



Palos Verdes Shelf

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EPA Issues Report on Pilot Capping Project

EPA recently issued its initial report on the pilot capping project, which was conducted in the summer of 2000 as part of the Superfund investigation of contaminated sediments at the Palos Verdes Shelf site near Los Angeles, CA. EPA undertook the pilot capping study to evaluate the feasibility of placing a layer (or cap) of clean, sandy sediment over the existing deposit of DDT- and PCB-contaminated sediment and also to assess the short-term impacts associated with cap construction. The purpose of a cap is to prevent the DDT and PCBs in the sediment from getting into the food chain and causing adverse effects within the marine ecosystem and posing health risks to people who might eat contaminated fish.

Highlights

EPA believes that the pilot study showed that it is possible to construct a cap at a water depth of roughly 200 feet without creating significant adverse impacts. In particular, the study found that:

- it is possible to construct a uniform cap layer over the contaminated sediments;
- physical disturbance to the contaminated sediment was limited and can be minimized by careful management of cap placement; and
- there was no evidence of cap or contaminated sediment instability (such as avalanching or mud flows) during or after capping activities.

The pilot study provided useful information on the effects of site conditions, cap material type, and placement methods on cap construction that will be used by EPA in deciding whether to propose a full-scale cap for the site.

The full report can be viewed or downloaded at this web site: www.wes.army.mil/el/elpubs/pdf/tr02-5.pdf.

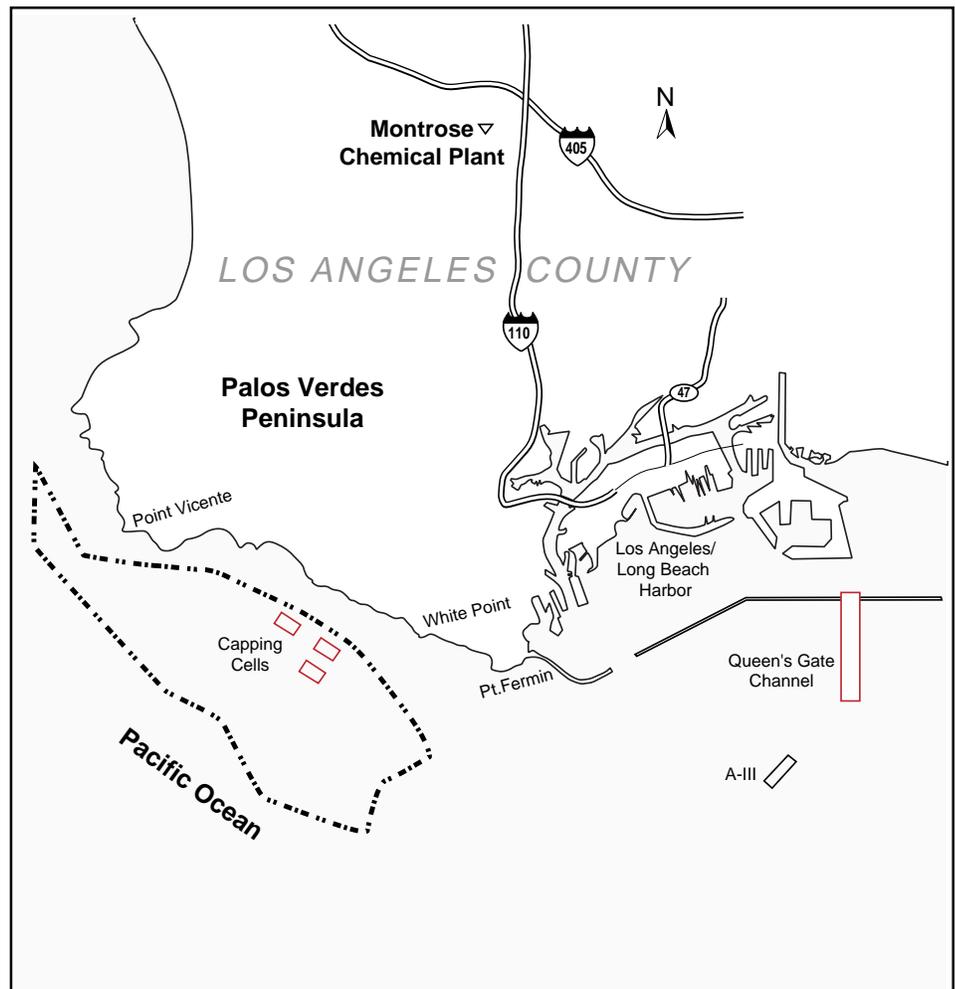


Figure 1: Location map showing pilot capping cells, Queen's Gate entrance channel, and borrow site A-III.

