

Integrated Methods for Wastewater Treatment Plant Upgrading and Optimization

This guidance document incorporates the systematic approach for integrated capacity assessment of a wastewater treatment plant and identifying performance limiting factors. Based on evaluation by the project team, this document presents the “best-practices” approach that defines a systematic process for applying analytical methods and testing tools to optimize and upgrade wastewater treatment plants.

This guidance document suggests a systematic approach for capacity evaluation, which has three generalized stages: desktop evaluation as an initial plant assessment; detailed evaluation for individual unit process analysis and testing, along with integrated evaluation of the whole plant; and field scale testing as confirmative testing for implementation of corrective actions. The document covers analysis, testing methods, and protocols for plant monitoring. It describes the integrated hydraulics and process modeling approach for determining plant capacity. The document addresses currently practiced treatment processes, evaluation tools, and equipment in the industry. Individual unit processes in liquid treatment and solids handling are illustrated with detailed process analysis and testing, performance limiting factors, approaches for overcoming potential constraints, capacity assessments, and case studies. The document also provides recommendations and sources of detailed information for testing procedures.

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