



Weatherford®

Weatherford
2000 Oil Drive
Casper, WY 82604

Survey Certification

Operating Company:	Anadarko Petroleum Corp.
Well Name:	Haymaker 4N-9HZ
State:	Colorado
County:	Weld
API Number:	512335661
Datum:	NAD 83
Survey Calculation Method:	Minimum Curvature
North Reference:	True North

I, John R. Morgan, hereby certify the attached
directional survey run from the measure depth of 1,045.00 feet
to the measured depth of 11,472.00 feet as accurate and true
to the best of my knowledge.

Signature

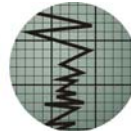
1-Nov-12

Date

John Morgan
Directional Planning
Weatherford - Rockies District



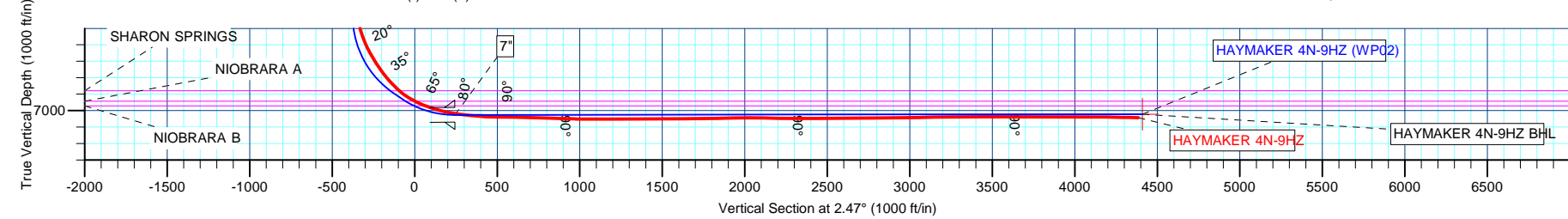
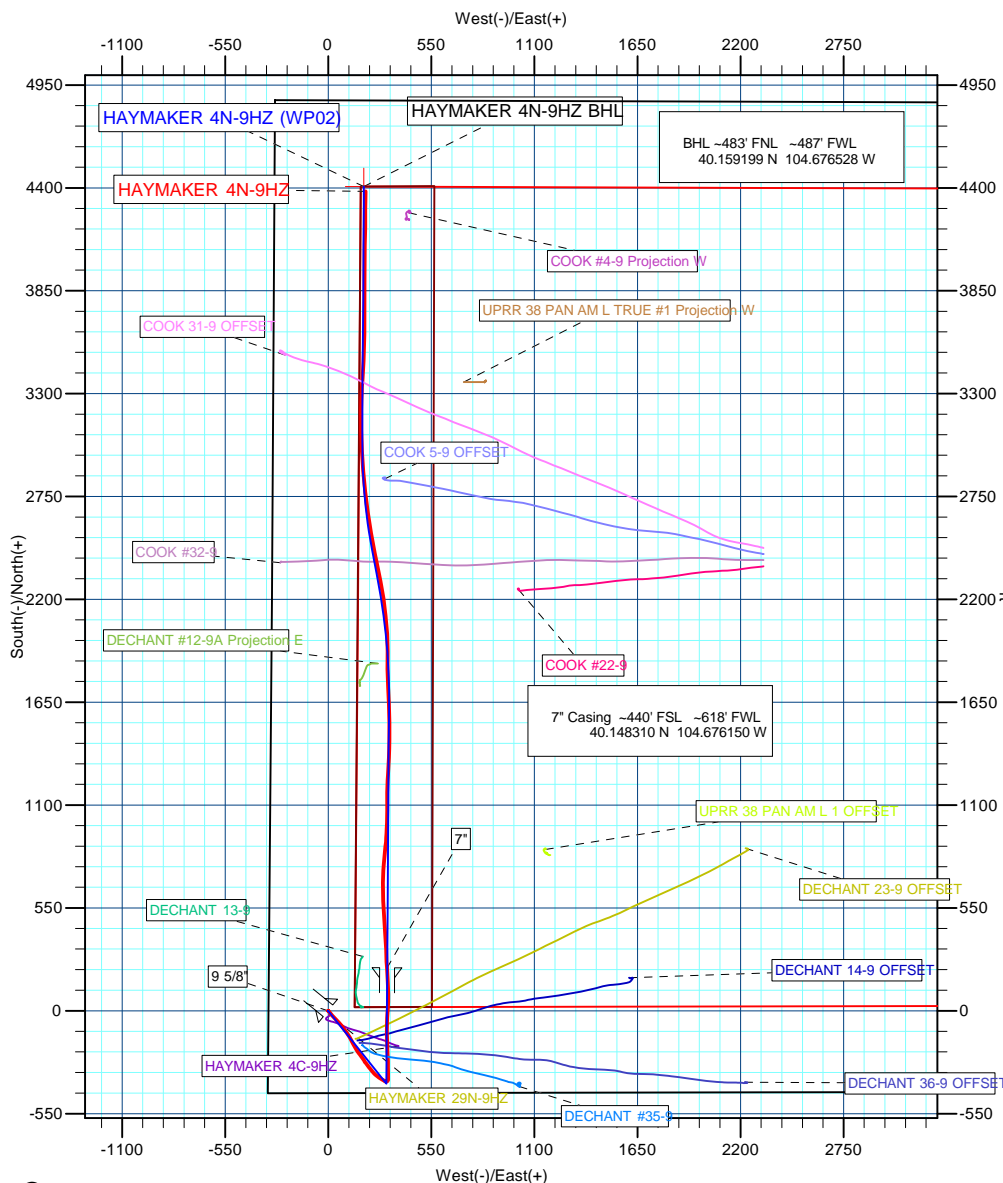
Weatherford®



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FINAL SURVEYS



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Azimuths to True North

Magnetic North: 8.64°

Magnetic Field

Strength: 52886.1snT

Dip Angle: 66.82°

Date: 8/8/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD HAYMAKER 13-9HZ PAD

Well: HAYMAKER 4N-9HZ

Wellbore: HAYMAKER 4N-9HZ

Section: SEC.9-T2N-R65W

SHL: 441' FSL 319' FWL

Design: HAYMAKER 4N-9HZ (WP02)

Latitude: 40.147172

Longitude: -104.677238

GL: 4897.00

KB: 25' RKB + 4897' GL @ 4922.00ft (H&P 307)

WELL DETAILS: HAYMAKER 4N-9HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4897.00 Latitude	Longitude	Slot
0.00	0.00	1297525.19	3229999.00	40.147172	-104.677238	

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
907.00	0.18	129.04	907.00	0.00	-1.05	0.00	0.00	-0.05
1200.00	0.18	129.04	1199.99	-0.58	-0.34	0.00	0.00	-0.60
1609.02	8.36	141.46	1607.53	-24.28	18.71	2.00	12.69	-23.45
4617.10	8.36	141.46	4583.68	-366.21	291.06	0.00	0.00	-353.34
5034.90	0.00	0.00	5000.00	-390.00	310.00	2.00	180.00	-376.29
6457.44	0.00	0.00	6422.54	-390.00	310.00	0.00	0.00	-376.29
6987.23	52.98	0.39	6880.00	-162.03	311.55	10.00	0.39	-148.46
7099.30	58.58	0.39	6943.00	-69.40	312.19	5.00	0.00	-55.89
7414.18	90.07	0.39	7027.00	229.96	314.22	10.00	0.00	243.28
8853.09	90.07	0.39	7025.24	1668.84	324.02	0.00	0.00	1681.24
9433.95	90.06	349.64	7024.57	2246.65	273.64	1.85	-90.04	2256.35
9670.08	90.06	349.64	7024.32	2478.94	231.19	0.00	0.00	2486.60
10250.94	90.07	0.39	7023.65	3056.76	180.81	1.85	89.95	3061.71
1600.94	90.07	0.39	7022.00	4406.72	190.00	0.00	0.00	4410.82

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HAYMAKER 4N-9HZ BHL	7022.00	4406.72	190.00	40.159269	-104.676558	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3949.00	3975.61	PARKMAN
4448.00	4479.96	SUSSEX
6880.00	6987.23	SHARON SPRINGS
6943.00	7099.30	NIORRARA A
6971.00	7158.05	NIORRARA B

CASING DETAILS			
TVD	MD	Name	Size
923.94	923.94	9 5/8"	9-5/8
7027.00	7414.18	7"	7

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_HAYMAKER 13-9HZ PAD

HAYMAKER 4N-9HZ

HAYMAKER 4N-9HZ

Design: HAYMAKER 4N-9HZ

Standard Survey Report

01 November, 2012

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_HAYMAKER 13-9HZ PAD			
Site Position:		Northing:	1,297,482.61 usft	Latitude:	40.147054
From:	Lat/Long	Easting:	3,230,041.05 usft	Longitude:	-104.677089
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.53 °

Well	HAYMAKER 4N-9HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,297,525.19 usft	Latitude:	40.147172
	+E/-W	0.00 ft	Easting:	3,229,999.00 usft	Longitude:	-104.677238
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,897.00 ft

Wellbore	HAYMAKER 4N-9HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/8/2012	8.64	66.82	52,886

Design	HAYMAKER 4N-9HZ				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	25.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	25.00	0.00	0.00	269.80	

Survey Program	Date	11/1/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
125.00	907.00	Survey #1 (HAYMAKER 4N-9HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
1,045.00	11,526.00	Survey #2 (HAYMAKER 4N-9HZ)	MWD	MWD - STANDARD	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	
125.00	0.12	272.58	125.00	0.00	-0.10	0.10	0.12	0.12	0.00	
225.00	0.03	37.12	225.00	0.03	-0.19	0.19	0.14	-0.09	124.54	
325.00	0.25	216.43	325.00	-0.12	-0.31	0.31	0.28	0.22	179.31	
425.00	0.35	249.51	425.00	-0.41	-0.72	0.72	0.20	0.10	33.08	
525.00	0.23	296.01	525.00	-0.43	-1.19	1.19	0.25	-0.12	46.50	
625.00	0.02	122.85	625.00	-0.35	-1.36	1.36	0.25	-0.21	-173.16	
725.00	0.18	22.88	725.00	-0.21	-1.28	1.28	0.18	0.16	-99.97	
825.00	0.10	24.41	825.00	0.01	-1.18	1.18	0.08	-0.08	1.53	
907.00	0.18	129.04	907.00	0.00	-1.05	1.05	0.28	0.10	127.60	

Andarko Petroleum Corporation

Survey Report

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Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
LAST GYRO SURVEY - TIE ON									
1,045.00	0.82	127.24	1,044.99	-0.74	-0.10	0.10	0.46	0.46	-1.30
FIRST MWD SURVEY									
1,135.00	0.80	135.93	1,134.98	-1.58	0.85	-0.85	0.14	-0.02	9.66
1,230.00	1.15	128.66	1,229.97	-2.65	2.06	-2.05	0.39	0.37	-7.65
1,322.00	2.52	140.61	1,321.92	-4.79	4.06	-4.05	1.54	1.49	12.99
1,413.00	4.24	142.42	1,412.76	-9.00	7.38	-7.35	1.89	1.89	1.99
1,508.00	5.99	140.31	1,507.37	-15.60	12.69	-12.64	1.85	1.84	-2.22
1,603.00	7.72	141.05	1,601.69	-24.38	19.87	-19.78	1.82	1.82	0.78
1,698.00	8.68	138.33	1,695.72	-34.70	28.65	-28.52	1.09	1.01	-2.86
1,792.00	8.53	137.13	1,788.66	-45.10	38.10	-37.95	0.25	-0.16	-1.28
1,887.00	7.80	134.07	1,882.70	-54.75	47.53	-47.34	0.89	-0.77	-3.22
1,982.00	8.02	133.58	1,976.79	-63.80	56.96	-56.74	0.24	0.23	-0.52
2,077.00	7.78	137.72	2,070.89	-73.13	66.09	-65.83	0.65	-0.25	4.36
2,171.00	8.25	145.39	2,163.98	-83.39	74.20	-73.91	1.24	0.50	8.16
2,266.00	7.64	147.62	2,258.07	-94.33	81.45	-81.12	0.72	-0.64	2.35
2,361.00	6.56	145.26	2,352.34	-104.12	87.93	-87.56	1.18	-1.14	-2.48
2,457.00	8.10	142.25	2,447.55	-113.98	95.19	-94.80	1.65	1.60	-3.14
2,552.00	8.91	141.05	2,541.50	-124.99	103.92	-103.48	0.87	0.85	-1.26
2,646.00	8.76	151.92	2,634.40	-136.97	111.86	-111.38	1.78	-0.16	11.56
2,742.00	8.48	152.88	2,729.31	-149.72	118.53	-118.01	0.33	-0.29	1.00
2,837.00	8.20	154.51	2,823.31	-162.07	124.64	-124.07	0.39	-0.29	1.72
2,933.00	9.55	151.66	2,918.16	-175.26	131.37	-130.75	1.48	1.41	-2.97
3,027.00	8.88	151.16	3,010.94	-188.48	138.57	-137.91	0.72	-0.71	-0.53
3,121.00	7.89	149.66	3,103.94	-200.40	145.33	-144.63	1.08	-1.05	-1.60
3,216.00	6.70	148.18	3,198.16	-210.74	151.54	-150.81	1.27	-1.25	-1.56
3,311.00	8.73	144.44	3,292.30	-221.31	158.66	-157.88	2.20	2.14	-3.94
3,406.00	7.79	140.90	3,386.31	-232.17	166.91	-166.10	1.12	-0.99	-3.73
3,501.00	9.66	146.69	3,480.21	-243.83	175.35	-174.50	2.17	1.97	6.09
3,596.00	8.14	146.23	3,574.07	-256.09	183.47	-182.57	1.60	-1.60	-0.48
3,691.00	6.67	146.46	3,668.27	-266.28	190.25	-189.32	1.55	-1.55	0.24
3,785.00	8.95	144.18	3,761.39	-276.76	197.55	-196.58	2.45	2.43	-2.43
3,881.00	7.66	139.23	3,856.39	-287.66	206.10	-205.09	1.54	-1.34	-5.16
3,975.00	9.58	142.39	3,949.32	-298.60	214.96	-213.92	2.10	2.04	3.36
4,070.00	9.47	141.56	4,043.01	-310.98	224.65	-223.56	0.19	-0.12	-0.87
4,165.00	9.35	139.93	4,136.73	-323.01	234.47	-233.34	0.31	-0.13	-1.72
4,261.00	9.02	137.61	4,231.50	-334.54	244.57	-243.40	0.52	-0.34	-2.42
4,356.00	8.02	130.72	4,325.45	-344.36	254.61	-253.41	1.50	-1.05	-7.25
4,451.00	7.68	128.37	4,419.56	-352.62	264.61	-263.38	0.49	-0.36	-2.47
4,546.00	7.14	121.63	4,513.77	-359.66	274.61	-273.36	1.08	-0.57	-7.09
4,641.00	6.77	123.56	4,608.07	-365.85	284.31	-283.03	0.46	-0.39	2.03
4,735.00	5.33	120.53	4,701.55	-371.13	292.69	-291.39	1.57	-1.53	-3.22
4,830.00	3.69	123.59	4,796.25	-375.07	299.03	-297.72	1.74	-1.73	3.22

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,925.00	2.10	111.00	4,891.13	-377.38	303.20	-301.89	1.79	-1.67	-13.25
5,019.00	0.82	87.39	4,985.10	-377.97	305.48	-304.16	1.48	-1.36	-25.12
5,114.00	0.84	94.71	5,080.09	-377.99	306.86	-305.54	0.11	0.02	7.71
5,209.00	0.94	89.74	5,175.07	-378.05	308.33	-307.01	0.13	0.11	-5.23
5,303.00	0.91	88.46	5,269.06	-378.02	309.85	-308.53	0.04	-0.03	-1.36
5,398.00	1.20	92.91	5,364.05	-378.05	311.60	-310.27	0.32	0.31	4.68
5,493.00	0.25	354.06	5,459.04	-377.90	312.57	-311.25	1.33	-1.00	-104.05
5,588.00	0.70	349.04	5,554.04	-377.12	312.44	-311.12	0.48	0.47	-5.28
5,682.00	0.58	355.82	5,648.03	-376.09	312.29	-310.98	0.15	-0.13	7.21
5,777.00	0.64	353.92	5,743.02	-375.08	312.20	-310.89	0.07	0.06	-2.00
5,872.00	0.70	54.81	5,838.02	-374.22	312.62	-311.31	0.72	0.06	64.09
5,967.00	0.64	32.97	5,933.01	-373.44	313.38	-312.08	0.27	-0.06	-22.99
6,062.00	0.87	72.83	6,028.00	-372.78	314.36	-313.06	0.59	0.24	41.96
6,157.00	0.92	89.41	6,122.99	-372.56	315.81	-314.51	0.28	0.05	17.45
6,253.00	0.74	72.75	6,218.98	-372.37	317.17	-315.87	0.31	-0.19	-17.35
6,347.00	1.01	35.91	6,312.97	-371.51	318.24	-316.94	0.65	0.29	-39.19
6,379.00	3.21	14.23	6,344.95	-370.42	318.63	-317.33	7.19	6.88	-67.75
6,411.00	5.51	9.92	6,376.85	-368.04	319.11	-317.82	7.26	7.19	-13.47
6,442.00	7.75	3.28	6,407.65	-364.48	319.49	-318.21	7.63	7.23	-21.42
6,475.00	10.19	358.19	6,440.24	-359.34	319.52	-318.27	7.77	7.39	-15.42
6,506.00	12.60	356.95	6,470.63	-353.22	319.26	-318.02	7.81	7.77	-4.00
6,537.00	15.50	357.60	6,500.70	-345.71	318.90	-317.69	9.37	9.35	2.10
6,569.00	17.92	358.22	6,531.34	-336.51	318.57	-317.39	7.58	7.56	1.94
6,602.00	20.74	358.85	6,562.48	-325.60	318.29	-317.16	8.57	8.55	1.91
6,633.00	23.29	358.93	6,591.22	-313.98	318.07	-316.97	8.23	8.23	0.26
6,665.00	25.97	359.22	6,620.30	-300.64	317.86	-316.80	8.38	8.38	0.91
6,695.00	28.30	359.49	6,647.00	-286.96	317.70	-316.70	7.78	7.77	0.90
6,727.00	31.60	358.98	6,674.72	-270.99	317.49	-316.54	10.34	10.31	-1.59
6,759.00	33.30	358.63	6,701.72	-253.83	317.13	-316.24	5.34	5.31	-1.09
6,790.00	32.54	357.95	6,727.75	-236.99	316.63	-315.80	2.73	-2.45	-2.19
6,821.00	33.71	356.45	6,753.71	-220.07	315.79	-315.02	4.61	3.77	-4.84
6,853.00	37.72	356.90	6,779.69	-201.42	314.72	-314.01	12.56	12.53	1.41
6,885.00	41.62	357.33	6,804.31	-181.02	313.69	-313.06	12.22	12.19	1.34
6,917.00	43.43	359.34	6,827.90	-159.41	313.07	-312.51	7.07	5.66	6.28
6,949.00	44.78	359.35	6,850.87	-137.14	312.81	-312.33	4.22	4.22	0.03
6,980.00	47.08	359.03	6,872.43	-114.87	312.50	-312.10	7.46	7.42	-1.03
7,012.00	51.59	359.78	6,893.28	-90.60	312.25	-311.93	14.21	14.09	2.34
7,043.00	55.93	1.31	6,911.60	-65.61	312.50	-312.27	14.55	14.00	4.94
7,075.00	59.65	4.16	6,928.66	-38.58	313.80	-313.67	13.85	11.63	8.91
7,107.00	62.94	4.74	6,944.03	-10.60	315.98	-315.94	10.40	10.28	1.81
7,138.00	65.70	3.47	6,957.46	17.27	317.98	-318.04	9.64	8.90	-4.10
7,171.00	69.41	2.41	6,970.06	47.72	319.54	-319.70	11.63	11.24	-3.21
7,202.00	71.64	359.50	6,980.39	76.94	320.02	-320.29	11.40	7.19	-9.39
7,234.00	72.09	358.10	6,990.35	107.34	319.38	-319.76	4.39	1.41	-4.38

