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GULFPORT ODMDs

SITE MANAGEMENT AND MONITORING PLAN

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GULFPORT ODMDs

SITE MANAGEMENT AND MONITORING PLAN

1.0 INTRODUCTION.

It is the responsibility of the U.S Environmental Agency (EPA) and the U.S. Army Corps of Engineers (COE) under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 to manage and monitor each of the Ocean Dredged Material Disposal Sites (ODMDs) designated by the EPA pursuant to Section 102 of MPRSA. A site management monitoring plan (SMMP) was originally developed as part of the designation process and was published as part of the *Final EIS for the Pensacola, FL., Mobile, AL., and Gulfport Harbor, Ms. Dredged Material Disposal Site Designation*. 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 SMMP is being developed to specifically address the disposal of dredged material into the Gulfport ODMDs. This plan will include past monitoring results and will comply with provisions of the Water Resources Development Act (WRDA) of 1992 and a Memorandum of Agreement (MOA) between EPA and Corps. Upon finalization of this SMMP, these SMMP provisions shall be requirements for all dredged material disposal activities at the Gulfport sites. **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. The SMMP will be reviewed and revised as needed or every ten years, whichever time period is shorter.

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 & Ms. Jenny Jacobson

Mississippi State Port Authority
Mr. John Webb

EPA, Region 4
Mr. Doug Johnson

Mississippi Department of
Environmental Quality
Mr. Robert Seyfarth

U.S. Coast Guard
District Commander

National Oceanic and
Atmospheric Administration
Mr. Buck Sutter

Mississippi Department of Marine Resources
Mr. Jan Boyd

Secretary of State, Land
Division
Ms. Margaret Bretz

Other agencies, such as the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and the Minerals Management Service (MMS) 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), the type of material (i.e., sand vs. mud), 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/designating MPRSA Section 102 ODMDs, for evaluating environmental effects of disposal of 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.

ODMD management involves a broad range of activities including regulating the schedule of use, the quantity, and the physical/chemical characteristics of dredged materials disposed of at the sites. It also involves establishing disposal controls, conditions and requirements to avoid and minimize potential impacts to the marine environment. Finally, ODMD 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 during 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; and
- A schedule for review and revision of the plan.

2.1 Disposal Site Characteristics. The Eastern and Western Gulfport ODMDs encompass an area of 2.47 and 5.22 square nautical miles (nmi²), respectively. The corner coordinates are as follows:

Eastern ODMDS Geographic		Western ODMDS Geographic	
30°11'10"N	88°58'24"W	30°12'00"N	89°00'30"W
30°11'12"N	88°57'30"W	30°12'00"N	88°59'30"W
30°07'36"N	88°54'24"W	30°11'00"N	89°00'00"W
30°07'24"N	88°54'48"W	30°07'00"N	88°56'30"W
		30°06'36"N	88°57'00"W
		30°10'30"N	89°00'36"W

Note that the northern portion of the Western ODMDS is no longer available for use. Depths at the northern portion of the Western ODMDS are less than 25 feet. Hopper dredges require a minimum depth of 25 feet to safely dispose of dredged material; therefore, the Corps no longer utilizes the northern portion of this site.

The Eastern and Western sites are approximately 12 and 14 nmi from the main coastline of Mississippi, and are 0.7 and 1.2 nmi from Ship Island, respectively. The sites range in depth from 20 feet to 31 feet (**Figure 1**). The sediment composition at these sites consists of silts and clays ranging from 22 to 91% and is comparable to the dredging site. Physical, chemical, and biological conditions at the ODMDs are described in *Final EIS for the Pensacola, FL., Mobile, AL., and*

Gulfport Harbor, Ms. Dredged Material Disposal Site Designation and in the Draft Sediment Quality Characterization of the Gulfport Harbor Federal Navigation Channel, Gulfport, MS.

