

TECHNICAL MEMORANDUM 2-9

Individual Customer Account Audits

This memo is the deliverable for Phase 2 Task 9 of The Abrahams Group's (TAG) contract with the City of Brockton. The interviews and inquiries documented herein were completed on the evenings of February 28th and March 7th, 2011. The documentation detailed in this memo was provided by the customers during their interviews or was derived from the City's MUNIS database.

This document describes the individual circumstances of six customers' accounts, their experiences in dealing with the Brockton DPW Operations and the Billing Office staff.

PLAN OF SERVICE

The goals of this task are to interview City Councilors and address problem accounts. The scope of this task included interviewing up to eleven (11) City Councilors in up to five (5) one-hour meetings, scheduled by the City Finance Office, to be conducted within normal business hours.

The scope of this task also includes meeting with up to eight (8) customers with problem accounts, one from each of the seven (7) wards and one to be selected by the Councilor At Large. This task includes meeting with problem account customers, reviewing their documentation and issues, researching problem account history including whether the City conducted a meter test, reviewing the results of that meter test, and reviewing the City's action regarding these accounts. This task also re-calculates the amount of the original bills, the recalculated bills as calculated by the City, and the resulting adjustments, where applicable. This Technical Memorandum documents our findings and recommendations for this task.

AUDIT ACTIVITIES

The reviews covered in this task were completed on the accounts of six water customers within the City. By agreement with the City, the accounts reviewed were to be nominated by City Councilors and a memo documenting the interviews is included in Appendix 2-9.1. The timing of each customer's audit meeting was scheduled through the Chief Financial Officer.

The discussion on each of the six accounts is completed in the order that the interviews occurred and each is detailed along the following outline:

1. A brief description of each meeting (based on personal recollection and notes taken during meeting - see Appendix 2-9.2);
2. List of Documentation provided by Customer;
3. List of Documentation from MUNIS/DPW;
4. Discussion of the Account and associated documentation;
5. Discussion of the bill/adjustments calculations applied to the account; and
6. Account Findings and Recommendations for consideration.

Ward 6 Nominee: Account 3-5888 (8 Corala Road)

Meeting description

The meeting with the Ward 6 nominee (Ms. Ayala Cato) was scheduled for 4:30P on 2/28. Due to a misunderstanding concerning the scheduled time, Ms Cato arrived at approximately 5:10P and was accompanied to the meeting by Ms. Marianne Sullivan. Ms Cato came prepared with a significant amount of documentation concerning her account, much of which was reviewed with her during the shortened interview.

Ms. Cato's account is through a 5/8" meter attached to a single-family home, located on Corala Road, which she indicated was acquired in 1997. The account received a series of large bills, totaling in excess of \$100,000, beginning a series of correspondence with the City concerning the issue.

In essence, Ms. Cato's account had not received an actual read in approximately 12 years, prior to 2010. Due to the extended period during which no actual read was collected from her meter, the compounding difference between estimated and actual bills (from which the bills were generated), ultimately led to the extremely large bills issued on the account. Finally, Ms. Cato indicated a strong belief that it was unfair for the City to allow a bill to accumulate years of estimates and then to assess a single true-up bill. She indicated that she felt there should be a limited "look-back" period for situations such as hers.

List of Documentation provided by Customer

The following list of items was provided by the customer:

1. Four pages of hand-written notes detailing the timeline of activities concerning the account
2. A partially-readable photograph of the original meter during its replacement
3. Four – CY2010 Utility bills
4. A table documenting the 4 – CY2010 bills
5. MUNIS-generated Utility bill detail reports for Bill #s 119748 and 143241
6. MUNIS-generated Account Bill Summaries dated 6/25/2010 and 7/26/2010
7. MUNIS-generated Account consumption history reports dating to 1998
8. MUNIS-generated Account master maintenance report with service notes to 1993
9. An agreement to reapportion outstanding bills (sale closing document) dated 6/30/1997
10. A correspondence from the Water Commission dated 3/23/2010
11. A correspondence from the DPW dated 8/3/2010
12. A packet of utility bills applied to tax and tax lien documents

List of Documentation from MUNIS/DPW

The following list of items were retrieved from the City's MUNIS system or provided by the DPW:

1. MUNIS-generated Account consumption history reports dating to 1998
2. MUNIS-generated Account master maintenance report with service notes to 1993
3. Three hand-written work orders dating from 1996 to present
4. Six MUNIS work orders dating from 2006 to present
5. Meter read file from VT5000 download with meter reader notes
6. Meter test results from independent meter-testing firm

Discussion of the Account and associated documentation

Based upon our review of all documentation provided to us and generated from the MUNIS system, we have prepared the following documentation-based timeline which describes the chain of events from the beginning of records for the current owner through the present.

Date	Type	Reading	Consumption	Notes
January 1998	Meter work	0	0	New meter installed
1998-2009	n/a	n/a	continuous ests	No "actual" reads collected.
August 2006	Work Order	n/a	n/a	Work order indicates access was not gained to complete reading; MUNIS indicates a prior read of 41909 which is not in the consumption database and the bill doesn't show as a manual estimate.
July 2009	Read	49108	37189	"Actual" read resulting in a bill for approximately \$5,400 (bill # 984336).
July 2009	2 Work Orders	491080	n/a	Visual re-read indicates the read 491080 (10x what is in MUNIS database) is verified but never corrected in MUNIS.
August 2009	Read	49273	165	"Estimated" (hand entered) read resulting in a bill for approximately \$100.
August 2009	Work Order	n/a	n/a	Owner called to request verification.
October 2009	Work Order	n/a	n/a	Call to owner not returned - no actual reading taken.
January 2010	Read	501621	452348	"Actual" read resulting in a bill for approximately \$81,800 (bill #119748).
January 2010	Work Order	n/a	n/a	Visual re-read indicates the read 501621 verifies the earlier read.
April 2010	Read	563028	61407	"Estimated" (hand entered) read resulting in a bill for approximately \$10,100 (bill # 143241).
June 2010	Meter work	506995	2674	New meter installed in home – old meter takeout read of 506,995.
July 2010	Read	724	3398	"Actual" read bill using takeout read and new meter read resulting in a bill for approximate \$335 (bill # 166821).
October 2010	Read	5428	4704	"Actual" read resulting in a bill for approximately \$470.
January 2011	Read	7569	2141	"Actual" read resulting in a bill for approximately \$215.

