STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SCIENCE ADVISORY BOARD

BACKGROUND INFORMATION AND
CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE
For General Scientific and Technical Studies and Assistance

NAME: Raymond A. Ferrara, Ph.D. TELEPHONE: 609-924-8821 ext. 114

ADDRESS: 321 Wall Street, Princeton, NJ 08540

E-MAIL ADDRESS: RFerrara@Omni-Env.com

CURRENT EMPLOYER: Omni Environmental LLC

SAB: x Standing Committee: x

There are two parts to this form, Part I Background Information, and Part II Confidential Conflict of Interest Disclosure. Complete both parts, **sign** and **date** this form on the last page, and e-mail the form to njsab@dep.state.nj.us. **Retain a copy for your records**.

PART I -BACKGROUND INFORMATION

Please provide the information requested below regarding **relevant** organizational affiliations, government service, public statements and positions, research support, and additional information (if any). Information is "relevant" if it is related to — and might reasonably be of interest to others concerning — your knowledge, experience, and personal perspectives regarding the subject matter and issues to be addressed by the committee activity for which this form is being prepared. If some or all of the requested information is contained in your curriculum vitae, you may if you prefer simply attach your CV to this form, supplemented by additional responses or comments below as necessary.

I. ORGANIZATIONAL AFFILIATIONS.

Report your relevant business relationships (as an employee, owner, officer, director, consultant, etc.) and your relevant remunerated or volunteer non-business relationships (e.g., professional organizations, trade associations, public interest or civic groups, etc.).

See attached CV for history of organizational affiliations. In summary, I am presently a Principal with Omni Environmental LLC (Princeton, NJ). Current volunteer activities include appointments as Editor of ASCE's Journal of Environmental Engineering, and Chairman of the Board of PlanSmart NJ. Former professional positions include Civil Engineering Department Head at Lafayette College, and faculty member at Princeton University.

II. GOVERNMENT SERVICE.
Report your relevant service (full-time or part-time) with federal, state, or local government in the United States (including elected or appointed positions, employment, advisory board memberships, military service, etc.).
See attached CV. In summary, I have been a Project Engineer, Construction Grants Program, USEPA 1973 - 1974; a Member of Program Review Panels for the National Science Foundation 1981 and 1987; and an Ad Hoc Member of the FIFRA Scientific Advisory Panel 1981.

II. RESEARCH SUPPORT.
Report relevant information regarding both public and private sources of research support (other than your present employer), including sources of funding, equipment, facilities, etc.
While a faculty member at Princeton Universtity (1979 - 1984) my research was supported by the National Science Foundation, the New Jersey Department of Environmental Protection, the Mellon Foundation, the Dodge Foundation, and the Office of Water Policy of the U.S. Department of the Interior.

IV. PUBLIC STATEMENTS AND POSITIONS. List your relevant articles, testimony, speeches, etc., by date, title, and publication (if any) in which they appeared, or provide relevant representative examples if numerous. Provide a brief description of relevant positions of any organizations or groups with which you are closely identified or associated.
See attached CV regarding publications, conference presentations, lectures, expert testimony, etc.

V. ADDITIONAL INFORMATION.

If there are relevant aspects of your background or present circumstances not addressed above that might reasonably be construed by others as affecting your judgment in matters within the assigned task of the committee or panel on which you have been invited to serve, and therefore might constitute an actual or potential source of bias, please describe them briefly.

INSTRUCTIONS

It is essential that the work of committees of the SAB used in the development of reports not be compromised by any significant conflict of interest. For this purpose, **the term "conflict of interest" means any financial or other interest which conflicts with the service of the individual because it (1) could significantly impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization.** Except for those situations in which the Department determines that a conflict of interest is unavoidable and promptly and publicly discloses the conflict of interest, no individual can be appointed to serve (or continue to serve) on a committee of the department used in the development of reports if the individual has a conflict of interest that is relevant to the functions to be performed.

The term "conflict of interest" means something more than individual bias. There must be an *interest,* ordinarily financial, that could be directly affected by the work of the committee.

Conflict of interest requirements are *objective* and *prophylactic.* They are not an assessment of one's actual behavior or character, one's ability to act objectively despite the conflicting interest, or one's relative insensitivity to particular dollar amounts of specific assets because of one's personal wealth. Conflict of interest requirements are objective standards designed to eliminate certain specific, potentially compromising situations from arising, and thereby to protect the individual, the other members of the committee, the Department, and the public interest. The individual, the committee, and the department should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the committee simply because of the existence of conflicting interests.

