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TECHNOLOGY TRANSFER

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New Technology Transfer Publications

Handbook: Control Technologies for Hazardous Air Pollutants (Publication #6014)

This handbook presents a methodology for determining the performance and cost of air pollution control techniques for reducing or eliminating the emission of potentially hazardous air pollutants (HAP's) from industrial/commercial sources. It is used by EPA, state and local air pollution control agency technical personnel for two basic purposes: (1) to respond to inquiries from interested parties (e.g., prospective permit applicants) regarding the HAP control requirements that would be needed at a specified process or facility, and (2) to evaluate/review permit applications for sources with the potential to emit HAP's. The handbook is also useful to industry engineers and decision makers requiring performance and cost information for control alternatives. It should be noted that this document provides general technical guidance on controls and does not provide guidance for compliance with regulatory requirements for hazardous air pollutants. It does not specify design requirements necessary to achieve compliance with standards established under programs such as Section 112 of the Clean Air Act or standards established under the Resource Conservation and Recovery Act. Such requirements vary with the hazardous air pollutant emitted and with the emission source;

Techniques are presented to identify HAP's and their respective emission sources and key emission stream characteristics necessary to select appropriate control techniques. The report provides additional information to assist the user in the control technique selection process for each HAP emission source/stream. Simple step-by-step procedures are presented for determining basic design parameters of the specific control devices and auxiliary equipment. The handbook provides the necessary data and procedures to determine order-of-magnitude (-60 to +30 percent) estimates for the capital and annualized costs of each control system.

Handbook: Underground Storage Tank Corrective Action Technologies (Publication #6015)

Several factors influence the decision maker's selection of a path of corrective action for dealing with a leaking underground storage tank (UST). This document provides information to assist in the scientific and technical direction of the response efforts. It probes general background information on UST construction techniques, leak detection methods, and failure mechanisms. It also addresses transport pathways of released substances, techniques for evaluating the extent of a release, factors influencing risk to human health and the environment, techniques for selecting initial corrective-action

response technologies, and detailed technical profiles of corrective-action technologies. Emphasis is on corrective actions associated with releases from gasoline and petroleum USTs; however, profiles are also provided for technologies used in response to chemical releases.

The characterization and assessment of an UST release usually include the following: ascertaining the release mechanism, determining the extent of release (volume and release rate), and evaluating transport pathways (air, surface water, and ground water). Site characteristics are important in the assessment of the rate of transport to receptor communities, the evaluation of the effects of releases on receptor communities, and the analysis of the effects of initial and corrective-action responses on receptor populations.

The initial corrective actions to mitigate a leaking UST will almost certainly involve removal of the product from the tank and either tank repair or removal. It also may be necessary to contain, treat, or remove any substance released to the environment. The case studies contained in this document offer examples of the technologies often used to mitigate the effects of leaking USTs. The selection of more permanent corrective measures requires a higher level of analysis and may involve the use of more sophisticated technologies. This document identifies and describes technologies that have been used during a permanent corrective action response. Technology selection requires a detailed analysis of site-specific conditions and the establishment of cleanup goals and objectives.

Handbook: Ground Water (Publication #6016)

The subsurface environment of ground water is characterized by a complex interplay of physical, geochemical and biological forces that govern the release, transport and fate of a variety of chemical substances. There are literally as many varied hydrogeologic settings as there are types and numbers of contaminant sources. In situations where ground-water investigations are most necessary, there are frequently many variables of land and ground-water use and contaminant source conditions which cannot be fully characterized.

Despite uncertainties, investigations are under way and they are used as a basis for making decisions about the need for and usefulness of alternative corrective and preventive actions. This document supplements other efforts to provide some assurance that elements of uncertainty are minimized and that hydrogeologic investigations provide reliable results.

An important part of EPA's ground-water research program is to transmit research information to decision makers, field managers and the scientific community. This publication is made available to assist that effort and help

satisfy an immediate Agency need to promote the transfer of technology that is applicable to ground-water contamination control and prevention.

