

Center for Hazardous Substances in Urban Environments

Annual Progress Report

Reporting Period: October 1, 2001 to September 30, 2002

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Institutions

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University of Maryland
Morgan State University
University of Connecticut
New Jersey Institute of Technology

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MOTIVATION AND MISSION

The Center for Hazardous Substances in Urban Environments (CHSUE) completed its first year of existence under EPA's Hazardous Substances Research Centers program (October 1, 2001 to September 30, 2002). The CHSUE is a cooperative activity between Johns Hopkins University (lead institution), University of Maryland, Morgan State University, University of Connecticut, and New Jersey Institute of Technology and covers EPA Regions 1, 2, and 3. About 80 percent of the U.S. population live in metropolitan areas. These urban residents face a number of pressing environmental problems including exposure to toxic chemicals from contaminated sites, landfills, incinerators, abandoned industrial sites (Brownfields), industrial releases, lead, and pesticide use. In this context, EPA Regions 1, 2, and 3 have identified "Urban Livability" as a strategic priority. Focusing on the upper mid-Atlantic to the Northeast, the mission of the CHSUE is two-fold: (1) to promote a better understanding of physical, chemical, and biological processes for detecting, assessing, and managing risks associated with the use and disposal of hazardous substances in urban environments and (2) to disseminate the results of the research and provide technical expertise to various stakeholders including community groups, municipal officials, regulators, academia, and industry.

RESEARCH PROGRAM

Through a combination of laboratory- and field-scale research, the CHSUE is addressing contaminants and sources that are known to be prevalent in urban environments. These include gas and particulate emissions of mercury, other toxic metals, and organic compounds from contaminated sites and hazardous waste incinerators; chromium, arsenic, nickel, zinc, and cadmium in waters and soils; and chlorinated solvents in waste site gases, soils, sediments, and groundwaters. The progress with the CHSUE's Research program is described in this section. The initial research projects are two-year projects with a start date of October 1, 2001. The aims of the projects have not changed from the original application.

Initial Research Projects and Participants

Risks to humans from toxic materials in urban environments come from contaminated groundwater and airborne particles and from direct or indirect exposure to contaminated soils. Several of the initial research projects within this Center are aimed at better quantifying the sources and cycling of toxicants and exposure pathways. Improvements in characterizing the sources and pathways will, in turn, make it possible to determine whether exposure levels have been or will be high enough to cause adverse health effects. Improved exposure assessment can be used to determine priorities for risk management and for determining appropriate clean-up levels for contaminated sites.

Once the risks of exposure from urban sites are quantified, risk management will be implemented to prevent or control the impact of toxic materials on human health and ecological systems. Risk management decisions generally consider the technical feasibility of treatment methods along with societal values and economics. Some of the research projects that address exposure pathways also provide information that can be used to assess the effectiveness of

natural attenuation as a means to reduce risks at contaminated sites. One research project is developing an innovative treatment method for halogenated solvents in vapor waste streams.

Participants in the Research Program

The interdisciplinary and multimedia nature of urban environmental problems demand a diverse array of scientific talent and facilities. The location and expertise of each Principal Investigator for the initial research program are detailed below:

Johns Hopkins University, Baltimore, Maryland (Lead Institution). Faculty from the Departments of Geography and Environmental Engineering (DoGEE), Mechanical Engineering (ME), and Chemistry at the Johns Hopkins University (JHU) are participating in the initial research projects:

Director: Edward Bouwer (DoGEE) (environ. engr., bioremediation, and engr. microbiol.)
Assoc. Director: Hedy Alavi (DoGEE) (environ. engr., haz. waste and solid waste management)
William Ball (DoGEE) (environmental engineering, contaminant fate and transport)
Howard Fairbrother (Chemistry) (surface spectroscopy and catalysis, and corrosion proc.)
Charles Meneveau (ME) (turbulence modeling, large-eddy simulation)
Charles O'Melia (DoGEE) (environmental engineering, colloid chemistry)
Marc Parlange (DoGEE) (environmental fluid mechanics)
A. Lynn Roberts (DoGEE) (environ. chem., zero-valent metals/contaminant reactions)
Alan Stone (DoGEE) (environmental inorganic chemistry)

University of Maryland. Faculty from the Center for Environmental Science, Chesapeake Biological Laboratory (CBL) (Solomons, MD) and the Department of Chemistry (College Park, MD) at the University of Maryland (UM) are participating in the initial research projects:

Joel Baker (CBL) (transport and fate of organic compounds in environmental media)
Robert Mason (CBL) (transport and fate of mercury in environmental media)
John Ondov (Chemistry) (movement and chemistry of aerosol particles)

Morgan State University, Baltimore, Maryland. The following three faculty from the School of Engineering at Morgan State University (MSU) are participating in an initial research project:

Guangming Chen (Industrial) (risk assessment, experimental design and statistics)
G.B. Oguntimein (Civil) (chemical engr., hazardous waste management, bioremediation)
Sedley Williams (Civil) (soil chemistry, water quality analysis, environ. assessment, GIS)

University of Connecticut, Storrs, Connecticut. Faculty from the Department of Civil and Environmental Engineering and Department of Chemical Engineering at the University of Connecticut (UConn) are participating in the initial research projects:

Joe Helble (Chem.E.) (air pollutants from combustion processes)
Allison MacKay (Environ. Engr.) (environ. organic chemistry, contaminant hydrology)

Barth Smets (Environ. Engr.) (contaminant biotransformations, microbial ecology)

Initial Research Projects

Seven research projects (RP) are underway in the CHSUE. The title, list of collaborators, and brief summary of the goals and results for each RP are given below. An annual report summary for each funded project is attached in Appendix A to provide more details about the progress and future activities of each project.

- RP #1 and RP #2 are addressing potential exposure pathways from airborne particles.

RP#1. The Fate and Potential Bioavailability of Airborne Urban Contaminants. Robert Mason (UM), Joel Baker (UM), and John Ondov (UM). The goal of this project is to improve our knowledge of chemical properties of atmospheric particles. The effort will evaluate the importance of coarse particles entrained to the atmosphere from hazardous waste and Brownfields sites as a source of contaminants to surrounding waters, and to humans via inhalation. Particles/aerosols will be collected using an ultra high volume sampler (coupled to Supersite program), and samples will be analyzed for metals (Hg) and organics (PAHs) and contacted with distilled water to assess dissolution kinetics. One challenge for this research effort is to collect enough aerosol mass for subsequent chemical analysis and leaching studies. Much of the first year was devoted to optimizing the bulk sample collection equipment in terms of cyclone collection efficiency and performance of the Teflon membrane filters at particle capture. Collected aerosol samples will be analyzed in Year 2 for mercury and organic chemicals.