The term "conflict of interest" applies only to *current interests*. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future but do not currently exist, because such future interests are inherently speculative and uncertain. For example, a pending formal or informal application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is <u>not</u> a current interest.

The term "conflict of interest" applies not only to the personal interests of the individual but also to the *interests of others* with whom the individual has substantial common financial interests if these interests are relevant to the functions to be performed. Thus, in assessing an individual's potential conflicts of interest, consideration must be given not only to the interests of the individual but also to the interests of the individual's spouse and minor children, the individual's employer, the individual's business partners, and others with whom the individual has substantial common financial interests. Consideration must also be given to the interests of those for whom one is acting in a fiduciary or similar capacity (e.g., being an officer or director of a corporation, whether profit or nonprofit, or serving as a trustee).

Much of the work of this department involves scientific and technical issues across a broad range of activities. Such activities may include, for example: defining research needs, priorities, opportunities and agendas; addressing questions of human or ecological health; providing scientific and technical assistance; assessing the state of scientific or technical knowledge on particular subjects and in particular fields. Such activities frequently address scientific and technical issues that are sufficiently broad in scope that they do not implicate specific financial interests or conflict of interest concerns.

However, where such activities address more specific issues having significant financial implications — e.g., funding option A versus option B, government development or evaluation of a

specific proprietary technology, — careful consideration must be given to possible conflict of interest issues with respect to the appointment of members of committees that will be used by the department in the development of reports to be utilized by the department.

The overriding objective of the conflict of interest inquiry in each case is to identify whether there are interests – primarily financial in nature – that conflict with the committee service of the individual because they could impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The fundamental question in each case is does the individual, or others with whom the individual has substantial common financial interests, have identifiable interests that could be directly affected by the outcome of the project activities of the committee on which the individual has been invited to serve? For projects involving advice regarding awards of contracts, grants, etc., this department is also guided by the principle that an individual should not participate in any decision regarding the award of a contract or grant or any other substantial economic benefit to the individual or to others with whom the individual has substantial common financial interests or a substantial personal or professional relationship.

The application of these concepts to specific scientific and technical studies and assistance projects must necessarily be addressed in each case on the basis of the particular facts and circumstances involved. The questions set forth below are designed to elicit information from you concerning possible conflicts of interest that are relevant to the functions to be performed by the particular committee on which you may be invited to serve.

1. FINANCIAL INTERESTS. (a) Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interests valued at less than $10,000), do you or, to the best of your knowledge others with whom you have substantial common financial interests, have financial investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments, by the outcome of the project activities of the committee on which you may be invited to serve?

(b) Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, do you or, to the best of your knowledge others with whom you have substantial common financial interests, have property interests that could be directly affected by the outcome of the project activities of the committee on which you may be invited to serve?

(c) Could your employment or self-employment (or the employment or self-employment of your spouse), or the financial interests of your employer or clients (or the financial interests of your spouse's employer or clients) be directly affected by the outcome of the project activities of the committee on which you may be invited to serve?

(d) Taking into account research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), could your current research funding and support (or that of your close research colleagues and collaborators) be directly affected by the outcome of the project activities of the committee on which you may be invited to serve?

(e) Could your service on the committee on which you may be invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

If the answer to all of the above questions under FINANCIAL INTERESTS is either "no" or "not applicable," check here ☒ (NO).

If the answer to any of the above questions under FINANCIAL INTERESTS is "yes," check here ☐ (YES), and briefly describe the circumstances on the last page of this form.

2. OTHER INTERESTS.

(a) Is the central purpose of the project for which this disclosure form is being prepared a critical review and evaluation of your own work or that of your employer?

(b) Do you have any existing professional obligations (e.g., as an officer of a scientific or engineering society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed in this committee activity?

(c) To the best of your knowledge, will your participation in this committee activity enable you to obtain access to a competitor's or potential competitor's confidential proprietary information?

(d) If you are or have ever been a NJ State employee, to the best of your knowledge are there any state conflict of interest restrictions that may be applicable to your service in connection with this committee activity?

(e) If you are a NJ State employee, are you currently employed by a state agency that is sponsoring this project? If you are not a NJ State employee, are you an employee of any other sponsor (e.g., a private foundation) of this project?