This 212-page resource document brings together available technical information on the ground-water resource in a convenient form, providing summaries and extensive bibliographies on the following topics:

I. Framework for Protecting Ground-Water Resources

Ground-Water Contamination
Ground-Water Investigations
Ground-Water Restoration

II. Scientific and Technical Background for Assessing and Protecting the Quality of Ground-Water Resources

Basic Hydrogeology
Monitoring Well Design and Construction
Ground-Water Sampling
Ground-Water Tracers
Use of Models in Managing Ground-Water Programs
Basic Geology

Workshops on Emerging Technologies for Upgrading Existing or Designing New Drinking Water Treatment Facilities

This two and a half day workshop is being sponsored by the United States Environmental Protection Agency's Offices of Drinking Water and Research and Development and the Association of State Drinking Water Administrators (ASDWA). Its purpose is to actively transfer technical information on recently emerging but proven technologies and encourage their use in the plans for process modifications or construction of new processes. Removal processes for lead, radon, volatile organics, synthetic organics and disinfection byproducts are discussed along with filtration and disinfection technologies.

These workshops are intended primarily for regional, state and local drinking water regulatory personnel who approve plans for the construction of new or upgrading of existing drinking water treatment facilities. Consulting engineers and drinking water treatment equipment manufacturers can also benefit from attendance.

The first (pilot) workshop is scheduled to be held May 19-21, 1987 in Philadelphia, PA at the Penn Tower Hotel. There is no registration fee required for attending the workshop. Pre-registration for the workshop and additional information can be obtained by contacting: Kathleen Kelly, JACA Corp., 550 Pinetown Road, Fort Washington, PA 19034 (215) 643-5466.

In late August or early September 1987, additional workshops will be held in the Midwestern and Southwestern sectors of the country.

Workshops for Instruction in Using Water Quality Models - MINTEQ and WASP4

MINTEQ - This workshop will provide environmental chemists and engineers with a working knowledge of metals speciation chemistry, the thermodynamic equilibrium model MINTEQ-A1, and the data input requirements using the interactive program PRODEFA1. MINTEQ-A1 can be used alone or in conjunction with environmental transport models to investigate the fate and effects of heavy metals in a variety

of surface water and ground-water systems. Hands-on sessions are planned with the use of IBM PC compatible computers to demonstrate various options.

WASP4 - The WASP4 model is a versatile computer program that can be used to model environmental programs dealing with eutrophication, pesticides, volatile organics and heavy metals. Presentations will include example problems in use of the model for evaluating rivers, lakes and estuaries for effects from organics, metals and pesticides. Locations for the workshops are:

MINTEQ	Athens, GA	September 1-3, 1987
WASP4	Ann Arbor, MI	September 22-24, 1987

Seminar Series: Transport and Fate of Contaminants in Ground Water

This seminar will provide regulators and the regulated community with an up-to-date understanding of important physical, chemical and biological processes that affect ground-water resources. Since prediction via modeling is one of our best tools for understanding and describing these complex fate and transport systems, users and policy makers will also become acquainted with recent advances in the state-of-the-science of ground-water models.

Though ground-water research is a long-term effort, current research results of the many disciplines for flow transport and contaminant fate prediction effort will be integrated and state-of-the-science capabilities made available for achieving better management control and prevention of the spread of contaminants.

The use of models can help organize the essential details of complex ground-water management problems so that reliable results are obtained. Principal mathematical models now being used to assist in the management of ground-water protection programs will be discussed for application in: appraising the physical extent and chemical and biological quality of ground-water reservoirs for planning purposes; assessing the potential impact of domestic, agricultural and industrial practices for permit issuance; evaluating the probable outcome of remedial actions at waste sites and aquifer restoration techniques; and providing health-effects exposure estimates.

Ten, two-day seminars will be presented in locations throughout the country, beginning this Fall. For further information, contact Kathleen Kelly, JACA Corp., 550 Pinetown Road, Fort Washington, PA 19034 (215) 643-5466.

USEPA Exhibits at 1987 National AWWA Meeting

The American Water Works Association (AWWA) will hold its annual national meeting for 1987 in Kansas City, Missouri, June 14-18, 1987. EPA's Offices of Drinking Water and Research and Development are sponsoring an exhibit at this year's meeting. A large number of technical information products from both offices will be exhibited and an ample number of them will be available for attendees. Personnel from both offices will be available for consultation and discussions. Themes of this year's exhibit will include removal processes for lead, radon, disinfection byproducts and organics and the technologies of filtration and disinfection. For more information, contact Jim Smith at 513 569-7355.

