

TECHNOLOGY TRANSFER

The Bridge Between Research and Use



U.S. ENVIRONMENTAL PROTECTION AGENCY

JULY 1, 1973

INFILTRATION/INFLOW SEMINARS

Technology Transfer recently completed a seminar series covering the subject of excessive infiltration/inflow in sewer systems. The seminars addressed the EPA Regulations and Guidelines and covered in depth an acceptable method for an analysis and survey of the collection system that will meet the EPA requirements. Seminars were held in each Region with total attendance approaching 3,000. Seminar locations were St. Charles, Ill.; Dallas, Texas; Atlanta, Ga.; Philadelphia, Penna.; Seattle, Wash.; San Francisco, Calif.; Kansas City, Mo.; New York, N.Y.; Denver, Colo.; and Boston, Mass. Feature presentations were made by Leland Gottstein and Robert Pfefferle of American Consulting Services, Minneapolis, Minn., and John Smith, National Environmental Research Center, EPA, Cincinnati, Ohio. Presentations on EPA Regulations and Guidelines were conducted by Charles Swanson, Charles Sutfin, and Haig Farmer of the Office of Air and Water Programs, EPA, Washington, D.C.

Sessions presented included: Impact of New Water Bill on the Construction Grants Program, Effects of Infiltration on Treatment Efficiencies, EPA Regulations and Guidelines, the Infiltration/Inflow Analysis and the Sewer System Evaluation Survey.



Leland Gottstein, President, American Consulting Services at Infiltration/Inflow Seminar.

The impact of these seminars should facilitate a more coordinated flow of construction grants projects with the regulations in effect.

MUNICIPAL DESIGN SEMINARS

The Technology Transfer Program has conducted two additional municipal design seminars since March, 1973, bringing the total number of municipal design seminars conducted to 21. The most recent seminars presented were in St. Charles, (Chicago) Illinois, March 26 and Atlanta, Georgia, May 8-10.

The St. Charles Seminar was a one-day session on Storm and Combined Sewers held in conjunction with the Region V, Infiltration/Inflow Seminar. Francis T. Mayo, Regional Administrator, Region V, gave the opening welcome to the consulting engineers, regulatory personnel and other professionals in attendance.

The Storm and Combined Sewer Session included presentations on introduction and state-of-the-art; regulators; microstraining and disinfection; screening, dissolved air flotation; and three case histories—Detroit, Michigan; Kenosha, Wisconsin; and Milwaukee, Wisconsin.

The Atlanta Seminar included sessions on physical-chemical treatment, upgrading existing wastewater treatment facilities, and nitrogen con-



Cliff Risley—Region V Technology Transfer Chairman speaking at seminar.

trol. Mr. Asa B. Foster, Jr., Director, Categorical Programs Division—EPA, Region IV, gave the opening welcome to the 100-plus consultants and regulatory personnel in attendance. The Federal Water Pollution Control Act—Amendments of 1972, was discussed by Andrew Robert Greene, Assistant Regional Counsel, EPA, Region IV.

Feature presentations at the above design seminars were given by Dr. Clair Sawyer; Dr. Denny Parker, Brown and Caldwell, Consulting Engineers; Dr. Richard Woodward, Camp, Dresser & McKee, Consulting Engineers; Richard Sullivan, American Public Works Association; and Mr. Robert Skrenener, Detroit, Michigan. EPA personnel participating in the seminars included Mr. Edwin Barth, Mr. Jesse Cohen, and Mr. John Smith from the National Environmental Research Center in Cincinnati; and Mr. Frank Condon from the Office of Research and Monitoring in Washington, D.C.

TECHNOLOGY TRANSFER SEMINAR PUBLICATIONS

Technology Transfer will distribute selected Seminar Publications at the 1973 Water Pollution Control Federation Conference in Cleveland, Ohio, on September 30-October 5, 1973. The publications will be featured in the EPA Technology Transfer Exhibit for the WPCF Conference. The specific publications are Nitrification & Denitrification Facilities, Physical-Chemical Wastewater Treatment Plant Design, Upgrading Lagoons, Design Criteria and Operating Experience for High Purity Oxygen Systems, and Upgrading Existing Wastewater Treatment Facilities—Case Histories.

