















March 9, 2020

Mr. Martin Matson  
Comptroller  
City of Milwaukee  
City Hall, Room 404

RE: March 2020 Corrosion Control Best Practices Evaluation

Milwaukee Water Works (MWW) has reviewed the March 2020 *Corrosion Control Best Practices Evaluation* (Evaluation) prepared by Jacobs and provides the following response to recommendations presented in the report. In preparation of the *Evaluation*, MWW provided data, reports, and interview responses to Jacobs to ensure a complete evaluation of current practices and future plans.

Table 1 Corrosion Control Best Practices Recommendations Summary		MWW Response
	* Accelerate development of service line material inventory	<p>MWW has compiled a publicly available service line inventory based on internal records. The service line inventory primarily lists the known material of the utility-owned segment of the service line. MWW has some information related to the material of privately-owned service lines. In some cases, MWW has inferred the material of the privately owned service line based on historical regulations. For example, private-side lead service lines were allowed to be installed until 1962. After 1962, rules and regulations required copper to be used for service line material.</p> <p>MWW is committed to improving the service line inventory to increase records of privately-owned service line material and premise plumbing. To this end, MWW meter technicians have been and will continue to check the service line material when performing meter exchanges or other services at a property. Meter technicians will start noting premise plumbing visible during the course of their work. MWW will work with Department of Neighborhood Services (DNS) plumbing and cross connection inspectors to capture data on service line and premise plumbing material during their inspections. MWW will also engage the local plumber's union to evaluate ways to promote data collection and reporting from private contractors. Finally, MWW has begun a survey of premise plumbing with those customers already participating in the EPA Lead and Copper Rule.</p>
	Establish long-term lead service line replacement (LSLR) rate goals and financial plan	Establishing long term goals for LSL replacement is dependent on financial constraints that vary from year to year. MWW is exploring funding opportunities for LSL replacement. MWW is currently working with the City of Milwaukee Budget Office to identify a financially sustainable long term goal for LSL replacement.
	Establish strategic partnerships to increase privately-owned LSLRs	MWW currently partners with DNS and provides information during landlord training events on LSL replacement. MWW will reach out to external partners, such as real estate organizations, plumber's union, and community stakeholders to better communication and promote LSL replacement opportunities. MWW is consistently reviewing

			informational materials and will explore ways to better engage various audiences.
	*	Reduce effective water age in storage facilities	MWW has made operational adjustments to ensure water age in storage facilities is not excessive. MWW already monitors storage facilities weekly, and as a result of the Partnership for Safe Water (PSW) evaluation, MWW is in the process of adding online water quality monitoring to these facilities. If water quality data indicates additional measures should be implemented to reduce water age, MWW will evaluate adding mechanical mixing to storage facilities when dry inspections are scheduled.
		Enhance distribution system operations with process control charts	MWW will explore the creation of process control charts to better track data currently collected in distribution system operations.
		Develop a better understanding of corrosion with system-wide corrosion effects library	MWW is re-implementing the previous practice of collecting photographs of main breaks to create a library of system-wide corrosion effects.
	*	Enhance distribution system hydraulic model to better understand system performance and aid in system operation and maintenance	MWW is committed to enhancing the hydraulic model. This will be an ongoing effort as data collection processes are updated to continuously calibrate and validate the model.
	*	Use distribution system model to aid design of customized flushing program	MWW will use the enhanced hydraulic model to better inform flushing practices in the future. This will be an ongoing effort as additional data is gathered.
		Provide greater website information transparency	MWW has a significant amount of information on the website and will explore reorganizing and simplifying that information by evaluating search and click data. MWW is also working on a Department of Public Works (DPW) dashboard that will serve as an informational hub for the public to obtain project locations and statuses.
		Update Communication Plan	MWW is in the process of updating communications for various events and preparing scripts for staff to have a consistent message to the public. To the extent context involves the City of Milwaukee Health Department (MHD), MWW will work with MHD staff to ensure consistency across departments.
		Conduct research to explore how biomechanisms in MWW system may affect lead release	MWW is a member of the Water Research Foundation to ensure leadership is aware of research conducted on various topics. MWW also collaborates with academic research partners on projects in an effort to better evaluate and understand MWW system specific data.
		Consider future use of advanced automation to track water quality events	MWW will track technological advances and explore opportunities to use technology to better track water quality events. Any future use of advanced automation will be subject to a cost benefit analysis to be mindful of value to consumers versus capital expenditures.
		Study ways to reduce aluminum phosphate precipitation (an unintended consequence of corrosion control treatment) that do not adversely impact corrosion control. Study impacts of other water quality changes on corrosion through continued pipe loop testing.	<p>MWW is already evaluating treatment practices and has reduced alum addition substantially in the last year. In addition, MWW has increased its capacity to evaluate aluminum and will incorporate precipitate sampling during operations and inspections.</p> <p>MWW has contracted Jacobs to conduct a pipe loop study over the next two years that will evaluate corrosion control practices to ensure the treatment process is optimized. MWW will retain the pipe loop apparatus to internally evaluate possible treatment adjustments on a bench scale prior to making treatment changes.</p>
		Meet proposed Lead and Copper Rule (LCR) sampling requirements in partnership with City of Milwaukee Health Department	MWW is committed to compliance with the LCR, including proposed revisions. MWW will continue to partner with MHD to meet sampling requirements for school and childcare facilities. MWW will also engage Milwaukee Public Schools (MPS) to partner in sampling at MPS facilities.

\* Related or identical to performance issues included in the PSW self-assessment improvement plan

MWW looks forward to working with Jacobs on a pipe loop demonstrative study and further evaluating treatment processes to ensure corrosion control continues to be fully optimized. Please contact me at karen.dettmer@milwaukee.gov with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "K Dettmer". The signature is fluid and cursive, with the first name "K" being the most prominent initial.

Karen Dettmer, P.E., Superintendent  
Milwaukee Water Works