

**OFFICE OF WATER  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
INTERNSHIP PROGRAM OPPORTUNITIES  
Washington, D.C.**

**Project # EPA Water 2005-41**

**Assessing Pollutants from Airport Deicing and Municipal Wastewater Treatment Plant Operations**

**Project Description:** The Engineering and Analysis Division (EAD) is in the Office of Science and Technology, U.S. Environmental Protection Agency's (EPA). EAD is the office charged with protecting our nation's waters, oceans, wetlands, and watersheds. The EAD team of biologists, chemists, statisticians, engineers, economists, risk assessors and others develop and apply state-of-the-art engineering, mathematical and science tools to the analysis and control of pollutants in rivers, lakes, streams, and puddles. EPA's mandate under the Clean Water Act is to maintain and improve water quality in cost-effective ways. The intern will be assigned to and trained by chemical, civil and environmental engineers, and scientists to acquire and analyze data that may lead to regulatory controls on pollutants in effluents from wastewater treatment facilities and airport deicing operations. The intern will learn to interact collaboratively with a multi-disciplinary team of environmental professionals.

**Specific Tasks:**

*Airport Deicing Study* - The intern will train under the Airport Deicing Effluent Guidelines project team. This team is developing data for possible regulation of discharges associated with deicing/anti-icing activities at airports. The recovery and recycling of aircraft deicing fluids by the chemical recycling industry will be studied. In recent years the demand for recovery/recycling of these fluids has increased. Various recovery and recycling technologies, costs, fees, and potential for expansion of service to additional airport clients will be examined. The intern will be involved in writing up the results of this study in a technical report that could be used to support decisions to develop controls on these activities. The intern will have the opportunity to meet with airport and chemical recycling representatives, and be associating with EPA decision makers who develop regulatory options for discharges associated with deicing/anti-icing activities at airports. These technology-based options may include best management practices, pollution prevention opportunities, wastewater treatment, and recycling.

*Municipal Wastewater Treatment Plants* - Municipal wastewater treatment plants are known as Publicly Owned Treatment Works or (POTWs). There are about 16,000 POTWs that remove pollutants from water used in homes, small businesses, industries, and other facilities. It has been many years since the effectiveness and performance of a representative set of POTWs has been studied. In the interim, many POTWs have added additional and more efficient treatment trains, and new pollutants are in the influent to these plants. The intern will assist a senior chemical engineer on a team that will document treatment changes at several POTWs, and analyze data collected on the chemical and microbiological pollutants removed at these plants. In addition to traditional pollutants, such as metals, solvents and bacteria, ways will be found to identify and

measure emerging pollutants. The engineering intern will learn to evaluate treatment processes and pollutant removal efficiencies throughout the treatment train. The intern will also be closely involved with chemists and microbiologists to characterize pollutants in these wastewaters.

**Expected Results:** This internship is an excellent opportunity to gain field experience and practical knowledge of the biology, chemistry, engineering and statistical analysis associated with operation and evaluation of modern treatment of wastewaters. This project will improve the intern's analytical and communication (oral and written) skills, and understanding of how EPA develops sound and legally defensible data to support regulatory actions.

**Qualifications:** The applicant should have a master's degree in chemical, civil or environmental engineering within three years of the desired starting date or completion of all requirements for the degree should be expected prior to the starting date. Knowledge or experience in chemical recycling and municipal wastewater treatment is desirable. The intern must have above average oral and written communication skills.

**Stipend and Tenure:** The appointment will initially be for full-time for a one year period and may be renewed based on the needs of EPA and available funding. Travel to airports and wastewater treatment plants for hands-on-training and data collection may be required. Your annual stipend will range from \$45,000- \$49,000, depending on experience. The intern does not become an EPA employee.

The EPA contact person for this project is Richard Reding. His e-mail is [reding.richard@epa.gov](mailto:reding.richard@epa.gov)

**The Internship Program for EPA Water is administered by the Oak Ridge Institute for Science and Education. Please reference Project # EPA Water 2005-41 when calling or writing for information. For additional information and application material contact: Internship Program – EPA Water, Attn: Betty Bowling, Science and Engineering Education – MS 36, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tennessee 37831 Phone: (865) 576-8503 Fax: (865) 241-5219 e-mail: [bowlingb@ornl.gov](mailto:bowlingb@ornl.gov).**

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An application can be found at <http://www.ornl.gov/orise/edu/EPA/app-gugrgpd.pdf>.