

**HALLIBURTON**

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**Sperry Drilling**

**END OF WELL REPORT**

***For***

**Anadarko Petroleum Corp.**

***Cannon 13C-3HZ***

***Sec. 3-T2N-R65W***

***Weld County, CO***

***Job #9522757***

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# SPERRY-SUN DRILLING SERVICES

## CERTIFIED SURVEY WORK SHEET

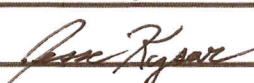
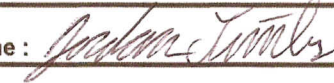
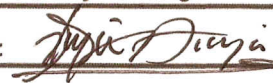

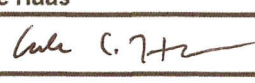
OPERATOR:	Anadarko
WELL:	Cannon 13C-3HZ
FIELD:	DJ Basin
RIG:	H & P 308
LEGALS:	Sec. 3-T2N-R65W
COUNTY:	Weld
STATE:	CO
CAL. METHOD:	True North
MAG. DECL. APPLIED:	8.68
VERTICAL SEC. DIR. :	186.600

SSDS Job Number :	9522757
Start Date of Job :	July 30th, 2012
End Date of Job :	8/8/12
Lead Directional Driller:	Jesse Kysar
	Jordan Timbs
Other SSDS DD's :	James Scharf
SSDS MWD Engineers :	Andrew Bour
MWD :	Stanley Aikoriogie
MWD	Cale Haas

Geo Pilot Engineer :

	Main Hole =====>		1st Side Track =====>		2nd Side Track =====>		3rd Side Track =====>		4th Side Track =====>	
Surface Casing	775.00	Tie-on		Tie On		Tie On		Tie On		Tie On
First Wireline Survey	125.00	Gyro		MWD						
Last Wireline Survey	760.00	Gyro								
KOP Depth/Sidetrack MD	6562.00	KOP		KOP-ST1		KOP-ST2		KOP-ST3		KOP-ST4
MWD Tie-on	760.00	Gyro								
First MWD Survey Depth	822.00	MWD		MWD		MWD		MWD		MWD
Last MWD Survey Depth	11313.00	MWD		MWD		MWD		MWD		MWD
Bit Extrapolation @ TD	11350.00	T.D.		T.D.		T.D.		T.D.		T.D.

The following Sperry Drilling Services personnel, certify the above survey information to be accurate to the best of our knowledge:

Print Name : Jesse Kysar	Print Name : Jordan Timbs	Print Name : Stanley Aikoriogie
Sign Name : 	Sign Name : 	Sign Name : 
Print Name : Andrew Bour	Print Name : Cale Haas	Print Name : Jame Scharf
Sign Name : 	Sign Name : 	Sign Name :

Examples of  
Survey Types:

TieOn	Tie On to Surface Casing (Assumed Vertical), Tie On to existing MWD Survey (prior drilled hole)
MWD	Sperry-Sun Drilling Services (SSDS) Measurement While Drilling (MWD) Survey's
ESS	Sperry-Sun Drilling Services (SSDS) Electronic Survey System (ESS) Survey's
Gyro	Gyro Survey's ; Provided by third party vendor, or by Sperry-Sun Drilling Services (SSDS)
SS	Single Shot (SS) Survey's ; Provided by Sperry-Sun Drilling Services (SSDS) or third party vendor.

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 3-T2N-R65W

Cannon 13C-3HZ

Plan A Rev 0

Design: Actual Field Surveys

## Sperry Drilling Services

## Standard Report

09 August, 2012

Well Coordinates: 1,307,342.82 N, 3,236,100.82 E (40° 10' 26.27" N, 104° 39' 18.28" W)

Ground Level: 4,840.00 ft

Local Coordinate Origin:

Centered on Well Cannon 13C-3HZ

Viewing Datum:

RKB=25ft @ 4865.00ft (HP 308)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

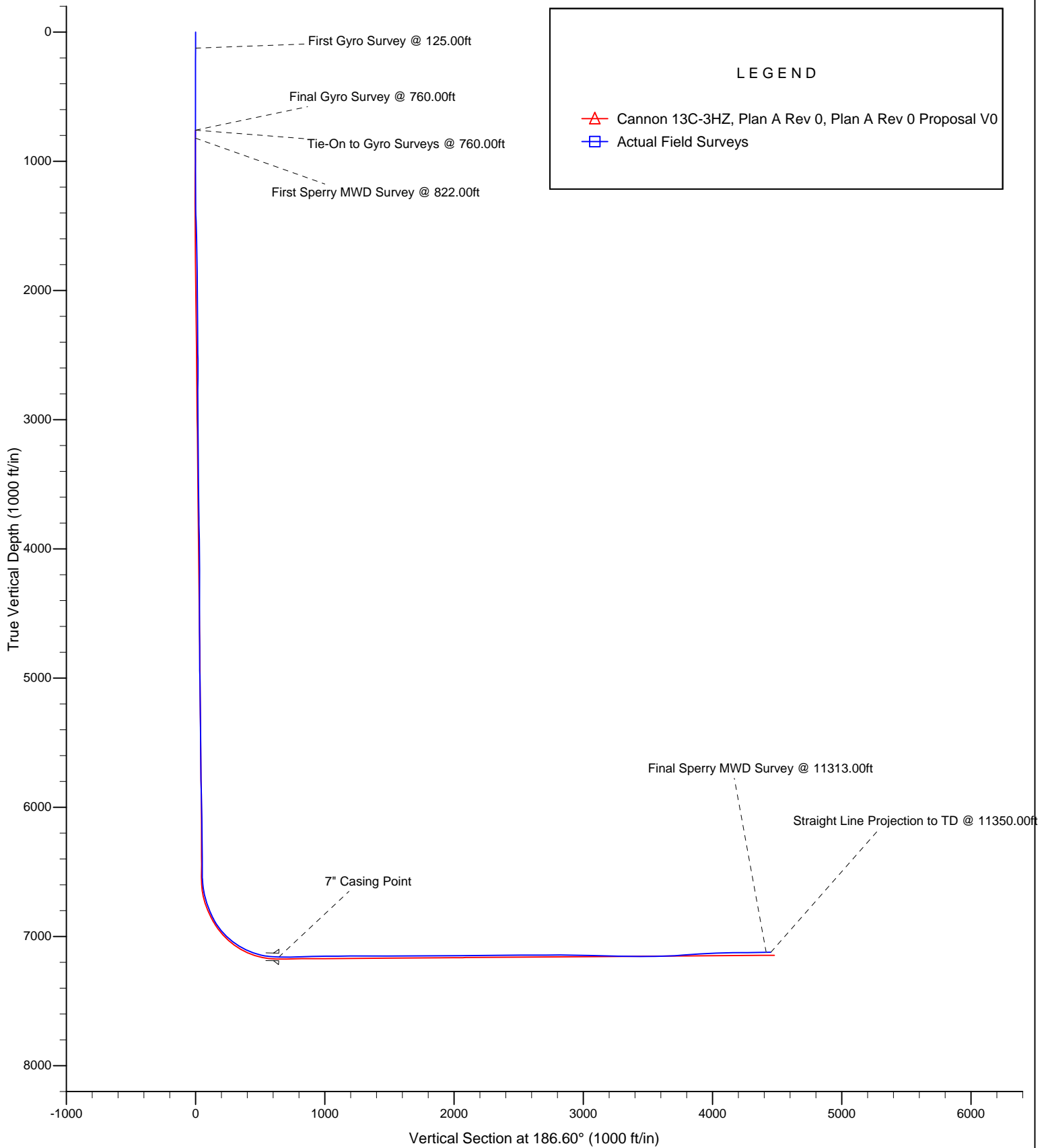
Version: 2003.16 Build: 43I

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
Site: Sec. 3-T2N-R65W  
Well: Cannon 13C-3HZ

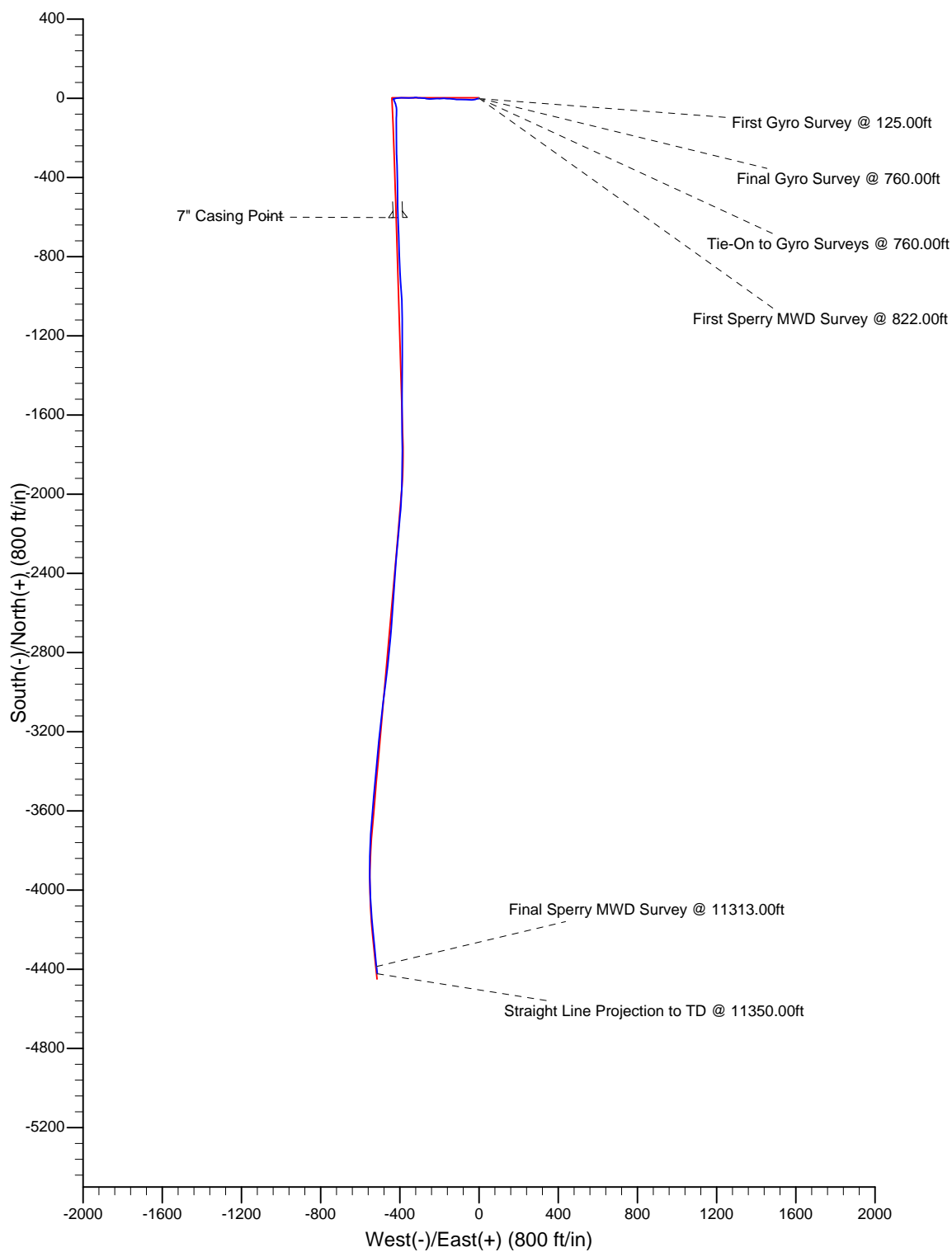
# Anadarko Petroleum Corp.

**HALLIBURTON**  
Sperry Drilling



## LEGEND

- △ Cannon 13C-3HZ, Plan A Rev 0, Plan A Rev 0 Proposal V0
- Actual Field Surveys



**Design Report for Cannon 13C-3HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125.00	0.20	268.49	125.00	-0.01	-0.22	0.03	0.16
<b>First Gyro Survey @ 125.00ft</b>							
225.00	0.12	3.10	225.00	0.09	-0.39	-0.05	0.24
325.00	0.08	296.24	325.00	0.23	-0.44	-0.18	0.12
425.00	0.13	51.81	425.00	0.33	-0.42	-0.28	0.18
525.00	0.15	248.77	525.00	0.35	-0.45	-0.30	0.28
625.00	0.18	352.48	625.00	0.46	-0.59	-0.39	0.26
725.00	0.32	3.65	725.00	0.90	-0.60	-0.82	0.15
760.00	0.24	12.27	760.00	1.07	-0.57	-0.99	0.26
<b>Final Gyro Survey @ 760.00ft - Tie-On to Gyro Surveys @ 760.00ft</b>							
822.00	0.16	288.79	822.00	1.22	-0.63	-1.14	0.44
<b>First Sperry MWD Survey @ 822.00ft</b>							
915.00	0.65	202.71	915.00	0.78	-0.95	-0.66	0.71
1,007.00	0.50	282.64	1,006.99	0.38	-1.55	-0.20	0.81
1,100.00	0.25	237.94	1,099.99	0.36	-2.12	-0.12	0.39
1,191.00	0.63	227.80	1,190.99	-0.08	-2.65	0.38	0.42
1,283.00	0.40	241.09	1,282.98	-0.57	-3.31	0.95	0.28
1,375.00	3.22	260.56	1,374.93	-1.15	-6.14	1.85	3.09
1,467.00	4.68	249.35	1,466.71	-2.90	-12.20	4.28	1.79
1,559.00	5.44	256.10	1,558.35	-5.27	-19.95	7.53	1.05
1,651.00	5.94	265.65	1,649.90	-6.68	-28.93	9.96	1.16
1,743.00	5.66	266.43	1,741.43	-7.32	-38.20	11.67	0.32
1,835.00	6.31	277.18	1,832.93	-6.97	-47.75	12.42	1.41
1,927.00	6.34	272.01	1,924.37	-6.16	-57.84	12.78	0.62
2,019.00	6.02	271.98	2,015.83	-5.82	-67.74	13.57	0.35
2,113.00	5.68	269.38	2,109.35	-5.70	-77.32	14.55	0.46
2,208.00	4.87	272.89	2,203.94	-5.55	-86.04	15.41	0.92
2,303.00	4.72	268.69	2,298.61	-5.43	-93.98	16.20	0.40
2,398.00	5.31	271.86	2,393.25	-5.38	-102.28	17.11	0.69
2,493.00	4.13	269.90	2,487.92	-5.24	-110.09	17.87	1.25
2,587.00	5.24	277.36	2,581.61	-4.70	-117.74	18.21	1.34
2,682.00	4.69	277.29	2,676.25	-3.65	-125.89	18.10	0.58
2,776.00	4.52	277.94	2,769.95	-2.65	-133.37	17.97	0.19
2,871.00	5.08	275.83	2,864.61	-1.71	-141.26	17.94	0.62
2,966.00	5.51	271.20	2,959.21	-1.18	-150.01	18.43	0.64
3,061.00	5.56	273.00	3,053.77	-0.85	-159.16	19.15	0.19
3,155.00	4.94	273.66	3,147.37	-0.35	-167.75	19.64	0.66
3,250.00	4.29	276.46	3,242.06	0.31	-175.36	19.86	0.72
3,345.00	4.24	262.45	3,336.80	0.25	-182.38	20.73	1.10
3,440.00	5.23	269.03	3,431.48	-0.29	-190.19	22.16	1.19
3,535.00	4.03	263.29	3,526.17	-0.75	-197.83	23.50	1.35
3,629.00	5.02	275.62	3,619.87	-0.73	-205.21	24.33	1.47
3,724.00	6.08	266.48	3,714.43	-0.64	-214.36	25.28	1.45
3,819.00	4.72	267.11	3,809.01	-1.14	-223.29	26.81	1.43
3,914.00	6.11	266.31	3,903.58	-1.66	-232.24	28.36	1.47
4,009.00	6.27	264.73	3,998.03	-2.47	-242.45	30.33	0.25
4,103.00	5.51	272.28	4,091.53	-2.76	-252.07	31.73	1.15
4,198.00	4.70	281.82	4,186.15	-1.78	-260.44	31.72	1.23
4,293.00	4.36	280.30	4,280.86	-0.34	-267.80	31.13	0.38

**Design Report for Cannon 13C-3HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,387.00	3.80	279.96	4,374.62	0.84	-274.38	30.72	0.60
4,482.00	5.48	271.54	4,469.31	1.51	-282.02	30.93	1.90
4,577.00	5.18	272.70	4,563.89	1.83	-290.84	31.63	0.34
4,672.00	4.27	276.43	4,658.57	2.43	-298.64	31.93	1.01
4,767.00	5.58	273.36	4,753.22	3.10	-306.76	32.20	1.41
4,861.00	4.69	279.73	4,846.84	4.01	-315.11	32.25	1.12
4,956.00	3.41	265.70	4,941.60	4.46	-321.76	32.57	1.69
5,051.00	5.20	263.14	5,036.33	3.73	-328.85	34.11	1.89
5,145.00	5.51	269.54	5,129.92	3.19	-337.59	35.66	0.72
5,240.00	3.87	269.53	5,224.60	3.13	-345.36	36.61	1.73
5,335.00	5.98	269.03	5,319.24	3.02	-353.51	37.66	2.22
5,430.00	6.00	269.09	5,413.73	2.85	-363.43	38.96	0.02
5,525.00	5.47	271.54	5,508.25	2.90	-372.92	40.01	0.61
5,620.00	5.74	273.19	5,602.80	3.28	-382.19	40.69	0.33
5,714.00	4.09	275.14	5,696.45	3.84	-390.22	41.06	1.76
5,809.00	5.72	263.28	5,791.10	3.59	-398.30	42.24	2.01
5,904.00	5.68	260.42	5,885.63	2.26	-407.63	44.64	0.30
5,999.00	4.34	263.48	5,980.26	1.07	-415.84	46.76	1.44
6,094.00	3.24	261.75	6,075.06	0.27	-422.07	48.27	1.16
6,189.00	2.59	256.71	6,169.93	-0.61	-426.81	49.69	0.73
6,283.00	1.69	246.57	6,263.87	-1.65	-430.15	51.10	1.04
6,378.00	0.16	286.67	6,358.85	-2.16	-431.57	51.78	1.65
6,473.00	0.53	235.02	6,453.85	-2.38	-432.05	52.05	0.47
6,505.00	0.43	113.26	6,485.85	-2.51	-432.06	52.18	2.63
6,536.00	0.40	153.85	6,516.85	-2.65	-431.91	52.31	0.93
6,568.00	2.25	163.08	6,548.84	-3.36	-431.68	52.98	5.80
6,599.00	5.25	163.03	6,579.77	-5.29	-431.09	54.84	9.68
6,631.00	7.62	155.22	6,611.56	-8.62	-429.77	57.99	7.88
6,663.00	11.04	155.28	6,643.14	-13.33	-427.60	62.42	10.69
6,694.00	13.38	156.64	6,673.43	-19.32	-424.93	68.06	7.60
6,726.00	16.49	162.44	6,704.35	-27.05	-422.10	75.42	10.77
6,757.00	18.97	166.19	6,733.88	-36.14	-419.56	84.15	8.80
6,789.00	20.58	171.45	6,763.99	-46.76	-417.49	94.46	7.49
6,821.00	22.42	177.21	6,793.77	-58.42	-416.35	105.91	8.75
6,853.00	24.26	182.84	6,823.15	-71.08	-416.38	118.49	9.03
6,884.00	26.61	183.07	6,851.14	-84.38	-417.07	131.78	7.59
6,916.00	30.12	181.78	6,879.30	-99.56	-417.70	146.94	11.13
6,947.00	33.59	180.20	6,905.62	-115.92	-417.97	163.22	11.51
6,979.00	36.79	179.96	6,931.77	-134.36	-418.00	181.54	10.01
7,010.00	39.12	180.22	6,956.21	-153.42	-418.03	200.48	7.53
7,041.00	42.28	179.19	6,979.71	-173.63	-417.92	220.54	10.42
7,073.00	45.52	178.81	7,002.77	-195.81	-417.53	242.53	10.16
7,104.00	49.96	179.03	7,023.61	-218.75	-417.10	265.26	14.33
7,136.00	54.16	179.41	7,043.28	-243.98	-416.76	290.29	13.16
7,167.00	56.70	179.07	7,060.87	-269.50	-416.42	315.60	8.24
7,199.00	60.42	178.04	7,077.56	-296.79	-415.73	342.63	11.94
7,230.00	62.16	177.81	7,092.45	-323.96	-414.74	369.50	5.65
7,262.00	65.41	178.06	7,106.58	-352.64	-413.71	397.88	10.18
7,294.00	68.87	178.19	7,119.01	-382.11	-412.74	427.04	10.82
7,325.00	70.86	179.19	7,129.68	-411.20	-412.08	455.87	7.10
7,357.00	73.85	179.86	7,139.38	-441.69	-411.83	486.13	9.55

**Design Report for Cannon 13C-3HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7,388.00	77.84	179.46	7,146.96	-471.75	-411.65	515.96	12.93
7,420.00	82.50	179.60	7,152.42	-503.27	-411.39	547.24	14.57
7,451.00	84.65	178.63	7,155.89	-534.07	-410.91	577.78	7.60
7,479.00	86.42	178.17	7,158.07	-561.97	-410.13	605.41	6.53
7,519.00	89.04	178.20	7,159.66	-601.91	-408.87	644.94	6.56
<b>7" Casing Point</b>							
7,542.00	90.55	178.21	7,159.74	-624.90	-408.15	667.69	6.56
7,605.00	90.74	178.26	7,159.03	-687.87	-406.21	730.02	0.31
7,700.00	91.11	177.55	7,157.49	-782.79	-402.73	823.91	0.84
7,795.00	91.36	177.30	7,155.45	-877.67	-398.47	917.68	0.37
7,889.00	90.49	176.20	7,153.93	-971.51	-393.14	1,010.27	1.49
7,984.00	90.56	177.90	7,153.06	-1,066.37	-388.25	1,103.95	1.79
8,079.00	90.80	179.99	7,151.93	-1,161.35	-386.50	1,198.09	2.21
8,174.00	90.37	180.68	7,150.96	-1,256.34	-387.06	1,292.52	0.86
8,269.00	89.82	180.98	7,150.80	-1,351.33	-388.43	1,387.03	0.66
8,363.00	89.01	179.47	7,151.76	-1,445.32	-388.80	1,480.44	1.82
8,458.00	90.00	179.80	7,152.58	-1,540.31	-388.20	1,574.74	1.10
8,553.00	90.31	179.74	7,152.33	-1,635.31	-387.81	1,669.06	0.33
8,648.00	90.49	179.43	7,151.66	-1,730.31	-387.13	1,763.35	0.38
8,743.00	90.68	180.82	7,150.69	-1,825.30	-387.33	1,857.73	1.48
8,837.00	90.87	181.20	7,149.42	-1,919.28	-388.99	1,951.28	0.45
8,932.00	90.12	182.66	7,148.60	-2,014.21	-392.19	2,045.95	1.73
9,027.00	90.31	184.91	7,148.25	-2,109.00	-398.46	2,140.83	2.38
9,122.00	90.56	185.33	7,147.52	-2,203.62	-406.94	2,235.80	0.51
9,216.00	90.74	185.07	7,146.46	-2,297.23	-415.46	2,329.76	0.34
9,311.00	90.74	183.78	7,145.23	-2,391.93	-422.79	2,424.68	1.36
9,406.00	90.06	184.59	7,144.57	-2,486.68	-429.72	2,519.60	1.11
9,501.00	89.94	183.72	7,144.57	-2,581.42	-436.60	2,614.51	0.92
9,596.00	89.81	184.21	7,144.78	-2,676.20	-443.17	2,709.41	0.53
9,691.00	90.12	185.79	7,144.83	-2,770.83	-451.45	2,804.37	1.69
9,786.00	89.20	186.42	7,145.40	-2,865.29	-461.55	2,899.36	1.17
9,881.00	89.14	186.61	7,146.77	-2,959.67	-472.33	2,994.35	0.21
9,977.00	88.77	186.56	7,148.52	-3,055.02	-483.34	3,090.33	0.39
10,071.00	88.46	187.68	7,150.80	-3,148.26	-494.99	3,184.30	1.24
10,166.00	89.32	185.53	7,152.64	-3,242.61	-505.91	3,279.28	2.44
10,261.00	88.95	185.14	7,154.07	-3,337.19	-514.74	3,374.24	0.57
10,356.00	89.14	184.75	7,155.65	-3,431.82	-522.93	3,469.19	0.46
10,451.00	91.48	184.82	7,155.14	-3,526.48	-530.85	3,564.13	2.46
10,547.00	92.59	185.12	7,151.73	-3,622.06	-539.16	3,660.03	1.20
10,642.00	94.14	184.01	7,146.16	-3,716.59	-546.71	3,754.80	2.01
10,737.00	94.46	181.48	7,139.03	-3,811.20	-551.25	3,849.31	2.68
10,833.00	92.97	179.39	7,132.81	-3,906.99	-551.98	3,944.55	2.67
10,928.00	91.36	177.30	7,129.22	-4,001.88	-549.23	4,038.49	2.78
11,023.00	91.67	177.24	7,126.71	-4,096.74	-544.71	4,132.20	0.33
11,118.00	89.69	174.08	7,125.58	-4,191.44	-537.52	4,225.45	3.93
11,212.00	91.11	174.25	7,124.93	-4,284.95	-527.97	4,317.24	1.52
11,307.00	90.80	174.44	7,123.34	-4,379.47	-518.61	4,410.06	0.38
11,313.00	90.86	174.38	7,123.26	-4,385.44	-518.02	4,415.92	1.41
<b>Final Sperry MWD Survey @ 11313.00ft</b>							
11,350.00	90.86	174.38	7,122.70	-4,422.26	-514.40	4,452.08	0.00
<b>Straight Line Projection to TD @ 11350.00ft</b>							