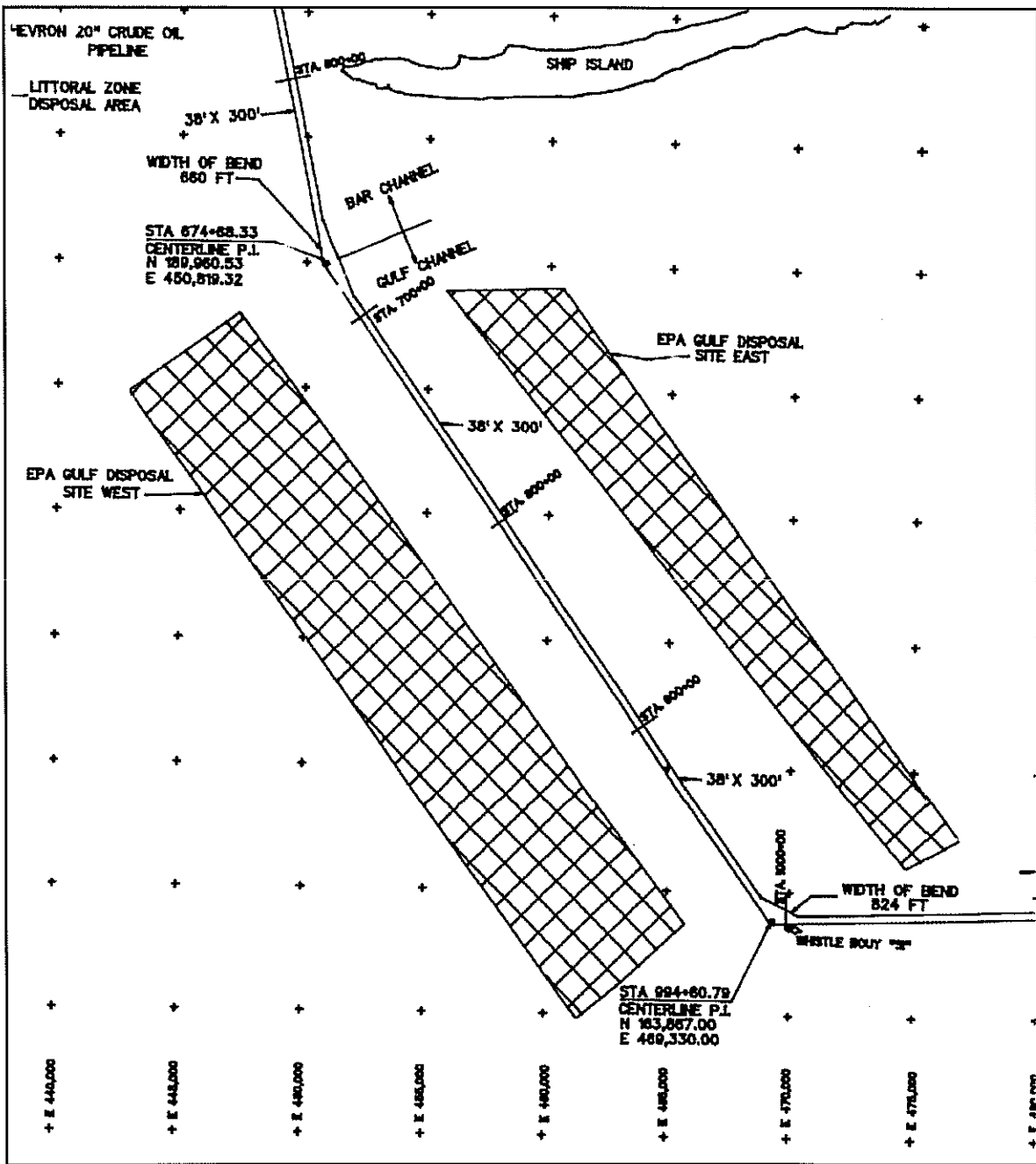


Figure 1: Gulfport ODMDSs Location Map and Operational Boundaries

2.2 Management Objectives. There are three primary objectives in the management of the Gulfport 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; and
- 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.

2.3 Dredged Material Volumes. It is intended that the Gulfport ODMDs will be used for dredged material (both maintenance and construction or new work material) from the greater Gulfport, Mississippi vicinity. The two primary users of the Gulfport ODMDs are:

- Corps for Civil Works
- Mississippi State Port Authority

The Gulfport ODMDs have been used to dispose of material dredged from this area since the 1970s. Since 1977, approximately 22.7 million cubic yards of dredged material have been disposed of in the Gulfport ODMDs (**Table 1**). Since 1990, approximately 13.9 million cubic yards of dredged materials have been disposed of in the Gulfport ODMDs. Between 1977 and 1990, the average volume of dredged material disposed in the ocean was about 630,000 cubic yards and between 1991 and 2000 the average annual disposal volume was about 1.39 million cubic yards.

