ATSDR Agency for Toxic Substances & Disease Registry

Public Health Assessments & Health Consultations

PUBLIC HEALTH ASSESSMENT

BAYOU BONFOUCA
SLIDELL, ST. TAMMANY PARISH, LOUISIANA

SUMMARY

The Bayou Bonfouca site, located in Slidell, Louisiana, is an abandoned creosote wood treating facility formerly called the American Creosote Works plant. Creosote preservation of various wood products started at this site in 1892. In 1970, the plant burned down and large amounts of creosote spilled onto the land. No records exist to quantify the amount of creosote released to the environment during 1970. Contamination of soils, sediments, surface water, groundwater, and the biota of the bayou has resulted from past operating methods and/or disposal practices. The main contaminants of concern are the polycyclic aromatic hydrocarbons (PAH's) that compose creosote.

The community has expressed numerous concerns about the remediation, the potential for human exposure and adverse health effects due to site chemicals. Approximately 750 people live within a mile radius of the site. These concerns are addressed in the Community Health Concerns Evaluation section.

Based on available data, the Bayou Bonfouca site is categorized as a public health hazard because of extensive soil, sediment, biota, surface water and groundwater contamination. Human exposure by dermal contact with bayou sediments or ingestion of contaminated shellfish may have occurred prior to the issuing of the advisories against swimming and consumption of fish and shellfish. In 1987, the Louisiana Department of Health and Hospitals and the Department of Environmental Quality issued a written advisory and posted signs warning citizens not to swim in the bayou or eat fish or shellfish taken from a seven-mile length of the bayou. Human exposures may be occurring presently to people not heeding the advisories. Because the contaminated groundwater is shallow and because no documentation exists that the contaminated water is being used for human consumption, the contaminated groundwater does not pose a public health threat. Currently, access to the site is restricted.

This Public Health Assessment was reviewed by the Health Activities Recommendation Panel of the Agency for Toxic Substances and Disease Registry. The panel recommended annual monitoring of parish health statistics and health education activities in the Bayou Bonfouca area. The Louisiana Office of Public Health plans to hold a public meeting in the area to present the results of the Public Health Assessment to the local population.

Currently, the site is being remediated by the United States Environmental Protection Agency. The bayou is methodically being dredged and the contaminated soils on-site are

being excavated. Creosote contaminated soils from the site and bayou sediments are being incinerated. Remediation is expected to be completed in 1996.

BACKGROUND

A. Site Description and History

The Bayou Bonfouca site is an abandoned creosote wood-treating facility located in Slidell, Louisiana. The City of Slidell is located approximately twenty-five miles northeast of New Orleans, in St. Tammany Parish. The 55 acre site derives it's name from Bayou Bonfouca, a navigable waterway that forms the southern boundary of the site proper and flows south for seven miles into Lake Pontchartrain. The site is bounded by Western Creek (WC) and the Eastern Drainage Channel (EDC) (west and east sides, respectively) and by West Hall Avenue to the north (Figure 1).

The earliest records of activity at the site date back to 1892. The site was developed for treating pilings used in the construction of a railway across the water. Over the years, the facility operated under the ownership of various creosote companies.

During the operating history of the facility, there were numerous releases of creosote onto the site and possibly into the bayou via overland runoff. In 1970, the facility burned down and large amounts of creosote were released from storage tanks onto the site. Very little information about the fire is available. The first investigations by state and federal agencies began at the site in April, 1976. Subsequent studies were carried out which resulted in the U.S. Environmental Protection Agency (EPA) placing Bayou Bonfouca on the National Priorities List (NPL) in December, 1982.

Two separate Remedial Investigations (RI) were performed by the EPA from late 1983 through early 1986. The RI investigated the extent of creosote waste and contamination in onsite waste piles, onsite soils, onsite and offsite groundwater, and bayou sediments. A Feasibility Study was completed in 1986 evaluating various alternatives for remediating the site. A Record of Decision (ROD) was signed in March, 1987. The EPA has separated the remedial action and associated design activities into two operable units (OU): the Groundwater OU, and the Source Control OU. The design of the Groundwater OU was completed in June, 1989, and construction was initiated in December, 1989. It emphasizes contaminated groundwater plumes that will be remediated onsite through extraction, onsite treatment, and discharge of treated waters to the bayou. Offsite plumes are addressed in the Source Control OU. Design of the Source Control OU was completed in 1991 and deals mostly with the contaminated sediment in Bayou Bonfouca, the EDC, the WC, and the creosote waste piles to be incinerated onsite.

A Preliminary Health Assessment (PHA) for the Bayou Bonfouca site was performed and written by the Agency for Toxic Substances and Disease Registry (ATSDR) in 1986. It concluded that an acute public health threat was possible for persons using the bayou for recreational activities and children playing along the channels and creek beds at the site edges. With the subsequent finding of substantially more contamination in the bayou, the Louisiana Department of Environmental Quality (LDEQ) posted an advisory against swimming and fish consumption along a 7-mile stretch in the bayou in 1987.

On February 8, 1991, staff from the Louisiana Office of Public Health (LOPH) and the LDEQ, conducted a site visit. The purpose of the visit was to gather specific information about site

security, land use, physical hazards, visual evidence of contamination, and visible environmental transport routes.

Located on West Hall Avenue in Slidell, the site was enclosed by an 8-ft. hurricane fence topped with barbed wire. Signs are posted along the fence identifying the site as hazardous. There were also signs posted in the Bayou warning against swimming and fishing because of the contamination. A guard was on duty at the access gate.

