EPA Palos Verdes Shelf

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Update on EPA's Investigation of Contaminated Sediments

In July 1996, the U.S. Environmental Protection Agency (EPA) began a Superfund investigation of the off-shore sediment contamination located on the continental shelf and slope off the Palos Verdes peninsula near Los Angeles, CA (see Figure 1).

Through a process known as an Engineering Evaluation/Cost Analysis (EE/CA), EPA is currently evaluating the need for cleanup action and the potential alternatives for cleaning up the contaminated sediment in the area commonly referred to as the Palos Verdes (PV) Shelf. This fact sheet is being mailed to concerned citizens and interested parties to provide specific information about the ongoing and planned activities for the PV Shelf investigation. Additionally, it discusses the initial screening of cleanup technologies and the related sediment restoration workshop held last December and describes opportunities for public involvement.

Site Background and Description

From 1947 to 1983, the Montrose Chemical Corporation of California, Inc. *(Montrose)* manufactured the pesticide dichloro-diphenyl-trichloroethane (commonly known as DDT) at its plant at 20201 Normandie Avenue in Los Angeles, California. Wastewater containing significant concentrations of DDT was discharged from the Montrose plant into the sewers, flowed through the Los Angeles County wastewater treatment plant and was discharged to the ocean waters on the Palos Verdes shelf through subsurface outfalls (or discharge pipes) located off

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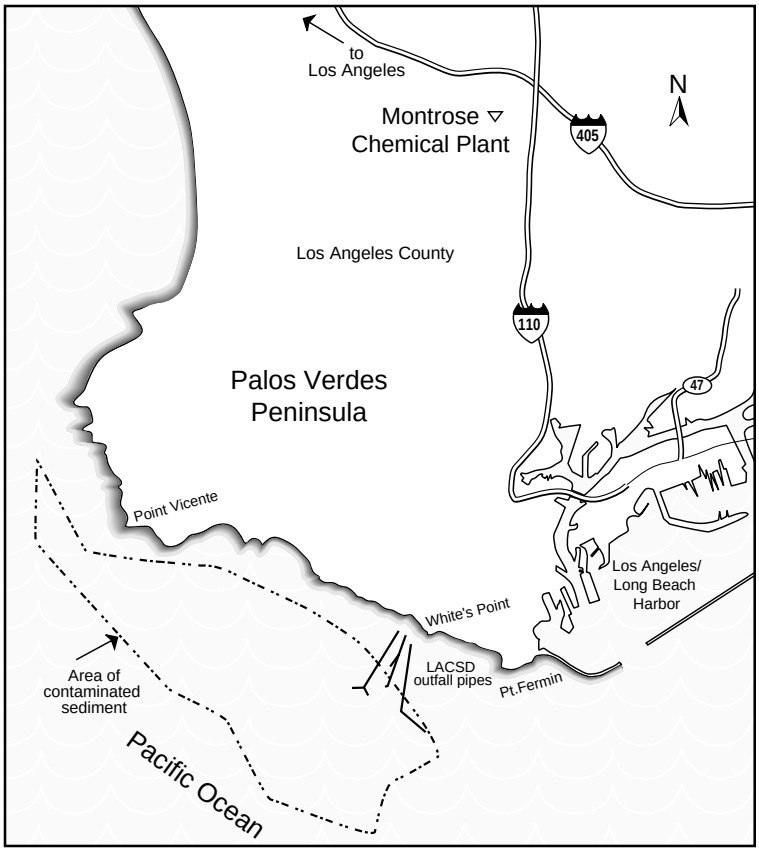
Figure 1: Site map of Palos Verdes Shelf



White's Point. Montrose's discharge of DDT reportedly stopped in about 1972, and the Montrose plant was shut down and dismantled in 1983.

Polychlorinated biphenyls (PCBs) were also present in the wastewater (or effluent) flowing out of the White's Point sewer outfalls and are found along with DDT in the effluent-affected sediment deposits on the ocean floor near the sewer outfalls. Historically, PCB contamination entered the sewer system as the result of discharges from several industrial sources.

