

Appendix B

**PORT ROYAL
SITE MANAGEMENT PLAN
FOR THE PORT ROYAL
OCEAN DREDGED MATERIAL DISPOSAL SITE**

Site Management Plan
Port Royal
Ocean Dredged Material Disposal Site

The following Site Management Plan for the Port Royal ODMDS has been developed and agreed to pursuant to the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 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.

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Site Management Plan

INTRODUCTION

It is the responsibility of EPA under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 to manage and monitor Ocean Dredged Material Disposal Sites (ODMDSs) designated by the EPA pursuant to Section 102 of MPRSA. As part of this responsibility, a management and monitoring plan has been jointly developed by EPA/Region 4 and the Charleston District Corps of Engineers (CE) to specifically address the deposition of dredged material into ODMDSs. The South Carolina Department of Natural Resources (DNR) and the South Carolina State Ports Authority (SPA) have been represented during discussions on the requirements for the Port Royal ODMDS and will continue to be represented on the ODMDS Site Management and Monitoring Plan (SMMP) Team along with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service. The SMMP Team will meet annually to discuss upcoming disposal activities, suitable management practices, and monitoring efforts for all the ODMDSs in the Charleston District. Each of these agencies has had opportunity to review and comment on the Environmental Assessment and this associated site management plan for Port Royal.

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." The plan may be modified if it is determined that such changes are warranted as a result of information obtained during the monitoring process.

Management Objectives. There are three primary objectives in the management of each ODMDS. These are:

- o Protection of the marine environment;
- o Beneficial use of dredged material whenever practical; and
- o Documentation of disposal activities at the ODMDS.

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

Material volumes. No restrictions are presently placed on disposal volumes. Disposal of unrestricted volumes is dependent upon results from future monitoring surveys.

Material suitability. There is no general restriction regarding the type of material that may be placed at the site at this time. However, the suitability of dredged material for

ocean disposal must be verified by the CE and agreed to by EPA prior to disposal. This verification will be valid for three years. The verification will involve: 1) a case-specific evaluation against the exclusion criteria (40 CFR 227.13(b)), 2) a determination of the necessity for bioassay (toxicity and bioaccumulation) testing for non-excluded material based on the potential for contamination of the sediment since last tested, and 3) carrying out the testing and determining that the non-excluded, tested material is suitable for ocean disposal. As part of this determination, modeling may be necessary. Input parameters for modeling at the Port Royal ODMDS are included in Appendix B.

Documentation of verification will be completed prior to use of the site. Documentation for material suitability for dredging events proposed for ocean disposal more than 5 years since last verified will be a new 103 evaluation and public notice. Documentation for material suitability for dredging events proposed for ocean disposal less than 5 years but more than 3 years since last verified will be an exchange of letters between the CE and EPA.

Should EPA conclude that reasonable potential exists for contamination to have occurred, acceptable testing will be completed prior to use of the site. Testing procedures to be used will be those delineated in the EPA/CE testing manual ('1991 Green Book') and the Regional Implementation Manual. Only material determined to be suitable through the verification process by the CE and EPA will be placed at the designated ocean disposal site.

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 within the site. However, dredging projects which utilize hopper dredges are restricted to operating between November 1st to May 31st due to sea turtle restrictions. 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.

Disposal Technique. No specific disposal technique is required for this site. However, it is the intent of this plan to maximize any advantages of strategic placement of materials. Utilization of any beach-compatible dredged material for beach nourishment is encouraged by EPA. Disposal of coarser material should be planned to allow placement within or accessible to the littoral zone, to the maximum extent practical and following the provisions of the Clean Water Act.

Placement of Materials Prior to any disposal of dredged materials, an agreement between EPA and CE will be reached concerning the exact placement of these materials. Permits/contracts will specify exact locations for the disposal of any material from the project.

