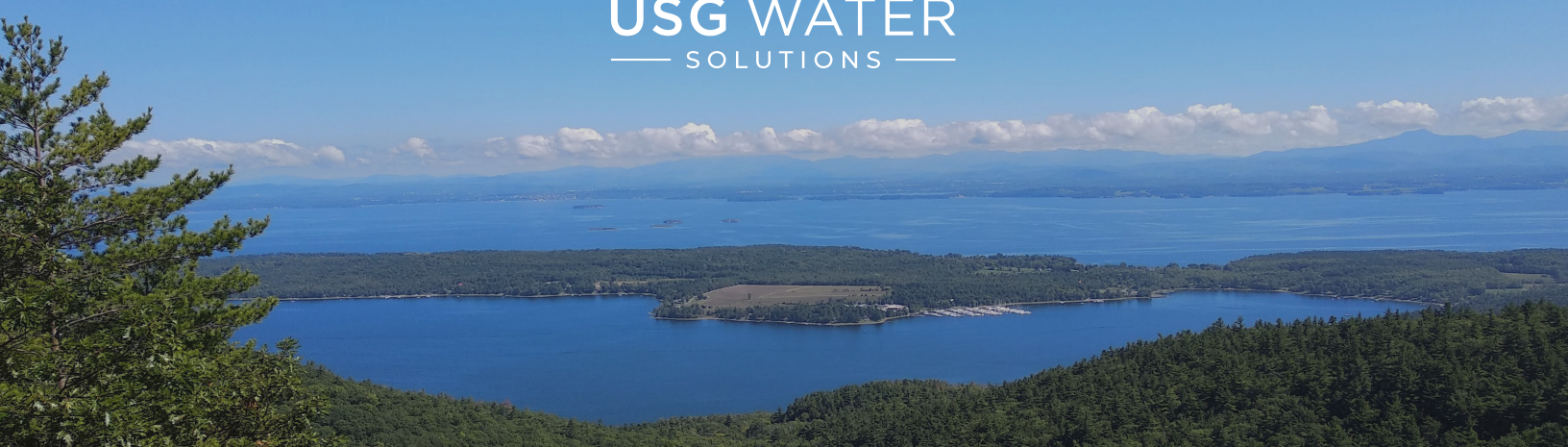




USG WATER
— SOLUTIONS —



Ensuring the long-term maintenance of filers and clarifiers in Vermont

SOUTH BURLINGTON, VT



Project Summary

Customer:

Champlain Water District

Type of Project:

Asset Management for Water
Tanks and Filters & Clarifiers in
Water Treatment Plant

Results:

- Cost savings – single resource versus multiple individual contractors
- Cost control – predictable, fixed annual payment, with costs spread over 10 years
- Performance improvement in filters
- Single-source responsibility for the condition and reliability of CWD's assets

Located in South Burlington, Vermont, the Champlain Water District (CWD) is a nationally recognized leader for excellence in drinking water treatment. The District operates as a wholesale water supplier of water to 12 municipal water systems located in eight communities covering approximately 70 square miles in northwestern Vermont. These systems account for approximately 24,000 connections with 75,000 customers. The District's water treatment plant, online since 1973, is approved for 20 million gallons a day.

Exploring asset management

Contributing to its success is the commitment of its Board of Water Commissioners and staff to maintain a proactive approach to managing the District's facilities, process, and infrastructure. Asset management has become a cornerstone of Champlain's approach to proactive management of key assets in its treatment and distribution system, starting with a program to keep its 15 tanks in top condition.

"We were in a growth mode when we came online in 1973," said Joe Duncan, General Manager of the Champlain Water District. "Then in the early 2000s, our mindset shifted from growth to a sustainable mode. We looked closely at the condition of our water tanks and realized that they had not been getting as much care as we were looking for. Knowing what it takes to maintain tanks from coatings to a safety and security standpoint, we realized that providing the level of service we were aiming for would require major capital outlays."

The District considered managing these assets in-house, but after looking at projected capital costs and its staffing levels, it realized that committing the resources required to care for the 15 tanks posed a daunting challenge. The District also wanted to have a single-source responsibility for maintaining the condition and reliability of its assets. It found the answer in the water tank asset management program provided by USG Water Solutions (USG).

USG's turn-key solution keeps critical water assets in good operating condition and fully compliant with all applicable regulations, while minimizing maintenance and renovation costs. This program first restores tanks to their like-new condition, then takes full responsibility of water tank maintenance for the long term. USG's program also provides a single point of contact for all the customer's service needs.



Filter cell completed with coating and filter underdrain installation



Completed preparation for the installation of new filter underdrains



Completing filter media removal for the filter underdrain visual inspection

From tanks to filter and clarifier maintenance

The success of the tank asset management program encouraged the District to explore applying that model to the eight filters and three adsorption clarifiers in their water treatment plant.

“It was a natural progression to take a look at USG based on the experience we had with our tanks and the relationship we had established,” said Duncan. “Having our filters and clarifiers in a maintenance program and being able to have one entity that knows them and how to service them, and knowing we can call them if there is an issue is great,” said Duncan.

“With this program, we do not have to call somebody to handle the media extraction and replacement, or a second contractor to deal with the painting and the coating systems, or yet another contractor to cut and install hatches,” he added. “We can just call USG and say, ‘These are the things that we’re facing and we’re looking at’. If we have an issue, they are right there to work with us on it.”

The filter and clarifier maintenance program

The filter and clarifier maintenance program restores the filtration system to “like new” conditions, improving the return on these large capital investments while lowering related long-term operation and maintenance costs. It entails:

- Assessment including backwash observation, bed expansion, media height and depth
- Filter renovation. Filters are coated with 100% solid epoxy. Filter media is removed and replaced or topped-off, and underdrains are replaced if needed.
- Chemical cleaning of filter walls above the media. USG utilizes proven, NSF-certified technologies for chemically cleaning the interiors of granular filtration systems.
- Clarifier renovation, including applying and maintaining coating systems, removing, washing, and replacing the clarifier media, inspecting and documenting the clarifier components, and identifying any deficiencies.

Moreover, if upon laboratory evaluation, the buildup of inorganic deposits and/or biofilm in the filter is too severe for chemical cleaning to be cost-effective, or if existing media is too worn or degraded, NSF-certified materials that match the current system specifications will be installed.

Benefits of the filter maintenance program include increased filter capacity and extended media life, improved bed porosity, reduced particle cohesion and reduction of effects of biofilm and inorganic deposits. The program also maintains regulatory compliance.

Quantitative and qualitative benefits

Duncan notes that cost savings, predictability and compliance are immediate benefits of this program.

“We’ve seen a great cost savings over hiring multiple contractors, and we can spread costs over a 10-year payment period. Having the base services in a fixed payment each year is very valuable because it sets the expectation for our budget,” said Duncan.

Duncan also noted, “I can say that after we redid the filters, when we looked at length in between back washes and the turbidity coming out of the filters, we noticed significant performance improvement in some of the filters.”

Duncan offered these comments about Champlain Water District’s overall experience with asset management and maintenance programs: “We strongly recommend looking at this model. The volatility of the market and the ability to know that something is going to be serviced is challenging. And putting aside money for future repairs doesn’t always work as the money that’s been put away might be diverted to other needs.

I believe this model has extreme value, because you know that once you’re in the program, maintenance and repairs will move forward.”



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