

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 14-T2N-R65W

Weichel 2N-11HZ

Plan B Rev 0

Design: Actual Field Surveys

Survey Report - Geographic

19 September, 2012

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Weichel 2N-11HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Site:	Sec. 14-T2N-R65W	MD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Well:	Weichel 2N-11HZ	North Reference:	True
Wellbore:	Plan B 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. 14-T2N-R65W				
Site Position:		Northing:	1,292,356.99ft	Latitude:	40.132622
From:	Lat/Long	Easting:	3,243,841.77ft	Longitude:	-104.627904
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.56 °

Well	Weichel 2N-11HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,292,356.98 ft	Latitude:	40.132622
	+E/-W	0.00 ft	Easting:	3,243,841.77 ft	Longitude:	-104.627904
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,881.00 ft

Wellbore	Plan B Rev 0				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	2012-09-03	8.65	66.80	52,799

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	0.00	

Survey Program	Date	2012-09-19			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
25.00	901.00	Surface Gyros (Plan B Rev 0)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,011.00	7,297.00	Sperry MWD Surveys - Vert/Build (Plan B	MWD+IFR+MS	MWD + IFR + Multi Station	
7,368.00	16,296.00	Sperry MWD Surveys - Lateral (Plan B Re	MWD+IFR+MS	MWD + IFR + Multi Station	