We note the following items of interest within the consumption database:

- The account has a long history of estimated reads yielding an average quarterly consumption of around 300 cf and an average quarterly bill of approximately \$100 in the past several years.
- A time-stamped MUNIS work order documents attempted access in 2006. The work order notes are unclear on whether access was not available due to no one being home or whether access was not allowed by the resident. Notably, the work order also shows a prior read of 49108, which is not in the MUNIS database. Source of the prior read data is unknown, as there are no "actual" or manual estimate reads in the MUNIS database which correlate to this value.
- There were indications (8/2006 prior read on work order, visual read 10x what is present in MUNIS in 8/2009) that suggest the estimates used to generate bills were incorrect. There may have been thought to be a data entry error on the VT5000 (unknown) or they may simply have been missed due to the volume of work associated with getting bills out. As a note, until the 2010 "actual" was used in the consumption calculation, it is unlikely that the account would have shown up in any of the billing office QA/QC reports in use at that time.
- "Actual" bill from 1/2010 read issued, based on past practices, without proper adjustment to pro-rate for usage over the preceding 12 years.
- "Estimated" bill from 4/2010 was improperly calculated, apparently based upon a calculation which likely included the large consumption value from the 1/2010 bill.
- The old meter was removed and tested at an independent testing firm. The meter serial number noted on the meter change-out work order matches that of the meter tested by the independent testing firm. The meter tested within both Brockton standards and accuracy requirements of AWWA Standard 700-02, the enforce guidance document for residential water meters.
- The average quarterly usage since the old meter was changed out indicates an average quarterly consumption on the account of approximately 3,400 cf, which equates to 280 gallons per day.
- Applied over the preceding 12 years (48 quarters) prior to meter removal, a new meter for an account which used 3,400 cf per quarter would have accumulated a takeout meter read of approximately 165,000 cf. Assuming even consumption over the 12 year period without a reading, a takeout read of 506,995 implies actual quarterly consumption of approximately 10,550 cf per quarter, equal to 875 gallons per day.

Discussion of the Billing/Adjustment Calculations applied to the Account

We reviewed the calculation of bills and adjustment associated with the account for 8 Corala Road (Acct. 3-5888). Ms. Cato had taken the property over from her parents in 1999 or earlier. Her parents had been given estimated reads for some time and there was no final read prior to the recording of the deed to her. The meter was changed on January 30, 1999 and the register reading for the new meter was 0000000. Since access to the meter was not gained, estimated bills were sent and it is believed the estimated reads were based on the prior usage of her parents. The City was denied a request to place a touch pad on the outside of the house to enable the meter to be read. Thus estimated bills continued until July 16, 2009 when the City received access to replace the water meter.

The customer received a series of large bills, the initial due to the collection of the first actual read and the second due to the inclusion of the first bill's consumption in the MUNIS bill estimation process. Ultimately, the bills for which abatement applications were submitted totaled \$98,145.60 for both water and sewer.

Ms. Cato was given block adjustments for the period of July 16, 1999 – July 16, 2009 based on a calculated quarterly consumption of 10,346 cf. The bills she had been receiving had usage based on estimated use ranging from 50 cf to a high of 1,000 cf per quarter, with most being in a range of 309 to 312 cf per quarter since October 2004. Ownership of the property changed to Ms. Cato on July 20, 2005 and no final read was obtained.

In 2010 a radio read meter was installed and usage was averaged over two quarters at 1,650 cf per month. Estimated usage for billing was at 311 cf per quarter (3 months). The account was block-adjusted according to the DPW policy for multiple estimated reads, which had been developed by the DPW Staff and the Mayor's Office, in amounts of \$21,162.59 for water and \$50,893.22 for sewer. The Collector's records show the abatements on the account for 8 Corala Road and the unpaid balance due. The account balances of June 30, 2010 were liened to the Real Estate Tax bill in December 2010, per City policy.

A review of the block adjustment spreadsheet for this address shows that for the five billing periods from April 2005 through April 2006, the adjustment calculated by the City was \$285.78 as shown on page 205 of the Appendix. Our calculation follows.

WATER			
Block Adjustment for 4/30/2006			
CF	Rate	Amount	
1,250	\$ 1.70	\$ 21.25	
1,250	\$ 2.16	\$ 27.00	
2,500	\$ 2.94	\$ 73.50	
5,000	\$ 3.06	\$ 153.00	
346	\$ 3.19	\$ 11.04	
10,346		\$ 285.79	
Recalculated Adjustment		\$ 285.79	
City Adjustment		\$ 235.07	
Difference		\$ 50.72	per quarter

We compute a \$50.72 difference between what the City calculated and the proper amount. The City's adjustments were too high for five quarters (1/31/2006, 10/31/2005, 7/31/2005, 4/30/2005 and 4/30/2006), a total of \$253.60 (\$50.72 x 5).

Then from July 15, 1999 through January 31, 2005, the City used a block rate of \$1.80 instead of a block rate of \$1.70, thus creating an overbilling. This is a second calculation where the City's calculated number is different

than our calculation. This overbilling resulted on the City's worksheet in a total amount of \$186.55, leaving a net due to the City of \$67.05. Other calculations in the determination of the block rate adjustment appear to be correct.

Account Findings

1. The information (reads and associated documentation) used to generate the original bill is consistent with the information currently in the MUNIS system.
2. A new meter was installed on 1/30/1998 and no touchpad (reading device) was installed preventing the collection of external reads.
3. The new meter indicates that the account received bills which were likely 10% of what they would have been had proper meter reading been collected on a regular basis.
4. Extended over the 10 year period of estimated bills, the average "billed" quarterly use over that period was a little less than 300 units per quarter, which equates to 25 gallons per day.
5. The correct visual read of "419080" collected as part of the re-read in July 2009 was not properly entered into the MUNIS reading database, which delayed this account being addressed.
6. It is not known where the read of "41909" indicated on the 2006 work order originated but it is possible that the actual read at the time should have been "419090."
7. The meter was sent to a third-party firm by the City for independent testing. The results of the testing indicated that the meter was working within both AWWA and City accuracy standards, suggesting that although no readings were collected over the 12 years, the meter was correctly tracking consumption in the household over that period. The meter serial number shown on the 1998 meter installation log matches the serial number of the meter tested by the independent testing firm.
8. The policy developed by the DPW and the City is to use the block rate in effect at the time for the first five years of look back and the lowest block rate in effect going back further (adding).
9. There were several errors made in the calculation of the account's block rate adjustments, resulting in a miscalculated adjustment of approximately \$253.60 in Ms. Cato's favor and a second miscalculation adjustment of approximately \$186.55 in the City's favor, resulting in a net due to the City of \$67.05.

