

# **P** DETROIT PUMP

## Customer Spotlight Case Study Solutions for Difficult Chemical Applications

**The Problem:** A Michigan Waste Water Treatment Plant was experiencing budget crushing repair expenses. Their existing pumps were old. Vibration and noise exceeded industry standards by more than two times acceptable levels. The City had many years where scheduled maintenance was delayed to the point that it affected the ability to restore the equipment to function in a safe and reliable way. Each Pump assembly included vertical drive shafting with intermediate bearings, which connected a motor, mounted on the floor above the pump, shaft guard and mechanical seal flushing system.

The pump and motor equipment became so unreliable, that the city realized that they needed to address this quickly, and entered into a Design-Build project with a mechanical contactor and Detroit Pump & Mfg.

### *Improved Design*

- ✓ Shafting alignment & lubrication eliminates safety and maintenance concerns
- ✓ Elimination of external water sources for seal flushing system
- ✓ Submersible pump & motor design-flood proof
- ✓ Reduced energy cost due to improved pump & motor efficiency



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**The Solution:** The City, in conjunction with their Mechanical Contactor and Detroit Pump & Mfg Company, elected to install two Grundfos Model S2 Dry Pit Submersible Pumps. These were rated for 5560 usgpm at 49' TDH, driven by an Explosion Proof Motor, and included a Variable Speed Drive for each unit. The Pumps were changed out one at a time by the Mechanical Contactor to keep the plant operational. Installation of the new Grundfos Dry Pit Pumps was made easily with minimal piping changes. The Grundfos dry pit submersible also provided maintenance advantages over the city's existing pumps. This would save the city money via improved efficiencies in the hydraulic design, improved motor efficiencies, and no need to supply seal water to the pump. The submersible design added an additional benefit by eliminating the risk of damage in the event of a flood in the pump station. Additionally, operator safety is improved with the elimination of the vertical shafting and shafting guards.

The City was amazed at the difference between the two different style pumps with regards to the running vibration and noise level. The Grundfos S2 Submersible dry pit pumps run smooth and quiet and have made a favorable impact on the confidence levels for all involved with this station. This main pump station will provide reliability and cost savings for decades to come.



Before  
Replacement



Completed  
Work