

**VINCENT J. CICCONE, PhD, PE, DEE**  
*President/CEO, RASco, Inc.*

**EDUCATION**

- Doctor of Philosophy - Engineering, Rutgers University, 1972
- Master of Science - Environmental Engineering, Rensselaer Polytechnic Institute, 1964
- Bachelor of Science - Civil Engineering, City College of New York, 1957

**REGISTRATION**

- Professional Engineer - State of New Jersey #18736
- Professional Engineer - State of Virginia #7858
- Professional Engineer - State of North Carolina #14794
- Professional Engineer - State of Kansas #14294
- Professional Engineer - State of New York #8392-1
- Professional Engineer - State of Alabama #22421
- Professional Engineer - State of Maryland #24945

**PROFESSIONAL MEMBERSHIPS:**

- American Academy of Environmental Engineers - current member
- Water Environment Federation - current member
- American Water Works Association - current member
- Environment and Energy Systems Division, NDIA - Chairman
- Virginia Academy of Science - past member
- Conference of Federal Environmental Engineers - current member
- Health Physics Society - past member
- American Industrial Hygiene Association - past member

**PROFESSIONAL HONORS**

- Member Board of Trustees, National Defense Industrial Association
- Guest Lecturer, Industrial College of the Armed Forces
- Diplomat, American Academy of Environmental Engineers
- Department of the Army Special Act/Service Award, US Army Mobility Equipment Research and Development Center, 1975, honorary plus monetary
- Independent Basic Research Grant/Award, US Army Mobility Equipment Research and Development Center, 1973-75 (Design Model for Reverse Osmosis Systems)
- Department of the Army Special Act/Service Award, US Army Mobility Equipment Research and Development Center, 1975 honorary plus monetary

**GENERAL BACKGROUND**

Dr. Ciccone founded RASco, Inc., an Environmental Engineering company in October 1990. He is the President and CEO. The company's primary focus points are Environmental Engineering

Consultations, and equipment design and operations. Environmental Consultations cover a broad spectrum of topics and disciplines while the primary emphasis for equipment design and fabrication is on the reverse osmosis multi-element module (ROMEM) system patented by Dr. Ciccone. As the past founder and president of V. J. Ciccone and Associates, Inc., (VJCA) 1977 - 1988,

Dr. Ciccone exercised overall responsibility for all engineering / scientific / administrative and financial tasks within the corporation. On January 1, 1989, VJCA was acquired by a large national engineering firm, to become its Washington, DC, Service Center. Dr. Ciccone then served as Vice President, Service Center Manager, and a Principal for that organization. Dr. Ciccone holds advanced degrees in Environmental Engineering and has over 41 years of industrial and federal government experience in the various aspects of programming, planning, budgeting, design and operations in that field. A sampling of major RASco contract efforts that Dr. Ciccone directed includes those for EPA, US Army Corps of Engineers and Army R&D Centers, US Naval Facilities Command, US Department of Agriculture, US Treasury, Department of Interior, National Parks Service, US State Department, and numerous private sector clients such as Parsons, Earth Tech, Tetra Tech, Johnson Controls, Foster Wheeler, Weston, Marriott International, O'Brien & Gere, Logistics Management Institute, CH2M Hill, DaVita, Inc. (a national hemodialysis company).

## **WORK EXPERIENCE / PROFESSIONAL DEVELOPMENT HIGHLIGHTS**

Dr. Ciccone has been continuously associated with the development and implementation of Environmental policies and practices for the past 46 years (since 1962 when he was a military officer serving with the US Army Medical Department with assignments as an Environmental Engineer). This long-term experience has given him the necessary background to fully understand existing and developing environmental policies especially as related to implementation of the Safe Drinking Water Act (SDWA) and the technologies available to provide safe potable waters to the general population. He was responsible for the successful completion of many technical work tasks that were in direct support of EPA's Drinking Water Program. The focus was especially in regards to assessing new technologies (in particular Reverse Osmosis) dealing with those SDWA provisions for the treatment of water for the removal of both naturally occurring and/or synthetic (i.e., manufactured) contaminants.

