

Water Utilities Supply Chain Challenges and Case Studies:

NORTHEAST/MERRIMACK VALLEY CHEMICAL CONSORTIUM

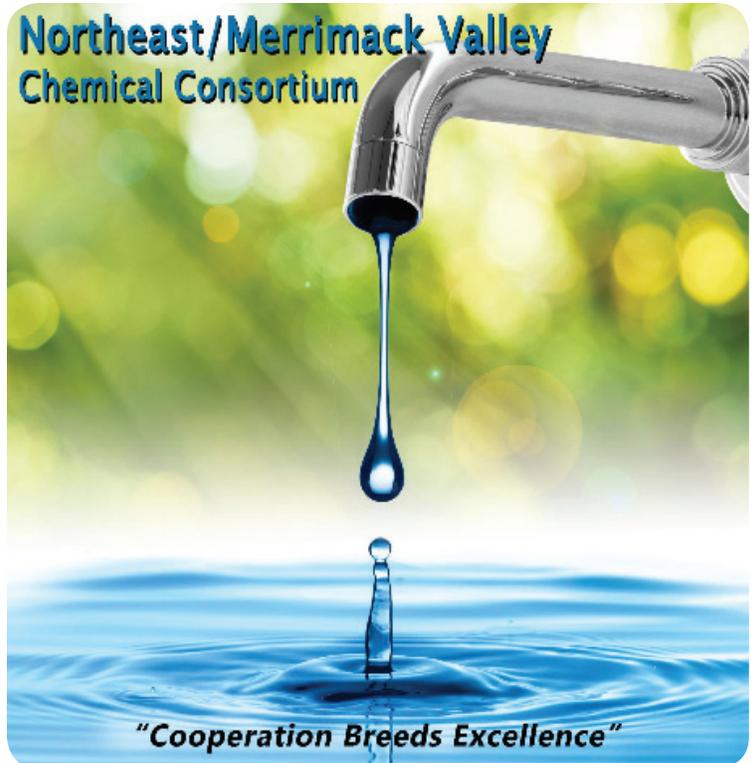
Northeast/Merrimack Valley Chemical Consortium

The *Northeast/Merrimack Valley Chemical Consortium* is a group of over 70 water and wastewater utilities joined together to help negotiate best possible prices with water treatment chemical and laboratory supply vendors through bulk purchasing. The consortium also streamlines purchasing procedures for all its members, which includes utilities from Massachusetts and New Hampshire.

The consortium's role in bulk purchasing has been beneficial since its creation in the late 1990's but has been even more helpful to its members during the COVID-19 pandemic where utilities encountered various supply chain challenges brought on by global shortages. The Acton Water District (MA) ran into difficulties procuring citric acid. The City of Concord (NH) received a force majeure notice from its CO₂ supplier. The Town of Salem Utilities (NH) was having issues with its ammonium sulfate deliveries. The City of Peabody (MA) began to run out of sodium fluoride. However, with the established network of member utilities through the consortium, these challenges were addressed more effectively.

Why Coordinate with Local Utilities?

Northeast/Merrimack Valley Chemical Consortium utilities highly value the consortium and its membership. Most notably, the consortium provides group buying power for its members that may have previously purchased supplies on an as-needed



basis. For example, one consortium member believes it saves up to \$40,000 per year by participating in the consortium. In addition to the value of group buying power and the ability to be a priority customer instead of a "spot" buyer, the consortium has value for utilities in several other ways:

1. The consortium has a streamlined procurement process, in many cases simpler than municipal purchasing processes. Procurement also goes through an annual bidding process, resulting in the best costs. This differs from many local and state bidding processes that are on a two-, three- or even five-year cycle which can result in higher prices as vendors must predict changing market conditions over time. The consortium is considering moving to a six-month cycle based on current market conditions.

2. The consortium also provides the opportunity for more reliable delivery – vendors can schedule a single truck to spend an entire day delivering to consortium members rather than having to wait to add a single utility's small delivery to a large delivery for a client such as a beverage producer. This benefit has been extremely valuable when combatting truck and driver shortages.

How does the consortium work?

Typically, one utility member will serve as the host or point of contact for the consortium, and another volunteer will serve as the Liaison/Bidding Agent. This agent develops the bid package, manages the consortium's website where all information is housed for bidding purposes, and coordinates with vendors during the life of the contract. The agent also helps to manage challenges as they arise, such as force majeure notices from participating suppliers.

A bid package is drafted annually that includes the treatment chemical and laboratory supplies needed, quantities, and delivery specifications submitted by the member utilities. After all terms are agreed upon between the consortium and responding vendors, each utility within the consortium is then responsible for executing its own contract with the selected vendors. The overall terms prevent utilities from pursuing vendors outside of the consortium.

3. Members warn each other of issues in advance. Once one member utility experiences a delivery delay or force majeure notice, that utility emails all other member utilities which results in better advance planning by all, such as adjusting purchasing windows.
4. The consortium also serves as a mutual aid network when one utility is running low on supplies. For example, the Acton Water District (MA), running low on supplies of liquid citric acid, knew that the Littleton Electric Light & Water Departments (MA), another consortium member, used granular citric acid. Littleton was willing to split its most recent delivery of granular citric acid with Acton. At that point, Acton purchased a mixer, a tank, and a transfer pump so that it could create the liquid citric acid solution needed for the utility's treatment process by mixing both water and the borrowed granular citric acid.
5. Consortium membership also means easy access to a network of other water operators and an exchange of information on a variety of topics, not just chemicals and supplies. Members have discussed salaries and cross connection control programs among other far-reaching topics that affect utility operations. Pre-COVID, the group met in person regularly at different member utilities to swap ideas and advice.

These advantages make each member utility more resilient in the face of hazards, including chemical challenges.



Lessons Learned

In addition to the membership advantages above, consortium members are also instituting individual operational changes to better combat supply chain vulnerabilities:

- **Turning to private sector entities who rely on water services for their own operations to share their chemicals.** For example, with CO₂, this includes a chocolate factory and beverage producers.
- **Identifying substitute chemicals as possible in consultation with state regulatory agencies,** such as a diluted hydrochloric acid solution instead of citric acid.
- **Being flexible on when deliveries will be accepted;** at this point, most of the utilities will take a delivery at any time and date.
- **Increasing on-site storage for both liquid and granular chemicals.** For example, the City of Peabody (MA) now makes sure to stockpile extra sodium fluoride when it can. In cases where liquid chemical storage cannot be increased, members are ordering these chemicals much earlier than before (sometimes four to five weeks in advance versus one to two weeks).
- **Striking deals with vendors on payments.** As treatment chemical costs have soared, some utilities are using payment plans to help spread purchasing costs over a longer time which helps with budgeting.

Treatment chemical shortages and other critical supply shortages can be unforeseen and occur with little notice. While no utility can predict future global events and the resultant supply chain disruptions, joining together to pool resources and to help each other can only make utilities more resilient. The Northeast/Merrimack Valley Chemical Consortium proves that the concept works.

Additional Resources

You can find more information on using supply chain management best practices and preparing for supply chain challenges at <https://www.epa.gov/waterutilityresponse/water-and-wastewater-sector-supply-chain-resilience>.

