US EPA ARCHIVE DOCUMENT

Site Management and Monitoring Plan (SMMP)
For the
Pensacola Offshore Ocean Dredged Material Disposal Site (ODMDS)
Gulf of Mexico

July 2005

US EPA ARCHIVE DOCUMENT

PENSACOLA OFFSHORE ODMDS

Site Management and Monitoring Plan

The following Site Management and Monitoring Plan (SMMP) for the Pensacola Offshore Ocean Dredged Material Disposal Site (ODMDS) has been developed and agreed to pursuant to the Water Resources Development Act Amendments of 1992 (WRDA 92) to the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) for the management and monitoring of ocean disposal activities, as resources allow, by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps).

10 Aug 05 8/31/05

Peter F. Taylor Date	James D. Giattina, Director Date
Colonel, Corps of Engineers	Water Management Division
District Engineer	U.S. Environmental Protection Agency
P.O. Box 2288	Region 4
Mobile, Alabama	Atlanta, Georgia

This plan is effective from the date of signature for a period not to exceed 10 years. The plan shall be reviewed and revised more frequently if site use and conditions at the site indicate a need for revision.

US EPA ARCHIVE DOCUMENT

PENSACOLA OFFSHORE ODMDS

Site Management and Monitoring Plan

TABLE OF CONTENTS

Section **Page**

1.0 **INTRODUCTION**.....3
1.1 Site Management and Monitoring Plan Team.....3

2.0 **SITE MANAGEMENT**.....4
2.1 Project Description.....4
2.2 Site Disposal Characteristics.....6
2.3 Management Objectives.....10
2.4 Dredged Material Volumes.....10
2.5 Project Channel Maintenance.....11
2.6 Material Suitability.....12
2.7 Dredged Material Testing.....13
2.8 Natural Communities.....14
2.9 Operation and Maintenance.....15
2.10 Timing of Disposal.....15
2.11 Disposal Techniques.....15
2.12 Disposal Location.....16
2.13 Environmental Assessment and Statement of Findings.....16
2.14 Information Management of Dredged Material Placement Activities.....19

3.0 **SITE MONITORING**.....19
3.1 Baseline Monitoring.....20
3.2 Disposal Monitoring.....21
3.3 Post Disposal Monitoring.....22
3.4 Material Tracking and Disposal Effects Monitoring.....22
3.5 Reporting and Data Formatting.....25

4.0 **ANTICIPATED SITE USE**.....26

5.0 **MODIFICATION OF THE PENSACOLA OFFSHORE ODMDS SMMP**.....26

6.0 **IMPLEMENTATION OF THE PENSACOLA OFFSHORE ODMDS SMMP**.....26

7.0 **REFERENCES**.....26

US EPA ARCHIVE DOCUMENT

LIST OF FIGURES

Figure No.	Title
Figure 1	Pensacola Harbor Project Map and NAS Pensacola Channel
Figure 2	Location of the Pensacola Offshore ODMDS
Figure 3	Bermed area within the ODMDS
Figure A1	Approximate sample locations for Pensacola Harbor, Florida (July 2001)
Figure A2	Grain size distribution for bulk sediments from Pensacola Harbor, Florida

LIST OF TABLES

Table No.	Title
Table 1	Dredged Material Placement at the Pensacola Offshore ODMDS
Table 2	Storm Activity in the Vicinity of the Pensacola Offshore ODMDS
Table 3	Projected Volume of Material Disposal in the Pensacola Offshore ODMDS (5 year)
Table 4	Surveys and Studies Conducted at or in relation to the Pensacola Offshore ODMDS
Table 5	ODMDS Monitoring Strategies and Thresholds for Action

LIST OF APPENDICES

Appendix No.	Title
Appendix A	Dredged Material Testing Results
Appendix B	Water Column Evaluation Numerical Model (STFATE) Input Parameters
Appendix C	Generic Special Conditions for MPRSA Section 103 Permits, Pensacola, FL ODMDS
Appendix D	Generic Contract Language for Use of the Pensacola Offshore ODMDS

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

PENSACOLA OFFSHORE ODMDS

SITE MANAGEMENT AND MONITORING PLAN (SMMP)

1.0 INTRODUCTION.

It is the responsibility of the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) under the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) to manage and monitor the Ocean Dredged Material Disposal Sites (ODMDS) designated by EPA pursuant to Section 102 of MPRSA. The goal of this management is to ensure that ocean dredged material disposal activities will not unreasonably degrade the marine environment or endanger human health or economic potential. As part of this responsibility, a Site Management and Monitoring Plan (SMMP) was originally developed as part of the designation process and was published in September 1988 as part of the *Final Environmental Impact Statement for Designation of a New Ocean Dredged Material Disposal Site, Pensacola, Florida* to specifically address the disposal of dredged material into the Pensacola ODMDS. This plan is currently being revised to incorporate subsequent monitoring results and to comply with provisions of the Water Resources Development Act Amendments of 1992 (WRDA 92) and a Memorandum of Agreement between EPA and Corps. This plan serves as a revision to and supersedes the original plan. Upon finalization of this revised SMMP, these SMMP provisions shall be requirements for all dredged material disposal activities at the site. **All Section 103 (MPRSA) ocean disposal permits or evaluations shall be conditioned as necessary to assure consistency with the SMMP.**

This SMMP has been prepared in accordance with the *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites* (EPA and Corps 1996). This document provides a framework for the development of SMMPs required by MPRSA and WRDA 92. The SMMP may be modified if it is determined that such changes are warranted as a result of information obtained during the monitoring process.

1.1 Site Management and Monitoring Plan Team. An interagency SMMP team has been established to assist EPA and the Corps in finalizing this SMMP. The team consists of the following agencies and their respective representatives:

Corps, Mobile District
Dr. Susan Rees & Mr. Larry Parson

Florida Department of Environmental Protection
Ms. Lynn Griffin

National Oceanic and Atmospheric Administration
Mr. Buck Sutter

Florida Fish & Wildlife Commission
Mr. George Henderson

Port of Pensacola

EPA Region 4
Mr. Gary Collins

U.S. Coast Guard
District Commander,
Eighth District

Other agencies, such as the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) will be asked to participate where appropriate. The SMMP team will assist EPA and the Corps in evaluating existing monitoring data, the type of disposal (i.e., operations and maintenance (O&M) vs. new work), quality of material, location of placement within the ODMDS, and quantity of material. The team will assist EPA and the Corps on deciding on appropriate monitoring techniques, the level of monitoring, the significance of results and potential management options.

Specific responsibilities of EPA and the Corps, Mobile District are:

EPA: EPA is responsible for designating/de-designating MPRSA Section 102 ODMDSs, for evaluating environmental effects of disposal dredged material at these sites and for reviewing and concurring on dredged material suitability determinations.

Corps: The Corps is responsible for evaluating dredged material suitability, issuing MPRSA Section 103 permits, regulating site use, and developing and implementing disposal monitoring programs.

2.0 SITE MANAGEMENT.

ODMDS management involves a broad range of activities including regulating the schedule of use, the quantity, and the physical/chemical characteristics of dredged materials dumped at the site. It also involves establishing disposal controls, conditions and requirements to avoid and minimize potential impacts to the marine environment. Finally, ODMDS management involves monitoring the site environs to verify that unanticipated or significant adverse effects are not occurring from past or continued use of the site and that permit conditions are met.

Section 228.3 of the Ocean Dumping Regulations (40 CFR 220 - 229) states that "management of a site consists of regulating times, rates, and methods of disposal and quantities and types of materials disposed of; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site evaluation studies; and recommending modifications in site use and/or designation." The plan may be modified if it is determined that such changes are warranted as a result of information obtained through the monitoring process. MPRSA, as amended by WRDA 92, provides that the SMMP shall include but not be limited to:

- A baseline assessment of conditions at the site;
- A program for monitoring the site;
- Special management conditions or practices to be implemented at each site that are necessary for the protection of the environment;
- Consideration of the quantity and physical/chemical characteristics of dredged materials to be disposed of at the site;
- Consideration of the anticipated use of the site over the long-term;
- A schedule for review and revision of the plan.

2.1 Project Description. The Port of Pensacola is located in Pensacola, Florida and is positioned on the north side of Pensacola Bay in the extreme western part of the state as illustrated by Figure 1. The port is approximately 87 nautical miles east of Mobile,

US EPA ARCHIVE DOCUMENT

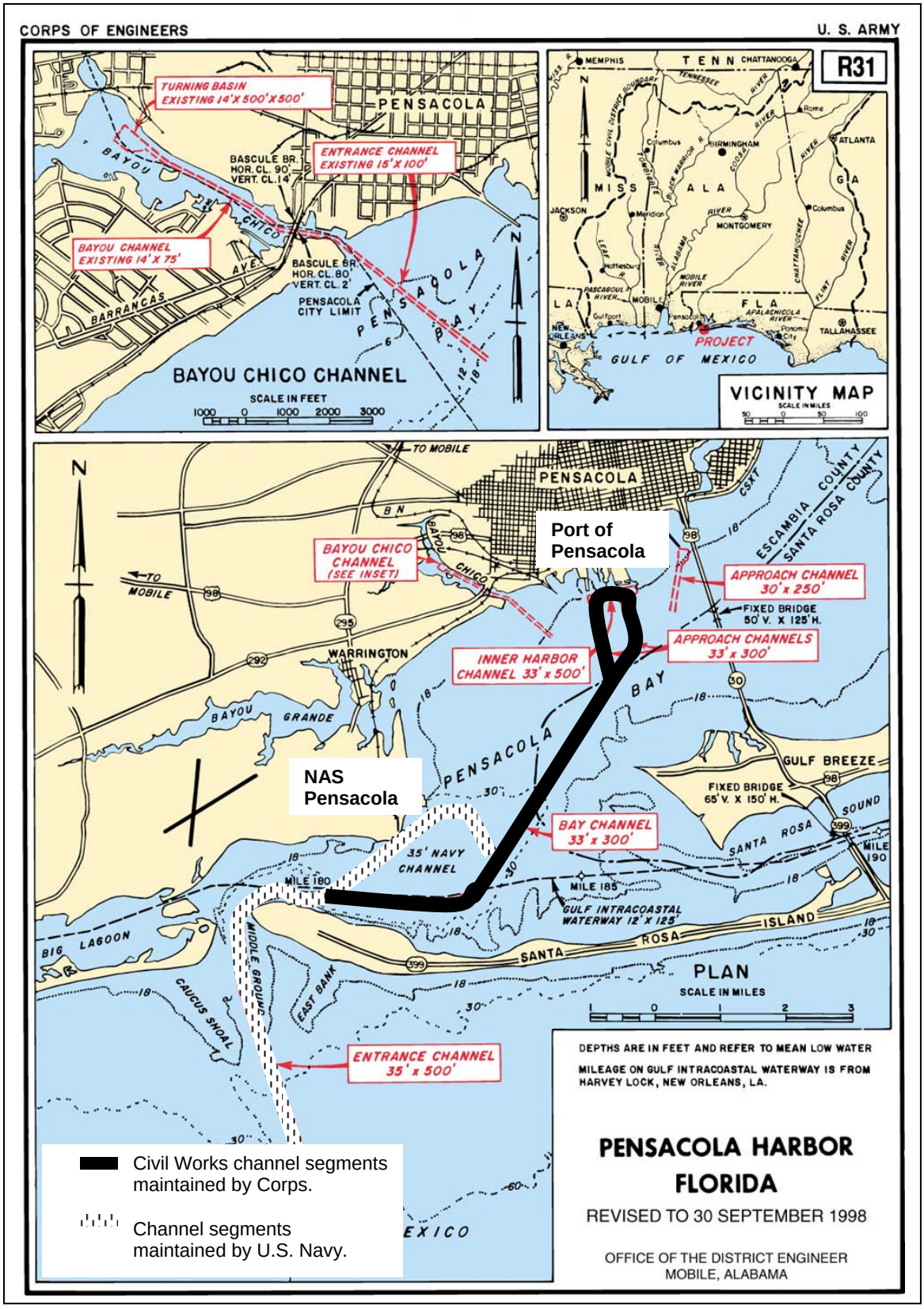


Figure 1. Pensacola Harbor Project Map and NAS Pensacola Channel

US EPA ARCHIVE DOCUMENT

Alabama, and 100 nautical miles west of Panama City, Florida. Pensacola Bay is approximately 13 miles long and 3 miles wide, with naturally occurring depths ranging from -20 to -50 feet mean lower low water (MLLW). The bay is separated from the Gulf of Mexico (Gulf) by Santa Rosa Island. The channel serving the Pensacola Harbor extends from the Gulf, passing to the western end of Santa Rosa Island and the eastern end of the Perdido Key, and enters the Pensacola Bay. Once in the Bay, the channel proceeds in a northeasterly direction, intersecting the Gulf Intracoastal Waterway, then heads in an easterly direction, somewhat parallel to the northern Santa Rosa Island shoreline. Roughly 4.5 miles after heading in an easterly direction, the channel again proceeds in a northeasterly direction to the Port. Just south of the harbor, the channel splits into two parallel approach channels, connecting opposite ends of the harbor. The Port of Pensacola is the non-Federal sponsor for the Federal project at the Pensacola Harbor.

The Pensacola Harbor navigation channel serves the needs of the U.S. Navy as well as the commercial needs of the Port of Pensacola. Naval Air Station (NAS) Pensacola is located along the western limit of Pensacola Bay, southwest of the Port as shown in Figure 1. NAS vessels require channel depths in excess of the authorized dimensions of the Civil Works channel. Accordingly, the U.S. Navy has funded the construction and maintenance of the Entrance and Navy Channels, which are currently maintained to the -44 and -42 foot MLLW depths, respectively. The Civil Works channels within Pensacola Bay have historically been maintained by the Corps to a depth of -33 feet MLLW.