These publications have been used extensively in the Technology Transfer Design Seminar Series and will be the first issues in the Municipal Design Seminar Publication Series.

Publications from the Technology Transfer industrial seminars series are now available for the Poultry Processing and Metal Finishing Industries. These publications include "In-Process Pollution Abatement", "Pretreatment of Poultry Processing Wastes", and "Waste Treatment" for poultry processes and "In-Process Pollution Abatement" and "Waste Treatment" for metal finishers. These publications can be ordered by checking the appropriate box in the Request Form at the end of this newsletter.

MANUAL FOR DESIGN OF WASTEWATER TREATMENT FACILITIES FOR SMALL MUNICIPALITIES

Technology Transfer has recently contracted for preparation of a Manual for Design of Wastewater Treatment Facilities for Small Municipalities. Completion is expected by mid-

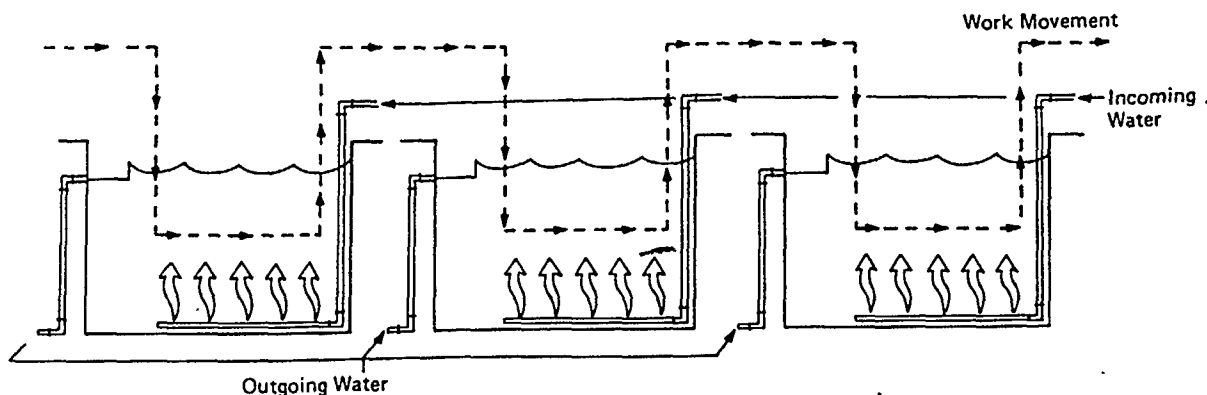


Figure 2. Multiple Tank Rinsing

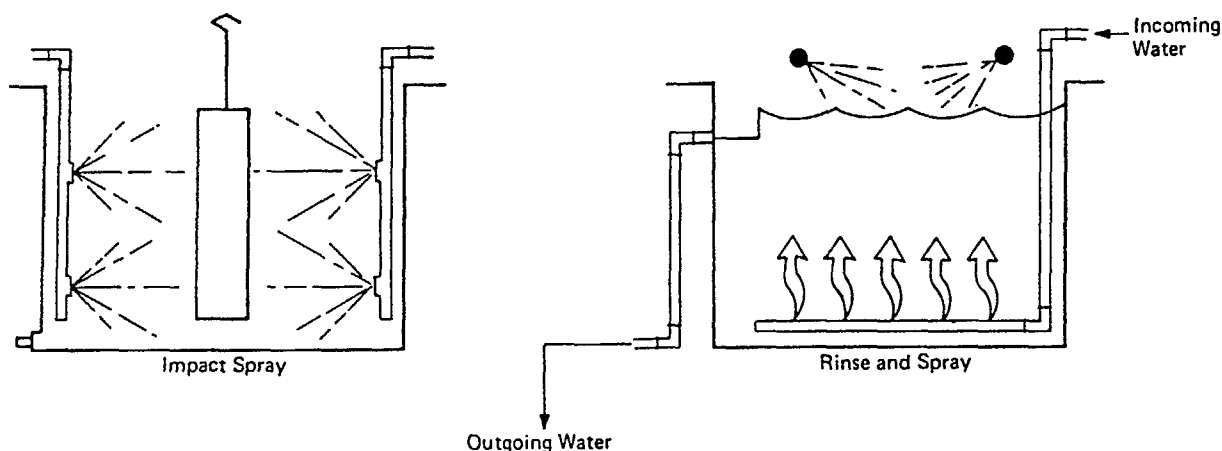


Figure 3. Spray Rinsing

WASTE TREATMENT

The three most commonly used methods of waste treatment are chemical conversion, precipitation and solids separation, and ion exchange.

Chemical Conversion

The chemical conversion method of treatment is widely used in the destruction of cyanide, the reduction of hexavalent chromium and in the conversion of soluble heavy metals to heavy metal hydroxides.

Cyanide is typically treated by adding caustic until the pH reaches 11.5 and then adding chlorine or sodium hypochlorite. This treatment converts the cyanide into cyanate. The cyanate can be further broken down into nitrogen and carbon dioxide by adjusting the pH to 7.5 to 8.0 and further addition of chlorine or sodium hypochlorite. Another method of cyanide treatment is the Kastone process developed by the DuPont Company. In this process the solution pH is adjusted to 10.0 to 11.5. The solution is heated

