DRAFT ENVIRONMENTAL ASSESSMENT FOR MODIFICATION OF THE MOBILE ODMDS, MOBILE, ALABAMA

U.S. Environmental Protection Agency Region 4
Atlanta, Georgia

DATE: OCTOBER 17, 2019

Notice of Draft Environmental Assessment for the Modification of the Mobile Ocean Dredged Material Disposal Site

As of this notice, the U.S. Environmental Protection Agency, Region 4 is allowing an additional thirty-five (35) days for review and comment on the Draft Environmental Assessment (EA) for the modification of the Mobile Ocean Dredged Material Disposal Site (ODMDS), Mobile, Alabama. This open comment period will close on November 20, 2019.

The draft EA was originally issued for public review and comment on September 24, 2018. The draft EA is being reissued for public review and comment in consideration of comments received on the EPA's proposed rule to expand the Mobile ODMDS. The proposed rule was issued for public review and comment on June 25, 2019, and may be accessed at: https://www.federalregister.gov/documents/2019/06/25/2019-13396/ocean-dumping-modification-of-an-ocean-dredged-material-disposal-site-offshore-of-mobile-alabama .

The reissued draft EA is unchanged from the draft EA that was issued on September 24, 2018, with the exception of the EPA points of contact. Following the issuance of the draft EA on September 24, 2018, two new species (Giant manta ray and Byrde's whale) have been listed under the Endangered Species Act. The EPA is assessing whether the proposed project may affect these species and will coordinate with the National Marine Fisheries Service prior to any final decisions.

Comments must be submitted by email to OceanDumpingR4@epa.gov, or via U.S. Post, postmarked by November 20, 2019 to:

US EPA, Region 4
Water Division, OEMS
c/o Wade Lehmann
61 Forsyth St SW
Atlanta GA 30303

For further information, you may contact Dr. Wade Lehmann at (404) 562-8082.

DRAFT ENVIRONMENTAL ASSESSMENT FOR MODIFICATION OF THE MOBILE OCEAN DREDGED MATERIAL DISPOSAL SITE (ODMDS), MOBILE, ALABAMA

Reviewed by:

U.S. Environmental Protection Agency
Region 4
Water Protection Division
61 Forsyth Street, SW
Atlanta, GA 30303
(404)562-9345

Jeanneanne M. Gettle, Director
Water Protection Division

Approved and Submitted by:

U.S. Environmental Protection Agency
Region 4
Office of the Regional Administrator
61 Forsyth Street, SW
Atlanta, GA 30303
(404)562-8357

Onis "Trey" Glenn, III
Regional Administrator

DRAFT ENVIRONMENTAL ASSESSMENT FOR MODIFICATION OF THE MOBILE ODMDS, MOBILE, ALABAMA

List of Tables

List of Figures

ABSTRACT

In accordance with the National Environmental Policy Act (NEPA), the Environmental Protection Agency (EPA), Region 4, is issuing this Environmental Assessment (EA) to evaluate the proposed action to modify the Mobile Ocean Dredged Material Disposal Site (ODMDS) offshore of Dauphin Island, Mobile County, Alabama for the ocean disposal of dredged material pursuant to the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972.

The existing Mobile ODMDS is 4.75 square nautical miles (nmi^2) and was previously designated by the EPA in accordance with Section 102 of the MPRSA. The proposed action would modify the Mobile ODMDS by expanding the disposal area to the north and west to an area approximately 24 nmi^2 by encompassing a portion of a site previously selected by the U.S. Army Corps of Engineers (USACE) as an alternate disposal site, pursuant to Section 103 of the MPRSA.

The current 4.75 nmi^2 Mobile ODMDS would reach dredged material capacity within five years. Future needs for both proposed operation and maintenance (O&M) and new work dredged material over the next 25 years, including proposed plans for deepening and widening the Mobile Harbor Federal navigation project to a portion of its fully authorized dimensions, require a suitable ODMDS for potential receipt upwards of approximately 26 million cubic yards (cys) of new work material. Additionally, if the decision is made that the Mobile Harbor Federal navigation project should be expanded to its fully authorized dimensions, future construction could increase the total new work material volume to approximately 90-100 million cys. This would be in addition to the routine O&M dredged material volume of approximately 4.4 million cys of sediment needing placement on an annual basis. The Mobile ODMDS will be available as an alternative for placement of suitable dredged material when no economically practicable upland placement or beneficial use options are available.

Use of the proposed ODMDS modification area is not anticipated to cause significant long-term adverse environmental impacts. Sediment placement at the site is expected to cause minor impacts to benthos and sediment composition within the site. There may also be minor environmental effects on benthos beyond the site boundaries due to sediment transport. Water quality impacts will be localized, short-term, and negligible. No significant impacts to threatened and endangered species, fish and Essential Fish Habitat (EFH), or commercial shrimp trawling and fishing near the ODMDS are expected. As part of the site modification process, the EPA and USACE, Mobile District have developed a Site Management and Monitoring Plan (SMMP) that will ensure environmental impacts remain insignificant and that dredged material is properly managed and monitored within the site. The SMMP is provided in Appendix C to this EA.

The EA initially considered four alternatives to meet continued and anticipated dredging and placement needs. As two of the alternatives would not meet the purpose of the project, only two alternatives are carried forward and evaluated in detail including: Alternative 1 - No Action/Continued use of the currently designated EPA Section 102 Mobile ODMDS, and Alternative 2 - Modification of the existing designated EPA Section 102 Mobile ODMDS to encompass a portion of the boundary of the much larger, USACE-previously selected Section 103 Mobile ODMDS. Based on the analysis provided in this EA and evaluation of alternatives with respect to the project need and potential issues identified, Alternative 2 is recommended as the Preferred Alternative which:

- Provides a long-term ocean disposal option for suitable dredged material from proposed new work, O&M, and Regulatory dredging and placement actions.
- Meets the EPA's general and specific criteria for site designation.
- Complies with all International, Federal, state, and local regulations.
- Minimizes environmental and socioeconomic impacts because it is sufficiently removed from amenities, such as beaches, shipping lanes, areas of hardbottom, artificial reefs, and sand borrow areas.
- Is not located within designated critical habitat for threatened or endangered species.

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ADEM	Alabama Department of Environmental Management
APE	Area of Potential Effect
ASPA	Alabama State Port Authority
BOEM	Bureau of Ocean Energy Management
BP	British Petroleum
C	Centigrade
CAA	Clean Air Act
CCC	Criteria Continuous Concentration
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
Cm	Centimeters
CMC	Criteria Maximum Concentration
CTD	Conductivity, Temperature, Depth
Cy	Cubic yard
Cys	Cubic yards
CZC	Coastal Zone Consistency
DOER	Dredging Operations and Environmental Research Program
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ER	Engineer Regulation
ERL	Effects Range Low
ESA	Endangered Species Act
FONSI	Findings of No Significant Impact
FR	Federal Register
GHG	Greenhouse gas
GIS	Geographic Information System
GMFMC	Gulf of Mexico Fishery Management Council
GRBO	Gulf Regional Biological Opinion
GRR	General Reevaluation Report
HCD	Habitat Conservation Division
ITS	Incidental Take Statement
Kg	Kilogram
Km	Kilometer
LRR	Limited Reevaluation Report
mg/L	Milligrams per liter
M	Meter
MHTB	Mobile Harbor Turning Basin
MLLW	Mean Lower Low Water
MOU	Memorandum of Understanding
MPRSA	Marine Protection, Research and Sanctuaries Act
NAAQS	National Ambient Air Quality Standards
NAHCP	National Advisory Council on Historic Preservation
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLAA	Not Likely to Adversely Affect
nmi^2	Square Nautical Miles
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places

O&M	Operations and Maintenance
ODMDS	Ocean Dredged Material Disposal Site
OCS	Outer Continental Shelf
PAH	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PL	Public law
Ppt	Parts Per Thousand
PRD	Protected Resource Division
SAV	Submerged Aquatic Vegetation
SEIS	Supplemental Environmental Impact Statement
SERIM	Southeastern Regional Implementation Manual
SHPO	State Historic Preservation Officer
SIBUA	Sand Island Beneficial Use Area
SMMP	Site Management Monitoring Plan
STFATE	Short-Term Fate of Dredged Material
TEL	Threshold Effects Level
TEU	Twenty-foot Equivalent Unit
TOC	Total Organic Carbon
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
WRDA	Water Resources Development Act
WQC	Water Quality Certification

EXECUTIVE SUMMARY

PURPOSE AND NEED FOR PROPOSED ACTION

The USACE, Mobile District has requested that the EPA, Region 4 modify the existing Mobile ODMDS in accordance with Section 102 of the MPRSA to ensure long-term ocean disposal site capacity is available for suitable dredged material generated from new work (deepening and widening) and O&M projects in support of the Federal Mobile Harbor navigation project and other local users. The existing 4.75 nmi^2 Mobile ODMDS was designated by the EPA in accordance with Section 102 of the MPRSA and is located between two and six miles south of Dauphin Island, Mobile County, Alabama. The USACE had previously selected two alternate sites for temporary disposal pursuant to Section 103 of the MPRSA. One of these sites, previously known as the Mobile North ODMDS, was approximately 46 nmi^2 and had been historically used for the placement of dredged material. The other site, the Mobile South ODMDS, has not been historically used as a placement site. The proposed action evaluated in this EA is a modification of the existing EPA Section 102 Mobile ODMDS to include a portion of the previously selected USACE Section 103 Mobile North ODMDS. Additional ocean disposal capacity is needed to support ongoing navigation channel maintenance, proposed major improvements (including the proposed deepening and widening) of the Federal project, and potential private user (Regulatory action) needs.

ALTERNATIVES

Chapter 2 of this EA evaluates alternatives and identifies the preferred alternative that best meets the goals and objectives of the proposed action while minimizing the potential for adverse environmental effects. Two alternatives were eliminated from detailed impact analysis in this EA because they do not meet project objectives. The alternatives considered in this EA include:

- Alternative 1: No Action / Continued use of the current EPA Section 102 Mobile ODMDS
- Alternative 2: Modification of the existing EPA Section 102 Mobile ODMDS to encompass a portion of the boundary of the much larger, previously selected USACE Section 103 Mobile ODMDS (Preferred Plan)
- Alternative 3: Modification of the existing EPA Section 102 Mobile ODMDS to encompass the entire previously selected USACE Section 103 Mobile ODMDS (i.e. approximately 46 nmi^2)
- Alternative 4: Use of the previously selected Mobile-South ODMDS in place of the EPA Section 102 Mobile ODMDS

The existing Mobile ODMDS is 4.75 nmi^2. The preferred alternative (Alternative 2) is to modify the existing Mobile ODMDS by expanding the boundaries to the north and west which would allow for an approximately 24 nmi^2 Mobile ODMDS for dredged material placement. The size of the proposed ODMDS modification area is based on current capacity analysis of the existing disposal area within the Mobile ODMDS, historical dredging volumes, future dredging volumes for proposed new work, O&M, and Regulatory action projects, estimated shoaling rates, capacity of upland placement sites in the area, and consideration of historical ODMDS surveys.

AFFECTED ENVIRONMENT

Physical Environment

The project area is located on the shallow continental shelf offshore of Dauphin Island, Mobile County, Alabama. The seafloor is characterized by low relief, relatively gentle gradients, and smooth bottom surfaces exhibiting physiographic features contoured by erosional processes.

Sediments are an important material affecting the physical, chemical, and biological conditions for the environment. Sediments along the Federal Mobile Harbor navigation project consist of sands to clays with various mixtures of sand, silt, and clay located throughout the channel. Sediments are primarily comprised of sands in the Bar Channel, a mix of estuarine silty clays and clay in Mobile Bay, and clays in the Mississippi Sound (USACE 1980). The natural sand and mud bottoms of the Mississippi Sound and Mobile Bay support a benthic infaunal population that contributes directly to the complex estuarine food web and provides important forage, spawning, and nursery areas for a variety of commercially and recreationally important fish and invertebrate species. Physical and benthic analyses (see *Section 3.3* of the EA) of sediment and site water samples collected in the USACE Section 103 Mobile ODMDS from October 19-23, 2009 (Anamar 2010) showed samples ranged from 99% sand - 1% silt/clay and 99% silt/clay - 1% sand with most samples having a higher percentage of silt/clay than sand. Sediment quality and texture of dredged material from the Federal Mobile Harbor navigation project is expected to be relatively homogenous to that existing in the Mobile ODMDS.

Biological Environment

Threatened and endangered species that may occur near the ODMDS modification area are listed in Table ES-1, below. There is no critical habitat designated within the boundaries of the proposed ODMDS modification area. Near-shore reproductive and *Sargassum* critical habitats have been designated for loggerhead sea turtles in the Gulf of Mexico; however, the ODMDS modification area is not located in these designated areas. Other non-threatened animals, mainly bottlenose dolphins, may also occur in the project area.

Table ES-1. Threatened and Endangered Species in the Project Vicinity

LISTED SPECIES	SCIENTIFIC NAME	STATUS	DATE LISTED
Marine Mammals			
Finback whale	*Balaenoptera physalus*	Endangered	12/02/70
Humpback whale	*Megaptera novaengliae*	Endangered	12/02/70
Sei whale	*Balaenoptera borealis*	Endangered	12/02/70
Sperm whale	*Physeter macrocephalus*	Endangered	12/02/70
West Indian manatee	*Trichechus manatus*	Endangered	03/11/67
Sea Turtles			
Green sea turtle	*Chelonia mydas*	Threatened	07/28/78
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	06/02/70
Kemp's Ridley sea turtle	*Lepidochelys kempii*	Endangered	12/0/070
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	06/02/70
Loggerhead sea turtle	*Caretta caretta*	Threatened	07/28/78
Fish			
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	Threatened	09/30/91
Birds			
Piping plover	*Charadrius melodus*	Threatened	12/11/85
Interior least tern	*Sterna antillarum*	Endangered	05/28/85
Red knot	*Calidris canutus rufa*	Threatened	12/11/14

Avian species most likely to occur in the project area include pelagic birds such as pelicans, gulls, plovers, red knot, and terns. The predominant infaunal invertebrates inhabiting the bottom substrate include polychaetes, amphipods, and mollusks. Three species of penaeid shrimp are commercially harvested in Alabama, and may occur in the proposed project area. The two most abundant species are brown shrimp and white shrimp. The third species, which is only incidentally caught, is pink shrimp.

Many studies evaluating the fish and invertebrates of Alabama estuaries have been conducted. These studies looked at species abundance and diversity in coastal waters. The near-shore and

marsh species, which may occur within the proposed project area, are comprised largely of fish in the families *Poeciliidae*, *Cyprinodontidae*, and *Atherinidae.* These species serve as prey for the Southern flounder (*Paralichthys lethostigma)* and seatrout (*Cynoscion spp.),* both important sport and commercial fish. Common migratory fish in the study area are Atlantic croaker (*Micropogonias undulates)*, spot (*Leiostomus xanthurus)*, and sand seatrout (*Cynoscion arenarius)*. Important forage fish within the area are pelagic species, including bay anchovy (*Anchoa mitchilli)*, striped anchovy (*Anchoa hepsetus)*, and Gulf menhaden (*Brevoortia patronus)*. The most commercially important shellfish found in the area include brown and white shrimp, blue crab, and American oyster (Swingle 1971, Swingle & Bland, 1974).

The 1996 reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act defines EFH as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity." The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. The Gulf of Mexico Fishery Management Council (GMFMC) and National Marine Fisheries Service (NMFS) have identified EFH for the Gulf of Mexico in its Fishery Management Plan Amendments. These habitats include estuarine areas, such as estuarine emergent wetlands, seagrass beds, algal flats, and mud, sand, shell, and rock substrates. In addition, marine areas, such as the water column, vegetated and non-vegetated bottoms, artificial and coral reefs, geologic features and continental shelf features, have also been identified. The habitat within the vicinity of the project consists of open-water marine environment with a sandy or silty/clay bottom and subject to high wave action and currents. These physical conditions within the site afford many species of fish and fish prey suitable habitat for subsistence and continued population growth (GMFMC 1998, 2004, 2005 & 2010, and Froese & Pauly 2007).

Socioeconomic Environment

Offshore recreational resources near the project area include recreational fishing, sailing, and boating areas, diving areas, and other watersport areas. The major fish species landed along the Mississippi and Alabama Gulf coasts are Spanish (*Scomberomerus maculatus*) and king mackerel (*Scomberomerus cavalla*), cobia (*Rachycentron canadum*), bluefish (*Pomatomus saltatrix*), pompano (*Trachinotus carolinus*), little tunny (*Euthynnus alletteratus*), spotted sea trout (*Cynoscion nebulosus*), red drum (*Sciaenops ocellatus*), and several shark species (GMFMC 1998, 2004 & 2005; and Froese & Pauly 2007). Artificial reef dive sites are not located in the immediate vicinity of the proposed ODMDS modification area. Shrimp trawling is generally limited to the state's coastal boundary (3-mile limit), although some shrimping activity occurs seaward of that line unless it is closed by GMFMC. A northern portion of the Mobile ODMDS modification area falls within Alabama state waters while the southern portion is in Federal waters. Based on Waterborne Commerce Statistics Center (http://www.navigationdatacenter.us/wcsc/porttons16.html), Mobile Harbor is one of the nation's major ports, ranking 10th in total trade tonnage and 10th in terms of total foreign trade value in 2016.

Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and implementing regulation, found at 36 Code of Federal Regulation (CFR), Part 800 require consultation with other agencies to avoid or minimize adverse effects on historical, architectural, archaeological, and cultural resources. To ensure compliance, cultural resources were evaluated via a literature review and thorough analysis of remote sensing data, focusing on archaeological resources. The information gathered from those resources was used to characterize and assess potential effects. The data search revealed several possible shipwrecks in the project vicinity. In November 1985, the USACE, Mobile District prepared the "Final Supplemental EIS, Mobile Harbor, Alabama, Channel Improvements, Offshore Dredged Material Disposal." The following was extracted from that document: "The historical associations of the area range from the earliest

explorers of this continent through more recent events in Alabama which include historical buildings, lighthouses, and existing forts, such as Fort Gaines (1818) on Dauphin Island and Fort Morgan (1833) at the Mobile Point lighthouse (Alabama Historical Commission, 1978). The Union ironclad, U.S.S. Tecumseh, is under 30 feet of water in Mobile Bay, north of Fort Morgan. The historical richness of the area is seen by the number of listings in historical site registers; over 50 listings in the National Park Service's National Register of Historic Places (NRHP) and nearly 20 listings in the Alabama Historical Commission's Alabama Register (USACE 1985)". A buffer will be established around areas of avoidance to ensure no effect to cultural resources. As part of the NEPA process, consultation with the Alabama State Historic Preservation Office (SHPO) will be conducted, and compliance with Section 106 of the NHPA will be completed prior to final designation of the modified ODMDS.

ENVIRONMENTAL EFFECTS

Table ES-2 summarizes potential effects of Alternative 2 (Preferred Plan).

Table ES- 2. Summary of Impacts

Environmental Factor	Alternative 2 - Modification of the Mobile ODMDS
Threatened and Endangered Species – Sea Turtles	Impacts to sea turtles associated with a modified ODMDS and dredged material disposal include temporary decreases in foraging due to turbidity and burial of food resources. Impacts are expected to be short-term and localized. Disposal of dredged material in the proposed area will not significantly degrade sea turtle habitats. The proposed action would fall under past coordination of the Gulf Regional Biological Opinion (GRBO) for sea turtle species in the project area.
Threatened and Endangered Species – Manatees	The proposed modification area is well outside of typical manatee habitat therefore the project is "not likely to adversely affect" manatee.
Threatened and Endangered Species – Whales	Impacts to whales associated with a modified ODMDS and dredged material disposal include temporary decreases in foraging due to turbidity. Impacts are expected to be short-term and localized. A "no effect" determination for whales has been made in relation to the proposed action.
Threatened and Endangered Species – Gulf sturgeon	Impacts from a modified ODMDS and dredged material disposal include temporary decreases in foraging due to turbidity and burial of food resources. Gulf sturgeon could potentially be present in the project area but would likely avoid dredging operations within the ODMDS. Therefore, the proposed project is "not likely to adversely affect" Gulf sturgeon and would fall under past coordination of the GRBO for Gulf sturgeon in the project area.
Fish and Wildlife Resources – Benthic Fauna	Potential impacts include direct burial of benthic organisms and change in composition of sediments reducing abundance and diversity of the benthic communities within the site. Suspended sediments can also affect filter-feeding organisms and abrade gill tissues. Effects of turbidity would be short-term and localized. Effects of burial and change in sediment composition can potentially be long-term depending upon the frequency of disturbance and depth of burial.
Fish and Wildlife Resources – Fish	Potential impacts include temporary decreases in foraging due to turbidity and burial of food resources. Adult fishes within the disposal area may experience a short-term reduction in dissolved oxygen uptake through the gills due to the presence of suspended particles. Impacts are expected to be short-term and localized. No significant impacts to fishes are expected because of the proposed action.
Fish and Wildlife Resources – Marine Mammals	See protected whale species and manatee discussions above.

Environmental Factor	Alternative 2 - Modification of the Mobile ODMDS
Fish and Wildlife Resources – Seabirds	Potential indirect effects may include ship-following behavior, temporary reductions or possible increase in prey items, and visual impairment of marine birds foraging near the disposal plume. No significant impacts to protected seabirds are expected because of the proposed action.
Essential Fish Habitat	Direct effects of sedimentation and turbidity are not expected to be substantial due to the mobility of most federally managed species that may occur within the site and the lack of geographic constraints within the vicinity of the project area. No significant impacts to EFH are expected as a result of the proposed action.
Cultural Resources	A plan will be implemented to ensure resources identified in the area are avoided and not adversely affected. Section 106 concurrence will be obtained for the proposed action.
Economics	No anticipated negative effects related to shipping or commercial fisheries.
Recreation	No anticipated long-term negative effects related to recreation are anticipated.
Water Quality	Short-term, localized increases in turbidity will occur near the disposal site during disposal operations. No significant or long-term impacts to water quality are expected because of the proposed action.
Air Quality	Short-term, localized increases in concentrations of NO_2, SO_2, CO_2, VOCs, and particulate matter associated with transport of dredged material to the disposal site may occur. No significant impacts to air quality are anticipated. Mobile County is in attainment with the Clean Air Act.
Noise	No significant effects from noise generated during disposal operations are anticipated.
Navigation	No anticipated negative effects.

COMPLIANCE WITH THE EPA'S GENERAL AND SPECIFIC CRITERIA

Tables ES-3 and ES-4 present a summarized assessment of the extent to which the preferred alternative (Alternative 2) meets the five general site selection criteria in 40 CFR Parts 228.5(a) to (e) and eleven specific site selection criteria in 40 CFR Part 228.6(a).

Table ES- 3. Compliance with EPA General Site-Specific Selection Criteria

Regulation	Compliance/No Action Alternative Analysis
40 CFR Part 228.5(a) The dumping of materials into the ocean will be permitted only at sites in areas selected to minimize the interference of disposal activities with other activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation.	This area is a previously selected disposal site so the marine environment has already been screened to avoid areas of existing critical fisheries or shellfisheries, and regions of heavy commercial or recreational navigation. Therefore, this site complies with 40 CFR § 228.5(a).
40 CFR Part 228.5(b) Locations and boundaries of disposal sites will be so chosen that temporary perturbations in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere within the site can be expected to be reduced to normal ambient seawater levels or to undetectable contaminant concentrations or effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.	The proposed ODMDS modification area will be used for disposal of suitable dredged material as determined by Section 103 of the MPRSA. Based on the USACE and the EPA sediment testing and evaluation of dredged maintenance and new work material, disposal is not expected to have any long-term impact on the water quality (ANAMAR 2010, EA Engineering 2011). The Mobile ODMDS is located sufficiently far from shore (two to six miles) and fishery resources to allow temporary water quality disturbances caused by placement of disposal material to be reduced to ambient conditions before reaching environmentally sensitive areas. Therefore, this site complies with 40 CFR § 228.5(b).
40 CFR Part 228.5(c) If at any time during or after disposal site evaluation studies, it is determined that existing disposal sites presently approved on an interim basis for ocean dumping do not meet the criteria for site selection set forth in Sections 228.5 through 228.6, the use of such sites will be terminated as soon as suitable alternate disposal sites can be designated.	This criterion does not apply as no existing sites are approved on an interim basis in the region.

40 CFR Part 228.5(d) The sizes of the ocean disposal sites will be limited in order to localize for identification and control any immediate adverse impacts and permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts. The size, configuration and location of any disposal site will be determined as a part of the disposal site evaluation or designation study.	The location, size, and configuration of the proposed action (Alternative 2) provides long-term capacity, site management, and site monitoring while limiting environmental impacts to the surrounding area to the greatest extent practicable. Based on 25 years of projected new work, maintenance, and Regulatory action dredged material disposal needs, it is estimated that the ODMDS modification area should be approximately 24 nmi^2 in size to meet the long-term needs of the area. When determining the size of the proposed site, the ability to implement effective monitoring and surveillance programs, among other things, was factored in to ensure that navigational safety would not be compromised and to prevent mounding of dredged material, which could result in adverse wave conditions. A site management and monitoring program will be implemented to determine if disposal at the site is significantly affecting adjacent areas and to detect the presence of long-term adverse effects. At a minimum, the monitoring program will consist of bathymetric surveys, sediment grain size analysis, chemical analysis of constituents of concern in the sediments, and a health assessment of the benthic community. The SMMP is included in Appendix C. This site complies with 40 CFR § 228.5(d).
40 CFR Part 228.5(e) The EPA will, wherever feasible, designate ocean dumping sites beyond the edge of the continental shelf and other such sites that have been historically used.	It is not feasible to locate the disposal site near the continental shelf. It would be cost prohibitive in this case. The Mobile ODMDS is located near the dredging channel but far enough away from the nearest island so as not to cause any adverse environmental effect. Transporting material to and performing long-term monitoring of a site located off the continental shelf is not economically or operationally feasible. Furthermore, due to overlapping coordinates with the EPA Section 103 Mobile ODMDS, this site has been historically used by the USACE, Mobile District for the disposal of material dredged from the federally authorized Mobile Harbor navigation project. The EPA Section 102 Mobile ODMDS has also been used by private entities for the disposal of dredged material in the past (i.e. permitted Regulatory actions). Therefore, this site complies with 40 CFR § 228.5(e).

Table ES-4. Compliance with EPA Specific Site Selection Criteria

		Mobile ODMDS (Alternative 2)	No Action Alternative
1	Geographical position, depth of water, bottom topography, and distance from the coast.	Centered at 30 10.522˚ N and 88 09.593˚ W. The bottom topography is relatively flat with an average depth of 45 feet.	Centered at 30.1611˚ N and 88.1110˚W. The bottom topography is relatively flat with an average depth of 46 feet.
2	Location in relation to breeding, spawning, nursery, feeding, or passage areas of living resources in adult or juvenile phases.	This site is located within a marine open water area away from any special or unique habitats.	No action impacts are similar to Alternative 2 – Mobile ODMDS.
3	Location in relation to beaches and other amenity areas.	The site is several miles from any beaches or amenity areas.	No action impacts are similar to Alternative 2 – Mobile ODMDS.
4	Types and quantities of wastes proposed to be disposed of, and proposed methods of release, including methods of packaging the waste, if any.	Dredged materials placed in this area are primarily clays and silts with some sands originating from the Federal Mobile Harbor navigation project.	Due to overlapping coordinates with the EPA Section 103 Mobile ODMDS, most of the EPA Section 102 Mobile ODMDS has had material placed in it since the late 1970s. Therefore, the no action impacts are similar to Alternative 2 – Mobile ODMDS.
5	Feasibility of surveillance and monitoring.	The EPA and USACE are responsible for site and compliance monitoring. The entire Mobile ODMDS was most recently surveyed and sampled in October 2017 (EPA 2018).	No action impacts are similar to Alternative 2 – Mobile ODMDS.
6	Dispersal, horizontal transport, and vertical mixing characteristics of the area, including prevailing current direction and velocity, if any.	Current velocities are greatest at the surface due to the wind and wave action. Intermediate and bottom layer currents are driven by thermohaline and tidal circulations. During the 2009 survey, currents were predominately to the west or southwest on the order of 10-30 cm/sec.	No action impacts are similar to Alternative 2 – Mobile ODMDS.
7	Existence and effects of current and previous discharges and dumping in the area (including cumulative effects).	Several million cubic yards of dredged material has previously been placed within the eastern portion of the disposal area.	Most of the EPA Section 102 Mobile ODMDS has had material placed in it since the late 1970s.

8	Interference with shipping, fishing, recreation, mineral extraction, desalination, fish and shellfish culture, areas of special scientific importance, and other legitimate uses of the ocean.	There will be minor short-term interferences with commercial and recreational boat traffic during the transport of dredged material. There are oil and gas extraction platforms in the Mobile ODMDS. The site has not been identified as an area of special scientific importance. There are no fish/shellfish culture areas near the site. There may be recreational fishing in the area.	No action impacts are similar to Alternative 2 – Mobile ODMDS.
9	Existing water quality and ecology of the site as determined by available data or by trend assessment or baseline surveys.	Survey results indicate that water quality is excellent in the area (Anamar 2010).	No action impacts are similar to Alternative 2 – Mobile ODMDS.
10	Potentiality for the development or recruitment of nuisance species in the disposal site.	It is unlikely that any nuisance species would be transported to the site. The dredged area is relatively close to the Mobile ODMDS so the benthic organisms are similar in nature.	No action impacts are similar to Alternative 2 – Mobile ODMDS.
11	Existence at, or in close proximity to, the site of any significant natural or cultural features of historical importance.	A maritime investigation of this site has previously been conducted to identify areas of high and low probability of submerged resources. Past efforts showed the presence of anomalies that should be avoided in the Mobile ODMDS.	No action impacts are similar to Alternative 2 – Mobile ODMDS.

CONCLUSION

Based on the analysis provided in this EA, and evaluation of the alternatives with respect to the project need and potential issues, Alternative 2 is recommended as the Preferred Alternative. Alternative 2 – Modification of the existing EPA Section 102 Mobile ODMDS to encompass a portion of the boundary of the much larger, previously selected USACE Section 103 Mobile ODMDS:

- Provides a long-term ocean disposal option for suitable dredged material from proposed new work, O&M, and Regulatory dredging and placement actions.
- Meets the EPA's general and specific criteria for site selection.
- Complies with all international, Federal, state, and local regulations.
- Minimizes environmental and socioeconomic impacts because it is sufficiently removed from amenities, such as beaches, shipping lanes, areas of hardbottom, artificial reefs, and sand borrow areas.
- Is not located within designated critical habitat for threatened or endangered species.

This page intentionally left blank.