The area of DDT- and PCB-contaminated sediment is located approximately one mile off the Palos Verdes peninsula (see Figure 2) and covers portions of the continental shelf and continental slope (see Figure 3) between Point Vicente in the northwest and Point Fermin in the southeast. Studies by the United States Geological Survey (USGS) in 1992 and 1993 showed that this layer of contaminated sediments is about two inches to two feet thick and covers an area of more than 15 square miles, with the highest concentrations located in a 3-square mile band near the outfall pipes. The total volume of these contaminated sediments is approximately 11 million cubic yards, and contaminant concentrations range from approximately one to over 200 parts per million (ppm) for DDT and between 0.5 and 15 ppm for PCBs. The accumulated masses of total DDT and total PCBs on the PV Shelf and adjacent areas have been estimated at 110 U.S. tons and 11 U.S. tons, respectively.

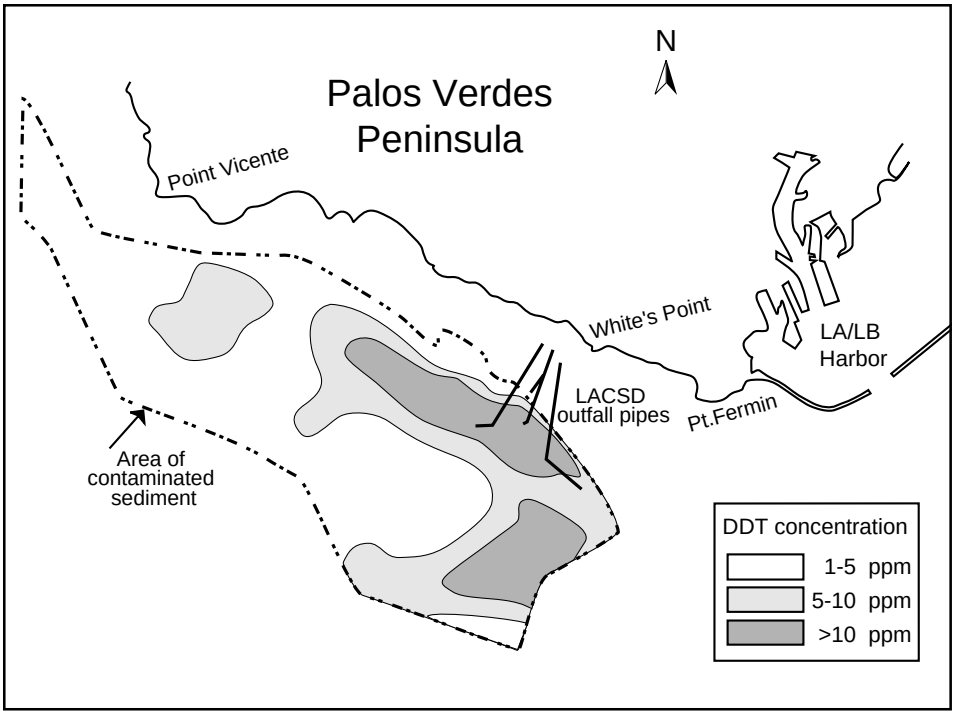


Figure 2: Area of contaminated sediment
(based on DDT levels in the uppermost 4 centimeters)

The contaminated sediments appear to significantly impact the marine environment and may pose a serious risk to individuals who regularly consume fish from the area. Currently, elevated levels of DDT and PCBs are found in the organisms that live in the area of the contaminated sediments, including bottom-feeding fish such as white croaker and water-column feeders such as kelp bass. Other organisms possibly affected through the consumption of fish are marine mammals and birds.

The ongoing release of these hazardous substances from the sediment into the environment and the resulting accumulation of DDT and PCB in food chain organisms may persist if no action is taken. In addition, commercial and recreational fishing have been affected by the contamination. The State of California has published recreational fishing advisories for most areas offshore of Los Angeles and Orange Counties and has closed commercial fishing of white croaker on the PV Shelf.

EPA's Superfund Investigation

Prior investigations of DDT and PCB contamination on the PV Shelf were conducted by several agencies including Los Angeles County, the Southern California Coastal Water Research Project (SCCWRP), and the State and Federal natural resource trustee agencies (the *Trustees*). The Trustees have responsibility for natural resources under the Comprehensive Environmental

Response, Compensation and Liability Act (CERCLA), also known as Superfund. EPA began its investigation under Superfund following its review of the reports by these agencies and other available information.

In July 1996, EPA decided to undertake a type of Superfund response called a removal action to address the contaminated sediments and initiated the preparation of an Engineering Evaluation/Cost Analysis (EE/CA) of possible response actions. The decision to begin this investigation was documented in the EE/CA Approval Memorandum for the Palos Verdes Shelf.

