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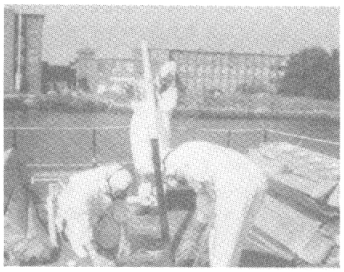

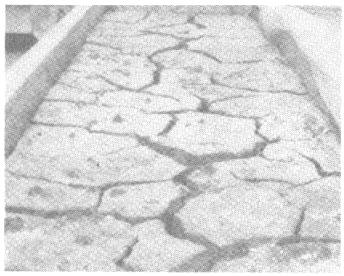

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NEW BEDFORD HARBOR SUPERFUND PROJECT, ACUSHNET RIVER ESTUARY ENGINEERING FEASIBILITY STUDY OF DREDGING AND DREDGED MATERIAL DISPOSAL ALTERNATIVES

Report 11

EVALUATION OF CONCEPTUAL DREDGING AND DISPOSAL ALTERNATIVES

by

Daniel E. Averett, Michael R. Palermo

Environmental Laboratory

DEPARTMENT OF THE ARMY
Waterways Experiment Station, Corps of Engineers
PO Box 631, Vicksburg, Mississippi 39181-0631

and

Mark J. Otis, Pamela B. Rubinoff

US Army Engineer Division, New England
Waltham, Massachusetts 02254-9149

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This report evaluates conceptual dredging and disposal alternatives for the Acushnet River Estuary, a part of the New Bedford Harbor Superfund Site. Dredging for removal of the highly contaminated sediment and subsequent disposal in upland or nearshore confined disposal facilities or disposal in contained aquatic disposal facilities are alternatives considered in the "Engineering Feasibility Study of Dredging and Dredged Material Disposal Alternatives." Sediment testing and sediment transport modeling performed as earlier tasks of the study form the basis for evaluation of the alternatives.

The technical feasibility of conceptual design options is based on site availability, capacity, and characteristics and on sediment physical characteristics and dredged material settling behavior as defined by laboratory testing. Contaminant releases during dredging and disposal operations are estimated for each disposal option. A preliminary cost estimate for implementation of each option evaluated is also presented.

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Confined disposal facility
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Contaminated sediment
Dredged material
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Feasibility study
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Superfund

PREFACE

This study was conducted as a part of the Acushnet River Estuary Engineering Feasibility Study (EFS) of Dredging and Dredged Material Disposal Alternatives. The US Army Corps of Engineers (USACE) performed the EFS for the US Environmental Protection Agency (USEPA), Region 1, as a component of the comprehensive USEPA Feasibility Study for the New Bedford Harbor Superfund Site, New Bedford, MA. This report, Report 11 of a series, was prepared by the US Army Engineer Waterways Experiment Station (WES) and the New England Division (NED), USACE. Coordination and management support was provided by the Omaha District, USACE, and dredging program coordination was provided by the Dredging Division, USACE. The study was conducted between August 1985 and July 1988.

Project manager for the USEPA was Mr. Frank Ciavattieri. The NED project managers were Messrs. Mark J. Otis and Alan Randall. Omaha District project managers were Messrs. Kevin Mayberry and William Bonneau. Project managers for the WES were Messrs. Norman R. Francingues, Jr., and Daniel E. Averett.

This report was prepared by Mr. Daniel E. Averett, Water Supply and Waste Treatment Group (WSWTG), Environmental Engineering Division (EED), Environmental Laboratory (EL), WES; Dr. Michael R. Palermo, Research Projects Group, EED; Mr. Mark J. Otis, New Bedford Superfund Project Office, Operations Division, NED; and Ms. Pamela B. Rubinoff, Coastal Engineering and Survey Section, Engineering Division, NED. Technical support in preparation of the report was provided by Mr. Bret Perry, WSWTG. The report was edited by Ms. Jessica S. Ruff of the WES Information Technology Laboratory.

This study was conducted under the general supervision of Mr. Norman R. Francingues, Jr., Chief, WSWTG; Dr. Raymond L. Montgomery, Chief, EED; Dr. John Harrison, Chief, EL; Mr. Vyto Andreliunas, NED; and Mr. David Mathis, Dredging Division, USACE.

COL Dwayne G. Lee, EN, was the Commander and Director of WES. Dr. Robert W. Whalin was Technical Director.

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CONTENTS

CONVERSION FACTORS, NON-SI TO SI (METRIC) UNITS OF MEASUREMENT

Non-SI units of measurement used in this report can be converted to SI (metric) units as follows:

Multiply	By	To Obtain
acres	4,046.873	square metres
cubic feet	0.02831685	cubic metres
cubic yards	0.7645549	cubic metres
feet	0.3048	metres
gallons (US liquid)	3.785412	cubic decimetres
horsepower (550 foot-pounds (force) per second)	745.6999	watts
inches	2.54	centimetres
miles (US nautical)	1.852	kilometres
pounds (mass)	0.4535924	kilograms
square feet	0.09290304	square metres
yards	0.9144	metres