RP#2. Measurements and Large Eddy Simulations of Plume Dispersion in an Urban Boundary Layer. Marc Parlange (JHU), Charles Meneveau (JHU), Joseph Helble (UConn), and John Ondov (UM). The goal of this project is to determine how spatial variability of surface heat fluxes and topography, land-water contrasts, drainage flows at night, and weather patterns influence atmospheric particle transport. A combination of measurements and models will be used to describe the transport of aerosols in an urban setting. Regional-scale atmospheric turbulence will be modeled by Large Eddy Simulation (LES). Lidar will be used to assess the performance of the LES code. The modeling results for airflow around a representative building shape confirm that physically realistic flow patterns are obtained. Lidar aerosol profiles were measured during the Canadian forest fire event of July 7, 2002. These data confirm that the JHU lidar can be used to measure the transport patterns of aerosols and help validate the LES simulations. Additional work in this project has centered on developing the sampling methods and characterization approach for determining particle morphology via transmission electron microscopy.

- RP #3 and RP #4 are addressing transport and fate issues for metal and organic contaminants in the subsurface in order to provide input on exposure pathways from contaminated groundwaters and soils. The research also involves reaction processes that are important in natural attenuation of contaminants. Therefore, these two projects also contribute to risk management issues.

RP#3. Geochemistry, Biochemistry, and Surface/Groundwater Interactions for As, Cr, Ni, Zn, and Cd with Applications to Contaminated Waterfronts. Allison MacKay (UConn) and Barth Smets (UConn). The goal of this project is to evaluate processes that govern the fate of heavy metals discharging to water bodies at contaminated waterfront sites. The hypothesis is that heavy metal flux is governed by anaerobic microbial activity that may mobilize or retard the transport of metal species. Geoprobe direct push sampling of pore water and solids in transects across the shoreline at one or more contaminated waterfront sites will be used to document redox processes involving the metal contaminants. Spatial distributions of As, Cr, Ni, Zn, and Cd will be quantified in the collected soil and liquid samples. Genotypic probing will assess the relative abundance of microbial activities. The selection of an appropriate field site is underway in consultation with Dick Willey of EPA Region 1 and Maurice Hamel of CT Department of Environmental Protection.

RP#4. Co-Contaminant Effects on Risk Assessment and Remediation Activities Involving Urban Sediments and Soils. William Ball (JHU) and Edward Bouwer (JHU). This project focuses on organic contaminant mixtures, with emphasis on improved approaches for modeling the combined effects of both sorption and biodegradation. Modeling has been conducted in order to better understand the role of nonlinear adsorption on long-term desorption and biodegradation. The results obtained to date have shown that desorptive mass flux can be extremely sensitive to the parameters used to model sorption. Since desorptive mass flux is an important determinant of contaminant persistence at waste sites, very careful experimentation will be required to fully understand long-term and non-linear contaminant distribution. The effort will evaluate sources and mechanisms of competitive sorption in environmentally relevant soils and sediments. Alternative approaches for quantifying rates of biodegradation in complex mixtures of organic chemicals will be developed and evaluated. Solids will be characterized for organic matter and black carbon (charcoals, soot, and coal).

- RP #5 is improving the method used for measuring the speciation of chromium so that we can more accurately assess its toxicity in all environmental media. The improved chromium speciation procedure will be used in the latter stages of RP #3 and in subsequent chromium research within the Center.

RP#5. Speciation of Chromium in Environmental Media Using Capillary Electrophoresis with Multiple Wavelength UV/Visible Detection. Alan Stone (JHU) and Charles O'Melia (JHU). The speciation of Cr controls its transport and fate at waste sites. The diphenylcarbazide test for distinguishing Cr(VI) from Cr(III) is most common, but is subject to interference problems. A capillary electrophoresis method is being developed for identifying and quantifying Cr(VI) and Cr(III) species. Capillary electrophoresis allows analytical separation based upon differences in the charge and hydrodynamic radii of analyte complexes. The results show that Cr(III)-containing low molecular-weight complexes can be efficiently resolved from one another and from the Cr(VI) species HCrO_4^- and CrO_4^{2-} . The detection limits range between 1 and 3 μM . The method will be validated using samples from pristine and Cr-contaminated field sites. The method will

be used in future Center projects dealing with assessment and control issues with Cr contamination.

- RP #6 is focusing on remediation of chlorinated solvents in vapors through an innovative technology that provides greater permanent risk reduction at potentially lower cost.

RP#6. Zero-Valent Metal Treatment of Halogenated Vapor-Phase Contaminants in SVE Offgas. A. Lynn Roberts (JHU) and Howard Fairbrother (JHU). The goal of this project is to evaluate if zero-valent metal technology can be used to treat organohalides in gas streams that contain oxygen. Reductants are being screened for reactivity and selectivity in batch systems containing a variety of bimetallic reductants and dissolved oxygen. The rates of reaction of cis-1,2-dichloroethylene (cis-DCE) with Ni/Fe, Co/Fe, Cu/Fe, and Fe alone were compared in batch studies. Among the three bimetallic systems, the reaction rates with Ni/Fe were significantly faster. Additional batch reactors were used to investigate the effect of nickel loading on the observed rates of reaction. At low Ni loadings, the rate of cis-DCE removal increases quickly with Ni concentration, but at higher Ni loadings the rate increases more slowly. Cis-DCE was introduced as a vapor into a column containing Fe or Ni/Fe. The cis-DCE gas phase concentration decreased along the length of the column with an accumulation of ethene and ethane, suggesting that cis-DCE is partitioning into the aqueous phase and undergoing reductive dehalogenation at the iron or bimetallic surface. The effort will assess how changing composition of the solution phase affects reactivity of the metal or bimetallic reductant. Reaction rates and products will be monitored. Finally, batch and column tests will be integrated to assess cost-effectiveness and projected design life.

- RP #7 is surveying selected Brownfield sites in Baltimore and developing a GIS inventory of environmental data and activities at these sites.

