

RECORD OF DECISION

on

APPLICATION 95-04370-J1

for a

DEPARTMENT OF THE ARMY PERMIT

by

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
FOR THE NEWARK BAY CONFINED DISPOSAL FACILITY

May 15, 1996

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK 10278-0090

MEMORANDUM FOR THE RECORD

SUBJECT: Record of Decision for Application No. 95-04370-J1 by the Port Authority of New York and New Jersey for Newark Bay Confined Disposal Facility

1. **Introduction:** This Record of Decision (ROD) documents the findings and conclusions of the New York District of the U.S. Army Corps of Engineers and recommends a final permit decision on the subject permit application by the Port Authority of New York and New Jersey requesting Department of the Army authorization to construct and operate a subaqueous Confined Disposal Facility (CDF) in Newark Bay at the City of Newark, Essex County, New Jersey.

2. **Applicant:** The applicant, the Port Authority of New York and New Jersey is located at 1 World Trade Center, New York, New York 10048. The Port Authority of New York and New Jersey (PA-NY&NJ) is a municipal corporate instrumentality and political subdivision of the States of New York and New Jersey. The Port Authority was created by Compact of April 30, 1921, which was made by and between the two states, and thereafter consented to by the Congress of the United States. The Compact created the Port of New York District (Port District) and the Port of New York Authority, the name of which was changed effective July 1, 1972, to the Port Authority of New York and New Jersey. The purposes of the compact were to foster coordination of terminal, transportation, and other commercial facilities for reasons of economy, to encourage cooperative efforts to secure investment capital, and to formulate and execute necessary plans.

In support of its' mission, the states have authorized the Port Authority to construct specific transportation and terminal facilities and facilities of commerce and economic development. The Port Authority has received authorization to borrow money, to establish charges for the use of facilities, and to acquire real estate and property. Facilities and property acquired or constructed include two tunnels, four bridges, the Hudson Tubes (PATH) facility, a bus terminal, the Trans-Hudson ferry service, four airports, a heliport, the World Trade Center, the Newark Legal and Communications Center, seven marine terminals, a railroad freight facility, five industrial development facilities, and a resource recovery facility.

3. **Application Background:** On April 20, 1995, the New York District of the U.S. Army Corps of Engineers (USACE) received an application for a Department of the Army permit from the Port Authority of New York and New Jersey for authorization to construct and operate a subaqueous Confined Disposal Facility (CDF) in Newark Bay at the City of Newark, Essex County, New

Jersey.

The application was an outgrowth of the key recommendation made by New Jersey Governor Christine Todd Whitman's Dredged Material Management Team (DMMT). The DMMT, a task force established in June, 1994, was charged with the task of identifying "...short-term (0-3 years) solutions for the disposal of contaminated dredged material..." (DMMT, 1995). The Team's Final Report, issued in February of 1995, called for "...immediate construction and utilization of underwater borrow pits in Newark Bay for the disposal of contaminated sediments taken from the Port of New York and New Jersey" (DMMT, 1995). By letter dated February 22, 1995, Governor Whitman requested that the Port Authority act as lead agency "...to facilitate the permitting and construction of the Newark Bay subaqueous pits..." The Port Authority agreed to the Governor's request, and in March of 1995 undertook a full review of historical records and a preliminary feasibility investigation of the project consisting of 8 borings to acquire geotechnical and environmental data.

After review of the project application, USACE determined that the potential issuance of a permit for the proposed activity would constitute a major federal action significantly affecting the quality of the human environment and, therefore, an Environmental Impact Statement (EIS) was required for the application. A Finding of Significant Impact (FOSI) for the application was signed by the District Engineer on May 22, 1995.

Public Notice No. 95-04370-J1 announcing Scoping for the proposed EIS was issued on May 31, 1995 with a 45 day comment period. The Public Notice was issued to coincide with publication in the Federal Register of a Notice of Intent to Prepare a Draft Environmental Impact Statement on the project. A Public Scoping Meeting was held in Newark, New Jersey on June 28, 1995.

By letter dated June 1, 1995, various federal and state agencies were requested to provide information they had that might prove useful in preparation of the EIS and to indicate if they were willing to serve as cooperating agencies in the EIS preparation. Five agencies, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service of the Department of the Interior, National Marine Fisheries Service of the Department of Commerce, New Jersey Department of Environmental Protection, and New Jersey Department of Transportation, agreed to serve as cooperating agencies.

After the close of the public scoping comment period on July 15, 1995, the preliminary Scope of Work was revised and furnished to all those who had participated in scoping. From August, 1995 to January, 1996, information gathering by USACE for EIS preparation proceeded, concurrent with the applicant's efforts to select a consultant to furnish information required for the EIS in

accordance with regulations found at Title 33 of the Code of Federal Regulations, Part 325, Appendix B, 8(f)(2).

By letter dated November 6, 1995, the applicant submitted an amended permit application. As the amended application (described below in Paragraph 4) represented a reduction in the scope of work, additional public coordination was not warranted. However, all those who participated in the public scoping process were notified of the amended permit application.

In January, 1996, the applicant interviewed 6 consulting firms, with representatives of the USACE and cooperating agencies in attendance. Subsequent to receipt of comments from the agencies, the Port Authority selected the firm of Lawler, Matusky and Skelly Engineers (LMS) as their consultant, to provide information to the USACE for use in preparing the EIS.

4. Description of the Proposed Activity: As originally proposed, the work would have called for the construction of 2 subaqueous pits on the west side of Newark Bay at locations designated as Area 1 and Area 2 on Figure 1. The total project area would have been approximately 160 acres and the combined pit capacity would have been 14.5 million cubic yards (Area 1 = 10 million cubic yards, Area 2 = 4.5 million cubic yards). The proposed project depth would have been approximately 70 feet.

The amended application (November 6, 1995) would involve construction of 3 subaqueous pits, whose locations comprise subareas within the boundaries of the original sites. The areas were delineated based on feasibility studies that indicated previous disturbance in parts of the proposed sites, thus presenting the potential for significant levels of contamination. The redefined sites, designated Area 1S, Area 2S, and Area 2N, are also shown on Figure 1. The sites would occupy a combined area of approximately 57 acres (Area 1S = 26.0 acres, Area 2S = 20.9 acres, Area 2N = 9.8 acres) and have a combined dredged material disposal capacity of approximately 3.1 million cubic yards (Area 1S = 1.55 million cubic yards, 2S = 1.05 million cubic yards, Area 2N = 0.5 million cubic yards).

Construction of the proposed facilities would be undertaken as illustrated in Figure 2, using the proposed pit in Area 1S as an example. An entrance channel, approximately 300 wide at the top, 200 wide at the base, and 20 feet deep, would be dredged from the Port Elizabeth Channel into Area 1S (or from the Newark Bay Federal Channel for Areas 2S and 2N) to allow entry of dredging equipment and scows to the proposed CDF site. Dredging would be undertaken using a closed clamshell bucket, a bucket found to be more protective to the environment. The same method would be used to dredge the uppermost unit of sediment, a black, organic-rich silty clay that extends to depths of approximately 16 feet below mean low water (MLW). Barge overflow would be used to

produce the most economical loads.

As the material in the upper sediment unit is relatively soft and uncompacted, sideslopes for this unit (to depths of approximately 14 - 19 feet) would be 3 horizontal to 1 vertical (3:1). A minimum setback of 40 ft (12.2 m) from the edge of the CDF footprint would be maintained. This would ensure that any local sloughing of material would not cause material from outside the identified CDF footprint to enter the CDF area. The slope behavior would be monitored to verify side slope stability and determine what final side slope may be achieved. This would allow for the maximum storage capacity to be developed later in the excavation process, without concern that material that had not been environmentally characterized would have an impact on the construction of the CDF. The upper layer sediment excavation is shown by the vertical lines on Figure 2, Section A-A, Excavation Sequence.

The underlying, more consolidated sediment units (gray sand and red-brown clay) would be removed using a dipper dredge or hydraulic marine excavation dredge (backhoe) until a project depth of approximately -70 feet below MLW is reached. Sideslopes for these underlying units would be 1.5 horizontal to 1 vertical (1.5:1). A lateral offset (bench) of approximately 15 feet wide will be left between the upper and lower sediment units to insure stability during construction. This bench will be removed during the latter stages of construction.

Sediments from Areas 1S, 2S, and 2N were tested to determine their suitability for ocean disposal at the Mud Dump Site (MDS) (Figure 3). Upper layer material from Area 1S was determined to be Category II and suitable for disposal at the MDS with capping. Upper layer materials within Area 1S would be transported to the MDS using bottom dump scows for disposal at a designated marker buoy. The results of the Automated Dredging and Disposal Alternatives Management System (ADDAMS) Model would be used to determine conditions for disposal of this material. Specific guidelines for MDS disposal operations would be provided within any issued Department of the Army permit. Testing and ADDAMS Model issues are discussed in joint USEPA and USACE memoranda of 26 and 27 March 1997 that are part of the administrative record for this application.

Upper layer materials from Areas 2S and 2N were determined to be Category III and, therefore, unsuitable for disposal at the MDS. Material dredged from the upper layer of Areas 2S and/or 2N would be disposed of in the CDF in Area 1S or at a state-approved upland site, where it would be suitably retained so that it would not reenter any waterway.

However, the lower layer materials may be sufficiently removed in time and space from known and historic sources of pollution to

qualify for ocean disposal without further testing. The criteria for exclusion from ocean disposal testing are specified at Title 40 of the Code of Federal Regulations, Part 227.13(b)(3). Compliance with 40 CFR 227.13(b)(3)(i) is established by the disposal of the lower layer materials (otherwise defined as fine-grained material) in the Northern Quadrant of the MDS, where the existing substrate is dominated by fine-grained material. Thus, the material proposed for dumping is substantially the same as the substrate at the proposed disposal site. Because the record also demonstrates that the lower layer material is virgin material that has not been exposed to sources of man-made pollution, it meets the exclusionary criteria defined at 40 CFR 227.13(b)(3)(ii). Lower layer material from the proposed CDF areas would be disposed of at the MDS using bottom dump scows. Barge overflow would be utilized to produce more economical loads, and to reduce impacts at the disposal site.

Dredged material disposal operations at the NBCDF site would be undertaken using bottom dump scows until the level of the entrance channel is reached (Operational procedures and constraints on disposal are discussed below.) At this point, partial closure of the entrance channel (to the level of B on Figure 2, Section A-A, Filling Sequence) would take place. Closure would be undertaken using crushed stone aggregate (1" - 2" diameter). Disposal operations would then continue using smaller scows, more lightly loaded scows, or high tide transit to allow travel through the partly closed entrance channel. When bottom dumping is no longer feasible, the entrance channel will be fully closed.

