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## MEMORANDUM

**Date:** August 3, 2017  
**To:** Bob Van Moer, Wastewater Treatment Superintendent  
**From:** Kelly Yahnke, Bolton & Menk, Inc.  
**Subject:** Chloride Reduction Measures  
Supplement to the June 30, 2017 Chloride and Copper Reduction Progress Report  
Wastewater Treatment Facility  
City of Marshall, Minnesota

This memorandum is a supplement to the June 30, 2017 Chloride and Copper Reduction Progress Report which was completed in accordance with Chapter 1, Paragraphs 1.12 and 1.21 contained in the NPDES/SDS Permit No. MN0022179 for the Marshall Wastewater Treatment Facility (WWTF) in Marshall, Minnesota. The report documented the chloride and copper sampling and source reduction efforts. The facility is working toward compliance with a maximum daily chloride limit of 302 mg/L and a monthly average chloride limit of 261 mg/L.

This memorandum identifies additional future source reduction measures. The measures listed below are available to the City of Marshall to attain their chloride limitation compliance by 2024. The measures may not all have to be utilized to attain compliance, but in the opinion of the City's consulting engineer, Bolton-Menk, compliance cannot be attained with the reduction salt based water softening alone.

1. Support Marshall Municipal Utilities further softening of the community water supply quality to 5-8 grains using Lime/ Soda Ash Softening to reduce Ion Exchange softening brine discharge.
2. Establish chloride surcharge on customers of the City of Marshall wastewater treatment facilities that have an industrial treatment agreement. Remit revenue collected from the surcharge to MMU in support of their further softening.
3. Authorize MMU adding chloride surcharge to the monthly utility bill for wastewater (sewer) customers invoiced by MMU. MMU is authorized to collect and retain said revenue.
4. Public and Industry education to reduce chlorides at the source.
5. Potential incentive program to set all softeners to the most efficient settings.
6. Set industrial limits in SIU Agreements.
7. Apply for MPCA Variance on chloride limit.
8. If all of the above measures have been implemented and chloride limits are not met; the City should by ordinance, end the practice of Ion Exchange softening if needed to reach final limit.