## Design Report for Cannon 13C-3HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
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### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
125.00	125.00	-0.01	-0.22	First Gyro Survey @ 125.00ft
760.00	760.00	1.07	-0.57	Final Gyro Survey @ 760.00ft
760.00	760.00	1.07	-0.57	Tie-On to Gyro Surveys @ 760.00ft
822.00	822.00	1.22	-0.63	First Sperry MWD Survey @ 822.00ft
11,313.00	7,123.26	-4,385.44	-518.02	Final Sperry MWD Survey @ 11313.00ft
11,350.00	7,122.70	-4,422.26	-514.40	Straight Line Projection to TD @ 11350.00ft

### Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Cannon 13C-31HZ_BHL ReLoc	186.60	Slot	0.00	0.00	0.00

### Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
125.00	760.00	Surface Gyros	NS-GYRO-MS
822.00	11,350.00	Sperry MWD Surveys	MWD

### Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,519.00		7" Casing Point	7	8-3/4

## Design Report for Cannon 13C-3HZ - Actual Field Surveys

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Cannon 13C-31HZ_ - actual wellpath misses target center by 35.03ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E) - Point	0.00	0.00	7,146.00	-4,448.41	-515.00	,889.891494	,5,628.247584	40.161753	-104.656920
Cannon 13C-31HZ_ - actual wellpath misses target center by 35.85ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E) - Point	0.00	0.00	7,146.00	-4,448.41	-506.74	,889.974244	,5,636.511655	40.161753	-104.656890
Cannon 13C-31HZ_ - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	,342.818385	,6,100.818963	40.173964	-104.655077
Cannon 13C-3HZ_M - actual wellpath misses target center by 6.98ft at 10624.64ft MD (7147.37 TVD, -3699.31 N, -545.47 E) - Point	0.00	0.00	7,151.65	-3,700.00	-540.00	,637.997699	,5,596.119088	40.163807	-104.657009
Cannon 13C-31HZ_ - actual wellpath hits target center - Polygon Point 1 Point 2 Point 3 Point 4 Point 5 Point 6 Point 7	0.00	0.00	0.00	0.00	0.00	,342.818385	,6,100.818963	40.173964	-104.655077
				4,157.91	220.66	1,307,603.07	3,240,256.26		
				1,510.83	237.47	1,307,594.66	3,237,609.25		
				-1,136.21	254.02	1,307,585.99	3,234,962.29		
				-1,160.49	-2,253.71	1,305,078.25	3,234,961.90		
				-1,186.22	-4,909.06	1,302,422.89	3,234,961.48		
				4,088.85	-4,905.55	1,302,476.66	3,240,236.05		
				4,115.51	-2,258.66	1,305,123.57	3,240,237.49		
Cannon 13C-3HZ_M - actual wellpath misses target center by 14.94ft at 8617.61ft MD (7151.91 TVD, -1699.91 N, -387.40 E) - Point	0.00	0.00	7,166.65	-1,700.00	-385.00	,639.299199	,5,732.049938	40.169297	-104.656455
Cannon 13C-31HZ_ - actual wellpath hits target center - Polygon Point 1 Point 2 Point 3 Point 4 Point 5 Point 6 Point 7	0.00	0.00	0.00	0.00	0.00	,342.818385	,6,100.818963	40.173964	-104.655077
				3,690.00	-236.40	1,307,141.60	3,239,792.75		
				1,507.95	-222.54	1,307,134.67	3,237,610.76		
				-680.65	-208.86	1,307,127.49	3,235,422.22		
				-700.45	-2,254.14	1,305,082.20	3,235,421.91		
				-721.72	-4,448.74	1,302,887.59	3,235,421.55		
				3,633.44	-4,445.84	1,302,931.99	3,239,776.30		
				3,655.47	-2,258.23	1,305,119.61	3,239,777.48		
Cannon 13C-31HZ_ - actual wellpath hits target center - Polygon Point 1 Point 2 Point 3 Point 4	0.00	0.00	0.00	0.00	0.00	,342.818385	,6,100.818963	40.173964	-104.655077
				-282.58	-212.65	1,307,127.49	3,235,820.29		
				-680.65	-208.86	1,307,127.49	3,235,422.22		
				-721.72	-4,448.74	1,302,887.59	3,235,421.55		
				-323.79	-4,452.53	1,302,887.59	3,235,819.48		

# North Reference Sheet for Sec. 3-T2N-R65W - Cannon 13C-3HZ - Plan A Rev 0

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB=25ft @ 4865.00ft (HP 308). Northing and Easting are relative to Cannon 13C-3HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.000644ft, False Northing: 1,000,000.001308ft, Scale Reduction: 0.99995774

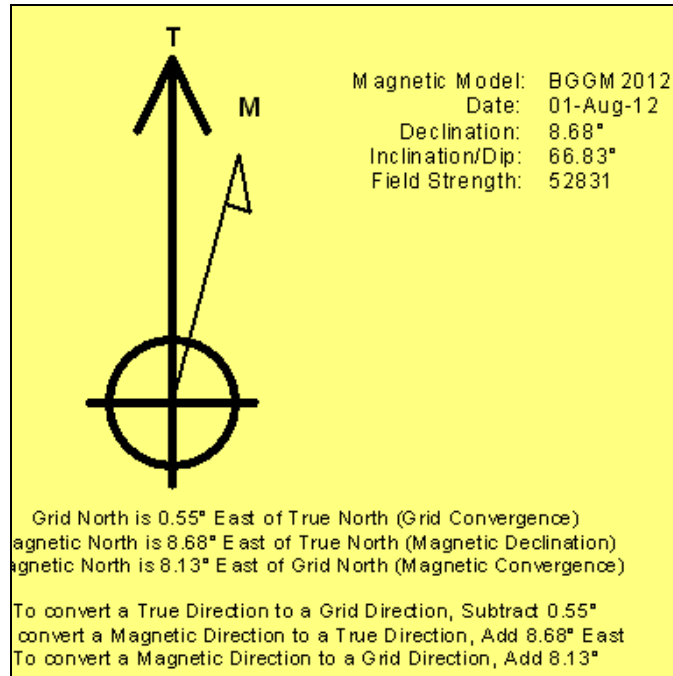
Grid Coordinates of Well: 1,307,342.818385 ft N, 3,236,100.818963 ft E

Geographical Coordinates of Well: 40° 10' 26.27" N, 104° 39' 18.28" W

Grid Convergence at Surface is: 0.55°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,350.00ft  
the Bottom Hole Displacement is 4,452.08ft in the Direction of 186.63° (True).

Magnetic Convergence at surface is: -8.13° ( 1 August 2012, , BGGM2012)



# **Anadarko Petroleum Corp.**

**Weld County, CO (NAD 83)**

**Sec. 3-T2N-R65W**

**Cannon 13C-3HZ**

**Plan A Rev 0**

**Design: Actual Field Surveys**

## **Survey Report - Geographic**

**09 August, 2012**

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

<b>Project</b>	Weld County, CO (NAD 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Sec. 3-T2N-R65W			
Site Position:		Northing:	1,307,311.710052ft	Latitude:	40.173779
From:	Lat/Long	Easting:	3,239,877.076052ft	Longitude:	-104.641565
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.55 °

Well	Cannon 13C-3HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,307,342.818385 ft	Latitude:	40.173964
	+E/-W	0.00 ft	Easting:	3,236,100.818963 ft	Longitude:	-104.655077
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,840.00 ft

<b>Wellbore</b>	Plan A Rev 0				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2012	2012-08-01	8.68	66.83	52,831

<b>Design</b>	Actual Field Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	186.60	

<b>Survey Program</b>	<b>Date</b>	2012-08-09			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
125.00	760.00	Surface Gyros (Plan A Rev 0)	NS-GYRO-MS	North sensing gyrocompassing m/s	
822.00	11,350.00	Sperry MWD Surveys (Plan A Rev 0)	MWD	MWD - Standard	

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	07,342.818385	36,100.818963	40.173964	-104.655077
125.00	0.20	268.49	125.00	-0.01	-0.22	07,342.810559	36,100.600946	40.173964	-104.655078
<b>First Gyro Survey @ 125.00ft</b>									
225.00	0.12	3.10	225.00	0.09	-0.39	07,342.908909	36,100.431200	40.173964	-104.655078
325.00	0.08	296.24	325.00	0.23	-0.44	07,343.043787	36,100.372958	40.173965	-104.655079
425.00	0.13	51.81	425.00	0.33	-0.42	07,343.145039	36,100.398540	40.173965	-104.655078
525.00	0.15	248.77	525.00	0.35	-0.45	07,343.167464	36,100.365475	40.173965	-104.655079
625.00	0.18	352.48	625.00	0.46	-0.59	07,343.274424	36,100.221881	40.173965	-104.655079
725.00	0.32	3.65	725.00	0.90	-0.60	07,343.708773	36,100.214963	40.173966	-104.655079
760.00	0.24	12.27	760.00	1.07	-0.57	07,343.878135	36,100.235150	40.173967	-104.655079
<b>Final Gyro Survey @ 760.00ft - Tie-On to Gyro Surveys @ 760.00ft</b>									
822.00	0.16	288.79	822.00	1.22	-0.63	07,344.032373	36,100.179321	40.173967	-104.655079
<b>First Sperry MWD Survey @ 822.00ft</b>									
915.00	0.65	202.71	915.00	0.78	-0.95	07,343.584505	36,099.856996	40.173966	-104.655080
1,007.00	0.50	282.64	1,006.99	0.38	-1.55	07,343.185338	36,099.267632	40.173965	-104.655083
1,100.00	0.25	237.94	1,099.99	0.36	-2.12	07,343.161027	36,098.699959	40.173965	-104.655085
1,191.00	0.63	227.80	1,190.99	-0.08	-2.65	07,342.714494	36,098.165341	40.173964	-104.655086
1,283.00	0.40	241.09	1,282.98	-0.57	-3.31	07,342.213292	36,097.514307	40.173962	-104.655089
1,375.00	3.22	260.56	1,374.93	-1.15	-6.14	07,341.607221	36,094.689542	40.173961	-104.655099
1,467.00	4.68	249.35	1,466.71	-2.90	-12.20	07,339.802133	36,088.645441	40.173956	-104.655121
1,559.00	5.44	256.10	1,558.35	-5.27	-19.95	07,337.357278	36,080.923246	40.173949	-104.655148
1,651.00	5.94	265.65	1,649.90	-6.68	-28.93	07,335.863105	36,071.957260	40.173946	-104.655181
1,743.00	5.66	266.43	1,741.43	-7.32	-38.20	07,335.131228	36,062.689550	40.173944	-104.655214
1,835.00	6.31	277.18	1,832.93	-6.97	-47.75	07,335.389684	36,053.142591	40.173945	-104.655248
1,927.00	6.34	272.01	1,924.37	-6.16	-57.84	07,336.103527	36,043.042990	40.173947	-104.655284
2,019.00	6.02	271.98	2,015.83	-5.82	-67.74	07,336.354038	36,033.142576	40.173948	-104.655319
2,113.00	5.68	269.38	2,109.35	-5.70	-77.32	07,336.382744	36,023.564586	40.173948	-104.655354
2,208.00	4.87	272.89	2,203.94	-5.55	-86.04	07,336.452014	36,014.835422	40.173949	-104.655385
2,303.00	4.72	268.69	2,298.61	-5.43	-93.98	07,336.490358	36,006.900026	40.173949	-104.655413
2,398.00	5.31	271.86	2,393.25	-5.38	-102.28	07,336.464582	35,998.599032	40.173949	-104.655443
2,493.00	4.13	269.90	2,487.92	-5.24	-110.09	07,336.526826	35,990.783661	40.173950	-104.655471
2,587.00	5.24	277.36	2,581.61	-4.70	-117.74	07,336.997950	35,983.136876	40.173951	-104.655498
2,682.00	4.69	277.29	2,676.25	-3.65	-125.89	07,337.968713	35,974.972786	40.173954	-104.655527
2,776.00	4.52	277.94	2,769.95	-2.65	-133.37	07,338.896637	35,967.483621	40.173957	-104.655554
2,871.00	5.08	275.83	2,864.61	-1.71	-141.26	07,339.765692	35,959.583587	40.173959	-104.655583
2,966.00	5.51	271.20	2,959.21	-1.18	-150.01	07,340.205085	35,950.835157	40.173961	-104.655614
3,061.00	5.56	273.00	3,053.77	-0.85	-159.16	07,340.454198	35,941.676945	40.173962	-104.655647
3,155.00	4.94	273.66	3,147.37	-0.35	-167.75	07,340.869033	35,933.086350	40.173963	-104.655677
3,250.00	4.29	276.46	3,242.06	0.31	-175.36	07,341.457331	35,925.467967	40.173965	-104.655705
3,345.00	4.24	262.45	3,336.80	0.25	-182.38	07,341.328863	35,918.456875	40.173965	-104.655730
3,440.00	5.23	269.03	3,431.48	-0.29	-190.19	07,340.719742	35,910.651768	40.173963	-104.655758
3,535.00	4.03	263.29	3,526.17	-0.75	-197.83	07,340.183572	35,903.011961	40.173962	-104.655785
3,629.00	5.02	275.62	3,619.87	-0.73	-205.21	07,340.130122	35,895.638717	40.173962	-104.655811
3,724.00	6.08	266.48	3,714.43	-0.64	-214.36	07,340.141006	35,886.480142	40.173962	-104.655844
3,819.00	4.72	267.11	3,809.01	-1.14	-223.29	07,339.550027	35,877.560128	40.173961	-104.655876
3,914.00	6.11	266.31	3,903.58	-1.66	-232.24	07,338.942332	35,868.616512	40.173959	-104.655908
4,009.00	6.27	264.73	3,998.03	-2.47	-242.45	07,338.043249	35,858.413998	40.173957	-104.655945
4,103.00	5.51	272.28	4,091.53	-2.76	-252.07	07,337.659670	35,848.796640	40.173956	-104.655979
4,198.00	4.70	281.82	4,186.15	-1.78	-260.44	07,338.558590	35,840.420891	40.173959	-104.656009
4,293.00	4.36	280.30	4,280.86	-0.34	-267.80	07,339.931236	35,833.045316	40.173963	-104.656035
4,387.00	3.80	279.96	4,374.62	0.84	-274.38	07,341.046041	35,826.451194	40.173966	-104.656059
4,482.00	5.48	271.54	4,469.31	1.51	-282.02	07,341.639676	35,818.809784	40.173968	-104.656086
4,577.00	5.18	272.70	4,563.89	1.83	-290.84	07,341.879556	35,809.989143	40.173969	-104.656118
4,672.00	4.27	276.43	4,658.57	2.43	-298.64	07,342.403305	35,802.185731	40.173971	-104.656146
4,767.00	5.58	273.36	4,753.22	3.10	-306.76	07,342.992628	35,794.054536	40.173972	-104.656175

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
4,861.00	4.69	279.73	4,846.84	4.01	-315.11	07,343.830342	35,785.696425	40.173975	-104.656205
4,956.00	3.41	265.70	4,941.60	4.46	-321.76	07,344.211559	35,779.047010	40.173976	-104.656228
5,051.00	5.20	263.14	5,036.33	3.73	-328.85	07,343.417940	35,771.962364	40.173974	-104.656254
5,145.00	5.51	269.54	5,129.92	3.19	-337.59	07,342.789659	35,763.226217	40.173973	-104.656285
5,240.00	3.87	269.53	5,224.60	3.13	-345.36	07,342.652742	35,755.460384	40.173973	-104.656313
5,335.00	5.98	269.03	5,319.24	3.02	-353.51	07,342.464971	35,747.307518	40.173972	-104.656342
5,430.00	6.00	269.09	5,413.73	2.85	-363.43	07,342.207913	35,737.397558	40.173972	-104.656378
5,525.00	5.47	271.54	5,508.25	2.90	-372.92	07,342.160315	35,727.907143	40.173972	-104.656411
5,620.00	5.74	273.19	5,602.80	3.28	-382.19	07,342.458013	35,718.634650	40.173973	-104.656445
5,714.00	4.09	275.14	5,696.45	3.84	-390.22	07,342.943371	35,710.597329	40.173974	-104.656473
5,809.00	5.72	263.28	5,791.10	3.59	-398.30	07,342.615952	35,702.523776	40.173974	-104.656502
5,904.00	5.68	260.42	5,885.63	2.26	-407.63	07,341.190727	35,693.200019	40.173970	-104.656536
5,999.00	4.34	263.48	5,980.26	1.07	-415.84	07,339.922022	35,685.004758	40.173967	-104.656565
6,094.00	3.24	261.75	6,075.06	0.27	-422.07	07,339.069338	35,678.784514	40.173965	-104.656587
6,189.00	2.59	256.71	6,169.93	-0.61	-426.81	07,338.145534	35,674.047419	40.173962	-104.656604
6,283.00	1.69	246.57	6,263.87	-1.65	-430.15	07,337.074395	35,670.718724	40.173959	-104.656616
6,378.00	0.16	286.67	6,358.85	-2.16	-431.57	07,336.541979	35,669.311280	40.173958	-104.656621
6,473.00	0.53	235.02	6,453.85	-2.38	-432.05	07,336.323513	35,668.826280	40.173957	-104.656623
6,505.00	0.43	113.26	6,485.85	-2.51	-432.06	07,336.191151	35,668.816593	40.173957	-104.656623
6,536.00	0.40	153.85	6,516.85	-2.65	-431.91	07,336.049565	35,668.972504	40.173957	-104.656623
6,568.00	2.25	163.08	6,548.84	-3.36	-431.68	07,335.350544	35,669.211231	40.173955	-104.656622
6,599.00	5.25	163.03	6,579.77	-5.29	-431.09	07,333.417198	35,669.820847	40.173949	-104.656620
6,631.00	7.62	155.22	6,611.56	-8.62	-429.77	07,330.102934	35,671.169203	40.173940	-104.656615
6,663.00	11.04	155.28	6,643.14	-13.33	-427.60	07,325.413211	35,673.385073	40.173927	-104.656607
6,694.00	13.38	156.64	6,673.43	-19.32	-424.93	07,319.449283	35,676.105726	40.173911	-104.656598
6,726.00	16.49	162.44	6,704.35	-27.05	-422.10	07,311.745699	35,679.018287	40.173890	-104.656587
6,757.00	18.97	166.19	6,733.88	-36.14	-419.56	07,302.681283	35,681.635273	40.173865	-104.656578
6,789.00	20.58	171.45	6,763.99	-46.76	-417.49	07,292.087912	35,683.814226	40.173836	-104.656571
6,821.00	22.42	177.21	6,793.77	-58.42	-416.35	07,280.440626	35,685.058639	40.173804	-104.656567
6,853.00	24.26	182.84	6,823.15	-71.08	-416.38	07,267.777749	35,685.150599	40.173769	-104.656567
6,884.00	26.61	183.07	6,851.14	-84.38	-417.07	07,254.476990	35,684.589870	40.173732	-104.656569
6,916.00	30.12	181.78	6,879.30	-99.56	-417.70	07,239.285906	35,684.101202	40.173691	-104.656572
6,947.00	33.59	180.20	6,905.62	-115.92	-417.97	07,222.929857	35,683.985428	40.173646	-104.656573
6,979.00	36.79	179.96	6,931.77	-134.36	-418.00	07,204.492417	35,684.136896	40.173595	-104.656573
7,010.00	39.12	180.22	6,956.21	-153.42	-418.03	07,185.428854	35,684.287470	40.173543	-104.656573
7,041.00	42.28	179.19	6,979.71	-173.63	-417.92	07,165.220067	35,684.589923	40.173487	-104.656572
7,073.00	45.52	178.81	7,002.77	-195.81	-417.53	07,143.043319	35,685.190596	40.173426	-104.656571
7,104.00	49.96	179.03	7,023.61	-218.75	-417.10	07,120.116122	35,685.839844	40.173363	-104.656570
7,136.00	54.16	179.41	7,043.28	-243.98	-416.76	07,094.892659	35,686.421275	40.173294	-104.656568
7,167.00	56.70	179.07	7,060.87	-269.50	-416.42	07,069.376104	35,687.004127	40.173224	-104.656567
7,199.00	60.42	178.04	7,077.56	-296.79	-415.73	07,042.097288	35,687.957276	40.173149	-104.656565
7,230.00	62.16	177.81	7,092.45	-323.96	-414.74	07,014.939036	35,689.200923	40.173075	-104.656561
7,262.00	65.41	178.06	7,106.58	-352.64	-413.71	06,986.265318	35,690.507596	40.172996	-104.656557
7,294.00	68.87	178.19	7,119.01	-382.11	-412.74	06,956.810728	35,691.752463	40.172915	-104.656554
7,325.00	70.86	179.19	7,129.68	-411.20	-412.08	06,927.723684	35,692.693366	40.172835	-104.656552
7,357.00	73.85	179.86	7,139.38	-441.69	-411.83	06,897.238959	35,693.235140	40.172751	-104.656551
7,388.00	77.84	179.46	7,146.96	-471.75	-411.65	06,867.191209	35,693.700710	40.172669	-104.656550
7,420.00	82.50	179.60	7,152.42	-503.27	-411.39	06,835.675992	35,694.259306	40.172582	-104.656549
7,451.00	84.65	178.63	7,155.89	-534.07	-410.91	06,804.883803	35,695.029036	40.172498	-104.656547
7,479.00	86.42	178.17	7,158.07	-561.97	-410.13	06,776.990726	35,696.074356	40.172421	-104.656545
7,519.00	89.04	178.20	7,159.66	-601.91	-408.87	06,737.061251	35,697.722217	40.172312	-104.656540
<b>7" Casing Point</b>									
7,542.00	90.55	178.21	7,159.74	-624.90	-408.15	06,714.082263	35,698.662514	40.172249	-104.656537
7,605.00	90.74	178.26	7,159.03	-687.87	-406.21	06,651.140179	35,701.202559	40.172076	-104.656531
7,700.00	91.11	177.55	7,157.49	-782.79	-402.73	06,556.258225	35,705.579020	40.171815	-104.656518

