



TECHNOLOGY TRANSFER

The Bridge Between
Research and Use

New Technology Transfer Publications

Manual: Fabric Filter Operation and Maintenance (Publication #1020)

This manual focuses on operation and maintenance of typical fabric filters. It includes O&M procedures, performance monitoring, record-keeping practices, performance evaluation, problem diagnosis and correction, inspection methods and procedures, and a model O&M plan.

The intended audience is the plant environmental engineer, plant O&M personnel, and EPA field personnel. The contents are slanted toward the concerns of the plant environmental engineer responsible for long-term control strategies, O&M plans, preparation of bid specifications, and performance trends analysis. The document also presents information to enable plant personnel to recognize potential problem areas as well as existing problems, their underlying causes, and their solutions. The information provided should help EPA field personnel to determine if the fabric filter is operating within the applicable regulations, to judge the effectiveness of the plants O&M program, and to assess the causes of poor fabric filter performance.

The report is similar to a previous report for electrostatic precipitator operation and maintenance prepared in 1985 (Publication #1017).

Design Manual: Municipal Wastewater Disinfection (Publication #1021)

This Technology Transfer document provides a comprehensive source of information to be used in the design of disinfection facilities for municipal wastewater treatment plants. The manual includes design information on halogenation/dehalogenation, ozonation, and ultraviolet radiation.

The manual first presents an overview of the disinfection process, the types of disinfecting agents, and the advantages and disadvantages of each. Thorough design guidelines are then presented on chlorination, chlorination/dechlorination, ozone, and ultraviolet light facilities. Bromine chloride and chlorine dioxide are discussed in the manual but with less detail than the above alternatives.

Process chemistry, disinfection kinetics, analytical measurement methodology, case histories, operation and maintenance, and safety considerations are included for each alternative.

Brochure: Radon Reduction Techniques for Detached Houses (Publication #5019)

This technical guidance document provides a general review of potential indoor radon concerns and presents technical information to support the choice of techniques to reduce indoor radon concentrations where unacceptable levels are found.

This document is based on many existing sources of information and on recent U.S. Environmental Protection Agency (EPA) research experience. It provides building trade professionals and homeowners with the basis for an understanding of:

1. The source and nature of radon emissions
2. Common radon entry routes into houses
3. Methods for preventing or reducing indoor radon concentrations

Radon levels in homes can be reduced by four methods: (1) preventing the entry of radon gas into the home, (2) ventilating the air containing radon and its decay products from the structure, (3) removing the source of the radon, and (4) removing radon and/or its decay products from the indoor air. This guidance concentrates on the first two methods as they relate to radon entry from soil gas.

Brochure: Nitrogen Oxide Control for Stationary Combustion Sources (Publication #5020)

This report provides managers and others who are involved with utility and industrial boilers, gas turbines, and stationary engines with the basic information to make prudent decisions for controlling NO_x emissions and meet applicable regulations. The document provides a technology overview for managers of power plants and other stationary sources; state and local air pollution agency personnel charged with monitoring the compliance status of sources; and vendors and consultants actively engaged in developing equipment systems and approaches for reducing stationary source NO_x emissions.

The mechanisms of NO_x formation are briefly reviewed and the general schemes for NO_x control are discussed. An overview is presented for control before, during, and after combustion. NO_x removal efficiency and associated cost are presented for actual operating technologies. EPA-sponsored tests account for a significant amount of the data presented.

Handbook: Permit Writers Guide to Test Burn Data—Hazardous Waste Incineration (Publication #6012)

The Resource Conservation and Recovery Act (RCRA) requires that hazardous waste incinerators adequately destroy organic materials while maintaining acceptable levels of particulate and chloride emissions. In response to this, EPA has developed performance standards, and owners/operators of the units must demonstrate that they can meet the standards in order to obtain a full RCRA operating permit.

This Handbook is a reference document for State and Federal permit writers and others concerned with the permitting and testing of hazardous waste incinerators. The Handbook sum-

marizes the test results from hazardous waste burns conducted at 23 full-scale stationary incinerators. In addition to the incinerator data, the Handbook also presents the results of hazardous waste test burns at 11 lime, cement, and aggregate kilns and 11 industrial boilers.