Proper management of the ODMDS will assist in satisfying the long-term disposal needs of the channel segments currently maintained by the Corps and Navy. It is assumed that the Navy will continue to maintain both the Entrance and Navy Channels as long as NAS Pensacola requires channel depths in excess of the authorized Federal (Corps) project. Should circumstances change and a channel depth of - 35 feet MLLW becomes sufficient for NAS vessels (i.e., the authorized depth for the Entrance Channel), the Corps would again resume maintenance of this channel segment, with continued placement of designated dredged material in ODMDS. It should be noted that the depth of the Entrance Channel typically exceeds -35 feet MLLW as a result of naturally occurring conditions.

Since the early 1960's, the Pensacola navigation channels have required maintenance dredging on four occasions; however, each event was prior to 1974. During those maintenance events, material was excavated with pipeline dredges and pumped to adjacent open water disposal areas. Since 1974, project maintenance has not been required as channel dimensions were adequate for user needs. Over time, however, sediments have accumulated in the channel resulting in channel depths less than what is currently needed by vessel traffic (i.e., less than -33 feet MLLW in some areas). Due to the need for channel maintenance and a long-term solution for the Port's disposal needs, this plan considers management of the ODMDS to meet the disposal capacity needs while maintaining the environmental integrity of the area.

2.2 <u>Disposal Site Characteristics</u>. The ODMDS was designated by USEPA Region 4 in September 1988 for fine-grained material dredged from the Pensacola area that meets Ocean Dumping Criteria, but is not suitable for beach nourishment or placement at the existing USEPA designated Pensacola nearshore ODMDS. This disposal measure has been eliminated as a viable option as maintenance material dredged from

US EPA ARCHIVE DOCUMENT

the harbor does not meet the criterion. The boundary coordinates of the Pensacola offshore ODMDS are shown in latitude/longitude and State Plane Coordinate system, Florida North Zone, North American Datum (NAD) 83:

Latitude	Longitude	Northing	Easting
30°08'50" N	87°19'30" W	428347.51	1075701.81
30°08'50" N	87°16'30" W	427959.37	1091501.16
30°07'05" N	87°16'30" W	417355.53	1091243.06
30°07'05" N	87°19'30" W	417743.77	1075439.07

An SMMP for the Pensacola offshore ODMDS was first prepared and implemented in 1988 to protect the marine environment and document the disposal activities at the ODMDS. The goals of the plan included the delineation of the geographic location of the discharged dredged material; determination of the direction, if any, in which the discharged dredged material is migrating, and the extent of movement; and an evaluation of the effect, if any, on the ecology within and outside the offshore ODMDS.

The Pensacola ODMDS is located in the Gulf of Mexico approximately 11 miles south of the Pensacola Pass (Figure 2). The site covers a 6-square mile rectangular area, with a bottom surface that generally declines in an easterly/southeasterly direction at elevations ranging from -63 to -93 feet MLLW.

Placement of study area sediments will be within a bermed area created during the site's 1988-89 construction as illustrated in Figure 3. This area is in the shape of a horseshoe, with berms on the south, east, and north sides of the disposal site. The bottom elevation within the bermed area varies from -68 to -83 feet MLLW. The distance between crests of the north and south berms is approximately 6,050 feet. The east-west extent of the area from the crest of the east berm to high ground varies from 6,000 to 11,000 feet. The following is the original design information for the bermed area:

- Crest elevation -70 feet MLLW;
- East berm alignment along longitude 87° 17' 00" W from latitude 30° 07' 28" N to 30° 08' 13" N; and
- South and North berm alignments 30° 07' 28" N to 30° 08' 13" N, respectively.

Hydrographic surveys were conducted of the north and south berms in February 2001 and of the east berm in August 2003. Surveys were then updated in October 2003. The crest of the berms varied in elevation from -77 to -72 feet MLLW and deviated from the intended alignment by up to 200 feet. Likewise, the berm heights varied up to 8 feet and the base widths varied up to 800 feet. The side slopes near the toes and the tops of the slopes were generally rounded, with the side slopes at approximately 1-foot vertical to 40 feet horizontal or flatter. Although there is some variation from the original berm design, the existing berm configuration/dimensions will provide sufficient capacity (i.e., estimated at 12 million cubic yards) for long term disposal of maintenance material dredged from the study area (i.e., (821,000 cubic yards excavated to return channel to authorized dimensions + (600,000 cubic yards/maintenance cycle x 14 cycles) = 9,221,000 cubic yards dredged over 30-year project life).

Subsequently the Pensacola offshore ODMDS was used for the placement of dredged material from the Navy Homeport of Pensacola between 1989 and 1990. The

US EPA ARCHIVE DOCUMENT

offshore ODMDS is also available for use in disposing material from the Pensacola Harbor

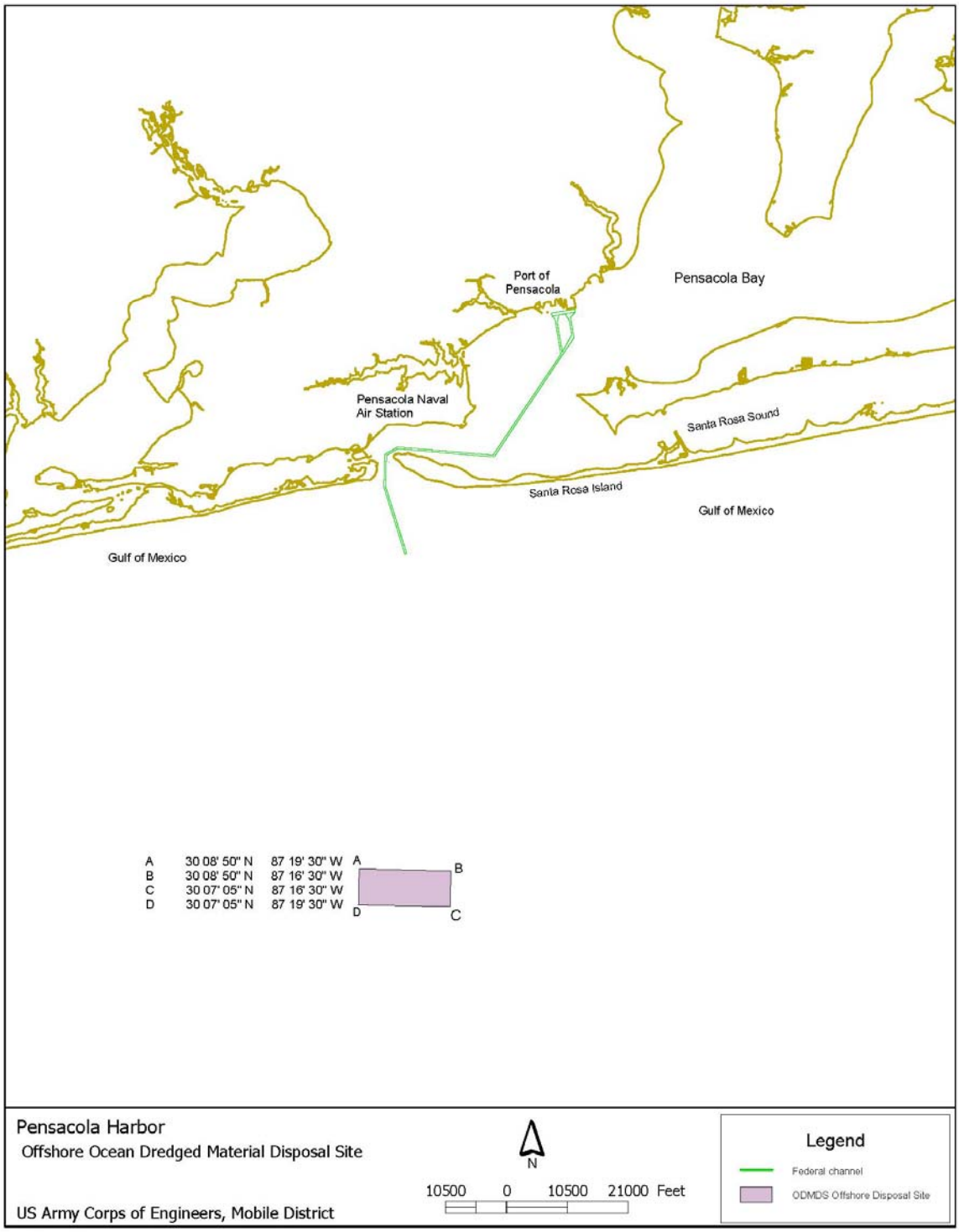


Figure 2. Location of the Pensacola Offshore ODMDS

US EPA ARCHIVE DOCUMENT

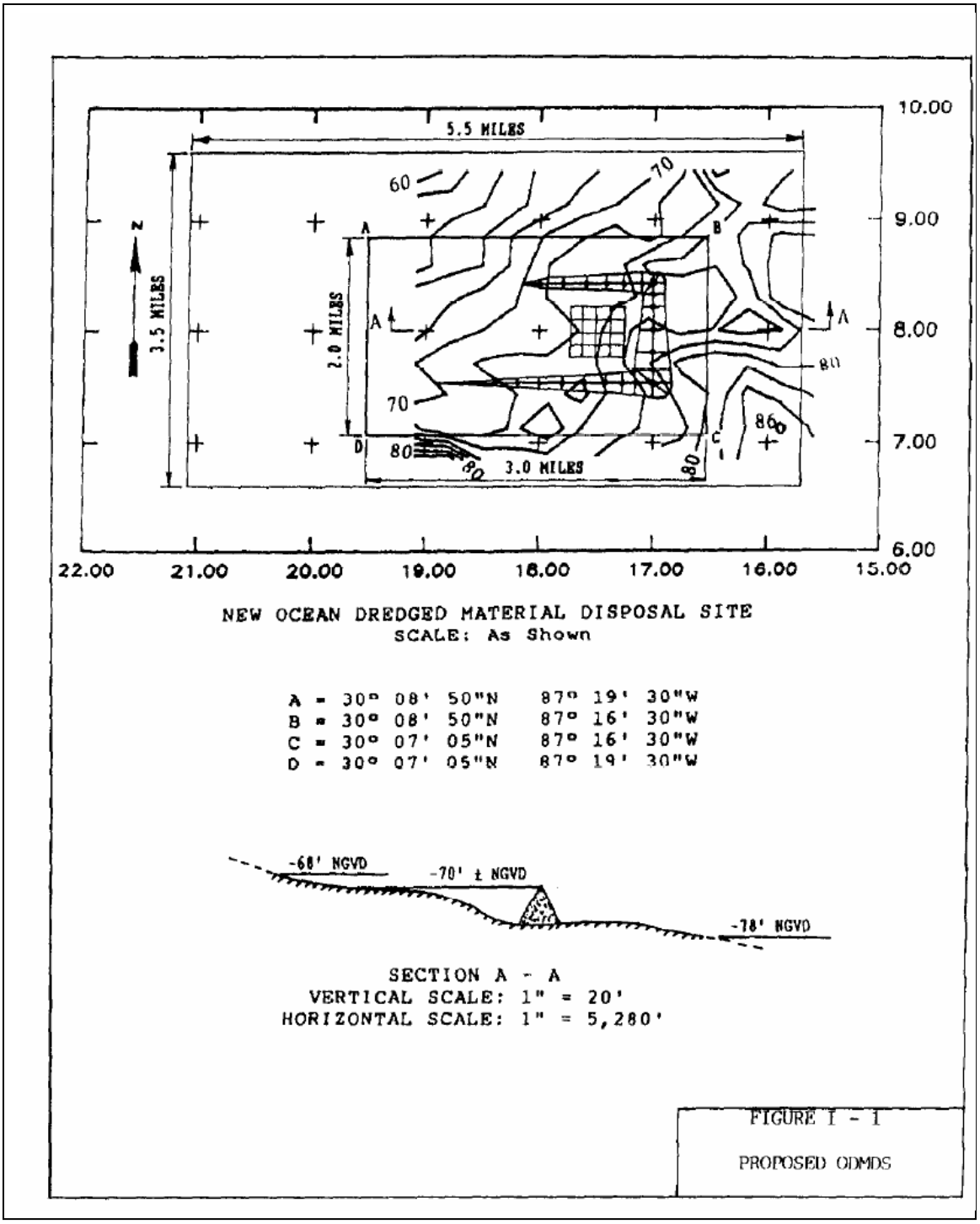


Figure 3. Bermed area within the ODMDS

US EPA ARCHIVE DOCUMENT

Federal navigation channel and private dredging activities. The US Army Corps of Engineers and the US Navy were co-operating agencies on the site designation Environmental Impact Statement completed in September 1988.

Future uses of this offshore ODMDS is projected to occur from dredging the Federally authorized Pensacola Harbor, Naval Air Station Pensacola channels, and private entities such as the Port of Pensacola. Other than the projected quantities stated in section 2.2, some additional uses will occur in the future by private entities and therefore the exact nature and quantity of the material, the time of disposal, and the type of equipment to be used are unknown. Physical and biological conditions at the ODMDS are described in, *Final Environmental Impact Statement for Designation of a New Ocean Dredged Material Disposal Site, Pensacola, Florida dated September 1988.*

2.3 Management Objectives. There are three primary objectives in the management of the Pensacola offshore ODMDS:

- Protection of the marine environment, living resources, and human health and welfare;
- Documentation of disposal activities at the ODMDS and provision of information which is useful in managing the dredged material disposal activities;
- Provide for beneficial use of dredged material whenever practical.

The objective of the SMMP is to provide guidelines in making management decisions necessary to fulfill mandated responsibilities to protect the marine environment as discussed previously. Risk-free decision-making is an impossible goal, however, an appropriate SMMP can narrow the uncertainty. The following sections provide the framework for meeting these objectives.

