

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

30 August, 2012

Halliburton Company

Survey Report - Geographic

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

Project	Weld County, CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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

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

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

Survey Program	Date	2012-08-30			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
25.00	760.00	Surface Gyros (Plan A Rev 0)	NS-GYRO-MS	North sensing gyrocompassing m/s	
822.00	10,978.00	Sperry MWD Surveys (Plan A Rev 0)	MWD	MWD - Standard	

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Wellbore:	Plan A Rev 0	Survey Calculation Method:	Minimum Curvature
Design:	Actual Field Surveys	Database:	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
25.00	0.00	0.00	25.00	0.00	0.00	07,342.818385	36,100.818963	40.173964	-104.655077
125.00	0.20	268.49	125.00	0.00	-0.17	07,342.812124	36,100.644550	40.173964	-104.655078
First Gyro Survey @ 125.00ft									
225.00	0.12	3.10	225.00	0.10	-0.34	07,342.910474	36,100.474803	40.173964	-104.655078
325.00	0.08	296.24	325.00	0.23	-0.40	07,343.045353	36,100.416562	40.173965	-104.655078
425.00	0.13	51.81	425.00	0.33	-0.37	07,343.146604	36,100.442143	40.173965	-104.655078
525.00	0.15	248.77	525.00	0.35	-0.41	07,343.169029	36,100.409078	40.173965	-104.655078
625.00	0.18	352.48	625.00	0.46	-0.55	07,343.275990	36,100.265485	40.173965	-104.655079
725.00	0.32	3.65	725.00	0.90	-0.55	07,343.710338	36,100.258566	40.173966	-104.655079
760.00	0.24	12.27	760.00	1.07	-0.53	07,343.879700	36,100.278753	40.173967	-104.655079
Tie-On to Gyro Surveys @ 760.00ft - Final Gyro Survey @ 760.00ft									
826.00	0.18	155.74	826.00	1.11	-0.46	07,343.920938	36,100.350334	40.173967	-104.655079
First Sperry MWD Survey @ 826.00ft									
918.00	0.14	117.25	918.00	0.92	-0.30	07,343.739256	36,100.511367	40.173966	-104.655078
1,010.00	0.94	241.73	1,009.99	0.51	-0.86	07,343.325014	36,099.950586	40.173965	-104.655080
1,102.00	3.37	272.70	1,101.92	0.28	-4.23	07,343.062879	36,096.586807	40.173965	-104.655092
1,194.00	4.89	262.94	1,193.68	-0.07	-10.82	07,342.645500	36,089.997801	40.173964	-104.655116
1,286.00	6.82	276.83	1,285.20	0.10	-20.14	07,342.724421	36,080.680469	40.173964	-104.655149
1,378.00	6.19	274.90	1,376.61	1.17	-30.51	07,343.698868	36,070.305412	40.173967	-104.655186
1,470.00	7.52	279.10	1,467.95	2.55	-41.39	07,344.970889	36,059.406485	40.173971	-104.655225
1,561.00	6.86	279.60	1,558.24	4.40	-52.63	07,346.711789	36,048.151412	40.173976	-104.655265
1,653.00	8.75	279.05	1,649.38	6.41	-64.96	07,348.611331	36,035.804121	40.173982	-104.655309
1,745.00	7.71	276.59	1,740.43	8.22	-78.00	07,350.295923	36,022.746519	40.173987	-104.655356