Recommended Action

1. The City should readjust the account to reflect the errors made in the block rate adjustment calculations.
2. The City should adopt standardized provisions on the allowable "look-back" period if they wish the DPW to recalculate bills in this manner.
3. The Water Billing Office should develop an automated block-rate adjustment tool to prevent future calculation errors and reduce the amount of time required to make these adjustments.

DPW Comments

1. On page 3 of Ms. Cato's notes she states that she was never able to get a meeting with Mr. Thoreson or the Mayor. The text notes clearly show on 7/15/2010 that she was called to set up an appointment but she never returned the call. The On 8/3/2010 the Superintendent of Utilities spoke with Ms. Cato and she stated she was not going to meet.
2. Ms. Cato states that Mr. Thoreson's son is a meter reader for Ward 6. This is incorrect. No meter reader is assigned to one ward. All are assigned to city wide coverage.

Ward 2 Nominee: Account 3-1499 (220 N. Main Street)

Meeting description

The meeting with the Ward 2 nominee (Mr. Herbert Matta) was scheduled for 5:30P on 2/28 and Mr. Matta arrived before the start of his appointed time. Mr. Matta arrived at the initial meeting without his prepared

documentation but indicated he would provide it at a later date. He did visit during the second day of meetings to deliver the promised documentation, which is referenced herein.

Mr. Matta's water account is a 5/8" meter connected to a boarding house with a total of 22/23 residents. Mr. Matta indicated that the property does not have either in-ground irrigation or a pool. Mr. Matta indicates the account has received a series of large bills followed by very small bills which leads him to doubt the accuracy of the metering. Additionally, he says he has observed the touchpad reader registering numbers which are different from those shown on the meter register. He indicates that beginning in 2009 his bills became higher with large degree of variability between quarters. Since there is a mortgage on the property the bank has been paying past due bills and adding the additional escrow payments into the mortgage payment.

Mr. Matta feels that he is likely owed money for significant past over-billings. He also indicates that he feels that the DPW and billing office are non-responsive and that he has been treated with disrespect from many City offices.

List of Documentation provided by Customer

The following list of items was provided by the customer:

1. Two letters from Mr. Matta's attorney to the Water Commission requesting (1) they look into his account charges and (2) a meeting to discuss the account
2. MUNIS-generated Account consumption history reports dating to 1998
3. MUNIS-generated Account master maintenance report with service notes to 1993
4. MUNIS-generated billing and payment report for his account
5. A water meter bill dated 2/11/2011
6. MUNIS-generated Account consumption history reports dating to 1998
7. Ten hand-written work orders dating to 1996
8. Meter test results sheet from 2008.
9. Eight-month's worth of daily meter reading data
10. Two plumbers' invoices and a letter stating there are no leaks on the plumbing at this address
11. A municipal lien certificate

List of Documentation from MUNIS/DPW

The following list of items were retrieved from the City's MUNIS system or provided by the DPW:

1. MUNIS-generated Account consumption history reports dating to 1998
2. MUNIS-generated Account master maintenance report with service notes to 1996 (2 pages)
3. Eleven hand-written work orders dating from 1996 to present
4. Four MUNIS work orders dating from 2006 to present
5. Meter test results sheets from 2008 test and 2010 meter change-out

Discussion of the Account and associated documentation

Based upon our review of all documentation provided to us and generated from the MUNIS system, we have prepared the following documentation-based timeline which describes the chain of events from the beginning of records for the current owner through the present.

Date	Type	Reading	Consumption	Notes
January 1996	Work Order	0	0	New meter installed
1996 - present	Reads	n/a	n/a	Most readings based upon "actual" readings although there have reportedly been issues with the accuracy of the "actual" readings
October 1998	Work Order	n/a	n/a	Meter tested OK and reinstalled
February 2000	Work Order	n/a	n/a	Meter tested OK and reinstalled
December 2001	Work Order	n/a	n/a	Meter tested OK and reinstalled
February 2002	Work Order	n/a	n/a	Meter tested OK and reinstalled
October 2007	Read	727100	44134	"Actual" bill resulting in bill of approximately \$4,400
October 2007	Work Order	728234	n/a	Owner requested verification - prior read verified
January 2008	Read	734104	7004	"Actual" bill resulting in bill of approximately \$450
February 2008	2 Work Orders	n/a	n/a	Meter tested OK and reinstalled
April 2008	Work Order	n/a	n/a	New meter and new reading device installed
April 2008	Read	3645	8768	"Actual" bill - combined with old meter takeout read resulting in bill of approximately \$600
July 2008	Read	11076	7431	"Actual" bill resulting in bill of approximately \$620
October 2008	Read	17389	6313	"Actual" bill resulting in bill of approximately \$500
January 2009	Read	25467	8078	"Actual" bill resulting in bill of approximately \$800
April 2009	Read	50278	24811	"Actual" bill resulting in bill of approximately \$3,200
July 2009	Read	70840	20562	"Actual" bill resulting in bill of approximately \$2,600
October 2009	Read	76994	6154	"Actual" bill resulting in bill of approximately \$550
January 2010	Read	83603	6609	"Actual" bill resulting in bill of approximately \$630
April 2010	Read	85038	1435	"Actual" bill resulting in bill of approximately \$90
July 2010	Read	102555	17517	"Actual" bill resulting in bill of approximately \$2,200
July 2010	Work Order	102555	n/a	Owner requested verification - prior read verified
October 2010	Read	110679	8124	"Actual" bill resulting in bill of approximately \$800
October 2010	Work Order	n/a	n/a	Owner requested verification - reading device malfunctioning
December 2010	3 Work Orders	n/a	n/a	New meter installed and 2 read verifications completed - old meter takeout read 115102
January 2011	Read	4924	9347	"Actual" bill resulting in bill of approximately \$1000