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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	1,292,356.98	3,243,841.77	40.132622	-104.627904
25.00	0.00	0.00	25.00	0.00	0.00	1,292,356.98	3,243,841.77	40.132622	-104.627904
H&P 308 RKB=25ft									
125.00	0.44	181.51	125.00	-0.38	-0.01	1,292,356.60	3,243,841.76	40.132621	-104.627904
First Gyro Survey @ 125.00ft									
225.00	0.50	257.44	225.00	-0.86	-0.45	1,292,356.11	3,243,841.33	40.132620	-104.627906
325.00	0.09	349.57	325.00	-0.88	-0.89	1,292,356.09	3,243,840.89	40.132620	-104.627907
425.00	0.06	76.55	425.00	-0.79	-0.85	1,292,356.18	3,243,840.93	40.132620	-104.627907
525.00	0.06	159.22	525.00	-0.83	-0.78	1,292,356.14	3,243,841.00	40.132620	-104.627907
625.00	0.37	323.62	624.99	-0.62	-0.95	1,292,356.35	3,243,840.82	40.132620	-104.627907
725.00	0.24	18.60	724.99	-0.16	-1.08	1,292,356.81	3,243,840.69	40.132622	-104.627908
825.00	0.29	81.34	824.99	0.08	-0.76	1,292,357.05	3,243,841.01	40.132622	-104.627907
901.00	0.28	285.61	900.99	0.16	-0.75	1,292,357.13	3,243,841.02	40.132622	-104.627907
Tie-On to Gyro Surveys @ 901.00ft - Final Gyro Survey @ 901.00ft									
1,011.00	0.53	171.04	1,010.99	-0.27	-0.93	1,292,356.70	3,243,840.84	40.132621	-104.627907
First Sperry MWD Survey @ 1011.00ft									
1,103.00	1.74	316.37	1,102.98	0.32	-1.83	1,292,357.28	3,243,839.94	40.132623	-104.627911
1,195.00	2.95	317.04	1,194.90	3.06	-4.40	1,292,360.00	3,243,837.33	40.132630	-104.627920
1,287.00	4.91	298.27	1,286.68	6.66	-9.49	1,292,363.54	3,243,832.22	40.132640	-104.627938
1,379.00	5.11	293.16	1,378.33	10.14	-16.72	1,292,366.95	3,243,824.95	40.132650	-104.627964
1,471.00	5.30	294.75	1,469.95	13.53	-24.35	1,292,370.26	3,243,817.29	40.132659	-104.627991
1,562.00	5.98	282.97	1,560.51	16.35	-32.78	1,292,373.00	3,243,808.83	40.132667	-104.628021
1,654.00	6.36	286.90	1,651.98	18.91	-42.33	1,292,375.47	3,243,799.26	40.132674	-104.628055
1,746.00	4.85	275.25	1,743.54	20.74	-51.08	1,292,377.22	3,243,790.49	40.132679	-104.628087
1,838.00	5.08	274.37	1,835.20	21.41	-59.01	1,292,377.81	3,243,782.55	40.132681	-104.628115
1,930.00	4.80	276.71	1,926.85	22.17	-66.90	1,292,378.49	3,243,774.66	40.132683	-104.628143
2,022.00	4.14	270.67	2,018.57	22.66	-74.04	1,292,378.91	3,243,767.51	40.132684	-104.628169
2,114.00	5.59	292.23	2,110.25	24.39	-81.51	1,292,380.57	3,243,760.03	40.132689	-104.628195
2,209.00	5.13	292.72	2,204.83	27.78	-89.71	1,292,383.88	3,243,751.79	40.132698	-104.628225
2,303.00	5.15	294.55	2,298.46	31.16	-97.42	1,292,387.18	3,243,744.05	40.132707	-104.628252
2,398.00	3.57	293.07	2,393.18	34.09	-104.02	1,292,390.04	3,243,737.42	40.132716	-104.628276
2,493.00	4.77	287.22	2,487.92	36.42	-110.52	1,292,392.31	3,243,730.90	40.132722	-104.628299
2,588.00	3.60	288.50	2,582.67	38.53	-117.12	1,292,394.36	3,243,724.28	40.132728	-104.628323
2,683.00	3.72	283.67	2,677.48	40.21	-122.94	1,292,395.98	3,243,718.44	40.132732	-104.628344
2,777.00	3.99	275.40	2,771.26	41.24	-129.16	1,292,396.94	3,243,712.21	40.132735	-104.628366
2,872.00	5.02	283.17	2,865.97	42.50	-136.50	1,292,398.13	3,243,704.86	40.132739	-104.628392
2,967.00	4.79	291.06	2,960.62	44.87	-144.25	1,292,400.42	3,243,697.09	40.132745	-104.628420
3,061.00	3.72	280.62	3,054.36	46.84	-150.91	1,292,402.33	3,243,690.41	40.132751	-104.628444
3,156.00	2.50	263.89	3,149.22	47.19	-156.00	1,292,402.63	3,243,685.32	40.132751	-104.628462
3,251.00	1.38	198.98	3,244.18	45.89	-158.43	1,292,401.30	3,243,682.90	40.132748	-104.628471
3,346.00	0.70	52.16	3,339.17	45.16	-158.34	1,292,400.58	3,243,682.99	40.132746	-104.628470
3,440.00	0.57	29.67	3,433.16	45.92	-157.66	1,292,401.34	3,243,683.67	40.132748	-104.628468
3,535.00	0.40	35.64	3,528.16	46.60	-157.23	1,292,402.03	3,243,684.09	40.132750	-104.628466
3,630.00	0.81	356.97	3,623.16	47.54	-157.07	1,292,402.97	3,243,684.24	40.132752	-104.628466
3,725.00	1.43	290.57	3,718.14	48.63	-158.22	1,292,404.04	3,243,683.08	40.132755	-104.628470
3,820.00	1.22	279.27	3,813.12	49.21	-160.33	1,292,404.60	3,243,680.97	40.132757	-104.628477
3,914.00	1.52	301.59	3,907.09	50.02	-162.38	1,292,405.40	3,243,678.91	40.132759	-104.628485
4,009.00	0.36	20.06	4,002.08	50.96	-163.35	1,292,406.33	3,243,677.93	40.132762	-104.628488
4,104.00	0.98	338.09	4,097.07	51.99	-163.55	1,292,407.36	3,243,677.72	40.132765	-104.628489
4,199.00	0.57	213.46	4,192.07	52.35	-164.11	1,292,407.71	3,243,677.16	40.132766	-104.628491
4,293.00	0.81	184.29	4,286.06	51.30	-164.42	1,292,406.66	3,243,676.86	40.132763	-104.628492
4,388.00	1.00	243.84	4,381.05	50.27	-165.21	1,292,405.62	3,243,676.07	40.132760	-104.628495
4,483.00	0.15	104.65	4,476.04	49.87	-165.84	1,292,405.21	3,243,675.45	40.132759	-104.628497
4,578.00	0.57	106.72	4,571.04	49.70	-165.26	1,292,405.05	3,243,676.03	40.132758	-104.628495
4,673.00	1.46	33.58	4,666.03	50.57	-164.14	1,292,405.93	3,243,677.14	40.132761	-104.628491

