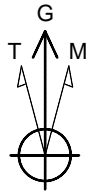


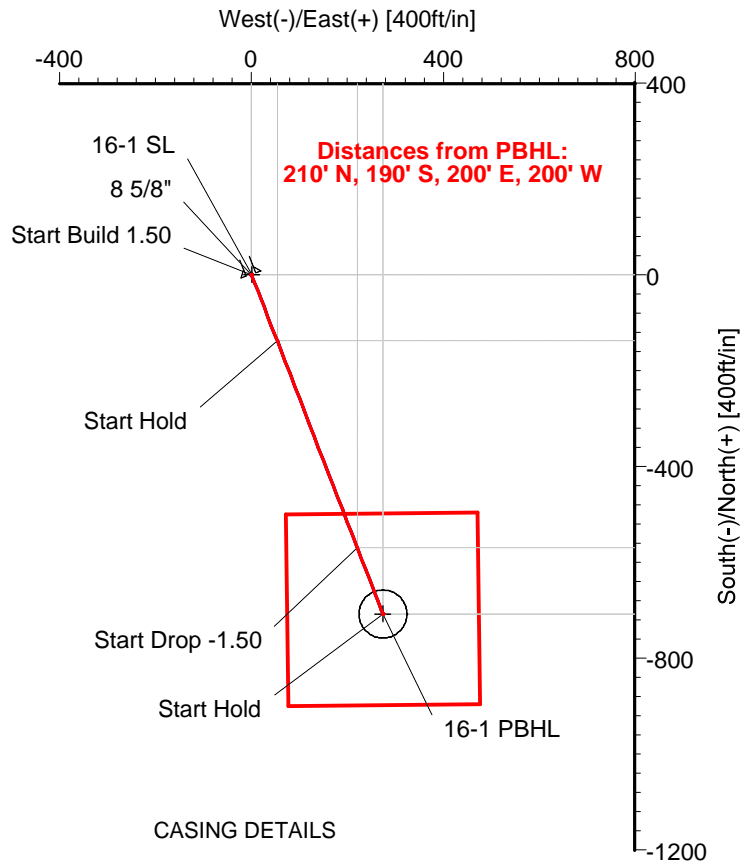
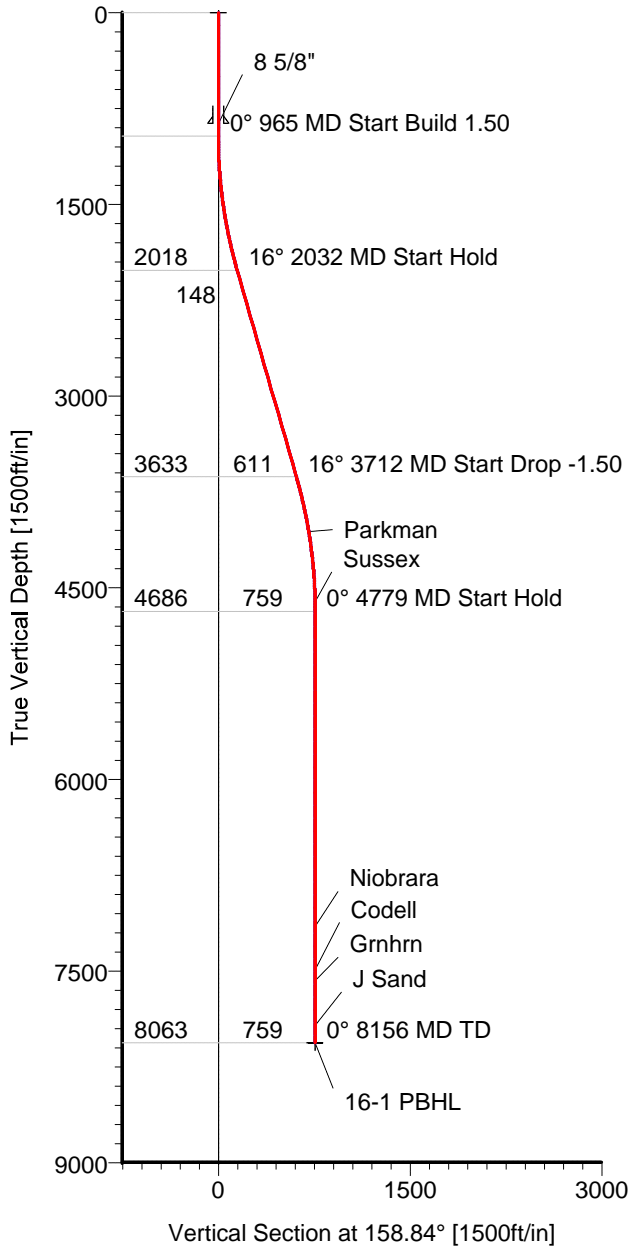
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Morton 20-1 Pad
Well: 16-1
Wellpath: Original Hole
Plan: Plan #1



