TECHNICAL MEMORANDUM 1 - 2

Review of Background Information

This memo constitutes the deliverable for Phase 1 - Task 2 of the contract between The Abrahams Group (TAG) and the City of Brockton. The review of technical information was completed by Woodard & Curran staff over the course of three weeks between January 10, 2011 and January 27, 2011. The information documented in this memo was compiled over the course of multiple interviews with Department of Public Works (DPW) staff and reviews of both paper and digital documentation kept in the DPW's files, as well as the City's MUNIS Utility Billing database.

PLAN OF SERVICE

Our review of background information will follow the format of the Primary Scope of Services to evaluate any existing assessments / reports that have been prepared in the past five years and are made available from the City of Brockton regarding the following:

A. We will review the various existing water meters and reading systems in use by the Water Department.

B. We will review available information and prepare a brief general discussion on the flow accuracy, and changes in accuracy over time, of the existing types and models of meters under various flow conditions, such as full flow, fine flows, very slight pressure (effective head), high speed (full flows at high pressure).

C. We will review available information and prepare a brief general discussion of the current meter locations roster, or manifests, and whether they denote location (inside physical structure or externally located), type of meter and reader. We assume this information is available electronically in database format.

D. We will prepare a Technical Memorandum regarding the number of estimated reads and actual reads for FY06, FY07, FY08, FY09 and FY10 ("the most recent completed fiscal year ending June 30, 2010 and the prior four fiscal years") by meter type and reader location. For the purposes of budgeting, we have assumed meter type, reading method, and reader location data is all available in electronic format from an export of MUNIS. If the roster or manifest information is not available in MUNIS for export, this type of statistical report may be difficult to create without an intensive level of effort which may affect our Scope of Services and fee.

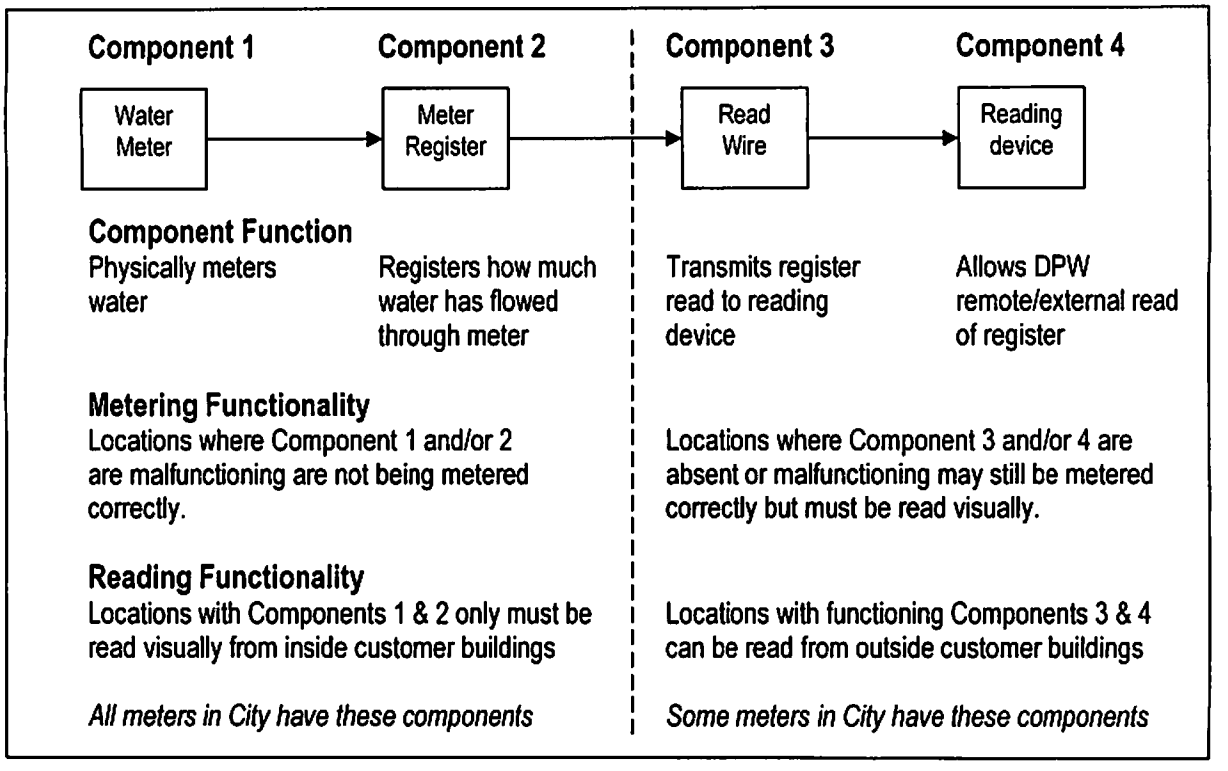
E. We will prepare a brief memo documenting historic / periodic servicing of the meters and its impact on the recommended life of the meters based upon the manufacturer's standards.

F. We will review requests for, and reports from, past technical reviews of the water meters, and the subsequent actions taken from these reports by the City. We will focus on discussing standards recommended by professional organizations such as the American Water Works Association and industry best management practices.

BACKGROUND

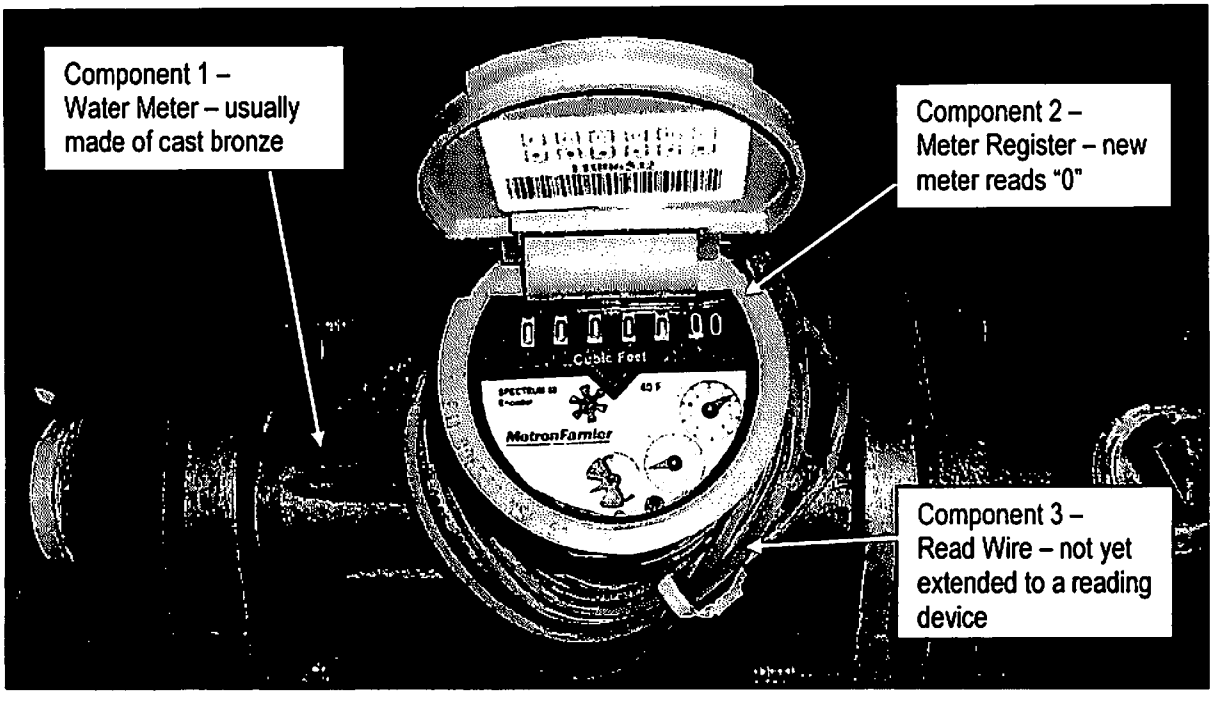
To better allow for meaningful discussion of the metering systems presently used in the City, the following descriptions and graphics will provide an understanding of the individual components of the meters and meter reading equipment. The language and names of the equipment and systems described below will be used consistently throughout the remainder of this memo.

Simplified diagram of metering equipment and meter reading devices



From the standpoint of installation of the components, the water meter and meter register are usually purchased from the manufacturer as a single, integrated unit. Depending upon the installation and reading device technology, the read wire will generally be attached to either the meter register or the reading device in the factory. The photograph below shows a meter system installation with Components 1 through 3 called out for visual identification purposes. Component 4 (if present) will generally be mounted to the outside of the building. In field applications, each of these components can be susceptible to malfunction or failure.

Typical Metering Set-up



Description of the Water Meters and Systems Currently in Service

The water meters in service in the City of Brockton are overwhelmingly positive displacement meters, the most common type of water meter. Positive displacement meters measure water by counting the rotations completed by an internal disc. Simple in operation and proven reliable, these types of meters require water to flow through the meter in order for the internal disk to turn. There are also a limited number of compound meters, but these are only present at large connections for commercial and/or industrial customers. A compound meter is essentially a small positive displacement meter (which measures low flows) connected in parallel to a larger positive displacement meter (which measures high flows) The tables below and on the following page provide an overview of the meters as contained in the DPW's records and MUNIS meter files.

Current Meter Inventory -DPW Records

Manufacturer	Age	Read Technology	# Installed (active)
Neptune	0-1 years	Touchpad	55
Itron	4-6 years	Radio-read	3,683
Kent, ABB, Elster	14-16 years	Touchpad, visual read, or Tel-data	14,901
Assorted others (includes most large meters)	> 15 years	Touchpad and visual	3,642
		4 discreet systems	**22,281**

MUNIS Meter Records by Size

Meter Size	#	%
5/8"	20,789	92.6%
3/4"	516	2.3%
1"	475	2.1%
1-1/2"	305	1.4%
2"	224	1.0%
3"	29	0.1%
4"	21	0.1%
others	102	0.4%
Total	22,461	n/a

As indicated in the table to the left, the City's water meters, small 5/8" and 3/4" meters constitute the great majority (~95%) of the meters in use. Most of these meters were installed as part of either the meter replacement program, which occurred in the mid to late 1990's (in which Kent meters were installed) or the more limited meter replacement in 2005-2007, during which Itron meters were installed. It is believed that the small discrepancy in the number of meters documented by the DPW records versus the MUNIS database is due to differences in how inactive accounts/meters are accounted for in the two systems.

Since the last of the Itron meters were installed in 2005-2007, a small number of meters have been installed as part of the general practice (replacement of broken meters, new services, etc).of the DPW.

Standards for the construction, accuracy and servicing of cold water meters have been developed and published by the American Water Works Association (AWWA) for approximately 20 years. Although compliance with the provisions of these guidelines is not mandatory, manufacturers comply with them as standard practice since most municipalities will only purchase AWWA-compliant meters. AWWA Standard C700-02 (the coversheet for which is attached hereto as Appendix 1-2.1) is currently the in-force standard for positive displacement meters.

Although there are no widely accepted figures on meter failure rates, numerous studies have shown that positive displacement meters have the tendency to lose accuracy over time. Since individual meters can last ten years or forty years, the AWWA's accuracy standards are blanket standards which apply to new meters and older meters equally with the goal being to ensure that all water use is accounted for accurately. Standard C700-02 establishes performance minimums for new meters under two different flow conditions for residential-size meters, as shown in the following table. For reference, the table also includes the performance standards set by the Brockton DPW, which are as stringent as AWWA standards for flows > 100% but less stringent than AWWA standards for flows < 100%.

Meter Accuracy Standards

AWWA C700-02 Accuracy Requirements				
Meter Size (in)	Normal Flow Range (gpm)	Normal Flow Accuracy Range	Low Flow (gpm)	Low Flow Accuracy Range
5/8"	1-20	98.5% - 101.5%	0.25	95% - 101%
3/4"	2-30		0.50	
Brockton DPW Accuracy Requirements				
all meter sizes	2-15	95% - 101.5%	0.5	95% - 101.5%

The majority of meters in Brockton were manufactured by Kent or Itron, both of which have since merged with larger firms. Kent was purchased by Elster/AMCO and Itron was purchased by Badger Meters.

Although product data sheets for the meters installed in the 1990s (and before) are no longer available, accuracy information on the meters currently manufactured by these firms is included in Appendix 1-2.2.

Meter Reading Devices

At the present time, meter readings (and consumption values for billing purposes) are collected using one of four reading device technologies including: (1) the Tel-data system, (2) Itron drive-by radio read system, (3) Logicon touchpads/VT 5000 units, and (4) in-person visual reads of the meter register. In the case of both Logicon touchpads and visual reads, the reading must be manually typed into a Rockwell VT5000 handheld unit. Meters which require visual reads consist of a mixture of meters which never had a reading device attached and meters where the reading devices are no longer operable. As a final option for collecting actual reads, the Billing Office accommodates customers who call and report the visual reading from their meter register.

Each of the technologies operates as a stand-alone system, meaning that a meter reader equipped with the Logicon reading device is unable to collect a reading from a meter equipped with the Itron radio-read system, and vice versa. From a practical standpoint, this makes collection of reads logistically more complicated than if the City had a single standard reading device technology. The table below documents some of the characteristics of each of the four reading device systems.

Current Meter Reading Devices in Use in the City

	Technologies which can be read outside the building (if all equipment is functional)			Technologies which must be read inside the building	
Technology Name	Tel-data	Itron Drive-by radio read	Logicon Touch pad	Visual read	Inoperable reading devices
# of Locations	~5,500	~3,600	~8,000	~5,200	Unknown
Years Installed	1995	2005-2007	1995	Pre-1990	assorted
	Reads occur automatically	Read files must be loaded onto the reading devices taken in field. Meter reader must collect reads and then download the readings to Billing Office			
	No manual data entry		One or more instances of manual data entry necessary		

Of the three reading devices which do not require internal access to the building to collect reads, none of them are under warranty or regularly supported by their manufacturers. Replacement and repair equipment is expensive and not readily available for either the Logicon touchpads or the VT5000 units. In depth descriptions of the processes and challenges associated with the collection of reads using the different reading devices is included in the Technical Memorandums which will be completed in Phase 2 – Tasks 2 and 3 of the project.

Meter Reading Process

All meters in the City are read (or attempted to be read) on a quarterly basis with the City divided into three geographical sections. Since the reading technologies are incompatible with one another, the geographical

sections must be divided into sub-sections based upon reading device technology. From a practical standpoint, this leads to substantial inefficiencies in the meter reading process due to: 1) the time required to download meter files and properly load them into the reading devices, 2) the fractured nature of the meter read collection routes, and 3) the substantial number of locations where access is attempted but the meter reader is unsuccessful in collecting an actual read. Finally, the need to complete manual data entry when taking reads using the two most prevalent reading device technologies introduces a substantial risk of human error in the process.

Prevalence of Estimated Reads in Billing Database

As part of our review of background information, the City's MUNIS database was used to assess the prevalence of estimated reads with respect to actual meter reads. To ensure clarity, the terms "Actual Read" and "Estimated Read" are as follows:

Actual Read – a read which is collected using one of the four meter reading technologies currently used in the City. In the case of Tel-data and Itron Radio reads, this information is collected automatically. In the case of Logicon or visual reads, this data is manually entered into the VT5000 for upload into the system. Due to the possibility of human error in the reading and manual data entry, an incorrect read can enter the billing system coded as an actual read. With the current systems, a correct actual read is indistinguishable from an incorrect actual read.

Estimated Read – This is a read which has been estimated by the MUNIS System because no actual read was collected during the meter reading round. The lack of getting a read can be due to either broken equipment or lack of access. These reads are reportedly based upon historical usage at each customer's property.

In both cases, the reads (actual or estimated) form the basis for the Water/Sewer bill calculation. The table below presents the results of our assessment on the prevalence of estimated reads for the Fiscal Periods FY2006 through FY2010.

Statistical Breakdown of Meter Reads (FY06 through FY10)

	FY 06		FY 07		FY 08		FY 09		FY 10	
TYPE OF READ	#	%	#	%	#	%	#	%	#	%
ACTUAL READ	69,488	78.5%	71,840	80.7%	70,271	78.6%	70,147	78.5%	67,027	74.8%
ESTIMATED READ	18,898	21.4%	16,336	18.4%	18,398	20.6%	18,649	20.9%	22,370	25.0%
OTHER READ CODE	109	0.1%	833	0.9%	735	0.8%	560	0.6%	232	0.3%
TOTAL	88,495	100%	89,009	100%	89,404	100%	89,356	100%	89,629	100%

As the data on the preceding table indicate, approximately 20% to 25% of the water and sewer bills issued over the previous five years have been based upon estimated reads. While not all of these instances indicate long term inability to get actual reads, there are currently 712 accounts from which no actual read has been collected in more than 1-1/2 years. The breakdown of these accounts based on the amount of time since the last actual read was collected is shown on the table to the right.

Period since last actual meter read (years)	# of Accounts
1-1/2 to 2	162
2 to 3	112
3 to 5	155
5 to 8	169
> 8	114

A list of the accounts which have not been read in more than 1-1/2 years is included in Appendix 1-2.3.

Meter Servicing and Testing Policies

The DPW owns and uses a standardized meter accuracy test-bed capable of testing up to 6 meters concurrently. The DPW's meter testing personnel are properly certified (as of September 2010) and their credentials are included in Appendix 1-2.4. Upon request, the DPW was able to produce meter test documentation dating from 2005 to the present and their personnel were able to complete a standardized meter accuracy test in line with generally accepted industry practices.

Documentation provided by the DPW indicates that between 2005 and the present, a total of 221 meter tests have been completed with appropriate documentation. Of the 221 tests, a total of 51 meters failed, including 25 which read too fast (greater than 101.5% registration), and 22 which read too slow (less than 95% registration). An additional 4 meters which were tested could not register water usage due to broken components.

In accordance with the written policy included in Appendix 1-2.5, customers may request that their meter be tested for compliance with City standards. In order to have the test completed, the City charges the requesting customer $75. In the event that the meter tests outside of acceptable limits, the customer is refunded the $75 charge against their account. In the event that a customer wishes to have their meter tested at an independent facility of their choosing, they may do so at their own cost. If they wish the results of the independent testing to be considered by the water department, the water department has the right to have their representative at any independent test conducted on behalf of a customer.

Beyond the current meter testing program, whereby meters which are believed to be inaccurate are tested, no additional meter maintenance or testing is completed. Standard C700-02 provides a recommendation that 5/8" meters should be tested for accuracy on a 10-year interval and 3/4" meters should be tested on an 8-year interval. Meters of 1" or larger should be generally tested every 6 years with more frequent testing for larger meter sizes. Application of this standard to Brockton's meter inventory would necessitate the completion of 2,300 to 2,500 meter tests per year. Although the meter testing equipment could likely handle this intensity of testing, the current staff available to conduct meter removals and reinstallations is likely insufficient to accommodate this level of testing.