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Wellbore:	Plan B 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
4,767.00	2.62	53.18	4,759.97	52.86	-161.76	1,292,408.24	3,243,679.50	40.132767	-104.628483
4,862.00	3.22	49.15	4,854.85	55.91	-158.00	1,292,411.33	3,243,683.23	40.132775	-104.628469
4,956.00	2.02	44.00	4,948.75	58.82	-154.86	1,292,414.27	3,243,686.35	40.132783	-104.628458
5,051.00	1.25	18.69	5,043.71	61.01	-153.36	1,292,416.48	3,243,687.82	40.132789	-104.628452
5,146.00	1.11	269.47	5,138.70	61.98	-153.95	1,292,417.44	3,243,687.22	40.132792	-104.628455
5,241.00	1.43	265.88	5,233.67	61.89	-156.05	1,292,417.33	3,243,685.12	40.132792	-104.628462
5,336.00	1.00	268.61	5,328.65	61.78	-158.06	1,292,417.20	3,243,683.11	40.132792	-104.628469
5,430.00	0.74	311.76	5,422.64	62.17	-159.34	1,292,417.58	3,243,681.84	40.132793	-104.628474
5,525.00	1.06	266.43	5,517.63	62.52	-160.67	1,292,417.92	3,243,680.50	40.132794	-104.628479
5,620.00	0.31	249.48	5,612.62	62.38	-161.79	1,292,417.76	3,243,679.38	40.132793	-104.628483
5,715.00	0.63	309.91	5,707.62	62.62	-162.43	1,292,418.00	3,243,678.74	40.132794	-104.628485
5,810.00	1.90	246.27	5,802.60	62.32	-164.27	1,292,417.68	3,243,676.90	40.132793	-104.628491
5,905.00	1.24	240.48	5,897.56	61.18	-166.61	1,292,416.52	3,243,674.57	40.132790	-104.628500
6,000.00	1.46	184.97	5,992.54	59.47	-167.61	1,292,414.80	3,243,673.59	40.132785	-104.628503
6,094.00	1.17	205.73	6,086.52	57.41	-168.13	1,292,412.73	3,243,673.09	40.132780	-104.628505
6,189.00	0.84	208.35	6,181.50	55.93	-168.88	1,292,411.24	3,243,672.35	40.132775	-104.628508
6,284.00	0.99	252.17	6,276.49	55.06	-169.99	1,292,410.37	3,243,671.25	40.132773	-104.628512
6,379.00	1.09	269.60	6,371.47	54.81	-171.68	1,292,410.09	3,243,669.57	40.132772	-104.628518
6,410.00	3.07	347.42	6,402.46	55.61	-172.15	1,292,410.89	3,243,669.08	40.132775	-104.628520
6,442.00	5.70	355.65	6,434.36	58.04	-172.46	1,292,413.31	3,243,668.75	40.132781	-104.628521
6,474.00	8.01	0.88	6,466.13	61.85	-172.55	1,292,417.13	3,243,668.63	40.132792	-104.628521
6,505.00	11.16	3.82	6,496.69	67.00	-172.31	1,292,422.28	3,243,668.81	40.132806	-104.628520
6,537.00	14.71	5.47	6,527.88	74.14	-171.72	1,292,429.42	3,243,669.34	40.132825	-104.628518
6,569.00	17.33	8.10	6,558.63	82.90	-170.66	1,292,438.20	3,243,670.31	40.132850	-104.628514
6,600.00	20.31	5.86	6,587.97	92.83	-169.46	1,292,448.13	3,243,671.41	40.132877	-104.628510
6,632.00	22.65	2.00	6,617.75	104.51	-168.68	1,292,459.83	3,243,672.08	40.132909	-104.628507
6,663.00	25.62	0.03	6,646.04	117.19	-168.47	1,292,472.50	3,243,672.16	40.132944	-104.628506
6,695.00	28.58	359.17	6,674.52	131.76	-168.57	1,292,487.07	3,243,671.91	40.132984	-104.628507
6,726.00	31.75	359.63	6,701.32	147.33	-168.73	1,292,502.64	3,243,671.60	40.133026	-104.628507
6,758.00	35.40	359.62	6,727.97	165.03	-168.85	1,292,520.33	3,243,671.31	40.133075	-104.628508
6,790.00	38.57	359.49	6,753.53	184.28	-169.00	1,292,539.58	3,243,670.97	40.133128	-104.628508
6,821.00	42.39	359.88	6,777.11	204.40	-169.11	1,292,559.69	3,243,670.67	40.133183	-104.628509
6,853.00	45.85	0.13	6,800.08	226.67	-169.10	1,292,581.97	3,243,670.45	40.133244	-104.628509
6,884.00	48.71	1.68	6,821.11	249.44	-168.74	1,292,604.74	3,243,670.59	40.133307	-104.628507
6,916.00	51.83	1.02	6,841.56	274.04	-168.16	1,292,629.34	3,243,670.93	40.133374	-104.628505
6,948.00	54.59	0.25	6,860.72	299.66	-167.88	1,292,654.96	3,243,670.96	40.133445	-104.628504
6,980.00	57.95	359.61	6,878.49	326.27	-167.91	1,292,681.57	3,243,670.66	40.133518	-104.628505
7,011.00	60.87	359.89	6,894.26	352.95	-168.03	1,292,708.25	3,243,670.28	40.133591	-104.628505
7,043.00	63.58	0.48	6,909.17	381.26	-167.94	1,292,736.56	3,243,670.10	40.133669	-104.628505
7,074.00	66.45	0.07	6,922.26	409.36	-167.80	1,292,764.65	3,243,669.95	40.133746	-104.628504
7,105.00	69.33	0.78	6,933.93	438.08	-167.59	1,292,793.37	3,243,669.89	40.133824	-104.628503
7,137.00	71.94	0.31	6,944.54	468.26	-167.30	1,292,823.55	3,243,669.88	40.133907	-104.628502
7,168.00	72.37	1.13	6,954.04	497.77	-166.93	1,292,853.06	3,243,669.96	40.133988	-104.628501
7,200.00	74.27	1.02	6,963.22	528.41	-166.36	1,292,883.71	3,243,670.23	40.134072	-104.628499
7,231.00	78.63	0.12	6,970.49	558.54	-166.06	1,292,913.84	3,243,670.23	40.134155	-104.628498
7,263.00	80.98	359.42	6,976.15	590.03	-166.19	1,292,945.33	3,243,669.79	40.134242	-104.628498
7,297.00	83.48	358.42	6,980.75	623.71	-166.82	1,292,979.00	3,243,668.83	40.134334	-104.628501
7,337.00	85.86	358.22	6,984.46	663.52	-167.99	1,293,018.79	3,243,667.27	40.134443	-104.628505
7" Intermediate Casing									
7,368.00	87.71	358.06	6,986.20	694.45	-169.00	1,293,049.71	3,243,665.96	40.134528	-104.628508
7,463.00	90.19	357.30	6,987.94	789.35	-172.84	1,293,144.56	3,243,661.18	40.134789	-104.628522
7,557.00	91.30	357.75	6,986.72	883.25	-176.90	1,293,238.41	3,243,656.20	40.135047	-104.628537
7,652.00	91.73	357.39	6,984.20	978.14	-180.93	1,293,333.25	3,243,651.24	40.135307	-104.628551
7,747.00	92.16	357.34	6,980.98	1,072.98	-185.29	1,293,428.04	3,243,645.94	40.135567	-104.628567
7,842.00	92.10	358.05	6,977.45	1,167.84	-189.11	1,293,522.85	3,243,641.19	40.135828	-104.628580