to 120 to 130°F

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PUBLICATIONS. A continuing series of publications is being prepared and disseminated by Technology Transfer for use by the various categories of potential users. These include:

Design Manuals intended for engineers directly involved in design of pollution control facilities. The manuals are comprehensive publications and include information such as theory, design criteria, identification of key parameters, cost experience, equipment, characteristics, and available experience and case histories.

Technical Capsule Reports describing specific industrial pollution control projects. The reports describe manufacturing process changes, waste treatment facilities, comparison of waste characteristics before and after process and waste treatment changes, and relevant cost information for the projects.

Seminar Publications covering detailed information presented at the design seminars are published and broadly distributed to the engineering community.

Handbooks are issued to cover non-design technical subject areas in pollution control such as monitoring, laboratory procedures, and operations.



Technology Transfer
Washington, D.C. 20460

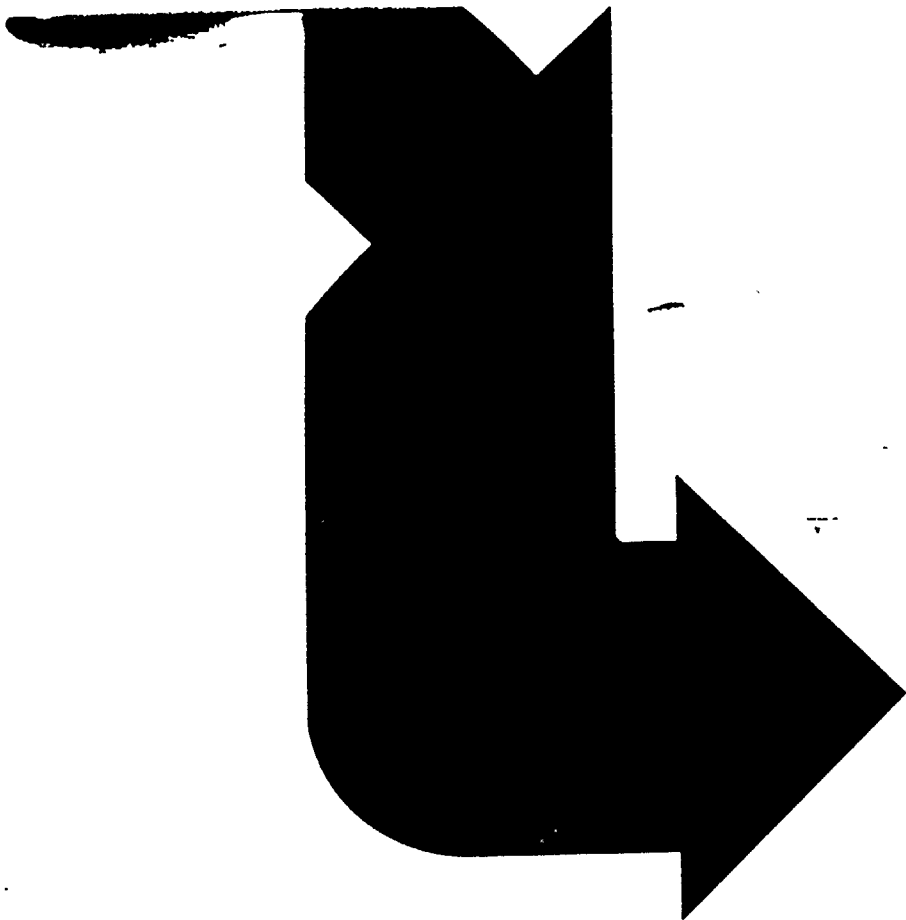
Process Brochures are prepared for administrative decision-makers and conservation groups to briefly familiarize them with new waste treatment processes. The brochures describe the basic processes and include locations where processes are being planned, designed, or operated; general cost information; and process advantages.