Handbook: Stream Sampling for Waste Load Allocation Applications (Publication #6013)

Water quality simulation models are often used for waste load allocation purposes. These models must adequately predict water body responses to different waste loads because large financial expenditures are often at stake. Consequently, models should be calibrated and verified prior to allocating waste loads. This Handbook discusses sampling requirements in support of waste load allocation studies in rivers and streams. Two approaches to waste load allocation are addressed: the chemical-specific approach and the whole effluent approach. Numerical or analytical toxicant fate models are used to implement the chemical-specific approach; modeling requirements and sampling guidelines are delineated for this method. For the whole effluent approach, the method is first summarized and then instream dye study requirements are presented. The Handbook includes example applications of the chemical-specific approach for conventional and toxic pollutants.

Summary Report: Technology Assessment of Sequencing Batch Reactors (Publication #8011)

This document summarizes information on the Sequencing Batch Reactor technology for municipal and industrial wastewater treatment. Contained in this report are process descriptions, performance evaluations, and economic comparisons with alternative technologies. This document is not a design manual; the information included is in a generalized, referenced format allowing the user to pursue additional detailed data that can be used in design.

Summary Report: The Causes and Control of Activated Sludge Bulking and Foaming (Publication #8012)

This document provides reference material on the causes and control of sludge bulking and foaming in activated sludge treatment. This material, designed to be readily understood, includes sufficient detail in the appendices to help plant operators control their systems. Sludge bulking is a condition in which the sludge becomes very light, increases in volume, and will not settle. Foaming is a condition in which various kinds of foams appear on the surface of aeration and clarification tanks. This report considers those foams caused by the presence of specific filamentous microorganisms in the floc.

Environmental Regulations and Technology: The National Pretreatment Program (Publication #10005)

The discharge of industrial pollutants into municipal sewer systems can result in violations of stream water quality standards and related problems at the wastewater treatment plant, including disposal of sludges. This publication explains the need for the National Pretreatment Program; describes federal, state, and local government roles in the program's implementation; and explores the program's future.

ATTENTION USERS OF TECHNOLOGY TRANSFER "HANDBOOK: IMPROVING POTW PERFORMANCE USING THE COMPOSITE CORRECTION PROGRAM"

Those of you who have a copy of this publication may not have the latest version of the major unit process evaluation worksheets (Appendices L through O). Some minor revisions and clarifications have been made to these worksheets and included in a recent reprinting of the entire document. If the following appears on the lower left hand corner of page 258 in your copy of the Handbook, then you do not have the latest version of the worksheets.

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Nothing else in the Handbook has been revised so you only need to obtain the revised worksheets by checking off the appropriate box on the order form at the end of this publication

Seminar Series: Meeting Hazardous Waste Requirements for Metal Finishers

This seminar series is designed to acquaint members of the metals finishing industry with the most recent regulatory and technical information on hazardous waste requirements and control options. Major regulatory topics include: requirements applicable to both large and small generators (e.g. manifest, delisting) requirements resulting from waste minimization and using wastes as fuels; and general requirements for waste treatment, storage and disposal. Technical topics to be discussed will include waste source reduction; materials reuse and recovery; aqueous mixture and organic liquids treatment; and treatment and management of residues. Case histories of successful treatment and waste reduction will be presented. Seminar locations and dates are as follows:

Chicago, IL—October 14 and 15, 1986
Los Angeles, CA—November 13 and 14, 1986

There is no registration fee for these seminars. For additional information call Orville Macomber 513/569-7347, Cincinnati, Ohio

Seminar Series: Problem Areas in Ground-Water Monitoring System Design for Waste Management Facilities

Ten Technology Transfer seminars addressing technology for detection, quantification and monitoring of ground-water contamination will be conducted.