Andarko Petroleum Corporation

Survey Report

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Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,265.00	74.43	357.55	6,999.28	137.00	318.26	-318.73	7.74	7.55	-1.77
7,297.00	78.10	357.16	7,006.88	168.05	316.82	-317.41	11.53	11.47	-1.22
7,329.00	79.59	356.63	7,013.07	199.40	315.12	-315.82	4.93	4.66	-1.66
7,362.00	80.67	356.15	7,018.73	231.84	313.07	-313.88	3.57	3.27	-1.45
7,393.00	82.71	356.57	7,023.21	262.46	311.13	-312.04	6.72	6.58	1.35
7,425.00	83.76	356.03	7,026.98	294.17	309.08	-310.10	3.68	3.28	-1.69
7,456.00	84.67	0.73	7,030.10	324.99	308.21	-309.34	15.37	2.94	15.16
7,488.00	84.89	356.86	7,033.02	356.84	307.53	-308.78	12.06	0.69	-12.09
7,498.00	85.11	356.88	7,033.89	366.79	306.99	-308.27	2.21	2.20	0.20
7,545.85	86.87	356.31	7,037.23	414.43	304.16	-305.60	3.86	3.68	-1.19
SET 7" CASING - 7"									
7,631.00	90.00	355.30	7,039.56	499.31	297.93	-299.67	3.86	3.68	-1.19
7,726.00	88.70	357.39	7,040.64	594.11	291.87	-293.95	2.59	-1.37	2.20
7,821.00	88.45	1.82	7,043.00	689.05	291.22	-293.62	4.67	-0.26	4.66
7,916.00	88.39	4.54	7,045.62	783.86	296.49	-299.22	2.86	-0.06	2.86
8,011.00	87.72	5.84	7,048.85	878.41	305.08	-308.14	1.54	-0.71	1.37
8,105.00	89.13	2.82	7,051.43	972.10	312.17	-315.56	3.54	1.50	-3.21
8,200.00	89.50	359.65	7,052.57	1,067.05	314.21	-317.94	3.36	0.39	-3.34
8,295.00	90.37	0.57	7,052.67	1,162.05	314.40	-318.45	1.33	0.92	0.97
8,391.00	91.35	4.17	7,051.23	1,257.94	318.37	-322.75	3.89	1.02	3.75
8,486.00	90.12	2.07	7,050.01	1,352.79	323.53	-328.26	2.56	-1.29	-2.21
8,581.00	89.69	0.99	7,050.17	1,447.75	326.07	-331.12	1.22	-0.45	-1.14
8,676.00	89.94	359.21	7,050.48	1,542.75	326.24	-331.62	1.89	0.26	-1.87
8,771.00	89.63	357.33	7,050.83	1,637.70	323.37	-329.08	2.01	-0.33	-1.98
8,865.00	91.35	356.87	7,050.03	1,731.57	318.61	-324.66	1.89	1.83	-0.49
8,960.00	91.53	359.98	7,047.64	1,826.49	316.00	-322.38	3.28	0.19	3.27
9,055.00	91.23	0.61	7,045.35	1,921.46	316.49	-323.20	0.73	-0.32	0.66
9,150.00	89.82	355.81	7,044.48	2,016.38	313.53	-320.56	5.27	-1.48	-5.05
9,244.00	88.96	355.01	7,045.48	2,110.07	306.00	-313.37	1.25	-0.91	-0.85
9,339.00	88.82	350.90	7,047.32	2,204.32	294.36	-302.05	4.33	-0.15	-4.33
9,433.00	90.74	348.80	7,047.69	2,296.84	277.79	-285.81	3.03	2.04	-2.23
9,528.00	89.75	349.26	7,047.28	2,390.10	259.72	-268.06	1.15	-1.04	0.48
9,623.00	89.38	348.61	7,048.00	2,483.33	241.48	-250.15	0.79	-0.39	-0.68
9,718.00	91.42	349.97	7,047.34	2,576.67	223.83	-232.83	2.58	2.15	1.43
9,812.00	90.55	353.94	7,045.72	2,669.71	210.68	-220.00	4.32	-0.93	4.22
9,907.00	89.51	353.11	7,045.67	2,764.10	199.97	-209.62	1.40	-1.09	-0.87
10,002.00	90.68	353.81	7,045.51	2,858.48	189.15	-199.13	1.44	1.23	0.74
10,097.00	90.74	356.18	7,044.34	2,953.10	180.86	-191.17	2.50	0.06	2.49
10,192.00	91.42	358.10	7,042.55	3,047.96	176.12	-186.76	2.14	0.72	2.02
10,287.00	91.11	0.45	7,040.45	3,142.93	174.92	-185.89	2.49	-0.33	2.47
10,383.00	90.43	0.97	7,039.16	3,238.91	176.11	-187.42	0.89	-0.71	0.54
10,478.00	90.25	3.40	7,038.59	3,333.83	179.73	-191.37	2.56	-0.19	2.56
10,572.00	89.82	3.49	7,038.54	3,427.66	185.38	-197.34	0.47	-0.46	0.10

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,667.00	91.18	1.72	7,037.71	3,522.55	189.70	-201.99	2.35	1.43	-1.86	
10,763.00	89.13	0.94	7,037.45	3,618.52	191.93	-204.56	2.28	-2.14	-0.81	
10,858.00	88.95	1.68	7,039.04	3,713.48	194.10	-207.06	0.80	-0.19	0.78	
10,952.00	90.92	358.88	7,039.15	3,807.47	194.56	-207.85	3.64	2.10	-2.98	
11,048.00	90.19	359.35	7,038.22	3,903.45	193.07	-206.70	0.90	-0.76	0.49	
11,143.00	89.26	0.75	7,038.67	3,998.45	193.16	-207.11	1.77	-0.98	1.47	
11,238.00	90.12	1.18	7,039.19	4,093.43	194.76	-209.05	1.01	0.91	0.45	
11,333.00	89.20	0.97	7,039.75	4,188.41	196.54	-211.16	0.99	-0.97	-0.22	
11,428.00	89.21	0.02	7,041.07	4,283.40	197.36	-212.31	1.00	0.01	-1.00	
11,472.00	88.77	0.68	7,041.84	4,327.39	197.63	-212.73	1.80	-1.00	1.50	
LAST MWD SURVEY										
11,526.00	88.23	1.49	7,043.26	4,381.36	198.65	-213.94	1.80	-1.00	1.50	
PROJECTION TO TD										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,545.85	7,037.23	7"	7	7-1/2	

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
907.00	907.00	0.00	-1.05	LAST GYRO SURVEY	
907.00	907.00	0.00	-1.05	TIE ON	
1,045.00	1,044.99	-0.74	-0.10	FIRST MWD SURVEY	
7,545.85	7,037.23	414.43	304.16	SET 7" CASING	
11,472.00	7,041.84	4,327.39	197.63	LAST MWD SURVEY	
11,526.00	7,043.26	4,381.36	198.65	PROJECTION TO TD	

Checked By: _____ Approved By: _____ Date: _____

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_HAYMAKER 13-9HZ PAD

HAYMAKER 4N-9HZ

HAYMAKER 4N-9HZ

Design: HAYMAKER 4N-9HZ

Survey Report - Geographic

01 November, 2012

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_HAYMAKER 13-9HZ PAD			
Site Position:		Northing:	1,297,482.61 usft	Latitude:	40.147054
From:	Lat/Long	Easting:	3,230,041.05 usft	Longitude:	-104.677089
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.53 °

Well	HAYMAKER 4N-9HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,297,525.19 usft	Latitude:	40.147172
	+E/-W	0.00 ft	Easting:	3,229,999.00 usft	Longitude:	-104.677238
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,897.00 ft

Wellbore	HAYMAKER 4N-9HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/8/2012	8.64	66.82	52,886

Design	HAYMAKER 4N-9HZ				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	25.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	25.00	0.00	0.00	269.80	

Survey Program	Date	11/1/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
125.00	907.00	Survey #1 (HAYMAKER 4N-9HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
1,045.00	11,526.00	Survey #2 (HAYMAKER 4N-9HZ)	MWD	MWD - STANDARD	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
25.00	0.00	0.00	25.00	0.00	0.00	1,297,525.19	3,229,999.00	40.147172	-104.677238
125.00	0.12	272.58	125.00	0.00	-0.10	1,297,525.20	3,229,998.90	40.147172	-104.677239
225.00	0.03	37.12	225.00	0.03	-0.19	1,297,525.22	3,229,998.81	40.147172	-104.677239
325.00	0.25	216.43	325.00	-0.12	-0.31	1,297,525.07	3,229,998.70	40.147172	-104.677239
425.00	0.35	249.51	425.00	-0.41	-0.72	1,297,524.78	3,229,998.28	40.147171	-104.677241
525.00	0.23	296.01	525.00	-0.43	-1.19	1,297,524.76	3,229,997.82	40.147171	-104.677243
625.00	0.02	122.85	625.00	-0.35	-1.36	1,297,524.83	3,229,997.65	40.147171	-104.677243
725.00	0.18	22.88	725.00	-0.21	-1.28	1,297,524.97	3,229,997.73	40.147171	-104.677243
825.00	0.10	24.41	825.00	0.01	-1.18	1,297,525.20	3,229,997.82	40.147172	-104.677242
907.00	0.18	129.04	907.00	0.00	-1.05	1,297,525.18	3,229,997.95	40.147172	-104.677242
LAST GYRO SURVEY - TIE ON									

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,045.00	0.82	127.24	1,044.99	-0.74	-0.10	1,297,524.46	3,229,998.91	40.147170	-104.677239
FIRST MWD SURVEY									
1,135.00	0.80	135.93	1,134.98	-1.58	0.85	1,297,523.62	3,229,999.87	40.147168	-104.677235
1,230.00	1.15	128.66	1,229.97	-2.65	2.06	1,297,522.56	3,230,001.08	40.147165	-104.677231
1,322.00	2.52	140.61	1,321.92	-4.79	4.06	1,297,520.44	3,230,003.11	40.147159	-104.677224
1,413.00	4.24	142.42	1,412.76	-9.00	7.38	1,297,516.26	3,230,006.47	40.147147	-104.677212
1,508.00	5.99	140.31	1,507.37	-15.60	12.69	1,297,509.71	3,230,011.84	40.147129	-104.677193
1,603.00	7.72	141.05	1,601.69	-24.38	19.87	1,297,501.00	3,230,019.10	40.147105	-104.677167
1,698.00	8.68	138.33	1,695.72	-34.70	28.65	1,297,490.77	3,230,027.97	40.147077	-104.677136
1,792.00	8.53	137.13	1,788.66	-45.10	38.10	1,297,480.45	3,230,037.52	40.147048	-104.677102
1,887.00	7.80	134.07	1,882.70	-54.75	47.53	1,297,470.89	3,230,047.04	40.147022	-104.677068
1,982.00	8.02	133.58	1,976.79	-63.80	56.96	1,297,461.92	3,230,056.55	40.146997	-104.677035
2,077.00	7.78	137.72	2,070.89	-73.13	66.09	1,297,452.68	3,230,065.77	40.146971	-104.677002
2,171.00	8.25	145.39	2,163.98	-83.39	74.20	1,297,442.50	3,230,073.97	40.146943	-104.676973
2,266.00	7.64	147.62	2,258.07	-94.33	81.45	1,297,431.62	3,230,081.33	40.146913	-104.676947
2,361.00	6.56	145.26	2,352.34	-104.12	87.93	1,297,421.89	3,230,087.89	40.146886	-104.676924
2,457.00	8.10	142.25	2,447.55	-113.98	95.19	1,297,412.10	3,230,095.25	40.146859	-104.676898
2,552.00	8.91	141.05	2,541.50	-124.99	103.92	1,297,401.17	3,230,104.07	40.146829	-104.676867
2,646.00	8.76	151.92	2,634.40	-136.97	111.86	1,297,389.27	3,230,112.13	40.146796	-104.676838
2,742.00	8.48	152.88	2,729.31	-149.72	118.53	1,297,376.58	3,230,118.92	40.146761	-104.676814
2,837.00	8.20	154.51	2,823.31	-162.07	124.64	1,297,364.29	3,230,125.14	40.146727	-104.676792
2,933.00	9.55	151.66	2,918.16	-175.26	131.37	1,297,351.16	3,230,131.99	40.146691	-104.676768
3,027.00	8.88	151.16	3,010.94	-188.48	138.57	1,297,338.01	3,230,139.31	40.146655	-104.676743
3,121.00	7.89	149.66	3,103.94	-200.40	145.33	1,297,326.15	3,230,146.18	40.146622	-104.676718
3,216.00	6.70	148.18	3,198.16	-210.74	151.54	1,297,315.87	3,230,152.49	40.146594	-104.676696
3,311.00	8.73	144.44	3,292.30	-221.31	158.66	1,297,305.36	3,230,159.71	40.146565	-104.676671
3,406.00	7.79	140.90	3,386.31	-232.17	166.91	1,297,294.58	3,230,168.06	40.146535	-104.676641
3,501.00	9.66	146.69	3,480.21	-243.83	175.35	1,297,283.00	3,230,176.61	40.146503	-104.676611
3,596.00	8.14	146.23	3,574.07	-256.09	183.47	1,297,270.82	3,230,184.84	40.146469	-104.676582
3,691.00	6.67	146.46	3,668.27	-266.28	190.25	1,297,260.70	3,230,191.72	40.146441	-104.676558
3,785.00	8.95	144.18	3,761.39	-276.76	197.55	1,297,250.28	3,230,199.11	40.146412	-104.676532
3,881.00	7.66	139.23	3,856.39	-287.66	206.10	1,297,239.46	3,230,207.76	40.146382	-104.676501
3,975.00	9.58	142.39	3,949.32	-298.60	214.96	1,297,228.60	3,230,216.73	40.146352	-104.676469
4,070.00	9.47	141.56	4,043.01	-310.98	224.65	1,297,216.31	3,230,226.52	40.146318	-104.676435
4,165.00	9.35	139.93	4,136.73	-323.01	234.47	1,297,204.37	3,230,236.46	40.146285	-104.676400
4,261.00	9.02	137.61	4,231.50	-334.54	244.57	1,297,192.94	3,230,246.66	40.146254	-104.676363
4,356.00	8.02	130.72	4,325.45	-344.36	254.61	1,297,183.21	3,230,256.80	40.146227	-104.676327
4,451.00	7.68	128.37	4,419.56	-352.62	264.61	1,297,175.04	3,230,266.87	40.146204	-104.676292
4,546.00	7.14	121.63	4,513.77	-359.66	274.61	1,297,168.10	3,230,276.94	40.146185	-104.676256
4,641.00	6.77	123.56	4,608.07	-365.85	284.31	1,297,162.00	3,230,286.69	40.146168	-104.676221
4,735.00	5.33	120.53	4,701.55	-371.13	292.69	1,297,156.79	3,230,295.12	40.146153	-104.676191
4,830.00	3.69	123.59	4,796.25	-375.07	299.03	1,297,152.92	3,230,301.50	40.146142	-104.676169
4,925.00	2.10	111.00	4,891.13	-377.38	303.20	1,297,150.64	3,230,305.70	40.146136	-104.676154
5,019.00	0.82	87.39	4,985.10	-377.97	305.48	1,297,150.08	3,230,307.98	40.146134	-104.676146
5,114.00	0.84	94.71	5,080.09	-377.99	306.86	1,297,150.06	3,230,309.35	40.146134	-104.676141
5,209.00	0.94	89.74	5,175.07	-378.05	308.33	1,297,150.02	3,230,310.83	40.146134	-104.676135
5,303.00	0.91	88.46	5,269.06	-378.02	309.85	1,297,150.06	3,230,312.34	40.146134	-104.676130
5,398.00	1.20	92.91	5,364.05	-378.05	311.60	1,297,150.05	3,230,314.09	40.146134	-104.676124
5,493.00	0.25	354.06	5,459.04	-377.90	312.57	1,297,150.21	3,230,315.06	40.146135	-104.676120
5,588.00	0.70	349.04	5,554.04	-377.12	312.44	1,297,150.99	3,230,314.92	40.146137	-104.676121
5,682.00	0.58	355.82	5,648.03	-376.09	312.29	1,297,152.02	3,230,314.77	40.146140	-104.676121
5,777.00	0.64	353.92	5,743.02	-375.08	312.20	1,297,153.03	3,230,314.67	40.146142	-104.676121
5,872.00	0.70	54.81	5,838.02	-374.22	312.62	1,297,153.90	3,230,315.08	40.146145	-104.676120
5,967.00	0.64	32.97	5,933.01	-373.44	313.38	1,297,154.68	3,230,315.84	40.146147	-104.676117
6,062.00	0.87	72.83	6,028.00	-372.78	314.36	1,297,155.35	3,230,316.81	40.146149	-104.676114

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,157.00	0.92	89.41	6,122.99	-372.56	315.81	1,297,155.58	3,230,318.26	40.146149	-104.676109
6,253.00	0.74	72.75	6,218.98	-372.37	317.17	1,297,155.79	3,230,319.62	40.146150	-104.676104
6,347.00	1.01	35.91	6,312.97	-371.51	318.24	1,297,156.65	3,230,320.68	40.146152	-104.676100
6,379.00	3.21	14.23	6,344.95	-370.42	318.63	1,297,157.75	3,230,321.05	40.146155	-104.676098
6,411.00	5.51	9.92	6,376.85	-368.04	319.11	1,297,160.14	3,230,321.51	40.146162	-104.676097
6,442.00	7.75	3.28	6,407.65	-364.48	319.49	1,297,163.69	3,230,321.86	40.146171	-104.676095
6,475.00	10.19	358.19	6,440.24	-359.34	319.52	1,297,168.83	3,230,321.84	40.146186	-104.676095
6,506.00	12.60	356.95	6,470.63	-353.22	319.26	1,297,174.95	3,230,321.52	40.146202	-104.676096
6,537.00	15.50	357.60	6,500.70	-345.71	318.90	1,297,182.46	3,230,321.10	40.146223	-104.676098
6,569.00	17.92	358.22	6,531.34	-336.51	318.57	1,297,191.65	3,230,320.68	40.146248	-104.676099
6,602.00	20.74	358.85	6,562.48	-325.60	318.29	1,297,202.57	3,230,320.30	40.146278	-104.676100
6,633.00	23.29	358.93	6,591.22	-313.98	318.07	1,297,214.18	3,230,319.97	40.146310	-104.676100
6,665.00	25.97	359.22	6,620.30	-300.64	317.86	1,297,227.51	3,230,319.63	40.146347	-104.676101
6,695.00	28.30	359.49	6,647.00	-286.96	317.70	1,297,241.19	3,230,319.35	40.146384	-104.676102
6,727.00	31.60	358.98	6,674.72	-270.99	317.49	1,297,257.16	3,230,318.99	40.146428	-104.676103
6,759.00	33.30	358.63	6,701.72	-253.83	317.13	1,297,274.32	3,230,318.47	40.146475	-104.676104
6,790.00	32.54	357.95	6,727.75	-236.99	316.63	1,297,291.16	3,230,317.81	40.146521	-104.676106
6,821.00	33.71	356.45	6,753.71	-220.07	315.79	1,297,308.07	3,230,316.83	40.146568	-104.676109
6,853.00	37.72	356.90	6,779.69	-201.42	314.72	1,297,326.70	3,230,315.57	40.146619	-104.676112
6,885.00	41.62	357.33	6,804.31	-181.02	313.69	1,297,347.09	3,230,314.36	40.146675	-104.676116
6,917.00	43.43	359.34	6,827.90	-159.41	313.07	1,297,368.70	3,230,313.54	40.146734	-104.676118
6,949.00	44.78	359.35	6,850.87	-137.14	312.81	1,297,390.96	3,230,313.08	40.146796	-104.676119
6,980.00	47.08	359.03	6,872.43	-114.87	312.50	1,297,413.23	3,230,312.55	40.146857	-104.676120
7,012.00	51.59	359.78	6,893.28	-90.60	312.25	1,297,437.49	3,230,312.08	40.146923	-104.676121
7,043.00	55.93	1.31	6,911.60	-65.61	312.50	1,297,462.49	3,230,312.10	40.146992	-104.676120
7,075.00	59.65	4.16	6,928.66	-38.58	313.80	1,297,489.53	3,230,313.15	40.147066	-104.676116
7,107.00	62.94	4.74	6,944.03	-10.60	315.98	1,297,517.53	3,230,315.07	40.147143	-104.676108
7,138.00	65.70	3.47	6,957.46	17.27	317.98	1,297,545.41	3,230,316.81	40.147219	-104.676101
7,171.00	69.41	2.41	6,970.06	47.72	319.54	1,297,575.88	3,230,318.09	40.147303	-104.676095
7,202.00	71.64	359.50	6,980.39	76.94	320.02	1,297,605.10	3,230,318.30	40.147383	-104.676093
7,234.00	72.09	358.10	6,990.35	107.34	319.38	1,297,635.49	3,230,317.38	40.147467	-104.676096
7,265.00	74.43	357.55	6,999.28	137.00	318.26	1,297,665.14	3,230,315.97	40.147548	-104.676100
7,297.00	78.10	357.16	7,006.88	168.05	316.82	1,297,696.18	3,230,314.25	40.147633	-104.676105
7,329.00	79.59	356.63	7,013.07	199.40	315.12	1,297,727.51	3,230,312.26	40.147719	-104.676111
7,362.00	80.67	356.15	7,018.73	231.84	313.07	1,297,759.93	3,230,309.91	40.147808	-104.676118
7,393.00	82.71	356.57	7,023.21	262.46	311.13	1,297,790.52	3,230,307.68	40.147893	-104.676125
7,425.00	83.76	356.03	7,026.98	294.17	309.08	1,297,822.21	3,230,305.34	40.147980	-104.676133
7,456.00	84.67	0.73	7,030.10	324.99	308.21	1,297,853.03	3,230,304.18	40.148064	-104.676136
7,488.00	84.89	356.86	7,033.02	356.84	307.53	1,297,884.87	3,230,303.21	40.148152	-104.676138
7,498.00	85.11	356.88	7,033.89	366.79	306.99	1,297,894.81	3,230,302.58	40.148179	-104.676140
7,545.85	86.87	356.31	7,037.23	414.43	304.16	1,297,942.43	3,230,299.30	40.148310	-104.676150
SET 7" CASING - 7"									
7,631.00	90.00	355.30	7,039.56	499.31	297.93	1,298,027.25	3,230,292.29	40.148543	-104.676172
7,726.00	88.70	357.39	7,040.64	594.11	291.87	1,298,121.98	3,230,285.35	40.148803	-104.676194
7,821.00	88.45	1.82	7,043.00	689.05	291.22	1,298,216.92	3,230,283.82	40.149064	-104.676196
7,916.00	88.39	4.54	7,045.62	783.86	296.49	1,298,311.77	3,230,288.20	40.149324	-104.676178
8,011.00	87.72	5.84	7,048.85	878.41	305.08	1,298,406.40	3,230,295.91	40.149583	-104.676147
8,105.00	89.13	2.82	7,051.43	972.10	312.17	1,298,500.14	3,230,302.14	40.149841	-104.676122
8,200.00	89.50	359.65	7,052.57	1,067.05	314.21	1,298,595.12	3,230,303.30	40.150101	-104.676114
8,295.00	90.37	0.57	7,052.67	1,162.05	314.40	1,298,690.11	3,230,302.60	40.150362	-104.676114
8,391.00	91.35	4.17	7,051.23	1,257.94	318.37	1,298,786.03	3,230,305.68	40.150625	-104.676099
8,486.00	90.12	2.07	7,050.01	1,352.79	323.53	1,298,880.92	3,230,309.97	40.150886	-104.676081
8,581.00	89.69	0.99	7,050.17	1,447.75	326.07	1,298,975.91	3,230,311.63	40.151146	-104.676072
8,676.00	89.94	359.21	7,050.48	1,542.75	326.24	1,299,070.90	3,230,310.91	40.151407	-104.676071
8,771.00	89.63	357.33	7,050.83	1,637.70	323.37	1,299,165.82	3,230,307.16	40.151668	-104.676081