Halliburton Company

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Site:	Sec. 14-T2N-R65W	MD Reference:	RKB=25ft @ 4906.00ft (HP 308)
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Wellbore:	Plan B 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
7,937.00	91.24	359.08	6,974.68	1,262.76	-191.49	1,293,617.75	3,243,637.88	40.136088	-104.628589
8,032.00	90.56	359.39	6,973.19	1,357.74	-192.75	1,293,712.71	3,243,635.68	40.136349	-104.628593
8,126.00	90.25	0.17	6,972.52	1,451.74	-193.12	1,293,806.69	3,243,634.39	40.136607	-104.628595
8,221.00	91.11	0.68	6,971.40	1,546.73	-192.41	1,293,901.68	3,243,634.16	40.136868	-104.628592
8,316.00	91.54	0.61	6,969.20	1,641.70	-191.34	1,293,996.65	3,243,634.30	40.137128	-104.628588
8,412.00	92.29	0.53	6,965.99	1,737.64	-190.39	1,294,092.59	3,243,634.31	40.137392	-104.628585
8,507.00	91.85	0.08	6,962.56	1,832.57	-189.88	1,294,187.52	3,243,633.88	40.137652	-104.628583
8,602.00	89.94	359.18	6,961.08	1,927.56	-190.50	1,294,282.49	3,243,632.33	40.137913	-104.628585
8,697.00	88.15	358.94	6,962.66	2,022.53	-192.05	1,294,377.44	3,243,629.84	40.138174	-104.628591
8,792.00	88.95	358.83	6,965.06	2,117.48	-193.90	1,294,472.36	3,243,627.06	40.138435	-104.628598
8,886.00	90.31	359.02	6,965.67	2,211.46	-195.67	1,294,566.31	3,243,624.37	40.138692	-104.628604
8,982.00	89.01	358.80	6,966.24	2,307.43	-197.49	1,294,662.27	3,243,621.60	40.138956	-104.628610
9,077.00	90.12	359.25	6,966.96	2,402.42	-199.11	1,294,757.22	3,243,619.05	40.139217	-104.628616
9,172.00	91.11	358.71	6,965.94	2,497.39	-200.80	1,294,852.18	3,243,616.43	40.139477	-104.628622
9,268.00	89.57	358.61	6,965.37	2,593.36	-203.04	1,294,948.11	3,243,613.24	40.139741	-104.628630
9,363.00	90.37	358.04	6,965.42	2,688.32	-205.82	1,295,043.04	3,243,609.53	40.140001	-104.628640
9,455.00	91.36	355.69	6,964.03	2,780.17	-210.85	1,295,134.82	3,243,603.59	40.140254	-104.628658
9,547.00	91.11	354.69	6,962.05	2,871.82	-218.56	1,295,226.39	3,243,594.98	40.140505	-104.628686
9,639.00	91.30	355.90	6,960.12	2,963.49	-226.11	1,295,317.98	3,243,586.54	40.140757	-104.628713
9,731.00	90.12	355.73	6,958.98	3,055.23	-232.82	1,295,409.65	3,243,578.92	40.141009	-104.628737
9,823.00	90.56	354.93	6,958.43	3,146.93	-240.31	1,295,501.26	3,243,570.53	40.141260	-104.628764
9,915.00	89.07	354.08	6,958.73	3,238.50	-249.12	1,295,592.74	3,243,560.82	40.141512	-104.628795
10,006.00	88.09	353.72	6,960.98	3,328.95	-258.79	1,295,683.09	3,243,550.27	40.141760	-104.628830
10,099.00	89.20	356.99	6,963.18	3,421.61	-266.32	1,295,775.66	3,243,541.83	40.142014	-104.628857
10,191.00	90.06	357.30	6,963.78	3,513.49	-270.90	1,295,867.49	3,243,536.34	40.142267	-104.628873
10,283.00	91.24	358.13	6,962.73	3,605.41	-274.57	1,295,959.37	3,243,531.77	40.142519	-104.628886