Project Brochures describe a successful application of new technology. Reasons behind the project, the technology used, results obtained, and cost information are presented.

Technology Transfer Newsletters are issued quarterly and are intended to keep interested parties informed of program activities and promising EPA research and demonstration projects.

AUDIO-VISUAL MEDIA. Technical videotapes for closed-circuit viewing by small groups of engineers are available as well as non-technical motion pictures depicting successful full-scale demonstrations of new technology.

EXHIBITS. Technology Transfer exhibits of new technology developments are available for large conferences of professional organizations.



Additional and more detailed information on the material discussed in this publication can be obtained from the Regional Technology Transfer Chairman serving your specific area. Inquiries should be forwarded to the following addresses to the attention of Technology Transfer Chairman:

Region 1
Environmental Protection Agency
John F. Kennedy Federal Bldg.
Boston, Massachusetts 02203

Region 2
Environmental Protection Agency
26 Federal Plaza
New York, New York 10017

Region 3
Environmental Protection Agency
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Region 4
Environmental Protection Agency
1421 Peachtree Street, N.E.
Atlanta, Georgia 30309

Region 5
Environmental Protection Agency
1 North Wacker Drive
Chicago, Illinois 60606

Region 6
Environmental Protection Agency
1600 Patterson Street
Dallas, Texas 75201

Region 7
Environmental Protection Agency
1735 Baltimore Street
Kansas City, Missouri 64108

Region 8
Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80203

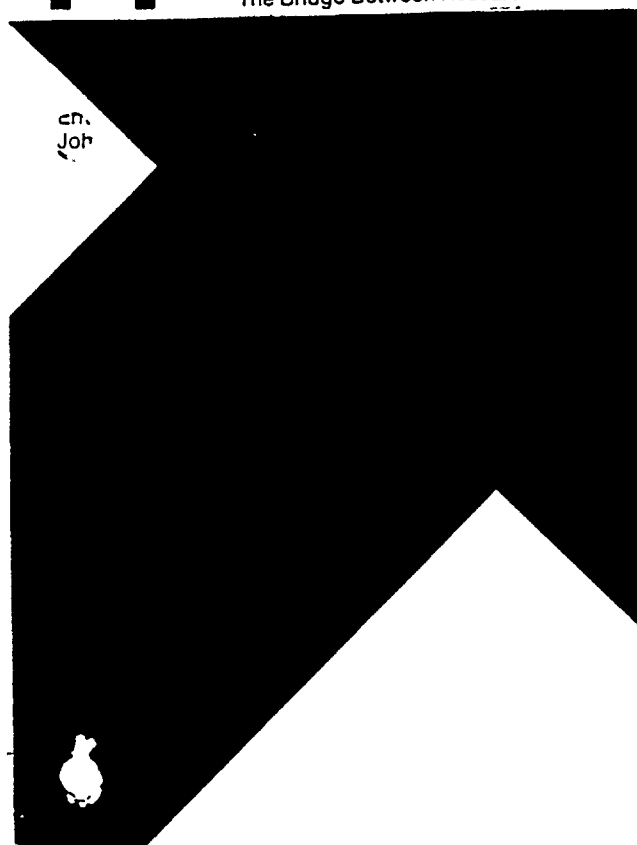
Region 9
Environmental Protection Agency
100 California Street
San Francisco, California 94111