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,865.00	91.35	356.87	7,050.03	1,731.57	318.61	1,299,259.64	3,230,301.54	40.151925	-104.676098
8,960.00	91.53	359.98	7,047.64	1,826.49	316.00	1,299,354.54	3,230,298.05	40.152186	-104.676108
9,055.00	91.23	0.61	7,045.35	1,921.46	316.49	1,299,449.51	3,230,297.65	40.152447	-104.676106
9,150.00	89.82	355.81	7,044.48	2,016.38	313.53	1,299,544.40	3,230,293.81	40.152707	-104.676117
9,244.00	88.96	355.01	7,045.48	2,110.07	306.00	1,299,638.01	3,230,285.42	40.152964	-104.676144
9,339.00	88.82	350.90	7,047.32	2,204.32	294.36	1,299,732.15	3,230,272.89	40.153223	-104.676185
9,433.00	90.74	348.80	7,047.69	2,296.84	277.79	1,299,824.51	3,230,255.47	40.153477	-104.676244
9,528.00	89.75	349.26	7,047.28	2,390.10	259.72	1,299,917.60	3,230,236.53	40.153733	-104.676309
9,623.00	89.38	348.61	7,048.00	2,483.33	241.48	1,300,010.65	3,230,217.44	40.153989	-104.676374
9,718.00	91.42	349.97	7,047.34	2,576.67	223.83	1,300,103.82	3,230,198.92	40.154245	-104.676437
9,812.00	90.55	353.94	7,045.72	2,669.71	210.68	1,300,196.74	3,230,184.90	40.154501	-104.676485
9,907.00	89.51	353.11	7,045.67	2,764.10	199.97	1,300,291.03	3,230,173.32	40.154760	-104.676523
10,002.00	90.68	353.81	7,045.51	2,858.48	189.15	1,300,385.30	3,230,161.62	40.155019	-104.676562
10,097.00	90.74	356.18	7,044.34	2,953.10	180.86	1,300,479.84	3,230,152.46	40.155279	-104.676591
10,192.00	91.42	358.10	7,042.55	3,047.96	176.12	1,300,574.65	3,230,146.84	40.155539	-104.676608
10,287.00	91.11	0.45	7,040.45	3,142.93	174.92	1,300,669.60	3,230,144.75	40.155800	-104.676612
10,383.00	90.43	0.97	7,039.16	3,238.91	176.11	1,300,765.59	3,230,145.05	40.156063	-104.676608
10,478.00	90.25	3.40	7,038.59	3,333.83	179.73	1,300,860.54	3,230,147.79	40.156324	-104.676595
10,572.00	89.82	3.49	7,038.54	3,427.66	185.38	1,300,954.42	3,230,152.57	40.156581	-104.676575
10,667.00	91.18	1.72	7,037.71	3,522.55	189.70	1,301,049.35	3,230,156.01	40.156842	-104.676560
10,763.00	89.13	0.94	7,037.45	3,618.52	191.93	1,301,145.33	3,230,157.35	40.157105	-104.676552
10,858.00	88.95	1.68	7,039.04	3,713.48	194.10	1,301,240.31	3,230,158.64	40.157366	-104.676544
10,952.00	90.92	358.88	7,039.15	3,807.47	194.56	1,301,334.30	3,230,158.22	40.157624	-104.676542
11,048.00	90.19	359.35	7,038.22	3,903.45	193.07	1,301,430.26	3,230,155.85	40.157888	-104.676547
11,143.00	89.26	0.75	7,038.67	3,998.45	193.16	1,301,525.25	3,230,155.05	40.158148	-104.676547
11,238.00	90.12	1.18	7,039.19	4,093.43	194.76	1,301,620.25	3,230,155.77	40.158409	-104.676541
11,333.00	89.20	0.97	7,039.75	4,188.41	196.54	1,301,715.24	3,230,156.67	40.158670	-104.676535
11,428.00	89.21	0.02	7,041.07	4,283.40	197.36	1,301,810.23	3,230,156.61	40.158931	-104.676532
11,472.00	88.77	0.68	7,041.84	4,327.39	197.63	1,301,854.22	3,230,156.47	40.159051	-104.676531
LAST MWD SURVEY									
11,526.00	88.23	1.49	7,043.26	4,381.36	198.65	1,301,908.20	3,230,156.99	40.159199	-104.676528
PROJECTION TO TD									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,545.85	7,037.23	7"	7	7-1/2	

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
907.00	907.00	0.00	-1.05	LAST GYRO SURVEY	
907.00	907.00	0.00	-1.05	TIE ON	
1,045.00	1,044.99	-0.74	-0.10	FIRST MWD SURVEY	
7,545.85	7,037.23	414.43	304.16	SET 7" CASING	
11,472.00	7,041.84	4,327.39	197.63	LAST MWD SURVEY	
11,526.00	7,043.26	4,381.36	198.65	PROJECTION TO TD	

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well HAYMAKER 4N-9HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Site:	WELD_HAYMAKER 13-9HZ PAD	MD Reference:	25' RKB + 4897' GL @ 4922.00ft (H&P 307)
Well:	HAYMAKER 4N-9HZ	North Reference:	True
Wellbore:	HAYMAKER 4N-9HZ	Survey Calculation Method:	Minimum Curvature
Design:	HAYMAKER 4N-9HZ	Database:	edmp

Checked By: _____ Approved By: _____ Date: _____



DAILY ACTIVITY



Daily Activity Report

Drilling Services
v4.2.2674

Day 1 - 2012/10/17

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

DIR Trainee: Joe Kelly

Other: Victor Campos

Company Man: Craig Jones, Clint Tivedoux

GROUND ELEV: 4897 ft

START DEPTH: 0.0 ft

PROGRESS: 0.0 ft

DAILY COST: USD\$10082.50

KB ELEV: 4922 ft

END DEPTH: 0.0 ft

AVG. ROP.: 0.0 ft/hr

PREVIOUS COST: USD\$0.00

WORK STATUS: Standby

(All units are imperial.)

TOTAL COST: USD\$10082.50

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-24:00	Wait On Orders	24.00	0	n/a			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL: 0.00	ORIENTING HRS: 0.00	ROTARY DRILL: 0.00
TIME DRILL: 0.00	ROTATING HRS: 0.00	MOTOR HRS: 0.00
MOTOR REAM: 0.00		TRIP: 0.00
CIRC: 0.00	ROTARY DRILL: 0.00	OTHER: 24.00
MOTOR HRS: 0.00	DRILL HRS: 0.00	TOTAL HRS: 24.00

DRILLING PARAMETERS:

ROTARY TORQUE:	STRING WEIGHT: 0 lbs
WOB SLIDING (HI): 0 lbf	WOB ROTATE (HI): 0 lbf
WOB SLIDING (LO): 0 lbf	WOB ROTATE (LO): 0 lbf
RPM (ROTARY):	DRAG UP: 0 lbf
RPM (MOTOR):	DRAG DN: 0 lbf

BHA / MOTOR / BIT INFORMATION:

BHA:	HOLE SIZE:	SECTION TYPE:	SURVEY TYPE:
MANFCT.:	STABILIZER:	SERIAL#:	MODEL:
SETTING:	KICKPAD:	SIZE:	MTR HRS THIS DAY:
MANFCT:	BIT TYPE:	TYPE:	NOZZLES:
IADC BIT GRADE:			LOBE CFG.:
			MTR HRS TO DATE:

PUMP PARAMETERS

PRESSURE ON BTM: 0	PRESSURE OFF BTM: 0	TOTAL FLOW RATE: 598.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0% SPM: 78.00	LINER: 6.00 in STROKE VOL.: 3.8438 gal/stk
PUMP 2: TYPE: PZ-11	EFF.: 95.0% SPM: 78.00	LINER: 6.00 in STROKE VOL.: 3.8438 gal/stk
PUMP 3: TYPE:	EFF.: 100.0% SPM: 0.00	LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Water	VISC: 0 sec/qt	WTR LOSS: 0 cc/30min	PV: 0 cP	YP: 0 lb/100 ft²	pH: 0
DENSITY: 0 lb/gal	GEL 0/10: 0.00 lb/100 ft²	SAND: 0	SOLIDS: 0	OIL: 0	TEMP: 0 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Wait on orders.

CUSTOMER SIGNATURE:



Daily Activity Report

Drilling Services
v4.2.2674

Day 2 - 2012/10/18

FILE #: 4027701 WELL NAME: Haymaker 4N-9HZ SERVICE CO.: Weatherford
JOB TYPE: Horizontal COMPANY: Anadarko Petroleum Corporation SURVEY TYPE: HEL LWD
RIG & NO: Helmerich & Payne 307 SURFACE LOCATION: Weld County FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca
DIR Trainee: Joe Kelly
MWD Supervisor: Peter Ratio
Other: Victor Campos
Company Man: Craig Jones, Clint Tibeaux

GROUND ELEV: 4897 ft START DEPTH: 0.0 ft PROGRESS: 0.0 ft DAILY COST: USD\$7582.50
KB ELEV: 4922 ft END DEPTH: 0.0 ft AVG. ROP.: 0.0 ft/hr PREVIOUS COST: USD\$10082.50
TOTAL COST: USD\$17665.00

WORK STATUS: Standby (All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-24:00	Wait On Orders	24.00	0	n/a			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL: 0.00	ORIENTING HRS: 0.00	ROTARY DRILL: 0.00
TIME DRILL: 0.00	ROTATING HRS: 0.00	MOTOR HRS: 0.00
MOTOR REAM: 0.00		TRIP: 0.00
CIRC: 0.00	ROTARY DRILL: 0.00	OTHER: 24.00
MOTOR HRS: 0.00	DRILL HRS: 0.00	TOTAL HRS: 24.00

DRILLING PARAMETERS:

ROTARY TORQUE:	STRING WEIGHT: 0 lbs
WOB SLIDING (HI): 0 lbf	WOB ROTATE (HI): 0 lbf
WOB SLIDING (LO): 0 lbf	WOB ROTATE (LO): 0 lbf
RPM (ROTARY):	DRAG UP: 0 lbf
RPM (MOTOR):	DRAG DN: 0 lbf

BHA / MOTOR / BIT INFORMATION:

BHA:	HOLE SIZE:	SECTION TYPE:	SURVEY TYPE:
MANFCT.:	STABILIZER:	SERIAL#:	MODEL:
SETTING:	KICKPAD:	SIZE:	MTR HRS THIS DAY:
MANFCT:	BIT TYPE:	TYPE:	NOZZLES:
IADC BIT GRADE:			

PUMP PARAMETERS

PRESSURE ON BTM: 0	PRESSURE OFF BTM: 0	TOTAL FLOW RATE: 0.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0% SPM: 0.00	LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk
PUMP 2: TYPE: PZ-11	EFF.: 95.0% SPM: 0.00	LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk
PUMP 3: TYPE:	EFF.: 100.0% SPM: 0.00	LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE:	VISC: 0 sec/qt	WTR LOSS: 0 cc/30min	PV: 0 cP	YP: 0 lb/100 ft²	pH: 0
DENSITY: 0 lb/gal	GEL 0/10: 0.00 lb/100 ft²	SAND: 0	SOLIDS: 0	OIL: 0	TEMP: 0 °F
LIQUID BASE:		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Wait on orders.

CUSTOMER SIGNATURE:

**Weatherford®**

Daily Activity Report

Drilling Services
v4.2.2674

Day 3 - 2012/10/19

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

DIR Trainee: Joe Kelly

MWD Supervisor: Peter Ratio

Other: Victor Campos

Company Man: Craig Jones, Clint Tivedoux

GROUND ELEV: 4897 ft

START DEPTH: 0.0 ft

PROGRESS: 1377.0 ft

DAILY COST: USD\$19050.00

KB ELEV: 4922 ft

END DEPTH: 1377.0 ft

AVG. ROP.: 918.0 ft/hr

PREVIOUS COST: USD\$17665.00

TOTAL COST: USD\$36715.00

WORK STATUS: Operating

(All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-16:00	Wait On Orders	16.00	0	n/a	21:20-21:30	Rotating With Motor	0.17	1190	1
16:00-18:00	Handle Directional Tools	2.00	0	1	21:30-22:35	Other - See Comments - change saver sub.	1.08	1190	1
18:00-19:25	RIH	1.42	896	1	22:35-22:40	Circ & Accumulate Surveys	0.08	1190	1
19:25-19:45	Work on Pumps	0.33	896	1	22:40-22:50	Orienting With Motor	0.17	1196	1
19:45-19:55	Shallow Pulse Check	0.17	896	1	22:50-23:05	Rotating With Motor	0.25	1285	1
19:55-20:45	Drill Out Flt, Shoe & Cmmt	0.83	943	1	23:05-23:10	Circ & Accumulate Surveys	0.08	1285	1
20:45-21:00	Rotating With Motor	0.25	1009	1	23:10-23:30	Orienting With Motor	0.33	1297	1
21:00-21:05	Circ & Accumulate Surveys - check shot	0.08	1009	1	23:30-23:40	Rotating With Motor	0.17	1377	1
21:05-21:15	Rotating With Motor	0.17	1100	1	23:40-24:00	Rig Service	0.33	1377	1
21:15-21:20	Circ & Accumulate Surveys	0.08	1100	1			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL:	1.50	ORIENTING HRS:	0.50	ROTARY DRILL:	0.00
TIME DRILL:	0.00	ROTATING HRS:	1.00	MOTOR HRS:	2.83
MOTOR REAM:	0.00			TRIP:	1.42
CIRC:	1.33	ROTARY DRILL:	0.00	OTHER:	19.75
MOTOR HRS:	2.83	DRILL HRS:	1.50	TOTAL HRS:	24.00

DRILLING PARAMETERS:

ROTARY TORQUE:		STRING WEIGHT	0 lbs
WOB SLIDING (HI):	15000 lbf	WOB ROTATE (HI):	20000 lbf
WOB SLIDING (LO):	5000 lbf	WOB ROTATE (LO):	10000 lbf
RPM (ROTARY):	40 rpm	DRAG UP:	0 lbf
RPM (MOTOR):	150 rpm	DRAG DN:	0 lbf

BHA / MOTOR / BIT INFORMATION:

BHA: 1	HOLE SIZE: 8.75 in	SECTION TYPE: Build & Hold / Curve	SURVEY TYPE: Positive Pulse MWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 675-43645	MODEL: QLE7850 MBTB
SETTING: 1.73 °	KICKPAD: No	SIZE: 6 3/4" (171mm)	LOBE CFG.: 7/8
MANFCT: Hughes	BIT TYPE: Hughes	TYPE: DP505F	MTR HRS THIS DAY: 2.8333333333333333
IADC BIT GRADE: 1 / 2 / CT / G / X / I / FC / BHA			NOZZLES: 0.648 in ² TFA

PUMP PARAMETERS

PRESSURE ON BTM: 0	PRESSURE OFF BTM: 0	TOTAL FLOW RATE: 537.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0% SPM: 70.00	LINER: 6.00 in
PUMP 2: TYPE: PZ-11	EFF.: 95.0% SPM: 70.00	LINER: 6.00 in
PUMP 3: TYPE:	EFF.: 100.0% SPM: 0.00	LINER: 0.00 in
		STROKE VOL.: 3.8438 gal/stk
		STROKE VOL.: 3.8438 gal/stk
		STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Polymer	VISC: 28 sec/qt	WTR LOSS: 0 cc/30min	PV: 2 cP	YP: 3 lb/100 ft ²	pH: 8
DENSITY: 8.5 lb/gal	GEL 0/10: 0.00 lb/100 ft ²	SAND: 1	SOLIDS: 1.3	OIL: 0	TEMP: 0 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Wait on orders. Rig is currently making up stands of drill pipe.

Drill F/ 943 to 1377

CUSTOMER SIGNATURE: _____

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Daily Activity Report

Drilling Services
v4.2.2674**Day 4 - 2012/10/20****FILE #:** 4027701**WELL NAME:** Haymaker 4N-9HZ**SERVICE CO.:** Weatherford**JOB TYPE:** Horizontal**COMPANY:** Anadarko Petroleum Corporation**SURVEY TYPE:** HEL LWD**RIG & NO:** Helmerich & Payne 307**SURFACE LOCATION:** Weld County**FIELD / LOCATION:** Wattenburg Field / CO / USA**DIR Supervisor:** Josh Monroe, Charles Apodaca**DIR Trainee:** Joe Kelly**MWD Supervisor:** Rusty Komrs, Peter Ratio**Other:** Victor Campos**Company Man:** Craig Jones, Clint Tivedoux**GROUND ELEV:** 4897 ft**START DEPTH:** 1377.0 ft**PROGRESS:** 3697.0 ft**DAILY COST:** USD\$12850.00**KB ELEV:** 4922 ft**END DEPTH:** 5074.0 ft**AVG. ROP.:** 202.6 ft/hr**PREVIOUS COST:** USD\$36715.00**TOTAL COST:** USD\$49565.00**WORK STATUS:** Operating*(All units are imperial.)*