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
7,795.00	91.36	177.30	7,155.45	-877.67	-398.47	06,461.425318	35,710.749726	40.171555	-104.656503
7,889.00	90.49	176.20	7,153.93	-971.51	-393.14	06,367.650074	35,716.971696	40.171297	-104.656484
7,984.00	90.56	177.90	7,153.06	-1,066.37	-388.25	06,272.838329	35,722.763884	40.171037	-104.656466
8,079.00	90.80	179.99	7,151.93	-1,161.35	-386.50	06,177.891448	35,725.417581	40.170776	-104.656460
8,174.00	90.37	180.68	7,150.96	-1,256.34	-387.06	06,082.901855	35,725.767262	40.170515	-104.656462
8,269.00	89.82	180.98	7,150.80	-1,351.33	-388.43	05,987.907642	35,725.296284	40.170255	-104.656467
8,363.00	89.01	179.47	7,151.76	-1,445.32	-388.80	05,893.921491	35,725.822649	40.169997	-104.656468
8,458.00	90.00	179.80	7,152.58	-1,540.31	-388.20	05,798.942369	35,727.332808	40.169736	-104.656466
8,553.00	90.31	179.74	7,152.33	-1,635.31	-387.81	05,703.955562	35,728.619253	40.169475	-104.656465
8,648.00	90.49	179.43	7,151.66	-1,730.31	-387.13	05,608.975407	35,730.212354	40.169214	-104.656462
8,743.00	90.68	180.82	7,150.69	-1,825.30	-387.33	05,513.989310	35,730.910217	40.168953	-104.656463
8,837.00	90.87	181.20	7,149.42	-1,919.28	-388.99	05,420.005179	35,730.148984	40.168695	-104.656469
8,932.00	90.12	182.66	7,148.60	-2,014.21	-392.19	05,325.043703	35,727.854529	40.168435	-104.656480
9,027.00	90.31	184.91	7,148.25	-2,109.00	-398.46	05,230.206281	35,722.487437	40.168175	-104.656503
9,122.00	90.56	185.33	7,147.52	-2,203.62	-406.94	05,135.515867	35,714.911967	40.167915	-104.656533
9,216.00	90.74	185.07	7,146.46	-2,297.23	-415.46	05,041.835915	35,707.285673	40.167658	-104.656564
9,311.00	90.74	183.78	7,145.23	-2,391.93	-422.79	04,947.067467	35,700.859792	40.167398	-104.656590
9,406.00	90.06	184.59	7,144.57	-2,486.68	-429.72	04,852.266682	35,694.830506	40.167138	-104.656615
9,501.00	89.94	183.72	7,144.57	-2,581.42	-436.60	04,757.460023	35,688.850714	40.166878	-104.656639
9,596.00	89.81	184.21	7,144.78	-2,676.20	-443.17	04,662.633662	35,683.185323	40.166618	-104.656663
9,691.00	90.12	185.79	7,144.83	-2,770.83	-451.45	04,567.927707	35,675.808190	40.166358	-104.656692
9,786.00	89.20	186.42	7,145.40	-2,865.29	-461.55	04,473.381656	35,666.606084	40.166099	-104.656728
9,881.00	89.14	186.61	7,146.77	-2,959.67	-472.33	04,378.910682	35,656.728349	40.165840	-104.656767
9,977.00	88.77	186.56	7,148.52	-3,055.02	-483.34	04,283.463526	35,646.630642	40.165578	-104.656806
10,071.00	88.46	187.68	7,150.80	-3,148.26	-494.99	04,190.114427	35,635.872658	40.165322	-104.656848
10,166.00	89.32	185.53	7,152.64	-3,242.61	-505.91	04,095.673258	35,625.848305	40.165063	-104.656887
10,261.00	88.95	185.14	7,154.07	-3,337.19	-514.74	04,001.020058	35,617.918226	40.164803	-104.656919
10,356.00	89.14	184.75	7,155.65	-3,431.82	-522.93	03,906.317313	35,610.632808	40.164544	-104.656948
10,451.00	91.48	184.82	7,155.14	-3,526.48	-530.85	03,811.589183	35,603.611473	40.164284	-104.656976
10,547.00	92.59	185.12	7,151.73	-3,622.06	-539.16	03,715.941227	35,596.211435	40.164021	-104.657006
10,642.00	94.14	184.01	7,146.16	-3,716.59	-546.71	03,621.346666	35,589.564372	40.163762	-104.657033
10,737.00	94.46	181.48	7,139.03	-3,811.20	-551.25	03,526.695762	35,585.929356	40.163502	-104.657049
10,833.00	92.97	179.39	7,132.81	-3,906.99	-551.98	03,430.909773	35,586.116287	40.163239	-104.657052
10,928.00	91.36	177.30	7,129.22	-4,001.88	-549.23	03,336.060057	35,589.762512	40.162979	-104.657042
11,023.00	91.67	177.24	7,126.71	-4,096.74	-544.71	03,241.252576	35,595.189119	40.162718	-104.657026
11,118.00	89.69	174.08	7,125.58	-4,191.44	-537.52	03,146.625202	35,603.278683	40.162458	-104.657000
11,212.00	91.11	174.25	7,124.93	-4,284.95	-527.97	03,053.216186	35,613.724720	40.162202	-104.656966
11,307.00	90.80	174.44	7,123.34	-4,379.47	-518.61	02,958.789279	35,623.984314	40.161942	-104.656932
11,313.00	90.86	174.38	7,123.26	-4,385.44	-518.02	02,952.824531	35,624.625545	40.161926	-104.656930
<b>Final Sperry MWD Survey @ 11313.00ft</b>									
11,350.00	90.86	174.38	7,122.70	-4,422.26	-514.40	02,916.044274	35,628.599034	40.161825	-104.656917
<b>Straight Line Projection to TD @ 11350.00ft</b>									

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Targets

Target Name	- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-515.00	302,889.891494	35,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 35.03ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	35,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 35.85ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Point										
Cannon 13C-3HZ_WF		0.00	0.00	7,151.65	-3,700.00	-540.00	303,637.997699	35,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 6.98ft at 10624.64ft MD (7147.37 TVD, -3699.31 N, -545.47 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	220.66	4,157.91	1,307,603.07	3,240,256.26		
Point 2				0.00	237.47	1,510.83	1,307,594.66	3,237,609.25		
Point 3				0.00	254.02	-1,136.21	1,307,585.99	3,234,962.29		
Point 4				0.00	-2,253.71	-1,160.49	1,305,078.25	3,234,961.90		
Point 5				0.00	-4,909.06	-1,186.22	1,302,422.89	3,234,961.48		
Point 6				0.00	-4,905.55	4,088.85	1,302,476.66	3,240,236.05		
Point 7				0.00	-2,258.66	4,115.51	1,305,123.57	3,240,237.49		
Cannon 13C-3HZ_WF		0.00	0.00	7,166.65	-1,700.00	-385.00	305,639.299199	35,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 14.94ft at 8617.61ft MD (7151.91 TVD, -1699.91 N, -387.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-236.40	3,690.00	1,307,141.60	3,239,792.75		
Point 2				0.00	-222.54	1,507.95	1,307,134.67	3,237,610.76		
Point 3				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 4				0.00	-2,254.14	-700.45	1,305,082.20	3,235,421.91		
Point 5				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 6				0.00	-4,445.84	3,633.44	1,302,931.99	3,239,776.30		
Point 7				0.00	-2,258.23	3,655.47	1,305,119.61	3,239,777.48		
Cannon 13C-31HZ_L		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-212.65	-282.58	1,307,127.49	3,235,820.29		
Point 2				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 3				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 4				0.00	-4,452.53	-323.79	1,302,887.59	3,235,819.48		

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,519.00	7,159.66	7" Casing Point	7	8-3/4

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Cannon 13C-31HZ_B	0.00	0.00	7,146.00	-4,448.41	-515.00	302,889.891494	35,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 35.03ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)									
- Point									
Cannon 13C-31HZ_B	0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	35,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 35.85ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)									
- Point									
Cannon 13C-31HZ_S	0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center									
- Point									
Cannon 13C-3HZ_WF	0.00	0.00	7,151.65	-3,700.00	-540.00	303,637.997699	35,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 6.98ft at 10624.64ft MD (7147.37 TVD, -3699.31 N, -545.47 E)									
- Point									
Cannon 13C-31HZ_S	0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center									
- Polygon									
Point 1			0.00	220.66	4,157.91	1,307,603.07	3,240,256.26		
Point 2			0.00	237.47	1,510.83	1,307,594.66	3,237,609.25		
Point 3			0.00	254.02	-1,136.21	1,307,585.99	3,234,962.29		
Point 4			0.00	-2,253.71	-1,160.49	1,305,078.25	3,234,961.90		
Point 5			0.00	-4,909.06	-1,186.22	1,302,422.89	3,234,961.48		
Point 6			0.00	-4,905.55	4,088.85	1,302,476.66	3,240,236.05		
Point 7			0.00	-2,258.66	4,115.51	1,305,123.57	3,240,237.49		
Cannon 13C-3HZ_WF	0.00	0.00	7,166.65	-1,700.00	-385.00	305,639.299199	35,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 14.94ft at 8617.61ft MD (7151.91 TVD, -1699.91 N, -387.40 E)									
- Point									
Cannon 13C-31HZ_S	0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center									
- Polygon									
Point 1			0.00	-236.40	3,690.00	1,307,141.60	3,239,792.75		
Point 2			0.00	-222.54	1,507.95	1,307,134.67	3,237,610.76		
Point 3			0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 4			0.00	-2,254.14	-700.45	1,305,082.20	3,235,421.91		
Point 5			0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 6			0.00	-4,445.84	3,633.44	1,302,931.99	3,239,776.30		
Point 7			0.00	-2,258.23	3,655.47	1,305,119.61	3,239,777.48		
Cannon 13C-31HZ_L	0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center									
- Polygon									
Point 1			0.00	-212.65	-282.58	1,307,127.49	3,235,820.29		
Point 2			0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 3			0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 4			0.00	-4,452.53	-323.79	1,302,887.59	3,235,819.48		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,519.00	7,159.66	7" Casing Point	7	8-3/4	

Design Annotations					
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# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Targets

Target Name	- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-515.00	302,889.891494	35,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 35.03ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	35,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 35.85ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Point										
Cannon 13C-3HZ_WF		0.00	0.00	7,151.65	-3,700.00	-540.00	303,637.997699	35,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 6.98ft at 10624.64ft MD (7147.37 TVD, -3699.31 N, -545.47 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	220.66	4,157.91	1,307,603.07	3,240,256.26		
Point 2				0.00	237.47	1,510.83	1,307,594.66	3,237,609.25		
Point 3				0.00	254.02	-1,136.21	1,307,585.99	3,234,962.29		
Point 4				0.00	-2,253.71	-1,160.49	1,305,078.25	3,234,961.90		
Point 5				0.00	-4,909.06	-1,186.22	1,302,422.89	3,234,961.48		
Point 6				0.00	-4,905.55	4,088.85	1,302,476.66	3,240,236.05		
Point 7				0.00	-2,258.66	4,115.51	1,305,123.57	3,240,237.49		
Cannon 13C-3HZ_WF		0.00	0.00	7,166.65	-1,700.00	-385.00	305,639.299199	35,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 14.94ft at 8617.61ft MD (7151.91 TVD, -1699.91 N, -387.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-236.40	3,690.00	1,307,141.60	3,239,792.75		
Point 2				0.00	-222.54	1,507.95	1,307,134.67	3,237,610.76		
Point 3				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 4				0.00	-2,254.14	-700.45	1,305,082.20	3,235,421.91		
Point 5				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 6				0.00	-4,445.84	3,633.44	1,302,931.99	3,239,776.30		
Point 7				0.00	-2,258.23	3,655.47	1,305,119.61	3,239,777.48		
Cannon 13C-31HZ_L		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-212.65	-282.58	1,307,127.49	3,235,820.29		
Point 2				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 3				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 4				0.00	-4,452.53	-323.79	1,302,887.59	3,235,819.48		

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,519.00	7,159.66	7" Casing Point	7	8-3/4

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates	Comment
+N/-S (ft)	+E/-W (ft)		
125.00	125.00	-0.01 -0.22	First Gyro Survey @ 125.00ft

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Targets

Target Name	- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-515.00	302,889.891494	35,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 35.03ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	35,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 35.85ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Point										
Cannon 13C-3HZ_WF		0.00	0.00	7,151.65	-3,700.00	-540.00	303,637.997699	35,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 6.98ft at 10624.64ft MD (7147.37 TVD, -3699.31 N, -545.47 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	220.66	4,157.91	1,307,603.07	3,240,256.26		
Point 2				0.00	237.47	1,510.83	1,307,594.66	3,237,609.25		
Point 3				0.00	254.02	-1,136.21	1,307,585.99	3,234,962.29		
Point 4				0.00	-2,253.71	-1,160.49	1,305,078.25	3,234,961.90		
Point 5				0.00	-4,909.06	-1,186.22	1,302,422.89	3,234,961.48		
Point 6				0.00	-4,905.55	4,088.85	1,302,476.66	3,240,236.05		
Point 7				0.00	-2,258.66	4,115.51	1,305,123.57	3,240,237.49		
Cannon 13C-3HZ_WF		0.00	0.00	7,166.65	-1,700.00	-385.00	305,639.299199	35,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 14.94ft at 8617.61ft MD (7151.91 TVD, -1699.91 N, -387.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-236.40	3,690.00	1,307,141.60	3,239,792.75		
Point 2				0.00	-222.54	1,507.95	1,307,134.67	3,237,610.76		
Point 3				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 4				0.00	-2,254.14	-700.45	1,305,082.20	3,235,421.91		
Point 5				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 6				0.00	-4,445.84	3,633.44	1,302,931.99	3,239,776.30		
Point 7				0.00	-2,258.23	3,655.47	1,305,119.61	3,239,777.48		
Cannon 13C-31HZ_L		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-212.65	-282.58	1,307,127.49	3,235,820.29		
Point 2				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 3				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 4				0.00	-4,452.53	-323.79	1,302,887.59	3,235,819.48		

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,519.00	7,159.66	7" Casing Point	7	8-3/4
760.00	760.00	1.07	-0.57	Final Gyro Survey @ 760.00ft
760.00	760.00	1.07	-0.57	Tie-On to Gyro Surveys @ 760.00ft
822.00	822.00	1.22	-0.63	First Sperry MWD Survey @ 822.00ft
11,313.00	7,123.26	-4,385.44	-518.02	Final Sperry MWD Survey @ 11313.00ft
11,350.00	7,122.70	-4,422.26	-514.40	Straight Line Projection to TD @ 11350.00ft

# Halliburton Company

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

### Targets

Target Name	- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-515.00	302,889.891494	35,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 35.03ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	35,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 35.85ft at 11350.00ft MD (7122.70 TVD, -4422.26 N, -514.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Point										
Cannon 13C-3HZ_WF		0.00	0.00	7,151.65	-3,700.00	-540.00	303,637.997699	35,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 6.98ft at 10624.64ft MD (7147.37 TVD, -3699.31 N, -545.47 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	220.66	4,157.91	1,307,603.07	3,240,256.26		
Point 2				0.00	237.47	1,510.83	1,307,594.66	3,237,609.25		
Point 3				0.00	254.02	-1,136.21	1,307,585.99	3,234,962.29		
Point 4				0.00	-2,253.71	-1,160.49	1,305,078.25	3,234,961.90		
Point 5				0.00	-4,909.06	-1,186.22	1,302,422.89	3,234,961.48		
Point 6				0.00	-4,905.55	4,088.85	1,302,476.66	3,240,236.05		
Point 7				0.00	-2,258.66	4,115.51	1,305,123.57	3,240,237.49		
Cannon 13C-3HZ_WF		0.00	0.00	7,166.65	-1,700.00	-385.00	305,639.299199	35,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 14.94ft at 8617.61ft MD (7151.91 TVD, -1699.91 N, -387.40 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-236.40	3,690.00	1,307,141.60	3,239,792.75		
Point 2				0.00	-222.54	1,507.95	1,307,134.67	3,237,610.76		
Point 3				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 4				0.00	-2,254.14	-700.45	1,305,082.20	3,235,421.91		
Point 5				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 6				0.00	-4,445.84	3,633.44	1,302,931.99	3,239,776.30		
Point 7				0.00	-2,258.23	3,655.47	1,305,119.61	3,239,777.48		
Cannon 13C-31HZ_L		0.00	0.00	0.00	0.00	0.00	307,342.818385	36,100.818963	40.173964	-104.655077
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-212.65	-282.58	1,307,127.49	3,235,820.29		
Point 2				0.00	-208.86	-680.65	1,307,127.49	3,235,422.22		
Point 3				0.00	-4,448.74	-721.72	1,302,887.59	3,235,421.55		
Point 4				0.00	-4,452.53	-323.79	1,302,887.59	3,235,819.48		

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,519.00	7,159.66	7" Casing Point	7	8-3/4

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

**Halliburton Company**  
Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Cannon 13C-3HZ
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Site:</b>	Sec. 3-T2N-R65W	<b>MD Reference:</b>	RKB=25ft @ 4865.00ft (HP 308)
<b>Well:</b>	Cannon 13C-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan A Rev 0	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual Field Surveys	<b>Database:</b>	EDM 2003.16 Single User Db

## **Section 2**

Contents: Proposal Data

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 3-T2N-R65W

Cannon 13C-3HZ

Plan A Rev 0

Plan: Plan A Rev 0 Proposal

## Sperry Drilling Services

## Proposal Report

31 July, 2012

Well Coordinates: 1,307,342.82 N, 3,236,100.82 E (40° 10' 26.27" N, 104° 39' 18.28" W)

Ground Level: 4,840.00 ft

Local Coordinate Origin:

Centered on Well Cannon 13C-3HZ

Viewing Datum:

RKB=25ft @ 4865.00ft (HP 308)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

**HALLIBURTON**

Project: Weld County, CO (NAD 83)

Site: Sec. 3-T2N-R65W

Well: Cannon 13C-3HZ

Wellbore: Plan A Rev 0

Design: Plan A Rev 0 Proposal

# Anadarko Petroleum Corp.

HALLIBURTON

Sperry Drilling

## SECTION DETAILS

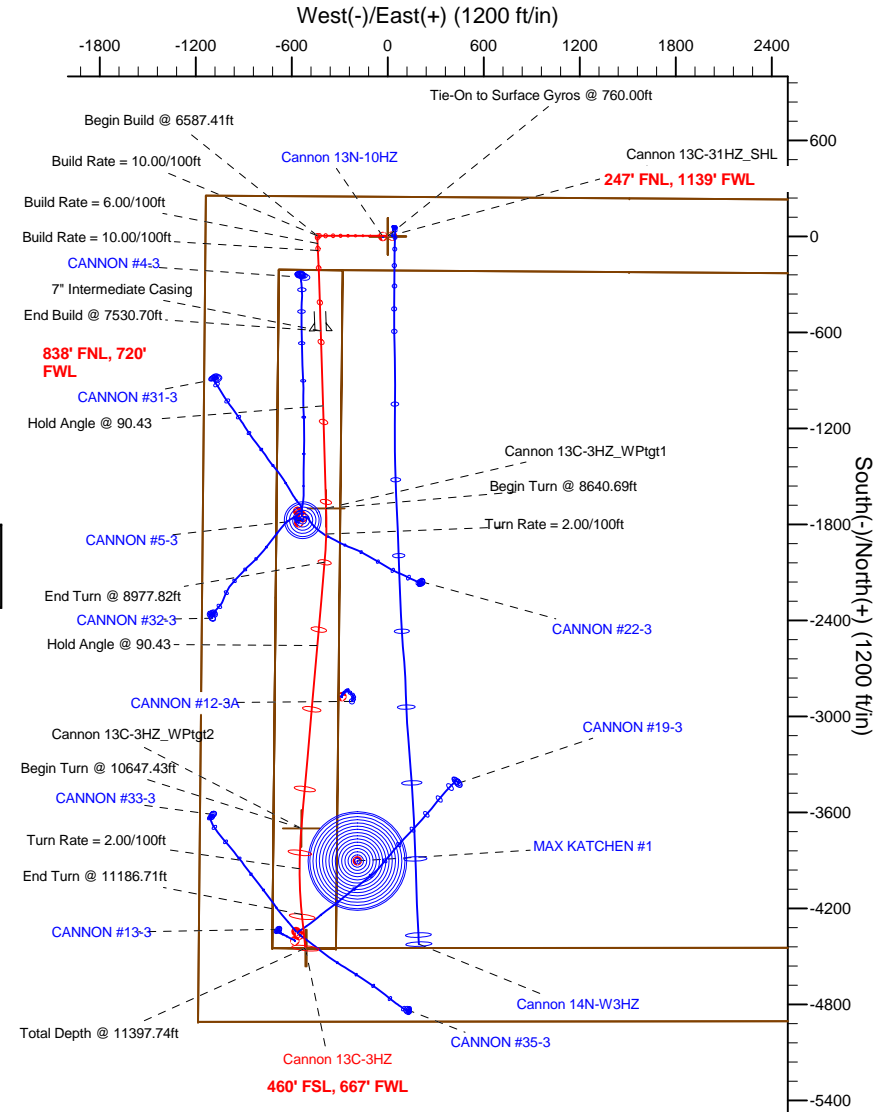
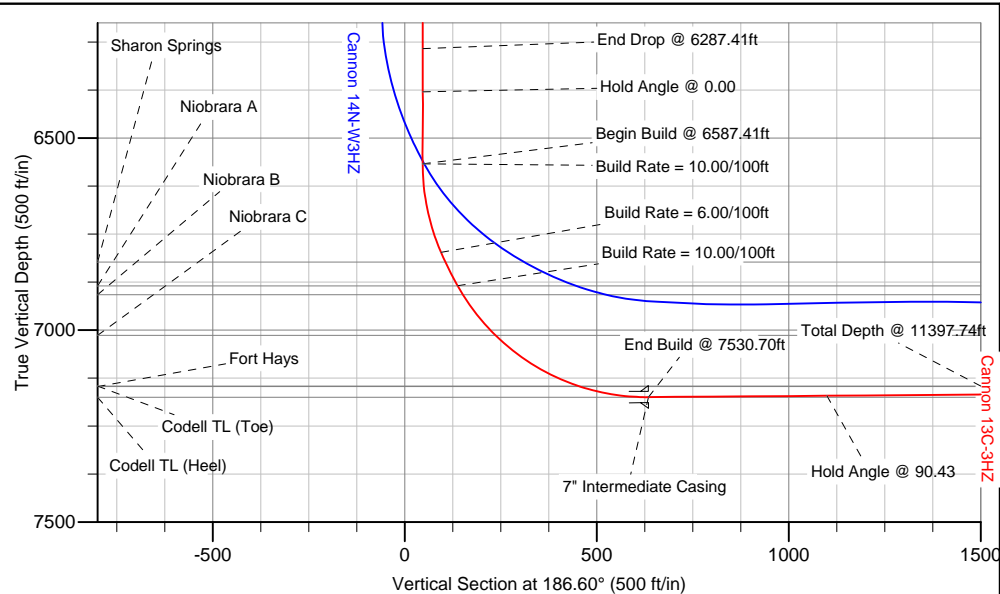
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	760.00	0.24	12.27	760.00	1.07	-0.57	0.00	0.00	-0.99	
2	1300.00	0.24	12.27	1299.99	3.28	-0.09	0.00	0.00	-3.24	
3	1570.30	5.35	270.00	1569.91	3.83	-12.58	2.00	-104.75	-2.36	
4	6019.91	5.35	270.00	6000.13	3.83	-427.46	0.00	0.00	45.36	
5	6287.41	0.00	0.00	6267.24	3.83	-439.94	2.00	180.00	46.79	
6	6587.41	0.00	0.00	6567.24	3.83	-439.94	0.00	0.00	46.79	
7	6824.91	23.75	177.58	6798.00	-44.65	-437.90	10.00	177.58	94.71	
8	6922.31	29.59	177.58	6885.00	-88.32	-436.05	6.00	0.00	137.88	
9	7530.70	90.43	178.25	7175.00	-590.55	-418.81	10.00	0.77	634.80	
10	8640.69	90.43	178.25	7166.65	-1700.00	-385.00	0.00	0.00	1733.00	Cannon 13C-3HZ_WPtgt1
11	8977.82	90.43	185.00	7164.12	-2036.79	-394.56	2.00	90.00	2068.65	
12	10647.43	90.43	185.00	7151.65	-3700.00	-540.00	0.00	0.00	3737.55	Cannon 13C-3HZ_WPtgt2
13	11186.71	90.43	174.21	7147.59	-4238.46	-536.28	2.00	-89.94	4272.01	
14	11397.74	90.43	174.21	7146.00	-4448.41	-515.00	0.00	0.00	4478.12	Cannon 13C-31HZ_BHL ReLoc

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Cannon 13C-31HZ_Land Spacing Unit	0.00	0.00	0.00	40.173964	-104.655077	Polygon
Cannon 13C-31HZ_Section Lines	0.00	0.00	0.00	40.173964	-104.655077	Polygon
Cannon 13C-31HZ_Setback Lines	0.00	0.00	0.00	40.173964	-104.655077	Polygon
Cannon 13C-31HZ_SHL	0.00	0.00	0.00	40.173964	-104.655077	Point
Cannon 13C-31HZ_BHL	7146.00	-4448.41	-506.74	40.161753	-104.656890	Point
Cannon 13C-31HZ_BHL ReLoc	7146.00	-4448.41	-515.00	40.161753	-104.656920	Point
Cannon 13C-3HZ_WPtgt2	7151.65	-3700.00	-540.00	40.163807	-104.657009	Point
Cannon 13C-3HZ_WPtgt1	7166.65	-1700.00	-385.00	40.169297	-104.656455	Point

Target Line:

7179.61' TVDkb @ 0° VS Drilling 90.43°



## WELL DETAILS: Cannon 13C-3HZ

Ground Level: 4840.00 RKB=25ft @ 4865.00ft (HP 308)

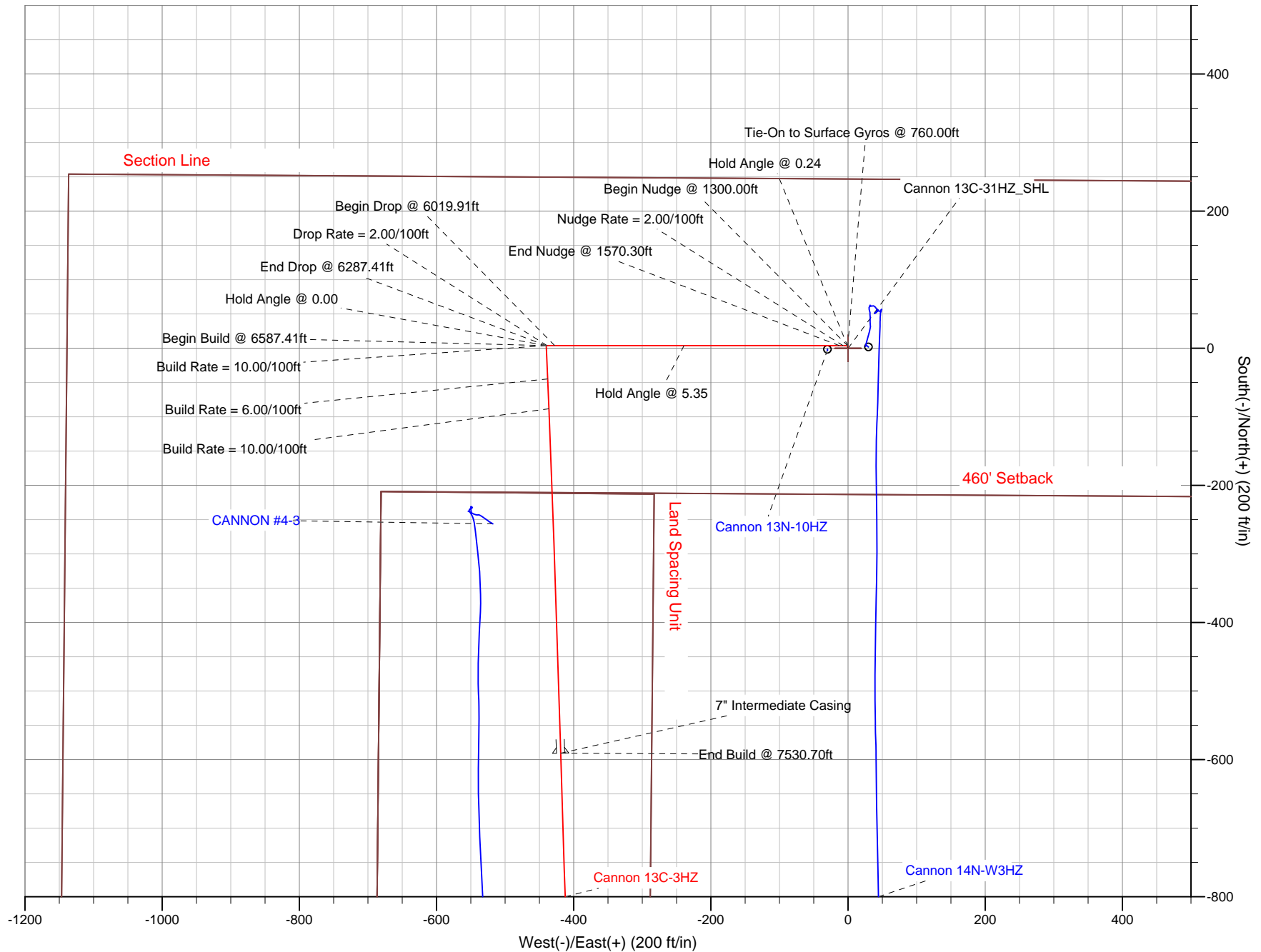
Plan: Plan A Rev 0 Proposal (Cannon 13C-3HZ/Plan A Rev 0)