Dr. Ciccone has maintained his Professional Development in the field of Environmental Engineering/Science, by active participation in related conferences and symposiums and continuing education courses. This is witnessed by his continuous assignment as Chairman of the Environmental Division of the National Defense Industrial Association (since 1979) where he serves as the principal coordinator, chairman and facilitator of the Annual "Environmental and Energy Symposium & Exhibition". As a result, this has allowed him to maintain an open channel and dialogue with many engineering, technical and management personnel in the national and international communities. Additionally, Dr. Ciccone has and continues to serve on selected Committees within various professionally related associations such as the American Academy of Environmental Engineers.

Dr. Ciccone has experience as Director and/or Principal Investigator on numerous engineering and research projects dealing with: Reverse osmosis for medium and small sized potable water treatment plants for both fixed and mobile scenarios; mathematical simulation and evaluation of

the reverse osmosis process; economic evaluation of alternative membrane-based treatment technologies; a mathematical methodology for design of reverse osmosis systems; generating a data base (from empirical testing) for establishing engineering design criteria for reverse osmosis systems translating such data to full-scale designs and fabrication.

Dr. Ciccone has been and continues as the Principal Investigator on numerous projects in which membrane-based technology (primarily reverse osmosis) is used to desalinate a wide variety of natural waters, such as fresh, brackish or seawater. In several cases, the ROMEM technology was employed, and many of these projects were completed and deployed for use in remote areas of Asian countries such as India. Examples of contaminants of concern in these systems were Arsenic and Fluoride as well as the total salinity of the source waters. The disposal of the brine residuals from such operations was also included to assess their environmental and public health impacts. Additionally, he has assessed the effects associated with the daily consumption of reverse osmosis treated waters, such as the impact of potable waters low in mineral content.

Other examples of Dr. Ciccone's experience dealing with reverse osmosis focus on his works dealing with small (600-3000 gph) mobile systems designed and constructed to meet all the challenges of desalting waters encountered by the US Military Forces in their unpredictable worldwide deployments. His expertise was influential in the design and fabrication of these systems ultimately leading to standardized production models which have been distributed throughout the world and have functioned successfully over the last three decades.

Presently, Dr. Ciccone directs an in-house staff of engineers and technicians working on a variety of reverse osmosis systems which serve a wide variety of populations ranging from small residential units to medium sized institutional systems (10,000-100,000 gpd) producing potable waters from a spectrum of sources ranging from surface and ground waters to protection against an intentionally contaminated water municipal supply (e.g. terrorist activities). His daily activities include the planning, design, fabrication and installation of these systems for both domestic and overseas deployment.

Included in Dr. Ciccone's reverse osmosis work is the design and installation of highly specialized reverse osmosis systems utilized in the hemodialysis of kidney afflicted patients. This specialty work has been recognized by the US Food and Drug Administration through their granting of a 510(k) Certification to RASco.

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**CONSULTANT APPOINTMENTS**

American Academy of Environmental Engineers, Special Certification Issues Committee

National Research Council of the National Academy of Sciences, Committee on Pollution Abatement and Resources Recovery (1978-1981)

Environmental Engineering Consultant, Department of the Army, Belvoir Research, Development and Engineering Center, 1980-1984

Environmental Engineering Consultant, Department of the Army, Office of the Surgeon General, August 1975 to April 1978

Department of the Army Medical Advisor to the Department of Defense Food Service Facility and Equipment Planning Board, Sept. 1975 to June 1977

AMEDD Representative of the Department of the Army Environmental Committee, Sept. 1975 to April 1978

National Science Foundation Committees, Sept. 1975 to May 1977

Joint Committee for Special Devices and Systems Used for Treating Wastewater

Committee on Food Equipment Standards

Joint Committee on Hospital Equipment Standards

Joint Committee, Devices and Substances for Supplementary Treatment of Potable

Water

Joint Committee for Thermoplastics

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**PUBLICATIONS**

Ciccone, C. V., Ciccone, V. J., Eskelund, G. R., Morgan, J. M. *A Study of Alternative Technologies for Meeting U.S. Army Special Forces Potable Water Requirements in a Desert Environment*, for U.S. Army Research, Development and Engineering Center, Fort Belvoir, Virginia, by RASco, Inc., 1992.

Ciccone, V. J., Morgan, J. M. *Industrial Drain-Sanitary Sewer Cross-Connection Survey Pre-Submittal*, Norfolk Naval Shipyard, Portsmouth, Virginia, 1990.

Ciccone, V. J., Eskelund, G. R., Schmitt, R., Hasle, K. *Plastic Reverse Osmosis Multi-Element Module (PROMEM)*, U.S. Army Research, Development and Engineering Center, Fort Belvoir, Virginia, 1990.