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-00:10	Rig Service	0.17	1377	1	10:15-10:25	Rotating With Motor	0.17	3271	1
00:10-00:20	Circ & Accumulate Surveys	0.17	1377	1	10:25-10:35	Circ & Accumulate Surveys	0.17	3271	1
00:20-00:35	Orienting With Motor	0.25	1389	1	10:35-10:50	Orienting With Motor	0.25	3291	1
00:35-00:45	Rotating With Motor	0.17	1468	1	10:50-11:05	Rotating With Motor	0.25	3366	1
00:45-00:55	Circ & Accumulate Surveys - Connection	0.17	1468	1	11:05-11:15	Circ & Accumulate Surveys	0.17	3366	1
00:55-01:05	Orienting With Motor	0.17	1482	1	11:15-11:30	Rotating With Motor	0.25	3461	1
01:05-01:15	Rotating With Motor	0.17	1563	1	11:30-11:45	Circ & Accumulate Surveys	0.25	3461	1
01:15-01:25	Circ & Accumulate Surveys - Connection	0.17	1563	1	11:45-12:00	Orienting With Motor	0.25	3481	1
01:25-01:45	Orienting With Motor	0.33	1577	1	12:00-12:15	Rotating With Motor	0.25	3556	1
01:45-02:00	Rotating With Motor	0.25	1658	1	12:15-12:25	Circ & Accumulate Surveys	0.17	3556	1
02:00-02:10	Circ & Accumulate Surveys - CONNECTION	0.17	1658	1	12:25-12:40	Rotating With Motor	0.25	3651	1
02:10-02:20	Orienting With Motor	0.17	1665	1	12:40-12:45	Circ & Accumulate Surveys	0.08	3651	1
02:20-02:35	Rotating With Motor	0.25	1753	1	12:45-13:10	Rotating With Motor	0.42	3746	1
02:35-02:45	Circ & Accumulate Surveys - Connection	0.17	1753	1	13:10-13:20	Circ & Accumulate Surveys	0.17	3746	1
02:45-03:00	Rotating With Motor	0.25	1847	1	13:20-13:40	Orienting With Motor	0.33	3768	1
03:00-03:10	Circ & Accumulate Surveys	0.17	1847	1	13:40-13:55	Rotating With Motor	0.25	3840	1
03:10-03:25	Rotating With Motor	0.25	1942	1	13:55-14:05	Circ & Accumulate Surveys	0.17	3840	1
03:25-03:30	Circ & Accumulate Surveys	0.08	1942	1	14:05-14:20	Rotating With Motor	0.25	3936	1
03:30-03:55	Rotating With Motor	0.42	2037	1	14:20-14:30	Circ & Accumulate Surveys	0.17	3936	1
03:55-04:00	Circ & Accumulate Surveys	0.08	2037	1	14:30-14:45	Orienting With Motor	0.25	3956	1
04:00-04:10	Orienting With Motor	0.17	2042	1	14:45-15:00	Rotating With Motor	0.25	4030	1
04:10-04:25	Rotating With Motor	0.25	2132	1	15:00-15:10	Circ & Accumulate Surveys	0.17	4030	1
04:25-04:30	Circ & Accumulate Surveys	0.08	2132	1	15:10-15:30	Rotating With Motor	0.33	4125	1
04:30-04:45	Orienting With Motor	0.25	2142	1	15:30-15:40	Circ & Accumulate Surveys	0.17	4125	1
04:45-05:00	Rotating With Motor	0.25	2226	1	15:40-15:55	Rotating With Motor	0.25	4220	1
05:00-05:10	Circ & Accumulate Surveys	0.17	2226	1	15:55-16:05	Circ & Accumulate Surveys	0.17	4220	1
05:10-05:35	Rotating With Motor	0.42	2321	1	16:05-16:25	Rotating With Motor	0.33	4316	1
05:35-05:40	Circ & Accumulate Surveys	0.08	2321	1	16:25-16:35	Circ & Accumulate Surveys	0.17	4316	1
05:40-05:55	Rotating With Motor	0.25	2416	1	16:35-17:15	Rotating With Motor	0.67	4411	1
05:55-06:00	Circ & Accumulate Surveys	0.08	2416	1	17:15-17:25	Circ & Accumulate Surveys	0.17	4411	1
06:00-06:20	Orienting With Motor	0.33	2431	1	17:25-18:15	Rotating With Motor	0.83	4506	1
06:20-06:40	Rotating With Motor	0.33	2512	1	18:15-18:20	Circ & Accumulate Surveys	0.08	4506	1
06:40-06:45	Circ & Accumulate Surveys	0.08	2512	1	18:20-18:55	Rotating With Motor	0.58	4601	1
06:45-07:00	Orienting With Motor	0.25	2522	1	18:55-19:00	Circ & Accumulate Surveys	0.08	4601	1
07:00-07:15	Rotating With Motor	0.25	2607	1	19:00-19:40	Rotating With Motor	0.67	4696	1
07:15-07:20	Circ & Accumulate Surveys	0.08	2607	1	19:40-19:45	Circ & Accumulate Surveys	0.08	4696	1
07:20-07:30	Orienting With Motor	0.17	2617	1	19:45-20:05	Orienting With Motor	0.33	4706	1
07:30-07:45	Rotating With Motor	0.25	2701	1	20:05-20:30	Rotating With Motor	0.42	4790	1

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Daily Activity Report

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Day 4 - 2012/10/20

07:45-07:55	Circ & Accumulate Surveys	0.17	2701	1	20:30-20:35	Circ & Accumulate Surveys	0.08	4790	1
07:55-08:15	Rotating With Motor	0.33	2797	1	20:35-21:05	Orienting With Motor	0.50	4800	1
08:15-08:20	Circ & Accumulate Surveys	0.08	2797	1	21:05-21:30	Rotating With Motor	0.42	4885	1
08:20-08:40	Rotating With Motor	0.33	2892	1	21:30-21:35	Circ & Accumulate Surveys	0.08	4885	1
08:40-08:45	Circ & Accumulate Surveys	0.08	2892	1	21:35-22:20	Orienting With Motor	0.75	4895	1
08:45-09:00	Orienting With Motor	0.25	2907	1	22:20-22:45	Rotating With Motor	0.42	4980	1
09:00-09:10	Rotating With Motor	0.17	2988	1	22:45-22:50	Circ & Accumulate Surveys	0.08	4980	1
09:10-09:20	Circ & Accumulate Surveys	0.17	2988	1	22:50-23:15	Orienting With Motor	0.42	4992	1
09:20-09:35	Rotating With Motor	0.25	3082	1	23:15-23:40	Rotating With Motor	0.42	5074	1
09:35-09:45	Circ & Accumulate Surveys	0.17	3082	1	23:40-23:45	Circ & Accumulate Surveys	0.08	5074	1
09:45-10:05	Rotating With Motor	0.33	3176	1	23:45-24:00	Rig Service	0.25	5074	1
10:05-10:15	Circ & Accumulate Surveys	0.17	3176	1			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL: 18.25	ORIENTING HRS: 5.42	ROTARY DRILL: 0.00
TIME DRILL: 0.00	ROTATING HRS: 12.83	MOTOR HRS: 23.58
MOTOR REAM: 0.00		TRIP: 0.00
CIRC: 5.33	ROTARY DRILL: 0.00	OTHER: 0.42
MOTOR HRS: 23.58	DRILL HRS: 18.25	TOTAL HRS: 24.00

DRILLING PARAMETERS:

ROTARY TORQUE: 2000 ft-lb	STRING WEIGHT 90000 lbs
WOB SLIDING (HI): 1000 lbf	WOB ROTATE (HI): 20000 lbf
WOB SLIDING (LO): 5000 lbf	WOB ROTATE (LO): 10000 lbf
RPM (ROTARY): 40 rpm	DRAG UP: 91000 lbf
RPM (MOTOR): 150 rpm	DRAG DN: 89000 lbf

BHA / MOTOR / BIT INFORMATION:

BHA: 1	HOLE SIZE: 8.75 in	SECTION TYPE: Build & Hold / Curve	SURVEY TYPE: Positive Pulse MWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 675-43645	MODEL: QLE7850 MBTB
SETTING: 1.73 °	KICKPAD: No	SIZE: 6 3/4" (171mm)	LOBE CFG.: 7/8
MANFCT: Hughes	BIT TYPE: Hughes	TYPE: DP505F	MTR HRS THIS DAY: 23.58333333
IADC BIT GRADE: 1 / 2 / CT / G / X / I / FC / BHA			MTR HRS TO DATE: 26.416666666666666
			NOZZLES: 0.648 in ² TFA

PUMP PARAMETERS

PRESSURE ON BTM: 2400	PRESSURE OFF BTM: 1900	TOTAL FLOW RATE: 537.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0%	SPM: 70.00
PUMP 2: TYPE: PZ-11	EFF.: 95.0%	SPM: 70.00
PUMP 3: TYPE:	EFF.: 100.0%	SPM: 0.00
		LINER: 6.00 in
		STROKE VOL.: 3.8438 gal/stk
		LINER: 6.00 in
		STROKE VOL.: 3.8438 gal/stk
		LINER: 0.00 in
		STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Water	VISC: 29 sec/qt	WTR LOSS: 0 cc/30min	PV: 2 cP	YP: 3 lb/100 ft ²	pH: 9.3
DENSITY: 8.4 lb/gal	GEL 0/10: 3.00 lb/100 ft ²	SAND: 0.25	SOLIDS: 0.05	OIL: 0	TEMP: 110 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Drill F/ 1377 to 5074

The night company man was informed that max Top Drive RPM on this motor was 40 and anything else was OOS. He said that was ridiculous and told the driller to rotate at 50 RPM any ways. During the day we were able to bring the Top Drive RPM down to 40. We are trying everything in our power to make this motor last to KOP and through the curve but we can only do so much before being over ridden by the Company Representative.

CUSTOMER SIGNATURE:



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Daily Activity Report

Drilling Services
v4.2.2674

Day 5 - 2012/10/21

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

DIR Trainee: Joe Kelly

MWD Supervisor: Rusty Komrs, Peter Ratio

Other: Victor Campos

Company Man: Craig Jones, Clint Tibedoux

GROUND ELEV: 4897 ft

START DEPTH: 5074.0 ft

PROGRESS: 1619.0 ft

DAILY COST: USD\$12450.00

KB ELEV: 4922 ft

END DEPTH: 6693.0 ft

AVG. ROP.: 79.6 ft/hr

PREVIOUS COST: USD\$49565.00

TOTAL COST: USD\$62015.00

WORK STATUS: Operating

(All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-00:10	Rig Service	0.17	5074	1	11:35-11:55	Rotating With Motor	0.33	6357	1
00:10-00:50	Rotating With Motor	0.67	5169	1	11:55-13:00	Orienting With Motor	1.08	6402	1
00:50-01:00	Circ & Accumulate Surveys - CONNECTION	0.17	5169	1	13:00-13:15	Circ & Accumulate Surveys	0.25	6402	1
01:00-01:30	Rotating With Motor	0.50	5264	1	13:15-14:15	Orienting With Motor	1.00	6434	1
01:30-01:35	Circ & Accumulate Surveys	0.08	5264	1	14:15-14:25	Circ & Accumulate Surveys	0.17	6434	1
01:35-02:20	Rotating With Motor	0.75	5358	1	14:25-15:40	Orienting With Motor	1.25	6466	1
02:20-02:25	Circ & Accumulate Surveys	0.08	5358	1	15:40-15:55	Circ & Accumulate Surveys	0.25	6466	1
02:25-03:10	Rotating With Motor	0.75	5453	1	15:55-16:45	Orienting With Motor	0.83	6497	1
03:10-03:20	Circ & Accumulate Surveys - Connection	0.17	5453	1	16:45-16:55	Circ & Accumulate Surveys	0.17	6497	1
03:20-03:45	Orienting With Motor	0.42	5463	1	16:55-17:50	Orienting With Motor	0.92	6530	1
03:45-04:10	Rotating With Motor	0.42	5548	1	17:50-18:00	Circ & Accumulate Surveys	0.17	6530	1
04:10-04:15	Circ & Accumulate Surveys	0.08	5548	1	18:00-18:45	Orienting With Motor	0.75	6561	1
04:15-04:55	Rotating With Motor	0.67	5643	1	18:45-18:50	Circ & Accumulate Surveys	0.08	6561	1
04:55-05:00	Circ & Accumulate Surveys	0.08	5643	1	18:50-19:30	Orienting With Motor	0.67	6580	1
05:00-05:30	Rotating With Motor	0.50	5737	1	19:30-19:35	Work on Pumps - SWOP PMPS.	0.08	6580	1
05:30-05:35	Circ & Accumulate Surveys	0.08	5737	1	19:35-20:00	Orienting With Motor	0.42	6592	1
05:35-06:05	Rotating With Motor	0.50	5832	1	20:00-20:05	Circulating - See Comments - SPR	0.08	6592	1
06:05-06:10	Circ & Accumulate Surveys	0.08	5832	1	20:05-20:10	Circ & Accumulate Surveys - CONNECTION	0.08	6592	1
06:10-06:50	Rotating With Motor	0.67	5927	1	20:10-21:30	Orienting With Motor	1.33	6624	1
06:50-07:00	Circ & Accumulate Surveys	0.17	5927	1	21:30-21:35	Circ & Accumulate Surveys	0.08	6624	1
07:00-07:45	Rotating With Motor	0.75	6022	1	21:35-21:40	Work on Pumps	0.08	6624	1
07:45-08:00	Circ & Accumulate Surveys	0.25	6022	1	21:40-22:30	Orienting With Motor	0.83	6657	1
08:00-08:35	Rotating With Motor	0.58	6117	1	22:30-22:35	Circ & Accumulate Surveys	0.08	6657	1
08:35-08:45	Circ & Accumulate Surveys	0.17	6117	1	22:35-23:05	Orienting With Motor	0.50	6681	1
08:45-10:50	Rotating With Motor	2.08	6212	1	23:05-23:10	Rotating With Motor	0.08	6688	1
10:50-11:00	Circ & Accumulate Surveys	0.17	6212	1	23:10-23:20	Circ & Accumulate Surveys	0.17	6688	1
11:00-11:25	Rotating With Motor	0.42	6308	1	23:20-24:00	Orienting With Motor	0.67	6693	1
11:25-11:35	Circ & Accumulate Surveys	0.17	6308	1			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL:	20.33	ORIENTING HRS:	10.67
TIME DRILL:	0.00	ROTATING HRS:	9.67
MOTOR REAM:	0.00		
CIRC:	3.33	ROTARY DRILL:	0.00
MOTOR HRS:	23.67	DRILL HRS:	20.33

ROTARY DRILL:	0.00
MOTOR HRS:	23.67
TRIP:	0.00
OTHER:	0.33
TOTAL HRS:	24.00

DRILLING PARAMETERS:

ROTARY TORQUE:	8000 ft-lb	STRING WEIGHT	121000 lbs
WOB SLIDING (HI):	10000 lbf	WOB ROTATE (HI):	25000 lbf
WOB SLIDING (LO):	3000 lbf	WOB ROTATE (LO):	10000 lbf
RPM (ROTARY):	40 rpm	DRAG UP:	140000 lbf
RPM (MOTOR):	161 rpm	DRAG DN:	109000 lbf

BHA / MOTOR / BIT INFORMATION:

**Weatherford®**

Daily Activity Report

Drilling Services

v4.2.2674

Day 5 - 2012/10/21

BHA: 1 **HOLE SIZE:** 8.75 in **SECTION TYPE:** Build & Hold / Curve **SURVEY TYPE:** Positive Pulse MWD
MANFCT.: Weatherford **STABILIZER:** No **SERIAL#:** 675-43645 **MODEL:** QLE7850 MBTB **LOBE CFG.:** 7/8
SETTING: 1.73 ° **KICKPAD:** No **SIZE:** 6 3/4" (171mm) **MTR HRS THIS DAY:** 23.666666666667 **MTR HRS TO DATE:** 50.083333333333
MANFCT: Hughes **BIT TYPE:** Hughes **TYPE:** DP505F **NOZZLES:** 0.648 in² TFA
IADC BIT GRADE: 1 / 2 / CT / G / X / I / FC / BHA

PUMP PARAMETERS

PRESSURE ON BTM: 3000		PRESSURE OFF BTM: 2300		TOTAL FLOW RATE: 575.00 gal/min	
PUMP 1:	TYPE: PZ-11	EFF.: 95.0%	SPM: 75.00	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
PUMP 2:	TYPE: PZ-11	EFF.: 95.0%	SPM: 75.00	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
PUMP 3:	TYPE:	EFF.: 100.0%	SPM: 0.00	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Polymer	VISC: 28 sec/qt	WTR LOSS: 0 cc/30min	PV: 2 cP	YP: 3 lb/100 ft²	pH: 8.5
DENSITY: 8.4 lb/gal	GEL 0/10: 0.00 lb/100 ft²	SAND: 0.05	SOLIDS: 0.5	OIL: 0	TEMP: 119 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

DRILL F/ 5074 TO 6511'

At 5260' MD Drilling with same weight and diff. the torque went from 4000 to 8000 and had to drop wt. from 20k to 10k diff was spiking from 300 psi to 1200 psi. It seemed like this was formation caused.

While sliding in curve section erratic tool faces were encountered due to diff. spiking. Diff. spiking was caused due to tool string hanging in well bore and then sliding off wall. Believed to be caused by poor mud properties. Primarily lack of lube, which at this stage of well and mud up, there is normally 1% lube. Currently our lube percentage is 0%.

CUSTOMER SIGNATURE:



Weatherford®

Daily Activity Report

Drilling Services
v4.2.2674

Day 6 - 2012/10/22

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

DIR Trainee: Joe Kelly

MWD Supervisor: Rusty Komrs, Peter Ratio

Other: Victor Campos

Company Man: Craig Jones, Clint Tibedoux

GROUND ELEV: 4897 ft

START DEPTH: 6693.0 ft

PROGRESS: 567.0 ft

DAILY COST: USD\$15030.00

KB ELEV: 4922 ft

END DEPTH: 7260.0 ft

AVG. ROP.: 65.4 ft/hr

PREVIOUS COST: USD\$62015.00

TOTAL COST: USD\$77045.00

WORK STATUS: Operating

(All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-00:40	Orienting With Motor	0.67	6720	1	16:40-16:50	Circ & Accumulate Surveys	0.17	7007	2
00:40-00:45	Circ & Accumulate Surveys	0.08	6720	1	16:50-17:20	Orienting With Motor	0.50	7038	2
00:45-01:20	Orienting With Motor	0.58	6730	1	17:20-17:30	Circ & Accumulate Surveys	0.17	7038	2
01:20-02:20	Circ & Condition Hole	1.00	6730	1	17:30-17:50	Orienting With Motor	0.33	7070	2
02:20-06:30	POOH For Motor	4.17	6730	1	17:50-18:00	Circ & Accumulate Surveys	0.17	7070	2
06:30-07:30	Change Motor	1.00	6730	2	18:00-18:35	Orienting With Motor	0.58	7095	2
07:30-08:10	RIH	0.67	6730	2	18:35-18:45	Rotating With Motor	0.17	7101	2
08:10-09:15	Slip And Cut	1.08	6730	2	18:45-18:50	Circ & Accumulate Surveys	0.08	7101	2
09:15-12:20	RIH With New BHA	3.08	6730	2	18:50-19:05	Orienting With Motor	0.25	7105	2
12:20-13:00	Orienting With Motor	0.67	6753	2	19:05-19:15	Work on Pumps	0.17	7105	2
13:00-13:05	Circ & Accumulate Surveys	0.08	6753	2	19:15-19:30	Orienting With Motor	0.25	7116	2
13:05-13:15	Rotating With Motor	0.17	6785	2	19:30-19:45	Rotating With Motor	0.25	7133	2
13:15-13:25	Circ & Accumulate Surveys	0.17	6785	2	19:45-19:50	Circ & Accumulate Surveys	0.08	7133	2
13:25-13:30	Rotating With Motor	0.08	6817	2	19:50-20:45	Orienting With Motor	0.92	7154	2
13:30-13:40	Circ & Accumulate Surveys	0.17	6817	2	20:45-20:55	Rotating With Motor	0.17	7165	2
13:40-14:00	Orienting With Motor	0.33	6848	2	20:55-21:10	Circulating - See Comments - spr	0.25	7165	2
14:00-14:10	Circ & Accumulate Surveys	0.17	6848	2	21:10-21:20	Circ & Accumulate Surveys	0.17	7165	2
14:10-14:30	Orienting With Motor	0.33	6879	2	21:20-21:50	Orienting With Motor	0.50	7188	2
14:30-14:35	Circ & Accumulate Surveys	0.08	6879	2	21:50-22:00	Rotating With Motor	0.17	7196	2
14:35-14:45	Orienting With Motor	0.17	6911	2	22:00-22:10	Circ & Accumulate Surveys - recycle	0.17	7196	2
14:45-14:50	Circ & Accumulate Surveys	0.08	6911	2	22:10-22:30	Orienting With Motor	0.33	7206	2
14:50-15:00	Rotating With Motor	0.17	6922	2	22:30-22:45	Rotating With Motor	0.25	7229	2
15:00-15:25	Orienting With Motor	0.42	6943	2	22:45-22:50	Circ & Accumulate Surveys	0.08	7229	2
15:25-16:35	Circ & Accumulate Surveys	1.17	6943	2	22:50-23:15	Rotating With Motor	0.42	7260	2
16:35-15:40	Rotating With Motor	-0.92	6975	2	23:15-23:20	Circ & Accumulate Surveys	0.08	7260	2
15:40-15:45	Circ & Accumulate Surveys	0.08	6975	2	23:20-23:50	Rig Service	0.50	7260	2
15:45-16:40	Orienting With Motor	0.92	7007	2	23:50-24:00	Other - See Comments - work on mud line	0.17	7260	2

TIME SUMMARY (hrs):

MOTOR DRILL:	8.67	ORIENTING HRS:	1.25
TIME DRILL:	0.00	ROTATING HRS:	0.00
MOTOR REAM:	0.00		
CIRC:	4.50	ROTARY DRILL:	0.00
MOTOR HRS:	13.17	DRILL HRS:	8.67

ROTARY DRILL:	0.00
MOTOR HRS:	13.17
TRIP:	7.92
OTHER:	2.92
TOTAL HRS:	24.00

DRILLING PARAMETERS:

ROTARY TORQUE:	8000 ft-lb	STRING WEIGHT	146000 lbs
WOB SLIDING (HI):	10000 lbf	WOB ROTATE (HI):	15000 lbf
WOB SLIDING (LO):	5000 lbf	WOB ROTATE (LO):	5000 lbf
RPM (ROTARY):	40 rpm	DRAG UP:	166000 lbf
RPM (MOTOR):	161 rpm	DRAG DN:	134000 lbf

BHA / MOTOR / BIT INFORMATION:

**Weatherford**

Daily Activity Report

Drilling Services
v4.2.2674**Day 6 - 2012/10/22**

BHA: 1 HOLE SIZE: 8.75 in
 MANFCT.: Weatherford STABILIZER: No
 SETTING: 1.73 ° KICKPAD: No
 MANFCT: Hughes BIT TYPE: Hughes
 IADC BIT GRADE: 1 / 2 / CT / G / X / I / FC / BHA

SECTION TYPE: Build & Hold / Curve
 SERIAL#: 675-43645
 SIZE: 6 3/4" (171mm)
 TYPE: DP505F

SURVEY TYPE: Positive Pulse MWD
 MODEL: QLE7850 MBTB LOBE CFG.: 7/8
 MTR HRS THIS DAY: 2.3333333333333333 MTR HRS TO DATE: 52.41666666666667
 NOZZLES: 0.648 in² TFA

BHA: 2 HOLE SIZE: 8.75 in
 MANFCT.: Weatherford STABILIZER: No
 SETTING: 2.38 ° KICKPAD: No
 MANFCT: Hughes BIT TYPE: Hughes
 IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / I / CT / TD

SECTION TYPE: Curve
 SERIAL#: 675-4079
 SIZE: 6 3/4" (171mm)
 TYPE: DP505F

SURVEY TYPE: Positive Pulse MWD
 MODEL: QLE7850 LOBE CFG.: 7/8
 MTR HRS THIS DAY: 10.833333333333333 MTR HRS TO DATE: 10.833333333333333
 NOZZLES: 0.648 in² TFA

PUMP PARAMETERS

PRESSURE ON BTM: 3000		PRESSURE OFF BTM: 2300		TOTAL FLOW RATE: 575.00 gal/min	
PUMP 1:	TYPE: PZ-11	EFF.: 95.0%	SPM: 75.00	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
PUMP 2:	TYPE: PZ-11	EFF.: 95.0%	SPM: 75.00	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
PUMP 3:	TYPE:	EFF.: 100.0%	SPM: 0.00	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Water	VISC: 34 sec/qt	WTR LOSS: 0 cc/30min	PV: 5 cP	YP: 4 lb/100 ft ²	pH: 9.5
DENSITY: 9.3 lb/gal	GEL 0/10: 3.00 lb/100 ft ²	SAND: 0.05	SOLIDS: 4.2	OIL: 0	TEMP: 160 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Drill F/ 6688 to 7260

@ 6720 motor yield was 8.38. Needing 8.00 to land at a target TVD 7027 with 90 degrees of angle, burning up 115 ft of vertical section, pulling away from the plan line and continuing to lose vertical section. To gain on the target vertical section we would need to rotate a tangent and catch the line, but we will need a greater motor yield to land at the target TVD.