(f) If the committee activity for which this form is being prepared involves reviews of specific proposals for contract, grant, etc. awards to be made by NJDEP, do you or others with whom you have substantial common financial interests, or a familial or substantial professional relationship, have an interest in receiving or being considered for awards that are currently the subject of the review being conducted by this committee?

(g) If the committee activity for which this form is being prepared involves developing requests for proposals, work statements, and/or specifications, etc., are you interested in seeking an award under the program for which the committee on which you have been invited to serve is developing the request for proposals, work statement, and/or specifications — or, are you employed in any capacity by, or do you have a financial interest in or other economic relationship with, any person or organization that to the best of your knowledge is interested in seeking an award under this program?

If the answer to all of the above questions under OTHER INTERESTS is either "no" or "not applicable," check here ☒(NO).

If the answer to any of the above questions under OTHER INTERESTS is "yes," check here ☐ (YES), and briefly describe the circumstances on the last page of this form.

EXPLANATION OF "YES" RESPONSES:

I do not believe that I have any conflict of interest in serving on the DEP SAB. However, in a spirit of full disclosure and for the selection committee's information I point out that I am an owner of an environmental consulting firm that has completed projects funded by the NJDEP, as well as projects funded by NJPDES permittees in the State of New Jersey. I can not anticipate the activities to be undertaken or the decisions to be made by the DEP SAB, nor can I speculate as to whether they would have a direct impact on the types of projects performed by my firm.

During your period of service in connection with the activity for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the NJDEP Office of Science staff representative.

Raymond A. Ferrara — Dec. 28, 2007

YOUR SIGNATURE — DATE

Reviewed by:

NJDEP — DATE

This form was adapted from the National Academies - Background Information and Conflict of Interest form.

Raymond A. Ferrara, Ph.D.
Principal

Business
Omni Environmental LLC
Research Park
321 Wall Street
Princeton, NJ 08540
Tel: 609-924-8821 ext.14
RFerrara@Omni-Env.com

Home
84 Platz Drive
Skillman, NJ 08558
Mobile Tel: 609-577-1437

SUMMARY

Dr. Ferrara has more than thirty years of experience as an educator, scholar and consultant. He holds a doctoral degree from the Massachusetts Institute of Technology, as well as Bachelor's and Master's degrees from Manhattan College. Dr. Ferrara is a former faculty member at both Princeton University and Lafayette College. At Lafayette, he was also Head of the Department of Civil Engineering. The development of Dr. Ferrara's consulting career while a faculty member led to his forming Omni Environmental.

At Princeton and Lafayette, Dr. Ferrara taught graduate and undergraduate courses as well as short courses for practicing professionals, and served on a variety of committees, including a term as Chair of the Curriculum Committee at Lafayette College. He was also actively engaged in research in the areas of water quality modeling, stormwater quality control, and toxic and hazardous chemical fate in ground and surface waters. He has authored numerous consulting reports and scientific publications, and delivered numerous conference presentations and invited lectures. He has served on the editorial boards for the American Society of Civil Engineers *Journal of Environmental Engineering* and the American Water Resources Association *Water Resources Bulletin*. He has served as Chair of the American Society of Civil Engineers Environmental Engineering Division Awards Committee, and is presently Editor for ASCE's *Journal of Environmental Engineering*.

Dr. Ferrara's consulting activities have included providing services to a wide variety of clients in both the public and private sectors. He is well known throughout the United States for his work in solving complex water quality problems in litigation matters involving contamination of ground waters, surface waters, and drinking water supplies. In addition to his litigation experience, Dr. Ferrara has provided expert testimony and advice on matters ranging from the impact of development to planning for wastewater management facilities. He is also widely known for his work in water quality management and NPDES permit matters, and his work is equally respected by both the regulated and regulatory communities.

In addition to his service to the professional community, Dr. Ferrara has also served his local community in a number of capacities including as Chairman of the Board for PlanSmart New Jersey, an independent civic action group committed to improving the quality of community life through sound land use planning and regional cooperation, and as President of his high school Alumni Association (Cathedral Prep, Queens, New York) and co-chair of the school's Capital Campaign.

The details of Dr. Ferrara's professional career are provided in the following pages.