DRAFT ENVIRONMENTAL ASSESSMENT FOR MODIFICATION OF THE MOBILE ODMDS

MOBILE, ALABAMA

1.0 INTRODUCTION

This EA presents impacts that would potentially result from modification of the existing EPA-designated 4.75 nmi^2 Section 102 Mobile ODMDS to an expanded area approximately 24 nmi^2 within the historical boundary of the previously selected USACE Section 103 Mobile ODMDS [formally known as the Mobile-North ODMDS (i.e. USACE Section 103 ODMDS)]. The modification area of the EPA Section 102 Mobile ODMDS is located due south of Dauphin Island, Mobile County, Alabama and north of the Safety Fairway in the Gulf of Mexico. The USACE, Mobile District, as the primary users of the Section 102 Mobile ODMDS, requested that the EPA designate an ODMDS to accommodate future O&M and any anticipated additional new work dredged material placement needs. The purpose of this EA is to determine whether the proposed action has the potential for creating significant impacts to the environment that would warrant a more detailed study on possible impacts, mitigation, and alternative courses of action.

The NEPA of 1969, as amended, excuses or excludes Federal agencies from the preparation of any formal environmental analysis with respect to actions that result in minor or no environmental effects, known as "categorical exclusions." An intermediate level of analysis, an EA, is prepared for an action that is not clearly categorically excluded, but does not clearly require an Environmental Impact Statement (EIS) [40 CFR §1501.3 (a) and (b)]. Based on the EA, a Federal agency either prepares an EIS, if one appears warranted, or issues a "Finding of No Significant Impact" (FONSI), which satisfies the NEPA requirement. This EA is prepared according to the USACE's Engineer Regulation (ER) 200-2-2, Procedures for Implementing NEPA, EPA's NEPA Compliance Regulation (40 CFR Part 6), and the Council of Environmental Quality (CEQ) Regulations (40 CFR § 1508.27) for Implementing the Procedural Provisions of NEPA (40 CFR § 1500-1508).

Following discussions between the EPA, Region 4 and the USACE, Mobile District, it was determined that an EIS was not required for this proposed action because there are two previous EISs for site designation associated with the Federal Mobile Harbor navigation project. The EPA voluntarily prepares either an EIS or EA as part of its established policies and MPRSA designation process requirements. The preparation of an EA by the USACE, Mobile District carries out part of the EPA's Notice of Policy for Voluntary Preparation of NEPA Documents (Volume 63 Federal Register (FR) pages 58045-50847 dated October 29, 1998) and the designation process under Section 102 of the MPRSA of 1972 (33 United States Code (USC) 1401). This EA will also play an important role in the EPA rule-making process and associated opportunity for agency review and public comment. The proposed action cannot take effect until the EPA has promulgated a final rule. Secondly, this EA will satisfy the USACE, Mobile District's need for NEPA documentation relating to transportation of dredged material from the federally authorized Mobile Harbor navigation project to the ocean for disposal under Section 103 of the MPRSA. In addition, it will also satisfy the USACE, Mobile District's need for NEPA documentation relating to disposal of dredged material in ocean waters for Regulatory permitted projects under Section 103 of the MPRSA.

Section 103 of the MPRSA regulates transportation of all dredged material types for disposal into ocean waters. MPRSA Section 102 requires the EPA to designate sites for ocean disposal pursuant to criteria established in this section. The EPA's site designation does not, by itself, authorize any dredging or on-site dumping of dredged material. The EPA Ocean Dumping Regulations [40 CFR Parts 220-229] establish procedures and criteria for selection and management of ocean disposal sites and evaluation of permits. Section 103 of the MPRSA authorizes USACE to regulate transportation of dredged material for disposal into ocean waters. Section 103 also authorizes the USACE to select sites in the ocean for disposal of dredged material when no feasible EPA designated site is available. The purpose of this action is to comply with the provisions of the MPRSA and 40 CFR Parts 220-229 by providing information required to evaluate the suitability of the proposed modification of the existing EPA Section 102 Mobile ODMDS, as well as providing information governing the proposed discharge of dredged material from the existing Federal Mobile Harbor navigation project, any authorized improvements to that project, and potential private dredging needs.

As part of the EPA January 11, 1977 Ocean Dumping Regulations, all historically used offshore dredged material disposal areas received an interim approved designation pending completion of site designation studies. As such, an area offshore from Mobile Bay, historically used for disposal of material from the Mobile Harbor entrance channel, carried this interim site designation.

In 1980, the USACE, Mobile District completed a survey report and EIS for channel improvements of the Federal Mobile Harbor navigation project. These reports recommended offshore disposal for a major portion of material dredged from construction and future maintenance of the improved channel. A disposal island was proposed and later deemed inadequate for the volume of material to be generated from the proposed Federal Mobile Harbor navigation project improvements and future project maintenance.

In 1985, the USACE, Mobile District completed a Supplemental EIS (SEIS) for the Federal Mobile Harbor navigation project improvements and the proposed selection of two possible ODMDSs to take the place of the inadequately sized Section 102 EPA site holding an interim designation for ocean disposal entitled "*Final Supplemental EIS, Mobile Harbor, Alabama, Channel Improvements, Offshore Dredged Material Disposal*" to support selection of large capacity offshore dredged material disposal areas. The survey studies determined the need and suitability of dredged material for offshore disposal. As a result, the 1985 analysis indicated an economically feasible and environmentally acceptable offshore disposal site could be found within an area generally encompassing a 16-mile radius from the mouth of Mobile Bay. In today's economic environment, a feasible disposal area may be less easily attainable. In 1985 dredging cost per cubic yard (cy) was valued at approximately $1.50/cy where today that cost has increased to $4 to $7/cy. Additionally, hopper capacities in 1985 were limited to approximately 8,000 cys while today's current United States hopper capacities have reached 15,000 cys.

A portion of the site carrying the interim designation became the EPA Section 102 Mobile ODMDS via a 1986 EIS prepared by the EPA. Technical evaluations contained in this report were in accordance with the final revision of the Regulations and Criteria governing ocean dumping published by the EPA on January 11, 1977.

Site-specific studies addressed impacts of disposal in two areas (Mobile-North ODMDS and Mobile-South ODMDS) southwest of the mouth of Mobile Bay (USACE 1985). Analysis of dredged material and potential disposal sites found the only impacts of substantial concern were related to the smothering of benthic organisms and turbidity. Furthermore, study results

(USACE 1985) indicated that both the Mobile-North and Mobile-South sites were suitable for offshore disposal of dredged material. The USACE Section 103 Mobile ODMDS (formerly known as the Mobile-North ODMDS) was selected and a portion has been used since 1987. In 1986, the current EPA Section 102 Mobile ODMDS was designated within the much larger USACE Section 103 Mobile ODMDS. Along with federally dredged material, Theodore Marine Terminals, a private user, utilized the EPA Section Mobile 102 ODMDS via permitted action. Between November 27, 1992 and March 19, 1993, approximately 300,000 cys of material was mechanically dredged and taken to the site via scow. To date, the Mobile-South ODMDS has not been used or designated, and lost its Section 103 selection status in 1996.

1.1 Location. Mobile Harbor, Alabama is located in the southwestern part of the state in Mobile and Baldwin Counties, at the junction of the Mobile River and head of Mobile Bay (**Figure 1**). The Port of Mobile is approximately 28 nautical miles north of the Mobile Harbor Bar Channel from the Gulf of Mexico and approximately 170 nautical miles east of New Orleans, Louisiana.

The proposed modification area of the EPA Section 102 Mobile ODMDS is located between two and six miles due south of Dauphin Island, Alabama covering an area of approximately 24 nmi^2. It is adjacent to and west of the approaches to the Mobile Harbor Bar Channel (**Figure 1**). Within the general geographical vicinity, Dauphin Island is due north while the Fort Morgan peninsula is located northeast of the site. North of Dauphin Island is the Mississippi Sound. South of Dauphin Island is the Gulf of Mexico. Dauphin Island is part of the barrier island system that extends from Louisiana to the Florida panhandle. Depths within the ODMDS modification area range from 34 to 57 feet with an average depth of approximately 45 feet. Corner coordinates for the proposed modification of the Mobile ODMDS are listed in **Table 1** and corner coordinates for the current EPA Section 102 Mobile ODMDS are listed in **Table 2**.

Table 1. Proposed Modified Mobile ODMDS Corner Coordinates

Proposed Modified Mobile ODMDS Corner Coordinates (NAD 83)	
Latitude 30º 13.0’ N	Longitude 88º 08.8’ W
Latitude 30º 09.6’ N	Longitude 88º 04.8’ W
Latitude 30º 08.5’ N	Longitude 88º 05.8’ W
Latitude 30º 08.5’ N	Longitude 88º 12.8’ W
Latitude 30º 12.4’ N	Longitude 88º 12.8’ W

Table 2. EPA Section 102 Mobile ODMDS Corner Coordinates.

EPA Section 102 Mobile ODMDS Corner Coordinates (NAD 83)	
Latitude 30º 10.0’ N	Longitude 88º 07.7’ W
Latitude 30º 10.4’ N	Longitude 88º 05.2’ W
Latitude 30º 09.4’ N	Longitude 88º 04.7’ W
Latitude 30º 08.5’ N	Longitude 88º 05.2’ W
Latitude 30º 08.5’ N	Longitude 88º 08.2’ W

The EPA Section 102 Mobile ODMDS is located in the Gulf of Mexico and covers an area of approximately 4.75 nmi^2 within the boundary of the previously selected USACE Section 103 Mobile ODMDS as illustrated in **Figure 2**. The area is bordered by Dauphin Island to the north, the Mobile Ship Channel to the east, and the navigation safety fairway to the south. Water depths within the EPA Section 102 Mobile ODMDS range from approximately 35 to 52 feet with an average depth of approximately 46 feet.

The EPA Section 102 Mobile ODMDS was approved for interim use by the EPA in 1977 based on historical use. The EPA completed the Final EIS for site designation in 1986. Due to overlapping coordinates of the two ocean dumping sites (the previously selected USACE Section 103 Mobile ODMDS and the EPA designated Section 102 Mobile ODMDS), the site has been used frequently by the USACE, Mobile District for disposal operations since the 1970's (i.e. Civil Works program). Physical and biological conditions at the EPA Section 102 Mobile ODMDS are described in the *Final Environmental Impact Statement for the Pensacola, Florida, Mobile, Alabama, and Gulfport, Mississippi Dredged Material Disposal Site Designation* (EPA 1986).

1.2 Description of Authorized and Existing Project Dimensions. Mobile Harbor, Mobile, Alabama and the surrounding bodies of water have a long history of maritime industry (**Figure 1**). Mobile Bay is an estuarine system approximately seven miles wide at the northern end and approximately 18 miles wide at the southernmost end. It stretches approximately 30 miles from the Mobile Delta to the Dauphin Island-Fort Morgan peninsula entrance. It is situated at the mouth of the Mobile River basin, which drains approximately 44,000 square miles in Alabama, Mississippi, and Georgia. The bay is almost uniformly shallow with an average depth of approximately 9.5 feet. The Port of Mobile is on the western side of the Mobile River at the head of the bay. Three federally-authorized navigation channels cross the bay, the Mobile Ship Channel from north to south, the Gulf Intracoastal Waterway from east to west, and the Theodore Industrial Park from northwest to southeast.

Navigation dredging in Mobile Bay and the Mobile River began in 1826 with enactment of the Rivers and Harbors Act of 1826. Over subsequent years, the Federal project at Mobile River and Mobile Bay was expanded to include adjoining channels within the bay. During the period of 1826 to 1857, a channel 10 feet deep was dredged through the shoals in Mobile Bay up to the City of Mobile. Subsequently, further modifications to the channel were authorized and the original Federal project was expanded by the addition of the Arlington, Garrows Bend, and Hollingers Island channels within the bay, and a channel into Chickasaw Creek from the Mobile River. Section 104 of the Rivers and Harbors Act of 1954 (House Document 74, 83rd Congress, First Session, as amended, and previous acts) authorized a 40-foot channel with a width of 400 feet in Mobile Bay to the mouth of the Mobile River and a 40-foot depth in the Mobile River to the Cochran Bridge with the width varying between 400 and 775 feet. The Senate Public Works Committee on July 16, 1970 and the House Public Works Committee on December 15, 1970, under the provisions of Section 201 of the 1965 Flood Control Act, authorized a 40-foot by 400-foot channel, branching from the main ship channel and extending through a land cut to the Theodore Industrial Park. The Theodore Ship Channel was reauthorized in the Water Resources Development Act (WRDA) of 1976. Improvements to the existing Federal project were authorized in WRDA of 1986 (Public Law (PL) 99 – 662, Ninety-Ninth Congress, 2nd Session), which was approved November 17, 1986, and amended by Section 302 of WRDA of 1996. Authorized segments of the Federal Mobile Harbor navigation project consist of the following:

a. A 57-foot x 700-foot channel from the Gulf of Mexico for approximately eight miles to Mobile Bay;

b. A 55-foot x 550-foot channel from the mouth of the Mobile Bay for a distance of approximately 29 miles to near the mouth of Mobile River, including a passing lane two miles long and 625 feet wide at mid-bay;

c. A 55-foot x 750-foot x 4,000-foot anchorage area just south of McDuffie Island;

d. A 55-foot x 1,500-foot x 1,500-foot turning basin opposite McDuffie Island;

e. A 40-foot deep channel with the width varying from 700 feet, near the Mobile River mouth, to 500 feet, near the Cochrane Bridge (U.S. Highway 98), a distance of approximately four miles;

f. A 40-foot x 800-foot – 1,000-foot x 2,500-foot turning basin opposite the Alabama State docks between river miles 1.0 to 1.5; and

g. A 40-foot x 1,000-foot x 1,600-foot turning basin just south of the Cochrane Bridge (U.S. Highway 98).

The authorized dimensions of all segments of the Federal Mobile Harbor navigation project have not been constructed. The existing dimensions of the bay channel are 45 feet by 400 feet and stretches from Mobile Bay north to the mouth of Mobile River. The outer bar channel is 47 feet by 600 feet extending north approximately 1.5 miles. Advanced maintenance and overdepth dredging, as well as inaccuracies due to dredging, can result in additional channel depths that may vary depending upon location.

Several additional features of the authorized project have not been constructed. The anchorage areas that would be located south of the mouth of the Mobile River have not been constructed. In May 2000, the USACE, Mobile District completed the construction of a 1,300-foot extension at the current 45-foot depth in Mobile River, as well as 2,100 and 1,200-foot extensions of the channel constructed in 2008. The Mobile Harbor Turning Basin (MHTB) opposite McDuffie Island, and between Pinto and Little Sand Islands, was constructed in August 2010.

1.3 Purpose and Need for the Proposed Action. The purpose of this proposed action is to expand the boundaries of the designated EPA Section 102 Mobile ODMDS to encompass a portion of the previously selected USACE Section 103 Mobile ODMDS in the Gulf of Mexico located due south of Dauphin Island, Alabama (**Figure 3**). Due to overlapping coordinates, both sites have historically been used by the USACE, Mobile District for the disposal of material dredged from the federally authorized Mobile Harbor navigation project. The EPA Section 102 Mobile ODMDS has also been used by private entities for the disposal of dredged material in the past (i.e. permitted Regulatory actions).

Under the MPRSA, USACE site selections are only intended to be of short duration (i.e. 5 years with the possibility of a 5-year extension) until the EPA can designate a site pursuant to Section 102 of the MPRSA. An alternative site may continue to be used for an additional period if:

(1) no feasible disposal site has been designated by the EPA;
(2) the continued use of the alternative site is necessary to maintain navigation and facilitate interstate or international commerce; and
(3) the EPA determines that continued use of the site does not pose an unacceptable risk to human health, aquatic resources, or the environment.

All three of the above conditions have been met. No feasible disposal site has been designated by the EPA, nor has the EPA determined that the continued use of the site poses an unacceptable risk to human health, aquatic resources, or the environment, and the ocean

disposal site continues to be a vital component to maintain the Federal Mobile Harbor navigation project, which facilitates interstate and international commerce.

The USACE, Mobile District identified a need for modification of the EPA Section 102 Mobile ODMDS to the EPA in 2000 (Appendix B). This need stems from continued maintenance of the federally authorized navigation project year-round. The use of this site increased significantly beginning in 1989 after completion of the Mobile Harbor improvement project, authorized by WRDA of 1986 which states "…. dredged material from such project shall be disposed of in open water in the Gulf of Mexico in accordance with all provisions of Federal law". **Table 3** illustrates historic annual disposal quantities placed in the Mobile ODMDS since 1987.

Table 3. USACE Mobile ODMDS Annual Quantities of Dredged Material Placed from 1987 to 2017.

USACE Mobile ODMDS Annual Quantities of Dredged Material Placed from 1987 to 2017	
Date	**Quantity in Cubic Yards**
1987	101,400 cys
1989	16,000,000 cys
1990	6,755,400 cys
1991	6,888,500 cys
1992	4,939,400 cys
1993	1,945,300 cys
1994	2,400,000 cys
1995	2,636,600 cys
1996	3,028,400 cys
1997	5,503,100 cys
1998	7,425,100 cys
1999	2,617,000 cys
2000	5,911,300 cys
2001	4,593,800 cys
2002	4,101,400 cys
2003	6,785,700 cys
2004	7,848,900 cys
2005	3,223,900 cys
2006	2,546,600 cys
2007	1,952,800 cys
2008	2,235,993 cys
2009	5,979,800 cys
2010	4,361,670 cys
2011	3,500,844 cys
2012	1,592,204 cys
2013	1,901,591 cys
2014	2,037,900 cys
2015	652,338 cys
2016	2,200,000 cys
2017	1,027,500 cys

Total: 122,694,440 cys placed in Mobile ODMDS

The EPA Section 102 Mobile ODMDS has limited capacity. Capacity at the time of designation was approximately 80,000,000 cys. This was based on a minimum usable depth of -25 feet mean lower low water (MLLW) to allow for placement by a hopper dredge. Placement of material to depths shallower than -25 MLLW creates hazards to navigation, and is therefore not permitted under the ODMDS's Site Management and Monitoring Plan (SMMP). At the current rate of dredged material placement, along with past disposal events, the EPA Section 102 Mobile ODMDS site is not adequately sized. If all proposed O&M material were placed within the site, capacity would be reached in approximately five years. The current SMMP for the 4.75 nmi^2 EPA Section 102 Mobile ODMDS was signed and implemented on April 30, 2015 and is set to expire on April 30, 2019. In a separate action, this 4.75 nmi^2 EPA Section 102 Mobile ODMDS SMMP will be extended an additional amount of time to ensure continued maintenance of the federally authorized Mobile Harbor navigation project can continue uninterrupted. Designation of the proposed 24 nmi^2 site is necessary for the continued use of the Mobile ODMDS based on historic use and future projected needs.

Based upon past Mobile Harbor dredging history records, the USACE, Mobile District developed projected estimates representative of anticipated dredging frequencies and quantities from the Federal Mobile Harbor navigation project. The Federal Mobile Harbor navigation project is segmented into the River, Bay, and Bar channels. Approximately 1,200,000 cys of dredged material is removed from the River channel on an annual basis. Dredged material removed from the river channel is typically placed within previously-approved upland disposal areas located in the upper harbor area, or the Mobile ODMDS (with Gaillard Island as a possible alternative under emergency conditions). Mobile Harbor has several upland disposal sites, used only for Mobile River sediments, which all have limited capacity (Resource Management Group, Inc. 2010). Approximately 400,000 cys are removed from the MHTB and placed at the Mobile ODMDS. The Bay channel historically requires annual O&M removal of approximately 4,000,000 cys of material to maintain channel dimensions. In the past, all material removed from the Bay channel was placed in the Mobile ODMDS or, under emergency conditions, at Gaillard Island. Approximately 300,000 cys of material is typically removed from the Bar channel annually. The sandy material from the Bar channel is typically removed by a hopper dredge and placed in the Sand Island Beneficial Use Area (SIBUA) (**Figure 4**). Use of the Mobile ODMDS for the Bar channel is also a disposal option, but typically only under emergency conditions. Although these are typical operations, dredging and material placement activities could occur at any time during the year, and in response to unforeseen shoaling.

Examining past ocean site usage since 1987 (**Table 3**), approximately 4,000,000 cys has typically been placed within the ODMDS per year. This number excludes the anomaly of 16,000,000 cys associated with the major improvements project in 1989. A total of 4,400,000 cys would be expected to be placed in the ODMDS due to the inclusion of projected maintenance from the MHTB. A recent change in dredging operations occurred in July 2014 with reinstatement of in bay open-water disposal practices associated with O&M material (Public Notice FP14-MH01-10). Until 2012, in bay open-water disposal had not been a standard option due to the above stated congressional authorization in WRDA of 1986. Since 2012, open-water in bay thin-layer disposal of dredged material has been utilized on an annual basis for O&M material from Mobile Harbor. First, in June 2012 approximately 9 million cys, under an emergency provision, were placed via thin-layer techniques throughout Mobile Bay due to increased shoaling and limited supplemental funding from hurricane related impacts to address the problem between the years 2006 and 2012. Subsequent events in 2014 (850,000 cys),

2015 (1,200,000 cys), 2016 (2,000,000 cys), and 2017 (2,400,000 cys) added more O&M material to various open-water sites adjacent to the navigation channel. The USACE, Mobile District anticipates approximately 1,500,000 cys of material dredged from within Mobile Bay could potentially be placed, annually, in authorized open-water disposal areas adjacent to the Federal Mobile Harbor navigation project. Thus, 2,900,000 cys of sediment still needing placement in the Mobile ODMDS are anticipated to be dredged annually to maintain the existing Federal Mobile Harbor navigation project.

Modification of the EPA Section 102 Mobile ODMDS (**Figure 3**) is necessary solely to accommodate O&M dredged material placement forecasted over the next 25 years (Appendix A). Additionally, the USACE, Mobile District had been preparing a Limited Reevaluation Report (LRR) to widen the Lower Bay channel to 500 feet and 700 feet in the Mobile Bar channel for approximately 7 miles. Consideration of the LRR ceased due to the Alabama State Port Authority (ASPA), the non-Federal sponsor, requesting in a letter dated June 21, 2014 to the USACE, Mobile District the commencement of a study to consider deepening and widening the Federal Mobile Harbor navigation project to federally authorized dimensions described in WRDA of 1986. This analysis is being studied as a General Reevaluation Report (GRR). The improvements under consideration are less than the fully authorized project dimensions. However, over the next 25-years, future construction could potentially increase the total new work material volume to approximately 90-100 million cys, if full authorized dimensions, or greater, are deemed necessary. The study is ongoing with the release of the Mobile Harbor GRR with Integrated SEIS in July 2018. Private applicants (Regulatory actions) may also request to use the Mobile ODMDS as a potential alternative for the disposal of dredged material. Limited upland disposal capacity, along with the need for Federal improvements to accommodate larger ships for private users, has been factored into the projections of future need for the Mobile ODMDS.

The proposed modification of the EPA Section 102 Mobile ODMDS covers an area approximately 24 nmi^2 (**Figure 3**), and can accommodate approximately 260,000,000 cys over the next 25 years, while also accounting for site/resource buffers as well as potential constraints. The overall area of the Mobile ODMDS is impacted by the presence of numerous oil drilling platforms, which have surrounding restriction zones of 1,300 feet (suggested by the Bureau of Ocean Energy Management (BOEM) safety recommendation). New oil platforms could be built in leased parcels within the ODMDS over the next 25 years, which would reduce capacity of the disposal site. While it is challenging to forecast platform placement and development within the disposal site, it is known that future capacity will be impacted by BOEM's regulated operations. Between 1975 and 2017, 15 platforms have been built within the Mobile ODMDS. Based on historic records, the USACE, Mobile District roughly estimates the potential for the construction of approximately up to 5 additional platforms in the newly modified ODMDS over the life of the project. An additional factor for consideration is the presence of pipelines running throughout the proposed Mobile ODMDS modification area. Consultation with BOEM staff indicates pipelines in this area of the Gulf of Mexico on the Outer Continental Shelf (OCS) will be buried (due to water depths and proximity to shore) and should pose no further restrictive operational limitation. Similarly, it is not anticipated that potential construction of oil platforms within the Mobile ODMDS will significantly limit the capacity of the site, nor will they present significant challenges to transit or operations within the ODMDS.

In summary, it is likely that approximately 260,000,000 cys will be proposed for disposal within the Mobile ODMDS over the next 25 years. This estimate comes from potential O&M dredging, improvement projects and subsequent O&M, and Regulatory actions such as material from the ASPA and other private industry sources. Likely private applicants capable of utilizing ocean disposal, for example, are Shell Chemical, Plains Marketing, Arc Terminal, and Austal

USA, which are all situated around Mobile Bay. **Table 4** illustrates the projected project need for the next 25 years. A contingency has been included for uncertainty in forecasting ability throughout the project life of the ODMDS. Uncertainty forecasting out 25 years includes attempting to account for future unanticipated dredging needs, higher than anticipated oil and gas rig development, and potential changes in buffer requirements etc.

Table 4. Projected ODMDS Capacity Need for 25-Year Project Life.

Projected ODMDS Capacity Need for 25 Year Project Life	
O&M	76,900,000
Construction to Authorized Project and O&M	138,000,000
Regulatory	10,000,000
Subtotal	224,900,000
15% Contingency	33,735,000
Total	**258,635,000**

1.4 Port of Mobile. The Port of Mobile is an industrial complex and trade and shipping distribution center. Large shipyards, cement and ready-mix concrete manufacturing plants, petroleum and asphalt refineries, lumber manufacturing plants, and chemical plants abound. Its harbor facilities include large oil terminals, the ASPA, and the Theodore Industrial Park, where a chemical plant, cement manufacturing plant, and a ferro-alloy plant operate. General cargo facilities at the ASPA have been greatly enhanced in recent years, with approximately $500,000,000 invested in port infrastructure, including new state-of-the-art wharves, warehouses and cranes. In 1995, the Port of Mobile handled 50,900,000 tons of cargo and was ranked 11th in the nation. In 2016, the Port ranked 10th, handling 58,024,317 tons of cargo according to the USACE Waterborne Commerce Statistics Center (http://www.navigationdatacenter.us/wcsc/porttons16.html). Forest products are the primary outbound general cargo at the ASPA comprising nearly 50 percent of total forest products moving through the Gulf Coast region. The highest export tonnage is coal. Another high-tonnage outbound product is petroleum. Primary inbound cargo at the Port of Mobile includes petroleum, coal, and iron ore. In 2016, the Port of Mobile handled 218,105 twenty-foot equivalent units (TEUs). The constructed $300,000,000 Choctaw Point Container Terminal has a projected capacity of approximately 800,000 TEUs annually. The MHTB allows a much larger class of vessels, exceeding 900 feet in length and beyond, to visit the port.

2.0 ALTERNATIVES TO THE PROPOSED ACTION. Four alternatives were considered for this proposed action. These alternatives are:

1. No Action/Continued use of the smaller EPA Section 102 Mobile ODMDS.
2. Modification of the existing EPA Section 102 Mobile ODMDS to encompass a portion of the boundary of the much larger Section 103 Mobile ODMDS – (i.e. approximately 24 nmi^2).
3. Modification of the existing EPA Section 102 Mobile ODMDS to encompass the previously selected USACE Section 103 Mobile ODMDS (i.e. approximately 46 nmi^2).
4. Use of the previously selected Mobile-South (**Figure 5**) ODMDS in place of the EPA Section 102 Mobile ODMDS.

Alternative 1. No Action /Continued use of the smaller EPA Section 102 Mobile ODMDS. Implementation of the “no action” alternative, which would result in the continued use

of the EPA Section 102 Mobile ODMDS for disposal of material dredged from the Federal Mobile Harbor navigation project, is deemed unacceptable. Implementation of this alternative would not address the need for an adequately sized Section 102 ODMDS to accommodate dredging projections, time limitations for USACE Section 103 selections, and/or any future private needs for ocean disposal. The EPA Section 102 Mobile ODMDS is too small and only provides disposal capacity up to five years. With a current SMMP in place, the smaller EPA Section 102 Mobile ODMDS could be utilized by private interests (Regulatory actions) but it is not adequately sized to meet the existing and projected disposal needs for proposed Federal new work and O&M projects. Thus, this alternative was not considered as a viable option.

Alternative 2. Modification of the existing EPA Section 102 Mobile ODMDS to encompass a portion of the boundary of the much larger Section 103 Mobile ODMDS. Modification of the existing EPA Section 102 Mobile ODMDS to encompass a portion of the boundaries of the larger Section 103 Mobile ODMDS is the preferred alternative and considered the most viable option (further discussion of this alternative will be referred to as Alternative 2 - Mobile ODMDS). A detailed justification for this preferred alternative is included in *Section 1.3 Purpose and Need for the Proposed Action*. The current EPA Section 102 Mobile ODMDS is relatively small and has a limited capacity of approximately five years if continued routine use occurs. Modifying the EPA Section 102 Mobile ODMDS would sustain the disposal needs for the federally authorized Mobile Harbor navigation project (including proposed deepening and widening), along with providing a disposal option for private interests. It is the most economic and environmentally feasible option. Modification of the ODMDS will also ensure adequate disposal capacity for the next 25 years, including proposed new work, O&M, and private dredging activities.

Alternative 3. Modification of the existing EPA Section 102 Mobile ODMDS to encompass the previously selected USACE Section 103 Mobile ODMDS (i.e. approximately 46 nmi^2)**.** Modification of the existing EPA Section 102 Mobile ODMDS to encompass the boundaries of the USACE selected Section 103 Mobile ODMDS was considered as the originally preferable alternative for this proposed modification. As such, the May 2010 *Final Report: Mobile ODMDS Designation Survey, Mobile, AL* was conducted based upon this larger ODMDS site. Through consultation with the EPA, Region 4 and the USACE, Mobile District in 2014, this alternative was deemed unacceptable. Although designating the USACE selected Section 103 as a Section 102 ODMDS would provide more than adequate site capacity, the overly large-sized ODMDS would far exceed the actual projected need for a 25-year project life set forth by the EPA/USACE Memorandum of Understanding (MOU) (2017). Original projections were based on a 50-year or greater project life thus requiring a site larger than is now deemed feasible. With the projections set forth in *Section 1.3 Purpose and Need for the Proposed Action* of this EA, a site more adequately sized was selected as the preferred alternative (Alternative 2 - Mobile ODMDS).

Alternative 4. Use of the previously selected Mobile-South ODMDS in place of the EPA Section 102 Mobile ODMDS. This alternative addressed the possible use of the previously selected Mobile-South ODMDS. This site was selected at the same time as the Mobile-North ODMDS in the mid 1980's. Primary concerns with use of the Mobile-South ODMDS were safety, logistics and additional cost. The sailing path for a hopper or scow from Mobile Harbor to the Mobile-South ODMDS would require traversing through two different Safety Fairways, one in a parallel direction and the other at a perpendicular angle to the Federal channel. Due to large vessel passing restrictions in the Mobile Ship Channel, typically there are at least 12 deep draft ships holding position in the Safety Fairway awaiting their turn to enter Mobile Harbor. Using the Mobile-South ODMDS would require constant coordination and logistical planning given the high volume of daily loads in addition to the added safety concerns

when towing scows on long lines in rough seas through numerous anchored deep draft vessels. The additional sail time added using the Mobile-South ODMDS is estimated to be approximately 25% to 30% greater, which under the current method of rental contracts represents $2,000,000 to $2,500,000 per contract (or $4,000,000 to $5,000,000 annually). Furthermore, this site has never been utilized for disposal of material while the northern site has historically been used for Mobile Harbor dredged material placement (i.e. reduces added environmental impacts). Therefore, use of the Mobile-South ODMDS was deemed unacceptable.