We note the following items of interest within the consumption database:

- A review of the "Actual" consumption values indicates a high degree of fluctuation in the quarterly usage at this property.
- Although there is significant fluctuation in the quarterly values, the visual reads during meter tests and meter change-outs are consistent with the reading contained in the consumption database. Additionally, comparison of the eight months of daily hand-written meter readings collected by the owner are, with a single exception, consistent with the quarterly read data in the consumption database.
- The owner has reported instances where the reading collected from the external reading device has not matched the concurrent visual read from the meter register. It is unknown whether technical problems with the reading devices could be responsible for some of the variability in quarterly reads.
- The meters associated with this account have been tested at the request of the property owner numerous times, as documented within the MUNIS system and work order files. Although documentation of the tests completed in 2008 and 2010 are included in the DPW's files, documentation of the earlier tests was

unavailable. The meter test in 2008 indicated the meter was performing within both City and AWWA Standards. The 2010 meter test indicated that the meter was reading between 7% and 10% slow (under-registering).

- Since the meter change-out which occurred in 2008, this account has exhibited an average quarterly consumption of approximately 10,900 cf. This is based upon a total metered consumption of 120,026 cf over 11 quarters, which equates 900 gallons per day, or 40 gallons per resident per day, indicative of limited per resident water use and significantly below the Massachusetts DEP's goal of limiting consumption to 65 gallons per resident per day.

Discussion of the Billing/Adjustment Calculations applied to the Account

The next account to be reviewed was that of Mr. Herbert P. Matta for property at 220 North Main Street. The location is a licensed rooming house with a total occupancy of 23 in 18 rooms. Mr. Matta claimed that his tenants use minimal amounts of water. His meter is actually read each quarter.

He was granted abatements based on the number of days between reads if they exceeded 90 (a full quarter), in the amounts of \$49.20 for water and \$247.38 for sewer. Calculations were reviewed and found to be correct. These abatements are recaptured in the following quarter and were granted in accordance with current DPW Policy. The Collector's records were examined to see that said abatements were recorded correctly, which they were.

Account Findings

1. The meters associated with this account have been tested multiple times over the past ten years. With a single exception (when the meter was tracking slowly), the meters have been found to read accurately.
2. Although there have been reported instances where the read on the meter is inconsistent with the read taken from the exterior of the building, the meter test and take-out readings taken from the meter registers have been accurate to the read values contained in the MUNIS database.
3. Consumption calculated from "actual" reads on the account has exhibited a fairly high degree of fluctuation in the past which may be due to problems with the reading device. The information available is insufficient to make a definitive statement on why.
4. The high degree of variability in consumption has likely pushed a portion of the consumption into higher rate tiers than if it had been accurately read during all billing cycles.
5. The most recent quarter indicated a usage of 9,400 cf (about half of which was measured by a meter tracking 7 to 10% slow). This suggests that, in aggregate, while individual bills may be based upon questionable meter reads, overall metering since at least 2008 has been accurate.

Recommended Action

1. Although we believe no consumption based adjustments are warranted on the account, the City should consider assessing the impact of consumption swings on his bills due to the City's rate block structures.

DPW Comments

1. DPW takes exception to Mr. Matta's statement that he feels the DPW and billing office are non-responsive. The Commissioner and staff have met with Mr. Matta multiple times. The DPW has met at his location and read the meters together as well as muse his readings in bill calculations. If anything the DPW has been more than fair with Mr. Matta.
2. Recommended action states the City should consider assessing impact on consumption swings. This has been done and adjustments made. Some of the swings are attributable to seasonal fluctuations in tenants at his residence.

At-large Nominee: Account 3-7697 (61 Bonney Street)

Meeting description

The meeting with the at-large nominee (Mr. Robert Ford) was scheduled for 6:30P on 2/28. Mr. Ford arrived before the start of his appointed time. Similar to other interviewees, Mr. Ford arrived at the meeting with documentation on his account prepared for discussion.

Mr. Ford's account is for a water service attached to a single-family home with a total of three current residents. The property does not have in-ground irrigation but does have a home pool. Mr. Ford indicated that his account has received estimated reads for an extended period prior to the first billing cycle of 2010. This was due to the fact that his touchpad has been inoperative for years.

During the first 2010 billing cycle, an actual read was recorded which resulted in a large bill. Mr. Ford indicated that he did not know how the actual was collected because he admitted no one from the water department into his basement on that day. He indicated that he feels that he has been stonewalled by City staff both at the DPW as well as in the billing office.

Due to Mr. Ford's concerns about the accuracy of the bills, he has only made a single small payment since the issuance of the original disputed bill, which was reportedly applied against interest rather than principal. The values of the unpaid bills and interest have been lienied against the property but he has no mortgage and has not been forced to make payments by a lender.

Mr. Ford voiced strong doubts about the capability of the DPW and billing office to complete their jobs. Finally, based upon his research, Mr. Ford indicated his belief that the City owes him due to overpayment in past years.

List of Documentation provided by Customer

The following list of items was provided by the customer:

1. Two narrative letters, one describing his experience of receiving the first large bill and the aftermath, and the second providing clarification on water use associated with the pool (only the body of the letters was provided, no indication of the recipients)
2. Page 1 of a three-page e-mail chain with correspondence between Mr. Ford, Patrick Quinn, and Amy Littlefield of the Enterprise News
3. Five water bills from February 2010 through the present
4. MUNIS-generated Account consumption history reports dating to 1998
5. A photo of his new meter after 53 weeks of usage
6. A copy of the door knocker left on his door in February 2010
7. An invoice to the City for the amount of \$2,582, dated 10/27/2010
8. A utility bill applied to tax document
9. Assorted newspaper articles

List of Documentation from MUNIS/DPW

The following list of items were retrieved from the City's MUNIS system or provided by the DPW:

1. MUNIS-generated Account consumption history reports dating to 1998
2. MUNIS-generated Account master maintenance report with service notes to 1996 (2 pages)
3. Eleven hand-written work orders dating from 1996 to present
4. Four MUNIS work orders dating from 2006 to present

Discussion of the Account and associated documentation

Based upon our review of all documentation provided to us and generated from the MUNIS system, we have prepared the following documentation-based timeline which describes the chain of events from the beginning of records for the current owner through the present.

