

PATRICK BAYOU

Deer Park, Harris County, Texas

EPA Region 6

EPA ID# TX0000605329

Site ID: 0605329

Contact: Philip Allen, P.E. (214) 665-8516

State Congressional District: 29

Last Updated: May 2013



Background

The Patrick Bayou site is located in Deer Park, Texas; and consists of contaminated sediments within the Bayou, a portion of the East Fork tributary, and associated wetlands. Patrick Bayou is one of several small bayous of the Houston Ship Channel (HSC) located within the lower portion of the San Jacinto River Basin as it enters Galveston Bay in southeast Texas. Pesticides, polynuclear aromatic hydrocarbons (PAHs), metals, and polychlorinated biphenyls (PCBs) have been detected in sediments in the Bayou since the early to mid-1990s. For several years, Patrick Bayou has received an accumulation of permitted industrial wastewater discharges, municipal wastewater treatment plant effluent, and storm water runoff from adjacent industrial facilities and nearby urban/residential areas. These discharges are suspected to be the primary sources of the sediment contamination. The site was placed on the NPL because sediment contamination has been detected in the wetlands bordering the Bayou and poses a threat to downstream fisheries.

Patrick Bayou is located in a mixed urban, highly industrialized petrochemical area in southeast Harris County approximately 1 mile north of the Deer Park, Texas, north of State Highway (SH) 225. Most of the upper portion of the Bayou consists of a series of open, concrete-lined storm water channels and large metal/concrete culverts. These structures were installed to receive storm water runoff and permitted wastewater discharges and for erosion control south of SH 225. Contaminated sediments have been documented within the bounds of Patrick Bayou originating below a series of culverts located about one mile north of SH 225 extending to its convergence with the HSC and including a portion of the East Fork tributary. Patrick Bayou drains a total distance of 2.85 miles north to its confluence with the HSC. The Bayou is normally 200 feet wide expanding to 600 feet within the last ¼ mile before entering the HSC.

Prior investigations conducted by the city of Houston in 1993 and 1994 along the HSC and its tributaries documented high to moderate levels of pesticides, PAHs, cadmium, chromium, mercury, nickel, zinc, and PCBs accumulating within Patrick Bayou sediments. Subsequent investigations were conducted in July 1994 during a joint Texas Natural Resource Conservation Commission (TNRCC) (now TCEQ)/EPA Ambient Toxicity and Water and Sediment Quality Survey. These investigations confirmed the accumulation of the following substances within Patrick Bayou sediments: arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, zinc, hexachlorobenzene (HCB), bis-2-ethylhexyl phthalate, PAHs, PCBs, and pesticides. Mercury levels were documented in the sediments as high as 8,300 ug/kg, with PCB levels ranging from 806 to 4,150 ug/kg. PAH levels were detected as high as 53,600 ug/kg. The TNRCC collected samples as part of an Site Inspection in July 2000, sediment samples collected from the Bayou showed mercury levels as high as a 41,500 ug/kg, and PCB levels as high as 300,000 ug/kg.

The upper portion of the Bayou and several small islands within the Bayou contain extensive wetland vegetation affording a natural habitat for waterfowl and migratory birds. Significant populations of fish and marine mammals have been documented near the mouth of Patrick Bayou. Local fishermen fish for blue crab and catfish along the HSC even though human consumption has been restricted by the Texas Department of Health (no-consumption advisory for children and women of childbearing age) due to high levels of dioxin. A fish kill was reported on March 21, 1990 in the East Fork tributary of Patrick Bayou, and a second fish kill was reported on September 10, 1990 in the Bayou.

Current Status

The U.S. Environmental Protection Agency (EPA) and the Potentially Responsible Parties (PRPs) have completed negotiations, and have entered into an Administrative Order on Consent (AOC) to conduct the Remedial Investigation and Feasibility Study (RI/FS) for the Site. The purpose of the RI/FS is to determine the nature and extent of contamination and to gather sufficient information about the Site to support an informed risk management decision regarding which remedy is the most appropriate for the Site. Shell, Lubrizol Corp., and Occidental Chemical Corp, are the PRPs and have agreed to perform the RI/FS at the site. Several “rounds” of sampling have been completed. The EPA and TCEQ (as well as numerous trustees) have completed the review of the “Sediment and Surface Water COPC Delineation Data Report; and this report has now been finalized. The Human Health Risk Assessment was completed in January 2013. The draft version of the Ecological Risk Assessment is currently being reviewed by all State and Federal trustees.

Benefits

The investigation and cleanup of the Site will ensure the protection of human health and the environment. Specific cleanup benefits will be identified during the Remedial Investigation and Feasibility Study currently being planned for the Site.

