

TOXICANT EXPOSURES IN RHODE ISLAND:  
Past, Present, and Future

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States/EPA Meeting on PFAS: Poly-& Perfluoroalkyl Substances

*Co-organized by the Brown Superfund Research Program and NEWMOA*

What is the Superfund Research Program?

- Grants program administered by the National Institute for Environmental Health Sciences (NIEHS) , founded 1987
- Currently, 18 grant-funded centers nationally (incl. Boston Univ., Columbia, Northeastern, Dartmouth and Brown)
- Interdisciplinary emphasis- biomedical and other science/engineering studies both important components.
- Deals broadly with issues of human chemical exposure and related environmentally- related disease.

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## Brown University Superfund Research Program

**Toxicant Exposures In Rhode Island: Past, Present & Future**

The diagram illustrates the program's structure and research projects. On the left, a map of Rhode Island is divided into three sectors: Government, Academic, and Community, with a red 'Partnerships' label below. The central part features four project boxes: Project 1 (Molecular Discoveries for Assessing Toxicological Risk, PI: Bockelkotte), Project 2 (Adverse Health Impacts of Nanomaterials, PI: Kane), Project 3 (Inhalation Air Concentration Dynamics & Vapor Intrusion, PI: Sussberg), and Project 4 (Nanomaterial Design for Environmental Health & Safety, PI: Hunt). Arrows connect these projects, with labels like 'Biomarkers & Toxicity Testing', 'Vapor Intrusion Modeling & Health Monitoring', 'Nanotechnology Applications & Safety', and 'Nanomaterial Vapor Barriers'. A legend indicates blue circles for Biomedical projects and red circles for Engineering projects. At the bottom, a blue bar lists the program's cores: Administrative Core, Research Translation Core, Community Engagement Core, Training Core, and Molecular Pathology Core. The NIH logo and 'National Institute of Environmental Health Sciences Superfund Research Program' text are in the bottom left. The bottom right contains the text 'The Superfund Research Program at Brown University' and the URL 'http://brown.edu/Research/SRP'.

NIH National Institute of Environmental Health Sciences Superfund Research Program

The Superfund Research Program at Brown University  
<http://brown.edu/Research/SRP>

 <b>TOXICANT EXPOSURES IN RHODE ISLAND:</b> <i>Past, Present, and Future</i> 				
	Integrated Biomedical & Engineering Solutions to Regulatory Uncertainty			
	Biomarkers & Toxicity Testing	Nanotechnology Applications & Safety	Nanomaterial Vapor Barriers	Vapor Intrusion Modeling & Health Monitoring
Projects	1 & 2	2 & 4	3 & 4	1 & 3
Scientific Goal	Identify biomarkers and in vitro tests of exposure and response	Establish novel screening strategies to detect adverse effects of emerging nanomaterials	Design graphene-based environmental barriers that minimize human contact with vapor toxicants	Develop monitoring and modeling strategies for variable vapor exposures
Toxicants of Concern	Emerging nanomaterials, volatile organic chemicals, and other male reproductive toxicants	Emerging nanomaterials	Volatile organic chemicals	Volatile organic chemicals
Regulatory Uncertainty	Need for time-integrated indicators of adverse health outcomes	Relative hazard ranking of emerging nanomaterials	Safety and efficacy of novel nanomaterial vapor barriers	Health effects of highly variable exposures
RTC Professional Development & Technology Transfer	Workshop: Identifying Adverse Health Effects Using New Tests and Emerging Toxicants	Seminar: Occupational and Environmental Health Impacts of Emerging Nanomaterials	Technology Transfer: Engineering Applications of Nano-enabled Vapor Barriers	Workshop: Regulatory Management of Highly Variable Volatile Organic Chemical Exposures
CEC Bilateral Knowledge Exchange	Engage vulnerable populations affected by environmental exposures	Promote awareness of nanotechnology uses and health concerns	Facilitate learning about advanced nano-enabled technologies	Assess efficacy and impacts of regulatory policies on health
 National Institute of Environmental Health Sciences Superfund Research Program <span style="float: right;">The Superfund Research Program at Brown University  <a href="http://brown.edu/Research/SRP">http://brown.edu/Research/SRP</a></span>				



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## Involvement in the field...

Participants in a "Living Lab" proposal

National Health and Environmental Effects Research Laboratory (NHEERL)

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## State Agencies Liaisons Serve as "Knowledge Brokers"

**Bridging Research and Environmental Regulatory Processes: The Role of Knowledge Brokers**

Kelly G. Pennell,<sup>1,\*</sup> Marcella Thompson,<sup>1</sup> James W. Rice,<sup>2</sup> Laura Senier,<sup>3</sup> Phil Brown,<sup>4</sup> and Eric Stueberg<sup>5</sup>

Case study: Vapor Intrusion site in Somerville, MA

- "Facilitate translation of scientific expertise to influence regulatory processes and thus promote public health"



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## Other Past NEWMOA/Brown Workshops

TCE Vapor Intrusion: State of the Science, Regulations, & Technical Options Workshop


Monday, April 13, 2015 Brown University - Barus and Holley Building 182 Hope Street Providence, RI	Tuesday, April 14, 2015 UMass Lowell Inn and Conference Center 58 Warren Street Lowell, MA	Wednesday, May 20, 2015 Fireside Inn and Suites 25 Airport Road West Lebanon, NH
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Vermont Vapor Intrusion Updates Workshop


Tuesday, May 13, 2014  
The Pavilion  
109 State Street  
Montpelier, VT

Communicating Risk to the Public Workshop

Thursday, March 27, 2014 Westford Regency Inn and Conference Center 219 Littleton Road Westford, MA	Friday, March 28, 2014 Brown University - Barus and Holley Building 182 Hope Street Providence, RI
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## Dr. Jennifer Guelfo

- PhD (Hydrologic Science and Engineering)  
Colorado School of Mines- 2013
- Worked with Professor Chris Higgins, thesis topic  
"Subsurface Fate and Transport of Poly- and  
Perfluoroalkyl Substances"
- Hydrogeologist with Shell Projects and  
Technology from 2013 until joining Brown SRP as  
State Agencies Liaison in 2015.
- Environmental Consulting work with  
Groundwater and Environmental Services, and  
Conestoga-Rovers and Associates 2004-2009.