2.4 Dredged Material Volumes. Dredging activities conducted in 1989 through 1990, the Navy dredged channels from the Gulf of Mexico thru Pensacola Pass to the turning basin located adjacent to Naval Air Station Pensacola. This dredging was conducted as part of the Navy Gulf Coast Strategic Homeporting. Four different disposal areas were used during this dredging including approximately 3.77 million cubic yards (from the Navy turning basin) in the offshore ODMDS. In addition to the dredging conducted for the Navy, emergency dredging of the eastern leg of the Pensacola inner harbor channel was conducted in August 2004. Approximately 30,000 cubic yards of material was dredged and disposed in the offshore ODMDS. Prior to this dredging event, the inner harbor and bay portions of the Pensacola Harbor navigation channel have not been maintained since 1973.

A small portion of the ODMDS, approximately one-half mile by one-half mile square, was utilized for placement of dredged material. After the official site designation, the offshore ODMDS was only used during the Navy dredging and disposal (1989-1990) and the emergency Pensacola Harbor event. The disposal events are summarized in Table 1. No other disposal activities have occurred in the offshore ODMDS since that time.

US EPA ARCHIVE DOCUMENT

Table 1. Dredged material placement at the Pensacola offshore ODMDS.

Year	Volume (CY)	Material Type	Project
1989-90	3,778,300	NW: Sandy Mud/Silt	Navy Homeport
2004	30,000	Mud/Silt	Pensacola Harbor Emergency

Notes: cubic yards = CY; new work = NW, * Pre-site designation

Future volumes and rates of disposal, from both Federal and private applicants, are expected to range on the order of 1 million cubic yards on a 2 to 3 year cycle. Disposal volumes expected to occur in the near future are listed in Table 2.

Table 2. Projected Volume of Material Disposed in the Pensacola ODMDS (5 year)

Year	Type of Action	Source	Volume (yd^3)	Sponsor	Composition
2004-05	MD	Pensacola Harbor	350,000	USACE/POP	Sandy Silt
2005-06	MD	Navy Turning Basin	500,000	Navy	Sandy Silt

MD: Maintenance Dredging, POP: Port of Pensacola, USACE: U.S. Army Corps of Engineers

The Pensacola offshore ODMDS is located in water depths ranging from 60 to 95 feet. The bottom consists of a medium to coarse sand substrate. Bottom currents within the site are 30cm/sec or less approximately 70% of the time. These currents are not sufficient to move the medium sands in the offshore ODMDS, however during hurricanes or extreme storm events the likelihood increases. Dredged material disposed or projected for disposal is less dense and could be disperse more readily. Surveys of the ODMDS containment berms conducted in 2003 shows that the area has remained relatively stable and intact since its last use in 1989/90. The area has experienced several storm events over the past 20 years. The storm events occurring in the vicinity of the ODMDS is listed in Table 3. Given the site's demonstrated stability throughout these events, including a major storm such as Hurricane Opal, it is unlikely that significant sediment movement would have resulted from the last major storm events, Hurricane Ivan in September 2004 and Hurricane Dennis in July of 2005. In the event that a pre-disposal survey indicates a deterioration of the submerged berm, appropriate materials from the next disposal action will be used to restore the berm to acceptable dimensions.

The dispersiveness of the site and consequently the capacity of the ODMDS are yet to be determined. Future monitoring of the offshore ODMDS in conjunction with the disposal of dredged material will attempt to address this issue. Until the capacity of the ODMDS is determined, use of the ODMDS will be restricted to 5 million cubic yards of dredged material per year. There are no future projected dredging events that are expected to come close to this volume limit.

2.5 Projected Channel Maintenance

Project condition surveys conducted in 2003 determined that approximately 440,000 cubic yards of material was located within the -33 feet MLLW channel prism.

US EPA ARCHIVE DOCUMENT

Excavation of 821,000 cubic yards of material would restore the project to its authorized dimensions and provide for 2-feet of allowable overdepth. Without routine maintenance and adequate historical data, the timeframe over which this material accumulated within the channel could not be determined with any degree of certainty.

Table 3. Storm Activity in the Vicinity of the Pensacola Offshore ODMDS

Storm	Year
Elena[1]	1985
Juan[1]	1985
Kate[1]	1985
Alberto[2]	1994
Beryl[1]	1994
Allison[1]	1995
Erin[1]	1995
Opal[1]	1995
Danny[1]	1997
Earl[1]	1998
Georges[1]	1998
Helene[2]	2000
Hanna[2]	2002
Isadore[2]	2003
Ivan[1]	2004
Arlene[2]	2005
Cindy[2]	2005
Dennis[1]	2005

[1]Hurricane, [2]Tropical Storm

The volume of material to be excavated from the channel during a maintenance event is utilized to determine the site capacity requirements for long term disposal of these sediments. Since there were no recent maintenance records or survey data upon which to estimate the volume and frequency of material to be dredged, for planning purposes a decision was made to use the limited, available historical data (i.e., four maintenance events occurring between 1963 and 1973).

Given the limited amount of data available, the probability that an annual shoaling rate of 400,000 cubic yards could be overstated, and the impact that improved dredging operations could have on future maintenance requirements, a determination was made that it would be prudent to utilize a conservative shoaling rate for planning purposes. An annual shoaling rate of 300,000 cubic yards (i.e., 600,000 cubic yards per 2-year maintenance cycle) should not only account for routine maintenance but also periodic increases in channel shoaling resulting from tropical events. As stated, however, this is merely a preliminary estimate for planning purposes. Following channel restoration to its authorized dimensions plus 2 feet of allowable overdepth, channel shoaling will be closely monitored to establish an accurate shoaling rate.

2.6 <u>Material Suitability</u>. Maintenance dredged material that is expected to be placed at the ODMDS consists of mixtures of silts, clays, and sands in varying percentages. Sediments dredged from navigation channels in the Pensacola Harbor and NAS

US EPA ARCHIVE DOCUMENT

Pensacola Channel include an ocean source (sandy, littoral materials), river source (fine-grained sands, silts, and clays derived from easily eroded soils from the upper Escambia River basin), and mixtures of both. Shoals occur where specific physical factors promote deposition or movement of sediments. These factors may vary spatially and temporally.

Dredged material that may be placed at the site is restricted to non-beach quality material. However, the suitability of dredged material for ocean disposal must be verified by the Corps and concurrence by EPA prior to disposal. Verification will be valid for three years from the time last verified. Verification will involve the following:

1) a case-specific evaluation against the exclusion criteria (40 CFR 227.13(b));
2) a determination of the necessity for testing including bioassay (toxicity and bioaccumulation) testing for non-excluded material based on the potential for contamination of the sediment since last tested; and
3) completion of required testing (where needed) and determining that the non-excluded, tested material is suitable for ocean disposal.

Documentation of verification will be completed prior to use of the site. Documentation will be in the form of a MPRSA Section 103 Evaluation. The Evaluation and any testing will follow the procedures outlined in the *1991 EPA/Corps Dredged Material Testing Manual*, *1993 Regional Implementation Manual (RIM)*. Only material determined to be suitable through the verification process by the Corps and EPA will be placed at the Pensacola offshore ODMDS.

2.7 <u>Dredged Material Testing</u>. Sediment sampling within the authorized Federal navigation channel was conducted from 10 - 15 July 2001. Twelve core borings were collected to various depths ranging from -3 to -8 ft below the proposed depth of dredging. The locations of the sediment sampling sites and a detailed summary of the results are presented in Appendix A. Grain size test results indicate that the sediment within the Inner Harbor and Mid-Bay portions of the project area is primarily comprised of silts and clays, ranging from 60% to 95%. Sediments from the South-Bay exhibited the highest proportion of sand at 81%.

The chemical testing concluded that metals and PAHs were the most commonly detected constituents present with most of the detected metals measured at low concentrations and considered naturally occurring. Five metals and one PAH, (arsenic, chromium, copper, lead, mercury, and dibenz(a,h)anthracene), exceeded the threshold effects level (TEL) values in at least one of the harbor samples. However, only arsenic was detected at a concentration above the TEL at the Pensacola Bay reference station. Chlorinated and organophosphorus pesticides were not detected in any samples and the occurrence of organic contaminants in the sediment in concentrations that would be expected to adversely affect aquatic organisms was low. Metals and nutrients were the most frequently detected constituents during elutriate testing. None of the tested PAHs, SVOCs, or organophosphorus pesticides were detected in the elutriate samples.

STFATE modeling was conducted using the highest measured ammonia concentrations. Input parameters used in the modeling is presented in Appendix B.

US EPA ARCHIVE DOCUMENT

Results of the STFATE modeling indicated that a dilution of approximately 208-fold is achieved after 1 hour following placement, and a 1540-fold dilution occurs 4 hours following placement which satisfies dilution criteria. The model results indicate that placement can occur at the center of ODMDS with the leading edge of the plume remaining within the site boundaries. Results from the sediment testing and STFATE modeling indicate that the materials meet the criteria for ocean placement at the Pensacola offshore ODMDS.

2.8 Natural Communities.

2.8.1 Pensacola Harbor and Navy Channel. The natural community systems that occur within the project area are estuarine and marine. The Pensacola Harbor Federal navigation channel comprises approximately 650 acres of surface bottom area. Within Pensacola Bay diatoms are the dominant phytoplankton assemblage. The most abundant forms include: *Chaetoceros glandazii, Chaetoceros subtile, Cyclotella striata, Nitzscbia pungens var. atlantiea, and Skeletonetna costatum.* Dominant zooplankton within the Bay consists of copepod nauplii (unidentified), copepod *Oithonia sitniles,* fish eggs. Other zooplankton are protozoans, rotifers polychaete larvae, larval mollusks, cladocerans, adult copepods, urochordates, and immature cirripods and decapods. Three major benthic habitats are delineated in Pensacola Bay and include: (1) a broad central plain of mud sediments; (2) a transition zone close to shore characterized by steeper slopes and sediments grading from mud to sand; and (3) a sandy shelf along the bay margin. The mud plain and transition zone are predominant within the navigation channel. Muddy substrates are dominated by polychaetes such as capitellid worms, *Bhawania sm#hi,* spionid worms, and the bivalve, *Cyrenoideafioridana.* Amphipods dominate the transitional sandy muds in the Bay (U.S. Navy, 1986).

Dominant fish species within Pensacola Bay are spot *Leiostotnus xanthurus,* pinfish *Lagodon rhotnboids,* Atlantic croaker *Mieropogonias undulates,* Gulf menhaden *Brevoortia patronus,* striped anchovy *Anchoa hepsetus,* bay silver perch *Bairdiella chrysoura,* southern hake *Urophycisfioridana,* inshore lizardfish *Synodusfoetens,* gafftopsail catfish *Bagre marinus,* sand seatrout *Cynoscion arenarius,* and spotted hake *Urophycis regia.* Shellfish in the area include pink shrimp, white shrimp, brown shrimp (most abundant), blue crab, and American oyster. Some finfish in the vicinity include: striped mullet, red snapper, croakers, white sea trout, Spanish mackerel and vermilion snapper. The most common marine mammal is the Atlantic bottlenose dolphin *Tursiops truncatus* (U.S. Navy, 1986).

2.8.2 Pensacola ODMDS. The area exhibits characteristics typical of offshore marine and benthic communities as described by the existing "United States Navy Gulf Coast Strategic Homeporting Environmental Impact Statement," of August 1986 and the Final Environmental Impact Statement for "Designation of a New Ocean Dredged Material Disposal Site, Pensacola, Florida" of September 1988. The dominant component of phytoplankton in the Gulf of Mexico are diatoms *including Nitzschia seriata, Thalassiothrix frauenfeldii, Thalassionema nitzschioides, Skeletonema costatum, Asterionella japonica, and Chaetoceros* spp. Copepods are normally the dominant component of the zooplankton in the vicinity of the ODMDS. Benthic communities near the ODMDS are dominated by polychaetes. Abundant forms include the Paraorddae, especially *Cirrophorus* spp., the Sabellidae, particularly *FabricJoia trilobata, the* Spionidae, *Prionospio cristata and Spiophanes bombyx,* and Serpulidae. Dominant mollusks include the gastropods *Caecumpulchellum, C. imbricatum, and Caecum* sp.

US EPA ARCHIVE DOCUMENT

Abundant antropods include numerous species of ostracods, the amphipod *Microdeutopus myersi* and the tanaid *Leptochelia* sp. The closest artificial reef is approximately 2 miles east of the ODMDS and is primarily fished for snapper, grouper, triggerfish, and amberjack. Dominant demersal fish within the ODMDS include *Hemipteronotus novacula* (pearly razorfish), *Trachurus lathami* (rough scad), and *Syaciumpapillosum* (dusky flounder). Epifauna within the ODMDS include crustaceans, echinoderms, molluscs, and ascidians. The most abundant crustacean was *Sicyonia brevirostris* and the most abundant mollusk was *Loligopealeii* (EPA, 1988). There are no reasons to believe that the project area environment has changed significantly since the time of these studies.

2.9 Operation and Maintenance. A 30-year conceptual dredged material management plan has been developed for the offshore ODMDS. Although this plan is based upon the best available information, the dredged material quantities, dredging frequency, and other factors influencing the plan are highly variable. Accordingly, adjustments will need to be made in response to conditions and situations experienced when the plan is put into effect.