Created By: Fred Hartmann Date: 07/31/2012  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

Project: Weld County, CO (NAD 83)  
Site: Sec. 3-T2N-R65W  
Well: Cannon 13C-3HZ  
Wellbore: Plan A Rev 0  
Design: Plan A Rev 0 Proposal

# Anadarko Petroleum Corp.

**HALLIBURTON**  
Sperry Drilling



**Plan Report for Cannon 13C-3HZ - Plan A Rev 0 Proposal**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
760.00	0.24	12.27	760.00	1.07	-0.57	-0.99	0.00	0.00	0.00	0.00
<b>Tie-On to Surface Gyros @ 760.00ft - Cannon 13C-31HZ_Land Spacing Unit - Cannon 13C-31HZ_SHL - Cannon 13C-31HZ_Sectic</b>										
800.00	0.24	12.27	800.00	1.23	-0.54	-1.16	0.00	0.00	0.00	0.00
900.00	0.24	12.27	900.00	1.64	-0.45	-1.58	0.00	0.00	0.00	0.00
1,000.00	0.24	12.27	1,000.00	2.05	-0.36	-1.99	0.00	0.00	0.00	0.00
1,100.00	0.24	12.27	1,099.99	2.46	-0.27	-2.41	0.00	0.00	0.00	0.00
<b>Hold Angle @ 0.24</b>										
1,200.00	0.24	12.27	1,199.99	2.87	-0.18	-2.83	0.00	0.00	0.00	0.00
1,300.00	0.24	12.27	1,299.99	3.28	-0.09	-3.24	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 1300.00ft</b>										
1,400.00	1.95	274.34	1,399.97	3.61	-1.75	-3.38	2.00	1.71	-97.93	-104.75
1,500.00	3.95	270.89	1,499.84	3.79	-6.89	-2.97	2.00	1.99	-3.46	-6.83
<b>Nudge Rate = 2.00/100ft</b>										
1,570.30	5.35	270.00	1,569.90	3.83	-12.58	-2.36	2.00	2.00	-1.26	-3.37
<b>End Nudge @ 1570.30ft</b>										
1,600.00	5.35	270.00	1,599.47	3.83	-15.35	-2.04	0.00	0.00	0.00	-2.49
1,700.00	5.35	270.00	1,699.04	3.83	-24.68	-0.97	0.00	0.00	0.00	0.00
1,800.00	5.35	270.00	1,798.60	3.83	-34.00	0.11	0.00	0.00	0.00	0.00
1,900.00	5.35	270.00	1,898.17	3.83	-43.32	1.18	0.00	0.00	0.00	0.00
2,000.00	5.35	270.00	1,997.73	3.83	-52.65	2.25	0.00	0.00	0.00	0.00
2,100.00	5.35	270.00	2,097.30	3.83	-61.97	3.32	0.00	0.00	0.00	0.00
2,200.00	5.35	270.00	2,196.86	3.83	-71.30	4.40	0.00	0.00	0.00	0.00
2,300.00	5.35	270.00	2,296.42	3.83	-80.62	5.47	0.00	0.00	0.00	0.00
2,400.00	5.35	270.00	2,395.99	3.83	-89.94	6.54	0.00	0.00	0.00	0.00
2,500.00	5.35	270.00	2,495.55	3.83	-99.27	7.61	0.00	0.00	0.00	0.00
2,600.00	5.35	270.00	2,595.12	3.83	-108.59	8.68	0.00	0.00	0.00	0.00
2,700.00	5.35	270.00	2,694.68	3.83	-117.92	9.76	0.00	0.00	0.00	0.00
2,800.00	5.35	270.00	2,794.25	3.83	-127.24	10.83	0.00	0.00	0.00	0.00
2,900.00	5.35	270.00	2,893.81	3.83	-136.56	11.90	0.00	0.00	0.00	0.00
3,000.00	5.35	270.00	2,993.37	3.83	-145.89	12.97	0.00	0.00	0.00	0.00
3,100.00	5.35	270.00	3,092.94	3.83	-155.21	14.05	0.00	0.00	0.00	0.00
3,200.00	5.35	270.00	3,192.50	3.83	-164.54	15.12	0.00	0.00	0.00	0.00
3,300.00	5.35	270.00	3,292.07	3.83	-173.86	16.19	0.00	0.00	0.00	0.00
3,400.00	5.35	270.00	3,391.63	3.83	-183.18	17.26	0.00	0.00	0.00	0.00
3,500.00	5.35	270.00	3,491.20	3.83	-192.51	18.34	0.00	0.00	0.00	0.00
3,600.00	5.35	270.00	3,590.76	3.83	-201.83	19.41	0.00	0.00	0.00	0.00
3,700.00	5.35	270.00	3,690.33	3.83	-211.16	20.48	0.00	0.00	0.00	0.00
3,800.00	5.35	270.00	3,789.89	3.83	-220.48	21.55	0.00	0.00	0.00	0.00
3,900.00	5.35	270.00	3,889.45	3.83	-229.80	22.62	0.00	0.00	0.00	0.00
3,974.87	5.35	270.00	3,964.00	3.83	-236.78	23.43	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,000.00	5.35	270.00	3,989.02	3.83	-239.13	23.70	0.00	0.00	0.00	0.00
<b>Hold Angle @ 5.35</b>										
4,100.00	5.35	270.00	4,088.58	3.83	-248.45	24.77	0.00	0.00	0.00	0.00
4,200.00	5.35	270.00	4,188.15	3.83	-257.77	25.84	0.00	0.00	0.00	0.00
4,300.00	5.35	270.00	4,287.71	3.83	-267.10	26.91	0.00	0.00	0.00	0.00
4,400.00	5.35	270.00	4,387.28	3.83	-276.42	27.99	0.00	0.00	0.00	0.00
4,500.00	5.35	270.00	4,486.84	3.83	-285.75	29.06	0.00	0.00	0.00	0.00
4,545.36	5.35	270.00	4,532.00	3.83	-289.98	29.54	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,600.00	5.35	270.00	4,586.40	3.83	-295.07	30.13	0.00	0.00	0.00	0.00
4,700.00	5.35	270.00	4,685.97	3.83	-304.39	31.20	0.00	0.00	0.00	0.00
4,800.00	5.35	270.00	4,785.53	3.83	-313.72	32.27	0.00	0.00	0.00	0.00
4,900.00	5.35	270.00	4,885.10	3.83	-323.04	33.35	0.00	0.00	0.00	0.00
5,000.00	5.35	270.00	4,984.66	3.83	-332.37	34.42	0.00	0.00	0.00	0.00
5,100.00	5.35	270.00	5,084.23	3.83	-341.69	35.49	0.00	0.00	0.00	0.00
5,200.00	5.35	270.00	5,183.79	3.83	-351.01	36.56	0.00	0.00	0.00	0.00
5,300.00	5.35	270.00	5,283.36	3.83	-360.34	37.64	0.00	0.00	0.00	0.00

**Plan Report for Cannon 13C-3HZ - Plan A Rev 0 Proposal**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
5,400.00	5.35	270.00	5,382.92	3.83	-369.66	38.71	0.00	0.00	0.00	0.00
5,500.00	5.35	270.00	5,482.48	3.83	-378.99	39.78	0.00	0.00	0.00	0.00
5,600.00	5.35	270.00	5,582.05	3.83	-388.31	40.85	0.00	0.00	0.00	0.00
5,700.00	5.35	270.00	5,681.61	3.83	-397.63	41.93	0.00	0.00	0.00	0.00
5,800.00	5.35	270.00	5,781.18	3.83	-406.96	43.00	0.00	0.00	0.00	0.00
5,900.00	5.35	270.00	5,880.74	3.83	-416.28	44.07	0.00	0.00	0.00	0.00
6,000.00	5.35	270.00	5,980.31	3.83	-425.61	45.14	0.00	0.00	0.00	0.00
6,019.91	5.35	270.00	6,000.13	3.83	-427.46	45.36	0.00	0.00	0.00	0.00
<b>Begin Drop @ 6019.91ft</b>										
6,100.00	3.75	270.00	6,079.96	3.83	-433.81	46.09	2.00	-2.00	0.00	180.00
6,200.00	1.75	270.00	6,179.84	3.83	-438.61	46.64	2.00	-2.00	0.00	180.00
<b>Drop Rate = 2.00/100ft</b>										
6,287.41	0.00	0.00	6,267.24	3.83	-439.94	46.79	2.00	-2.00	102.96	180.00
<b>End Drop @ 6287.41ft</b>										
6,300.00	0.00	0.00	6,279.83	3.83	-439.94	46.79	0.00	0.00	0.00	180.00
6,400.00	0.00	0.00	6,379.83	3.83	-439.94	46.79	0.00	0.00	0.00	0.00
<b>Hold Angle @ 0.00</b>										
6,500.00	0.00	0.00	6,479.83	3.83	-439.94	46.79	0.00	0.00	0.00	0.00
6,587.41	0.00	0.00	6,567.24	3.83	-439.94	46.79	0.00	0.00	0.00	0.00
<b>Begin Build @ 6587.41ft - Build Rate = 10.00/100ft</b>										
6,600.00	1.26	177.58	6,579.83	3.69	-439.94	46.93	10.00	10.00	0.00	177.58
6,700.00	11.26	177.58	6,679.11	-7.19	-439.48	57.68	10.00	10.00	0.00	0.00
6,800.00	21.26	177.58	6,774.99	-35.13	-438.30	85.30	10.00	10.00	0.00	0.00
6,824.91	23.75	177.58	6,798.00	-44.65	-437.90	94.71	10.00	10.00	0.00	0.00
<b>Build Rate = 6.00/100ft</b>										
6,852.40	25.40	177.58	6,823.00	-56.07	-437.41	106.01	6.00	6.00	0.00	0.00
<b>Sharon Springs</b>										
6,900.00	28.26	177.58	6,865.47	-77.53	-436.51	127.22	6.00	6.00	0.00	0.00
6,922.31	29.59	177.58	6,885.00	-88.32	-436.05	137.88	6.00	6.00	0.00	0.00
<b>Build Rate = 10.00/100ft - Niobrara A</b>										
6,949.13	32.28	177.65	6,908.00	-102.09	-435.48	151.49	10.00	10.00	0.25	0.77
<b>Niobrara B</b>										
7,000.00	37.36	177.76	6,949.75	-131.10	-434.32	180.18	10.00	10.00	0.20	0.71
7,086.09	45.97	177.89	7,014.00	-188.24	-432.15	236.69	10.00	10.00	0.15	0.63
<b>Niobrara C</b>										
7,100.00	47.36	177.90	7,023.54	-198.35	-431.78	246.69	10.00	10.00	0.13	0.53
7,200.00	57.36	178.01	7,084.53	-277.39	-428.96	324.88	10.00	10.00	0.11	0.52
7,300.00	67.36	178.09	7,130.86	-365.81	-425.96	412.37	10.00	10.00	0.08	0.45
7,346.49	72.01	178.13	7,147.00	-409.37	-424.52	455.48	10.00	10.00	0.08	0.41
<b>Fort Hays</b>										
7,400.00	77.36	178.17	7,161.13	-460.94	-422.85	506.51	10.00	10.00	0.07	0.40
7,500.00	87.36	178.23	7,174.40	-559.88	-419.75	604.43	10.00	10.00	0.07	0.39
7,530.16	90.43	178.25	7,175.00	-590.01	-418.82	634.26	10.18	10.18	0.07	0.38
<b>Codell TL (Heel)</b>										
7,530.70	90.43	178.25	7,175.00	-590.55	-418.81	634.80	0.04	-0.04	0.00	-179.62
<b>End Build @ 7530.70ft - 7" Intermediate Casing</b>										
7,600.00	90.43	178.25	7,174.47	-659.82	-416.69	703.36	0.00	0.00	0.00	0.38
7,700.00	90.43	178.25	7,173.72	-759.77	-413.65	802.30	0.00	0.00	0.00	0.00
7,800.00	90.43	178.25	7,172.97	-859.72	-410.60	901.24	0.00	0.00	0.00	0.00
7,900.00	90.43	178.25	7,172.22	-959.67	-407.56	1,000.17	0.00	0.00	0.00	0.00
8,000.00	90.43	178.25	7,171.47	-1,059.62	-404.51	1,099.11	0.00	0.00	0.00	0.00
<b>Hold Angle @ 90.43</b>										
8,100.00	90.43	178.25	7,170.72	-1,159.57	-401.47	1,198.05	0.00	0.00	0.00	0.00
8,200.00	90.43	178.25	7,169.96	-1,259.52	-398.42	1,296.99	0.00	0.00	0.00	0.00
8,300.00	90.43	178.25	7,169.21	-1,359.47	-395.38	1,395.92	0.00	0.00	0.00	0.00
8,400.00	90.43	178.25	7,168.46	-1,459.42	-392.33	1,494.86	0.00	0.00	0.00	0.00
8,500.00	90.43	178.25	7,167.71	-1,559.38	-389.28	1,593.80	0.00	0.00	0.00	0.00
8,600.00	90.43	178.25	7,166.96	-1,659.33	-386.24	1,692.74	0.00	0.00	0.00	0.00

**Plan Report for Cannon 13C-3HZ - Plan A Rev 0 Proposal**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
8,640.69	90.43	178.25	7,166.65	-1,700.00	-385.00	1,733.00	0.00	0.00	0.00	0.00
<b>Begin Turn @ 8640.69ft - Cannon 13C-3HZ_WPtgt1</b>										
8,700.00	90.43	179.44	7,166.20	-1,759.29	-383.81	1,791.76	2.00	0.00	2.00	90.00
8,800.00	90.43	181.44	7,165.45	-1,859.28	-384.58	1,891.17	2.00	0.00	2.00	90.01
<b>Turn Rate = 2.00/100ft</b>										
8,900.00	90.43	183.44	7,164.70	-1,959.18	-388.84	1,990.90	2.00	0.00	2.00	90.02
8,977.82	90.43	185.00	7,164.12	-2,036.79	-394.56	2,068.65	2.00	0.00	2.00	90.04
<b>End Turn @ 8977.82ft</b>										
9,000.00	90.43	185.00	7,163.95	-2,058.88	-396.49	2,090.82	0.00	0.00	0.00	90.05
9,100.00	90.43	185.00	7,163.21	-2,158.50	-405.20	2,190.78	0.00	0.00	0.00	0.00
9,200.00	90.43	185.00	7,162.46	-2,258.12	-413.91	2,290.74	0.00	0.00	0.00	0.00
9,300.00	90.43	185.00	7,161.71	-2,357.73	-422.63	2,390.69	0.00	0.00	0.00	0.00
9,400.00	90.43	185.00	7,160.97	-2,457.35	-431.34	2,490.65	0.00	0.00	0.00	0.00
9,500.00	90.43	185.00	7,160.22	-2,556.97	-440.05	2,590.61	0.00	0.00	0.00	0.00
<b>Hold Angle @ 90.43</b>										
9,600.00	90.43	185.00	7,159.47	-2,656.58	-448.76	2,690.57	0.00	0.00	0.00	0.00
9,700.00	90.43	185.00	7,158.73	-2,756.20	-457.47	2,790.52	0.00	0.00	0.00	0.00
9,800.00	90.43	185.00	7,157.98	-2,855.82	-466.18	2,890.48	0.00	0.00	0.00	0.00
9,900.00	90.43	185.00	7,157.23	-2,955.44	-474.89	2,990.44	0.00	0.00	0.00	0.00
10,000.00	90.43	185.00	7,156.49	-3,055.05	-483.60	3,090.40	0.00	0.00	0.00	0.00
10,100.00	90.43	185.00	7,155.74	-3,154.67	-492.31	3,190.36	0.00	0.00	0.00	0.00
10,200.00	90.43	185.00	7,154.99	-3,254.29	-501.02	3,290.31	0.00	0.00	0.00	0.00
10,300.00	90.43	185.00	7,154.25	-3,353.90	-509.74	3,390.27	0.00	0.00	0.00	0.00
10,400.00	90.43	185.00	7,153.50	-3,453.52	-518.45	3,490.23	0.00	0.00	0.00	0.00
10,500.00	90.43	185.00	7,152.75	-3,553.14	-527.16	3,590.19	0.00	0.00	0.00	0.00
10,600.00	90.43	185.00	7,152.00	-3,652.76	-535.87	3,690.15	0.00	0.00	0.00	0.00
10,647.43	90.43	185.00	7,151.65	-3,700.00	-540.00	3,737.55	0.00	0.00	0.00	0.00
<b>Begin Turn @ 10647.43ft - Cannon 13C-3HZ_WPtgt2</b>										
10,700.00	90.43	183.95	7,151.26	-3,752.41	-544.10	3,790.09	2.00	0.00	-2.00	-89.94
10,800.00	90.43	181.95	7,150.51	-3,852.27	-549.24	3,889.88	2.00	0.00	-2.00	-89.95
10,900.00	90.43	179.95	7,149.75	-3,952.25	-550.89	3,989.38	2.00	0.00	-2.00	-89.96
<b>Turn Rate = 2.00/100ft</b>										
11,000.00	90.43	177.95	7,149.00	-4,052.22	-549.05	4,088.48	2.00	0.00	-2.00	-89.98
11,100.00	90.43	175.95	7,148.25	-4,152.07	-543.72	4,187.06	2.00	0.00	-2.00	-89.99
11,186.71	90.43	174.21	7,147.59	-4,238.46	-536.28	4,272.01	2.00	0.00	-2.00	-90.01
<b>End Turn @ 11186.71ft</b>										
11,200.00	90.43	174.21	7,147.49	-4,251.68	-534.94	4,284.99	0.00	0.00	0.00	0.00
11,300.00	90.43	174.21	7,146.74	-4,351.17	-524.86	4,382.66	0.00	0.00	0.00	0.00
11,397.73	90.43	174.21	7,146.00	-4,448.40	-515.00	4,478.11	0.00	0.00	0.00	0.00
<b>Codell TL (Toe)</b>										
11,397.74	90.43	174.21	7,146.00	-4,448.41	-515.00	4,478.12	0.00	0.00	0.00	0.00
<b>Total Depth @ 11397.74ft - Cannon 13C-31HZ_BHL - Cannon 13C-31HZ_BHL ReLoc</b>										

## Plan Report for Cannon 13C-3HZ - Plan A Rev 0 Proposal

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
760.00	760.00	1.07	-0.57	Tie-On to Surface Gyros @ 760.00ft
1,100.00	1,099.99	2.46	-0.27	Hold Angle @ 0.24
1,300.00	1,299.99	3.28	-0.09	Begin Nudge @ 1300.00ft
1,500.00	1,499.84	3.79	-6.89	Nudge Rate = 2.00/100ft
1,570.30	1,569.90	3.83	-12.58	End Nudge @ 1570.30ft
4,000.00	3,989.02	3.83	-239.13	Hold Angle @ 5.35
6,019.91	6,000.13	3.83	-427.46	Begin Drop @ 6019.91ft
6,200.00	6,179.84	3.83	-438.61	Drop Rate = 2.00/100ft
6,287.41	6,267.24	3.83	-439.94	End Drop @ 6287.41ft
6,400.00	6,379.83	3.83	-439.94	Hold Angle @ 0.00
6,587.41	6,567.24	3.83	-439.94	Begin Build @ 6587.41ft
6,587.41	6,567.24	3.83	-439.94	Build Rate = 10.00/100ft
6,824.91	6,798.00	-44.65	-437.90	Build Rate = 6.00/100ft
6,922.31	6,885.00	-88.31	-436.05	Build Rate = 10.00/100ft
7,530.70	7,175.00	-590.55	-418.81	End Build @ 7530.70ft
8,000.00	7,171.47	-1,059.62	-404.51	Hold Angle @ 90.43
8,640.69	7,166.65	-1,700.00	-385.00	Begin Turn @ 8640.69ft
8,800.00	7,165.45	-1,859.28	-384.58	Turn Rate = 2.00/100ft
8,977.82	7,164.12	-2,036.79	-394.56	End Turn @ 8977.82ft
9,500.00	7,160.22	-2,556.97	-440.05	Hold Angle @ 90.43
10,647.43	7,151.65	-3,700.00	-540.00	Begin Turn @ 10647.43ft
10,900.00	7,149.75	-3,952.25	-550.89	Turn Rate = 2.00/100ft
11,186.71	7,147.59	-4,238.46	-536.28	End Turn @ 11186.71ft
11,397.74	7,146.00	-4,448.41	-515.00	Total Depth @ 11397.74ft

### Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Cannon 13C-31HZ_BHL ReLoc	186.60	Slot	0.00	0.00	0.00

### Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
760.00	11,397.74	Plan A Rev 0 Proposal	MWD

### Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,530.70	7,175.00	7" Intermediate Casing	7	8-3/4

**Plan Report for Cannon 13C-3HZ - Plan A Rev 0 Proposal****Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,974.87	3,964.00	Parkman		0.00	
4,545.36	4,532.00	Sussex		0.00	
6,852.40	6,823.00	Sharon Springs		0.00	
6,922.31	6,885.00	Niobrara A		0.00	
6,949.13	6,908.00	Niobrara B		0.00	
7,086.09	7,014.00	Niobrara C		0.00	
7,346.49	7,147.00	Fort Hays		0.00	
7,530.16	7,175.00	Codell TL (Heel)		0.00	
11,397.73	7,146.00	Codell TL (Toe)		0.00	

***Targets associated with this wellbore***

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Cannon 13C-31HZ_BHL ReLoc	7,146.00	-4,448.41	-515.00	Point
Cannon 13C-31HZ_BHL	7,146.00	-4,448.41	-506.74	Point
Cannon 13C-31HZ_SHL	0.00	0.00	0.00	Point
Cannon 13C-3HZ_WPtgt2	7,151.65	-3,700.00	-540.00	Point
Cannon 13C-31HZ_Section Lines	0.00	0.00	0.00	Polygon
Cannon 13C-3HZ_WPtgt1	7,166.65	-1,700.00	-385.00	Point
Cannon 13C-31HZ_Setback Lines	0.00	0.00	0.00	Polygon
Cannon 13C-31HZ_Land Spacing Unit	0.00	0.00	0.00	Polygon

## North Reference Sheet for Sec. 3-T2N-R65W - Cannon 13C-3HZ - Plan A Rev 0

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB=25ft @ 4865.00ft (HP 308). Northing and Easting are relative to Cannon 13C-3HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.000644ft, False Northing: 1,000,000.001308ft, Scale Reduction: 0.99995774

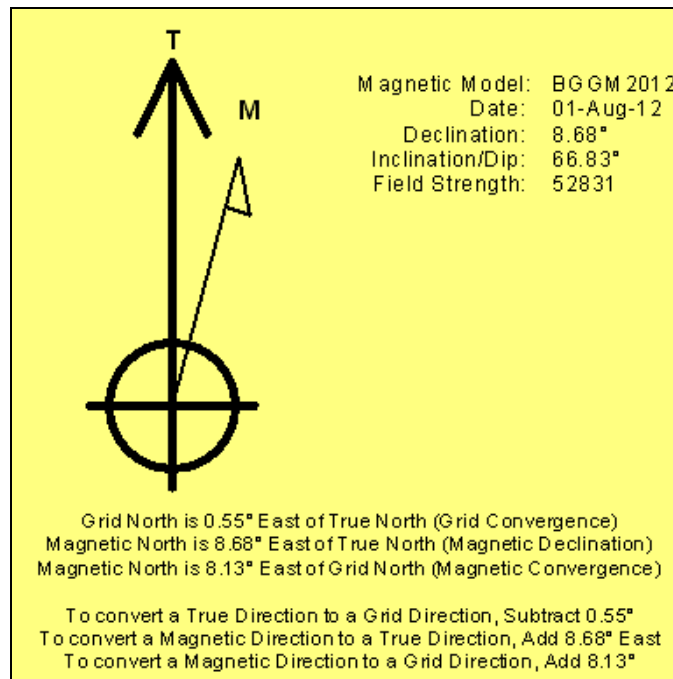
Grid Coordinates of Well: 1,307,342.818385 ft N, 3,236,100.818963 ft E

Geographical Coordinates of Well: 40° 10' 26.27" N, 104° 39' 18.28" W

Grid Convergence at Surface is: 0.55°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,397.74ft  
the Bottom Hole Displacement is 4,478.12ft in the Direction of 186.60° (True).

