

**NATIONAL CENTER FOR ENVIRONMENTAL ASSESSMENT  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
INTERNSHIP PROGRAM  
Cincinnati, Ohio**

**Project # EPA-NCEA-2004-01**

**Project Title: *Assessing exposures to waterborne contaminants***

**Project Description:**

A research project is available through the Internship Program at the U.S. Environmental Protection Agency (EPA), National Center for Environmental Assessment (NCEA) in Cincinnati, Ohio. The candidate will, under the direction of an NCEA staff risk analyst, develop exposure assessments for two environmental agents included on EPA's Drinking Water Contaminant Candidate List. The first assessment will be conducted on a waterborne pathogen and the second on a chemical mixture.

**Specific Tasks:**

In the first project, the intern will evaluate human exposures to Coxsackie viruses. Coxsackie viruses (members of the Picornavirus family) commonly cause mild upper respiratory symptoms, a flu-like illness with fever and muscle aches and may cause viral meningitis, myocarditis, or encephalitis. In the initial phase of this project, EPA wants to know the frequency and magnitude of tap water exposures to Coxsackie viruses. The candidate will develop a probabilistic simulation model examining exposures via tap water consumption in adults and children to address the research question. The model will quantify the variability and uncertainty associated with the model predictions. In the second phase of the project, EPA wants to gain a general understanding of the possible role of contaminated U.S. drinking waters in propagation of Coxsackie virus infection in the U.S. population. The candidate will develop parameter estimates for an existing disease transmission model and examine the role of contaminated U.S. drinking waters in the transmission of Coxsackie viruses through probabilistic model techniques.

The second project focuses on tap water exposures to mixtures of organotins. Some organotins are myelinotoxic and others are neurotoxic (e.g., affect the hippocampus). Tin is used as a heat stabilizer in the production of PVC materials (e.g., pipes that carry drinking water). Small quantities of tin may leach from PVC pipes in the form of organotins and tap water usage results in human exposures. In this project, EPA wants to know the frequency and magnitude of tap water exposures to the organotins. The candidate will use a multiroute exposure model to estimate tap water exposures.

**Expected Results:**

The Coxsackie virus exposure assessment is expected to be a component of a hazard characterization document NCEA will develop on these viruses. A goal is that the project will result in a peer-reviewed journal article or presentation(s) in scientific fora describing this exposure assessment.

The assessment of tap water exposures to mixtures of organotins is expected to be a component of an NCEA Risk Assessment document developed to characterize risks posed by the presence of organotins in potable drinking waters. A goal is that the project will result in a peer-reviewed journal article or presentation(s) in scientific fora describing this exposure assessment.

## **Intern Qualifications and Skills:**

Candidates should have a master's degree in environmental science, mathematics, industrial hygiene, risk analysis, or microbiology, or a related field. Strong preference will be given to candidates with coursework or demonstrated experience in environmental risk analysis or exposure analysis. Candidates need experience conducting literature searches. Candidates must have the ability to develop and use mathematical models of human exposure (preferably demonstrated ability in this area). Experience with excel spreadsheets, probabilistic tools (e.g., crystal ball or analytical) and software is preferred. U.S. citizenship or lawful permanent resident status is preferred. The program is open to all qualified individuals without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran.

**Stipend and Tenure:** The appointment will initially be for full-time for a one-year period and may be renewed for up to two additional years depending on funding. The annual stipend will range from \$35,000 - \$45,000 depending on degree and experience.

The EPA-NCEA contact person for this project is Glenn Rice, email [rice.glenn@epamail.epa.gov](mailto:rice.glenn@epamail.epa.gov). The Internship Program for EPA-NCEA is administered by the Oak Ridge Institute for Science and Education. *Please reference Project # EPA-NCEA-2004-01 when calling or writing for information.* For additional information and application materials contact: Internship Program/EPA-NCEA, Attn: Betty Bowling, Science and Engineering Education, MS 36, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tennessee 37831-0117, Phone: (865) 576-8503 FAX: (865) 241-5219 e-mail: [bowlingb@ornl.gov](mailto:bowlingb@ornl.gov).

An application can be found at [www.ornl.gov/orise/edu/EPA/app-gugrgpd.pdf](http://www.ornl.gov/orise/edu/EPA/app-gugrgpd.pdf)