Activated Sludge
Principles and Current Applications

ENVIRONMENTAL SEMINAR AND SYMPOSIUM

Technical Program

Sponsored by South Texas Section - AIChE

Presented by ENVIRON International Corporation

Hilton Hobby Hotel

Houston, Texas

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ENVIRON

Technical Program

ENVIRON – STS-AIChE Environmental Symposium

1. ***Expectations of Today's Activated Sludge Systems***
   Dr. Carl E. Adams, Jr., P.E. / Sam E. Shelby, Jr. P.E.

   This presentation will review the fundamental principles of activated sludge systems by evaluating major technology, design and operation criteria, basic system components, and biological nitrification–denitrification. The speakers will also present information on refractory COD and specific constituent removal, as well as the primary techniques and technologies used to minimize excess sludge. Economic considerations in applying these technologies will be addressed, as well as cost-effective solutions towards sludge minimization.

2. ***Comparative Overview Of Commercially Competitive Activated Sludge Configurations for Industrial Wastewaters***
   Dr. Carl E. Adams, Jr., P.E. / Sam E. Shelby, Jr. P.E.

   Choosing the appropriate commercially available activated sludge configuration for treating industrial wastewaters can be an onerous task. The presentation will review configurations including the conventional hybrid model and the membrane bioreactor, in an effort to provide guidance on the topic for effective implementation. The speakers will present the pros and cons for each configuration in a comparative manner. Case studies will demonstrate selected configurations and the factors governing the choices made.

3. ***Activated Sludge Treatment Plant Troubleshooting***
   Patrick J. Campbell, P.E.

   This presentation will illustrate methods to address problems that may arise in different activated sludge removal processes. Several common and not so common problems will be presented, along with their practical and effective solutions.

4. ***Wastewater Operations Monitoring for Predicting Treatment Plant Performance***
   Andew W. Edwards, P.E. / Janet F. McKinney, P.E.

   Monitoring is an essential facet of wastewater operations, and the fundamental processes and objectives of monitoring programs must be understood in order to ensure successful results. In particular, this presentation will assess information on techniques used to compile and utilize data from multiple monitoring sources, as well as review hand-held electronic monitoring.

Speaker Bios

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Dr. Carl E. Adams, Jr., P.E.

Considered one of the leading international experts on Industrial Wastewater Management, Dr. Adams' special areas of technical expertise include: aerobic and anaerobic treatment of high strength and high salt industrial wastewaters, nitrification-denitrification, membrane technology, chemical oxidation, source control, and water recycle and reuse. His major US and international clients have included: GE Plastics, ExxonMobil, MarathonAshland, Olin Corporation, Monsanto, Solutia, DuPont, Huntsman Chemicals, Nova Chemicals, Formosa Chemcials, and 3M. Dr. Adams has been a consultant/director to more than 800 U.S. and foreign industrial wastewater management projects, author of numerous technical publications, and co-author and editor of four books and several engineering manuals regarding industrial wastewater treatment design and management. Professional activities include technical seminars and courses in the United States, Eastern and Western Europe (including Russia), South America, Asia (including China), the Middle East and Australia. He has also served as a Visiting Adjunct Professor at Vanderbilt University for application of advanced wastewater technology.

Sam E. Shelby, Jr., P.E.

Mr. Shelby is Managing Principal of the Nashville business unit of ENVIRON International Corp. He has more than 30 years of experience in integrated industrial wastewater management, including conducting bench- and pilot-scale treatability investigations for industrial and municipal wastewater and sludge handling projects, providing operational assistance at industrial wastewater treatment plants, and developing engineering design plans for water and wastewater plants. Mr. Shelby has authored over 30 technical articles regarding water and wastewater treatment, and has directed projects in Mexico, South America, and Europe.

Patrick J. Campbell, P.E.

Mr. Campbell has more than 17 years of experience in the design and operation of industrial wastewater and ground water treatment plants. He has been responsible for the execution of numerous large-scale integrated wastewater projects for the petroleum refining, organic chemicals, and iron and steel industries and has provided engineering services ranging from treatability and pilot testing, source characterization and control studies, permitting and planning, and technology evaluation and process design. His current responsibilities include leading the Treatment Operations Division, which is focused on providing operations services to complex treatment systems including troubleshooting, operator and management training, routine technical support, and contract operations, maintenance and management.

Speaker Bios

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Andrew W. Edwards, P.E.

Mr. Edwards has over 25 years experience in all aspects of industrial waste management. His recognized expertise is in biological and physicochemical treatment processes. His vast project experience includes the following: served as project manager for the upgrading of industrial water treatment systems, including the installation of additional clarification and filtration systems; directed toxicity identification and reduction investigations for petrochemical wastewater; implemented modifications to the biomonitoring protocol for synthetic TDS adjustment and ion adjustment protocol to achieve compliance; and was responsible for the process design for the expansion of a 20 mgd regional multiple refinery user industrial treatment system. Mr. Edwards has also directed several stormwater management projects and is responsible for NPDES and state permit renewal applications, including assessment of technology and water quality-based permit limitations for numerous refinery and petrochemical facilities.

Janet F. McKinney, P.E.

With over 25 years experience in process design, engineering, and operations support for industrial and municipal water and wastewater treatment operations, Ms. McKinney's experience bears an emphasis in innovative treatment process development. These innovative treatment processes include various biological, as well as physical-chemical treatment methods for the removal of organic and inorganic wastewater contaminants and toxicity. She has been responsible for potable water production operations for the City of Houston, Texas, which produces an average of approximately 300 MGD, serving over 3 million people. Ms. McKinney has also been involved with operations outsourcing for industrial utility assets in the refining and petrochemical sector, including utility performance evaluations for the purpose of improving system reliability and reducing operating costs through energy, chemical and/or solids management refinement.