Ciccone, V. J., Carmer, M. B. *Asbestos; Abatement Monitoring*, U.S. Army Engineering And Housing Support Center, 1989.

Ciccone, V. J., Carmer, M. B. *Asbestos; Abatement And Disposal*, U.S. Army Engineering And Housing Support Center, 1989.

Ciccone, V. J., Carmer, M. B. *Asbestos; Building Demolition*, U.S. Army Engineering And Housing Support Center, 1989.

Ciccone, V. J., Carmer, M. B. *Asbestos Small Area Abatement*, U.S. Army Engineering And Housing Support Center, 1989.

Ciccone, V. J., D'Eufemia, S. M., and Edson, J. J. *Right-to-Know Facility Program Update. Report to Confidential Client by Law Environmental, Inc.*, 1989.

Ciccone, V. J., D'Eufemia, S. M., Eskelund, G. R., O'Brien, S. L. *Hazardous Substance Control Plan, Waste Management Plan, and Hazard Communication Plan. Medical Center (Confidential Client)*. Law Environmental, 1989.

Ciccone, V. J., Schmitt, R., Hasle, K. E. *Scientific and Technical Report For High-Tech PUFMEM Design*, U.S. Army Research, Development and Engineering Center, Fort Belvoir, Virginia, 1989.

Ciccone, V. J., Balsarak, Medding, W. *CxT Small Disinfection Groundwater*, U.S. Environmental Protection Agency, Office of Drinking Water via Malcolm Pirnie, Inc., 1988.

Ciccone, V. J., Carmer, M. B., McDowell, A. S., Morgan, J. M. *Program Status Report Department of the Army: Hazardous Waste*. V. J. Ciccone & Associates, 1988.

Ciccone, V. J., Hasle, K. E., Schmitt, R. P. *Development and Testing of the 1500 GPH-Hi Tech ROWPU*. V. J. Ciccone & Associates, Inc., 1988.

Ciccone, V. J., Schmitt, R. P., Garrigan, G. A. *Ultrasonic Enhanced Cleaning of Fouled Membrane Elements Fitted With Innovative Spacers*, U.S. Army Small Business Innovative Research Program - Research, Development and Engineering Center, Fort Belvoir, Virginia, 1988.

Ciccone, V. J., Morgan, J. M., Medding, W. S., Helms, H. J. *Duke Power Company, McGuire Nuclear Station: A Clean Water Act Section 311 Study*. V. J. Ciccone & Associates, 1988.

Carmer, M. B., Ciccone, V. J. *Characterization of Hazardous Substances: Medical Center. Report to confidential client* by V. J. Ciccone & Associates, Inc., 1987.

Ciccone, V. J., Carmer, M. B. *Evaluation of Military Field-Water Quality Volume 3 - Opportunity Poisons*, U.S. Department of Energy, 1987.

Ciccone, V. J., Gardiner, W. P., Bandy; Jamison; Scholze; Smith. *Field Test of Laundry Wastewater Recycling System*, U.S. Army Construction Engineering Research Laboratory, Army Water Office, 1987.

Ciccone, V. J., Gardiner, W. P. *Operator Assistance Program, Phase I, Mainside Wastewater Treatment Plant, Quantico, Virginia*, V. J. Ciccone and Associates, 1987.

Ciccone, V. J., Morgan, J. M., Gardiner, W. P. *Full-Scale Test Program for a Shower Wastewater Recycling Program. Report to U. S. Army, Construction Engineering Research Laboratory, Champaign, IL*, by V. J. Ciccone & Associates, 1987.

Ciccone, V. J., Morgan, J. M., Henley. *Analysis of Occurrence, Control and/or of Radionuclides in Small Drinking Water Systems in Virginia*, U.S. Environmental Protection Agency, Office of Drinking Water, 1987.

Ciccone, V. J., O'Grady, T. *Guidance For Assessing The Vulnerability of Water Supply Systems To Contamination*, U.S. Environmental Protection Agency, Office of Drinking Water, V. J. Ciccone and Associates, 1987.

Ciccone, V. J., Schmitt, R. P., Garrigan, G. A., Carmer, M. B. *Seawater Intake For Reverse Osmosis, Phase I*, U.S. Army Research, Development and Engineering Center, Fort Belvoir, Virginia, 1987.

