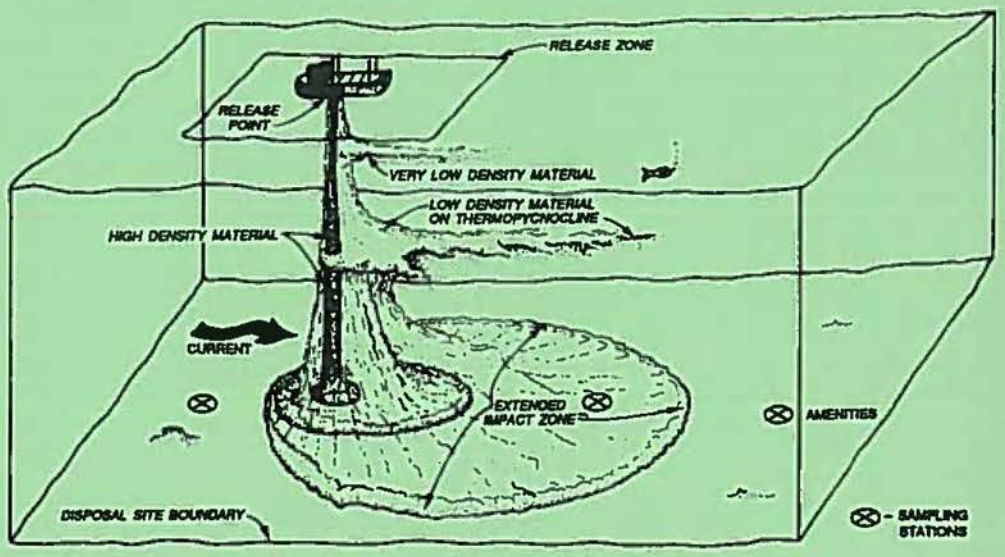
October 2015

EPA

FORT PIERCE
OCEAN DREDGED MATERIAL DISPOSAL SITE

U.S. Army Corps of Engineers

SITE MANAGEMENT AND MONITORING PLAN



The following Site Management and Monitoring Plan for the Fort Pierce 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 for the management and monitoring of ocean disposal activities, as resources allow, by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers.

Jason A Kirk 23 Nov 15 V. Anne Heard 10/16/15

Colonel Jason A. Kirk Date
District Commander
Jacksonville District
U.S. Army Corps of Engineers
Jacksonville, Florida

for Heather McTeer Toney Date
Regional Administrator
U.S. Environmental Protection Agency
Region 4
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 site indicate a need for revision.

FORT PIERCE OCEAN DREDGED MATERIAL DISPOSAL SITE (ODMDS) SITE MANAGEMENT AND MONITORING PLAN

TABLE OF CONTENTS

Contents

LIST OF FIGURES

LIST OF TABLES

APPENDICES

Fort Pierce ODMDS
Site Management and Monitoring Plan

1.0 INTRODUCTION

It is the responsibility of the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 to manage and monitor each of the Ocean Dredged Material Disposal Sites (ODMDSs) designated by the EPA pursuant to Section 102 of MPRSA. Section 102(c)(3) of the MPRSA requires development of a Site Management and Monitoring Plan (SMMP) for each ODMDS and review and revision of the SMMP not less frequently than every 10 years. The 1996 document, *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites* (EPA/USACE, 1996) and the EPA, Region 4 and USACE South Atlantic Division Memorandum of Understanding (EPA/USACE, 2007) have been used as guidance in developing this SMMP.

A SMMP was developed for the Fort Pierce ODMDS has part of the final site designation in 1993 (EPA, 1993). The SMMP was revised in 2000 (EPA/USACE, 2000) and replaced by the *Southeastern United States Inactive ODMDS SMMP* in 2013 (EPA/USACE, 2013) as the Fort Pierce ODMDS had not been used since 2002. The Inactive SMMP requires a site specific SMMP to be developed within one year if a site becomes active. The Fort Pierce ODMDS became active in October, 2014 with the disposal of 246,930 cubic yards of maintenance dredged material from Fort Pierce Harbor. This plan serves as a revision to and supersedes previous SMMPs for the Fort Pierce ODMDS.

1.1 Site Management and Monitoring Plan Team. An interagency SMMP team was established to assist EPA and USACE in developing the 1993 and 2000 SMMPs. The team consisted of the following agencies and their respective representatives:

- USACE Jacksonville District
- State of Florida (DEP, Florida Coastal Zone Office)
- EPA Region 4
- Port of Fort Pierce
- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (FWS)

These agencies will continue to be consulted in revisions to the Fort Pierce ODMDS SMMP. The team will assist EPA and USACE on deciding appropriate disposal practices, appropriate monitoring techniques, the level of monitoring, the significance of results, and potential management options.

Specific responsibilities of EPA and the USACE Jacksonville 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.

USACE: USACE 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

Section 228.3 of the Ocean Dumping Regulations (40 CFR 220-229) states: "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."

2.1 Disposal Site Characteristics

The Fort Pierce ODMDS is a 1 nmi by 1 nmi square area centered at the coordinates 27° 27.50'N latitude and 80° 12.00'W longitude (1,136,619 northing; 915,603 easting). The site coordinates are as follows:

Vertices[1]	Geographic[2] (NAD83)		State Plane[3] (FL East 0901 Ft NAD83)	
NW Corner	27°28.00'N	80°12.55'W	1,139,745 N	912,685 E
NE Corner	27°28.00'N	80°11.45'W	1,139,784 N	918,630 E
SE Corner	27°27.00'N	80°11.45'W	1,133,725 N	918,670 E
SW Corner	27°27.00'N	80°12.55'W	1,133,686 N	912,724 E

[1]Figure 1
[2]Degrees, Decimal Minutes
[3]State Plane Florida East (feet)

The site (see Figure 1) is 4.5 nmi offshore, has a depth range of 12 to 16 meters (40 to 55 feet), and an area of 1 nmi^2.