Final filling of the CDF would occur by removing dredged material from scows using a barge mounted clamshell bucket that would slowly lower material to the sediment-water interface where it would be released. When dredged material reaches the level of the planned cap, disposal would cease. Cap emplacement would be undertaken through discharging sand from the end of a hydraulic pipeline.

Operational constraints on disposal operations are included as Special Conditions within the New Jersey Department of Environmental Protection Waterfront Development Permit, and as Special Conditions within in the Department of the Army permit. These constraints include a ban on dredging and disposal operations during storms, a restriction that limits disposal operations to slack water +/- 1 hour, a prohibition on disposal of Category III material in the uppermost 12 feet of disposal capacity, hydrographic surveys during disposal operations to insure optimum utilization of disposal capacity, monitoring of water quality during disposal operations by sampling to determine Total Suspended Solids (TSS) in the site water, and use of inspectors to monitor disposal and dredging operations.

5. Applicable Statutory Authorities: The following are applicable authorities under which the proposed action was reviewed:

Section 10 of the Rivers and Harbors Act of 1899 (30 Stat. 1151; 33 U.S.C. 403)

Section 404 of the Clean Water Act (PL 92-500, 86 Stat. 816; 33 U.S.C. 1344)

Section 103 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, as amended (PL 92-532; 86 Stat. 1052; 33 U.S.C. 1413)

Section 307c of the Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1456(c))

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470).

Section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.)

The National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347)

6. Other Federal, State, and Local Authorizations Obtained or Required and Pending: On December 12, 1996, the Port Authority submitted an application to the New Jersey Department of Environmental Protection (NJDEP) for a Waterfront Development Permit, which would include the required Coastal Zone Management Plan Consistency Concurrence and Section 401 Water Quality Certification. NJDEP issued Permit Number 0000-96-0024.1 to the Port Authority, subject to thirty-eight special conditions.

On April 2, 1997, the State of New Jersey Tidelands Resource Council passed a resolution authorizing an "Assignment of Management Rights" to the Port Authority of New York and New Jersey for the purpose of constructing, operating, maintaining, closing, and monitoring a Confined Disposal Facility (CDF) on state-owned tidelands in Newark Bay, Essex County, New Jersey. Ownership of the tidelands would remain with the New Jersey Tidelands Resources Council. Final execution of the management agreement would occur prior to initiation of the project.

7. Date of Public Notices, Public Information Session, and Public Hearing: An Environmental Impact Statement (EIS) was prepared to assist in the evaluation of this permit application. The procedures set forth at Title 33 of the Code of Federal Regulations, Part 230 and Part 325, Appendix B and Title 40 of the Code of Federal Regulations Part 1500 were followed. These procedures included preparation of a Draft and Final EIS with

appropriate public notices.

The first public notice for the application was issued on May 31, 1995. This public notice announced the receipt of the application, presented the proposed action, and presented a draft scope of work for the preparation of the EIS. The public notice was published concurrent with a Notice of Intent to Prepare an EIS in the Federal Register, under regulations found at Title 40 of the Code of Federal Regulation, Part 1501.7. A public meeting was held on June 28, 1995 as part of the scoping for the EIS.

The Draft EIS was published in January, 1997. A public notice announcing: 1) the availability of the Draft EIS, 2) a public information session on the Draft EIS and project, and 3) a regulatory public hearing on the Draft EIS and proposed project was published on January 17, 1997, concurrent with publication of a Notice of Availability of the Draft EIS in the Federal Register.

An information session on the project was held on February 11, 1997 and was attended by approximately 50 people. A regulatory public hearing was conducted on February 19, 1997 with 24 people giving oral testimony and/or submitting written statements at the hearing. In general, speakers supported the application and urged permit issuance. Two speakers, Ms. Cynthia Zipf representing Clean Ocean Action and Ms. Sylvia Walker representing the Bayonne Environmental Commission, presented views that were opposed to the application in one or more respects. The comments of Ms. Zipf and Ms. Walker, as well as others who responded to the public notice, are addressed in Appendix 1.01 of the Final EIS.

8. Views of Federal Resource Agencies/Corps of Engineer's Analysis and Response: Federal agency comments on the project were obtained through public notice announcements and circulation of both the Draft and Final EIS. It is noted that the federal review agencies, the U.S. Environmental Protection Agency (USEPA), the National Marine Fisheries Service (NMFS) of the U.S. Department of Commerce, and the U.S. Fish and Wildlife Service (USFWS) of the Department of the Interior, all served as cooperating agencies in the preparation of the EIS.

Federal agency comments received in response to the Public Notice announcing the availability of the Draft EIS are addressed in detail in Appendix 1.01 of the Final EIS.

Federal agency comments in response to publication of the Final EIS were received from NMFS and from USEPA. USFWS did not offer comments on the Final EIS. In accordance with Title 33 of the Code of Federal Regulations, Part 325.3(d)(3), in the absence of comment it is presumed that there is no objection to statements made, or conclusions reached, in the FEIS, and no objection to

the proposed project.

By letter dated May 6, 1997, NMFS noted that concerns raised in comment letters on a preliminary draft of the DEIS, and on the Draft EIS itself had been addressed. Potential impacts to endangered and threatened marine species had been addressed in a letter to the Corps of Engineers dated April 7, 1997. This letter provided terms and conditions that would ensure compliance with Endangered Species Act requirements to protect 3 species of whales and 4 species of sea turtles. USACE has agreed to the terms and conditions of this letter. They would be included as Special Condition Q of any issue Department of the Arm permit.

By letter dated May 12, 1997, USEPA discussed concerns raised in their letter of March 3, 1997 that commented on the Draft EIS, and which were responded to in the Final EIS. The concerns discussed by USEPA relate to alternatives, capacity of the Mud Dump Site, Section 404 compliance, cap monitoring, and cultural resources.

In their letter USEPA noted that their March 3, 1997 recommendation that Alternative 4 be considered as a longer term alternative had been addressed in the Final EIS. Alternative 2 was selected as the preferred alternative based on criteria established early in EIS preparation. Of particular note is that the NBCDF was proposed as a short term alternative for the disposal of dredged material deemed not suitable for ocean disposal. For reasons stated in the Final EIS and in Paragraph 11 of this Record of Decision, USACE believes that Alternative 2 best meets this objective and notes that USEPA does not disagree with this conclusion.

With respect to the issue of Mud Dump Site (MDS) capacity, USEPA concerns related to use of the MDS for Category II sediments from the proposed NBCDF sites, were addressed in the Final EIS. USACE believes that use of the MDS for the proposed project would create additional disposal opportunities that would not otherwise be available. The effect would be that use of MDS capacity would be optimized, while at the same time creating disposal capacity for dredged materials that otherwise could not use the MDS.

With respect to Section 404 compliance, USEPA states that its analysis of compliance with the Section 404(b)(1) guidelines does not fully support a conclusion that the preferred alternative has the least adverse impact to the aquatic ecosystem. USEPA does recognize that the preferred alternative is not likely to cause or contribute to significant degradation of the aquatic ecosystem. USACE has concluded that the preferred alternative offers the least adverse impact to the environment, especially when cumulative and secondary impacts are considered. Although all of the "construction" alternatives involve impacts to benthic habitat and water quality in Newark Bay, the "No Action"

Alternative would also produce adverse impacts to the aquatic environment. The impacts resulting from the "No Action" alternative are discussed in the Final EIS and in Paragraph 10 of this ROD. The Final EIS concludes that the impacts accruing from selection of Alternative 2 would produce beneficial impacts that balance or outweigh the negative impacts of the proposed action and other alternatives. This is consistent with the purpose of NEPA.

USEPA concerns related to cap monitoring are over erosion of the cap, particularly at the boundary of the CDF, and dispersion of contaminated dredged material outside the CDF boundaries during or after disposal operations. Physical Conditions: Operation #5, 6, and 7 of New Jersey Waterfront Development Permit # 0000-96-0024.1 impose restrictions upon dredged material disposal operations at the proposed NBCDF site aimed at preventing dredged material from leaving the confines of the site. Physical Condition: Operation #2 and Physical Conditions: Closure #2 and 3, of the same permit, require that a monitoring plan be submitted to the New Jersey Department of Environmental Protection (NJDEP) at least 45 days prior to commence of disposal operations. USACE will recommend that coring stations for monitoring cap thickness and sediment chemistry include at least 2 within 4 meters of each CDF boundary as the monitoring plans are formalized.

Based on the foregoing, USACE concludes that the concerns raised by USEPA have been adequately addressed.

9. Comments from Public Officials, State and Local Agencies, Public Interest Groups and the Public: Comments on the project were obtained from public officials, state and local agencies, public interest groups, and interested individuals through public notice announcements and circulation of the Draft and Final EISs.

Comments received in response to publication and circulation of the Draft EIS, the Public Notice dated January 17, 1997 that announced the DEIS availability, and those comments received at the Public Hearing held February 19, 1997, are addressed in detail in Appendix 1.01 of the Final EIS.

Comments in response to publication and circulation of the Final EIS were received from 3 persons and organizations. The issues raised in these letters are summarized and discussed below. All comment letters received have been reproduced, and detailed responses given, in Appendix A of this Record of Decision.

Elected Public Officials

No comments were received from elected public officials concerning the Final Environmental Impact Statement (FEIS) on the Newark Bay Confined Disposal Facility (NBCDF). In accordance with Title 33 of the Code of Federal Regulations, Part

325.3(d)(3), in the absence of comment it is presumed that there is no objection to statements made, or conclusions reached, in the FEIS, and no objection to the proposed project.

State Agencies

No comments were received from state agencies concerning the Final Environmental Impact Statement (FEIS) on the Newark Bay Confined Disposal Facility (NBCDF). In accordance with Title 33 of the Code of Federal Regulations, Part 325.3(d)(3), in the absence of comment it is presumed that there is no objection to statements made, or conclusions reached, in the FEIS, and no objection to the proposed project.

Local Agencies

By letter dated May 8, 1997, Mr. Glenn Grant, writing on behalf of the City of Newark, stated that after reviewing the Final Environmental Impact Statement the City had no objection to construction of the proposed Newark Bay Confined Disposal Facility, but expressed concerns regarding 1) municipal fees for disposal operations, 2) sequencing of dredging operations for disposal in the proposed facility, and 3) an operational plan and monitoring during dredging and disposal operations.

By letter dated May 13, 1997, the Port Authority of New York and New Jersey (PA-NYNJ) responded to the City of Newark. In its' response, PA-NYNJ stated the issue of payment of a "host municipality fee" for the disposal of contaminated sediments was to be discussed and agreed between the City of Newark and PA-NYNJ. PA-NYNJ went on to state that the issue of fees is not related to issuance of permits for the project and that the landowner, the State of New Jersey, has agreed to an Assignment of Management Rights for all phases of the project.

