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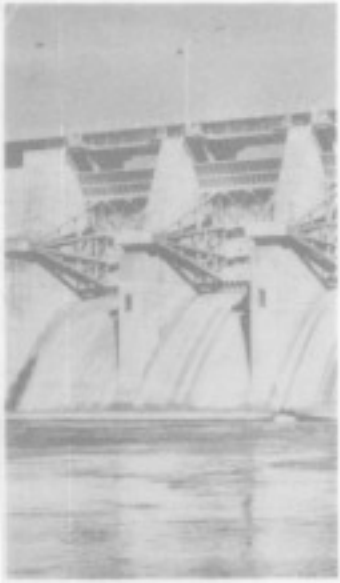

ENVIRONMENTAL LABORATORY

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EVALUATION OF DREDGED MATERIAL DISPOSAL ALTERNATIVES FOR US NAVY HOMEPORT AT EVERETT, WASHINGTON

by

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Final Report

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The US Navy has proposed to homeport a carrier battle group at Everett, Wash. Development of the homeport will involve dredging and disposal of approximately 1 million cu yd (765,000 cu m) of contaminated sediments and an additional 2.3 million cu yd (1.7 million cu m) of uncontaminated native material. The US Army Engineer District, Seattle, is providing technical assistance in developing a dredging and disposal plan for these sediments from the East Waterway. In addition, the Seattle District is a permitting agency under Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act.

The Seattle District requested that the US Army Engineer Waterways Experiment Station (WES) provide support for testing and evaluations required for its technical assistance role for the Everett project. The purpose of the WES studies was to evaluate

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the feasibility of alternatives from an environmental and related engineering standpoint. This report documents the results of these studies through September 1986.

Three major disposal alternatives were evaluated for disposal of the contaminated sediment: confined upland, confined nearshore, and contained aquatic disposal (CAD). The Navy identified CAD as a preferred alternative during the course of the WES study, and also as the selected alternative in all applications for a Section 404 permit.

The management strategy for disposal of dredged material, recently confirmed as Corps policy for such evaluations, was applied as a part of the WES study. Samples of the contaminated and uncontaminated East Waterway sediments were collected, and a series of environmental and related engineering tests and evaluations were conducted. Numerical modeling studies and analytical evaluations were also conducted to determine the physical behavior of the dredged material for the CAD alternative.

Evaluations of dredging equipment were made based on previous studies of the sediment resuspension characteristics of various dredge types and demonstrations of innovative equipment for dredging contaminated sediments. Site-specific feasibility determinations for identified disposal sites were made based on the available data.

Results of the WES study showed that CAD is feasible. However, CAD at the water depth under consideration and placement of cap by hydraulic pipeline without lateral confinement have not yet been attempted. Confined disposal at identified intertidal sites is feasible and involves known and proven technology. Upland disposal is feasible, but expensive contaminant controls would likely be required. Final designs are required for any of the alternatives under consideration.