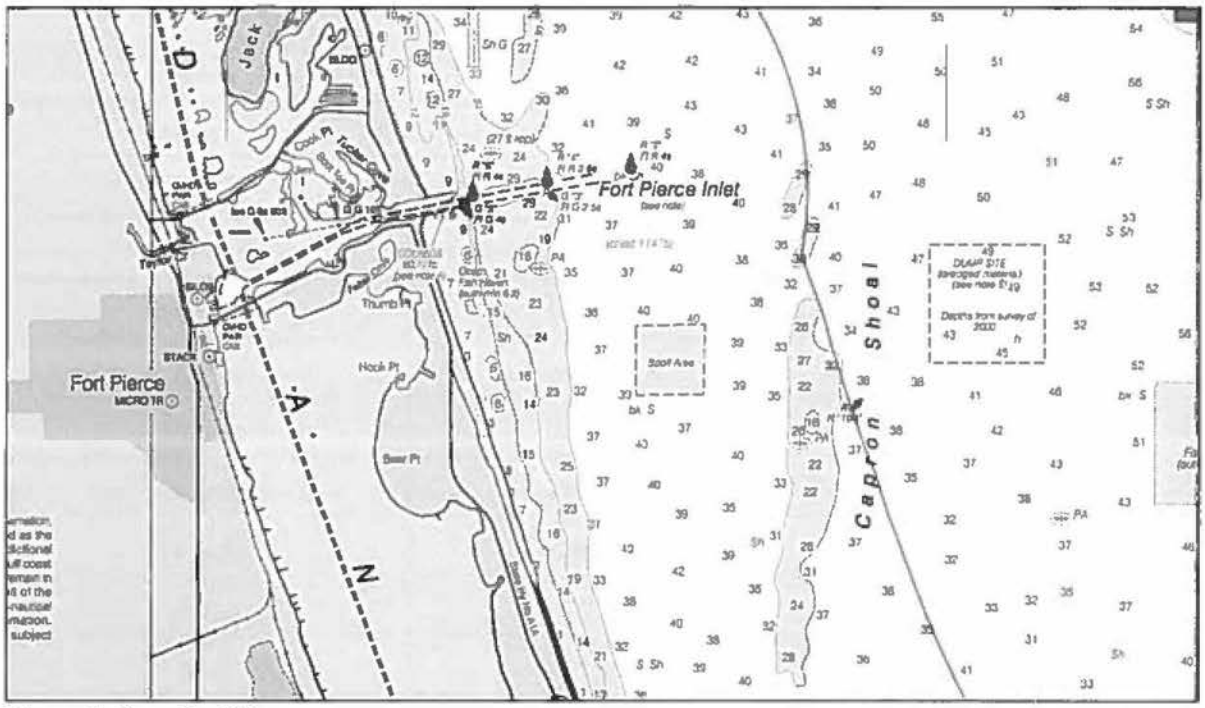


Figure 1: Location Map

2.2 Management Objectives. Appropriate management of an ODMDS is aimed at assuring that disposal activities will not unreasonably degrade or endanger human health, welfare, the marine environment, or economic potentialities (MPRSA §103(a)). The primary objectives in the management of the Fort Pierce ODMDS are:

- Protection of the marine environment;
- Documentation of disposal activities and compliance; and
- Maintenance of a long term disposal alternative for dredged material generated in the Fort Pierce, Florida vicinity

The following sections provide the framework for meeting these objectives to the extent possible.

2.3 Material Volumes. The Fort Pierce ODMDS and vicinity has been used for disposal of dredged material since 1949. Since that time about 2.1 million cubic yards of material has been disposed at the site, or an average of about 31,290 per year. Prior to site designation in 1993, disposal occurred at the interim site centered one half mile north of the center of the final designated site. Table 1 outlines the history of disposal dredged material at the Fort Pierce ODMDS.

Table 1. Volume of Dredged Material Placed in the Fort Pierce ODMDS

Year	Volume* (cubic yards)	Composition
1949	164,423	Unknown
Not known	63,412	Unknown
Not known	153,190	Unknown
1955	76,700	Unknown
1956-57	73,656	Unknown
1958	6,587	Unknown
1959	23,988	Unknown
1966	184,916	Unknown
1974	12,276	Sand
1976	14,566	Sand
1980	14,592	Sand/Shell
1982-83	106,268	Silty Sand
1985	11,000	Shell/Sand
1993-94	77,000	Silty Sand
1995	724,000[1]	Clays, Silts and Sand
2002	142,989	Silt and fine to medium sand
2014	246,930	Silty Sand

**in situ* volumes

[1] Construction Project

The Jacksonville District Corps of Engineers has projected disposal of approximately 60,000 cubic yards every 3 to 5 years for the maintenance of the Fort Pierce Harbor channel and turning basin. The capacity of the Fort Pierce ODMDS has been estimated at greater than 10 million cubic yards providing capacity well beyond the foreseeable future (EPA, 1999). If use projections increase significantly, a more detailed analysis of the site capacity should be investigated.

2.4 Dredged Material Characteristics

2.4.1 Previously Placed Materials. Materials placed in the Fort Pierce ODMDS have historically consisted of silts, sands, shell and sand mixtures.

2.4.2. Anticipated Materials. It is expected that future material disposed at the ODMDS to consist of unconsolidated silty sand.

2.4.3 Associated Beach Quality Materials. USACE Beneficial Use of Dredged Material EM 1110-2-5026 requires dredged material be maximized within the coastal system. Dredged materials that qualify for beach or nearshore placement per the FDEP's 'Sand Rule' shall be beneficially placed in such location, to the maximum extent practicable. It is expected that the State of Florida will exercise its authority and responsibility, regarding beach nourishment, to the full extent during any future permitting activities. Beneficial use of beach compatible dredged material for beach nourishment is strongly encouraged and supported by EPA.

2.4.4 Dredge Material Quality Verification. The suitability of dredged material for ocean disposal must be verified by the USACE and agreed to via written concurrence from EPA prior to disposal. Verification will be valid for three years from the most current verification.

Verification process:

1) Case-specific evaluation against the exclusion criteria (40 CFR 227.13(b))
2) Determination of testing requirements for non-excluded material based on the potential of sediment contamination since last verification.
3) When applicable, execute testing and determination of suitability of non-excluded material for ocean disposal.

Verification documentation for suitability will be completed prior to use of the Fort Pierce ODMDS. 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/USACE Dredged Material Testing Manual and 2008 Southeast Regional Implementation Manual (SERIM) or the appropriate updated versions. This includes how dredging projects will be subdivided into project segments for sampling and analysis. The MPRSA Section 103 Evaluation will be in the form outlined in Appendix C of the SERIM. Water Quality Compliance determinations will be made using the STFATE (ADDAMS) model and the input parameters provided in Appendix A. Only material determined to be suitable through the verification process by the USACE and EPA, Region 4 will be disposed at the Fort Pierce ODMDS.

2.5 Time of disposal. At present, no restrictions have been determined to be necessary for disposal related to seasonal variations in ocean current or biotic activity. As monitoring results are compiled, should any such restrictions 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, restrictions may be incurred.

Transportation of dredged material shall only be allowed when weather and sea state conditions, and scow loading level, will not interfere with safe transportation and will not create risk of spillage, leak or other loss of dredged material during transit. No disposal trips shall be initiated when the National Weather Service has issued a gale warning for local waters during the time period necessary to complete dumping operations.

2.6 Disposal Technique. Standard surveillance and evasive measures to protect sea turtles and marine mammals shall be employed during all disposal operations at the ODMDS. Disposal vessel (either hopper dredge or tug and scow) operation will be restricted in accordance with the most recent USACE South Atlantic Division Endangered Species Act Section 7 Consultation Regional Biological Opinion for Dredging of Channels and Borrow Areas in the Southeastern United States.

Dredged material shall not be leaked or spilled from disposal vessels during any portion of the transit to the ODMDS. Transit to the ODMDS begins as soon as dredged material loading into the disposal vessel is completed and the vessel begins moving to the ODMDS. All appropriate measures to avoid spillage during transit must be taken. Appropriate measures may include, but are not limited to: up-to-date U.S. Coast Guard and/or American Bureau of Shipping certification of all disposal-related vessels; maintenance (inspection and/or replacement) of gaskets on barge doors, minimization of excess free liquids in barge loads, pre-transit testing of barge door hydraulics, and pre-transport verification of appropriate weather and sea state conditions.

2.7 Disposal Location. Prior to disposal of each dredging project, an agreement will be reached between the EPA and USACE concerning the placement for each project with permits/contracts specifying the release zone. The release zone will be included as part of the MPRSA 103 Evaluation. Fine grained materials will be placed in the southeastern corner, in accordance with Figure 2, to afford greater protection of live bottoms to the northwest. Fine grained material is defined as material consisting of greater than 10% fines (grain size of less than 0.047mm) by weight [40 CFR §228.15(h)(11)(vi)].

For disposal within the restricted area, disposal should occur at least 500 feet inside the disposal site boundaries. Modeling efforts have shown that this release zone will contain the initial disposal mound within the site boundaries for projects up to 1 million cubic yards (EPA, 1999). For projects greater than 1,000,000 cubic yards, modeling will be required to determine an appropriate disposal zone to contain the initial disposal mound within the ODMDS boundaries.