EDUCATION

Ph.D., Environmental Engineering, June 1978
Massachusetts Institute of Technology
Cambridge, Massachusetts

M.E., Environmental Engineering, May 1973
Manhattan College
Riverdale, New York

B.E., Civil Engineering, May 1972
Manhattan College
Riverdale, New York

ACADEMIC EXPERIENCE

LAFAYETTE COLLEGE

Faculty Positions:
- Civil Engineering Department Head, 1986 - 1989
- Associate Professor, 1987 - 1989
- Assistant Professor, 1984 - 1987

Committees and Administrative Positions:
- Curriculum Committee
  - Chair, September 1987 - June 1988
  - Member, September 1985 - June 1988
- Economic Status of the Faculty, Member and Secretary, 1987 – 1989
- College Network Committee, 1986 - 1989
- Black Recruitment Advisory Committee, Member and Secretary, 1985 - 1988
- Word Processing Committee, Engineering Division, 1985 - 1986
- Sloan Seminar on "Artificial Intelligence," participant, Spring 1985
- Sloan Seminar on "Water Resources," co-leader, Fall 1985
- Civil Engineering undergraduate adviser, 1985 - 1989
- Career Planning and Placement Office Search Committee for Assistant Director, 1986
- Geological Engineering Search Committee, 1986 - 1987

Courses Taught:
- Water Quality Modeling
- Hydrology
- Special Topics: Toxic and Hazardous Waste in Ground and Surface Waters
- Water Supply and Pollution Control
- Introduction to Engineering Analysis - Computers
- Water Resources and Society
- Independent Study

PRINCETON UNIVERSITY

Faculty Positions:

Water Resources Program Director, 1983 - 1984
Assistant Professor, 1979 - 1984

Committees and Administrative Positions:

Coordinator, Water Resources Program Seminar Series, 1980 - 1984
Freshman Advising, 1980 - 1983
Civil Engineering Program Undergraduate Adviser, 1983 - 1984
Continuing Education Committee, 1981 - 1983
Geological Engineering Program Committee, 1980 - 1984
Water Resources Program Committee, 1979 - 1984

Courses Taught:

Water Quality Modeling and Analysis
Fundamentals of Water Quality Analysis
Introduction to Water Pollution Technology
Surface and Subsurface Hydrology
Introduction to Technological Challenges

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Research and Teaching Assistant, Department of Civil Engineering, 1974 - 1978

RESEARCH ACTIVITIES

During his academic career, Dr. Ferrara was actively engaged in research in the areas of water quality modeling of pollutant fate and transport, stormwater quality control, and toxic and hazardous chemicals fate in ground and surface waters. His research has been sponsored by the National Science Foundation, the New Jersey Department of Environmental Protection, the Mellon Foundation, the Dodge Foundation, and the Office of Water Policy of the U.S. Department of the Interior. A list of his publications and presentations which reflect his research activity is included in this document.

PROFESSIONAL SHORT COURSES

Dr. Ferrara has also taught the following short courses for professionals at Rutgers University.

Discharge Monitoring Reports -- From Completion to Compliance, Cook College, Rutgers University, New Brunswick, NJ, September 24, 1991; October 14, 1992; October 13, 1993; October 6, 1994; October 11, 1995.

Establishing NPDES Permit Effluent Limitations, Cook College, Rutgers University, New Brunswick, NJ, October 8 - 9, 1991; October 28 - 29, 1992; September 22 - 23, 1993; September 28 - 29, 1994.

Surface and Groundwater Quality Evaluation, Cook College, Rutgers University, New Brunswick, NJ, 1985.

Hydrologic and Water Quality Assessment, Cook College, Rutgers University, New Brunswick, NJ, 1985.

Quantitative Methods for Hydrologic and Water Quality Assessment, Cook College, Rutgers University, New Brunswick, NJ, May 1984.

GOVERNMENT SERVICE

United States Environmental Protection Agency, Construction Grants Program, 1973 - 1974

PROFESSIONAL ASSOCIATION MEMBERSHIPS

American Society of Civil Engineers
American Water Resources Association
American Water Works Association
Water Environment Federation

PROFESSIONAL ACTIVITIES

American Society of Civil Engineers, *Journal of Environmental Engineering*,
Editor, October 1, 2006 - present
Associate Editor, 1984-1987; 2002 - 2006.