Table 1: Yearly Record of Ocean Dredged Material Disposal in the Gulfport ODMDs (NW=New Work; O&M=Operations & Maintenance; cy=cubicyards)

Year	Action Type	Cubic Yards	Disposal Site	Composition
1977	O&M	2,924,400	East ODMDs	Silts & Clays
1979	O&M	728,300	East ODMDs	Silts & Clays
1981	O&M	1,801,000	East ODMDs	Silts & Clays
1982	O&M	101,200	West ODMDs	Silts & Clays
1984	O&M	996,900	West ODMDs	Silts & Clays
1985	O&M	885,500	East ODMDs	Silts & Clays
1987	O&M	909,000	East ODMDs	Silts & Clays
1989	O&M	469,700	West ODMDs	Silts & Clays
1992	NW & O&M	6,431,100	East ODMDs	Silts & Clays
1993	NW & O&M	3,518,900	West ODMDs	Silts & Clays
1996	O&M	623,000	East ODMDs	Silts & Clays
1997	O&M	1,067,000	West ODMDs	Silts & Clays
1998	O&M	1,300,000	West ODMDs	Silts & Clays
2002	O&M	943,000	West ODMDs	Silts & Clays

Future volumes and rates of disposal, from both Federal and private applicants, are expected to range around 1 million cubic yards per year. However, this estimate will increase if it is determined feasible to deepen and widen the Federal channel into Gulfport Harbor. Short-term (5-year) projected disposal volumes are shown in **Table 2**. Civil works maintenance projects for Gulfport Harbor are anticipated to account for approximately 75% of the total volume of material to be disposed at the ODMDs.

Table 2: Projected Volume of Dredged Material Disposal in the Gulfport ODMDs

Year	Action Type	Cubic Yards	Disposal Site	Composition
2004	O&M	400,000	West ODMDs	Silts & Clays
2005	NW	1,000,000*	East ODMDs	Silts & Clays
2005	O&M	400,000	West ODMDs	Silts & Clays
2006	O&M	400,000	West ODMDs	Silts & Clays
2007	O&M	400,000	West ODMDs	Silts & Clays

2008	O&M	400,000	West ODMDs	Silts & Clays
			* MS State Port Authority	

The Gulfport ODMDs have been determined to be dispersive sites, particularly during hurricane season. However, the dispersiveness of the sites and consequently the capacity of the ODMDs have yet to be determined. Future monitoring will attempt to address this issue. Until the capacity of the ODMDs has been determined, use of the ODMDs will be restricted to 5 million cubic yards (total for both sites) of dredged material per year based on historical uses of the ODMDs.

2.4 Material Suitability. Two basic sources of material are expected to be placed at the sites, new work material and maintenance dredged material. These materials will consist of mixtures of silts, clays, and sands in varying percentages. Sediments dredged from navigation in the Gulfport Harbor include mainly ocean and estuarine sources (sandy, littoral materials). Shoals occur where specific physical factors promote deposition or movement of sediments. These factors may vary spatially and temporally.

The disposition of any significant quantities of beach compatible sand from future projects will be determined on a project-by-project basis. Utilization of any significant quantities of beach compatible dredged material for beach nourishment is strongly encouraged and supported by EPA and the Corps. In fact, the Corps manages its dredged material under its Regional Sediment Management (RSM) initiative to be used beneficially. As a result, the Corps evaluates the whole coastal system when managing dredged material disposal rather than focusing on an individual project. Disposition of non-beach quality sand should be planned to allow the material to be placed so that it will be within or accessible to the sand-sharing system, to the maximum extent practical, and following the provisions of the Clean Water Act.

The suitability of dredged material for ocean disposal must be verified by the Corps and agreed to (concurred) by EPA prior to disposal. Verification will be valid for three years from the time last verified. Verification will involve: 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) carrying out the 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 sites. 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 and 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 Gulfport ODMDs.

2.5 Timing of Disposal. At present, 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. Between April 1 and November 30 monitoring and precautions necessary to protect sea turtles and Gulf sturgeon, as described in the next paragraph, are required when using hopper dredges. Additionally, if new information indicates that endangered or threatened species are being adversely impacted, restrictions may be incurred.

2.6 Disposal Techniques. No specific disposal technique is required for this site. In order to protect sea turtles and Gulf sturgeon, the NMFS requires monitoring according guidance outlined in the *Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by Corps Galveston, New Orleans, Mobile, and Jacksonville Districts* (NOAA Fisheries, 2003). In addition, standard surveillance and evasive measures to protect sea turtles and marine mammals shall be employed during all disposal operations at the ODMDs.