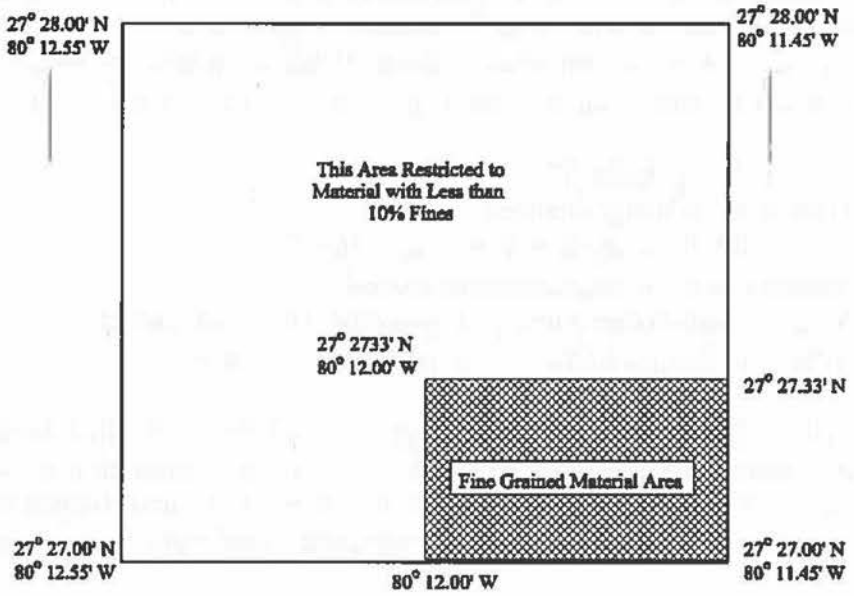


Figure 2: Fort Pierce ODMDS Dredged Material Disposal Requirements

For disposal within the unrestricted area, disposal should occur no less than 330 feet (100 meters) inside the site boundaries to comply with 40 CFR §227.28. For projects disposing greater than 250,000 cubic yards within the unrestricted area, additional analysis will be required to determine the appropriate disposal zone.

2.8 Permit and Contract Conditions. The disposal monitoring and post-disposal monitoring requirements described under Section 3.0 Site Monitoring will be included with the management requirements described in this section as permit conditions on all MPRSA Section 103 permits and will be incorporated in the contract language for all federal projects. A summary of the management and monitoring requirements to be included is listed in Table 2. Template language that can be used is included in appendices (see Appendix B and C).

Table 2. Summary of Permit and Contract Conditions

Condition	Reference
Dredged Material Suitability and Term of Verification	Fort Pierce ODMDS SMMP page 5 Regional Implementation Manual
Disposal Zone	Fort Pierce ODMDS SMMP pages 6
Pre & Post Bathymetric Surveys	Fort Pierce ODMDS SMMP page 104
Disposal Monitoring	Fort Pierce ODMDS SMMP page 10-11
Reporting Requirements	Fort Pierce ODMDS SMMP page 17

2.9 Information Management of Dredged Material Placement Activities. As discussed in the following sections, a substantial amount of diverse data regarding use of the Fort Pierce ODMDS and effects of disposal is required from many sources. 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? Disposed correctly?
- What will happen to the environment at the disposal site?

In an attempt to streamline data sharing, EPA Region 4 and USACE South Atlantic Division have agreed on an eXtensible Markup Language (XML) standard for sharing of disposal monitoring data (see also Section 3.6).Additional standards will continue to be investigated for sharing of other disposal site related information (e.g. environmental monitoring data, testing data, etc.).

3.0 SITE MONITORING

The MPRSA establishes the need for including a monitoring program as part of the SMMP. Site monitoring is conducted to ensure the environmental integrity of a disposal site and the areas surrounding the site and to verify compliance with the site designation criteria, any special management conditions, and permit requirements. Monitoring programs should be flexible, cost effective, and based on scientifically sound procedures and methods to meet site-specific monitoring needs. The intent of the program is to provide the following:

(1) Information indicating whether the disposal activities are occurring in compliance with the permit and site restrictions;
(2) Information indicating the short-term and long-term fate of materials disposed of in the marine environment;
(3) Information concerning the short-term and long-term environmental impacts of the disposal.

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. The results of investigations presented in the designation EIS will serve as the main body of baseline data for the monitoring of the impacts associated with the use of the Fort Pierce ODMDS (see Table 3).

Table 3. Surveys and Studies Conducted at the Fort Pierce ODMDS Prior to Site Designation

Survey Title	Conducted by	Date	Purpose	Conclusion
Environmental Survey in the Vicinity of An ODMDS Fort Pierce Harbor, Florida	Conservation Consultants, Inc. for USACE	1985	Characterization Survey (water and sediment quality, bathymetry, benthic macroinvertebrate, meiofauna and macroepifauna analysis and tissue analysis)	
Evaluation of the Dispersion Characteristics of the Miami and Fort Pierce ODMDSs	USACE WES	1989	Determine if disposal at site poses threat to sensitive nearshore reef areas due to short term or long term transport.	Most material settles to the bottom within hours of disposal; sediment will be transported from the site during both ambient and storm conditions, but the rate of movement should not affect the reef system.
Short-Term Modeling Worst Case Sediment Scenario Fort Pierce ODMDS	U.S. EPA Region 4	1992	Model short term dispersion of 90% silt and clay dredged material	Under worst case conditions, the disposal plume could reach live bottom communities at concentrations below 10mg/l for short durations.
Fort Pierce, Florida ODMDS Video Mapping Survey	U.S. EPA Region 4	1991	Insure absence of live bottom habitat within site boundaries	Live bottom habitat identified in northern portion of site. Site was moved ½ mile south to avoid disposal on this habitat.
Mapping of Sediment Chemistry at the Proposed Fort Pierce, Florida ODMDS	CAIS for U.S. EPA Region 4	1992	Provide baseline sediment lithology within and immediately surrounding the ODMDS	Sediment lithology is very uniform in gamma activity, elemental, and physical content.
Ft. Pierce Harbor, FL ODMDS Benthic Communities	Barry Vittor & Assoc. for U.S. EPA Region 4	1993	Provide baseline of benthic communities at the ODMDS	Species abundance, diversity, evenness, and richness was high at all stations.Annelids, echinoderms, and arthropods accounted for the greatest proportion of individuals.

A bathymetric survey will be conducted by the USACE or site user not more than 90 days prior to dredging cycle or project disposal for projects greater than 50,000 cubic yards. Projects less than 50,000 cubic yards are not expected to result in changes in bathymetry greater than 1 foot (EPA, 1999) and therefore will not require a bathymetry survey unless it has been more than five years since the last survey. Surveys will conform to the minimum performance standards for Corps of Engineers Hydrographic Surveys as described in the USACE Engineering Manual, EM1110-2-1003, *Hydrographic Surveying* dated November 30, 2013 [http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1003.pdf] or updates. The number and length of transects required will be sufficient to encompass the release zone and a 500 foot-wide area around it. The surveys will be taken along lines spaced at 200-foot intervals or less for single beam surveys and 500 feet or less for multibeam surveys unless a lesser spacing provides 100% coverage. The minimum performance standards from Table 3-1 in *Hydrographic Surveying* shall be followed. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing a differential global positioning system. The vertical datum will be referenced to prescribed NOAA Mean Lower Low Water (MLLW) datum. The horizontal datum should be referenced to the local State Plane Coordinate System (SPCS) for that area or in Geographical Coordinates (latitude-longitude). The horizontal reference datum should be the North American Datum of 1983 (NAD 83). No additional pre-disposal monitoring at this site is required.