2.1 Comparison of Alternative Ocean Disposal Sites (5 General and 11 Specific Site Selection Criteria).

Table 5 presents an assessment of the extent to which the proposed Alternative 2 - Mobile ODMDS meets the five general site selection criteria 40 CFR Parts 228.5 (a) to (e). The Mobile ODMDS meets the general criteria.

Table 5. Compliance with General Criteria (40 CFR Part 228.5).

Regulation	Compliance/No Action Alternative Analysis
40 CFR Part 228.5(a) The dumping of materials into the ocean will be permitted only at sites in areas selected to minimize the interference of disposal activities with other activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation.	This area is a previously used disposal site so the marine environment has already been screened to avoid areas of existing critical fisheries or shellfisheries, and regions of heavy commercial or recreational navigation. Therefore, this site complies with 40 CFR § 228.5(a).
40 CFR Part 228.5(b) Locations and boundaries of disposal sites will be so chosen that temporary perturbations in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere within the site can be expected to be reduced to normal ambient seawater levels or to undetectable contaminant concentrations or effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.	The proposed ODMDS modification area will be used for disposal of suitable dredged material as determined by Section 103 of the MPRSA. Based on the USACE and the EPA sediment testing and evaluation of dredged maintenance and new work material, disposal is not expected to have any long-term impact on the water quality (ANAMAR 2010, EA Engineering 2011). The Mobile ODMDS is located sufficiently far from shore (two to six miles) and fishery resources to allow temporary water quality disturbances caused by placement of disposal material to be reduced to ambient conditions before reaching environmentally sensitive areas. Therefore, this site complies with 40 CFR § 228.5(b).
40 CFR Part 228.5(c) If at any time during or after disposal site evaluation studies, it is determined that existing disposal sites presently approved on an interim basis for ocean dumping do not meet the criteria for site selection set forth in Sections 228.5 through 228.6, the use of such sites will be terminated as soon as suitable alternate disposal sites can be designated.	This criterion does not apply as no existing sites are approved on an interim basis in the region.

40 CFR Part 228.5(d) The sizes of the ocean disposal sites will be limited in order to localize for identification and control any immediate adverse impacts and permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts. The size, configuration and location of any disposal site will be determined as a part of the disposal site evaluation or designation study.	The location, size, and configuration of the proposed action provides long-term capacity, site management, and site monitoring while limiting environmental impacts to the surrounding area to the greatest extent practicable. Based on 25 years of projected new work, maintenance, and Regulatory action dredged material disposal needs, it is estimated that the ODMDS modification area should be approximately 24 nmi^2 in size to meet the long-term disposal needs of the area. When determining the size of the proposed site, the ability to implement effective monitoring and surveillance programs, among other things, was factored in to ensure that navigational safety would not be compromised and to prevent mounding of dredged material, which could result in adverse wave conditions. A site management and monitoring program will be implemented to determine if disposal at the site is significantly affecting adjacent areas and to detect the presence of long-term adverse effects. At a minimum, the monitoring program will consist of bathymetric surveys, sediment grain size analysis, chemical analysis of constituents of concern in the sediments, and a health assessment of the benthic community. The SMMP is included in Appendix C. This site complies with 40 CFR § 228.5(d).
40 CFR Part 228.5(e) The EPA will, wherever feasible, designate ocean dumping sites beyond the edge of the continental shelf and other such sites that have been historically used.	It is not feasible to locate the disposal site near the continental shelf. It would be cost prohibitive in this case. The Mobile ODMDS is located near the dredging channel but far enough away from the nearest island so as not to cause any adverse environmental effect. Transporting material to and performing long-term monitoring of a site located off the continental shelf is not economically or operationally feasible. Furthermore, due to overlapping coordinates with the EPA Section 103 Mobile ODMDS, this site has been historically used by the USACE, Mobile District for the disposal of material dredged from the federally authorized Mobile Harbor navigation project. The EPA Section 102 Mobile ODMDS has also been used by private entities for the disposal of dredged material in the past (i.e. permitted Regulatory actions). Therefore, this site complies with 40 CFR § 228.5(e).

Table 6 summarizes the evaluation of the Mobile ODMDS alternatives against the 11 EPA Specific Site Selection Criteria (40 CFR Part 228.6 (a)).

Table 6. Mobile ODMDS Preferred vs. No Action Alternative and the EPA Specific Site Selection Criteria.

		Mobile ODMDS (preferred alternative)	No Action Alternative
1	Geographical position, depth of water, bottom topography, and distance from the coast.	Centered at 30 10.522˚ N and 88 09.593˚ W. The bottom topography is relatively flat with an average depth of 45 feet.	Centered at 30.1611˚ N and 88.1110˚W. The bottom topography is relatively flat with an average depth of 46 feet.
2	Location in relation to breeding, spawning, nursery, feeding, or passage areas of living resources in adult or juvenile phases.	This site is located in a marine open water area away from any special or unique habitats.	No action impacts would be similar to Alternative 2 – Mobile ODMDS.
3	Location in relation to beaches and other amenity areas.	The site is several miles from any beaches or amenity areas.	No action impacts would be similar to Alternative 2 – Mobile ODMDS modification area.
4	Types and quantities of wastes proposed to be disposed of, and proposed methods of release, including methods of packaging the waste, if any.	Dredged materials placed in this area are primarily clays and silts with some sands that originate from the Federal Mobile Harbor navigation project.	Due to overlapping coordinates with the EPA Section 103 Mobile ODMDS, most of the EPA Section 102 Mobile ODMDS has had material placed in it since the late 1970s. Therefore, the no action impacts would be similar to Alternative 2 – Mobile ODMDS.
5	Feasibility of surveillance and monitoring.	The EPA and USACE are responsible for site and compliance monitoring. The entire Mobile ODMDS was most recently surveyed and sampled in October 2017 (EPA 2018).	No action impacts would be similar to Alternative 2 – Mobile ODMDS.
6	Dispersal, horizontal transport, and vertical mixing characteristics of the area, including prevailing current direction and velocity, if any.	Current velocities are greatest at the surface due to the wind and wave action. Intermediate and bottom layer currents are driven by thermohaline and tidal circulations. During the 2009 survey, currents were predominately to the west or southwest on the order of 10-30 cm/sec.	No action impacts would be similar to Alternative 2 – Mobile ODMDS.
7	Existence and effects of current and previous discharges and dumping in the area (including cumulative effects).	Several million cubic yards of dredged material has previously been placed within the eastern portion of the disposal area.	Most of the EPA Section 102 Mobile ODMDS has had material placed in it since the late 1970s.
8	Interference with shipping, fishing, recreation, mineral extraction, desalination, fish and shellfish culture, areas of special scientific importance, and other legitimate uses of the ocean.	There will be minor short-term interferences with commercial and recreational boat traffic during the transport of dredged material. There are oil and gas extraction platforms in the Mobile ODMDS. The site has not been identified as	No action impacts would be similar to Alternative 2 – Mobile ODMDS.

		an area of special scientific importance. There are no fish/shellfish culture areas near the site. There may be recreational fishing in the area.	
9	Existing water quality and ecology of the site as determined by available data or by trend assessment or baseline surveys.	Survey results indicate that water quality is excellent in the area (Anamar 2010).	No action impacts would be similar to Alternative 2 – Mobile ODMDS.
10	Potentiality for the development or recruitment of nuisance species in the disposal site.	It is unlikely that any nuisance species would be transported to the site. The dredged area is relatively close to the Mobile ODMDS so the benthic organisms are similar in nature.	No action impacts would be similar to Alternative 2 – Mobile ODMDS.
11	Existence at, or in close proximity to, the site of any significant natural or cultural features of historical importance.	A plan will be implemented to ensure resources identified in the area are avoided and not adversely affected. Section 106 concurrence will be obtained for the proposed action.	No action impacts would be similar to Alternative 2 – Mobile ODMDS.

3.0 AFFECTED ENVIRONMENT

3.1 Sediments

Sediments along the Federal Mobile Harbor navigation project consist of sand to clays with various mixtures of sand, silt, and clay located throughout the channel. Sediments are primarily composed of sands in the Bar Channel; a mix of estuarine silty clays and clay in Mobile Bay; and clays in the Mississippi Sound (USACE 1980). Sediments are an important material affecting the physical, chemical and biological conditions for the environment. The natural sand and mud bottoms of the Mississippi Sound and Mobile Bay support a benthic infaunal population that contributes directly to the complex estuarine food web and provides important forage, spawning, and nursery areas for a variety of commercially and recreationally important fish and invertebrate species.

3.1.1 Physical. Physical and benthic analysis (see *Section 3.3*) of sediment and site water samples collected in the USACE Section 103 ODMDS (**Figures 6 & 7**) from October 19-23, 2009 (Mobile ODMDS Designation Survey) showed samples ranged from (99% sand - 1% silt/clay) to (99% silt/clay - 1% sand) with most samples having a higher percentage of silt/clay than sand. Sediment and benthic analysis conducted from October 26-31, 2017 (EPA 2018) showed samples consisting primarily of fine material (<0.075 mm clays and silt) and fine sand. There tended to be slightly more fine material on the northern portion of the study area, and more fine sand on the southern portion of the study area.

3.1.2 Chemical. A chemical analysis of the sediments during the 2009 Mobile ODMDS Designation Survey did not show any exceedingly high concentrations of contaminants. Analytical results were compared to published sediment screening values where appropriate for threshold effects level (TEL) and effects range low (ERL) criteria. The TEL represents the concentration below which adverse effects are expected to occur only rarely, and the ERL is the value at which toxicity may begin to be observed in sensitive species. All samples had detectable levels of most metals. Except for arsenic,

no metal in any sample exceeded the TEL or ERL. While arsenic was found in some samples to exceed the TEL or ERL, it is a common contaminant of marine sediments and has been found at similar levels in numerous MPRSA Section 103 evaluations on the East and Gulf coasts. Polynuclear Aromatic Hydrocarbons (PAHs) were detected in all samples. Four PAHs were detected in several samples above the TEL or ERL. PAHs are associated with fossil fuels. Several sample sites were in close proximity to one of many oil and gas platforms within the Gulf and could serve as possible sources of contaminants. Other sample results for Total Organic Carbon (TOC), oil and grease, pesticides, polychlorinated biphenyls (PCBs), and dioxins were detected but in most cases, the concentrations did not exceed the TEL or ERL.

The Status and Trends study conducted in 2017 had similar results to the Site Designation Study. Except for arsenic and dioxins, all organic and inorganic analytes (including metals, PCBs, pesticides, and semi-volatile organics) were either below analytical detection limits or below levels of concern for toxicity (TEL and Probable Effects Levels). Arsenic concentrations were slightly elevated above the TEL, or ERL, at several stations, but were at similar levels to the 2009 study. Dioxins were present at detectable levels above the TEL at most stations, but were all well below Probable Effects Levels.

3.2 Terrestrial Wildlife. Birds near the project may include: gulls, pelicans, terns, sandpipers, plovers, stilts, skimmers, oystercatchers, herons, red knot, egrets and ibises. Potential indirect effects may include ship-following behavior, temporary reductions or possible increase in prey items, and visual impairment of marine birds foraging in the vicinity of the disposal plume. No significant impacts to protected seabirds are expected as a result of the proposed action.

3.3 Benthos. The benthic community in the Mississippi Sound and lower Mobile Bay was classified by Vittor and Associates in a study of the Mississippi Sound and selected sites in the Gulf of Mexico (Vittor 1982). A total of 437 taxa were collected at densities ranging from 1,097 to 35,537 individuals per square meter (m^2). Generally, densities increase from fall through the spring months since most of the dominant species exhibit a late winter to early spring peak in production. These species, though sometimes low to moderate in abundance, occur in a wide range of environmental conditions. They are usually the most successful at early colonization and thus tend to strongly dominate the sediment subsequent to disturbances, such as dredged material disposal activities. These species include polychaetes *Mediomastus spp*., *Paraprionospio pinnata*, *Myriochele oculata*, polychaete worm *Owenia fusiformi, Lumbrineris app., Sigambra tentaculata*, the *Linopherus-Paraphinome* complex, and *Magelona cf. phyllisa*e. The phoronid*, Phoronis ap*. and the cumacean *Oxyurostylis spp.* also fit this category. *M. oculata* and *O. fusiformis* are predominate species in the Mississippi Sound. The numerically dominant species collected during the study were polychaete worm *M. californiensis* and *P. pinnata*.

As part of its management of ODMDSs, the EPA conducts routine (10 year) status and trend assessment surveys at each disposal site. The purpose of trend assessment surveys is to determine the physical, chemical, geological, and biological structure of the existing ODMDS at the time of survey. A benthic monitoring study was conducted at the USACE Section 103 selected ODMDS in October 2009 (**Figure 6**) from the same sampling locations of the sediment sampling referenced in *Section 3.1.1*. Thirty benthic monitoring stations were located within the disposal area. A total of 1,448 organisms, representing 162 taxa, were identified from 30 stations within the Mobile ODMDS. Polychaetes were the most numerous organisms present representing 49% of the total assemblage and were followed in abundance by other taxa

sipunculids and *rhynchocoels* (4.1%), gastropods (10.9%), bivalves (10.6%), and malacostracans (10.2%) (Anamar 2010). The microinfaunal assemblages found in 2009 were very similar in taxa composition to benthic assemblages identified in the 1982 survey, indicating little or no change in either the distribution or abundance of macroinvertebrate taxa. Any variability seen between stations in the Mobile ODMDS can be attributed to localized differences in sediment compositions (Vittor 2010). Fourteen of the stations sampled in October 2009 were again sampled during the 2017 Status and Trends study. There were no significant differences in macroinvertebrate taxa richness, density, diversity, or evenness between the two studies. The macroinfaunal assemblages, dominated by polychaetes, are typical of nearshore, shallow-water benthic habitats (Vittor 2018).

3.4 Motile Invertebrates. Marine shrimp are by far the most popular seafood in the United States. There are many species of shrimp found in the Gulf of Mexico; however, only those of the family *Penaeidae* are large enough to be considered seafood. Brown shrimp (*Penaeus aztecus*), white shrimp (*P. setiferus*) and pink shrimp (*P. duorarum*) make up the bulk of Alabama shrimp landings. The life cycles of brown, white and pink shrimp are similar. They spend part of their life in estuaries, bays and the Gulf of Mexico with spawning occurring in the Gulf of Mexico. One female shrimp releases 100,000 to 1,000,000 eggs that hatch within 24 hours. Post-larval shrimp develop through several stages as they are carried shoreward by winds and currents. Post-larvae drift or migrate to nursery areas within shallow bays, tidal creeks, and marshes where food and protection necessary for growth and survival are available. There they acquire color and become bottom dwellers. If conditions are favorable in nursery areas, the young shrimp grow rapidly and soon move to the deeper water of the bays. When shrimp reach juvenile and subadult stages (three to five inches long), they usually migrate from the bays to the Gulf of Mexico where they mature and complete their life cycles. Most shrimp will spend the rest of their life in the Gulf, both inside and outside of the boundary of the Mobile ODMDS.

3.5 Fishes. A number of studies evaluating the fish and invertebrates of Alabama estuaries have been conducted. These studies looked at species abundance and diversity in coastal waters. The nearshore and marsh species are comprised largely of fish in the families, *Poeciliidae*, *Cyprinodontidae*, and *Atherinidae,* which serve as prey for the Southern flounder (*Paralichthys lethostigma)* and seatrout (*Cynoscion spp.),* both important sport and commercial species. Common migratory fish in the study area are Atlantic croaker (*Micropogonias undulates)*, spot (*Leiostomus xanthurus)*, and sand seatrout (*Cynoscion arenarius)*. Important forage fish within the area are pelagic species, including bay anchovy (*Anchoa mitchilli)*, striped anchovy (*Anchoa hepsetus)*, and Gulf menhaden (*Brevoortia patronus)*. The most commercially important shellfish found in the area include brown and white shrimp, blue crab, and American oyster (Swingle 1971, Swingle & Bland 1974).

Most marine species considered to be of significant economic importance utilize open water areas of the Gulf of Mexico for spawning purposes rather than the confines of semi-enclosed estuaries. However, almost all of these species, except for anadromous forms, migrate seaward seasonally for spawning. Larvae and early juveniles then move to estuaries, which serve as nursery grounds. Estuaries provide larvae and juveniles with protective habitat, an influx of freshwater, a continuous mixing zone, and an abundance of food supply. This phenomenon is documented in scores of publications, notably Christmas and Waller (1973), Loyacano and Smith (1979), and Benson (1982).

Shipp (1983) documented this utilization activity by numerous species, such as the bay anchovy (*Anchoa mitchilli*), the speckled, or spotted, sea trout (*Cynoscion nebulosus*), and the red fish or red drum (*Sciaenops ocellatus*) in the immediate vicinity of the Mobile ODMDS.

Pattillo *et al.* (1997) summarized the life history and environmental tolerances for three species of shrimp in this region. The bay anchovy spawns throughout estuaries and nearshore Gulf of Mexico waters. Large numbers of these fish inhabit the lower estuaries and near-shore waters during warm months. The Mobile ODMDS does provide suitable spawning habitat for the bay anchovy but no data exist to indicate this particular site is more suitable than another.

Spotted sea trout and red fish are species of concern to coastal states due to their game fish importance. The red drum is an important recreational species throughout its range. Juveniles generally live in estuaries and move to near-shore oceanic waters, such as Mobile ODMDS, as they reach maturity (Pearson 1929). Adults range widely over the nearshore continental shelf waters throughout the year but apparently move to coastal waters to spawn (Overstreet 1983). Spawning is generally thought to take place in coastal waters near inlets (Jannke 1971, Holt *et al.* 1985) although Lyczkowski-Shultz *et al*. (1988) found eggs and larvae out to 20 miles from shore in the eastern Gulf of Mexico. It is believed that water temperature and salinity levels are more important to the spawning of the spotted sea trout than a specific location because newly hatched spotted sea trout will not survive low salinity and low temperature conditions. Optimum spawning conditions for spotted sea trout exist when salinity is 20 to 34 parts per thousand (ppt) and temperatures reach 70° to 90° Fahrenheit (F). Spawning takes place at night in coastal bays, sounds, and lagoons, near passes, and around barrier islands from March through November. Females may lay up to 10,000,000 eggs. The eggs hatch within 20 hours and are transported to estuaries by winds and currents. Juveniles spend two to four years in shallow grassy areas and then tend to move into the near-shore passes and along beaches.

The Mobile ODMDS could possibly serve as a spawning site for these species since both are known to spawn in lower estuaries, in near-shore areas, and around barrier islands (Perret *et al.* 1980, Williams *et al.* 1980, Benson 1982). In a literature review, Wade (1980) noted that earliest observations of data implied intra-estuarine spawning, while more recent data, relying more heavily on empirical observations of the presence and transport of eggs and larvae, indicated that most spawning is really salinity dependent, and in fact more activity is concentrated just off the barrier islands than previously thought. Studies indicated large numbers of eggs and larvae of several species of drum, including both the spotted sea trout and red drum, are present at the Mobile ODMDS (Shipp 1983). The passes into the Mobile Bay estuary are the lanes of transport for these larvae leading into the Bay. These passes are located near the vicinity of the Mobile ODMDS. Thus, strong evidence support that all nearshore areas are important spawning areas for these species, and the Mobile ODMDS is not unique in their importance. Spawning location for the red drum is more definitive. Christmas and Waller (1973) report spawning of red drum outside of the Mississippi barrier islands, near to passes, and indicate no mature females have ever been taken in estuarine waters along their area of study.

3.6 Essential Fish Habitat. Congress defines EFH as “those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity.” The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. The GMFMC and NMFS have identified EFH for the Gulf of Mexico in its Fishery Management Plan Amendments. These habitats include estuarine areas, such as estuarine emergent wetlands, seagrass beds, algal flats, and mud, sand, shell, and rock substrates. In addition, marine areas, such as the water column, vegetated and non-vegetated bottoms, artificial and coral reefs, geologic features and continental shelf features, have also been identified. The habitat within the vicinity of the project consists of open-water marine environment with a sandy or silty/clay bottom and subject to high wave action and currents. These physical conditions within the site afford many species of fish and fish prey items suitable

habitat for subsistence and continued population growth (GMFMC 1998, 2004, 2005 & 2010, and Froese & Pauly 2007).

Epibenthic crustaceans and infaunal polychaetes dominate the diets of higher trophic levels, such as flounder, catfish, croaker, porgy, and drum. The fish species composition of the estuarine and offshore area along the northern Gulf of Mexico is of a high diversity due to the variety of environmental conditions, which exist within the area. The major fisheries landed along the Mississippi and Alabama Gulf coast are Spanish mackerel (*Scomberomerus maculatus*), king mackerel (*Scomberomerus cavalla*), cobia (*Rachycentron canadum*), bluefish (*Pomatomus saltatrix*), pompano (*Trachinotus carolinus*), little tunny (*Euthynnus alletteratus*), spotted sea trout (*Cynoscion nebulosus*), red drum (*Sciaenops ocellatus*), and several shark species. In addition, numerous species of less interest may be taken, including ladyfish (*Elops saurus*), crevalle jack (*Caranx hippos*), blue runner (*Caranx crysos*), and black drum (*Pogonias cromis*). Trawlers work the area primarily for brown and white shrimp (*Peneus aztecus* and *P. setiferous*), but occasional trawlers seeking finfish species, including menhaden (*Brevoortia patronus*) and croaker (*Micropogonias undulatus*), as well as other industrial species may trawl this bottom type (GMFMC 1998, 2004 & 2005, and Froese & Pauly 2007).

The Mississippi Sound and adjacent waters have been identified as important nursery areas for nine sharks, primarily Atlantic sharpnose, blacktip, finetooth, and bull sharks. Less prevalent species are the spinner, blacknose, sandbar, bonnethead, and scalloped hammerhead. Typically, sharks migrate inshore in the early spring around March and April, remain inshore during the summer months and then migrate offshore during the late fall around October. Most shark species in Alabama waters give birth during late spring and early summer, with young sharks spending just a few months of their life in shallow coastal waters. Most shark species are abundant around barrier islands, with adult sharks commonly located south of the barrier islands (Carlson *et al.* 2003).

***3.6.1 Oyster Reefs*.** Oyster reefs of commercial importance are subtidal and form aggregates that cover thousands of acres (1,045 hectares of mapped oyster reef (Zu Ermgassed *et al*. 2012)) of bay bottom throughout coastal Alabama. The oysters inhabit shallow estuarine waters during all life stages. The primary oyster reefs of Alabama are located in the southwestern portion of Mobile Bay (Cedar Point, Sand Reef Buoy, Dauphin Island Bay, Kings Bayou, Peavy Island Reef and White House Reef). Oyster reefs are also located to the east in Bon Secour Bay and to the west in Portersville Bay. There are small, scattered patches of oysters especially along the western shore of Mobile Bay in addition to the riparian beds located in Heron Bay and the Mississippi Sound (May 1971, Tatum *et al*. 1996). A large-scale relocation of 6,000,000 pounds of oysters in Mobile Bay from a reef near the Brookley airfield to the nearly vanished White House reef further south below Fowl River was completed in 2010. Oyster reefs are particularly productive biological areas. Numerous animals and plants are associated with the oyster reef community including algae, sponges, hydroids, polychaetes, other mollusks, barnacles, bryozoans, tunicates, and a number of fish species.

3.6.2 Submerged Aquatic Vegetation. The Mobile Bay National Estuary Program funded a survey of submerged aquatic vegetation (SAV) in coastal Alabama in summer and fall 2002, fall of 2008, summer of 2009, and summer and fall of 2015. This work included ground-truthed photo-interpreted aerial imagery of SAVs and field site visits (Vittor and Associates, 2002 & 2009 & 2016). A total of 6,588.9 acres of SAV were mapped in 2002. In 2009, a total of 5,248.7 acres and in 2015 a total of 9,123.5 acres of SAV were mapped. Reasons for this acreage variation are unclear, and appear to

depend on complex system interactions. In addition to natural storm events, such as Hurricanes Ivan and Katrina, physical factors, such as light, temperature, salinity, and wave energy, control SAV distribution. For Mobile Bay, the greatest decrease in SAV coverage occurred in the northern extent of the survey area, the Mobile Delta (Vittor 2009). SAV is a vital habitat and a critical component in thriving estuaries. SAV provides shelter for fish and invertebrates, nursery habitat for commercially and recreationally important finfish and shellfish species, a food source for over-wintering waterfowl, and prevention against erosion through sediment stabilization. Due to numerous physical conditions (i.e. water depth and light penetration) the Mobile ODMDS does not harbor any SAV beds or communities that would be impacted by the proposed modification of the Mobile ODMDS. The area is located approximately two to six miles south of Dauphin Island, Alabama in water depths greater than 35 feet.

3.6.3 Wetlands. Tidal marshes are located along the Mobile Bay and Mississippi Sound shorelines. These marshes are typically bordered along the water's edge by a strip of salt marsh grass, *Spartina alterniflora*, with scattered stands of *S. cynosuroides, S. patens, Distichilis spicata,* and *Phragmites communis*. Most of the marsh inside of this strip is composed of *Juncus roemerianus* (Swingle 1971). Coastal wetlands, like inland wetlands, are among the most productive ecosystems on Earth. Mobile Bay wetlands provide shelter and food for a variety of unique and ecologically, commercially, and recreationally important fish and invertebrates including juvenile shrimp, blue crab, and oysters. The proposed action area within the Mobile ODMDS does not include any wetlands and no wetland resources would be impacted.

Species managed by the GMFMC are listed in **Table 7** below:

Table 7. Fishery Management Plans and Managed Species for the Gulf of Mexico.

Fishery Management Plans and Managed Species for the Gulf of Mexico (NMFS rev. 4/11/17)

Shrimp Fishery Management Plan

Brown shrimp – *Farfantepenaeu aztecus*
Pink shrimp - *Farfantepenaeu duorarum*
Royal red shrimp - *Pleoticus robustus*
White shrimp - *Litopenaeus setiferus*

Reef Fish Fishery Management Plan

Almaco jack – *Seriola rivoliana*
Banded rudderfish – *Seriola zonata*
Blackfin snapper - *Lutjanus buccanella*
Black grouper- *Mycteroperca bonaci*
Blueline tilefish – *Caulolatilus microps*
Cubera snapper – *Lutjanus cyanopterus*
Gag grouper - *Mycteroperca microlepis*
Goldface tilefish – *Caulolatilus chrysops*
Goliath grouper - *Epinephelus itajara*
Gray snapper – *Lutjanus griseus*
Gray triggerfish - *Balistes capriscus*
Greater amberjack – *Seriola dumerili*
Hogfish - *Lachnolaimus maximus*
Lane snapper - *Lutjanus synagris*
Lesser amberjack - *Seriola fasciata*
Mutton snapper – *Lutjanus analis*
Queen snapper - *Etelis oculatus*
Red grouper – *Epinephelus morio*
Red snapper - *Lutjanus campechanus*
Scamp grouper - *Mycteroperca phenax*
Silk snapper – *Lutjanus vivanus*
Snowy grouper – *Hypothurudus niveatus*
Speckled hind - *Epinephelus drummondhayi*
Tilefish - *Lopholatilus chamaeleonticeps*
Vermilion snapper - *Rhomboplites aurorubens*
Warsaw grouper – *Hypothurudus nigritus*
Wenchman - *Pristipomoides aquilonaris*
Yellowedge grouper – *Hypothurudus flavolimbatus*
Yellowfin grouper – *Mycteroperca venenosa*
Yellowmouth grouper – *Mycteroperca interstitialis*
Yellowtail snapper – *Ocyurus chrysurus*

Spiny Lobster Fishery Management Plan

Caribbean Spiny lobster - *Panulirus argus*

Coral and Coral Reef Fishery Management Plan

Hydrozoa (stinging and hydrocorals) and Hexacorals stony and black)
*There are over 140 spp of corals listed in the Coral Fishery Management Plan.

Coastal Migratory Pelagic Fishery Management Plan

Cobia - *Rachycentron canadum*
King mackerel – *Scomberomorus cavalla*
Spanish mackerel - *Scomberomorus maculatus*

Red Drum Fishery Management Plan

Red drum - *Sciaenops ocellatus*

Species in the Fishery but Not in the Management Unit

Cero – *Scomberomorus regalis*
Little tuny – *Euthynnus alletteratus*
Dolphin – *Coryphaena hippurus*
Bluefish – *Pomatomus saltatrix (Gulf of Mexico)*

3.7 Threatened and Endangered Species. Several species of threatened and endangered marine mammals, turtles, fish and birds occur in the Gulf of Mexico off the coast of Alabama. The NMFS, Protected Resource Division (PRD) and United States Fish and Wildlife Service (USFWS) list the following species in **Table 8** as either threatened and/or endangered that may potentially occur within the project area:

Table 8. Threatened and Endangered Species (NOAA and USFWS 2015)

LISTED SPECIES	SCIENTIFIC NAME	STATUS	DATE LISTED
Marine Mammals			
Finback whale	*Balaenoptera physalus*	Endangered	12/02/70
Humpback whale	*Megaptera novaengliae*	Endangered	12/02/70
Sei whale	*Balaenoptera borealis*	Endangered	12/02/70
Sperm whale	*Physeter macrocephalus*	Endangered	12/02/70
West Indian manatee	*Trichechus manatus*	Endangered	03/11/67
Sea Turtles			
Green sea turtle	*Chelonia mydas*	Threatened	07/28/78
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	06/02/70
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered	12/02/70
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	06/02/70
Loggerhead sea turtle	*Caretta caretta*	Threatened	07/28/78
Fish			
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	Threatened	09/30/91
Birds			
Piping plover	*Charadrius melodus*	Threatened	12/11/85
Interior least tern	*Sterna antillarum*	Endangered	05/28/85
Red knot	*Calidris canutus rufa*	Threatened	12/11/14

Finback whales are the second-largest species of whale. Finback whales can be found in social groups of two to seven whales in the North Atlantic and are often seen feeding in large groups that include humpback whales, minke whales, and Atlantic white-sided dolphins (Jefferson *et al*. 2008). Finback whales are found in deep, offshore waters of all major oceans, primarily in temperate to polar latitudes, and less commonly in the tropics. They occur year-round in a wide range of latitudes and longitudes, but the density of individuals in any one area changes seasonally. Humpback whales are well known for their long pectoral fins, which can be up to 15 feet (4.6 m.) in length. In the summer, humpbacks are found in high latitude feeding grounds, such as the Gulf of Maine in the Atlantic and Gulf of Alaska in the Pacific. In the winter, they migrate to calving grounds in subtropical or tropical waters, such as the Dominican Republic in the Atlantic and the Hawaiian Islands in the Pacific. During the summer months, humpbacks spend the majority of their time feeding and building up fat stores (blubber) that they will live off of during the winter. Humpbacks filter feed on tiny crustaceans (mostly krill), plankton, and small fish and can consume up to 3,000 pounds (1,360 kilograms (kg)) of food per day. Several hunting methods involve using air bubbles to herd, corral, or disorient fish.