With respect to the issue of sequencing of dredging operations for disposal in the proposed facility, PA-NYNJ states that USACE and NJDEP will cooperate in sequencing of disposal operations. PA-NYNJ goes on to note that the draw area described in the Final EIS corresponds to the one to which the City of Newark referred. PA-NYNJ notes that the NJDEP will require submission of an operational plan and a detailed monitoring and management plan before any disposal operations commence. The plans must be ones that meet Special Conditions to be included in any NJDEP and USACE permit.

With respect to the issue of "host municipality fees", USACE believes that this is a matter beyond its regulatory purview. With respect to the issue of sequencing of dredging operations, USACE notes that all dredging operations in the draw area for the NBCDF require Department of the Army permits, as well as all required state and local permits and authorizations. Physical Condition: Operation #1 of New Jersey Waterfront Development Permit # 0000-96-0024.1 sets conditions for use of the NBCDF.

With respect to the issue of an operations and monitoring plan, Physical Condition: Operation #2 and Physical Conditions: Closure #2 and 3, of the same permit, require that a monitoring plan be submitted to the New Jersey Department of Environmental Protection (NJDEP) 45 days prior to the start of disposal operations.

Based on the foregoing, USACE concludes that the concerns raised by the City of Newark have been adequately addressed.

Organizations

By letter dated May 5, 1997, Ms. Cynthia Zipf, writing on behalf of Clean Ocean Action, raised questions concerning the preferred alternative, another alternative, and the suitability of upper layer sediments from Area 1S for ocean disposal.

By letter dated May 13, 1997, the Port Authority of New York and New Jersey (PA-NYNJ) responded to Clean Ocean Action's letter addressing the issue of how many pits would be constructed. PA-NYNJ stated it was prepared to award a contract to construct the CDF in Area 1S at this time, and went on to state that economic considerations would determine if and when pits in Areas 2S and 2N would be constructed. PA-NYNJ noted that a requirement to construct all three pits might put into question the issuance of permits, particularly if the cost of construction became comparable to upland disposal.

With respect to the issue of the preferred alternative, USACE notes that Clean Ocean Action previously recommended that Alternative 2 be selected. As such the PA-NYNJ does not feel that it should be required to construct pits at all 3 sites. The Final EIS identified Alternative 2 as the preferred alternative. However, it is beyond the regulatory purview of USACE to require an applicant to perform all work for which a permit has been issued.

With respect to the issue of beginning investigations related to Alternative 3 for a pit or pits on the east side of Newark Bay, information regarding this will be forwarded to the Planning Division of the New York District, USACE. This information will be incorporated into the District's Dredged Material Management Plan.

In regard to the issue of suitability of upper layer material from Area 1S for ocean disposal, the USEPA and USACE have made their joint determination on the acceptability of the proposed dredged material from the surficial layers of Area 1S. The proposed dredged material is characterized as Category II. It is acceptable for disposal at the ocean Mud Dump Site prior to 1 September 1997, with subsequent capping. For further explanations, please refer to the joint agencies memo in FEIS Appendix 1.02.

The consensus conclusion of the Federal Inter-Agency Dioxin Steering Committee in 1989 was to proceed with the recommendation that dioxin (2,3,7,8-TCDD) tissue concentrations greater than 10 pptr were not acceptable for disposal at the ocean Mud Dump Site. Tissue concentrations between 1 pptr and 10 pptr were acceptable for disposal with the management technique of subsequent capping, and tissue concentrations of less than 1 pptr were acceptable for unrestricted disposal.

Following on the Steering Committee's consensus conclusion, in developing the actual disposal criteria rationale for dioxin-tainted dredged materials, a review of existing guidance and threshold levels for dioxin in fish and animal tissue was conducted. The effects data, exposure conditions and assumptions in the guidance were reviewed in the first step in developing the regional protocol for managing dioxin-tainted dredged material. The next step was to consider the appropriate exposure factors relevant to disposal at the ocean Mud Dump Site. The resulting regional protocol included guidance levels based on operational and environmental conditions at the ocean Mud Dump Site.

The New York State Department of Health (NYSDOH) human health advisory level is 10 pptr in edible fish flesh, based on its assessment of the aforementioned effects data. Since the State advisory level pertains to the local marine organisms, it was used to assess impacts associated with the ocean disposal of dioxin-tainted dredged material at the ocean Mud Dump Site. This number is protective of human health because the state based the advisory on the risks associated with consuming marine organisms specific to regional waters.

In addition to being appropriate for protecting against human health effects, the NYSDOH value of 10 pptr is also protective of ecological effects. Since this is considerably less than the 50 pptr estimated by Cook et al. (1993) as the "low risk" concentration for adverse effects on fish, the level of 10 pptr in 28-day bioaccumulation tissue is protective of upper food chain aquatic species.

Based on the above information, material which bioaccumulates dioxin in the 28-day test organisms above the Category I level is capped to minimized exposure to the marine environment. Materials which bioaccumulate dioxin to concentrations greater than 10 pptr is prohibited from being disposed at the ocean Mud Dump Site. Capping is a conservative management tool that has been successfully demonstrated at the ocean Mud Dump Site.

The USEPA dioxin reassessment continues, but ongoing activities and decisions related to dioxin should move forward. The regional disposal criteria for dioxin-tainted dredged material have been in place since 1990, and were in place when the Administration's Plan for New York-New Jersey Harbor was issued

in July of 1996.

Public

By letter dated April 19, 1997, Mr. Gerald Savo expressed dissatisfaction with the way in which his comments on the Draft EIS were addressed and stated his opinion of the Final EIS.

In letters to the USACE, Mr. Savo included copies of letters from various parties that commented on the proposed NBCDF. These letters were sent prior to publication of the DEIS, and could not be regarded as comments on that document. However, those comments were considered during preparation of the DEIS. Mr. Savo's comments on the DEIS were noted and addressed in Appendix 1.01 of the FEIS.

With respect to Mr. Savo's comment that "...an un-American promotional devise... ", USACE notes that both the DEIS and FEIS were prepared in accordance with provisions of the National Environmental Policy Act and Corps of Engineers Regulatory Program Regulations found at Title 33 of the Code of Federal Regulations, Part 325, Appendix B.

10. Views of the District Engineer Concerning Probable Effect of the Proposed Project on the Public Interest: The decision whether to issue a Department of the Army permit is based upon an evaluation of the probable impact, including cumulative impacts, of the proposed activity and its intended use on the public interest. The public interest factors and the policies and procedures for their evaluation are set forth in the rules governing the regulatory program of the Corps of Engineers at Title 33 of the Code of Federal Regulations Part 320 et seq. and the policies and procedures for implementation of the National Environmental Policy Act at Title 33 of the Code of Federal Regulations Part 230. The following is a discussion of the relevant public interest evaluation factors and other issues pertinent to the permit decision.

Ocean Disposal Testing

The applicant was required to submit the results of physical, chemical and biological testing (bioassays and bioaccumulation) of areas to be dredged for review and analysis. This testing is required according to the US Environmental Protection Agency's (USEPA) Final Revision of Regulations and Criteria pertaining to Ocean Dumping, as published in the Federal Register on 11 January 1977, vol. 42, No. 7, pages 2462 et seq (Title 40 of the Code of Federal Regulations [CFR], Parts 220 through 229) as implemented by the "Ecological Evaluation of Proposed Discharge of Dredged Material Into Ocean Waters" (commonly referred to as the "Green Book"), published in February 1991 by the USACE and the USEPA, and by the USACE/USEPA 1992 Regional Testing Manual.

Under regulations at 40 CFR 227.6 (a) and (b), the ocean dumping

of materials containing organohalogen compounds, mercury and mercury compounds, cadmium and cadmium compounds, oil of any kind or in any form, and known or suspected carcinogens, mutagens or teratogens, as other than trace contaminants, will not be approved. These constituents will be considered to be present as trace contaminants only when they are present in materials in such forms and amounts in liquid, suspended particulate and solid phases that dumping will not cause significant undesirable effects including danger associated with bioaccumulation.

An initial sampling and testing plan was transmitted to the Port Authority of New York and New Jersey on March 27, 1996 and a revised (final) plan was transmitted on April 25, 1996. In accordance with the sampling and testing plans developed for the project area, and regulations at 40 CFR 227.6 (c), the applicant performed bioassays on the material to be dredged in liquid, suspended particulate, and solid phases. The tests were performed according to procedures acceptable to USEPA and the USACE. The bioassays were performed on material from all three of the proposed pit sites for all prohibited constituents which are contaminants of concern in the vicinity of the proposed dredging location.

Ten day toxicity tests were conducted on upper layer sediments from the three project areas using appropriate sensitive organisms (*Ampelisca abdita*, *Neanthes arenaceodentata*, *Mysidopsis bahia*). These organisms are good predictors of adverse effects to benthic marine communities (USEPA, 1996). The toxicity of upper layer project sediments for Area 1S and 2N were not significantly greater than the reference sediments for the species tested. The toxicity of the upper layer project sediment for Area 2S was statistically greater than the reference sediment at the 95th percent confidence level. Accordingly the upper layer sediments of Area 2S did not meet the solid phase toxicity criteria of Sections 227.6 and 227.27 and are classified as Category III, unsuitable for ocean disposal, under USEPA/CENAN guidance.

Bioaccumulation tests were conducted on the solid phase of the upper layer project material for Areas 1S and 2N for contaminants of concern identified in USEPA/CENAN (1992) and the project sampling plan using appropriate, sensitive benthic marine organisms (*Nereis virens*, *Macoma nasuta*, *Tapes japonica*). The results for Area 2N show that concentrations of dioxin above the regional Category III value (10 parts per trillion [pptr]) were measured in the tissues of organisms exposed to the proposed dredge materials. Based on all of the results of the testing performed, USACE and the USEPA have determined that the proposed dredged material from the upper layer of Area 2N is also considered Category III, and is not suitable for ocean disposal.

Bioassay results on the liquid phase from the upper layer

sediments of Area 1S showed that the dredged material does not contain any prohibited constituents in concentrations exceeding applicable marine water quality criteria. Bioassay results on the suspended particulate phase from Area 1S, conducted with appropriate sensitive marine organisms exposed for sufficient time under appropriate conditions, as defined in regulation, do not indicate occurrence of significant mortality or significant adverse sublethal effects. Bioassay results on the solid phase for Area 1S, conducted with appropriate sensitive benthic marine organisms exposed for sufficient time, as defined in the regulation, do not indicate occurrence of significant mortality or significant adverse sublethal effects.