CITY'S RESPONSE TO OUR DRAFT TECHNICAL MEMORANDUM 1-2

In our April 13, 2011 draft submittal, we originally stated that most of these meters were installed as part of either the meter replacement program, which occurred in the early to mid 1990's (in which Kent meters were installed) or the more limited meter replacement in 2005-2007, during which Itron meters were installed. . The City clarified the date to "the mid to late 1990's." Refer to Appendix 1-2.6 for the City's clarification.

APPENDICES

Appendix 1-2.1: AWWA Standard C700-02 Cover Sheet
Appendix 1-2.2: Meter Specification Sheets (including accuracy information)
Appendix 1-2.3: Accounts with greater than 1-$^1/_2$ years or Estimated Reads
Appendix 1-2.4: Meter Tester Certification
Appendix 1-2.5: Meter Reader Written Procedures
Appendix 1-2.6: City Clarification on Meter Installation Date

APPENDIX 1-2.1: AWWA STANDARD C700-02 COVER SHEET

ANSI/AWWA C700-02
(Revision of ANSI/AWWA C700-95)

American Water Works Association

The Authoritative Resource for Safe Drinking Water℠

AWWA Standard

Cold-Water Meters—Displacement Type, Bronze Main Case

ANSI American National Standards Institute

Return to List of Standards

Effective date: Jan. 1, 2003.
First edition approved by AWWA Board of Directors June 9, 1921.
This edition approved June 16, 2002.
Approved by American National Standards Institute: Oct. 11, 2002.

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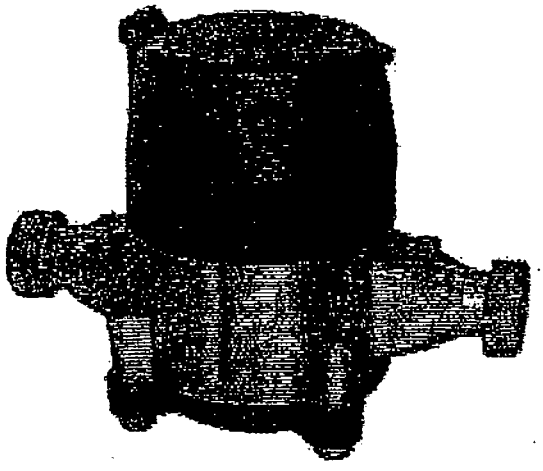
APPENDIX 1-2.2: METER SPECIFICATION SHEETS (INCCLUDING ACCURACY INFORMATION)

Specification Sheet

Industrial Positive Displacement Meter

Model C700 Bronze, Magnetic Drive, External Threaded Spuds

Size: 5/8" x 1/2" & 5/8" x 3/4"



Description

Operation. The C700 is an oscillating piston style, positive displacement water meter. The product utilizes a piston that water use rotates in a measuring chamber, each piston revolution being equivalent to a known volume of water. The piston movement is transferred by a magnetic drive to a straight reading sealed register which contains the appropriate reduction gearing.

Compliance to Standards. The C700 fully complies with American Water Works Association Standard C700, latest revision, and is California Department of Weights and Measures approved.

Installation. The meter must be installed in a clean pipeline, free from any foreign materials. Install the meter with direction of flow as indicated by the arrow cast in the meter case. The meter may be installed in horizontal, vertical or inclined lines, with register facing upward.

Application. The meter is for use only with POTABLE COLD WATER up to 120°F (50°C) and working pressures up to 150 psi. The meter will register between 98.5% and 101.5% at normal and high flows and between 97% and 101% at the AWWA specified low flow. Accuracy tests are made before shipment, so no adjustments need to be made before installation.

Construction. The meter consists of a straight through-flow main case, dual inlet measuring chamber, vertically grooved oscillating piston, high capacity strainer, removable bottom plate, full rubber liner, body bolts with integral washers and a magnetically driven register. The main case is cast in bronze with raised characters designating model, size and direction of flow. A choice of polymer, cast iron or bronze bottom plate is available. The 2-piece snap-fit measuring chamber is of a top and bottom inlet, side output design and features a unique self-flushing sediment well.

Specifications

Size:	5/8" x 1/2"	5/8" x 3/4"
Performance:		
95%-101% Accuracy GPM	1/8	1/8
97%-101% Accuracy GPM	1/4	1/4
98.5% -101.5% Accuracy GPM	1-20	1-20
Continuous Flow GPM	15	15
Maximum Flow GPM	20	20
Head Loss at 20 GPM psi	8.5	8.5
Operating Pressure psi	150	150
Operating Temperature °F	120	120
Sweep Hand Registers:		
US Gallons	10	10
Cubic Feet	1	1
Cubic Meters (Canada)	1/10	1/10
Cubic Meters (Intl.)	1/100	1/100
Capacity of Register (millions):		
US Gallons	10	10
Cubic Feet	1	1
Cubic Meters (Canada)	1/10	1/10
Cubic Meters (Intl.)	1/10	1/10
Register Type:	Permanently sealed direct reading	
Materials:		
Main Case	Bronze	
Bottom Plate Options	Bronze, Cast Iron or Polymer	
Bottom Gasket-Liner	Nitrile	
Body Bolts	Stainless Steel	
Measuring Chamber	Compounded Polymer	
Division Plate	Loaded Nylon	
Piston	High Impact Polymer	
Thrust Bearing Insert	Loaded Nylon	
Driving Bar	Loaded Nylon	
Strainer	Polypropylene	
Register Can	90% Copper Alloy	
Register Lens	Tempered Glass	
Register Housing and Lid	Polymer or Bronze	

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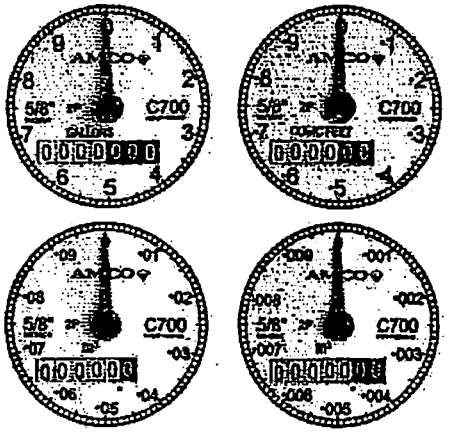
Other features include a removable, contoured division plate, captive drive bar and high torque magnet complete with a nylon bushing. The flow-stream balanced piston has a unique thrust bearing insert and features a Turbulence Seal™ system which passes debris while sustaining the most linear accuracy curve in the industry. Each register is secured to the main case with a tamperproof plug to eliminate tampering.

Direct Read Register. The register is contained within a 90% copper seamless can which is oven-cured at 150°F for 90 minutes to eliminate condensation. The 5 mm true tempered flat glass lens is secured with an "L" shaped gasket, then roll sealed to produce a permanently sealed design. To assure easy reading, the totalizer wheels are large and color coded. The applicable size, model, registration, part number and date code are printed on the calibrated dial face. Moving clockwise during operation, the extra-thin center sweep hand does not interfere with meter reading, and the 1:1 piston ratio low-flow indicator gives visual indication of plumbing leaks. For accurate meter testing, 100 clear graduations appear at the register's circumference.



Magnetic Drive. The magnetic drive design facilitates coupling between the measuring chamber and the external register. The coupling is absolute at all rated flows.

Connections. Meter casing spuds have external straight threads conforming to ANSI B2.1. Bronze coupling nuts and tailpieces are available. Tailpieces have external taper pipe threads conforming to ANSI B2.1. Their lengths and thread sizes are as specified by AWWA Standards.

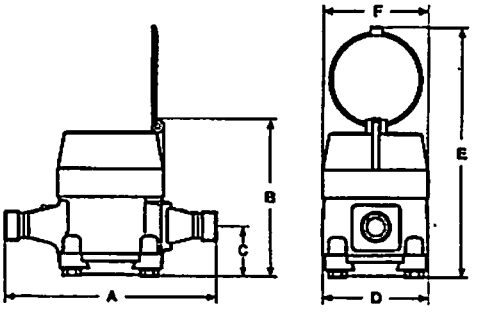
Maintenance. The measuring chamber assembly can be removed, repaired or replaced. Pretested measuring chamber assemblies are available for exchange or purchase, and spare parts are available from our central warehouse or designated regional locations. AMCO Water staffs and operates a repair facility at its U.S. manufacturing plant in Ocala, Florida.

Pulser Type "BI". The "BI" pulser is a limit switch device which requires power from an external source (2 wire). Contact closure: 1 contact = 1 USG. The switch is rated to 3 amps at 125 VAC max. For full details see specification sheet INDC7-PUL-001. Note: Register housing and register are 3½ in. diameter style.

Pulser Type "SFI". The "SFI" pulser is a solid state device which requries 6-24 VDC from an external source (3 wire). Contact closure: 115.2 cont/USG standard and 230.4 cont/USG optional. For full details see specfication sheet INDC7-PUL-001. Can be connected to RF or MIU device for central point reading. Note: Register housing and register are 3½ in. diameter style.

Dimensions and Net Weights

Meter Size	Dimensions (inches) A	B	C	D	E	F	Weight (lbs.)
5/8" x 1/2"	7 1/2	5 1/2	1 1/2	4	8 3/4	3 3/4	3 1/2
5/8" x 3/4"	7 1/2	5 1/2	1 1/2	4	8 3/4	3 3/4	3 1/2



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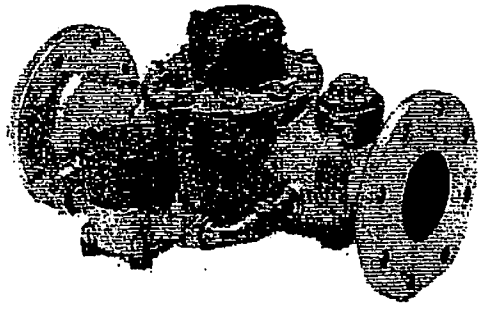
IND-C700-58/02-03

Specification Sheet

Industrial Compound Meters

Model C3000 Bronze, Magnetic Drive, Round Flanged Ends

Size 4"



Description

Operation. The C3000 Compound Meter is designed for installations where large variations in flow rate can be expected. These flow ranges are measured by utilizing the low flow capability of a positive displacement meter and the higher flow efficiency of a Class II turbine meter. The small meter is a standard 3/4" X 3/4" C700. The measuring element of the large meter is a standard T3000 turbine meter. Located on the downstream side of the turbine measuring chamber, a changeover valve operates on differential pressure. Before the valve opens, all flow is directed through the C700 bypass meter. After the valve opens, flow goes through both measuring chambers.

Compliance to Standards. The C3000 compound meter fully complies with the American Water Works Association Standard C702 as most recently revised.

Installation. The meter must be installed in a clean pipeline, free from any foreign materials. Install the meter with direction of flow as indicated by the arrow cast in the meter case. The meter may be installed in horizontal or inclined lines. The AWWA M6 manual recommends 10 pipe diameters upstream and 5 pipe diameters downstream of straight pipe for optimal accuracy of all inferential type flowmeters. It is recommended that a plate strainer be used to protect the measuring elements and help reduce the effects of turbulence. Optional bypass trim valves are available to facilitate in-line bypass meter replacement while under pressure.

Application. The meter is for use with POTABLE COLD WATER up to 120°F (50°C) and working pressures up to 150 psi. The meter will perform with accuracy registration of 100% ± 1 1/2% within its normal flows of 2-1150 GPM. Both pressure loss and accuracy tests are made before shipment. No adjustments are necessary before installation.

Specifications

Size	4"	
95%-101% Accuracy GPM	1/4	
98.5%-101.5% Accuracy GPM	2-1150	
Continuous Flow GPM	575	
Maximum Flow GPM	1150	
Operating Pressure psi	150	
Operating Temperature °F	120	
Sweep Hand Registers	Turbine	Bypass
US Gallons	100	10
Cubic Feet	10	1
Cubic Meters	1	1/10
Imperial Gallons	100	10
Capacity of Registers	Turbine	Bypass
US Gallons (millions)	100	10
Cubic Feet (millions)	10	1
Cubic Meters (millions)	1	1/10
Imperial Gallons (millions)	100	10
Register Type	Permanently sealed direct reading registers.	
Materials		
Main Case	Bronze	
Top Cover Plate	Bronze or Polymer	
Case Bolts	Stainless Steel	
Measuring Element	Polyphenylene Oxide	
Rotor	Polypropylene	
Rotor Bushings	PTFE Compound	
Rotor Thrust Bearing	Ceramic Jewel	
Rotor Spindle	Tungsten Carbide	
Undergearing	Polyacetal Resin	
Changeover Valve	Polymer, Bronze, Stainless, Steel & Rubber	
Bypass Meter	Bronze	
Measuring Chamber	Compounded Polymer	
Register Lens	Tempered Glass	
Register Housing & Lid	Polymer or Bronze	
Register Can	90% Copper Alloy	
Body O-Rings	Rubber & Nitrile	

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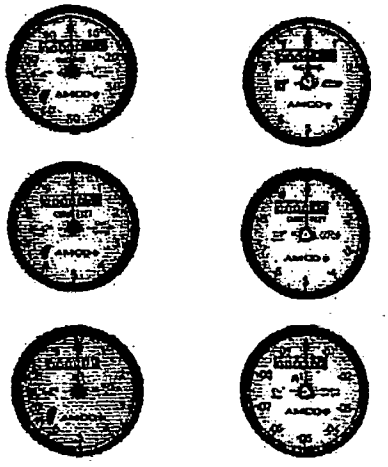
Construction. The meter consists of a main case, turbine measuring element, changeover valve, main case cover, oscillating piston bypass meter and magnetically driven register assemblies, bypass piping and bypass non-return valve. Both the main case and bypass meter are cast in bronze with raised characters showing model, size and direction of flow. The main case has a throated inlet. A case dowel pin is inserted for locating the bronze cover plate. There are tapped bosses for 3/4" drain and 2" test plugs. The measuring element assembly consists of the rotor, straightening vanes, accuracy regulator, spindles and gears, filters and undergear assembly. The measuring element is attached to the underside of the main cover with four stainless steel screws and washers, one insert of which is placed eccentrically in the cover. The internal regulator assembly is interconnected to an external regulator shaft located on top of the cover, allowing meter calibration without depressurizing the test bench or meter service. The main case and cover are assembled with an O-ring gasket and stainless steel bolts. The bypass consists of 3/4" piping and a 3/4" x 3/4" meter with an oscillating piston measuring chamber and a polymer strainer. A non-return valve installed in the meter's bypass arm, downstream of the bypass meter, prevents backflow from the high flow chamber being registered on the bypass meter. Each register assembly is secured with a screw and is protected by a hinged lid bearing the same serial number.



Register. Each register is contained within a 90% copper seamless can which is oven-cured at 150°F for 90 minutes to eliminate condensation. The 1/4" true tempered glass lens is domed and secured with an "L" shaped gasket, then roll sealed. To assure easy reading, the totalizer wheels are large and color coded. The applicable size, model, registration, part number and date code are printed on the calibrated dial face. Moving clockwise during operation, extra thin sweep hands do not interfere with meter reading, and the low-flow indicator will detect plumbing leaks.

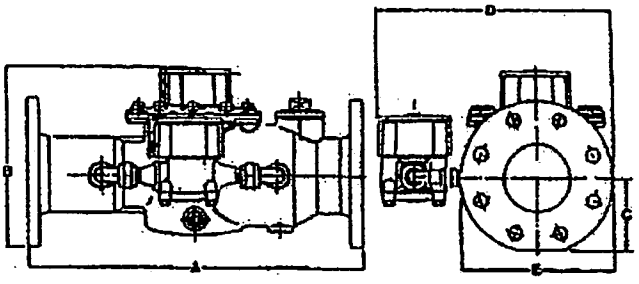
Connections. This meter has 8-bolt round flanged end connections. Both bronze and cast iron companion flanges are available. The companion flanges are faced, drilled and tapped with ANSI B2.1 internal taper pipe thread.

Maintenance. The unitized turbine measuring element with integral straightening vanes can be removed, repaired or replaced without removing the main case from the service line. Blank cover plates are available for maintenance. Pretested and calibrated turbine measuring elements with cover plates and registers are available for exchange or purchase. The bypass meter may be repaired with standard C700 parts available from our warehouses in the U.S. and Canada. In addition, AMCO Water maintains a fully equipped and staffed repair facility in Ocala, Florida.

Pulser. *See Specification Sheet #LRP/HRP-T3000 for Main Meter:*
LRP (2 wire) Reed Switch, 4 watt (50 VAC/DC max.).
HRP (3 wire) Slotted Disc, 6-15 VDC.
See Specification Sheet #C7-PUL-001 for Bypass Meter:
"BI" Pulser (2 wire) Limit Switch (3 amps at 126 VAC max.).
"SFI" Pulser (3 wire) Solid State Device, 6-24 VDC.
Note: All pulsers require power from an external source.

Dimensions and Net Weight

Meter Size	Dimensions (inches) A	B	C	D	E	Weight (lbs.)
4"	20	10 7/8	4 7/16	14 1/8	9 1/16	67 1/8



AMCO

AMCO Water Metering Systems Inc.
www.amcowater.com

The company's policy is one of continuous product improvement and the right is reserved to modify the specifications contained herein without notice.

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IND-C3000-4/02-03

Recordall® Cold Water Bronze Disc Meter	Size 5/8 x 3/4" (DN 15mm) ANSI/NSF Standard 61 Certified, Annex G	**Technical Brief**

DESCRIPTION

Badger Meter offers the Recordall Disc meter in Cast Bronze and a Low Lead Alloy. The Low Lead Alloy (Trade Designation: M25 LL) version complies with ANSI/NSF Standard 61, Annex G and carries the NSF-61 Mark on the housing. All components of the Low Lead Alloy meter, i.e., disc, chamber, housing, seals, etc., comprise the certified system.

APPLICATIONS: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

OPERATION: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register dial face.

OPERATING PERFORMANCE: The Badger Recordall Disc meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ± 1.5%), and maximum continuous operation flow rates as specifically stated by AWWA Standard C700.

CONSTRUCTION: Badger Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber, and permanently sealed register. The water meter is available in bronze and Low Lead Alloy with externally-threaded spuds. A corrosion-resistant thermoplastic material is used for the measuring chamber.

To simplify maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters also minimizes spare parts inventory investment.

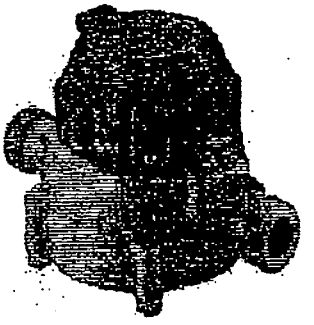
MAGNETIC DRIVE: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading, remote or automatic meter reading options.