1,837.00	7.69	276.08	1,831.60	9.58	-90.25	07,351.539283	36,010.483302	40.173990	-104.655400
1,929.00	7.51	275.37	1,922.79	10.80	-102.36	07,352.638452	35,998.366216	40.173994	-104.655443
2,021.00	7.07	271.94	2,014.05	11.55	-114.00	07,353.281775	35,986.715637	40.173996	-104.655485
2,113.00	6.47	266.58	2,105.41	11.43	-124.84	07,353.061021	35,975.884792	40.173995	-104.655524
2,208.00	6.36	261.62	2,199.81	10.35	-135.38	07,351.874458	35,965.347432	40.173992	-104.655561
2,302.00	7.19	258.29	2,293.16	8.39	-146.30	07,349.817949	35,954.455824	40.173987	-104.655601
2,397.00	8.02	253.14	2,387.32	5.27	-158.46	07,346.573531	35,942.322692	40.173978	-104.655644
2,492.00	6.74	251.18	2,481.53	1.54	-170.08	07,342.742484	35,930.739630	40.173968	-104.655686
2,587.00	7.13	256.68	2,575.84	-1.61	-181.09	07,339.481049	35,919.756615	40.173960	-104.655725
2,682.00	7.99	267.61	2,670.02	-3.25	-193.43	07,337.729901	35,907.438473	40.173955	-104.655769
2,776.00	7.20	266.77	2,763.19	-3.85	-205.84	07,337.007376	35,895.036485	40.173953	-104.655814
2,871.00	7.29	263.90	2,857.43	-4.83	-217.77	07,335.917797	35,883.109698	40.173951	-104.655856
2,966.00	8.54	278.69	2,951.54	-4.40	-230.74	07,336.219514	35,870.138932	40.173952	-104.655903
3,060.00	7.71	275.35	3,044.59	-2.76	-243.92	07,337.736293	35,856.946753	40.173956	-104.655950
3,155.00	6.69	280.15	3,138.84	-1.19	-255.71	07,339.193199	35,845.140592	40.173961	-104.655992
3,250.00	6.29	285.90	3,233.24	1.21	-266.16	07,341.494327	35,834.666419	40.173967	-104.656029
3,345.00	4.87	282.93	3,327.78	3.54	-275.10	07,343.737150	35,825.709232	40.173974	-104.656061
3,440.00	5.44	277.51	3,422.40	5.03	-283.50	07,345.147934	35,817.300838	40.173978	-104.656091
3,534.00	5.75	264.10	3,515.95	5.13	-292.60	07,345.159540	35,808.198854	40.173978	-104.656124
3,629.00	7.00	267.27	3,610.37	4.36	-303.11	07,344.294477	35,797.690666	40.173976	-104.656162
3,724.00	7.15	264.30	3,704.64	3.50	-314.78	07,343.320490	35,786.034671	40.173974	-104.656203
3,819.00	7.89	263.48	3,798.83	2.17	-327.14	07,341.875220	35,773.687027	40.173970	-104.656248
3,913.00	9.32	266.71	3,891.77	1.00	-341.15	07,340.572347	35,759.689523	40.173967	-104.656298
4,008.00	9.01	267.53	3,985.55	0.24	-356.26	07,339.666371	35,744.586286	40.173965	-104.656352
4,103.00	7.95	267.19	4,079.51	-0.40	-370.26	07,338.890418	35,730.599549	40.173963	-104.656402
4,198.00	9.75	268.88	4,173.38	-0.88	-384.86	07,338.271955	35,715.999834	40.173962	-104.656454
4,292.00	9.12	270.28	4,266.11	-1.00	-400.27	07,338.005991	35,700.594699	40.173961	-104.656509
4,387.00	8.52	273.77	4,359.98	-0.50	-414.82	07,338.366824	35,686.040070	40.173963	-104.656561
4,482.00	7.50	272.23	4,454.05	0.20	-428.04	07,338.944809	35,672.816741	40.173964	-104.656609
4,577.00	7.46	270.85	4,548.25	0.54	-440.40	07,339.159736	35,660.452909	40.173965	-104.656653
4,672.00	6.31	275.69	4,642.56	1.15	-451.76	07,339.660547	35,649.086290	40.173967	-104.656694