Ciccone, V. J., Carmer, M. B. *Feasibility Study: Use of Composite Materials For ROMEM*, U.S. Army Research, Development and Engineering Center, Fort Belvoir, Virginia, V. J. Ciccone and Associates, 1986.

Ciccone, V. J., Medding, W. S. *Current Drinking Water Disinfection Practices At Small Systems in the State of Virginia*, U.S. Environmental Protection Agency, Office of Drinking Water, V. J. Ciccone and Associates, 1986.

Morgan, J. M., Ciccone, V. J. *Study of Wastewater Treatment Plant Alternatives and Economic. Report to U. S. Army Facilities Engineering Support Agency* by V. J. Ciccone & Associates, 1986.

Ciccone, V. J., Schmitt, R. P., Hasle, K. E. *Conceptual Analysis of Pretreatment Systems for Hi-Tech ROWPU. Report to U. S. Army Belvoir Research and Development Center, Ft. Belvoir, VA,* by V. J. Ciccone & Associates, 1986.

Ciccone, V. J., Schmitt, R. P., Hasle, K. E. *Development and Test of the 600 GPH ROMEM, Report to U. S. Army Belvoir Research and Development Center, Ft. Belvoir, VA,* by V. J. Ciccone & Associates, 1986.

Berry, C. W., Ciccone, V. J. *Aberdeen Proving Ground Maryland: Phase I Report, Operator Assistance Program, Sewage Treatment Plant. Report to U. S. Army* by V. J. Ciccone & Associates, 1985.

Ciccone, V. J., Carmer, M.B. *Identification and Impact of "Opportunity Poisons" Upon Military Field Water Supplies, Lawrence Livermore National Laboratory,* V. J. Ciccone and Associates, 1985.

Ciccone, V. J. *Field Trip: Sanitary Sewer Systems Rehabilitation Program, City of Hollywood, FL. Report to Environmental Protection Agency, Office of the Inspector General,* by V. J. Ciccone & Associates, 1984.

Ciccone, V. J., Schmitt, R. P., Garrigan, G. A., by V. J. Ciccone & Associates. *Reverse Osmosis Multi-Element Module (ROMEM).* V. J. Ciccone & Associates, 1984.

Ciccone, V. J. *Pink Wastewater Treatment Costs For A Granular Carbon System Operating At Flow Rates At Or Below Design Capacity, for USATHAMA and MERADCOM,* by V. J. Ciccone and Associates, 1983.

Ciccone, C. V., Ciccone, V. J. *Reconciliation Of Present Value-Unit Costs and Uniform Annual Costs for Munitions Manufacturing Pink Wastewater, Treatment Alternatives,* for U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland, and U.S. Army Mobility Equipment Research and Development Command, 1983.

Ciccone, C. V., Ciccone, V. J., Garrigan, G. A. *Present Value Unit-Cost Estimates For Munition Manufacturing Pink Wastewater Granular Carbon Treatment Systems Operating Intermittently and/or at Flow Rates Below Design Capacity,* for U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland, and U.S. Army Mobility Equipment Research and Development Command, 1983.

Ciccone, V. J. *A Multi - Element Module for U. S. Army Reverse Osmosis Water Purification Unit, Report to U. S. Army Mobility Equipment Research and Development Command,* by V. J. Ciccone & Associates, 1982.

Ciccone, V. J. et al. *Economic Evaluation of Munitions Manufacturing Pink Wastewater Treatment Alternatives Using a Present Value - Unit Cost Methodology, Report to U. S. Army Toxic and Hazardous Materials Agency and U. S. Army Mobility Equipment Research and Development Command*, by V. J. Ciccone & Associates, 1982.

Ciccone V. J. et al. *Expedient Water Conservation Techniques in a Base Water Supply Situation, Report to U. S. Army Construction Engineering Research laboratory, Champaign, IL*, by V.J. Ciccone & Associates, 1982.

Ciccone, V. J. *Mathematical Modeling for Evaluation of Field Water Supply Alternatives (Arid and Semi - Arid Regions). Report to U. S. Army Biomedical Research and Development Laboratory and U. S. Army Mobility Equipment Research and Development Command*, by V. J. Ciccone & Associates, 1981.

Ciccone, V. J. et al. *A Technology Review of Ultraviolet Radiation to Prevent Micro - Fouling of OTEC Heat Transfer Surfaces. Report to Department of Energy, Division of Ocean Energy Systems*, by V. J. Ciccone & Associates, 1981.