Background

The pilot capping project on the Palos Verdes Shelf was undertaken by the U.S. Environmental Protection Agency (EPA) as part of the ongoing Superfund investigation of DDT- and PCB-contaminated sediment located on the ocean floor off the coast of the Palos Verdes peninsula near Los Angeles, California.

DDT and PCBs are present in the Palos Verdes sediments largely as a result of historic industrial waste discharges to the sewer system. Wastewater containing significant concentrations of DDT and PCBs flowed to the Joint Water Pollution Control Plant (JWPCP) owned and operated by the County Sanitation Districts of Los Angeles County. Wastewater from the JWPCP is discharged to the Pacific Ocean through submarine outfalls located off White Point on the Palos Verdes peninsula. It is estimated that over 1,700 tons of DDT were discharged through the outfalls from the late 1950s to the early 1970s. The current footprint of DDT-contaminated sediment covers a sea floor surface area of approximately 17 square miles.

The overall objectives of the pilot project were to demonstrate that a cap can be placed on the shelf and to obtain field data on the short-term processes and behavior of the cap as placed. The results of this study will be used by EPA in deciding whether to propose remediation of the contaminated sediments at the PV Shelf by capping.

Cap Construction - Field operations and initial monitoring were conducted during the summer of 2000, with follow-up monitoring in March 2001. Over 135,000 cubic yards of capping material (clean sediment) were placed within three 45-acre cells on the PV Shelf (see Figure 1). These three cells represent about 1 percent of the total area of contaminated sediment.