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Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
4,766.00	5.99	266.11	4,736.02	1.33	-461.80	07,339.744352	35,639.051572	40.173968	-104.656730
4,861.00	7.03	257.85	4,830.41	-0.23	-472.42	07,338.083287	35,628.438146	40.173963	-104.656768
4,955.00	6.81	249.68	4,923.73	-3.38	-483.27	07,334.834069	35,617.619057	40.173955	-104.656806
5,050.00	6.61	254.56	5,018.08	-6.79	-493.83	07,331.322190	35,607.100070	40.173945	-104.656844
5,145.00	8.25	264.61	5,112.28	-8.89	-505.88	07,329.111338	35,595.063586	40.173940	-104.656887
5,240.00	7.15	274.16	5,206.43	-9.10	-518.57	07,328.779131	35,582.383412	40.173939	-104.656933
5,335.00	7.72	274.02	5,300.63	-8.22	-530.83	07,329.538439	35,570.114336	40.173941	-104.656977
5,429.00	7.48	277.10	5,393.80	-7.02	-543.20	07,330.619349	35,557.734305	40.173945	-104.657021
5,524.00	8.06	280.22	5,487.93	-5.08	-555.89	07,332.444256	35,545.026264	40.173950	-104.657066
5,619.00	7.12	274.98	5,582.10	-3.39	-568.31	07,334.018583	35,532.591189	40.173955	-104.657111
5,714.00	5.52	271.71	5,676.52	-2.74	-578.74	07,334.566597	35,522.152782	40.173956	-104.657148
5,809.00	6.17	267.56	5,771.02	-2.82	-588.41	07,334.393490	35,512.486497	40.173956	-104.657183
5,904.00	4.32	261.08	5,865.62	-3.59	-597.05	07,333.539063	35,503.858422	40.173954	-104.657214
5,999.00	3.09	258.53	5,960.42	-4.66	-603.09	07,332.417573	35,497.824773	40.173951	-104.657235
6,093.00	1.83	257.93	6,054.33	-5.47	-607.04	07,331.562320	35,493.882113	40.173949	-104.657249
6,188.00	0.81	217.95	6,149.31	-6.32	-608.94	07,330.697597	35,491.993977	40.173947	-104.657256
6,283.00	0.52	220.22	6,244.30	-7.18	-609.63	07,329.832411	35,491.310901	40.173944	-104.657259
6,378.00	0.44	162.30	6,339.30	-7.85	-609.80	07,329.154201	35,491.149899	40.173942	-104.657259
6,409.00	1.16	152.49	6,370.30	-8.25	-609.62	07,328.764251	35,491.334747	40.173941	-104.657258
6,441.00	3.70	173.03	6,402.27	-9.56	-609.34	07,327.454580	35,491.622187	40.173938	-104.657257
6,473.00	6.62	178.78	6,434.13	-12.43	-609.18	07,324.586750	35,491.814119	40.173930	-104.657257
6,504.00	8.31	176.80	6,464.87	-16.45	-609.01	07,320.565158	35,492.015548	40.173919	-104.657256
6,536.00	11.13	174.56	6,496.41	-21.84	-608.59	07,315.185027	35,492.488794	40.173904	-104.657255
6,568.00	14.18	175.50	6,527.62	-28.82	-607.99	07,308.207621	35,493.155751	40.173885	-104.657253
6,599.00	16.88	173.71	6,557.49	-37.08	-607.20	07,299.955380	35,494.025548	40.173862	-104.657250
6,631.00	19.58	177.14	6,587.88	-47.06	-606.42	07,289.988311	35,494.897236	40.173835	-104.657247
6,662.00	22.22	178.86	6,616.84	-58.11	-606.05	07,278.942487	35,495.378355	40.173804	-104.657246