10,374.00	89.38	357.35	6,962.24	3,696.33	-278.15	1,296,050.25	3,243,527.29	40.142769	-104.628899
10,466.00	90.06	357.58	6,962.69	3,788.24	-282.22	1,296,142.11	3,243,522.32	40.143021	-104.628913
10,558.00	90.87	358.81	6,961.94	3,880.19	-285.12	1,296,234.02	3,243,518.51	40.143273	-104.628924
10,650.00	89.69	356.71	6,961.49	3,972.11	-288.72	1,296,325.90	3,243,514.01	40.143526	-104.628937
10,742.00	90.06	357.25	6,961.69	4,063.98	-293.56	1,296,417.71	3,243,508.26	40.143778	-104.628954
10,834.00	89.51	358.01	6,962.04	4,155.90	-297.37	1,296,509.59	3,243,503.56	40.144030	-104.628968
10,926.00	89.50	0.69	6,962.83	4,247.89	-298.41	1,296,601.55	3,243,501.61	40.144283	-104.628971
11,018.00	89.94	3.90	6,963.28	4,339.80	-294.73	1,296,693.49	3,243,504.39	40.144535	-104.628958
11,110.00	90.31	4.38	6,963.08	4,431.56	-288.09	1,296,785.31	3,243,510.13	40.144787	-104.628934
11,202.00	90.12	2.05	6,962.74	4,523.41	-282.93	1,296,877.20	3,243,514.38	40.145039	-104.628916
11,294.00	90.43	2.73	6,962.30	4,615.32	-279.09	1,296,969.15	3,243,517.31	40.145291	-104.628902
11,386.00	89.69	4.46	6,962.20	4,707.14	-273.32	1,297,061.01	3,243,522.18	40.145543	-104.628882
11,478.00	90.37	6.86	6,962.15	4,798.68	-264.25	1,297,152.63	3,243,530.35	40.145794	-104.628849
11,570.00	91.48	9.22	6,960.67	4,889.76	-251.38	1,297,243.83	3,243,542.32	40.146044	-104.628803
11,661.00	92.41	9.15	6,957.58	4,979.54	-236.87	1,297,333.74	3,243,555.95	40.146291	-104.628751
11,753.00	92.91	8.09	6,953.31	5,070.40	-223.09	1,297,424.73	3,243,568.83	40.146540	-104.628702
11,845.00	91.55	4.86	6,949.73	5,161.73	-212.73	1,297,516.16	3,243,578.30	40.146791	-104.628665
11,937.00	89.63	4.81	6,948.78	5,253.39	-204.98	1,297,607.89	3,243,585.15	40.147043	-104.628637
12,032.00	90.06	4.29	6,949.04	5,348.09	-197.44	1,297,702.65	3,243,591.75	40.147303	-104.628610
12,127.00	90.74	6.00	6,948.37	5,442.71	-188.92	1,297,797.34	3,243,599.34	40.147562	-104.628580
12,223.00	91.18	6.90	6,946.77	5,538.08	-178.14	1,297,892.81	3,243,609.18	40.147824	-104.628541
12,317.00	91.67	6.61	6,944.43	5,631.40	-167.08	1,297,986.23	3,243,619.32	40.148080	-104.628502
12,412.00	92.60	7.08	6,940.89	5,725.66	-155.77	1,298,080.59	3,243,629.70	40.148339	-104.628461
12,507.00	90.80	6.64	6,938.07	5,819.93	-144.43	1,298,174.97	3,243,640.12	40.148598	-104.628421
12,601.00	91.05	5.62	6,936.55	5,913.38	-134.39	1,298,268.51	3,243,649.23	40.148854	-104.628385
12,696.00	90.00	5.30	6,935.68	6,007.94	-125.35	1,298,363.15	3,243,657.34	40.149114	-104.628352
12,791.00	90.99	5.36	6,934.86	6,102.53	-116.53	1,298,457.82	3,243,665.24	40.149374	-104.628321
12,886.00	90.49	5.43	6,933.63	6,197.10	-107.60	1,298,552.47	3,243,673.24	40.149633	-104.628289
12,981.00	88.95	5.98	6,934.10	6,291.62	-98.15	1,298,647.08	3,243,681.75	40.149893	-104.628255