Azimuths to Grid North
True North: -0.43°
Magnetic North: 8.44°

Magnetic Field
Strength: 52989nT
Dip Angle: 66.78°
Date: 06/27/2011
Model: IGRF2010



CASING DETAILS

No.	TVD	MD	Name	Size
1	865.00	865.00	8 5/8"	8.625

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	4063.00	4152.91	Parkman
2	4613.00	4705.70	Sussex
3	7153.00	7245.71	Niobrara
4	7493.00	7585.71	Codell
5	7578.00	7670.71	Grnhn
6	7928.00	8020.71	J Sand

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
16-1 SL	0.00	0.00	0.00	40°04'35.437N	104°49'59.638W	Point
16-1 PBHL	8063.00	-707.88	274.00	40°04'28.422N	104°49'56.181W	Circle (Radius: 50)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	158.84	0.00	0.00	0.00	0.00	0.00	0.00	
2	965.00	0.00	158.84	965.00	0.00	0.00	0.00	0.00	0.00	
3	2031.67	16.00	158.84	2017.86	-137.99	53.41	1.50	158.84	147.97	
4	3711.85	16.00	158.84	3632.95	-569.89	220.59	0.00	0.00	611.09	
5	4778.52	0.00	158.84	4685.81	-707.88	274.00	1.50	180.00	759.06	
6	8155.71	0.00	158.84	8063.00	-707.88	274.00	0.00	0.00	759.06	16-1 PBHL

ARCHER

Planning Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Morton 20-1 Pad Well: 16-1 Wellpath: Original Hole	Date: 06/27/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Plan:	Time: 13:58:32 Well: 16-1, Grid North 4898'GL+15'KB 4913.0 Well (0.00N,0.00E,158.84Azi) Plan #1	Page: 1
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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: Morton 20-1 Pad

Centered on 23-1

Site Position:	Northing: 1271420.72 ft	Latitude: 40 4 35.432 N
From: Geographic	Easting: 3186532.35 ft	Longitude: 104 50 0.409 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 4898.00 ft		Grid Convergence: 0.43 deg

Well: 16-1

Slot Name: 16-1

Well Position:	Northing: 1271421.73 ft	Latitude: 40 4 35.437 N
+N/-S 1.01 ft	Easting : 3186592.30 ft	Longitude: 104 49 59.638 W
+E/-W 59.95 ft		
Position Uncertainty: 0.00 ft		

Wellpath: Original Hole

Drilled From: Surface
Tie-on Depth: 0.00 ft
Above System Datum: Mean Sea Level
Declination: 8.87 deg
Mag Dip Angle: 66.78 deg
+E/-W ft
Direction deg

Current Datum: 4898'GL+15'KB
Magnetic Data: 06/27/2011
Field Strength: 52989 nT
Vertical Section: Depth From (TVD) ft
+N/-S ft

0.00	0.00	0.00	158.84
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Plan: Plan #1

Date Composed: 06/27/2011
Version: 1
Tied-to: From Surface

Principal: Yes

Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	158.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
965.00	0.00	158.84	965.00	0.00	0.00	0.00	0.00	0.00	0.00	
2031.67	16.00	158.84	2017.86	-137.99	53.41	1.50	1.50	0.00	158.84	
3711.85	16.00	158.84	3632.95	-569.89	220.59	0.00	0.00	0.00	0.00	
4778.52	0.00	158.84	4685.81	-707.88	274.00	1.50	-1.50	0.00	180.00	
8155.71	0.00	158.84	8063.00	-707.88	274.00	0.00	0.00	0.00	0.00	16-1 PBHL