The seminars will present procedures and methods available to minimize the potential for uncertainties resulting from gaps in existing ground-water monitoring technology. Seminar presentations also will evaluate the interrelationship between key components of a proposed monitoring system, such as the hydrogeologic system, contaminant behavior, monitoring well design, borehole construction procedures, well construction materials, design and construction of sampling devices, analytical constituents of concern, sample handling procedures, and sample analysis.

The target audience for the series includes: Federal and State RCRA permit writers and enforcement personnel; monitoring system design consultants; facility owners/operators; permit

applications writers; and those responsible for compliance with RCRA ground-water monitoring requirements. Seminar locations set for this Fall include:

Boston, MA—November 17-18, 1986
Newark, NJ—November 20-21, 1986
Seattle, WA—December 1-2, 1986
San Francisco, CA—December 4-5, 1986

Additional seminars will be held March through May 1987. There is no registration fee for these seminars. If you are interested in receiving registration information, contact Kathleen Kelly, JACA Corporation, (215) 643-5466.

Seminar Series: Permitting Hazardous Waste Incinerators

The preparation, review, and approval of incinerator Part B applications is complex, time-consuming, and expensive; averaging 1.2 years for new units and 2 years for existing ones. The principal obstacle in the Part B review process is the evaluation of the trial burn plan and data where there is a general lack of understanding with respect to the proper design of trial burn tests and the use of the resultant trial burn data.

The purpose of this seminar series is to improve the overall understanding of trial burn testing. Improved understanding will lead to the following benefits:

- Less uncertainty with respect to hazardous waste incinerator permits
- More consistency in trial burn requirements and permit conditions among regions and states
- Improved Federal and State permitting capability
- Improved design and execution of trial burns
Improved reporting of trial burn test results
- Fewer requests for technical clarification, accelerating the permit process
- Increased confidence by applicants and public in hazardous waste incineration

The information in these seminars will be of major benefit to those involved in the design, evaluation, execution and reporting of trial burn tests for hazardous waste incinerators. The seminars will be especially valuable to federal and state RCRA permitting and enforcement staff, facility owners/operators, consultants, testing firms, equipment vendors, and other professionals involved in hazardous waste incineration.

There is no fee for attending the seminars. The workshop dates and locations are as follows:

October 16-17, 1986
Ramada O'Hare
6600 N. Manheim Road
Rosemont, IL 60018
(312) 827-5131

October 28-29, 1986
The Lincoln Hotel
5410 LBJ Freeway
Dallas, TX 75240
(214) 934-8400

November 13-14, 1986
Hyatt Regency
Peachtree Center
Atlanta, GA 30371
(404) 477-1234

November 20-21, 1986
Adam's Mark
City Avenue and Monument Road
Philadelphia, PA 19131
(215) 581-5000

December 4-5, 1986
Cathedral Hill Hotel
Van Ness and Gray
San Francisco, CA 94109
(415) 776-8200

If you are interested in attending the seminars, please call Kathleen Kelly, JACA Corporation, Ft. Washington, PA (215) 643-5466.

REQUEST FOR TECHNOLOGY TRANSFER MATERIAL

PROCESS DESIGN MANUALS

- Municipal Sludge Landfills (Oct 1978) 1010
- Sludge Treatment and Disposal (Oct 1979) 1011
- Onsite Wastewater Treatment and Disposal Systems (Oct 1980) 1012
- Land Treatment of Municipal Wastewater (Oct 1981) 1013
- Supplement for Land Treatment of Municipal Wastewater (Oct 1984) 1013a
- Dewatering Municipal Wastewater Sludges (Oct. 1982) 1014
- Municipal Wastewater Stabilization Ponds (Oct 1983) 1015
- Land Application of Municipal Sludge (Oct 1983) 1016
- Electrostatic Precipitator Operation and Maintenance (Sept. 1985) 1017
- Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants (Oct 1985) 1018
- Lime/Limestone FGD Inspection and Performance Evaluation Manual (Oct 1985) 1019
- Fabric Filter Operation and Maintenance (June 1986) 1020
- Municipal Wastewater Disinfection (Oct 1986) 1021

