



## **FARGO WASTE WATER TREATMENT PLANT (WWTP)**

### **The Synergy of MICRO-90®**

*Fargo, North Dakota (USA).* The City of Fargo's WWTP has an auxiliary Effluent Re-Use Facility (ERF) constructed specifically to produce RO-quality water destined for Tharaldson Ethanol, a corn-to-ethanol distiller. Tharaldson Ethanol requires approximately 1,000,000 gallons of RO water per day above the WWTP's normal processing volumes.

### **PROBLEM**

Fargo's Wastewater Control Systems Manager, Jeff Hoff, manages the ERF to ensure this additional volume is met on a daily basis. A key component of the ERF is the ultra-filtration process, which uses 0.4µ PVDF membranes with an upper pH limit of 10.0. These membranes are fouled primarily with petroleum sulfonates and bacterial secretions. Particularly in cold weather, the upstream BOD step has frequent "upsets" where the bacteria die and secrete a water soluble foulant that adheres strongly to the PVDF polymer and significantly increases the trans-membrane pressure (TMP). These "upsets" must be resolved quickly to ensure a plentiful supply of pure water.

### **SOLUTION**

In order to determine the optimal cleaning regimen, Jeff systematically evaluated the performance of 20 different cleaners and hundreds of different combinations and concentrations, including commonly used commodities. Jeff discovered that International Products Corporation's MICRO-90® was one of the top cleaners in his study. MICRO-90 stood out because the product performed better than all of the commodities and other formulated membrane cleaners, particularly on the bacterial secretions. What Jeff found most impressive is that MICRO-90 worked effectively without the use of phosphates, silicates, and strong alkalis, at a membrane-compatible pH of only 9.5, and at a 0.3% concentration.

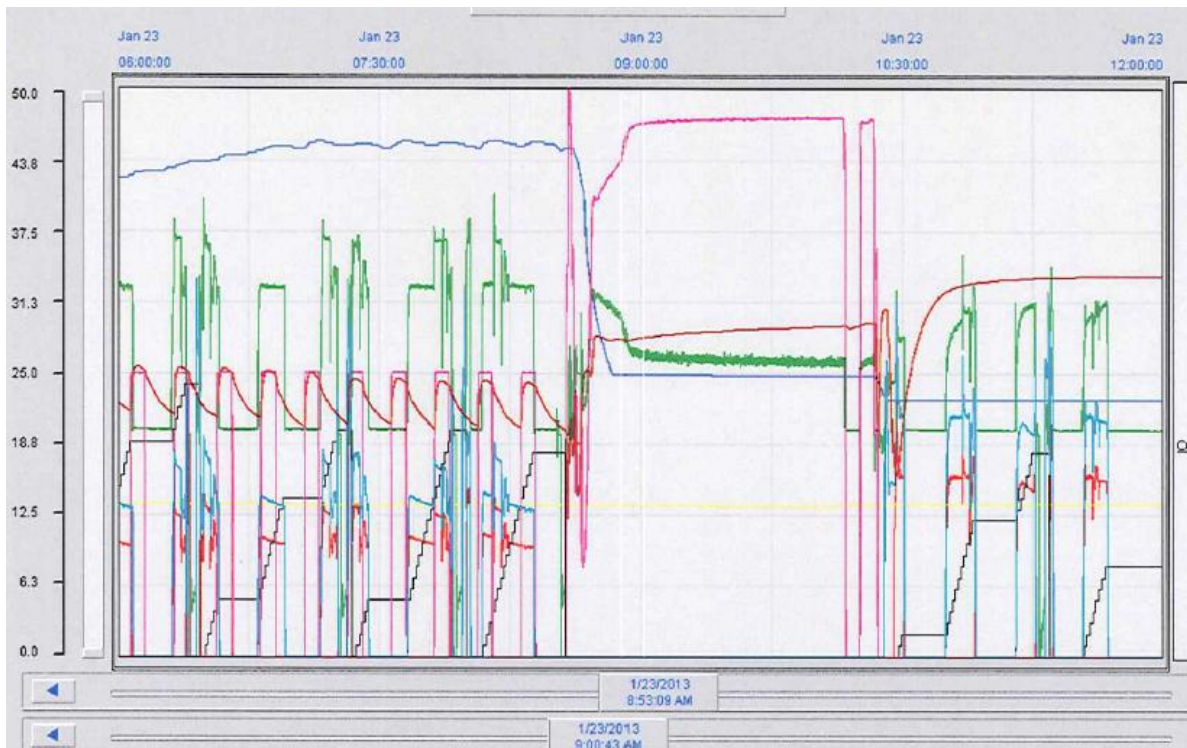
### **RESULT**

MICRO-90 has been in use at ERF since October 2010. Some of the original PVDF membranes are still used and continue to see significant TMP drops after cleaning with MICRO-90. Although the bacterial upsets cannot be prevented, their fouling can be resolved in a predictable manner with the use of MICRO-90.

Since the initial use of MICRO-90, the ERF design engineers have recommended the cleaner to other similarly designed ERFs nationwide because of the product's effectiveness, safe profile, compatibility, and economical cost per use.



**After cleaning with Micro-90**



**Green shows MICRO-90 cleaning and drop in TMP**

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