American Society of Civil Engineers, Environmental Engineering Division Awards Committee,
Chair, 1998; Member, 1995 - 1998; 2006 - present

American Water Resources Association, *Water Resources Bulletin*,
Associate Editor, 1983-1988.

Board of Directors, PlanSmart New Jersey, Trenton, NJ,
Chairman, 2009
Member, 2004 - present

Rutgers University Bioenvironmental Engineering Program Industrial Advisory Board
Member, 2006 - present

Stevens Institute of Technology Environmental Engineering Program Advisory Committee, Member, 2001 - 2003

Association of Environmental Authorities, NJPDES Permits Committee,
Member, 1994 - 1998.

Middle Atlantic Region Civil Engineering Department Chairmen Conference,
Chair, 1987.

Program Review Panel, National Science Foundation Small Business Innovative Research Program, 1987.

Authorities Association of New Jersey, Technical Position Advisory Committee,
Member, 1983-1987.

Session Coordinator and Chairman, NATO Workshop on Urban Runoff Pollution, Toxic Pollutant Impacts to Receiving Waters, Montpelier, France, August 26-30, 1985.

ASCE Water Resources Planning and Management Division, Research and Information Committee, Corresponding Member, 1982-1984

Federal Insecticide, Fungicide, Rodenticide Act Scientific Advisory Panel, Ad Hoc Member, 1981.

National Science Foundation Research Initiation Grant Program, Program Review Panel, 1981.

CONSULTING EXPERIENCE

Omni Environmental LLC
Principal and Founder, 2007 - present

TRC Environmental Corporation
Senior Vice President, 2004 - 2007

Omni Environmental Corporation
President and Founder, 1989 - 2004

Environ Corporation
Principal Consultant, 1987 - 1988

Independent Consultant, 1979 - 1988

Camp, Dresser, McKee/Resource Analysis
Senior Analyst and Manager of Water Quality Division, 1978 - 1979

REPRESENTATIVE AREAS OF PRACTICE

Water quality modeling and analysis of toxic and conventional pollutants in water resource systems focusing on transport and fate, environmental degradation and assimilation, and distribution of contaminants in such systems.

Modeling and analysis of water distribution systems focusing on contaminant transport and fate, and chemical exposure history at specific locations in distribution systems.

Technical and strategic support for NPDES permits and administrative consent orders, including determination of permit terms and conditions, effluent limitations and compliance schedule requirements.

Watershed management planning including baseline watershed characterization, GIS and database development, identification of watershed priorities, data analysis and development of watershed management strategies.

Preparation and implementation of water quality monitoring programs for model calibration and verification, evaluation of impacts from discharges, and establishment of baseline characteristics.

Wastewater management planning, and wastewater treatment and disposal alternatives assessment.

Preparation of Environmental Impact Statements in connection with land development and other activities.

REPRESENTATIVE EXPERT TESTIMONY

Aiello et al. v. Town of Brookhaven (Long Island, New York)

In this matter, Dr. Ferrara was retained directly by the United States District Court for the Eastern District of New York. Although the plaintiffs and the defendant in this matter provided expert testimony, Dr. Ferrara was asked by the Court to assist it in resolving this case by providing a separate independent expert report and testimony regarding the scientific and engineering issues related to the potential for the Brookhaven Landfill to have impacted ground waters and surface waters in the region.

Anderson et al. v. Cryovac, Inc. et al. (Woburn, Massachusetts)

In this landmark toxic tort litigation, Dr. Ferrara was retained as an expert witness for the plaintiffs to establish the extent to which contaminated drinking water was provided to the residents of Woburn, Massachusetts. His exposure profile was relied upon by medical and toxicological experts to determine whether the plaintiffs were harmed due to consumption of the contaminated water.

Renaud et al. v. Martin Marietta Corporation et al. (Denver, Colorado)

As a result of Dr. Ferrara's credible analyses and presentations on behalf of the plaintiffs in the Woburn case, he was retained on behalf of the defendants in a similar case involving contamination of drinking water in the Denver, Colorado system. Dr. Ferrara's role was to determine the extent to which water from a purportedly contaminated source may have been delivered throughout the Denver drinking water system. He was also asked to testify regarding the fate and transport of contaminants throughout the surface and subsurface environment.

