CITY OF CORONA WASTEWATER TREATMENT PLANT

City of Corona | Corona, California

The citizens of Corona, CA like the founder of their city, Robert Taylor, have long recognized water as an important factor. With the continued growth of population and industry, the City's existing 6.5 million gallons per day (MGD) Wastewater Treatment Plant 1A was upgraded to protect the water supply and conform to expected future regulations of the California Regional Water Quality Control Board.

Wastewater Treatment Plant 1A discharges to the Santa Ana River, the largest stream system in Southern California that flows to the Pacific Ocean. The primary goal was to lower effluent nitrogen levels for environmental protection of receiving waters. An additional goal was reduction of nuisance odors, which had become a significant problem due to ongoing development in the area and the proximity of that development to the treatment plant.

HDR, in conjunction with J.R. Filanc Construction Company, implemented a design-build project to upgrade the existing facility to state-of-the-art with respect to nutrient removal, process air supply, odor control, and wastewater treatment in general.

The scope included design and construction of facility modifications to provide nitrogen reduction to meet the future expected total inorganic nitrogen (TIN) effluent standard of 10 milligrams per liter (mg/l). During the initial stages of the project, a partnering workshop was held to identify specific additional goals of the client and see how those goals could be met. One goal was for the plant to achieve effluent TIN of less than 6 mg/l, rather than simply less than 10 mg/l. Therefore, activated sludge process modeling and design targeted this lower effluent TIN criterion. Following start-up of the upgraded facilities, testing indicated that the goal of less than 6 mg/l was achieved. This project enhancement provided the City with additional flexibility in operating the plant, as they had desired.

Modeling of the activated sludge process and the air supply system also provided significant value with respect to selection and sizing of equipment. HDR determined that the blower size, contractually required by the City, was larger than necessary to achieve the project's goals. Reduced equipment sizes, recommended by HDR, would allow effective treatment, to meet the lower effluent TIN goal, while optimizing energy consumption at average operating conditions. A detailed review of conditions and design criteria was performed to assure the client that HDR recommendations were sound and in the City's best interest. Subsequent operational experience proved that facilities were designed for optimal power efficiency and operator flexibility, and provided adequate capacity for all operating conditions.

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