3.2 Disposal Monitoring. For all disposal activities, an electronic tracking system (ETS) must be utilized. The ETS will provide surveillance of the transportation and disposal of dredged material. The ETS will be maintained and operated to continuously track the horizontal location and draft condition (nearest ±0.1 foot) of the disposal vessel (i.e. hopper dredge or disposal scow) from the point of dredging to the disposal site, and return to the point of dredging. Data shall be collected at least every 0.25 nautical miles or every 4 minutes during travel to and from the ODMDS and every twelve seconds or every 30 feet of travel, whichever is smaller, while the hull status is open within the ODMDS. In addition to the continuous tracking data, the following trip information shall be electronically recorded for each disposal cycle:

a. Load Number
b. Disposal Vessel Name and Type (e.g. scow)
c. Estimated volume of Load
d. Description of Material Disposed
e. Source of Dredged Material
f. Date, Time and Location at Initiation and Completion of Disposal Event

It is expected that disposal monitoring will be conducted utilizing the Dredge Quality Management (DQM) system for Civil Works projects [see http://dqm.usace.army.mil/Specifications/Index.aspx], although other systems are acceptable. Disposal monitoring and ETS data will be reported to EPA Region 4 on a weekly basis utilizing the eXtensible Markup Language (XML) specification and protocol per Section 3.5. EPA Region 4 and the USACE Jacksonville District shall be notified within 24 hours if disposal occurs outside of the ODMDS or specified disposal zone or if any apparent leaking or spilling of dredged material occurs as indicated by a loss of disposal vessel draft. The draft change threshold for notification will be determined at the time of project authorization under Section 103 of the MPRSA.

3.3 Post Discharge Monitoring. The USACE or other site user will conduct a bathymetric survey within 30 days after disposal project completion. Post-disposal surveys will only be required whenever a pre-disposal survey was conducted. The number and aerial extent of transects required will be the same as in the baseline survey. Bathymetric survey results will be used to ensure that unacceptable mounding is not occurring and to aid in environmental effects monitoring.

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

Summary of Results of Past Monitoring Surveys

Surveys conducted at the Fort Pierce ODMDS since site designation are listed in Table 4. The Fort Pierce Harbor Navigation Improvement Project in 1995 disposed of significant (724,000 cubic yards) amounts of dredged material at the ODMDS. Post disposal surveys have shown that a mound (1 meter) was formed as a results of the disposal. Concerns were raised by the public and local scientists that fine grained material was transported from the ODMDS and re-deposited on nearby mid-shelf reefs. A number of studies were conducted in the late 1990s and early 2000s to examine the potential for transport of fines offsite. EPA concluded that the fine grained material on the reefs was dissimilar to disposed dredged material and that a measurable amount of offsite transport of fine grained dredged material was not occurring (Ferry and McArthur, 2002). Monitoring following the 2002 disposal event indicated that a majority of the disposed fine grained material remained within the unrestricted zone with some transport to the northeast within the ODMDS boundaries (CAIS, 2003).

Future Monitoring Surveys

Based on the type and volume of material disposed and impacts of concern, various monitoring surveys can be used to determine if and where the disposed material is moving, and what environmental effect the material is having on the site and adjacent areas.

A summary of the monitoring strategies for the Fort Pierce ODMDS and thresholds for management actions are presented in Table 5. Should future disposal at the Fort Pierce 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. Should disposal use change, additional studies of potential impacts to nearby resources will be instituted in accordance with Table 5. In addition, the management plan presented may require revision based on the outcome of any monitoring program.

Table 4. Surveys and Studies Conducted at the Fort Pierce ODMDS since Designation and SMMP Implementation

Survey Title	Conducted by	Date	Purpose	Conclusion
Bathymetry Survey of the Fort Pierce Interim Site	USACE	1994	Post disposal bathymetry survey following channel maintenance	
Fort Pierce, FL Dredge Material Discharge Study	NOAA for USACE	1994	Measure transport and dilution of disposal plume	Dredged material descended quickly in a cohesive mass and formed a residual plume that decayed to 37% of its initial value within 4 minutes.
Areal Mapping of Sediment Chemistry at the Fort Pierce, FL ODMDS.	CAIS for EPA Region 4	1994	Post disposal survey following channel maintenance	Minimal change at the site since the 1992 survey. Increase in the coarse particle size fraction. Inconclusive evidence of disposed dredged material at the site.
Bathymetry Survey of the Fort Pierce ODMDS	USACE	1996	Post disposal bathymetry survey following Harbor Improvement Project	One meter mound identified in western half of ODMDS
Preliminary Survey of Mud Deposits on the Mid-Shelf Reefs off Fort Pierce, St. Lucie County, Florida	John Reed	1996	Investigate the reported occurrence of thick layers of mud on the reefs off the St. Lucie County and Ft. Pierce region of eastern Florida.	1) Unusually thick layers of mud present on mid-shelf reefs. 2) Mud has characteristics of similar to Fort Pierce Harbor and Indian River Lagoon. 3) Possible correlation with dredging and disposal activities in 1995.
Post Disposal Areal Mapping of Sediment Chemistry at the Fort Pierce, FL ODMDS.	CAIS for EPA Region 4	1997	Post disposal survey following Harbor Improvement Project	Gamma activity indicated a dredged material mound covering most of the western half of the ODMDS. An increase in the amount of fines at the bottom surface was detected throughout the site.
Preliminary Evaluation of Trace Metals and Radionuclides in Harbor and Shelf Sediments off Fort Pierce, Florida	U.S. EPA Region 4 for USACE	1997	Examine deposits on nearby reefs and compare to harbor and disposal site sediments to try and identify source of reef deposits.	Reef deposits were dissimilar to harbor sediments and sediments found at the ODMDS suggesting that the reef sediment deposits are not comprised of disposed dredged material.
Post Disposal Areal Mapping of Sediment Chemistry at the Fort Pierce, FL ODMDS.	CAIS for EPA Region 4	1998	Document changes and movement of disposed dredged material.	Disposed dredged material persists within the ODMDS and does not appear to be moving significantly. A decrease in the amount of fines at the bottom surface was detected throughout the site indicating a loss of fines at the site.
Ft. Pierce Harbor, FL ODMDS	EPA Region	1999	Examine southern portion of site	No significant hard bottom resources were detected in the

Sidescan Sonar Survey	4		for presence of hard bottom habitats and detect location of fine grained sediments within and near the ODMDS.	southern portions of the ODMDS. Dredged material identified in patches in area of disposal and north and south of this area.
Ft. Pierce Harbor, FL ODMDS Benthic Communities Post Disposal Survey	U.S. EPA Region 4	1999	Post disposal benthic effects survey.	Little change observed from the 1992 baseline. The macroinvertebrate communities remain diverse and well distributed. A decrease in the abundance of brittlestars was observed. With the exception of arsenic all sediment chemistry concentrations remain low. Arsenic concentrations are naturally high in Florida coastal waters.
Ft. Pierce Harbor, FL ODMDS Sidescan Sonar Survey	EPA Region 4	2001	1) Identify any hard bottom communities to the east of the ODMDS. 2) Determine if pockets of fine grained material identified in the 1999 sidescan sonar survey extend to the north and south of the ODMDS.	1) Numerous ridge-like features and sonar returns indicative of hard bottom were detected east of the ODMDS (0.5 to 3 nmiles). 2) Pockets of fine grained material extend well north of the ODMDS (5.5 nmi and beyond). These features parallel the coast for an undetermined distance north. 3) Confirmed location of previously identified ledge north of the ODMDS.
Fort Pierce ODMDS Current Measurements	NOAA for USACE	2002	Determine current direction and magnitude.	1) The principal axis of the current direction is north-south at the surface, shifting to NNW/SSE at the bottom. 2) Currents are often small, sometimes zero. 3) Mean surface current magnitudes are 1.3 cm/sec.
Post Disposal Areal Mapping of Sediment Chemistry at the Fort Pierce, FL ODMDS.	CAIS for EPA Region 4	2003	Document changes and movement of disposed dredged material following maintenance event.	The most recently disposed dredged material was clearly shown in the southeastern corner of the ODMDS. Some of the silty dredged material may have migrated to the northeastern corner of the ODMDS but remained within the site boundaries.
Fort Pierce ODMDS Status and Trends	EPA Region 4	2011	Periodically characterize the chemical, physical and biological characteristics within and surrounding the ODMDS.	Physical and chemical characteristics of the benthos and water column remain similar to previous studies. The density and abundance of macroinvertebrates decreased significantly. This may be due to a change in the sampling methodology.
Pre-disposal Bathymetry	USACE	9/2014	Monitor Bathymetric trends	
Post-disposal Bathymetry	USACE	12/2014	Monitor Bathymetric trends	A one meter mound was formed within the southeast release zone. Deposits of up to 0.5 meters were observed outside the release zone, but within the ODMDS to the north.

