

Abstract: The Use of 40 CFR Part 63 Appendix C in Determining the Fraction Biodegraded (F_{bio}) in a Biological Treatment Unit

Presenters: Ed O'Neill, EPA Region 6
Brenda Shine, EPA OAQPS
Clark Allen, RTA Inc.

This presentation will describe the procedure used to determine a site-specific biological degradation rate (biorate) for a given compound or number of compounds using a laboratory bench scale bioreactor. The resulting biorate data is then used in determining the fraction biodegraded in a full scale system through the use of site specific operating parameters, actual unit characteristics, and mass transfer correlations. This information is required for compliance with a number of air emissions standards where open biological treatment systems are used to demonstrate compliance with air emission limits. Additionally, this procedure is used in developing emission estimates for open biological wastewater treatment systems. A computer program which incorporates these mass transfer correlations that is supported by EPA is the WATER9 model. This presentation will include a demonstration of the use of the WATER9 model in estimating F_{bio} and corresponding air emissions estimate for a full-scale industrial wastewater treatment system. Finally, the presenters will discuss considerations and cases where modeling assumptions and procedures may need to be adjusted to account for unique situations.