

TMDL Strategies for Wet Weather Water Quality Issues

Mark Boner

Wet Weather Environmental Technology Company

Methodologies that were used in the conduct of the Columbus, Georgia Combined Sewer Overflow (CSO) control program to demonstrate compliance with the EPA CSO Policy are applicable to other Total Maximum Daily Load (TMDL) allocation programs. These methodologies will be described in this presentation. Loadings from the various contributing watersheds and point sources in Columbus were measured and modeled. Various scenarios of river flow and hydrologic conditions were evaluated to examine the wet weather effects on water quality standards. The findings were used to formulate a TMDL allocation for the combined sewer overflow program. Strategies for compliance determination included concepts involving flush effects and cost-benefit levels, design storm and technology-based operations and standards interpretation. The analysis showed that the implemented CSO controls resulted in loadings that “do not cause” or “contribute to” violations of water quality standards including bacteria in the Chattahoochee River. Based on the measured and modeled findings, a CSO NPDES Permit was developed around the “demonstration approach” of the EPA CSO Policy, which requires a TMDL waste load allocation (WLA) and is the basis for compliance and continued program monitoring and reporting. A facility’s “design storm” and demonstrated operation is the basis for its “effluent limits”. Monthly wet weather event monitoring of upstream and downstream receiving waters as well as CSO and POTW’s and BASINS modeling output of the nonpoint contributions is documented in the permit report. Reporting provides a direct comparison of measured and modeled loads with in-stream measured conditions that continually demonstrate the TMDL contributions.

Mark Boner’s career spans over 25 years as a consulting engineer in planning, design, construction and operation. He has been primarily involved with wet weather and water quality issues. Mr. Boner is currently serving as the principal investigator for the Columbus, Georgia CSO Technology demonstration Project and the area’s Regional Watershed Monitoring and Modeling Program. He has a Bachelor of Civil Engineering and a Master of Science in Environmental Engineering from the Georgia Institute of Technology. He is Vice President of Wet Weather Engineering and Technology and is registered as a Professional Engineer in Georgia, Virginia and Puerto Rico.