Table 5. Fort Pierce ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Short & Long-term Fate of Disposed Dredged Material	Sediment Profile Imaging or Sediment Mapping (Gamma/CS[3])	Site User /EPA	Confirm aerial extent of disposal mound (apron) and benthic impact. Confirm not impacting benthic communities outside of the ODMDS	Following major (>500,000cy) New Work Project	Disposal mound footprint occurs outside ODMDS boundaries (5cm)	Continue to use site without further restrictions	-Restrict disposal volumes -Modify disposal zones -Institute Environmental Effects Monitoring
Monitor Bathymetric Trends & Ensure Safe Navigation Depth	Bathymetry	Site User	Determine the extent of the disposal mound and major bathymetric changes	Pre and post disposal *(>50,000 cy or >5yrs)*	Disposal mound occurs outside ODMDS boundaries	Continue Monitoring	-Modify disposal method/placement -Restrict Disposal Volumes
					Mound height > -30 feet MLLW	Continue Monitoring	-Modify disposal method/placement -Direct disposal operators to avoid areas shallower than 30 feet.
					Mound height > -25 feet MLLW	Continue Monitoring	-Physically level material shallower than 25 feet -Notify mariners of mound location and depth -Restrict disposal volumes.

Table 5 (Continued). Fort Pierce ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Trend Assessment	Water and Sediment Quality, Benthic Community Analysis (40CFR228.13)	U.S. EPA	Periodically evaluate the impact of disposal on the marine environment (40CFR 228.9)	Approximately every 10 years.	-Absence from the site of pollution sensitive biota -Progressive non-seasonal changes in water or sediment quality	Continue Monitoring	-Conduct Environmental Effects Monitoring or Advanced Environmental Effects Monitoring -Review dredged material evaluation procedures
Environmental Effects Monitoring	Chemical Monitoring	EPA/ USACE	Determine if chemical contaminants are significantly elevated[1] within and outside of site boundaries	Implement if disposal footprint extends beyond the site boundaries or if Trend Assessment results warrant.	Contaminants are found to be elevated[1]	Discontinue monitoring.	- Institute Advanced Environmental Effects Monitoring - Implement case specific management options (ie. Remediation, limits on quantities or types of material). -Consider isolating dredged material (capping)
	Benthic Monitoring	EPA/ USACE	Determine whether there are adverse changes in the benthic populations outside of the site and evaluate recovery rates		Adverse changes observed outside of the site that may endanger the marine environment		

[1] Significantly elevated: Concentrations above the range of contaminant levels in dredged sediments that the Regional Administrator and the District Engineer found to be suitable for disposal at the ODMDS.
[2] Examples of sub-lethal effects include without limitation the development of lesions, tumors, development abnormality, and/or decreased fecundity.

Table 5 (Continued). Fort Pierce ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Advanced Environmental Effects Monitoring	Tissue Chemical Analysis and/or bioaccumulation modeling	EPA/ USACE	Determine if the site is a source of adverse bioaccumulation which may endanger the marine environment	Implement if Environmental Effects Monitoring warrants.	Benthic body burdens and risk assessment models indicate potential for food chain impacts.	Discontinue monitoring	-Discontinue site use - Implement case specific management options (i.e. Remediation, limits on quantities or types of material).
	Benthic Monitoring		Determine if the site is a source of adverse sub-lethal[2] changes in benthic organisms which may endanger the marine environment		Sub-lethal effects are unacceptable.		
Compliance	Disposal Site Use Records in EPA Region 4's XML format	Site User	-Ensure management requirements are being met -To assist in site monitoring	Weekly during the project	Disposal records required by SMMP are not submitted or are incomplete	Continue Monitoring	-Restrict site use until requirements are met

3.5 Reporting and Data Formatting

3.5.1 Project Initiation and Violation Reporting. The USACE or other site user shall notify EPA 15 days prior to the beginning of a dredging cycle or project disposal. The user is also required to notify the USACE 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.

3.5.2 Disposal Monitoring Data. Disposal monitoring data shall be provided to EPA Region 4 electronically on a weekly basis. Data shall be provided per the EPA Region 4 XML format and delivered as an attachment to an email to DisposalData.R4@epa.gov. The XML format is available from EPA Region 4.

3.5.3 Post Disposal Summary Reports. A Post Disposal Summary Report shall be provided to EPA within 90 days after project completion. These reports should include: dredging project title; permit number and expiration date (if applicable); contract number; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal timeframes for each vessel; volume disposed at the ODMDS (as paid *in situ* volume, total paid and un paid *in situ* volume, and gross volume reported by dredging contractor); number of loads to ODMDS; type of material disposed at the ODMDS; identification by load number of any misplaced material; dates of pre and post disposal bathymetric surveys of the ODMDS; and a narrative discussing any violation(s) of the 103 concurrency and/or permit (if applicable). The narrative should include a description of the violation, indicate the time it occurred and when it was reported to the EPA and USACE, discuss the circumstances surrounding the violation, and identify specific measures taken to prevent reoccurrence. The Post Disposal Summary Report should be accompanied by the bathymetry survey results (plot and X,Y,Z ASCII data file), a summary scatter plot of all disposal start locations, and a summary table of the trip information required by Section 3.2 with the exception of the disposal completion data. If all data is provided in the required XML format, scatter plots and summary tables will not be necessary.

3.5.4 Environmental Monitoring. 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:

1) How the survey relates to the SMMP and previous surveys at the Fort Pierce ODMDS
2) Provide data interpretations, conclusions, and recommendations
3) Project the next phase of the SMMP

Monitoring results will be summarized in subsequent revisions to the SMMP.

4.0 MODIFICATION OF THE FORT PIERCE ODMDS SMMP

Should the results of the monitoring surveys or reports from other sources indicate that continued use of the ODMDS would lead to unacceptable effects; the ODMDS SMMP will be modified to mitigate the adverse impacts. The SMMP will be reviewed and revised at a minimum of every ten 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 the site changes significantly or if conditions at the site indicate a need for revision.

5.0 REFERENCES

Center for Applied Isotope Studies. 1998. *Postdisposal Areal Mapping of Sediment Chemistry at the Fort Pierce, Florida ODMDS.* Submitted to U.S. Environmental Protection Agency Region 4, Wetlands, Coastal and Water Quality Branch.