Date	Type	Reading	Consumption	Notes
October 1997	Meter work	0	0	New meter installed
1997 - 2003	Reads	n/a	n/a	Reads are a mixture of "estimates" and "actuals" reads
2003 - 2010	Reads	n/a	n/a	No "actual" reads are collected
January 2010	Read	153550	70612	"Actual" read disputed by Owner resulting in a bill of approximately \$11,750
January 2010	Work order	n/a		Hi/Lo Report flagged read - re-read attempt using touchpad failed (E044)
February 2010	2 Work orders	226219	72721	Hi/Lo Report flagged customer call in read- read confirmed visually
February 2010	Meter work	n/a	n/a	New meter installed - old meter takeout read 226,271
April 2010	Read	900	900	"Actual" read from new meter - combined with old meter final read, resulting in a bill of approximately \$12,300
July 2010	Read	2798	1898	"Actual" read resulting in bill of approximately \$190
October 2010	Read	4307	1509	"Actual" read resulting in bill of approximately \$165
January 2011	Read	5663	1356	"Actual" read resulting in bill of approximately \$150

We note the following items of interest within the consumption database:

- The account had an extended period of estimated reads yielding an average quarterly consumption of around 2,100 cf and an average quarterly bill of approximately \$200 in the past several years.
- Following inclusion of an "actual" read in the consumption database in January 2010, an owner visual read was called in. The call-in read was followed by the DPW completing a visual read of the meter, after which the original meter was replaced.
- The meter was tested by the DPW and found to comply with the City standards for accuracy.
- During the period between January 2002 and November 2003 (the last period when "actual" reads were collected on a regular basis), the account registered an average quarterly consumption of approximately 2,300 cf.
- Assuming the take-out read is correct yields an average quarterly consumption of approximately 7,400 cf since November 2003.
- Assuming the last two "actual" reads are correct implies that the average quarterly consumption between November 2003 and January 2010 was approximately 4,800 cf, equal to approximately 400 gallons per day.
- Further, assuming the last two "actual" reads are correct implies that the average daily consumption between the January 2010 read and meter change-out was approximately 17,500 gallons per day.
- Since the new meter was installed in February 2010, average quarterly consumption has been approximately 1,600 cf.

Discussion of the Billing/Adjustment Calculations applied to the Account

The third account to be reviewed was that of Mr. Robert Ford at 61 Bonney Street. Mr. Ford had been sent all estimated bills from an actual read on October 17, 2003 until another actual read was obtained on January 19, 2010. Estimated readings during this period ranged from 1,788 cf to 2,094 cf. The average actual use over the period was 7,408 cf each quarter. The final read was verified with a change of meter.

Due to the large amount of consumption, his account was block adjusted based on the actual read to actual read on the above dates. The block-adjustment of usage was based on the readings on October 17, 2003 and

January 19, 2010 and averaged over that period of time and was based on the multiple estimated read bills policy. The Tax Collector's records were examined to see that the adjustments were correctly recorded, which they were.

A review of the block rate adjustment spreadsheet revealed a difference between the City's calculation and ours. The City's calculation was \$272.07, as documented on page 239 of this Appendix. Our calculation follows.

WATER			
Block Adjustment for 1/31/2008			
Block Adjustment for 4/30/2008			
CF	Rate	Amount	
1,250	\$ 1.87	\$ 23.38	
1,250	\$ 2.38	\$ 29.75	
2,500	\$ 3.23	\$ 80.75	
2,408	\$ 3.51	\$ 84.52	
-	\$ -	\$ -	
7,408		\$ 218.40	
City Adjustment		\$ 272.07	
Recalculated Adjustment		<u>\$ 218.40</u>	
Difference		\$ 53.67	per quarter
Difference for two quarters		\$ 107.35	

The billings on 1/31/2008 and 4/30/2008 were both calculated at \$218.39 while the City's calculation was \$272.07, which means there was overbilling as a result in a total of \$107.35 over the two quarters, which would be due to Mr. Ford. Other calculations on the block rate adjustment sheet appear to be correct.

Account Findings

1. The meter reads which resulted in the large, disputed bills indicate a level of consumption which is unusually large (especially the take-out read) and which conflict starkly with metered consumption seen on this account both before and after the period of estimated reads.
2. There were several errors made in the calculation of the account's block rate adjustments, resulting in a miscalculated adjustment of approximately \$107.35 in Mr. Ford's favor.

Recommended Action

1. Given our strong suspicion that the large bill reading and the meter takeout reading were in error and do not reflect actual water usage in the residence, the City should consider revising the large bills based upon their established policy of revising bills based upon several quarters of consumption (as measured by the new meter).
2. Finally, the City should readjust the unpaid balance on the account to reflect the errors made in the block rate adjustment calculations.

DPW Comments

1. Mr. Ford admitted filling his pool with City water.
2. Mr. Ford had a meeting scheduled with the DPW Commissioner and his staff but canceled and went on the radio instead.
3. The DPW has recalculated Mr. Ford account and agrees that he is owed an additional \$107.35.

4. DPW does not necessarily agree with the recommended action to revising the bills. We have already adjusted his bill but will follow whatever policy the City adopts.

Ward 5 Nominee: Account 1-9156 (106 Quincy Avenue)

Meeting description

The meeting with the Ward 5 nominee (Mr. William Costa) was scheduled for 7:30P on 2/28. Mr. Costa arrived before the start of his appointed time. Mr. Costa brought with him documentation associated with his account and his experience in dealing with the DPW and billing office. Copies were made of this documentation for comparison to City records.

Mr. Costa's account is for a water service attached to a single-family home with a total of four residents. The home was constructed in 2000 and the original meter was present in the home until its recent replacement. The property does not have either in-ground irrigation or a home pool. Mr. Costa indicated that his meter was never attached to an external reading device. Consequently, the meter was not read until he called in a read following a door hanger being left on his front door in 2010. His call in read resulted in the generation of a large bill in March 2010.

