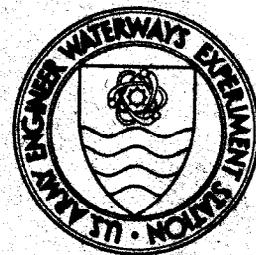


# DREDGED MATERIAL RESEARCH PROGRAM



CONTRACT REPORT D-74-4

## IDENTIFICATION OF OBJECTIONABLE ENVIRONMENTAL CONDITIONS AND ISSUES ASSOCIATED WITH CONFINED DISPOSAL AREAS

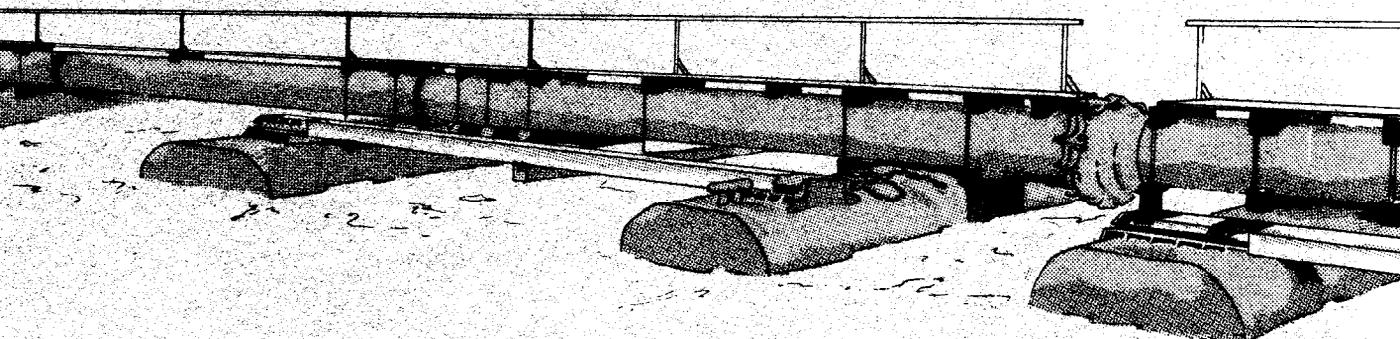
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Final Report

Approved For Public Release; Distribution Unlimited



Prepared for

Environmental Effects Laboratory  
U. S. Army Engineer Waterways Experiment Station  
P. O. Box 631, Vicksburg, Miss. 39180

Under Contract No. DACW39-73-C-0130

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IN REPLY REFER TO: WESYV

30 September 1974

SUBJECT: Transmittal of Contract Report D-74-4

TO: All Report Recipients

1. The contract report transmitted herewith represents the results of one of eight research efforts (work units) initiated to date as part of Task 2C (Containment Area Operation Research) of the Corps of Engineers' Dredged Material Research Program (DMRP). Task 2C is included as part of the Disposal Operations Research Project of the DMRP, which, among other considerations, includes research into various ways of improving the efficiency and acceptability of facilities for confining dredged material on land.
2. Confining dredged material on land is a relatively recent disposal alternative to which practically no specific design or construction improvement investigations, much less applied research, have been addressed. Being a form of waste product disposal, dredged material placement on land has seldom been evaluated on other than purely economic grounds with emphasis nearly always on lowest possible cost. There has been a dramatic increase in the last several years in the amount of land disposal necessitated by confining dredged material classified as polluted. Attention necessarily is directed more and more toward the environmental consequences of this disposal alternative as well as to sociopolitical issues.
3. DMRP work units are in progress investigating improved facility design and construction and concepts for increasing facility capacities for both economic and environmental protection purposes. However, the total picture would be incomplete without considering improved facility operation and management. To this end, the investigation reported herein was accomplished under contract with Arthur D. Little, Inc. It identifies specific conditions which are objectionable and which affect the public acceptance of land disposal of dredged material. This study is considered a preliminary step leading to the implementation of improved operation and management practices.

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4. The study shows that considerable public opposition to disposal facilities and operations is based on experience with past practices in a given area rather than firsthand knowledge of present or planned facilities. However, there are specific objectionable conditions existing within many facilities for which remedies are well within the present state-of-the-art. In addition, there are conditions associated with biological, chemical, and physical changes caused by the facilities which are inadequately understood and require further investigation. Also related to the matter of public acceptance is the question of ultimate land use and control and the inherent questions of authority and jurisdiction.

5. Work units already have been initiated under the DMRP and others are being planned that address directly some of the problems recommended as topics of research by this study. Task 2A is the focal point of efforts to investigate the biological, chemical, and physical impacts of confined disposal; Task 2C will result in facility operational guidelines for eliminating or minimizing adverse conditions; and various tasks are determining aspects of ultimate land use and control.



G. H. HILT  
Colonel, Corps of Engineers  
Director



## 20. ABSTRACT (Continued).

as causes for public opposition was found to vary for each proposed project and was thought to be controlled by local public attitude toward confined disposal in general. Existing objectionable conditions also could be characterized on a regional basis. The regional dependency of objectionable conditions and issues probably results from the fact that past experience is the most influential factor in determining a district's practices as related to confined disposal, and regional reaction or attitude toward confined disposal is also related to past experience with the same disposal areas. Observations based on a limited sample indicate that techniques are currently available to prevent dike failure, seepage, channelization, and dike erosion, but not the prevention of standing water in disposal areas. Such techniques should be made part of overall effective operation and management practices for confined disposal areas. Solutions for other objectionable conditions should be sought. The extent and significance of objectionable conditions associated with biological, chemical, and physical changes caused by confined disposal areas have not been documented or clearly defined at this time; future research should be programmed to identify and define such changes. Ecological issues have centered on the use of wetlands as disposal sites. Many of the land-use issues revolve around ultimate use and control of the completed disposal areas. Ways should be investigated to mitigate or to minimize these effects. For example, innovative disposal procedures should be considered in order to avoid disposal in or disruption of ecologically sensitive wetland areas.