SEALED REGISTER: The standard register consists of a straight-reading odometer-type totalization display, 360° test circle with center sweep hand and flow finder to detect leaks. Register gearing consists of self-lubricating thermoplastic gears to minimize friction and provides long life. Permanently sealed; dirt, moisture, tampering and lens fogging problems are eliminated. Multi-position register simplifies meter installation and reading. Generator-type remote reading and automatic meter reading systems are available for all Recordall Disc meters. All reading options are removable from the meter without disrupting water service.

TAMPER-PROOF FEATURES: Customer removal of the register to obtain free water can be prevented when the optional tamper detection seal wire screw or TORX® tamper resistant seal screw is added to the meter. Both can be installed at the meter site or at the factory.

MAINTENANCE: Badger Recordall Disc meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location. As an alternative to repair by the utility, Badger offers various maintenance and meter component exchange programs to fit the needs of the utility.

CONNECTIONS: Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.



Model 25

SPECIFICATIONS

Typical Operating Range (100% ± 1.5%)	1/2 - 25 GPM (.11 to 5.7 m³/hr)
Low Flow (Min. 98.5%)	1/4 GPM (.057 m³/hr)
Maximum Continuous Operation	15 GPM (3.4 m³/hr)
Pressure Loss at Maximum Continuous Operation	2.8 PSI at 15 GPM (0.19 bar at 3.4 m³/hr)
Maximum Operating Temperature	80°F (26°C)
Maximum Operating Pressure	150 PSI (10 bar)
Measuring Element	Nutating disc, positive displacement
Register Type	Straight reading, permanently sealed magnetic drive standard. Remote reading or Automatic Meter Reading units optional.
Register Capacity	10,000,000 Gallons, 1,000,000 Cubic Feet, 100,000 m³. 6 odometer wheels.
Meter Connections	Available in bronze and thermoplastic to fit 3/4" (DN 15mm) spud thread bore diameter sizes. See table below.

METER SPUD AND CONNECTION SIZES

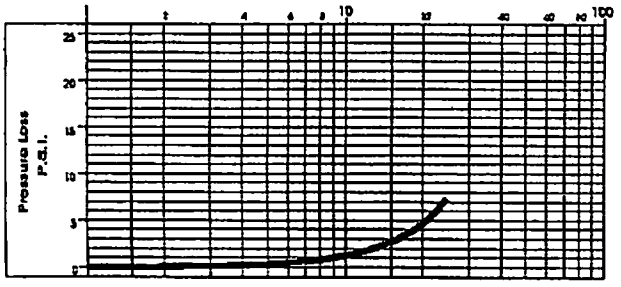
Size Designation x	"L" Laying Length	"B" Bore Dia.	Coupling Nut and Spud Thread	Tailpiece Pipe Thread (NPT)
5/8" x 3/4" x	7½"	5/8", 3/4"	1" (3/4")	3/4"

MATERIALS

Meter Housing	Cast Bronze, Low Lead Alloy
Housing Bottom Plates	Bronze, Cast Iron, Thermoplastic, Low Lead Alloy
Measuring Chamber	Thermoplastic
Disc	Thermoplastic
Trim	Stainless Steel, Bronze
Strainer	Thermoplastic
Disc Spindle	Stainless Steel, Thermoplastic
Magnet	Ceramic, Polymer-Bonded
Magnet Spindle	Stainless Steel, Thermoplastic
Register Lid and Shroud	Thermoplastic, Bronze
Generator Housing	Thermoplastic

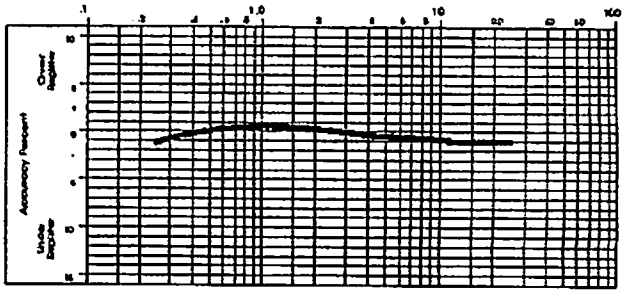
FRESSURE LOSS CHART

Rate of Flow, in Gallons per Minute



ACCURACY CHART

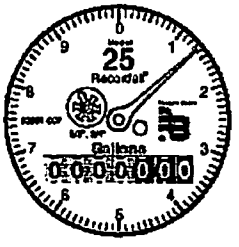
Rate of Flow, in Gallons per Minute

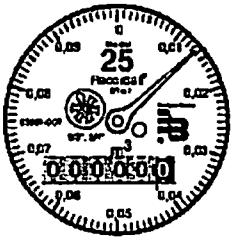


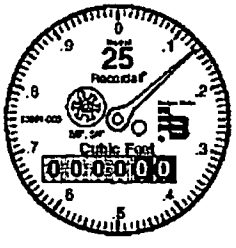
METER SIZE	METER MODEL	A LAYING LENGTH	B HEIGHT REG./RTR	C HEIGHT GEN.	D CENTERLINE BASE	WIDTH	APPROX. SHIPPING WEIGHT
5/8 x 3/4" (15mm)	25	7 1/2" (190mm)	4 13/16" (125mm)	6 5/16" (160mm)	1 11/16" (42mm)	4 1/4" (108mm)	4 1/2 lb. (2.0kg)

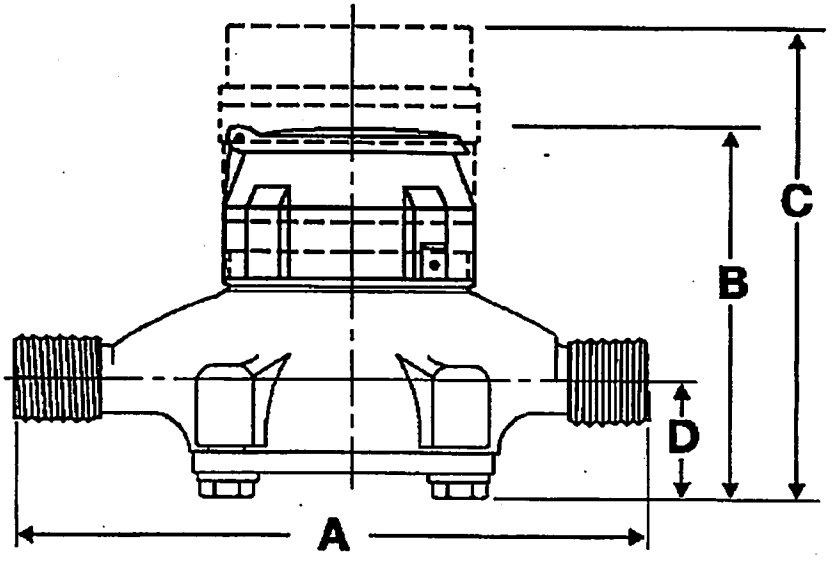
Sweep Hand Registration

MODEL	GALLON	CU.FT.	CU. METER
M25	10	1	.1/.01









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Please see our website at
www.badgermeter.com
for specific contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

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Badger® Recordall® Compound Series Meter	Cold Water Size 4" (DN 100 mm)	**Technical Brief**

DESCRIPTION

Badger Meter offers the Badger® 4" Compound Series meter in Cast Bronze and a Low Lead Alloy. The Cast Bronze (Trade Designation: Compound Series B81-NS) and the Low Lead Alloy (Trade Designation: Compound Series LL-NS) versions comply with NSF/ANSI Standard 61, Annex G and carry the NSF-61 Mark on the product.

APPLICATIONS: For use in measurement of potable cold water in commercial and industrial services where flow is in one direction only.

OPERATION: At low flow rates, the water is diverted up through a bypass to the disc chamber. Leaving the chamber's outlet port, water flows beyond the turbo and main valve. As the flow rate increases, a pressure differential is created which opens the main valve. The water then flows straight through the turbine chamber in addition to a portion still flowing through the disc chamber before exiting the meter. Rotor and disc movement are transmitted by magnetic drive couplings to individual register odometers.

OPERATING PERFORMANCE: With its patented design, the Badger Recordall Compound meter meets or exceeds registration accuracy for low flow rate, normal operating flow rates, maximum continuous operation flow rate, and changeover flow rate as specifically stated in AWWA Standard C702.

CONSTRUCTION: Badger Recordall Compound meter construction which complies with ANSI and AWWA C702 standards, consists of three basic components: meter housing, interchangeable measuring elements and single, sealed direct reading registers. The measuring element consist of the disc measuring chamber, turbo head assembly and high flow valve assembly.

To simplify maintenance, the registers and measuring elements can be removed without removing the meter housing from the installation.

MAGNETIC DRIVE: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading or remote reading options.

SEALED REGISTERS: The standard registers consists of a straight-reading odometer-type totalization display, 360° test circle with center sweep hand and flow finder to detect leaks. Register gearing consists of self-lubricating thermoplastic gears to minimize friction and provide long life. Permanently sealed; dirt, moisture, tampering and lens fogging problems are eliminated. Multi-position register simplifies meter installation and reading. Automatic meter reading and close proximity systems are available for all Compound Series meters. (See back of sheet for additional information.) All reading options are removable from the meter without disrupting water service.

METER READING TECHNOLOGIES: The itron® ERT®, ORION® and GALAXY® meter reading systems are available for all Badger Recordall Compound Series meters. An optional summator can be provided as an integral part of the register assembly. (See back of sheet for additional information.)

TAMPER-PROOF FEATURES: Tamper resistant register provides protection from unauthorized personnel.

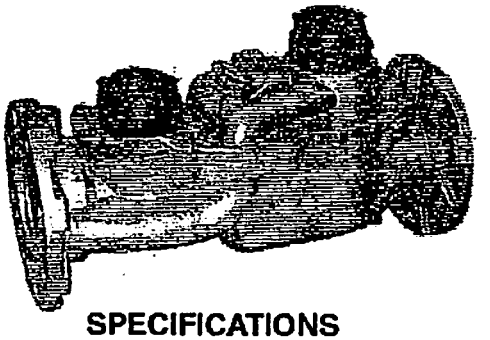
STRAINER: A separate strainer is recommended to protect the measuring element but is not a requirement. See Technical Brief PS-T-1 for strainer dimensions.

MAINTENANCE: Badger Recordall Compound meters are designed and manufactured to provide long-term service with minimal maintenance.

When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location. As an alternative to repair by the utility, Badger offers various maintenance and meter component exchange programs to fit the needs of the utility.

CONNECTIONS: Companion flanges for installation of meters on various pipe types and sizes are available in cast iron or bronze as an option.

STANDARD: 3/4" drain plug.



SPECIFICATIONS

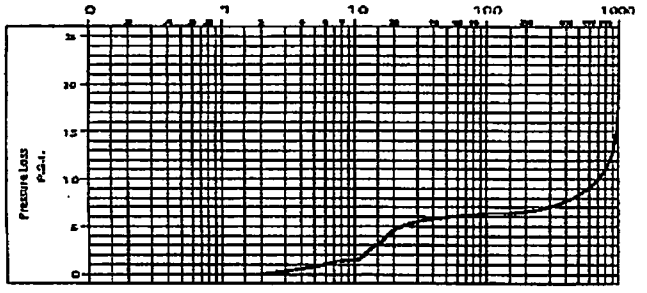
Typical Operating Range (100% ± 1.5%)	3/4-1000 GPM (0.17 to 227 m³/h)
Low Flow Registration	3/8 GPM (0.09 m³/h)
Maximum Continuous Flow	800 GPM (181.6 m³/h)
Pressure Loss at Maximum Continuous Flow	11.0 PSI at 800 GPM (0.75 bar at 181.6 m³/h)
Pressure Loss at Crossover	4 PSI (0.28 bar)
Minimum Crossover Accuracy	97%
Maximum Operating Pressure	150 PSI (10 bar)
Maximum Operating Temperature	120°F (49°C)
Meter Flanges	4" Round Flanges, Class 150
Registers	Straight reading, permanently sealed magnetic drive standard. Automatic Meter Reading and Close Proximity units optional.
High Flow Registration	100,000,000 Gallons 100 gallons/sweep hand revolution. 10,000,000 Cubic Feet 10 cubic ft./sweep hand revolution. 1,000,000 m³ 1 m³/sweep hand revolution.
Low Flow Registration	10,000,000 Gallons 10 gallons/sweep hand revolution. 1,000,000 Cubic Feet 1 cubic ft./sweep hand revolution. 100,000 m³/sweep hand revolution. 0.1 m³/sweep hand revolution.

MATERIALS

Housing and Cover	Cast Bronze (B81), Low Lead Alloy
Turbo Cast Head	Cast Bronze (B81), Low Lead Alloy
Nose Cone and Straightening Vanes	Thermoplastic
Rotor	Thermoplastic
Rotor Radial Bearings	Lubricated Thermoplastic
Rotor Thrust Bearing	Sapphire Jewels
Rotor Bearing Pivots	Passivated 316 Stainless Steel
Calibration Mechanism	Stainless Steel And Thermoplastic
Measuring Chamber and Disc	Thermoplastic
High Flow Valve	Thermoplastic / Stainless Steel
Magnets	Ceramic
Register Lens	Glass
Register Housing and Cover	Thermoplastic or Bronze
Trim	Stainless Steel

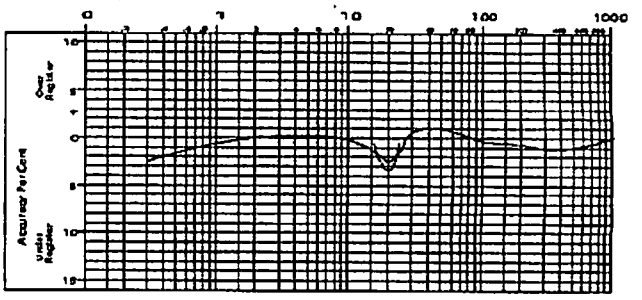
PRESSURE LOSS CHART

Rate of Flow, in Gallons per Minute



ACCURACY CHART

Rate of Flow, in Gallons per Minute



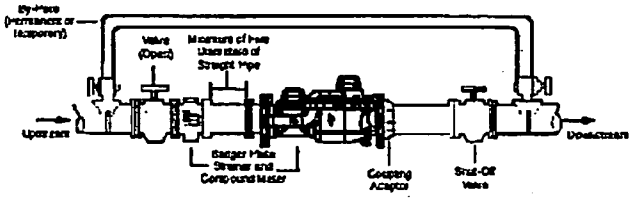
DIMENSIONS

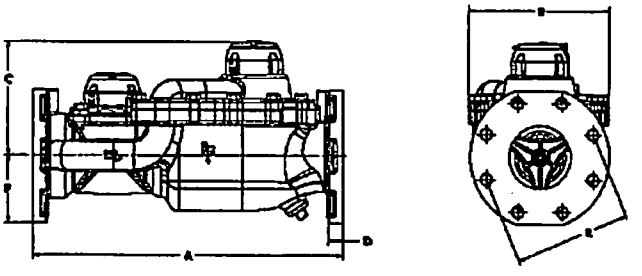
Meter & Pipe Size	Length	Width	Height	Flange	Bolt Circle	Centerline	No.	Net	Shipping
	A	B	C	D	E	to F Base	Bolts	Weight	Weight
4"	20" *	9 1/8"	7 ¼"	1"	7½"	4 ½"		85 lb.	120 lb.
(DN 100)	(508mm)	(232mm)	(184mm)	(25mm)	(190.5mm)	(108mm)	8	(38.4kg)	(53.8kg)

* Adapter available to increase total length to 24".

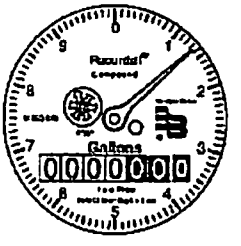
PROPER INSTALLATION: The following installation guidelines will insure optimum field performance and reliability when installing a Badger® Compound Series meter.

1. A Strainer IS REQUIRED to insure optimum flow conditioning and protection for the Compound Series meter measuring element.
2. Compound meters, with a strainer, REQUIRE a minimum of five (5) pipe diameters of straight pipe upstream of the meter.
3. ONLY full-open gate valves should be used immediately upstream of the meter. Butterfly valves MUST be five (5) pipe diameters or more upstream of the meter. Full-open gate or butterfly valves can be used downstream.
4. DO NOT install pressure reducing devices or check valves upstream of the meter.
5. Unweighted check valves MUST be located at least three (3) pipe diameters downstream of the meter.
6. Pressure reducing devices and externally weighted check valves MUST be located at least five (5) pipe diameters downstream of the meter.

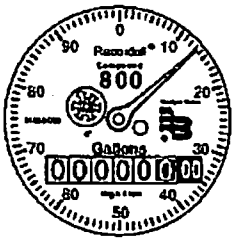




LOW FLOW



HIGH FLOW



ISO 9001

Please see our website at
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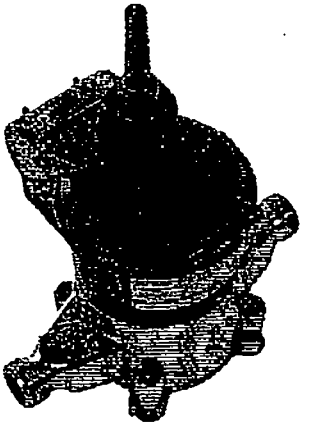
ARB® UTILITY MANAGEMENT SYSTEMS™

NEPTUNE
TECHNOLOGY GROUP

T-10 METER

SIZES: 5/8", 3/4", and 1"



T-10 water meters are warranted for performance, materials, and workmanship.

Every T-10 water meter meets or exceeds the latest AWWA C700 Standard. Its nutating disc, positive displacement principle is time-proven for accuracy and dependability since 1892, ensuring maximum utility revenue.

CONSTRUCTION

The T-10 water meter consists of three major assemblies: a register, a no-lead high copper alloy maincase, and a nutating disc measuring chamber.

The T-10 meter is available with a variety of register types. For reading convenience, the register can be mounted in one of four positions on the meter.

The corrosion-resistant no-lead high copper alloy maincase will withstand most service conditions; internal water pressure, rough handling, and in-line piping stress.

The innovative floating chamber design of the nutating disc measuring element protects the chamber from frost damage while the unique chamber seal extends the low flow accuracy by sealing the chamber outlet port to the maincase outlet port. The nutating disc measuring element utilizes corrosion-resistant materials throughout and a thrust roller to minimize wear.

WARRANTY

Neptune provides a limited warranty with respect to its T-10 water meters for performance, materials, and workmanship.

When desired, maintenance is easily accomplished either by replacement of major assemblies or individual components.