Although Mr. Costa reported difficulty in communication with the DPW and billing office via telephone, he indicated that, once he met with City staff in person, the communication improved and the DPW responded to his concerns. Further, he stressed that he felt that the DPW had followed through on the commitments they made during the face-to-face meeting.

List of Documentation provided by Customer

The following list of items was provided by the customer:

1. A page of notes taken while discussing the situation with various DPW personnel
2. A copy of the May 2010 bill and subsequent lien document from the City
3. MUNIS-generated Account consumption history reports dating to 2000
4. One hand-written work order
5. A copy of his meter test results sheet

List of Documentation from MUNIS/DPW

The following list of items were retrieved from the City's MUNIS system or provided by the DPW:

1. MUNIS-generated Account consumption history reports dating to 2000
2. MUNIS-generated Account master maintenance report with service notes to 2000
3. Two hand-written work orders dating from 1996 to present
4. One MUNIS work order dating from 2010
5. A copy of the meter test results sheet
6. Copies of City internal correspondence concerning abatements/adjustments to the account

Discussion of the Account and associated documentation

Based upon our review of all documentation provided to us and generated from the MUNIS system, we have prepared the following documentation-based timeline which describes the chain of events from the beginning of records for the current owner through the present.

Date	Type	Reading	Consumption	Notes
October 2000	Meter work	0	0	New meter installed
July 2002	Read	13818	2313	Last "actual" read before an extended period of "estimates"
2002 - 2010	Reads	n/a	n/a	No "actual" reads are collected
March 2010	Read	94643	41173	"Actual" - customer calls in read due to door hanger resulting in bill of approximately \$6,300
May 2010	Meter work	n/a	n/a	New meter installed - old meter takeout read 95576
June 2010	Read	539	539	"Actual" read from new meter - combined with old meter final read, resulting in a bill of approximately \$160
September 2010	Read	1951	1412	"Actual" read resulting in bill of approximately \$155
December 2010	Read	3250	1299	"Actual" read resulting in bill of approximately \$150

We note the following items of interest within the consumption database:

- This account experienced an extended period of "estimated" read bills between 2002 and 2010, when the owner responded to a door hanger and called in an "actual" read.
- Based upon the pattern of "estimated" reads it is likely that the MUNIS Utility Billing Module estimated consumption calculator was used in generating the bills.
- The meter was tested upon removal and was found to register water flow accurately.
- From the date of installation to removal, the average quarterly metered consumption for this account was approximately 2,480 cf.
- DPW monitored the first two quarters of consumption following the installation of a new meter and reportedly adjusted/abated the bill (resulting lien) based upon the average consumption from this period.

Discussion of the Billing/Adjustment Calculations applied to the Account

The fourth account to be reviewed was that of William Costa of 106 Quincy Avenue. This account's last actual read by the Water Department was July 1, 2002. The read on March 4, 2010 was an owner called-in read, meaning that the reading was taken by the owner of the property and called into the Water Billing Office. The meter was changed in May 2010. Usage was monitored over a two month period and turned out to be substantially less than the estimated bills sent. Whereas her mortgage holder had paid the amounts liened, a refund was due the Costas. The refund was processed as expeditiously as possible and the two quarterly bills of the current fiscal year were still unpaid, pending the outcome of their dispute.

Once the abatement/adjustment had been recorded, the account was down to an amount that the Costas paid when the situation was settled. The abatement was calculated in accordance with the City policy on block adjustments for accounts with multiple estimated reads. The Tax Collector's records were examined and showed the abatements granted in the amounts of \$1,951.51 for water and \$1,937.60 for sewer. All calculations on the block adjustment spreadsheet were found to be correct.

Account Findings

1. After an extended period of estimated reads, the owner call-in a visual read in response to a door hanger, which resulted in a very large water/sewer bill.
2. After several phone discussions, the customer came in and discussed the situation and history on the account with the DPW.
3. Substantial adjustments (block-rate) and abatements (based upon new meter readings) appear to have been made to the account, in accordance with the DPW's current, written policies.

Recommended Action

1. It appears that the City followed its stated policies in the revision of this customer's bills. As such, we recommend no changes be made to this account beyond those already completed.

Ward 3 Nominee: Account 2-2247 (104 Menlo Street)

Meeting description

The meeting with the Ward 3 nominee (Mr. Miller) was scheduled for 6:00 on 3/7. Mr. Miller arrived well before the start of his appointed time and, as no other nominees were present, we began our discussion. Mr. Miller brought with him a limited amount of documentation associated with his account. Copies were made of this documentation for comparison to City records.

Mr. Miller's account is for a water service attached to a three-family home with a total of seven residents, which has remained unchanged over the past year. Mr. Miller purchased the home in October 2008 and the property does not have either in-ground irrigation or a home pool. The meter for this account is equipped with Tel-data reading device, which transmits a reading on a bi-weekly basis, usually leading to reliable reads. In spite of the equipment, he received an abnormally large bill as part of the October 2010 billing cycle. Consequently, the meter was not read until he called in a read following a door hanger being left on his front door in 2010. His call-in read resulted in the generation of a large bill in March 2010.

Mr. Miller has communicated with the Water Commission and the billing office in an attempt to understand what has occurred on the account. No adjustments or abatements have been made.

List of Documentation provided by Customer

The following list of items was provided by the customer:

1. A MUNIS account maintenance screen capture showing basic information on his account
2. A screen capture of historical reads on his account from the Tel-data system
3. A screen capture showing historical "Estimated" reading on his account
4. Two pages of screen capture showing his consumption history report generated within MUNIS

List of Documentation from MUNIS/DPW

The following list of items were retrieved from the City's MUNIS system or provided by the DPW:

1. MUNIS-generated account consumption history reports dating to 1998
2. MUNIS-generated account master maintenance report with service notes to 2000
3. One hand-written work order dating from 1996
4. One MUNIS work order dating from 2010

Discussion of the Account and associated documentation

Based upon our review of all documentation provided to us and generated from the MUNIS system, we have prepared the following documentation-based timeline which describes the chain of events from the beginning of records for the current owner through the present.