The results for the upper layer sediments from Area 1S show that concentrations of dioxin above the regional Category I value (1 ppt) for 2,3,7,8,-TCDD, but less than the regional Category III Criteria value were measured in the tissues of organisms exposed to the proposed dredged material from Area 1S. Under the New York/New Jersey Harbor Regional Ocean Disposal Criteria of dredged material containing dioxin, because the dredged material from the upper layer of Area 1S showed Category II concentrations, the dredged material will be capped after disposal at the Mud Dump Site.

Based on all of the results of the testing performed, USACE and the USEPA have determined that the proposed dredged material from the upper layer of Area 1S is considered Category II dredged material and is suitable for ocean disposal with subsequent capping. The proposed dredged material contains none of the constituents prohibited in 40 CFR 227.6 as other than trace contaminants, and meets the LPC requirements of 40 CFR 227.27. These testing issues are addressed in more detail in a joint USEPA/USACE memoranda of 27 March 1997 that is part of the administrative record for this application.

Lower layer sediments from Areas 1S, 2S, and 2N were excluded from ocean disposal testing because they met the exclusionary criteria defined at 40 CFR 227.13(b)(3). Basically, the criteria for exclusion from ocean disposal testing are removal of the potential dredged material in time and space from historic and known, existing sources of pollution and would be disposed of on a substrate composed of similar material.

The lower layer sediments at the proposed project site consists of a unit of gray sand underlain by a unit of red-brown clay. Both are assigned a Pleistocene age, and are considered to have been deposited in glacio-fluvial and glacio-lacustrine settings, respectively. This leads to the conclusion that the gray sand and the red clay are geologically older than the overlying Holocene-age black organic silty clays that form the upper layer sediments. Geotechnical and chemical analyses on cores from the lower layer sediments, particularly the red-brown clay, show that

it is nearly impermeable with low or non-detectable levels of metals. This is consistent with what would be expected in sediments deposited in natural environments that are removed in time and/or space from sources of pollution. Based on the foregoing it is concluded that the gray sand and the red clay are in a hydrostatic environment precluding the migration of contaminants downward into the older material indicating its removal in time and space from historic and known, existing sources of pollution. Compliance with 40 CFR 227.13(b)(3)(i) is further established by the disposal of the lower layer materials (otherwise defined as fine-grained material) in the Northern Quadrant of the MDS, where the existing substrate is dominated by fine-grained material. Thus, the material proposed for dumping is substantially the same as the substrate at the proposed disposal site.

Conservation of Natural Resources

The proposed project site is located in Newark Bay, a part of the NY/NJ Harbor Estuary. Newark Bay is on the western side of the Harbor complex and the proposed work site is on the western side of the Bay. Newark Bay and its shoreline have been modified extensively by dredging, filling, and commercial operations since the mid-1800s (Crawford et al. 1994).

A major natural resource area in the vicinity is the "Harbor Herons Rookery Complex", which includes the Isle of Meadows, Prall's Island, and Shooters Island in the Arthur Kill corridor. The area has been designated by the State of New York as a Significant Coastal Fish and Wildlife Habitat. The Harbor Herons Rookery Complex supports the largest harbor heron rookery in the northeast United States.

Expanding heron populations will require foraging areas and a continued supply of forage, including fish and invertebrates. Some marginal foraging areas occur along the west shore of Newark Bay near the NBCDF area. Studies of flight lines of wading birds departing Shooters Island for forage areas indicate that nearly half head north over Newark Bay (Maccarone and Parsons 1988).

Concerns with respect to the project's harm to the rookery complex center upon increased bioavailability of contaminants, such as halogenated aromatic hydrocarbons and heavy metals, due to dredging and disposal operations. In response to this concern, the applicant has indicated that a closed bucket will be used. Bucket hoist speeds would be minimized to 2 feet/second and dredged material would be placed evenly in the scow, without allowing it to freefall or drop.

The occurrence of herons and other species that would inhabit the rookery complex (raptors, shorebirds, rails, coots) in the CDF project area is considered unlikely. This is because the project area contains only marginal foraging area or habitat for these

species. The only potential short-term impacts are that migrating birds might collide with tall equipment (cranes) and/or that some raptors (osprey, American kestrels) might land on tall equipment and be contaminated with petroleum lubricants, oils and greases. These are not considered to be likely occurrences.

Economics

The basis for the proposed action is the recognized need for dredging to maintain adequate water depths in channels and berthing areas in order that the port can operate in a safe and efficient manner. The Final Report of the Governor's Dredged Material Management Team (1995) stated, "The port is vital to our region's economy and must be kept open through necessary dredging projects".

The economic benefits related to waterborne commerce in the region include more than \$20 billion in economic activity, up to 200,000 port-related jobs, approximately \$47 billion in exports of New York and New Jersey products, and over 70% of containers arriving have the port as their final destination (DMMT, 1995; USACE, 1996).

As part of the USACE Dredged Material Management Plan, a basic economic evaluation was undertaken as one of a series of comprehensive studies to establish the overall Federal interest in continued maintenance of the Port. A benefits analysis from maintenance dredging of New York/New Jersey Federal Channels and Newark Bay is summarized in Table 1. The analysis assumes a 20-year project life, a 1993 price level, and a 7 5/8 discount rate, in order to compare maintenance dredging costs to costs that would be incurred if the Port were to become impassable. The study concludes that benefits of \$463,510,000, or \$119 per cubic yard, would accrue from continued dredging (USACE, 1996).

Oral and written public comments received in response to the Environmental Impact Statement recognized the economic importance of the Port, as well as the need to dredge in order to maintain channels and berthing areas. The need for disposal areas for dredged material is recognized and well documented (DMMT, 1995; USACE, 1996, USACE, 1997).

Based upon the foregoing, it is concluded that providing a Confined Disposal Facility for dredged material deemed unsuitable for ocean disposal would assist in maintaining the viability of the Port. The proposed action would have a beneficial effect on the economy of the region.

Aesthetics

Concerns were expressed that users of parks along the Bayonne waterfront, and residents of the area, would have their views obstructed due to activities associated with proposed construction and disposal operations. Visual resources within

the proposed project area and immediate vicinity are limited largely to the industrial and commercial facilities dominating the western shoreline. Additional visual resources include the Newark Bay Bridge and approach spans of the New Jersey Turnpike Extension, the Newark Bay Rail Road Lift Bridge, the community/park facilities along the eastern shoreline of Newark Bay, and the mid- to high-rise apartments located in the northwest section of Bayonne.

The low elevation of public access locations to the Bayonne waterfront provide expansive views of Newark Bay and the surrounding area. Dominant features to the west are the Ports of Newark and Elizabeth, consisting of docking facilities, warehouse and container storage areas, and ship cargo handling cranes/derricks. Visible from all three waterfront park facilities are the Port Elizabeth and Port Newark marine terminals, cargo cranes, and commercial shipping traffic which occupy most of the viewshed to the west of Bayonne. Distances between the Bayonne waterfront (viewing area) and the marine terminals vary from approximately 3000 ft (925 m) between City Park and the Port Elizabeth pierhead, to approximately 6000 ft (1830 m) between Bayonne Park and Port Newark pierhead. Airline traffic, using Newark International airport, and the Newark skyline are visible in the remote background. Looking north from the Bayonne waterfront, the Newark Bay Bridge and approach spans can be seen. The Newark Bay Rail Road Lift Bridge is also visible in the background. The superstructures for both bridges are approximately 160 ft (50 m) above the water surface and are the dominant visual landmarks in the area.

Visual resources viewed from the Bayonne waterfront, including the Newark Bay Bridge and Port Newark/Elizabeth marine terminals, will remain. Dredging activities associated with the proposed project, including crane operation, drilling, or dipper dredge operations will not contravene the industrial nature and backdrop of the existing viewshed. Heights of machinery, including cranes and drill rigs will not exceed those of existing container cranes or steamship heights that currently dominate the western skyline. When the CDF has been capped at the end of disposal operations, all equipment will be removed and views across the Bay would be returned to pre-existing conditions. It is concluded that the proposed project would have no significant impact upon aesthetics.

Wetlands

Wetlands are defined at Title 33 of the Code of Federal Regulations, Part 328.3(b) as those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are vital areas that constitute a productive and valuable public resource.

No vegetated or emergent wetlands are present within Areas 1 and 2, the areas of Newark Bay proposed for development of the NBCDF. A small area, approximately 6 acres in size located adjacent to the west side of the Newark Bay Bridge, north of the northern portion of proposed NBCDF Area 2, has been mapped as emergent, intertidal, vegetated wetland.

Virtually the entire area of Newark Bay is shown on National Wetlands Inventory maps as estuarine, subtidal, open water, wetlands (E1OW). This designation is used for areas that are not exposed by tidal action and are generally unvegetated. An area of "estuarine, intertidal flat" (E2FL), along the Bayonne waterfront and on either side of the Newark Bay Bridge, is shown on the NWI maps. The area lies east of the proposed NBCDF sites and the Federal navigation channel.

Although shallow water habitat areas would be disturbed by NBCDF construction, the proposed work would impact only a small (<1.5%) portion of the shallow bottom of Newark Bay. Moreover, the period of disturbance would be short.

The preceding information indicates that no significant impacts to wetlands in Newark Bay are anticipated as a result of NBCDF construction, dredging to fill the CDFs (so long as all dredging takes place in defined navigational channels and/or berthing areas), or CDF capping so long as proper dredging and sedimentation control procedures are employed. In addition, the clean sand used for capping will provide a substrate for recolonization, as well as functioning as a barrier to contaminant release.

Historic Properties

A review of the latest version of the National Register of Historic Places has been performed to ascertain the presence or absence of registered properties or properties listed as being eligible for inclusion therein. By letter dated April 18, 1996, the Historic Preservation Office, Division of Parks and Forestry, Department of Environmental Protection of the State of New Jersey stated that they did "not have any information on resources within the specific locations slated for pit excavation."

Research conducted at the New Jersey Historic Preservation Office (NJHPO), the New Jersey State Museum, and the New Jersey State Archives, indicated no previously reported archaeological sites, shipwrecks, or historic properties within the proposed NBCDF area. Examination of historic maps indicates that, at least from the mid-19th century to the present, the proposed NBCDF location has been submerged. No development has occurred within the immediate area, although development has occurred to the west. There are no known archaeological resources located within the boundaries or within 1 mile (1.5 km) of the NBCDF as indicated by the site files of the New Jersey State Museum

Archaeology/Ethnology Bureau. No shipwrecks are shown on any topographic or coast and geodetic maps examined.

The Final EIS notes that the potential for discovery of cultural resources exists in the project area. As a result, samples collected in Newark Bay were reviewed as part of the cultural resources evaluation. Soil borings were conducted in the proposed NBCDF areas as part of the environmental studies and ocean disposal testing. Soil borings assist in identifying the composition of deeply buried strata, which may reveal information regarding prehistoric geological deposits and buried cultural resources. Locations of borings are given in the Final EIS.