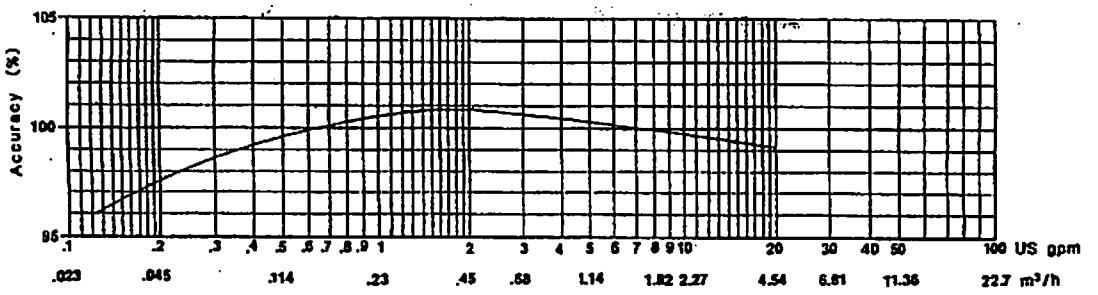
KEY FEATURES

- Register
  - Magnetic drive, low torque registration ensures accuracy
  - Impact-resistant register
  - High resolution, low flow leak detection
  - Bayonet style register mount allows in-line serviceability
  - Tamperproof seal pin deters theft
  - Date of manufacture, size, and model stamped on dial face
- No-Lead Maincase
  - Made from no-lead high copper alloy
  - NSF/ANSI 61 certified, Annex F and Annex G compliant
  - Lifetime guarantee
  - Resists internal pressure stresses and external damage
  - Handles in-line piping variations and stresses
  - No-lead high copper alloy provides residual value vs. plastic
  - Electrical grounding continuity
- Nutating Disc Measuring Chamber
  - Positive displacement
  - Widest effective flow range for maximum revenue
  - Proprietary polymer materials maximize long term accuracy
  - Floating chamber design is unaffected by meter position or inline piping stresses

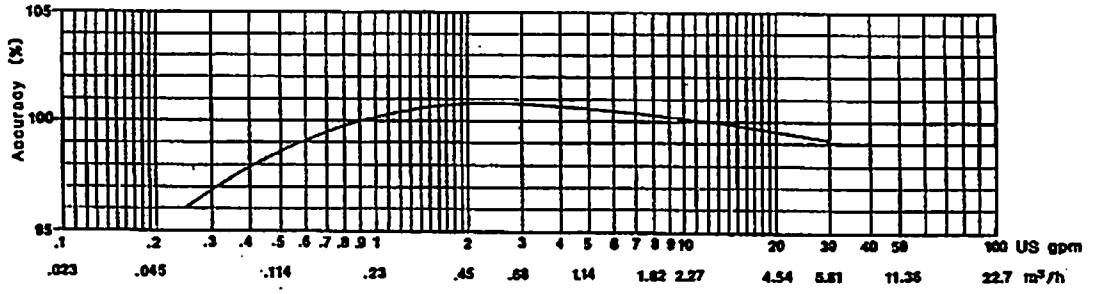
SYSTEMS COMPATIBILITY

Adaptability to all present and future systems for flexibility is available only with Neptune's ARB® Utility Management Systems™.

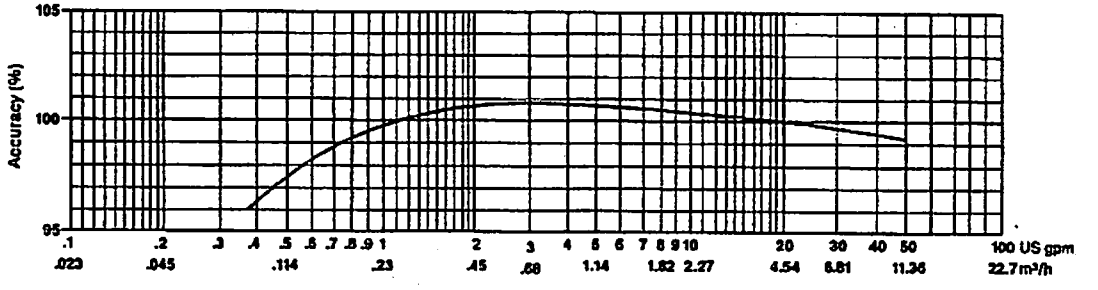
5/8" ACCURACY



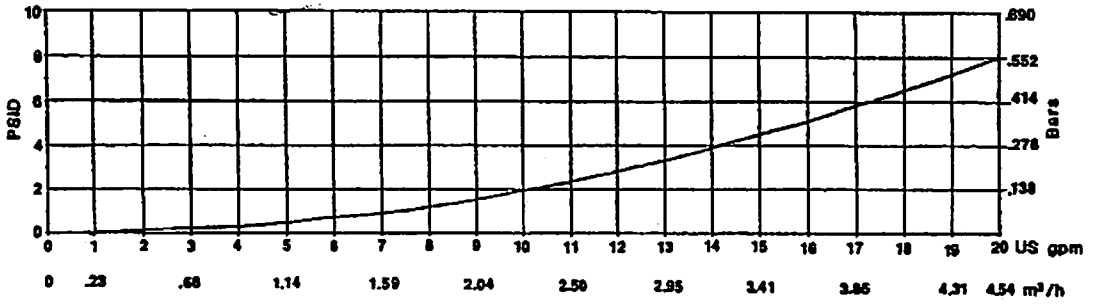
3/4" ACCURACY



1" ACCURACY

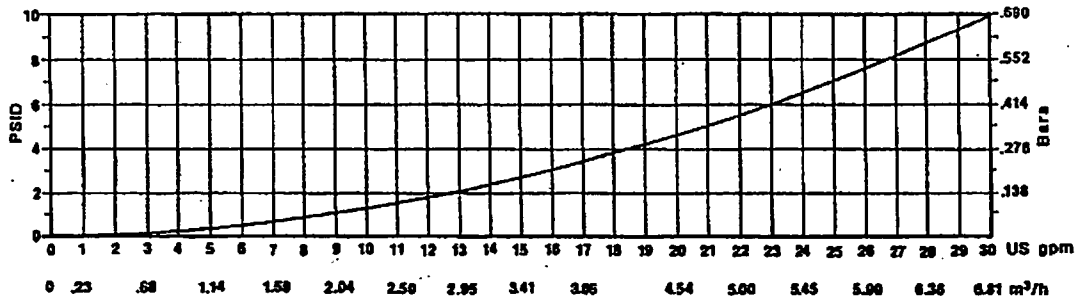


5/8" PRESSURE LOSS

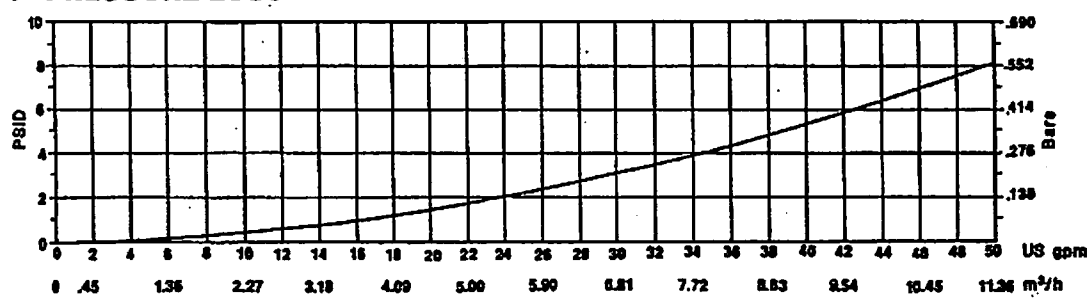


These charts show typical meter performance. Individual results may vary.

3/4" PRESSURE LOSS



1" PRESSURE LOSS

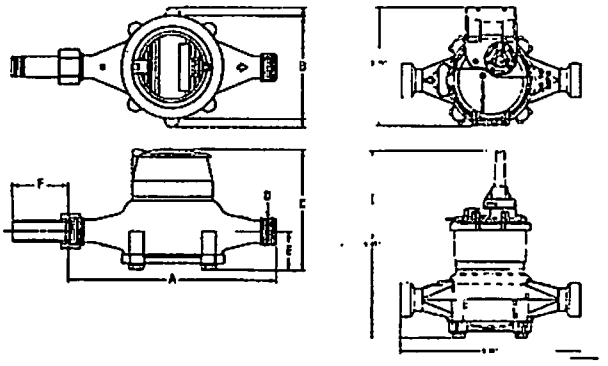


OPERATING CHARACTERISTICS

Meter Size	Normal Operating Range @100% Accuracy (±1.5%)	AWWA Standard	Low Flow @ 95% Accuracy
5/8"	1/2 to 20 US gpm 0.11 to 4.55 m³/h	1 to 20 US gpm 0.23 to 4.5 m³/h	1/8 US gpm 0.03 m³/h
3/4"	3/4 to 30 US gpm 0.17 to 6.82 m³/h	2 to 30 US gpm 0.45 to 6.8 m³/h	1/4 US gpm 0.06 m³/h
1"	1 to 50 US gpm 0.23 to 11.36 m³/h	3 to 50 US gpm 0.68 to 11.4 m³/h	3/8 US gpm 0.09 m³/h

DIMENSIONS

Meter Size	A in/mm	B in/mm	C-Std. in/mm	C-ARB in/mm	D-Threads per inch	D-OD in/mm	E in/mm	F in/mm	Weight lbs/kg
5/8"	7 1/2 191	3 5/8 92	4 7/8 124	5 3/8 137	14	1.030 26	1 5/8 41	2 1/2 64	3 3/4 1.7
5/8" x 3/4"	7 1/2 191	3 5/8 92	4 7/8 124	5 3/8 137	11 1/2	1.290 33	1 5/8 41	2 5/8 67	4 1.8
3/4"	9 229	4 3/8 111	5 1/2 140	5 13/16 148	11 1/2	1.290 33	1 7/8 48	2 5/8 67	6 2.7
3/4" SL	7 1/2 911	4 3/8 111	5 1/2 140	5 13/16 148	11 1/2	1.290 33	1 7/8 48	2 5/8 67	5 1/2 2.5
3/4"x1"	9 229	4 3/8 111	5 1/2 140	5 13/16 148	11 1/2	1.626 41	1 7/8 48	2 3/4 70	6 1/2 2.9
1"	10 3/4 273	6 1/2 165	6 3/8 162	6 5/8 168	11 1/2	1.626 41	2 1/8 54	2 3/4 70	9 3/4 4.4
1"x1 1/4"	10 3/4 273	6 1/2 165	6 3/8 162	6 5/8 168	11 1/2	1.865 47	2 1/8 54	2 13/16 71	10 1/4 4.6



GUARANTEED SYSTEMS COMPATIBILITY

All T-10 water meters are guaranteed adaptable to our ARB®V, ProRead™ (ARB VI) AutoDetect, E-Coder® (ARB VII), E-Coder)R900*i*™, TRICON®/S, TRICON/E3®, and Neptune meter reading systems without removing the meter from service.

REGISTRATION

ProRead Registration (per sweep hand revolution)		5/8"	3/4" & 1"
10	US Gallons	✓	✓
10	Imperial Gallons	✓	✓
1	Cubic Foot	✓	✓
0.1	Cubic Metre	✓	✓
0.01	Cubic Metre	✓	
Register Capacity ProRead & E-Coder		**5/8"**	**3/4" & 1"**
10,000,000	US Gallons	✓	✓
10,000,000	Imperial Gallons	✓	✓
1,000,000	Cubic Feet	✓	✓
100,000	Cubic Metres	✓	✓
10,000	Cubic Metres	✓	
E-Coder High Resolution (8-digit reading)		**5/8"**	**3/4" & 1"**
0.1	US Gallons	✓	✓
0.1	Imperial Gallons	✓	✓
0.01	Cubic Feet	✓	✓
0.001	Cubic Metres	✓	✓

SPECIFICATIONS

- Certification: NSF/ANSI 61 certified, Annex F and Annex G compliant
- Application: Cold water measurement of flow in one direction for residential service applications
- Maximum operating water pressure: 150 psi (1034 kPa)
- Maximum operating water temperature: 80°F
- Measuring chamber: Nutating disc technology design made from proprietary synthetic polymer

OPTIONS

- Sizes:
  - ½", ⅝" x ¾"
  - ¾", ¾" SL, ¾" x 1"
  - 1", 1" x 1 ½"
- Units of measure: U.S. gallons, imperial gallons, cubic feet, cubic metres
- Register types:
  - Direct reading: Bronze box and cover (standard)
  - Remote reading: ProRead Encoder, E-Coder, E-Coder)R900*i*, TRICON/S, TRICON/E3
  - Reclaim
- Bottom caps:
  - Synthetic polymer (⅝" only)
  - Cast iron
  - No-lead high copper alloy
- Connections:
  - No-lead high copper alloy, straight or bent
- Environmental conditions:
  - Operating temperature: 33°F to 149°F (0°C to 65°C)
  - Storage temperature: 33°F to 158°F (0°C to 70°C)

Neptune engages in ongoing research and development to improve and enhance its products. Therefore, Neptune reserves the right to change product or system specifications without notice.

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Neptune Technology Group Inc.
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Col. Chapultepec Morales
Delegación Miguel Hidalgo
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Tel: (525) 55203 5294 / (525) 55203 5708
Fax: (525) 55203 6503

NEPTUNE TECHNOLOGY GROUP

neptunetg.com

Recordall® Cold Water Bronze Disc Meter	Size 5/8, 5/8 x 3/4" (DN 15mm) Model LP Lo-Profile	Technical Brief

DESCRIPTION

Badger Meter offers the Recordall Disc meter in a Bronze Low Lead Alloy. The Low Lead Alloy (Trade Designation: MLP LL) meter complies with NSF/ANSI Standard 61 and carries the NSF-61 Mark on the housing. All components of the Low Lead Alloy meter, i.e., disc, chamber, housing, seals, etc., comprise the certified system.

APPLICATIONS: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

OPERATION: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register dial face.

OPERATING PERFORMANCE: The Badger® Recordall Disc meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ± 1.5%), and maximum continuous operation flow rates as specifically stated by AWWA Standard C700.

CONSTRUCTION: Badger Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber, and permanently sealed register. The water meter is available in a Bronze Low Lead Alloy with externally-threaded spuds. A corrosion-resistant thermoplastic material is used for the measuring chamber.

To simplify maintenance, the register, measuring chamber, and liner/strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters also minimizes spare parts inventory investment.

MAGNETIC DRIVE: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading, remote or automatic meter reading options.

SEALED REGISTER: The standard register consists of a straight-reading odometer-type totalization display, 360° test circle with center sweep hand and flow finder to detect leaks. Register gearing consists of self-lubricating thermoplastic gears to minimize friction and provides long life. Permanently sealed; dirt, moisture, tampering and lens fogging problems are eliminated. Multi-position register simplifies meter installation and reading. Automatic meter reading systems are available for all Recordall Disc meters. All reading options are removable from the meter without disrupting water service.

TAMPER-PROOF FEATURES: Customer removal of the register to obtain free water can be prevented when the optional tamper detection seal wire screw or TORX® tamper resistant seal screw is added to the meter. Both can be installed at the meter site or at the factory.

MAINTENANCE: Badger Recordall Disc meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location. As an alternative to repair by the utility, Badger offers various maintenance and meter component exchange programs to fit the needs of the utility.

CONNECTIONS: Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.

Model LP

SPECIFICATIONS

Typical Operating	1/4 - 20 GPM (.057 to 4.5 m³/hr)
Low Flow (Min. 95%)	1/4 GPM (.028 m³/hr)
Maximum Continuous Operation	10 GPM (2.3 m³/hr)
Pressure Loss at Maximum Continuous Operation	5/8": 2 PSI at 10 GPM (.14 bar at 2.3 m³/hr) 5/8"x3/4":1.5 PSI at 10 GPM (.10 bar at 2.3 m³/hr)
Maximum Operating Temperature	80°F (26°C)
Maximum Operating Pressure	150 PSI (10 bar)
Measuring Element	Nutating disc, positive displacement
Register Type	Straight reading, permanently sealed magnetic drive standard. Remote reading or Automatic Meter Reading units optional.
Register Capacity	10,000,000 Gallons, 1,000,000 Cubic Feet, 100,000 m³. 6 odometer wheels.
Meter Connections	Available in bronze and thermoplastic to fit 5/8" or 3/4" (DN 15mm) spud thread bore diameter sizes. See table below.

METER SPUD AND CONNECTION SIZES					
Size Designation	x	"L" Laying Length	"B" Bore Dia.	Coupling Nut and Spud Thread	Tailpiece Pipe Thread (NPT)
5/8"	x	7-1/2"	5/8"	3/4" (5/8")	1/2"
5/8" x 3/4"	x	7-1/2"	5/8", 3/4"	1" (3/4")	3/4"

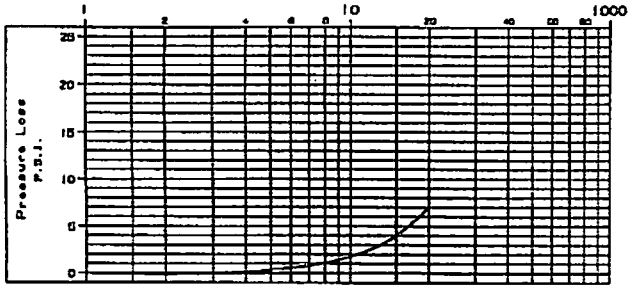
MATERIALS

Meter Housing	Bronze Low Lead Alloy
Housing Bottom Plates	Bronze Low Lead Alloy, Cast Iron, Thermoplastic,
Measuring Chamber	Thermoplastic
Disc	Thermoplastic
Trim	Stainless Steel, Bronze
Liner/Strainer	Thermoplastic
Disc Spindle	Thermoplastic
Magnet	Ceramic
Magnet Spindle	Thermoplastic
Register Lid and Shroud	Thermoplastic, Bronze

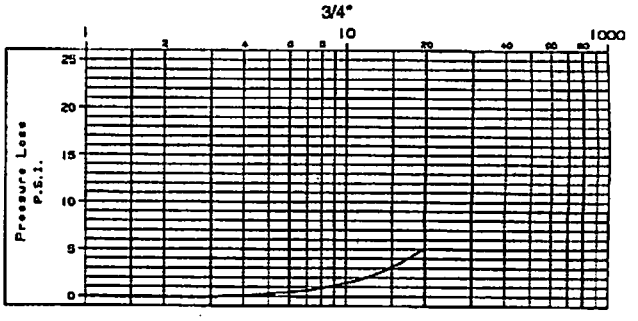
PRESSURE LOSS CHARTS

Rate of Flow, in Gallons per Minute

5/8"



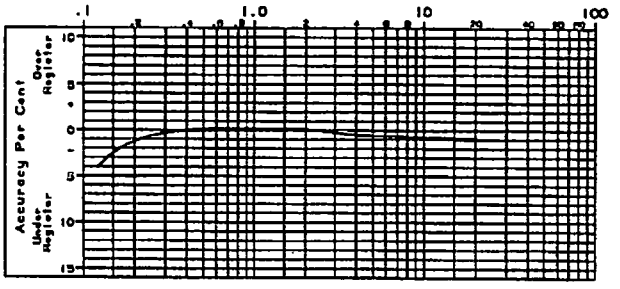
3/4"



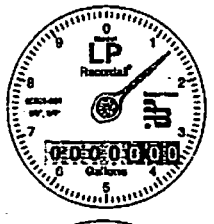
METER SIZE	METER MODEL	A LAYING LENGTH	B HEIGHT REG./RTR®	B HEIGHT ADE®	C CENTERLINE BASE	WIDTH	APPROX. SHIPPING WEIGHT
5/8" x 5/8" x 3/4" (15mm)	LP	7 1/2" (190mm)	3.70"/4.12"	4.62"	1.26"	3.75"	3 lbs.