To date, the offshore ODMDS has only been used for placement of material excavated during the Navy's Gulf Coast Strategic Homeport Project. Routine maintenance of study area channel segments will be performed with hopper dredges. Slurried material will be pumped into the hopper dredge for transport to the disposal area. Once the dredge arrives at the offshore ODMDS, the material will be bottom-dumped within the site's bermed area. Based upon numerical modeling conducted for the Section 103 Evaluation, sediments are expected to remain well within the site's berms. To maintain safe navigation within the shipping fairway, the maximum elevation for disposal will not exceed -65 feet MLLW. Estimated capacity of the existing bermed area at elevation -70 feet MLLW is approximately 12 million cubic yards; as such, the site is sufficiently sized to contain maintenance material dredged from the study area over the project life (i.e., 9 million cubic yards).

2.10 Timing of Disposal. Presently, no restrictions have been determined to be necessary for disposal related to seasonal variations in ocean current or biota activity. As monitoring results are compiled, should any such restriction appear necessary, disposal activities will be scheduled so as to avoid adverse impacts. Additionally, if new information indicates that endangered or threatened species are being adversely impacted, additional restrictions may be incurred.

2.11 Disposal Techniques. No specific disposal technique is required for this site. However, in order to protect sea turtles and Gulf sturgeon, the NMFS requires monitoring according to guidance outlined in the Gulf-wide regional hopper dredging biological opinion concerning *Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by Corps of Engineers Galveston, New Orleans, Mobile, and Jacksonville Districts* dated November 19, 2003.

Due to the predominant current regime in the area, the site is considered to be dispersive for the less dense disposed material. Based on the results of the sediment mapping study and current studies, it is desirable to predetermine the disposal methodologies and locations within the ODMDS for disposal of dredged material, at least until sufficient monitoring information has been collected to provide assurance that dispersal does not result in adverse impacts.

US EPA ARCHIVE DOCUMENT

Since currents tend to move the material to the west, a submerged berm structure was constructed to direct the less dense material as it migrated as part of the Navy project. A horseshoe shaped, 6-foot high berm was constructed of sand and a sandy-mud mixture as shown in Figure 3. The berm was open on the western end and fine-grained material was placed in the eastern midsection of the horseshoe. Surveys conducted in September, 2003 shows that the berm is distinguishable and intact. The management goal expected to be gained with this plan was the restriction of movement of the fine-grained materials in the northerly or easterly direction. Subsequent surveys confirm that the sediment was confined as expected and did not show any evidence contrary to the expected results. Surveys have not been conducted since Hurricane Ivan, however, other storms such as Hurricane Opal in 1994 has not resulted in appreciable movement of sediment from the ODMDS. It would be expected that given the depth of the disposal site and lack of effects from previous storms, it is unlikely that Hurricane Ivan would have resulted in any significant movement of sediment from the ODMDS.

2.12 Disposal Location. Disposal shall occur no less than 330 feet (100 meters) inside the site boundaries to comply with 40 CFR §227.28. Placement methods to prevent mounding of dredged materials from becoming an unacceptable navigation hazard will be used. Dredged material shall be placed so that at no point will depths be less than -55 feet mean lower low water (MLLW) occur (i.e., a clearance of 55 feet above the bottom will be maintained). To maximize ODMDS capacity and minimize mounding of material, the disposals shall be scattered throughout specified disposal zones and not placed repeatedly at one location. When necessary, the Corps, Mobile District in consultation with EPA, Region 4 will specify zones within the ODMDS for dredged material from each specific ocean disposal activity. Depths at the time of disposal will be monitored to detect if adjustments of disposal methods are needed to prevent unacceptable mounding. While control of placement to minimize mounding is preferred, the physical removal or leveling of material above -55 feet MLLW is a management alternative should mounds greater than those elevations occur.

2.13 Environmental Assessment and Finding of No Significant Impact. An Environmental Assessment (EA) identifies the environmental resources that may possibly be affected by a proposed action and determines the significance of the impact to each of these resources. The EA for the proposed maintenance dredging and disposal operations concludes that these actions would not have a significant adverse impact on the existing environment.

The maintenance dredging and disposal operations at Pensacola Harbor will not increase development or cause changes in the current activities at the project (e.g., port area, commercial shippers, recreational boaters, etc.). Because maintenance dredging effects are short-term and limited to their immediate project area, they are not expected to result in measurable cumulative impacts. Likewise, the potential direct environmental and socioeconomic impacts of the proposed action are not significant and will have no significant adverse cumulative effects.

2.13.1 Executive Order 12898. Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (11 February 1994) was considered in the environmental evaluation of the proposed plan. The purpose of the order is to avoid the disproportionate placement of adverse

US EPA ARCHIVE DOCUMENT

environmental, economic, social or health impacts from Federal actions and policies on minority and low-income populations. Proposed operations are not designed to create a benefit for any group or individual. Further, the proposed operations do not create disproportionately high or adverse human health or environmental impacts on minority or low-income populations in the surrounding community.

2.13.2 Executive Order 13045. The EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (21 April 1997) requires Federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children as a result of the implementation of Federal policies, programs, activities, and standards. No changes in demographics, housing, or public services would occur as a result of the proposed operations. As such, proposed operations will no pose disproportionate environmental health or safety risks to children.

2.13.3 Coastal Zone Management. The Florida Coastal Management Program (FCMP) is based on a network of agencies implementing 23 statutes that protect and enhance the state's natural, cultural and economic coastal resources. Using existing laws, the goal of the program is to coordinate local, state and Federal agency activities to ensure that Florida's coast remains a valuable resource for future generations. The proposed DMMP for the Pensacola Harbor is consistent with the FCMP. Resultantly, concurrence will be requested from the FDEP.

2.13.4 State Water Quality Certification. Water quality certification for the continued maintenance of the Pensacola Harbor has been received the FDEP.

2.13.5 Section 103 Evaluation. A Section 103 Evaluation Report for the Federal navigation project at Pensacola Harbor is being reviewed by the U.S. Environmental Protection Agency (USEPA), Region 4, Atlanta, Georgia (July 2004). A Section 103 Evaluation was performed to determine the suitability of study area sediments for placement in the existing USEPA designated Pensacola offshore ODMDS.

2.13.6 Cultural Resources. A literature search for historic and cultural resources was conducted for the draft EIS designating the offshore ODMDS. Likewise, coordination with the Florida State Historic Preservation Officer (SHPO) was conducted for dredging and disposal activities for NAS Pensacola. The SHPO concluded that the channel areas from the Gulf of Mexico thru Pensacola Pass and to the Navy turning basin contained no cultural resources. By letter dated 12 April 2004 the proposed action was coordinated with the SHPO who concluded that no significant archaeological or historical resources are recorded within the project area.

2.13.7 Endangered and Threatened Species. In the project area, species of concern for the USFWS and NMFS were the Florida manatee and Gulf sturgeon, respectively. The Florida manatee is a subspecies of the West Indian Manatee and is known to occur in the project area. Between October and April, Florida manatees concentrate in areas of warmer water. During summer months, the species may migrate as far west as the Louisiana coast. Manatees inhabit both salt and fresh water of sufficient depth (i.e., between 5 to 18 feet). Over the past several years, manatee sightings have been documented in Pensacola Bay and/or its tributaries during the period of May through December.

US EPA ARCHIVE DOCUMENT

To avoid impacts to the manatee, the intake from the dredge will remain at the bottom within the sediment during dredging operations. Since channel depths are in excess of depths typically inhabited by manatees, it is unlikely that any would be encountered. Such occurrences are even less likely in the recommended disposal site since it is located outside of the species' habitat. However, 'Standard Manatee Construction Conditions' will be implemented and an observer with experience and knowledge of the Florida manatee will be on the dredge as needed during operations. The USFWS concurred (19 May 2004) that the proposed actions were not likely to adversely affect the Florida manatee or any other protected species under USFWS purview.

The Pensacola Harbor navigation channel lies within designated critical habitat for the Gulf sturgeon (Critical Habitat Units 9 and 11). However, under Section 4(b)(2) of the Endangered Species Act, the Port's major shipping channels have been granted exclusion from this designation. By letter dated 3 April 2004, the NMFS concurred that proposed operations are consistent with and were authorized by the 19 November 2003 Regional Biological Opinion (RBO) on the Corps' hopper dredging of channels and sand mining areas in the Gulf of Mexico. During hopper dredging operations, conservation measures will be employed and include an observer for screening (i.e., consistent with the existing observer program), to monitor and report any incidences of sturgeon take. Any takes would be reported to the NMFS.

As noted in the Gulf Regional Biological Opinion, there are three species of sea turtles that should be considered for the Pensacola area (loggerhead, green, and Kemp's ridley). These species have been known to utilize Pensacola Pass, lower Pensacola Bay, and the nearshore Gulf of Mexico for foraging and migration; and Perdido Key and Santa Rosa Island for nesting. Special consideration would be given in areas near lower Pensacola Bay during the nesting season (April through November) if dredging and disposal operations occur within that timeframe. An observer with experience and knowledge of sea turtles would be on the dredge during operation for monitoring purposes. The offshore ODMDS is the principal disposal area that would be used for disposal of the dredged material. The ODMDS is located approximately 11 miles south of Pensacola Pass in the Gulf of Mexico in water depths averaging 76 feet. Sea turtles are unlikely to be on the bottom of the ODMDS and therefore disposal activities should not impact turtles. Accordingly, the proposed dredging and disposal activities should not impact sea turtles.

2.13.8 Essential Fish Habitat. Essential fish habitat (EFH) is defined in the Magnuson-Stevens Fishery Conservation and Management Act as 'those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity.' The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. Habitats that occur within, or in the vicinity of, the proposed project area include: estuarine emergent wetlands; seagrass beds; algal flats; mud, sand, shell and rock substrates; and the estuarine water column. However, only un-vegetated, unconsolidated bottoms are found within the actual Pensacola dredging sites and ODMDS.

Dredging within the Pensacola Bay would be confined to the existing federally authorized channel dimensions. Seagrass and oyster beds located within the Bay would not be impacted by the proposed operations due to their distance from the project site. Though temporary disruption of the aquatic community (i.e., due to dredging and

US EPA ARCHIVE DOCUMENT

disposal activities) is inevitable, non-motile benthic fauna within the area should repopulate within several months of activity completion. Motile benthic and pelagic fauna, such as crab, shrimp, and fish, are able to avoid the disturbed area and should return shortly after the activity is completed. Likewise, there are no anticipated changes to the habitat types of the ODMDS. Previous studies indicated that most species are either unaffected or avoid the area of disposal. Furthermore, any impacts that could occur would be short term and only affect a small area or percentage of the offshore habitat as the proposed activity would only use an estimated ½ mile by ½ mile area within the ODMDS.

2.14 <u>Information Management of Dredged Material Placement Activities</u>. As discussed in the following sections, a substantial amount of diverse data regarding use of the Pensacola offshore ODMDS and effects of disposal is required from many sources (EPA, Corps, Navy, Port of Pensacola). If this information is readily available and in a useable format it can be used to answer many questions typically asked about a disposal site:

- What is being dredged?
- How much is being dredged?
- Where did the dredged material come from?
- Where was the dredged material placed?
- Was dredged material dredged correctly? placed correctly?
- What will happen to the environment at the disposal site?

As part of site management, EPA and the Corps will investigate alternatives for appropriate data management. A GIS data management system, the Dredged Material Spatial Management Analysis and Record Tool (DMSMART), is currently in development by the Engineering Research and Development Center (ERDC), formerly known as the Waterways Experiment Station. This tool will include guidance to Districts for development of a database of dredging project history and the dredging and disposal site monitoring data. Once available, the Districts, with assistance from EPA, Region 4, will evaluate the best approach to implementing a data management system. This will enable the Corps and EPA to better manage the Pensacola offshore ODMDS and account for the multiple users of the site. In addition, the Corps' Ocean Disposal Site Database is compiled by the ERDC. This database provides information on all of the ODMDSs in the United States with appropriate chemical, biological, and physical parameters of the proposed dredged material.

3.0 <u>SITE MONITORING.</u>

The MPRSA establishes the need for including a monitoring program as part of the Site Management Plan. Site monitoring is conducted to ensure the environmental integrity of a disposal site and the areas surrounding the site are environmentally unharmed and to verify compliance with the site designation criteria, any special management conditions, and with permit requirements. Monitoring programs should be flexible, cost effective, and based on scientifically sound procedures and methods to meet site-specific monitoring needs. A monitoring program should have the ability to detect environmental change as a result of disposal activities and assist in determining regulatory and permit compliance. The intent of the program is to provide the following:

US EPA ARCHIVE DOCUMENT

(1) Information indicating whether the disposal activities are occurring in compliance with the permit and site restrictions; and/or

(2) Information concerning the short-term and long-term environmental impacts of the disposal; and/or

(3) Information indicating the short-term and long-term fate of materials disposed of in the marine environment.

The main purpose of a disposal site monitoring program is to determine whether dredged material site management practices, including disposal operations, at the site need to be changed to avoid significant adverse impacts.

3.1 Baseline Monitoring. Disposal has not occurred at the present designated site since the Navy channel dredging operations in 1989/90 and the emergency dredging of the Pensacola inner harbor in 2004. Prior to 1990 and as part of the Final Environmental Impact Statement (FEIS) for Designation of a New Ocean Dredged Material Disposal Site, Pensacola, Florida, dated 1988, many surveys and studies were conducted at the ODMDS or in relation to disposal in the offshore ODMDS (e.g. proposed dredge material testing). Detailed results of these studies provide a baseline and are presented in the aforementioned designation FEIS. Those studies and subsequent surveys are listed in Table 4 and serve as the main body of data for monitoring the impacts associated with the use of the ODMDS and effects of tropical storms. Both pre-disposal and post-disposal surveys will be conducted associated with future dredging and disposal events.