Center for Applied Isotope Studies. 2003. *Postdisposal Areal Mapping of Sediment Chemistry at the Fort Pierce, Florida ODMDS.* Submitted to U.S. Environmental Protection Agency Region 4, Wetlands, Coastal and Water Quality Branch. August 2013.

Ferry, Roland E. and McArthur, Christopher J. *Evaluation of Shelf, Harbor, and Disposed Dredged Sediments as Potential Sources of Deposited Muds on South Florida Reefs.* Dredging '02 Proceedings of the Third Specialty Conference on Dredging and Dredged Material Disposal. Coasts, Oceans, Ports, and Rivers Institute (COPRI) of ASCE, May 5, 2002, Orlando, FL, USA.

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.

National Oceanic and Atmospheric Administration. 1994. *Fort Pierce, Florida Dredge Material Discharge Study*, A report to the U.S. Army Corps of Engineers, November, 1994.

National Oceanic and Atmospheric Administration. 2002. *Fort Pierce, Florida ADCP Currents and Waves Measurements August 15 to October 28, 2002.*

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.

Reed, John K. *Preliminary Survey of Mud Deposits on the Mid-Shelf Reefs off Fort Pierce, St. Lucie County, Florida.* Submitted to: U.S. EPA, U.S. Army Corps of Engineers, Florida Department of Environmental Protection, National Marine Fisheries Service, and St. Lucie County Port and Airport Authority. November, 1996.

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, 2008. *Regional Implementation Manual Requirements and Procedures for Evaluation of the Ocean Disposal of Dredged Material in Southeastern Atlantic and Gulf Coastal Waters*, August 2008.

U.S. Environmental Protection Agency (EPA). 1993. *Environmental Impact Statement (EIS) for the Designation of an Ocean Dredged Material Disposal Site Located Offshore Fort Pierce, Florida*, July 1993.

U.S. Environmental Protection Agency Region 4. 1997. *Survey Report: Status of Monitoring and Management of the Fort Pierce Ocean Dredged Material Disposal Site*, October, 1997

U.S. Environmental Protection Agency Region 4, 1999. *Fort Pierce ODMDS Multiple Dump Modeling.*

U.S. Environmental Protection Agency Region 4, 2001. *Survey Report: Fort Pierce ODMDS Sidescan Sonar Survey & Canaveral ODMDS Current Meter Deployment.* EPA Region 4, Wetlands, Coastal and NonPoint Source Branch. July 2001.

U.S. Environmental Protection Agency Region 4, 2013. *Fort Pierce ODMDS 2011 Status and Trends.* EPA Region 4 – Science and Ecosystem Support Division. EPA Project #12-0029. November 2013.

APPENDIX A

WATER COLUMN EVALUATIONS NUMERICAL MODEL (STFATE) INPUT PARAMETERS

This page intentionally left blank

Water Column Evaluations
Numerical Model (STFATE) Input Parameters
Fort Pierce ODMDS

SITE DESCRIPTION

Parameter	Value	Units
Number of Grid Points (left to right)	64	
Number of Grid Points (top to bottom)	64	
Spacing Between Grid Points (left to right)	125	ft
Spacing Between Grid Points (top to bottom)	125	ft
Constant Water Depth	45	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[2]	2	
Ambient Density at Depth = 0 ft	1.023	g/cc
Ambient Density at Depth = 45 ft	1.023	g/cc

AMBIENT VELOCITY DATA

Parameter	Value	Units
Water Depth	45	ft
Profile[3]	Logarithmic	
Vertically Averaged X-Direction Velocity	0.04	ft/sec
Vertically Averaged Z-Direction Velocity	0.0	ft/sec

[1]Model Default Value
[2] NOAA 2002
[3]EPA 2011

INPUT, EXECUTION AND OUTPUT

Parameter	Value	Units
Location of the Upper Left Corner of the Disposal Site - Distance from Top Edge	1,000	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	1,000	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	7,000	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	7,000	ft
Duration of Simulation	14,300	sec
Long Term Time Step	600	sec

DISPOSAL OPERATION DATA - RESTRICTED AREA

Parameter	Value	Units
Location of Disposal Point from Top of Grid	4,000	ft
Location of Disposal Point from Left Edge of Grid	4,000	ft
Dumping Over Depression	0	

DISPOSAL OPERATION DATA - FINE GRAINED MATERIAL AREA

Parameter	Value	Units
Location of Disposal Point from Top of Grid	6,000	ft
Location of Disposal Point from Left Edge of Grid	5,400	ft
Dumping Over Depression	0	

COEFFICIENTS

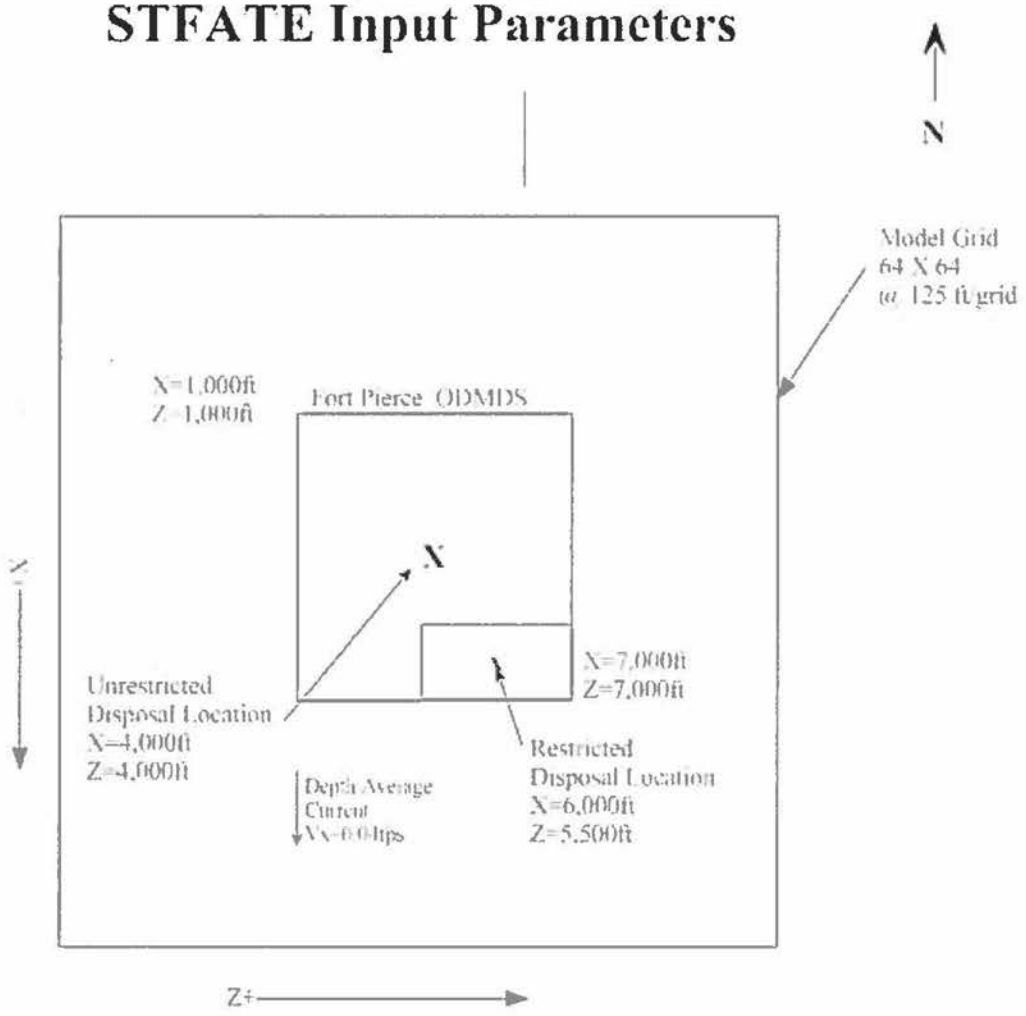
Parameter	Keyword	Value
Settling Coefficient	BETA	0.000[1]
Apparent Mass Coefficient	CM	1.000[1]
Drag Coefficient	CD	0.500[1]
Form Drag for Collapsing Cloud	CDRAG	1.000[1]
Skin Friction for Collapsing Cloud	CFRIC	0.010[1]
Drag for an Ellipsoidal Wedge	CD3	0.100[1]
Drag for a Plate	CD4	1.000[1]
Friction Between Cloud and Bottom	FRICTN	0.010[1]
4/3 Law Horizontal Diffusion Dissipation Factor	ALAMDA	0.011[2]
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]Calculated from NOAA Field Work (1994)