Date	Type	Reading	Consumption	Notes
October 2008	Read	214768	n/a	Final read collected as part of property ownership transfer
January 2009	Read	217907	3043	"Estimated" read resulting in bill of approximately \$250
April 2009	Read	220916	3009	"Estimated" read resulting in bill of approximately \$250
July 2009	Read	224066	3150	"Estimated" read resulting in bill of approximately \$255
October 2009	Read	231117	4744	"Actual" read resulting in bill of approximately \$550
January 2010	Read	234651	3534	"Estimated" read resulting in bill of approximately \$280
April 2010	Read	239395	4744	"Actual" read resulting in bill of approximately \$370
July 2010	Read	243337	3942	"Estimated" read resulting in bill of approximately \$300
October 2010	Read	255514	12177	"Actual" read resulting in bill of approximately \$1065
January 2011	Read	260595	5081	"Estimated" read resulting in bill of approximately \$535

We note the following items of interest within the consumption database:

- The account is equipped with a Tel-data reading device, which, when operating normally, transmits reads into the database once every two weeks. The equipment at this installation is no longer regularly transmitting complete reads into the MUNIS system.
- Within the past 2-1/2 years, this account has had a final read collected as part of a property ownership transfer. The final read was conducted in accordance with standard DPW procedures.
- Based upon a review of the Tel-data call-in data, it appears that the "estimated" consumption used to calculate the July 2010 bill was under-estimated. The under-estimation is most likely related to the fact that the last call-in read data from Tel-data was an incomplete read, causing MUNIS UB to generate an estimated bill. Review of the data prior to the faulty read indicates the proper consumption value for the July bill should have been in the range of 7,000 to 7,500 cf, rather than the 3,942 used in generating the bill.
- A complete read was collected as part of the October meter reading cycle. This read includes the additional consumption which was unaccounted for in the prior bill.

Discussion of the Billing/Adjustment Calculations applied to the Account

The fifth account to be reviewed was that of Mr. Eliot Miller of 104 Menlo Street. Mr. Miller owns a 3 family home at that address. He has been billed as a single-family home. He was billed lower than he actually should have been, based on usage. The property had received only one estimated bill and based on the City policy, he was not entitled to a block adjustment.

Account Findings

1. The Tel-data equipment installed in Mr. Miller residence is failing to reliably provide meter reads.
2. The MUNIS system, rather than looking back to the last good read, generated an estimated bill based upon an estimated consumption which was substantially less than was actually used.
3. The following bill was large, accounting for the earlier bill which didn't fully capture usage.
4. This may have pushed more of the consumption into a higher tier than if it had been more evenly distributed, as it actually occurred.

Recommended Action

1. Although the period between actual reads from the Tel-data system was limited, the high quarter consumption was likely accrued over multiple quarters. As such, we recommend the City review this account to ensure the high reading didn't adversely impact the customer by pushing consumption into a higher bracket than would be the case in the event that actual reading had been collected every quarter.

DPW Comments

1. Since we have had no communication with this account prior to this, the DPW is reviewing his account for any possible adjustments.

Ward 7 Nominee: Account 3-6873 (Fieldside Gardens Condominiums)

Meeting description

The meeting with the Ward 7 nominee (Ms. Kathy Jewett representing the Fieldside Gardens Condominiums) was scheduled for 7:00 on 3/7. Ms. Jewett was accompanied by Ms. Lisa Crowley, both of whom arrived shortly before their appointment time. As no other nominees were present, we began our discussion upon their arrival. Ms. Jewett brought a substantial amount of documentation to the meeting, detailing the 34 accounts currently billed to the Fieldside Gardens Condominiums. Copies were made of this documentation for comparison to City records.

Ms. Jewett is a member of the condominium Board of Trustees and has been managing the condominium's payment of water bills and has been leading efforts to improve the accuracy of their water billing. As a Trustee, she selected the account for 26-40 Trudy Terrace for us to review. The account for 26-40 Trudy Terrace is metered by a 1-1/2" meter which is reported to serve eight condominium units. Ms. Jewett indicated that her calculations show that the water bills being issued for this account are far higher than they should be based upon the number of units serviced by the account.

Ms. Jewett reached out to the DPW last year in an attempt to resolve the situation and received approximately \$13,000 in abatements for past bills. Although she was pleased with the abatements, no documentation was provided with the abatements to indicate what charges were being abated. She indicated she believes they have billing problems with 20 of their 35 accounts and are likely owed more than the \$13,000 of abatements already received. Finally, she indicated that her dealing with the DPW and billing office had been respectful but was upset that the billing office has denied them access to consumption reports during the completion of the water audit.

List of Documentation provided by Customer

The following list of items was provided by the customer:

1. A multipage spreadsheet constructed by Ms. Jewett documenting water usage across the 34 water account serving the complex.
2. A letter, dated March 4, 2011, requesting the completion of read verifications on 13 of the condominium's meters.
3. A letter, dated December 13, 2010, requesting an audit of the condominium's water accounts
4. Three pages of copies of abatement checks issued in 2010
5. A page of notes taken while discussing the situation with various DPW personnel
6. A copy of the May 2010 bill and subsequent lien document from the City
7. MUNIS-generated Account consumption history reports dating to 2000
8. One hand-written work order
9. A copy of the meter test results sheet

List of Documentation from MUNIS/DPW

The following list of items were retrieved from the City's MUNIS system or provided by the DPW:

1. MUNIS-generated account consumption history reports dating to 1998
2. MUNIS-generated account master maintenance report with service notes to 1994
3. One hand-written work order dating from 1995
4. Two MUNIS work orders dating from 2011 and 2004

Discussion of the Account and associated documentation

Based upon our review of all documentation provided to us and generated from the MUNIS system, we have prepared the following documentation-based timeline which describes the chain of events from the beginning of records for the current owner through the present.