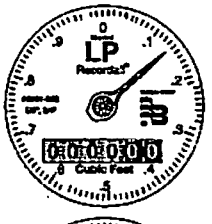
ACCURACY CHART

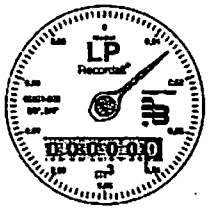
Rate of Flow, in Gallons per Minute



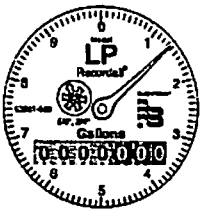
Register with Plastic Lid and Shroud

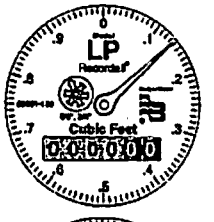


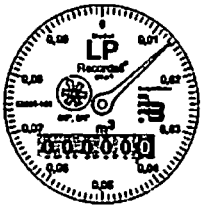




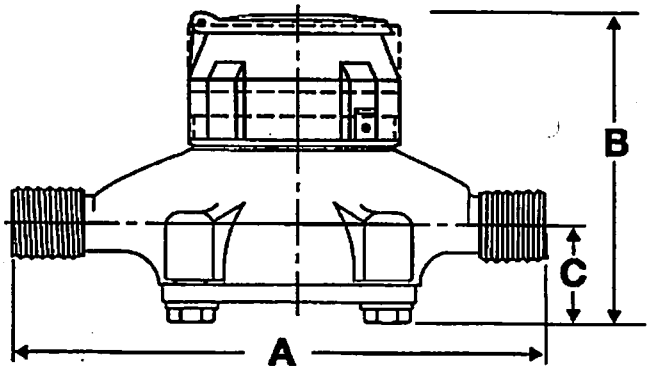
Register with Bronze Lid and Shroud







Sweep Hand Registration			
MODEL	GALLON	CU. FT.	CU. METER
LP	10	1	.1



Please see our website at
www.badgermeter.com
for specific contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

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Department of Public Works (DPW) - Utilities Division
Multiple Estimated Water Billing Policy

- **Class code 101- Single family (same ownership) that have been billed multiple estimated bills.**
- **This policy will be in effect upon water commission's approval for any and all class code 101 utility bills mailed on or after 1/1/10.**

1. Subsequent to a homeowner contacting the DPW office with a multiple estimated bill, a service order will be created. The DPW will then contact the homeowner within 10 days arranging an appointment and the DPW will further inform homeowner that as a condition to the procedure, full access to the meter in the location must be granted.

2. The homeowner or authorized person must sign a completed work order provided by the DPW. The work order will contain the meter serial number and meter reading. Upon the DPW signing the work order, a copy will be provided to the homeowner and furthermore, the DPW will take photos of meter in location during its removal or replacement.

3. The work order will be transmitted to the Utilities Division at Montauk Road and to the billing office at City Hall for review. The City of Brockton reserves the right to test the meter.

4. Subsequent to review of the billing and determination that any adjustment is warranted the bill will be block adjusted. Said adjustment will be determined by using an actual reading to actual reading and will be recalculated and charged at the rate the bill was issued. The adjustment will be processed on the last actual bill issued.

5. If the estimated bills exceed more than five (5) years, only the earlier years, beyond the most current (5) five years, will be recalculated at the lowest block rate at the period of the estimated reading. The remaining most current five (5) years of estimates will be recalculated and charged as indicated in item #4.

6. A letter will be forwarded to the property owner, via certified and regular mail, with an explanation and/or breakdown of adjustments.

7. If the property owner does not accept the proposed adjustment, said owner may request the water meter tested, upon receipt of required city fee. A meter test must be requested prior to arranging a meeting. If the test results exhibit the meter is not within five (5) percent of being accurate, the fee will be returned to property owner. If the meter is accurate, the city shall retain the fee. The city will be required to hold the meter for six (6) months only then the meter will be disposed of.

   If the property owner further contests the results of the test, they may seek an independent certified meter testing company to perform the meter test at the property owner's expense. As a condition of the city reviewing any independent testing, an employee of the Utilities Division must be present at the time of said independent testing. The City of Brockton will thereafter reserve its right to retest the meter at its own expense after the independent exam.

8. A property owner may thereafter request a meeting with the DPW Commissioner. Said meeting may also include the Superintendent of Utilities, and Treasurer/Collector.

9. The Treasurer/Collector will entertain acceptable arrangements for a payment plan by a property owner. A payment plan cannot extend for more than a three (3) year period due to Massachusetts state law.

Department of Public Works (DPW) - Utilities Division
Multiple Estimated Water Billing Policy

- **Class codes other than 101- multi family, (same ownership), commercial, and industrial locations that have been billed multiple estimated bills.**

- **This policy will be in effect upon water commission's approval for any and all class code other than 101 utility bills mailed on or after 1/1/10.**

1. Subsequent to a property owner contacting the DPW office with a multiple estimated bill, a service order will be created. The DPW will then contact the property owner within 10 days arranging an appointment and the DPW will further inform the property owner that as a condition to the procedure, full access to the meter in the location must be granted.

2. The property owner or authorized person must sign a completed work order provided by the DPW. The work order will contain the meter serial number and the meter reading. Upon the DPW signing the work order, a copy will be provided to the owner and furthermore, the DPW will take photos of meter in location during its removal and replacement.

3. The work order will be transmitted to the Utilities Division at Montauk Road and then to the billing office at City Hall for review. The City of Brockton reserves the right to test the meter.

4. Subsequent to review of the billing and determination that any adjustment is warranted the bill will be block adjusted. Said adjustment will be determined by using an actual reading to actual reading and will be recalculated and charged at the rate the bill was issued. The adjustment will be processed on the last actual bill issued.

5. The property owner will be sent a letter, both by certified and regular mail, with an explanation and /or breakdown of adjustments.

6. If the property owner does not accept the proposed adjustment, said owner may request the water meter be tested, upon receipt of required city fee. A meter test must be requested prior to arranging a meeting. If the test results exhibit the meter is not within five (5) percent of being accurate, the fee will be returned to owner. If the test was accurate, the fee shall be retained by the city. The city will be required to hold the meter for six (6) months only then the meter will be disposed of.

   If property owner further contests the results of the test, they may request an independent certified meter testing company perform the meter test at the property owner's expense. As a condition of the city reviewing any independent testing, an employee of the Utilities Division must be present at the time of the said independent testing. The City of Brockton will thereafter reserve its right to retest the meter at its own expense after the independent exam.

7. The property owner may thereafter request a meeting with the DPW Commissioner. Said meeting may include the Superintendent of Utilities.

APPENDIX 1-2.3: ACCOUNTS WITH GREATER THAN 1 ½ YEARS OF ESTIMATED READS

Account	Location	Route	# of Consecutive	Last bill date	Last non est bill date	Average Billed Usage
10037	37 ALLEN ST	0010	7	11/08/2010	02/13/2009	7,429
10042	50 ALLEN ST	0010	34	11/08/2010		4,038
10074	40 AUBURN ST	0590	15	11/08/2010	02/15/2007	6,155
10083	82 AUBURN ST	0590	34	11/08/2010		2,853
10176	40 BRADFORD ST	0212	23	11/08/2010	02/14/2005	1,659
10185	273 COURT ST	0060	6	11/08/2010	05/04/2009	1,089
10336	552 CENTRE ST	0611	24	11/08/2010	11/01/2004	4,076
10372	8 BERKLEY ST	0575	6	11/08/2010	05/04/2009	4,385
10630	450 CRESCENT ST	0150	7	11/08/2010	02/13/2009	1,633
10644	540 CRESCENT ST	0150	27	11/08/2010	02/19/2004	2,562
10694	941 CRESCENT ST	0080	28	11/08/2010		2,132
10702	14 CURVE ST	0215	9	11/08/2010	08/12/2008	2,125
10728	52 EARLEY ST	0025	6	11/08/2010	05/04/2009	873
10929	12 GARFIELD ST	0610	12	11/08/2010	11/01/2007	4,626
11008	10 FOREST AV	0640	7	11/08/2010	02/13/2009	1,388
11030	271 GROVE ST	0210	12	11/08/2010	11/01/2007	2,506
11049	20 GUILD RD	0277	13	11/08/2010	08/17/2007	3,567
11071	21 HANCOCK ST	0186	23	11/08/2010	02/14/2005	2,746
11088	12 HEMLOCK ST	0172	26	11/08/2010	05/24/2004	1,723
11137	46 HUDSON ST	0491	12	11/08/2010	11/01/2007	4,611
11141	9 HUNT ST	0540	34	11/08/2010		3,152
11153	35 HUNT ST	0540	6	11/08/2010	05/04/2009	2,844
11176	27 JACKSON ST	0591	7	11/08/2010	02/13/2009	3,731
11181	54 JACKSON ST	0591	34	11/08/2010		3,357
11260	34 LAWRENCE ST	0400	34	11/08/2010		403
11279	125 LAWRENCE ST	0400	23	11/08/2010	02/14/2005	3,806
11304	34 LEWISTON ST	0510	6	11/08/2010	05/04/2009	1,045
11329	109 LEYDEN ST	0444	9	11/08/2010	08/12/2008	1,112
11372	38 -R LYMAN ST	0524	12	11/08/2010	11/01/2007	1,949
11412	66 GREEN ST	0280	18	11/08/2010	05/19/2006	1,692
11414	81 GREEN ST	0280	34	11/08/2010		3,035
11465	8 HARVARD ST	0241	29	11/08/2010	08/15/2003	1,790
11507	1002 -1010 MAIN ST	0410	6	11/08/2010	05/04/2009	11,846
11514	1054 MAIN ST	0410	10	11/08/2010	05/01/2008	312
11518	1122 MAIN ST	0410	9	11/08/2010	08/12/2008	14,538
11523	1144 MAIN ST	0410	15	05/01/2008	08/13/2004	433
11525	1150 MAIN ST	0410	20	11/08/2010	11/04/2005	3,766
11533	24 HERVEY ST	0243	23	11/08/2010	02/14/2005	1,788
11546	32 HIGH ST	0282	6	11/08/2010	05/04/2009	23,173
11689	297 MONTELLO ST	0660	6	08/13/2004	02/24/2003	-
11755	36 -38 GROVE ST	0210	14	11/08/2010	05/04/2007	3,633
11771	791 MONTELLO ST	0460	6	08/09/2010	02/13/2009	669
11772	798 MONTELLO ST	0460	7	11/08/2010	02/13/2009	5,719
11802	130 LAURESTON S	0470	15	11/08/2010	02/15/2007	1,132
11804	1050 MONTELLO S	0639	11	11/08/2010	02/14/2008	200
11823	1154 MONTELLO S	0639	23	11/08/2010	02/14/2005	3,528
11826	1162 -1164 MONTEL	0639	29	11/08/2010	08/15/2003	1,706
11843	25 MONTELLO ST 1	0638	6	11/08/2010	05/04/2009	1,170
11845	18 -20 MOULTON S	0126	34	11/08/2010		4,013
11860	42 NICKERSON ST	0534	34	11/08/2010		1,249
11901	12 OTIS ST	0401	34	11/08/2010		3,767
11951	12 PACKARD ST	0184	13	11/08/2010	08/17/2007	1,094
11966	90 PARKER AV	0420	22	11/08/2010	05/16/2005	4,249
11992	136 PERKINS AV	0130	34	11/08/2010		1,930
11996	148 PERKINS AV	0130	28	11/08/2010	11/03/2003	3,451
12019	787 MAIN ST	0260	6	11/08/2010	05/04/2009	300
12022	843 MAIN ST	0260	9	11/08/2010	08/12/2008	438
12048	90 PERKINS ST	0502	30	11/08/2010	05/16/2003	1,370

12065	1 PETERSON AV	0363	6	11/08/2010	05/04/2009	2,831
12072	21 PINE AV	0522	9	11/08/2010	08/12/2008	2,061
12076	38 PINE AV	0522	34	11/08/2010		1,257
12089	16 PINE ST	0380	8	11/08/2010	11/03/2008	3,897
12165	74 MARKET ST	0661	34	11/08/2010		1,922
12233	141 QUINCY ST	0110	11	11/08/2010	02/14/2008	3,514
12286	107 RIVERVIEW ST	0310	15	11/08/2010	02/15/2007	1,230
12380	19 SKINNER ST	0403	34	11/08/2010		626
12386	29 SKINNER ST	0403	34	11/08/2010		3,643
12393	23 SMITH AV	0500	16	11/08/2010	11/01/2006	8,715
12399	28 SNELL AV	0313	15	11/08/2010	02/15/2007	6,041
12433	29 -31 SOMERSET P	0482	9	11/08/2010	08/12/2008	4,916
12532	34 NILSSON ST	0233	30	11/08/2010	05/16/2003	5,115
12537	53 NILSSON ST	0233	30	11/08/2010	05/16/2003	813
12610	11 STANDISH ST	0392	14	11/08/2010	05/04/2007	1,999
12643	19 PARK ST	0481	8	11/08/2010	11/03/2008	4,790
12652	105 SUMMER ST	0490	13	11/08/2010	08/17/2007	1,021
12664	153 SUMMER ST	0490	15	11/08/2010	02/15/2007	2,070
12669	165 -R SUMMER ST	0490	11	11/08/2010	02/14/2008	2,052
12714	635 SUMMER ST	0511	19	11/08/2010	02/21/2006	4,395
12735	51 SYLVESTER ST	0063	17	11/08/2010	08/18/2006	725
12737	11 -15 TAYLOR AV	0384	6	08/12/2008	02/15/2007	3,190
12835	18 -20 WATSON ST	0650	8	11/08/2010	11/03/2008	2,810
12857	18 WELLINGTON P	0217	7	11/08/2010	02/13/2009	2,070
12882	19 SOUTH ST	0572	21	11/08/2010	08/15/2005	5,240
12995	18 PINE ST	0380	21	11/08/2010	08/15/2005	3,312
13022	928 MONTELLO ST	0639	17	11/08/2010	08/18/2006	335
13045	47 ALLEN ST	0010	6	11/08/2010	05/04/2009	3,940
13083	11 -13 TREMONT ST	0471	12	11/08/2010	11/01/2007	2,915
13104	57 TREMONT ST	0471	14	11/08/2010	05/04/2007	2,906
13124	55 TRIBOU ST	0232	10	11/08/2010	05/01/2008	5,168
13203	81 WARREN AV	0562	22	11/08/2010	05/16/2005	807
13278	513 -515 WARREN A	0480	6	11/08/2010	05/04/2009	1,980
13287	574 WARREN AV	0480	13	11/08/2010	08/17/2007	3,076
13330	874 WARREN AV	0450	13	11/08/2010	08/17/2007	7,035
13346	944 WARREN AV	0450	34	11/08/2010		514
13359	65 MANCHESTER S	0390	7	11/08/2010	02/14/2008	6,687
13408	868 CENTRE ST	0020	9	11/08/2010	08/12/2008	1,915
13462	19 W CHESTNUT S	0571	15	11/08/2010	02/15/2007	259
13463	24 PERKINS AV	0130	10	11/08/2010	05/01/2008	1,672
13473	46 W CHESTNUT S	0571	9	11/08/2010	08/12/2008	1,552
13528	34 ROCKWELL AV	0294	13	11/08/2010	08/17/2007	894
13622	25 SUMPTER ST	0021	6	11/08/2010	05/04/2009	1,419
13627	539 CRESCENT ST	0150	6	11/08/2010	05/04/2009	15,985
13666	189 CLINTON ST	0170	6	11/08/2010	05/04/2009	2,052
13670	438 THATCHER ST	0530	34	11/08/2010		857
13716	33 WINTHROP ST	0240	6	11/08/2010	05/04/2009	6,240
13720	42 WINTHROP ST	0240	13	11/08/2010	08/17/2007	1,604
13738	31 PERKINS ST	0502	7	11/08/2010	02/13/2009	99
13774	1454 MAIN ST	0410	25	11/08/2010	08/13/2004	1,665
13824	66 CENTRE ST	0050	34	11/08/2010		891
13890	557 EAST ST	0090	6	11/08/2010	05/04/2009	2,423
13934	93 AUBURN ST	0590	7	11/08/2010	02/13/2009	3,207
14017	8 BATES ST	0588	17	11/08/2010	08/18/2006	314
14044	32 DOUGLAS RD	0029	17	11/08/2010	08/18/2006	3,590
14080	21 MILLETT ST	0663	34	11/08/2010		568
14184	305 CARL AV	0140	34	11/08/2010		3,223
14189	45 RIVERSIDE AV	636	27	11/08/2010	02/19/2004	399
14274	16 EAST AV	0142	34	11/08/2010		1,118
14279	93 SUMMER ST	0490	6	11/08/2010	05/04/2009	1,888
14300	910 CENTRE ST	0020	6	11/08/2010	05/04/2009	2,589