Fort Pierce ODMDS Background Water Concentration.	
Chemicals of Concern	**Background Concentration Levels (µg/l)**
Arsenic	1.27[1]
Cadmium	0.01 [1,3]
Chromium (VI)	0.26 [1]
Copper	0.29 [1]
Lead	0.041 [1]
Mercury	0.1[1,3]
Nickel	0.27 [1]
Selenium	0.05 [1,3]
Silver	0.01[1,3]
Zinc	1.58[1]
Cyanide	0[4]
Tributyltin (TBT)	0.01[2,3]
Aldrin	0.005[1,3]
Chlordane	0.005 [1,3]
4, 4'-DDT	0.013 [1,3]
Dieldrin	0.005 [1,3]
alpha - Endosulfan	0.005 [1,3]
beta - Endosulfan	0.010 [1,3]
Endrin	0.010 [1,3]
gamma-BHC (Lindane)	0.0025 [1,3]
Heptachlor	0.004 [1,3]
Heptachlor Epoxide	0.005 [1,3]
Toxaphene	.05 [1,3]
Pentachlorophenol	5 [1,3]

[1] Average values from the 2011 Status and Trend Survey at the Fort Pierce ODMDS
[2] Average values from the 2007 Status and Trend Survey at the Canaveral ODMDS
[3] Analyte not detected. Value based on one half the Method Reporting Limit.
[4] Analyte detected limits are well above the WQC. If analytes are detected in the dredged material elutriate, a concentration of zero will be assumed at the ODMDS.

Fort Pierce ODMDS
STFATE Input Parameters



APPENDIX B

TEMPLATE
CONTRACT SPECIFICATIONS
IMPLEMENTING THE SMMP

This page intentionally left blank

3.3 DISPOSAL OF EXCAVATED MATERIAL

3.3.1 Ocean Dredged Material Disposal Site (ODMDS)

The material excavated shall be transported to and deposited in the Fort Pierce ODMDS shown on the drawings. The average distance the material will have to be transported to the ODMDS will be approximately 6.7 nautical miles and the maximum distance will be approximately 6.9 nautical miles. Dredged material shall not be placed higher than elevation -25 feet MLLW in the ODMDS.

3.3.2 Release Zone Restrictions

Single load volumes of dredged material less than the volumes indicated in the drawings can be disposed in the "Disposal Release Zone" as indicated in the drawings.

3.3.3 Spillage and Leakage

Water and excavated material shall not be permitted to overflow or spill out of barges, dump scows, or hopper dredges while in route to the ODMDS Release Zone. Failure to repair leaks or change the method of operation which is resulting in overflow, leakage, or spillage will result in suspension of excavation operations and require prompt repair or change of operation to prevent overflow, leakage, or spillage as a prerequisite to the resumption of excavation. Excessive leakage is defined by average loss of draft during transit from the dredging area to the disposal area (forward draft loss plus aft draft loss divided by 2) in excess of x.x feet. Excessive leakage may be classified as a mis-dump.

3.3.4 Mis-Dump

Any scow load or hopper dredge load that is released outside the boundaries of the release zone as shown on the drawings will be classified as a mis-dump and will result in a suspension of dredging operations. Redredging of such materials will be required as a prerequisite to the resumption of dredging unless the Contracting Officer, at his discretion, determines that redredging of such material is not practical. If redredging of such material is not required, then the quantity of the mis-dumped load may be deducted from the Contractor's pay quantity. If the quantity for each mis-dumped load to be deducted cannot initially be agreed to by both the Contractor and Contracting Officer, then an average hopper/scow load quantity for the entire contract will be used in the determination. In addition, the Contractor shall notify the Contracting Officer within 24 hours of a misplaced dump or any other violation of the Site Monitoring and Management Plan for the Ft. Pierce ODMDS. Corrective actions shall be implemented by the next dump, and the Contracting Officer shall be informed of actions taken.

3.3.5 Electronic Tracking System (ETS) for Ocean Disposal Vessels

The Contractor shall furnish an ETS for surveillance of the movement and disposition of dredged material during excavation and ocean disposal. This ETS shall be established, operated and maintained by the Contractor to continuously track in real-time the horizontal location and draft condition of the disposal vessel for the entire dredging cycle, including dredging area and disposal area. The ETS shall be capable of displaying and recording in real-time the disposal vessel's draft and location.

3.3.5.1 ETS Standards

The Contractor shall provide automated (computer) system and components to perform in accordance with EM 1110-1-2909. A copy of the EM can be downloaded from the following web site: http://140.194.76.129/publications/eng-manuals/. Horizontal location shall have an accuracy equal to or better than a standard DGPS system, equal to or better than plus/minus 10 feet (horizontal repeatability). Vertical (draft) data shall have an accuracy of plus/minus 0.1 foot. Horizontal location and vertical data shall be collected in sets and each data set shall be referenced in real-time to date and local time (to nearest minute), and shall be referenced to the same state plane coordinate system used for the survey(s) shown in the contract plans. The ETS shall be calibrated, as required, in the presence of the Contracting Officer at the work location before disposal operations have started, and at 30-day intervals while work is in progress. The Contracting Officer shall have access to the ETS in order to observe its operation. Disposal operations will not commence until the ETS to be used by the Contractor is certified by the Contracting Officer to be operational and within acceptable accuracy. It is the Contractor's responsibility to select a system that will operate properly at the work location. The complete system shall be subject to the Contracting Officer's approval.

3.3.5.2 ETS Data Requirements and Submissions

a. The ETS for each disposal vessel shall be in operation for all dredging and disposal activities and shall record the full round trip for each loading and disposal cycle. (NOTE: A dredging and disposal cycle constitutes the time from commencement of dredging to complete discharge of the material.) The Contracting Officer shall be notified immediately in the event of ETS failure and all dredging operations for the vessel shall cease until the ETS is fully operational. Any delays resulting from ETS failure shall be at the Contractor's expense.

b. All data shall be collected and stored on CD-ROM(s) in ASCII format and shall be readable by MS Windows compatible software. Each dredging and disposal cycle shall be a separate and distinct ASCII file, labeled by the trip number. More than one file may be stored on the disc(s) or CD-ROM(s).

c. Data shall be collected at least every 0.25 nautical mile or every 4 minutes during travel to and from the ODMDS and 12 seconds or every 30 feet of travel, while the hull status is open within the ODMDS.

d. The required digital data to be collected for each dredging and disposal cycle includes the following:

(1) Load Number
(2) Disposal Vessel Name and Type (e.g. scow)
(3) Estimated Volume of Load
(4) Description of Material Disposed
(5) Source of Dredged Material
(6) Date, Time and Location at Initiation and Completion of Disposal Event in accordance with subparagraph c. above
(7) Vessel Draft

e. Plot Reporting (2 types):

(1) Tracking Plot - For each disposal event, all data collected while the disposal vessel is transiting to and from the disposal area shall be plotted in chart form, in 200-foot intervals, to show the track and draft of the disposal vessel approaching and traversing the disposal area. The plot shall identify the exact position at which the dump commenced. A sample Track and Draft Plot Diagram is on the web site indicated in paragraph CONSTRUCTION FORMS AND DETAILS below.