RP#7. Environmental Assessment and GIS System Development of Brownfield Sites in Baltimore. Guangming Chen (MSU), Gbikeloluwa Oguntimein (MSU), and Sedley Williams (MSU). The goals of this research project are (1) to work in collaboration with city, state, and federal partners to collect, analyze, and document the data on the locations, usage history, risk factors, and potential for remediation of selected existing Brownfield sites in the Park Heights community within Baltimore and (2) to develop a comprehensive Geographic Information System (GIS) inventory of environmental activities at these sites and conduct outreach activities that will provide community service, environmental education, and information through the creation of partnership with stakeholders impacted by brownfields. This project team has conducted the following activities: (1) site visits and interviews with the residents, (2) Information gathering through contacts with the Park Reist Corridor Coalition, library and internet search, and visits to Baltimore City Hall, (3) a survey of the auto body shops in the Park Heights Reisterstown corridor with the objective of determining the environmental impact of the auto body operation, and (4) GIS mapping of the Park Heights community using ArcGIS 8. The latter entails a GIS layered database and query systems to display all assessment results on the GIS map.

OUTREACH PROGRAM

The Center for Hazardous Substances in Urban Environments (CHSUE) Outreach Program is a collaborative effort between The Johns Hopkins University (lead institution), University of Connecticut (representing EPA Region 1), New Jersey Institute of Technology (representing EPA Region 2), and University of Maryland (representing EPA Regions 3). The goal of the Outreach Program is to transfer knowledge and technology resulting from the research projects and expertise of the principal investigators and technical staff to communities with environmental contamination throughout the regions.

The principal efforts of the Outreach Program include two distinct, but interrelated, components: Technical Outreach Services for Communities (TOSC) and Technical Assistance to Brownfields Communities (TAB). The goal of TOSC is to provide technical assistance and education to communities affected by hazardous waste, and to assist them with the restoration of their environment and neighborhood. The objective of TAB is to assist municipal officials, developers, and community groups with meeting the challenges of sustainable Brownfields redevelopment by providing education and technical assistance on the application of advanced science and technology.

The outreach activities during the period of October 1, 2001 to September 30, 2002 include thirteen projects geographically distributed across EPA Regions 1, 2, and 3. Six projects are allocated under TOSC, and seven projects are allocated under TAB. Information on each outreach project appears in tabular format in Appendix B. The tabular format encompasses items under the reporting requirements of the grant. The TOSC and TAB efforts include review of site characterization documents and remedial plans, review of hydrogeological data, workshops on Brownfields legislation and issues and remedial options for waste sites, training in redevelopment of Brownfield sites and former industrial areas, and communicating health effects for contaminants and information on health monitoring. Miscellaneous activities in the support of the outreach efforts in these regions are presented in Appendix C.

ADVISORY COMMITTEES

The CHSUE benefits from guidance supplied by two external advisory committees. Our Science Advisory Committee (SAC) is comprised of 16 representatives from EPA, industry, government offices and laboratories, and academia (Table 1). Prof. Paul Roberts serves as Chair of the SAC. The purpose for the SAC is to assist the CHSUE in evaluating the merit, value, and contribution of research projects and the relevance and importance of individual organizational elements to accomplishing the overall goals of the Center. The first SAC meeting was held on October 21-22, 2002.

Our Outreach Advisory Committee (OAC) is comprised of 11 representatives from EPA, other government offices, and the community (Table 2). The purpose for the OAC is to assist the CHSUE in the development, implementation, and evaluation of education, knowledge transfer, and outreach activities and to identify outreach funding opportunities. The first OAC meeting will be held on November 7, 2002.

Table 1. Members of the Science Advisory Committee

Name	Representation
Roberts, Paul; Chair	Emeritus Professor, Stanford University
DiCola, Ron	Asst. Director Environmental Affairs, Pfizer, Inc.
Grasso, Domenic	Rosemary Bradford Hewlett Professor and Chair, Smith College
Harris, Reginald	Senior Toxicologist, U.S. EPA Region 3
Inyang, Hilary	Duke Energy Distinguished Professor, The University of North Carolina-Charlotte
Johnson, James	Dean and Professor, Howard University
Josephs, Jon	Hazardous Substances Liaison, U.S. EPA Region 2
Josephson, Jeff	Special Assistant to the Director, U.S. EPA Region 2
Krammer, Kurt	Environmental Manager, FMC Corporation
Kulujian, Norm	Superfund Coordinator, U.S. EPA Region 3
Linak, William	Chemical Engineer, U.S. EPA National Risk Management Research Laboratory Air Pollution Prevention and Control Division
Lorah, Michelle	Research Hydrologist
MacFarlane, Ian	Branch Manager, EA Engineering, Science, and Technology
Summers, Robert	Director, Waste Management Administration, Maryland Department of the Environment
Willey, Richard	Hydrologist, U.S. EPA Region 1
Yen, Chen	Vice President, Gannett Fleming, Inc.

Table 2. Members of the Outreach Advisory Committee

Name	Representation
Burke, Mike	Senior State Liaison Officer, U.S. EPA Region 3
Charles, Larry	Director and Member, ONE/Chane and National Environmental Justice Advisory Committee
Harris, Elissa	Environmental Equity Coordinator, PA Department of Environmental Protection
Johnson, Stacey	Hartford City Program Manager, U.S. EPA Region 1 Urban Environmental Initiative
McGuigan, Doris	President, Concerned Citizens for a Better Brooklyn
Murphy, Jim	RAA, U.S. EPA Region 1
Pitruzzello, Vincent	Chief, Program Support Branch, Emergency and Remedial Response Division, U.S. EPA Region 2
Rosso, Mary	Delegate, Maryland House of Delegates
Shaw, Judith	Administrator, Brownfields Office, New Jersey Department of Environmental Protection
Wilson, Shari	Director of Policy Management, Maryland Department of the Environment

Yates, Harold	Senior Community Involvement Coordinator, U.S. EPA Region 3
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OTHER ACTIVITIES

In addition to the Research and Outreach programs, the CHSUE participated in several other noteworthy activities in the past year.

The CHSUE co-sponsored a meeting on June 11-12, 2002 to address emerging environmental health threats to children from contaminated school sites. There is a trend nationwide to build new public schools on contaminated lands, often abandoned, idled, or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. Schools do not fall under any program for environmental assessment and cleanup leading to a large number of schools being built on or near hazardous waste sites with little or no protection from exposure. A common school siting practice is to use standardized (adult-based) risk assessment to determine safety and the need for cleanup. Two topics were discussed at this meeting which are presented in the form of questions. First, is there a process that can be used for determining and establishing safe exposure levels for children exposed to toxic/hazardous chemicals in and around their school environment? Second, when land is identified as contaminated, but is needed nonetheless for siting a school, what cleanup technologies/methods are best suited to cleaning up the site? Since containment systems are often proposed, are they adequate when the future land use is a school? This one and one-half day meeting included experts in children's health, risk assessment, site remediation, regulations, environmental justice, education, and epidemiology. Members of the CHSUE that participated in this meeting included Hedy Alavi, William Ball, Edward Bouwer, Ian MacFarlane, Barbara Sattler, and Robyn Gilden. This meeting was funded with outside support, so no EPA funds were used for this activity. The participants drafted recommendations for siting and testing guidelines that are currently being developed for congressional review and regulations aimed at school siting criteria.