Region 10
Environmental Protection Agency
1200 6th Avenue
Seattle, Washington 98101

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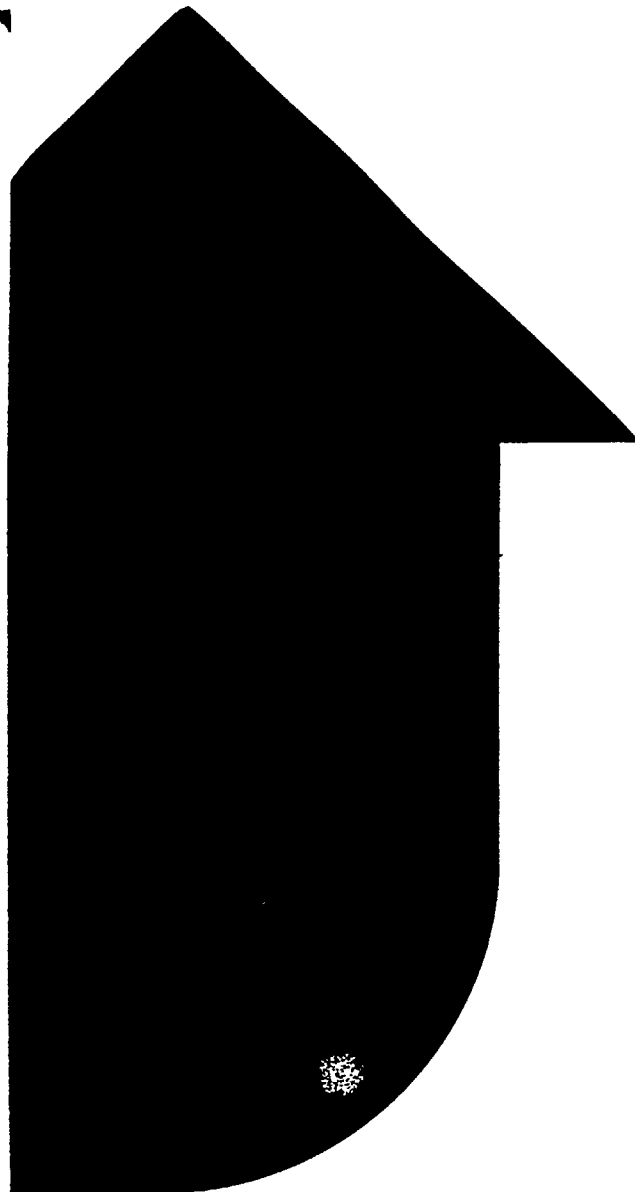
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The Bridge Between Research and Use



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A Program of the United States Environmental Protection Agency to transfer the latest viable pollution control technologies from research, development, and demonstration to all potential users.



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Program Purpose

The objective of the Technology Transfer Program is to effectively impact the construction, installation, and operation of pollution control and abatement facilities, to ensure that the latest viable technologies are transferred to potential users and eliminate the possibly large investment in obsolete facilities.

The Program's primary function is to bridge the gap between research and full-scale use by evaluating and transferring newly developed successful technologies to consulting engineering firms; municipal, industrial, and State design engineers; city managers; directors of public works; industrial managers; conservation groups; and others exerting influence over the design and construction of all pollution control and abatement facilities.

