



# Activities in Puerto Rico



## ATSDR in Partnership With Puerto Rico

The Agency for Toxic Substances and Disease Registry (ATSDR) is the lead public health agency responsible for implementing the health-related provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). ATSDR is an Atlanta-based federal agency with more than 400 employees and a budget for 2004 of approximately \$73 million. ATSDR assesses the presence and nature of health hazards at specific Superfund sites, helps to prevent or reduce further exposure and illnesses resulting from those hazards, and expands the knowledge base about the health effects of exposure to hazardous substances.

ATSDR works closely with state agencies to carry out its mission to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and disease related to toxic substances. ATSDR provides funding and technical assistance to states and other partners through cooperative agreements and grants to identify and evaluate environmental health threats to communities. These resources enable state and local health departments and other grantees to further investigate environmental health concerns and to educate communities. In **fiscal years 2001–2004**, ATSDR awarded more than **\$460,000** in direct funds and services to **Puerto Rico** for comprehensive support of its environmental health unit. In addition to direct funds and services, ATSDR provides technical and administrative guidance for state-conducted site activities.

## ATSDR Site-Specific Activities Public Health Assessment-Related Activities

One of ATSDR's important mandates is to conduct **public health assessments** of all National Priorities List (NPL) sites and of other sites where a significant threat to public health might exist. A public health assessment is a written, comprehensive evaluation of

available data and information about the release of hazardous substances into the environment in a specific geographic area. Such releases are assessed for past, current, or future impact on public health. ATSDR, in collaboration with public health and environmental officials from **Puerto Rico**, has conducted **18** public health assessments in the commonwealth, including the following recent examples.

- **Scorpio Recycling**—The Scorpio Recycling site is an active scrap metal yard in **Candelaria Ward, Toa Baja**. Part of the property was previously used as a battery-salvage area where batteries were dismantled for scrap. Scorpio Recycling is a metal-recycling company that buys, accumulates, and processes a variety of scrap metal for resale.

The U.S. Environmental Protection Agency (EPA) asked ATSDR to evaluate the extent of contamination in the former battery-recycling area of the site and to determine whether contaminants at the site pose a health threat. Lead, copper, and cadmium are contaminants of concern at the site. Related areas also evaluated included a sinkhole adjacent to the site and a satellite location approximately 1.5 miles from the site.

In a public health assessment released in June 2004, ATSDR evaluated EPA sampling data that identified lead, chromium, arsenic, and vanadium at elevated concentrations. ATSDR classified the site as a public health hazard because site workers could have been and could currently be exposed to elevated lead concentrations while working in the former battery-recycling area. Surface soil samples collected from this area identified elevated levels of lead and arsenic. Exposures to the lead concentrations detected could pose a health hazard; exposures to arsenic would not result in adverse health effects.

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Additional sampling should be conducted in areas where site workers and patrons perform their daily duties to determine the contaminant concentrations and potential health effects associated with exposures. Samples should be analyzed for metals, volatile and semivolatile organic compounds, pesticides, and polychlorinated biphenyls.

Exposures to the concentrations of lead and arsenic detected in the former battery-recycling area and the sinkhole are considered unlikely. However, exposures to the lead concentrations detected would result in adverse health effects to site workers and patrons who may access the former battery-recycling area of the site or to people who may wander into the sinkhole.

ATSDR classified the satellite location as a public health hazard. Sampling data from the satellite location identified elevated levels of lead, chromium, arsenic, and vanadium. Because access to the site is not restricted, and a residential area is directly across from the satellite location, ATSDR evaluated the data with the assumption that children could be exposed to the contaminant concentrations detected. If children frequented the satellite location, they could be exposed to lead at concentrations that could result in adverse health effects. Exposures to the vanadium and arsenic levels would not result in adverse health effects. Additional sampling is needed to determine the form of chromium identified at the satellite location because exposures to the concentrations of chromium (if it were in the hexavalent form) could result in adverse health effects from exposures.

Because of the piles of scrap metal and other items throughout the site, the site also is a physical hazard for children or adults who access the site. People could trip over and be cut by materials found throughout the site: these materials are covered by brush and are hard to see. Access to the site is unrestricted; although the property entrance has a gate, it is not locked.

EPA plans to complete soil removal, and ATSDR will evaluate soil data as they become available.

