THE
Water
Research
FOUNDATION

Project 5087: Implementation of Innovative Biological Nutrient Removal Processes through Improvement of Control Systems & Online Analytical Measurement Reliability & Accuracy

Training Opportunities
2024

Woodard & Curran   **Northeastern University**   **HATCH**   **UMass Amherst**

Overview

Training software and associated instruction allows users to integrate and evaluate various BNR control logic scenarios, including:

- Dissolved oxygen (DO) control of airflows
- Ammonia-based aeration control (ABAC) control of DO setpoints
- Orthophosphate control of metal salt addition

utilizing an interactive, operations-focused simulator platform. The platform includes a WRRF process model developed in GPS-X™ software using industry-accepted activated sludge and ancillary models. This GPS-X™ model is then combined with an overlay software, SimuWorks™, that serves as an easy-to-use platform and allows professionals who may not be proficient with process modeling to use the previously-constructed WRRF process model simulator to investigate changes to inputs and control strategies.

The process model and SimuWorks™ overlay include five pre-loaded BNR control exercises that can be self-completed but also include numerous features that allow simulation of BNR sensor-based process control system concepts in different combinations. The control exercises utilize the control concepts included in the software from introductory BNR training through advanced process control using different control systems and strategies.
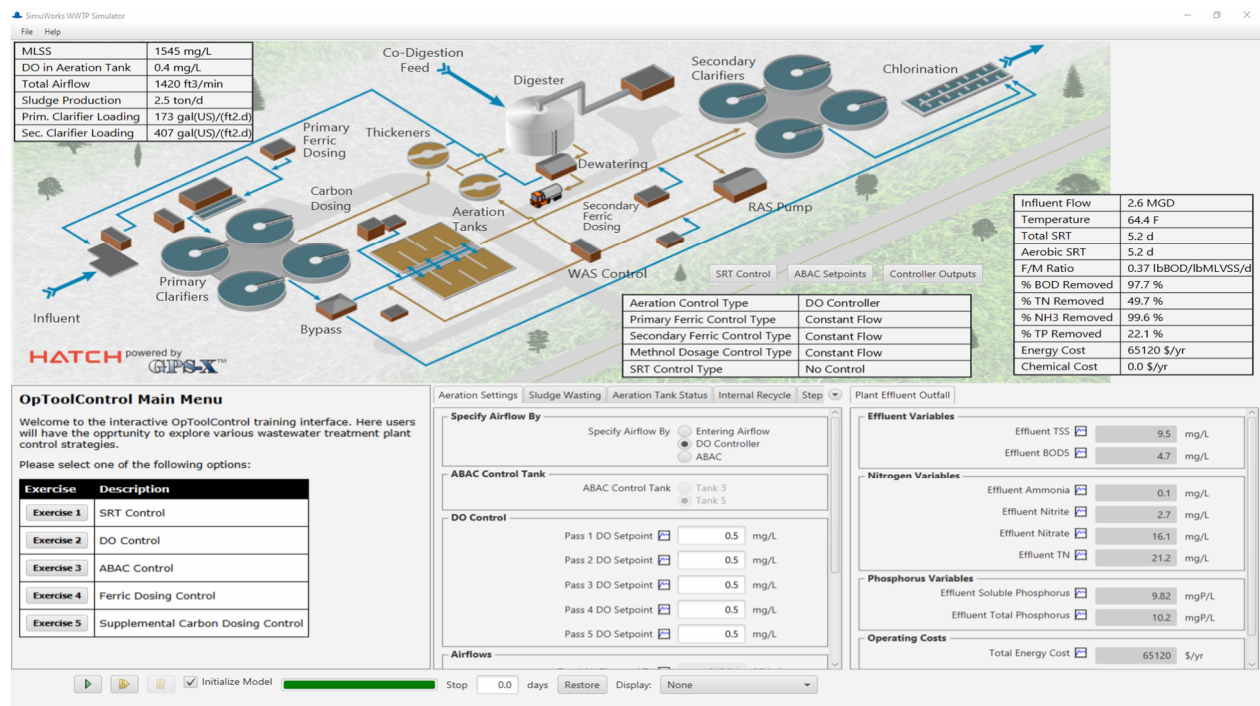

Figure 1. Example screenshot from Simulator used in interactive operations-focused training.
Source: Hatch, December 2023.

Training Opportunities

This training platform will be used in various training courses ranging from fundamental BNR training up to courses in advanced use and assessment of sensors and controls to optimize process performance. Training was included as part of the project LIFT webinar for WRF Subscribers and also will be offered at several conferences and through operator training organization such as:

- WEFTEC and WEF Specialty Conferences
- Regional WEF Member Association Conferences
- NEIWPCC
- State operator organizations

Software Access

The GPS-X™ and SimuWorks™ simulator training software is owned by Hydromantis who is a member of Hatch Ltd., and Hydromantis will retain ownership of the BNR Controls Simulator developed for this project. Hydromantis is a project partner, and Woodard & Curran holds licenses for use of the software and those licenses will remain in effect through the duration of this project for delivery of various training events. To the extent needed for training participants, temporary software licenses will be made available for registrants of the training courses for use during the classes.

For one year from the release of the project deliverables (through September 2025), Hydromantis will provide temporary licenses to any WRF subscriber for the SimuWorks™ BNR Controls Simulator for independent use. The SimuWorks™ software will be downloadable from a Hydromantis (Hatch Ltd.) website, and please contact Spencer Snowling via email at spencer.snowling@hatch.com to request the link.

Trainer Contact Information

If you would like to find out about upcoming trainings or create a customized training program for your organization, please contact the trainers:

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