TECHNICAL CAPSULE REPORTS

- First Progress Report Wellman-Lord SO₂ Recovery Process—Flue Gas Desulfurization Plant 2011
- Double Alkali Flue Gas Desulfurization System Applied at the General Motors Parma, OH Facility 2016
- Recovery of Spent Sulfuric Acid from Steel Pickling Operations 2017
- Fourth Progress Report Forced-Oxidation Test Results at the EPA Alkali Scrubbing Test Facility 2018
- Particulate Control by Fabric Filtration on Coal-Fired Industrial Boilers 2021
- Bahco Flue Gas Desulfurization and Particulate Removal System 2022
- First Progress Report Physical Coal Cleaning Demonstration at Homer City, PA 2023
- Acoustic Monitoring to Determine the Integrity of Hazardous Waste Dams 2024
- Disposal of Flue Gas Desulfurization Wastes Shawnee Field Evaluation 2028
- Adipic Acid-Enhanced Lime/Limestone Test Results at the EPA Alkali Scrubbing Facility 2029
- Benefits of Microprocessor Control of Curing Ovens for Solvent Based Coatings 2031

SEMINAR PUBLICATIONS

- Composting of Municipal Wastewater Sludges 4014
- Municipal Wastewater Sludge Combustion Technology 4015
- Protection of Public Water Supplies from Groundwater Contamination 4016

BROCHURES

- Environmental Pollution Control Alternatives Reducing Water Pollution Control Costs in the Electroplating Industry 5016
- Environmental Pollution Control Alternatives Centralized Waste Treatment Alternatives for the Electroplating Industry 5017

● Worksheets for Major Unit Process Evaluation CER1-86-31

- Environmental Pollution Control Alternatives Sludge Handling, Dewatering, and Disposal Alternatives for the Metal Finishing Industry 5018
- Radon Reduction Techniques for Detached Houses 5019
- Nitrogen Oxide Control for Stationary Combustion Sources 5020

HANDBOOKS

- Industrial Guide for Air Pollution Control (June 1978) 6004
- Remedial Action at Waste Disposal Sites (Oct 1985) 6006
- Identification/Correction of Typical Design Deficiencies at Municipal Wastewater Treatment Facilities (Oct 1982) 6007
- Improving Publicly Owned Treatment Works Performance Using the Composite Correction Program Approach (Oct 1984) 6008
- Septage Treatment and Disposal (Oct 1984) 6009
- Estimating Sludge Management Costs at Municipal Wastewater Treatment Facilities (Oct. 1985) 6010
- Permit Writers Guide to Test Burn Data Hazardous Waste Incineration (Sept. 1986) 6012
- Stream Sampling for Waste Load Allocation Applications (Sept 1986) 6013

SUMMARY REPORTS

- Control and Treatment Technology for the Metal Finishing Industry Series Sulfide Precipitation 8003
- Sulfur Oxides Control Technology Series FGD Dual Alkali Process 8004
- Sulfur Oxides Control Technology Series FGD Lime/Limestone Processes 8006
- Control and Treatment Technology for the Metal Finishing Industry Series Ion Exchange 8007
- Control and Treatment Technology for the Metal Finishing Industry Series In-Plant Changes 8008
- Sulfur Oxides Control Technology Series FGD Spray Dryer Process 8009
- Fine Pore (Fine Bubble) Aeration Systems 8010
- Technology Assessment of Sequencing Batch Reactors 8011
- Causes and Control of Activated Sludge Bulking and Foaming 8012

EXECUTIVE BRIEFINGS

- Protecting Health and Safety at Hazardous Waste Sites 9006

ENVIRONMENTAL REGULATIONS AND TECHNOLOGY PUBLICATIONS

- The Electroplating Industry 10001
- Environmental Regulations and Technology Use and Disposal of Municipal Wastewater Sludge 10003
- Fugitive VOC Emissions in the Synthetic Organic Chemicals Manufacturing Industry 10004
- The National Pretreatment Program 10005

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Note: Forward to CER1, Technology Transfer, U.S. Environmental Protection Agency, P.O. Box 12505, Cincinnati, OH 45212