90	2474.04	1738.83	1759.94	1.79	
9432.00	91.100	45.700	7162.41	2520.01	1770.93	1792.84	3.26	
9477.00	91.300	45.400	7161.47	2565.00	1802.44	1824.96	0.80	
9522.00	91.900	45.400	7160.21	2609.99	1834.03	1856.99	1.33	
9567.00	91.500	45.000	7158.88	2654.97	1865.72	1888.90	1.26	
9613.00	90.300	45.000	7158.15	2700.96	1898.24	1921.43	2.61	
9656.00	88.500	45.700	7158.60	2743.95	1928.46	1952.01	4.49	
9702.00	88.600	46.100	7159.77	2789.94	1960.46	1985.04	0.90	
9747.00	89.000	46.100	7160.71	2834.92	1991.66	2017.45	0.89	
9792.00	89.700	46.400	7161.22	2879.91	2022.77	2049.96	1.69	
9839.00	89.900	46.400	7161.39	2926.90	2055.18	2083.99	0.43	LAST SURVEY
9903.00†	89.900	46.400	7161.50	2990.89	2099.32	2130.34	0.00	PROJECTION BIT

Actual Wellpath Report

LUDWIG 13-1 AWP

Page 7 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWB
Facility	SEC.01-T3N-R66W		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
Ludwig Hardlines 460' From Section Lines		6.00	0.00	0.00	3214473.13	1333818.59	40°14'49.848"N	104°43'53.940"W	polygon
Ludwig Section Lines 1-3N-66W		6.00	0.00	0.00	3214473.13	1333818.59	40°14'49.848"N	104°43'53.940"W	polygon
Ludwig 13-1 Target 2195'FSL & 2340'FEL		7161.00	2105.76	2124.16	3216578.86	1335942.59	40°15'10.656"N	104°43'26.544"W	point

WELLPATH COMPOSITION Ref Wellbore: LUDWIG 13-1 AWB Ref Wellpath: LUDWIG 13-1 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
20.00	7588.00	NaviTrak (Standard)	BHI / NAVITRAK VERTICAL & CURVE <155-7588>	LUDWIG 13-1 AWB
7588.00	9839.00	NaviTrak (Standard)	BHI/NAVITRAK LATERAL <7633-9839>	LUDWIG 13-1 AWB
9839.00	9903.00	Blind Drilling (std)	Projection to bit	LUDWIG 13-1 AWB

Actual Wellpath Report

LUDWIG 13-1 AWP

Page 8 of 8

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	ANADARKO PETROLEUM	Slot	Ludwig 13-1 150'FSL & 895'FWL
Area	COLORADO	Well	Ludwig 13-1
Field	WELD COUNTY (ANADARKO)	Wellbore	LUDWIG 13-1 AWB
Facility	SEC.01-T3N-R66W		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
9839.00	89.900	46.400	7161.39	LAST SURVEY
9903.00	89.900	46.400	7161.50	PROJECTION BIT