14319	18 CARY ST	0200	14	11/08/2010	05/04/2007	973
14503	7 HAROLD ST	0542	17	11/08/2010	08/18/2006	1,993
14559	16 PACKARD ST	0184	9	11/08/2010	08/12/2008	2,710
14603	131 KATHLEEN RD	0221	11	11/08/2010	02/14/2008	2,370
14654	83 BUDD AV	0222	25	11/08/2010	08/13/2004	472
14678	105 KATHLEEN RD	0221	18	11/08/2010	05/19/2006	2,679
14679	85 KATHLEEN RD	0221	21	11/08/2010	08/15/2005	2,857
14694	90 SHERIDAN ST	0103	30	11/08/2010	05/16/2003	1,004
14699	5 KATHLEEN RD	0221	9	11/08/2010	08/12/2008	1,137
14710	30 IDA AV	0610	18	11/08/2010	05/19/2006	2,594
14726	42 IDA AV	0610	30	11/08/2010	05/16/2003	3,389
14767	29 IDA AV	0610	22	11/08/2010	05/16/2005	2,309
14776	222 THATCHER ST	0530	15	11/08/2010	02/15/2007	3,646
14826	989 MAIN ST	0260	29	08/09/2010	05/16/2003	94
14839	737 WARREN AV	0480	25	08/09/2010	05/24/2004	972
14842	43 BEACH ST	0603	34	11/08/2010		1,413
14868	11 MOORE ST	0602	22	05/04/2009	11/03/2003	924
14919	270 ALGER ST	0544	30	11/08/2010	05/16/2003	525
14934	27 JACOB ST	0536	34	11/08/2010		1,980
14967	275 MAIN ST	0013	6	11/08/2010	05/04/2009	805
15038	30 IRENE CR	0191	12	11/08/2010	11/01/2007	1,081
15133	61 WARREN AV	0562	24	11/08/2010	11/01/2004	399
15649	74 -80 W ELM ST	0284	15	11/08/2010	02/15/2007	335
15861	108 PLEASANT ST	0560	26	08/09/2010	02/19/2004	499
16007	165 ERROL RD	0252	20	11/08/2010	11/04/2005	1,494
16020	67 TEMI RD	0253	9	11/08/2010	08/12/2008	537
16055	995 COURT ST	0623	7	11/08/2010	02/13/2009	920
16096	943 COURT ST	0623	26	11/08/2010	05/24/2004	1,400
16102	36 BARRY ST	0525	7	11/08/2010	02/13/2009	702
16109	77 GLADSTONE ST	0040	9	11/08/2010	08/12/2008	732
16130	100 SHARON ST	0032	17	11/08/2010	08/18/2006	1,849
16143	715 CRESCENT ST	0080	11	05/16/2005	09/18/2002	6,077
16176	31 ROCKWELL AV	0294	34	11/08/2010		1,167
16190	861 COURT ST	0623	6	11/08/2010	05/04/2009	2,494
16211	47 ANNADEA RD	0193	24	11/08/2010	11/01/2004	1,108
16283	548 MAIN ST	0430	20	11/08/2010	11/04/2005	733
16354	63 AMES RD	0622	20	11/08/2010	11/04/2005	1,502
16368	605 EAST ST	0090	30	11/08/2010	05/16/2003	1,535
16370	45 CRESTFIELD DR	0120	6	11/08/2010	05/04/2009	2,038
16376	80 EDWARD ST	0031	21	11/08/2010	08/15/2005	1,725
16470	104 EDWARD ST	0031	34	11/08/2010		567
16519	303 OAK HILL WA	2004	17	08/03/2009	05/16/2005	1,635
16524	14 GEORGENE RD	0606	10	11/08/2010	05/01/2008	1,948
16533	121 CRESTFIELD D	0120	8	11/08/2010	11/03/2008	2,764
16537	315 SUMMER ST	0490	33	11/08/2010	09/18/2002	420
16612	772 EAST ST	0090	8	11/08/2010	11/03/2008	1,045
16628	10 PINKHAM ST	0302	27	11/08/2010	02/19/2004	5,294
16634	35 TWELFTH AV	0360	30	11/08/2010	05/16/2003	1,258
16710	18 ABINGTON AV	0035	34	11/08/2010		1,191
16714	55 KINGMAN AV	0104	21	11/08/2010	08/15/2005	5,931
16739	28 CHARLENE DR	0254	34	11/08/2010		1,663
16780	3 LITCHFIELD TR	0656	6	11/08/2010	05/04/2009	1,397
16902	558 EAST ST	0090	21	11/08/2010	08/15/2005	2,200
16906	5 MARY ANN AV	0423	26	11/08/2010	05/24/2004	411
16949	106 FERRIS AV	0314	27	02/13/2009		986
17014	54 WATSON ST	0650	23	11/08/2010	02/14/2005	1,601
17103	40 MAGUIRE RD	0343	22	11/08/2010	05/16/2005	1,221
17112	138 SINCLAIR RD	0330	6	11/08/2010	05/04/2009	1,454
17222	4 VIRGINIA AV	0425	19	11/08/2010	02/21/2006	2,398
17244	53 FOOTHILL RD	0350	17	11/08/2010	08/18/2006	4,018
17264	49 WACHUSETT RI	0340	34	11/08/2010		1,082

17356	150 SOUTHFIELD I	0672	12	11/08/2010	11/01/2007	1,947
17401	567 COURT ST	0220	17	11/08/2010	08/18/2006	437
17439	61 FRANCINE DR	0366	6	11/08/2010	05/04/2009	1,159
17610	87 SINCLAIR RD	0330	24	11/08/2010	11/01/2004	1,985
17705	10 KATHLEEN RD	0221	17	11/08/2010	08/18/2006	975
17714	6 -8 HENRY ST	0614	26	11/08/2010	05/24/2004	3,310
17723	16 WACHUSETT RI	0340	22	11/08/2010	05/16/2005	3,207
17744	187 PERKINS AV	0130	8	11/08/2010	11/03/2008	646
17782	639 EAST ST	0090	20	11/08/2010	11/04/2005	828
17828	128 EAST ST	0377	22	11/08/2010	05/16/2005	1,130
17845	79 DARBY RD	0332	24	11/08/2010	11/01/2004	977
17853	26 SIMEON AV	0512	13	11/08/2010	08/17/2007	1,772
17883	994 CENTRE ST	0020	13	11/08/2010	08/17/2007	2,301
17994	75 LAWRENCE ST	0400	21	11/08/2010	08/15/2005	729
18017	11 KINGMAN AV	0104	32	11/08/2010	12/17/2002	3,502
18022	20 -22 MARTIN PL	0630	9	11/08/2010	08/12/2008	1,799
18070	405 MONTELLO ST	0460	20	11/08/2010		2,083
18153	23 ESSEX ST	0646	34	11/08/2010		1,024
18207	54 PARKER AV	0420	9	11/08/2010	08/12/2008	2,817
18225	42 GREEN ST	0280	16	11/08/2010	11/01/2006	9,376
18242	773 -783 MAIN ST	0260	6	11/08/2010	05/04/2009	22,325
18301	49 LYMAN ST	0524	6	11/08/2010	05/04/2009	1,942
18356	67 -69 TREMONT ST	0471	8	11/08/2010	11/03/2008	3,890
18405	36 MONTELLO ST I	0638	15	11/08/2010	02/15/2007	5,481
18419	203 SUMMER ST	0490	6	11/08/2010	05/04/2009	1,078
18458	253 GROVE ST	0210	7	11/08/2010	02/13/2009	18,981
18461	249 GROVE ST	0210	17	11/08/2010	08/18/2006	13,607
18493	16 AMES RD	0622	34	11/08/2010		913
18496	464 EAST ST	0090	10	02/13/2009	08/18/2006	1,298
18505	48 PINEHURST AV	0621	10	11/08/2010	05/01/2008	1,273
18510	47 W ELM ST	0284	6	11/04/2009	05/01/2008	13,935
18586	157 MAIN ST	0013	26	11/03/2008		342
18622	19 NICKERSON ST	0534	26	11/08/2010	05/24/2004	2,195
18686	112 MASSASOIT A'	0206	8	11/08/2010	11/03/2008	1
18712	10 HALE ST	0383	34	11/08/2010		2,972
18754	730 CENTRE ST	0100	19	11/08/2010	02/21/2006	556
18850	76 COOLIDGE AV	0102	22	11/08/2010	05/16/2005	1,932
18867	14 EAMES AV	2222	30	11/08/2010	05/16/2003	6,414
18924	819 WARREN AV	0450	34	11/08/2010		2,247
18970	33 GEORGE ST	0533	6	11/08/2010	05/04/2009	1,615
18985	491 MAIN ST	0260	32	11/08/2010	12/17/2002	666
18991	15 KERI-ANNE DR	0091	10	11/08/2010	05/01/2008	3,706
18994	711 PLAIN ST	0320	6	11/08/2010	05/04/2009	2,083
19028	1024 CRESCENT ST	0080	27	11/08/2010	02/19/2004	1,827
19111	- WARREN AV	0450	33	08/09/2010		8,435
19153	37 CUSHING RD	0326	16	11/08/2010	11/01/2006	2,584
19161	75 DENTON ST	0231	10	11/04/2009	05/04/2007	1,489
19172	792 SUMMER ST	0306	19	11/08/2010	02/21/2006	1,524
19215	345 PLAIN ST	0308	28	11/08/2010	11/03/2003	698
19220	103 PETERSON AV	0363	16	11/08/2010	11/01/2006	2,398
19230	568 MONTELLO ST	0460	6	11/08/2010	05/04/2009	956
19238	9 MICHELLE LA	0367	25	11/08/2010	08/13/2004	750
19264	57 CAPPY'S WA	0320	21	11/08/2010	08/15/2005	2,320
19266	588 EAST ST	0090	22	11/08/2010	05/16/2005	2,342
19270	12 CAPPY'S WA	0320	9	11/08/2010	08/12/2008	3,202
19278	19 RHONDA RD	0121	23	11/08/2010	02/14/2005	46
19308	36 WAVERLY PK R	0322	16	11/08/2010	11/01/2006	2,014
19310	31 DOVER ST	0242	11	11/08/2010	02/14/2008	529
19312	34 JACOB ST	0536	20	11/08/2010	11/04/2005	750
19350	209 QUINCY ST	0110	27	11/08/2010	02/19/2004	558
19689	336 THATCHER ST	0370	16	11/08/2010	11/01/2006	2,123

19706	516 THATCHER ST	0530	6	11/08/2010	05/04/2009	207
19712	14 TREMONT ST	0471	15	11/08/2010	02/15/2007	1,013
19715	29 EMPIRE AV	0046	8	11/08/2010	11/03/2008	489
19729	110 BENHAM ST	0201	7	11/08/2010	02/13/2009	887
19927	30 HAROLD ST	0542	6	11/08/2010	05/04/2009	1,560
20103	433 ASH ST	0091	15	11/08/2010	02/15/2007	2,420
20174	88 BELCHER AV	0031	10	11/08/2010	05/01/2008	754
20194	95 BELMONT AV	0530	9	11/08/2010	08/12/2008	2,069
20251	37 FIRST ST	0464	12	11/08/2010	11/01/2007	2,133
20296	268 BELMONT ST	0101	15	11/08/2010	02/15/2007	1,660
20345	560 BELMONT ST	0162	12	11/08/2010	11/01/2007	2,762
20365	178 HIGHLAND ST	0392	32	11/08/2010	12/17/2002	818
20368	8 MARSHA DR	0001	11	11/08/2010	02/14/2008	1,794
20421	232 BOYLSTON ST	0090	19	11/08/2010	02/21/2006	1,947
20442	56 BREER ST	0071	10	11/08/2010	05/01/2008	1,299
20515	768 BELMONT ST	0162	15	11/08/2010	02/15/2007	10,000
20614	40 -A40B CLIFTON ,	0210	7	02/14/2008	05/19/2006	3,921
20678	11 COPELAND ST	0191	10	11/08/2010	05/01/2008	2,199
20728	233 COPELAND ST	0191	25	11/08/2010	08/13/2004	1,717
20729	236 COPELAND ST	0191	23	11/08/2010	02/14/2005	1,388
20837	12 DORIS AV	0452	28	11/08/2010	11/03/2003	1,913
20892	10 ELLSWORTH ST	0266	20	11/08/2010	11/04/2005	3,744
20893	21 ELLSWORTH ST	0266	24	05/01/2008		1,015
20961	15 FIRST ST	0464	6	11/08/2010	05/04/2009	4,398
21002	130 FLORENCE ST	0662	13	02/13/2009	11/04/2005	1,341
21031	93 FOREST AV	0221	11	11/08/2010	02/14/2008	2,695
21032	49 FIRST ST	0464	19	11/08/2010	02/21/2006	593
21033	95 FOREST AV	0221	12	11/08/2010	11/01/2007	2,883
21042	116 FOREST AV	0221	6	11/08/2010	05/04/2009	3,915
21050	135 FOREST AV	0221	34	11/08/2010		365
21131	72 FOSTER ST	0354	10	11/08/2010	05/01/2008	1,775
21132	43 ELLSWORTH ST	0266	6	11/08/2010	05/04/2009	985
21186	34 FULLER ST	0223	28	11/08/2010	11/03/2003	3,174
21194	68 FULLER ST	0223	16	11/08/2010	11/01/2006	2,241
21267	275 -277 GREEN ST	0423	18	11/08/2010	05/19/2006	2,511
21274	290 GREEN ST	0423	34	11/08/2010		5,509
21304	54 GLENWOOD ST	0264	26	11/08/2010	05/24/2004	250
21364	243 GRAFTON ST	0230	6	11/08/2010	05/04/2009	1,527
21372	303 GRAFTON ST	0230	17	11/08/2010	08/18/2006	1,094
21452	11 HAMLET ST	0215	6	11/08/2010	05/04/2009	1,147
21463	29 HARDY AV	0311	16	11/08/2010	11/01/2006	1,531
21520	9 HAZEL ST	0085	20	11/08/2010	11/04/2005	5,599
21604	136 HIGHLAND ST	0392	34	11/08/2010		3,866
21841	46 LEAVITT ST	0240	28	11/08/2010	11/03/2003	821
21906	140 LONGWOOD A	0368	34	11/08/2010		6,903
22083	1467 MAIN ST	0400	19	11/08/2010	02/21/2006	6,035
22102	49 MALVERN RD	0292	6	11/08/2010	05/04/2009	2,584
22139	23 MARION AV	0285	26	11/08/2010	05/24/2004	1,082
22228	18 MENLO ST	0342	10	11/08/2010	05/01/2008	1,445
22241	90 MENLO ST	0342	9	11/08/2010	08/12/2008	3,994
22312	97 MORAINE ST	0041	16	11/08/2010	11/01/2006	942
22322	144 MORAINE ST	0590	17	11/08/2010	08/18/2006	825
22336	294 MORAINE ST	0590	34	11/08/2010		1,691
22441	154 MYRTLE ST	0463	34	11/08/2010		631
22462	29 NEWBURY ST	0263	9	11/08/2010	08/12/2008	2,454
22471	69 -71 NEWBURY S	0263	18	11/08/2010	05/19/2006	19,782
22509	195 NEWBURY ST	0263	10	11/08/2010	05/01/2008	1,571
22520	19 -21 NEWTON ST	0081	21	11/08/2010	08/15/2005	3,163
22584	16 NYE AV	0493	20	11/08/2010	11/04/2005	1,357
22672	124 PEARL ST	0510	22	11/08/2010	05/16/2005	1,128
22674	144 PEARL ST	0510	22	11/08/2010	02/14/2005	231

22677	180 PEARL ST	0510	34	11/08/2010		1,583
22688	368 PEARL ST	0300	15	11/08/2010	02/15/2007	272
22763	422 PLEASANT ST	0370	7	11/08/2010	02/13/2009	1,083
22767	440 -444 PLEASANT	0370	15	02/21/2006		604
22874	25 SIMMONS AV	0384	10	11/08/2010	05/01/2008	3,488
22975	58 SUNSET AV	0671	6	11/08/2010	05/04/2009	804
22984	66 SYCAMORE AV	0050	13	11/08/2010	08/17/2007	1,126
23038	118 TILTON AV	0249	21	11/08/2010	08/15/2005	1,767
23053	180 -182 TORREY S	0410	16	11/08/2010	11/01/2006	2,751
23079	37 TRACK ST	0663	25	11/08/2010	08/13/2004	1,120
23115	95 TREMONT ST	0287	34	11/08/2010		623
23131	118 TRIBOU ST	0470	10	11/08/2010	05/01/2008	2,811
23144	64 MENLO ST Unit :	0342	24	11/08/2010	11/01/2004	283
23437	88 -90 BARTLETT S	0083	6	11/08/2010	05/04/2009	639
23438	471 ASH ST	0091	23	11/08/2010	02/14/2005	286
23443	130 -132 BARTLETT	0083	13	11/08/2010	08/17/2007	4,932
23499	150 W CHESTNUT S	0330	14	11/08/2010	05/04/2007	9,150
23581	234 W ELM ST	0540	28	11/08/2010	11/03/2003	2,011
23599	306 W ELM ST	0540	17	11/08/2010	08/18/2006	9,672
23726	72 WINTHROP ST	0531	34	11/08/2010		3,233
23769	208 WINTHROP ST	0531	18	11/08/2010	05/19/2006	6,675
23820	17 DAY AV	0243	28	11/08/2010	11/03/2003	2,178
23829	162 MORAINE ST	0590	34	11/08/2010		3,212
23899	362 SPRING ST	0382	8	11/08/2010	02/14/2008	1,893
23914	21 VERNE ST	0670	13	11/08/2010	08/17/2007	1,490
23967	85 NEWBURY ST	0263	24	11/08/2010		699
24056	40 BROOK ST	0086	34	11/08/2010		3,308
24083	200 ASH ST	0051	23	11/08/2010	02/14/2005	763
24087	55 FIRST ST	0464	30	11/08/2010	05/16/2003	338
24110	109 LINWOOD ST	0481	6	11/08/2010	02/13/2009	608
24154	329 FOREST AV	0211	8	11/08/2010	11/03/2008	1,828
24203	128 MENLO ST	0342	13	11/08/2010	05/04/2007	1,720
24263	200 BOYLSTON ST	0090	22	11/08/2010	05/16/2005	327
24268	562 PLEASANT ST	0370	16	11/08/2010	11/01/2006	1,001
24275	33 WINNIFRED RD	0501	15	11/08/2010	02/15/2007	1,352
24277	6 OLIVE TR	383	6	11/08/2010	05/04/2009	5,346
24326	156 WEST ST	0521	34	11/08/2010		2,818
24413	248 GRAFTON ST	0230	31	11/08/2010	02/24/2003	1,167
24417	52 WEST ST	0521	34	11/08/2010		3,148
24472	8 BELCHER AV	0031	26	11/08/2010	05/24/2004	1,369
24633	187 GRAFTON ST	0230	7	11/08/2010	11/03/2008	817
24639	202 HIGHLAND ST	0392	30	11/08/2010	05/16/2003	2,288
24674	22 MANOMET ST	0660	22	11/08/2010	05/16/2005	2,573
24703	69 GRAFTON ST	0230	11	11/08/2010	02/14/2008	1,282
24724	370 COPELAND ST	0640	34	11/08/2010		1,978
24750	66 WINNIFRED RD	0501	26	11/08/2010	05/24/2004	3,803
24816	89 TORREY AV	0520	14	11/08/2010	05/04/2007	188
24900	249 W ELM ST	0540	20	11/08/2010	11/04/2005	1,736
24911	57 VERNE ST	0670	14	11/08/2010	05/04/2007	529
24942	79 WILSON ST	0231	34	11/08/2010		3,912
25073	28 MORSE AV	0502	7	11/08/2010	02/13/2009	784
25176	97 VESEY ST	0286	34	11/08/2010		5,206
25237	18 MARIGOLD RD	0154	11	11/08/2010	02/14/2008	2,520
25490	1471 MAIN ST	0400	6	11/08/2010	05/04/2009	467
25510	3 PALM PL	0262	34	11/08/2010		2,076
25520	551 ASH ST	0091	10	11/08/2010	05/01/2008	199
25569	66 CUSTER ST	0255	34	11/08/2010		4,831
25828	138 HUBBARD AV	0434	34	11/08/2010		1,747
25915	323 CAMBO ST	0673	6	11/08/2010	05/04/2009	620
26137	64 MENLO ST Unit :	0342	23	11/08/2010	02/14/2005	750
26181	72 VERNE ST	0670	34	11/08/2010		1,087

