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MEMORANDUM

TO: Daniel Morgado, Town Manager Shrewsbury

FROM: Blake Martin, Margaret McCarthy

DATE: June 23, 2016

SUBJECT: Water Accounting, Summary of Site Visit

On June 3 Weston & Sampson meet with staff from the Town's Water Department, Billing Department and IT Staff to discuss procedures relating data collection for documenting volume of water pumped into the distribution system and billed to the customers. Our finding are summarized below:

Sources of Supply

- All sources of supply leading to the water treatment plant, with the exception of Home Farm Well No. 6-2, are metered. These meters are tested and calibrated annually. Calibration is done at the meter and SCADA system if needed based on the accuracy testing. The Town will be installing a meter on Home Farm Well No. 6-2 in the near future, and in the mean times has procedure for calculating the flow which is in line with industry standards.
- The flow meters are verified by measuring the flow, with a certified test meter, on the hydrants near the well.
- Flows have been plotted against the pump curve and no obvious issues have been found.
- All wells go to the water treatment plant. The treatment plant raw water flow is measured through a meter.
- There is an effluent meter that measures the water measuring the volume of water entering the distribution system.
- All of the flows are recorded in SCADA system and reviewed daily by plant personnel to check the flows match among the sources and flag any obvious differences.
- All flows through the Town's three booster pump stations are recorded in the SCADA system. These are checked daily to ensure that the total volume is reasonable based on historical demands and current production at the water treatment plant.
- Town personnel maintain a daily pumping record that summarizes all flows through the distribution system.

Customer (Revenue) Meters

- All customers are metered. With the exception of approximately 750 meters, all have been replaced within the last 8-10 years
- Town is working to replace the rest of the meters.
- Currently upgrading to the newest version of Munis, which is scheduled to go live at the end of September.
- As workers have been replacing meters, they have found a few accounts where usage was significantly higher than captured by the antiquated meter reading equipment.

- Reported that newer meters require a different meter configuration in the billing software, based on the number of fixed zeros on the meters.
- Meters are read using handheld meter reading gun from Itron and the Itron MVRS software.
- Staff review bills for no consumption or high readings as part of billing procedures.
- High/low reports from billing software are not effective.
- A Roadmap and Planning Guide for the upgrade of Munis outlines several key issues that have been identified by Town Staff.

Recommendations

- Complete the customer account data verification process that is being undertaken as part of the Munis upgrade. This includes ensuring that the accounts have the correct number of meter dials and multipliers based on meter size, type and manufacturer.
- Finish replacing all older water meters and upgrading to radio read system.
- Consider more frequent meter readings by pressure zone to correlate the input and consumption in each of the pressure zones.
- Consider installing data loggers (if this has not yet been done) at each of the pump stations to verify flow into the service areas**.**

Summary

The meter calibration practices and efforts to find source meter errors indicate no substantial “smoking” gun. The source of error, if present, will most likely require:

1. A re-evaluation of meter reads / status following completion of the installations
2. Detailed analysis of billing records / use data following the Munis upgrades
3. A plan to evaluate the different pressure zones and booster pump flows against use data in each zone. We suggest developing a plan and approaching each zone independently.