I discussed this issue with the Anadarko Company man. They decided to pull the motor out of the hole to save on the vertical section, catch the line with rotation, and have a motor in the hole that will generate a greater motor yield than 8.38 at this MD in the well bore.

@ 18:30 P:M We Received a target TVD Change to 7036 TVD @ 0 Vs @ 90.00 Deg. And 7092 M.D.

@ 23:30 and M.D. of 7260 We Received a Knew target TVD Change to 7030 TVD @ 0vs @ 90.00 Deg.

CUSTOMER SIGNATURE:

**Weatherford®**

Daily Activity Report

Drilling Services
v4.2.2674

Day 7 - 2012/10/23

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

DIR Trainee: Joe Kelly

MWD Supervisor: Rusty Komrs, Peter Ratio

Other: Victor Campos

Company Man: Craig Jones, Clint Tivedoux

GROUND ELEV: 4897 ft

START DEPTH: 7260.0 ft

PROGRESS: 296.0 ft

DAILY COST: USD\$16950.00

KB ELEV: 4922 ft

END DEPTH: 7556.0 ft

AVG. ROP.: 39.5 ft/hr

PREVIOUS COST: USD\$77045.00

TOTAL COST: USD\$93995.00

WORK STATUS: Operating

(All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-00:20	Other - See Comments - work on mud line	0.33	7260	2	07:30-07:40	Rotating With Motor	0.17	7420	2
00:20-01:25	Orienting With Motor	1.08	7280	2	07:40-07:50	Circ & Accumulate Surveys	0.17	7420	2
01:25-02:35	POOH - See Comments - WORK ON PMPS	1.17	7280	2	07:50-08:45	Rotating With Motor	0.92	7451	2
02:35-02:45	RIH	0.17	7280	2	08:45-08:55	Circ & Accumulate Surveys	0.17	7451	2
02:45-02:55	Rotating With Motor	0.17	7292	2	08:55-09:10	Orienting With Motor	0.25	7461	2
02:55-03:05	Circ & Accumulate Surveys	0.17	7292	2	09:10-09:30	Rotating With Motor	0.33	7483	2
03:05-03:15	Orienting With Motor	0.17	7295	2	09:30-09:40	Circ & Accumulate Surveys	0.17	7483	2
03:15-04:15	Other - See Comments - WORK ON PMPS	1.00	7295	2	09:40-10:05	Rotating With Motor	0.42	7514	2
04:15-04:35	Orienting With Motor	0.33	7310	2	10:05-10:15	Circ & Accumulate Surveys	0.17	7514	2
04:35-04:55	Rotating With Motor	0.33	7323	2	10:15-11:00	Orienting With Motor	0.75	7546	2
04:55-05:00	Circ & Accumulate Surveys	0.08	7323	2	11:00-11:10	Circ & Accumulate Surveys	0.17	7546	2
05:00-05:35	Rotating With Motor	0.58	7355	2	11:10-11:35	Orienting With Motor	0.42	7556	2
05:35-05:45	Circ & Accumulate Surveys - Connection	0.17	7355	2	11:35-11:45	Circ & Accumulate Surveys	0.17	7556	2
05:45-06:20	Orienting With Motor	0.58	7363	2	11:45-18:40	POOH To Run Casing	6.92	7556	2
06:20-06:40	Rotating With Motor	0.33	7387	2	18:40-19:45	Lay Down Directional Tools	1.08	7556	2
06:40-06:50	Circ & Accumulate Surveys	0.17	7387	2	19:45-24:00	Wait On Orders - Run Casing.	4.25	7556	2
06:50-07:30	Orienting With Motor	0.67	7404	2			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL:	7.50	ORIENTING HRS:	4.25	ROTARY DRILL:	0.00
TIME DRILL:	0.00	ROTATING HRS:	3.25	MOTOR HRS:	9.08
MOTOR REAM:	0.00			TRIP:	8.25
CIRC:	1.58	ROTARY DRILL:	0.00	OTHER:	6.67
MOTOR HRS:	9.08	DRILL HRS:	7.50	TOTAL HRS:	24.00

DRILLING PARAMETERS:

ROTARY TORQUE:	11000 ft-lb	STRING WEIGHT	142000 lbs
WOB SLIDING (HI):	20000 lbf	WOB ROTATE (HI):	25000 lbf
WOB SLIDING (LO):	5000 lbf	WOB ROTATE (LO):	10000 lbf
RPM (ROTARY):	30 rpm	DRAG UP:	170000 lbf
RPM (MOTOR):	118 rpm	DRAG DN:	122000 lbf

BHA / MOTOR / BIT INFORMATION:

BHA: 2	HOLE SIZE: 8.75 in	SECTION TYPE: Curve	SURVEY TYPE: Positive Pulse MWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 675-4079	MODEL: QLE7850
SETTING: 2.38 °	KICKPAD: No	SIZE: 6 3/4" (171mm)	LOBE CFG.: 7/8
MANFCT: Hughes	BIT TYPE: Hughes	TYPE: DP505F	MTR HRS THIS DAY: 9.083333333333333
IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / CT / TD			MTR HRS TO DATE: 19.916666666666666
			NOZZLES: 0.648 in² TFA

PUMP PARAMETERS

PRESSURE ON BTM: 4000	PRESSURE OFF BTM: 3200	TOTAL FLOW RATE: 422.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0%	SPM: 110.00
PUMP 2: TYPE: PZ-11	EFF.: 95.0%	SPM: 0.00
PUMP 3: TYPE:	EFF.: 100.0%	SPM: 0.00
	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Water	VISC: 40 sec/qt	WTR LOSS: 5.9 cc/30min	PV: 13 cP	YP: 8 lb/100 ft²	pH: 9.3
DENSITY: 9.6 lb/gal	GEL 0/10: 3.00 lb/100 ft²	SAND: 0.25	SOLIDS: 5.7	OIL: 0	TEMP: 170 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min



Daily Activity Report

Drilling Services
v4.2.2674

Day 7 - 2012/10/23

COMMENTS:

Drill F/ 7260 to 7556

Target change to 7030 TVD @ 90.00 deg. and 0'VS
M.D. At this time is 7260 with 72 deg in the well bore.

Target change back to 7036 @ 90.00 deg. 0'VS M.D. at this time MD is 7323.

Target change to 7030 TVD @ 90.00 deg. 0'VS MD at this time MD was 7387'.

Target change back to 7036 @ 90.00 deg. 0'VS M.D. at this time MD is 7404'.

Drill to 7556' MD Per Company man for his casing tally.

CUSTOMER SIGNATURE:



Daily Activity Report

Drilling Services
v4.2.2674

Day 8 - 2012/10/24

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

DIR Trainee: Joe Kelly

MWD Supervisor: Rusty Komrs, Peter Ratio

Other: Victor Campos

Company Man: Craig Jones, Clint Tivedoux

GROUND ELEV: 4897 ft

START DEPTH: 7556.0 ft

PROGRESS: 0.0 ft

DAILY COST: USD\$26440.00

KB ELEV: 4922 ft

END DEPTH: 7556.0 ft

AVG. ROP.: 0.0 ft/hr

PREVIOUS COST: USD\$93995.00

TOTAL COST: USD\$120435.00

WORK STATUS: Operating

(All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-19:00	Wait On Orders - Run casing & cement.	19.00	7556	n/a	21:20-22:45	Work On MWD - Program LWD Tool	1.42	7556	3
19:00-21:20	Handle Directional Tools	2.33	7556	3	22:45-24:00	Trip In	1.25	7556	3

TIME SUMMARY (hrs):

MOTOR DRILL:	0.00	ORIENTING HRS:	0.00	ROTARY DRILL:	0.00
TIME DRILL:	0.00	ROTATING HRS:	0.00	MOTOR HRS:	0.00
MOTOR REAM:	0.00			TRIP:	1.25
CIRC:	0.00	ROTARY DRILL:	0.00	OTHER:	22.75
MOTOR HRS:	0.00	DRILL HRS:	0.00	TOTAL HRS:	24.00

DRILLING PARAMETERS:

ROTARY TORQUE:	11000 ft-lb	STRING WEIGHT	142000 lbs
WOB SLIDING (HI):	20000 lbf	WOB ROTATE (HI):	25000 lbf
WOB SLIDING (LO):	5000 lbf	WOB ROTATE (LO):	10000 lbf
RPM (ROTARY):	30 rpm	DRAG UP:	172000 lbf
RPM (MOTOR):	118 rpm	DRAG DN:	122000 lbf

BHA / MOTOR / BIT INFORMATION:

BHA: 3	HOLE SIZE: 6.125 in	SECTION TYPE: Lateral 1	SURVEY TYPE: HEL LWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 475-41095	MODEL: ME6770
SETTING: 1.5 °	KICKPAD: No	SIZE: 5" (127mm)	MTR HRS THIS DAY: 0
MANFCT: Varel	BIT TYPE: Varel PDC	TYPE: VM513S	NOZZLES: 0.648 in ² TFA
IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / ? / TD			LOBE CFG.: 6/7
			MTR HRS TO DATE: 0

PUMP PARAMETERS

PRESSURE ON BTM: 4000	PRESSURE OFF BTM: 3200	TOTAL FLOW RATE: 299.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0%	SPM: 78.00
PUMP 2: TYPE: PZ-11	EFF.: 95.0%	SPM: 0.00
PUMP 3: TYPE:	EFF.: 100.0%	SPM: 0.00
	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Water	VISC: 40 sec/qt	WTR LOSS: 5.6 cc/30min	PV: 13 cP	YP: 8 lb/100 ft ²	pH: 9.3
DENSITY: 9.9 lb/gal	GEL 0/10: 3.00 lb/100 ft ²	SAND: 0.05	SOLIDS: 5.7	OIL: 0	TEMP: 170 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Wait on orders Repair BHA # 3 for Lateral section .

Pick up LWD tools and construct Lateral BHA.

CUSTOMER SIGNATURE: _____

**Weatherford®**

Daily Activity Report

Drilling Services
v4.2.2674

Day 9 - 2012/10/25

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307 SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Charles Apodaca
 DIR Trainee: Joe Kelly
 Other: Victor Campos
 MWD Supervisor: Rusty Komrs, Peter Ratio
 Company Man: Doug Barone, Doug Blair

GROUND ELEV: 4897 ft START DEPTH: 7556.0 ft PROGRESS: 1079.0 ft DAILY COST: USD\$20550.00
 KB ELEV: 4922 ft END DEPTH: 8635.0 ft AVG. ROP.: 106.1 ft/hr PREVIOUS COST: USD\$120435.00
 TOTAL COST: USD\$140985.00

WORK STATUS: Operating (All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-09:30	RIH	9.50	7556	3	15:40-16:05	Rotating With Motor	0.42	8065	3
09:30-10:20	Drill Out Flt, Shoe & Cmmt	0.83	7556	3	16:05-16:20	Circ & Accumulate Surveys - Connection & recycle	0.25	8065	3
10:20-10:45	Rotating With Motor	0.42	7591	3	16:20-16:45	Orienting With Motor	0.42	8096	3
10:45-10:50	Circ & Accumulate Surveys - check shot no good	0.08	7591	3	16:45-17:10	Rotating With Motor	0.42	8159	3
10:50-11:25	Rotating With Motor	0.58	7685	3	17:10-17:20	Circ & Accumulate Surveys - Connection	0.17	8159	3
11:25-11:45	Circ & Accumulate Surveys - Recycle	0.33	7685	3	17:20-17:30	Circulating - See Comments - spr	0.17	8159	3
11:45-12:20	Wait On MWD Tools - LWD	0.58	7685	3	17:30-18:00	Orienting With Motor	0.50	8191	3
12:20-12:45	Orienting With Motor	0.42	7717	3	18:00-18:25	Rotating With Motor	0.42	8254	3
12:45-13:00	Rotating With Motor	0.25	7749	3	18:25-18:35	Circ & Accumulate Surveys	0.17	8254	3
13:00-13:05	Circ & Accumulate Surveys - check shot	0.08	7749	3	18:35-19:10	Orienting With Motor	0.58	8281	3
13:05-13:15	Orienting With Motor	0.17	7759	3	19:10-19:35	Rotating With Motor	0.42	8349	3
13:15-13:25	Rotating With Motor	0.17	7780	3	19:35-19:45	Circulating - See Comments - Slow Pump Rates	0.17	8349	3
13:25-13:35	Circ & Accumulate Surveys	0.17	7780	3	19:45-20:00	Circ & Accumulate Surveys	0.25	8349	3
13:35-13:45	Work On MWD - LWD	0.17	7780	3	20:00-21:00	Orienting With Motor	1.00	8380	3
13:45-14:10	Orienting With Motor	0.42	7811	3	21:00-21:20	Rotating With Motor	0.33	8445	3
14:10-14:20	Rotating With Motor	0.17	7843	3	21:20-21:30	Circ & Accumulate Surveys	0.17	8445	3
14:20-14:25	Circ & Accumulate Surveys - check shot	0.08	7843	3	21:30-22:00	Orienting With Motor	0.50	8455	3
14:25-14:40	Orienting With Motor	0.25	7858	3	22:00-22:30	Rotating With Motor	0.50	8540	3
14:40-14:45	Rotating With Motor	0.08	7875	3	22:30-22:40	Circ & Accumulate Surveys	0.17	8540	3
14:45-14:55	Circ & Accumulate Surveys	0.17	7875	3	22:40-23:10	Orienting With Motor	0.50	8551	3
14:55-15:05	Orienting With Motor	0.17	7880	3	23:10-23:50	Rotating With Motor	0.67	8635	3
15:05-15:30	Rotating With Motor	0.42	7970	3	23:50-24:00	Circ & Accumulate Surveys	0.17	8635	3
15:30-15:40	Circ & Accumulate Surveys - Connection	0.17	7970	3			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL: 10.17	ORIENTING HRS: 4.92	ROTARY DRILL: 0.00
TIME DRILL: 0.00	ROTATING HRS: 5.25	MOTOR HRS: 13.75
MOTOR REAM: 0.00		TRIP: 9.50
CIRC: 3.58	ROTARY DRILL: 0.00	OTHER: 0.75
MOTOR HRS: 13.75	DRILL HRS: 10.17	TOTAL HRS: 24.00

DRILLING PARAMETERS:

ROTARY TORQUE: 11000 ft-lb	STRING WEIGHT: 142000 lbs
WOB SLIDING (HI): 20000 lbf	WOB ROTATE (HI): 25000 lbf
WOB SLIDING (LO): 5000 lbf	WOB ROTATE (LO): 10000 lbf
RPM (ROTARY): 50 rpm	DRAG UP: 172000 lbf
RPM (MOTOR): 118 rpm	DRAG DN: 122000 lbf

BHA / MOTOR / BIT INFORMATION:

BHA: 3	HOLE SIZE: 6.125 in	SECTION TYPE: Lateral 1	SURVEY TYPE: HEL LWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 475-41095	MODEL: ME6770
SETTING: 1.5 °	KICKPAD: No	SIZE: 5" (127mm)	LOBE CFG: 6/7
MANFCT: Varel	BIT TYPE: Varel PDC	TYPE: VM513S	MTR HRS THIS DAY: 13.75
IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / ? / TD			MTR HRS TO DATE: 13.75
			NOZZLES: 0.648 in² TFA



Daily Activity Report

Drilling Services
v4.2.2674

Day 9 - 2012/10/25

PUMP PARAMETERS

PRESSURE ON BTM: 4000

PRESSURE OFF BTM: 3200

TOTAL FLOW RATE: 299.00 gal/min

PUMP 1: TYPE: PZ-11

EFF.: 95.0%

SPM: 78.00

LINER: 6.00 in

STROKE VOL.: 3.8438 gal/stk

PUMP 2: TYPE: PZ-11

EFF.: 95.0%

SPM: 0.00

LINER: 0.00 in

STROKE VOL.: 0.0000 gal/stk

PUMP 3: TYPE:

EFF.: 100.0%

SPM: 0.00

LINER: 0.00 in

STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Polymer

VISC: 40 sec/qt

WTR LOSS: 5.6 cc/30min

PV: 30 cP

YP: 8 lb/100 ft²

pH: 9.3

DENSITY: 9.9 lb/gal

GEL 0/10: 8.00 lb/100 ft²

SAND: 0.05

SOLIDS: 5.7

OIL: 0

TEMP: 170 °F

LIQUID BASE: Water

LIQUID RATE: 0 gal/min

GAS TYPE:

GAS RATE: 0 cu ft/min

COMMENTS:

Continue picking up drill pipe.