Table 4. Surveys and Studies Conducted at or in relation to the Pensacola offshore ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Summary of Currents off Pensacola, Florida	Physical Oceanography Division, Naval Ocean Research & Development Activity	July 1988	Document currents in the potential dredged material disposal sites as part of Navy homeport project.	Currents were non-tidal, wind driven, westward and parallel to the coast.
Water Quality and Sediment Data	EPA	Nov 86, Apr 87 and Jul 87	Determine water quality and sediment characteristics at the offshore ODMDS	Predominantly medium and coarse sands at the ODMDS; Sediments analyzed for metals, nutrients, oil and grease, pesticides and chlorinated hydrocarbons were either below minimum detection limits or in very low concentrations; Salinity, temperature, dissolved oxygen, and percent light transmission were normal for water quality parameters
Characteristics of Dredged Material Proposed for Disposal	Dredged Materials Research Team, EPA	Aug 88	Determine effects of dredged material on representative marine organisms	Proposed dredge material were not acutely toxic nor were chemicals in them bioavailable for accumulation to concentrations of concern.

US EPA ARCHIVE DOCUMENT

Table 4. Surveys and Studies Conducted at or in relation to the Pensacola offshore ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Video, Still Photography and Side Scan Sonar		1987		No live/hard bottoms
Pensacola offshore ODMDS Benthic Communities Study		Nov 86 & Apr 87	Benthic community characterization	Infaunal communities characteristic of medium and coarse grain sediments of the northern Gulf of Mexico; dominated by polychaetes.
Bathymetric Survey	Corps	1989	Monitor bathymetry changes	Depths at the ODMDS range from 60 to 95 feet with an average of 76 feet.
Disposal Monitoring	Navy	1989-90	Compliance	Insured dredged material was placed within the ODMDS in specified area.
Post Disposal Bathymetric Survey	Corps	1990	Monitor bathymetry changes	Dredged material was placed within designated area and berm was verified.
Post Disposal Sediment Mapping	EPA	Apr & Oct 90; Oct 93	Map sediment distribution patterns	Dredged material was distinguishable from bottom sediment; migration was as predicted
Post Disposal Benthic Communities assessment	EPA	Oct 90 & 93	Evaluate benthic community parameters within and outside of dredged material influences	No adverse impacts to benthic communities as a result of dredged material disposal
Bathymetric Survey	Corps	2/2001	Monitor bathymetry changes	Berm still distinguishable. Disposed material within ODMDS.
Evaluation of Dredged Material from Pensacola Harbor, Escambia County, Florida	Corps	5/2002	Evaluate suitability of proposed dredged material for ocean placement	Proposed dredged material is primarily silts and clays. Bulk sediment analysis, elutriate testing, water column bioassays, whole sediment bioassays, and bioaccumulation studies resulted in acceptable levels for ocean placement.
Bathymetric Survey	Corps	9/2003	Monitor bathymetry changes	Berm still distinguishable. Disposed material within ODMDS. Collect bathymetric data to evaluate site for determining future placement areas within ODMDS.
Bathymetric Survey	Corps	8/2004	Post-disposal surveys. Emergency dredging of Pensacola Harbor.	Material from emergency dredging of Pensacola Harbor placed within ODMDS. Site features remain. distinguishable

3.2 <u>Disposal Monitoring</u>. For all disposal activities, the dredging contractor will be required to prepare and operate under an approved electronic verification plan for all disposal operations. As part of this plan, the contractor will provide an automated system that will continuously track (1 to 5 minute intervals) the horizontal location and

US EPA ARCHIVE DOCUMENT

draft condition (vertical) of the disposal vessel from the point of dredging to the disposal area, and return to the point of dredging. Required digital data are as follows:

(a) Date;
(b) Time;
(c) Vessel Name;
(d) Dump Number;
(e) Map Number on which dump is plotted (if appropriate);
(f) Beginning and ending coordinates of the dredging area for each load (source of dredged material);
(g) Actual location (in degrees and minutes of longitude and latitude or State Plane Coordinate system, Florida North Zone, NAD83) at points of initiation and completion of disposal event;
(h) Brief description of material disposed;
(I) Volume of material disposed; and
(j) Disposal technique used.

The user will be required to prepare and submit to the Corps daily reports of operations and a monthly report of operations for each month or partial month's work. The user is also required to notify the Corps and the EPA if a violation of the permit and/or contract conditions occur during disposal operations. In the case of large new work projects (>1 million cubic yards) where the material is expected to consist of stiff clays, it is recommended that mid-project bathymetric surveys be conducted of the disposal area to insure that mounding limits are not being exceeded. More detailed disposal monitoring requirements are described in Appendix C.

3.3 <u>Post Disposal Monitoring</u>. The Corps or other site users will conduct a bathymetric survey prior to disposal events and within 30 days after disposal project completion. Surveys will not be required for projects less than 50,000 cubic yards. Surveys will conform to Class 2 specifications as described in the Corps Engineering Manual, EM1110-2-1003, *Hydrographic Surveying* dated 1 January 2002. The number and length of transects required will be sufficient to encompass the Pensacola offshore ODMDS and a 500 foot wide area around the site. The survey area may be reduced on a case-by-case basis if disposal zones are specified and adhered to. The surveys will be taken along lines spaced at 500-foot intervals or less with a depth recording density of 20 to 70 feet. Depth precision of the surveys will be ±/- 0.5 feet. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either a microwave line of site system or differential global positioning system. Under ordinary conditions mean tidal range is 1.1 feet, and extreme range is 3.0 feet. Plane of reference is mean lower low water. The horizontal datum will be Geographic (NAD 1983). Bathymetric surveys will be used to monitor the disposal mound to insure a navigation hazard is not produced, assist in verification of material placement, monitor bathymetric changes and trends, aid in environmental effects monitoring, and insure that the site capacity is not exceeded, i.e., the mound does not exceed the site boundaries. The surveys shall be provided to EPA Region 4 when completed and made available to any other appropriate governing agencies.

3.4 <u>Material Tracking and Disposal Effects Monitoring</u>. Surveys can be used to address possible changes in bathymetric, sedimentological, chemical, and biological aspects of the Pensacola offshore ODMDS and surrounding area as a result of the disposal of dredged material at the site.

US EPA ARCHIVE DOCUMENT

3.4.1 Summary of Results of Past Monitoring Surveys. Table 5 lists the past surveys at the Pensacola ODMDS. In general, the surface of the site is covered by sand waves dominated by coarse and medium sand with varying amounts of shell fragments. Bottom current data within the ODMDS indicates that fine-grained dredged material has the potential to be dispersed beyond the designated site boundaries. Corps bathymetric surveys after the disposal activity in 1990 indicate the submerged berm structure was stable and acted to manage dispersion of the finer grained dredged material.

Since the last disposal in the ODMDS various bathymetric surveys have been conducted by the Corps to monitor the submerged berm and bottom site conditions of the offshore ODMDS. Results of those surveys show the berm is still distinguishable in the ODMDS with heights that vary up to 8 feet and widths up to about 800 feet. The berm side slopes near the toes and tops of slopes are typically rounded. The berm crests vary from elevations –77 to –72 feet mean lower low water (MLLW).

3.4.2 Future Monitoring Surveys. Based on the type and volume of material disposed and impacts of concern, various monitoring surveys can be used to examine if and the direction the disposed dredged material is moving, and what environmental effect the material is having on the site and adjacent areas. A tiered approach will be utilized to determine the level of monitoring effort required following each disposal event. At a minimum bathymetry and sediment mapping will follow all disposal events, until deemed unnecessary. Bathymetric surveys will be the responsibility of the dredged material generator while EPA will be responsible for sediment mapping activities. Generic language for contracting monitoring efforts for the ODMDS is contained in Appendix D.

The rationale for a phased or tiered monitoring approach is based upon that delineated in the EPA/Corps Draft Ecological Evaluation of Proposed Discharge of Dredged Material into Ocean Waters (1990). The basic philosophy behind the tiered approach is to provide for proper oversight of ocean placement activities at the Pensacola offshore ODMDS while properly managing personnel and fiscal resources. Because a portion of the Pensacola offshore ODMDS has been used without significant environmental impacts, we believe that the phased approach would provide the necessary information to determine the need for additional monitoring and be the most expeditious approach. This phased approach is especially appropriate for repeated disposal operations, such as those that occur during maintenance of projects. For construction (new work) dredged material placement operations, which typically involve large quantities of material, variations of the phased approach may be appropriate.

With the phased approach, an interagency team, consisting of representatives of the State of Florida, the Corps, EPA, National Marine Fisheries Service, and the user, would be established at the time when use of the ODMDS is proposed. This team would suggest appropriate monitoring techniques and level of monitoring required for a specific action. These suggestions should be based on type of disposal activity (i.e. O&M vs. construction), quality of material, location of placement activity within ODMDS, or quantity of material. EPA and the Corps will ultimately determine the actual monitoring activities to be required.

Within 30 days of completion of a disposal event, detailed bathymetric surveys of the placement area would be completed. Within twelve (12) months of the event,

US EPA ARCHIVE DOCUMENT

sediment mapping of the placement and adjacent areas would be complete. The interagency team would meet to review the results of these efforts and determine the need for additional information. This need would be based on variations from the expected scenario associated with the specific disposal event. Should the results of the bathymetric and sediment mapping surveys conform with the expected scenario no additional monitoring would be required for the disposal event. At the next event, this phased monitoring approach would be applied in a similar fashion. At some point in time, to be agreed upon by the interagency team, a reassessment of the site would be undertaken. At a minimum, this reassessment would include benthic macroinfaunal and sediment chemistry surveys. Additional surveys for water quality or the use of remote sensing equipment might also be required.

At the current time, no nearby biological resources have been identified that are of concern for potential impact. The Pensacola ODMDS is at least two miles from the nearest fishing reef. Future surveys as outlined in Table 5 will focus on determining the rate and direction of disposed dredged material dispersal and the capacity of the ODMDS. Should future disposal at the Pensacola offshore ODMDS result in unacceptable adverse impacts, further studies may be required to determine the persistence of these impacts, the extent of the impacts within the marine system, and/or possible means of mitigation. In addition, the management plan presented may require revision based on the outcome of any monitoring program.

Table 5. ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Monitor Bathymetric Trends	Bathymetry	Site User	Determine the extent of the disposal mound and major bathymetric changes	Post disposal	Disposal mound occurs outside ODMDS boundaries	Continue Monitoring	-Modify disposal method/placement -Restrict disposal volumes -Enlarge site
Benthic Effects Monitoring	Sediment Mapping (Gamma/ CS^3)	EPA	Determine aerial influence of dredged material	Post disposal	Communities under the influence of dredged material outside the site have significant differences in diversity/ richness/biomass from those not under dredged material influence after one-year recovery period.	Discontinue monitoring unless disposal quantities, type of material or frequency of use significantly changes	-Limit quantity of dredged material to prevent impacts outside boundaries -Create berms to retard dredged material movement -Cease site use
	Benthic Survey	EPA	Determine impact of dredged material on benthic community	As needed			
Long-Term Fate	Modeling	EPA/ COE	Determine dispersiveness of site and aerial extent of impact	As resources allow	Aerial extent of impact reaches resources of concern and/or increases over time.	Continue to use site without restrictions	-Restrict disposal volumes -Create berms to retard dredged material transport -Cease site use / Designate new site
	Current Meter & Wave Gauge	EPA/ COE/ Site Users					
	Precision Bathymetry and Sidescan	COE/ EPA					
Site Capacity	Information from Long	EPA/ COE/	Determine dispersiveness of	-As resources allow	New work volumes exceed estimated capacity	Continue to use site without restrictions	-Enlarge site or designate additional site for new work

					Maintenance volumes exceed estimated capacity	Continue to use site without restrictions	-Enlarge site or designate additional site for new work
					New work volumes exceed estimated capacity	Continue to use site without restrictions	-Enlarge site or designate additional site for new work
Insure Safe Navigation Depth	Bathymetry	Site User	Determine height of mound and any excessive mounding	Post disposal	Mound height > -55 feet mean lower low water (MLLW)	Continue Monitoring	-Modify disposal method/placement -Restrict disposal volumes
					Mound height > -50 feet MLLW	Continue Monitoring	- Physically level material
Compliance	Disposal Site Use Records	Site User	-Insure management requirements are being met -To assist in site monitoring	Daily during the project	Disposal records required by SMMP are not submitted or are incomplete	Continue Monitoring	-Restrict site use until requirements are met
					Review of records indicates a dump occurred outside ODMDS boundary	Continue Monitoring	-Notify EPA Region 4/COE, and investigate why egregious dump(s) occurred. Take appropriate enforcement action.
					Review of records indicates a dump occurred in the ODMDS but not in target area	Continue Monitoring	-Direct placement to occur as specified.

3.5 <u>Reporting and Data Formatting</u>. The user will be required to prepare daily reports of operations and submit to the Corps a monthly report of operations for each month or partial month's work. Disposal monitoring data shall be delivered to the Corps on a weekly basis. The user is also required to notify the Corps and the EPA within 24 hours if a violation of the permit and/or contract conditions related to MPRSA Section 103 or SMMP requirements occur during disposal operations.

Disposal summary reports shall be provided by the Corps to EPA within 90 days after project completion. These should consist of dates of disposal, volume of disposal, approximate location of disposal and disposal bathymetric survey results in both hard and electronic formats. Other disposal monitoring data shall be made available upon request. In addition, EPA should be notified by the Corps 15 days prior to the beginning of a dredging cycle or project disposal.

Material tracking, disposal effects monitoring, and any other data collected shall be coordinated with and be provided to SMMP team members and Federal and State agencies as appropriate. Data will be provided to other interested parties requesting such data to the extent possible. Data will be provided for all surveys in a report generated by the action agency. The report should indicate how the survey relates to the SMMP and previous surveys at the Pensacola offshore ODMDS and should provide data interpretations, conclusions, and recommendations, and should project the next phase of the SMMP.

