

Technology
SDOX®

Application
Wastewater Treatment
Application

Location
Leprino Foods
Greeley, CO

Project Goals
Reliably meet effluent
dissolved oxygen
permit limit of 6-mg/L.

Minimize equipment
footprint and ancillary
infrastructure needs.

Reduce life-cycle costs
associated with
meeting elevated Do
requirements

Reducing the Footprint and Costs of Effluent Reaeration

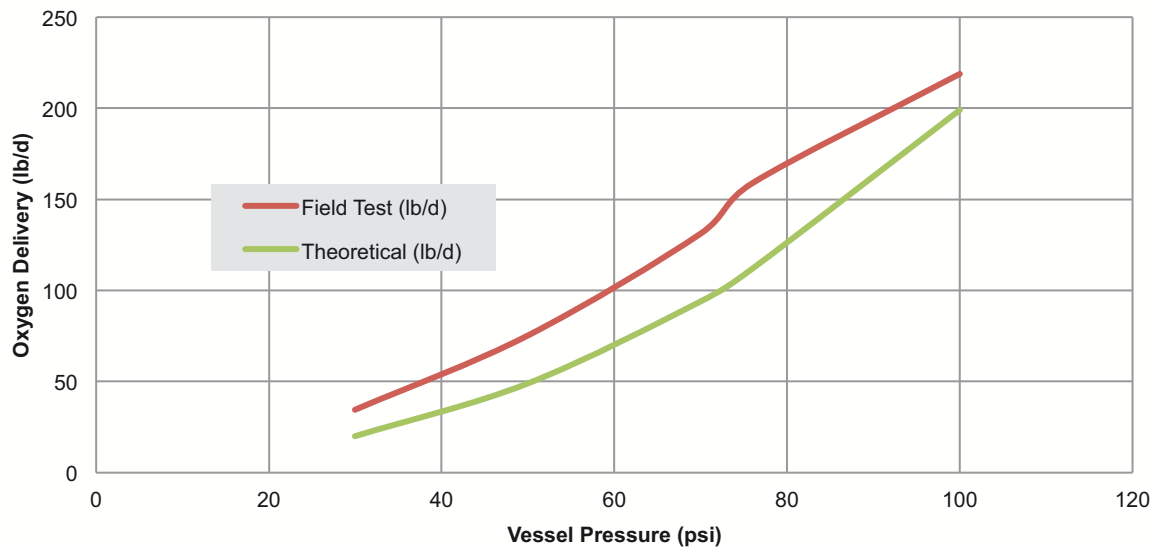
Engineers for Leprino Foods were recently charged with designing and building a new wastewater treatment facility in support of additional expansion in Greeley, Colorado. The design of the sequencing batch reactor facility, which also includes tertiary filtration and UV disinfection, was almost complete when the State of Colorado added a 6-mg/L dissolved oxygen requirement to the proposed NPDES permit. With limited real estate at the planned facility and a desire to minimize capital and operating expenses, the engineers specified BlueInGreen's SDOX technology to inject oxygen within the main process line just upstream of final sampling, measurement, and discharge.



For most municipalities and industries, treated wastewater being discharged to the environment must contain a minimal amount of dissolved oxygen by law. In the US, the level of oxygen required in treated effluent is typically determined by the State on a case by case basis – depending on location, receiving stream, aquatic life needs, and various other criteria.

Often times, the dissolved oxygen concentrations required represent a significant investment in capital equipment such as blowers and diffusers, as well as infrastructure such as concrete basins and buildings. Additionally, as effluent DO requirements approach saturation values, conventional aeration technologies become more and more inefficient requiring the movement of large volumes of air for only slight increases in DO concentrations. This ultimately means significant capital and operating expenses are associated with post treatment reaeration projects where elevated DO levels are required.

However, as realized and harnessed by engineers for Leprino Foods, BlueInGreen's SDOX technology can minimize, and even eliminate, several issues described above. Because the SDOX operates as a sidestream process where oxygen is pre-dissolved, post aeration can be accomplished in-pipe without the need for large concrete or steel structures. Additionally, because oxygen is pre-dissolved in a pressurized environment, "bubble contact" is no longer a factor in the efficiency of the aeration process. This means that oxygen levels in the main process can reach saturation values quickly and cost-effectively. See additional information on reverse side.

Figure 1: Field Test Data from Operating SDOX®**Figure 2: SDOX® Installation Demonstrating Small Footprint and In-Pipe Injection**

As shown, the SDOX unit requires minimal footprint and can eliminate large concrete or steel basins typically required for post-aeration applications. The bottom photo shows the SDOX unit installed alongside filter backwash pumps. The top photo depicts the suction and discharge arrangement at Leprino Foods, where reaeration is accomplished in-pipe. The main process line is 14 inches and the SDOX connections are 3 inches.