6,694.00	25.23	179.32	6,646.13	-70.98	-605.85	07,266.073569	35,495.702345	40.173769	-104.657245
6,725.00	28.34	179.06	6,673.80	-84.95	-605.65	07,252.109897	35,496.034569	40.173731	-104.657244
6,757.00	31.39	179.82	6,701.55	-100.88	-605.50	07,236.180959	35,496.337170	40.173687	-104.657244
6,789.00	35.16	179.30	6,728.30	-118.43	-605.36	07,218.630621	35,496.643197	40.173639	-104.657243
6,820.00	38.99	180.73	6,753.03	-137.11	-605.37	07,199.948042	35,496.806007	40.173588	-104.657243
6,852.00	42.58	177.56	6,777.26	-158.01	-605.04	07,179.061712	35,497.337805	40.173530	-104.657242
6,883.00	45.92	176.26	6,799.46	-179.60	-603.87	07,157.479121	35,498.716614	40.173471	-104.657238
6,915.00	50.14	175.21	6,820.85	-203.32	-602.09	07,133.778695	35,500.718597	40.173406	-104.657232
6,947.00	53.87	176.05	6,840.55	-228.46	-600.17	07,108.658887	35,502.874443	40.173337	-104.657225
6,979.00	55.73	177.47	6,859.00	-254.57	-598.70	07,082.570429	35,504.597085	40.173265	-104.657219
7,010.00	57.49	178.41	6,876.06	-280.43	-597.77	07,056.716411	35,505.771640	40.173194	-104.657216
7,042.00	60.58	179.21	6,892.52	-307.86	-597.20	07,029.294317	35,506.599621	40.173119	-104.657214
7,073.00	64.23	179.45	6,906.88	-335.33	-596.88	07,001.832753	35,507.181540	40.173043	-104.657213
7,104.00	68.12	179.82	6,919.40	-363.68	-596.71	06,973.484735	35,507.630904	40.172966	-104.657212
7,136.00	70.43	179.48	6,930.72	-393.61	-596.52	06,943.562481	35,508.099514	40.172883	-104.657212
7,167.00	72.21	179.60	6,940.65	-422.97	-596.29	06,914.202446	35,508.614875	40.172803	-104.657211
7,199.00	74.34	180.18	6,949.86	-453.62	-596.23	06,883.561351	35,508.964809	40.172719	-104.657211
7,230.00	75.89	180.23	6,957.82	-483.57	-596.34	06,853.604318	35,509.143020	40.172637	-104.657211
7,262.00	77.83	179.47	6,965.09	-514.74	-596.25	06,822.447524	35,509.522296	40.172551	-104.657211
7,293.00	80.43	179.32	6,970.94	-545.17	-595.93	06,792.013791	35,510.133892	40.172467	-104.657209
7,315.00	82.20	179.28	6,974.26	-566.92	-595.67	06,770.272981	35,510.606752	40.172408	-104.657209
7,354.70	84.80	179.03	6,978.75	-606.36	-595.08	06,730.844901	35,511.565702	40.172299	-104.657206
7" Casing Point									
7,384.00	86.72	178.84	6,980.92	-635.57	-594.54	06,701.639272	35,512.388136	40.172219	-104.657204
7,416.00	87.59	178.66	6,982.51	-667.52	-593.84	06,669.696083	35,513.389741	40.172132	-104.657202
7,511.00	87.84	180.45	6,986.30	-762.44	-593.10	06,574.793773	35,515.031115	40.171871	-104.657199
7,606.00	88.83	182.11	6,989.06	-857.37	-595.23	06,479.850201	35,513.814297	40.171610	-104.657207
7,700.00	89.51	183.22	6,990.42	-951.26	-599.60	06,385.930332	35,510.339036	40.171353	-104.657223