Date	Type	Reading	Consumption	Notes
November 1995	Meter work	10	n/a	New meter installed
1998 - 2004	Reads	n/a	n/a	"Actual" reads collected quarterly
January 2004	Read	515249	14869	"Estimated" read resulting in bill of approximately \$535
April 2004	Read	530381	15132	"Estimated" read resulting in bill of approximately \$865
June 2004	Work order	545640	n/a	Owner requested verification - prior read verified
2004 - present	Reads	n/a	n/a	"Actual" reads collected quarterly - 2008 to present reads noticeably higher than historic levels
March 2011	Work order	1096520	n/a	Owner requested verification - prior read verified

We note the following items of interest within the consumption database:

- The account is equipped with a touchpad resulting in quarterly reads.
- With several exceptions in 2004, this account has exhibited a high percentage of "actual" reads
- In the period from the read confirmation in 2004 to the present, the average quarterly consumption on this meter has been approximately 20,000 cf. Corrected for the number of units reportedly served by the meter, this equates to about 2,500 cf per quarter per unit or 210 gallons per day for each unit.

Discussion of the Billing/Adjustment Calculations applied to the Account

The sixth and final account to be reviewed was for the Fieldside Garden Condo Association at 26 Trudy Terrace, Ms. Kathy Jewett, President. A written request, dated March 10, 2011, was made for consumption reports for all 35 condo units for the current year. The letter requested that it be completed by March 14, 2011. A second item was included in the same letter for all consumption reports for all 35 units back to the year 2000 to be provided by April 1, 2011. Contact was made with the requester explaining that the public records law in Massachusetts provides for charging for the time and materials it takes to retrieve such data and asked if she would agree to pay the charges. Apparently, she misunderstood the law on this subject and was not willing to pay. There was no dispute here and accordingly, no block adjustment. The request was filed and no further action taken.

Account Findings

1. Based upon the documentation available, the touchpad at this location is reportedly collecting an accurate read from the meter register.
2. The meter is a 1-1/2" meter and was installed 16 years ago. It has never been tested for accuracy. In the event that it was tested, it would likely need to be tested by an independent firm as the City's test unit accommodates meter of 1" or smaller.
3. The quarterly consumption is not outside the typical range which would be seen for a 1-1/2" meter or a single meter serving eight residences.
4. It appears that the City followed its standard meter reading policies on this account.
5. Although the customer is adamant that there are billing problems associated with this meter, there is no evidence of this in the records.

Recommended Action

1. To ensure the meter reading device is correctly transmitting the reading on the register to the touchpad, we recommend the DPW coordinate with the owner to collect concurrent touchpad and visual reads from this meter for the next two to three billing periods.

2. Additionally, we recommend the owner have this meter tested for accuracy through the City DPW/independent third party tester (must be observed by DPW personnel). In the event that the meter is faulty, we recommend the City consider making adjustments to the account based upon its established procedures.

CITY'S RESPONSE TO OUR DRAFT TECHNICAL MEMORANDUM 2-9

The City's response to our draft Technical Memorandum 2-9 is summarized in this section and is included as Appendix 2-9.6. These changes have been incorporated or referenced. The City provided two responses to this Technical Memorandum. Each is described below.

City's First Response

Account 3-5888 (8 Coralla Road):

1. Page 2, third paragraph; the word "errors" should read "estimates".
2. Page 4, last paragraph; states that an amount of \$67.05 is owed to the City. The last paragraph in the Account Findings sections states that \$67.05 is due to Ms.Cato. We agree that Ms. Cato owes the City \$67.05 and this paragraph needs to be adjusted to reflect same.
3. We are in the process of checking the calculations for this account. While we agree that Ms. Cato owes the City we believe that amount is slightly different than \$67.05.
4. The second to last paragraph in the Account Findings section is not written correctly. The policy developed by the DPW and the City is to use the block rate in effect at the time for the first five years of look back and the lowest block rate in effect going back further. The paragraph implies that the City only goes back five years which is not correct.
5. On page 3 of Ms. Cato's notes she states that she was never able to get a meeting with Mr. Thoreson or the mayor. The text notes clearly show the on 7/15/2010 she was called to set up an appointment but she never returned the call. The On 8/3/2010 the Superintendent of Utilities spoke with Ms. Cato and she stated she was not going to meet.
6. Ms. Cato states that Mr. Thoreson's son is meter reader for Ward 6. This is incorrect. No meter reader is assigned to one ward. All are assigned to city wide coverage.

Account 3-1499 (220 N. Main Street)

1. I take exception to Mr. Matta's statement that he feels the DPW and billing office are non-responsive. The Commissioner and staff have met with Mr. Matta multiple times. The DPW has met at his location and read the meters together as well as muse his readings in bill calculations. If anything the DPW has been more than fair with Mr. Matta.
2. Recommended action states the city should consider assessing impact on consumption swings. This has been done and adjustments made. Some of the swings are attributable to seasonal fluctuations in tenants at his residence.

Account 3-7697 (61 Bonney Street)

1. Mr. Ford admitted filling his pool with city water.
2. Mr. Ford had a meeting scheduled with the DPW Commissioner and his staff but canceled and went on the radio instead.
3. The DPW has recalculated Mr. Ford account and agree that he is owed an additional \$107.35.
4. I do not necessarily agree with the recommended action to revising the bills. We have already adjusted his bill but will follow whatever policy the city adopts.

Account 2-2247 (104 Menlo Street)

1. Mr. Costa should read Mr. Miller in the first line.

2. Since we have had no communication with this account prior to this, the DPW is reviewing his account for any possible adjustments.

City's Second Response

The City later responded, to their unfinished statements (We are in the process of checking the calculations for this account. While we agree that Ms. Cato owes the City we believe that amount is slightly different than \$67.05 and since we have had no communication with this (Mr. Miller) account prior to this, the DPW is reviewing his account for any possible adjustments).

1. We agree with your findings that 8 Corala Road owes the City an additional \$67.05.
2. After reviewing account for 104 Menlo Street, we find no additional abatement is warranted.

APPENDICES

- Appendix 2-9.1 Memo documenting the meetings
- Appendix 2-9.2 Meeting Notes
- Appendix 2-9.3 Customer provided documentation
- Appendix 2-9.4 MUNIS derived documentation
- Appendix 2-9.5 Bill abatement/adjustment documentation
- Appendix 2-9.6 City's Response to the Draft Technical Memorandum 2-9