REQUEST FOR TECHNOLOGY TRANSFER MATERIAL

PROCESS DESIGN MANUALS

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

TECHNICAL CAPSULE REPORTS

First Progress Report Wellman-Lord SO ₂ Recovery Process - Flue Gas Desulfurization Plant	2011	<input type="checkbox"/>
Double Alkali Flue Gas Desulfurization System Applied at the General Motors Parma, OH Facility	2016	<input type="checkbox"/>
Recovery of Spent Sulfuric Acid from Steel Pickling Operations	2017	<input type="checkbox"/>
Fourth Progress Report Forced-Oxidation Test Results at the EPA Alkali Scrubbing Test Facility	2018	<input type="checkbox"/>
Particulate Control by Fabric Filtration on Coal-Fired Industrial Boilers	2021	<input type="checkbox"/>
Bahco Flue Gas Desulfurization and Particulate Removal System	2022	<input type="checkbox"/>
First Progress Report Physical Coal Cleaning Demonstration at Homer City, PA	2023	<input type="checkbox"/>
Acoustic Monitoring to Determine the Integrity of Hazardous Waste Dams	2024	<input type="checkbox"/>
Disposal of Flue Gas Desulfurization Wastes Shawnee Field Evaluation	2028	<input type="checkbox"/>
Adipic Acid-Enhanced Lime/Limestone Test Results at the EPA Alkali Scrubbing Test Facility	2029	<input type="checkbox"/>
Benefits of Microprocessor Control of Curing Ovens for Solvent Based Castings	2031	<input type="checkbox"/>

SEMINAR PUBLICATIONS

Composting of Municipal Wastewater Sludges	4014	<input type="checkbox"/>
Municipal Wastewater Sludge Combustion Technology	4015	<input type="checkbox"/>
Protection of Public Water Supplies from Groundwater Contamination	4016	<input type="checkbox"/>

BROCHURES

Environmental Pollution Control Alternatives Reducing Water Pollution Control Costs in the Electroplating Industry	5016	<input type="checkbox"/>
Environmental Pollution Control Alternatives Centralized Waste Treatment Alternatives for the Electroplating Industry	5017	<input type="checkbox"/>

Environmental Pollution Control Alternatives Sludge Handling, Dewatering, and Disposal Alternatives for the Metal Finishing Industry	5018	<input type="checkbox"/>
Radon Reduction Techniques for Detached Houses	5019	<input type="checkbox"/>
Nitrogen Oxide Control for Stationary Combustion Sources	5020	<input type="checkbox"/>

HANDBOOKS

Industrial Guide for Air Pollution Control (June 1978)	6004	<input type="checkbox"/>
Remedial Action at Waste Disposal Sites (Oct 1985)	6006	<input type="checkbox"/>
Identification/Correction of Typical Design Deficiencies at Municipal Wastewater Treatment Facilities (Oct 1982)	6007	<input type="checkbox"/>
Improving Publicly Owned Treatment Works Performance Using the Composite Correction Program Approach (Oct 1984)	6008	<input type="checkbox"/>
Septage Treatment and Disposal (Oct 1984)	6009	<input type="checkbox"/>
Estimating Sludge Management Costs at Municipal Wastewater Treatment Facilities (Oct 1985)	6010	<input type="checkbox"/>
Permit Writers Guide to Test Burn Data Hazardous Waste Incineration (Sept 1986)	6012	<input type="checkbox"/>
Stream Sampling for Waste Load Allocation Applications (Sept 1986)	6013	<input type="checkbox"/>
• Control Technologies for Hazardous Air Pollutants (Sept 1986)	6014	<input type="checkbox"/>
• Underground Storage Tank Corrective Action Technologies (Jan 1987)	6015	<input type="checkbox"/>
• Ground Water (March 1987)	6016	<input type="checkbox"/>

SUMMARY REPORTS

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

EXECUTIVE BRIEFINGS

Protecting Health and Safety at Hazardous Waste Sites	9006	<input type="checkbox"/>
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ENVIRONMENTAL REGULATIONS AND TECHNOLOGY PUBLICATIONS

The Electroplating Industry	10001	<input type="checkbox"/>
Environmental Regulations and Technology Use and Disposal of Municipal Wastewater Sludge	10003	<input type="checkbox"/>
Fugitive VOC Emissions in the Synthetic Organic Chemicals Manufacturing Industry	10004	<input type="checkbox"/>
The National Pretreatment Program	10005	<input type="checkbox"/>

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