The CHSUE engaged in several technical seminars during the past year. Hedy Alavi and Ed Bouwer participated in the annual Director's meeting in Washington, D.C. on November 19-20, 2001. Hedy Alavi and Ed Bouwer made presentations on the Research and Outreach programs to the Maryland Environmental Business Alliance on March 22, 2002. Ed Bouwer discussed the Center's Research Program with interested EPA folk on March 26, 2002 (internet seminar format). Hedy Alavi and Ed Bouwer visited EPA Region 3 in Philadelphia on July 16, 2002 and made presentations on progress with the Research and Outreach programs. Howard Fairbrother made a presentation about our Center at the 224 ACS National Meeting in Boston on August 19, 2002. As part of an exchange effort, Allison Mackay (UConn) was invited to give a seminar at Johns Hopkins University on September 6, 2002. Conference presentations on individual research projects are detailed in the attached Annual Report Summaries.

The CHSUE sponsored an internal workshop on September 6, 2002 at Johns Hopkins University to aid in knowledge transfer within the Research program. The principal investigators for each of the seven research projects made presentations on their progress and future plans. This workshop allowed the principal investigators to (1) share research progress through presentations which will facilitate integration of the information in future work, (2) discuss future research

directions, (3) discuss the first annual report, and (4) discuss the format for the October 21-22, 2002 Science Advisory Committee meeting.

KEY PERSONNEL

Professor Edward Bower continues to direct the CHSUE. Dr. Hedy Alavi continues his role as Associate Director. There have been no changes in key personnel.

EXPENDITURES

The Research and Outreach projects are progressing according to schedule. The first year funds have all been appropriated to the research and outreach projects.

QA REQUIREMENTS AND CONTROL OF DATA QUALITY

The Center prepared and submitted a Quality Management Plan in January 2002. Prof. William Ball serves as the QA/QC Manager for the Center. Prof. Ball has been working with the Principal Investigators to prepare appropriate Quality Assurance Narrative Statements and maintain them in a file. The quality management philosophy of the CHSUE is that each investigator is responsible for ensuring the quality of collected data, mathematical models, and all related technical analyses, and for ensuring that these data, models, and analyses are presented in such a manner as to convey their quality.

PUBLICATIONS

The CHSUE assisted with preparation of the 2002 Centerpoint issue (Volume 7, Number 1) that describes the Phase-Two HSRC grants. Since the research projects are underway for less than one year, a limited number of research publications have come from the CHSUE. Publications pertinent to each research project are described in the attached Annual Report Summaries (Appendix A).

CENTER INTERNET WEBSITE

www.jhu.edu/hsrc/

Appendix A: Annual Report Summaries for Specific Research Projects

RP#1. The Fate and Potential Bioavailability of Airborne Urban Contaminants. Robert Mason (UM), Joel Baker (UM), and John Ondov (UM).

RP#2. Measurements and Large Eddy Simulations of Plume Dispersion in an Urban Boundary Layer. Marc Parlange (JHU), Charles Meneveau (JHU), Joseph Helble (UConn), and John Ondov (UM).

RP#3. Geochemistry, Biochemistry, and Surface/Groundwater Interactions for As, Cr, Ni, Zn, and Cd with Applications to Contaminated Waterfronts. Allison MacKay (UConn) and Barth Smets (UConn).

RP#4. Co-Contaminant Effects on Risk Assessment and Remediation Activities Involving Urban Sediments and Soils. William Ball (JHU) and Edward Bouwer (JHU).

RP#5. Speciation of Chromium in Environmental Media Using Capillary Electrophoresis with Multiple Wavelength UV/Visible Detection. Alan Stone (JHU) and Charles O'Melia (JHU).

RP#6. Zero-Valent Metal Treatment of Halogenated Vapor-Phase Contaminants in SVE Offgas. A. Lynn Roberts (JHU) and Howard Fairbrother (JHU).

RP#7. Environmental Assessment and GIS System Development of Brownfield Sites in Baltimore. Guangming Chen (MSU), Gbikeloluwa Oguntimein (MSU), and Sedley Williams (MSU).

Appendix B: Community Specific Outreach Projects

Project/Community Name	Massachusetts Military Reservation (MMR)
City	Cape Cod (several towns on lower Cape Cod)
State	Massachusetts
EPA Region	1
Community Contact	Richard Jugus, members of the Impact Area Review Team
State Contact	Len Pinaud, MA Department of Environmental Protection
EPA Contact	Jim Murphy
Institution/Center	UConn – Environmental Research Institute (ERI)
Outreach Director/Manager	Christopher Perkins
Project Manager/Coordinator	Kevin Hood
Allocation (TOSC, TAB)	TOSC
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>The primary environmental issue is the large-scale contamination of the Massachusetts Military Reservation (MMR) with explosives and other chemical contaminants, and the migration of these contaminants into the surrounding residential areas via 19 individual contaminant plumes. ERI personnel and a subcontractor are the technical representatives (TOSC) for the community as part of the Impact Area Review Team (IART). ERI TOSC personnel attend monthly IART community meetings on Cape Cod as well as Technical Team meetings. The TOSC members also review any appropriate documents generated during this study and provide technical input on behalf of the community. UConn/ERI met twice with Jim Murphy (EPA Region 1) to talk about MMR related issues as well as other potential sites that UConn/ERI will be involved in. ERI initiated a web-based bulletin board for the Impact Area Review Team (IART) members for MMR issues. This was undertaken at the request of IART members, and will serve to improve communication between the IART and TOSC members on action items. ERI received three boxes of past MMR documents from NJIT and are presently cataloging them. ERI TOSC personnel attended monthly IART community meetings on Cape Cod as well as several weekly Technical Team meetings during this reporting period. ERI is initiating a subcontract agreement with the remaining member of TOSC (Jim Stahl) to serve on the TOSC board. ERI staff participated in a four hour site tour and held a private meeting with community members. ERI has raised several questions regarding the models used for contaminant distribution in groundwater and are reviewing the models. In response to issues raised by the community, IART members and ERI staff are conducting research on modeling methods, sampling methods and potential real estate value impacts.</p>	