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
965.00	0.00	158.84	965.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.53	158.84	1000.00	-0.15	0.06	0.16	1.50	1.50	0.00	
1100.00	2.03	158.84	1099.97	-2.22	0.86	2.39	1.50	1.50	0.00	
1200.00	3.53	158.84	1199.85	-6.74	2.61	7.23	1.50	1.50	0.00	
1300.00	5.03	158.84	1299.57	-13.69	5.30	14.68	1.50	1.50	0.00	
1400.00	6.53	158.84	1399.06	-23.07	8.93	24.74	1.50	1.50	0.00	
1500.00	8.03	158.84	1498.25	-34.88	13.50	37.41	1.50	1.50	0.00	
1600.00	9.53	158.84	1597.08	-49.11	19.01	52.66	1.50	1.50	0.00	
1700.00	11.03	158.84	1695.47	-65.74	25.45	70.50	1.50	1.50	0.00	
1800.00	12.53	158.84	1793.37	-84.77	32.81	90.90	1.50	1.50	0.00	
1900.00	14.03	158.84	1890.69	-106.19	41.10	113.87	1.50	1.50	0.00	
2000.00	15.53	158.84	1987.38	-129.97	50.31	139.37	1.50	1.50	0.00	
2031.67	16.00	158.84	2017.86	-137.99	53.41	147.97	1.50	1.50	0.00	
2100.00	16.00	158.84	2083.54	-155.56	60.21	166.80	0.00	0.00	0.00	
2200.00	16.00	158.84	2179.67	-181.26	70.16	194.37	0.00	0.00	0.00	

ARCHER

Planning Report

Company: ANADARKO PETROLEUM
Field: Weld County, CO
Site: Morton 20-1 Pad
Well: 16-1
Wellpath: Original Hole

Date: 06/27/2011
Co-ordinate(NE) Reference: Well: 16-1, Grid North
Vertical (TVD) Reference: 4898'GL+15'KB 4913.0
Section (VS) Reference: Well (0.00N,0.00E,158.84Azi)
Plan: Plan #1

Page: 2

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
2300.00	16.00	158.84	2275.80	-206.97	80.11	221.93	0.00	0.00	0.00	
2400.00	16.00	158.84	2371.92	-232.67	90.06	249.50	0.00	0.00	0.00	
2500.00	16.00	158.84	2468.05	-258.38	100.01	277.06	0.00	0.00	0.00	
2600.00	16.00	158.84	2564.17	-284.08	109.96	304.62	0.00	0.00	0.00	
2700.00	16.00	158.84	2660.30	-309.79	119.91	332.19	0.00	0.00	0.00	
2800.00	16.00	158.84	2756.43	-335.49	129.86	359.75	0.00	0.00	0.00	
2900.00	16.00	158.84	2852.55	-361.20	139.81	387.31	0.00	0.00	0.00	
3000.00	16.00	158.84	2948.68	-386.91	149.76	414.88	0.00	0.00	0.00	
3100.00	16.00	158.84	3044.81	-412.61	159.71	442.44	0.00	0.00	0.00	
3200.00	16.00	158.84	3140.93	-438.32	169.66	470.01	0.00	0.00	0.00	
3300.00	16.00	158.84	3237.06	-464.02	179.61	497.57	0.00	0.00	0.00	
3400.00	16.00	158.84	3333.18	-489.73	189.56	525.13	0.00	0.00	0.00	
3500.00	16.00	158.84	3429.31	-515.43	199.51	552.70	0.00	0.00	0.00	
3600.00	16.00	158.84	3525.44	-541.14	209.46	580.26	0.00	0.00	0.00	
3700.00	16.00	158.84	3621.56	-566.84	219.41	607.82	0.00	0.00	0.00	
3711.85	16.00	158.84	3632.95	-569.89	220.59	611.09	0.00	0.00	0.00	
3800.00	14.68	158.84	3717.96	-591.63	229.00	634.41	1.50	-1.50	0.00	
3900.00	13.18	158.84	3815.02	-614.08	237.69	658.48	1.50	-1.50	0.00	
4000.00	11.68	158.84	3912.67	-634.15	245.46	680.00	1.50	-1.50	0.00	
4100.00	10.18	158.84	4010.86	-651.83	252.30	698.95	1.50	-1.50	0.00	
4152.91	9.38	158.84	4063.00	-660.21	255.55	707.94	1.50	-1.50	0.00	Parkman
4200.00	8.68	158.84	4109.50	-667.10	258.22	715.33	1.50	-1.50	0.00	
4300.00	7.18	158.84	4208.54	-679.97	263.20	729.13	1.50	-1.50	0.00	
4400.00	5.68	158.84	4307.91	-690.41	267.24	740.32	1.50	-1.50	0.00	
4500.00	4.18	158.84	4407.54	-698.42	270.34	748.91	1.50	-1.50	0.00	
4600.00	2.68	158.84	4507.36	-703.99	272.50	754.89	1.50	-1.50	0.00	
4700.00	1.18	158.84	4607.30	-707.13	273.71	758.25	1.50	-1.50	0.00	
4705.70	1.09	158.84	4613.00	-707.23	273.75	758.37	1.50	-1.50	0.00	Sussex
4778.52	0.00	158.84	4685.81	-707.88	274.00	759.06	1.50	-1.50	0.00	
4800.00	0.00	158.84	4707.29	-707.88	274.00	759.06	0.00	0.00	0.00	
4900.00	0.00	158.84	4807.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5000.00	0.00	158.84	4907.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5100.00	0.00	158.84	5007.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5200.00	0.00	158.84	5107.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5300.00	0.00	158.84	5207.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5400.00	0.00	158.84	5307.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5500.00	0.00	158.84	5407.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5600.00	0.00	158.84	5507.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5700.00	0.00	158.84	5607.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5800.00	0.00	158.84	5707.29	-707.88	274.00	759.06	0.00	0.00	0.00	
5900.00	0.00	158.84	5807.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6000.00	0.00	158.84	5907.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6100.00	0.00	158.84	6007.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6200.00	0.00	158.84	6107.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6300.00	0.00	158.84	6207.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6400.00	0.00	158.84	6307.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6500.00	0.00	158.84	6407.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6600.00	0.00	158.84	6507.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6700.00	0.00	158.84	6607.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6800.00	0.00	158.84	6707.29	-707.88	274.00	759.06	0.00	0.00	0.00	
6900.00	0.00	158.84	6807.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7000.00	0.00	158.84	6907.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7100.00	0.00	158.84	7007.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7200.00	0.00	158.84	7107.29	-707.88	274.00	759.06	0.00	0.00	0.00	