Magnetic Convergence at surface is: -8.13° ( 1 August 2012, , BGGM2012)



### **Section 3**

Contents: BHA Reports, BHA Schematics, Motor Performance Reports, &  
Survey & Drilling Parameters.

## WELL INFORMATION

## BHA Report

IADC Rig BHA# 100  
Run# 0100

Customer : Anadarko Petroleum Corp  
Well Name : Cannon 13C-3HZ  
Job Number : CA-XX-0009522757  
Rig Name : H & P 308  
Field Name : Watternburg  
Country : USA

Date In :08/01/2012 MD In (ft) : 825 TVD In (ft) : 825 Date Out :08/04/2012 MD Out (ft) : 7529 TVD Out (ft) : 7160

## BIT DATA

Bit Number	: 2	Nozzles	: 5x15
Bit Size (in)	: 8.750	TFA (in2)	: 0.8629
Manufacturer	: Baker	Dull Grade In	: NEW
Model	: DP505F	Dull Grade Out	: 1-2-WT-G-X-I-CT-TD
Serial Number	: 7141365		

## MOTOR DATA

Motor Number	: 1	Bend (deg)	: 1.83
OD (in)	: 6.750	Nozzles (32nd)	: 0.0
Manufacturer	: Sperry Drilling	Avg Diff Press	: 421.36
Model	: SperryDrill	Cumul Cir Hrs	: 67.93
Serial Number	: 675-1222		

## COMPONENT DATA

Item #	Description	Serial Number	OD (in)	ID (in)	Gauge (in)	Weight (lbpf)	Top Connection	Length (ft)	Bit - Center Blade (ft)
1	PDC	7141365	6.000	1.750	8.750	90.34	P 4-1/2" REG	0.89	
2	6 3/4" SperryDrill Lobe 6/7 - 5.0 stg	675-1222	6.750	4.498		43.92	B 4-1/2" IF	26.98	
3	Flex Collar	SD45965	6.820	2.875		102.37	B 4-1/2" IF	30.20	
4	HOS	11404300	6.880	2.938		103.60	B 4-1/2" IF	6.38	
5	Pony Flex Collar	11011329	6.830	2.875		102.74	B 4-1/2" IF	19.68	
6	Flex Collar	SD49727	6.810	2.875		102.01	B 4-1/2" IF	30.77	
7	X-Over Sub	11911449	6.700	2.750		99.91	B 4-1/2" XH	3.99	
8	18 Jts 4.5 DP		4.500	3.500		24.56		567.16	
9	X-Over Sub	TT-83268	6.500	2.500		96.36	B 4-1/2" XH	4.05	
10	45 Jts HWDP		4.000	2.563		29.70		1378.98	
Total:								2069.08	

## PERFORMANCE Section A

Parameter	Min	Max	Avg	Activity	Hours	BHA Weight (klb)	
WOB (klb) :	4	28	14	Drilling :	52.53	in Air (Total) :	10.58
RPM (rpm) :	25	68	51	Reaming :	0.89	in Mud (Total) :	
Flow (gpm) :	419	600	553	Circ-Other :	14.51	in Air (Bel Jars) :	
SPP (psig) :	1200	3950	3260	Total :	67.93	in Mud (Bel Jars) :	

## BHA WEIGHT CALCULATION MESSAGE

Jar not found. Could not calculate weight below jars. Mud Weight not valid could not calculate BHA weight in mud.

## PERFORMANCE Section B

		In	Out			Distance (ft)	ROP (fph)	Build (°/100')	Turn (°/100')	DLS (°/100')
Inclination	(deg)	0.15	89.59	Oriented	:	998	39	n/a	n/a	5.46
Azimuth	(deg)	280.98	177.34	Rotating	:	5706	214	-0.06	-3.78	0.06
				Total	:	6704	128	1.33	0.00	1.34

## COMMENTS

Probe to Bit = 50'  
 Bit to Gamma = 52.68'  
 Rev per gal = 0.29  
 Flow Range = 300-600 gal  
 Bit to Bend = 3.01'  
 Float OD = 3.5"  
 RFO = 232.88 deg  
 Theoretical Build Rates= 23.00

## OBJECTIVES

Drill Verticle and build in one run, as per geology and plan.

## RESULTS

Drill verticle and build in one run.

## RECOMMENDATIONS

N/A

## OTHER

## BHA Schematic

Anadarko Petroleum Corp

Cannon 13C-3HZ

IADC Rig BHA # : 100

Run # : 100

Drillstring : Drillstring

### COMPONENT DATA

OD (in)	Length (ft)	Description
6.000	0.89	PDC (Gauge: 8.750 in)
6.750	26.98	6 3/4" SperryDrill Lobe 6/7 - 5.0 stg
6.820	30.20	Flex Collar
6.880	6.38	HOS
6.830	19.68	Pony Flex Collar
6.810	30.77	Flex Collar
6.700	3.99	X-Over Sub
4.500	567.16	18 Jts 4.5 DP
6.500	4.05	X-Over Sub
4.000	1378.98	45 Jts HWDP

\*Pos: Measured as distance from bottom of the component.

X-Over Sub



Flex Collar

Pony Flex Collar

HOS

Flex Collar

6 3/4" SperryDrill Lobe  
6/7 - 5.0 stg

PDC



## WELL INFORMATION

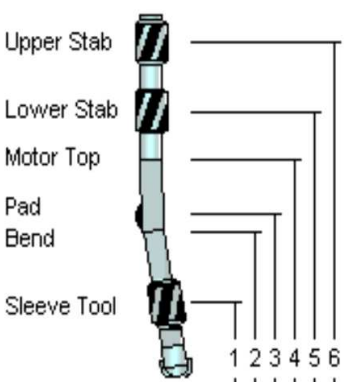
Motor Performance  
Report

Customer : Anadarko Petroleum Corp  
 Well Name : Cannon 13C-3HZ  
 Job Number : CA-XX-0009522757  
 Rig Name : H & P 308  
 Field Name : Watternburg  
 Country : USA

## SUMMARY

BHA Number : 100      Depth In/Out (ft) : 825.00 / 7529.00  
 Run Number : 0100      Date In/Out : 08/01/2012 / 08/04/2012  
 Bit Number : 2      Hole Size (in) : 8.75

## MOTOR CONFIGURATION

	DFB (ft)	Component	Yes/No	Type	Value
		Sleeve Stab	No		
	3.99	Bent Housing	Yes	Fixed	1.83° bend
		Bent Housing Pad	No		
	27.87	Motor Top	Yes		
		Lower String Stab	No		
		Upper String Stab	No		

## MOTOR PARAMETERS

Serial Number : 675-1222      Lobe Config : 6:7  
 Motor Run # : 1      Stat Elastomer : Nitrile  
 OD (in) : 6.75      ID (in) : 4.5      Short Brg Pack : Yes  
 Flex Collar Used : No      Arr      Ret  
 Rotor Nozzle (32nd) : 0.0      Pick Up Sub : Yes      No  
    Bit Box Protr : Yes      No

## MOTOR RUN DATA

Directional Driller(s) : Jessy Kysar, Jordan Timbs  
 Application Details : Kickoff

Max Dogleg While Rotating (°/100') : 14.57      RPM : 25.00      Motor Stalled : Yes  
 Max Dogleg Overpulled In (°/100') : 14.57      Force (klb) : 100.00      Float Valve : Yes  
 Max Dogleg Pushed Through (°/100') : 14.57      Force (klb) : 30.00      DP Filter : Yes

Inc Start/End	(deg)	:	0.155 / 89.587	Interval Oriented / Rot.	(ft)	:	998.00 / 5706.00
Hole Azimuth Start / End	(deg)	:	280.983 / 177.337	Directional Perf Ori / Rot	(°/100')	:	5.46 / 0.06
Jarring Occurred		:	No				

### HOURS

Existing Hrs	:	0.00	Circ Hrs	:	14.51	Total Hrs This Run	:	67.93
Drilling Hrs	:	52.53	Reaming Hrs	:	0.89	New Cumulative Hrs	:	67.93

### DRILLING DATA

	Diff Press (psig)	RPM	Rotn Torque (ft-lb)	Drag Up/Down (klb)	WOB (klb)	ROP Oriented (fph)	ROP Rotated (fph)
Avg	421.36	51	4420.14	120.24 / 99.05	14.24	39	214
Max	325.00	68	8000.00	160.00 / 130.00	28.00	150	900

### PRE-RUN TESTS

Motor Tested Pre-Run	:	Yes	with Bit/MWD	:	Yes / Yes
Dump Sub Operating	:	No	Brg Play	:	0.20
Flow 1 (gpm)	:	420.00	Pressure 1 (psig)	:	800.00
Flow 2 (gpm)	:		Pressure 2 (psig)	:	
Driveshaft Rotation Observed	:	No			
Bearing Leakage Observed	:	No			

### POST-RUN TESTS

Motor Tested Post-Run	:	No	with Bit/MWD	:	No / No
Dump Sub Operating	:	No	Brg Play	:	0.40
Flow 1 (gpm)	:		Pressure 1 (psig)	:	
Flow 2 (gpm)	:		Pressure 2 (psig)	:	
Driveshaft Rotation Observed	:	No	Fluid Flushed	:	No
Bearing Leakage Observed	:	No	Fluid Used	:	
DriveShaft Rotated to Drain Mud	:	Yes			

### MUD DATA

Type	:		Mud Wt (ppg)	:	
Name	:		pH	:	
% Oil / Water	:	/	% Solid	:	
DH Temp Avg / Max (degF)	:	141.13 / 167.00	% Sand	:	
SPP Start / End (gpm)	:	1200.00 / 3950.00	PV (cP)	:	
Flow Rate Avg / Max (gpm)	:	553.12 / 600.00	YP (lbf2)	:	
Chloride Content (ppm)	:				

Lithology	:	Sand Stone
Principal Formation Name(s)	:	Codel

## BIT DATA

Bit Number	:	2	Nozzles	:	5x15
Bit Size (in)	:	8.750	TFA (in2)	:	0.8629
Manufacturer	:	Baker	Gauge Length (in)	:	0.480
Model	:	DP505F	Dull Grade In	:	NEW
Serial Number	:	7141365	Dull Grade Out	:	1-2-WT-G-X-I-CT-TD
Existing Bit Hrs	:	0.00	Existing Ream Hrs	:	0.00
Cum Drilling Hrs	:	52.53	Cum Ream Hrs	:	0.89

## PERFORMANCE

Service Interrupt	:	No	Trip For Failure	:	No
LIH	:	No	Service Interrupt Hrs	:	
Problem Date	:	08/05/2012			

## COMMENTS

Motor preformed as expected.

**WELL INFORMATION**
**Drilling Activity**

<b>Customer</b>	: Anadarko Petroleum Corp	<b>North Ref</b>	: True
<b>Well Name</b>	: Cannon 13C-3HZ	<b>Declination (deg)</b>	: 8.68
<b>Job Number</b>	: CA-XX-0009522757	<b>Vert Sec Dir (deg)</b>	: 186.60
<b>Rig Name</b>	: H & P 308		
<b>Field Name</b>	: Watternburg		
<b>Country</b>	: USA		

SURVEY										STEERING				DRILLING PARAMETERS					
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment Run
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								
825.0										825	873			60	15	420	1200	560	100
873.0										873	965			60	18	420	1600	600	100
915.0	0.65	202.71	915.00	-0.66	0.78	-0.95	0.71	0.53	0.00										100
965.0										965	1057			60	18	420	1600	600	100
1007.0	0.50	282.64	1006.99	-0.20	0.38	-1.54	0.81	-0.17	0.00										100
1057.0										1057	1150			60	18	600	2400	750	100
1100.0	0.25	237.94	1099.99	-0.12	0.36	-2.10	0.39	-0.27	0.00										100
1150.0										1150	1241			60	18	600	2400	800	100
1191.0	0.63	227.80	1190.99	0.38	-0.08	-2.64	0.43	0.42	0.00										100
1241.0										1241	1333			60	18	600	2400	800	100
1283.0	0.40	241.09	1282.99	0.95	-0.57	-3.30	0.28	-0.25	0.00										100
1333.0										1333	1343	270M			5	600	2400	150	100
1343.0										1343	1425			60	18	600	2400	800	100
1375.0	3.22	260.56	1374.93	1.85	-1.15	-6.13	3.10	3.07	0.00										100
1425.0										1425	1432	0G			5	600	2400	150	100
1432.0										1432	1517			60	18	600	2400	800	100
1467.0	4.68	249.35	1466.71	4.28	-2.90	-12.19	1.78	1.58	0.00										100
1517.0										1517	1522	45G			5	600	2400	150	100

SURVEY										STEERING				DRILLING PARAMETERS						
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment	
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								Run	
1522.0										1522	1609			60	18	600	2400	900	100	
1559.0	5.44	256.10	1558.35	7.53	-5.27	-19.94	1.05	0.83	0.00										100	
1609.0										1609	1614	65G			5	600	2400	150	100	
1614.0										1614	1701			60	25	600	2400	900	100	
1651.0	5.94	265.65	1649.90	9.96	-6.68	-28.92	1.16	0.55	10.37										100	
1701.0										1701	1706	90G			5	600	2400	150	100	
1706.0										1706	1793			65	28	600	2400	900	100	
1743.0	5.66	266.43	1741.43	11.66	-7.32	-38.19	0.32	-0.31	0.85										100	
1793.0										1793	1799	45G			6	600	2400	150	100	
1799.0										1799	1885			68	28	600	2400	900	100	
1835.0	6.31	277.18	1832.93	12.41	-6.97	-47.74	1.41	0.71	11.68										100	
1885.0										1885	1977			68	26	600	2400	900	100	
1927.0	6.34	272.01	1924.37	12.77	-6.16	-57.83	0.62	0.03	-5.61										100	
1977.0										1977	2069			68	26	600	2400	900	100	
2019.0	6.02	271.98	2015.84	13.56	-5.82	-67.73	0.35	-0.35	-0.04										100	
2069.0										2069	2163			68	26	420	2050	500	100	
2113.0	5.68	269.38	2109.35	14.55	-5.70	-77.30	0.46	-0.36	-2.77										100	
2163.0										2163	2168	90G			7	420	1600	70	100	
2168.0										2168	2258			68	26	420	2050	500	100	
2208.0	4.87	272.89	2203.94	15.40	-5.55	-86.03	0.92	-0.86	0.00										100	
2258.0										2258	2353			68	26	550	2050	500	100	
2303.0	4.72	268.69	2298.61	16.20	-5.43	-93.96	0.40	-0.15	0.00										100	
2353.0										2353	2359	60G			8	550	2550	100	100	
2359.0										2359	2448			68	26	550	3000	500	100	
2398.0	5.31	271.86	2393.25	17.10	-5.38	-102.27	0.68	0.62	0.00										100	
2448.0										2448	2543			68	26	550	3000	500	100	
2493.0	4.13	269.90	2487.92	17.86	-5.24	-110.08	1.25	-1.24	0.00										100	
2543.0										2543	2551	40G			10	550	2550	100	100	
2551.0										2551	2637			68	26	550	3000	500	100	
2587.0	5.24	277.36	2581.61	18.20	-4.70	-117.73	1.35	1.18	0.00										100	
2637.0										2637	2732			68	26	550	3000	500	100	
2682.0	4.69	277.29	2676.25	18.09	-3.65	-125.89	0.58	-0.58	0.00										100	

SURVEY										STEERING				DRILLING PARAMETERS					
Measured Depth	Incl Angle	Azi Dir	Vertical Depth	Vertical Section	Coordinates		DLS	Build Rate	Turn Rate	Orientation		Tool Face		RPM	WOB	Flow Rate	Stand Pipe	ROP	Comment
(ft)	(deg)	(deg)	(ft)	(ft)	N/S (ft)	E/W (ft)	(°/100')	(°/100')	(°/100')	From (ft)	To (ft)	(deg)			(klb)	(gpm)	(psig)	(fph)	Run
2732.0										2732	2826			60	26	550	3000	500	100
2776.0	4.52	277.94	2769.95	17.96	-2.65	-133.37	0.20	-0.19	0.00										100
2826.0										2826	2831	0G			8	550	2550	100	100
2831.0										2831	2921			60	26	550	3000	500	100
2871.0	5.08	275.83	2864.62	17.93	-1.71	-141.26	0.62	0.60	0.00										100
2921.0										2921	3016			60	26	550	3000	500	100
2966.0	5.51	271.20	2959.21	18.42	-1.18	-150.00	0.63	0.44	-4.88										100
3016.0										3016	3111			60	26	550	3000	500	100
3061.0	5.56	273.00	3053.77	19.13	-0.85	-159.16	0.19	0.06	1.89										100
3111.0										3111	3205			60	26	550	3000	500	100
3155.0	4.94	273.66	3147.37	19.63	-0.35	-167.74	0.67	-0.66	0.00										100
3205.0										3205	3300			60	26	550	3000	500	100
3250.0	4.29	276.46	3242.07	19.85	0.31	-175.35	0.73	-0.69	0.00										100
3300.0										3300	3308	-20G			5	572	2650	90	100
3308.0										3308	3395			60	18	570	3150	450	100
3345.0	4.24	262.45	3336.80	20.71	0.25	-182.36	1.09	-0.05	0.00										100
3395.0										3395	3403	15G			5	572	2650	90	100
3403.0										3403	3490			60	19	594	3250	400	100
3440.0	5.23	269.03	3431.48	22.14	-0.29	-190.18	1.19	1.04	0.00										100
3490.0										3490	3585			60	19	594	3250	400	100
3535.0	4.03	263.29	3526.17	23.48	-0.75	-197.82	1.36	-1.27	0.00										100
3585.0										3585	3595	20G			5	594	2650	90	100
3595.0										3595	3679			60	19	594	3250	400	100
3629.0	5.02	275.62	3619.88	24.31	-0.73	-205.19	1.47	1.06	0.00										100
3679.0										3679	3687	0G			5	572	2650	90	100
3687.0										3687	3774			60	22	570	3275	475	100
3724.0	6.08	266.48	3714.43	25.27	-0.64	-214.35	1.45	1.12	-9.62										100
3774.0										3774	3869			60	20	570	3300	425	100
3819.0	4.72	267.11	3809.01	26.80	-1.14	-223.28	1.43	-1.43	0.00										100
3869.0										3869	3880	20G			5	572	2650	90	100
3880.0										3880	3964			60	21	571	3300	425	100
3914.0	6.11	266.31	3903.58	28.35	-1.67	-232.23	1.46	1.46	0.00										100

SURVEY										STEERING				DRILLING PARAMETERS						
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment	
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								Run	
3964.0										3964	4059			60	21	571	3300	425	100	
4009.0	6.27	264.73	3998.03	30.32	-2.47	-242.44	0.24	0.17	-1.66										100	
4059.0										4059	4153			60	21	571	3300	425	100	
4103.0	5.51	272.28	4091.53	31.71	-2.76	-252.06	1.15	-0.80	8.03										100	
4153.0										4153	4248			60	21	419	2275	270	100	
4198.0	4.70	281.82	4186.16	31.70	-1.78	-260.43	1.23	-0.85	0.00										100	
4248.0										4248	4343			60	21	570	3450	400	100	
4293.0	4.36	280.30	4280.86	31.11	-0.34	-267.79	0.38	-0.36	0.00										100	
4343.0										4343	4437			60	21	570	3400	350	100	
4387.0	3.80	279.96	4374.62	30.70	0.84	-274.38	0.60	-0.60	0.00										100	
4437.0										4437	4451	-10G			5	571	2900	50	100	
4451.0										4451	4532			60	24	570	3475	400	100	
4482.0	5.48	271.54	4469.31	30.92	1.51	-282.01	1.90	1.77	0.00										100	
4532.0										4532	4627			60	24	570	3475	350	100	
4577.0	5.18	272.70	4563.90	31.61	1.83	-290.82	0.33	-0.31	1.22										100	
4627.0										4627	4722			60	24	570	3475	350	100	
4672.0	4.27	276.43	4658.57	31.91	2.43	-298.62	1.02	-0.96	0.00										100	
4722.0										4722	4732	-10G			9	570	2900	70	100	
4732.0										4732	4817			60	24	570	3550	320	100	
4767.0	5.58	273.36	4753.22	32.18	3.10	-306.75	1.41	1.38	0.00										100	
4817.0										4817	4911			60	21	571	3550	320	100	
4861.0	4.69	279.73	4846.84	32.23	4.01	-315.10	1.13	-0.95	0.00										100	
4911.0										4911	4921	-20G			9	570	2900	70	100	
4921.0										4921	5006			60	21	571	3550	340	100	
4956.0	3.41	265.70	4941.61	32.55	4.46	-321.74	1.69	-1.34	0.00										100	
5006.0										5006	5021	0G			10	570	2900	70	100	
5021.0										5021	5101			60	21	571	3550	340	100	
5051.0	5.20	263.14	5036.33	34.09	3.73	-328.83	1.89	1.88	0.00										100	
5101.0										5101	5107	30G			10	570	2900	70	100	
5107.0										5107	5195			60	21	571	3550	340	100	
5145.0	5.51	269.54	5129.93	35.63	3.19	-337.56	0.71	0.33	6.81										100	
5195.0										5195	5290			60	21	571	3550	340	100	

SURVEY										STEERING					DRILLING PARAMETERS					
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment	
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								Run	
5240.0	3.87	269.53	5224.60	36.59	3.12	-345.33	1.72	-1.72	0.00										100	
5290.0										5290	5306	0G			10	570	2900	70	100	
5306.0										5306	5385			60	21	571	3550	340	100	
5335.0	5.98	269.03	5319.25	37.63	3.01	-353.48	2.22	2.22	0.00										100	
5385.0										5385	5391	20G			10	570	2900	70	100	
5391.0										5391	5480			60	21	571	3550	340	100	
5430.0	6.00	269.09	5413.73	38.94	2.85	-363.38	0.03	0.02	0.06										100	
5480.0										5480	5488	20G			10	570	2900	70	100	
5488.0										5488	5575			60	21	571	3550	340	100	
5525.0	5.47	271.54	5508.26	39.98	2.89	-372.87	0.62	-0.56	2.59										100	
5575.0										5575	5585	0G			10	570	2900	60	100	
5585.0										5585	5670			60	21	571	3550	300	100	
5620.0	5.74	273.19	5602.80	40.67	3.28	-382.14	0.34	0.29	1.73										100	
5670.0										5670	5764			60	21	571	3550	300	100	
5714.0	4.09	275.14	5696.45	41.03	3.84	-390.17	1.77	-1.76	0.00										100	
5764.0										5764	5780	0G			10	570	2900	50	100	
5780.0										5780	5859			60	21	571	3550	300	100	
5809.0	5.72	263.28	5791.10	42.21	3.59	-398.25	2.02	1.72	0.00										100	
5859.0										5859	5867	20G			10	570	2900	50	100	
5867.0										5867	5954			60	21	571	3550	300	100	
5904.0	5.68	260.42	5885.63	44.61	2.25	-407.60	0.30	-0.04	-3.02										100	
5954.0										5954	6049			60	21	571	3550	300	100	
5999.0	4.34	263.48	5980.27	46.74	1.06	-415.81	1.44	-1.41	0.00										100	
6049.0										6049	6144			60	21	550	3760	300	100	
6094.0	3.24	261.75	6075.06	48.24	0.27	-422.04	1.17	-1.16	0.00										100	
6144.0										6144	6239			60	21	550	3760	300	100	
6189.0	2.59	256.71	6169.94	49.66	-0.61	-426.78	0.73	-0.68	0.00										100	
6239.0										6239	6333			60	21	550	3760	300	100	
6283.0	1.69	246.57	6263.87	51.08	-1.65	-430.12	1.03	-0.95	0.00										100	
6333.0										6333	6341	90M			10	570	2900	50	100	
6341.0										6341	6428			60	21	550	3760	300	100	
6378.0	0.16	286.67	6358.85	51.76	-2.17	-431.53	1.66	-1.62	0.00										100	