2.7 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 that promote mounding are beneficial for creating relief on the ocean floor for habitat; however, the Corps will prevent mounded dredged material from becoming an unacceptable navigation hazard. Dredged material shall be placed so that at no point will depths less than -16 feet Mean Lower Low Water (MLLW) occur (i.e., a clearance of 16 feet above the bottom will be maintained). To maximize ODMDs capacity and promote mounding of material, the disposals shall be within a specific area identified by the Corps in consultation with EPA, Region 4. Depths at the time of disposal will be monitored to detect if adjustments of disposal methods are needed to prevent unacceptable mounding (i.e. navigational hazards). The physical removal or leveling of material above -16 feet MLLW is a management alternative should mounds greater than those elevations occur.

2.8 Permit and Contract Conditions. The disposal monitoring and post-disposal monitoring requirements described under Site Monitoring will be included 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 are listed in **Table 3**.

Table 3. Summary of Permit and Contract Conditions

Condition	Reference
Dredged Material Suitability and Term of Verification	Gulfport ODMDs SMMP page 7
Disposal within Appropriate Zones	Gulfport ODMDs SMMP page 8
Post Bathymetric Surveys within 30 days of Project Completion	Gulfport ODMDs SMMP page 13 and 14
Disposal Monitoring and Recording of Disposal Locations	Gulfport ODMDs SMMP page 17
Reporting Requirements: Daily & Monthly Operations Reports and Disposal Summary Reports within 90 Days of Project Completion	Gulfport ODMDs SMMP page 15

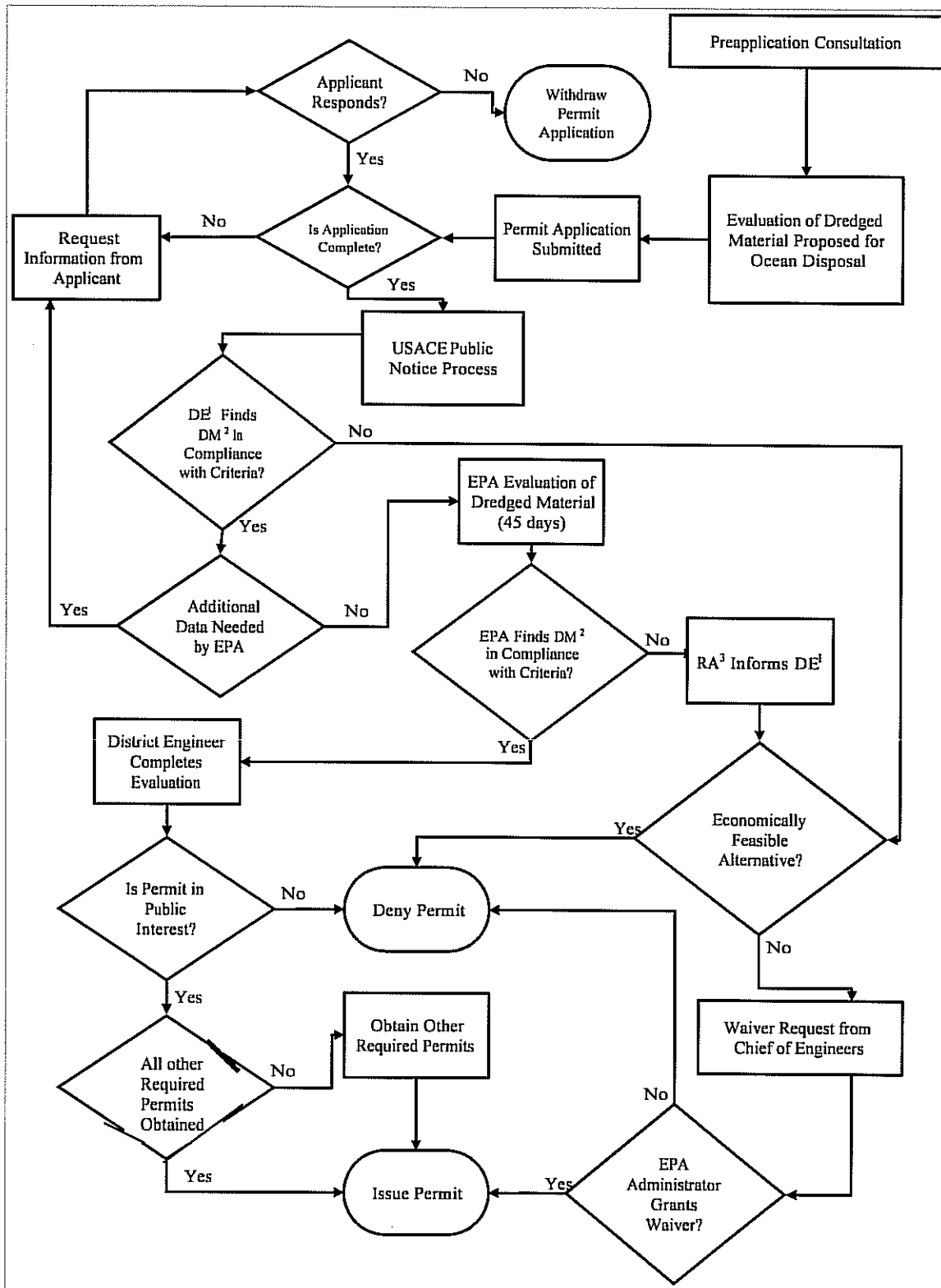
2.9 Permit Process. The permit process is outlined in **Figure 2** and consists of 10 main steps:

- **Preapplication Consultation:** Includes discussion of alternatives and the qualitative and quantitative information required by the District Engineer for use in evaluating the proposed dredged material.
- **Evaluation of Dredged Material Proposed for Ocean Disposal:** Includes development, approval and implementation of sampling and analysis plan (see Section on Material Suitability). This step should include close coordination between EPA, Region 4, the Corps, and the applicant.
- **Permit Application:** According to 33 CFR 325.1, a permit application must include the following:
 - A complete description of the proposed activity, including necessary drawings, sketches, or plans.
 - The location, purpose, and need for the proposed activity; scheduling of the activity; names and addresses of adjoining property owners; location and dimension of adjacent structures
 - A list of authorizations required by other Federal, interstate, State, or local agencies for the work, including all approvals received or denials already made
 - The source of the material; the purpose of the disposal, and a description of the type, composition, and quantity of the material (this includes information necessary to determine if the material is in compliance with the criteria); the method of transportation and disposal of the material; and the location of the disposal site.
- **Review of Application for Completeness:** Additional information is requested if the application is incomplete.
- **Public Notice:** Per 33 CFR 325.3, Public Notices issued by the Corps for dredged material disposal must include all of the information in 40

CFR 225.2(a) (see RIM). A supplemental, revised or corrected Public Notice will be issued if the District Engineer believes that the new information affects the review of the proposal.

- **EPA MPRSA Review:** Independent review of the information to determine whether the disposal activity complies with the criteria found in 40 CFR 227 and 228.
- **District Engineer Completes Evaluation:** The District Engineer addresses comments and holds public meeting if needed.
- **Corps Public Interest Review:** The Corps must consider all comments, suggestions, and concerns provided by all commenters and incorporate their comments into the administrative record of the application.
- **Permit Issued:** A decision to issue or deny a permit is discussed in either a Statement of Findings or Record of Decision.
- **Permit Public Notice:** A list of permit decisions is published and distributed to all interested parties each month.

Figure 2: Permit Application/Evaluation Procedure



1-District Engineer; 2-Dredged Material, 3-Regional Administrator

2.10 Information Management of Dredged Material Placement Activities.

As discussed in the following sections, a substantial amount of diverse data regarding use of the Gulfport ODMDs and the effects of disposal is required from many sources (EPA, Corps, and Mississippi State Port Authority). 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:

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

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 Gulfport ODMDs and account for the multiple users of the site. In addition to this information, the Corps has an Ocean Disposal Database maintained by the Engineering Research and Development Center (ERDC). This database provides the quantities disposed of at the ODMDs along with the chemical, physical, and biological information, and whether the project is from a civil work project or private entity.

3.0 SITE MONITORING.

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 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:

- (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 occurred at the present sites since the 1970s and predates any data gathering at the site. Therefore, no true baseline information has or can be collected. The results of investigations presented in the designation EIS and subsequent surveys listed in **Table 4** will serve as the main body of data for the monitoring of the impacts associated with the use of the Gulfport ODMDs.