Project/Community Name	New Haven Regional Growth Partnership
City	New Haven
State	Connecticut
EPA Region	1
Community Contact	New Haven Regional Growth Partnership
State Contact	N/A
EPA Contact	Jim Murphy
Institution/Center	UConn – Environmental Research Institute (ERI)
Outreach Director/Manager	Christopher Perkins
Project Manager/Coordinator	Kevin Hood
Allocation (TOSC, TAB)	TAB
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>The Regional Growth Partnership (RGP) is a Brownfields Pilot recipient and also lead agency for a smart growth project that involves the Quinnipiac River Conservation and Development Corridor. A workshop was presented on Brownfields legislation and its impact on the liability framework and tools for managing liability. A follow-up to this workshop is planned for Summer 2003 to help the Board gain a better understanding of the decision-making process for the acquisition of contaminated properties. This follow-up workshop and resulting research will help the Board create a model process to be used in its deliberations along the Corridor. This project is in transition from NJIT (previous center) to ERI (new HSRC). UConn participated in two RGP meetings coordinated by NJIT. One was a community meeting and the other a meeting with the TOSC task force, Bridgeport officials and Vita Nuova regarding development objectives. ERI staff participated in five one-hour conference calls regarding the New Haven Regional Growth Partnership (NHRGP) that were scheduled by NJIT. ERI staff attended five meetings/events in Bridgeport and New Haven with NHRPG personnel, and attend a ribbon cutting ceremony for a completed project in Bridgeport.</p>	

Project/Community Name	Buzby Landfill
City	Voorhees
State	New Jersey
EPA Region	2
Community Contact	KK Wu
State Contact	
EPA Contact	
Institution/Center	New Jersey Institute of Technology Northeast Hazardous Substance Research Center (NHSRC)
Outreach Director/Manager	Fred Ellerbusch
Project Manager/Coordinator	Fred Ellerbusch
Allocation (TOSC, TAB)	TAB
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>Through involvement in the New Jersey Brownfields Roundtable, NHSRC was requested to provide technical assistance to the Voorhees Township Buzby Landfill Task Force. The Task Force is focused on the proposed clean-up of the Buzby Landfill, a site that had received industrial and municipal wastes, and is located near a residential area. Technical assistance began during the third quarter of 2002 in support of the shared vision of the Task Force and Township of site redevelopment into a recreational area and office park. The responsible parties (the Township is a responsible party, but not in agreement with the majority) have expressed a desire to maintain the restricted access to the landfill in order to keep the current institutional control solution scenario. Our involvement will focus on the existing cap, which needs replacement or improvement under either scenario. The Task Force is quite active, holding monthly meetings that are well attended by local stakeholders.</p>	

Project/Community Name	Fettersville - Macedonia Historical Association
City	Camden:
State	New Jersey
EPA Region	2
Community Contact	Dorothy Lipscomb, Macedonia Historical Association
State Contact	
EPA Contact	Larry D'Andrea, EPA Region 2
Institution/Center	New Jersey Institute of Technology Northeast Hazardous Substance Research Center (NHSRC)
Outreach Director/Manager	Fred Ellerbusch
Project Manager/Coordinator	Fred Ellerbusch
Allocation (TOSC, TAB)	TOSC
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>This community group is seeking support for the use of the Paulownia tree for the Phytoremediation/retreeing of a City owned Brownfield site. The community group hopes that the remediation of this site will begin improving the neighboring properties of this disadvantaged community located along the Delaware River. Fettersville has a rich history, including serving as a key stop on the Underground Railroad, and its community groups are quite active. A meeting was held in September with the City of Camden representative to review the City and community interest - both of which were expressed as high. The community would like assistance in the form of a hydrologist and geologist on the utilization of perched water as a source for the garden and tree plantings, and assistance on the utility of phytoremediation for this type of property. A site visit will be conducted in the Fourth Quarter of 2002; and once specifics are determined, we will begin the process of matching needs to expertise.</p>	

Project/Community Name	Ft Edwards
City	Ft Edwards
State	New York
EPA Region	2
Community Contact	NG Kaul, EPA Region 2
State Contact	
EPA Contact	NG Kaul, EPA Region 2
Institution/Center	New Jersey Institute of Technology Northeast Hazardous Substance Research Center (NHSRC)
Outreach Director/Manager	Fred Ellerbusch
Project Manager/Coordinator	Fred Ellerbusch
Allocation (TOSC, TAB)	TOSC
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>USEPA Region 2 Ft. Edwards Field Office requested TOSC community services support for the Fort Edwards Superfund project (website for the project is www.epa.gov/hudson).</p> <p>NHSRC agreed that with the visibility of this Hudson River clean-up some support would be necessary, dependent on the scope of services and funding availability. At this stage, what distinguishes this community group from others is that this group had not believed that taking action, as outlined in the recent project descriptions, was needed. During the latter part of September, NHSRC was requested to prepare a collateral funding request for support of the Fort Edwards community; and the budget and scope were developed and submitted. This project is not only intriguing from an outreach perspective, but also technically challenging given the scope and complexity of the cleanup.</p>	

Project/Community Name	Long Branch Coal Gasification
City	Long Branch
State	New Jersey
EPA Region	2
Community Contact	Wyatt Kenoly, Long Branch Concerned Citizens Coalition
State Contact	Paul Smith, NJDEP
EPA Contact	Larry D'Andrea, EPA Region 2
Institution/Center	New Jersey Institute of Technology Northeast Hazardous Substance Research Center (NHSRC)
Outreach Director/Manager	Fred Ellerbusch
Project Manager/Coordinator	Fred Ellerbusch
Allocation (TOSC, TAB)	TOSC
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>A conference call with a Long Branch Concerned Citizens Coalition member was held in September to review how TOSC might assist community members with the cleanup of a former Coal Gasification site that is near a residential area. The site is within 1/4 mile of approximately 500 people, including two housing authority sites which are "next door." The group is looking for technical support to explain to community members what the responsible party and its engineers are doing with the cleanup. This is a CERCLIS listed site, but NJDEP lead cleanup. The group has filed a petition with ATSDR, who has accepted it and will conduct a study. We agreed that a site visit would be scheduled during the Fourth Quarter 2002, but not finalized until additional information promised by the citizen group, such as the NJDEP site inspection document, ATSDR petition, etc. is received.</p>	