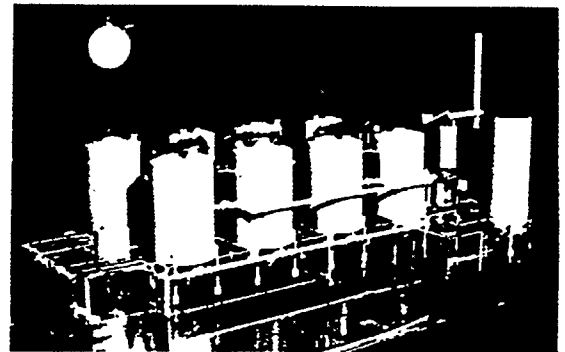
A further goal is to firmly establish the newly emerging technologies as practical and feasible alternatives on a national basis, to be routinely considered and evaluated in the planning of these facilities.

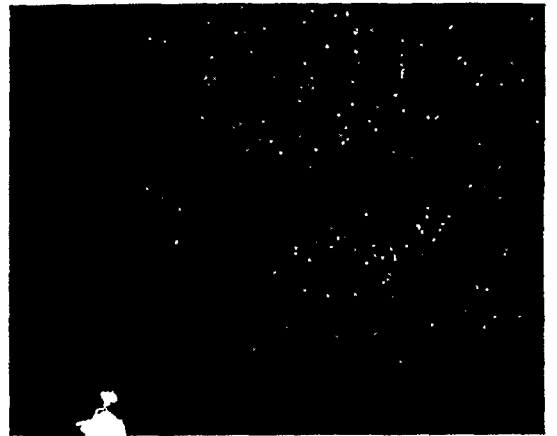
Program Activities

SEMINARS. A series of pollution control seminars is being conducted throughout the country to present detailed information on the latest pollution control technologies and practices. Subject areas of the Municipal Design Seminars for wastewater treatment facilities are oriented to the specific needs of the geographical region in which they are held. The Industrial Seminars are aimed at making the small manufacturer aware of the alternative proven technologies available to him by addressing the air, water, and solids pollution problems of that industry. Seminar presentations are jointly conducted by EPA personnel, consulting engineers, and appropriate equipment manufacturers and industries.

WHAT IS PHYSICAL-CHEMICAL TREATMENT?

PHYSICAL-CHEMICAL TREATMENT is an alternative to the biological wastewater treatment methods now in wide-spread use throughout the country. Biological-type treatment plants basically utilize air and bacteria within the wastewater to breakdown, stabilize, and remove organic pollutants in the waste stream. **PHYSICAL-CHEMICAL TREATMENT** is basically a combination of treatment plant components that do NOT rely on bacterial action during the treatment. Component processes usually found in **PHYSICAL-CHEMICAL TREATMENT** plants include:





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WHO IS USING CHEMICAL PHOSPHORUS REMOVAL?

Partial list of full-scale plants using or planning to use phosphorus removal.

STAGE WHERE TREATMENT PERFORMED	FLOW-MILLION GALLONS	
	PER DAY	CHEMICAL
PRIMARY TREATMENT		
Detroit, Michigan	600	Steel Manufacturing Waste Pickle Liquor—(mostly ferrous with ferric chloride)
Rochester, New York	100	Lime
Grand Rapids, Michigan	45	Ferric Chloride+Polymer
Bay City, Michigan	12	Ferric Chloride
Rocky River, Ohio	10	Aluminum Sulfate+Polymer
Owosso, Michigan	6	Lime+Alum
Painesville, Ohio	5	Ferric Chloride+Polymer
Hatfield Township, Penn.	5	Lime
Holland, Michigan	4	Lime
El Lago, Texas	0.5	Aluminum Sulfate
SECONDARY TREATMENT		
Milwaukee, Wisconsin	80	Ferrous Sulfate
Metro Seattle, Washington	20	Aluminum Sulfate
Chicago South Creek Plant, Ill.	30	Aluminum Sulfate
Pomona, California	2	Alum & Sodium Aluminate
Richardson, Texas	1.6	Alum