Examination of core logs and photos of cores from the NBCDF area did not indicate the presence of any anthropomorphic material. Examination of these materials satisfies requirements for an investigation of the permit area pursuant to the requirements of 33 CFR, Part 325, Appendix C, Paragraph 5.

Based on the foregoing, it is determined that the proposed project will not directly impact any historic sites or landmarks. To insure protection for cultural resources, General Condition #3 of Department of the Army permits, requires immediate notification of the discovery of any historic or archeological resources to the U.S. Army Corps of Engineers, who will initiate coordination with the National Park Service of the Department of the Interior, and the New Jersey State Department of Environmental Protection, Division of Parks and Forestry, Historic Preservation Office to determine if data recovery is warranted.

Fish and Wildlife Values

Potential adverse impacts to fish and wildlife could result from disruption of habitat, as well as increased turbidity and resuspension of pollutants during dredging and dredged material disposal operations. These impacts would occur at both the proposed project site and the ocean disposal Mud Dump Site.

Dredging to create the NBCDF would temporarily disturb approximately 56 acres (0.23 km²) of shallow-water habitat in Newark Bay. The benthic organisms in this area would be lost and the habitat would be temporarily unavailable as a feeding area for fishes. The duration of this impact would be for the length of the CDF operation. The temporary habitat loss represents less than 1.5% of the bottom area of Newark Bay and approximately 2.0% of the shoal habitat in the Bay. Fish and invertebrate studies show no major differences in the use patterns of shoal areas in the Bay. Many species that use the shoal areas are also abundant in the channel areas. There is extensive habitat for fish and shellfish in Newark Bay that could be utilized while the CDF is under construction and in operation.

Following capping and closure of the CDF, natural sedimentation would produce a fine-grained mud substrate the same as the surrounding undisturbed shoal areas. The large area of nearby undisturbed habitat would be a source of organisms to recolonize the CDF sites. A study of a dredged area shows that recolonization can be very rapid, with productive habitat conditions established in a matter of months (Parish and Weiner, Inc., 1989).

Habitat disturbance at the Mud Dump Site occurs due to burial of benthic organisms in the course of disposal operations. Epibenthos, those invertebrates which move over the bay bottom, are less affected than infaunal (burrowing) benthos. At the conclusion of disposal and capping operations, recolonization is expected to occur at the ocean disposal Mud Dump Site as rapidly as in Newark Bay.

Turbidity indicates the release of fine grained sediment into the water column. Because contaminants bind preferentially to such sediments, it is an impact of particular concern. As a result there is a direct linkage between turbidity and contaminant exposure. A factor in the potential exposure of aquatic life to contaminants released during the construction and operation of the CDF is the movement and migratory patterns of organisms. Many fish and some invertebrates cover broad areas in their search for food and often larger areas during their reproductive cycles. The fish community in the New York Harbor/Newark Bay complex can be characterized as transient, in that most species move into and out of Newark Bay seasonally or over shorter intervals of time.

Invertebrates generally cover relatively small distances compared to fish, but the epibenthos can cover substantial distances daily and seasonally. Infaunal benthic organisms live burrowed in the substrate (infauna) and do not make regular movements, making them susceptible to dredging effects and contaminant exposure.

Although use of shoal areas by fish is greatest from April to October, the exposure of individuals to dredging and disposal operations would be primarily a chance encounter as the various species move about the Bay. The majority of species can be expected to use the Bay without encountering the activities at the CDF because the work area represents a very small activities and presently shallow area of the Bay. Some species may take advantage of the bottom disturbance to feed on organisms exposed by the initial dredging at the CDF, but generally fish can be expected to avoid the disturbance in the vicinity of the CDF.

The activities at the CDF would not produce conditions that would attract fish and shellfish for extended periods of time. As long as the species undertake their normal movement and migration patterns, their exposure to elevated levels of contaminants would

be of short duration. This level of exposure should not be any greater than their exposure to residual chemical contaminants on a day-to-day basis in Newark Bay. In addition, the removal of contaminated sediments from channels and berthing areas, and their subsequent isolation within the CDF, would have a beneficial effect by removing and isolating them from the biosphere.

Further safeguards can come from the use of Best Management Practices recommended by the New Jersey Department of Environmental Protection (NJDEP) to minimize turbidity. These are included as special conditions of the NJDEP permit. In the event that turbidity becomes excessive for extended periods of time, inspectors on the project would notify the New Jersey Department of Environmental Protection and the Corps of Engineers, New York District so that corrective measures may be undertaken.

Turbidity and contaminant concentrations at the Mud Dump Site are controlled by application of the Automated Dredging and Disposal Alternatives Management System (ADDAMS) Model (also see the Water Quality Section of this Record of Decision). The ADDAMS Model (primarily a dilution model) is used for evaluating dredged material disposal effects. The results can be used to design disposal procedures and conditions so that the lowest permissible concentration (LPC) of any contaminant is not exceeded after initial mixing. In effect, this acts to insure that exposure of fish to contaminants is minimized. Full use of these tools will be utilized in developing the operational guidelines for disposal activities at the MDS.

Based upon the information contained within the Final EIS, it is concluded that no significant adverse impacts to fish and wildlife would occur as a result of dredging and disposal activities at the proposed NBCDF site or at the ocean disposal Mud Dump Site.

Flood Hazards and Floodplain Values

The proposed project involves dredging and dredged material disposal operations in Newark Bay, and dredged material disposal operations at the ocean disposal Mud Dump Site. The potential the NBCDF impacting on floodplain values is limited to the duration of the construction phase as the area would be restored to preconstruction elevations after filling of the CDF.

Hydrographic modeling has shown that opening of the CDF sites would produce only localized changes in current velocities near the sediment-water interface. Therefore, flow-through volumes would not be altered significantly by NBCDF construction.

It is concluded that the proposed activities would not have any effect upon floodplain values. In addition, none of the proposed

activities would have any effect upon potential flood hazards as the site(s) lie downstream of the Hackensack and Passaic River floodplains.

Land Use

The proposed work site(s) consists of underwater tidelands in Newark Bay, Essex County, New Jersey, which are owned by the State of New Jersey. The use of the land is administered by the Tidelands Resource Council of the New Jersey Department of Environmental Protection.

Under a management agreement authorized by the Tidelands Resource Council, the Port Authority of New York and New Jersey would be assigned management rights to the underwater lands for the purpose of constructing, operating, maintaining, closing, and monitoring a Confined Disposal Facility (CDF). Ownership of the tidelands would continue to reside with the New Jersey Tidelands Resource Council. At the time of this Record of Decision, the management agreement has not been signed, however, any issued Department of the Army permit would not confer property rights to the applicant.

Currently, the site of the proposed action is unused underwater land. The adjacent area (Port Newark/Port Elizabeth Marine Terminal) is a locus of non-passenger, commercial ship traffic. Areas on the western side of Newark Bay are primarily characterized by commercial and industrial use. The eastern side of Newark Bay has a more varied land use pattern with commercial, residential, and recreational areas located near the shoreline.

The disposal of dredged material in subaqueous depressions is a practice utilized around the United States. Disposal of dredged material in this fashion has taken place in or near port areas in the states of Washington, Massachusetts, and California. The Board of Chosen Freeholders of Essex County, New Jersey has passed a resolution endorsing the project (i.e. supporting the proposed land use). Moreover, upon completion of filling and capping the land would be returned to its former elevation.

It is concluded that there would be no significant impact on land use in the project area or in adjacent locations.

Navigation

The existing project area is characterized by a series of maintained navigation channels and berthing areas. With regard to the NBCDF, it is imperative that neither construction nor disposal operations encroach on the existing navigation infrastructure or otherwise adversely impact vessel movements.

Area 1, which includes the proposed site of Pit 1S, is bounded by federal navigation channels. The proposed Pit 2S site is bounded on the east and south by channels, as is the eastern side of the

proposed Pit 2N site.

Most of the vessel traffic in Newark Bay consists of container and other dry cargo vessels, although some tankers enter the Bay. Almost all of the container vessels enter and leave through the Kill Van Kull because bridge height restrictions preclude use of the Arthur Kill. Coast Guard Vessel Traffic System records show that approximately 50 vessels per day travel through part of Newark Bay. However, not all enter or exit from Port Newark or Port Elizabeth.

Equipment and vessels used for construction of the NBCDF would only be stationed in the Federal Channels during the earliest stages of construction. Such vessels and equipment would occupy a maximum of 20% of the channel width. Efforts to schedule initial construction activities during periods of reduced vessel traffic would be made through coordination with the U.S. Coast Guard Vessel Traffic Service.

Vessels or equipment engaged in dredging or dredged material disposal activities at the NBCDF site would give way to vessels entering or leaving Port Newark or Port Elizabeth or in transit through Newark Bay. Tug and barge traffic are monitored and managed by the Coast Guard when such movements involve use of federal navigation channels. Special Conditions related to movement of vessels carrying material for disposal at the ocean disposal Mud Dump Site would be included in any issued Department of the Army permit.

Given the foregoing, it is concluded that there would be no significant adverse impacts to navigation as a result of dredging and disposal activities at the proposed NBCDF site.

Shore Erosion and Accretion

The proposed action would occur close to the shoreline of Newark Bay. Hydrographic and sedimentological modeling suggests that there would be virtually no change in current velocities and/or sedimentation rates in Newark Bay. Minor changes in current velocity and sedimentation rates would be limited to the immediate vicinity of the proposed NBCDF site and would not have any impact upon shoreline erosion or accretion.

Recreation

The proposed action would have no significant impact upon recreation. The proposed project area is a commercial site with little or no value for recreational activities. Recreational facilities are found on the eastern shore of Newark Bay in Bayonne, New Jersey. Recreational fishing, an activity practiced on the Bayonne shoreline, would suffer no significant impact due to dredging or dredged material disposal activities related to the NBCDF.

Water Supply and Conservation

Groundwater in the area adjacent to Newark Bay is classified as II-A, a default classification for groundwater, with a primary designated use as potable water and conversion (through conventional water supply treatment, mixing, or other similar technique) to potable water. Secondary designated uses include agricultural and industrial water use. The water supply for Hudson and Essex Counties is, however, from surface water sources. Groundwater is not relied upon in this area as a water supply, albeit being classified as II-A.

Any material placed in Newark Bay having contaminants that leach at a concentration greater than the criteria for Class II-A groundwater in New Jersey has the potential to impact the groundwater. Due to the lack of hydraulic head to drive groundwater flow, contamination would most likely propagate by diffusion rather than physical transport. Concentrations would decrease markedly with distance from the source.

