

Champion X Case Study

Overcoming Extreme Water Challenges in West Texas

At a glance

By addressing the complex water challenges with a highly efficient and innovative system, Culligan enabled Champion X to maintain its production standards while significantly reducing its environmental footprint and operational costs, and achieving extremely high levels of water purity.

CHALLENGES



Champion X, a chemical blending company in the arid Midland-Odessa region of West Texas, faced a critical challenge: producing high-quality chemicals required exceptionally pure water, but the local groundwater was severely compromised. Specifically, the well water exhibited:

- **High Total Dissolved Solids (TDS):** Approximately 1700 ppm.
- **Significant Hardness:** Around 26 grains per gallon (gpg).
- **Elevated Silt Density Index (SDI):** A concerning 14, indicating a high level of suspended solids.
- **Detectable Chlorine:** Approximately 2 ppm.

Furthermore, the facility lacked wastewater disposal infrastructure, necessitating costly truck hauling for any waste generated. Champion X needed a high-efficiency water purification system that minimized waste, a difficult combination given the extreme water conditions.

SOLUTIONS



Champion X entrusted Culligan to design and implement a comprehensive water treatment system. Culligan's team conducted a thorough analysis of the water and developed a multi-stage solution tailored to the specific challenges:

- **Pre-Softening:** To address the extreme hardness, Culligan installed 2 twin 900-grain softeners and 2 twin 450-grain softeners.
- **Supply Pumps:** 2 three-phase Variable Frequency Drive (VFD) supply pumps
- **Chemical Injection:** a chemical injection system was implemented to aide in the silt removal process.
- **Suspended solids removal:** A 14-inch progressive flow twin depth filter was added for the pre-treatment of suspended solids.
- **Chlorine Removal:** 2 portable exchange carbon filters were installed to remove the chlorine.
- **Primary RO System:** A 6 gallons per minute (gpm) RO system was installed to produce the high-purity water required for chemical blending.
- **Wastewater Recovery:** To minimize waste, Culligan integrated a 3 gpm RO system to treat the wastewater generated by the primary RO system. This innovative approach allowed for significant water recycling.



Superior service with every order.

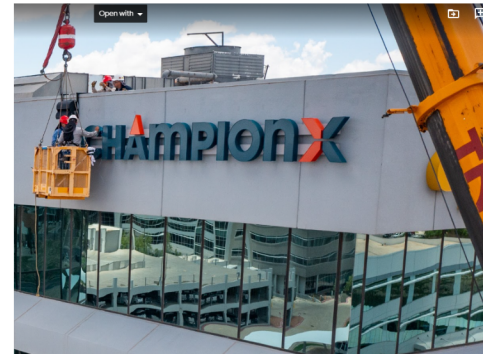
Every customer is important. And every customer is different. With a partner like Culligan® Commercial, you can expect a water treatment plan as original as you are. And like you and your business, we pride ourselves on supporting our solutions with ongoing expert service.

RESULTS



Culligan's tailored solution provided Champion X with:

- **High-Quality Water:** A reliable, multi-stage filtration system delivering the exceptionally pure water necessary for producing high-quality chemicals.
- **Achieved Purity:** Culligan's system successfully reduced:
 - Chlorine to non-detectable levels.
 - Hardness to non-detectable levels.
 - SDI to non-detectable levels.
 - TDS to approximately 6 ppm.
- **Significant Waste Reduction:** The wastewater recovery RO system reduced wastewater volume by 50%, dramatically lowering transportation costs.
- **Reliable operation:** The system was designed to handle the extreme water conditions of west Texas.



THE RESULTS:



Elimination of Downtime



Improved Water Quality



Optimized Water Usage

THE CULLIGAN ADVANTAGE



1

Industry-Leading Technology

Products with patented technology, designed to outperform the competition.

2

Expert Trained Technicians

In-house, expertly trained service technicians with years of experience with these systems.

3

Certified Quality

Regularly scheduled water quality and system performance checks ensuring water quality meets the EPA, FDA, USDA and state guidelines.

4

The Culligan Guarantee

Trusted name for clear, clean and delicious water that customers depend on, appreciate and even avidly promote due to their overall satisfaction.



For over 80 years, Culligan® has made better water. Our global network, comprised of 800+ dealers and international licensees in over 90 countries, is dedicated to addressing your water-related problems. As a worldwide leader in water treatment, our sales representatives and service technicians are familiar with the local water conditions in your area. Being global and local position us to deliver customized solutions to commercial and industrial water issues that affect your business and your bottom line.