Project/Community Name	Martin-Aaron Site
City	Camden
State	New Jersey
EPA Region	2
Community Contact	Fred Martin, City of Camden
State Contact	
EPA Contact	Larry D'Andrea, EPA Region 2
Institution/Center	New Jersey Institute of Technology Northeast Hazardous Substance Research Center (NHSRC)
Outreach Director/Manager	Fred Ellerbusch
Project Manager/Coordinator	Fred Ellerbusch
Allocation (TOSC, TAB)	TOSC
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>Under the Superfund pilot project in the City of Camden, the 5.9 acre Martin-Aaron site has been identified by community members and industrial interests alike as potentially usable. The site was host to a former barrel recycler that has been subject to EPA and NJDEP removal actions. The community has developed a plan that calls for locating a farmers market on the site, while an industrial neighbor has expressed an interest in using the land for expansion. The City would like to use this project to not only arrive at a best use option, but also to empower the community and create academic linkages. The City believes that community members would benefit from capacity building in the form of risk skills training modeled after the North Camden training conducted through NHSRC several years ago. The City also believes a planning (with economic/feasibility components) analysis would be useful to determine the viability and desirability of either or both land-use options. At present, we are waiting for the City's concurrence to develop a budget for the assemblage of a team of experienced academic practitioners to address both Risk skills training and Planning analysis for the community (using graduate student support to explore options and components). A final component will be the facilitation of a related redevelopment in a former industrial area.</p>	

Project/Community Name	Puerto Rico VCP
City	Island Wide
State	Puerto Rico
EPA Region	2
Community Contact	Enid Villegas, Superfund Supervisor, Environmental Quality Board (EQB)
State Contact	
EPA Contact	Larry D'Andrea, EPA Region 2
Institution/Center	New Jersey Institute of Technology Northeast Hazardous Substance Research Center (NHSRC)
Outreach Director/Manager	Fred Ellerbusch
Project Manager/Coordinator	Bill Librizzi
Allocation (TOSC, TAB)	TAB
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>The Environmental Quality Board sought public outreach support for its Voluntary Cleanup Program (VCP) initiative through an island wide conference. Throughout this year, planning and coordination for the next steps in implementing the VCP were principal efforts for the Center. During the third quarter of 2002, additional planning sessions were held and coordinated with Region 2 for the island wide conference held on October 10, 2002. The conference, which focused on the VCP program launch and the new federal Brownfields legislation, will be followed up with more focused meetings during the coming year.</p>	

Project/Community Name	West Philadelphia PCE Brownfield Site
City	Philadelphia
State	Pennsylvania
EPA Region	3
Community Contact	Rev. Larry Falcone and Ann Dixon Neighbors Against McPenetration
State Contact	Walter Payne, PA DEP Tom Barsely, PA DPH Air Management Division
EPA Contact	Chris Thomas
Institution/Center	University of Maryland School of Nursing
Outreach Director/Manager	Barbara Sattler
Project Manager/Coordinator	Robyn Gilden
Allocation (TOSC, TAB)	TAB
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>The community was concerned about health effects related to VOC (particularly PCE) vapor extraction at a site of a future McDonalds, located at 4240 Market St., Philadelphia, PA. The community requested information on alternative methods of remediation, information on health monitoring, and case studies of other communities involved in PCE exposures. Outreach staff conducted literature search and information gathering on PCE remediation and case studies to send to community. Region 3 also collaborated with George Hoag at UConn (Region 1) and Michael Fernandez (Western HSRC) for advice on remediation options and experience with similar sites. Program manager traveled to Philadelphia for a site visit, met with community members, and performed a document review of relevant site information at the PA Department of Public Health. Program manager also conducted interviews with various members of White Stone, McDonalds' consulting firm, the Department of Commerce, the Department of Air Management, the State Department of Environmental Protection, and Region 3 EPA. Region 3 continued to collaborate with George Hoag regarding documents reviewed and interviews conducted. The results of the review, including possible options, were submitted in writing to the community. Program manager further supported community empowerment by attending an appeal hearing related to the air management permit. Following the hearing, the center answered further questions from the community related to Thermal Desorption.</p>	

Project/Community Name	Woodberry/Coldspring Landfills CERCLIS Site
City	Baltimore
State	Maryland
EPA Region	3
Community Contact	Jan Danforth, Woodberry Land Trust
State Contact	
EPA Contact	Lorie Baker
Institution/Center	University of Maryland School of Nursing
Outreach Director/Manager	Barbara Sattler
Project Manager/Coordinator	Robyn Gilden
Allocation (TOSC, TAB)	TOSC
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>This is the prior site of two landfills, one of which was uncontrolled. The EPA Preliminary Assessment, conducted and reported in December 2001, shows the presence of various VOC's, SVOC's, pesticides, and PCB's. A full site assessment was completed on 4/15/02, and the preliminary data were received on 6/21/02. Loyola College has permission from the city council to buy the land for development into a stadium complex. The community requested help in interpreting the results of EPA's testing, training on the various options for remediation, and the health effects associated with contaminants at the site and the increased risks during redevelopment. In order to meet the community and gain background knowledge on the site and the current issues, the Program Manager attended a City Council meeting regarding the purchase of the site. Outreach staff received and reviewed EPA's Preliminary Assessment Report. The Program Manager and Outreach Director of Region 3 attended a community meeting to discuss information and assistance needs. Outreach staff have reviewed the results from EPA's full site assessment, and the Loyola contractor's air monitoring procedures and action levels during a test pit construction. The Program Manager, Outreach Director of Region 3, and Center Outreach Director participated in site tour with members of Woodberry Land Trust in preparation for release of EPA's summary report. Outreach staff received EPA's summary documents for both landfills and the Risk Assessment and are collaborating with NJIT, Region 2, in the review of these documents. The Center will continue to review documents as they become available and will provide workshops on remediation options and health effects, as requested by the community.</p>	

Project/Community Name	Pen Argyl Grand Central Landfill Brownfield Site
City	Pen Argyl
State	Pennsylvania
EPA Region	3
Community Contact	Senator Lisa Boscola; Judy Piper, Mayor Pen Argyl; Jaymes Vettraino, Borough of Pen
State Contact	
EPA Contact	
Institution/Center	University of Maryland School of Nursing
Outreach Director/Manager	Barbara Sattler
Project Manager/Coordinator	Robyn Gilden
Allocation (TOSC, TAB)	TAB
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>The Community of Pen Argyl is concerned about possible health effects from an existing landfill and the further effects of a proposed 27-acre expansion of the site. They requested information on possible health effects related to living near a landfill and guidance on developing a health study to be conducted by the community. They are also interested in the fate of a vacant industrial complex adjacent to the landfill, which is unoccupied for various reasons, including perceived contamination, and is a blight to the community. Outreach staff performed a literature and Internet search to gather background data on the community and site. Program Manager, Region 3 Outreach Director, and several nurse consultants and graduate students have attended two community meetings in Pen Argyl to answer the community's concerns about the landfill and possible health effects. There has been continuous email and phone contact regarding development and distribution of the health survey to be conducted by community. The team has provided critique and comments on the draft survey and cover letter, and has provided guidance and suggestions for coding, distribution, and data entry. The Center is helping connect the community with a nurse statistician for data analysis and summary of results. Other activities the community is interested in include a public meeting with a Guest Speaker on the possible health effects related to living near a landfill, and help hosting a health fair to raise community awareness of common issues.</p>	