The proposed bottom depth of the NBCDF is -70 ft (-21.3 m). Constructing the NBCDF to this depth will leave approximately 20 ft (6.1 m) of clay between the bottom of the CDF and the shale bedrock. The permeability of this red-brown clay ranges from 2.4×10^{-7} cm/s to 6.3×10^{-8} cm/s measured at 20°C. The 20 ft (6.1 m) clay layer between the bottom of the NBCDF and the bedrock should provide ample groundwater protection.

Based on the foregoing, it is determined that dredging and dredged material disposal activities associated with the proposed NBCDF would have no major impact on groundwater resources in the area.

Water Quality

Potential impacts to water quality can occur at the proposed project site and at the ocean disposal Mud Dump Site as a consequence of construction and dredged material disposal activities. The impacts are related to increased turbidity and resuspension of pollutants (see also Fish and Wildlife Values).

Potential impacts to water quality at the NBCDF site have been evaluated for distinct periods: the construction phase, the disposal and capping phase, and the post-capping phase. Disposal at the ocean disposal Mud Dump Site (MDS) is evaluated separately.

Newark Bay, classified by the New Jersey Department of Environmental Protection as SE3 saline estuarine waters, is partially stratified, has variable salinity, and has a turbidity maximum (measured indirectly as total suspended solids [TSS]) occurring in near-bottom waters (Suszkowski, 1978). SE3 designated uses are secondary contact recreation, maintenance and migration of fish populations, migration of diadromous fish, and

maintenance of wildlife.

Hydrographic and sedimentological modeling of Newark Bay indicates that construction and operation of the proposed NBCDF will not affect overall sedimentation patterns and rates or concentrations of TSS. The same studies show decreased current velocities at the project site(s) would induce sedimentation, thus locally decreasing TSS concentrations.

The New Jersey Department of Environmental Protection (NJDEP) Waterfront Development permit for the project requires monitoring of TSS during construction of the NBCDF. In addition, the use of certified inspectors will be required during construction to monitor turbidity. If turbidity becomes excessive during dredging operations, the inspector will contact the USACE and NJDEP with regard to corrective actions to be taken.

Disposal of dredged material at the NBCDF could produce several impacts upon water quality. If the CDF were to be unused for a short period of time prior to disposal operations, a state of low dissolved oxygen, or possibly anoxic conditions, would develop. Disposed sediments would then be in a chemically reduced state after deposition making it unlikely that particle-bound metals (i.e. copper, zinc, cadmium, mercury, lead) would migrate.

Migration of organic compounds is also unlikely. Partitioning of organic compounds is controlled largely by organic carbon content. As minimal changes in organic carbon content are expected, there will be little migration of organic contaminants during disposal.

In addition to TSS monitoring during construction of the NBCDF, NJDEP will be requiring monitoring of TSS during disposal operations. An additional protection for water quality is being required by the NJDEP, that being a prohibition of disposal of sediments that have been or would have been classified as Category III in the uppermost 15 feet of the CDF.

After placement of the sand cap, avenues for contaminant escape would be erosion, bioturbation, pore water release, and gas bubbles. The 3 foot thickness of the sand cap is designed to insure physical, biological, and chemical isolation. Sediment transport modeling shows that the sand cap would be stable. Studies of bioturbation (Rhoads and Carey, 1997) describe that 1 foot of cap is normally sufficient for biological isolation. Only water soluble contaminants that are not bound to sediment would be release during pore water expulsion and gaseous components, other than methane, are minimal.

Mud Dump Site Disposal

Water quality at the ocean disposal MDS is maintained by

application of the Automated Dredging and Disposal Alternatives Management System (ADDAMS) Model (also see Fish and Wildlife Values). The ADDAMS Model (primarily a dilution model) is used for evaluating dredged material disposal effects. The results are used to design disposal procedures and conditions to insure that the turbidity plume related to a disposal operation is dispersed within 4 hours, and the least permissible concentration (LPC) of any contaminant is not exceeded after initial mixing. Disposal conditions for sediments designated Category II that would be dredged to construct the NBCDF would be included in any Department of the Army permit.

Based on the foregoing, it is concluded that there would be no significant adverse impact on water quality in Newark Bay or at the ocean disposal Mud Dump Site as a result of dredging or disposal operations related to the proposed NBCDF.

Energy Needs

Petroleum-related facilities comprise an important segment of the Port's activities. At the time of this Record of Decision, 50% of the dredging applications pending before the USACE were from petroleum-related facilities. The potential closure of such facilities due to an inability to dredge deep-water berths could result in an adverse impact upon energy supplies and/or costs in the Port region.

The proposed NBCDF offers a short-term alternative for disposal of sediments from such facilities. This would be a significant beneficial impact to the regions energy needs.

Safety

The lack of disposal capacity for dredged material has led to changes in the manner of port operations. These changes include procedures that decrease the safety of workers in the maritime industry, particularly in petroleum-related facilities, and increase potential hazards to the public and the environment.

The chief operational change involves increased "lightering", a procedure in which cargo or fuel is transferred from a carrier vessel to a barge so that the carrier has a shallower draft and can safely enter the Port. The procedure involves increased risk of spills, safety hazards for mariners involved in any type of transfer operations at sea, safety hazards related to increased handling of flammable materials, and navigational hazards related to increased vessel traffic.

Although the capacity of the proposed NBCDF would not completely eliminate the need for lightering, it would decrease the extent of the practice. Should water-borne petroleum operations to and from terminals be curtailed due to insufficient port facilities, the ensuing supply shortfall would be made up by land-based (truck) operations. This would place an increased burden upon

highway infrastructure in the region. Concomitantly, the number of accidents would increase proportionately with the number of vehicles and vehicle-miles traveled. Moreover, additional vehicle traffic would increase the quantity of pollutants entering the atmosphere, decreasing the regions capacity to meet federal clean air standards. As trucking practices would cost more than transport by vessel, the ultimate effect would be costs that are transferred to consumers.

Given the foregoing, it is concluded that if a permit were issued for the proposed NBCDF the safety of workers in the maritime and petroleum-related industries would be increased due to decreased need for cargo transfers at sea, reduced handling of flammable materials, fewer vessels navigating the waterways, and preventing increased vehicle traffic. This would result in beneficial impacts to the region.

Food and Fiber Production

There would be no significant impacts on food and fiber production in the region if a permit were issued for dredging and disposal operations at the proposed NBCDF site.

Mineral Needs

There would be no significant impacts on the mineral needs of the region if a permit were issued for dredging and disposal operations at the proposed NBCDF site.

Considerations of Property Ownership

The proposed work site(s) consists of underwater tidelands in Newark Bay, Essex County, New Jersey, which are owned by the State of New Jersey. The use of the land is administered by the Tidelands Resource Council of the New Jersey Department of Environmental Protection.

By letter dated May 8, 1997, the City of Newark stated that it had no objection to proposed NBCDF. However, the city noted that the proposed NBCDF would be located within its city limits and stated that the city was entitled to a "Host Municipality Fee". This and other comments contained within that letter are discussed in Paragraph 9 of this Record of Decision.

As the property owner has agreed to the use of the land and no response or comment was received from the adjacent property owners on the Draft or Final Environmental Impact Statement, it is concluded that considerations of property ownership are appropriately addressed with respect to the proposed project.

Needs and Welfare of the People

The proposed NBCDF would have minimal effect upon the human environment. The evaluation of these impacts comprises a major portion of the Environmental Impact Statement (EIS) on the proposed project.

Beneficial impacts of the project identified in the EIS include, but are not limited to, maintenance of economic infrastructure, increased public safety, and the removal and/or isolation of contaminants from the aquatic environment to minimize or eliminate their bioaccumulation and biomagnification. These impacts are also discussed in sections on Economics, Fish and Wildlife Values, and Water Quality above. In general, it was found that major benefits would arise from the proposed project.

Adverse impacts include, but are not limited to, habitat disruption and disturbance/redistribution of contaminated sediments. These have been discussed above in sections on Fish and Wildlife Values and Water Quality. Based on the information given in the EIS prepared on the project, it is determined that significant adverse impacts to the public interest would not arise from the proposed work.

In light of the foregoing, and in agreement with the findings of the Final EIS, it is determined that on balance, the proposed NBCDF would have a beneficial impact upon the public interest.

11. Alternatives: Alternatives to the proposed action were evaluated in the Environmental Impact Statement (EIS) on the proposed project. Alternatives were subjected to a multiphase screening process. Alternative disposal strategies were evaluated to determine if they met selection criteria related to project goals. Alternative locations for the Newark Bay Confined Disposal Facility were considered. Alternative scenarios and methods for NBCDF construction were developed. As required by the National Environmental Policy Act (NEPA) the No Action Alternative was also considered.

The criteria for selection of the range of feasible alternatives to the proposed action were defined as:

- Must be suitable for receipt of dredged material within a short-term time frame, defined as October, 1997.
- Can not involve disposal of unsuitable sediments in the ocean.
- Must have a capacity between one and 14 million cubic yards.
- Must be permittable, defined as:
 - No changes to existing regulations or laws are required to obtain permits.
 - Permit process (local, state, federal, international) can be accomplished within the time frame required.
- Must be constructable, defined as:
 - Uses existing technologies, no untested construction methods involved, no encumbrance on existing or proposed land uses.
 - Involves no access or utility restrictions (e.g. underground electrical cables).
- Must be environmentally acceptable, defined as:

- Does not result in substantial adverse impacts.
- Results in impacts that balance or have a net beneficial effect.
- Does not put additional stress on endangered and threatened species.

Table 2 summarizes the alternatives considered and their suitability based on the criteria given above. Subaqueous CDFs met the selection criteria. Four alternative "construction" scenarios were defined based upon the foregoing analysis.

The four (4) "construction" alternatives and the No Action alternative were examined in detail in the EIS. They are summarized in Table 3 and discussed briefly below.

The four construction alternatives represent a gradation in the size of CDF's from 1.55 million cubic yards (MCY) to, potentially, more than 19 MCY. The uppermost figure is uncertain because additional data would be necessary to define the size and extent of a potential CDF site, or sites, on the east side of Newark Bay. Initial indications are that the potential capacity of such a site could exceed 16 MCY.

Alternative 1 proposes construction of a single pit at the southernmost site proposed for the NBCDF (Area 1S - see Figure 1). Alternative 2 is the proposed action (a three pit CDF), the capacity of which would be between 2.4 - 3.1 MCY depending upon the disposal method used for the upper layer sediments of Pits 2S and 2N. Alternative 3 is a CDF or CDFs on the east side of Newark Bay, south of the New Jersey Turnpike Extension Bridge. Alternative 4 combines construction of Alternative 3 with construction of Alternative 2. In Alternative 4, Category 2 and 3 material from Areas 1S, 2S, and 2N would be disposed of in the Area 3 CDF(s).