Sei whales (pronounced "say" or "sigh") are members of the baleen whale family and are considered one of the "great whales". When at the water's surface, sei whales can be sighted by a columnar or bushy blow that is about 10-13 feet (3-4 m) in height. The dorsal fin usually appears at the same time as the blowhole, when the animal surfaces to breathe. This species usually does not arch its back or raise its flukes when diving. Sei whales are usually observed singly or in small groups of two to five animals, but are occasionally found in larger (30-50) loose aggregations. Sei whales prefer subtropical to sub-polar waters on the continental shelf edge and slope worldwide. They are usually observed in deeper waters of oceanic areas far from the coastline.

The sperm whale is distinguished by its extremely large head, which takes up to 25 to 35% of its total body length. It is the only living cetacean that has a single blowhole

asymmetrically situated on the left side of the head near the tip. Because sperm whales spend most of their time in deep waters, their diet consists of many larger organisms that also occupy deep waters of the ocean. Their principle prey are large squid weighing between 3.5 ounces and 22 pounds (0.1 kg and 10 kg), but they will also eat large demersal and mesopelagic sharks, skates, and fishes. Sperm whales tend to inhabit areas with a water depth of 1968 feet (600 m) or more, and are uncommon in waters less than 984 feet (300 m) deep. Female sperm whales are generally found in deep waters (at least 3,280 feet, or 1,000 m) of low latitudes (less than 40°, except in the North Pacific where they are found as high as 50°). These conditions generally correspond to sea surface temperatures greater than 15° centigrade (C), and while female sperm whales are sometimes seen near oceanic islands, they are typically far from land.

West Indian manatee are typically found in the temperate and equatorial waters of the southeastern U.S., the Caribbean basin, northern and northeastern South America, and equatorial West Africa. Locally, West Indian manatee migrate along the Gulf coast from Florida to Louisiana as a seasonal transient. The project area does not provide specific habitat requirements and it is very unlikely that the animal would be adversely impacted due to their mobility and the likelihood individuals would avoid the project area during disposal operations.

Adult green turtles are unique among sea turtles in that they eat only plants; they are herbivorous, feeding primarily on seagrasses and algae. This diet is thought to give them greenish-colored fat, from which they take their name. While nesting season varies from location to location in the southeastern U.S., females generally nest in the summer between June and September; peak nesting occurs in June and July. During the nesting season, females nest at approximately two-week intervals. They lay an average of five nests, or "clutches." Green turtle nests contain an average of 135 eggs, which will incubate for approximately two months before hatching. Adult females migrate from foraging areas to mainland or island nesting beaches and may travel hundreds or thousands of miles each way. After emerging from the nest, hatchlings swim to offshore areas, where they are believed to live for several years, feeding close to the surface on a variety of pelagic plants and animals. Once the juveniles reach a certain age/size range, they leave the pelagic habitat and travel to nearshore foraging grounds. Once they move to these nearshore benthic habitats, adult green turtles are almost exclusively herbivores, feeding on sea grasses and algae. Green sea turtles have been found in the project vicinity.

The hawksbill turtle is small to medium-sized compared to other sea turtle species. Their head is elongated and tapers to a point, with a beak-like mouth that gives the species its name. The shape of the mouth allows the hawksbill turtle to reach into holes and crevices of coral reefs to find sponges, their primary food source as adults, and other invertebrates. Male hawksbills mature when they are about 27 inches (70 centimeters (cm)) long. Females mature at about 30 inches (80 cm). Female hawksbills return to the beaches where they were born (natal beaches) every two to three years to nest, usually high up on the beach under or in the beach/dune vegetation. They commonly nest on pocket beaches, with little or no sand. Hawksbill turtles tend to nest at night, approximately every 14-16 days during the nesting season. The nesting season varies with locality, but in most locations occurs sometime between April and November. A female hawksbill generally lays three to five nests per season, which contain an average of 130 eggs. Hawksbill turtles use different habitats at different stages of their life cycle, but are most commonly associated with healthy coral reefs. The ledges and caves of coral reefs provide shelter for resting hawksbills both during the day and at night. Hawksbills are known to inhabit the same resting spot night after night. Hawksbills are also found around rocky outcrops and high energy shoals, which are also optimum sites for sponge growth. They are also known to inhabit mangrove-fringed bays and estuaries,

particularly along the eastern shore of continents where coral reefs are absent. These turtles are not historically found in the project vicinity.

Kemp's ridley sea turtles are considered the smallest marine turtle in the world. Their top shell (carapace) is often as wide as it is long and contains five pairs of costal "scutes". Each of the front flippers has one claw while the back flippers may have one or two. Kemp's ridleys display one of the most unique synchronized nesting habits in the natural world. Large groups of Kemp's ridleys gather off a particular nesting beach near Rancho Nuevo, Mexico, in the state of Tamaulipas. Wave upon wave of females come ashore and nest in what is known as an "arribada," which means "arrival" in Spanish. Adult Kemp's primarily occupy "neritic" habitats. Neritic zones typically contain muddy or sandy bottoms where prey can be found. Their diet consists mainly of swimming crabs, but may also include fish, jellyfish, and an array of mollusks. Depending on their breeding strategy, male Kemp's ridleys appear to occupy many different areas within the Gulf of Mexico. Some males migrate annually between feeding and breeding grounds, yet others may not migrate at all, mating with females opportunistically encountered. Female Kemp's have been tracked migrating to and from nesting beaches in Mexico. Females leave breeding and nesting areas and continue on to foraging zones ranging from the Yucatán Peninsula to southern Florida. Some females take up residence in specific foraging grounds for months at a time, leading scientists to suggest that females have a goal-oriented migration, opposed to the suggested wandering strategy employed by olive ridleys. Kemp's ridleys rarely venture into waters deeper than 160 feet (50 m) (Byles & Plotkin 1994). Kemp's ridley sea turtles are frequently found in the project vicinity.

The leatherback is the largest turtle--and one of the largest living reptiles--in the world. The leatherback is the only sea turtle that doesn't have a hard bony shell. A leatherback's top shell (carapace) is approximately 1.5 inches (4 cm) thick and consists of leathery, oil-saturated connective tissue overlaying loosely interlocking dermal bones. Their carapace has seven longitudinal ridges and tapers to a blunt point. Female leatherbacks lay clutches of approximately 100 eggs on sandy, tropical beaches. Females nest several times during a nesting season, typically at eight to 12 day intervals. Leatherbacks don't have the crushing chewing plates characteristic of other sea turtles that feed on hard-bodied prey (Pritchard 1971). Instead, they have pointed tooth-like cusps and sharp-edged jaws that are perfectly adapted for a diet of soft-bodied pelagic (open ocean) prey, such as jellyfish and salps. Leatherbacks are commonly known as pelagic animals, but they also forage in coastal waters. In fact, leatherbacks are the most migratory and wide ranging of sea turtle species. Leatherbacks mate in the waters adjacent to nesting beaches and along migratory corridors. After nesting, female leatherbacks migrate from tropical waters to more temperate latitudes, which support high densities of jellyfish prey in the summer. Leatherback sea turtles have occasionally been noted along the Gulf Coast. Leatherback sea turtles are not commonly seen in the vicinity of the Mobile ODMDS. However, as with all sea turtle species, Mobile District would implement management strategies through NMFS-PRD coordination and the GRBO for hopper dredging (2003, amended 2005 & 2009).

Loggerheads were named for their relatively large heads, which support powerful jaws and enable them to feed on hard-shelled prey, such as whelks and conch. The top shell (carapace) is slightly heart-shaped and reddish-brown in adults and sub-adults, while the bottom shell (plastron) is generally a pale yellowish color. The neck and flippers are usually dull brown to reddish brown on top and medium to pale yellow on the sides and bottom. Loggerheads nest on ocean beaches, generally preferring high energy, relatively narrow, steeply sloped, coarse-grained beaches. In the southeastern U.S., mating occurs in late March to early June and females lay eggs between late April and early September. Females lay three to five nests (sometimes more) during a single nesting season. The eggs incubate approximately two

months before hatching sometime between late June and mid-November. NMFS and the USFWS designated critical habitat for the Northwest Atlantic Distinct Population Segment for loggerhead sea turtles in waters and beach habitat of the Gulf of Mexico and along the coast of the U.S. Atlantic Ocean. Loggerhead sea turtles are frequently spotted offshore of Alabama and the Gulf Coast. Loggerheads have been noted to be within the proposed project area and Mobile District implements management strategies set forth through NMFS-PRD coordination and the GRBO (2003, amended 2005 & 2009). Loggerhead sea turtle nearshore reproductive critical habitat was designated on July 10, 2014 in the State of Alabama. There are also areas of *Sargassum* habitat within the larger area far south, approximately 155 miles, of the proposed Mobile ODMDS modification area, far removed from impact.

Gulf sturgeon are anadromous fish, inhabiting coastal rivers from Louisiana to Florida during the warmer months, and the Gulf of Mexico and its estuaries and bays in the cooler months. Gulf sturgeon are bottom feeders, and eat primarily macroinvertebrates, including brachiopods, mollusks, worms, and crustaceans. All foraging occurs in brackish or marine waters of the Gulf of Mexico and its estuaries; sturgeon do not forage in riverine habitat. Gulf sturgeon migrate into rivers to spawn in the spring; spawning occurs in areas of clean substrate comprised of rock and rubble. Their eggs are sticky, sink to the bottom, and adhere in clumps to snags, outcroppings, or other clean surfaces. Alabama state waters and adjacent offshore areas are not listed as designated critical habitat for the Gulf sturgeon but the fish may frequent the project area.

Piping plovers are small, stocky shorebirds with a sand-colored upper body, a white underside, and orange legs. During the breeding season, adults have a black forehead, a black breast band, and an orange bill. Piping plovers use wide, flat, open, sandy beaches with very little grass or other vegetation. Nesting territories often include small creeks or wetlands. Piping plovers are migratory birds, in the spring and summer they breed in the northern United States and Canada. There are three locations where piping plovers nest in North America: the shorelines of the Great Lakes, the shores of rivers and lakes in the Northern Great Plains, and along the Atlantic Coast. Their nesting range has become smaller over the years, especially in the Great Lakes area. In the fall, plovers migrate south and winter along the coast of the Gulf of Mexico or other southern locations. Approximately 35% of the piping plover's total breeding population winters on the Gulf coast between Florida and Texas (NatureServe 2013). The USFWS has designated the Gulf of Mexico coastline, Horn Island, Petit Bois Island, Dauphin Island, and Round Island as critical habitat for the wintering piping plovers (USFWS 2014). There is no critical habitat designated for piping plover within the project area and as the site is an open-water placement area, there is no suitable habitat for the species to utilize during its migratory track.

Red knot typically utilize similar habitat to that of piping plovers (*Charadrius melodus*). Red knot are federally threatened shorebirds that migrate approximately 9,300 miles annually from the polar regions of the Canadian Arctic to Tierra del Fuego, South America. Over-wintering individuals during migration utilize marine habitats such as coastal areas along the northern Gulf of Mexico shorelines and exposed sandy beaches at or near tidal inlets or the mouths of bays and estuaries. Upland and exposed sandy dredged material placement areas associated with the proceeding project descriptions could also be utilized by over-wintering individuals. Red knots feed on invertebrates, especially bivalves, small snails, and crustaceans on coastal beaches during migration; and a variety of other habitats, including peat banks, saltmarshes, and brackish lagoons.

The Interior Least Tern is the smallest of the terns found in North America. These eight to nine inch birds have a black "crown" on their head, a snowy white underside and forehead,

grayish back and wings, orange legs, and a yellow bill with a black tip. Historically, least terns nest on barren to sparsely vegetated sandbars along rivers, sand and gravel pits, lake and reservoir shorelines, and occasionally gravel rooftops. They hover over and dive into standing or flowing water to catch small fish. Much of their natural habitat has been lost because of broad-scale changes to our natural river systems that include invasive plants, dams and reservoirs, river channelization, bank stabilization, hydropower generation, and water diversion. The interior least tern breeding season is April through August. Nesting in small colonies, least tern nests are shallow depressions scraped in open sandy areas, gravelly patches, or exposed flats. Both parents incubate their eggs for about 24 days. Interior least terns breed in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems. They winter along coastal areas of Central and South America and the Caribbean Islands, but not a lot is known about their wintering areas. The species would only be present in the project area as transient individuals migrating between wintering and summer habitat areas. There is no critical habitat designated for least terns within the project area and as the site is an open-water placement area, there is no suitable habitat for the species to utilize during its migratory track.

3.8 Water Quality. Water quality within Mississippi Sound is influenced by several factors, including the discharge of freshwater from rivers, seasonal climate changes, and variations in Gulf tide and currents. The primary driver of water quality is the rivers that feed into the Sound. Freshwater inputs from the local watersheds provide nutrients and sediments that serve to maintain productivity both in the Sound and in the extensive salt marsh habitats bordering estuaries of the Sound. The salt marsh habitats act to regulate the discharge of nutrients to coastal waters and serve as a sink for pollutants. Suspended sediments enter the Sound from freshwater sources, but are hydraulically restricted due to barrier islands. In addition, dynamic features such as the Loop Current, eddies, and river plumes create variations in temperature, salinity, and water density. Temperature and salinity strongly influence chemical, biological, and ecological patterns and processes. Differences in water density affect vertical ocean currents and may also concentrate buoyant materials, such as detritus and plankton. Greatest stratification in the water occurs in summer (Thompson *et al.* 1999). Site specific water quality parameters were measured for the Mobile ODMDS Designation Survey (Anamar 2010). Results are included in Attachment A: Conductivity, Temperature, Depth (CTD) Measurements which sampled for, among other parameters, temperature, salinity, and dissolved oxygen (Anamar 2010).

The Alabama Department of Environmental Management (ADEM) has classified coastal waters in the project area as suitable for recreation, propagation of fish and wildlife and shellfish harvesting. Sufficient dissolved oxygen concentrations, water clarity, and typical salinity ranges with little to no stratification in the water column occur within this site (Anamar 2010). Water quality within the project area is influenced mainly by non-point source pollution. In the Final 2016 303(d) list, a portion of Mobile Bay was removed from the impaired list, due to the development of more targeted measures of pathogen concentrations in the Bay. These measures demonstrated that certain portions of Mobile Bay were meeting standards for pathogen concentrations, and warranted removal from the impaired waters list. This change was approved by EPA on October 5, 2015. The draft 2018 303(d) list continues to show pathogens introduced by urban runoff and sewer systems as a main cause of water quality degradation in the remaining impaired portion of Mobile Bay.

Physical and chemical water quality conditions along with benthic community structure were measured at the USACE Section 103 ODMDS during the EPA sampling events from October 19-23, 2009 (**Figures 6 & 7**). Water was analyzed for metals, pesticides and PAHs. Results for site water samples were compared to the EPA water quality criteria where applicable. The criterion continuous concentration (CCC) is an estimate of the highest

concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The criteria maximum concentration (CMC) is an estimate of the highest concentration of a pollutant in saltwater to which an aquatic community can be exposed to briefly without resulting in an unacceptable effect. Except for mercury, all metals were detected in some or all samples. No sample result was greater than the CCC or CMC for any metal. Samples analyzed for pesticides showed five of the 28 pesticides analyzed as detected. Of those pesticides, none exceeded the applicable CCC or CMC. All samples had detectable levels of PAHs. CCCs and CMCs are not available for any PAH compound, however, concentrations for these compounds were very low (ANAMAR 2010).

3.9 Hazardous Material. No known hazardous materials are present within the project area or immediate vicinity.

3.10 Air Quality. Existing air quality in coastal Mobile and Baldwin counties was assessed in terms of types of sources contributing to emissions that are regulated by National Ambient Air Quality Standards (NAAQS). NAAQS have been developed for oxides of nitrogen, hydrocarbons, particulate matter, carbon monoxide, sulfur dioxide, lead, volatile organic compounds and other hazardous air pollutants. Sources of air pollution in the project area are mainly from non-point sources, such as boat motors and vehicular traffic emissions. No major sources of air pollution were found within the vicinity of the project area. Mobile and Baldwin counties are in attainment for all NAAQS (EPA, 2009).

3.11 Esthetics. The Mobile ODMDS is located offshore from any beach or recreational areas. The closest beachfront to the site is the barrier island (about 2.4 miles) known as Sand Island, which is oriented southeastward to northeastward. This island is a popular boating destination for individuals operating out from the Mobile Bay or the Gulf Shore/Fort Morgan vicinity. The remote location of the island makes it a favorite spot to visit for boaters and overnight campers mostly during the summer months. Sand Island is not connected to the mainland. No structures of any substance are located on the island because it is vulnerable to storms and strong tides and is of such low relief (maximum about nine feet). The island continually changes its contour in response to the meteorological and wave energy conditions and was severed in several places by Hurricane Frederic in September of 1979. Other tropical storms have also altered the shape of the island.

The closest developed landform to the Mobile ODMDS is Dauphin Island, which is located approximately eight miles from the ODMDS. Several hundred permanent residents populate Dauphin Island. However, the population increases during the summer months due to the presence of several hundred vacation homes and hotels, several condominiums, and educational facilities. The island also attracts several thousand additional daytime visitors during weekends depending on local weather conditions. Despite populations described above, there is very little public access to the island's beaches. The majority of beachfront is privately owned, however, the extreme eastern and western ends of the island do allow for some public access.

Even more remote from the Mobile ODMDS than either Sand or Dauphin Island is the Gulf Shores-Fort Morgan peninsula. The extreme western tip of Fort Morgan peninsula is nearly the same distance from the site as is Dauphin Island, but the majority of this beachfront extends directly eastward. Gulf Shores and Fort Morgan have become a major Gulf Coast tourist attraction, with scores of condominiums and hotels/motels, and an ever-increasing westward moving wave of development. Private residents live year-round in Gulf Shores and Fort Morgan; however, the population escalates during the summer months due to the number of hotels, motels, and condo and house rentals.

3.12 Noise. Noise levels in the area are typical of recreational, boating, and fishing activities. Commercial vessels utilizing the Federal Mobile Harbor navigation channel to call upon the ASPA also contribute to the noise levels in the project area. Noise levels fluctuate with the highest levels usually occurring during the spring and summer months due to increased recreational activities.

3.13 Cultural Resources. Section 106 of the NHPA of 1966, as amended and implementing regulation 36 CFR Part 800 requires consultation with other agencies to avoid or minimize adverse effects on historical, architectural, archaeological, and cultural resources. To ensure compliance, cultural resources were evaluated via a literature review and through analysis of remote sensing data, focusing on archaeological resources. The information gathered from these sources was used to characterize and assess potential effects. The data search revealed there were several possible shipwrecks in the vicinity. In November 1985, the USACE, Mobile District prepared the "Final Supplemental EIS, Mobile Harbor, Alabama, Channel Improvements, Offshore Dredged Material Disposal." The following was extracted from that document: "The historical associations of the area range from the earliest explorers of this continent through more recent events in Alabama which include historical buildings, lighthouses, and existing forts, such as Fort Gaines (1818) on Dauphin Island and Fort Morgan (1833) at the Mobile Point lighthouse (Alabama Historical Commission, 1978). The Union ironclad, U.S.S. Tecumseh, is under 30 feet of water in Mobile Bay, north of Fort Morgan. The historical richness of the area is seen by the number of listings in historical site registers, over 50 listings in the National Park Service's National Register of Historic Places, and nearly 20 listings in the Alabama Historical Commission's Alabama Register (USACE 1985).

4.0 ENVIRONMENTAL EFFECTS

For this analysis, the no action alternative would mean the proposed action (modification of the Mobile ODMDS to an area approximately 24 nmi^2) would not take place, and the resulting environmental effects from taking no action would be compared with the effects anticipated from the proposed action (Alternative 2 - Mobile ODMDS). The environmental effects of taking no action are expected to be similar to the environmental effects of Alternative 2 (preferred alternative), which are discussed in more detail in the sections below. Since disposal of dredged material at the existing Mobile ODMDS would continue to take place, the effects of the disposal of dredged sediment, including the physical, chemical, and biological environment, would still occur, albeit in a smaller aerial footprint. The main environmental effects of continued use of the existing ODMDS include: temporary increases in suspended sediments and nutrients near disposal operations, changes to the physical and chemical nature of the sediment at the ODMDS, and the burying or temporary loss of benthic organisms. There have been little to no documented adverse impacts of disposal operations at the existing ODMDS on terrestrial wildlife, fish, essential fish habitat, or threatened and endangered species.

The no action alternative would result in the continued use of the EPA Section 102 Mobile ODMDS. Continued use of this disposal area does not meet the needs of USACE, Mobile District nor the jurisdictional requirements of the EPA in designating an appropriate ODMDS as per MPRSA Section 102(c). The EPA Section 102 Mobile ODMDS is too small, providing disposal capacity up to five years for Federal and/or private (Regulatory action) interests. The implementation of Alternative 2 - Mobile ODMDS (the preferred alternative) would bear no added adverse impact to the affected environment. This site is a historically utilized ODMDS and overlaps the EPA Section 102 Mobile ODMDS. As this is primarily an administrative change to expand the aerial footprint of the EPA Section 102 Mobile ODMDS, no aspects of the local environment should see substantial adverse impacts based on the

proposed action. All sections of the effected environment described in *Section 4.0* would not accrue undue adverse environmental impacts with the implementation of the no action alternative (Alternative 1) and disposal of dredged material in the Mobile ODMDS would continue. All further discussion of effected resources will be compared back to the no action alternative of continuing with the currently sized EPA Section 102 Mobile ODMDS.

4.1 Sediments.

4.1.1 Physical. Disposal operations will result in the temporary increase of suspended sediments and nutrients, the loss of benthic organisms, and bathymetric changes in the ocean bottom. The increase in turbidity will reduce light penetration through the water column, thereby reducing photosynthesis, surface water temperatures, and esthetics. These conditions could potentially alter visual predator-prey relations in the immediate project vicinity. In addition, sediment adheres to fish gills, resulting in respiratory stresses, and natural movement of eggs and larvae could be potentially altered because of sediment adherence. However, the salinity of water associated with the Mobile ODMDS is high enough to promote rapid settling of finer particles. These described impacts are temporary and are anticipated to return to previous conditions shortly after disposal operations. Based on recent sediment evaluations (EA Engineering 2011) and ODMDS surveys (Anamar 2010; EPA 2018) of dredged material from Mobile Bay and native ODMDS material, the sediment quality and texture of the dredged material is expected to be homogenous to that existing in the Mobile ODMDS. This is due to the proximity of the Federal Navigation Channel and the fact that this area has historically received dredged material from the Mobile Harbor area.

Several studies of turbidity from total suspended solids (TSS) associated with dredging and disposal operations have concluded that these activities had no substantial effects on nekton (Ritchie, 1970; Stickney, 1972; Wright, 1978); however, other studies have shown that elevated TSS levels and prolonged exposure can suffocate and reduce growth rates of adult and juvenile nekton and reduce egg viability (Moore, 1977; Stern and Stickle, 1978). Detrimental effects are generally recognized at TSS concentrations greater than 500 milligrams per liter (mg/L) and for durations of continuous exposure ranging from several hours to a few days. Turbidities exceeding 500 mg/L have been observed around maintenance dredging and placement operations (EH&A, 1978) and such turbidities may affect some aquatic organisms near active dredges (during both dredging and disposal). A study in Corpus Christi Bay, TX, Schubal *et al.* (1978) reported TSS values greater than 300 mg/L but only in a relatively small area near the bottom. They also found that TSS from maintenance operations (dredging and disposal) in Corpus Christi Bay, TX is not greater than that from shrimping and affects the bay for much shorter time periods. In a study of the Laguna Madre, TX, Sheridan (1999) found elevations in turbidity only over the sub-tidal placement material fluid mud pile. In this study they found that even 16.5 feet from the edge of the placed material, turbidity was not statistically greater than that 1 kilometer (km) or more away. May (1973) found that TSS was reduced by 92% within 100 feet of the discharge point, by 98% at 200 feet, and that concentrations above 100 mg/L were seldom found beyond 400 feet of the placement location. Turbidities in ocean habitats can be expected to return to near ambient conditions within a few hours after disposal operations cease or moves out of a given area. Schidler (1984) reports similar TSS levels from disposal and storm events. Overall, motile organisms are mobile enough to avoid highly turbid areas (Hirsch *et al.*, 1978). Under most conditions, fish and other motile organisms are only exposed to localized suspended-sediment plumes for short durations (minutes to hours) (Clarke and Wilber, 2000).

4.1.2 Chemical. Prior to each event, dredged material proposed for placement will be analyzed utilizing the Short-Term Fate of Dredged Material (STFATE) model. The STFATE model, developed by the USCAE's Dredging Operations and Environmental Research Program (DOER), simulates the short-term fate of dredged material placed in the open ocean for predicting deposition and water quality effects. Essentially, the STFATE model simulates the movement of dredged material in open ocean waters as it is discharged from a barge or hopper. The discharge of material occurs in three stages: *convective descent*, during which the material in cloud-form falls by gravity and momentum; *dynamic collapse*, when the material cloud either strikes the bottom surface or comes to a buoyant state where it no longer is falling, but begins to disperse horizontally; and *passive transport-dispersion*, which occurs when the ambient currents carry and spread the fallen material through the water. The model tracks the physical movement and computes the concentration levels of the dredged material through these three phases. Disposal practices will comply with the STFATE model runs to ensure minimal impact to physical, biological, and chemical aspects at the Mobile ODMDS.

The proposed Mobile ODMDS modification acts as an administrative change to operations of ocean disposal. This administrative change would not result in any added adverse impact to these physical and chemical substrates when compared to the no action alternative of continued disposal within the EPA Section 102 Mobile ODMDS as currently configured.

4.2 Terrestrial Wildlife. No adverse impacts to terrestrial wildlife located near the project were identified. The proposed Alternative 2 - Mobile ODMDS is located several miles from the nearest landmass and poses no adverse impact to terrestrial species. Additionally, this administrative change would pose no added adverse impact compared to the no action alternative of disposal within the EPA Section 102 Mobile ODMDS as currently configured.

4.3 Benthos. There would be temporary disruption of the aquatic community caused by ocean placement of dredged materials within the proposed Mobile ODMDS. Non-motile benthic fauna within the area would be destroyed by ocean placement operations, but should repopulate upon disposal completion. Some motile benthic and pelagic fauna, such as crabs, shrimp, and fishes, are able to avoid the disturbed area and should return shortly after the activity is completed. Larval and juvenile stages of these forms may not be able to avoid the activity due to limited mobility.

Rates of benthic community recovery observed after dredged material placement ranged from a few months to several years. The relatively species-poor benthic assemblages associated with low salinity estuarine sediments can recover in periods of time ranging from a few months to approximately one year (Leathem *et al.*, 1973; McCauley *et al.*, 1976 and 1977; Van Dolah *et al.* 1979 and 1984; Clarke and Miller Way, 1992), while the more diverse communities of high salinity estuarine sediments may require a year or longer (e.g. Jones, 1986; Ray and Clarke, 1999).

4.4 Motile Invertebrates. Ocean placement activities will result in the mounding of dredged material after release from the hopper dredge in a relatively thick layer. Deposits greater than 20-30 cm (8-12 inches) generally eliminate all but the largest and most vigorous burrowers (Maurer *et al.*, 1978). The sediment quality and texture of dredged material are expected to be homogenous to that existing in the Mobile ODMDS. Placement of material similar to ambient sediments (e.g., sand on sand, etc.) has been shown to produce less severe,

long-term impacts (Maurer *et al.* 1978, 1986). Temporary loss of benthic invertebrate populations would occur within the Mobile ODMDS during disposal operations but are expected to return to pre-placement conditions within six to nine months (Bolam & Rees 2003).

4.5 Fishes. The proposed Mobile ODMDS does not provide habitat that is not abundant in other areas of the Gulf of Mexico. There is no significant resource at this site that is essential for the continued survival of any particular species. This site has historically been utilized for disposal of dredged material from the Mobile Harbor project area. These operations have not resulted in long-term adverse impacts to benthos, motile invertebrates, and fishes (Shipp 1983) (Froese & Pauly 2007) (Anamar 2010). Furthermore, given the small area (percentage wise) that will be affected in the Gulf of Mexico at a given point in time, no significant long-term impacts to the benthos, motile invertebrates, and fishes are expected to occur as a result of the proposed action. Therefore, it was determined that no long-term adverse impacts to the aquatic community would result from the continued use of the Mobile ODMDS.

4.6 Essential Fish Habitat. The USACE, Mobile District, as the primary users of the ODMDS, will, to the maximum extent practicable, reduce and avoid potential impacts to EFH as well as other significant area resources. No estuarine emergent wetlands, oyster reefs, or SAVs would be adversely impacted by the proposed Mobile ODMDS. Increased water column turbidity during disposal of dredged material would be temporary and localized. The spatial extent of elevated turbidity is expected to be within a few hundred feet of the disposal operation, with turbidity levels returning to ambient conditions within a few hours. Most of the motile benthic and pelagic fauna, such as crab, shrimp, and fish, should be able to avoid the disturbed area and should return shortly after the activity is completed. No long-term direct impacts to managed species of finfish or shellfish populations are anticipated. However, it is reasonable to anticipate some non-motile and motile invertebrate species will be physically affected through disposal operations. These species are expected to recover rapidly soon after the disposal operations are complete. As detailed in *Section 4.3* of this EA, no significant long-term impacts to these resources are expected as a result of this administrative action.

The USACE, Mobile District has requested, by letter and public notice, EFH coordination with NMFS-Habitat Conservation Division (HCD). NMFS-HCD agency coordination will be included with this EA upon receipt.

4.6.1 Oyster Reefs. No adverse impacts to oyster reefs from the continued disposal of dredged material in Mobile ODMDS were identified in this evaluation. The closest oyster reefs are located several miles from ocean placement of dredged material activities associated with this project, and so would not be impacted by the proposed action.

4.6.2 Submerged Aquatic Vegetation. No impacts to SAVs were identified in this evaluation. The closest known SAVs are located several miles from ocean placement of dredged material activities associated with this project, and so would not be impacted by the proposed action.

4.6.3 Wetlands. Emergent wetlands are not located in the vicinity of the project and will not be impacted.

4.7 Threatened and Endangered Species. Significant impacts to threatened and endangered species would be the loss of, or long-term reduction in the size of, a population; a habitat modification that causes a permanent disruption to breeding, foraging or other life history

requirements; permanent interference with the movement of native resident or migratory protected species; and loss of any area designated as critical habitat.

