

**Research Participation Program
U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
Cincinnati, Ohio**

EPA-ORD/NRMRL-STD-2010-01

A postdoctoral research project in the area of Sustainable Biofuel Supply Chains for Ethanol is available at the U.S. Environmental Protection Agency's (EPA) National Risk Management Research Laboratory (NRMRL) in Cincinnati, Ohio.

Project Description: A current program in NRMRL is the Design of Sustainable Biofuel Supply Chains. This effort has many facets, one of which is the environmental analysis of the supply chain. To achieve this analysis the Sustainable Technology Division (STD) has a research project on the life cycle assessment of ethanol biofuel supply chains. Current production of ethanol is based on corn kernels processed through dry mills, resulting in ethanol fuel and dried distillers grains with solubles feed. Second generation ethanol processes may be based on various feedstocks of biomass and production pathways. Life cycle assessment research is needed to evaluate both types of ethanol processes and associated supply chains. Research on these supply chains considers diverse processes including corn and biomass farming, fertilizer and pesticide production and application, harvesting and any associated processing, transport, biorefinery production, and ethanol distribution, storage and use. Representations of these processes can vary from simple input-output "black box" models to complex physical/chemical/engineering models. Life cycle assessments often delve into aspects of resource and product allocation, boundary selection, co-products vs. byproducts, appropriateness of linear emission factors, and air, liquid and solid waste releases and their environmental impacts. In particular, research at EPA will focus on environmental aspects associated with these supply chains. Additional results will be obtained through the application of sustainability metrics, which is another area of active research within NRMRL. Products of this research will include corn and biomass ethanol supply chain models, life cycle inventories and impact assessments, advances in the art of life cycle assessment, and peer-reviewed publications. For additional information, go to www.epa.gov/nrmrl.

The research participant will be mentored by Dr. Raymond Smith of NRMRL's Sustainable Technology Division.

Qualifications and Skills: Applicants should have received a doctoral degree in chemical engineering or a related discipline within five years of the starting date, or completion of all requirements for the degree should be expected prior to the starting date.

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. U.S. citizenship or lawful permanent resident status is preferred (but can hold an appropriate visa status, however, an H1B visa is not appropriate).

The participant will be selected based on academic records, recommendations, research interests, compatibility of background and interests with research programs and projects at NRMRL, and the availability of funds, staff, programs, and equipment. The appointment is full time for one year and may be renewed upon recommendation of NRMRL and subject to availability of funds for up to

two additional years. The participant will receive a monthly stipend commensurate with educational background and experience. The participant must show proof of health and medical insurance. **The participant does not become an EPA employee.**

Funding may be made available to reimburse the participant's travel expenses to present the results of his/her research at scientific conferences. No funding will be made available to cover travel costs for interviews, relocation costs, costs of tuition/school fees, or a participant's health insurance.

The Research Participation Program for EPA is administered by the Oak Ridge Institute for Science and Education. ***Please reference Project # EPA-ORD/NRMRL-STD-2010-01 when calling or writing for information.*** For additional information and application materials contact: Research Participation Program/NRMRL, Attn: Betty Bowling, 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: betty.bowling@ornl.gov.

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