Disposal Monitoring. 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 the horizontal location and draft condition (vertical) of the

disposal vessel from the point of dredging to the disposal area, and return to the point of dredging. Accuracy and precision of the locational system will be at least as good as provided by GPS. Required header file field labels to be recorded daily include the following:

- (a) Current Date: Month-Day-Year
- (b) Contract Number: DACW60-.....
- (c) Vessel Name: Name of Vessel
- (d) Vessel Captain: Captain's Full Name
- (e) Volume of load: Cubic Yards
- (f) Distance of Scow From Tow Vessel: Stern of Tow
Vessel to Bow of Barge
- (g) Disposal technique: Bottom Dump, Pumpout, etc.
- (h) Draft-empty: Feet rounded up at 0.5 ft.
- (i) Datum: SC State Plane NAD83, etc.
- (j) Phase I: Save data every 60 seconds
- (k) Phase II: Save data every 06 seconds

Required digital data to be recorded daily are as follows:

- (l) Time;
- (m) Julian date;
- (n) State plane coordinates;
- (o) Lat/Long
- (p) Compass Heading
- (q) Draft
- (r) Depth of cut
- (s) Pump Drive (RPM)
- (t) Pump Discharge Pressure
- (u) Pump Vacuum

Within sixty (60) days prior to the commencement of some disposal operations, a baseline bathymetric survey may be conducted of the disposal area and adjacent areas. The survey will be taken along lines spaced on 400-foot intervals and be of sufficient length to adequately cover the area. Accuracy will be ± 0.5 foot. The survey will be referenced to MLLW and corrected for tide conditions at the time of the survey. As a follow-up to the baseline bathymetric survey, the CE or other site user may also be required to conduct a survey after disposal. The number of transects and accuracy required will be the same as in the baseline survey.

The user will be required to prepare and submit to the CE monthly report of operations for each month or partial month's work.

SITE MONITORING

Part 228 of the Ocean Dumping Regulations establishes the need for evaluating the impacts of disposal on the marine environment. Section 228.9 indicates that the primary purpose of this monitoring program is to evaluate the impact of disposal on the marine environment by referencing the monitoring results to a set of baseline conditions. Section 228.10(b) states that in addition to other necessary or appropriate considerations, the following types of effects will be considered in determining to what extent the marine environment has been impacted by materials disposed at an ocean site (excerpted):

1. Movement of materials into estuaries or marine sanctuaries, or on to oceanfront beaches, or shorelines;
2. Movement of materials toward productive fishery and shellfishery areas;
3. Absence from the disposal site of pollution-sensitive biota characteristic of the general area;
4. Progressive, non-seasonal, changes in water quality or sediment composition at the disposal site, when these changes are attributable to materials disposed of at the site;
5. Progressive, non-seasonal, changes in composition or numbers of pelagic, demersal, or benthic biota at or near the disposal site, when these changes can be attributed to the effects of materials disposed at the site; and
6. Accumulation of material constituents (including without limitation, human pathogens) in marine biota at or near the site.

Part 228.10(c) states: "The determination of the overall severity of disposal at the site on the marine environment, including without limitation, the disposal site and adjacent areas, will be based on the evaluation of the entire body of pertinent data using appropriate methods of data analysis for the quantity and type of data available.

Impacts will be classified according to the overall condition of the environment of the disposal site and adjacent areas based on the determination by the EPA management authority assessing the nature and extent of the effects identified in paragraph (b) of this section in addition to other necessary or appropriate considerations."

The monitoring plan for the Port Royal ODMS does not involve a specific action plan at this time, however, a benthic infaunal survey has been performed by the South Carolina Department of Natural Resources. The results have been documented in a report entitled An Assessment of Benthic Infaunal Assemblages and Sediments in the Vicinity of the Port Royal Ocean Dredged Material Disposal Site, 1999. Previous baseline site work and subsequent monitoring at this and other ODMSs to date is sufficient to meet the management objectives for this site.

Should a specific action plan be deemed necessary, it will be described and attached as Appendix A. This specific monitoring plan would be implemented in accordance with the availability of funding. Should shortfalls in funding occur, the SMMP team will recommend which aspects of the monitoring plan should receive priority. Results of monitoring will be reviewed by the SMMP team and recommendations made to the CE and EPA on appropriateness and detail of future monitoring efforts.

Modification of ODMDS SMMP. Should the results of the monitoring surveys indicate that continuing use of the ODMDS would lead to unacceptable impacts, then either the ODMDS Management Plan will be modified to alleviate the impacts, or the location of the ODMDS will be modified.