The Approval Memorandum and other site-related materials are available for public review at the information repository in Long Beach (see page 5 for location).

The EE/CA will evaluate the need for Superfund action and will use the three broad criteria of effectiveness, implementability and cost to evaluate the alternatives for addressing hazardous substances being released into the environment.

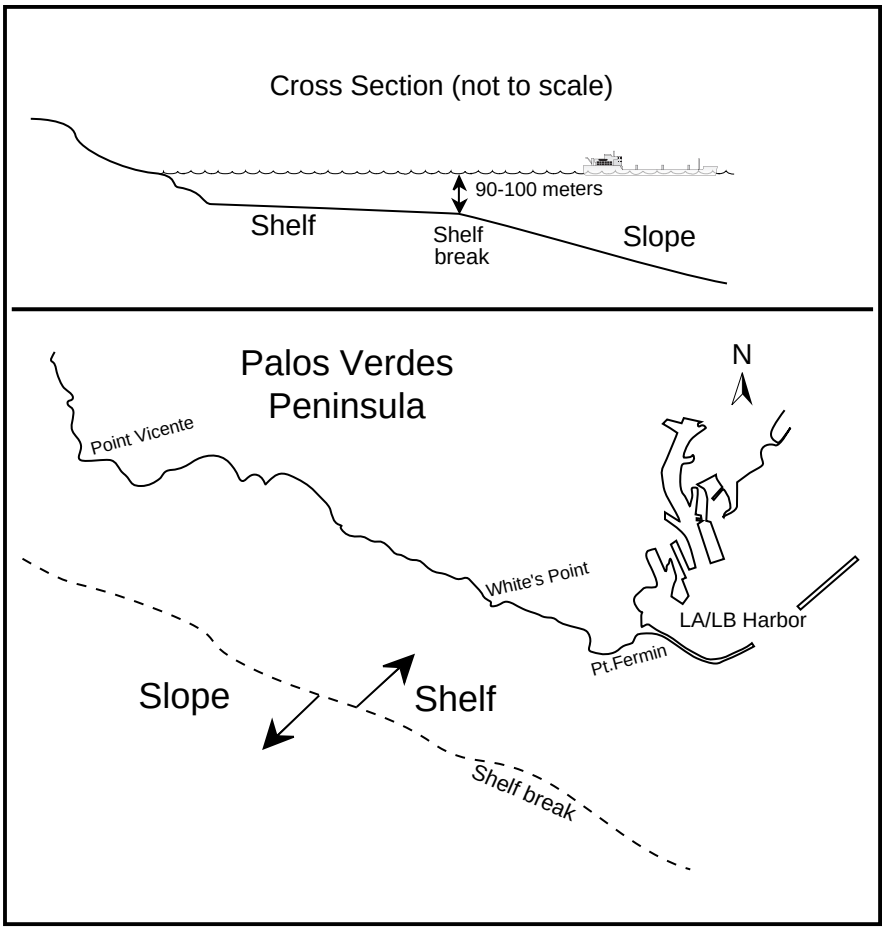


Figure 3: Palos Verdes shelf and slope

Screening Evaluation of Response Actions

As an initial step in the EE/CA process, EPA has prepared the *Screening Evaluation of Response Actions for Contaminated Sediments on the Palos Verdes Shelf.* The Screening Evaluation describes the range of potential cleanup and disposal technologies for contaminated sediments and makes an initial determination about which technologies will be incorporated into the alternatives evaluated in the EE/CA. General response actions that were evaluated for the contaminated sediments on the PV Shelf included:

- removal (i.e., dredging) and treatment or disposal
- institutional controls, and
- *in situ* (or in-place) capping.

Dredging: While sediment removal (i.e., dredging) is technically feasible, it could possibly result in the dispersal of contaminated sediment, thereby increasing short-term risks. Once dredged, the sediment would require disposal, possibly preceded by treatment, that could be both expensive and very difficult to implement. Upland disposal facilities are extremely limited, and disposal options along the coastline or in the open ocean would likely violate Federal and State environmental laws. For these reasons, EPA has decided not to consider dredging and treatment or disposal options further in the EE/CA.