Project/Community Name	Middle East Community Organization
City	Baltimore
State	Maryland
EPA Region	3
Community Contact	Lucille Gorham, Middle East; Rosa Burenstine, Clearinghouse for a Healthy Community.
State Contact	Art O'Connell, Maryland Dept. of the Environment Ev Paul, Baltimore Development Corporation
EPA Contact	Lorie Baker
Institution/Center	University of Maryland School of Nursing
Outreach Director/Manager	Barbara Sattler
Project Manager/Coordinator	Robyn Gilden
Allocation (TOSC, TAB)	TAB
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>The Community is seeking help with many issues. In particular to our Center are two abandoned Brownfield sites, the former Armco Steel Mill and Ainsworth Paint Factory, which they would like to see cleaned up and redeveloped into something economically and aesthetically beneficial to the community. The community would also like to include workforce development strategies in the redevelopment plan. They have requested help with document review related to both sites, making connections with the appropriate city, state, and federal parties, and enhancing the capacity of the community by providing education about health risks and the requisite skills needed for grant writing. After initial contact from the community, Outreach Staff sent an information packet to the group on the Center's capabilities and are having ongoing conversations with community members. The Program Manager and Outreach Director attended a community leaders' meeting at the Clearinghouse for a Healthy Community with other professionals from Morgan State and Johns Hopkins, and discussed the many issues and goals of the group. Follow-up to the meeting included information gathering on Brownfield's in Maryland, and conversations with both Art O'Connell, Chief of the Site and Brownfield Assessments Division at MDE, and Evans Paul of the Baltimore Development Corporation, regarding the two sites. Outreach Staff submitted FOIA requests to MDE and were able to review site documents on Armco Steel and Ainsworth Paint. A FOIA request was also submitted to and honored by EPA, for the On-Site Coordinators Report for Ainsworth Paint. Outreach Staff have attended subsequent community meetings to discuss information gathered on the two sites, to identify data gaps, and to plan the next steps. Outreach staff also facilitated a meeting with the community and Evans Paul to illustrate the process of Brownfield redevelopment in Baltimore City and to discuss available funding and partnering opportunities for the community. The Community would also like the Center's assistance in hosting a workshop on the health, economic, and legal issues related to environmental contamination, and the redevelopment of the Brownfield sites, tentatively set for April 2003.</p>	

Project/Community Name	Swimming Point Former Manufactured Gas Plant Brownfield Site
City	Portsmouth
State	Virginia
EPA Region	3
Community Contact	Maggie Brydges, Swimming Point Civic League
State Contact	Jim Cutler, VA DEQ Voluntary Remediation Program; Pat McMurray, VA DEQ Toxicologist
EPA Contact	Jane Zhu, ATSDR Environmental Health Scientist
Institution/Center	University of Maryland School of Nursing
Outreach Director/Manager	Barbara Sattler
Project Manager/Coordinator	Robyn Gilden
Allocation (TOSC, TAB)	TAB
Project Environmental Issues, Center Commitments and Activities Conducted:	
<p>NiSource Company is the current owner of the former manufactured gas plant, previously owned by Columbia Gas of Virginia. The site, contaminated with PAH's, VOC's, mercury, and arsenic, is being remediated under Virginia's Voluntary Remediation Program. Site assessment is ongoing and the first parcel is nearing completion of remediation and re-landscaping. The next phase of assessment and remediation will cover the rest of the onsite property and extend to off-site impacted areas. The community wants information on testing and remediation activities, review and interpretation of site data, planned reuse of the site, and health effects of exposure to contaminants, as well as guidance on becoming more involved in the VRP cleanup process. The community would also like to improve the channels of communication between NiSource, DEQ, and themselves. Outreach staff engage in ongoing phone conversations with members of the Swimming Point Civic League, as issues and information arise. Outreach staff have reviewed the field investigation report prepared by RETEC Group, Inc., the contractor for Columbia Gas of VA, real time air monitoring results for VOC's, Dust, Mercury, and Noise, and related site documents held by VA DEQ. Staff have collected information on site contaminants and possible health effects. The staff have collaborated with: Jim Cutler, VA DEQ Voluntary Remediation Program, to gather information on the site and DEQ's involvement; Jane Zhu, ATSDR Environmental Health Scientist, regarding involvement at the site, impressions of health threats, and the forthcoming report once data is complete; and, Pat McMurray, VA DEQ Toxicologist, regarding impressions of the site and risks to public health. There have been frequent emails and phone conversations as new questions arise and this information is passed onto the community as well as suggestions of ways to move forward and what questions remain to be answered. Outreach staff have also had conversations with Sydeny Rice, NiSource Public Affairs, about site remediation and redevelopment plans, current operations, and community involvement protocol and Roger Hathaway, RETEC site manager, on progress of site data collection and remediation. The Program Manager and a nurse consultant traveled to Portsmouth to attend a site tour, and participated in a community meeting afterwards to assess the needs and concerns of community members and answer questions relating to the next steps. Stemming from the community meeting, the Center was requested to review a</p>	

resident's soil and well sampling data, and to comment on the health risks related to any contamination. The community would like continued review of the environmental testing data to determine the appropriateness of techniques, and to be advised about what further questions need to be asked, and what rights they have under the VRP system.

Appendix C: Miscellaneous Outreach Activities

The following section provides information on miscellaneous activities conducted in the support of the outreach efforts in EPA Regions 1, 2 and 3, apart from the community specific projects described above.

