



CASE STUDY

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Post-Treatment Aeration

In-line Aeration System Provides Required Level of Dissolved Oxygen in Pressurized Effluent Line

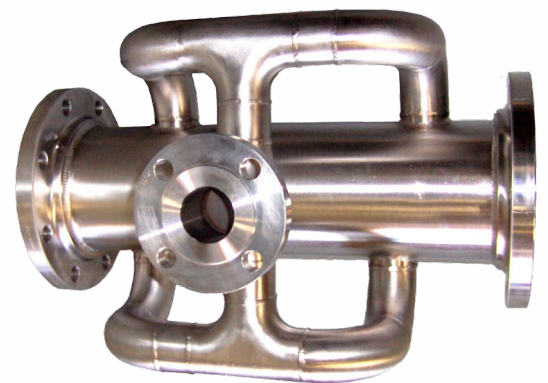
Hancock County, MS

The Problem: The treated effluent from all wastewater treatment plants across the country must meet local dissolved oxygen (DO) limits before discharging into receiving waters. A new municipal WWTP in southern Mississippi, designed by Carollo Engineers, has a pressurized effluent line to discharge into a local river. Since the line is pressurized, the standard method for increasing DO, a cascade (aka waterfall), was not a valid option.

The Solution: The engineer chose a Mazzei Injector aeration system for maximum transfer of oxygen, with the lowest possible energy usage, and minimum operator involvement. The aeration system includes two air injection skids (duty/standby), each consisting of a booster pump, injector, and pressure gauges, a control panel, and a 6" x 24" Pipeline Flash Reactor (PFR).

A sidestream is taken off the effluent pipeline, directed through a booster pump, then through a 2" Mazzei Injector to aspirate atmospheric air. The aerated sidestream is mixed back into the effluent pipeline through 4 nozzles in the Stainless Steel PFR. The aeration system control panel was designed to run the injection skid pump (which drives the aeration system) when the effluent pumps are operating.

The Results: The plant was started-up in August 2010, and has been meeting discharge DO limits with no problems. The plant operators, who are responsible for maintaining several plants in Hancock County, appreciate the minimum maintenance and low operator involvement that this system requires.



[To see how a Pipeline Flash Reactor works, take a look at the following animation.](#)

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