26394	41 DAWES RD	0146	23	11/08/2010	02/14/2005	359
26447	345 ROCKLAND ST	0553	27	11/08/2010	02/19/2004	1,066
26474	63 PONDVIEW CR	0601	6	11/08/2010	05/04/2009	710
26542	34 NANCY LA	0490	34	11/08/2010		2,693
26727	141 BIRCHVIEW A'	0275	10	11/08/2010	05/01/2008	1,945
26747	600 PEARL ST	0300	34	11/08/2010		2,895
26789	31 FALCONER AV	0350	17	11/08/2010	08/18/2006	956
26795	64 MENLO ST Unit :	0342	23	11/08/2010	02/14/2005	286
26846	103 LEACH AV	0312	6	11/08/2010	05/04/2009	1,598
27077	64 WESTWOOD AV	0653	15	11/08/2010	02/15/2007	2,151
27228	516 PLEASANT ST	0370	8	11/03/2008	11/01/2006	114
27269	63 WOODARD AV	0495	13	11/08/2010	08/17/2007	945
27272	39 BREER CR	0070	13	11/08/2010	08/17/2007	2,101
27328	3 WILSON ST	0231	6	11/08/2010	05/04/2009	1,840
27346	456 FOREST AV	0211	20	11/08/2010	11/04/2005	750
27381	86 SUNSET AV	0671	10	11/08/2010	05/01/2008	1,386
27426	3 SHAW RD	0132	17	11/08/2010	08/18/2006	465
27512	28 GLENDALE AV	0643	34	11/08/2010		646
27535	50 POPLAR RD	0385	14	11/08/2010	05/04/2007	2,811
27602	50 CARLETON AV	0120	34	11/08/2010		950
27785	35 LINCOLN RD	0220	9	11/08/2010	08/12/2008	1,321
27921	12 TOSCA DR	0586	8	11/08/2010	11/03/2008	4,126
27969	604 TORREY ST	0587	21	11/08/2010	08/15/2005	1,459
28023	11 TORREY SIDE R	0561	29	11/08/2010	08/15/2003	3,421
28041	28 GREENBRIAR R	0602	9	11/08/2010	08/12/2008	1,037
28153	30 TORREY SIDE R	0561	34	11/08/2010		1,393
28189	490 PLEASANT ST	0370	7	11/08/2010	02/13/2009	610
28294	40 MICHAEL DR	0650	34	11/08/2010		2,464
28416	140 TOSCA DR	0586	34	11/08/2010		1,901
28544	165 WENTWORTH .	0253	34	11/08/2010		883
28564	30 ROCKFORD ST	0483	26	11/08/2010	05/24/2004	1,259
28588	27 TRENTON ST	0613	34	11/08/2010		2,816
28855	87 TALBOT ST	0068	33	11/08/2010	09/18/2002	728
28875	64 MENLO ST Unit '	0342	24	11/08/2010		454
28971	36 HOOVER AV	0064	21	11/08/2010	08/15/2005	2,116
29031	64 MENLO ST Unit	0342	26	11/08/2010	02/24/2003	1,664
29059	34 ROCKLAND CR	0638	9	11/08/2010	08/12/2008	2,950
29166	141 TALBOT ST	0068	7	11/08/2010	02/13/2009	1,459
29179	830 W CHESTNUT '	2005	6	11/08/2010	05/04/2009	1,105
29224	151 ROCKLAND DI	0639	34	11/08/2010		3,119
29387	75 VAN CLIFF AV	0567	6	11/08/2010	05/04/2009	2,119
29430	20 BURKE DR	2005	22	11/08/2010	05/16/2005	986
29485	510 BELMONT ST	0162	10	08/09/2010	02/14/2008	-
29576	93 TRIBOU ST	0470	34	11/08/2010		2,648
29584	560 BELMONT ST	0162	26	11/08/2010	05/24/2004	2,336
29631	1039 ASH ST	0320	34	11/08/2010		4,288
29768	61 TORREY ST	0410	16	05/07/2010	05/19/2006	2,673
29793	248 W ELM ST Unit	0540	11	02/12/2010	05/04/2007	1,456
29794	57 FULLER ST	0223	12	11/08/2010	11/01/2007	4,904
29805	21 ATHENS DR	0609	23	11/08/2010	02/14/2005	750
29814	290 CAMBO ST	0673	27	11/08/2010	02/19/2004	1,876
29820	75 FRENCH AV	0100	12	11/08/2010	11/01/2007	354
29821	121 LIBERTY ST	0134	6	11/01/2004	05/16/2003	25,611
29857	500 BELMONT ST	0162	12	08/09/2010	08/17/2007	1,406
29898	243 GREEN ST	0423	34	11/08/2010		3,401
29940	49 CALYPSO DR	0555	11	11/08/2010	02/14/2008	2,253
29949	- CONCORD AV	0213	8	11/08/2010	11/03/2008	3,349
30042	94 AUGUSTINE ST	0503	16	11/08/2010	11/01/2006	1,537
30050	52 SPARK ST	0770	13	11/08/2010	08/17/2007	1,555
30062	148 AMES ST	0010	6	11/08/2010	05/04/2009	3,648
30135	12 ARGYLE AV	0030	21	11/08/2010	08/15/2005	1,910

30171	11 AUGUSTINE ST	0503	29	11/08/2010	08/15/2003	2,886
30180	24 BANKS ST	0062	6	11/08/2010	05/04/2009	2,251
30199	34 BATTLES ST	0051	7	11/08/2010	02/13/2009	5,095
30210	95 BATTLES ST	0051	6	11/08/2010	05/04/2009	7,262
30284	50 W ROSSETER ST	0646	21	11/08/2010	08/15/2005	288
30301	117 BELLEVUE AV	0061	31	11/08/2010	02/24/2003	502
30338	8 BROAD ST	0232	28	11/08/2010	11/03/2003	6,255
30348	36 BROAD ST	0232	18	11/08/2010	05/19/2006	2,005
30378	36 CARTER ST	0253	7	11/08/2010	02/13/2009	1,303
30382	46 CARTER ST	0253	13	11/08/2010	08/17/2007	1,794
30394	17 CHERRY ST	0611	21	11/08/2010	08/15/2005	4,152
30453	44 CLARENCE ST	0590	25	11/08/2010	08/13/2004	2,410
30532	65 CROSS ST	302	13	11/08/2010	02/15/2007	286
30537	127 CROSS ST	0302	21	11/08/2010	08/15/2005	2,408
30546	20 DELAWARE ST	0124	16	11/08/2010	11/01/2006	385
30673	206 ELLIOT ST	0250	15	11/08/2010	02/15/2007	3,023
30683	31 ELLIS ST	0581	15	11/08/2010	02/15/2007	931
30693	57 -59 ELLIS ST	0581	14	11/08/2010	05/04/2007	6,797
30695	61 -63 ELLIS ST	0581	34	11/08/2010		5,470
30771	56 FAIRMOUNT AV	0282	18	11/08/2010	05/19/2006	1,866
30787	30 FARRINGTON ST	0620	25	11/08/2010	08/13/2004	1,198
30810	45 -47 FIELD ST	0070	8	11/08/2010	11/03/2008	6,508
30829	271 FIELD ST	0512	19	11/08/2010	02/21/2006	2,955
30856	64 FORD ST	0280	26	11/08/2010	05/24/2004	910
30908	148 COURT ST	0461	9	02/14/2008	11/04/2005	1,048
30928	62 SPARK ST	0770	6	11/08/2010	05/04/2009	3,573
30935	11 LEBANON ST	0482	9	11/08/2010	08/12/2008	3,068
30937	15 LEBANON ST	0482	30	11/08/2010	05/16/2003	3,156
30940	24 LEBANON ST	0482	6	11/08/2010	05/04/2009	1,514
31006	34 HERMON ST	0652	30	11/08/2010	05/16/2003	8,480
31080	164 HOVENDEN AV	0071	21	11/08/2010	08/15/2005	4,301
31095	66 -68 HOWARD ST	0520	7	11/08/2010	02/13/2009	4,186
31162	81 HUNTINGTON S	0270	19	11/08/2010	02/21/2006	2,617
31169	103 -105 HUNTINGT	0270	11	11/08/2010	02/14/2008	1,536
31172	132 HUNTINGTON	0270	11	11/08/2010	02/14/2008	3,084
31177	22 INTERVALE ST	0021	19	11/08/2010	02/21/2006	3,311
31193	139 INTERVALE ST	0021	7	11/08/2010	02/13/2009	2,157
31350	38 MONTAUK RD	0400	34	11/08/2010		909
31410	347 PROSPECT ST	0202	6	11/08/2010	05/04/2009	3,939
31444	618 N CARY ST	0800	11	11/08/2010	02/14/2008	1,264
31456	30 N MAIN ST	0391	21	11/08/2010	08/15/2005	1,158
31459	33 N MAIN ST	0391	20	11/08/2010	11/04/2005	4,295
31470	87 -89 N MAIN ST	0391	22	11/08/2010	05/16/2005	8,787
31479	1096 N MAIN ST Ur	0670	13	11/08/2010	08/17/2007	611
31481	1094 N MAIN ST Ur	0670	17	11/08/2010	08/18/2006	750
31486	159 N MAIN ST	0391	10	11/08/2010	05/01/2008	462
31497	201 -205 N MAIN ST	0391	19	11/08/2010	02/21/2006	17,046
31569	604 N MAIN ST	0750	10	08/09/2010	02/14/2008	1,663
31582	664 -672 N MAIN ST	0680	9	05/19/2006	02/17/2004	255
31611	789 N MAIN ST	0680	19	11/08/2010	02/21/2006	4,934
31628	864 N MAIN ST	0670	34	11/08/2010		3,025
31650	962 N MAIN ST	0670	9	11/08/2010	08/12/2008	3,274
31658	1004 N MAIN ST	0670	9	11/08/2010	08/15/2005	3,393
31662	1022 N MAIN ST	0670	15	11/08/2010	02/15/2007	1,876
31689	9 N MANCHESTER	0470	34	11/08/2010		3,778
31718	69 -71 N MONTELL(	0481	11	11/08/2010	02/14/2008	2,006
31772	348 N MONTELLO S	0481	34	11/08/2010		2,566
31780	375 N MONTELLO S	0481	34	11/08/2010		3,131
31792	437 N MONTELLO S	0780	6	11/08/2010	05/04/2009	1,896
31812	542 N MONTELLO S	0780	28	11/08/2010	11/03/2003	2,749
31814	770 N MONTELLO S	0780	10	11/08/2010	05/01/2008	619

31866	817 N MONTELLO !	0780	6	11/08/2010	05/04/2009	6,124
31867	818 N MONTELLO !	891	9	11/08/2010	08/12/2008	2,894
31900	98 N QUINCY ST	0150	18	11/08/2010	05/19/2006	1,492
31902	169 N QUINCY ST	0554	34	11/08/2010		2,048
31951	154 -.5 N WARREN /	0791	6	11/08/2010	05/04/2009	1,967
32016	21 OAK ST	0491	7	11/08/2010	02/13/2009	1,670
32030	235 OAK ST	0213	6	11/08/2010	05/04/2009	2,460
32094	24 PARKER ST	0474	12	11/08/2010	11/01/2007	2,541
32095	30 PARKER ST	0474	34	11/08/2010		4,428
32106	26 PAYTON CT	0052	34	11/08/2010		5,987
32114	18 PENNSYLVANI/	0603	33	11/08/2010	09/18/2002	3,084
32116	25 -31 PLEASANT S	0600	20	11/08/2010	11/04/2005	3,064
32118	57 PLEASANT ST	0600	34	11/08/2010		268
32150	291 PLEASANT ST	0060	7	11/08/2010	02/13/2009	1,512
32156	359 PLEASANT ST	0060	9	11/08/2010	08/12/2008	1,799
32193	905 PLEASANT ST	0382	10	11/08/2010	05/01/2008	1,576
32213	70 UPLAND RD	0490	8	11/08/2010	11/03/2008	603
32219	88 UPLAND RD	0490	9	11/08/2010	08/12/2008	3,695
32245	28 PROSPECT ST	0190	6	11/08/2010	05/04/2009	4,693
32260	81 PROSPECT ST	0190	18	11/08/2010	05/19/2006	1,300
32267	107 PROSPECT ST	0190	20	11/08/2010	11/04/2005	1,367
32301	321 -323 PROSPECT	0202	27	11/08/2010	02/17/2004	4,718
32336	65 RICHMOND ST	0621	6	11/08/2010	05/04/2009	4,099
32375	19 RUTLAND ST	0090	24	11/08/2010	11/01/2004	3,250
32421	30 SNELL ST	0812	11	11/08/2010	02/14/2008	3,878
32476	80 SPRAGUE ST	0320	9	11/08/2010	08/12/2008	1,324
32499	70 SPRING ST	0430	21	05/04/2009	02/17/2004	771
32519	8 TABER AV	0471	10	11/08/2010	05/01/2008	4,139
32586	57 VINE ST	0511	6	11/08/2010	05/04/2009	3,544
32596	88 VINE ST	0511	18	11/08/2010	05/19/2006	2,456
32634	64 WALNUT ST	0691	34	11/08/2010		1,152
32675	51 WAVERLY ST	0643	34	11/08/2010		1,720
32682	85 WEBSTER ST	0014	16	11/08/2010	11/01/2006	11,169
32687	33 WELSFORD ST	0661	33	11/08/2010	09/18/2002	882
32720	28 -30 WESTON ST	0582	7	11/08/2010	02/13/2009	2,291
32721	29 WESTON ST	0582	18	11/08/2010	05/19/2006	4,696
32723	33 -35 WESTON ST	0582	24	11/08/2010	11/01/2004	10,281
32783	50 -52 WILMINGTO	0092	29	11/08/2010	08/15/2003	4,628
32798	67 WINTER ST	0660	16	11/08/2010	11/01/2006	2,738
32853	37 WYMAN ST	0692	6	11/08/2010	05/04/2009	4,379
32861	61 WYMAN ST	0692	18	11/08/2010	05/19/2006	2,701
32866	78 -80 WYMAN ST	0692	9	08/13/2004		736
32989	23 DUTCHLAND A'	0225	29	11/08/2010	08/15/2003	1,398
33017	13 BROAD PL	0231	22	11/08/2010	05/16/2005	1,150
33109	28 PORTER ST	0752	10	11/08/2010	05/01/2008	556
33162	67 WAYLAND ST	0640	34	11/08/2010		2,472
33184	115 BURKESIDE A'	0563	11	11/08/2010	02/14/2008	1,405
33258	41 -43 DIVISION ST	0273	6	11/08/2010	05/04/2009	5,251
33308	33 EARLE ST	0304	21	11/08/2010	08/15/2005	620
33340	332 BELAIR ST	0102	34	11/08/2010		2,071
33508	298 N MAIN ST	0750	26	11/03/2008		722
33516	49 CLEVELAND A'	0230	34	11/08/2010		753
33531	100 SUMNER ST	0131	33	11/08/2010	09/18/2002	2,824
33543	346 N WARREN AV	0791	27	11/08/2010	02/17/2004	1,174
33641	53 AUGUSTA AV	0300	34	11/08/2010		4,230
33652	66 MANNERS AV	0043	34	11/08/2010		2,027
33667	38 ALBION ST	0591	6	11/08/2010	05/04/2009	6,279
33704	5 N MONTELLO ST	0481	34	11/08/2010		1,102
33709	364 N MAIN ST	0750	18	11/08/2010	05/19/2006	409
33742	176 BATTLES ST	0051	34	11/08/2010		1,853
33752	24 WILLIAMS AV	0472	7	11/08/2010	02/13/2009	253

33831	54 SPARK ST	0770	11	11/08/2010	02/14/2008	5,359
33917	130 WILDER ST	0595	7	02/21/2006	05/24/2004	731
33921	124 MULBERRY ST	0260	17	11/08/2010	08/18/2006	6,224
33927	208 ELLIOT ST	0250	25	02/12/2010	11/03/2003	59
33933	454 SOUTH ST	2003	18	11/01/2006		2,459
33967	15 LOCUST ST	0622	14	11/01/2006	05/16/2003	583
34034	240 N QUINCY ST	0150	22	11/08/2010	05/16/2005	513
34072	49 ARTHUR ST	0060	6	11/03/2003		-
34073	856 N MONTELLO S	0780	8	11/08/2010	11/03/2008	543
34094	21 -R W ASHLAND S	0810	6	11/08/2010	05/04/2009	1,432
34123	755 N MAIN ST	0680	10	05/16/2005	12/17/2002	388
34230	41 WOODLAND AV	0572	27	11/08/2010	02/17/2004	1,168
34249	66 FRANKTON AV	0545	29	11/08/2010	09/18/2002	659
34256	12 DUTCHLAND A'	225	6	11/08/2010	05/04/2009	646
34260	38 LOCUST ST	0622	9	11/08/2010	08/12/2008	1,071
34287	35 W ROSSETER ST	0646	12	11/08/2010	11/01/2007	3,470
34314	395 PLEASANT ST	0600	34	11/08/2010		1,983
34363	17 AUGUSTINE ST	0503	18	11/08/2010	05/19/2006	1,484
34388	58 CROSS ST	0302	11	11/08/2010	02/14/2008	3,045
34399	11 ORCHARD AV	0681	24	11/08/2010	11/01/2004	2,035
34440	200 BISHOP ST	0166	8	11/08/2010	11/03/2008	1,087
34536	129 WILDER ST	0595	30	11/04/2009		-
34539	22 CIRCLE ST	0022	7	11/08/2010	02/13/2009	212
34575	937 PLEASANT ST	0382	24	11/08/2010	11/01/2004	3,128
34640	15 SHELDON ST	0662	34	11/08/2010		1,583
34645	146 DREW AV	0168	10	11/08/2010	05/01/2008	906
34693	46 N MONTELLO S'	0481	6	11/08/2010	05/04/2009	2,620
34728	70 ORCHARD AV	0681	34	11/08/2010		2,231
34775	67 CARRLYN RD	0375	6	11/08/2010	05/04/2009	2,434
34793	133 E ASHLAND ST	0262	9	11/08/2010	08/12/2008	1,804
34798	86 GERALD AV	0634	7	11/08/2010	02/13/2009	1,681
34876	87 RUTH RD	0353	8	11/08/2010	11/03/2008	2,701
34912	26 RUTH RD	0353	18	11/08/2010	05/19/2006	732
34963	190 CROSS ST	0302	27	11/08/2010	02/17/2004	800
35016	56 RAINBOW CR	0224	21	11/08/2010	08/15/2005	854
35106	7 TINA AV	0721	18	11/08/2010	05/19/2006	1,999
35126	72 BOYLE RD	0184	25	11/08/2010	08/13/2004	526
35196	63 LISA DR	0711	9	11/08/2010	08/12/2008	573
35201	41 PORTER ST	0752	34	11/08/2010		413
35258	75 LISA DR	0711	26	11/08/2010	05/24/2004	1,552
35265	52 BOYLE RD	0184	10	11/08/2010	05/01/2008	1,663
35273	200 LISA DR	0711	15	11/08/2010	02/15/2007	2,910
35281	295 SULLY RD	0710	10	11/08/2010	05/01/2008	1,808
35299	98 CRICKETT RD	0221	27	11/08/2010	02/17/2004	874
35302	45 RENE RD	0223	30	11/08/2010	05/16/2003	2,432
35306	172 LISA DR	0711	8	11/08/2010	11/03/2008	1,824
35326	114 CRICKETT RD	0221	11	11/08/2010	02/14/2008	1,873
35342	246 LISA DR	0711	34	11/08/2010		2,775
35405	33 ROSEMARY ST	0334	34	11/08/2010		2,448
35412	199 LISA DR	0711	16	11/08/2010	11/01/2006	1,834
35413	206 LISA DR	0711	6	11/08/2010	05/04/2009	377
35414	260 SULLY RD	0710	23	11/08/2010	02/14/2005	1,060
35472	356 HOVENDEN AV	0730	18	11/08/2010	05/19/2006	1,173
35492	125 LYNN RD	0720	26	11/08/2010	05/24/2004	1,694
35516	27 ELSIE RD	0240	12	11/08/2010	11/01/2007	1,250
35526	115 E ASHLAND ST	0262	16	11/08/2010	11/01/2006	994
35574	36 LIVINGSTON RI	0811	34	11/08/2010		2,244
35599	119 LYNN RD	0720	31	11/08/2010	02/24/2003	5,435
35685	41 KEVIN RD	0740	6	11/08/2010	05/04/2009	1,294
35692	63 CRICKETT RD	0221	8	11/08/2010	11/03/2008	1,711
35693	311 HOVENDEN AV	0730	12	11/08/2010	11/01/2007	887