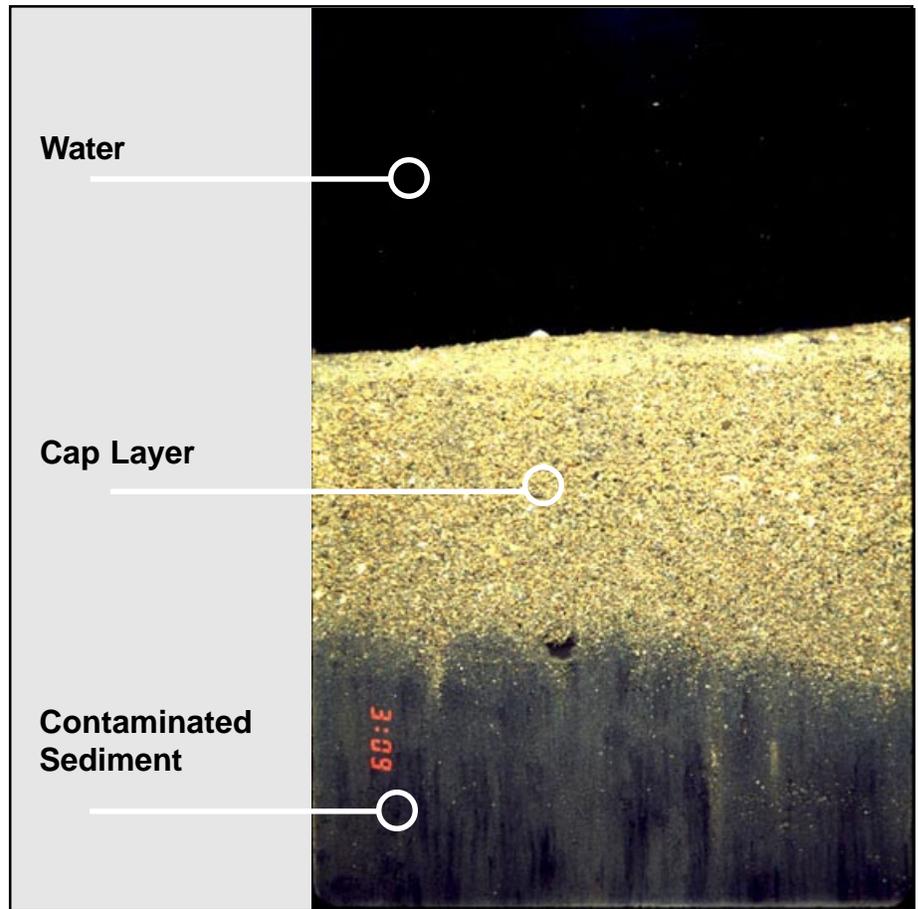


Figure 2: Photograph of sediment profile showing cap layer overlying the contaminated sediment

Dredged sediments from the Queen's Gate entrance channel to the Port of Long Beach and from a nearby sand borrow site were used as the cap material sources for the pilot. A hopper dredge was used for both dredging up cap material and placing it in the pilot capping cells. Cap layers were constructed using both conventional placement (i.e., point dumping) and spreading methods.

Monitoring - An extensive monitoring effort was conducted as a part of the pilot project to guide cap construction and assess construction-related impacts. Major monitoring aspects included cap thickness, mixing of cap and contaminated sediments, resuspension of contaminated sediments during cap placement, lateral spread of cap material, and physical and chemical characteristics of the cap and underlying sediments.

A number of monitoring technologies were used, including sediment profile and plan view photographs, sediment cores, water samples and water column measurements, current meters, side-scan sonar and sub-bottom acoustic profiling.

The monitoring program also collected data on the cap material sediments prior to placement and tracked where each load of cap material came from and where it was placed.

Pilot Study Conclusions

Based on the results of the pilot project, EPA has concluded that:

- Construction of a clean cap over the PV Shelf contaminated sediments is technically feasible.
- Both conventional placement and spreading methods can be used to construct the desired cap thickness.
- Creating a cap of uniform thickness over the contaminated sediments is possible (see photo of in-place sand cap in Figure 2).
- Physical disturbance of the existing contaminated sediments was limited to a few inches, and disturbance can be minimized by careful management (i.e., overlap) of successive cap placement points. The spreading method of cap placement was less disruptive than conventional placement.
- Bottom sediments that were resuspended in the water column following placement of a load of cap material settled back to the ocean floor fairly quickly, with very little movement in an onshore direction. Plumes of resuspended sediment did not reach nearshore kelp beds.
- No evidence of capping-related sediment instability (such as avalanching or mud flows) was observed.

The pilot study provided valuable information on the feasibility of constructing a cap and the effects of site conditions, material type, and placement methods on cap construction. Results of the pilot study will be used by EPA in its ongoing evaluation of cleanup alternatives and decision on whether to propose a full-scale capping remedy at the site.

Information Repositories

The full report can be viewed or downloaded at the following web site:

www.wes.army.mil/el/elpubs/pdf/tr02-5.pdf

Copies of the report will also be available for viewing at the following information repositories:

San Pedro Public Library
931 South Gaffey St.
San Pedro, CA 90731
(310) 548-7779

Redondo Beach Public Library
303 N. Pacific Coast Highway
Redondo Beach, CA 90277
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U.S. EPA Superfund Records Center
95 Hawthorne St., 4th Floor
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PALOS VERDES SHELF UPDATE

EPA Contacts

For further information on the Palos Verdes Shelf, or if you did not receive this fact sheet in the mail and would like to be added to our mailing list, please contact:

Fred Schauffler
Remedial Project Manager
(415) 972-3174

Jackie Lane
Community Involvement
Coordinator
(415) 972-3236

U.S. EPA, SFD-3
75 Hawthorne Street
San Francisco, CA 94105

You may leave a message for Jackie Lane by calling the
Community Involvement toll-free line at

1-800-231-3075

or by e-mail: lane.jackie@epamail.epa.gov



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75 Hawthorne Street (SFD-3)
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Attn: Jackie Lane

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