Table 4. Surveys and Studies Conducted at the Gulfport ODMDs

Survey/Study Title	Conducted By:	Date	Purpose	Results
<i>Analysis & Synthesis of Oceanic Conditions in the Mississippi Sound Offshore Region</i>	Corps	March 1984	Determine the direction and amount of sediment transport from a dredged material disposal site.	Circulation patterns within the site are controlled by astronomical tides, winds, and freshwater discharges.
Field Survey of the Gulfport ODMDs (<i>Analysis & Synthesis of Oceanic Conditions in the Mississippi Sound Offshore Region</i>)	Corps	March 1984	Video, Bathymetry, Hydrography, Water Quality, Sediment Benthic Survey, Tissue Analysis	-Baseline Survey
Sediment Mapping	UGA Center for Applied Isotopes for EPA	TBD	Characterization of bottom sediments using gamma spectrometry	- Baseline Survey
Gulfport ODMDs Benthic Communities Study	Corps	1986	Benthic community characterization	- Baseline analysis
Bathymetric Survey	Corp	Before and After Event	Monitor bathymetry changes	- Baseline analysis
Disposal Monitoring	Corps	Before and After Event	Compliance	- Database

3.2 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 (1 to 5 minute intervals) 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. 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) 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 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.

3.3 Post Discharge Monitoring. The Corps or other site user will conduct a bathymetric survey 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 31 October 1994 and the Corps' Engineering Circular, EC1130-2-210, *Hydrographic Surveying*, dated 1 October 1998 to the extent practicable. The number and length of transects required will be sufficient to encompass the ODMDSS and a 500-foot wide area around the sites. 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 +/- 0.1 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. The vertical datum will be referenced to prescribed NOAA Mean Lower Low Water (MLLW) datum, 1960-1978 epoch, as shown on the Tidal

Benchmark sheet for Port Gulfport Entrance (872 1 608). MLLW is 1.8 feet below NGVD 1929. The horizontal datum will be Mississippi State Plane (zone 0901 FL East) or Geographic (NAD 1983 or NAD 1927). Bathymetric surveys will be used to monitor the disposal mound to insure a navigation hazard is not produced, to assist in verification of material placement, to monitor bathymetric changes and trends, to aid in environmental effects monitoring, and to insure that the site capacity is not exceeded, i.e., the mound does not exceed the site boundaries. Copies of these surveys shall be provided to EPA, Region 4 when completed.

3.4 Material Tracking and Disposal Effects Monitoring. Surveys can be used to address possible changes in bathymetric, sedimentological, chemical, and biological aspects of the ODMDSs and surrounding areas as a result of the disposal of dredged material at the sites.

3.4.1 Summary of Results of Past Monitoring Surveys. **Table 4** lists the past surveys at the Gulfport ODMDSs. In general, the surface of the sites is covered by rippled very fine sand below which fine-grained mud exists. The surface sands probably represent *in-situ* washing of the sediment with removal of fines from the upper surface. However, it is difficult to determine if the observed sand-over-mud stratigraphy is: 1) uniquely related to surficial washing of muddy dredged materials, 2) a natural phenomenon reflecting existing sedimentation of fines derived from coastal erosion or riverine input, 3) a result of reworking of ancient muddy sediments, or 4) a reflection of all of the above sources.

The surveys/studies listed in **Table 4** have indicated that the ODMDSs are dispersive sites for fine-grained material and as a result dredged material may extend beyond the designated site boundaries. Indicators of dredged material (from the sediment mapping, REMOTS, sidescan sonar and bathymetric surveys) appear within the ODMDS and to the northwest. Placement of dredged material in the northern portion of the Western ODMDS has resulted in this portion of the disposal site being too shallow for continued use.

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 sites and adjacent areas.

Within 30 days of completion of a disposal event, detailed bathymetric surveys of the placement area will be completed. Sediment mapping of the placement (disposal zone) and adjacent areas may be required. The interagency team will meet to review the results of these efforts and determine the need for additional information. This need will be based on observance of any anomalies or potential adverse impacts associated with a specific event. If the results of the bathymetric and/or sediment mapping surveys do not indicate any anomalies or adverse impacts no additional monitoring will be required for the disposal event. Reassessment of the site may be undertaken, possibly every 10 years. At a minimum, this reassessment will include benthic macrofaunal and sediment

chemistry surveys. Additional surveys for water quality, sediment mapping, or the use of remote sensing equipment may also be required.

At the current time, no nearby biological resources have been identified that are of concern for potential impact. The Gulfport ODMDs are at least one nautical mile from all known fish havens, artificial reefs, and fishing areas. The sites have been designated as dispersive. This means that it is expected that material will be moved outside the site boundaries. It is also expected that this material will not move in distinct mounds, but instead will blend with the surrounding environment causing a progressive transition to sediments containing a higher percentage of silt and clay. Changes in sediment composition will likely alter the benthic community structure. However, based on previous benthic studies, it is unlikely that permanent or long-term adverse impacts will result due to changes in sediment composition.

