

TOWN BRANCH WWTP ODOR STUDY AND PRELIMINARY DESIGN REPORT LEXINGTON, KY

FINAL PROJECT SCORECARD

- Community** participated in project
- Odor panel testing** conducted on site using local citizens
- Developed** plan to control odors from the site

WEA was retained to perform a detailed evaluation of odors at the 30 MGD Town Branch WWTP and to prepare recommendations and a Preliminary Engineering Design Report. There were other odor sources in the surrounding area outside the plant boundaries that were also identified in this project. WEA, with other team members, conducted public meetings, worked with an Odor Advisory Committee of local citizens and assembled a local odor panel for sensory analyses of odor samples collected at the plant. A detailed plant wide odor survey was conducted, odor and H₂S emission rates were calculated and the performance of existing odor control systems were evaluated. The goal of the project was to develop a preliminary odor control system design that would eliminate the Town Branch WWTP as a source of odor complaints. The final recommended plan was presented to the Lexington Fayette Urban County Government and the Odor Advisory Committee. Both groups accepted the recommendations which included covering all the primary influent and effluent channels and weirs, collecting the air under the covers and to diffusing this air into the fine bubble activated sludge process, using the existing blowers.

The preliminary design also included an oxygen ionization system for the belt filter press room rehabilitation of the existing scrubbers and installation of an enclosed septage receiving station.

**Primary Effluent Weir
and Channel Covers**



TOWN BRANCH WWTP ODOR CONTROL IMPROVEMENTS PROJECT LEXINGTON, KY

FINAL PROJECT SCORECARD

- Odor complaints eliminated**
- Activated sludge diffusion with very low operating costs**
- Utilized existing facilities to reduce cost**

WEA was retained to first perform a detailed evaluation of odors at the 30 MGD Town Branch WWTP and to prepare recommendations and a Preliminary Engineering Design Report. The final recommended odor control plan was accepted by the community and WEA was enlisted to design covers for all of the primary influent and effluent channels and weirs, FRP ductwork to collect air in the headspace under the covers and a system to filter the air and diffuse it into the fine bubble activated sludge process, using the existing blowers. In addition, an oxygen ionization system was designed for the belt filter press room to provide a safer and less offensive working environment for the operating staff. The existing scrubbers were rehabilitated and converted to a two stage system to treat the air drawn from the BFP room. An enclosed septage receiving station was designed to eliminate odors from septage delivery trucks. Construction was completed in October of 2001 at a cost of \$1,600,000. WEA provided engineering services during construction throughout the project.



Enclosed Septage Receiving Station



Primary Influent Channel Covers and FRP Duct

WEST HICKMAN CREEK WWTP ODOR STUDY LEXINGTON, KY

FINAL PROJECT SCORECARD

- Community participated in project**
- Odor complaints eliminated**

WEA performed a comprehensive odor evaluation of this 22.3 MGD WWTP, collecting air samples for sensory evaluation of dilutions to threshold (D/T) and intensity. Odor and hydrogen sulfide emission rates were determined in order to identify the major sources of odors at the plant. WEA held public meetings and worked with a Citizens Odor Advisory Committee in addressing the odor concerns at the treatment plant.

A program of immediate solutions was implemented which included adding chemicals at the plant head works, ventilating the influent sewer and treating the air in a carbon adsorber and improving the performance of existing scrubbers. WEA evaluated the performance of existing scrubbers and prepared a detailed plan to upgrade and rehabilitate these three (3) ten year old units. New packing, nozzles, piping and controls were added to the scrubbers by LFUCG staff based on WEA recommendations. Other designs included covering turbulent channels and exhausting the air to existing aeration blowers for diffusion into the fine bubble activated sludge basins. WEA worked with PDR Engineers and Hall-Harmon Engineers on this project. Construction was completed in 2000.



Canister-type Carbon Adsorber