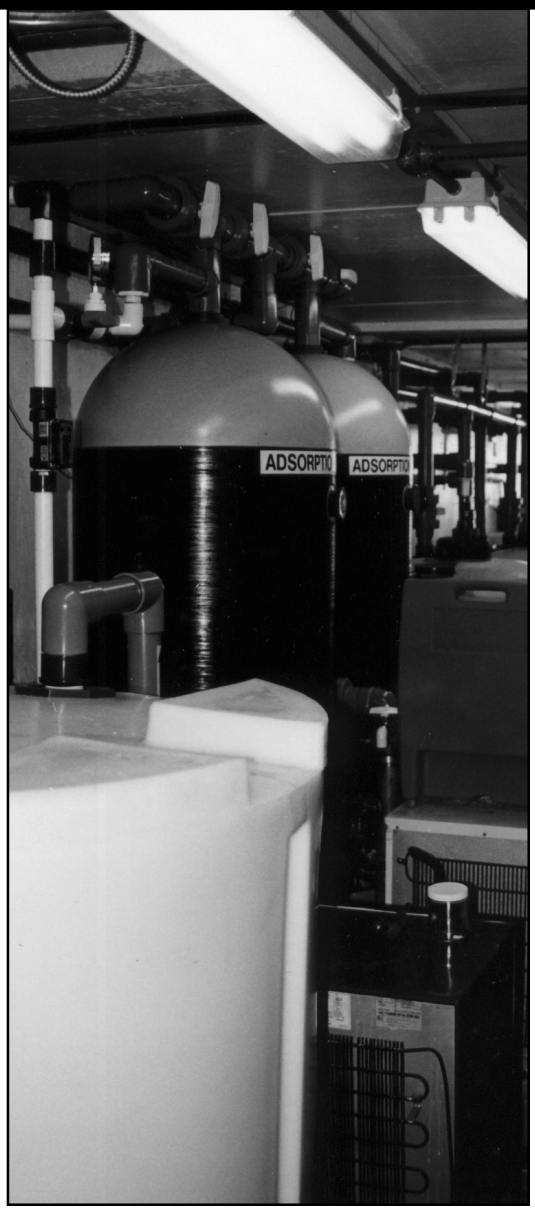
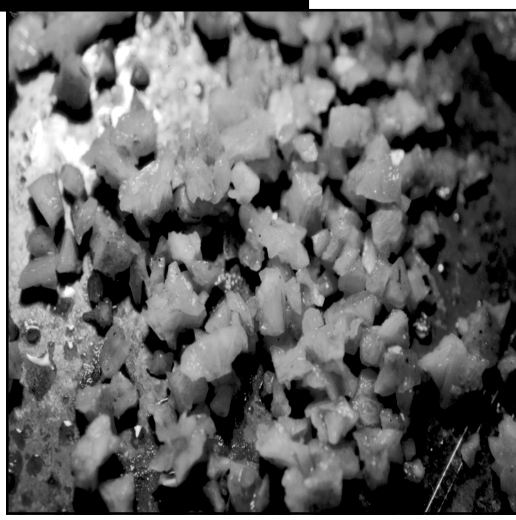
ENVIRONMENTAL TECHNOLOGY VERIFICATION REPORT FOR AMMONIA RECOVERY PROCESS





EvTEC

Prepared by the Environmental Technology Evaluation Center (EvTEC), a service center of the Civil Engineering Research Foundation (CERF)

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Abstract

This Technology Verification report describes the nature and scope of an environmental evaluation of ThermoEnergy Corporation's Ammonia Recovery Process (ARP) system. The information contained in this report represents data that were collected over a 3-month pilot study. The timeframe of testing, limits the documentation of data for long-term performance of the ARP system. The data as summarized within this Evaluation Report are being made available and distributed to federal, state, and local environmental regulators and to the wastewater treatment community. The goal of this report is to provide potential users and purchasers of the ThermoEnergy ARP with the information they need to make more informed decisions about using ARP at their local treatment works.

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Preface

The Environmental Technology Verification (ETV) Program has been established by the U.S. Environmental Protection Agency (EPA) to evaluate the performance characteristics of innovative environmental technologies across all media and to report this objective information to the permitters, buyers, and users of environmental technology. EPA's Office of Research and Development (ORD) has established a five-year pilot program to evaluate alternative operating parameters and determine the overall feasibility of a technology verification program.

ETV began in October 1995 and will be evaluated through October 2000, at which time EPA will prepare a report to Congress containing the results of the pilot program and recommendations for its future operation. EPA's ETV Program, through the National Risk Management Research Laboratory (NRMRL), has partnered with the Civil Engineering Research Foundation (CERF) under an ETV Pilot Project to evaluate and verify market-ready environmental technologies. The following report describes the verification of the performance of the ThermoEnergy Ammonia Recovery Process (ARP).

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Acronyms

ARP	Ammonia Recovery Process
ASCE	American Society of Civil Engineers
CERF	Civil Engineering Research Foundation
DCS	distributed control systems
ETV	Environmental Technology Verification
EvTEC	Environmental Technology Evaluation Center
FWENC	Foster Wheeler Environmental Corporation
kg	kilogram
lb	pound
NYC-DEP	New York City Department of Environmental Protection
mg/L	milligrams per liter
P&ID	Process and Instrumentation Diagrams
PLC	programmable logic controllers
ppm	parts per million
ppt	precipitate
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids
USEPA	U.S. Environmental Protection Agency
WPCP	Water Pollution Control Plant
WWTP	Wastewater Treatment Plant

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EvTEC assembled the Technical Evaluation Panel composed of representatives from the user community, academia, and the private sector. The Panel oversaw the development and execution of the EvTEC Evaluation Plan and the preparation of this Verification Report of the ThermoEnergy ARP technology. The Technical Evaluation Panel, with the cooperation and assistance of the applicant, identified specific project goals pertaining to this technology for it to achieve commercial acceptance by the domestic wastewater treatment community.