(2) Scatter Plot - Following completion of all disposal events, a single and separate plot will be prepared to show the exact disposal locations of all dumps. Every plotted location shall coincide with the beginning of the respective dump. Each dump shall be labeled with the corresponding Trip Number and shall be at a small but readable scale. A sample Scatter Plot Diagram is on the web site indicated in paragraph CONSTRUCTION FORMS AND DETAILS below.

(3) Summary Table - A spreadsheet which contains all of the information described in subparagraph d. above shall be prepared and shall correspond to the exact dump locations represented on the Scatter Plot Diagram. A sample Summary Table spreadsheet is on the web site indicated in paragraph CONSTRUCTION FORMS AND DETAILS below.

f. All digital ETS data shall be furnished to the Contracting Officer within 24 hours of collection. The digital plot files should be in an easily readable format such as Adobe Acrobat PDF file, Microstation DGN file, JPEG, BMP, TIFF, or similar. The hard copy of the ETS data and tracking plots shall be both maintained onboard the vessel and submitted to the Contracting Officer on a weekly basis.

EXAMPLE DRAWING WILL VARY FOR EACH DREDGING EVENT

APPENDIX C

TEMPLATE
GENERIC SPECIAL CONDITIONS
FOR MPRSA SECTION 103 PERMITS

This page intentionally left blank

GENERIC SPECIAL CONDITIONS
FOR MPRSA SECTION 103 PERMITS

I. DISPOSAL OPERATIONS

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

B. The Fort Pierce ODMDS is defined as the rectangle with center coordinates of 27° 27.50'N latitude and 80° 12.00'W longitude (NAD 83) or state plane coordinates 1,136,619 ft N and 915,603 ft E (NAD83). The site coordinates are as follows:

Vertices[1]	Geographic (NAD83)		State Plane (FL East 0901 Ft NAD83)	
NW Corner	27°28.00'N	80°12.55'W	1,139,745 N	912,685 E
NE Corner	27°28.00'N	80°11.45'W	1,139,784 N	918,630 E
SE Corner	27°27.00'N	80°11.45'W	1,133,725 N	918,670 E
SW Corner	27°27.00'N	80°12.55'W	1,133,686 N	912,724 E

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 Fort Pierce ODMDS.

D. The permittee shall use an electronic positioning system to navigate to and from the Fort Pierce 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 Fort Pierce 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 Fort Pierce 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 Fort Pierce 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 Fort Pierce ODMDS shall insure compliance with disposal operation conditions defined in this permit.

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, Jacksonville District's Regulatory Branch [TELEPHONE NUMBER] and EPA Region 4 at [TELEPHONE NUMBER] 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 disposal summary report.

H. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Fort Pierce ODMDS as defined in Special Condition B. Additionally, disposal shall be initiated within the disposal release zone defined by the following coordinates:

[insert coordinates for appropriate release zone]

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
Center				
North				
West				
South				
East				

I. [Reserved]

J. For all disposal activities, an electronic tracking system (ETS) must be utilized. The ETS will provide surveillance of the transportation and disposal of dredged material. The ETS will be maintained and operated to continuously track the horizontal location and draft condition (nearest ±0.1 foot) of the disposal vessel (i.e. hopper dredge or disposal scow) from the point of dredging to the disposal site and return to the point of dredging. Data shall be collected at least every 0.25 nautical miles or every 4 minutes during travel to and from the ODMDS and every twelve seconds or every 30 feet of travel, whichever is smaller, while the hull status is open within the ODMDS. In addition to the continuous tracking data, the following trip information shall be electronically recorded for each disposal cycle:

K. The permittee shall record electronically for each load the following information:

a. Load Number
b. Disposal Vessel Name and Type (e.g. scow)
c. Estimated volume of Load
d. Description of Material Disposed
e. Source of Dredged Material
f. Date, Time and Location at Initiation and Completion of Disposal Event

g. The ETS data required by Special Condition I.J.

L. The permittee shall conduct a bathymetric survey of the Fort Pierce ODMDS within 90 days prior and 30 days following project completion for projects greater than 50,000 cubic yards or if it has been more than 5 years since the last survey. Surveys will conform to the minimum performance standards for Corps of Engineers Hydrographic Surveys as described in the USACE Engineering Manual, EM1110-2-1003, *Hydrographic Surveying* dated November 30, 2013 [http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1003.pdf] or updates. The number and length of transects required will be sufficient to encompass the release zone and a 500 foot-wide area around it. The surveys will be taken along lines spaced at 200-foot intervals or less (500 feet for multibeam). The minimum performance standards from Table 3-1 in *Hydrographic Surveying* shall be followed. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing a differential global positioning system. The vertical datum will be referenced to prescribed NOAA Mean Lower Low Water (MLLW) datum. The horizontal datum should be referenced to the local State Plane Coordinate System (SPCS) for that area or in Geographical Coordinates (latitude-longitude). The horizontal reference datum should be the North American Datum of 1983 (NAD 83).

M. Enclosed is the Regional Biological Opinion (RBO) dated [INSERT DATE], for swimming sea turtles, whales, and sturgeon. The RBO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the RBO. Your authorization under the Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the incidental take of the attached RBO, which terms and conditions are incorporated by reference in the permit. Failure to comply with the terms and conditions associated with the incidental take of the RBO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. However, depending on the affected species NMFS is the appropriate authority to determine compliance with the terms and conditions of its RBO and with the Endangered Species Act (ESA). For further clarification on this point, you should contact the appropriate agency. Should they determine that the conditions of the RBO have been violated; normally they will enforce the violation of the ESA, or refer the matter to the Department of Justice.

II. REPORTING REQUIREMENTS

A. All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following addresses: U.S. Army Corps of Engineers (Corps), Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, Florida 32232-0019 and U. S. Environmental Protection Agency (EPA) Region 4's Wetlands, Ocean and Streams Branch, 61 Forsyth Street, Atlanta, GA 30303. The Permittee shall reference this permit number, [INSERT PERMIT NUMBER], on all submittals.

B. At least 15 days before initiating any dredging operations authorized by this permit, the Permittee shall provide to the Corps and EPA a written notification of the date of commencement of work authorized by this permit.

C. Electronic data required by Special Conditions I.J and I.K shall be provided to EPA Region 4 on a daily basis. Data shall be submitted as an eXtensible Markup Language (XML) document via Internet e-mail to DisposalData.R4@epa.gov. XML data file format specifications are available from EPA Region 4.

D. The permittee shall send one (1) copy of the disposal summary report to the Jacksonville District's Regulatory Branch 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 90 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.

2. The disposal summary report shall include the following information: dredging project title; dates of disposal; permit number and expiration date; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal timeframes for each vessel; volume disposed at the ODMDS (as paid *in situ* volume, total paid and un paid *in situ* volume, and gross volume reported by dredging contractor), number of loads to ODMDS, type of material disposed at the ODMDS; identification of any misplaced material (outside disposal zone or the ODMDS boundaries); dates of pre and post disposal bathymetric surveys of the ODMDS and a narrative discussing any violation(s) of the 103 permit. The disposal summary report should be accompanied by the bathymetry survey results (plot and X,Y,Z ASCII data file).