US EPA ARCHIVE DOCUMENT

4.0 ANTICIPATED SITE USE.

It is anticipated that there will be a need for use of the Pensacola offshore ODMDS for many years. The anticipated site is projected for dredged material disposal of 1 million cubic yards of dredged material on a 2 to 3 year basis. This projection is based on shoaling rates, past dredging records, currently available dredged material disposal options, and the Corps' planning documents. The estimate likely represents the high end of the potential range of quantities as efforts are underway to develop alternative dredged material disposal methods as part of the Pensacola Harbor Dredged Material Management Plan.

5.0 MODIFICATION OF THE PENSACOLA OFFSHORE ODMDS SMMP.

Should the results of the monitoring surveys or valid reports from other sources indicate that continued use of the ODMDS would lead to unacceptable effects, then the ODMDS management will be modified to mitigate the adverse effects. The SMMP will be reviewed and updated at least every 10 years. The SMMP will be reviewed and updated as necessary if site use changes significantly. For example, the SMMP will be reviewed if the quantity or type of dredged material placed at site changes significantly or if conditions at the site indicate a need for revision. The plan should be updated in conjunction with activities authorizing use of the site.

6.0 IMPLEMENTATION OF THE PENSACOLA OFFSHORE ODMDS SMMP.

This plan shall be effective from date of signature for a period not to exceed 10 years. The EPA and the Corps shall share responsibility for implementation of the SMMP. Site users may be required to undertake monitoring activities as a condition of their permit. The Corps will be responsible for implementation of the SMMP for Federal maintenance projects.

7.0 REFERENCES.

Fredette, Thomas J., Nelson, David A., Clausner, James E., and Anders, Fred J. 1990. *Guidelines for Physical and Biological Monitoring of Aquatic Dredged Material Disposal Sites*, Technical Report D-90-12, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Pequegnat, Willis E., Gallaway, Benny J., and Wright, Thomas D., 1990. *Revised Procedural Guide for Designation Surveys of Ocean Dredged Material Disposal Sites*, Technical Report D-90-8, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

U.S. Army Corps of Engineers (COE). 1994. *Hydrographic Surveying*. Engineering Manual 1110-2-1003, Department of the Army, Washington D.C.

U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal (Testing Manual)*, February 1991. Prepared by Environmental Protection Agency Office of Marine and Estuarine Protection and Department of Army United States Army Corps of Engineers under EPA Contract No. 68-C8-0105.

U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, 1996. *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites*, February 1996. Prepared by Environmental Protection Agency Office of Water and Department of Army United States Army Corps of Engineers.

U.S. Environmental Protection Agency Region 4 and U.S. Army Corps of Engineers South Atlantic Division, 1993. *Regional Implementation Manual Requirements and Procedures for Evaluation of the Ocean Disposal of Dredged Material in Southeastern Atlantic and Gulf Coastal Waters*, May 1993.

U.S. Environmental Protection Agency (USEPA). 1988. *Final Environmental Impact Statement for Designation of a New Ocean Dredged Material Disposal Site, Pensacola, Florida*. September.

US EPA ARCHIVE DOCUMENT

APPENDIX A

DREDGED MATERIAL TESTING RESULTS

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

APPENDIX A
DREDGED MATERIAL TESTING RESULTS

1.0 Dredged Material Testing. Sediment sampling within the authorized Federal navigation channel was conducted from 10 - 15 July 2001. Twelve core borings were collected to various depths ranging from -3 to -8 ft below the proposed depth of dredging. The locations of the sediment sampling sites and grain sizes are depicted in Figures A1 and A2, respectively. Grain size test results indicate that the sediment within the Inner Harbor and Mid-Bay portions of the project area is primarily comprised of silts and clays (ranging from 60 to 95 percent). Sediments from the South-Bay have the highest proportion of sand (81 percent). The following presents a brief summary of the chemical testing results for the proposed dredged material.

1.1 Sediments. 143 chemical constituents were tested with 55 detected in the Pensacola Harbor sediments (38 percent). Metals and PAHs were the most commonly detected constituents present. Most of the detected metals are naturally occurring and were measured at low concentrations. Chlorinated and organophosphorus pesticides were not detected in any samples. Only thirty-six of the 143 constituents were detected in the Pensacola Bay reference site sediment (25 percent).

Comparisons to regional sediment quality guidelines (SQGs) indicated that few organic contaminants were present in the sediment in concentrations that would be expected to adversely affect aquatic organisms. Five metals and one PAH, (arsenic, chromium, copper, lead, mercury, and dibenz(a,h)anthracene), exceeded the threshold effects level (TEL) values in at least one of the harbor samples. Of these six constituents, only arsenic was detected at a concentration above the TEL at the Pensacola Bay reference station. The concentrations of the other 5 constituents were nearly equivalent to the TEL. One constituent, bis(2-ethylhexyl)phthlate, exceeded the probable effects level (PEL) value, but it is a common laboratory contaminant.

Various commonly found metals were examined in relation to aluminum utilizing a ratio regression plot of a 95% prediction limit that was developed by the Florida Department of Environmental Protection/MacDonald Environmental Sciences Ltd (Schropp 1990). The metals examined included: lead, zinc, nickel, copper, chromium, arsenic, and cadmium. With the exception of zinc, all heavy metal analysis results are within the acceptable range according to the metal-to-aluminum predicted limits. This suggests that sediments from the Inner Harbor are enriched somewhat in zinc.

1.2 Standard Elutriates. Elutriates are prepared by taking the sediment samples (proposed dredge material) and mixing with collected site water. After mixing the solution is allowed to settle. The resulting liquid on the top (elutriate) is then chemically analyzed to determine the dissolved components within the remaining elutriate. Nineteen of 143 chemical constituents (13 percent) were detected in the full-strength elutriates from the Pensacola Harbor channels. Metals and nutrients were the most frequently detected constituents during elutriate testing. None of the tested PAHs, SVOCs, or organophosphorus pesticides were detected in the elutriate samples.

1.3 Elutriate Chemistry. Based on the results of the elutriate analyses performed by the analytical laboratory for ammonia, a maximum of a 5-fold dilution would be required to satisfy the acute criteria of 2.9 mg/L NH3-N after 1-hour following placement. A maximum of a 33-fold dilution is required to comply with the chronic water quality

criterion of 0.44 mg/L NH3-N after 4-hours following placement. (The criterion was calculated based on a salinity of 30 ppt, water temperature of 30°C, and ph-8). To determine LPC compliance, the highest ammonia concentration measured in the 100 percent elutriates for the water column bioassays (22.9 mg/L NH3-N at PEN01-04) was used conservatively in the STFATE modeling. Overall, the ammonia concentrations measured during the water column bioassays in the ecotoxicology laboratory were higher than those measured by the analytical laboratory. Using the NH3-N concentration from PEN01-4, an 8-fold dilution (after 1-hour) would be required to satisfy the acute criterion of 2.9 mg/L NH3-N and a 52-fold dilution (after 4-hours) would he required to satisfy the chronic criterion of 0.44 mg/L NH3-N.

1.4 Toxicity Testing. Three water column species, *Arbaciapunctulata* (purple sea urchin), *Americamysis bahia* (opossum shrimp) and *Cyprinodon variegates* (sheepshead minnow), were exposed to elutriates from the project sediments and reference site. The sea urchin tests measured developmental effects to embryos, and the opossum shrimp and minnow tests measured effects to organism survival.

Overall, *the A. punctulata* was the most-sensitive species in the water column tests. The EC50 values for *the A. punctulata* water column tests ranged from <10 percent elutriate to 23.6 percent elutriate. Ammonia toxicity was suspected to contribute to the inhibited development in each of the samples with an EC50 of<10 percent elutriate. Because the elutriate dilution series did not include a 1 percent dilution, the exact EC50 below l0 percent could not be calculated for individual locations. To determine LPC compliance, the urchin development data from multiple locations was pooled to calculate an overall EC50 value that would be representative of the material (as a whole) to be dredged and placed at the Pensacola ODMDS. The pooled EC50 value for the harbor and upper Pensacola Bay locations was 7.2 percent elutriate. This value was used in the STFATE modeling.

1.5 STFATE Modeling and Limiting Permissible Concentration (LPC) Compliance. STFATE modeling was conducted using the highest measured ammonia concentrations in the elutriate (22.9 mg/L) and the pooled EC50 for A. *punctulata* (7.2 percent). Input parameters used in the STFATE modeling is presented in Appendix B. Results of the STFATE modeling indicated that a dilution of approximately 208-fold is achieved after 1 hour following placement, and a 1540-fold dilution occurs 4 hours following placement of a typical volume of 2,000 cubic yards of dredged material at the center of the site. After 4 hours following placement at the center of the site, the leading edge of the plume is estimated to travel approximately 4,880 linear feet from the placement location. Therefore, placement can occur at the center of ODMDS, and the leading edge of the plume will remain within the 6-square mile site boundary.

The 208-fold dilution within the first hour exceeds the dilution required to meet the acute ammonia criterion. The 1540-fold available dilution after 4 hours is sufficient to satisfy both the chronic ammonia criterion and 1 percent of the EC50 value. Therefore, the concentrations of ammonia detected in the project elutriates and the EC50 value of 7.2 percent for *A. punctulata* meet the Limiting Permissible Concentration (LPC) for ocean placement at the Pensacola offshore ODMDS.

US EPA ARCHIVE DOCUMENT

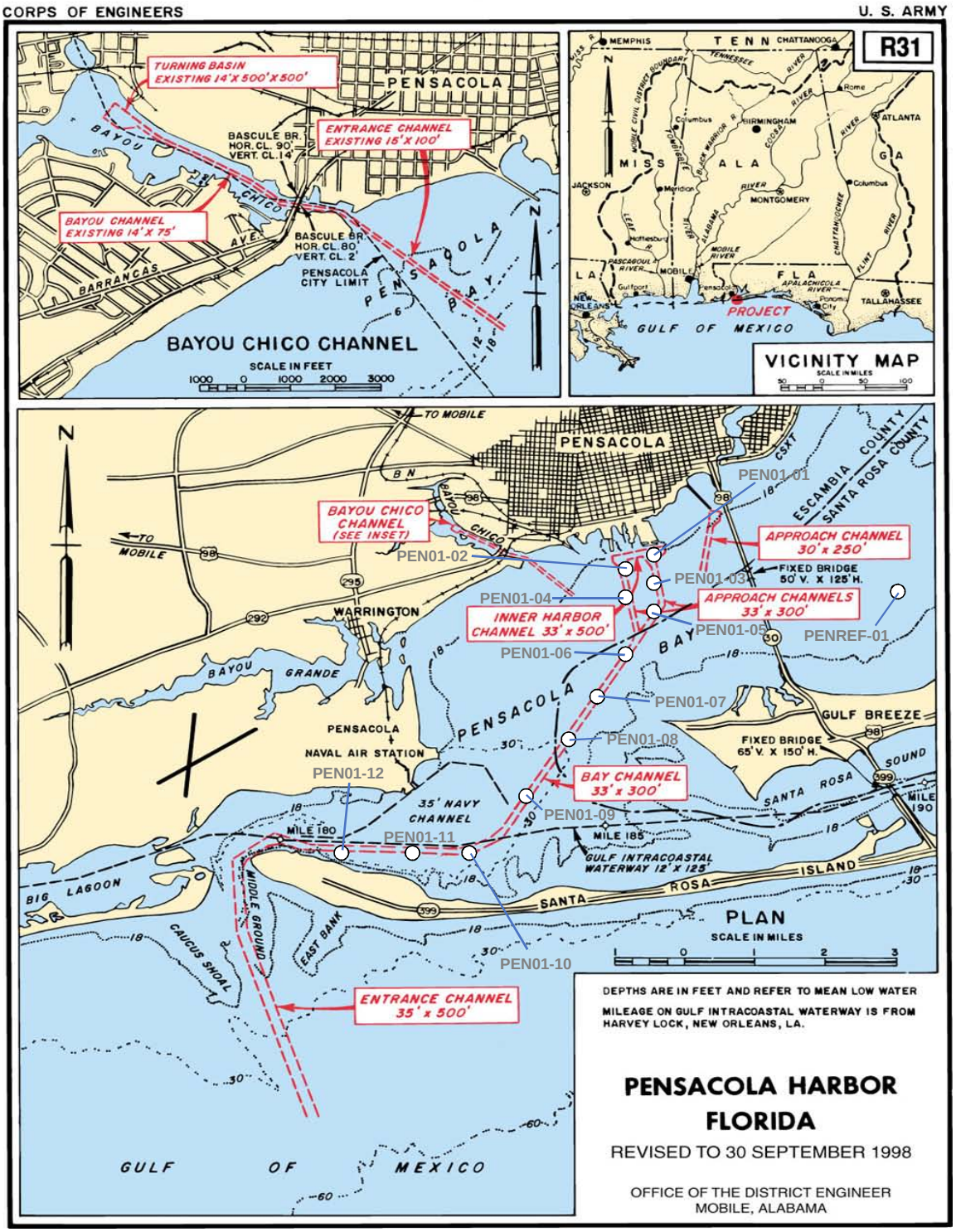


Figure A1. Sample locations for Pensacola Harbor, Florida (July 2001).