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Wellbore:	Plan A Rev 0	Survey Calculation Method:	Minimum Curvature
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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	90.37	183.40	6,990.52	-1,046.10	-605.08	06,291.045849	35,505.758057	40.171092	-104.657242
7,890.00	90.80	186.99	6,989.55	-1,140.69	-613.68	06,196.383055	35,498.060186	40.170833	-104.657273
7,985.00	90.93	186.54	6,988.11	-1,235.02	-624.87	06,101.957150	35,487.770448	40.170574	-104.657313
8,080.00	90.43	183.35	6,986.99	-1,329.64	-633.06	06,007.260219	35,480.485605	40.170314	-104.657342
8,174.00	91.24	181.90	6,985.62	-1,423.53	-637.36	05,913.339336	35,477.075919	40.170056	-104.657358
8,269.00	92.72	181.24	6,982.33	-1,518.44	-639.96	05,818.418402	35,475.378940	40.169796	-104.657367
8,364.00	92.04	178.93	6,978.39	-1,613.35	-640.10	05,723.514444	35,476.142912	40.169535	-104.657367
8,459.00	90.19	177.40	6,976.54	-1,708.27	-637.06	05,628.625400	35,480.088708	40.169275	-104.657357
8,554.00	90.68	177.92	6,975.82	-1,803.19	-633.18	05,533.753243	35,484.871386	40.169014	-104.657343
8,648.00	89.75	178.24	6,975.47	-1,897.14	-630.03	05,439.846072	35,488.915513	40.168756	-104.657331
8,743.00	89.26	178.08	6,976.29	-1,992.08	-626.98	05,344.936302	35,492.870064	40.168496	-104.657320
8,838.00	89.75	178.29	6,977.11	-2,087.03	-623.98	05,250.024838	35,496.783199	40.168235	-104.657310
8,933.00	90.25	178.40	6,977.11	-2,181.99	-621.23	05,155.099248	35,500.431421	40.167974	-104.657300
9,027.00	89.75	178.35	6,977.11	-2,275.95	-618.57	05,061.170986	35,503.992060	40.167716	-104.657290
9,122.00	89.20	178.29	6,977.98	-2,370.91	-615.78	04,966.251035	35,507.681541	40.167456	-104.657280
9,217.00	88.82	180.17	6,979.62	-2,465.88	-614.50	04,871.298719	35,509.862818	40.167195	-104.657276
9,312.00	89.69	180.83	6,980.85	-2,560.87	-615.33	04,776.312232	35,509.938913	40.166934	-104.657279
9,407.00	90.19	181.94	6,980.95	-2,655.84	-617.63	04,681.328272	35,508.547819	40.166674	-104.657287
9,502.00	92.47	182.74	6,978.75	-2,750.73	-621.51	04,586.411459	35,505.575083	40.166413	-104.657301
9,597.00	91.42	182.78	6,975.52	-2,845.56	-626.08	04,491.542411	35,501.907245	40.166153	-104.657317
9,692.00	92.41	183.25	6,972.35	-2,940.37	-631.07	04,396.689065	35,497.817277	40.165893	-104.657335
9,787.00	94.27	182.93	6,966.82	-3,035.07	-636.18	04,301.952208	35,493.607720	40.165633	-104.657353
9,882.00	94.02	181.50	6,959.95	-3,129.75	-639.85	04,207.247453	35,490.848310	40.165373	-104.657366
9,977.00	92.78	180.39	6,954.31	-3,224.57	-641.41	04,112.424317	35,490.188443	40.165112	-104.657372
10,072.00	92.54	180.26	6,949.91	-3,319.46	-641.95	04,017.531484	35,490.554363	40.164852	-104.657374
10,167.00	92.97	180.43	6,945.34	-3,414.35	-642.52	03,922.646137	35,490.887147	40.164591	-104.657376
10,262.00	92.23	180.80	6,941.03	-3,509.25	-643.54	03,827.748837	35,490.772664	40.164331	-104.657380
10,357.00	91.36	178.81	6,938.05	-3,604.19	-643.21	03,732.813104	35,492.000807	40.164070	-104.657378
10,452.00	91.67	179.39	6,935.54	-3,699.15	-641.72	03,637.881087	35,494.397082	40.163810	-104.657373
10,548.00	92.04	180.05	6,932.43	-3,795.10	-641.25	03,541.946118	35,495.780163	40.163546	-104.657371
10,643.00	92.16	180.54	6,928.95	-3,890.03	-641.74	03,447.015151	35,496.195941	40.163286	-104.657373
10,738.00	91.86	180.21	6,925.62	-3,984.97	-642.36	03,352.078277	35,496.479196	40.163025	-104.657375
10,833.00	91.79	180.22	6,922.60	-4,079.92	-642.72	03,257.132067	35,497.027599	40.162764	-104.657377
10,928.00	91.73	180.40	6,919.68	-4,174.87	-643.23	03,162.181746	35,497.418586	40.162504	-104.657378
10,940.00	91.98	180.67	6,919.29	-4,186.87	-643.35	03,150.188562	35,497.420877	40.162471	-104.657379
Final Sperry MWD Survey @ 10940.00ft									
10,978.00	91.98	180.67	6,917.98	-4,224.84	-643.79	03,112.212944	35,497.338645	40.162367	-104.657380
Straight Line Projection to TD @ 10978.00ft									