- **Isla de Vieques—Vieques** is an island southeast of the main island of **Puerto Rico**. Since the 1940s, the U.S. Navy has owned almost two-thirds of the island. Until 2003, the Navy conducted military

training exercises, including live bombing in a specific area. The bombing exercises were conducted over an area known as the live impact area, which is approximately 7.9 miles away from the residential population. In 1999, a resident of the island asked ATSDR to determine whether hazardous substances were being generated by the bombing exercises and posing a public health threat. Residents and local health professionals were concerned about high rates of cancer and other diseases and the reported potential for exposure to metals and vibration/noise from bombing activities.

Three public health assessments conducted on the island were released in 2003. These public health assessments focused on soil, fish and shellfish, and air pathways. A fourth public health assessment, on groundwater and drinking water, was released in 2001. The public health assessment concluded that the drinking water was safe.

Soil pathway: ATSDR identified two potential pathways of human exposure to chemicals in the soil of Vieques. First, Vieques residents and visitors can contact the soil in the residential portion of the island. Second, people can contact the soil when they enter the live impact area. ATSDR evaluated whether incidental ingestion or dermal contact with the soil would result in harmful health effects from either exposure pathway. ATSDR concluded that soil in the residential and training areas are not public health hazards.

Fish and shellfish pathway: Previous studies have reported some indication of naturally occurring heavy metals in fish and shellfish eaten by Vieques residents. These levels are neither unusual nor harmful. Residents were concerned that this pathway was harmful. Because sufficient data were not available to address those concerns, ATSDR worked with EPA's Environmental Response Team to collect and analyze fish and shellfish from the coastal waters near Vieques to determine whether fish and shellfish muscle tissues contained levels of heavy metals and explosive compounds that would adversely affect public health. Heavy metals were detected in the fish and shellfish; however, the concentrations were too low to pose a human health concern. ATSDR concluded that it is safe to eat a variety of fish and shellfish, including the most commonly consumed species (snapper) every day.

Air pathway: Overall, ATSDR found that the residents of Vieques may have been exposed to contaminants released during the Navy's military training exercises, but that these exposures are far lower than levels known to be associated with adverse health effects. As a result, ATSDR concluded that the air exposure pathway at Vieques presents no apparent public health hazard.

ATSDR's public comment release of the air pathway public health assessment included several recommendations for further air sampling at Vieques. Because the Navy officially ceased its training exercises on May 1, 2003, ATSDR believes these sampling studies are no longer necessary. ATSDR also recommended that residents using rainfall collection systems for a drinking water supply read the documents in the records repositories about good sanitation practices for harvesting rain water. These practices will help ensure that water obtained from these systems is safe to drink and relatively free of contamination from all local sources.

ATSDR plans to review cancer registry information and data gathered by the **Puerto Rico Department of Health (PRDOH)**. This review will consider the data documented in ATSDR's public health assessments and will evaluate the general health status of the communities on Vieques. ATSDR's review will follow the official release of PRDOH's review of the cancer registries, but it is not known when this will occur. ATSDR also prepared a brief summary of environmental health issues for Vieques.

- **Pesticide Warehouse III**—PRDOH is preparing a public health assessment for the Pesticide Warehouse III site in **Manati**.

A **health consultation** is a written or oral response from ATSDR to a specific request for information about health risks related to a specific site, chemical release, or hazardous material. A health consultation is a more limited response than a public health assessment.

**Fifteen** health consultations have been conducted at the following **nine** sites in **Puerto Rico**, including the following recent examples.

- **Vega Baja Solid Waste Disposal**—The Vega Baja Solid Waste Disposal site is an inactive, unlined, and uncapped solid waste disposal facility in the **Rio Abajo Ward** area of the town of **Vega Baja**. The landfill operated from approximately 1948 to 1979 for the dumping and open-burning

of commercial, industrial, and domestic wastes. During the 1970s, people began building homes on the site and moving to the landfill. More than 200 homes have been built at the site.

The EPA Caribbean Division asked **PRDOH** to evaluate data obtained in its assessment of the site and to determine whether exposures to the concentrations of dioxin detected could result in adverse health effects for community members in the area. The primary objective of the investigation was to evaluate the extent of surface and subsurface soil dioxin contamination in the residential area and in the adjoining wooded areas. PRDOH prepared this health consultation under its cooperative agreement with ATSDR.