SURVEY										STEERING					DRILLING PARAMETERS					
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment	
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								Run	
6428.0										6428	6523			60	21	550	3760	300	100	
6473.0	0.53	235.02	6453.85	52.03	-2.39	-432.02	0.47	0.39	0.00										100	
6505.0	0.43	113.26	6485.85	52.16	-2.52	-432.03	2.63	-0.32	0.00										100	
6523.0										6523	6562			60	21	550	3760	300	100	
6536.0	0.40	153.85	6516.85	52.28	-2.66	-431.88	0.93	-0.09	0.00										100	
6562.0										6562	6612	180M			4	537	3600	50	100	
6568.0	2.25	163.08	6548.84	52.96	-3.37	-431.64	5.81	5.79	0.00										100	
6599.0	5.25	163.03	6579.77	54.82	-5.31	-431.05	9.67	9.67	0.00										100	
6612.0										6612	6618			25	21	537	3950	300	100	
6618.0										6618	6646	0G			4	537	3600	50	100	
6631.0	7.62	155.22	6611.57	57.97	-8.63	-429.74	7.87	7.40	-24.41										100	
6646.0										6646	6649			25	21	537	3950	300	100	
6649.0										6649	6673	20G			8	541	3800	70	100	
6663.0	11.04	155.28	6643.14	62.40	-13.34	-427.56	10.68	10.68	0.19										100	
6673.0										6673	6681			25	9	541	3850	100	100	
6681.0										6681	6709	20G			8	541	3800	70	100	
6694.0	13.38	156.64	6673.44	68.04	-19.33	-424.90	7.62	7.56	4.37										100	
6709.0										6709	6713			25	9	541	3850	100	100	
6713.0										6713	6735	35G			8	541	3800	70	100	
6726.0	16.49	162.44	6704.35	75.40	-27.06	-422.06	10.77	9.71	18.13										100	
6735.0										6735	6744			25	9	541	3850	100	100	
6744.0										6744	6766	60G			8	541	3800	70	100	
6757.0	18.97	166.19	6733.88	84.13	-36.15	-419.53	8.81	8.00	12.12										100	
6766.0										6766	6776			25	9	541	3850	100	100	
6776.0										6776	6796	60G			8	541	3800	70	100	
6789.0	20.58	171.45	6764.00	94.44	-46.77	-417.45	7.49	5.03	16.43										100	
6796.0										6796	6807			25	9	541	3850	100	100	
6807.0										6807	6833	65G			8	541	3800	70	100	
6821.0	22.42	177.21	6793.77	105.89	-58.43	-416.32	8.75	5.76	17.99										100	
6833.0										6833	6839			25	9	541	3850	100	100	
6839.0										6839	6867	40G			8	541	3800	70	100	
6853.0	24.26	182.84	6823.16	118.47	-71.09	-416.35	9.02	5.74	17.60										100	

SURVEY										STEERING				DRILLING PARAMETERS					
Measured Depth	Incl Angle	Azi Dir	Vertical Depth	Vertical Section	Coordinates		DLS	Build Rate	Turn Rate	Orientation		Tool Face		RPM	WOB	Flow Rate	Stand Pipe	ROP	Comment
(ft)	(deg)	(deg)	(ft)	(ft)	N/S (ft)	E/W (ft)	(°/100')	(°/100')	(°/100')	From (ft)	To (ft)	(deg)			(klb)	(gpm)	(psig)	(fph)	Run
6867.0										6867	6871			25	9	541	3850	100	100
6871.0										6871	6895	20G			8	541	3800	70	100
6884.0	26.61	183.07	6851.15	131.76	-84.38	-417.04	7.59	7.58	0.75										100
6895.0										6895	6903			25	9	541	3850	100	100
6903.0										6903	6934	0G			8	541	3800	70	100
6916.0	30.12	181.78	6879.30	146.92	-99.57	-417.67	11.15	10.99	-4.03										100
6934.0										6934	6966	0G			8	541	3800	70	100
6947.0	33.59	180.20	6905.63	163.19	-115.92	-417.94	11.49	11.17	-5.09										100
6966.0										6966	6995	20G			8	541	3800	70	100
6979.0	36.79	179.96	6931.78	181.51	-134.36	-417.97	10.01	10.00	-0.75										100
6995.0										6995	6997			25	9	541	3850	100	100
6997.0										6997	7022	20G			8	541	3800	70	100
7010.0	39.12	180.22	6956.22	200.45	-153.42	-418.00	7.53	7.51	0.83										100
7022.0										7022	7029			25	9	541	3850	100	100
7029.0										7029	7055	20G			8	541	3800	70	100
7041.0	42.28	179.19	6979.72	220.51	-173.63	-417.89	10.42	10.19	-3.33										100
7055.0										7055	7060			25	9	541	3850	100	100
7060.0										7060	7091	20G			8	541	3800	70	100
7073.0	45.52	178.81	7002.78	242.50	-195.82	-417.50	10.18	10.14	-1.17										100
7091.0										7091	7123	20G			8	541	3800	70	100
7104.0	49.96	179.03	7023.62	265.24	-218.75	-417.07	14.32	14.31	0.70										100
7123.0										7123	7152	20G			8	541	3800	70	100
7136.0	54.16	179.41	7043.29	290.26	-243.98	-416.73	13.18	13.15	1.19										100
7152.0										7152	7155			25	9	541	3850	100	100
7155.0										7155	7167			25	9	541	3850	100	100
7167.0	56.70	179.07	7060.88	315.57	-269.50	-416.39	8.23	8.18	-1.10	7167	7185	20G			8	541	3800	70	100
7185.0										7185	7204	20G			8	541	3800	70	100
7199.0	60.42	178.04	7077.57	342.60	-296.79	-415.69	11.93	11.61	-3.19										100
7204.0										7204	7217			25	9	541	3850	100	100
7217.0										7217	7232	20G			8	541	3800	70	100
7230.0	62.16	177.81	7092.46	369.48	-323.96	-414.71	5.66	5.62	-0.74										100
7232.0										7232	7249			25	9	541	3800	100	100

SURVEY										STEERING					DRILLING PARAMETERS					
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment	
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								Run	
7249.0										7249	7270	20G			8	541	3800	70	100	
7262.0	65.41	178.06	7106.60	397.85	-352.64	-413.68	10.20	10.17	0.77										100	
7270.0										7270	7280			25	9	541	3800	100	100	
7280.0										7280	7308	30G			8	541	3800	70	100	
7294.0	68.87	178.19	7119.02	427.01	-382.11	-412.71	10.81	10.80	0.41										100	
7308.0										7308	7312			25	9	541	3800	100	100	
7312.0										7312	7330	40G			8	541	3800	70	100	
7325.0	70.86	179.19	7129.69	455.84	-411.21	-412.05	7.10	6.43	3.22										100	
7330.0										7330	7344			25	9	541	3800	100	100	
7344.0										7344	7372	30G			8	541	3800	70	100	
7357.0	73.85	179.86	7139.39	486.10	-441.70	-411.80	9.53	9.32	2.10										100	
7372.0										7372	7375			25	9	541	3800	100	100	
7375.0										7375	7407	10G			8	541	3800	70	100	
7388.0	77.84	179.46	7146.97	515.93	-471.75	-411.62	12.94	12.88	-1.28										100	
7407.0										7407	7431	0G			8	541	3800	70	100	
7420.0	82.50	179.60	7152.43	547.21	-503.27	-411.36	14.56	14.55	0.41										100	
7431.0										7431	7438			25	9	541	3800	100	100	
7438.0										7438	7453	0G			8	541	3800	70	100	
7451.0	84.65	178.63	7155.90	577.75	-534.07	-410.88	7.60	6.95	-3.10										100	
7453.0										7453	7470			25	9	541	3800	100	100	
7470.0										7470	7486	0G			8	541	3800	70	100	
7479.0	86.42	178.17	7158.08	605.38	-561.97	-410.11	6.54	6.33	-1.67										100	
7486.0										7486	7501			25	9	541	3800	100	100	
7501.0										7501	7524	0G			8	541	3800	70	100	
7524.0										7524	7529			25	9	541	3800	100	100	

## WARRANTY

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## WELL INFORMATION

## BHA Report

IADC Rig BHA# 200  
Run# 0200

Customer : Anadarko Petroleum Corp  
Well Name : Cannon 13C-3HZ  
Job Number : CA-XX-0009522757  
Rig Name : H & P 308  
Field Name : Watternburg  
Country : USA

Date In :08/06/2012 MD In (ft) : 7529 TVD In (ft) : 7160 Date Out :08/08/2012 MD Out (ft) : 11350 TVD Out (ft) : 7123

## BIT DATA

Bit Number	: 3	Nozzles	: 5x14
Bit Size (in)	: 6.125	TFA (in2)	: 0.7517
Manufacturer	: Schlumberger	Dull Grade In	: NEW
Model	: SDi513	Dull Grade Out	: 1-2-WT-A-X-I-CT-TD
Serial Number	: JF9506		

## MOTOR DATA

Motor Number	:	Bend (deg)	: 1.50
OD (in)	: 5.000	Nozzles (32nd)	: 0.0
Manufacturer	: Sperry Drilling	Avg Diff Press	: 187.77
Model	: GeoForce	Cumul Cir Hrs	: 39.56
Serial Number	: 500-212		

## COMPONENT DATA

Item #	Description	Serial Number	OD (in)	ID (in)	Gauge (in)	Weight (lbpf)	Top Connection	Length (ft)	Bit - Center Blade (ft)
1	PDC	JF9506	4.350	1.500	6.125	44.63	P 3-1/2" REG	0.54	
2	5" GeoForce Lobe 4/5 - 5.4 stg	500-212	5.000	3.120		52.94	B 3-1/2" IF	26.29	
3	Slide Reamer	DDSR58-004NM	4.800	2.250	6.000	48.12		4.90	
	Stabilizer				6.000				28.68
4	4 3/4" DM Collar	11991622	4.750	2.610		47.00	B 3-1/2" IF	9.26	
5	SP-4	90331367	4.720	2.600		41.54	B 3-1/2" IF	24.45	
6	Inline Stabilizer (ILS)	CP1984704	4.750	2.500	5.875	43.66	B 3-1/2" IF	3.59	66.62
7	4 3/4" TM	11163199	4.790	2.812		46.30	B 3-1/2" IF	11.04	
8	X-Over Sub	DR5424	4.730	2.313		45.57		2.16	
9	57 Jts 4" DP		4.000	3.240		18.03		1800.40	
10	Agitator	1113893-6	5.000	2.000		56.21		11.23	
11	Shock Sub	426260-17	5.000	2.000		56.21		11.57	
12	90 Jts 4" DP		4.000	3.240		18.03		2843.54	
13	45 Jts 4" HWDP		4.000	2.563		29.70		1378.98	
Total:								6127.95	

## PERFORMANCE Section A

Parameter	Min	Max	Avg	Activity	Hours	BHA Weight (klb)	
WOB (klb) :	5	32	13	Drilling :	29.63	in Air (Total) :	3.87
RPM (rpm) :	50	70	68	Reaming :	2.04	in Mud (Total) :	
Flow (gpm) :	265	270	267	Circ-Other :	7.89	in Air (Bel Jars) :	
SPP (psig) :	850	3600	2905	Total :	39.56	in Mud (Bel Jars) :	

## BHA WEIGHT CALCULATION MESSAGE

Jar not found. Could not calculate weight below jars. Mud Weight not valid could not calculate BHA weight in mud.

## PERFORMANCE Section B

	In	Out	Distance (ft)	ROP (fph)	Build (°/100')	Turn (°/100')	DLS (°/100')
Inclination (deg)	89.70	91.24	Oriented : 135	61	n/a	n/a	2.10
Azimuth (deg)	178.20	173.98	Rotating : 3686	134	0.08	-0.46	0.34
			Total : 3821	129	0.04	-0.11	0.12

## COMMENTS

Probe to Bit = 37'  
 Bit to Gamma = 58.41'  
 Bit to Res = 50.74'  
 Rev per gal = 1.06  
 Float OD = 3.25"  
 Flow Range = 150-300 gal  
 Bit to Bend = 5.2  
 RFO = 105.84 deg

## OBJECTIVES

TD lateral in one run while maintaining a 10ft target window and doglegs under 3 deg / 100 ft.

## RESULTS

BHA met all objectives.

## RECOMMENDATIONS

## OTHER

# BHA Schematic

Anadarko Petroleum Corp

Cannon 13C-3HZ

IADC Rig BHA # : 200

Run # : 200

Drillstring : Drillstring

## COMPONENT DATA

OD (in)	Length (ft)	Description
4.350	0.54	PDC (Gauge: 6.125 in)
5.000	26.29	5" GeoForce Lobe 4/5 - 5.4 stg
4.800	4.90	Slide Reamer (Gauge: 6.000 in)
		Stabilizer (Gauge: 6.000 in, Pos*: 1.85 ft)
4.750	9.26	4 3/4" DM Collar
4.720	24.45	SP-4
4.750	3.59	Inline Stabilizer (ILS) (Gauge: 5.875 in, Pos*: 1.18 ft)
4.790	11.04	4 3/4" TM
4.730	2.16	X-Over Sub
4.000	1800.40	57 Jts 4" DP
5.000	11.23	Agitator
5.000	11.57	Shock Sub
4.000	2843.54	90 Jts 4" DP
4.000	1378.98	45 Jts 4" HWDP

\*Pos: Measured as distance from bottom of the component.

X-Over Sub

4 3/4" TM

Inline Stabilizer (ILS)

SP-4

4 3/4" DM Collar

Slide Reamer

5" GeoForce Lobe 4/5 - 5.4 stg

PDC



## WELL INFORMATION

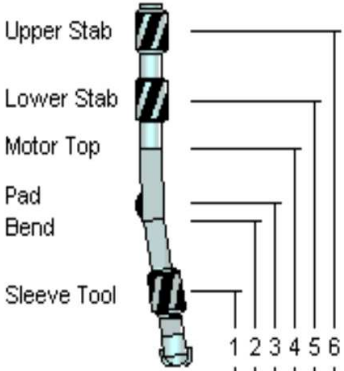
Motor Performance  
Report

Customer : Anadarko Petroleum Corp  
 Well Name : Cannon 13C-3HZ  
 Job Number : CA-XX-0009522757  
 Rig Name : H & P 308  
 Field Name : Watternburg  
 Country : USA

## SUMMARY

BHA Number : 200      Depth In/Out (ft) : 7529.00 / 11350.00  
 Run Number : 0200      Date In/Out : 08/06/2012 / 08/08/2012  
 Bit Number : 3      Hole Size (in) : 6.13

## MOTOR CONFIGURATION

	DFB (ft)	Component	Yes/No	Type	Value
		Sleeve Stab	No		
	5.74	Bent Housing	Yes	Fixed	1.50° bend
		Bent Housing Pad	No		
	26.83	Motor Top	Yes		
	66.62	Lower String Stab	Yes	Reg	Gauge 5.88 in
		Upper String Stab	No		

## MOTOR PARAMETERS

Serial Number : 500-212      Lobe Config : 4:5  
 Motor Run # : 0      Stat Elastomer : Nitrile  
 OD (in) : 5      ID (in) : 3.12      Short Brg Pack : Yes  
 Flex Collar Used : No      Arr      Ret  
 Rotor Nozzle (32nd) : 0.0      Pick Up Sub : Yes      No  
    Bit Box Protr : Yes      No

## MOTOR RUN DATA

Directional Driller(s) : Jessy Kysar, Jordan Timbs, James Scharf  
 Application Details : Horizontal

Max Dogleg While Rotating (°/100') : 3.93      RPM : 70.00      Motor Stalled : No  
 Max Dogleg Overpulled In (°/100') : 3.93      Force (klb) : 30.00      Float Valve : Yes  
 Max Dogleg Pushed Through (°/100') : 3.93      Force (klb) : 40.00      DP Filter : Yes

Inc Start/End	(deg)	:	89.698 / 91.243	Interval Oriented / Rot.	(ft)	:	135.00 / 3686.00
Hole Azimuth Start / End	(deg)	:	178.201 / 173.979	Directional Perf Ori / Rot	(°/100')	:	2.10 / 0.34
Jarring Occurred		:				:	

### HOURS

Existing Hrs	:	0.00	Circ Hrs	:	7.89	Total Hrs This Run	:	39.56
Drilling Hrs	:	29.63	Reaming Hrs	:	2.04	New Cumulative Hrs	:	39.56

### DRILLING DATA

	Diff Press (psig)	RPM	Rotn Torque (ft-lb)	Drag Up/Down (klb)	WOB (klb)	ROP Oriented (fph)	ROP Rotated (fph)
Avg	187.77	68	8014.89	185.94 / 89.02	13.32	61	134
Max	-50.00	70	12100.00	197.00 / 130.00	32.00	125	350

### PRE-RUN TESTS

Motor Tested Pre-Run	:	Yes	with Bit/MWD	:	Yes / Yes
Dump Sub Operating	:	No	Brg Play	:	0.20
Flow 1 (gpm)	:	270.00	Pressure 1 (psig)	:	1200.00
Flow 2 (gpm)	:		Pressure 2 (psig)	:	
Driveshaft Rotation Observed	:	No			
Bearing Leakage Observed	:	No			

### POST-RUN TESTS

Motor Tested Post-Run	:	No	with Bit/MWD	:	No / No
Dump Sub Operating	:	No	Brg Play	:	0.30
Flow 1 (gpm)	:		Pressure 1 (psig)	:	
Flow 2 (gpm)	:		Pressure 2 (psig)	:	
Driveshaft Rotation Observed	:	No	Fluid Flushed	:	No
Bearing Leakage Observed	:	No	Fluid Used	:	
DriveShaft Rotated to Drain Mud	:	Yes			

### MUD DATA

Type	:		Mud Wt (ppg)	:	
Name	:		pH	:	
% Oil / Water	:	/	% Solid	:	
DH Temp Avg / Max (degF)	:	229.49 / 244.00	% Sand	:	
SPP Start / End (gpm)	:	850.00 / 3600.00	PV (cP)	:	
Flow Rate Avg / Max (gpm)	:	267.17 / 270.00	YP (lbf2)	:	
Chloride Content (ppm)	:				

Lithology	:	Sand Stone
Principal Formation Name(s)	:	Codell

## BIT DATA

Bit Number	:	3	Nozzles	:	5x14
Bit Size	(in)	: 6.125	TFA	(in2)	: 0.7517
Manufacturer	:	Schlumberger	Gauge Length	(in)	: 0.220
Model	:	SDi513	Dull Grade In	:	NEW
Serial Number	:	JF9506	Dull Grade Out	:	1-2-WT-A-X-I-CT-TD
Existing Bit Hrs	:	0.00	Existing Ream Hrs	:	0.00
Cum Drilling Hrs	:	29.63	Cum Ream Hrs	:	2.04

## PERFORMANCE

Service Interrupt	:	No	Trip For Failure	:	No
LIH	:	No	Service Interrupt Hrs	:	
Problem Date	:	08/07/2012			

## COMMENTS

Motor performed satisfactorily.

**WELL INFORMATION**
**Drilling Activity**

<b>Customer</b>	: Anadarko Petroleum Corp	<b>North Ref</b>	: True
<b>Well Name</b>	: Cannon 13C-3HZ	<b>Declination (deg)</b>	: 8.68
<b>Job Number</b>	: CA-XX-0009522757	<b>Vert Sec Dir (deg)</b>	: 186.60
<b>Rig Name</b>	: H & P 308		
<b>Field Name</b>	: Watternburg		
<b>Country</b>	: USA		

SURVEY										STEERING				DRILLING PARAMETERS					
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment Run
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								
7529.0										7529	7579			50	10	270	3050	250	200
7542.0	90.55	178.21	7159.75	667.67	-624.90	-408.12	6.55	6.55	0.07										200
7579.0										7579	7642			50	10	270	3050	250	200
7605.0	90.74	178.26	7159.04	730.00	-687.87	-406.17	0.31	0.30	0.08										200
7642.0										7642	7737			50	10	270	3050	250	200
7700.0	91.11	177.55	7157.50	823.89	-782.79	-402.70	0.84	0.39	-0.74										200
7737.0										7737	9159			50	10	270	3050	250	200
7795.0	91.36	177.30	7155.46	917.65	-877.68	-398.43	0.37	0.26	-0.27										200
7889.0	90.49	176.20	7153.94	1010.25	-971.51	-393.11	1.49	-0.92	-1.17										200
7984.0	90.56	177.90	7153.07	1103.93	-1066.38	-388.22	1.79	0.07	1.78										200
8079.0	90.80	179.99	7151.94	1198.07	-1161.35	-386.47	2.22	0.26	2.21										200
8174.0	90.37	180.68	7150.97	1292.50	-1256.34	-387.03	0.85	-0.46	0.72										200
8269.0	89.82	180.98	7150.82	1387.02	-1351.33	-388.40	0.66	-0.58	0.31										200
8363.0	89.01	179.47	7151.78	1480.43	-1445.32	-388.77	1.82	-0.85	-1.61										200
8458.0	90.00	179.80	7152.60	1574.72	-1540.31	-388.16	1.10	1.04	0.36										200
8553.0	90.31	179.74	7152.34	1669.05	-1635.31	-387.78	0.33	0.32	-0.07										200
8648.0	90.49	179.43	7151.68	1763.33	-1730.31	-387.09	0.38	0.19	-0.32										200
8743.0	90.68	180.82	7150.71	1857.72	-1825.30	-387.29	1.48	0.19	1.46										200

SURVEY										STEERING				DRILLING PARAMETERS						
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment	
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								Run	
8837.0	90.87	181.20	7149.44	1951.26	-1919.28	-388.95	0.45	0.20	0.40										200	
8932.0	90.12	182.66	7148.62	2045.94	-2014.22	-392.14	1.72	-0.78	1.54										200	
9027.0	90.31	184.91	7148.27	2140.82	-2109.00	-398.41	2.38	0.19	2.37										200	
9122.0	90.56	185.33	7147.55	2235.78	-2203.62	-406.89	0.51	0.26	0.44										200	
9159.0										9159	9253			70	13	266	3300	315	200	
9216.0	90.74	185.07	7146.49	2329.75	-2297.23	-415.41	0.34	0.20	-0.27										200	
9253.0										9253	9348			70	12	266	3300	290	200	
9311.0	90.74	183.78	7145.26	2424.67	-2391.93	-422.74	1.36	0.00	-1.36										200	
9348.0										9348	9443			70	18	266	3450	200	200	
9406.0	90.06	184.59	7144.59	2519.58	-2486.68	-429.67	1.11	-0.72	0.86										200	
9443.0										9443	9538			70	12	266	3350	180	200	
9501.0	89.94	183.72	7144.59	2614.49	-2581.43	-436.55	0.93	-0.13	-0.92										200	
9538.0										9538	9550	60G			32	265	2950	65	200	
9550.0										9550	9633			70	17	266	3375	190	200	
9596.0	89.81	184.21	7144.80	2709.39	-2676.20	-443.11	0.54	-0.13	0.52										200	
9633.0										9633	9645	70G			32	265	2950	65	200	
9645.0										9645	9727			70	15	266	3300	215	200	
9691.0	90.12	185.79	7144.85	2804.35	-2770.83	-451.40	1.69	0.32	1.66										200	
9727.0										9727	9822			70	15	266	3300	200	200	
9786.0	89.20	186.42	7145.41	2899.35	-2865.29	-461.50	1.18	-0.97	0.66										200	
9822.0										9822	9917			70	14	265	3250	150	200	
9881.0	89.14	186.61	7146.79	2994.34	-2959.67	-472.28	0.22	-0.07	0.21										200	
9917.0										9917	10012			70	14	265	3250	150	200	
9977.0	88.77	186.56	7148.55	3090.32	-3055.02	-483.29	0.39	-0.39	-0.06										200	
10012.0										10012	10108			70	14	265	3250	150	200	
10071.0	88.46	187.68	7150.83	3184.29	-3148.27	-494.93	1.23	-0.33	1.19										200	
10108.0										10108	10126	-45G			5	266	850	125	200	
10126.0										10126	10203			70	6	267	3300	350	200	
10166.0	89.32	185.53	7152.67	3279.26	-3242.61	-505.85	2.44	0.91	-2.26										200	
10203.0										10203	10298			70	13	267	3400	325	200	
10261.0	88.95	185.14	7154.10	3374.23	-3337.19	-514.67	0.57	-0.39	-0.41										200	
10298.0										10298	10393			70	15	268	3400	300	200	

SURVEY										STEERING				DRILLING PARAMETERS					
Measured Depth	Incl Angle	Azi Dir	Vertical Depth	Vertical Section	Coordinates		DLS	Build Rate	Turn Rate	Orientation		Tool Face		RPM	WOB	Flow Rate	Stand Pipe	ROP	Comment
(ft)	(deg)	(deg)	(ft)	(ft)	N/S (ft)	E/W (ft)	(°/100')	(°/100')	(°/100')	From (ft)	To (ft)	(deg)			(klb)	(gpm)	(psig)	(fph)	Run
10356.0	89.14	184.75	7155.69	3469.18	-3431.82	-522.86	0.45	0.20	-0.41										200
10393.0										10393	10414			70	15	268	3400	300	200
10414.0										10414	10430	0G			5	266	850	125	200
10430.0										10430	10488			70	15	268	3400	300	200
10451.0	91.48	184.82	7155.18	3564.12	-3526.48	-530.78	2.47	2.47	0.07										200
10488.0										10488	10493	0G			5	266	850	125	200
10493.0										10493	10584			70	15	268	3400	300	200
10547.0	92.59	185.12	7151.77	3660.02	-3622.06	-539.10	1.20	1.16	0.32										200
10584.0										10584	10596	0G			5	266	850	125	200
10596.0										10596	10616			70	15	268	3400	300	200
10616.0										10616	10647			70	15	268	3400	300	200
10642.0	94.14	184.01	7146.19	3754.79	-3716.59	-546.65	2.00	1.63	-1.17										200
10647.0										10647	10662	0G			5	266	850	125	200
10662.0										10662	10679			70	15	268	3400	300	200
10679.0										10679	10711			70	15	268	3400	300	200
10711.0										10711	10743			70	15	268	3400	300	200
10737.0	94.46	181.48	7139.07	3849.30	-3811.21	-551.19	2.68	0.33	-2.67										200
10743.0										10743	10761	0G			5	266	850	125	200
10761.0										10761	10774			70	15	268	3400	300	200
10774.0										10774	10806			70	15	268	3400	300	200
10806.0										10806	10838			70	15	268	3400	300	200
10833.0	92.97	179.39	7132.86	3944.54	-3907.00	-551.92	2.67	-1.55	-2.18										200
10838.0										10838	10870			70	15	268	3400	300	200
10870.0										10870	10880			70	15	268	3400	300	200
10880.0										10880	10895	0G			5	266	850	125	200
10895.0										10895	10965			70	15	268	3400	300	200
10928.0	91.36	177.30	7129.27	4038.48	-4001.88	-549.18	2.78	-1.69	-2.20										200
10965.0										10965	11060			70	15	268	3400	300	200
11023.0	91.67	177.24	7126.76	4132.19	-4096.74	-544.65	0.33	0.33	-0.06										200
11060.0										11060	11070			70	15	268	3400	300	200
11070.0										11070	11082	0G			5	266	850	125	200
11082.0										11082	11155			70	15	268	3400	300	200