Drill out cement and float equipment. Drill ahead from 7556' to 8636'

CUSTOMER SIGNATURE: _____

**Weatherford®**

Daily Activity Report

Drilling Services
v4.2.2674

Day 10 - 2012/10/26

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307 SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Charles Apodaca
 DIR Trainee: Joe Kelly
 Other: Victor Campos
 MWD Supervisor: Rusty Komrs, Peter Ratio
 Company Man: Doug Barone, Doug Blair

GROUND ELEV: 4897 ft START DEPTH: 8635.0 ft PROGRESS: 1897.0 ft DAILY COST: USD\$20550.00
 KB ELEV: 4922 ft END DEPTH: 10532.0 ft AVG. ROP.: 103.5 ft/hr PREVIOUS COST: USD\$140985.00
 WORK STATUS: Operating (All units are imperial.) TOTAL COST: USD\$161535.00

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-00:25	Orienting With Motor	0.42	8651	3	12:10-12:40	Rotating With Motor	0.50	9677	3
00:25-00:50	Rotating With Motor	0.42	8730	3	12:40-12:50	Circ & Accumulate Surveys	0.17	9677	3
00:50-01:00	Circ & Accumulate Surveys	0.17	8730	3	12:50-13:20	Orienting With Motor	0.50	9702	3
01:00-01:30	Orienting With Motor	0.50	8751	3	13:20-13:45	Rotating With Motor	0.42	9772	3
01:30-01:50	Rotating With Motor	0.33	8825	3	13:45-14:15	Work On MWD - had to fix stroke co	0.50	9772	3
01:50-02:00	Circ & Accumulate Surveys	0.17	8825	3	14:15-14:20	Circ & Accumulate Surveys	0.08	9772	3
02:00-02:35	Orienting With Motor	0.58	8856	3	14:20-14:50	Orienting With Motor	0.50	9797	3
02:35-02:55	Rotating With Motor	0.33	8919	3	14:50-15:10	Rotating With Motor	0.33	9866	3
02:55-03:05	Circ & Accumulate Surveys	0.17	8919	3	15:10-15:20	Circulating - See Comments - SPR	0.17	9866	3
03:05-03:50	Orienting With Motor	0.75	8938	3	15:20-15:30	Circ & Accumulate Surveys - CONNECTION	0.17	9866	3
03:50-04:10	Rotating With Motor	0.33	9014	3	15:30-16:00	Rotating With Motor	0.50	9961	3
04:10-04:20	Circ & Accumulate Surveys	0.17	9014	3	16:00-16:10	Circ & Accumulate Surveys	0.17	9961	3
04:20-04:45	Orienting With Motor	0.42	9019	3	16:10-16:40	Orienting With Motor	0.50	9992	3
04:45-05:20	Rotating With Motor	0.58	9109	3	16:40-17:00	Rotating With Motor	0.33	1056	3
05:20-06:20	Circ & Accumulate Surveys - Recycle	1.00	9109	3	17:00-17:10	Circ & Accumulate Surveys	0.17	1056	3
06:20-06:35	Orienting With Motor	0.25	9118	3	17:10-18:00	Orienting With Motor	0.83	10088	3
06:35-07:10	Circulating - See Comments - pmp sweep	0.58	9118	3	18:00-18:20	Rotating With Motor	0.33	10119	3
07:10-07:35	Orienting With Motor	0.42	9141	3	18:20-18:35	Orienting With Motor	0.25	10129	3
07:35-08:00	Rotating With Motor	0.42	9204	3	18:35-18:45	Rotating With Motor	0.17	10151	3
08:00-08:05	Circ & Accumulate Surveys	0.08	9204	3	18:45-18:55	Circ & Accumulate Surveys	0.17	10151	3
08:05-08:30	Orienting With Motor	0.42	9218	3	18:55-19:20	Orienting With Motor	0.42	10161	3
08:30-09:00	Rotating With Motor	0.50	9298	3	19:20-19:45	Rotating With Motor	0.42	10246	3
09:00-09:10	Circ & Accumulate Surveys	0.17	9298	3	19:45-19:55	Circ & Accumulate Surveys	0.17	10246	3
09:10-09:45	Orienting With Motor	0.58	9330	3	19:55-20:15	Orienting With Motor	0.33	10261	3
09:45-10:00	Rotating With Motor	0.25	9393	3	20:15-20:50	Rotating With Motor	0.58	10341	3
10:00-10:10	Circulating - See Comments - SPR	0.17	9393	3	20:50-21:00	Circ & Accumulate Surveys	0.17	10341	3
10:10-10:20	Circ & Accumulate Surveys	0.17	9393	3	21:00-21:05	Rotating With Motor	0.08	10350	3
10:20-10:50	Orienting With Motor	0.50	9425	3	21:05-21:35	Orienting With Motor	0.50	10370	3
10:50-11:10	Rotating With Motor	0.33	9487	3	21:35-21:55	Rotating With Motor	0.33	10437	3
11:10-11:20	Circ & Accumulate Surveys - CONNECTION	0.17	9487	3	21:55-22:05	Circ & Accumulate Surveys	0.17	10437	3
11:20-11:30	Orienting With Motor	0.17	9492	3	22:05-22:50	Orienting With Motor	0.75	10457	3
11:30-12:00	Rotating With Motor	0.50	9582	3	22:50-23:35	Rotating With Motor	0.75	10532	3
12:00-12:10	Circ & Accumulate Surveys	0.17	9582	3	23:35-24:00	Rig Service	0.42	10532	3

TIME SUMMARY (hrs):

MOTOR DRILL: 18.33 ORIENTING HRS: 9.58 ROTARY DRILL: 0.00
 TIME DRILL: 0.00 ROTATING HRS: 8.75 MOTOR HRS: 23.08
 MOTOR REAM: 0.00 TRIP: 0.00
 CIRC: 4.75 ROTARY DRILL: 0.00 OTHER: 0.92
 MOTOR HRS: 23.08 DRILL HRS: 18.33 TOTAL HRS: 24.00

DRILLING PARAMETERS:

ROTARY TORQUE: 8000 ft-lb STRING WEIGHT: 127000 lbs
 WOB SLIDING (HI): 12 lbf WOB ROTATE (HI): 16 lbf
 WOB SLIDING (LO): 10 lbf WOB ROTATE (LO): 13 lbf
 RPM (ROTARY): 50 rpm DRAG UP: 163000 lbf
 RPM (MOTOR): 118 rpm DRAG DN: 100000 lbf

**Weatherford®**

Daily Activity Report

Drilling Services
v4.2.2674

Day 10 - 2012/10/26

BHA / MOTOR / BIT INFORMATION:

BHA: 3	HOLE SIZE: 6.125 in	SECTION TYPE: Lateral 1	SURVEY TYPE: HEL LWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 475-41095	MODEL: ME6770
SETTING: 1.5 °	KICKPAD: No	SIZE: 5" (127mm)	LOBE CFG.: 6/7
MANFCT: Varel	BIT TYPE: Varel PDC	TYPE: VM513S	MTR HRS THIS DAY: 23.08333333
IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / ? / TD			MTR HRS TO DATE: 36.83333333
			NOZZLES: 0.648 in² TFA

PUMP PARAMETERS

PRESSURE ON BTM: 2950	PRESSURE OFF BTM: 2300	TOTAL FLOW RATE: 299.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0%	SPM: 78.00
PUMP 2: TYPE: PZ-11	EFF.: 95.0%	SPM: 0.00
PUMP 3: TYPE:	EFF.: 100.0%	SPM: 0.00
	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Polymer	VISC: 33 sec/qt	WTR LOSS: 5.5 cc/30min	PV: 8 cP	YP: 3 lb/100 ft²	pH: 9.7
DENSITY: 9.6 lb/gal	GEL 0/10: 2.00 lb/100 ft²	SAND: 0.25	SOLIDS: 6.3	OIL: 1	TEMP: 128 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Drill ahead from 8636' to 10626'

Target change from 7050 TVD to 7040 @ 90 deg. @ OVS MD. 9487

CUSTOMER SIGNATURE:

**Weatherford®**

Daily Activity Report

Drilling Services
v4.2.2674

Day 11 - 2012/10/27

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Charles Apodaca
 DIR Trainee: Joe Kelly
 Other: Victor Campos
 MWD Supervisor: Rusty Komrs, Peter Ratio
 Company Man: Doug Barone, Doug Blair

GROUND ELEV: 4897 ft START DEPTH: 10532.0 ft PROGRESS: 994.0 ft DAILY COST: USD\$20550.00
 KB ELEV: 4922 ft END DEPTH: 11526.0 ft AVG. ROP.: 127.0 ft/hr PREVIOUS COST: USD\$161535.00
 TOTAL COST: USD\$182085.00

WORK STATUS: Operating (All units are imperial.)

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-00:20	Rotating With Motor	0.33	10626	3	06:35-06:55	Rotating With Motor	0.33	11197	3
00:20-00:30	Circ & Accumulate Surveys	0.17	10626	3	06:55-07:05	Circ & Accumulate Surveys	0.17	11197	3
00:30-01:05	Orienting With Motor	0.58	10641	3	07:05-07:15	Rotating With Motor	0.17	11202	3
01:05-01:25	Rotating With Motor	0.33	10721	3	07:15-07:30	Orienting With Motor	0.25	11212	3
01:25-01:35	Circ & Accumulate Surveys	0.17	10721	3	07:30-07:50	Rotating With Motor	0.33	11292	3
01:35-02:15	Orienting With Motor	0.67	10721	3	07:50-08:10	Circulating - See Comments - spr	0.33	11292	3
02:15-02:35	Rotating With Motor	0.33	10817	3	08:10-08:15	Circ & Accumulate Surveys	0.08	11292	3
02:35-02:45	Circ & Accumulate Surveys	0.17	10817	3	08:15-08:40	Rotating With Motor	0.42	11387	3
02:45-03:20	Rotating With Motor	0.58	10912	3	08:40-08:50	Back Reaming	0.17	11387	3
03:20-03:30	Circ & Accumulate Surveys	0.17	10912	3	08:50-09:00	Circ & Accumulate Surveys	0.17	11387	3
03:30-04:15	Orienting With Motor	0.75	10944	3	09:00-09:35	Rotating With Motor	0.58	11482	3
04:15-04:45	Rotating With Motor	0.50	11006	3	09:35-09:45	Circ & Accumulate Surveys	0.17	11482	3
04:45-04:55	Circ & Accumulate Surveys	0.17	11006	3	09:45-09:55	Rotating With Motor	0.17	11526	3
04:55-05:25	Rotating With Motor	0.50	11102	3	09:55-10:10	Circ & Accumulate Surveys	0.25	11526	3
05:25-05:35	Circ & Accumulate Surveys	0.17	11102	3	10:10-12:00	Circ & Condition Hole	1.83	11526	3
05:35-05:40	Rotating With Motor	0.08	11107	3	12:00-24:00	Wiper Trip - Reamer Run	12.00	11526	3
05:40-06:35	Orienting With Motor	0.92	11134	3			0.00		

TIME SUMMARY (hrs):

MOTOR DRILL: 7.83	ORIENTING HRS: 3.17	ROTARY DRILL: 0.00
TIME DRILL: 0.00	ROTATING HRS: 4.67	MOTOR HRS: 12.00
MOTOR REAM: 0.00		TRIP: 12.00
CIRC: 4.17	ROTARY DRILL: 0.00	OTHER: 0.00
MOTOR HRS: 12.00	DRILL HRS: 7.83	TOTAL HRS: 24.00

DRILLING PARAMETERS:

ROTARY TORQUE: 10000 ft-lb	STRING WEIGHT: 125000 lbs
WOB SLIDING (HI): 18 lbf	WOB ROTATE (HI): 25 lbf
WOB SLIDING (LO): 12 lbf	WOB ROTATE (LO): 12 lbf
RPM (ROTARY): 50 rpm	DRAG UP: 183000 lbf
RPM (MOTOR): 118 rpm	DRAG DN: 82000 lbf

BHA / MOTOR / BIT INFORMATION:

BHA: 3	HOLE SIZE: 6.125 in	SECTION TYPE: Lateral 1	SURVEY TYPE: HEL LWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 475-41095	MODEL: ME6770
SETTING: 1.5 °	KICKPAD: No	SIZE: 5" (127mm)	LOBE CFG.: 6/7
MANFCT: Varel	BIT TYPE: Varel PDC	TYPE: VM513S	MTR HRS THIS DAY: 12
IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / ? / TD			MTR HRS TO DATE: 48.833333333333
NOZZLES: 0.648 in² TFA			

PUMP PARAMETERS

PRESSURE ON BTM: 3300	PRESSURE OFF BTM: 2700	TOTAL FLOW RATE: 299.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0%	SPM: 78.00
PUMP 2: TYPE: PZ-11	EFF.: 95.0%	SPM: 0.00
PUMP 3: TYPE:	EFF.: 100.0%	SPM: 0.00
	LINER: 6.00 in	STROKE VOL.: 3.8438 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk
	LINER: 0.00 in	STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Polymer	VISC: 40 sec/qt	WTR LOSS: 5 cc/30min	PV: 14 cP	YP: 10 lb/100 ft²	pH: 9.2
DENSITY: 9.8 lb/gal	GEL 0/10: 3.00 lb/100 ft²	SAND: 0.25	SOLIDS: 6.9	OIL: 1.8	TEMP: 128 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min



Daily Activity Report

Day 11 - 2012/10/27

Drilling Services
v4.2.2674

— **COMMENTS:** _____

Drill ahead in Lateral from 10626' to TD 11526'

CUSTOMER SIGNATURE: _____

**Weatherford®**

Daily Activity Report

Drilling Services
v4.2.2674

Day 12 - 2012/10/28

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Charles Apodaca
 DIR Trainee: Joe Kelly
 Other: Victor Campos
 MWD Supervisor: Rusty Komrs
 Company Man: Doug Barone, Doug Blair

GROUND ELEV: 4897 ft START DEPTH: 11526.0 ft PROGRESS: 0.0 ft DAILY COST: USD\$20550.00
 KB ELEV: 4922 ft END DEPTH: 11526.0 ft AVG. ROP.: 0.0 ft/hr PREVIOUS COST: USD\$182085.00
 WORK STATUS: Operating (All units are imperial.) TOTAL COST: USD\$202635.00

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-01:00	Wiper Trip	1.00	11526	3	10:15-11:10	Lay Down Directional Tools	0.92	11526	3
01:00-04:30	Circ & Condition Hole	3.50	11526	3	11:10-24:00	Wait On Orders	12.83	11526	3
04:30-10:15	POOH To Run Casing	5.75	11526	3			0.00		

TIME SUMMARY (hrs):				DRILLING PARAMETERS:			
MOTOR DRILL: 0.00	ORIENTING HRS: 0.00	ROTARY DRILL: 0.00	ROTARY TORQUE: 10000 ft-lb	STRING WEIGHT: 125000 lbs			
TIME DRILL: 0.00	ROTATING HRS: 0.00	MOTOR HRS: 3.50	WOB SLIDING (HI): 18 lbf	WOB ROTATE (HI): 25 lbf			
MOTOR REAM: 0.00		TRIP: 6.75	WOB SLIDING (LO): 10 lbf	WOB ROTATE (LO): 14 lbf			
CIRC: 3.50	ROTARY DRILL: 0.00	OTHER: 13.75	RPM (ROTARY): 50 rpm	DRAG UP: 183000 lbf			
MOTOR HRS: 3.50	DRILL HRS: 0.00	TOTAL HRS: 24.00	RPM (MOTOR): 118 rpm	DRAG DN: 82000 lbf			

BHA / MOTOR / BIT INFORMATION:

BHA: 3	HOLE SIZE: 6.125 in	SECTION TYPE: Lateral 1	SURVEY TYPE: HEL LWD
MANFCT.: Weatherford	STABILIZER: No	SERIAL#: 475-41095	MODEL: ME6770
SETTING: 1.5 °	KICKPAD: No	SIZE: 5" (127mm)	LOBE CFG.: 6/7
MANFCT: Varel	BIT TYPE: Varel PDC	TYPE: VM513S	MTR HRS THIS DAY: 3.5
IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / ? / TD			MTR HRS TO DATE: 52.333333333333
			NOZZLES: 0.648 in² TFA

PUMP PARAMETERS

PRESSURE ON BTM: 3350	PRESSURE OFF BTM: 2950	TOTAL FLOW RATE: 299.00 gal/min
PUMP 1: TYPE: PZ-11	EFF.: 95.0% SPM: 78.00	LINER: 6.00 in STROKE VOL.: 3.8438 gal/stk
PUMP 2: TYPE: PZ-11	EFF.: 95.0% SPM: 0.00	LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk
PUMP 3: TYPE:	EFF.: 100.0% SPM: 0.00	LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Polymer	VISC: 39 sec/qt	WTR LOSS: 5 cc/30min	PV: 13 cP	YP: 9 lb/100 ft²	pH: 8.9
DENSITY: 9.9 lb/gal	GEL 0/10: 2.00 lb/100 ft²	SAND: 0.25	SOLIDS: 7.9	OIL: 1.5	TEMP: 132 °F
LIQUID BASE: Water		LIQUID RATE: 0 gal/min	GAS TYPE:		GAS RATE: 0 cu ft/min

COMMENTS:

Reamer run, TOH, lay down BHA #3

CUSTOMER SIGNATURE: _____



Daily Activity Report

Drilling Services
v4.2.2674

Day 13 - 2012/10/29

FILE #: 4027701 WELL NAME: Haymaker 4N-9HZ SERVICE CO.: Weatherford
JOB TYPE: Horizontal COMPANY: Anadarko Petroleum Corporation SURVEY TYPE: HEL LWD
RIG & NO: Helmerich & Payne 307 SURFACE LOCATION: Weld County FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Charles Apodaca
DIR Trainee: Joe Kelly
Other: Victor Campos
MWD Supervisor: Rusty Komrs
Company Man: Doug Barone, Doug Blair

GROUND ELEV: 4897 ft START DEPTH: 11526.0 ft PROGRESS: 0.0 ft DAILY COST: USD\$13172.50
KB ELEV: 4922 ft END DEPTH: 11526.0 ft AVG. ROP.: 0.0 ft/hr PREVIOUS COST: USD\$202635.00
WORK STATUS: Standby (All units are imperial.) TOTAL COST: USD\$215807.50

TIME	DAILY ACTIVITY	HRS	DPTH	BHA	TIME	DAILY ACTIVITY	HRS	DPTH	BHA
00:00-24:00	Wait On Orders	24.00	11526	n/a			0.00		

TIME SUMMARY (hrs):				DRILLING PARAMETERS:			
MOTOR DRILL:	0.00	ORIENTING HRS:	0.00	ROTARY DRILL:	0.00	ROTARY TORQUE:	STRING WEIGHT 0 lbs
TIME DRILL:	0.00	ROTATING HRS:	0.00	MOTOR HRS:	0.00	WOB SLIDING (HI):	0 lbf
MOTOR REAM:	0.00			TRIP:	0.00	WOB SLIDING (LO):	0 lbf
CIRC:	0.00	ROTARY DRILL:	0.00	OTHER:	24.00	RPM (ROTARY):	DRAG UP: 0 lbf
MOTOR HRS:	0.00	DRILL HRS:	0.00	TOTAL HRS:	24.00	RPM (MOTOR):	DRAG DN: 0 lbf

BHA / MOTOR / BIT INFORMATION:

BHA: HOLE SIZE: SECTION TYPE: SURVEY TYPE:
MANFCT.: STABILIZER: SERIAL#: MODEL: LOBE CFG.:
SETTING: KICKPAD: SIZE: MTR HRS THIS DAY: MTR HRS TO DATE:
MANFCT: BIT TYPE: TYPE: NOZZLES:
IADC BIT GRADE:

PUMP PARAMETERS

PRESSURE ON BTM: 0 PRESSURE OFF BTM: 0 TOTAL FLOW RATE: 0.00 gal/min
PUMP 1: TYPE: PZ-11 EFF.: 95.0% SPM: 0.00 LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk
PUMP 2: TYPE: PZ-11 EFF.: 95.0% SPM: 0.00 LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk
PUMP 3: TYPE: EFF.: 100.0% SPM: 0.00 LINER: 0.00 in STROKE VOL.: 0.0000 gal/stk

MUD RECORD

MUD TYPE: Water VISC: 0 sec/qt WTR LOSS: 0 cc/30min PV: 0 cP YP: 0 lb/100 ft² pH: 0
DENSITY: 0 lb/gal GEL 0/10: 0.00 lb/100 ft² SAND: 0 SOLIDS: 0 OIL: 0 TEMP: 0 °F
LIQUID BASE: Water LIQUID RATE: 0 gal/min GAS TYPE: GAS RATE: 0 cu ft/min

COMMENTS:

Pre. Pair BHA # 1 for Next Well

CUSTOMER SIGNATURE: _____



BHA REPORTS

**Weatherford**

BHA Report

Drilling Services
v4.2.2674

BHA 1 - Build & Hold / Curve Section

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

MWD Supervisor: Peter Ratio

Company Man: Craig Jones, Clint Tivedoux

BHA SURVEY TYPE: Positive Pulse MWD

HOLE SIZE: 8.75 in

QTY	COMPONENT	MANFCT.	SERIAL #	MODEL	O.D.	I.D.	F.N.	BOT. CONN.	TOP CONN.	LEN.	C.LEN.
1	Hughes	Hughes	7141465	DP505F	8.75	0	0		4 1/2" REG Pin	1.00 ft	1.00 ft
1	Weatherford Motor	Weatherford	675-43645	QLE7850 MBTB	8.75	0	0	4 1/2" REG Box	4 1/2" IF Box	25.90 ft	26.90 ft
1	NM Muleshoe Sub	Weatherford	675-34177	UBHO	6.75	3.125	0	4 1/2" IF Pin	4 1/2" IF Box	2.89 ft	29.79 ft
1	NMDC	Weatherford	675-37429	NMDC	6.85	3.25	0	4 1/2" IF Pin	4 1/2" IF Box	31.05 ft	60.84 ft
1	Flex NMDC	Weatherford	43153	Flex NMDC	6.75	3.125	6.07	4 1/2" IF Pin	4 1/2" IF Box	30.68 ft	91.52 ft
1	X/O Sub	Weatherford	675-36324	X/O Sub	6.625	2.875	0	4 1/2" IF Pin	4 1/2" XH Box	3.20 ft	94.72 ft
36	4 1/2" HWDP	Rig	Rig	12 STDS	4.5	2.75	0	4 1/2" XH Pin	4 1/2" XH Box	1096.20	1190.92 ft
1	X/O Sub	Rig	Rig	X/O Sub	5.125	2.78	0	4 1/2" XH Pin	XT-39 Box	2.82 ft	1193.74 ft
9	4" HWDP	Rig	Rig	15 STDS	4	2.75	0	XT-39 Pin	XT-39 Box	275.18 ft	1468.92 ft

(O.D. units are in; I.D. units are in; FNeck units are ft)

GENERAL INFORMATION

DATES RUN: 2012/10/19 TO 2012/10/22
DEPTH IN: 0.00 ft **ANGLE IN:** 0.80 °
DEPTH OUT: 6730.00 ft **ANGLE OUT:** 25.97 °
DRILL HRS: 41.33 **BUILD:** 25.17 °
ORIENTING HRS: 17.83 **HOLE MADE:** 6730.00 ft
ROTATING HRS: 23.50 **AVG R.O.P.:** 162.84 ft/hr

MOTOR INFORMATION

MANFCT. Weatherford **SETTING:** 1.73 °
SERIAL #: 675-43645 **KICK PAD:** No
MODEL: QLE7850 MBTB **STABILIZER:** No
LOBE CFG: 7/8 **MOTOR HRS:** 52.42
BIT TO BEND: 3.4

PUMP INFORMATION

PUMPS	PUMP 1	PUMP 2	PUMP 3
EFFICIENCY:	95.0%	95.0%	100.0%
S.P.M.:	75	75	0
STROKE VOLUME:	3.8438 gal/stk	3.8438 gal/stk	0.0 gal/stk
TOTAL FLOW RATE:	575 gal/min		
PUMP PRESSURE:	OFF BTM: 2300 psi	ON BTM: 3000 psi	

MUD INFORMATION

MUD TYPE: Water **LIQUID BASE:** Water
DENSITY: 9.3 lb/gal **TEMP:** 160 °F
VISCOSITY: 34 sec/qt **pH:** 9.5
WTR LOSS: 0 cc/30min **SAND:** 0.05 **LIQUID RATE:** 0 gal/min
PLAST VISC: 5 cP **SOLIDS:** 4.2 **GAS TYPE:**
YIELD PT: 4 lb/100 ft² **OIL:** 0 **GAS RATE:** 0 cu ft/min

BIT INFORMATION

MANFCT: Hughes **TYPE:** DP505F **IADC BIT GRADE:** 1 / 2 / CT / G / X / I / FC / BHA
NOZZLES: 0.648 in² TFA

REASON FOR BHA CHANGE

Change motor per Anadarkos request..

