



## SAN FRANCISCO PUBLIC UTILITIES COMMISSION

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### SFPUC Automated Water Meter Program

Beginning in spring 2010, the San Francisco Public Utilities Commission (SFPUC) will begin the pilot phase of the Automated Water Meter Program. The new automated water meter system will use a low-frequency radio signal to collect hourly water consumption data and transmit them four times a day from San Francisco's residential and commercial customers to the SFPUC billing system without the need for physical field visits and manual meter reading.

The automated water meters will provide accurate and frequent consumption data that will allow the SFPUC and individual customers to monitor water use and detect leaks faster than possible with the existing manually-read water meters. The SFPUC will be the first major California water utility to install the technology, also known as Advanced Metering Infrastructure (AMI), for each of its 170,000 plus retail customer accounts.

The SFPUC's Automated Water Meter Program includes a pilot phase to ensure quality of installation and accuracy of meter reading data before full deployment. Following successful testing and completion of the pilot phase, SFPUC will continue extensive quality assurance measures for the duration of the AMI deployment to ensure that your new water meters are accurate.

#### Pilot Phase

The pilot phase will include installation of the network computer and collectors, as well as deployment of 5,000 automated water meters throughout San Francisco. The SFPUC has developed a program with several quality assurance steps to verify the quality of the installation and accuracy of meters.

Pilot Phase testing includes several Quality Assurance steps as follows:

1. **Manufacturer Testing.** All water meters will be shipped from the manufacturer with positive testing results; all meters are 100% accuracy and pressure tested in accordance with American Water Works Association (AWWA) standards. All test equipment is traceable back to NIST standards, and all processes are controlled by ISO 9001:2008 Quality Management System (Certificate US96/0614).
2. **Water Meter Third Party Testing.** The SFPUC is selecting a random ten percent of the pilot phase water meters for delivery to a third-party water meter test equipment manufacturer. The meters will be tested and witnessed by SFPUC staff for accuracy at agreed flow rates in accordance with AWWA standards and must pass all testing requirements before *any* of the 5,000 Pilot Phase water meters are sent to San Francisco. This testing begins the last week of April and will continue through the end of May.
3. **Installation Quality Assurance Program.** The SFPUC's installation contractor, VSI Meter Services, uses a rigorous field quality audit program to ensure data quality and installer capabilities. VSI will be conducting quality assurance audits on each of their meter installers throughout the duration of their work. For every installer, VSI will audit 100% of the first week's installations and will continue with 5% thereafter. SFPUC will also perform a quality assurance audit on a random 5% of all of VSI installations.

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4. **AMI System Acceptance Testing.** The SFPUC has an extensive System Acceptance Testing program in place which will be completed no less than 30 days after complete deployment of the Pilot Phase. The System Acceptance Test includes field investigations and data validations to ensure that the Automated Water Meters and the AMI Network are delivering accurate and secure data before moving on with full deployment. For scalability purposes, the System Acceptance Test will be conducted again after 60,000 meters have been deployed, and again after full deployment before final payments are made.
5. **Visual Verification.** SFPUC meter readers will additionally conduct one manual meter reading cycle checking the water meter dial readings against the SFPUC's computer system for EVERY automated meter installed.

### **Full Deployment Testing**

Quality Assurance Testing will continue during full deployment to ensure continued installation success and system accuracy.

The continued water meter accuracy testing includes:

1. **Manufacturer Testing.** All water meters will be shipped from the manufacturer with positive testing results in accordance with AWWA standards before they are sent to San Francisco.
2. **SFPUC Testing.** Following receipt of each shipment, SFPUC will test a random 10% of that shipment at our own certified testing facilities before approving them for installation.

After installation the SFPUC will ensure that the automated system is transmitting your meter reads accurately through a two-step quality assurance program:

1. **Quality Assurance Audits.** SFPUC will conduct quality assurance audits on a random 5% of automated meters *after* installation. During these audits the SFPUC field staff will check that the automated meters have been installed correctly and will manually read the water meter dials to check against the automated reading sent to the SFPUC's computer system.
2. **Visual Verification.** SFPUC meter readers will additionally conduct one manual meter reading cycle checking the water meter dial readings against the SFPUC's computer system for EVERY automated meter installed.

### **Proven Technologies**

After extensive study and comparison, the SFPUC has confidently chosen Aclara RF technology for its AMI Technology. This system has been in use for over 13 years and is proven to work. Boston, Washington DC, and Kansas City are a few examples of cities are successfully using the same meter reading system that the SFPUC has chosen. New York City and Toronto are beginning extensive projects with the same technology now.

The water meters being installed are manufactured by Elster/Amco. Elster/Amco is the largest meter manufacturer in the world and has been manufacturing water meters for over 30 years. Elster/Amco water meters have been used successfully with AMR/AMI technologies for 15 years and are operating with the Aclara technology in many cities across the United States including Kansas City, Boston, Washington DC, and Ann Arbor.

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