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Weichel 2N-11HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Site:	Sec. 14-T2N-R65W	MD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Well:	Weichel 2N-11HZ	North Reference:	True
Wellbore:	Plan B 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
13,075.00	89.75	6.93	6,935.17	6,385.02	-87.59	1,298,740.57	3,243,691.40	40.150149	-104.628217
13,170.00	89.94	6.00	6,935.42	6,479.42	-76.89	1,298,835.06	3,243,701.16	40.150408	-104.628179
13,265.00	91.73	4.51	6,934.04	6,574.00	-68.19	1,298,929.72	3,243,708.93	40.150668	-104.628148
13,360.00	91.36	3.41	6,931.48	6,668.74	-61.63	1,299,024.51	3,243,714.56	40.150928	-104.628124
13,454.00	89.32	2.12	6,930.92	6,762.62	-57.10	1,299,118.43	3,243,718.17	40.151186	-104.628108
13,549.00	88.64	2.45	6,932.61	6,857.53	-53.31	1,299,213.37	3,243,721.02	40.151446	-104.628095
13,644.00	89.20	4.10	6,934.40	6,952.35	-47.89	1,299,308.24	3,243,725.51	40.151706	-104.628075
13,739.00	89.07	3.11	6,935.83	7,047.15	-41.91	1,299,403.09	3,243,730.55	40.151967	-104.628054
13,833.00	90.37	0.63	6,936.29	7,141.09	-38.85	1,299,497.05	3,243,732.70	40.152224	-104.628043
13,928.00	91.30	1.78	6,934.91	7,236.06	-36.85	1,299,592.03	3,243,733.76	40.152485	-104.628036
14,022.00	90.68	0.23	6,933.29	7,330.03	-35.20	1,299,686.00	3,243,734.48	40.152743	-104.628030
14,117.00	91.67	0.87	6,931.34	7,425.00	-34.29	1,299,780.98	3,243,734.46	40.153004	-104.628027
14,212.00	91.73	1.10	6,928.52	7,519.94	-32.66	1,299,875.93	3,243,735.16	40.153264	-104.628021
14,307.00	92.04	1.32	6,925.39	7,614.87	-30.65	1,299,970.87	3,243,736.23	40.153525	-104.628014
14,401.00	90.87	359.66	6,923.01	7,708.83	-29.85	1,300,064.83	3,243,736.11	40.153783	-104.628011
14,496.00	91.42	359.93	6,921.11	7,803.81	-30.19	1,300,159.80	3,243,734.84	40.154044	-104.628012
14,591.00	92.04	0.01	6,918.24	7,898.77	-30.24	1,300,254.74	3,243,733.85	40.154304	-104.628012
14,685.00	90.43	0.30	6,916.21	7,992.74	-29.98	1,300,348.71	3,243,733.18	40.154562	-104.628011
14,780.00	88.95	0.59	6,916.73	8,087.74	-29.25	1,300,443.70	3,243,732.99	40.154823	-104.628009
14,874.00	89.32	1.38	6,918.15	8,181.71	-27.63	1,300,537.69	3,243,733.68	40.155081	-104.628003
14,969.00	89.57	1.83	6,919.07	8,276.67	-24.97	1,300,632.66	3,243,735.41	40.155342	-104.627993
15,064.00	89.94	2.17	6,919.47	8,371.61	-21.65	1,300,727.63	3,243,737.79	40.155602	-104.627981
15,158.00	90.50	2.88	6,919.11	8,465.52	-17.51	1,300,821.57	3,243,741.00	40.155860	-104.627967
15,253.00	90.31	1.78	6,918.44	8,560.43	-13.65	1,300,916.51	3,243,743.93	40.156121	-104.627953
15,348.00	90.74	2.80	6,917.57	8,655.35	-9.86	1,301,011.46	3,243,746.79	40.156381	-104.627939
15,443.00	91.67	3.05	6,915.57	8,750.21	-5.01	1,301,106.35	3,243,750.71	40.156642	-104.627922
15,539.00	91.54	359.60	6,912.88	8,846.13	-2.79	1,301,202.29	3,243,751.98	40.156905	-104.627914
15,634.00	92.29	359.84	6,909.71	8,941.07	-3.25	1,301,297.22	3,243,750.58	40.157165	-104.627916
15,729.00	91.48	359.74	6,906.58	9,036.02	-3.60	1,301,392.16	3,243,749.30	40.157426	-104.627917
15,823.00	91.24	359.04	6,904.35	9,129.99	-4.60	1,301,486.11	3,243,747.38	40.157684	-104.627920
15,919.00	89.94	358.84	6,903.36	9,225.97	-6.38	1,301,582.06	3,243,744.66	40.157947	-104.627927
16,014.00	90.68	358.74	6,902.85	9,320.94	-8.38	1,301,677.01	3,243,741.72	40.158208	-104.627934
16,109.00	89.57	359.11	6,902.64	9,415.92	-10.17	1,301,771.96	3,243,739.00	40.158469	-104.627940
16,204.00	89.63	359.19	6,903.31	9,510.91	-11.58	1,301,866.93	3,243,736.66	40.158730	-104.627945
16,296.00	90.31	359.39	6,903.35	9,602.90	-12.72	1,301,958.90	3,243,734.62	40.158982	-104.627949
Final Sperry MWD Survey @ 16296.00ft									
16,340.00	90.31	359.39	6,903.12	9,646.90	-13.18	1,302,002.89	3,243,733.71	40.159103	-104.627951
Straight Line Projection to TD @ 16340.00ft									