FORMATION CHARACTERISTICS

Sussex formation seemed soft an unabrasive not allowing us to generate a greater motor yeild then 8.00°/100'

MWD COMMENTS

MWD Mud pulse performed as expected. A 60° orifice was used with a 6 3/4" pulser. Downhole temp at the end of the run was 160° F and battery consumption was 32% consumed. No pump or formation problems encountered.



SIDETRACKING PROCEDURE COMMENTS

NA

RUN SUMMARY

Average build up rates experienced were 8.27°/100' Condition of BHA when pulled was good. With this BHA @ 6720' MD the motor yield was 8.38°needing 8.00°/100' to land at a target TVD 7027 with 90° of angle, burning up 115 ft of vertical section, pulling away from the plan line and continuing to lose vertical section. To gain on the target vertical section we would need to rotate a tangent and catch the line, but we will need a greater motor yield to land at the target TVD. Keep in mind that KOP was 100' earlier than plan called for. We kicked off early per Anadarko's request. By kicking off early we lost 100' of VS from the beginning. Personally we feel that this trip was pointless because the motor was giving us our BRN.

I discussed this issue with the Anadarko Company man. They decided to pull the motor out of the hole to save on the vertical section, catch the line with rotation, and have a motor in the hole that will generate a greater motor yield than 8.38 at this MD in the well bore. NPT per Anadarko.

**Weatherford**

BHA Report

BHA 2 - Curve Section

Drilling Services
v4.2.2674

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

MWD Supervisor: Rusty Komrs, Peter Ratio

Company Man: Craig Jones, Clint Tibeaux

BHA SURVEY TYPE: Positive Pulse MWD

HOLE SIZE: 8.75 in

QTY	COMPONENT	MANFCT.	SERIAL #	MODEL	O.D.	I.D.	F.N.	BOT. CONN.	TOP CONN.	LEN.	C.LEN.
1	Hughes	Hughes	7141465	DP505F	8.75	0	0		4 1/2" REG Pin	1.00 ft	1.00 ft
1	Weatherford Motor	Weatherford	675-4079	QLE7850	7.75	0	0	4 1/2" REG Box	4 1/2" IF Box	27.86 ft	28.86 ft
1	NM Muleshoe Sub	Weatherford	675-34177	UBHO	6.75	3.125	0	4 1/2" IF Pin	4 1/2" IF Box	2.89 ft	31.75 ft
1	NMDC	Weatherford	675-37429	NMDC	6.85	3.25	0	4 1/2" IF Pin	4 1/2" IF Box	31.05 ft	62.80 ft
1	Flex NMDC	Weatherford	43153	Flex NMDC	6.75	3.125	6.07	4 1/2" IF Pin	4 1/2" IF Box	30.68 ft	93.48 ft
1	X/O Sub	Weatherford	675-36324	X/O Sub	6.625	2.875	0	4 1/2" IF Pin	4 1/2" XH Box	3.20 ft	96.68 ft
36	4 1/2" HWDP	Rig	Rig	12 STDS	4.5	2.75	0	4 1/2" XH Pin	4 1/2" XH Box	1096.20	1192.88 ft
1	X/O Sub	Rig	Rig	X/O Sub	5.125	2.78	0	4 1/2" XH Pin	XT-39 Box	2.82 ft	1195.70 ft
9	4" HWDP	Rig	Rig	15 STDS	4	2.75	0	XT-39 Pin	XT-39 Box	275.18 ft	1470.88 ft

(O.D. units are in; I.D. units are in; FNeck units are ft)

GENERAL INFORMATION

DATES RUN: 2012/10/22 TO 2012/10/23
 DEPTH IN: 6730.00 ft ANGLE IN: 25.97 °
 DEPTH OUT: 7556.00 ft ANGLE OUT: 84.89 °
 DRILL HRS: 14.92 BUILD: 58.92 °
 ORIENTING HRS: 10.75 HOLE MADE: 826.00 ft
 ROTATING HRS: 4.17 AVG R.O.P.: 55.36 ft/hr

MOTOR INFORMATION

MANFCT. Weatherford SETTING: 2.38 °
 SERIAL #: 675-4079 KICK PAD: No
 MODEL: QLE7850 STABILIZER: No
 LOBE CFG: 7/8 MOTOR HRS: 19.92
 BIT TO BEND: 6.2

PUMP INFORMATION

PUMPS	PUMP 1	PUMP 2	PUMP 3
EFFICIENCY:	95.0%	95.0%	100.0%
S.P.M.:	110	0	0
STROKE VOLUME:	3.8438 gal/stk	0.0 gal/stk	0.0 gal/stk
TOTAL FLOW RATE:	422 gal/min		
PUMP PRESSURE:	OFF BTM: 3200 psi	ON BTM: 4000 psi	

MUD INFORMATION

MUD TYPE: Water LIQUID BASE: Water
 DENSITY: 9.6 lb/gal TEMP: 170 °F
 VISCOSITY: 40 sec/qt pH: 9.3
 WTR LOSS: 5.9 cc/30min SAND: 0.25 LIQUID RATE: 0 gal/min
 PLAST VISC: 13 cP SOLIDS: 5.7 GAS TYPE:
 YIELD PT: 8 lb/100 ft² OIL: 0 GAS RATE: 0 cu ft/min

BIT INFORMATION

MANFCT: Hughes TYPE: DP505F IADC BIT GRADE: 1 / 1 / ? / ? / ? / 1 / CT / TD
 NOZZLES: 0.648 in² TFA

REASON FOR BHA CHANGE

T.D. Curve Section. @ 7556 M.D.

FORMATION CHARACTERISTICS

Drilling through Formations sharon springs & Niobra were abrasive we Generated all motor Yield needed to Land Targed TVD.

MWD COMMENTS

Signal strengths were good, MWD Mud pulse performed as expected. A 60° orifice was used with a 6 3/4" pulser. Downhole temp at the end of the run was 170° F and battery consumption was 35% consumed.



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BHA Report

BHA 2 - Curve Section

Drilling Services
v4.2.2674

SIDETRACKING PROCEDURE COMMENTS

RUN SUMMARY

Average build up rates experienced were 14 deg. per 100' Condition of BHA when pulled were good.
No Problems encountered.

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BHA Report

Drilling Services
v4.2.2674

BHA 3 - Lateral 1 Section

FILE #: 4027701

WELL NAME: Haymaker 4N-9HZ

SERVICE CO.: Weatherford

JOB TYPE: Horizontal

COMPANY: Anadarko Petroleum Corporation

SURVEY TYPE: HEL LWD

RIG & NO: Helmerich & Payne 307

SURFACE LOCATION: Weld County

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

MWD Supervisor: Rusty Komrs, Peter Ratio

Company Man: Craig Jones, Clint Tibeaux

BHA SURVEY TYPE: HEL LWD

HOLE SIZE: 6.125 in

QTY	COMPONENT	MANFCT.	SERIAL #	MODEL	O.D.	I.D.	F.N.	BOT. CONN.	TOP CONN.	LEN.	C.LEN.
1	Varel PDC	Varel	4004920	VM513S	6.125	0	0		3 1/2" REG Pin	1.00 ft	1.00 ft
1	Weatherford Motor	Weatherford	475-41095	ME6770	5.46	0	0	3 1/2" REG Box	3 1/2" IF Box	28.25 ft	29.25 ft
1	IBS Stabilizer	Weatherford	DR-7859	Stabilizer	4.75	2.25	2.84	3 1/2" IF Box	3 1/2" IF Box	5.17 ft	34.42 ft
1	SAGR	Weatherford	NW22349		4.75	2.125	0	3 1/2" IF Pin	3 1/2" IF Box	13.67 ft	48.09 ft
1	Split IDS	Weatherford	NW22350		4.75	2.125	0			12.24 ft	60.33 ft
1	MFR	Weatherford	NW22045		4.75	2.125	0	3 1/2" IF Pin	3 1/2" IF Box	29.21 ft	89.54 ft
1	HELL LWD	Weatherford	NW22040		4.75	0	0	3 1/2" IF Pin	3 1/2" IF Box	14.61 ft	104.15 ft
1	NMDC	Weatherford	475-9947	NMDC	4.625	2.75	0	3 1/2" IF Pin	3 1/2" IF Box	28.47 ft	132.62 ft
1	X/O Sub	Weatherford	44887	X/O Sub	4.875	3.125	0	3 1/2" IF Pin	XT-39 Box	2.67 ft	135.29 ft
1	Gost Reamer	Gost Reamer 6inSD80246		Gost Reamer	5.01	2.5	0	XT39 Pin	XT39 Box	6.39 ft	141.68 ft
129	4" Drill Pipe	Rig	Rig	43 STDS	4	3.5	0	XT-39 Pin	XT-39 Box	4081.63	4223.31 ft
45	4" HWDP	Rig	Rig	15 STDS	4	2.75	0	XT-39 Pin	XT-39 Box	1374.67	5597.98 ft

(O.D. units are in; I.D. units are in; FNeck units are ft)

GENERAL INFORMATION

DATES RUN: 2012/10/24 TO 2012/10/28
 DEPTH IN: 7556.00 ft ANGLE IN: 90.00 °
 DEPTH OUT: 11526.00 ft ANGLE OUT: 89.26 °
 DRILL HRS: 36.33 BUILD: -0.74 °
 ORIENTING HRS: 17.67 HOLE MADE: 3970.00 ft
 ROTATING HRS: 18.67 AVG R.O.P.: 109.28 ft/hr

MOTOR INFORMATION

MANFCT: Weatherford
 SERIAL #: 475-41095
 MODEL: ME6770
 LOBE CFG: 6/7
 BIT TO BEND: 5.88
 SETTING: 1.50 °
 KICK PAD: No
 STABILIZER: No
 MOTOR HRS: 52.33

PUMP INFORMATION

PUMPS	PUMP 1	PUMP 2	PUMP 3
EFFICIENCY:	95.0%	95.0%	100.0%
S.P.M.:	78	0	0
STROKE VOLUME:	3.8438 gal/stk	0.0 gal/stk	0.0 gal/stk
TOTAL FLOW RATE:	299 gal/min		
PUMP PRESSURE:	OFF BTM: 2950 psi	ON BTM: 3350 psi	

MUD INFORMATION

MUD TYPE: Polymer
 LIQUID BASE: Water
 DENSITY: 9.9 lb/gal
 TEMP: 132 °F
 VISCOSITY: 39 sec/qt
 pH: 8.9
 WTR LOSS: 5 cc/30min
 SAND: 0.25
 LIQUID RATE: 0 gal/min
 PLAST VISC: 13 cP
 SOLIDS: 7.9
 GAS TYPE:
 YIELD PT: 9 lb/100 ft²
 OIL: 1.5
 GAS RATE: 0 cu ft/min

BIT INFORMATION

MANFCT: Varel TYPE: VM513S IADC BIT GRADE: 1 1 / ? / ? / ? / ? / ? / TD
 NOZZLES: 0.648 in² TFA

REASON FOR BHA CHANGE

T.D.

FORMATION CHARACTERISTICS

The marl el Formation has a tendency to drop angle in rotation even when dropping the rpm and adding more weight, We did use a different bit on this run which might have had something to do with it.



—MWD COMMENTS

Noise level is good No issues.

—SIDETRACKING PROCEDURE COMMENTS

—RUN SUMMARY

Average buildup rates experienced where 9 deg. per 100'. Condition of BHA when pulled was good other than the motor had a 1/2" of squat in it when tested.



MOTOR REPORTS

**Weatherford**

Motor / RSS Evaluation Report

Drilling Services
v4.2.2674

BHA 1 - Build & Hold / Curve Section, Motor #675-43645

FILE #: 4027701 WELL NAME: Haymaker 4N-9HZ SERVICE CO.: Weatherford
 JOB TYPE: Horizontal COMPANY: Anadarko Petroleum Corporation SURVEY TYPE: HEL LWD
 RIG & NO: Helmerich & Payne 307 SURFACE LOCATION: Weld County FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca
 MWD Supervisor: Peter Ratio
 Company Man: Craig Jones, Clint Tivedoux

BHA SURVEY TYPE: Positive Pulse MWD HOLE SIZE: 8.75 in

GENERAL INFORMATION:			MOTOR INFORMATION:		
BHA #:	1	START DEPTH:	0.00 ft	MANFCT:	Weatherford
DATE IN:	2012/10/19	END DEPTH:	6730.00 ft	SERIAL #:	675-43645
DATE OUT:	2012/10/22	HOLE MADE:	6730.00 ft	MODEL:	QLE7850 MBTB
ANGLE IN:	0.80 °	AVG ROP:	162.84 ft/hr	LOBE:	7/8
ANGLE OUT:	25.97 °			SETTING:	1.73 °
ORIENTING HRS:	17.83	ROTATING HRS:	23.50	BIT TO BEND:	3.4 ft
				KICKPAD:	No
				STABILIZER:	No

DRILLING INFORMATION:		
BIT TYPE:	DP505F	IADC BIT GRADE: 1 / 2 / CT / G / X / I / FC / BHA
BIT PRESS DROP:	0.00 psi	TOTAL FLOW RATE: 575.00 gal/min
MTR PRESS DROP:	0.00 psi	NOZZLES: 0.648 in ² TFA
		PUMP PRESS: (OFF) 2300.00 psi (ON) 3000.00 psi

MUD INFORMATION:		
MUD TYPE:	Water	LIQUID BASE: Water (All units are imperial.)
DENSITY:	9 lb/gal	VISCOSITY: 34 sec/qt
SAND:	0.050	WATER LOSS: 0.00 cc/30min
SOLIDS:	4.200	PLASTIC VISC: 5.0 cP
OIL:	0.000	YIELD POINT: 4.0 lb/100 ft ²
TEMP:	160 °F	pH: 9.5
		LIQUID RATE: 0.00 gal/min
		GAS TYPE:
		GAS RATE: 0.00 cu ft/min

TIME INFORMATION:	
CIRCULATING HOURS:	11.08
REAMING HOURS:	0.00
TIME DRILL HOURS:	0.00
MOTOR DRILL HOURS:	41.33
MOTOR HOURS THIS RUN:	52.42
PREVIOUS HOURS:	0.00
TOTAL MOTOR HOURS:	52.42
TOTAL BRT HOURS:	52.25

MOTOR EVALUATION COMMENTS:

This motor ran as expected it has a total of 52 circulating hrs on it and 41 drill hrs. Motor was pulled do to low motor yield. Motor had 1/8" of squat in it when squat tested, also looked good and drained good when laid down.

REASON FOR BHA CHANGE:

Change motor per Anadarkos request..

COMMENTS FROM LAST DAY RAN:

Drill F/ 6688 to 7260

@ 6720 motor yield was 8.38. Needing 8.00 to land at a target TVD 7027 with 90 degrees of angle, burning up 115 ft of vertical section, pulling away from the plan line and continuing to lose vertical section. To gain on the target vertical section we would need



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Motor / RSS Evaluation Report

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BHA 1 - Build & Hold / Curve Section, Motor #675-43645

to rotate a tangent and catch the line, but we will need a greater motor yield to land at the target TVD.

I discussed this issue with the Anadarko Company man. They decided to pull the motor out of the hole to save on the vertical section, catch the line with rotation, and have a motor in the hole that will generate a greater motor yield than 8.38 at this MD in the well bore.

@ 18:30 P:M We Received a target TVD Change to 7036 TVD @ 0 Vs @ 90.00 Deg. And 7092 M.D.

@ 23:30 and M.D. of 7260 We Received a Knew target TVD Change to 7030 TVD @ 0vs @ 90.00 Deg.

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Motor / RSS Evaluation Report

Drilling Services
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BHA 2 - Curve Section, Motor #675-4079

FILE #: 4027701 WELL NAME: Haymaker 4N-9HZ SERVICE CO.: Weatherford
 JOB TYPE: Horizontal COMPANY: Anadarko Petroleum Corporation SURVEY TYPE: HEL LWD
 RIG & NO: Helmerich & Payne 307 SURFACE LOCATION: Weld County FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca
 MWD Supervisor: Rusty Komrs, Peter Ratio
 Company Man: Craig Jones, Clint Tibeaux

BHA SURVEY TYPE: Positive Pulse MWD

HOLE SIZE: 8.75 in

GENERAL INFORMATION:

BHA #: 2 START DEPTH: 6730.00 ft
 DATE IN: 2012/10/22 END DEPTH: 7556.00 ft
 DATE OUT: 2012/10/23 HOLE MADE: 826.00 ft
 ANGLE IN: 25.97 ° AVG ROP: 55.36 ft/hr
 ANGLE OUT: 84.89 °
 ORIENTING HRS: 10.75 ROTATING HRS: 4.17

MOTOR INFORMATION:

MANFCT: Weatherford
 SERIAL #: 675-4079
 MODEL: QLE7850
 LOBE: 7/8 BIT TO BEND: 6.2 ft
 SETTING: 2.38 ° KICKPAD: No
 STABILIZER: No

DRILLING INFORMATION:

BIT TYPE: DP505F IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / CT / TD
 BIT PRESS DROP: 0.00 psi TOTAL FLOW RATE: 422.00 gal/min PUMP PRESS: (OFF) 3200.00 psi
 MTR PRESS DROP: 0.00 psi NOZZLES: 0.648 in² TFA (ON) 4000.00 psi

MUD INFORMATION:

MUD TYPE: Water LIQUID BASE: Water (All units are imperial.)
 DENSITY: 10 lb/gal VISCOSITY: 40 sec/qt
 SAND: 0.250 WATER LOSS: 5.90 cc/30min LIQUID RATE: 0.00 gal/min
 SOLIDS: 5.700 PLASTIC VISC: 13.0 cP GAS TYPE:
 OIL: 0.000 YIELD POINT: 8.0 lb/100 ft² GAS RATE: 0.00 cu ft/min
 TEMP: 170 °F pH: 9.3

TIME INFORMATION:

CIRCULATING HOURS: 5.00
 REAMING HOURS: 0.00
 TIME DRILL HOURS: 0.00
 MOTOR DRILL HOURS: 14.92
 MOTOR HOURS THIS RUN: 19.92
 PREVIOUS HOURS: 0.00
 TOTAL MOTOR HOURS: 19.92
 TOTAL BRT HOURS: 19.92

MOTOR EVALUATION COMMENTS:

Motor Ran as Expected, it Generated all Motor Yield Need to land. This motor has a total of 15 drilling HRs and a total of 20 Circulating hrs. Motor had zero squat and Zero Play when pulled.

REASON FOR BHA CHANGE:

T.D. Curve Section. @ 7556 M.D.

COMMENTS FROM LAST DAY RAN:

Drill F/ 7260 to 7556

Target change to 7030 TVD @ 90.00 deg. and 0°VS
 M.D. At this time is 7260 with 72 deg in the well bore.

**BHA 2 - Curve Section, Motor #675-4079**

Target change back to 7036 @ 90.00 deg. 0'VS M.D. at this time MD is 7323.

Target change to 7030 TVD @ 90.00 deg. 0'VS MD at this time MD was 7387'.

Target change back to 7036 @ 90.00 deg. 0'VS M.D. at this time MD is 7404'.

Drill to 7556' MD Per Company man for his casing tally.