US EPA ARCHIVE DOCUMENT

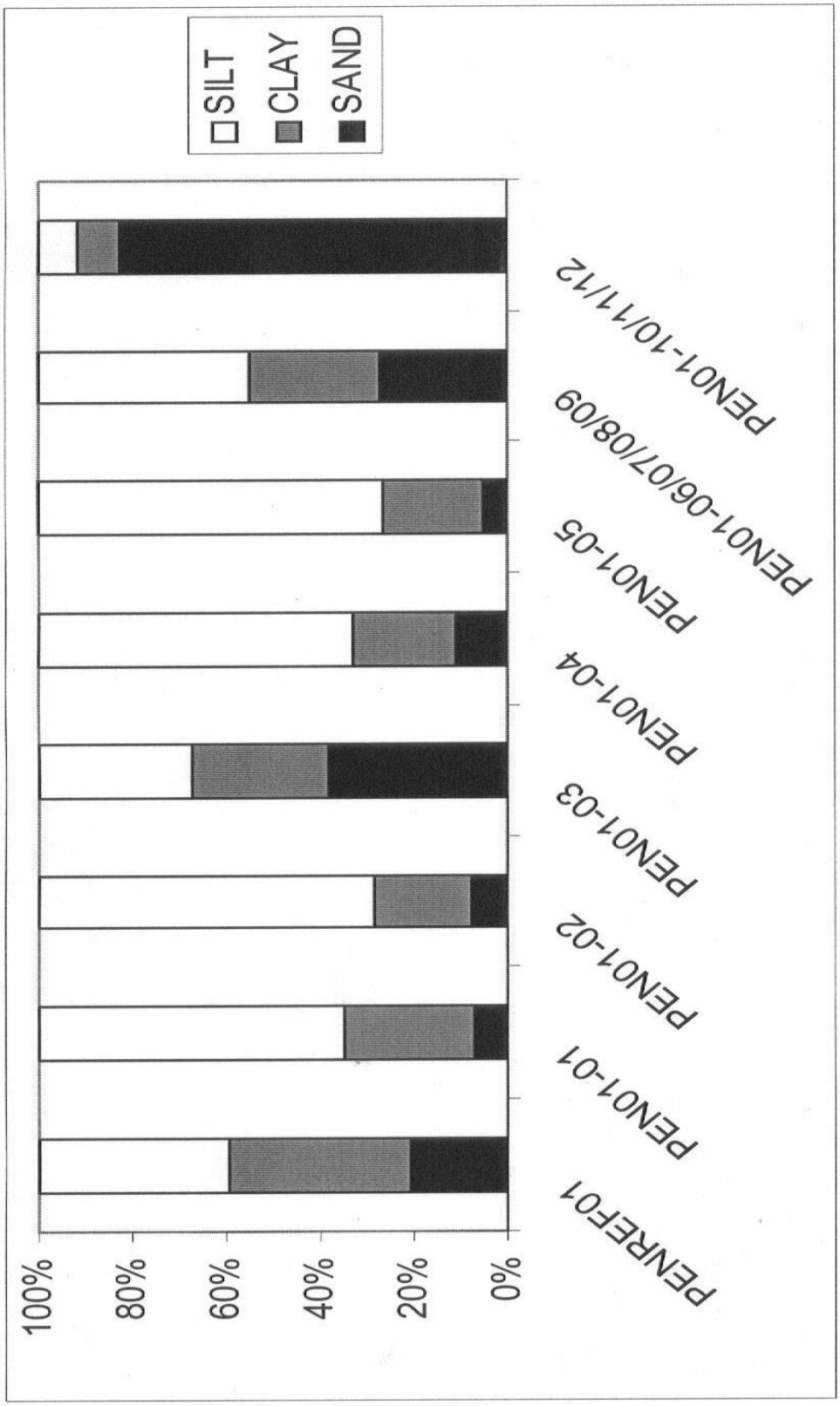


Figure A2. Grain size distribution for bulk sediments from Pensacola Harbor, Florida

US EPA ARCHIVE DOCUMENT

1.6 Benthic Toxicity Evaluation. Two benthic species, *Neanthes arenaceodentata* (marine polycheate) *and Leptocheirus plumulosus* (amphipod), were exposed to the project sediments and reference site sediment for 10 days. The tests measured survival in the project sediments and compared them to survival in the reference sediments. Results of the whole sediment testing for the Pensacola Harbor channels indicated that none of the sediments were acutely toxic to *N. arenaceodentata.* Survival ranged from 72 to 92 percent in the test sediments, and there was 88 percent survival in the reference sediment. For whole sediment testing with *L. plutnulosus,* the lower harborr exhibited significantly lower survival (72 and 74 percent survival, respectively) than the reference sediment (91 percent survival). Although survival was significantly lower than the reference, survival was not more than 20 percent lower for either location. Therefore, each of the test sediments meets the LPC for the whole sediment bioassays.

1.7 Benthic Bioaccumulation. Twenty-eight day survival and bioaccumulation tests were conducted with the project sediments and reference sediment using *Nereis virens* (marine polychaete worm) and *Macotna nasuta* (blunt-nose clam). After 28 days of exposure, none of the test sediments had significantly (p=0.05) lower survival than the reference sediment, indicating that the sediments were not toxic to N. *virens* or *M. nasuta.* Several of the pails and metals detected in worm and clam tissue that statistically exceeded the reference tissue concentration had tissue concentrations that were lower than those measured in the tissue prior to testing. These results indicate that a portion of the significant concentrations for the test tissues were actually lower than the concentrations reported in the pre-test tissue (non-exposed tissue). In such cases, it is possible that the significant exceedances represent either natural or analytical variability of concentrations within the tissue samples, rather than contaminant uptake from the sediment. Overall, the results of the tissue analyses indicate that only a few constituents accumulated in the worm and clam tissues that were exposed to Pensacola Harbor channel sediments and the detected concentrations were below guidance levels for consumption of fish and shellfish.

US EPA ARCHIVE DOCUMENT

APPENDIX B

WATER COLUMN EVALUATIONS
NUMERICAL MODEL (STFATE) INPUT PARAMETERS

US EPA ARCHIVE DOCUMENT

Water Column Evaluations
Numerical Model (STFATE) Input Parameters
Pensacola ODMDS

SITE DESCRIPTION

Parameter	Value	Units
Number of Grid Points (left to right)	45	
Number of Grid Points (top to bottom)	45	
Spacing Between Grid Points (left to right)	500	ft
Spacing Between Grid Points (top to bottom)	500	ft
Constant Water Depth	75	ft
Roughness Height at Bottom of Disposal Site	.005[1]	ft
Slope of Bottom in X-Direction	0	Deg.
Slope of Bottom in Z-Direction	0	Deg.
Number of Points in Ambient Density Profile Point	3	
Ambient Density at Depth = 1 ft	1.0248	g/cc
Ambient Density at Depth = 36 ft	1.0267	g/cc
Ambient Density at Depth = 75 ft	1.0271	g/cc

AMBIENT VELOCITY DATA

Parameter	Value	Units
Profile	2-Point at constant depth	
X-Direction Velocity at Depth = 30 ft	0.0	ft/sec
Z-Direction Velocity at Depth = 30 ft	-0.750	ft/sec
X-Direction Velocity at Depth = 56 ft	0.0	ft/sec
Z-Direction Velocity at Depth = 56 ft	-0.530	ft/sec

DISPOSAL OPERATION DATA

Parameter	Value	Units
Location of Disposal Point from Top of Grid	11,250[2]	ft
Location of Disposal Point from Left Edge of Grid	16,875[2]	ft
Dumping Over Depression	0	

INPUT, EXECUTION AND OUTPUT

Parameter	Value	Units

US EPA ARCHIVE DOCUMENT

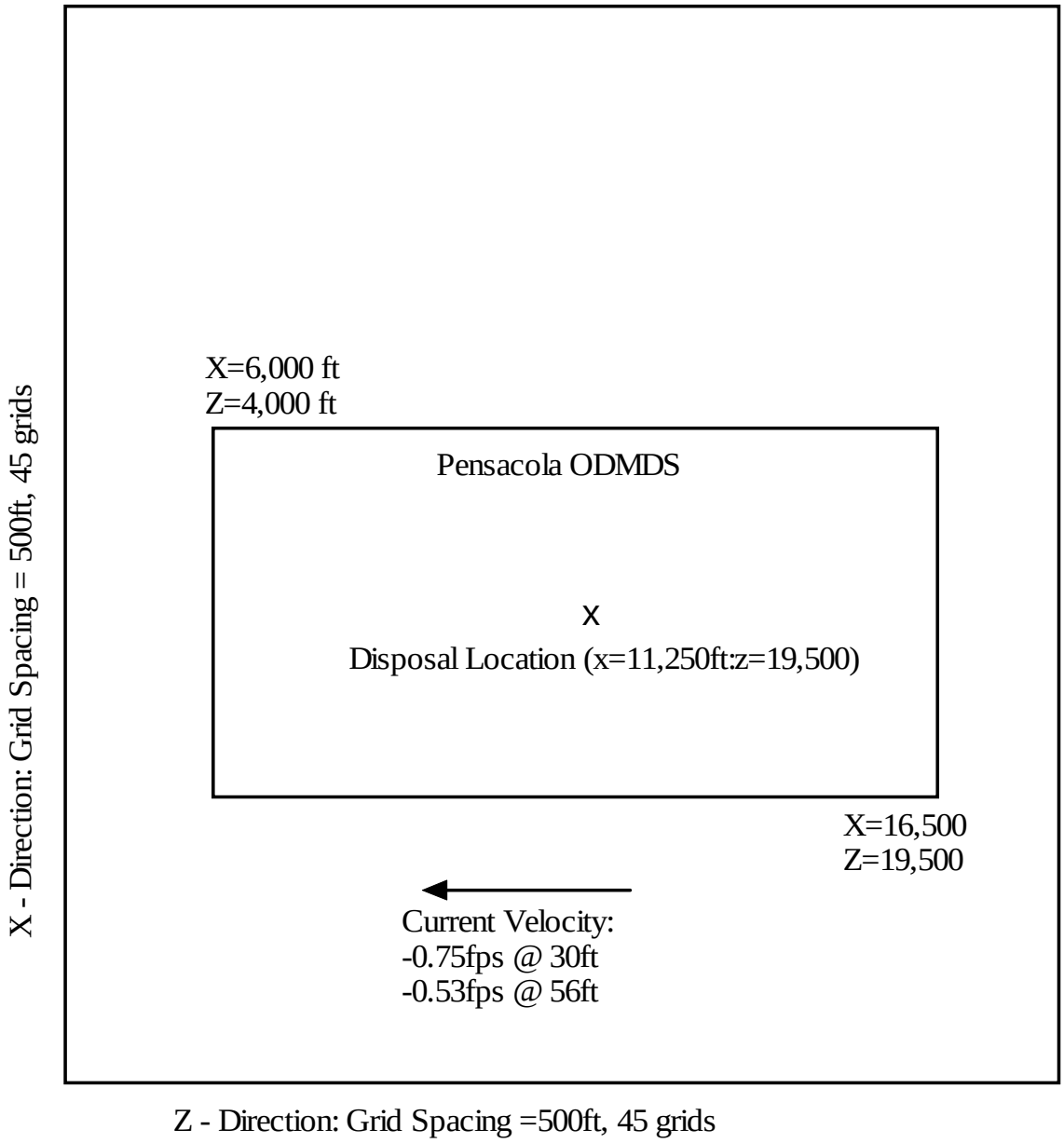
Location of the Upper Left Corner of the Disposal Site - Distance from Top Edge	6,000	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	4,000	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	16,500	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	19,500	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

COEFFICIENTS

Parameter	Keyword	Value
Settling Coefficient	BETA	0.000[1]
Apparent Mass Coefficient	CM	1.000[1]
Drag Coefficient	CD	0.500[1]
Form Drag for Collapsing Cloud	CDRAG	1.000[1]
Skin Friction for Collapsing Cloud	CFRIC	0.010[1]
Drag for an Ellipsoidal Wedge	CD3	0.100[1]
Drag for a Plate	CD4	1.000[1]
Friction Between Cloud and Bottom	FRICTN	0.010[1]
4/3 Law Horizontal Diffusion Dissipation Factor	ALAMDA	0.001[1]
Unstratified Water Vertical Diffusion Coefficient	AKYO	Pritchard Expression
Cloud/Ambient Density Gradient Ratio	GAMA	0.250[1]
Turbulent Thermal Entrainment	ALPHAO	0.235[1]
Entrainment in Collapse	ALPHAC	0.100[1]
Stripping Factor	CSTRIP	0.003[1]

[1]Model default value
[2]Represents center of disposal site. Dredged material requiring disposal in another location in order to meet the dilution criteria must be brought to the attention of EPA and the COE.
Typical dilution achieved after 4 hours = 2,415:1
Typical dilution achieved at all times outside disposal site = 1.5×10^6:1

US EPA ARCHIVE DOCUMENT



US EPA ARCHIVE DOCUMENT

APPENDIX C

GENERIC SPECIAL CONDITIONS
FOR MPRSA SECTION 103 PERMITS
PENSACOLA, FLORIDA OFFSHORE ODMDS

I. DISPOSAL OPERATIONS

A. For this permit, the term disposal operations shall mean: navigation of any vessel used in disposal operations, transportation of dredged material from the dredging site to the Pensacola Offshore ODMDS, proper disposal of dredged material at the disposal area within the ODMDS, and transportation of the hopper dredge or disposal barge or scow back to the dredging site.

B. The boundary coordinates of the Pensacola offshore ODMDS is defined as the rectangle delineated by the following latitude/longitude and State Plane Coordinate system NAD 83 coordinates:

Latitude	Longitude	Northing	Easting
30°08’50” N	87°19’30” W	428347.51	1075701.81
30°08’50” N	87°16’30” W	427959.37	1091501.16
30°07’05” N	87°16’30” W	417355.53	1091243.06
30°07’05” N	87°19’30” W	417743.77	1075439.07

C. No more than [NUMBER] cubic yards of dredged material excavated at the location defined in [REFERENCE LOCATION IN PERMIT] are authorized for disposal at the ODMDS. The permittee agrees and understands that all dredged material will be placed in such a manner that its highest point will not exceed –55 feet MLLW.