Concern has been raised regarding the potential for disposed dredged material impacting offshore sand sources and the magnitude and extent of disposed dredged material dispersal outside of the ODMDs boundaries. Additionally, recent mounding at the site has raised capacity concerns. 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 Gulfport 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. ODMDSs 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	Completed	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	Completed			
Long-Term Fate	Modeling	EPA/ Corps0	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/ Corps/ Site Users					
	Erosional Analysis	EPA					
	Precision Bathymetry and Sidescan	Corps/ EPA					
	Regional Grain Size Analysis	Corps /Site Users					

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

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Site Capacity	Information from Long Term Fate	EPA/ Corps/ Site Users	Determine dispersiveness of site and long and short term capacity	-As resources allow -Prior to any project in excess of 1 million cubic yards	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 > -40 feet mean lower low water (MLLW)	Continue Monitoring	-Modify disposal method/placement -Restrict disposal volumes
					Mound height > -30 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 Reporting and Data Formatting. 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. Disposal monitoring data shall be delivered to the Corps on a weekly basis. Disposal monitoring reporting shall comply with the minimum requirements as specified in Silent Inspector, or equivalent system approved by EPA and COE. 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.

Report

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 Gulfport ODMDSSs and should provide data interpretations, conclusions, and recommendations, and should project the next phase of the SMMP.

4.0 ANTICIPATED SITE USE.

It is anticipated that there will be a need for use of the Gulfport ODMDSSs for many years. The anticipated sites will be utilized to dispose of between 1 and 1.5 million cubic yards per year. This projection is based on 1970-1999 dredging records, currently available dredged material disposal options, and the Corps planning documents.

5.0 MODIFICATION OF THE GULFPORT ODMDSSs SMMP.

Should the results of the monitoring surveys or valid reports from other sources indicate that continued use of the ODMDSSs would lead to unacceptable effects, then the ODMDSS 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 GULFPORT ODMDSSs SMMP.

This interim plan is effective from the date of signature for a period not to exceed 1 year. The plan shall be reviewed, revised, and finalized within the 1-year interim period. Upon finalization, the plan will be 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 sites indicate a need for revision. 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*

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U.S. Army Corps of Engineers. 2005. *Draft Sediment Quality Characterization of the Gulfport Harbor Federal Navigation Channel*, Gulfport, MS. U.S. Army of Corps of Engineers, Mobile District.

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.

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APPENDIX A

WATER COLUMN EVALUATIONS NUMERICAL MODEL (STFATE) INPUT PARAMETERS – EAST SITE

Water Column Evaluations
 Numerical Model (STFATE) Input Parameters
 Gulfport East 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)	300	ft
Spacing Between Grid Points (top to bottom)	750	ft
Constant Water Depth	26	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 = 6 ft	1.0175	g/cc
Ambient Density at Depth = 26 ft	1.0205	g/cc

AMBIENT VELOCITY DATA

Parameter	Value	Units
Profile	Depth Avg. Logarithmic	
X-Direction Velocity at Depth = 10 ft	0.422	ft/sec
Z-Direction Velocity at Depth = 10 ft	0.503	ft/sec
X-Direction Velocity at Depth = 20 ft	0.316	ft/sec
Z-Direction Velocity at Depth = 20 ft	0.377	ft/sec

DISPOSAL OPERATION DATA

Parameter	Value	Units
Location of Disposal Point from Top of Grid	14,100 ²	ft
Location of Disposal Point from Left Edge of Grid	2,100 ²	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	600	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	900	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	27,650	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	3,300	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	0.001 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

