

143o Analysis and Retrofit Design of Wastewater Treatment Facilities Using Process Simulation Tools

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Process simulators have been used in the petroleum and chemical industries for over four decades to facilitate the design of new processes and optimize the performance of existing ones. Similar benefits can be derived from the use of such tools in the environmental arena, particularly in the field of physical and biological treatment of municipal and industrial wastewater. Specifically, process simulators can be used to evaluate and improve options for: (1) more efficient removal of nutrients (e.g., organic nitrogen and phosphorous) that cause eutrofication, (2) estimation and control of volatile organic compound (VOC) emissions from open tanks, and (3) more efficient removal and control of hazardous compounds. The potential benefits will be illustrated with cases studies involving both municipal and industrial wastewater facilities.