STAFF REPORT

Meeting Type:	Operations Committee/Board of Directors
Title:	Water Loss Update
From:	Paul Sellier, Water Resources Director
Through:	Ben Horenstein, General Manager
Meeting Date:	October 18, 2024

TYPE OF ACTION: Action X Information Review and Refer

RECOMMENDATION: Receive the staff update on the District's water loss pilots

SUMMARY: Water loss was identified as an area for improvement in the Strategic Water Supply Assessment Roadmap. Staff will provide an update on the key findings and recommendations from the Water Loss Study and provide an update on water loss reduction activities.

DISCUSSION: In February 2024, staff provided an update to the Board on the long standing, proactive, Leak Reduction Program; State regulations around water loss included in the *Making Conservation a California Way of Life* regulation; and an overview of the gap assessment that highlighted additional potential water loss recovery efforts, including new technologies. Staff will provide an update on the key findings and recommendations from the gap assessment and review ongoing work to reduce water loss.

Work Underway to Reduce Water Loss

Currently, the District is required to annually submit validated water audits to the Department of Water Resources. Starting in 2028, the water audits will be used to establish compliance with State Water Resource Control Board volumetric water loss performance standards. The District's efforts to reduce water loss have a direct economic benefit and will help to ensure that the District is on the path to meet or exceed state regulated water loss targets.

The Gap Assessment aimed to document the current practices related to water loss and offer recommendations for improvement, where appropriate. The goal of the assessment was to better understand water loss in the water distribution system by improving the accuracy of inputs to the audit, identify the current extent of water loss control activities and practices within various internal departments, and to highlight areas for additional water loss recovery efforts.

Gap Assessment Recommendations and Actions Taken

The Gap Assessment found that overall the District's water loss control efforts are very strong, however there are potential actions to consider for improvement. As part of the Gap Assessment, recommendations were identified and assigned a priority ranking, where the highest priority recommendations represent larger volumes of unaccounted water that can affect audit results. The highest priority recommendations include:

- **Assess source meters for accuracy testing potential** and perform annual volumetric accuracy testing, where feasible.
    - *Action:* Staff has begun evaluating the six source meters to determine if volumetric testing is feasible.
        - Ignacio meter currently undergoes volumetric testing and calibration annually.
        - San Geronimo Treatment Plant has three meters. The two North Marin Line meters were replaced in early 2023, reducing the need for immediate volumetric testing. The meter installed on San Geronimo Valley has reached the end of its useful life and is scheduled for replacement this fiscal year. As these meters age, volumetric testing will become more important.
        - The Bon Tempe Treatment Plant has two meters. These two meters will be challenging to complete volumetric testing due to the impacts of shutting down the system. The meters have been maintained per the manufacture specifications and are electronically calibrated each year. If there is a system shutdown, staff will use the opportunity to complete volumetric testing on these two meters.
- **Review/Update the raw billing data export query**: Update consumption queries to avoid introducing errors like duplicated records or large incorrect usage volumes and better align raw data with summary volumes.
    - *Action:* The SAP query used to extract raw consumption data has been refined to ensure the data aligns with summary values and all consumption is accounted for.
- **Refine customer meter testing and maintenance strategies**.
    - **Small Customer Meters** - Historically small customer meters have been tested upon replacement or failure. A stratified random sampling of meters in this demographic will allow for a more accurate representation of customer meter accuracy (for use in the water audit). This data can also be used to better inform the replacement plan for this subset of meters.
    - *Action:* As part of AMI implementation, 75% of meters will be replaced due to old/high consumption. Prior to deployment, meter shop staff will develop a methodology for randomly sampling meters to have a broad representation of customer meter accuracy.
    - **Large Customer Meters** – Highest consumption meters are tested annually (approximate 300 each year). These meters are tested at three flow rates as recommended by the AWWA M6 manual. It is recommended that the District conduct flow profile sampling on these highest consumption meters to ensure right sizing and to inform a custom testing flow profile for each meter, as appropriate. Additionally, it is recommended that the District collect all large meter test results in a master database so that trends in meter performance can be more readily analyzed.
    - *Action:* Flow profile sampling is conducted on AMI meters to ensure the meter is performing best for its most common flow rate. Test results are stored in SAP, an

updated SAP export is being considered to allow for improved review and analysis of the data.

- **Optimize leak detection survey efforts** by conducting a Real Loss Component Analysis (RLCA). A RLCA aims to summarize the rate of leakage quantified through an AWWA water audit in meaningful categories that help identify the optimum suite of strategies to reduce that loss. By assigning a financial value to each type of loss, the value of recovered water can be balanced with the cost of recovery (and rate at which surveys should be completed).
    - *Action:* A Real Loss Component Analysis is underway, utilizing grant funding. It is scheduled to be completed by January 2025.
- **Consider piloting new leakage recovery techniques** to supplement current water loss control program activities.
    - **Noise Loggers –** Piloting the installation of permanent noise loggers on hydrants in areas determined to have a high consequence of failure and high probability of failure to allow for remote monitoring and potentially expedited response to detected leaks.
    - *Action:* Two pilot areas have been identified for installation of both Ecologics EchoShore DX (Mueller) and the Kamstrup AMI meters which allows for acoustic leak detection. The pilot project objectives include: utilize technology to improve the response rate of system leak detection, determine if technology is more effective than current acoustic leak monitoring, and determine if permanent installation of noise loggers meets the District's monitoring needs, focusing on high-risk areas to avoid the labor-intensive process of moving the loggers around.
    - Staff has screened suitable study sites targeting leak prone areas containing pipe and service materials with a high probability of failure.
- **Develop District Metered Areas (DMAs)** - Divide the entire water distribution network into smaller, manageable zones. Each zone, or DMA, is monitored and managed independently to help detect leaks and enhance overall system efficiency including pressure management. A pilot project to develop a strategic DMA will allow the District to gather data and understand whether developing additional DMAs would be useful to reduce real losses.
    - *Action:* An area has been identified for developing a pilot DMA through the installation of flow and pressure monitoring equipment. The pilot project objective is to study the effectiveness of DMA implementation through the measurement and potential reduction of real water losses. Staff has screened suitable areas to identify a potential study site based on an analysis of idealized pipe network layout, topography, pressure zone size, amount of service connections, and prior leak history.

ENVIRONMENTAL REVIEW: Not Applicable.

FISCAL IMPACT: None.

ATTACHMENT(S): None.