SURVEY										STEERING				DRILLING PARAMETERS					
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates		DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	Orientation		Tool Face (deg)		RPM	WOB (klb)	Flow Rate (gpm)	Stand Pipe (psig)	ROP (fph)	Comment
					N/S (ft)	E/W (ft)				From (ft)	To (ft)								Run
11118.0	89.69	174.08	7125.64	4225.44	-4191.44	-537.46	3.92	-2.08	-3.32										200
11155.0										11155	11249			70	15	268	3400	300	200
11212.0	91.11	174.25	7124.98	4317.23	-4284.95	-527.91	1.52	1.51	0.18										200
11249.0										11249	11344			70	17	268	3600	110	200
11307.0	90.80	174.44	7123.39	4410.05	-4379.48	-518.55	0.38	-0.33	0.20										200
11313.0	90.86	174.38	7123.30	4415.92	-4385.45	-517.97	1.48	1.03	-1.07										200
11344.0										11344	11350			70	17	268	3600	110	200

#### WARRANTY

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## **Section 4**

Contents: Daily Morning Reports

**WELL INFORMATION**

# Daily Drilling Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Watternburg  
**Country** : USA

**CURRENT STATUS Report # 1 Date : 07/31/2012**

<b>Total Depth</b> (ft) : 0.00	<b>Casing Depth</b> (ft) :	<b>Customer Reps</b> : Levi Hancock
<b>Depth Last 24</b> (ft) : 0.00	<b>Casing Diameter</b> (in) :	<b>Customer Reps</b> : Travis Lourance
<b>Hole Size</b> (in) :	<b>Casing ID</b> (in) :	<b>SDS Reps</b> : Jessy Kysar
		<b>SDS Reps</b> : Jordan Timbs
		<b>SDS Reps</b> :

**LAST SURVEY**
**LAST FORMATION TOP**

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)

**BHA SUMMARY**
**MUD DATA**

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lhf2)	Gels 10 sec	10 Min	30 sec	30 min	(lhf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	19:00	19.00			12	Casing break
19:00	00:00	5.00			15	Test BOP

**COMMENTS**

Daily: \$7,150; Total: \$14,300

**WELL INFORMATION**

# Daily Drilling Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Watternburg  
**Country** : USA

**CURRENT STATUS Report # 2 Date : 08/01/2012**

<b>Total Depth</b> (ft) : 4073.00	<b>Casing Depth</b> (ft) :	<b>Customer Reps</b> : Levi Hancock
<b>Depth Last 24</b> (ft) : 3248.00	<b>Casing Diameter</b> (in) :	<b>Customer Reps</b> : Travis Lourance
<b>Hole Size</b> (in) : 8.750	<b>Casing ID</b> (in) :	<b>SDS Reps</b> : Jessy Kysar
		<b>SDS Reps</b> : Jordan Timbs
		<b>SDS Reps</b> :

**LAST SURVEY**
**LAST FORMATION TOP**

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
4009.00	6.27	264.73	3998.03	242.45	186.60			

**BHA SUMMARY**

Well:9522757 Run:0100 - 2069.08 ft;Bit, Motor, Collar, MWD, Collar, Collar, Sub, Drill Pipe, Sub, Drill Pipe

**MUD DATA**

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lbf2)	Gels 10 sec	10 Min	30 sec	30 min	(lbf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	02:00	2.00			15	Test BOP
02:00	04:00	2.00		100	6c	LD washed tools
04:00	06:00	2.00		100	6c	PU tools
06:00	07:20	1.33	825.00	100	6a	Trip in
07:20	07:33	0.22	825.00	100	5	MWD Test
07:33	07:50	0.28	825.00	100	90	Install trip nipple

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
07:50	07:57	0.12	825.00	100	5	MWD Test
07:57	08:40	0.72	825.00	100	26	Drill Float
08:40	08:50	0.17	825.00	100	27	Drill shoe
08:50	08:52	0.03	873.00	100	2a	Rotate
08:52	09:06	0.23	873.00	100	5	C/S
09:06	09:20	0.23	965.00	100	2a	Rotate
09:20	09:49	0.48	965.00	100	5	C/S
09:49	09:57	0.13	1057.00	100	2a	Rotate
09:57	10:03	0.10	1057.00	100	5	C/S
10:03	10:12	0.15	1150.00	100	2a	Rotate
10:12	10:18	0.10	1150.00	100	5	C/S
10:18	10:25	0.12	1241.00	100	2a	Rotate
10:25	10:35	0.17	1241.00	100	5	C/S
10:35	10:43	0.13	1333.00	100	2a	Rotate
10:43	10:49	0.10	1333.00	100	5	C/S
10:49	10:53	0.07	1343.00	100	2b	Slide 10' @ 270M
10:53	11:00	0.12	1425.00	100	2a	Rotate
11:00	11:07	0.12	1425.00	100	5	C/S
11:07	11:15	0.13	1432.00	100	2b	Slide 7' @ HS
11:15	11:21	0.10	1517.00	100	2a	Rotate
11:21	11:28	0.12	1517.00	100	5	C/S
11:28	11:32	0.07	1522.00	100	2b	Slide 5' @ 45R
11:32	11:39	0.12	1609.00	100	2a	Rotate
11:39	11:46	0.12	1609.00	100	5	C/S
11:46	11:49	0.05	1614.00	100	2b	Slide 5' @ 65R
11:49	11:56	0.12	1701.00	100	2a	Rotate
11:56	12:03	0.12	1701.00	100	5	C/S
12:03	12:06	0.05	1706.00	100	2b	Slide 5' @ 90R
12:06	12:13	0.12	1793.00	100	2a	Rotate
12:13	12:24	0.18	1793.00	100	5	C/S
12:24	12:27	0.05	1799.00	100	2b	Slide 5' @ 45R
12:27	12:34	0.12	1885.00	100	2a	Rotate
12:34	12:42	0.13	1885.00	100	5	C/S
12:42	12:50	0.13	1977.00	100	2a	Rotate
12:50	12:56	0.10	1977.00	100	5	C/S
12:56	13:30	0.57	1977.00	100	8	Work on Gen
13:30	13:37	0.12	2069.00	100	2a	Rotate
13:37	13:45	0.13	2069.00	100	5	C/S
13:45	13:59	0.23	2163.00	100	2a	Rotate
13:59	14:05	0.10	2163.00	100	5	C/S
14:05	14:12	0.12	2168.00	100	2b	Slide 5' @ 90R
14:12	14:26	0.23	2258.00	100	2a	Rotate
14:26	14:35	0.15	2258.00	100	5	C/S

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
14:35	14:48	0.22	2353.00	100	2a	Rotate
14:48	14:56	0.13	2353.00	100	5	C/S
14:56	15:02	0.10	2359.00	100	2b	Slide 6' @ 60R
15:02	15:23	0.35	2448.00	100	2a	Rotate
15:23	15:32	0.15	2448.00	100	5	C/S
15:32	15:49	0.28	2543.00	100	2a	Rotate
15:49	15:53	0.07	2543.00	100	5	C/S
15:53	16:04	0.18	2551.00	100	2b	Slide 8' @ 40R
16:04	16:16	0.20	2637.00	100	2a	Rotate
16:16	16:23	0.12	2637.00	100	5	C/S
16:23	16:35	0.20	2732.00	100	2a	Rotate
16:35	16:42	0.12	2732.00	100	5	C/S
16:42	16:52	0.17	2826.00	100	2a	Rotate
16:52	17:00	0.13	2826.00	100	5	C/S
17:00	17:05	0.08	2831.00	100	2b	Slide 5' @ HS
17:05	17:17	0.20	2921.00	100	2a	Rotate
17:17	17:23	0.10	2921.00	100	5	C/S
17:23	17:33	0.17	3016.00	100	2a	Rotate
17:33	17:45	0.20	3016.00	100	5	C/S
17:45	17:56	0.18	3111.00	100	2a	Rotate
17:56	18:05	0.15	3111.00	100	5	C/S
18:05	18:18	0.22	3205.00	100	2a	Rotate
18:18	18:25	0.12	3205.00	100	5	C/S
18:25	18:45	0.33	3300.00	100	2a	Rotate
18:45	18:58	0.22	3300.00	100	5	C/S
18:58	19:07	0.15	3308.00	100	2b	Slide 8' @ 20L
19:07	19:22	0.25	3395.00	100	2a	Rotate
19:22	19:34	0.20	3395.00	100	5	C/S
19:34	19:45	0.18	3403.00	100	2b	Slide 8' @ 15R
19:45	20:02	0.28	3490.00	100	2a	Rotate
20:02	20:15	0.22	3490.00	100	5	C/S
20:15	20:32	0.28	3585.00	100	2a	Rotate
20:32	20:41	0.15	3585.00	100	5	C/S
20:41	21:00	0.32	3595.00	100	2b	Slide 10' @ 20R
21:00	21:14	0.23	3679.00	100	2a	Rotate
21:14	21:24	0.17	3679.00	100	5	C/S
21:24	21:40	0.27	3687.00	100	2b	Slide 8' @ HS
21:40	21:54	0.23	3774.00	100	2a	Rotate
21:54	22:04	0.17	3774.00	100	5	C/S
22:04	22:21	0.28	3869.00	100	2a	Rotate
22:21	22:30	0.15	3869.00	100	5	C/S
22:30	22:42	0.20	3880.00	100	2b	Slide 11' @ HS
22:42	22:59	0.28	3964.00	100	2a	Rotate

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
22:59	23:11	0.20	3964.00	100	5	C/S
23:11	23:29	0.30	4059.00	100	2a	Rotate
23:29	23:44	0.25	4059.00	100	7	Rig Service
23:44	23:55	0.18	4059.00	100	5	C/S
23:55	00:00	0.08	4073.00	100	2a	Rotate

## COMMENTS

Daily: \$47,325; Total: \$61,625

PTB: 50'

GTB: 52.68'

RFO: 232.88 deg

## WELL INFORMATION

## Daily Drilling Report

Customer : Anadarko Petroleum Corp  
 Well Name : Cannon 13C-3HZ  
 Job Number : CA-XX-0009522757  
 Rig Name : H & P 308  
 Field Name : Watternburg  
 Country : USA

CURRENT STATUS Report # 3

Date : 08/02/2012

Total Depth (ft) : 6766.00	Casing Depth (ft) :	Customer Reps : Levi Hancock
Depth Last 24 (ft) : 2693.00	Casing Diameter (in) :	Customer Reps : Travis Lourance
Hole Size (in) : 8.750	Casing ID (in) :	SDS Reps : Jessy Kysar
		SDS Reps : Jordan Timbs
		SDS Reps :

## LAST SURVEY

## LAST FORMATION TOP

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
6757.00	18.97	166.19	6733.88	421.09	186.60			

## BHA SUMMARY

Well:9522757 Run:0100 - 2069.08 ft;Bit, Motor, Collar, MWD, Collar, Collar, Sub, Drill Pipe, Sub, Drill Pipe

## MUD DATA

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lbf2)	Gels 10 sec	10 Min	30 sec	30 min	(lbf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	00:20	0.33	4153.00	100	2a	Rotate
00:20	00:28	0.13	4153.00	100	5	C/S
00:28	00:54	0.43	4248.00	100	2a	Rotate
00:54	01:04	0.17	4248.00	100	5	C/S
01:04	01:27	0.38	4343.00	100	2a	Rotate
01:27	01:37	0.17	4343.00	100	5	C/S

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
01:37	01:58	0.35	4437.00	100	2a	Rotate
01:58	02:13	0.25	4437.00	100	5	C/S
02:13	02:27	0.23	4479.00	100	2b	Slide 12' @ 10L
02:27	02:43	0.27	4532.00	100	2a	Rotate
02:43	02:52	0.15	4532.00	100	5	C/S
02:52	03:12	0.33	4627.00	100	2a	Rotate
03:12	03:22	0.17	4627.00	100	5	C/S
03:22	03:43	0.35	4722.00	100	2a	Rotate
03:43	03:54	0.18	4722.00	100	5	C/S
03:54	04:10	0.27	4732.00	100	2b	Slide 10' @ 10L
04:10	04:30	0.33	4817.00	100	2a	Rotate
04:30	04:39	0.15	4817.00	100	5	C/S
04:39	05:00	0.35	4911.00	100	2a	Rotate
05:00	05:09	0.15	4911.00	100	5	C/S
05:09	05:28	0.32	4921.00	100	2b	Slide 10' @ 20L
05:28	05:49	0.35	5006.00	100	2a	Rotate
05:49	06:03	0.23	5006.00	100	5	C/S
06:03	06:21	0.30	5021.00	100	2b	Slide 15' @ HS
06:21	06:51	0.50	5101.00	100	2a	Rotate
06:51	07:00	0.15	5101.00	100	5	C/S
07:00	07:12	0.20	5107.00	100	2b	Slide 7' @ 30R
07:12	07:45	0.55	5195.00	100	2a	Rotate
07:45	07:58	0.22	5195.00	100	5	C/S
07:58	08:20	0.37	5290.00	100	2a	Rotate
08:20	08:30	0.17	5290.00	100	5	C/S
08:30	08:45	0.25	5306.00	100	2b	Slide 16' @ HS
08:45	09:02	0.28	5385.00	100	2a	Rotate
09:02	09:10	0.13	5385.00	100	5	C/S
09:10	09:22	0.20	5391.00	100	2b	Slide 6' @ 20R
09:22	09:40	0.30	5480.00	100	2a	Rotate
09:40	09:50	0.17	5480.00	100	5	C/S
09:50	10:05	0.25	5488.00	100	2b	Slide 8' @ 20R
10:05	10:26	0.35	5575.00	100	2a	Rotate
10:26	10:33	0.12	5575.00	100	5	C/S
10:33	10:50	0.28	5585.00	100	2b	Slide 10' @ HS
10:50	11:11	0.35	5670.00	100	2a	Rotate
11:11	11:20	0.15	5670.00	100	5	C/S
11:20	11:42	0.37	5764.00	100	2a	Rotate
11:42	11:52	0.17	5764.00	100	5	C/S
11:52	12:11	0.32	5780.00	100	2b	Slide 16' @ HS
12:11	12:32	0.35	5859.00	100	2a	Rotate
12:32	12:40	0.13	5859.00	100	5	C/S
12:40	12:57	0.28	5867.00	100	2b	Slide 8' @ 20R

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
12:57	13:18	0.35	5954.00	100	2a	Rotate
13:18	13:26	0.13	5954.00	100	5	C/S
13:26	13:50	0.40	6049.00	100	2a	Rotate
13:50	13:57	0.12	6049.00	100	5	C/S
13:57	14:20	0.38	6144.00	100	2a	Rotate
14:20	14:28	0.13	6144.00	100	5	C/S
14:28	14:52	0.40	6239.00	100	2a	Rotate
14:52	15:00	0.13	6239.00	100	5	C/S
15:00	15:41	0.68	6333.00	100	2a	Rotate
15:41	15:50	0.15	6333.00	100	5	C/S
15:50	16:02	0.20	6341.00	100	2b	Slide 8' @ 90M
16:02	16:26	0.40	6428.00	100	2a	Rotate
16:26	16:33	0.12	6428.00	100	5	C/S
16:33	17:03	0.50	6523.00	100	2a	Rotate
17:03	17:12	0.15	6523.00	100	5	C/S
17:12	17:20	0.13	6562.00	100	2a	Rotate
17:20	17:27	0.12	6562.00	100	5	Survey
17:27	19:43	2.27	6612.00	100	2b	Slide 50'
19:43	19:53	0.17	6618.00	100	2a	Rotate
19:53	20:19	0.43	6618.00	100	5	C/S
20:19	21:10	0.85	6646.00	100	2b	Slide 18'
21:10	21:13	0.05	6649.00	100	2a	Rotate
21:13	21:18	0.08	6649.00	100	5	Survey
21:18	21:52	0.57	6673.00	100	2b	Slide 24'
21:52	21:56	0.07	6681.00	100	2a	Rotate
21:56	22:03	0.12	6681.00	100	5	Survey
22:03	22:44	0.68	6709.00	100	2b	Slide 28'
22:44	22:51	0.12	6713.00	100	2a	Rotate
22:51	23:02	0.18	6713.00	100	5	C/S
23:02	23:24	0.37	6735.00	100	2b	Slide 22'
23:24	23:33	0.15	6744.00	100	2a	Rotate
23:33	23:40	0.12	6744.00	100	5	Survey
23:40	00:00	0.33	6766.00	100	2b	Slide 22'

## COMMENTS

Daily: \$13,050; Total: \$74,675

PTB: 50'

GTB: 52.68'

RFO: 232.88 deg

**WELL INFORMATION**

# Daily Drilling Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Wattenburg  
**Country** : USA

**CURRENT STATUS Report # 4 Date : 08/03/2012**

<b>Total Depth</b> (ft) : 7407.00	<b>Casing Depth</b> (ft) :	<b>Customer Reps</b> : Levi Hancock
<b>Depth Last 24</b> (ft) : 641.00	<b>Casing Diameter</b> (in) :	<b>Customer Reps</b> : Travis Lourance
<b>Hole Size</b> (in) : 8.750	<b>Casing ID</b> (in) :	<b>SDS Reps</b> : Jessy Kysar
		<b>SDS Reps</b> : Jordan Timbs
		<b>SDS Reps</b> :

**LAST SURVEY**
**LAST FORMATION TOP**

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
7388.00	77.84	179.46	7146.97	626.08	186.60			

**BHA SUMMARY**

Well:9522757 Run:0100 - 2069.08 ft;Bit, Motor, Collar, MWD, Collar, Collar, Sub, Drill Pipe, Sub, Drill Pipe

**MUD DATA**

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lbf2)	Gels 10 sec	10 Min	30 sec	30 min	(lbf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	00:16	0.27	6776.00	100	2a	Rotate
00:16	00:22	0.10	6776.00	100	5	Survey
00:22	00:47	0.42	6796.00	100	2b	Slide 20'
00:47	00:59	0.20	6807.00	100	2a	Rotate
00:59	01:10	0.18	6807.00	100	5	C/S
01:10	01:41	0.52	6833.00	100	2b	Slide 26'

# TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
01:41	01:52	0.18	6836.00	100	2a	Rotate
01:52	01:59	0.12	6836.00	100	5	Survey
01:59	02:36	0.62	6867.00	100	2b	Slide 28'
02:36	02:45	0.15	6871.00	100	2a	Rotate
02:45	02:50	0.08	6871.00	100	5	Survey
02:50	03:13	0.38	6897.00	100	2b	Slide 24'
03:13	03:21	0.13	6903.00	100	2a	Rotate
03:21	03:32	0.18	6903.00	100	5	C/S
03:32	04:26	0.90	6934.00	100	2b	Slide 31'
04:26	04:32	0.10	6934.00	100	5	Survey
04:32	05:05	0.55	6966.00	100	2b	Slide 32'
05:05	05:10	0.08	6966.00	100	5	Survey
05:10	06:20	1.17	6990.00	100	2b	Slide 24'
06:20	07:00	0.67	6990.00	100	35	Stuck Pipe
07:00	08:50	1.83	6995.00	100	2b	Slide 5'
08:50	09:00	0.17	6997.00	100	2a	Rotate
09:00	09:10	0.17	6997.00	100	5	C/S
09:10	10:25	1.25	7023.00	100	2b	Slide 26'
10:25	10:31	0.10	7029.00	100	2a	Rotate
10:31	10:40	0.15	7029.00	100	5	Survey
10:40	11:17	0.62	7055.00	100	2b	Slide 26'
11:17	11:22	0.08	7060.00	100	2a	Rotate
11:22	11:30	0.13	7060.00	100	5	Survey
11:30	12:13	0.72	7091.00	100	2b	Slide 31'
12:13	12:20	0.12	7091.00	100	5	C/S
12:20	13:20	1.00	7123.00	100	2b	Slide 32'
13:20	13:30	0.17	7123.00	100	5	Survey
13:30	14:00	0.50	7152.00	100	2b	Slide 29'
14:00	14:03	0.05	7155.00	100	2a	Rotate
14:03	14:11	0.13	7155.00	100	5	Survey
14:11	14:18	0.12	7167.00	100	2a	Rotate
14:18	14:50	0.53	7186.00	100	2b	Slide 19'
14:50	14:55	0.08	7186.00	100	5	C/S
14:55	15:24	0.48	7204.00	100	2b	Slide 18'
15:24	15:35	0.18	7217.00	100	2a	Rotate
15:35	15:42	0.12	7217.00	100	5	Survey
15:42	16:13	0.52	7232.00	100	2b	Slide 15'
16:13	16:35	0.37	7249.00	100	2a	Rotate
16:35	16:42	0.12	7249.00	100	5	Survey
16:42	17:15	0.55	7273.00	100	2b	Slide 24'
17:15	17:25	0.17	7280.00	100	2a	Rotate
17:25	17:35	0.17	7280.00	100	5	C/S
17:35	18:37	1.03	7308.00	100	2b	Slide 28'

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
18:37	18:50	0.22	7312.00	100	2a	Rotate
18:50	18:56	0.10	7312.00	100	5	Survey
18:56	19:40	0.73	7330.00	100	2b	Slide 18'
19:40	20:10	0.50	7344.00	100	2a	Rotate
20:10	20:17	0.12	7344.00	100	5	Survey
20:17	22:03	1.77	7372.00	100	2b	Slide 28' (down time for dust storm)
22:03	22:17	0.23	7375.00	100	2a	Rotate
22:17	22:29	0.20	7375.00	100	5	C/S
22:29	23:44	1.25	7407.00	100	2b	Slide 32'
23:44	00:00	0.27	7407.00	100	5	Survey

## COMMENTS

Daily: \$13,050; Total: \$87,725

PTB: 50'

GTB: 52.68'

RFO: 232.88 deg

New target of 7160 TVD per Co-man (20:52).

