

Health Consultation

VEGA BAJA SOLID WASTE DISPOSAL
ASSESSMENT OF CHEMICALS IN THE GROUNDWATER
VEGA BAJA, PUERTO RICO
EPA FACILITY ID: PRD980512669

FEBRUARY 23, 2005

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

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ASSESSMENT OF CHEMICALS IN THE GROUNDWATER

VEGA BAJA, PUERTO RICO

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Prepared by:

The Puerto Rico Department of Health
Under Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

Background and Statement of Issues

CDM Federal Programs Corporation (CDM) under the Response Action Contract (RACII) Program performed a Remedial Investigation (RI) and Feasibility Study (FS), for the United States Environmental Protection Agency (EPA), Region II at the Vega Baja Solid Waste Disposal Site, Vega Baja, Puerto Rico. The goal of the investigation was to define the nature and extent of site-related contamination in groundwater, nearby public supply wells, springs/seeps, river and drainage ditch sediment and surface water, and to define the hydro-geologic framework of the site.

The EPA asked the Puerto Rico Program to Conduct and Coordinate Site Specific Activities to evaluate the data obtained on the RI for organic and inorganic chemicals in the groundwater. The EPA wanted to know whether exposures to chemicals in the groundwater are occurring and if health effects could result from such exposures. The Puerto Rico Department of Health (PRDOH) prepared this Health Consultation under its cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) to answer those questions.

Site Description

The Vega Baja Solid Waste Disposal Site is a 72-acre, inactive, unlined and uncapped solid waste disposal facility located in the Rio Abajo Ward area of the town of Vega Baja, Puerto Rico. The site consists of a residential area known as Brisas del Rosario, which is south of Route 22 and east of Avenue Trio Vegabajeño, terminating on Calle Progreso to the east and woodlands to the south. The site was proposed for the National Priorities List (NPL) on April 22, 1999, and was subsequently listed on July 22, 1999. The site is located approximately 1.2 mile south of the town of Vega Baja.

The municipality of Vega Baja operated the landfill from approximately 1948 to 1979. Commercial, industrial, and domestic wastes were dumped and/or open-burned at the site. People began constructing homes on the site and moving to the landfill during the 70's. Debris mounds greater than 10 feet thick were observed in some yards at the site. Some homes have backyard gardens that typically contain fruits, root crops and legumes. Some residents rear farm animals such as chickens, goats, pigs and rabbits. The Puerto Rico Land Authority (PRLA) currently owns 17 unoccupied acres (wooded area) of the site that are undeveloped and overgrown with vegetation. In 1979, the PRLA transferred ownership of the residential area of the site to the Puerto Rico Housing Department (PRHD). The PRHD provided property titles to some of the community members on the site.

It is estimated that 2,280 people live within one-quarter mile radius, while 6,871 people live within one mile of the site. Based on the 2000 Census data, the total population of Vega Baja is 61,929 in 2000, making the average population density for the

municipality 1,349.5 people per square mile. There are approximately 214 dwellings on the 55 residential acres of the Brisas del Rosario Community. The average household has 3.07 people, so the estimated population at the site is 657 (CDM, 2003).

The site is situated within the North Coast Limestone Province aquifer and within the regional Rio Cibuco watershed system. The site is underlain by a thin unconsolidated deposit that consists of clay and sandy clay that overlies the Aymamón Limestone.

The site has a drainage ditch located to the south of the Brisas del Rosario community and crossing Altura Road which also is located close to two rows of homes in the community. Members of the community walk or drive on Altura Road to reach the market, school, and other locations. The ditch directs storm water from the site to the Rio Indio.

Rio Indio is classified as Class SD, according to the Puerto Rico Water Quality Standards Regulation. Class SD means that the waters are intended for use for water supply. Also the Rio Indio is used for recreational fishing (CDM, 2000).

Data/Discussion

The North Coast Limestone aquifer system in Puerto Rico is one of the largest and most productive sources of groundwater in the island. The Vega Baja supply well system is located close to the site. The system consists of seven wells and a surface water intake on the Rio Indio. It supplies water to an estimated 50,000 households. The Vega Baja system is designed so that water from the wells and surface intake are co-mingled before distribution to end users (CDM, 2003).

Seven monitoring wells (CMW-1 through CMW-7) were installed from January 14, 2002 through April 15, 2002. CDM installed seven water table monitoring wells: well CMW1 hydraulically up gradient of the site to monitor background groundwater conditions; three on site (CMW-2, CMW-3, CMW-4); and three hydraulically down gradient (CMW-5, CMW-6, CMW-7). Well installation (see Figure 1, Appendix A) activity was conducted according to EPA-approved procedures. CDM collected two rounds of samples (in May and July 2002) to define the nature and extent of site related contamination in the underlying groundwater. During each round, samples were collected from all of the newly-installed monitoring wells.

The groundwater samples were analyzed for volatile organic compounds, semi volatile organic compounds, pesticides and metals. The available data were compared with ATSDR's comparison values (CVs). In general, the contaminant concentrations detected were below their respective CVs. The detection limit for several chemicals was higher than the respective CVs (see Table 1 in Appendix B). However, the concentrations reported were the same (the detection limit) for all the wells monitored on site and off site. This suggests that the site is not having any impact on the quality of the

groundwater. According to the data available, no additional evaluation of the contaminants analyzed is needed.

Children's Health Considerations

Children are at a greater risk than adults from certain kinds of exposures to hazardous substances emitted from waste sites. Because children are smaller, they are exposed to higher doses of chemical per body weight than adults.

The levels of contaminants found in groundwater do not represent health concern for the children of Brisas del Rosario.

Conclusions

- Based on the available data and likely exposures, contaminants in the groundwater pose no public health hazard.

Recommendations

- Some detection levels were higher than health based screening levels. If ground water is resampled, use lower detection limits.

Public Health Action Plan

Actions completed

- ❖ Health fair in the community
- ❖ Presentation to the community of the health fair blood tests results. The information was posted as a poster presentation in the churches of the community and some business visited by the community members.
- ❖ Several meetings with community leaders.
- ❖ Repository at the Vega Baja library.
- ❖ Meetings to identify community concerns with representatives from state and federal agencies and community members: EPA, EQB, professors of the University of Puerto Rico, librarian, priest, minister of the protestant church, business owners.

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Actions underway

- ❖ Update of the health education needs assessment.
- ❖ Update of the health education plan.
- ❖ Development of site specific educational materials: fact sheets, brochures, activity and coloring books.

Actions planned

- ❖ The PRCAP will review new environmental data if it is requested and modify the conclusions of this HC as necessary.
- ❖ The PRCAP will implement the health education plan.

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References

CDM Federal Programs Corporation. 2003. Remedial Investigation Report Vega Baja Solid Waste Disposal Site Remedial Investigation / Feasibility Study.