BIO-G: INTEGRATED WASTEWATER

Combining the Power of Blue Plan-it[®] and GPS-X[™]

OUR FOCUS OUR BUSINESS OUR PASSION

The Future of Wastewater Modeling

Predicting the performance of a wastewater treatment facility isn't magic. Carollo Engineers is proud to introduce the BIO-G model, one of the most advanced software platforms of the industry to help you plan, design, operate, and optimize your wastewater treatment facilities and infrastructure.



The state-of-the-art BIO-G analytic platform integrates two powerful tools, Carollo Blue Plan-it® (BPI) Decision Support System and GPS-X[™] into one platform. With the combined platform, users have access to the wastewater process simulator integrated with the **BPI** advanced computation functions and user-friendly dashboards.

Benefits of Integrated Wastewater System Modeling

To date, the industry's standard practice is to use commercially available wastewater biological process models such as BioWin or GPS-X[™] to size a wastewater treatment facility and determine factors such as effluent quality, sludge production, and oxygen demand. These models are complex and require modelers to be extensively trained to handle their inputs and outputs. The models' functionalities are limited to biological process simulation.

In contrast to conventional wastewater process models, the BIO-G model offers several benefits, which can be simplified as CUDO:

Unique Features and Applications

Taking an integrated approach to wastewater system modeling, BIO-G offers the following unique features and applications that make it superior to conventional process modeling tools.

System Modeling for Multiple WWTPs

- Optimizes flow and loads (e.g., raw wastewater, primary sludge, or centrate) between multiple treatment plants to leverage the system-wide hydraulic capacity.
- Consolidates system-wide BNR and solids-handling capacities.
- Determines strategies to minimize pumping, chemical usage, and operation costs for a system that includes several lift stations, a multi-basin collection system, multiple WRFs, or reuse and recharge facilities.

BIO-G offers customizable and informative dashboards to meet the individual needs of modelers, planners, designers, engineers, operators, and



- Convenience: BIO-G converts complex inputs and outputs that only modelers understand into information that engineers, operators, and managers can use to make informed and productive decisions.
- U Unification: BIO-G combines separate tools into one platform for improved productivity, powerful problem-solving, and better quality control.
- D Documentation and Dashboards: BIO-G generates informative reports and dynamic dashboards for engineers, operators, and managers, which can be customized to meet individual needs.
- 0 **Optimization:** BIO-G leverages advanced computing techniques to identify optimized solutions for interconnected wastewater systems and achieve goals at the lowest costs.

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Capacity Analysis

- Virtually designs and tests process upgrades.
- Optimizes current operations.
- Identify improvements that can postpone plant expansion.



Carbon Management and Energy Optimization

- Evaluates performance and efficiency of the biological nutrient removal process.
- Determines the best operating conditions to minimize energy and chemical costs.
- Steady-state or dynamic sensitivity analyses and scenario management that are far more efficient and userfriendly typical process modeling tools.
- Generates full plant mass balance and other useful summaries for diffuser performance, clarifier evaluation, chemical usage, power consumption and more.



Operation Guide and Training

- Serves as an operational guidance tool to support real-time operation decisions.
- Supports operator training through BIO-G dashboards that are customized for plant-specific needs.

Multi-Purpose Wastewater Design Tool

- Assists engineers in investigating biosolids management and biogas utilization alternative evaluations.
- Economic feasibility assessment of food waste co-digestion.
- Treatability assessments and optimization for direct and indirect potable reuse systems.
- Formation potential of struvite and vivianite minerals.



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