Based upon the GRBO titled "Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by Corps of Engineers (COE) Galveston, New Orleans, Mobile, and Jacksonville Districts", and as amended on June 24, 2005, and January 7, 2009, "NOAA Fisheries believes there are no resident stocks of these [whale] species in the Gulf of Mexico, and these species are not likely to be adversely affected by projects in the Gulf." There has never been a reported take of a whale by a hopper dredge. The possibility of collision with a disposal vessel is remote since these are deep-water species and the likelihood for collision would be decreased by the highly mobile nature of these species. These endangered whale species could occur near the project area but would likely only venture through the project area as incidental transients. Given the unlikely event in the area, feeding habits and very low likelihood of interaction, the USACE, Mobile District anticipates the proposed action identified in this EA is not likely to adversely affect these marine mammal species.

The West Indian manatee migrates along the Gulf coast from Florida to Louisiana as a seasonal transient. The project area provides few habitat requirements due to the depth and offshore nature of the Mobile ODMDS; thus, it is unlikely that West Indian manatees would be in the project area, and is not likely to adversely affect manatee by the proposed action.

Approximately 35% of the piping plover's total breeding population winters on the Gulf coast between Florida and Texas (NatureServe, 2015). The USFWS has designated the Gulf of Mexico coastline, Horn Island, Petit Bois Island, Dauphin Island, and Round Island as critical habitat for wintering piping plovers (USFWS, 2001). Piping plovers and least terns could be in the vicinity of the Mobile ODMDS but it is very unlikely disposal operations would adversely impact any of these species. No alteration in operational function of the project is being proposed. However, the Mobile ODMDS is located outside piping plover critical habitat. Similarly, red knot would not be adversely affected by the proposed modification of the Mobile ODMDS. The project area is well outside of the species preferred habitat and located well offshore from the closest island (Dauphin Island, AL) with no currently designated critical habitat for the red knot in the State of Alabama.

Through consultation with NMFS-PRD the USACE, Mobile District has determined that five species of sea turtles (loggerhead, green, hawksbill, Kemp's ridley, and leatherback), and Gulf sturgeon, protected by the Endangered Species Act (ESA), can be found in or near the project area.

The NMFS-PRD has identified two distinct critical habitat types within the Gulf of Mexico, relative to the proposed project area for loggerhead sea turtles. These habitat types include nearshore reproductive and *Sargassum* habitats. NMFS-PRD has identified Primary Constituent Elements (PCEs) for the nearshore reproductive (3) and *Sargassum* (4) habitats listed below:

- **Nearshore reproductive habitat:**
  (1) Nearshore waters directly off the highest density nesting beaches and their adjacent beaches as identified in 50 CFR Part 17.95(c) to 1.6 km (1 mile) offshore;
  (2) Waters sufficiently free of obstructions or artificial lighting to allow transit through the surf zone and outward toward open water; and

(3) Waters with minimal manmade structures that could promote predators (i.e., nearshore predator concentration caused by submerged and emergent offshore structures), disrupt wave patterns necessary for orientation, and/or create excessive longshore currents.

- ***Sargassum* habitat:**
  (1) Convergence zones, surface-water downwelling areas, margins of major boundary currents (Gulf Stream), and other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for the optimal growth of *Sargassum* and inhabitance of loggerheads;
  (2) *Sargassum* in concentrations that support adequate prey abundance and cover;
  (3) Available prey and other material associated with *Sargassum* habitat including, but not limited to, plants, cyanobacteria, and animals native to the *Sargassum* community such as hydroids and copepods; and
  (4) Sufficient water depth and proximity to available currents to ensure offshore transport (out of the surf zone), and foraging and cover requirements by *Sargassum* for post-hatchling loggerheads, i.e., >10-meter depth.

The proposed modification of the Mobile ODMDS does not fall directly within either of these identified species-specific habitats.

Activities associated with hopper dredges have been analyzed in the GRBO titled "*Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by Corps of Engineers (COE) Galveston, New Orleans, Mobile, and Jacksonville Districts*", and as amended on June 24, 2005, and January 7, 2009. Potential impacts to the five species of listed sea turtles and Gulf sturgeon from hopper dredging activities were assessed in the 2003 GRBO (2007 and 2009, as amended). In the opinion, NMFS-PRD concluded that sea turtles and Gulf sturgeon are not likely to be adversely affected by hopper dredges and included an Incidental Take Statement (ITS), pursuant to Section 7 of ESA. The GRBO (2003, amended 2005 & 2009) contains reasonable and prudent measures with implementing terms and conditions to help minimize impacts of take; therefore, both Civil Works and Regulatory permitted actions utilizing hopper dredging activities will comply with the GRBO or, if the activity is not applicable to the GRBO, will operate under its own individual biological opinion.

Adverse impacts to federally-protected species are not anticipated to be greater than those impacts previously coordinated with the USFWS and NMFS because of this proposed Mobile ODMDS administrative change. Letters requesting concurrence with the District's determinations will be sent to the USFWS and NMFS. Upon receipt, coordination documentation will be included in this EA.

4.8 Water Quality. Disposal operations are expected to create some degree of related turbidity in excess of ambient conditions in the proximity of the placement site. Impacts during these operations are expected to be temporary, minimal and similar to conditions of past disposal events in the Mobile ODMDS. Dredged material placed in the Mobile ODMDS will have been tested utilizing the Green Book (1991) and Southeast Regional Implementation Manual (SERIM) (2008) criteria, and will also adhere to requirements set forth in a project specific Section 103 Evaluation Concurrence obtained from the EPA, Region 4 in order to minimize water quality impacts. Suspended particles are expected to settle out within a short time, with no long-term measurable effects on water quality. No measurable changes in

temperature, salinity, pH, hardness, oxygen content or other chemical characteristics are expected. The project vicinity has been historically used for the disposal of dredged material since the late 1970's. Thus, the administrative change to the Mobile ODMDS would not result in any adverse impacts. In addition, ADEM issued Section 401 water quality certification to the USACE, Mobile District for continued O&M of the Mobile Harbor Federal navigation project, which included a portion of the proposed Mobile ODMDS within state waters, on March 9, 2017. This certification will be modified through ADEM coordination as necessary. Upon receipt, coordination documentation will be included in this EA.

4.9 Hazardous Materials. No hazardous materials are known to exist in the Mobile ODMDS. The dredging contractor would adhere to the plans and specifications of the contract outlining proper storage and disposal of any hazardous materials, such as oils and fuels used during disposal operations.

4.10 Air Quality. The proposed Mobile ODMDS would have no significant long-term effect on air quality. Mobile County is in attainment with the NAAQS of the Clean Air Act (CAA). Air quality in the immediate vicinity of disposal equipment would be slightly affected for a short period of time by fuel combustion and resulting engine exhausts. Exhaust emissions are considered insignificant in light of prevailing winds and when compared to existing exhaust fumes from other vessels using the project area. Any air quality impacts would be temporary and negligible.

4.11 Esthetics. An ocean disposal site has historically been located south of Dauphin Island for the disposal of maintenance and new work material from the Federal Mobile Harbor navigation project since the late 1970's. Continued use of the Mobile ODMDS is not anticipated to have adverse impacts to any esthetics associated with Sand and Dauphin Islands, Gulf Shores, or Fort Morgan due to the distance of these sites from the Mobile ODMDS.

The Mobile ODMDS may be intensely trawled during offshore migrations in summer and early fall for fish and shrimp. Commercial and recreational vessels and dredges have concurrently utilized the same area in the past without incident. Only temporary degradation to esthetics would occur with the use of the Mobile ODMDS to the local environment. Impacts would primarily occur as a result of the physical presence of heavy equipment. Some minor increases in turbidity may be noted in the immediate vicinity during disposal operations, but these increases would be minor and short-term in nature.

4.12 Noise. Noise impacts from project equipment are expected to increase in the vicinity during operations as a result of engine noise, and noise emitted from other job related equipment. While there is little that can be done to reduce noise during operations, these impacts would be short-term and restricted to the immediate vicinity of the activity. No long-term increase in noise would occur in or around the project area. Noise is not expected to be a significant impact.

4.13 Cultural Resources. The NHPA charges Federal agencies to identify and evaluate cultural resources under their stewardship and to nominate eligible properties to the NRHP. The NHPA also calls for Federal agencies to consider the effects of planned activities on NRHP-listed or eligible properties. Therefore, USACE, Mobile District, as the primary users of the ODMDS, will take into consideration the potential to impact known and unidentified archaeological sites. Historically, the USACE, Mobile District has consulted with the Alabama SHPO regarding placement of maintenance

material in the Mobile ODMDS as described in Public Notice Numbers FP86-MH06-02, FP91-MH07-04, FP95-MH07-02, FP97-MH08-02, FP97-MH09-02, FP11-MH01-06, and FP14-MH01-10, and FP16-MH01-04. Additional coordination with the Alabama SHPO for placement of new work material has also been conducted with each navigation improvement.

In August 1982, the USACE, Mobile District conducted cultural resources investigations of the current project area. These studies, which have provided the basis for previous consultation with the Alabama SHPO, included archival and historic research on the prehistory and history of the Mobile Bay area and remote sensing surveys (i.e. magnetometer side-scan sonar and shallow-seismic profiles) of all areas that could be affected. Survey methodologies for areas in Mobile Bay and in the Gulf (ODMDS) varied. The surveys within Mobile Bay were conducted at 50 meter intervals while survey of the Mobile ODMDS, including the current APE, was based on a sampling strategy designed to establish high and low probability zones, with lane spacing in the Gulf was widened to 150 meter intervals. The 1982 report recommended three high probability zones in the disposal areas in the Gulf, including much of the northern section of the current project area. The report recommended that the high probability zones should be avoided during disposal operations, if possible. Although the survey of the 46 nmi^2 Mobile ODMDS (current project area) focused on designating zones of high probability, the survey identified 33 magnetic anomalies. Of these, six anomalies were recommended for avoidance or additional evaluation. Given the passage of time, technological improvements, and possible changes in environmental conditions, additional surveys are being considered prior to site use of areas previously undisturbed.

The USACE, Mobile District is coordinating with the Alabama SHPO through the release of the Public Notice and via letter to discuss avoidance of any culturally sensitive resources in the Mobile ODMDS. If avoidance is not feasible, a mitigation plan will be developed in consultation with the Alabama SHPO and the Advisory Council on Historic Preservation (ACHP) prior to site usage of areas previously undisturbed. Additional stakeholders will also be identified during this process including interested tribes, local governments, and special interest groups in order that they might be allowed to participate in this process. The USACE, Mobile District will obtain Section 106 concurrence and that coordination documentation will be included in this EA.

5.0 CUMULATIVE EFFECTS SUMMARY. Federal regulations implementing NEPA (40 CFR Parts 1500-1508) require that cumulative impacts of a Proposed Action be assessed. CEQ regulations implementing the procedural provisions of NEPA defines cumulative effects as:

> The impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or nonfederal) or person undertakes such other actions (40 CFR Part 1508.7).

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Accordingly, a cumulative impact analysis identifies and defines the scope of other actions and their interrelationship with the alternatives if there is an overlap in space and time. Cumulative impacts are most likely to occur when there is an overlapping geographic location and a coincident or sequential timing of events. This section analyzes the proposed action as well as any connected, cumulative, and similar existing and potential actions occurring in the area and surrounding the site.

The local environment of the northern Gulf of Mexico is heavily populated with navigation channels varying in size and vessel capacity. Within the Mobile District, the northern Gulf is

home to four deep draft, federally authorized navigation projects (Gulfport, Pascagoula, Mobile, and Pensacola). Historical use of ODMDSs throughout the Gulf of Mexico has been necessary to accommodate large volumes of dredged material needing placement. Several of these projects are being proposed for improvement (deepening or widening). The proposed Alternative 2 – Mobile ODMDS would use continued ocean disposal in order to lessen the overall impact associated with disposal of dredged material in shallow waters, which increases local turbidity levels for a short period of time, or the use of previously approved upland disposal areas. ODMDS availability has been shown to benefit navigation projects by providing an alternative for disposal besides normal open-water alternatives adjacent to navigation channels. The proposed routine O&M dredging, new work dredging, Regulatory actions, and subsequent O&M associated with the proposed improvements of Mobile Harbor facilitate the continued use of an ocean disposal site. With limited capacity of upland disposal areas for rivers sediments, re-establishment of within bay open-water placement for Civil Works projects, potential regulatory actions, and proposed improvements to Mobile Harbor, the need for ocean placement will only increase over time. This increased ODMDS usage requires the proposed modification of the EPA Section 102 Mobile ODMDS. The proposed improvements and increased ODMDS capacity would allow Mobile Harbor to remain competitive across the geographic area.

Future development of the surrounding area would likely proceed under the “no action” or “preferred” alternative (Alternative 2). Development in the immediate area of Mobile Bay is not specific to the proposed Mobile ODMDS modification but connected with existing local attractions, industrialization, and urbanization of the area. Thus, the proposed modification of the EPA Section 102 Mobile ODMDS to the Alternative 2 - Mobile ODMDS is expected to have no significant direct cumulative impacts to biological resources, socioeconomic resources, water or sediment chemistry, or oceanographic resources.

6.0 OTHER CONSIDERATIONS

6.1 Coastal Zone Management Act of 1972. The USACE, Mobile District determined that the proposed action is consistent with the Alabama Coastal Management Program to the maximum extent practicable. ADEM issued Coastal Zone Consistency (CZC) for the Mobile Harbor Federal Navigation Project on March 9, 2017. This certification will be modified through ADEM coordination as necessary and included as part of the EA upon completion. ADEM will be coordinated with through release of a public notice and letter requesting modification to the March 9, 2017 certification.

6.2 Clean Water Act of 1972. ADEM issued Section 401 water quality certification (WQC) for a portion of the Mobile ODMDS that is within state waters on March 9, 2017. This certification will be modified through ADEM coordination as necessary and included as part of the EA upon completion. ADEM will be coordinated with through release of a public notice and letter requesting modification to the March 9, 2017 certification.

6.3 Rivers and Harbors Act of 1899. The proposed modification of the Mobile ODMDS would not obstruct navigable waters of the United States.

6.4 Marine Mammal Protection Act of 1972, as amended. Incorporation of safeguards used to protect threatened and endangered species during project implementation will also protect any marine mammals in the area; therefore, the project is in compliance with the Marine

Mammal Protection Act of 1972. Marine mammals are coordinated through NMFS-PRD (Table 8).

Based upon the GRBO titled "Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by Corps of Engineers (COE) Galveston, New Orleans, Mobile, and Jacksonville Districts", and as amended on June 24, 2005, and January 7, 2009, "NOAA Fisheries believes there are no resident stocks of these [whale] species in the Gulf of Mexico, and these species are not likely to be adversely affected by projects in the Gulf." There has never been a reported take of a whale by a hopper dredge. The possibility of collision with a disposal vessel is remote since these are deep-water species and the likelihood for collision would be decreased by the highly mobile nature of these individuals. These endangered whale species could occur in the vicinity of the project area but would likely only venture through the project area as incidental transients.

6.5 Executive Order (EO) 13045, Protection of Children. The proposed action complies with EO 13045, "Protection of Children from Environmental Health Risks and Safety Risk*s*", and does not represent disproportionally high and adverse environmental health or safety risks to children in the United States.

The Mobile ODMDS is located in open-water and uninhabited; thus, no changes in demographics, housing, or public services would occur as a result of the proposed modification. With respect to the protection of children, the likelihood of disproportionate risk to children is not significant. The proposed modification of the Mobile ODMDS does not involve activities that would pose any disproportionate environmental health risk or safety risk to children.

6.6 EO 12898, Environmental Justice. The proposed action complies with EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations", and does not represent disproportionally high and adverse human health or environmental effects on minority populations and low-income populations in the United States. The proposed modification of the Mobile ODMDS is not designed to create a benefit for any group or individual. A review and evaluation of the proposed modification has not disclosed the existence of identifiable minority or low-income communities that would be adversely impacted.

6.7 Oil Spill Impacts. The British Petroleum (BP) Deepwater Horizon oil spill that occurred on April 12, 2010 released approximately 4,900,000 barrels (205,800,000 gallons) of oil in the Gulf of Mexico and created uncertainty on whether future dredging operations will meet environmental compliance criteria and requirements for ocean disposal. The long-term impacts of the oil spill on coastal Alabama are still uncertain. This spill could potentially adversely impact USACE water resources projects and studies within the Alabama coastal area. Potential impacts could include factors, such as changes to existing or baseline conditions, as well as changes to future-without and future-with project conditions.

USACE, Mobile District, along with the EPA, Region 4, will continue to monitor and closely coordinate with other Federal and state resource agencies and local sponsors in determining how to best address any potential problems associated with the oil spill that may adversely impact USACE water resources development projects/studies. This could include revisions to proposed actions as well as the generation of supplemental environmental analysis and documentation for specific projects/studies as warranted by changing conditions. The latest sediment samples taken within the Mobile Bay navigation channel and the Mobile ODMDS in December 2010 indicate that the area was not contaminated by the oil spill.

In April 2014, sediment and site water samples were collected for the proposed Mobile Harbor widening project of the Bar channel segment. Samples taken for this effort were associated with the LRR study proposed for the widening of the Mobile Bar channel. These data proved confirmatory, although not the initial reason for sampling, to earlier testing that showed no signs of oil contamination in the sampling area from the 2010 Deepwater Horizon oil spill.

6.8 Greenhouse Gas Emissions and Climate Change Impacts. On December 18, 2014, the CEQ released revised draft guidance that stated Federal agencies,

"in order to remain consistent with NEPA, should consider the extent to which a proposed action and its reasonable alternatives contribute to climate change through greenhouse gas (GHG) emissions and take into account the ways in which a changing climate over the life of the proposed project may alter the overall environmental implications of such actions (CEQ, 2014)."

The modification of the Section 102 Mobile ODMDS is effectively an administrative change, as the proposed site lies within the boundaries of the previously selected Section 103 Mobile ODMDS. As such, this action on its own does not directly contribute to GHG emissions. It is worth noting that activities associated with the use of the ODMDS, such as dredging and transport of the dredged sediment to the ODMDS via boat, result in the emission of GHGs. However, the level of these emissions will not change in any way because of this proposed action, and would be the same as under the no action alternative. Additionally, the implications of climate change will not affect the environmental effects of the proposed action. Therefore, additional analysis of this issue is not required.

7.0 COORDINATION.

As previously mentioned in *Section 2.0* of the alternative analysis, the EPA, Region 4 and USACE, Mobile District originally pursued a Section 102 designation of the larger USACE Section 103 ODMDS. However, this was eliminated from consideration due to some of the following reasons: the MOU (2017) limitation of 25-year forecasting, concerns for a phased approach, and the excessive size of the site. Thus, past environmental coordination (1985-2017) for the administrative change (i.e. Alternative 3) is included as **Appendix B** for the record. The USACE, Mobile District coordinated with appropriate resource agencies and interested public dating back to 2002 for the proposed re-designation of the Mobile ODMDS and have included them in this EA for the administrative record.

With the proposed Alternative 2 - Mobile ODMDS, additional environmental coordination will be conducted to ensure compliance with all laws and regulations. Concurrence with the ESA, MSFCA, NHPA, and CWA will be requested and obtained to address environmental impacts of the Mobile ODMDS modification as an administrative change. These agency coordination documents will be included in Appendix B for the record in the final EA.

8.0 CONCLUSION.

It appears that the proposed Mobile ODMDS modification would have no significant environmental impacts on the existing environment. No mitigation actions are required for the proposed modification. The implementation of the proposed action would not have a significant adverse impact on the quality of the environment and an EIS is not required.

9.0 REFERENCES.

ANAMAR Environmental Consulting, Inc. 2010. Final Report Mobile ODMDS Designation Survey, Mobile Alabama. Project 09-0011. Report submitted to USACE, Mobile District. May 2010.

Benson, N.G., ed. 1982. Life history requirements of selected finfish and shellfish in Mississippi Sound and adjacent areas. USFWS/OBS – 81/51. 97 p. Christmas, J.Y. and R.S. Waller. 1973. Cooperative Gulf of Mexico Estuarine Inventory and Study. 434 p. Gulf Coast Research Laboratory, Ocean Springs, MS.

Bolam, S.G and H.L. Rees. 2003. Minimizing Impacts of Maintenance Dredged Material Disposal in the Coastal Environment: A Habitat Approach. Environmental Management Vol 32 Issue 2, pp171-188.

Clarke, D. G. and T. Miller-Way. 1992. An environmental assessment of the effects of open water disposal of maintenance dredged material on benthic resources in Mobile Bay, Alabama.

Carlson J.K., D. Bethea, I. Baremore. 2003. Shark Nursery Grounds and Essential Fish Habitat Studies. Panama City, Fl. Prepared for: NOAA Fisheries, Highly Migratory Species Office.

Carlson, J.K., D. Bethea, A. Middlemiss, I. Baremore. 2004. Shark Nursery Grounds and Essential Fish Habitat Studies. Panama City, Fl. Prepared for: NOAA Fisheries, Highly Migratory Species Office.

Council on Environmental Quality. 2014. Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts. December 18, 2014. https://www.whitehouse.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf

EA Engineering, Science, and Technology, Inc. 2011. Final Evaluation of Dredged Material. Federally Authorized Navigation Projects Mobile Harbor, Mobile, Alabama. September 2011.

EA Engineering, Science, and Technology, Inc. 2012. Final Report Post-Oil Spill Surface Sediment Evaluation: Mobile Harbor Federal Navigation Channels Mobile, Alabama. March 2012.

EPA. 2009. Region 4 Air Quality. World Wide Web electronic publication. http://www.epa.gov/region4/air/naaqs/index.htm, version (1/2009)

EPA, SESD 2018. Mobile, AL Ocean Dredge Material Disposal Site (ODMDS) Trend Assessment Final Report. SESD Project 18-0002. October 26-31, 2017.

Froese, R. and D. Pauly. Editors. 2007 FishBase. World Wide Web electronic publication. www.fishbase.org, version (10/2007)

GMFMC. 1998. Generic Amendment for Addressing Essential Fish Habitat Requirements in the Following Fishery Management Plans of the Gulf of Mexico: Shrimp Fisheries, Red Drum Fisheries, Reef Fish Fisheries, Coastal Migratory Pelagic Resources, Stone Crab Fisheries, Spiny Lobster, and Coral and Coral Reefs. Prepared by the GMFMC, October 1998.

GMFMC. 2004. Final Environmental Impact Statement for the Generic Amendment to the following fishery management plans of the Gulf of Mexico: Shrimp Fishery of the Gulf of Mexico, Red Drum Fishery of the Gulf of Mexico, Reef Fish Fishery of the Gulf of Mexico, Stone Crab Fishery of the Gulf of Mexico, Coral and Coral Reef Fishery of the Gulf of Mexico, Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic; Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic. Prepared by the GMFMC, 2004.

GMFMC 2005. Generic Amendment for Addressing Essential Fish Habitat Requirements in the Following Fishery Management Plans of the Gulf of Mexico: Shrimp Fisheries, Red Drum Fisheries, Reef Fish Fisheries, Coastal Migratory Pelagic Resources, Stone Crab Fisheries, Spiny Lobster, and Coral and Coral Reefs. Prepared by the GMFMC, March 2005.

GMFMC 20105. Final Report - GMFMC 5-Year Review of the Final Generic Amendment Number 3 Addressing Essential Fish Habitat Requirements, Habitat Areas of Particular Concern, and Adverse Effects of Fishing in the Fishery Management Plans of the Gulf of Mexico. October 2010.

Jones, A. 1986. The effects of dredging and spoil disposal on macrobenthos, Hawkesbury Estuary, New South Wales. Marine Pollution Bulletin 17: 17-20.

Kjerfve, B. 1983. Analysis and Synthesis of Oceanographic Conditions in the Mississippi Sound Offshore Region. University of South Carolina, unpaginated.

Leathem, W., P. Kinner, D. Maurer, R. Briggs and W. Treasure. 1973. Effect of spoil disposal on benthic invertebrates. Marine Pollution Bulletin 4: 122-125.

May, E. B. 1971. A survey of the oyster and shell resources of Alabama. Alabama Marine Resources Bulletin No. 4.

Maurer, D.R. Keck, J. Tinsman, W. Leatem c. Wethe, M. Hutzinger, C. Lord and T. Church. 1978. Vertical migration of benthos in simulated dredged material overburdens. Volume I. Marine Benthos. U.S. Army Corps of Engineer Waterway Experiment Station, Vicksburg, MS. Dredged Material Research Program. Technical Report No. D-78-35.

McCauley, J.E., D.R. Hancock and P.A. Parr. 1976. Maintenance dredging and four polychaetes worms. Pp. 673-683. In: Proceedings of the specialty Conference on Dredging and Its Environmental Effects, Mobile, Alabama.

McCauley, J.E., R.A. Parr and D.R. Hancock. 1977. Benthic infauna and maintenance dredging: a case study. Water Research 11: 233-242.

Moore, P.G. 1977. Inorganic particulate suspensions in the sea and their effects on marine animals. Ann. Rev. Oceanogr. Mar. Biol. 15:225—363.

Mobile Press-Register 2010. Article titled: Oyster project could boost reefs in Bay. April 23, 2010.

Pattillo, M.E., T.E. Czapl, D.M. Nelson and M.E. Monaco. 1997. Distribution and Abundance of Fishes and Invertebrates in Gulf of Mexico Estuaries. Volume II: Species Life History Summaries. ELMR Report No. 11. NOAA/NOS Strategic Environmental Assessments Division, Silver Springs, MD 377 pp.

Perret, W.S., J.E. Weaver, R.O. Williams, P.L. Johansen, T.D. McIlwoin, R.C. Roulerson, W.M. Tatum. 1980. Fishery profiles of red drum and spotted seatrout. Gulf States Marine Fisheries Commission 6. 60 pp.

Resource Management Group, Inc., Volumes I and II, Draft Report and Appendices, "Guidelines for Sustainable Maintenance Dredging and Long-Term Dredge Material Management of the Mobile River Federal Navigation Project." Prepared for the U.S. Army Engineer District, Mobile, September 2010.

Ritchie, D.W. 1970. Fish. In: Gross physical and biological effects of overboard spoil disposal in upper Chesapeake Bay. L. E. Cronin (Ed.). Univ. Md., Nat. Res. Inst., Spec. Rpt. No. 3.

Sheridan, P. 1999. Temporal and spatial effects of open water dredged material disposal on habitat utilization of fishery and forage organisms in Laguna Madre, Texas. Final Report to the Laguna Madre Interagency Coordination Team. National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

Shipp, R.L. 1983. Report to the Alabama Department of Environmental Management, No. 81-54, on fish eggs and larvae of Mobile Bay 78p.

Swingle, H.A. 1971. Biology of Alabama estuarine areas--cooperative Gulf of Mexico estuarine inventory. Alabama.

Swingle, H.A., and D.B. Bland. 1974. A study of the fishes of the coastal watercourses of Alabama. Alabama Marine Resources Bulletin. 10:17

Stickney, R. R. 1984. Estuarine Ecology of the Southeastern United States and Gulf of Mexico. Texas A&M University Press, College Station.

Thompson, M. J. 1999. USGS in cooperation with MMS. Ecology of Live Bottom Habitats of the Northeastern Gulf of Mexico: A Community Profile.

USACE, Engineer and Research Development Center (ERDC), Vicksburg, Mississippi, Miscellaneous Paper D-92-1, 40 p.

USACE, 1978. Review of Literature of Dredging Within the Mississippi Sound and Adjacent Areas Study Area. Mobile District Corps of Engineers.

USACE, 1980. Survey Report on Mobile Harbor, Alabama. Vol. 2 Mobile District Corps of Engineers.

USACE, 1985. Final Supplemental Environmental Impact Statement. Mobile Harbor, Alabama Channel Improvements Offshore Dredged Material Disposal. Mobile District November 1985.

USACE & EPA. 2007. Memorandum of Understanding between USACE, South Atlantic Division and EPA, Region 4 on Ocean Dredged Material Disposal. April 30, 2007.

Van Dolrah. R.F., D.R. Calder, D.M. Knott and M.S. Maclin. 1979. Effects of dredging and unconfined disposal of dredged material on macrobenthic communities in Sewee Bay, South Carolina. South Carolina Marine Resources Center Technical Report No. 39, April 1979. 54 pp.

Vittor, B.A. 1982. Benthic macroinfauna community characterization in Mississippi Sound and adjacent waters. Contract No. DACW01-80-C-0427. Report to U.S. Army Engineer Mobile Distr., Mobile, Alabama.

Vittor and Associates, Inc. 2003. Mobile Bay Submerged Aquatic Vegetation. Final Report to Mobile Bay National Estuary Program.

Vittor and Associates, Inc. 2009. http://www.mobilebaynep.com/site/news_pubs/Publications/SAVfinal_Jan2010.pdf

Vittor and Associates, Inc. 2016. http://www.mobilebaynep.com/images/uploads/library/SAV_2015.pdf

Vittor and Associates, Inc. 2010. Mobile, Alabama 2009 ODMDS Benthic Community Assessment. Report to EPA Region 4. March 2010.

Vittor, Barry, and Associates. 2018. Final Report Mobile, AL Trend Assessment Survey 2017 Benthic Community Assessment. #18-0002. WA 3-04. Contract #EP-C-14-017.

Wright, T.D. 1978. Aquatic dredged material disposal impacts. U.S. Army Eng. Water Experiment Station Environmental Laboratory, Vicksburg, Miss. Technical Report DS-78-1.

