

Site Status Summary - United Heckathorn Superfund Site (Richmond, CA)

General Project Overview

United Heckathorn was placed on the NPL in 1990. The NPL site consists of a former manufacturing site that was used from approximately 1947 to 1966 by a number of companies (collectively referred to as "United Heckathorn") and the adjacent Lauritzen Channel (1,600 ft long by 200 ft wide varying in depth from 10 to 40 ft) and nearby Parr Canal (1,000 ft long by about 70 ft wide), two dead-end waterways located in the Inner Richmond Harbor, San Francisco Bay, CA. The site is currently part of the Levin Richmond Terminal Corporation (LRTC). The primary contaminants of concern are pesticides (DDT and dieldrin). Pesticide concentrations were highest in the Lauritzen Channel, and decreased with increasing distance from the former United Heckathorn site. Prior to remediation, the highest total DDT concentration from Lauritzen Channel was 633 ppm; the median total DDT concentration was approximately 47 ppm at the head of the Lauritzen Channel, which had not been dredged for navigation purposes in a number of years. The median concentration of total DDT decreased to about 14 ppm in the western, previously undredged portion of the channel, and to 1 ppm in the previously dredged portion of the channel. Dieldrin concentrations were lower (maximum concentration of 16 ppm), but exhibited a similar pattern of decreasing concentration in western portion. The maximum and median total DDT concentrations measured in Parr Canal sediment were 4 ppm and 0.8 ppm, respectively, and the maximum dieldrin concentration was 0.2 ppm.

The 1994 ROD issued for the site proposed the dredging of 65,000 cy of pesticide-contaminated soft sediment to underlying hard deposits in the two waterways. A DDT target level of 590 ppb was established to meet a human health risk of 1×10^{-6} and surface water criteria. The estimated cost for removal and offsite disposal was \$7 million. In 1996, four Consent Decrees were signed with approximately 20 PRPs to perform both the sediment cleanup and the cleanup of the former manufacturing site.

Remedy Implementation

Dredging targeted the pesticide-containing soft sediment down to underlying hard deposits in the waterways. Dutra Dredging and Manson Construction performed the remediation on behalf of the PRPs. Mechanical dredging in the Lauritzen Channel (Cable Arm clamshell was used for mechanical dredging of soft sediment and a conventional clamshell was used for the harder material beneath) started in September 1996 and finished in April 1997 and removal using long-stick excavators started in the Parr Canal in August 1996 and finished in April 1997. A total of 108,000 cy of sediment were removed, solidified, and disposed offsite by rail to landfills in Arizona and Utah. Dredged areas were backfilled with six to 18 inches of sand (15,700 cy) typically by hydraulically pumping the sand from a barge. Sediment removal verification was done primarily to a depth target. Silt curtains were deployed across the mouth of the water bodies during dredging activities to limit the migration of resuspended sediments from the channels during dredging. Site-specific difficulties experienced during the dredging

were extensive debris, silt curtain damage, logistical delays with rail cars, disposal site load refusals, and public controversy regarding disposal.

Following dredging, sediment verification samples were collected. Sample results indicated average DDT concentrations of 264 ppb and 2,000 ppb in the Lauritzen Channel and Parr Canal, respectively.

Actual costs have not been released. However, bid cost for the original target volume of 65,000 cy was reportedly \$7.3-7.5 million (\$112-\$115 per cy). An estimated minimum cost for the project is \$12.1-\$12.4 million based on 108,000 cy removed and assuming the same unit cost. Actual combined transport and disposal cost to the ECDC landfill was about \$48 per ton.

Post-Remediation Monitoring

Two years of post-remediation monitoring indicated continued elevated concentrations of DDT (2.7 - 130 ppm) and dieldrin (0.05 - 3.3 ppm) remained in the top 10 inches of sediments, and water concentrations of DDT and dieldrin were still about 100 times greater than the remedial goal; conversely, biomonitoring showed substantial and continuing reductions of DDT and dieldrin in resident and transplanted mussels.

Two additional studies raised questions regarding the ecological success of the dredging project citing a) a lack of sufficient pre- and post-dredging data for benthic and fish populations, b) confounding effects from sediment disturbance from shipping and dredging activities as well as from sub-tidal deposits that were not dredgeable due to in-water obstructions such as pilings and wharves, and c) dramatic measured 3- to 70-fold increases in DDT body burdens in ten fish and invertebrates monitored.

EPA completed its initial Five-Year Review of the site in September 2001, and in the report concluded that the dredging remedy has not kept the Lauritzen Channel from being recontaminated with unacceptable levels of pesticides, as evidenced by water column pesticide concentrations exceeding cleanup goals. As a result of this review, EPA decided that additional remedial actions were necessary to address the elevated levels of DDT found in sediment at the site. In February and March 2002, EPA collected additional embankment soil and sediment samples from the waterways. All results for sediment samples from the Lauritzen Channel were above the remediation goal of 590 ppb DDT with the highest level being 23,190 ppm DDT. Additionally, during the 2002 sampling, a buried outfall only visible during low tide was found that discharged water with high levels of DDT. Additional embankment and sediment samples were collected in May 2003, which further confirmed the presence of elevated level of DDT in the waterways.

In 2003, EPA entered into an agreement with the USACE to prepare a Focused Feasibility Study (FFS) to assess options for addressing the remaining contamination in the waterways. In 2004, additional characterization of the sediments was performed to support preparation of the FFS. In September 2006, EPA completed its second five-year review of the site that reiterated the conclusions of the first five-year review that the dredging remedy has not kept the Lauritzen Channel from being recontaminated with unacceptable levels of pesticides.

Project Schedule and Current Status

Since 2004, EPA has been analyzing data from the site and performing a data gap analysis for further sampling prior to completing the FFS. In Summer 2007, EPA collected additional sediment, water column, and mussel tissue samples from the waterways to fill-in the identified data gaps. EPA is having CH2M Hill, the current Superfund contractor for EPA Region 9, perform the work on the FFS which is targeted for completion in 2008. The next EPA five-year review at the site is scheduled for 2011.

References

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