Region 1

Members of the Environmental Research Institute (ERI) at the University of Connecticut:

- Met with EPA Region 1 staff members in the Superfund, Brownfield, and Community Outreach sections and discussed issues as well as a general introduction
- Augmented NJIT staff as a facilitator at a NJIT hosted meeting in Syracuse, New York (Region 2), regarding changes to the EPA Brownfield laws and risk and liability associated with Brownfields redevelopment.
- Assisted the JHU/UMD staff on a project in EPA Region 3 in Philadelphia regarding VOC issues and remediation options.
- Participated in two community meetings in Hartford, CT regarding a brownfield (former chrome plating facility) in the center of a residential/light industrial/ retail area. ERI provided a fact sheet translated into Spanish (over 50% of the residents are Spanish speaking) at the request of the Community, the State of Connecticut Department of Environmental Protection (DEP), and the Hartford Health Dept. Meetings appear to have been successful in disseminating appropriate information regarding the investigation and sampling activities on the site.
- Attended community and local church meetings in Hamden, CT regarding homes, churches and a middle school built over a municipal/industrial waste dump. ERI staff met with CT DEP officials and attended an administrative hearing regarding enforcement of a CT DEP order regarding the school and potential health risks to local residents and school age children. ERI has been asked to review geostability and structural integrity reports, which are expected in the near future.
- Met with local community organizations, the City of Danbury, environmental activists, and CT Department of Environmental Protection personnel regarding potential hazards associated with a mercury contaminated industrial site in Danbury, CT. This site was a former hat factory and there has been some recent intense publicity regarding this site and perceived health effects. We are in the process of negotiating a MOU with the community and the City to undertake a limited risk assessment for the site. ERI plans to review data collected by the city, the state, and several University Investigators regarding potential data gaps or other issues that may need to be investigated in order to provide an assessment of risk.
- Contacted representatives of EPA Region 1 Brownfield Pilot Program and informed them of the availability of the Center's TAB services. All contacts expressed an interest in working with ERI staff to explore the TAB opportunities in the region.

Region 2

Members of Northeast Hazardous Substance Research Center (NHSRC) at the New Jersey Institute of Technology:

- Finalized the U.S. EPA Region 2 Brownfields Redevelopment Guidance Document, which will be available on the NHSRC website and by CD, distributed by Region 2 at the BF 2002 Conference
- Participated in the BF 2001 Conference with a NHSRC exhibit
- Continued to develop the U.S. EPA Region 2 Expert System Model, a PowerPoint presentation on current status was sent to Region 2 contacts
- Delivered a Public Participation and Brownfields presentation at the New Jersey Brownfields Roundtable
- Conducted Brownfield Pilot Grant Stakeholder meetings for five communities throughout Region 2
- Provided technical facilitation for the New York state Brownfields roundtable quarterly meetings
- Conducted two non-pilot outreach meetings, one in New York and one in New Jersey
- Developed a NHSRC fact sheet for the U.S. EPA Region 2 Brownfields Internet site
- Participated in the environmental cleanup conference conducted by the Southwest Hazardous Substance Research Center in Rio de Janeiro - presentations were made on applications of Field Analytic Methods
- Investigated site characteristics at several sites using TAB funding and funding from the Technical Innovation Office of USEPA, which are now in the process of being developed as case studies
- Attended the Winter 2002 EPA TOSC/TAB National Conference in Portland Oregon
- Provided support to the Interstate Technology Regulatory Council for their Brownfields and Sampling, Characterization & Monitoring Teams
- Conducted a workshop held in Thailand on establishing sampling and analysis programs at the government level for compliance monitoring purposes.
- Co-taught a graduate level environmental risk assessment course in Thailand
- Finalized a collateral funding request with U.S. EPA Region 2 for FY 2003

Region 3

Members of School of Nursing at University of Maryland:

- Have been participating in planning the content and logistics for the next TOSC/TAB/EPA conference in March 2003, with a goal of improving communication and collaboration among the centers and involved agencies.
- Created and continues to maintain the Center-wide website (www.jhu.edu/hsrc) to allow for a transparent process and to provide information to communities and interested parties. On the website there are updates on community progress, pictures of sites, resources, and contact information.
- Developed a series of Power Point presentations addressing common toxics found at Superfund sites, their health effects, and ways to reduce exposure. These presentations have been recently added to the website, shared with other HSRC's and submitted for posting on www.envirottools.org.
- Participated in several lectures and presentations to a variety of audiences on the role of the Center, community involvement, partnering with health care providers, and environmental health in general. Some of the groups include church groups, nursing students, and environmental engineering students.
- Explored means to raise awareness about community empowerment. One undertaking was to write an article for *Policy, Politics, and Nursing Practice* Journal to be published in January 2003. The article discusses community involvement at hazardous waste sites highlighting the School siting issue, in order to raise awareness of data gaps and the need for legislation to protect children and staff from hazardous exposures. Also included in the article is a summary of the HSRC Outreach program and its capabilities. The outreach staff is also developing a poster presentation on community involvement at hazardous waste sites for an Environmental Journalists conference in October.
- Attending several conferences to become more effective in community outreach at Superfund and Brownfield sites and gain knowledge, connections, and tools beneficial to performing community outreach tasks. Conferences include the *Greening Brownfields* seminar hosted by Region 3 EPA and Baltimore Development Corporation; and EPA's Community Involvement Conference in Portland. Outreach staff plans to make a presentation on community empowerment issues at the American Public Health Association Convention and attend the National Brownfield's Conference.
- Visited the outreach staff in EPA Region 3, Philadelphia, to create relationships among all stakeholders. There have also been joint meetings with Superfund, Brownfield, and ORD offices at headquarters to discuss outreach activities and progress. At the state level, staff has met with the Maryland Department of the Environment, the Maryland's Governor's Office of Smart Growth, the Delaware Department of Natural Resources and Environmental Conservation, the West Virginia Department of Environmental Protection, and the Virginia Department of Environmental Quality, to introduce the Center and determine points of collaboration with Superfund and Brownfield sites in the various states. Being based in Baltimore, outreach staff felt it particularly desirable to engage local representatives working on Superfund and Brownfield issues. These have included the President of the Cleanup Coalition, the Baltimore Development Corporation,

developers from Struever Brothers, Eccles, and Rouse, and the Director of the Herring Run Water Association.

- Interactions with community groups and national community organizations such as Lois Gibb's group, the Center for Health, Environment and Justice (CHEJ). It is through this particular connection that the Center's researchers and outreach staff co-hosted and participated in a conference to address the gap in policy coverage for school sitings. Schools do not fall under any program for environmental assessment and cleanup leading to a large number of schools being built on or near hazardous waste sites with little or no protection from exposure. The meeting brought together engineers, health experts, and school representatives to draft recommendations for siting and testing guidelines that are currently being developed for congressional review.
- Participated in Maryland's Governor's Commission on Environmental Justice and Sustainable Communities, and the Region 3 Outreach Director is a newly appointed commissioner. Staff will be helping organize public dialogs across the state to comment on an Environmental Justice tool being developed. The Center is also in the planning stages of an Environmental Justice workshop for community members, Center participants, and regional contacts.
- Participated in various activities related to new Brownfields, Superfund, and environmental health legislation. This includes attending congressional briefings hosted by the Environment and Health Forum, and collaborating with local parties interested in drafting new state Brownfield legislation.