



# Regional District of North Okanagan Water Treatment Plant - ChemFlare Case Study



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The World's Best Valves®

2018.17.05 | Martin Sampson

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# Background

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The Regional District of North Okanagan and Duteau Creek Treatment Plant serves approximately 15,000 homes and businesses in the area. The plant, which treats up to 160 million litres of water per day, was built to improve the quality of the water, including the turbidity and colour of the water source. The plant itself is a Dissolved Air Flotation Plant commissioned in 2010 with a total project cost coming in at \$29 million.

Sodium Hypochlorite ( $\text{NaOCl}$ ) is a greenish-yellow liquid commonly referred to as bleach or liquid bleach. It is commonly used at water treatment plants throughout the world for odour control, surface purification, and bleaching and water disinfection. The compound is relatively unstable and can decompose in two ways; by oxygen ( $\text{O}_2$ ) formation or by forming chlorate ( $\text{ClO}_3^-$ ) (see images 2 & 3).



Image 2. Sodium Hypochlorite Decomposition



Image 3. Sodium Hypochlorite Decomposition

## The Problem

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In 2016, at the Regional District of North Okanagan and Greater Vernon Water Treatment Plant, sodium hypochlorite started leaking at the joints of the PVC piping and fittings. The compound started attacking the glue used to keep this piping together, coming in contact with oxygen, crystalizing and making an unsightly mess.



*Image 4. Sodium Hypochlorite Decomposition at the RDNO Water Treatment Plant*

While there is a specific PVC glue designed for use with sodium hypochlorite, the cost is high and seldom used during the construction phase. Not only is this leak unsightly, but it is also a major safety issue for operators and maintenance personnel.

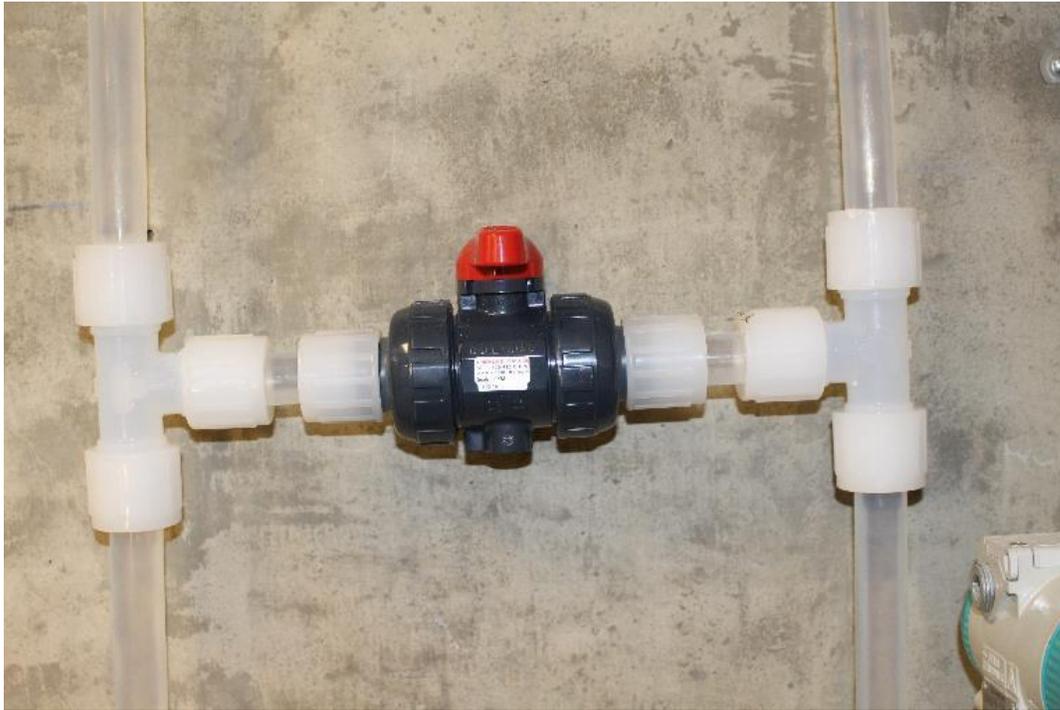
## The Solution

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The Chemline ChemFlare® System was created to eliminate the gluing process for PVC valves in sodium hypochlorite systems. The system incorporates PFA tubing, ChemFlare® fittings, ChemFlare® valve ends, and Chemline Type 21 ball valves. This combination eliminates the need for glue altogether by ceasing all leakage of the sodium hypochlorite at the joints.

Installation of the system is simple as well. Using an industrial heat gun, the end of the PFA tubing is heated for approximately 2 minutes. The heated end is flared using the ChemFlare® flaring tool and then pushed onto the ChemFlare® valve end connector. The tubing is then held in place by use of the threaded PTFE nut. The connection is now complete and ready for full line pressure up to 150 psi. The system is quick and can be pressurized immediately; there is no waiting for the glue to cure. Typically, glued systems require 12 to 24

hours to cure before seeing any system pressure or media. That time luxury is not always available. ChemFlare® is a permanent, leak-free solution.



*Image 5. ChemFlare® System with PFA tubing, ChemFlare® fittings, ChemFlare® valve ends, and Chemline Type 21 ball valves at the RDNO Water Treatment Plant*

## Conclusion

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Long term costs that are associated with installing and maintaining PVC systems greatly outweigh the initial fees that come with installation of the ChemFlare systems. They eliminate the safety challenges that face your employees and keep the plants looking clean and professional.

### Comments from Our Clients:

“As you know we had good success with the install of ChemFlare products on one of our hypo systems last year and would like to switch to ChemFlare on our caustic dosing system.”

“One of our operators did the majority of the work and had nothing but good things to say about the system. Specifically how quick and easy it is to alter the piping to account for changes to the system, and that the flared ends with the right amount of heat are a lot easier and quicker than glue joints.

Overall, we are happy with this set up and may look to switch to this system on our Caustic skids later this year or early next year.”



*Image 6. The ChemFlare® System in place at the RDNO Water Treatment Plant*