Institutional Controls: Control measures (such as warning notices or fishing restrictions) intended to protect human health have already been established

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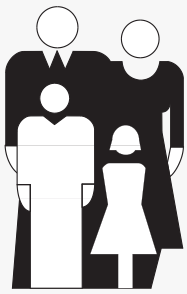
Community Involvement

This fact sheet is part of EPA's community involvement program for the Palos Verdes Shelf investigation. This program is designed to keep you informed about planned or ongoing investigations and cleanup activities for the sediment contamination. EPA has developed a Community Involvement Plan (CIP) which identifies outreach and information exchange activities that will be used to establish effective communication between interested parties and EPA. As part of the community involvement activities for this investigation, EPA will conduct public meetings, attend citizen meetings on request, issue fact sheets and use other means of communication to let people know about the work EPA is doing. EPA encourages open communication with all concerned citizens and welcomes public involvement in the Superfund decision-making process. If you are interested in receiving fact sheets and meeting notices on cleanup activities for the PV Shelf, please complete and return the coupon provided on page 5.



for certain coastal areas including the Palos Verdes Shelf by the State of California, although their effectiveness is uncertain. These controls include the recreational fishing advisories (site-specific consumption recommendations) and the closure of commercial white croaker fishing on the Palos Verdes Shelf. As described in the screening evaluation, additional institutional controls could include measures to: 1) expand the scope of existing State controls by increasing the area affected; 2) increase the awareness of and effectiveness of existing controls through additional public outreach efforts; and 3) enhance State enforcement of the commercial fishing closure.

***In Situ* Capping:** *In situ*, or in-place, capping can be used to prevent or reduce direct human or ecological exposure to contaminants and to prevent migration of contaminants into the water. The cap could reduce or eliminate adverse impacts by 1) physically isolating the contaminated sediment from the ocean environment, 2) preventing resuspension and transport of contaminated sediment, and 3) reducing the flux of dissolved contaminants from the sediments into the water column. Large caps for areas like the Palos Verdes Shelf typically consist of clean dredged material (i.e., sand or silt) that is placed over the contaminated area using dredge or platform barges.

Caps can be constructed to various sizes or thicknesses and may be augmented after initial construction to increase effectiveness. For a large site like the

Sediment Contamination Workshop

EPA, in conjunction with the Santa Monica Bay Restoration Project, the University of Southern California Sea Grant Program and the Cabrillo Marine Aquarium, conducted a one-day In-situ Technologies for Remediation of Ocean Sediment Contamination Workshop on December 12, 1996. Over 100 people participated in this event held at the Cabrillo Marine Aquarium in San Pedro, California. This workshop provided local stakeholders an opportunity to both gain and share information on state-of-the-art technologies that can potentially be applied to remediate sediment contamination on the Palos Verdes Shelf. Nationally regarded experts gave overviews and presented case studies on two technologies: capping and bioremediation. These experts also joined local representatives in a panel discussion regarding the feasibility of implementing the presented technologies.

Palos Verdes Shelf, a phased approach to capping would likely be desirable in order to maximize cost-effectiveness. Any cap design would need to consider, among other factors, the engineering characteristics of the cap material and the effluent-affected sediment in order to address potential erosion by currents and waves, mixing of the cap material and underlying sediment by bottom-dwelling organisms or other disturbances.

EPA expects to complete its evaluation of alternatives (including the "no action" alternative) and issue the EE/CA report by early 1998. At the end of the EE/CA process, EPA will solicit public comment on the EE/CA report including the recommended removal alternative. If EPA, after considering public comments, decides to move ahead, EPA would issue an Action Memorandum formally selecting the response action. ■

INFORMATION REPOSITORIES

Copies of documents regarding the Palos Verdes Shelf and other Superfund program documents are available for public review at the following locations:

NOAA/Office of General Counsel
501 West Ocean Blvd., Suite 4470
Long Beach, CA 90802-4213
(310) 980-4080

Superfund Records Center
95 Hawthorne Street
San Francisco, CA 94105
(415) 536-2000

Palos Verdes Shelf Mailing List Coupon

EPA encourages your questions and comments regarding the PV Shelf investigation. If you would like to continue receiving information about this site or you received this fact sheet from another source and wish to be added to the mailing list, please complete this coupon and return it to the address shown below.

Name: _____

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- ❑ I would like to be added to the mailing list.
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Please return to: Jackie Lane, U.S. EPA, 75 Hawthorne Street (SFD-3), San Francisco, CA 94105

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or call us on EPA's TOLL-FREE line:

1-800-231-3075

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