Abel et al. v. Lockheed Martin Corporation et al. (Burbank, California)

In this matter, Dr. Ferrara was asked to render professional opinions concerning the concentrations of organic chemicals in the water delivered to certain locations in the City of Burbank, California beginning in 1940. Dr. Ferrara's work involved reconstructing the historical operation and performance of the systems in question, assessing the concentrations of certain organic chemicals in wells which supplied drinking water from the local aquifers, calculating the transport and fate of these chemicals in the drinking water system, and determining the levels of these chemicals in the water delivered to individual plaintiffs.

United States of America v. Tennessee Gas Pipeline Co. (Natchitoches, Louisiana)

In this case, Dr. Ferrara was asked to testify regarding the frequency, movement and fate of contaminants, particularly PCBs, which may have been released in discharges from a gas compressor station in Natchitoches, Louisiana. Dr. Ferrara's analysis required an understanding of the possible history of releases of PCBs, the mechanisms through which PCBs may have been transported, and the fate of PCBs that may have been discharged from the site.

E.I. DuPont DeNemours and Company v. Admiral Insurance Company et al. (Niagara Falls, New York)

For this case, Dr. Ferrara was retained to determine the fate and transport of contaminants, particularly PCBs, in and around a DuPont facility in Niagara Falls, New York. This work involved analysis and understanding of the sources, as well as the distribution and fate of contaminants through this hydrologic system. His work also included an assessment of the need for remediation and the effectiveness of such remediation.

General Electric Company v. Buzby Bros. Materials Corp et al. (Bellmawr, New Jersey)

In this case, Dr. Ferrara was retained to assess the extent to which disposal of sewage sludges in a landfill contributed to the need for remediation at the landfill which has been designated as a Superfund site. Dr. Ferrara's testimony required an understanding and analysis of the types of contaminants present in the landfill, the potential for those contaminants to be present in the sewage sludges deposited in the landfill, the interaction of those contaminants with sewage sludges deposited in the landfill, the sources and amounts of sewage sludges deposited in the landfill, and the fate of those contaminants in the landfill and the physical environment under and around the landfill.

County of Passaic v. MPS Corporation et al. (Sterling Forest, New York)

In this case, Dr. Ferrara was asked to prepare an expert analysis of the potential for water quality impacts particularly related to stormwater runoff that might result from development of the subject property. The potential for impact to downstream water resources, including a potable water supply reservoir, was of particular concern.

Technical Oil Products v. Easton Area Joint Sewer Authority (Easton, Pennsylvania)

In Technical Oil Products' appeal of various penalty assessments and surcharges, Dr. Ferrara was asked to consider the reasonableness of the penalties and surcharges. This effort required that Dr. Ferrara evaluate the facility operation, the Sewer Authority's monitoring of that operation, the validity of the data used to determine penalties and surcharges, and the foundation for the penalty and surcharge calculations.

Penetone Corporation, et al. v. Amerace Corporation, et al. (Tenafly, New Jersey)

In this matter, Dr. Ferrara was asked to opine regarding the relationship between three former owner/operators and residual contamination at a chemical manufacturing site. The objective of the effort was to establish allocation among the three parties for the cost of investigation and remediation of environmental contamination at the site.

JOURNAL PUBLICATIONS - (peer reviewed)

Witkowski, P. J., P. R. Jaffe, and R. A. Ferrara, "Sorption and Desorption Dynamics of Aroclor 1242 to Natural Sediments," J. of Contaminant Hydrology, no. 2, p. 249-269, 1988.

Ferrara, R. A. and M. A. Dimino, "A Case Study Analysis for Seasonal Nitrification: Economic Efficiency and Water Quality Preservation," Journal Water Pollution Control Federation, v. 57, no. 7, July 1985.

Griffin, T. T. and R. A. Ferrara, "A Multi-Component Model of Phosphorus Dynamics in Reservoirs," Water Resources Bulletin, AWRA, v. 20, no. 5, October 1984.

Jaffe, P. R. and R. A. Ferrara, "Modeling Sediment and Water Column Interactions for Hydrophobic Organic Pollutants: Parameter Discrimination and Model Response to Input Uncertainty," Water Research, v. 18, no. 9, September 1984.

Jaffe, P. R. and R. A. Ferrara, "Desorption Kinetics in Modeling of Toxic Chemicals," Journal of Environmental Engineering, ASCE, v. 109, no. 4, August 1983.

Ferrara, R. A. and P. Witkowski, "Storm Water Quality Characteristics in Detention Basins," Journal of Environmental Engineering, ASCE, v. 109, no. 2, April 1983.