APPENDIX A

GENERIC SPECIAL CONDITIONS
FOR MPRSA SECTION 103 PERMITS
PORT ROYAL, SC ODMDS

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 Port Royal, SC ODMDS, proper disposal of dredged material at the disposal area within the Port Royal, SC ODMDS, and transportation of the hopper dredge or disposal barge or scow back to the dredging site.

B. The Port Royal, SC ODMDS is defined as the rectangle with center coordinates of 32°04.50' North by 80°35.88' West and corner coordinates of:

32°05.00' North by 80°36.47' West
32°05.00' North by 80°35.30' West
32°04.00' North by 80°35.30' West
32°04.00' North by 80°36.47' West

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 Port Royal, SC ODMDS. The permittee agrees and understands that all dredged material will be placed in such a manner that its highest point will not exceed -32 feet MLW.

D. The permittee shall use an electronic positioning system to navigate to and from the Port Royal, SC 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 Port Royal, SC 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 Port Royal, SC 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 Port Royal, SC 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 Port Royal, SC 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, Charleston District's Regulatory Division (843) 329-8035 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. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be farther than 1,500 feet from the center of the Port Royal ODMDS as defined in Special Condition B.

I. 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 Port Royal ODMDS. This information shall be available in electronic format to the Charleston 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 Charleston 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 5.25" or 3.5" floppy 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 South Carolina 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. The permittee shall conduct a bathymetric survey of the Port Royal 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 Port Royal ODMDS and a 0.25 nautical mile wide area around the site. The transects shall be spaced at 400-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 (m.l.l.w) and the horizontal datum shall use South Carolina 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.

K. Between December 1 and March 31, NMFS requires monitoring by endangered species observers with at-sea large whale identification experience to conduct daytime observations for whales. During daylight hours, the vessel must take precautions to avoid whales. During evening hours or when there is limited visibility due to fog or sea states of greater than Beaufort, 3, the vessel must slow down to 5 knots or less when traversing between areas if whales have been spotted within 15nm of the vessel's path within the previous 24 hours. In addition, vessel shall maintain a 500 yard buffer zone between the vessel and any sighted whale.

L. 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." Detailed information on federally managed fisheries and their EFH is provided in the 1998 amendment of the Fishery Management Plans for the South Atlantic Region prepared by the South Atlantic Fishery Management Council (SAFMC). The 1998 generic amendment was prepared as required by the MSFCMA.

II. REPORTING REQUIREMENTS

A. The permittee shall send the U.S. Army Corps of Engineers, Charleston District's Regulatory Division 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 at (843) 727-7683 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 Charleston 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 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.

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 Port Royal, SC 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 they 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).

APPENDIX B

Numerical Model (STFATE) Input Parameters
 Water Column Evaluations
 Numerical Model (STFATE) Input Parameters
 Port Royal 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)	350	ft
Spacing Between Grid Points (top to bottom)	350	ft
Constant Water Depth	36	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	
Ambient Density at Depth = 0 ft	1.0215	g/cc
Ambient Density at Depth = 36 ft	1.0220	g/cc
AMBIENT VELOCITY DATA		
Parameter	Value	Units
Water Depth	36	ft
Profile	Logarithmic	
Vertically Averaged X-Direction Velocity	0.0	ft/sec
Vertically Averaged Z-Direction Velocity	0.33	ft/sec
DISPOSAL OPERATION DATA		
Parameter	Value	Units
Location of Disposal Point from Top of Grid	7,875	ft
Location of Disposal Point from Left Edge of Grid	7,875	ft
Dumping Over Depression	0	
INPUT, EXECUTION AND OUTPUT		
Parameter	Value	Units
Location of the Upper Left Corner of the Disposal Site - Distance from Top Edge	1,800	ft

Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	1,800	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	13,950	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	13,950	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

COEFFICIENTS

Parameter	Keyword	Value
Settling Coefficient	BETA	0.000 ¹
Apparant 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	0.0225 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

¹Model Default Value

²Calculated from NOAA Field Work at Fort Pierce (1994)

Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	1,800	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	13,950	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	13,950	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

COEFFICIENTS

Parameter	Keyword	Value
Settling Coefficient	BETA	0.000 ¹
Apparant 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	0.0225 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

¹Model Default Value

²Calculated from NOAA Field Work at Fort Pierce (1994)