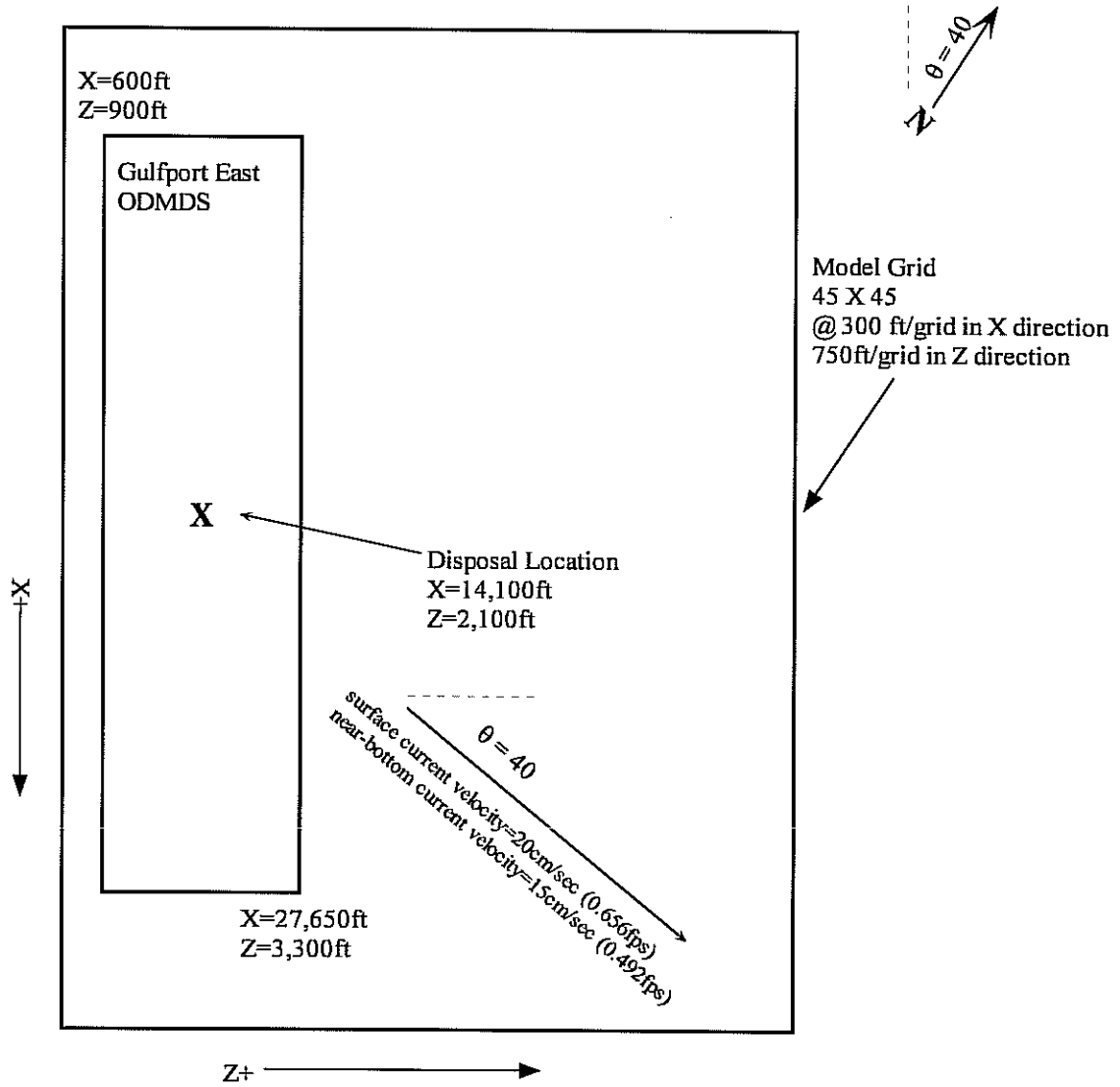
¹Model default value

²Represents 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 = 1,700:1

Typical dilution achieved at all times outside disposal site = 100:1

Gulfport East ODMDS STFATE Input Parameters



APPENDIX B

WATER COLUMN EVALUATIONS NUMERICAL MODEL (STFATE) INPUT PARAMETERS – WEST SITE

Water Column Evaluations
 Numerical Model (STFATE) Input Parameters
 Gulfport West 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)	300	ft
Spacing Between Grid Points (top to bottom)	600	ft
Constant Water Depth	25	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 = 6 ft	1.0175	g/cc
Ambient Density at Depth = 25 ft	1.0205	g/cc

AMBIENT VELOCITY DATA

Parameter	Value	Units
Profile	2- Point at constant depth	
X-Direction Velocity at Depth = 10 feet	0.303	ft/sec
Z-Direction Velocity at Depth = 10 feet	0.582	ft/sec
X-Direction Velocity at Depth = 19 feet	0.227	ft/sec
Z-Direction Velocity at Depth = 19 feet	0.436	ft/sec

DISPOSAL OPERATION DATA

Parameter	Value	Units
Location of Disposal Point from Top of Grid	13,800 ²	ft
Location of Disposal Point from Left Edge of Grid	2,700 ²	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	600	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	900	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	27,000	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	4,500	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	0.001 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

¹Model default value

²Represents 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 = 1,200:1

Typical dilution achieved at all times outside disposal site = 170:1

Gulfport West ODMDS STFATE Input Parameters