Ferrara, R. A. and A. Hildick-Smith, "A Modeling Approach for Storm Water Quantity and Quality Control Via Detention Basins," Water Resources Bulletin, AWRA, v. 18, no. 6, December 1982.

Ferrara, R. A. and C. B. Avci, "Nitrogen Dynamics in Waste Stabilization Ponds," Journal Water Pollution Control Federation, v. 5, no. 4, April 1982.

Ferrara, R. A. and D. R. F. Harleman, "Hydraulic Modeling for Waste Stabilization Ponds," Journal of the Environmental Engineering Division, ASCE, v. 107, no. EE4, August 1981.

Ferrara, R. A. and D. R. F. Harleman, "Dynamic Nutrient Cycle Model for Waste Stabilization Ponds," Journal of the Environmental Engineering Division, ASCE, v. 106, no. EE1, February 1980.

JOURNAL PUBLICATIONS - (not peer reviewed)

Ferrara, R.A., "The Practicing Professional and the Journal Publication – the Odd Couple or Soulmates?" Editorial, Journal of Environmental Engineering, ASCE, v. 130, no. 5, May 2004.

Ferrara, R. A., "Watershed Management and You - Perfect Together?," New Jersey Effluents, v. 34, no. 3, Summer 2001, and Clean Streams, March 2001.

Ferrara, R. A., T. T. Griffin, and T. S. Nadbielny, "Reservoir Management for Water Supply and Water Quality Objectives," Current Practices in Environmental Science and Engineering, v. 2, 1986.

Ferrara, R. A., "Discussion: Dynamic Process Modeling of Wastewater Stabilization Ponds," Journal Water Pollution Control Federation, v. 52, no. 10, October 1980.

BOOKS AND BOOK CHAPTERS

Ferrara, R. A., "Toxic Pollutants: Impact and Fate in Receiving Waters," in H. C. Torno, J. Marsalek, M. Desbordes, (eds.), Urban Runoff Pollution, Springer-Verlag, Berlin and New York, in cooperation with NATO ASI Series Advanced Institutes Series, 1986.

Ferrara, R. A. and T. T. Griffin, "Round Valley Reservoir Multi-Component Phosphorus Model Documentation," in W. G. Gray (ed.), Physics-Based Modeling of Lakes, Reservoirs, and Impoundments, American Society of Civil Engineers, New York, NY, 1986.

Ferrara, R. A., "Modeling Pollutant Transformation Processes," in W. G. Gray (ed.), Physics-Based Modeling of Lakes, Reservoirs, and Impoundments, American Society of Civil Engineers, New York, NY, 1986.

Ferrara, R. A., "Introduction to the Modeling of Lakes, Reservoirs, and Impoundments," in W. G. Gray (ed.), Physics-Based Modeling of Lakes, Reservoirs, and Impoundments, American Society of Civil Engineers, New York, NY, 1986.

Wood, E. F., R. A. Ferrara, W. G. Gray, G. F. Pinder, An Introduction to Ground Water Contamination from Hazardous Wastes, Prentice-Hall, Inc., Englewood Cliffs, NJ, 1984.

TECHNICAL REPORTS

Ferrara, R. A. and D. R. F. Harleman, "A Dynamic Nutrient Cycle Model for Waste Stabilization Ponds," Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics, M.I.T. Department of Civil Engineering, Technical Report No. 237, December 1978.

Harleman, D. R. F., J. E. Dailey, M. L. Thatcher, T. O. Najarian, D. N. Brocard and R. A. Ferrara, "User's Manual for the M.I.T. Transient Water Quality Network Model," EPA-600/3-77-010, Corvallis Environmental Research Laboratory, U. S. Environmental Protection Agency, Corvallis, OR, January 1977.

CONFERENCE PROCEEDINGS PUBLICATIONS

Ferrara, R. A. and L. G. Evrard, "Determining NPDES Permit Limitations for Metals - Pitfalls and Practices," Proceedings of the Preconference Seminar Aquatic Life Criteria for Metals, 66th Annual Water Environment Federation Conference, Anaheim, CA, October 2, 1993.

Ferrara, R. A. and T. T. Griffin, "Model Complexity for Trophic State Simulation in Reservoirs," in T. O. Barnwell and W. C. Huber (eds.), Proceedings of Stormwater and Water Quality Model User's Group Meeting, March 24-26, 1986, Orlando, FL, EPA/600/9-86-023, September 1986.