**Weatherford**

Motor / RSS Evaluation Report

Drilling Services
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BHA 3 - Lateral 1 Section, Motor #475-41095

FILE #: 4027701 WELL NAME: Haymaker 4N-9HZ SERVICE CO.: Weatherford
 JOB TYPE: Horizontal COMPANY: Anadarko Petroleum Corporation SURVEY TYPE: HEL LWD
 RIG & NO: Helmerich & Payne 307 SURFACE LOCATION: Weld County FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca
 MWD Supervisor: Rusty Komrs, Peter Ratio
 Company Man: Craig Jones, Clint Tibeaux

BHA SURVEY TYPE: HEL LWD

HOLE SIZE: 6.125 in

GENERAL INFORMATION:

BHA #: 3 START DEPTH: 7556.00 ft
 DATE IN: 2012/10/24 END DEPTH: 11526.00 ft
 DATE OUT: 2012/10/28 HOLE MADE: 3970.00 ft
 ANGLE IN: 90.00 ° AVG ROP: 109.28 ft/hr
 ANGLE OUT: 89.26 °
 ORIENTING HRS: 17.67 ROTATING HRS: 18.67

MOTOR INFORMATION:

MANFCT: Weatherford
 SERIAL #: 475-41095
 MODEL: ME6770
 LOBE: 6/7 BIT TO BEND: 5.88 ft
 SETTING: 1.50 ° KICKPAD: No
 STABILIZER: No

DRILLING INFORMATION:

BIT TYPE: VM513S IADC BIT GRADE: 1 / 1 / ? / ? / ? / ? / ? / TD
 BIT PRESS DROP: 0.00 psi TOTAL FLOW RATE: 299.00 gal/min PUMP PRESS: (OFF) 2950.00 psi
 MTR PRESS DROP: 0.00 psi NOZZLES: 0.648 in² TFA (ON) 3350.00 psi

MUD INFORMATION:

MUD TYPE: Polymer LIQUID BASE: Water (All units are imperial.)
 DENSITY: 10 lb/gal VISCOSITY: 39 sec/qt
 SAND: 0.250 WATER LOSS: 5.00 cc/30min LIQUID RATE: 0.00 gal/min
 SOLIDS: 7.900 PLASTIC VISC: 13.0 cP GAS TYPE:
 OIL: 1.500 YIELD POINT: 9.0 lb/100 ft² GAS RATE: 0.00 cu ft/min
 TEMP: 132 °F pH: 8.9

TIME INFORMATION:

CIRCULATING HOURS: 16.00
 REAMING HOURS: 0.00
 TIME DRILL HOURS: 0.00
 MOTOR DRILL HOURS: 36.33
 MOTOR HOURS THIS RUN: 52.33
 PREVIOUS HOURS: 0.00
 TOTAL MOTOR HOURS: 52.33
 TOTAL BRT HOURS: 52.33

MOTOR EVALUATION COMMENTS:

Motor Ran as expected it has 36 Drill hrs on it and 52 circulating hrs on it. When squat testing this motor it had a 1/2 inch of squat . Motor did drain.

REASON FOR BHA CHANGE:

T.D.

COMMENTS FROM LAST DAY RAN:

Reamer run, TOH, lay down BHA #3



SLIDE REPORT



Slide Sheet Report

Drilling Services

v4.2.2674

BHA 1 - 2012/10/19 TO 2012/10/22

FILE #: 4027701

JOB TYPE: Horizontal

RIG & NO: Helmerich & Payne 307

WELL NAME: Haymaker 4N-9HZ

COMPANY: Anadarko Petroleum Corporation

SURFACE LOCATION: Weld County

SERVICE CO.: Weatherford

SURVEY TYPE: HEL LWD

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

MWD Supervisor: Peter Ratio

Company Man: Craig Jones, Clint Tivedoux

BHA NO: 1	DATES RUN: 2012/10/19 TO 2012/10/22	SECTION: Build & Ho	TOOLFACE OFFSET: 264 °	SURVEY OFFSET: 55 ft
MOTOR SETTING: 1.73 °	KICKPAD: No	STABILIZER: No	MODEL: QLE7850 MBTB	SERIAL NO: 675-43645
			BHA SURVEY TYPE: Positive Pulse MWD	

(Distances are shown in feet.)

BIT		SURVEY				ORIENTING			ROTATING			SLIDE	BUR	BUR	COMMENTS
DEPTH	DRILLED	DEPTH	INC	AZM	TF	FROM	TO	FEET	FROM	TO	FEET	SEEN	/ft	/100ft	
1190.00	95.00	1135.00	0.80	135.93	140 M	1190.00	1196.00	6.00	1196.00	1285.00	89.00	0.00	0.00	0.00	
1285.00	92.00	1230.00	1.15	128.66	150 M	1285.00	1297.00	12.00	1297.00	1377.00	80.00	6.00	0.06	0.37	
1377.00	91.00	1322.00	2.52	140.61	145 M	1377.00	1389.00	12.00	1389.00	1468.00	79.00	12.00	0.11	1.49	
1468.00	95.00	1413.00	4.24	142.42	150 M	1468.00	1482.00	14.00	1482.00	1563.00	81.00	12.00	0.14	1.89	
1563.00	474.00	1508.00	5.99	140.31	HS	1563.00	1577.00	14.00	1577.00	2037.00	460.00	14.00	0.13	1.84	
2037.00	95.00	1982.00	8.02	133.58	55 R	2037.00	2042.00	5.00	2042.00	2132.00	90.00	14.00	0.14	0.43	
2132.00	284.00	2077.00	7.78	137.72	60 R	2132.00	2142.00	10.00	2142.00	2416.00	274.00	5.00	-0.05	-0.25	
2416.00	96.00	2361.00	6.56	145.26	HS	2416.00	2431.00	15.00	2431.00	2512.00	81.00	10.00	-0.12	-0.43	
2512.00	95.00	2457.00	8.10	142.25	20R	2512.00	2522.00	10.00	2522.00	2607.00	85.00	15.00	0.10	1.60	
2607.00	285.00	2552.00	8.91	141.05	70R	2607.00	2617.00	10.00	2617.00	2892.00	275.00	10.00	0.08	0.85	
2892.00	379.00	2837.00	8.20	154.51	45L	2892.00	2907.00	15.00	2907.00	3271.00	364.00	10.00	-0.07	-0.25	
3271.00	190.00	3216.00	6.70	148.18	HS	3271.00	3291.00	20.00	3291.00	3461.00	170.00	15.00	-0.10	-0.40	
3461.00	285.00	3406.00	7.79	140.90	HS	3461.00	3481.00	20.00	3481.00	3746.00	265.00	20.00	0.05	0.57	
3746.00	190.00	3691.00	6.67	146.46	HS	3746.00	3768.00	22.00	3768.00	3936.00	168.00	20.00	-0.06	-0.39	
3936.00	760.00	3881.00	7.66	139.23	HS	3936.00	3956.00	20.00	3956.00	4696.00	740.00	22.00	0.05	0.52	
4696.00	94.00	4641.00	6.77	123.56	LS	4696.00	4706.00	10.00	4706.00	4790.00	84.00	20.00	-0.04	-0.12	
4790.00	95.00	4735.00	5.33	120.53	LS	4790.00	4800.00	10.00	4800.00	4885.00	85.00	10.00	-0.14	-1.53	
4885.00	95.00	4830.00	3.69	123.59	303 M	4885.00	4897.00	12.00	4897.00	4980.00	83.00	10.00	-0.16	-1.73	
4980.00	473.00	4925.00	2.10	111.00	291 M	4980.00	4992.00	12.00	4992.00	5453.00	461.00	12.00	-0.13	-1.67	
5453.00	904.00	5398.00	1.20	92.91	272 M	5453.00	5463.00	10.00	5463.00	6357.00	894.00	12.00	-0.08	-0.19	
6357.00	45.00	6302.00	0.74	72.75	HS	6357.00	6402.00	45.00	6402.00	6402.00	0.00	10.00	-0.05	-0.05	
6402.00	32.00	6347.00	1.01	35.91	HS	6402.00	6434.00	32.00	6434.00	6434.00	0.00	0.00	0.00	0.60	
6434.00	32.00	6379.00	3.21	14.23	HS	6434.00	6466.00	32.00	6466.00	6466.00	0.00	22.00	0.10	6.88	
6466.00	31.00	6411.00	5.51	9.92	HS	6466.00	6497.00	31.00	6497.00	6497.00	0.00	32.00	0.07	7.19	

Slide Sheet Report

BHA 1 - 2012/10/19 TO 2012/10/22

(Distances are shown in feet.)

BIT		SURVEY				----- ORIENTING -----			----- ROTATING -----			SLIDE	BUR	BUR	COMMENTS
DEPTH	DRILLED	DEPTH	INC	AZM	TF	FROM	TO	FEET	FROM	TO	FEET	SEEN	/ft	/100ft	
6497.00	33.00	6442.00	7.75	3.28	HS	6497.00	6530.00	33.00	6530.00	6530.00	0.00	31.00	0.07	7.23	
6530.00	31.00	6475.00	10.19	358.19	HS	6530.00	6561.00	31.00	6561.00	6561.00	0.00	33.00	0.07	7.39	
6561.00	31.00	6506.00	12.60	356.95	HS	6561.00	6592.00	31.00	6592.00	6592.00	0.00	31.00	0.08	7.77	
6592.00	32.00	6537.00	15.50	357.60	HS	6592.00	6624.00	32.00	6624.00	6624.00	0.00	31.00	0.09	9.35	
6624.00	33.00	6569.00	17.92	358.22	HS	6624.00	6657.00	33.00	6657.00	6657.00	0.00	32.00	0.08	7.56	
6657.00	31.00	6602.00	20.74	358.85	HS	6657.00	6681.00	24.00	6681.00	6688.00	7.00	33.00	0.09	8.55	
6688.00	32.00	6633.00	23.29	358.93	HS	6688.00	6720.00	32.00	6720.00	6720.00	0.00	31.00	0.08	8.23	
6720.00	10.00	6665.00	25.97	359.22	HS	6720.00	6730.00	10.00	6730.00	6730.00	0.00	32.00	0.08	8.38	

Totals:	625.00 ft	4915.00 ft
Percentages:	11.3%	88.7%
Time:	17.83 hrs	23.50 hrs
Percentages:	43.1%	56.9%



Slide Sheet Report

Drilling Services

v4.2.2674

BHA 2 - 2012/10/22 TO 2012/10/23

FILE #: 4027701

JOB TYPE: Horizontal

RIG & NO: Helmerich & Payne 307

WELL NAME: Haymaker 4N-9HZ

COMPANY: Anadarko Petroleum Corporation

SURFACE LOCATION: Weld County

SERVICE CO.: Weatherford

SURVEY TYPE: HEL LWD

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

MWD Supervisor: Rusty Komrs, Peter Ratio

Company Man: Craig Jones, Clint Tivedoux

BHA NO: 2	DATES RUN: 2012/10/22 TO 2012/10/23	SECTION: Curve	TOOLFACE OFFSET: 218.6 °	SURVEY OFFSET: 58 ft
MOTOR SETTING: 2.38 °	KICKPAD: No	STABILIZER: No	MODEL: QLE7850	SERIAL NO: 675-4079
			BHA SURVEY TYPE: Positive Pulse MWD	

(Distances are shown in feet.)

BIT DEPTH DRILLED	SURVEY					ORIENTING			ROTATING			SLIDE SEEN	BUR /ft	BUR /100ft	COMMENTS
	DEPTH	INC	AZM	TF		FROM	TO	FEET	FROM	TO	FEET				
6730.00	87.00	6672.00	25.97	359.22	HS	6730.00	6763.00	33.00	6763.00	6817.00	54.00	0.00	0.00	0.00	
6817.00	31.00	6759.00	33.30	358.63	HS	6817.00	6848.00	31.00	6848.00	6848.00	0.00	29.00	0.25	8.43	
6848.00	31.00	6790.00	32.54	357.95	HS	6848.00	6879.00	31.00	6879.00	6879.00	0.00	4.00	-0.19	-2.45	
6879.00	43.00	6821.00	33.71	356.45	HS	6879.00	6910.00	31.00	6910.00	6922.00	12.00	4.00	0.29	3.77	
6922.00	53.00	6864.00	37.72	356.90	HS	6922.00	6943.00	21.00	6943.00	6975.00	32.00	43.00	0.09	9.33	
6975.00	32.00	6917.00	43.43	359.34	HS	6975.00	7007.00	32.00	7007.00	7007.00	0.00	46.00	0.12	10.77	
7007.00	31.00	6949.00	44.78	359.35	HS	7007.00	7038.00	31.00	7038.00	7038.00	0.00	21.00	0.06	4.22	
7038.00	32.00	6980.00	47.08	359.03	HS	7038.00	7070.00	32.00	7070.00	7070.00	0.00	5.00	0.46	7.42	
7070.00	31.00	7012.00	51.59	359.78	HS	7070.00	7095.00	25.00	7095.00	7101.00	6.00	32.00	0.14	14.09	
7101.00	32.00	7043.00	55.93	1.31	20L	7101.00	7116.00	15.00	7116.00	7133.00	17.00	31.00	0.14	14.00	
7133.00	32.00	7075.00	59.65	4.16	40 L	7133.00	7154.00	21.00	7154.00	7165.00	11.00	32.00	0.12	11.62	
7165.00	31.00	7107.00	62.94	4.74	20 L	7165.00	7188.00	23.00	7188.00	7196.00	8.00	26.00	0.13	10.28	
7196.00	64.00	7138.00	65.70	3.47	75 L	7196.00	7206.00	10.00	7206.00	7260.00	54.00	14.00	0.20	8.90	
7260.00	32.00	7202.00	71.64	359.50	HS	7260.00	7280.00	20.00	7280.00	7292.00	12.00	45.00	0.13	9.28	
7292.00	63.00	7234.00	72.09	358.10	HS	7292.00	7310.00	18.00	7310.00	7355.00	45.00	4.00	0.11	1.41	
7355.00	32.00	7297.00	78.10	357.16	HS	7355.00	7363.00	8.00	7363.00	7387.00	24.00	25.00	0.24	9.54	
7387.00	64.00	7329.00	79.59	356.63	HS	7387.00	7404.00	17.00	7404.00	7451.00	47.00	13.00	0.11	4.66	
7451.00	63.00	7393.00	82.71	356.57	30R	7451.00	7461.00	10.00	7461.00	7514.00	53.00	14.00	0.22	4.87	
7514.00	32.00	7456.00	84.67	0.73	HS	7514.00	7546.00	32.00	7546.00	7546.00	0.00	16.00	0.12	3.11	
7546.00	10.00	7488.00	84.89	356.86	HS7556	7546.00	7556.00	10.00	7556.00	7556.00	0.00	5.00	0.04	0.69	

Totals:	451.00 ft	375.00 ft
Percentages:	54.6%	45.4%
Time:	10.75 hrs	4.17 hrs
Percentages:	72.1%	27.9%



Slide Sheet Report

Drilling Services

v4.2.2674

BHA 3 - 2012/10/24 TO 2012/10/28

FILE #: 4027701

JOB TYPE: Horizontal

RIG & NO: Helmerich & Payne 307

WELL NAME: Haymaker 4N-9HZ

COMPANY: Anadarko Petroleum Corporation

SURFACE LOCATION: Weld County

SERVICE CO.: Weatherford

SURVEY TYPE: HEL LWD

FIELD / LOCATION: Wattenburg Field / CO / USA

DIR Supervisor: Josh Monroe, Charles Apodaca

MWD Supervisor: Rusty Komrs, Peter Ratio

Company Man: Craig Jones, Clint Tibeaux

BHA NO: 3	DATES RUN: 2012/10/24 TO 2012/10/28	SECTION: Lateral 1	TOOLFACE OFFSET: 342.1 °	SURVEY OFFSET: 54 ft
MOTOR SETTING: 1.50 °	KICKPAD: No	STABILIZER: No	MODEL: ME6770	SERIAL NO: 475-41095
				BHA SURVEY TYPE: HEL LWD

(Distances are shown in feet.)

BIT		SURVEY				ORIENTING			ROTATING			SLIDE	BUR	BUR	COMMENTS
DEPTH	DRILLED	DEPTH	INC	AZM	TF	FROM	TO	FEET	FROM	TO	FEET	SEEN	/ft	/100ft	
7685.00	95.00	7631.00	90.00	355.30	110	7685.00	7727.00	42.00	7727.00	7780.00	53.00	0.00	0.00	0.00	
7780.00	95.00	7726.00	88.70	357.39	80 R	7780.00	7826.00	46.00	7826.00	7875.00	49.00	41.00	-0.03	-1.37	
7875.00	190.00	7821.00	88.45	1.82	90 R	7875.00	7880.00	5.00	7880.00	8065.00	185.00	42.00	-0.01	-0.26	
8065.00	94.00	8011.00	87.72	5.84	55 L	8065.00	8096.00	31.00	8096.00	8159.00	63.00	10.00	-0.07	-0.38	
8159.00	95.00	8105.00	89.13	2.82	65 L	8159.00	8191.00	32.00	8191.00	8254.00	63.00	31.00	0.05	1.50	
8254.00	95.00	8200.00	89.50	359.65	45R	8254.00	8281.00	27.00	8281.00	8349.00	68.00	32.00	0.01	0.39	
8349.00	96.00	8295.00	90.37	0.57	45R	8349.00	8380.00	31.00	8380.00	8445.00	65.00	27.00	0.03	0.92	
8445.00	95.00	8391.00	91.35	4.17	90L	8445.00	8455.00	10.00	8455.00	8540.00	85.00	31.00	0.03	1.02	
8540.00	95.00	8486.00	90.12	2.07	HS	8540.00	8550.00	10.00	8550.00	8635.00	85.00	10.00	-0.12	-1.29	
8635.00	95.00	8581.00	89.69	0.99	20R	8635.00	8651.00	16.00	8651.00	8730.00	79.00	10.00	-0.04	-0.45	
8730.00	95.00	8676.00	89.94	359.21	20R	8730.00	8751.00	21.00	8751.00	8825.00	74.00	16.00	0.02	0.26	
8825.00	94.00	8771.00	89.63	357.33	20R	8825.00	8856.00	31.00	8856.00	8919.00	63.00	21.00	-0.01	-0.33	
8919.00	95.00	8865.00	91.36	356.87	90R	8919.00	8938.00	19.00	8938.00	9014.00	76.00	31.00	0.06	1.84	
9014.00	95.00	8960.00	91.53	359.98	90R	9014.00	9019.00	5.00	9019.00	9109.00	90.00	19.00	0.01	0.18	
9109.00	95.00	9055.00	91.23	0.61	120 L	9109.00	9141.00	32.00	9141.00	9204.00	63.00	5.00	-0.06	-0.32	
9204.00	94.00	9150.00	89.82	355.81	90 L	9204.00	9218.00	14.00	9218.00	9298.00	80.00	32.00	-0.04	-1.48	
9298.00	95.00	9244.00	88.96	355.01	90 L	9298.00	9330.00	32.00	9330.00	9393.00	63.00	14.00	-0.06	-0.91	
9393.00	94.00	9339.00	88.82	350.90	50 L	9393.00	9425.00	32.00	9425.00	9487.00	62.00	32.00	0.00	-0.15	
9487.00	190.00	9433.00	90.74	348.80	LS	9487.00	9492.00	5.00	9492.00	9677.00	185.00	32.00	0.06	2.04	
9677.00	95.00	9623.00	89.38	348.61	55 R	9677.00	9702.00	25.00	9702.00	9772.00	70.00	5.00	-0.27	-0.72	
9772.00	189.00	9718.00	91.42	349.97	110 R	9772.00	9797.00	25.00	9797.00	9961.00	164.00	25.00	0.08	2.15	
9961.00	95.00	9907.00	89.51	353.11	60 R	9961.00	9992.00	31.00	9992.00	10056.00	64.00	25.00	-0.08	-1.01	
10056.00	95.00	10002.00	90.68	353.81	90 R	10056.00	10098.00	42.00	10098.00	10151.00	53.00	31.00	0.04	1.23	
10151.00	95.00	10097.00	90.74	356.18	90R	10151.00	10161.00	10.00	10161.00	10246.00	85.00	41.00	0.00	0.06	

Slide Sheet Report

BHA 3 - 2012/10/24 TO 2012/10/28

(Distances are shown in feet.)

BIT DEPTH DRILLED	SURVEY					----- ORIENTING -----			----- ROTATING -----			SLIDE SEEN	BUR /ft	BUR /100ft	COMMENTS
	DEPTH	DEPTH	INC	AZM	TF	FROM	TO	FEET	FROM	TO	FEET				
10246.00	95.00	10192.00	91.42	358.10	90R	10246.00	10261.00	15.00	10261.00	10341.00	80.00	11.00	0.06	0.72	
10341.00	96.00	10287.00	91.11	0.45	90R	10341.00	10361.00	20.00	10361.00	10437.00	76.00	15.00	-0.02	-0.33	
10437.00	189.00	10383.00	90.43	0.97	100R	10437.00	10457.00	20.00	10457.00	10626.00	169.00	20.00	-0.03	-0.71	
10626.00	95.00	10572.00	89.82	3.49	90L	10626.00	10641.00	15.00	10641.00	10721.00	80.00	20.00	-0.03	-0.32	
10721.00	191.00	10667.00	91.18	1.72	LS	10721.00	10731.00	10.00	10731.00	10912.00	181.00	15.00	0.09	1.43	
10912.00	190.00	10858.00	88.95	1.68	45L	10912.00	10944.00	32.00	10944.00	11102.00	158.00	10.00	-0.22	-1.17	
11102.00	95.00	11048.00	90.19	359.35	90 R	11102.00	11129.00	27.00	11129.00	11197.00	68.00	32.00	0.04	0.65	
11197.00	95.00	11143.00	89.26	0.75	HS	11197.00	11207.00	10.00	11207.00	11292.00	85.00	27.00	-0.03	-0.98	

Totals:	723.00 ft	2884.00 ft
Percentages:	20.0%	80.0%
Time:	17.67 hrs	18.67 hrs
Percentages:	48.6%	51.4%