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Weichel 2N-11HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Site:	Sec. 14-T2N-R65W	MD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Well:	Weichel 2N-11HZ	North Reference:	True
Wellbore:	Plan B 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)		
Weichel 2N-11HZ_WF		0.00	0.00	6,961.55	3,000.00	-250.00	1,295,354.25	3,243,562.29	40.140857	-104.628798
- actual wellpath misses target center by 21.30ft at 9677.14ft MD (6959.41 TVD, 3001.52 N, -228.86 E)										
- Point										
Weichel 2N-11HZ_WF		0.00	0.00	6,951.29	4,000.00	-294.05	1,296,353.73	3,243,508.41	40.143602	-104.628956
- actual wellpath misses target center by 10.99ft at 10678.11ft MD (6961.62 TVD, 4000.18 N, -290.29 E)										
- Point										
Weichel 2N-11HZ_Se		0.00	0.00	0.00	0.00	0.00	1,292,356.98	3,243,841.77	40.132622	-104.627904
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-37.33	1,301.60	1,292,332.45	3,245,143.62		
Point 2				0.00	2,144.15	1,311.89	1,294,513.84	3,245,132.45		
Point 3				0.00	4,332.74	1,328.02	1,296,702.39	3,245,127.06		
Point 4				0.00	5,252.74	1,336.35	1,297,622.39	3,245,126.34		
Point 5				0.00	7,458.12	1,360.04	1,299,827.81	3,245,128.34		
Point 6				0.00	9,663.40	1,383.73	1,302,033.12	3,245,130.34		
Point 7				0.00	9,677.86	-832.64	1,302,025.79	3,242,914.03		
Point 8				0.00	9,692.11	-3,048.42	1,302,018.24	3,240,698.31		
Point 9				0.00	7,498.45	-3,059.24	1,299,824.67	3,240,709.06		
Point 10				0.00	5,305.33	-3,069.44	1,297,631.65	3,240,720.43		
Point 11				0.00	4,385.29	-3,074.14	1,296,711.65	3,240,724.78		
Point 12				0.00	2,193.69	-3,086.34	1,294,520.12	3,240,734.13		
Point 13				0.00	2.04	-3,098.42	1,292,328.55	3,240,743.60		
Point 14				0.00	-18.50	-889.50	1,292,329.73	3,242,952.53		
Weichel 2N-11HZ_WF		0.00	0.00	6,936.82	6,800.00	-50.00	1,299,155.88	3,243,724.90	40.151288	-104.628083
- actual wellpath misses target center by 7.81ft at 13491.73ft MD (6931.46 TVD, 6800.32 N, -55.66 E)										
- Point										
Weichel 2N-11HZ_WF		0.00	0.00	6,965.74	2,600.00	-200.00	1,294,954.78	3,243,616.22	40.139759	-104.628619
- actual wellpath misses target center by 3.22ft at 9274.54ft MD (6965.42 TVD, 2599.91 N, -203.20 E)										
- Point										
Weichel 2N-11HZ_Se		0.00	0.00	0.00	0.00	0.00	1,292,356.98	3,243,841.77	40.132622	-104.627904
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	4,787.24	1,791.40	1,297,161.41	3,245,585.93		
Point 2				0.00	4,819.12	-870.14	1,297,167.11	3,242,924.31		
Point 3				0.00	4,850.78	-3,531.58	1,297,172.60	3,240,262.80		
Weichel 2N-11HZ_SH		0.00	0.00	0.00	0.00	0.00	1,292,356.98	3,243,841.77	40.132622	-104.627904
- actual wellpath hits target center										
- Point										
Weichel 2N-11HZ_BH		0.00	0.00	6,931.00	9,673.50	0.00	1,302,029.61	3,243,746.64	40.159176	-104.627904
- actual wellpath misses target center by 40.73ft at 16340.00ft MD (6903.12 TVD, 9646.90 N, -13.18 E)										
- Point										
Weichel 2N-11HZ_Se		0.00	0.00	0.00	0.00	0.00	1,292,356.98	3,243,841.77	40.132622	-104.627904
- actual wellpath hits target center										
- Polygon										
Point 1				0.00	-501.30	1,759.44	1,291,873.03	3,245,605.98		
Point 2				0.00	2,138.97	1,771.88	1,294,513.18	3,245,592.45		
Point 3				0.00	4,787.24	1,791.40	1,297,161.41	3,245,585.93		
Point 4				0.00	7,453.92	1,820.04	1,299,828.13	3,245,588.34		
Point 5				0.00	10,120.40	1,848.68	1,302,494.65	3,245,590.76		
Point 6				0.00	10,137.86	-829.09	1,302,485.78	3,242,913.05		
Point 7				0.00	10,155.08	-3,506.16	1,302,476.67	3,240,236.05		
Point 8				0.00	4,850.78	-3,531.58	1,297,172.60	3,240,262.80		
Point 9				0.00	2,198.87	-3,546.34	1,294,520.78	3,240,274.12		
Point 10				0.00	-453.70	-3,560.95	1,291,868.30	3,240,285.60		
Point 11				0.00	-478.52	-891.35	1,291,869.74	3,242,955.20		