Alternative 5 is the No Action alternative. No action is interpreted to mean that a CDF or CDFs would not be built in Newark Bay. The No Action alternative does not mean that dredging and disposal activities throughout the Port would cease. To the contrary, as established in Chapter 1, there is a need to dredge and dispose of sediment that clogs channels and berthing areas.

The "construction" alternatives discussed above involve ocean disposal of dredged materials. As part of the permit review process, the applicant must show that there are no alternatives to ocean disposal available. By letter dated March 10, 1997, the applicant requested that the State of New Jersey identify any alternative sites for the disposal of Category II material that would be dredged to construct the proposed NBCDF. By letter dated April 4, 1997, Robert C. Shinn, Jr., Commissioner of the

New Jersey Department of Environmental Protection, responded to the applicant's request. Mr. Shinn stated that the State of New Jersey was not aware of any alternative sites for the disposal of Category II material and did not foresee the availability of such sites in the immediate future. By letter dated 16 May 1997, the applicant has certified that in accordance with the Administration's Plan for Dredging in the Port of New York and New Jersey, the elevation of the disposal site will not be above -65 feet below the plane of Mean Low Water subsequent to completion of the disposal of the Category 2 dredged material, nor could they identify an alternative disposal site for that material.

Environmentally Preferred Alternative and Preferred Alternative Title 40 of the Code of Federal Regulations, Part 1505.2(b) of the regulations implementing the National Environmental Policy Act (NEPA) requires that an "environmentally preferred alternative" be specified in the Record of Decision (ROD) for any Environmental Impact Statement (EIS). This can mean the alternative that causes the least damage to the biological and physical environment. However, it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources of the proposed project area(s).

Alternative 5 could be considered the environmentally preferred alternative in the sense that the absence of dredging and disposal activities would eliminate any adverse environmental impacts within the areas proposed for construction and operation of the NBCDF. However, if other dredged material disposal alternatives do not become operative in the near future other adverse environmental impacts would be forthcoming. Adverse impacts related to lack of dredging could occur with respect to navigational safety, cargo handling safety (e.g. potential petroleum spills), air quality, highway infrastructure, and economic detriment to the region. If shippers continue to use the port, the risk of groundings for deep draft vessels would increase significantly, as would potential accidents due to probable increases in lightering operations. If shippers leave the port for operations in other locations, the economy of the area would suffer due to loss of port related jobs and taxes. Increased vehicular traffic, used to make up a shortfall in seaborne goods, would produce increased air pollution and impose additional strain on the region's highway infrastructure. The importance of the port to the economic well being of the region has been discussed previously (see Economics above).

Moreover, Alternative 5 does not produce benefits. Benefits, such as reducing the bioavailability of contaminated sediments, would accrue if any of the construction alternatives were implemented.

Based on considerations of the proposed alternatives presented in

the Draft and Final EISs, comments received in response to public review of those documents, and the discussion above, it is concluded that the preferred alternative (Alternative 2) is the environmentally preferred alternative as well.

Alternative 2, the proposed action, provides a variety of beneficial impacts that balance or outweigh the negative impacts of the proposed action. This is consistent with the purpose of NEPA, which is "...to use all practicable means and measures...in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans".


12. Conformity with Guidelines Published for the Discharge of Dredged or Fill Material in Waters of the United States (40 CFR Part 230): A Section 404(b)(1) of the Clean Water Act Guidelines Evaluation has been performed as required by Title 40 of the Code of Federal Regulations Part 230. The evaluation, a copy of which is contained in the FEIS, concludes that the proposed discharges of dredged and fill material are in compliance with the guidelines.

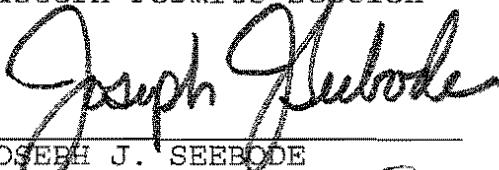
13. Conclusions: The proposed Newark Bay Confined Disposal Facility (NBCDF) is an outgrowth of a key recommendation made by New Jersey Governor Whitman's Dredged Material Management Team (DMMT), which recognized the need to dredge and dispose of contaminated sediments as vital to the preservation of the port.

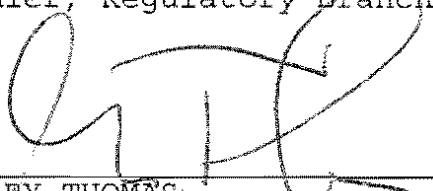
The United States Environmental Protection Agency, United States National Marine Fisheries Service, United States Fish and Wildlife Service, New Jersey Department of Environmental Protection, and New Jersey Department of Transportation served as cooperating agencies in the preparation of the Environmental Impact Statement (EIS) on the NBCDF. Recommendations made by these agencies with respect to minimizing project-induced impacts to water quality and fish and wildlife resources have been incorporated into the Final EIS. Special Conditions would be included in any Department of the Army permit to ensure the project is constructed in a manner sensitive to the environment. The special conditions include provision for use of endangered species inspectors during transport and disposal operations at the ocean disposal Mud Dump Site (MDS), use of inspectors to monitor dredging and disposal operations, use of best management practices, and specific monitoring procedures and requirements.

14. Findings: The decision whether to issue a permit is based upon a thorough analysis and evaluation of the various practicable alternative courses of actions to satisfy the project's needs; that whatever adverse effects are found to be involved, they cannot be avoided by following reasonable alternative courses of action which would satisfy the project's needs; that where the proposed project has adverse effects, the effects are minor or outweighed by other considerations of national policy; that the proposed action is consonant with national policy, statutes, and administrative procedures; and that, on balance, the issuance of the permit would best serve the total public interest.

Based upon the finding of the Federal Environmental Impact Statement prepared for this action, a review of the administrative record, and after a weighing of all factors relevant to the application, it is concluded that the proposed construction and operation of the Newark Bay Confined Disposal Facility (NBCDF) is in the general public interest and that any objection to the work from the standpoint of navigation, natural resources, water quality, or other factors affecting the public interest has been appropriately addressed. It is recommended, therefore, that a Department of the Army permit be granted to the Port Authority of New York and New Jersey to perform dredging and disposal activities associated with the construction and operation of the NBCDF subject to Special Conditions (A) through (Z) to insure proper execution of the work while minimizing impacts to the aquatic environment.

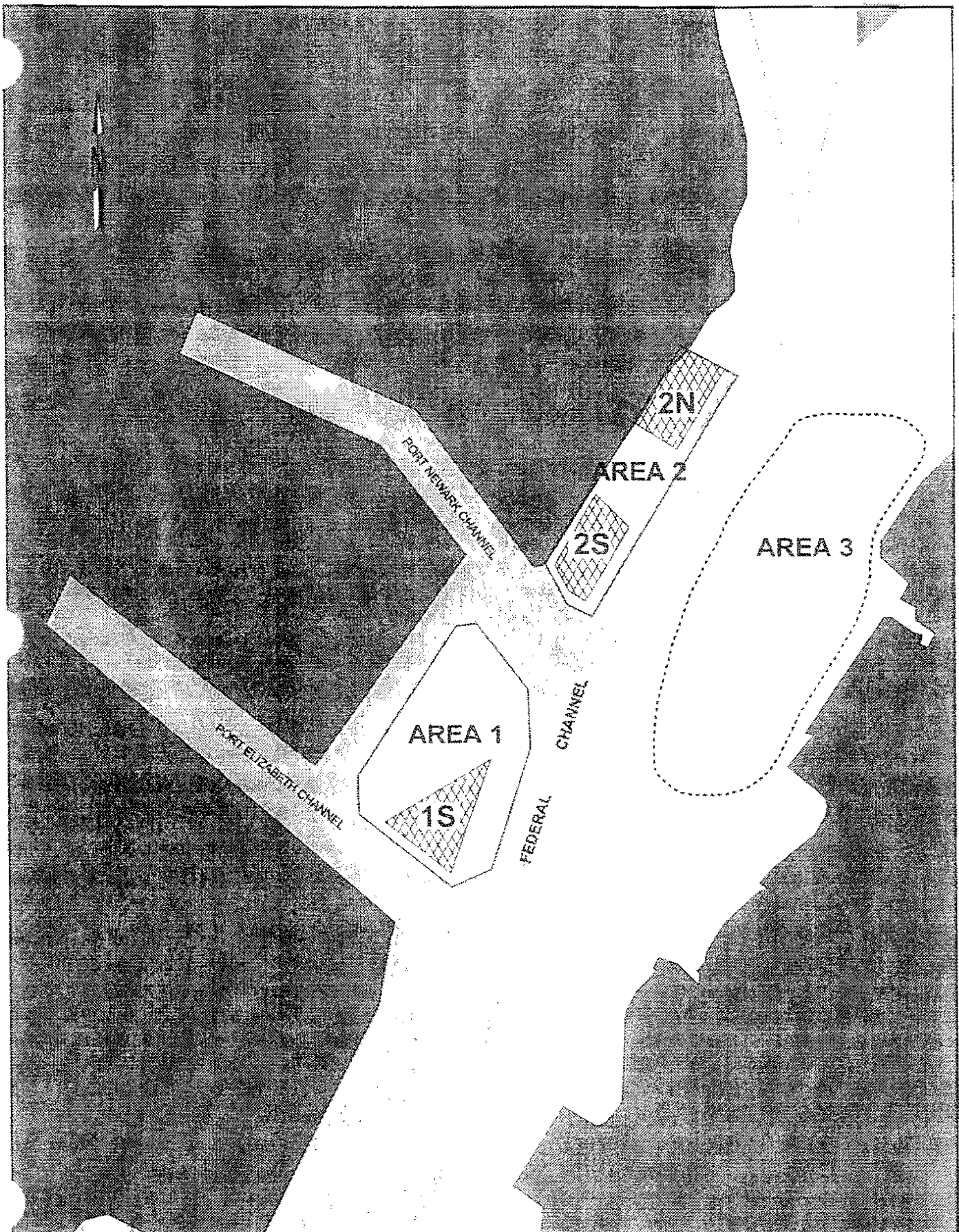
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MARC HELMAN
Project Manager
Eastern Permits Section