D. The permittee shall use an electronic positioning system to navigate to and from the Pensacola Offshore ODMDS. For this section of the permit, the electronic positioning system is defined as: a differential global positioning system or a microwave line of site system. Use of LORAN-C alone is not an acceptable electronic positioning system for disposal operations at the ODMDS. If the electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected.

E. The permittee shall certify the accuracy of the electronic positioning system proposed for use during disposal operations at the ODMDS. The certification shall be accomplished by direct comparison of the electronic positioning system’s accuracy with a known fixed point.

F. The permittee shall not allow any water or dredged material placed in a hopper dredge or disposal barge or scow to flow over the sides or leak from such vessels during transportation to the ODMDS. In addition, the permittee understands that no debris is to be placed in the ODMDS.

G. A disposal operations inspector and/or captain of any tug boat, hopper dredge or other vessel used to transport dredged material to the Pensacola Offshore ODMDS shall insure compliance with disposal operation conditions defined in this permit.

US EPA ARCHIVE DOCUMENT

1. If the disposal operations inspector or the captain detects a violation, he shall report the violation to the permittee immediately.

2. The permittee shall contact the U.S. Army Corps of Engineers, Mobile District's, Coastal Environment Team (Dr. Susan Rees) at (251) 694-4141 and EPA Region 4 at (404) 562-9395 to report the violation within twenty-four (24) hours after the violation occurs. A complete written explanation of any permit violation shall be included in the post-dredging report.

H. The permittee shall use an automated disposal verification system that will continuously track (1 to 5 minute intervals) the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) to and from the Pensacola ODMDS. This information shall be available in electronic format to the Mobile District Corps of Engineers and EPA Region 4 upon request.

1. Required digitally recorded data are: dump number, location from which the dredged material came, brief description of material in each dump (e.g., clean coarse sand; sand and shell sand mixed with clay and shell; dark organic silt); number of cubic yards on each dump; the beginning and ending coordinates for each dump and the compass heading at the beginning of each dump; date and time of each dump; and the map number on which the dump is plotted. This information will be available to the Mobile District Corps of Engineers on a daily basis. Upon completion of each dredging operation, the permittee agrees to prepare a computer-generated report which encompasses the required information. ***This data will be coded into the MS-DOS data base program dBase III+. The attached "Database (dBase III) program for storage and retrieval of data on Ocean Disposal" provides guidelines for this report. The District will provide the permittee one 3.5" disk containing the file structure for the data base to be created.*** The permittee will make multiple copies of this structure in case of any computer problems and will record data in no other structure without written permission from the District Engineer.

2. The permittee agrees to prepare a series of maps at an appropriate scale that will clearly show the individual dumps. Each dump will be labeled using the same number that is used to record the dump in the daily log and the database. A cumulative summary map(s) of all dumps will be submitted to the District Engineer at the end of the dredging operation. The cumulative summary map(s) is required in addition to the submittal of daily logs. The permittee may continue to use the same map until the density of dumps makes it difficult to identify the individual dumps by number. Maps will be labeled as map numbers in a series, and the lowest and highest dump numbers that appear on each map will be shown as part of the map title. At the end of the work, the permittee will compile the maps, as necessary, into a series and reduce the maps to eleven inches on the small side and folded into a bound (8 ½" X 11") report, with the daily dump logs.

3. The permittee shall use Florida State Plane or latitude and longitude coordinates (North American Datum 1983). State Plane coordinates shall be reported to the nearest 0.10-foot and latitude and longitude coordinates shall be reported as degrees and decimal minutes to the nearest 0.01 minutes.

US EPA ARCHIVE DOCUMENT

I. The permittee shall conduct a bathymetric survey of the Pensacola Offshore ODMDS within two months prior to project disposal and within 30 days following project completion.

1. The number and length of the survey transects shall be sufficient to encompass the ODMDS and a 1500-foot wide area around the site. The transects shall be spaced at 500-foot intervals or less.

2. Vertical accuracy of the survey shall be ±0.5 feet. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either microwave line of site system or differential global positioning system. The vertical datum shall be mean lower low water (mllw) and the horizontal datum shall use Florida State Plane or latitude and longitude coordinates (North American Datum 1983). State Plane coordinates shall be reported to the nearest 0.10- foot and latitude and longitude coordinates shall be reported as degrees and decimal minutes to the nearest 0.01 minutes.

J. Essential Fish Habitat (EFH). The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), 16 USC 1801 et seq. Public Law 104-208 reflects the Secretary of Commerce and Fishery Management Council authority and responsibilities for the protection of essential fish habitat. The Act specifies that each Federal agency shall consult with the Secretary with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by such agency that may adversely affect any EFH identified under this act. EFH is defined in the Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

II. REPORTING REQUIREMENTS

A. The permittee shall send the U.S. Army Corps of Engineers, Mobile District's Coastal Environment Team and EPA Region 4's Wetlands, Coastal and Water Quality Branch (61 Forsyth Street, Atlanta, GA 30303) a notification of commencement of work at least thirty (30) days before initiation of any dredging operations authorized by this permit and referenced by the permit number. In addition, the permittee agrees to contact the U.S. Coast Guard (Marine Safety Office) at 251-441-5674 prior to disposing of any material in the ocean disposal site.

B. The permittee shall submit to the U.S. Army Corps of Engineers weekly disposal monitoring reports. These reports shall contain the information described in Special Condition I.I.

C. The permittee shall send one (1) copy of the disposal summary report to the Mobile District's Coastal Environment Team and one (1) copy of the disposal summary report to EPA Region 4 documenting compliance with all general and special conditions defined in this permit. The disposal summary report shall be sent within 30 days after completion of the disposal operations authorized by this permit. The disposal summary report shall include the following information:

1. The report shall indicate whether all general and special permit conditions were met. Any violations of the permit shall be explained in detail.

US EPA ARCHIVE DOCUMENT

2. The disposal summary report shall include the following information: Corps permit number, actual start date and completion date of dredging and disposal operations, total cubic yards disposed at the Pensacola, Offshore ODMDS, locations of disposal events, and pre and post disposal bathymetric survey results (in hard and electronic formats).

III. PERMIT LIABILITY

A. The permittee shall be responsible for ensuring compliance with all conditions of this permit.

B. The permittee and all contractors or other third parties who perform an activity authorized by this permit on behalf of the permittee shall be separately liable for a civil penalty of up to $50,000 for each violation of any term of this permit thy commit alone or in concert with the permittee or other parties. This liability shall be individual, rather than joint and several, and shall not be reduced in any fashion to reflect the liability assigned to and civil penalty assessed against the permittee or any other third party as defined in 33 U.S.C. Section 1415(a).

C. If the permittee or any contractor or other third party knowingly violates any term of this permit (either alone or in concert), the permittee, contractor or other party shall be individually liable for the criminal penalties set forth in 33 U.S.C. Section 1415(b).

US EPA ARCHIVE DOCUMENT

APPENDIX D

GENERIC CONTRACT LANGUAGE FOR USE OF THE
PENSACOLA, FLORIDA OFFSHORE ODMDS

US EPA ARCHIVE DOCUMENT

APPENDIX D

1. General. The Pensacola Offshore ODMDS is located approximately 11 miles south of the Pensacola Pass in the Gulf of Mexico. The boundary coordinates of the Pensacola Offshore ODMDS is defined as the rectangle delineated by the following latitude/longitude and State Plane Coordinate system NAD 83 coordinates:

Latitude	Longitude	Northing	Easting
30°08'50" N	87°19'30" W	428347.51	1075701.81
30°08'50" N	87°16'30" W	427959.37	1091501.16
30°07'05" N	87°16'30" W	417355.53	1091243.06
30°07'05" N	87°19'30" W	417743.77	1075439.07

No more than [NUMBER] cubic yards of dredged material excavated at the location defined in [REFERENCE LOCATION IN PERMIT] are authorized for disposal at the ODMDS. The Contractor agrees and understands that all dredged material will be placed in such a manner that its highest point will not exceed –55 feet MLLW.

2. Disposal of Excavated Material. The Contractor will be required to furnish an electronics surveillance feature of the movement of and deposition of the excavated material. This surveillance feature shall monitor horizontal location by means of an automated (computer) system that will continuously track the horizontal location and draft condition (vertical) of the dredged material transport vessel from the dredge area to the Gulf disposal site and return. Digital data required is as follows:

a. Date.
b. Trip I.D.
c. Time of date (real time).
d. Vessel Captain's name.
e. Tow vessel position, every five (5) minutes (real time) when vessel is not in the immediate vicinity of the Pensacola Offshore ODMDS and every minute (or 200' whichever is smaller) when the vessel is in the ODMDS.
f. Material transport vessel draft, on same interval as e.
g. Beginning and ending coordinates of the dredging area for each load (source of dredged material).
h. Actual location (in degrees and minutes of longitude and latitude or State Plane Coordinate system, Florida North Zone, NAD83) at points of initiation and completion of disposal event.

Horizontal location shall have an accuracy at least equal to or better than a standard LORAN system, equal to or better than ± 10 feet (horizontal repeatability). These horizontal locations must be referenced to the State Plane Coordinate system, Florida North Zone, North American Datum (NAD) 83. Vertical drafts shall have an accuracy of ± one-half foot and must be continuously updated as required. Horizontal (X and Y) and vertical (Z) data must be collected in sets tied to the real time-of-day and date. All digital data shall be collected and stored on 3 1/2 inch floppy disk in an IBM compatible format DOS Operating System, ASCII format. The data collected while the transport vessel is in the D/A vicinity will also be plotted in chart form to show the track of the vessel approaching, through and leaving the D/A. The chart will indicate the path of the vessel

US EPA ARCHIVE DOCUMENT

draft at 200-foot intervals while within this plotted chart zone. More than one disposal area trip may be stored onto a single floppy disk as long as each trip data is indexed to and clearly identifiable. The original floppy disks, when full or complete, will be furnished to the Government within 24 hours. The hard copy plotted chart shall be orderly organized and maintained at some central location on essentially a daily basis for evaluation by the Contracting Officer or his Authorized representative at all times. At the end of each week of operations the Contractor shall orderly bind-up the collected hard copy data and submit same to the Contracting Officer for permanent file record.

3. Reporting Requirement. The Contractor will be required to prepare and submit a Daily Report of Operations, ENG Form 27A, for all dredging work activities (as appropriate). The Contractor will also be required to attach a copy of the Mate's Log pages which cover the 24 hour period being reported to the ENG Form 27A. The original Mate's Log must be given to the Government's Representative at the completion of the project. When separate (non-dredging) activities occur, the Contractor shall submit an SAM Form 696. All reports must be submitted on a daily basis and not in groups. A reduced sample of each form for recording the required information is bound herein. In addition to the two (2) daily dredging reports required, the Contractor shall prepare a Monthly Report of Operations for each month or partial month's dredging work on ENG Form 27A. The monthly report is to be submitted to the Contracting Officer's Authorized Representative on or before the 7th of each month, consolidating the previous month's work. Further instructions on the preparation of the reports will be furnished at a Preconstruction Conference. Upon completion of the job, the Contractor shall submit a consolidated job report, combining the monthly reports, within seven calendar days of contract completion. The Contractor shall submit the original and one carbon copy (full size reproduction of original can substitute for the carbon copy) of each report to the Contracting Officer's Authorized Representative.

4. Quality Control.

a. Electronic positioning. While performing all excavation (dredging) work under this contract the contractor shall control the horizontal positioning of the dredge and make all required surveys with electronic positioning equipment. The dredges electronic positioning equipment shall be installed and operated at all times.

b. The contractor shall establish and maintain quality control for operations under this section to assure compliance with contractual requirements and maintain records of his quality control for qualification of survey personnel, and accuracy and completeness of required survey work, including but not limited to the following:

c. Survey work shall be performed by survey personnel in accordance with "Manual of Survey Instructions", copies of which are available for review at the Mobile District Office. All responsibilities for accuracy, completeness and verification of survey work so performed shall remain with the Contractor.

d. Daily reports shall be made by the Contractor for those days requiring surveying activity. Such reports shall be prepared using SAM Form 696, attached hereto. All reports shall be prepared daily and signed by the Contractor's authorized representative and submitted to the Government's representative on the next duty day following the surveying activity. Said reports shall include, but not be limited to:

US EPA ARCHIVE DOCUMENT

equipment used; location, description, and type work performed; inspections of said work; verbal instructions received and actions taken; safety; and causes for delays.

e. All survey work is subject to periodic inspection and/or verification by the Government during or after such work. Should any portion of the surveys be found to be in error it shall be the responsibility of the Contractor, at no cost to the Government, to correct such errors. Presence of the Government representative on the work site does not release the Contractor of his responsibility for providing quality control of the required survey work and does not release the Contractor from the responsibility of taking necessary corrective action should errors be found. The determination of acceptable and unacceptable dredged channel remains the responsibility of the Authorized Representative of the Contracting Officer.

f. All surveys for open water disposal areas, baselines, hydro-ranges, cutting ranges and all other necessary survey work are to be performed by standard survey methods. Soundings shall be made at such intervals specified by the Government and to an accuracy of 0.5 foot. Tide will be observed and recorded every half hour, in addition to the beginning and ending of the survey. Tide heights will be read and recorded to the nearest 0.1 foot. All baselines and all markers, whether land or water based, shall be tied to existing land based survey markers using channel centerline coordinates furnished by the Government. Then such survey work shall be clearly and completely recorded in standard field books, and shall be made available for inspection and/or verification by representatives of the Government. Said books shall, upon or before completion of the requirements of this contract, become the property of the Government. All poles, stakes, flagging, books, and/or other survey materials shall be furnished by the Contractor.

US EPA ARCHIVE DOCUMENT