Zu Ermgassen, P.S., M.D. Saplding, B. Blake, L.D. Coen, B. Dumbauld, S. Geiger, J.H. Grabowski, R. Grizzle, M. Luckenbach, K. McGraw, W. Rodney, J.L. Ruesink, S.P. Powers, R. Brumbaugh. 2012. Historical ecology with real numbers: past and present extent and biomass of an imperiled estuarine habitat. Proc. R. Soc., 279 (2012), pp. 3393–3400

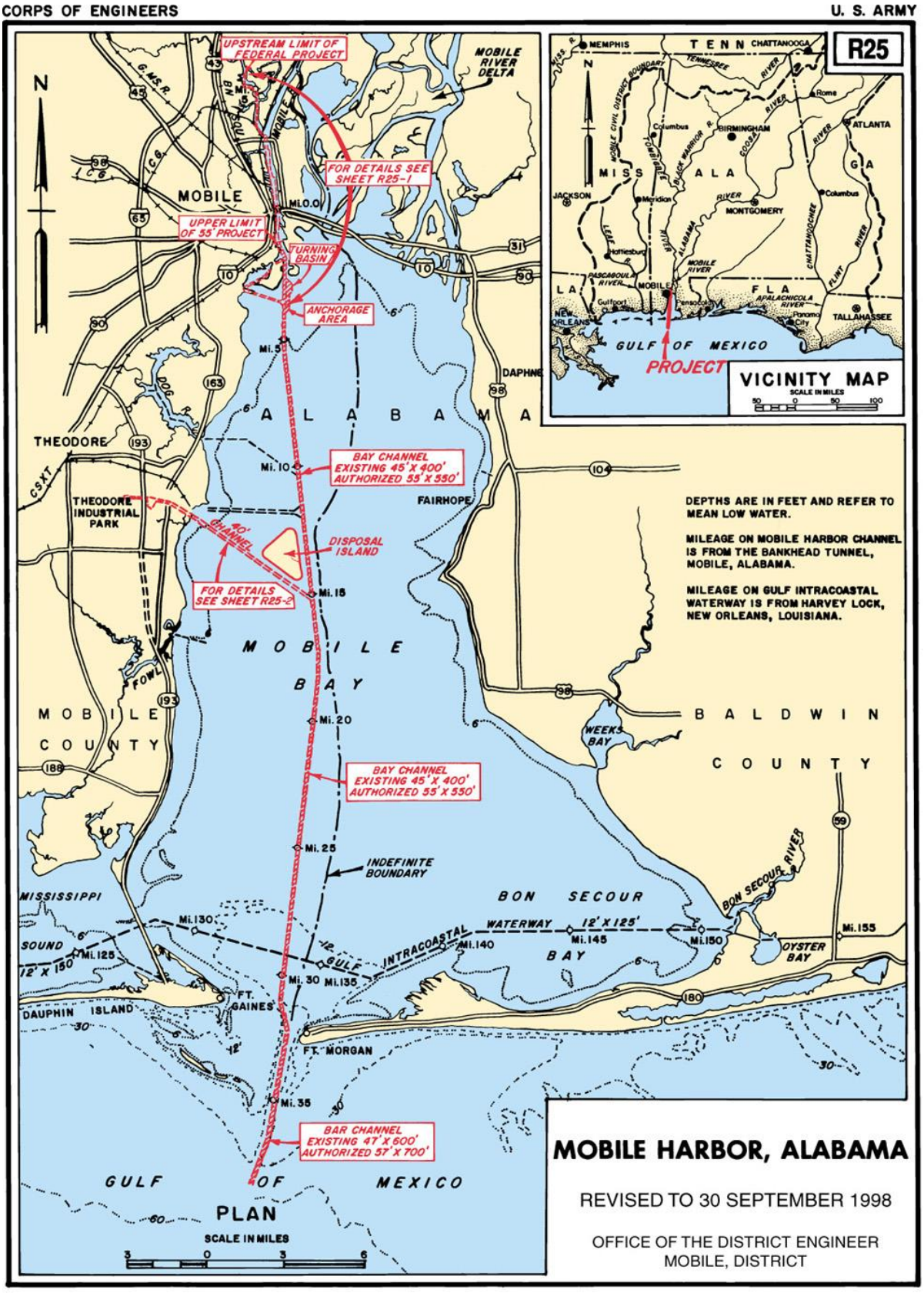


Figure 1. Mobile Harbor Federally Authorized Navigation Project.

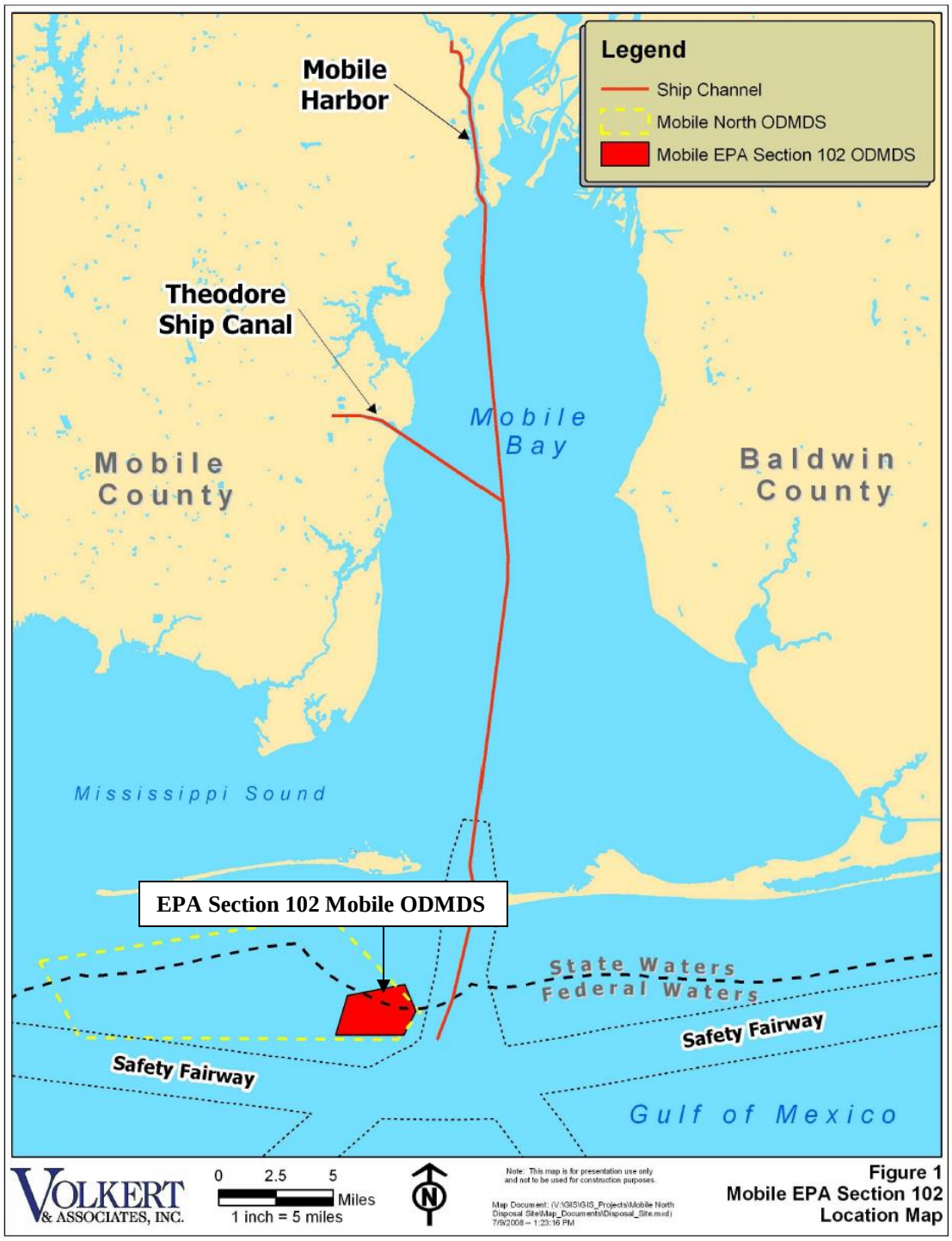


Figure 2. Location Map of the EPA Section 102 Mobile ODMDS (in red).

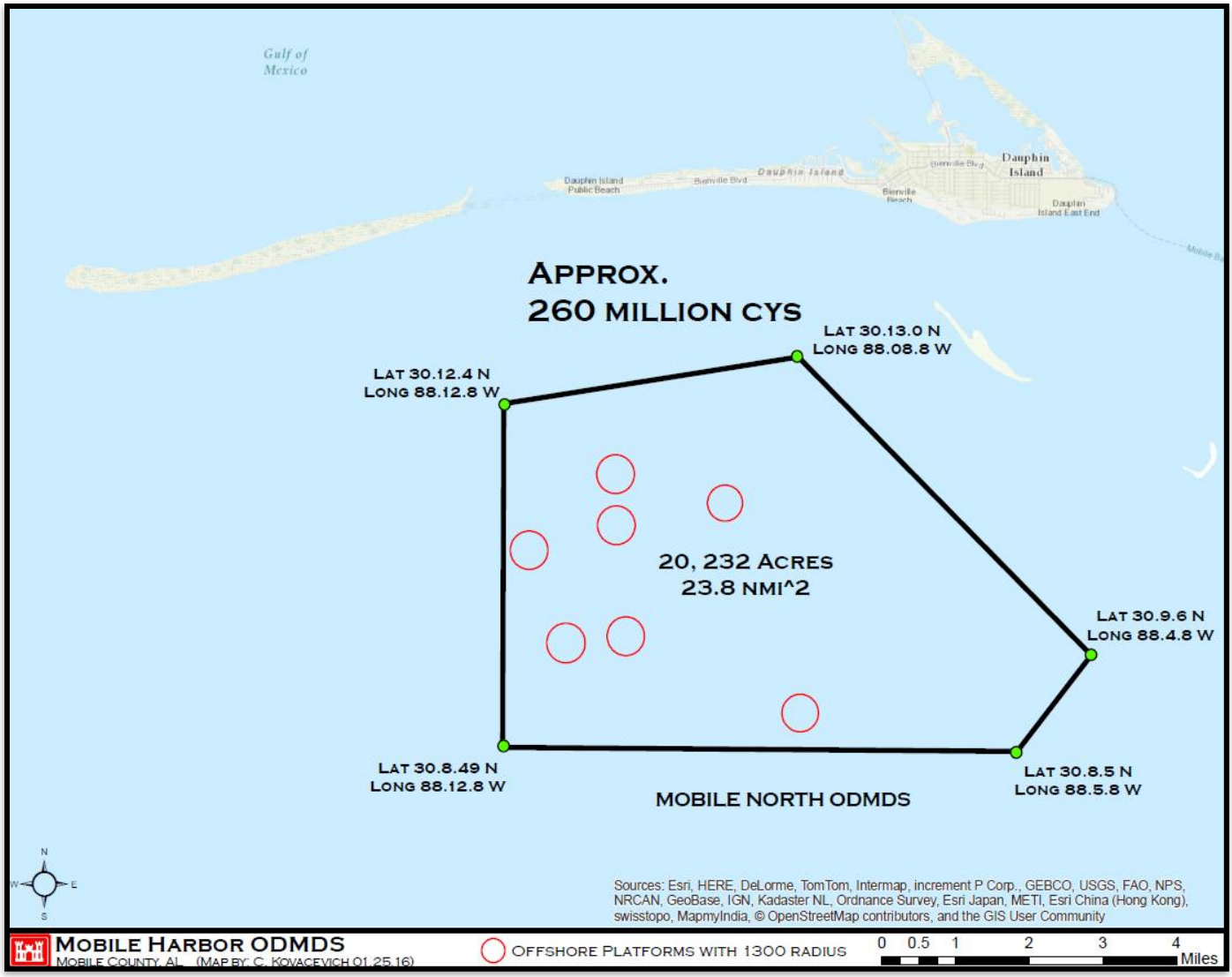


Figure 3. Proposed Modification of the EPA Section 102 Mobile ODMDS.

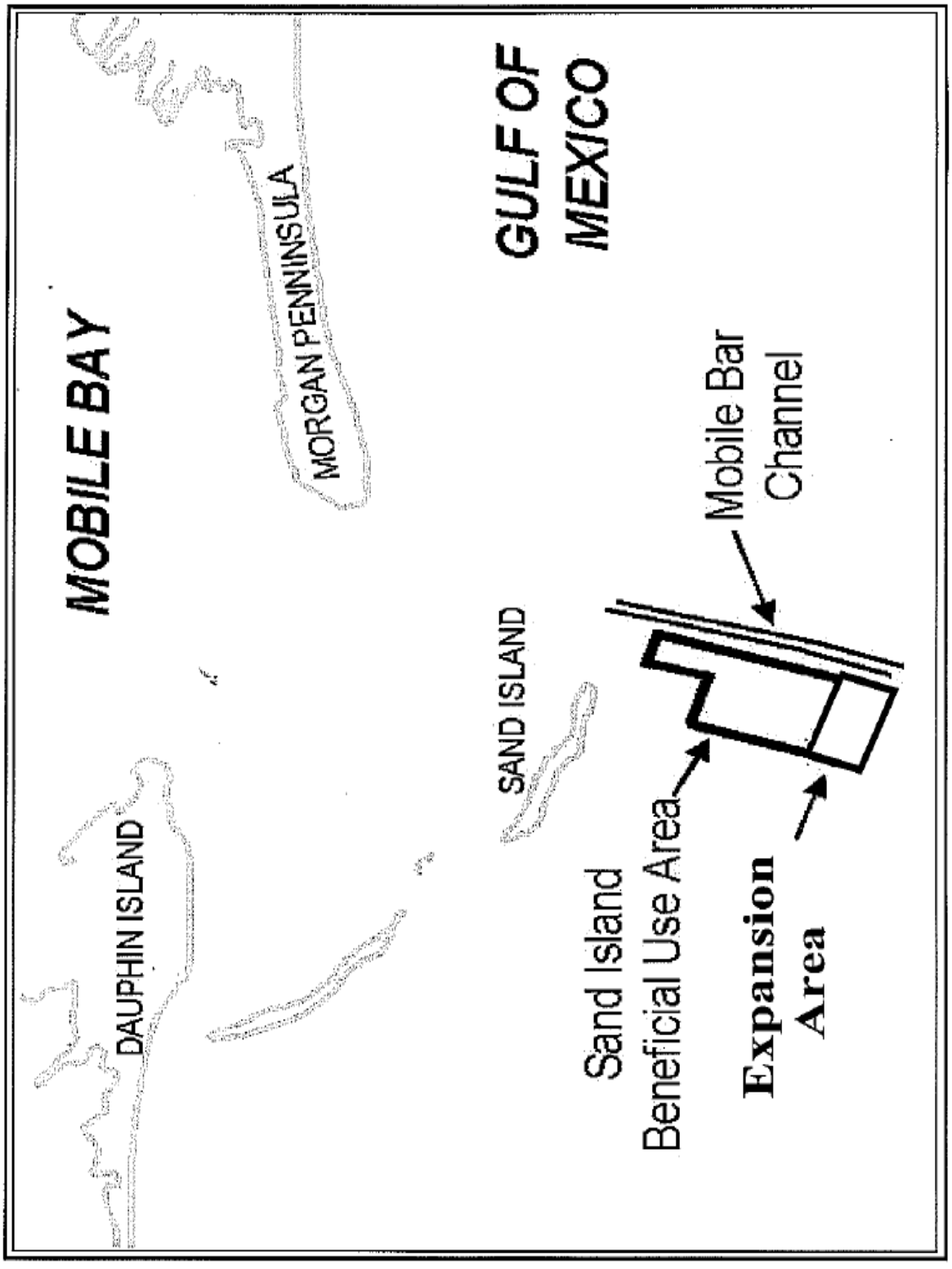


Figure 4. Sand Island Beneficial Use Area Location Map.

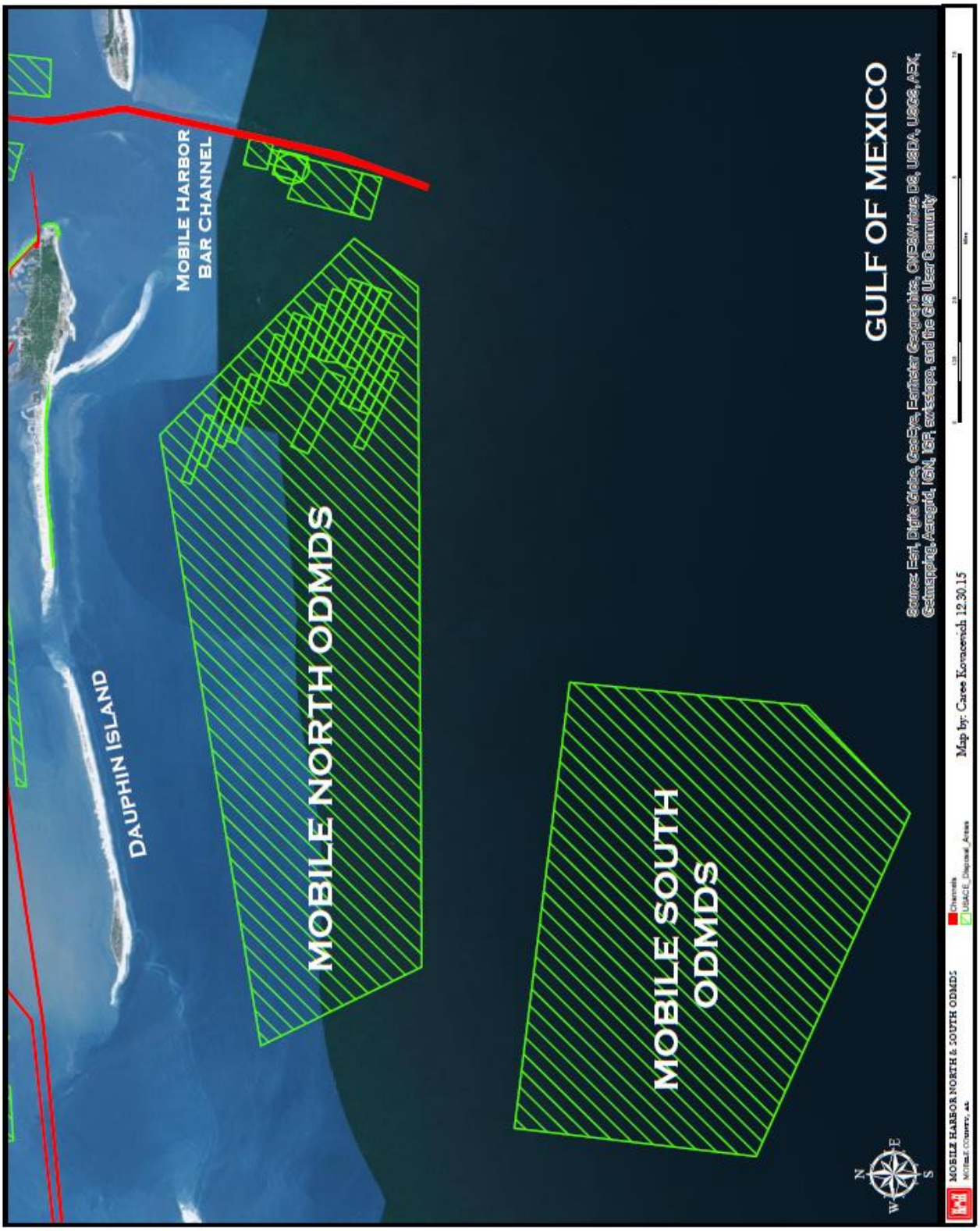


Figure 5. Location Map of Historic Mobile-North and Mobile-South ODMDSs.

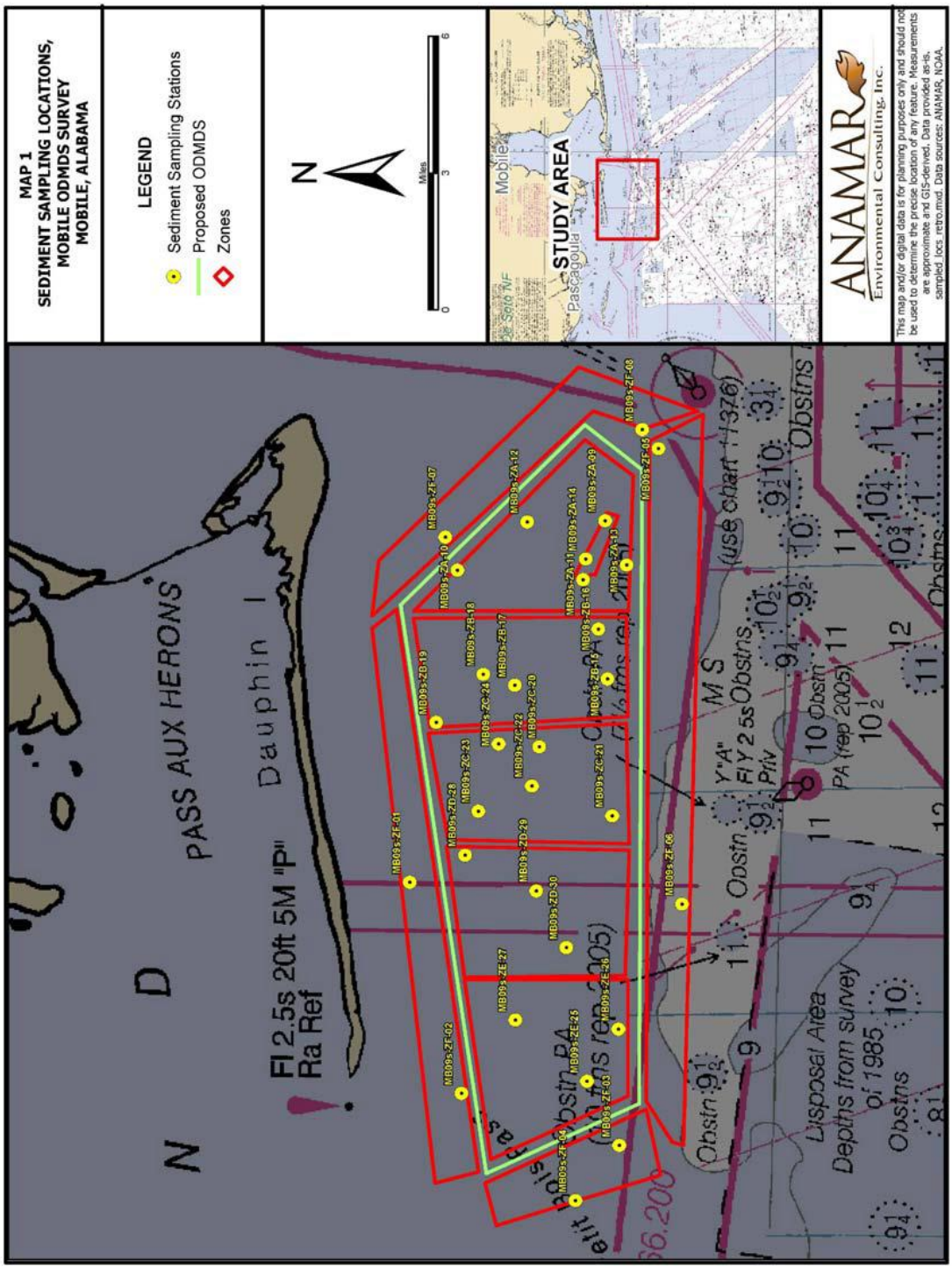


Figure 6. Sediment and benthic sampling locations of the Mobile ODMDS (2009).

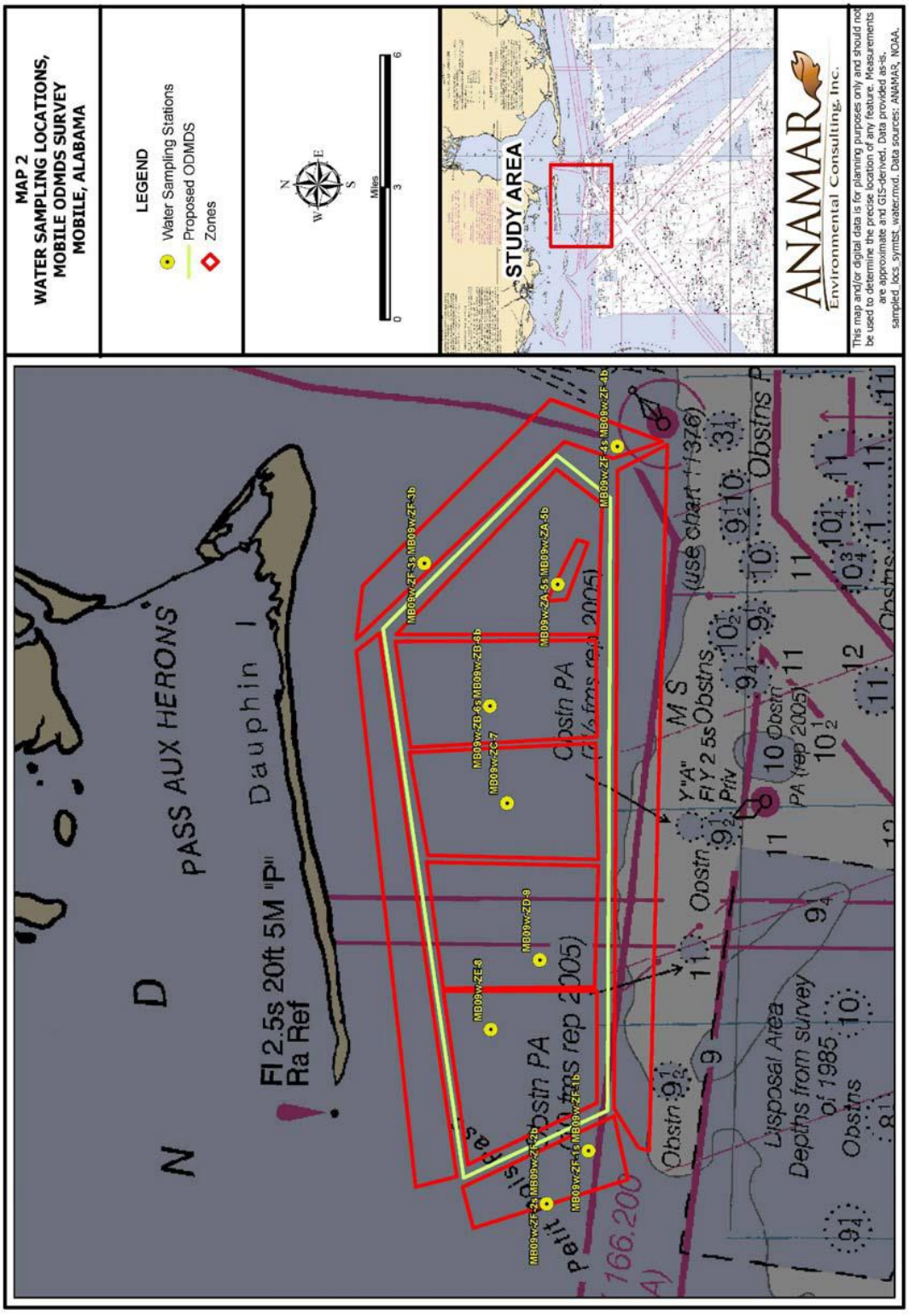


Figure 7. Site water sampling locations of the Mobile ODMDS (2009).

Appendix A: USACE justification for Mobile ODMDS site modification

Based upon past Mobile Harbor dredging history records, the USACE, Mobile District developed projected estimates representative of anticipated dredging frequencies and quantities from the Federal navigation project. The Gulf Coast experiences tropical storm and/or hurricane events approximately every seven years, which can also greatly alter dredging requirements and projections. Furthermore, although a smaller Section 102 ODMDS was designated in 1986 (approved for Interim use in 1977), it had not been a disposal option to permitted entities in the Mobile area because there had not been a current SMMP in place. In April 2015, an SMMP was signed and approved by both the EPA, Region 4 and USACE, Mobile District for the 4.75 nmi^2 Mobile ODMDS set to expire in 2019. With the limited capacity of upland disposal sites and the option of ocean placement, permitted Regulatory actions are anticipated to utilize the Mobile ODMDS as a viable option. Such entities, such as the Alabama State Port Authority, Signal Ship Repair (formerly Bender Ship Building and Repair), Shell Chemical, Plains Marketing, Arc Terminals, and Austal could potentially utilize up to 5% of site capacity over the project's 25-year life.

To further complicate forecasting, oil platforms can be built anywhere within the ODMDS over the next 25 to 50 years which require a 1,300-foot buffer (BOEM recommendation); thus, reducing capacity of the disposal site. It is challenging to forecast placement and future numbers within the disposal site but it is known that future capacity would be removed by their development. Between 1975 and 2017, 15 platforms have been built within the USACE selected Section 103 Mobile ODMDS. The USACE, Mobile District would anticipate an additional five more platforms could potentially be constructed in a newly modified ODMDS over the life of the project and recommends approximately 5% of ODMDS capacity be allotted for future platform development and associated buffers rather than disposal.

The Mobile Harbor Federal navigation project is segmented into the River, Bay, and Bar channels. Approximately 1,200,000 cys of dredged material is removed from the River channel on an annual basis. Dredged material removed from the River channel is placed within previously-approved upland disposal areas located in the upper harbor area, Gaillard Island or the Mobile ODMDS. Approximately 400,000 cys are removed from the Mobile Harbor Turning Basin and placed at the ODMDS. The Bay channel typically requires annual O&M removal of approximately 4,000,000 cys of material to maintain channel dimensions. Typically, all material removed from the Bay channel is placed in the Mobile ODMDS or, under emergency conditions, at Gaillard Island. Approximately 300,000 cys of material is removed from the Bar channel annually. The sandy material is typically removed by a hopper dredge, and placed in the SIBUA. Use of the Mobile ODMDS for the Bar channel is also a disposal option under emergency conditions. Although these are typical operations, dredging and material placement activities could occur at any time during the year, and in response to unforeseen shoaling.

The existing Mobile ODMDS is 4.75 square nautical miles (nmi^2) and was previously designated by the EPA in accordance with Section 102 of the MPRSA. The proposed action would modify the Mobile ODMDS by expanding the disposal area to the north and west to an area approximately 24 nmi^2 by encompassing a portion of a site previously selected by the U.S. Army Corps of Engineers (USACE) as an alternate disposal site, pursuant to Section 103 of the MPRSA. The EPA Section 102 Mobile ODMDS has limited capacity. Capacity at the time of designation was estimated to be approximately 80,000,000 cys. This was based on a minimum usable depth of -25 feet mean lower low water (MLLW) to allow for placement by a hopper dredge.

From 1987-2017, approximately 122,694,440 cys have been placed in the existing ODMDS (see Table 3 of the Mobile ODMDS EA). Since the ODMDS is a dispersive site, more material than had been previously estimated as the capacity of the site has been placed at the ODMDS. However, at the current rate of dredged material placement, along with past disposal events, the EPA Section 102 Mobile ODMDS site is not adequately sized. If all proposed O&M material were placed within the site, capacity would be reached in approximately five years. Future needs for both proposed O&M and new work dredged material over the next 25 years, including proposed plans for deepening and widening the Mobile Harbor Federal navigation project, require a suitable ODMDS for potential receipt upwards of approximately 26 million cys of new work material. Over a 25-year project life, future construction could also potentially increase the total new work material volume to approximately 90-100 million cys . This would be in addition to the routine O&M dredged material volume of approximately 4.4 million cys of sediment needing placement on an annual basis.

Utilizing past ocean disposal use since 1987 (Table 3 of Mobile ODMDS EA), approximately 4,000,000 cys would typically be placed within the ODMDS annually. This volume excludes the anomaly of 16,000,000 cys associated with the major improvements project placed in the Gulf in 1989. A total of 4,400,000 cys would be expected to be placed in the ocean due to the inclusion of projected maintenance from the MHTB. A Public Notice FP14-MH01-10, dated May 20, 2014, proposed reestablishment of open water placement operations within Mobile Bay on a rotating basis utilizing historic open-water cells adjacent to the Bay channel. Initial projections approximate 35% of routine O&M material (i.e. approximately 1,500,000 cys) could be placed in the Bay annually.