Ciccone, V. J., Shooter, D. *Problem Definition Study of Field Water Supply and Field Sanitation, for U.S. Army Medical Bioengineering Research and Development Laboratory*, by V. J. Ciccone and Associates and Arthur D. Little, Inc., 1981.

Ciccone, V. J. *Economic Evaluation of Munitions Manufacturing Wastewater Treatment Alternatives Using a Present Value - Unit Cost Methodology. Report to USAMERADCOM* by V. J. Ciccone and Associates, 1980.

Ciccone, V. J. *The Significance of Accidental Aircraft Fueling and Defueling Spills as Sources of Pollution. Proceedings of the 32nd Annual Purdue Industrial Waste Conference, Purdue University*, 1977.

Ciccone, V. J. *Wastewater Treatment by Adsorption, Coagulation and Filtration - Part II. Water and Sewage Works*, December 1976.

Ciccone, V. J. *Wastewater Treatment by Adsorption, Coagulation and Filtration - Part I. Water and Sewage Works*, November 1976.

Ciccone, V. J. *Chapter V, Pressure and Precoat Filtration, Environmental Engineering Processes for Pollution Control*. Marcel Dekker, Inc., n.d.

Ciccone, V. J. et al. *Sources of Pollution From Military Installations - Part III, Water and Sewage Works*. n.d.

Ciccone, V. J. *A Study to Evaluate the Intensity of and Alternative Methods for Neutralization of DOD Aircraft Fuel Spills*. DOD AGFSRS Technical Publication 76 - 2, 1976.

Ciccone, V. J. *The Feasibility of Concentrating/Separating Dilute Nitrocellulose Acid Wastewaters by Reverse Osmosis*. Water Resources Bulletin, June 1976.

Ciccone, V. J. ***Pilot Plant Study to Evaluate the Treatment of Colloidal Wastewater by Physico - Chemical Techniques***. Proceedings of the 31st Annual Purdue Industrial Waste Conference, Purdue University, 1976.

Ciccone, V. J. ***Physical - Chemical Techniques for the Treatment of Munitions Manufacturing Wastewaters***. Proceedings, American Defense Preparedness Association Symposium on the Demilitarization of Conventional Munitions, 1976.

Ciccone, V. J. ***Pilot Plant Studies, Army Ammunition Plant Wastewaters***. Virginia Academy of Science, Virginia Journal of Science, Fall 1975. Proceedings of 53rd Annual Meeting, 1975, and Proceedings, American Defense Preparedness Association - Symposium on Compatibility of Plastic and Other Materials with Explosives, Propellants, and Pyrotechnics, 1976.

Ciccone, V. J. ***Phase I Report, Alcohol Rectification House Wastewater Containing Colloidal Nitrocellulose - RAAP Physical/Chemical Wastewater Pilot Plant Study***, USAMERDC Technical Publications, 1975.

Ciccone, V. J. et al. ***Sources of Pollution from Military Installations - Part I, Water and Sewage Works***, July 1975.

Ciccone, V. J. et al. ***Sources of Pollution from Military Installations - Part I***, Proceedings of the 30th Annual Industrial Waste Conference, Purdue University, 1975.

Ciccone, V. J. et al. ***Full - Scale Treatment of Field Military Wastewaters***, Proceedings of the 30th Annual Industrial Waste Conference, Purdue University, 1975.

Ciccone, V. J. ***Concept Study - Phase I, Water Treatment Unit***, US Air Force Bare Base. USAMERDC Technical Publication #2130, 1975.

Ciccone, V. J. et al. ***The Formulation and Analysis of Synthetic Wastewaters***, Journal article in Water and Sewage Works, February 1975.

Ciccone, V. J. ***A Present Value - Unit Cost Methodology for Evaluating Municipal Wastewater Reclamation and Direct Reuse***, Water Resources Bulletin, February 1975.

Ciccone, V. J. ***A Present Value - Unit Cost Methodology for Evaluating Wastewater Reclamation and Direct Reuse at a Military Base of Operations***, USAMERDC Technical Publication #2123, 1974.

Ciccone, V. J. ***The Feasibility of Concentrating/Separating Dilute Nitrocellulose Acid Wastewaters by Reverse Osmosis***, USAMERDC Technical Publication #2119, 1974.