ARCHER

Planning Report

Company: ANADARKO PETROLEUM
Field: Weld County, CO
Site: Morton 20-1 Pad
Well: 16-1
Wellpath: Original Hole

Date: 06/27/2011
Co-ordinate(NE) Reference: Well: 16-1, Grid North
Vertical (TVD) Reference: 4898'GL+15'KB 4913.0
Section (VS) Reference: Well (0.00N,0.00E,158.84Azi)
Plan: Plan #1

Page: 3

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
7245.71	0.00	158.84	7153.00	-707.88	274.00	759.06	0.00	0.00	0.00	Niobrara
7300.00	0.00	158.84	7207.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7400.00	0.00	158.84	7307.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7500.00	0.00	158.84	7407.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7585.71	0.00	158.84	7493.00	-707.88	274.00	759.06	0.00	0.00	0.00	Codell
7600.00	0.00	158.84	7507.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7670.71	0.00	158.84	7578.00	-707.88	274.00	759.06	0.00	0.00	0.00	Grnhn
7700.00	0.00	158.84	7607.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7800.00	0.00	158.84	7707.29	-707.88	274.00	759.06	0.00	0.00	0.00	
7900.00	0.00	158.84	7807.29	-707.88	274.00	759.06	0.00	0.00	0.00	
8000.00	0.00	158.84	7907.29	-707.88	274.00	759.06	0.00	0.00	0.00	
8020.71	0.00	158.84	7928.00	-707.88	274.00	759.06	0.00	0.00	0.00	J Sand
8100.00	0.00	158.84	8007.29	-707.88	274.00	759.06	0.00	0.00	0.00	
8155.71	0.00	158.84	8063.00	-707.88	274.00	759.06	0.00	0.00	0.00	16-1 PBHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ----> Deg Min Sec			<--- Longitude ---> Deg Min Sec		
16-1 SL			0.00	0.00	0.00	1271421.73	3186592.30	40	4	35.437 N	104	49	59.638 W
16-1 PBHL -Plan hit target			8063.00	-707.88	274.00	1270713.85	3186866.30	40	4	28.422 N	104	49	56.181 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
865.00	865.00	8.625	9.875	8 5/8"

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
4152.91	4063.00	Parkman		0.00	0.00
4705.70	4613.00	Sussex		0.00	0.00
7245.71	7153.00	Niobrara		0.00	0.00
7585.71	7493.00	Codell		0.00	0.00
7670.71	7578.00	Grnhn		0.00	0.00
8020.71	7928.00	J Sand		0.00	0.00