35714	382 HOVENDEN AV	0730	10	11/08/2010	05/01/2008	1,685
35746	131 NORMAN RD	0701	6	11/08/2010	05/04/2009	2,501
35751	704 N QUINCY ST	0055	14	11/08/2010	05/04/2007	1,436
35760	266 LYNN RD	0720	34	11/08/2010		829
35763	30 LYNN RD	0720	7	11/08/2010	02/13/2009	553
35777	5 KEVIN RD	0740	6	11/08/2010	05/04/2009	601
35814	295 E ASHLAND ST	0330	8	11/08/2010	11/03/2008	1,543
35823	44 GLADYS RD	0702	30	11/08/2010	05/16/2003	2,705
35832	183 KEVIN RD	0740	8	11/08/2010	11/03/2008	1,386
35850	144 LESTER RD	0700	14	11/08/2010	05/04/2007	7,255
35876	62 BROOKVILLE A	0292	34	11/08/2010		932
35964	65 GARY RD	0295	9	11/08/2010	08/12/2008	1,738
35977	22 RANDOLPH AV	0804	34	11/08/2010		2,017
35999	374 HOVENDEN AV	0730	18	11/08/2010	05/19/2006	213
36132	55 BOURNE ST	0120	7	11/08/2010	02/13/2009	1,952
36135	30 ARDSLEY CR	0441	27	11/08/2010	02/17/2004	1,143
36154	62 LOCUST ST	0622	16	11/08/2010	11/01/2006	1,826
36172	296 LISA DR	0711	7	11/08/2010	02/13/2009	1,384
36184	106 ARDSLEY ST	0440	33	11/08/2010	09/18/2002	1,008
36193	280 JON DR	0741	13	11/08/2010	08/17/2007	903
36228	8 RODWELL ST	0654	13	11/08/2010	08/17/2007	912
36286	269 JON DR	0741	14	11/08/2010	05/04/2007	4,038
36299	84 ARDSLEY CR	0441	34	11/08/2010		3,101
36304	28 BERNARD CR	0327	29	11/08/2010	08/15/2003	5,254
36335	14 RODWELL ST	0654	6	11/08/2010	05/04/2009	520
36359	60 LOUIS ST	0065	6	11/08/2010	05/04/2009	1,596
36415	822 N QUINCY ST	0803	30	11/08/2010	05/16/2003	2,216
36428	108 ROYAL RD	0174	25	11/08/2010	08/13/2004	561
36637	48 -R SPARK ST	0770	33	11/08/2010	09/18/2002	1,020
36752	89 WALECO RD	0636	7	11/08/2010	02/13/2009	442
36791	40 WALECO RD	0636	21	11/08/2010	08/15/2005	525
36899	22 CARTER ST	0253	6	11/08/2010	05/04/2009	394
36930	113 ADDISON ST	0042	12	11/08/2010	11/01/2007	1,460
36961	1169 PLEASANT ST	0369	7	11/08/2010	02/13/2009	1,372
36968	6 RAY AV	0132	24	11/08/2010	11/01/2004	3,613
36975	1211 PLEASANT ST	0369	8	11/08/2010	11/03/2008	512
37003	201 -H N QUINCY S	0554	20	02/13/2009	02/17/2004	645
37065	1074 COURT ST	0630	6	11/08/2010	11/03/2008	885
37093	10 HUNTINGTON P	0271	34	11/08/2010		985
37105	201 -F N QUINCY ST	0554	6	11/08/2010	05/04/2009	960
37144	82 THOMAS ST	0161	8	11/08/2010	11/03/2008	2,763
37242	39 FARNHAM ST	0324	9	11/08/2010	05/01/2008	750
37262	41 RAYMOND RD	0222	21	11/08/2010	08/15/2005	994
37303	102 NICHOLSON DI	0335	17	11/08/2010	08/18/2006	1,578
37326	200 WESTGATE DR	1020	29	11/08/2010	08/15/2003	464
37335	- WESTGATE DR	1020	33	11/08/2010	09/18/2002	268
37339	34 DIXON RD	0144	16	11/08/2010	11/01/2006	3,638
37341	75 FITZPATRICK A	0306	34	11/08/2010		1,014
37342	3 TEELE ST	0252	15	11/08/2010	02/15/2007	597
37349	- WESTGATE DR	1020	6	02/21/2006	08/13/2004	154
37363	435 WESTGATE DR	1031	15	08/12/2008	11/01/2004	7,877
37383	65 IRMA RD	0133	30	11/08/2010	05/16/2003	1,327
37489	24 SOPHIA AV	0116	11	11/08/2010	02/14/2008	3,132
37563	545 N QUINCY ST	0554	10	11/08/2010	05/01/2008	1,458
37570	1081 N MAIN ST	0670	33	11/08/2010	09/18/2002	1,690
37574	35 DIXON RD	0144	6	11/08/2010	05/04/2009	1,132
37772	106 BONNEY ST	0322	18	11/08/2010	05/19/2006	1,442
37872	12 THOMAS ST	0161	9	11/08/2010	08/12/2008	1,516
37896	41 LOUIS ST	0065	6	11/08/2010	05/04/2009	628
37965	34 BARK CR	0152	6	11/08/2010	05/04/2009	3,635
37974	52 BLENDALL ST	0068	17	11/08/2010	08/18/2006	1,033

38063	567 PLEASANT ST	0060	6	11/08/2010	05/04/2009	1,898
38110	75 HOVENDEN AV	0071	6	11/08/2010	05/04/2009	1,211
38157	105 OSCAR AV	0533	34	11/08/2010		2,102
38233	256 N MAIN ST	0391	14	11/08/2010	05/04/2007	4,170
38260	40 BARK CR	0152	8	11/08/2010	11/03/2008	3,338
38402	274 N MAIN ST	0391	6	11/08/2010	05/04/2009	1,975
38406	48 JOHN BERMAN	0167	14	11/08/2010	05/04/2007	954
38431	20 THOMPSON AV	0118	6	11/08/2010	05/04/2009	2,842
38452	83 JORDAN ST	0651	14	11/08/2010	05/04/2007	1,013
38520	131 UPTON ST	0423	7	11/08/2010	02/13/2009	1,500
38614	107 POMONA DR	0171	6	11/08/2010	05/04/2009	1,929
38641	472 WESTGATE DR	1031	6	05/16/2005	11/03/2003	713
38643	464 WESTGATE DR	1031	16	11/08/2010	11/01/2006	1,861
38909	145 FIELD ST	0512	7	11/08/2010	02/13/2009	474
39115	24 N CARY ST	0450	13	11/08/2010	08/17/2007	125
39161	39 KESWICK RD	0731	34	11/08/2010		3,801
39208	23 LAWTON AV	0653	22	11/08/2010	05/16/2005	1,978
39244	200 WESTGATE DR	1020	26	05/04/2009	12/17/2002	963
39310	- WESTGATE MALI	1020	8	02/21/2006	02/17/2004	84
39470	15 WINSLOW AV	0117	18	11/08/2010	05/19/2006	750
39485	256 -270 N CARY ST	0262	21	08/17/2007		18,635
39486	30 FARRINGTON S'	0620	34	11/08/2010		3,001
39625	- WESTGATE MALI	1020	12	02/21/2006	02/24/2003	81
39655	34 THOMPSON AV	0118	34	11/08/2010		2,079
39659	12 -16 RESERVOIR S	2004	34	11/08/2010		3,575
39800	4 BLOSSOM ST	0451	31	11/08/2010	02/24/2003	1,026
39801	43 TEELE ST Unit 2	0252	11	11/08/2010	02/14/2008	1,851
39803	82 EISENHOWER D	0525	21	11/08/2010	08/15/2005	1,634
39809	68 LIVOLI RD	0524	28	11/08/2010	11/03/2003	5,739
39818	97 EISENHOWER D	0525	34	11/08/2010		1,541
39823	81 MEMORIAL DR	2002	16	11/08/2010	11/01/2006	16,537
39833	89 LIVOLI RD	0524	7	11/08/2010	02/13/2009	2,650
39836	8 WILDER ST	0595	24	11/08/2010	11/01/2004	1,574
39848	28 EISENHOWER D	0525	34	11/08/2010		794
39865	52 LIVOLI RD	0524	26	11/08/2010	05/24/2004	1,514
39873	47 UPLAND RD	0490	25	11/08/2010	08/13/2004	2,933
39875	32 COLONEL BELL	0310	7	11/08/2010	02/13/2009	935
39885	42 COLONEL BELL	0310	10	11/08/2010	05/01/2008	1,868
39887	37 CLEVELAND AV	0230	33	11/08/2010	09/18/2002	596
39949	137 WALNUT ST	0691	21	11/08/2010	08/15/2005	2,080
39952	41 LOWELL ST	0393	24	11/08/2010	11/01/2004	750
39962	44 LIVINGSTON RI	0811	23	11/08/2010	02/14/2005	507
39977	88 GRANITE ST	0453	22	11/08/2010	05/16/2005	750
55014	67 BEDFORD ST	0003	7	03/23/2010	04/04/2005	7,715

APPENDIX 1-2.4: METER TESTER CERTIFICATION

REGAN SUPPLY & TESTING SERVICE INC.

CERTIFICATE OF ACHIEVEMENT

AWARDED TO

PETER REDDAN

FOR COMPLETION OF SMALL METER BENCH TEST TRAINING
SEPTEMBER 17, 2010

REGAN SUPPLY
RST
TESTING SERVICE

JOSEPH W. SULLIVAN V.P. SALES & SERVICE

APPENDIX 1-2.5: METER READER WRITTEN PROCEDURES

Department of Public Works (DPW) - Utilities Division
Multiple Estimated Water Billing Policy

- **Class codes other than 101- multi family, (same ownership), commercial, and industrial locations that have been billed multiple estimated bills.**

- **This policy will be in effect upon water commission's approval for any and all class code other than 101 utility bills mailed on or after 1/1/10.**

1. Subsequent to a property owner contacting the DPW office with a multiple estimated bill, a service order will be created. The DPW will then contact the property owner within 10 days arranging an appointment and the DPW will further inform the property owner that as a condition to the procedure, full access to the meter in the location must be granted.

2. The property owner or authorized person must sign a completed work order provided by the DPW. The work order will contain the meter serial number and the meter reading. Upon the DPW signing the work order, a copy will be provided to the owner and furthermore, the DPW will take photos of meter in location during its removal and replacement.

3. The work order will be transmitted to the Utilities Division at Montauk Road and then to the billing office at City Hall for review. The City of Brockton reserves the right to test the meter.

4. Subsequent to review of the billing and determination that any adjustment is warranted the bill will be block adjusted. Said adjustment will be determined by using an actual reading to actual reading and will be recalculated and charged at the rate the bill was issued. The adjustment will be processed on the last actual bill issued.

5. The property owner will be sent a letter, both by certified and regular mail, with an explanation and /or breakdown of adjustments.

6. If the property owner does not accept the proposed adjustment, said owner may request the water meter be tested, upon receipt of required city fee. A meter test must be requested prior to arranging a meeting. If the test results exhibit the meter is not within five (5) percent of being accurate, the fee will be returned to owner. If the test was accurate, the fee shall be retained by the city. The city will be required to hold the meter for six (6) months only then the meter will be disposed of.

   If property owner further contests the results of the test, they may request an independent certified meter testing company perform the meter test at the property owner's expense. As a condition of the city reviewing any independent testing, an employee of the Utilities Division must be present at the time of the said independent testing. The City of Brockton will thereafter reserve its right to retest the meter at its own expense after the independent exam.

7. The property owner may thereafter request a meeting with the DPW Commissioner. Said meeting may include the Superintendent of Utilities.

Department of Public Works (DPW) - Utilities Division
Multiple Estimated Water Billing Policy

- **Class code 101- Single family (same ownership) that have been billed multiple estimated bills.**
- **This policy will be in effect upon water commission's approval for any and all class code 101 utility bills mailed on or after 1/1/10.**

1. Subsequent to a homeowner contacting the DPW office with a multiple estimated bill, a service order will be created. The DPW will then contact the homeowner within 10 days arranging an appointment and the DPW will further inform homeowner that as a condition to the procedure, full access to the meter in the location must be granted.

2. The homeowner or authorized person must sign a completed work order provided by the DPW. The work order will contain the meter serial number and meter reading. Upon the DPW signing the work order, a copy will be provided to the homeowner and furthermore, the DPW will take photos of meter in location during its removal or replacement.

3. The work order will be transmitted to the Utilities Division at Montauk Road and to the billing office at City Hall for review. The City of Brockton reserves the right to test the meter.

4. Subsequent to review of the billing and determination that any adjustment is warranted the bill will be block adjusted. Said adjustment will be determined by using an actual reading to actual reading and will be recalculated and charged at the rate the bill was issued. The adjustment will be processed on the last actual bill issued.

5. If the estimated bills exceed more than five (5) years, only the earlier years, beyond the most current (5) five years, will be recalculated at the lowest block rate at the period of the estimated reading. The remaining most current five (5) years of estimates will be recalculated and charged as indicated in item #4.

6. A letter will be forwarded to the property owner, via certified and regular mail, with an explanation and/or breakdown of adjustments.

7. If the property owner does not accept the proposed adjustment, said owner may request the water meter tested, upon receipt of required city fee. A meter test must be requested prior to arranging a meeting. If the test results exhibit the meter is not within five (5) percent of being accurate, the fee will be returned to property owner. If the meter is accurate, the city shall retain the fee. The city will be required to hold the meter for six (6) months only then the meter will be disposed of.

   If the property owner further contests the results of the test, they may seek an independent certified meter testing company to perform the meter test at the property owner's expense. As a condition of the city reviewing any independent testing, an employee of the Utilities Division must be present at the time of said independent testing. The City of Brockton will thereafter reserve its right to retest the meter at its own expense after the independent exam.

8. A property owner may thereafter request a meeting with the DPW Commissioner. Said meeting may also include the Superintendent of Utilities, and Treasurer/Collector.

9. The Treasurer/Collector will entertain acceptable arrangements for a payment plan by a property owner. A payment plan cannot extend for more than a three (3) year period due to Massachusetts state law.

APPENDIX 1-2.6: CITY'S RESPONSE TO OUR DRAFT TECHNICAL MEMORANDUM 1-2

Subj: **RE: First Wave**
Date: 4/14/2011 11:31:50 A.M. Eastern Daylight Time
From: jcondon@ci.brockton.ma.us
To: BETTERGOV@aol.com
CC: hchuckran@cobma.us, dandrew18@comcast.net, TFedder@woodardcurran.com, Bettergov2@aol.com

Good morning - In reviewing the first four task memos, which I thought were very thorough, I noticed that in several instances it was stated that the city replaced meters in the early 1990s. We implemented that meter replacement project with a bond issue financing, with an issue date of September, 1997, and we did the work in a couple of phases over a couple of years, so I think it is more accurate to say mid to late 1990s as the time in which the work was accomplished.
Jay

From: BETTERGOV@aol.com [mailto:BETTERGOV@aol.com]
Sent: Wednesday, April 13, 2011 4:35 PM
To: Condon John
Cc: Chuckran Heidi; dandrew18@comcast.net; TFedder@woodardcurran.com; Bettergov2@aol.com; Bettergov@aol.com
Subject: Re: First Wave

Speak to Heidi.
We are delayed in the City's response to our Account History request.

Mark

In a message dated 4/13/2011 4:26:55 P.M. Eastern Daylight Time, jcondon@ci.brockton.ma.us writes:

> I am confirming that I have received the attachment and have opened and read the transmittal letter and each of the four initial task reports. I am forwarding this to staff in the DPW for their review/comment on factual content.

=

Subject: RE: First Wave
Date: 4/14/2011 11:31:50 A.M. Eastern Daylight Time
From: jcondon@ci.brockton.ma.us
To: BETTERGOV@aol.com
CC: hchuckran@cobma.us, dandrew18@comcast.net, TFedder@woodardcurran.com, Bettergov2@aol.com
Sent from the Internet (Details)

Good morning - In reviewing the first four task memos, which I thought were very thorough, I noticed that in several instances it was stated that the city replaced meters in the early 1990s. We implemented that meter replacement project with a bond issue financing, with an issue date of September, 1997, and we did the work in a couple of phases over a couple of years, so I think it is more accurate to say mid to late 1990s as the time in which the work was accomplished.
Jay