In a health consultation released in April 2004, PRDOH concluded that no public health hazard exists at the site. However, one sampling point in an adjacent wooded area slightly exceeded the action level for dioxin. Although the probability of exposure is minimal, community members stated that people go to the wooded area for fruits and vegetables. Considering the maximum concentration of dioxin detected in the wooded area, adverse health effects are not likely.

The health consultation concluded that community members should receive health education about dioxin as it relates to this site and to the wooded area adjacent to the site.

PRDOH is working on health consultations to address other site-related contaminants and media.

- **Juncos Landfill**—In 1999, the community asked ATSDR to investigate this older NPL site with regard to possible mercury exposure. A public health assessment and two health consultations previously were conducted at the site. During fall 1999, ATSDR conducted an exposure investigation to determine whether people living beside the landfill were being exposed to mercury. Indoor air and urine samples were obtained; results indicated no mercury exposures were occurring. ATSDR, in collaboration with EPA, is compiling data to prepare a public health assessment for this site.

## Health Education and Community Activities

**Puerto Rico** has participated in ATSDR's cooperative agreement program since 2001. Under this program, **PRDOH** has received funding and technical assistance



to develop community education and activities to help communities prevent exposure to hazardous substances in the environment. On Vieques, ATSDR has provided five physician training sessions, four RN training sessions that offered continuing nursing education credits, three Head Start presentations for parents and teachers, and two community education sessions.

PRDOH is working with communities affected by chemical exposures related to the Vega Baja Landfill, Pesticide Warehouse II, Juncos Landfill, and Scorpio Recycling sites. Activities include the development of comprehensive needs assessments.

Of special interest is a set of children's coloring books about preventing and mitigating lead exposures. These culturally appropriate materials were developed with the assistance of community members near the Vega Baja Landfill site.

Following are the four major health education activities related to Vieques in fiscal year 2004.

- **Mi Isla Bonita Youth Photo Project**—Since 2001, ATSDR has supported the Annual 4-H Environmental Camp held on Vieques. In 2003, ATSDR worked with the **Puerto Rico Agriculture Extension Office** and the **Vieques Conservation and Historical Trust** to expand its involvement with the camp. The camp runs for 3 weeks every summer, and approximately 100 youth participate. Weekly themes are conservation of the environment; personal safety before, during, and after natural disasters; and self-esteem and personal health.

During the 2003 camp, ATSDR supported the Mi Isla Bonita youth photo project. The photo project was developed to encourage the children who participated in the camp to discover the beauty of the island and to reinforce the need to keep Vieques beautiful through conservation efforts. As part of the contest, more than 40 children and young people who attended the camp were given disposable cameras. For 2 weeks, they took photographs of the island while on field trips and during other activities. The campers also learned about photo composition and other principles of photography from a local professional photographer.

At the end of the project, nearly 400 photos were developed. Twenty-five of these photos were selected by ATSDR for a public exhibit and contest in Vieques in January 2004. Members of the conservation trust recruited a local panel of judges to

select the best photos from the 25 finalists. Photos selected by the local judges will be used to create products such as mouse pads and note cards. These products will be used to reinforce the need to preserve the natural beauty and unique habitat of the island as well as educate the community about environmental conservation and promote the 4-H environmental summer camp program.

Community Environment and Health Resource Center: ATSDR is working with community members to establish a community resource center where both community members and island visitors can access environmental and health educational materials. Resources will be available in both English and Spanish. Evaluation of the center will include the number of people accessing the center and a breakdown of user age range, user characteristics (e.g., occupation, student), and the type and category of books or resources being used.

Toxicology, Risk Assessment, and Pollution (ToxRAP): The ToxRap curriculum developed by the Environmental and Occupational Health Sciences Institute in New Jersey was translated into Spanish for use on Vieques. Tox RAP is a hands-on curriculum series to teach students in grades K–9 how to evaluate an environmental health problem. The curriculum will increase environmental health literacy among Vieques students, and environmental health sciences materials will be distributed to Vieques educators. Teacher training is scheduled for summer 2004.

Newsletter: Eight newsletter issues are being mailed to everyone on Vieques. Topics include an introduction to ATSDR and information on toxicology and the groundwater public health assessment, the fish public health assessment and the importance of nutrition for the immune system, the soil public health assessment and an explanation on how to take an exposure history, cancer and cancer clusters, asthma and the public health assessment on air, and psychosocial stress and NPL sites.

**For more information, contact ATSDR toll-free at 1-888-42ATSDR (1-888-422-8737) or visit the ATSDR Web site at [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).**