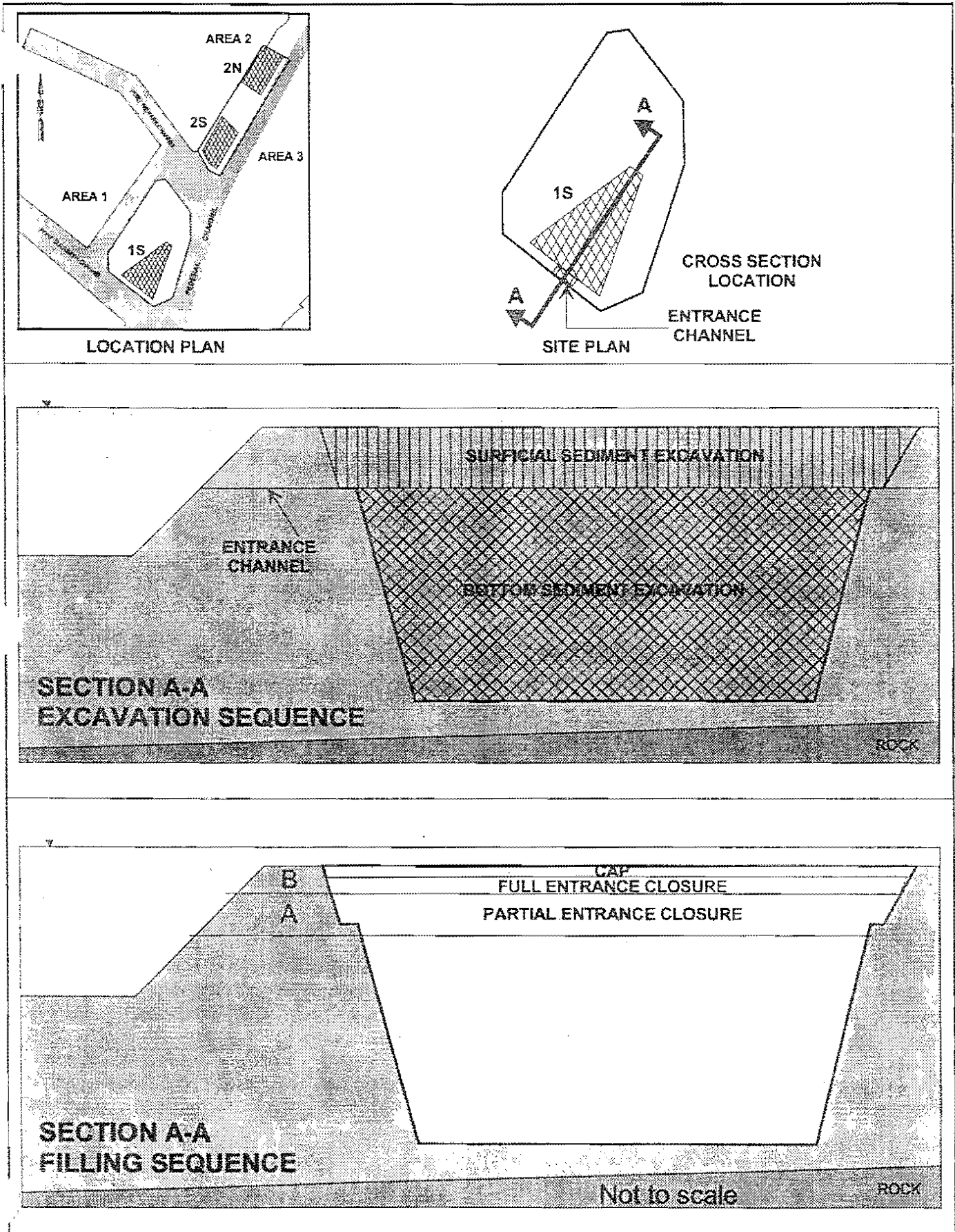
Recommended by: 
JOSEPH J. SEEBODE
Chief, Regulatory Branch

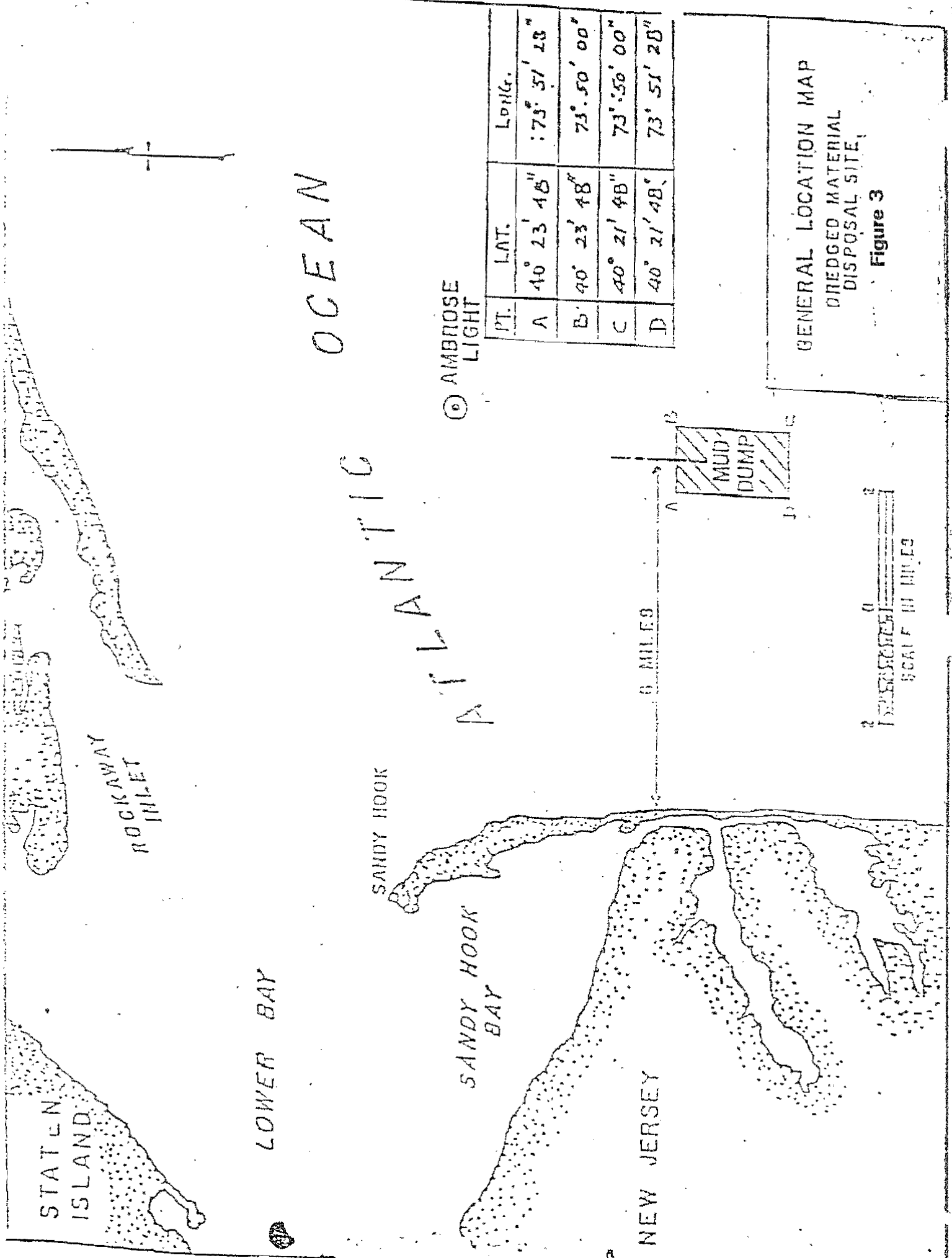
Approved by: 
GARY THOMAS
Colonel, Corps of Engineers
District Engineer

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| PT. | LAT. | LONG. |
|-----|-------------|-------------|
| A | 40° 23' 48" | 73° 51' 28" |
| B | 40° 23' 48" | 73° 50' 00" |
| C | 40° 21' 48" | 73° 50' 00" |
| D | 40° 21' 48" | 73° 51' 28" |

GENERAL LOCATION MAP
DREDGED MATERIAL
DISPOSAL SITE

Figure 3

TABLE 1

DREDGED MATERIAL MANAGEMENT PLAN STUDY
 PHASE 2 BENEFIT ANALYSIS

DREDGING VOLUMES AND BENEFITS *

| Channel Segments | Benefits | Source of Benefits | Long-Term Projected Maintenance Dredging Rate (cubic yards per year)** | Benefits per Cubic Yard |
|------------------|---------------|--------------------|--|-------------------------|
| Anchorage | | | 240,000 | |
| Bayonne | | | 19,000 | |
| Kill Van Kull | | | 530,000 | |
| Newark Bay | | | 1,300,000 | |
| N. Arthur Kill | | | 260,000 | |
| Sandy Hook | | | 600,000 | |
| Shooters Island | \$462,000,000 | Containerships | 69,000 | |
| S. Arthur Kill | \$1,510,000 | Tankers | 660,000 | |
| | \$463,510,000 | TOTAL | 3,900,000 | \$119 |

TABLE 2

Summary of Alternatives Screening Criteria

| Alternative | Screening Criteria | | | | | | Acceptable for Further Consideration? |
|---|--------------------|----------|--------|------------------|----------------------------|-----------------------------|---------------------------------------|
| | Permitability | Capacity | Timing | Constructibility | Unsuitable Ocean Disposal* | Environmental Acceptability | |
| Ocean Disposal at Shallow Ocean Sites (Mud Dump Site) | o | + | o | o | o | • | No |
| Deep Ocean Disposal | o | + | • | o | • | o | No |
| Ocean Spreading | • | + | o | o | • | o | No |
| Containerized Ocean Disposal | • | + | • | • | o | o | No |
| Disposal in Abandoned Interpier Basins | • | • | o | o | + | • | No |
| Incineration | o | o | • | o | o | • | No |
| Aquatic Containment Islands or Peninsulas | o | + | • | o | o | o | No |
| Subaqueous Borrow Pits in the Lower Harbor and the Bight Apex | • | + | • | + | + | • | No |
| Subaqueous Confined Disposal Facilities | + | + | + | + | + | + | Yes |
| Upland Disposal | • | + | • | o | o | o | No |

* Must not involve disposal of unsuitable sediments in the ocean.
o Indicates not evaluated or not applicable.
+ Indicates alternative is viable in this selection criteria.
• Indicates primary elimination factor.

TABLE 3

Summary of Newark Bay CDF Alternatives

| Alternative | Description | Capacity |
|-----------------------------------|----------------------------|-------------|
| (1) Area 1S only | Category I & II to MDS | 1.55 MCY |
| (2) Area 1S, then open 2S & 2N | Category III to 1S | 2.41 MCY |
| (3) Area 3 ^a | Category I and II to MDS | ≈ 16.10 MCY |
| (4) Area 3, then 1S, 2S & 2N open | Category II & III to Pit 3 | 19.19 MCY |
| (5) No CDF | No Action | 0 MCY |

^aArea 3 sediments, have not been tested for ocean disposal. It is assumed that surface sediments would be acceptable for ocean disposal.