The site occupies a large tract of land (55 acres) that is heavily forested over its northern and western portions. The old process area is located in the central portion of the site. The most noticeable features of this area include an old metal building, several concrete pads, and several burned and abandoned tanks. Waste material generated during the remedial investigation sampling program was placed in 55-gal. drums which are currently stacked in the metal building. The vegetation in this area and to the south-east has been clear-cut and ground water extraction wells are visible. Surface soils and waste piles have been gathered in the central portion of the site and are under black visquine.

During the site visit in 1991, the Eastern Drainage Channel (EDC) was a narrow, steep-sided channel with intermittent flow. To prevent passage upstream into the EDC, obstructions had been placed in Bayou Bonfouca. The channel itself was enclosed by the fence that surrounds the site. The western portion of the site was bordered by Western Creek that meets the bayou in a very broad wetlands area characterized by heavy undergrowth.

The southern edge of the site was terminated by a 225 ft. bulkhead along the bayou. The fence ran parallel to the bulkhead, but was set approximately 15 - 20 ft. inland from water's edge. This left a small, unfenced area, approximately 225 ft. x 20 ft.

The bayou waters showed occasional signs of contamination: small circular oil sheens. Environmental agencies believe that the sheens are related to the creosote present in the bottom sediments rather than an oily discharge from boats on the bayou. Several flocks of waterfowl were observed on the bayou.

Another site visit in April, 1994 was conducted during remedial efforts. Access to the site was still restricted with a guard on duty at the gate. An incinerator was burning creosote contaminated sediments and remediation workers were dredging the bayou a few hundred feet north of the bulkhead area. The air near the bayou smelled strongly of creosote, especially when the sediments from the bayou bottom were brought to the surface to be removed. Old wooden posts were also removed along with the bottom sediments. Creosote sheens on the water were ubiquitous during dredging operations. The bayou was isolated from the land by steel pilings and a boom in the bayou prevented creosote from moving downstream.

C. Demographics, Land Use, and Natural Resources

The Bayou Bonfouca site is located in St. Tammany Parish, which had a total population of 144,508 in 1990. Eighty-eight percent of the Parish population is white; 12 percent is nonwhite. Age-distribution pyramids for 1990 reveal that 72% of the Parish population is younger than 44 years of age. The median age of parish residents is 30 years. The socioeconomic status is predominantly middle to high income. St. Tammany Parish has a household median income of $30,656 while the median household income for Louisiana as a state is $21,949. Surveys taken in the area of the Bayou Bonfouca site indicate that approximately 750 people live within a one-mile radius of it. There are three elementary

schools, two middle schools, one high school and one hospital within this one-mile radius. Furthermore, there are approximately 200 industrial workers at a cement plant across the street east of the site. The United States Geological Survey calculated that 354 people live three miles southwest of the site in the Chamale Cove and Marina area, the direction of travel of the contaminated plume in the shallow artesian aquifer.

Bayou Bonfouca is used for industrial activities downstream of the site. The bayou and a turning basin adjacent to the site have been dredged in the past for barge operations. The turning basin is 10 feet deep by 250 feet wide. Upstream, the bayou is considerably narrower and shallower.

Recreational use of the bayou is primarily fishing, boating, and water skiing. There is a boat launch ramp at Chamale Cove Marina, approximately 1/2 mile downstream from the site. During both RI investigations, numerous boaters were observed on the bayou. No swimming was observed. Children have previously been reported playing on the banks of the Western Creek and Eastern Drainage Channel. Fencing of the site has eliminated this activity. Advisories against the consumption of fish, shellfish, and crab from the bayou are posted because of possible contamination. Furthermore, swimming is not advised because of the possibility of contact with contaminated sediment in the bayou proper and accidental ingestion of pollutants. The area is posted with warning signs.

D. Health Outcome Data

Cancer data from the Louisiana Tumor Registry and the Office of Vital Statistics were evaluated because of concerns expressed by some community members and to determine any adverse health outcomes that may plausibly be related to the site. Polycyclic aromatic hydrocarbons (PAH's) are the main contaminants on the site.

Cancer incidence data from 1983 to 1987 was obtained from the Louisiana Tumor Registry (LTR) Central Office. Cancer mortality rates from 1962 to 1980 for the State and the Parish were acquired from the Office of Vital Statistics. Both offices are part of the Division of Records and Statistics at the Office of Public Health in New Orleans. These offices and the databases are described further in Appendix B. The results of the health outcome analyses are discussed in Section B of the Public Health Implications report.

COMMUNITY HEALTH CONCERNS

Citizens' concerns have varied over the years. Initially, concerns were raised about health hazards associated with creosote exposure: cancers and skin irritations that residents experienced or observed. There were also concerns about possible contamination of shellfish in the bayou. Most recently, questions have been raised about the on-site incineration of contaminated soils and sediments and possible health hazards posed by this remediation method (See Community Health Concerns Evaluation.) Visits to individual citizens' homes to consult with them have also been conducted by ATSDR Region VI staff.

LDEQ has held public meetings in the community almost yearly since 1985. Regional Representatives of ATSDR and state health department personnel attended several of these meetings. Citizen participation has been strong with attendance figures in the range of 100 people per meeting.

LOPH conducted physician education seminars in the Slidell community in April 1994. The purpose of the educational seminar was to alert the medical community of the medical implications of all types of exposure routes to creosote. Cancer statistics for the parish were discussed.

EPA has conducted numerous open houses to address citizens' questions and concerns regarding the site. The latest one was in April, 1994 and focused mainly on remedial activities currently underway at the site. Over the past year, LOPH personnel have attended several of EPA's open houses and made themselves available to address questions related to the status of this Public Health Assessment. LOPH also plans to conduct a follow-up public meeting to explain the findings and recommendations of this Public Health Assessment.

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Agency for Toxic Substances and Disease Registry, 4770 Buford Hwy NE, Atlanta, GA 30341
Contact CDC: 800-232-4636 / TTY: 888-232-6348