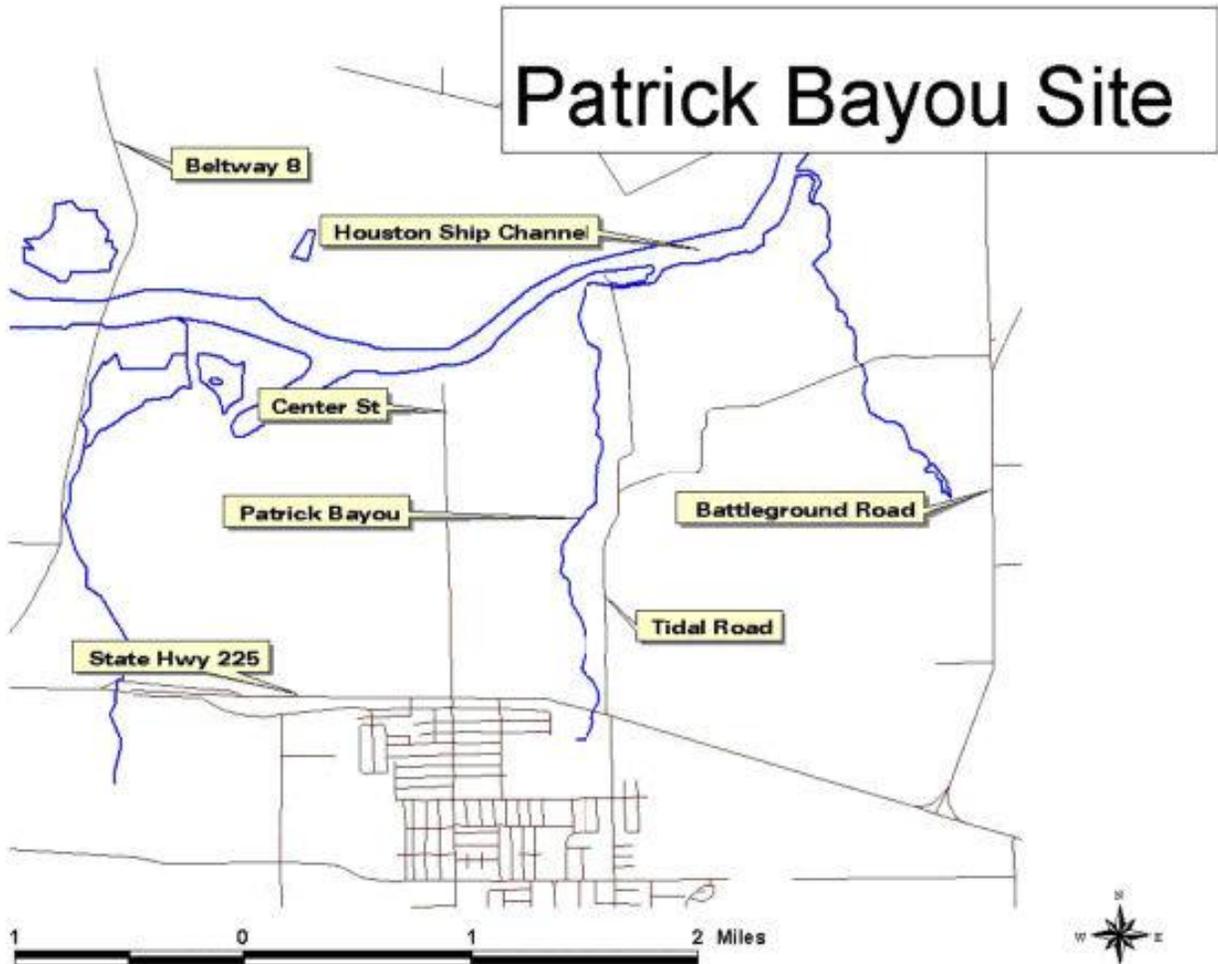
National Priorities Listing (NPL) History

Proposal Date: June 14, 2001

Final Listing Date: September 5, 2002

Setting: Patrick Bayou is one of several small bayous of the Houston Ship Channel (HSC) located within the lower portion of the San Jacinto River Basin. This 3-mile tidal bayou is on the south side of the HSC about 2 miles upstream of its confluence with the San Jacinto River. The Site consists of contaminated sediments within Patrick Bayou, a portion of the East Fork tributary, and associated wetlands. Patrick Bayou is bounded by Occidental Chemical, Shell Refinery, Shell Chemical, and Lubrizol Corporation. The bayou also receives effluent via ditches from the City of Deer Park wastewater treatment plant and an air separation plant, Praxair, Inc.

Site Map



Wastes And Volumes

Principal Pollutants: Previous investigations confirmed the presence of the following chemicals in Patrick Bayou sediments: chromium, copper, lead, mercury, nickel, selenium, zinc, hexachlorobenzene (HCB), bis-2-ethylhexyl phthalate, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs).

Volume: The volume of pollutants will be determined during the RI/FS.

Health Considerations

A risk assessment will be performed to determine whether site contaminants pose a current or future risk to human health and the environment in the absence of any remedial action. Included in this assessment will be an identification of contaminants of concern, an assessment of exposure to those contaminants

through finalization of the site conceptual model, an assessment of the toxicity of those contaminants, and a characterization of risk. This characterization will provide a basis for determining whether remedial action is necessary at the site, describe for which exposure pathways remediation is necessary, and provide justification for performance of remedial actions. Included in this assessment will be characterization of risks to both human and ecological receptors.

Record Of Decision

The final remedy (cleanup alternative) for a site is published in a Record of Decision (ROD). The ROD is the official documentation of how the EPA considered the remedial alternatives and why the EPA selected the final remedy.

A ROD Has Not Been Signed For The Site

Community Involvement

Community Relations Plan: Not yet developed

Open houses and workshops:

Formal Proposed Plan Public Meeting:

Citizens on site mailing list:

Constituency Interest:

Site Repository: Patrick Bayou
Deer Park Public Library
3009 Center St.
Deer Park, TX 77536

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Site Contacts

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