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Cannon 13C-3HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Site:	Sec. 3-T2N-R65W	MD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Well:	Cannon 13C-3HZ	North Reference:	True
Wellbore:	Plan A Rev 0	Survey Calculation Method:	Minimum Curvature
Design:	Actual Field Surveys	Database:	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 344.33ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 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 347.50ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 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 238.82ft at 10448.74ft MD (6935.64 TVD, -3695.88 N, -641.76 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 315.88ft at 8455.10ft MD (6976.56 TVD, -1704.38 N, -637.24 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 (")
7,354.70	6,978.75	7" Casing Point	7	8-3/4

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Cannon 13C-3HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Site:	Sec. 3-T2N-R65W	MD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Well:	Cannon 13C-3HZ	North Reference:	True
Wellbore:	Plan A Rev 0	Survey Calculation Method:	Minimum Curvature
Design:	Actual Field Surveys	Database:	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 344.33ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 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 347.50ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 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 238.82ft at 10448.74ft MD (6935.64 TVD, -3695.88 N, -641.76 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 315.88ft at 8455.10ft MD (6976.56 TVD, -1704.38 N, -637.24 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 (")
7,354.70	6,978.75	7" Casing Point	7	8-3/4

Design Annotations

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Cannon 13C-3HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Site:	Sec. 3-T2N-R65W	MD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Well:	Cannon 13C-3HZ	North Reference:	True
Wellbore:	Plan A Rev 0	Survey Calculation Method:	Minimum Curvature
Design:	Actual Field Surveys	Database:	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	235,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 344.33ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 E)										
- Point										
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	235,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 347.50ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	235,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 238.82ft at 10448.74ft MD (6935.64 TVD, -3695.88 N, -641.76 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	235,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 315.88ft at 8455.10ft MD (6976.56 TVD, -1704.38 N, -637.24 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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_Li		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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 (")
7,354.70	6,978.75	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	0.00	-0.17
			First Gyro Survey @ 125.00ft

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Cannon 13C-3HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Site:	Sec. 3-T2N-R65W	MD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Well:	Cannon 13C-3HZ	North Reference:	True
Wellbore:	Plan A Rev 0	Survey Calculation Method:	Minimum Curvature
Design:	Actual Field Surveys	Database:	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	235,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 344.33ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 E)										
- Point										
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	235,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 347.50ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	235,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 238.82ft at 10448.74ft MD (6935.64 TVD, -3695.88 N, -641.76 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	235,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 315.88ft at 8455.10ft MD (6976.56 TVD, -1704.38 N, -637.24 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	236,100.818963	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 (")
7,354.70	6,978.75	7" Casing Point	7	8-3/4
760.00	760.00	1.07	-0.53	Tie-On to Gyro Surveys @ 760.00ft
760.00	760.00	1.07	-0.53	Final Gyro Survey @ 760.00ft
826.00	826.00	1.11	-0.46	First Sperry MWD Survey @ 826.00ft
10,940.00	6,919.29	-4,186.87	-643.35	Final Sperry MWD Survey @ 10940.00ft
10,978.00	6,917.98	-4,224.84	-643.79	Straight Line Projection to TD @ 10978.00ft

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Cannon 13C-3HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Site:	Sec. 3-T2N-R65W	MD Reference:	RKB=25ft @ 4865.00ft (HP 308)
Well:	Cannon 13C-3HZ	North Reference:	True
Wellbore:	Plan A Rev 0	Survey Calculation Method:	Minimum Curvature
Design:	Actual Field Surveys	Database:	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	235,628.247584	40.161753	-104.656920
- actual wellpath misses target center by 344.33ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 E)										
- Point										
Cannon 13C-31HZ_B		0.00	0.00	7,146.00	-4,448.41	-506.74	302,889.974244	235,636.511655	40.161753	-104.656890
- actual wellpath misses target center by 347.50ft at 10978.00ft MD (6917.98 TVD, -4224.84 N, -643.79 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	235,596.119088	40.163807	-104.657009
- actual wellpath misses target center by 238.82ft at 10448.74ft MD (6935.64 TVD, -3695.88 N, -641.76 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	235,732.049938	40.169297	-104.656455
- actual wellpath misses target center by 315.88ft at 8455.10ft MD (6976.56 TVD, -1704.38 N, -637.24 E)										
- Point										
Cannon 13C-31HZ_S		0.00	0.00	0.00	0.00	0.00	307,342.818385	236,100.818963	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	236,100.818963	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 (")
7,354.70	6,978.75	7" Casing Point	7	8-3/4

Checked By: _____ Approved By: _____ Date: _____

Halliburton Company
Survey Report - Geographic

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