Proposed new work projects anticipated within the 25-year project life of the proposed Mobile ODMDS modification includes the following proposed Civil Works Federal Mobile Harbor navigation project:

- *Mobile Harbor Construction to Authorized Project Dimensions, WRDA of 1986 General Reevaluation Report (GRR)*

    o Description – Deepening and widening the Bay Channel to its authorized project dimensions (plus advanced and overdepth)
    o New Work – Approximately 90-100 million cys for construction to authorized dimensions
    o Future Operations and Maintenance – Approximately 2,000,000 cys annually
    o Anticipated Construction – FY 2021

The USACE is evaluating improvements to the federally authorized navigation project as part of its Mobile Harbor GRR study. Those improvements under consideration are less than the fully authorized project dimensions. However, over the 25-year project life, future construction to the fully authorized dimensions could potentially increase the total new work material volume to approximately 90-100 million cys if full authorized dimensions, or greater, are deemed necessary.

With the above justification and detailed calculations (see below), the USACE, Mobile District anticipates the following projection in dredged material requirements as listed in the table below. A contingency has been included for uncertainty in the forecasting ability

throughout the ODMDS' project life. Thus, the USACE, Mobile District determined the Mobile ODMDS requires a capacity of approximately 260,000,000 cys for the next 25 years.

Anticipated dredged material requirements

Operations and Maintenance	76,900,000
Construction to Authorized Project (WRDA 86) and O&M	138,000,000
Regulatory	10,000,000
Subtotal	224,900,000
15% Contingency	33,735,000
Total	**258,635,000**

Operations and Maintenance of the Existing Federal Mobile Harbor Navigation Project

Historic Ocean Disposal Use1[a]		Estimated O&M Ocean Disposal with Existing Project[b]			Estimated Open-water Disposal with Existing Project[c]			Estimated Ocean Disposal with Open-Bay Disposal[d]		
1987	101,400									
1989	16,000,000									
1990	6,755,400	FY 2016	O&M	4,400,000	FY 2016	O&M	1,500,000	FY 2016	O&M	2,900,000
1991	6,888,500	FY 2017	O&M	4,400,000	FY 2017	O&M	1,500,000	FY 2017	O&M	2,900,000
1992	4,939,400	FY 2018	O&M	4,400,000	FY 2018	O&M	1,500,000	FY 2018	O&M	2,900,000
1993	1,945,300	FY 2019	O&M	4,400,000	FY 2019	O&M	1,500,000	FY 2019	O&M	2,900,000
1994	2,400,000	FY 2020	O&M	4,400,000	FY 2020	O&M	1,500,000	FY 2020	O&M	2,900,000
1995	2,636,600	FY 2021	O&M	4,400,000	FY 2021	O&M	1,500,000	FY 2021	O&M	2,900,000
1996	3,028,400	FY 2022	O&M	4,400,000	FY 2022	O&M	1,500,000	FY 2022	O&M	2,900,000
1997	5,503,100	FY 2023	O&M	4,400,000	FY 2023	O&M	1,500,000	FY 2023	O&M	2,900,000
1998	7,425,100	FY 2024	O&M	4,400,000	FY 2024	O&M	1,500,000	FY 2024	O&M	2,900,000
1999	2,617,000	FY 2025	O&M	4,400,000	FY 2025	O&M	1,500,000	FY 2025	O&M	2,900,000
2000	5,911,300	FY 2026	O&M	4,400,000	FY 2026	O&M	1,500,000	FY 2026	O&M	2,900,000
2001	4,593,800	FY 2027	O&M	4,400,000	FY 2027	O&M	1,500,000	FY 2027	O&M	2,900,000
2002	4,101,400	FY 2028	O&M	4,400,000	FY 2028	O&M	1,500,000	FY 2028	O&M	2,900,000
2003	6,785,700	FY 2029	O&M	4,400,000	FY 2029	O&M	1,500,000	FY 2029	O&M	2,900,000
2004	7,848,900	FY 2030	O&M	4,400,000	FY 2030	O&M	1,500,000	FY 2030	O&M	2,900,000
2005	3,223,900	FY 2031	O&M	4,400,000	FY 2031	O&M	1,500,000	FY 2031	O&M	2,900,000
2006	2,546,600	FY 2032	O&M	4,400,000	FY 2032	O&M	1,500,000	FY 2032	O&M	2,900,000
2007	1,952,800	FY 2034	O&M	4,400,000	FY 2034	O&M	1,500,000	FY 2034	O&M	2,900,000
2008	2,235,993	FY 2035	O&M	4,400,000	FY 2035	O&M	1,500,000	FY 2035	O&M	2,900,000
2009	5,979,800	FY 2036	O&M	4,400,000	FY 2036	O&M	1,500,000	FY 2036	O&M	2,900,000
2010	4,361,670	FY 2037	O&M	4,400,000	FY 2037	O&M	1,500,000	FY 2037	O&M	2,900,000
2011	3,500,844	FY 2038	O&M	4,400,000	FY 2038	O&M	1,500,000	FY 2038	O&M	2,900,000
2012	1,592,204	FY 2039	O&M	4,400,000	FY 2039	O&M	1,500,000	FY 2039	O&M	2,900,000
2013	1,901,591	FY 2040	O&M	4,400,000	FY 2040	O&M	1,500,000	FY 2040	O&M	2,900,000
2014	2,037,900	FY 2041	O&M	4,400,000	FY 2041	O&M	1,500,000	FY 2041	O&M	2,900,000

2015	652,338	FY 2042	O&M	4,400,000	FY 2042	O&M	1,500,000	FY 2042	O&M	2,900,000
2016	2,200,000	FY 2043	O&M	4,400,000	FY 2043	O&M	1,500,000	FY 2043	O&M	2,900,000
2017	1,027,500	FY 2044	O&M	4,400,000	FY 2044	O&M	1,500,000	FY 2044	O&M	2,900,000
	122,694,440			**123,200,000**			**42,000,000**			**81,200,000**

[a] Historic Quantities do not reflect Mobile Harbor Turning Basin O&M of 400,000
[b] Mobile Harbor Turning Basin Estimated O&M included in estimate
[c] Pursuant to WRDA of 1992 & Regional Sediment Management, Pursuit of Reinstating Open-water Disposal
[d] Estimated Account for Open-Water Disposal. The ODMDS is still a disposal option for this sediment, however, it is not anticipated that it will be placed offshore.

Projected O&M Volumes if Construction to Authorized Dimensions Occurs (WRDA of 1986)

Construction to Authorized Project Dimensions			
FY 2021		NW	90-100 million cys*
Annual Estimate		*O&M*	*2,000,000*
FY 2022		O&M	2,000,000
FY 2023		O&M	2,000,000
FY 2024		O&M	2,000,000
FY 2025		O&M	2,000,000
FY 2026		O&M	2,000,000
FY 2027		O&M	2,000,000
FY 2028		O&M	2,000,000
FY 2029		O&M	2,000,000
FY 2030		O&M	2,000,000
FY 2031		O&M	2,000,000
FY 2032		O&M	2,000,000
FY 2033		O&M	2,000,000
FY 2034		O&M	2,000,000
FY 2035		O&M	2,000,000
FY 2036		O&M	2,000,000
FY 2037		O&M	2,000,000
FY 2038		O&M	2,000,000
FY 2039		O&M	2,000,000
FY 2040		O&M	2,000,000
FY 2041		O&M	2,000,000
FY 2042		O&M	2,000,000
FY 2043		O&M	2,000,000
FY 2044		O&M	2,000,000
		Total	**146,000,000***

*These include both the current projection of 26 million cys associated with the proposed GRR project, as well as the possibility that the Mobile Harbor navigation project could, over time, be dredged to full project authorization dimensions (approximately 90-100 million cys total), or beyond, if deemed necessary.

Appendix B: Past Environmental Coordination (1985-2017)

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

REPLY TO
ATTENTION OF:
SAMPD-EC

December 4, 1985

PUBLIC NOTICE NO. FP85-MH04-2

SECTION 103 DESIGNATION
OFFSHORE DREDGED MATERIAL DISPOSAL SITES
MOBILE HARBOR PROJECT, MOBILE COUNTY, ALABAMA

A FEDERALLY AUTHORIZED PROJECT

Interested persons are hereby notified that the U. S. Army Corps of Engineers, Mobile District, proposes to designate two offshore disposal sites under the authority of Section 103 of the Marine, Protection, Research and Sanctuaries Act of 1972.

This public notice is being issued in accordance with rules and regulations found at 33 CFR 209.120, 33 CFR 209.145, 40 CFR 220-229, and 40 CFR 330. These regulations provide for the review of dredge and fill activities on Federally authorized projects under the following Federal laws: The Federal Water Pollution Control Act; Clean Water Act of 1977; the Marine Protection Research and Sanctuaries Act (MPRSA) of 1972; the Coastal Zone Management Act of 1972; the National Environmental Policy Act of 1969; the Fish and Wildlife Act of 1956; the Migratory Marine Game-Fish Act; the Fish and Wildlife Coordination Act; the Endangered Species Act of 1973; and the National Historic Preservation Act. The review under these laws is applicable whenever dredged or fill materials may enter navigable waters or ocean waters. The recipient of this notice is requested specifically to review the proposed action as it may impact on human health, welfare or amenities, or the marine environment, ecological systems relative to the requirements of Section 102(a) of the MPRSA. Review of any other potential impacts is also requested.

WATERWAY AND LOCATION: Gulf of Mexico

DESCRIPTION OF EXISTING AUTHORIZED PROJECT: The existing Mobile Harbor project consists of:

a. A 42- by 600-foot channel about 1.5 miles long across Mobile Bar;

b. A 40- by 400-foot channel in Mobile Bay to mouth of Mobile River;

c. A 40-foot channel in Mobile River to U. S. Highway 98 bridge, width varying from 500 to 775 feet;

d. A 25-foot channel from U. S. Highway 98 bridge to and up Chickasaw Creek to a point 400 feet south of mouth of Shell Bayou, widths being 500 feet in Mobile River and 250 feet in Chickasaw Creek;

e. A turning basin 40 feet deep, 2,500 feet long, and 800 to 1,000 feet wide, opposite Alabama State Docks at River Mile 1.2.

f. A turning basin 40 feet deep, 1,000 feet wide, and 1,600 feet long south of the U. S. Highway 98 bridge at River Mile 2.7.

g. A 27- by 150-foot channel from Mobile Bay Channel westerly for 1.6 miles to a turning basin 800 feet long and 600 feet wide and continuing thence 1.1 miles to a turning basin 250 feet wide and 800 feet long in Garrows Bend. Total length of bay and river channels is about 41.7 miles.

The existing Mobile Harbor project also includes the Theodore Ship Channel which was authorized by the Water Resources Development Act of 1976.

PROPOSED ACTION: The proposed action involves the designation of two offshore disposal sites which is necessary for the disposal of dredged material from the construction and future maintenance of the Mobile Harbor deepening project. The new offshore disposal areas would also be available for any other dredged material meeting the EPA suitability criteria.

Navigation improvements to the Mobile Harbor project consist of:

- Deepen the entrance channel across the bar to 57 feet at the existing project width of 600 feet for a distance of about 7.8 miles.

- Deepen the Mobile Bay Ship Channel from the mouth of the bay to south of Mobile River to 55 feet at the existing project width of 400 feet, a distance of about 29.0 miles.

- Deepen and widen an additional 2.2 miles of Mobile Bay Ship Channel to 55 x 650 feet in the vicinity south of McDuffie Island.

- Provide a 40-foot deep turning basin 1,500 feet square, including the ship channel, opposite McDuffie Island and just south of Little Sand Island.

- Provide a 40-foot deep anchorage area 4,000 feet long by 600 feet wide adjacent to and south of the turning basin.

- Provide for a passing lane at mid-bay which would be 3.0 miles long with a width of 625 feet for at least 2.0 miles.

Under the proposed plan for improvements to Mobile Harbor, approximately 51,676,000 cubic yards of new work material from the lower bay reach and all future maintenance material from the entire bay channel, approximately 4.1 million cubic yards annually, would be excavated by hydraulic dredge

utilizing dump scows and towboats to transport the material to a gulf disposal area. During construction in the bar channel, approximately 15,333,000 cubic yards of material would be removed by hopper dredge and disposed of in the gulf disposal area. An average annual volume of about 379,000 cubic yards of maintenance material would be dredged from the modified bar channel and placed offshore.

The Mobile-north site begins at approximately two miles due south of Dauphin Island, Alabama and extends for four miles. The Mobile-south site begins at approximately eight miles due south of Dauphin Island and extends for seven miles. The boundary coordinates for the ocean sites are listed below:

Mobile North Corner Coordinates(Latitude,Longitude)	Mobile South Corner Coordinates
N 30 degrees 11.3 minutes W 88 degrees 21.3 minutes	N 30 degrees 6.9 minutes W 88 degrees 23.0 minutes
N 30 degrees 08.5 minutes W 88 degrees 19.7 minutes	N 30 degrees 02.7 minutes W 88 degrees 23.6 minutes
N 30 degrees 13.0 minutes W 88 degrees 08.8 minutes	N 30 degrees 00.0 minutes W 88 degrees 16.6 minutes
N 30 degrees 08.5 minutes W 88 degrees 05.8 minutes	N 30 degrees 01.8 minutes W 88 degrees 14.4 minutes
N 30 degrees 09.6 minutes W 88 degrees 04.8 minutes	N 30 degrees 05.9 minutes W 88 degrees 13.9 minutes

Depths at the Mobile-north site range from 20 to 58 feet with an average depth of 43 feet. Mobile-south depths range from 54 to 80 feet with an overall average of 66 feet. See Figures 1 and 2.

Currently, approximately 325,000 cubic yards of dredged material from the Mobile Harbor bar channel is placed annually in an existing 4.4 square mile offshore disposal area which is within the confines of the proposed Mobile-north site. This offshore area has interim approval by the Environmental Protection Agency(EPA) as an ocean disposal site. Studies have shown that no long-term or irreversible effects have occurred as a result of disposal of the bar channel material.

Upon identifying the possible need for offshore disposal, extensive tests were conducted on the potential dredged material to determine its suitability for offshore disposal. In accordance with the 11 January 1977 Ocean Dumping Criteria established by the Environmental Protection Agency, samples of the dredged material were subjected to a series of tests including bulk sediment analysis, elutriate analysis, bioassay tests, and bio-accumulation analyses. The Mobile Harbor sediments consist primarily of silts and clays with traces of graded sand. The bottom materials in the

disposal areas are primarily fine sands, and variable silt-clay fractions. Results of these tests indicate the Mobile Harbor channel improvements material is suitable for offshore disposal. Details of these testing procedures and results may be found in the 1980 Survey Report and Project Environmental Impact Statement (EIS) and the 1985 Final Supplemental Environmental Impact Statement (SEIS).

Two types of disposal methods could be employed. These are widespread placement of material over most of the disposal site or point discharge to a minimum location within the disposal area. The widespread placement of material would involve maximum dispersal of material in the disposal area such that the thinnest possible layer of material would be deposited at any one point. Advantages of this disposal method include more rapid mixing with the natural bottom sediments, the least change to bathymetric features, and a better opportunity for rapid recruitment of burrowing species of benthic organisms capable of migrating through thin layers of material after burial. This method, however, would have a more widespread direct effect on the benthic communities and would add difficulty and expense to the management and monitoring of the operations.

Point discharge, due to the smaller area involved could be more efficiently managed and monitored. Some mounding of material would be expected to occur; however, currents and trawling activities would probably erode and level the mounded areas. Some mounding would add habitat diversity to the otherwise monotonous bathymetry of the area. Habitat diversity has been sought by creation of artificial reefs in the nearshore areas. Thus, mounding in conjunction with the slight nutrient enrichment expected from the material, would benefit certain offshore species.

EPA REVIEW: A copy of this notice is being provided to the Regional Administrator for review on the use of the proposed ocean disposal site for disposal of dredged material from the Mobile Harbor Project

CERTIFICATE OF CONSISTENCY: A review of the Alabama Coastal Area Management Program indicates that the proposed project is consistent with the program to the maximum extent practicable. The Coastal Area Board, by letter dated May 12, 1980; and the Alabama Department of Environmental Management, by letter dated May 1, 1985, indicate that the proposed plan is consistent with current area-wide plans, programs, and objectives provided that biological resources are protected to the maximum extent practicable and appropriate mitigation measures are implemented.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) CONSIDERATIONS: The impacts associated with proposed channel improvements to Mobile Harbor, Alabama, are addressed in the October 1980 Final EIS for the project. A Preliminary SEIS was prepared in September 1985 to consider the impacts which could result from offshore disposal of dredged material from construction and maintenance of the improved channel and to investigate designation of an offshore disposal site(s). A Final SEIS has been prepared and is expected to be issued for a 30-day review on December 13, 1985.

Comments on the FSEIS should be furnished to the Mobile District, U.S. Army Corps of Engineers by reviewing agencies and individuals by January 13, 1986. Interested individuals and groups can obtain a copy of the FSEIS by writing or telephoning the U.S. Army Corps of Engineers at Mobile. Written requests should be addressed to the U.S. Army Corps of Engineers; Mobile District; P.O. Box 2288; Mobile, Alabama 36628-0001. Telephone requests should be made to 205/694-3851.

MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT CONSIDERATIONS: The suitability of the proposed ocean disposal site for dumping dredged material was evaluated in accordance with the criteria established under authority of Section 102(a) of the Marine Protection Research and Sanctuaries Act of 1972 (40 CFR 227 and 228). The results of the evaluation are contained within the Supplemental Environmental Impact Statement for the project. Results of the study indicate both Mobile North and South sites are suitable for offshore disposal of the dredged material. Unavoidable adverse impacts associated with the proposed action would arise from the disposal operation which would destroy some benthic organisms, cause minor releases of pollutional constituents and increase turbidity. Although some smothering of benthic organisms would occur, rapid recolonization of similar species is expected. Beneficial impacts include improved deeper draft navigation allowing the use of larger, more economical vessels and the deletion of open-water disposal areas currently being utilized in Mobile Bay.

CULTURAL RESOURCES CONSIDERATIONS: Remote sensing surveys of the proposed offshore disposal sites identified magnetic anomalies in both sites. Of these, six in Mobile-north and three in Mobile-south were recommended for avoidance or additional evaluation. Direct impact to the anomalies would be avoided by not allowing discharge in proximity to any of the anomalies.

ENDANGERED SPECIES: Several listed endangered species may occur in the project area; however, it is not expected that they would be significantly affected by the proposed activities.

COORDINATION: Among the agencies receiving copies of this public notice are:

Region IV, U.S. Environmental Protection Agency
Field Representative, U.S. Fish and Wildlife Service
Regional Director, National Park Service
Regional Director, National Marine Fisheries Service
Commander, Eight Coast Guard District
Alabama Department of Conservation and Natural Resources
Alabama Department of Environmental Management

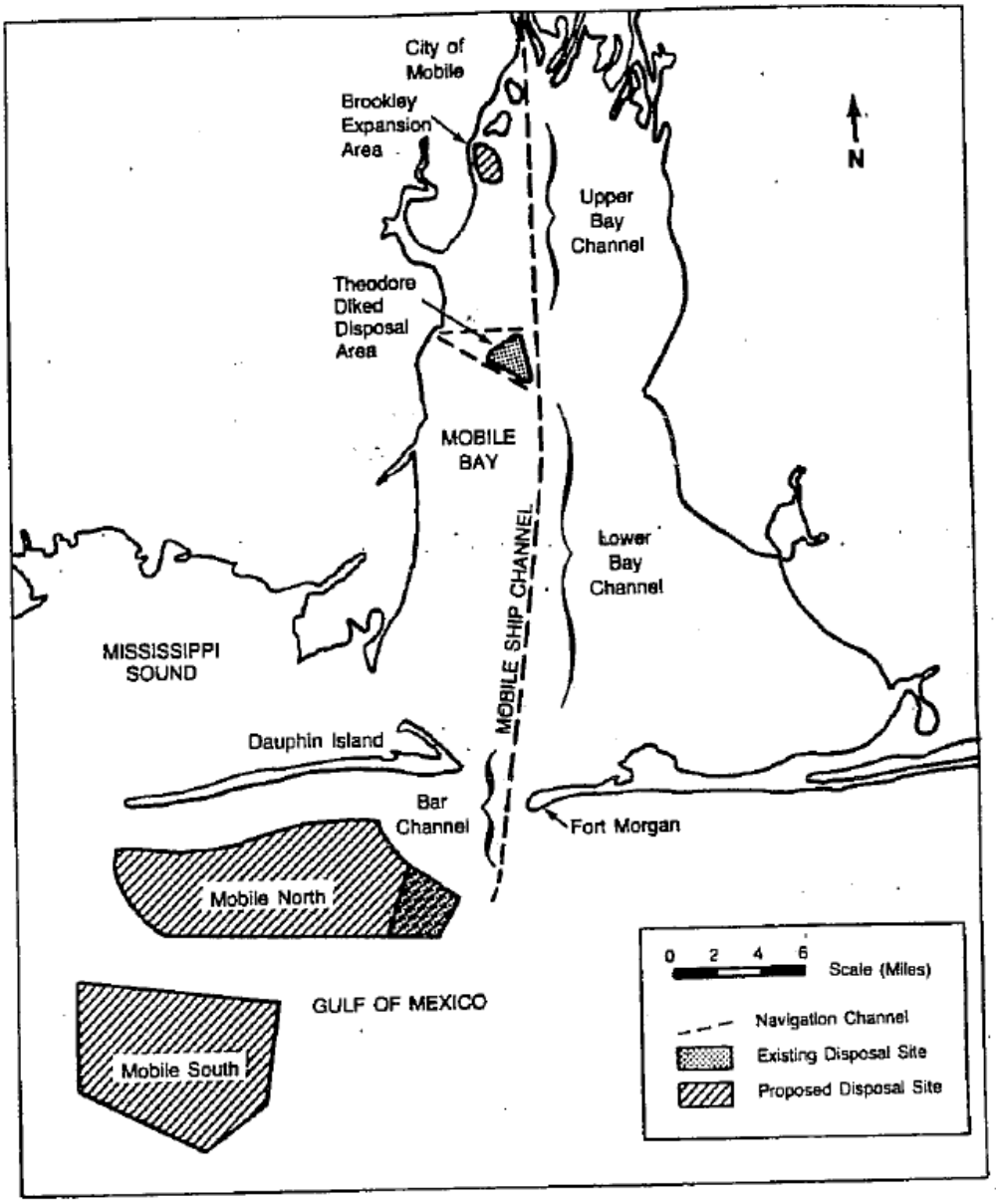
Other Federal, State, and local organizations, U.S. Senators and Representatives of Alabama are being sent copies of the notice and are being asked to participate in coordinating this proposed work.

CORRESPONDENCE: Any person who has an interest which may be affected by this proposed activity, may request a public hearing. Any comments or request for a hearing must be submitted in writing to the District Engineer by January 4, 1986. A request for a hearing must clearly set forth the interest which may be affected and the manner in which the interest may be affected.

Inasmuch as the proposed work would also involve the transportation of dredged material for the purpose of dumping it in ocean waters, designation of the proposed disposal sites is being evaluated to determine that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities or the marine environment, ecological system, or economic potentialities. In making this determination, the criteria established by the Administrator, EPA, pursuant to Section 102(a) of the Marine Protection, Research and Sanctuaries Act of 1972, shall be applied. In addition, based upon an evaluation of the potential effect which the failure to utilize this ocean disposal site will have on navigation, economic and industrial development, and foreign and domestic commerce of the United States, an independent determination will also be made of the need to dump this dredged material in ocean waters, other possible methods of disposal, and appropriate locations for the dumping.

You are requested to communicate the information contained in this notice to any other parties who may have an interest in the proposed activities.

Correspondence concerning the public notice should refer to Public Notice No. FP85-MH04-2 and should be directed to the Commander, U. S. Army Engineer, District Mobile; P.O. Box 2288; Mobile, Alabama 36628-0001; ATIN: SAMPD-EC, in time to be received prior to January 4, 1986.



Source: Adapted from U.S. Army Corps of Engineers, 1980, and Harmon Engineering, 1984

FIGURE 1
LOCATION OF THE PROPOSED DREDGED MATERIAL DISPOSAL SITES IN THE GULF OF MEXICO SOUTH OF MOBILE BAY, ALABAMA

-7-

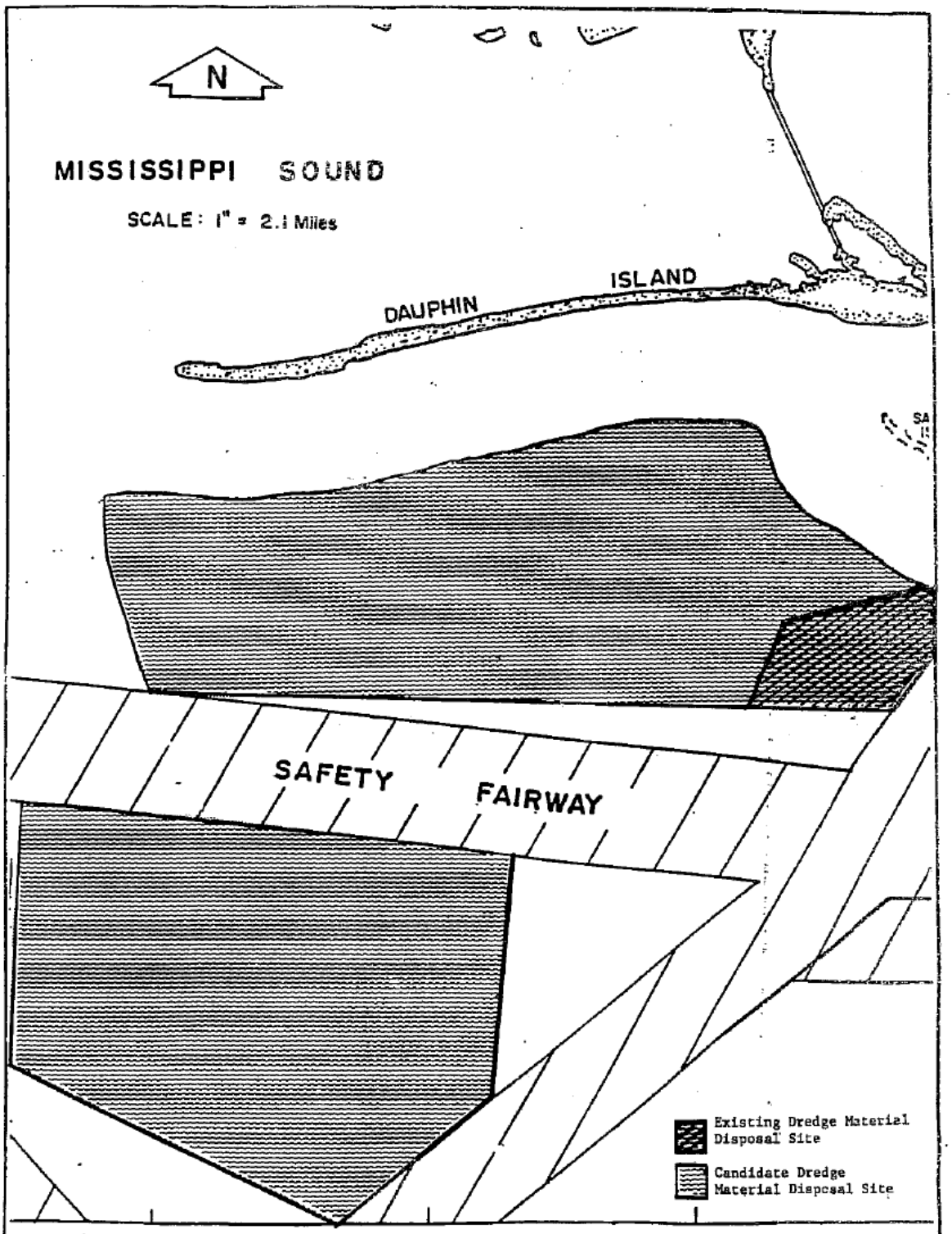


FIGURE 2

MOBILE NORTH AND MOBILE SOUTH CANDIDATE OFFSHORE DISPOSAL AREAS

-8-

LANCE R. LEFLEUR
DIRECTOR

ROBERT J. BENTLEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

March 9, 2017

Mr. Curtis M. Flakes, Chief
Planning and Environmental Division
Department of the Army
Mobile District, Corps of Engineers
Post Office Box 2288
Mobile, AL 36628-0001

RE: State of Alabama Concurrence with the U.S. Army Corps of Engineers' Coastal Consistency Determination
Mobile Harbor Federal Navigation Project
U.S. Army Corps of Engineers (USACE) Joint Public Notice: FP16-MH01-04
Alabama Department of Environmental Management (ADEM) Tracking Code: 2017-181-FC-FAA-COEP

Dear Mr. Flakes:

The ADEM received the USACE's consistency determination - required by Title 15CFR Subpart C - on January 4, 2017. Pursuant to Title 15CFR §930.41 and based upon review of the information submitted by the USACE, by this letter the ADEM hereby notifies the USACE of its **concurrence** with the USACE's consistency determination.

Should the proposed activity be modified, a revised consistency determination may be necessary pursuant to Title 15CFR 930.46. Contact the Mobile-Coastal office anytime with questions. Always include the ADEM tracking code above when corresponding on this matter.

Sincerely,

Anthony Scott Hughes, Chief
Field Operations Division

ASH/jsb/cap

File: CZCERT/46024

cc: Larry Parson, USACE (Sent Via Email Only: larry.e.parson@usace.army.mil)
Rosemary Hall, EPA (Sent Via Email Only: Hall.Rosemary@epamail.epa.gov)
Josh Rowell, USFWS (Sent Via Email Only: Josh_Rowell@fws.gov)
Mark Thompson, NMFS (Sent Via Email Only: Mark.Thompson@noaa.gov)
Carl Ferraro, ADCNR (Sent Via Email Only: Carl.Ferraro@dcnr.alabama.gov)
Phillip Hinesley, ADCNR (Sent Via Email Only: Phillip.Hinesley@dcnr.alabama.gov)

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

LANCE R. LEFLEUR
DIRECTOR

ROBERT J. BENTLEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

March 9, 2017

Mr. Curtis M. Flakes, Chief
Planning and Environmental Division
Department of the Army
Mobile District, Corps of Engineers
Post Office Box 2288
Mobile, AL 36628-0001

RE: State of Alabama Water Quality Certification (WQC) Pursuant to Clean Water Act (CWA) §401(a)
Mobile Harbor Federal Navigation Project
U.S. Army Corps of Engineers (USACE) Joint Public Notice: FP16-MH01-04
Alabama Department of Environmental Management (ADEM) Tracking Code: 2017-181-WQC-COEP

Dear Mr. Flakes:

The ADEM received a copy of the USACE's joint public notice on January 4, 2017 and has completed its review of all submitted materials related to the USACE's proposal to continue with operations and maintenance of the Mobile Harbor Navigation Project as previously described in Public Notice Numbers FP86-MH06-2, FP91-MH07-4, FP95-MH07-2, FP97-MH08-02, FP97-MH09-02, FP11-MH01-06, and FP14-MH01-10.