Halliburton Company

Survey Report - Geographic

Company:	Anadarko Petroleum Corp.	Local Co-ordinate Reference:	Well Weichel 2N-11HZ
Project:	Weld County, CO (NAD 83)	TVD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Site:	Sec. 14-T2N-R65W	MD Reference:	RKB=25ft @ 4906.00ft (HP 308)
Well:	Weichel 2N-11HZ	North Reference:	True
Wellbore:	Plan B Rev 0	Survey Calculation Method:	Minimum Curvature
Design:	Actual Field Surveys	Database:	EDM 2003.16 Single User Db

Weichel 2N-11HZ_WF	0.00	0.00	6,941.00	4,996.82	-222.83	1,297,351.16	3,243,569.82	40.146338	-104.628701
- actual wellpath misses target center by 19.28ft at 11680.94ft MD (6956.72 TVD, 4999.21 N, -233.74 E)									
- Point									
Weichel 2N-11HZ_WF	0.00	0.00	6,934.33	8,000.00	-160.00	1,300,354.69	3,243,603.11	40.154582	-104.628476
- actual wellpath misses target center by 131.31ft at 14691.35ft MD (6916.17 TVD, 7999.09 N, -29.95 E)									
- Point									
Weichel 2N-11HZ_Lai	0.00	0.00	0.00	0.00	0.00	1,292,356.98	3,243,841.77	40.132622	-104.627904
- actual wellpath hits target center									
- Polygon									
Point 1			0.00	-483.62	-38.55	1,291,873.02	3,243,807.98		
Point 2			0.00	-479.76	-430.55	1,291,873.03	3,243,415.97		
Point 3			0.00	10,141.94	-341.30	1,302,494.66	3,243,400.76		
Point 4			0.00	10,138.08	50.70	1,302,494.65	3,243,792.76		
Weichel 2N-11HZ_BH	0.00	0.00	6,961.46	4,340.00	-80.01	1,296,695.80	3,243,719.08	40.144535	-104.628190
- actual wellpath misses target center by 214.20ft at 11033.71ft MD (6963.29 TVD, 4355.47 N, -293.65 E)									
- Point									

7,337.00 6,984.46 7" Intermediate Casing 7 8-3/4

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
25.00	25.00	0.00	0.00	H&P 308 RKB=25ft
125.00	125.00	-0.38	-0.01	First Gyro Survey @ 125.00ft
901.00	900.99	0.16	-0.75	Tie-On to Gyro Surveys @ 901.00ft
901.00	900.99	0.16	-0.75	Final Gyro Survey @ 901.00ft
1,011.00	1,010.99	-0.27	-0.93	First Sperry MWD Survey @ 1011.00ft
16,296.00	6,903.35	9,602.90	-12.72	Final Sperry MWD Survey @ 16296.00ft
16,340.00	6,903.12	9,646.90	-13.18	Straight Line Projection to TD @ 16340.00ft

Checked By: _____ Approved By: _____ Date: _____