## WELL INFORMATION

## Daily Drilling Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Watternburg  
**Country** : USA

CURRENT STATUS Report # 5

Date : 08/04/2012

**Total Depth** (ft) : 7529.00  
**Depth Last 24** (ft) : 122.00  
**Hole Size** (in) : 8.750

**Casing Depth** (ft) :  
**Casing Diameter** (in) :  
**Casing ID** (in) :

**Customer Reps** : Levi Hancock  
**Customer Reps** : Travis Lourance  
**SDS Reps** : Jessy Kysar  
**SDS Reps** : Jordan Timbs  
**SDS Reps** :

## LAST SURVEY

## LAST FORMATION TOP

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
7479.00	86.42	178.17	7158.08	695.70	186.60			

## BHA SUMMARY

Well:9522757 Run:0100 - 2069.08 ft;Bit, Motor, Collar, MWD, Collar, Collar, Sub, Drill Pipe, Sub, Drill Pipe

## MUD DATA

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lbf2)	Gels 10 sec	10 Min	30 sec	30 min	(lbf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	00:48	0.80	7431.00	100	2b	Slide 24'
00:48	01:05	0.28	7438.00	100	2a	Rotate
01:05	01:12	0.12	7438.00	100	5	C/S
01:12	02:28	1.27	7453.00	100	2b	Slide 15'
02:28	02:46	0.30	7470.00	100	2a	Rotate
02:46	03:02	0.27	7470.00	100	5	C/S

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
03:02	03:40	0.63	7486.00	100	2b	Slide 16'
03:40	03:56	0.27	7501.00	100	2a	Rotate
03:56	04:02	0.10	7501.00	100	5	C/S
04:02	04:40	0.63	7524.00	100	2b	Slide 24'
04:40	04:45	0.08	7529.00	100	2a	Rotate
04:45	04:52	0.12	7529.00	100	5	C/S
04:52	05:00	0.13	7529.00	100	5	Circulate bottoms up
05:00	09:10	4.17	7529.00	100	6d	Wiper Trip
09:10	12:50	3.67	7529.00	100	6b	Trip Out
12:50	13:00	0.17	7529.00	100	6e	Trip out
13:00	13:30	0.50	7529.00	100	6c	Lay Down Tools
13:30	00:00	10.50	7529.00	100	12	Run Casing

## COMMENTS

Daily: \$13,050; Total: \$100,775

PTB: 50'

GTB: 52.68'

RFO: 232.88 deg

**WELL INFORMATION**

# Daily Drilling Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Wattenburg  
**Country** : USA

**CURRENT STATUS Report # 6 Date : 08/05/2012**

<b>Total Depth</b> (ft) : 7529.00	<b>Casing Depth</b> (ft) :	<b>Customer Reps</b> : Levi Hancock
<b>Depth Last 24</b> (ft) : 0.00	<b>Casing Diameter</b> (in) :	<b>Customer Reps</b> : Travis Lourance
<b>Hole Size</b> (in) : 8.750	<b>Casing ID</b> (in) :	<b>SDS Reps</b> : Jessy Kysar
		<b>SDS Reps</b> : Jordan Timbs
		<b>SDS Reps</b> :

**LAST SURVEY**
**LAST FORMATION TOP**

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
7479.00	86.42	178.17	7158.08	695.70	186.60			

**BHA SUMMARY**

Well:9522757 Run:0100 - 2069.08 ft;Bit, Motor, Collar, MWD, Collar, Collar, Sub, Drill Pipe, Sub, Drill Pipe

**MUD DATA**

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lbf2)	Gels 10 sec	10 Min	30 sec	30 min	(lbf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	22:00	22.00	7529.00	100	12	Run casing and cement
22:00	00:00	2.00	7529.00	100	6c	PU tools

**COMMENTS**

Daily: \$46,475; Total: \$147,250

PTB: 37'

<div><div>HALLIBURTON</div><div>Sperry Drilling</div></div> <div></div>		
COMMENTS		
GTB: 58.41' RTB: 50.74' RFO: 105.84 deg		

**WELL INFORMATION**

# Daily Drilling Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Watternburg  
**Country** : USA

**CURRENT STATUS Report # 7**
**Date : 08/06/2012**

**Total Depth** (ft) : 9800.00  
**Depth Last 24** (ft) : 2271.00  
**Hole Size** (in) : 6.125

**Casing Depth** (ft) :  
**Casing Diameter** (in) :  
**Casing ID** (in) :

**Customer Reps** : Levi Hancock  
**Customer Reps** : Travis Lourance  
**SDS Reps** : Jessy Kysar  
**SDS Reps** : Jordan Timbs  
**SDS Reps** :

**LAST SURVEY**
**LAST FORMATION TOP**

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
7479.00	86.42	178.17	7158.08	695.70	186.60			

**BHA SUMMARY**

Well:9522757 Run:0200 - 6127.95 ft;Bit, Motor, Reamer, MWD, Collar, Stabilizer, MWD, Sub, Drill Pipe, Sub, Sub, Drill Pipe, Drill Pipe

**MUD DATA**

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lhf2)	Gels 10 sec	10 Min	30 sec	30 min	(lhf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	00:15	0.25	7529.00	200	6c	PU tools
00:15	01:00	0.75	7529.00	200	30d	MWD upload
01:00	01:50	0.83	7529.00	200	6a	Trip in
01:50	02:00	0.17	7529.00	200	5	Shallow pulse test
02:00	05:30	3.50	7529.00	200	6a	Trip in
05:30	06:20	0.83	7529.00	200	26	Drill Float

# TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
06:20	06:58	0.63	7529.00	200	21	Drill Cement
06:58	07:00	0.03	7529.00	200	27	Drill shoe
07:00	07:44	0.73	7579.00	200	2a	Rotate
07:44	07:53	0.15	7579.00	200	5	Survey
07:53	08:08	0.25	7642.00	200	2a	Rotate
08:08	08:15	0.12	7642.00	200	5	C/S
08:15	08:38	0.38	7737.00	200	2a	Rotate
08:38	08:40	0.03	7737.00	200	5	C/S
08:40	09:05	0.42	7832.00	200	2a	Rotate
09:05	09:22	0.28	7832.00	200	5	C/S
09:22	09:55	0.55	7926.00	200	2a	Rotate
09:55	10:02	0.12	7926.00	200	5	C/S
10:02	10:23	0.35	7939.00	200	2b	Slide 13' @ 90R
10:23	10:47	0.40	8021.00	200	2a	Rotate
10:47	10:54	0.12	8021.00	200	5	C/S
10:54	11:07	0.22	8033.00	200	2b	Slide 12' @ 100R
11:07	11:36	0.48	8116.00	200	2a	Rotate
11:36	11:41	0.08	8116.00	200	5	C/S
11:41	12:12	0.52	8211.00	200	2a	Rotate
12:12	12:20	0.13	8211.00	200	5	C/S
12:20	12:53	0.55	8306.00	200	2a	Rotate
12:53	12:57	0.07	8306.00	200	5	C/S
12:57	13:20	0.38	8400.00	200	2a	Rotate
13:20	13:25	0.08	8400.00	200	5	C/S
13:25	13:41	0.27	8408.00	200	2b	Slide 8' @ 20L
13:41	14:08	0.45	8495.00	200	2a	Rotate
14:08	14:12	0.07	8495.00	200	5	C/S
14:12	14:33	0.35	8590.00	200	2a	Rotate
14:33	14:37	0.07	8590.00	200	5	C/S
14:37	15:11	0.57	8685.00	200	2a	Rotate
15:11	15:16	0.08	8685.00	200	5	C/S
15:16	15:25	0.15	8727.00	200	2a	Rotate
15:25	15:30	0.08	8727.00	200	5	Check Shot
15:30	15:36	0.10	8748.00	200	2a	Rotate
15:36	15:39	0.05	8748.00	200	5	Check Shot
15:39	15:47	0.13	8780.00	200	2a	Rotate
15:47	15:53	0.10	8780.00	200	5	C/S
15:53	16:21	0.47	8874.00	200	2a	Rotate
16:21	16:26	0.08	8874.00	200	5	C/S
16:26	16:39	0.22	8884.00	200	2b	Slide 10' @ 90R
16:39	16:57	0.30	8969.00	200	2a	Rotate
16:57	17:13	0.27	8969.00	200	5	C/S
17:13	17:23	0.17	8981.00	200	2b	Slide 12' @ 80R

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
17:23	17:40	0.28	9064.00	200	2a	Rotate
17:40	17:51	0.18	9064.00	200	5	C/S
17:51	18:15	0.40	9159.00	200	2a	Rotate
18:15	18:22	0.12	9159.00	200	5	C/S
18:22	18:49	0.45	9253.00	200	2a	Rotate
18:49	18:57	0.13	9253.00	200	5	C/S
18:57	19:25	0.47	9348.00	200	2a	Rotate
19:25	19:33	0.13	9348.00	200	5	C/S
19:33	20:16	0.72	9443.00	200	2a	Rotate
20:16	20:25	0.15	9443.00	200	5	C/S
20:25	21:08	0.72	9538.00	200	2a	Rotate
21:08	21:18	0.17	9538.00	200	5	C/S
21:18	21:36	0.30	9550.00	200	2b	Slide 12' @ 60R
21:36	22:11	0.58	9633.00	200	2a	Rotate
22:11	22:21	0.17	9633.00	200	5	C/S
22:21	22:45	0.40	9645.00	200	2b	Slide 12' @ 70R
22:45	23:19	0.57	9728.00	200	2a	Rotate
23:19	23:28	0.15	9728.00	200	7	Rig service
23:28	23:36	0.13	9728.00	200	5	C/S
23:36	00:00	0.40	9800.00	200	2a	Rotate

**COMMENTS**

Daily: \$21,125; Total: \$168,375

PTB: 37'

GTB: 58.41'

RTB: 50.74'

RFO: 105.84 deg

Target changed to 7145 @ 0 Vs @ 90 deg by Co-man at 22:10.

**WELL INFORMATION**

# Daily Drilling Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Wattenburg  
**Country** : USA

**CURRENT STATUS Report #** 8

**Date :** 08/07/2012

**Total Depth** (ft) : 11350.00  
**Depth Last 24** (ft) : 1550.00  
**Hole Size** (in) : 6.125

**Casing Depth** (ft) :  
**Casing Diameter** (in) :  
**Casing ID** (in) :

**Customer Reps** : Levi Hancock  
**Customer Reps** : Travis Lourance  
**SDS Reps** : Jessy Kysar  
**SDS Reps** : Jordan Timbs  
**SDS Reps** :

**LAST SURVEY**
**LAST FORMATION TOP**

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
11313.00	90.86	174.38	7123.30	4415.93	186.60			

**BHA SUMMARY**

Well:9522757 Run:0200 - 6127.95 ft;Bit, Motor, Reamer, MWD, Collar, Stabilizer, MWD, Sub, Drill Pipe, Sub, Sub, Drill Pipe, Drill Pipe

**MUD DATA**

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lhf2)	Gels 10 sec	10 Min	30 sec	30 min	(lhf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

**TIME BREAKDOWN**

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	00:23	0.38	9823.00	200	2a	Rotate
00:23	00:33	0.17	9823.00	200	5	C/S
00:33	01:25	0.87	9918.00	200	2a	Rotate
01:25	01:35	0.17	9918.00	200	5	C/S
01:35	02:19	0.73	10014.00	200	2a	Rotate
02:19	02:28	0.15	10014.00	200	5	C/S

# TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
02:28	03:08	0.67	10108.00	200	2a	Rotate
03:08	03:26	0.30	10108.00	200	5	C/S
03:26	03:52	0.43	10126.00	200	2b	Slide 18' @ 45L
03:52	04:14	0.37	10203.00	200	2a	Rotate
04:14	04:24	0.17	10203.00	200	5	C/S
04:24	04:47	0.38	10298.00	200	2a	Rotate
04:47	04:55	0.13	10298.00	200	5	C/S
04:55	05:51	0.93	10393.00	200	2a	Rotate (Stacking weight on last joint)
05:51	06:00	0.15	10393.00	200	5	C/S
06:00	06:13	0.22	10414.00	200	2a	Rotate
06:13	06:36	0.38	10430.00	200	2b	Slide 16' @ HS
06:36	07:47	1.18	10488.00	200	2a	Rotate
07:47	07:51	0.07	10488.00	200	5	C/S
07:51	08:16	0.42	10493.00	200	2b	Slide 5' @ HS
08:16	08:53	0.62	10520.00	200	2a	Rotate
08:53	08:58	0.08	10520.00	200	5	Check Shot
08:58	09:53	0.92	10552.00	200	2a	Rotate
09:53	09:59	0.10	10552.00	200	5	Check Shot
09:59	10:22	0.38	10584.00	200	2a	Rotate
10:22	10:30	0.13	10584.00	200	5	C/S
10:30	10:44	0.23	10596.00	200	2b	Slide 12' @ L45
10:44	10:56	0.20	10616.00	200	2a	Rotate
10:56	10:59	0.05	10616.00	200	5	Check Shot
10:59	11:06	0.12	10647.00	200	2a	Rotate
11:06	11:09	0.05	10647.00	200	5	Check Shot
11:09	11:23	0.23	10662.00	200	2b	Slide 15' @ 100L
11:23	11:35	0.20	10679.00	200	2a	Rotate
11:35	11:40	0.08	10679.00	200	5	C/S
11:40	11:48	0.13	10711.00	200	2a	Rotate
11:48	11:52	0.07	10711.00	200	5	Check Shot
11:52	12:00	0.13	10743.00	200	2a	Rotate
12:00	12:05	0.08	10743.00	200	5	Check Shot
12:05	12:27	0.37	10761.00	200	2b	Slide 18' @ 135L
12:27	12:38	0.18	10774.00	200	2a	Rotate
12:38	12:43	0.08	10774.00	200	5	C/S
12:43	12:47	0.07	10806.00	200	2a	Rotate
12:47	12:50	0.05	10806.00	200	5	Check Shot
12:50	13:00	0.17	10838.00	200	2a	Rotate
13:00	13:03	0.05	10838.00	200	5	Check Shot
13:03	13:17	0.23	10870.00	200	2a	Rotate
13:17	13:28	0.18	10870.00	200	5	C/S
13:28	13:34	0.10	10880.00	200	2a	Rotate
13:34	14:10	0.60	10895.00	200	2b	Slide 15' @ 135L

# TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
14:10	14:40	0.50	10965.00	200	2a	Rotate
14:40	14:45	0.08	10965.00	200	5	C/S
14:45	15:31	0.77	11060.00	200	2a	Rotate
15:31	15:37	0.10	11060.00	200	5	C/S
15:37	15:47	0.17	11070.00	200	2a	Rotate
15:47	16:15	0.47	11082.00	200	2b	Slide 12' @ 100L
16:15	16:46	0.52	11155.00	200	2a	Rotate
16:46	16:55	0.15	11155.00	200	5	C/S
16:55	17:33	0.63	11249.00	200	2a	Rotate
17:33	17:43	0.17	11249.00	200	5	C/S
17:43	18:39	0.93	11344.00	200	2a	Rotate
18:39	18:48	0.15	11344.00	200	5	C/S
18:48	18:54	0.10	11350.00	200	2a	Rotate
18:54	19:27	0.55	11350.00	200	3a	Back ream
19:27	19:43	0.27	11350.00	200	5	TD Survey
19:43	21:03	1.33	11350.00	200	5	Circulate for trip
21:03	00:00	2.95	11350.00	200	6b	TOOH

# COMMENTS

Daily: \$21,125; Total: \$189,500

PTB: 37'

GTB: 58.41'

RTB: 50.74'

RFO: 105.84 deg

Target changed to 7130 @ 0 Vs @ 89.50 deg by Co-man at 00:52.

Target changed to 7238 @ 0 Vs @ 91.50 deg by Co-man at 06:06.

## WELL INFORMATION

## Daily Drilling Report

Customer : Anadarko Petroleum Corp  
 Well Name : Cannon 13C-3HZ  
 Job Number : CA-XX-0009522757  
 Rig Name : H & P 308  
 Field Name : Watternburg  
 Country : USA

CURRENT STATUS Report # 9

Date : 08/08/2012

Total Depth (ft) : 11350.00	Casing Depth (ft) :	Customer Reps : Levi Hancock
Depth Last 24 (ft) : 0.00	Casing Diameter (in) :	Customer Reps : Travis Lourance
Hole Size (in) : 6.125	Casing ID (in) :	SDS Reps : Jessy Kysar
		SDS Reps : Jordan Timbs
		SDS Reps : James Scharf

## LAST SURVEY

## LAST FORMATION TOP

Depth (ft)	Inc (deg)	Azi (deg)	TVD (ft)	Displ (ft)	Direct(deg)	Formation Name	MD Top (ft)	TVD Top(ft)
11313.00	90.86	174.38	7123.30	4415.93	186.60			

## BHA SUMMARY

Well:9522757 Run:0200 - 6127.95 ft;Bit, Motor, Reamer, MWD, Collar, Stabilizer, MWD, Sub, Drill Pipe, Sub, Sub, Drill Pipe, Drill Pipe

## MUD DATA

Type	Weight (ppg)	FV (spqt)	PV (cP)	YP (lbf2)	Gels 10 sec	10 Min	30 sec	30 min	(lbf2)

Flowline	Weight Out (ppg)	FV Out (spqt)	Solids (%)	Sand (%)	Oil (%)	Fluid Loss (mptm)	pH

## TIME BREAKDOWN

From	To	Hours	TMD (ft)	Run	Activity	Activity Description
00:00	08:00	8.00	11350.00	200	6b	TOOH
08:00	08:30	0.50	11350.00	200	6e	Trip out
08:30	09:00	0.50	11350.00	200	30d	MWD Down Load
09:00	10:00	1.00	11350.00	200	6c	Lay Down Tools
10:00	11:00	1.00	11350.00	200	1	Rig down
11:00	00:00	13.00	11350.00	200	12	Run casing

**COMMENTS**

Daily: \$21,125; Total: \$210,625

PTB: 37'

GTB: 58.41'

RTB: 50.74'

RFO: 105.84 deg

## **Section 5**

Contents: Graphics

## WELL INFORMATION

## End of Well Report

**Customer** : Anadarko Petroleum Corp  
**Well Name** : Cannon 13C-3HZ  
**Job Number** : CA-XX-0009522757  
**Rig Name** : H & P 308  
**Field Name** : Watternburg  
**Country** : USA

## DIRECTIONAL DRILLERS

**Driller 1** : Jessy Kysar  
**Driller 2** : Jordan Timbs

**Driller 3** : James Scharf  
**Driller 4** :

## JOB OBJECTIVES

## JOB SUMMARY

## BHA SUMMARY

## BHA CHART

Run #	Bit #	Motor #	Hole Size (in)	MD In (ft)	MD Out (ft)	TVD In (ft)	TVD Out (ft)	Inc In (deg)	Inc Out (deg)	Azi In (deg)	Azi Out (deg)	Time Drilling (hr)	Time Circ (hr)
0100	2	1		825.00	7529.00	825.00	7159.77	0.15	89.70	280.98	178.20	52.53	14.51
0200	3	0		7529.00	11350.00	7159.77	7122.62	89.70	91.24	178.20	173.98	29.63	7.89

## MOTOR RUN SUMMARY

## MOTOR CHART

Motor #	Manufacturer	Model	Lobe	OD (in)	Gauge (in)	Bend (deg)	DLS (Ori) (°/100')	ROP (Ori) (fph)	ROP (Rot) (fph)
1	Sperry Drilling	SperryDrill	6:7	6.75		1.83	5.46	38.582	214.003
0	Sperry Drilling	GeoForce	4:5	5		1.50	2.10	61.232	134.402

## BIT RUN SUMMARY

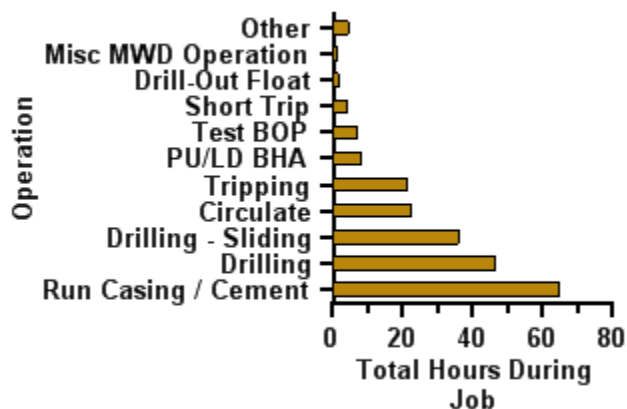
## BIT CHART

Bit #	Manufacturer	Style	Gauge (in)	Gauge Length (in)	Nozzles	TFA (in <sup>2</sup> )	Dull Grades I O D L B G O R	Footage (ft)	Time Drilling (hr)	ROP (fph)
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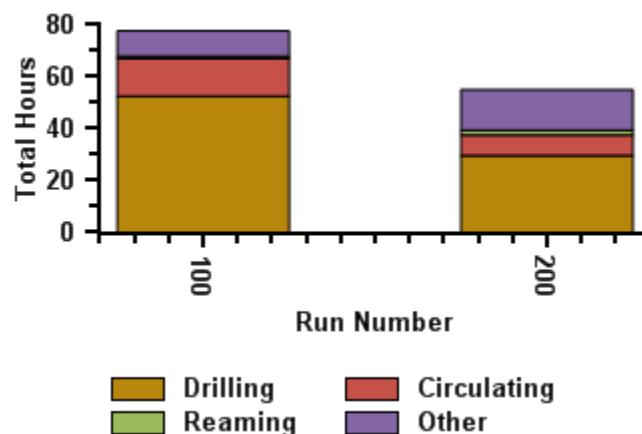
**BIT CHART**

Bit #	Manufacturer	Style	Gauge (in)	Gauge Length (in)	Nozzles	TFA (in2)	Dull Grades I O D L B G O R	Footage (ft)	Time Drilling (hr)	ROP (fph)
2	Baker	DP505F	8.75	0.48	5x15	0.86	1-2-WT-G-X-I-CT-TD	6704.00	52.53	127.62
3	Schlumberger	SDi513	6.13	0.22	5x14	0.75	1-2-WT-A-X-I-CT-TD	3821.00	29.63	128.96

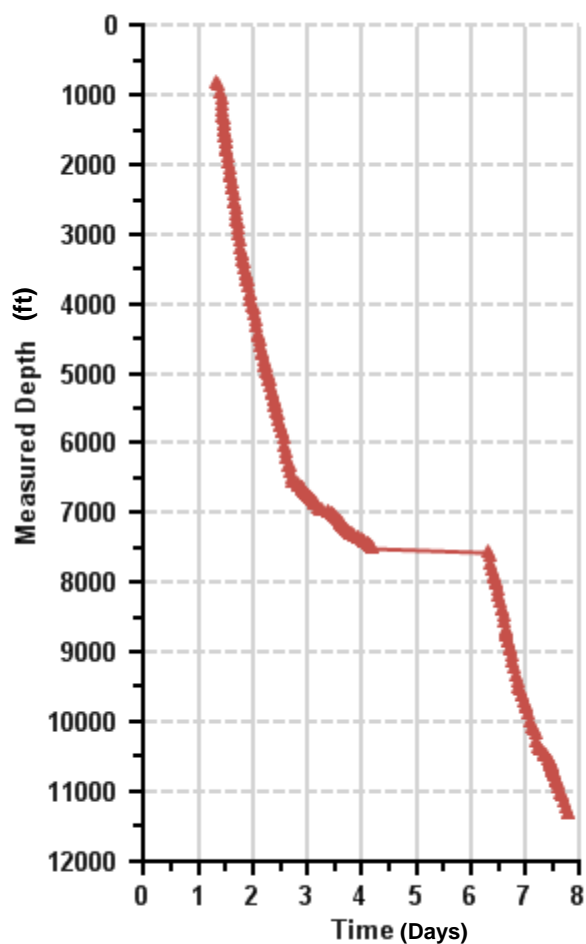
### HOURS BY OPERATION



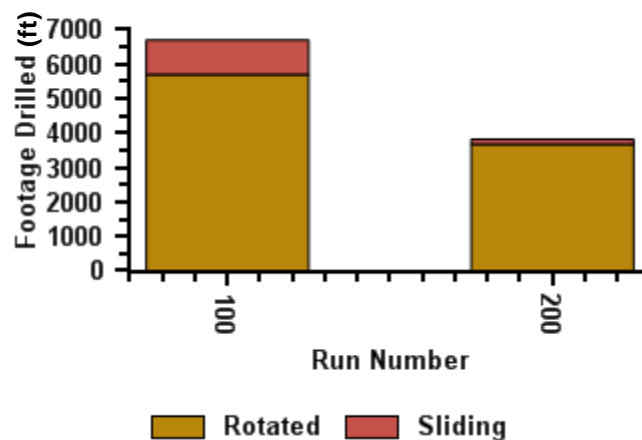
### HOURS PER RUN



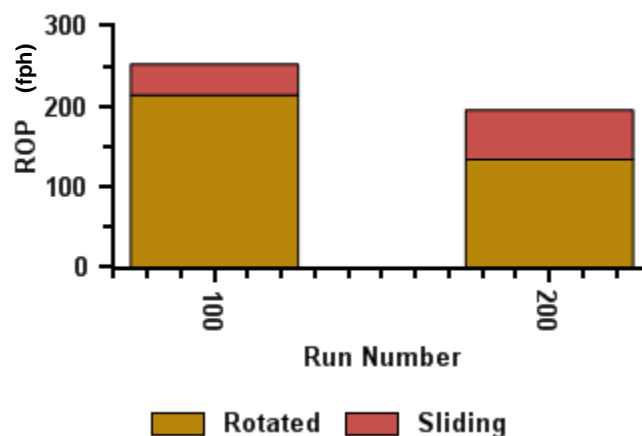
### DAY vs DEPTH



### FOOTAGE PER RUN



### AVERAGE ROP PER RUN



**SURFACE HOLE SECTION****INTERMEDIATE HOLE SECTION 1****INTERMEDIATE HOLE SECTION 2****PRODUCTION HOLE SECTION**

CA-XX-0009522757

MD (ft)	Formation Name MD/TVD (ft)	Inclination (deg) — DLS (°/100') —	Bit Data	Drilling Parameters	Motor	BHA Stabilizers	Comments	Run # @ MD (ft)
822.00			DP505F 5x15 127.62 fph 52.53 hr	WOB 14.24 klb RPM 50.92 FLO 553.12 gpm SPP 3259.97 psig	6.75" SperryDrill 6/7 1.83 deg		Probe to Bit = 50' Bit to Gamma = 52.68' Rev per gal = 0.29 Flow Range = 300-600 gal Bit to Bend = 3.01' Float OD = 3.5" RFO = 232.88 deg Theoretical Build Rates= 23.00	#100 @ 825.0
1322.00			SDi513 5x14 128.96 fph 29.63 hr	WOB 13.32 klb RPM 67.84 FLO 267.17 gpm SPP 2904.79 psig	5" GeoForce 4/5 1.5 deg	5.88 in@ 66.62 ft	Probe to Bit = 37' Bit to Gamma = 58.41' Bit to Res = 50.74' Rev per gal = 1.06 Float OD = 3.25' Flow Range = 150-300 gal Bit to Bend = 5.2 RFO = 105.84 deg	#200 @ 7529.0
1822.00								
2322.00								
2822.00								
3322.00								
3822.00								
4322.00								
4822.00								
5322.00								
5822.00								
6322.00								
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