Ferrara, R. A., "Consideration of Groundwater Pollutant Reactions in Mathematical Modeling," in I. J. Kugelman (ed.), Proceedings of Seventeenth Mid-Atlantic Industrial Waste Conference - Toxic and Hazardous Wastes, Technomic Publishing Co., Inc., Lancaster, PA, 1985.

Jaffe, P. R. and R. A. Ferrara, "The Sediment Water Interface in Modeling Pesticides in Sediment Ponds," in T. Barnwell (ed.), Proceedings of Stormwater and Water Quality Model User's Group Meeting, Gainesville, FL, January 1983, EPA-600/9-83-015, September 1983.

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Ferrara, R.A. et al., "Applying Science, Legal Techniques and Persistence to get the Appropriate Phosphorus Limit," New Jersey Water Environment Association Technology Transfer Seminar, Eatontown, NJ, September 30, 2008.

Ferrara, R.A., "Water Quality Management Planning Rule Changes," New Jersey Water Environment Association Technology Transfer Seminar, Eatontown, NJ, September 29, 2008.

Brake, D., R.A. Ferrara, et al., "Reframing Smart Growth in New Jersey," 2007 American Planning Association National Planning Conference, Philadelphia, PA, April 17, 2007.

Kilpatrick, J., B. Alberts, R.A. Ferrara, T. Duncan, "Potpourri of Ethics Issues for the Toxic Tort and Environmental Law Attorney," American Bar Association Toxic Trial & Insurance Practice Section 15th Annual Spring Meeting "Science and the Law 2006: A Day in the Life of Toxic Torts and Environmental Law," Phoenix, AZ, April 8, 2006.

Ferrara, R.A., "Status of Phosphorus Criteria and Permit Limitations," New Jersey Water Environment Association Technology Transfer Seminar, Tinton Falls, NJ, March 8, 2006.

Ferrara, R.A., "Phosphorus Limits and Compliance," Joint New Jersey Water Environment Association & Association of Environmental Authorities Session - Regulatory Update, Tinton Falls, NJ, October 19, 2005.

Ferrara, R.A., "TMDLs - Implications for NJ Water & Wastewater Treatment Plants," New Jersey Water Association Management and Technical Conference, Atlantic City, NJ, September 21, 2005.

Ferrara, R.A., "Environmental Consulting - Principles in Practice," Environmental Engineering Graduate Program Seminar Series, University of Vermont, Burlington, Vermont, March 18, 2005.

Ferrara, R.A., "The Role of Science in Environmental Litigation," Environmental Engineering Graduate Program Seminar Series, University of Massachusetts, Amherst, Massachusetts, September 17, 2004.

Ferrara, R.A., "Phosphorus - Background, Current Movements, the Future," New Jersey Water Environment Association Technology Transfer Seminar, Tinton Falls, NJ, October 30, 2003.

Ferrara, R. A., Moderator for panel on Local Implementation, Burlington County Stormwater Management Conference and Award Program, New Jersey EcoComplex, NJ, May 16, 2003.

Ferrara, R. A., "The Watershed Characterization Report - An Innovative Format," The New Jersey Department of Environmental Protection Watershed Symposium, Trenton, New Jersey, May 14, 2002.

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Ferrara, R. A., "Lessons Learned About TMDLs," AEA Conference on "Permit Tips, Trends & Turmoil," Jamesburg, NJ, January 21, 2000.

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Ferrara, R.A., "GIS Mapping Applications for Watersheds," Association of Environmental Authorities Annual Meeting, Atlantic City, NJ, November 18, 1998.

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Ferrara, R.A., "Historical Overview: The New Jersey Watershed Picture," NJDEP/Morris 2000/Morris County Planning Board's Morris County Watershed Symposium, Convent Station, NJ, May 3, 1996.

Ferrara, R.A., "Alternatives to New Jersey's Whole Effluent Toxicity Program," New Jersey Water Environment Association Technology Transfer Seminar, Tinton Falls, NJ, March 25, 1996.

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Ferrara, R. A., "Seasonal Waste Load Allocation Analysis for Stony Brook Regional Sewerage Authority," Authorities Association of New Jersey Spring Meeting, Atlantic City, NJ, April 1984.

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