Action pertinent to WQC is required by CWA §401(a)(1), 33 U.S.C. §1251, et. seq. If conducted in accordance with the conditions prescribed herein, there is reasonable assurance that the discharge resulting from the approved activity will not violate applicable water quality standards established under §303 of the CWA and §22-22-9(g), Code of Alabama (1975). By this letter, the ADEM notifies the USACE that CWA §401 WQC is hereby **granted.** This WQC terminates coincidentally with the expiration of FP16-MH01-04. This WQC only addresses potential discharges to state waters resulting from activities proposed in the USACE's application. This WQC does not negate the USACE's responsibility to acquire all other needed permits nor does this WQC, in any way, imply that the proposed activities comply with the requirements of any other jurisdictional entity nor does it imply that the project can or will be approved by any other jurisdictional entity. ADEM certifies that there are no applicable effluent limitations under §301 and §302 nor applicable standards under §306 and §307 of the CWA in regard to the activities specified.

In recognition that projects are site specific in nature and conditions can change during project implementation, the ADEM reserves the right to request additional information or request additional management measures to be implemented, as necessary on a case-by-case basis, in order to ensure the protection of water quality and coastal resources. Deviation from the approved project design may necessitate additional coordination.

This WQC does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of Federal, State, or local laws or regulations and in no way purports to vest in the USACE title to lands now owned by the State of Alabama nor shall it be construed as acquiescence by the State of Alabama of lands owned by the State that may be in the USACE's possession. This concurrence is not transferable without prior written notice and approval of the ADEM. Upon such notice, the Director may require submission of additional information.

To protect water quality, the following conditions must be incorporated as part of FP16-MH01-04:

1. The USACE and/or its assigns shall implement appropriate best management practices (BMPs) to minimize turbidity impacts to the maximum extent practicable. Turbidity generated by the activity must not cause substantial visible contrast nor result in an increase of more than fifty (50) Nephelometric turbidity units (NTU) above background in state waters.

2. Upon the loss or failure of any treatment facility, BMP, or other management control measure as identified by responsible on-site staff during day to day construction operations or as identified by ADEM technical staff during facility inspections, the USACE and/or its assigns shall, where necessary to maintain compliance with this WQC, suspend, cease, reduce, or otherwise control work/activity and all discharges until effective treatment is restored and immediately notify the ADEM Mobile-Coastal office at (251) 304-1176 of resultant work stoppage.

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

3. The USACE and/or its assigns are responsible for the condition of the spoil disposal areas for the life of the placement activity and until the disposal areas are reclaimed or adequately stabilized, and for pumping and discharge rates to ensure settling of suspended solids within the confines of the spoil disposal areas sufficient to ensure that turbidity in the return water will not cause substantial visible contrast within the receiving waters, or result in an increase of 50 NTUs above background turbidity levels in the receiving waters.

Contact the Mobile-Coastal office anytime with questions. Always include the ADEM tracking code above when corresponding on this matter.

Sincerely,

Anthony Scott Hughes, Chief
Field Operations Division

ASH/jsb/cap

File: 401WQ/46024

cc: Larry Parson, USACE (Sent Via Email Only: larry.e.parson@usace.army.mil)
Rosemary Hall, EPA (Sent Via Email Only: Hall.Rosemary@epamail.epa.gov)
Josh Rowell, USFWS (Sent Via Email Only: Josh_Rowell@fws.gov)
Mark Thompson, NMFS (Sent Via Email Only: Mark.Thompson@noaa.gov)
Carl Ferraro, ADCNR (Sent Via Email Only: Carl.Ferraro@dcnr.alabama.gov)
Phillip Hinesley, ADCNR (Sent Via Email Only: Phillip.Hinesley@dcnr.alabama.gov)

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

December 18, 2002

REPLY TO
ATTENTION OF

Coastal Environment Team
Planning and Environmental Division

Mr. Eric Hawk
National Marine Fisheries Service
Southeast Regional Office
Protected Resources Division
9721 Executive Center Drive North
St. Petersburg, Florida 33702-2432

Dear Mr. Hawk:

The U.S. Army Corps of Engineers, Mobile District, is preparing the environmental documentation for the U.S. Environmental Protection Agency (EPA), Region 4 proposed re-designation of the Mobile-North Ocean Dredged Material Disposal Site (ODMDS) from a Section 103 site to a Section 102 site as authorized by the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA). The U.S. Environmental Protection Agency (EPA) is proposing the designation of Mobile-North under Section 102 of the MPRSA of 1972 to accommodate anticipated dredged material placement needs within the service area. EPA's site designation does not, by itself, authorize any dredging or on-site dumping of dredged material. EPA Ocean Dumping Regulations [40 CFR 220-229] establish procedures and criteria for selection and management of ocean disposal sites and evaluation of permits. This change in designation is purely an administrative process which will allow all material deemed to be suitable for ocean disposal that meets the criteria to utilize the site.

The Mobile District has designated the Mobile-North ODMDS in 1986 under Section 103 of the MPRSA for use for new work and maintenance dredged material from the Mobile Harbor Federal navigation project. Mobile-North ODMDS is located due south of Dauphin Island, Mobile, Alabama and north of the safety fairway in the Gulf of Mexico and covers approximately 72 square miles (see attached). This site represented an enlargement of a site that was historically used for disposal prior to the enactment of the MPRSA and was sized to handle all new work from the authorized 55-foot channel and all future maintenance. As you are aware the channel was deepened incrementally to 45 feet, which is the current maintained depth.

The site is currently used by the Mobile District for the disposal of maintenance material dredged from the Federally authorized Mobile Harbor navigation project. Approximately 6 million cys of material are annually dredged from the Mobile Bay portion of the project and placed in specified areas in the ODMDS. This material will continue to be placed within the ODMDS whether the designation is changed from the existing 103 designation or not.

By re-designating the site under the authority provided in Section 102 of MPRSA , local and private entities may utilize the site if the need arises. The need for the re-designation of the Mobile-North ODMDS has been identified as a result of the lack of upland disposal sites available to non-Federal and private entities within the Mobile Bay area. As stated earlier the designation does not authorize any specific use of the site. Each proposed use would be evaluated on it's own merits following the evaluation procedures at Section 103 of the act regarding transportation of dredged material to the ocean for the purpose of disposal.

There are no environmental impacts associated with the proposed action, as it is an administrative change. The Mobile District has addressed environmental impacts associated with the possible use of the Mobile North ODMDS in a draft environmental assessment. In addition, other environmental documentation and coordination would be required prior to any permitted use of the area.

The National Marine Fisheries Service lists the following species as either threatened and/or endangered that may occur within the Gulf waters south of Mobile County, Alabama:

Listed Species	Scientific Name	Status	Date Listed
Marine Mammals			
blue whale	*Balaenoptera musculus*	Endangered	12/02/70
Finback whale	*Balaenoptera physalus*	Endangered	12/02/70
Humpback whale	*Megaptera novaeangliae*	Endangered	12/02/70
Sei whale	*Balaenoptera borealis*	Endangered	12/02/70
Sperm whale	*Physeter macrocephalus*	Endangered	12/02/70
Turtles			
Green sea turtle	*Chelonia mydas*	Threatened[1]	07/28/78
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	06/02/70
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered	12/02/70
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	06/02/70
Loggerhead sea turtle	*Caretta caretta*	Threatened	07/28/78
Fish			
Gulf sturgeon	*Acipenser oxyrinchus*	Threatened	09/30/91

Candidate Species[2]	Scientific Name
Fish	
Dusky shark	*Carcharhinus obscurus*
Sand tiger shark	*Odontaspis taurus*
Night shark	*Carcharinus signatus*
Speckled hind	*Epinephelus drummondhayi*
Saltmarsh topminnow	*Fundulus jenkensi*
Alabama shad	*Alosa alabamae*
Jewfish	*Epinephelus itajara*
Warsaw grouper	*Epinephelus nigritus*

1. Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered.

2. Candidate species are not protected under the Endangered Species Act, but concerns about their status indicate that they may warrant listing in the future. Federal agencies and the public are encouraged to consider these species during project planning so that future listings may be avoided.

Federally protected species, such as the blue whale, finback whale, humpback whale, sei whale and sperm whale would not be adversely impacted by use of the ODMDS because these species, under normal conditions, are not found in or near the project area. The Loggerhead sea turtle, Kemp's ridley sea turtle, hawksbill sea turtle, leatherback sea turtle and green sea turtle would also not be impacted by use of the ODMDS , as the proposed action would result in only a slight increase in disposal events within the previously utilized ODMDS. Disposal of dredged material has not been shown to adversely impact sea turtles.

Since the ODMDS is located outside of critical habitat for Gulf sturgeon, it is unlikely that adverse effects to the species would result. In the unlikely event a Gulf sturgeon is in the area, the disposal of material from hopper dredges or barges would not impact sturgeon as the disposal events occupy a very small percentage of the ODMDS at a given point in time. Impacts to forage habitat would be minor and temporary in nature. Benthic invertebrates can be expected to repopulate the area within a few months upon completion of the disposal events. We find no effect resulting from the temporary impact to a very small percent of potential forage area. The ODMDS is not located within proposed Gulf sturgeon critical habitat.

The Mobile District has reviewed the fish listed on the candidate species list and found the proposed activity will have "no effect" the candidate species. Most of the species listed would be found near the hard structure of the gas platforms and wells. Disposal will not occur in the immediate vicinity of those structures. Further, those species are motile species, which would typically avoid the disturbance created by the proposed activity.

Based on this information, the Mobile District finds that the proposed activity will have "no effect" to any listed endangered and/or threatened species. Under Section 7 coordination of the Endangered Species Act, the Mobile District requests your concurrence with the determination for the re-designation of the Mobile-North ODMDS.

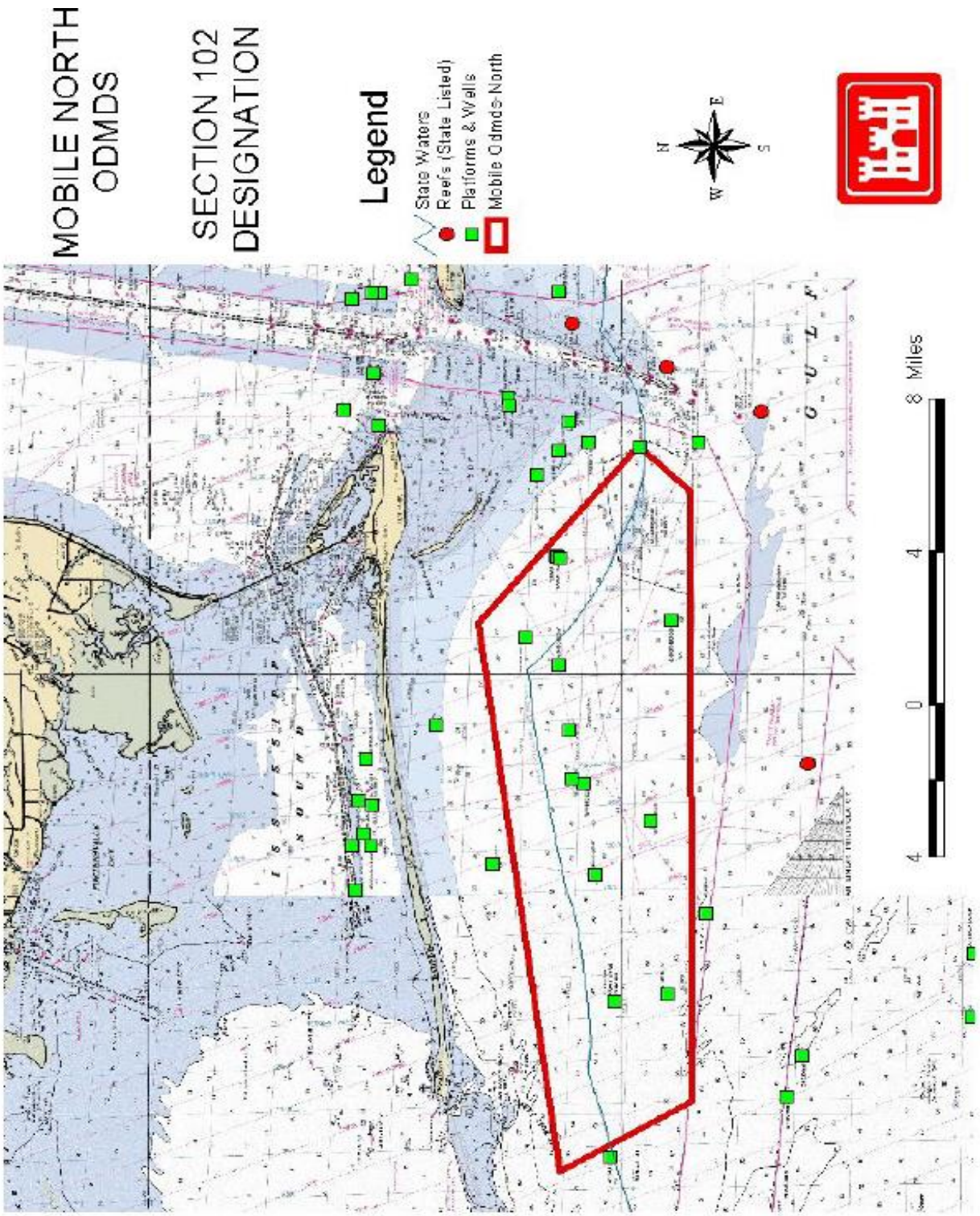
Should you require any further assistance, please call Mr. Howard Ladner at 251/690-2023 or e-mail at howard.w.ladner@sam.usace.army.mil.

Sincerely,

Susan Ivester Rees, Ph.D.
Leader, Coastal Environment Team

Enclosure

PD-EC/Ladner/Blanks
PD-EC/Rees
PD-F/Bell
PD-E/McClellan


MOBILE NORTH
ODMDS
SECTION 102
DESIGNATION
Legend
State Waters
Reefs (State Listed)
Platforms & Wells
Mobile Odmds-North
N
E
S
W
4
0
4
8 Miles

PD-EC READING FILE

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

December 19, 2002

REPLY TO
ATTENTION OF

Coastal Environment Team
Planning and Environmental Division

Mr. Larry Goldman
U.S. Fish and Wildlife Service
Daphne Field Office
Post Office Drawer 1190
Daphne, Alabama 36526

Dear Mr. Goldman:

The U.S. Army Corps of Engineers, Mobile District, is preparing the environmental documentation for the U.S. Environmental Protection Agency (EPA), Region 4 proposed re-designation of the Mobile-North Ocean Dredged Material Disposal Site (ODMDS) from a Section 103 site to a Section 102 site as authorized by the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA). The EPA is proposing the designation of Mobile-North under Section 102 of the MPRSA of 1972 to accommodate anticipated dredged material placement needs within the service area. EPA's site designation does not, by itself, authorize any dredging or on-site dumping of dredged material. EPA Ocean Dumping Regulations [40 CFR 220-229] establish procedures and criteria for selection and management of ocean disposal sites and evaluation of permits. This change in designation is purely an administrative process, which will allow all material that meets the criteria to utilize the site.

The Mobile District has designated the Mobile-North ODMDS in 1986 under Section 103 of the MPRSA for use for new work and maintenance dredged material from the Mobile Harbor Federal navigation project. Mobile-North ODMDS is located due south of Dauphin Island, Alabama and north of the safety fairway in the Gulf of Mexico and covers approximately 72 square miles (see enclosed). This site represented an enlargement of a site that was historically used for disposal prior to the enactment of the MPRSA and was sized to handle all new work from the authorized 55-foot channel and all future maintenance. As you are aware the channel was deepened incrementally to 45-feet, which is the current maintained depth.

The site is currently used by the Mobile District for the disposal of maintenance material dredged from the Federally authorized Mobile Harbor navigation project. Approximately six million cubic yards of material are dredged annually from the Mobile Bay portion of the project and placed in specified areas in the ODMDS. This material will continue to be placed within the ODMDS whether the designation is changed from the existing 103 designation or not.

By re-designating the site under the authority provided in Section 102 of MPRSA, local and private entities may utilize the site if the need arises. The need for the re-designation of the Mobile-North ODMDS has been identified as a result of the lack of upland disposal sites available to non-Federal and private entities within the Mobile Bay area. As stated earlier the designation does not authorize any specific use of the site. Each proposed use would be evaluated on it's own merits following the evaluation procedures at Section 103 of the act regarding transportation of dredged material to the ocean for the purpose of disposal.

There are no environmental impacts associated with the proposed action, as it is an administrative change. The Mobile District has addressed environmental impacts associated with the possible use of the Mobile-North ODMDS in a draft environmental assessment. In addition, other environmental documentation and coordination would be required prior to any permitted use of the area.

The U.S. Fish and Wildlife Service lists the following species as either threatened and/or endangered that may occur within Mobile County, Alabama:

ECH - Alabama beach mouse *Peromyscus polionotus ammobates*
ECH - Perdido Key beach mouse *Peromyscus polionotus trissylepsis*
E - Red-cockaded woodpecker *Picoides borealis*
E - Least tern *Sterna antillarum*
TPCH - Piping plover *Charadrius melodus*
T - Bald eagle *Haliaeetus leucocephalus*
E - Wood stork *Mycteria americana*
E - Alabama red-bellied turtle *Pseudemys alabamensis*
T - Loggerhead sea turtle *Caretta caretta*
E - Kemp's ridley sea turtle *Lepidochelys kempii*
T - Green sea turtle *Chelonia mydas* (P)
T - Gulf sturgeon *Acipenser oxyrinchus desotoi*
E - Alabama sturgeon *Scaphirhynchus suttkusi*
E - Heavy pigtoe mussel *Pleurobema taitianum*
T - Inflated heelsplitter mussel *Potamilus inflatus*
E - American chaffseed *Schwalbea americana*
T - Eastern indigo snake *Drymarchon corais couperi*
T - Flatwoods salamander *Ambystoma cingulatum* (P)
C - Bachman's sparrow *Aimophila aestivalis*

Federally protected species, such as the Alabama beach mouse, Perdido Key beach mouse, Red-cockaded woodpecker, Wood stork, Alabama red-bellied turtle, Heavy pigtoe mussel, Inflated heelsplitter mussel, American chaffseed, Eastern indigo snake, Piping plover, Flatwoods salamander, Alabama sturgeon and the Bachman's sparrow would not be effected because these species are not found in or near the project area. The bald eagle, Least tern, and brown pelican are anticipated to avoid the area during disposal operations. The Loggerhead sea turtle, Kemp's ridley sea turtle, hawksbill sea turtle, leatherback sea turtle and green sea turtle would also not be impacted by use of the ODMDS, as the proposed action would result in only a

slight increase in disposal events within the previously utilized ODMDS. Ocean disposal of dredged material has not been shown to adversely impact sea turtles.

Since the ODMDS is located outside of critical habitat for Gulf sturgeon, it is unlikely that adverse effects to the species would result. In the unlikely event a Gulf sturgeon is in the area, the disposal of material from hopper dredges or barges would not impact sturgeon as the disposal events occupy a very small percentage of the ODMDS at a given point in time. Impacts to forage habitat would be minor and temporary in nature. Benthic invertebrates can be expected to repopulate the area within a few months upon completion of the disposal events. We find no effect resulting from the temporary impact to a very small percent of potential forage area. The ODMDS is not located within proposed Gulf sturgeon critical habitat.

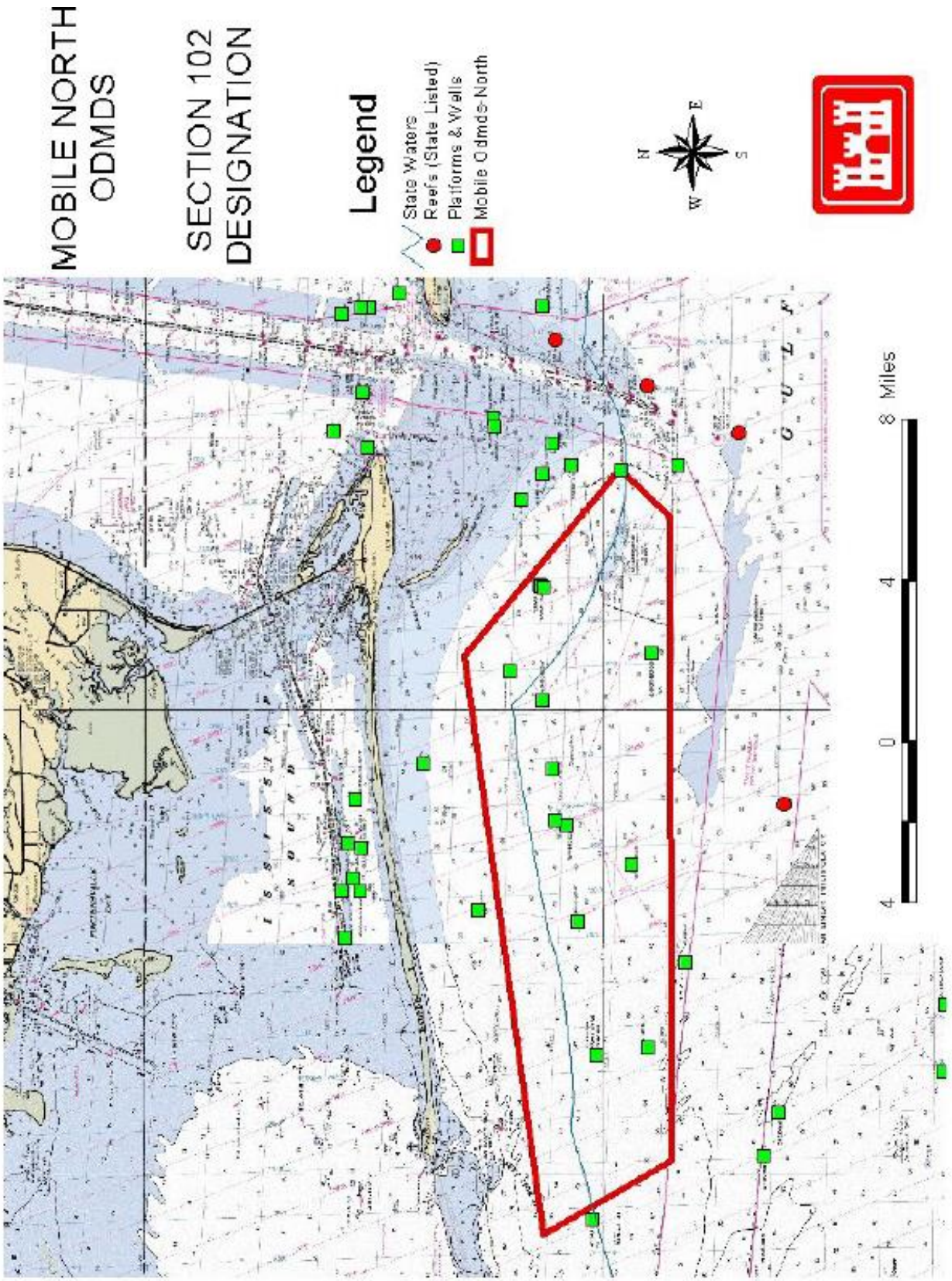
Based on this information, the Mobile District finds that the proposed activity will have "no effect" to any listed endangered and/or threatened species. Under Section 7 coordination of the Endangered Species Act, the Mobile District requests your concurrence with the determination for the re-designation of the Mobile-North ODMDS.

Should you require any further assistance, please call Mr. Howard Ladner at 251/690-2023 or e-mail at howard.w.ladner@sam.usace.army.mil.

Sincerely,

Susan Ivester Rees, Ph.D.
Leader, Coastal Environment Team

Enclosure


MOBILE NORTH
ODMDS
SECTION 102
DESIGNATION
Legend
State Waters
Reefs (State Listed)
Platforms & Wells
Mobile Odmds-North
N
E
S
W
4
0
4
8 Miles

PD-EC READING FILE

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

December 19, 2002

REPLY TO
ATTENTION OF

Coastal Environment Team
Planning and Environmental Division

Mr. Mark Thompson
National Marine Fisheries Service,
Habitat Conservation Division
Panama City Office
3500 Delwood Beach Road
Panama City, Florida 32404

Dear Mr. Thompson:

The U.S. Army Corps of Engineers, Mobile District, is preparing the environmental documentation for the U.S. Environmental Protection Agency (EPA), Region 4 proposed re-designation of the Mobile-North Ocean Dredged Material Disposal Site (ODMDS) from a Section 103 site to a Section 102 site as authorized by the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA). The EPA is proposing the designation of Mobile-North under Section 102 of the MPRSA of 1972 to accommodate anticipated dredged material placement needs within the service area. EPA's site designation does not, by itself, authorize any dredging or on-site dumping of dredged material. EPA Ocean Dumping Regulations [40 CFR 220-229] establish procedures and criteria for selection and management of ocean disposal sites and evaluation of permits. This change in designation is purely an administrative process, which will allow all material that meets the criteria to utilize the site. This document is intended to constitute the Agency's initiation of Essential Fish Habitat Consultation (EFH) with the National Marine Fisheries Service as prescribed by the Magnuson-Stevens Fishery Conservation and Management Act.

Description of the Proposed Action:

The site is currently used by the Mobile District for the disposal of maintenance material dredged from the Federally authorized Mobile Harbor navigation project. Approximately six million cubic yards of material are dredged annually from the Mobile Bay portion of the project and placed in specified areas in the ODMDS. This material will continue to be placed within the ODMDS whether the designation is changed from the existing 103 designation or not.

By re-designating the site under the authority provided in Section 102 of MPRSA, local and private entities may utilize the site if the need arises. The need for the re-designation of the Mobile-North ODMDS has been identified as a result of the lack of upland disposal sites

Mobile-North ODMDS has been identified as a result of the lack of upland disposal sites designation does not authorize any specific use of the site. Each proposed use would be evaluated on it's own merits following the evaluation procedures at Section 103 of the act regarding transportation of dredged material to the ocean for the purpose of disposal.

There are no environmental impacts associated with the proposed action, as it is an administrative change. The Mobile District has addressed environmental impacts associated with the possible use of the Mobile-North ODMDS in a draft environmental assessment. In addition, other environmental documentation and coordination would be required prior to any permitted use of the area.

Analysis of Effects:

Congress defines EFH as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity," the designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. The NMFS has identified EFH habitats for the Gulf of Mexico in its Fishery Management Plan Amendments. These habitats include estuarine areas, such as estuarine emergent wetlands, seagrass beds, algal flats, mud, sand, shell, and rock substrates, and the estuarine water column. In addition, marine areas, such as the water column, vegetated and non-vegetated bottoms, artificial and coral reefs, geologic features, continental shelf features have also been identified. Of these, only un-vegetated water bottoms, and water column are found within the Mobile-North ODMDS. The ODMDS site also contains offshore oil platforms that may be utilized by managed species at various times. Table 1 lists the species managed by the Gulf of Mexico Fishery Management Council. Of these the following would be expected to utilize the project area: brown shrimp (*Penaeus aztecus*), pink shrimp (*P. duorarum*), white shrimp (*P. setiferus*), stone crab (*Menippe spp.*), king mackerel, (*Scomberomorus cavalla*), Spanish mackerel (*S. maculates*), bluefish (*Pomatomus saltatrix*), dolphin (*Coryphaena hippurus*), cobia (*Rachycentron canadum*), Little tunny (*Euthynnus alleteratus*), gray snapper (*Lutjanus griseus*), lane snapper (*L. synagris*), black grouper (*Mycteroperca bonaci*), gray triggerfish (*Balistes capriscus*), greater amberjack (*Seriola dumerili*), lesser amberjack (*S. fasciata*), red snapper (*L. campechanus*), gag grouper (*Mycteroperca microlepis*), vermillion snapper (*Rhomboplites aurorubens*), scamp grouper (*M. phenax*) and red drum (*Sciaenops oellatus*).

Many of the managed species utilize open water areas of the Gulf of Mexico, such as the Mobile-North ODMDS, for spawning purposes rather than the confines of semi-enclosed estuaries. Almost all of these species, except for anadromous forms, migrate seaward seasonally for spawning, then larvae and early juveniles return to the estuaries, which serve as nursery grounds. Estuaries provide larvae and juveniles with protective habitat, an influx of freshwater, a continuous mixing zone, and an abundance of food supply. Additionally, many of the adults and juvenile species utilize the area within the ODMDS as forage and loitering areas. Summaries related to managed species utilization of the ODMDS and adjacent areas are found below.

The red drum is an important recreational species throughout its range. Juveniles generally live in estuaries and move to nearshore oceanic waters, such as Mobile-North

ODMDS, as they reach maturity. Adults range widely over the nearshore continental shelf waters throughout the year but apparently move to coastal waters to spawn. Mobile-North ODMDS is a likely spawning site for this species since it is known to spawn in lower estuaries, in nearshore areas, and around barrier islands. In a literature review, Wade (1980) noted that earliest observations of this century data implied intra-estuarine spawning, while the more recent data, relying more heavily on empirical observations of the presence and transport of eggs and larvae, indicated that most spawning is really salinity dependent, and in fact more activity is concentrated just off the barrier islands than previously thought. Studies indicated large numbers of eggs and larvae of several species of the drum family, including both the spotted sea trout and red drum, are present at the ODMDS. The passes into the Mobile Bay estuary are the lanes of transport for these larvae leading into the Bay. These passes are located several miles east of the ODMDS. Thus, strong evidence supports that all nearshore areas are important spawning areas for these species, and the Mobile-North ODMDS is not unique in their importance.

In general, reef fish are widely distributed in the Gulf of Mexico, occupying both pelagic and benthic habitats during their life cycle. A planktonic larval stage lives in the water column and feeds on zooplankton and phytoplankton. Juvenile and adult reef fish are typically demersal and usually associated with bottom topographies on the continental shelf (<100m) that have high relief (i.e. artificial reefs, coral, rock or hard substrate, or man-made structures). However, several species are found over sand and soft-bottom substrates. For example, juvenile red snapper are common on mud bottoms in the northern Gulf. This would include portions of the Mobile-North ODMDS. Also, some juvenile snapper and grouper such as mutton, gray, dog, and lane snappers, jewfish, and red, gag, and yellowfin groupers have been documented in inshore seagrass beds, logoons and larger bay systems.

Coastal migratory pelagic species are commonly distributed from the estuaries throughout the marine waters of the entire Gulf of Mexico. The occurrence of these species is governed by temperature and salinity. Species are seldom found in water temperatures less than 20°C. Salinity preferences vary by species; bur higher salinities are generally preferred. Dolphins are seldom found in water with salinity less than 36 parts per thousands (ppt). The Scombrids prefer high salinities, but less that 36ppt. King mackerel seldom venture into brackish waters, although juveniles occasionally use estuaries. Spanish mackerel tolerate brackish to oceanic waters and often inhabit estuaries, which, along with coastal wasters offer year-round nursery habitat. The larval habitat of all species in the coastal pelagic management unit is the water column. Within the spawning area, eggs and larvae are concentrated in the surface waters. Spawning area varies by species but is typically offshore marine waters of the Gulf, such as the Mobile-North ODMDS, for most pelagic species.

The life cycles of brown, white and pink shrimp are similar. They spend part of their lifein estuaries, bays and the Gulf of Mexico. Spawning occurs in the Gulf of Mexico. One femaleshrimp releases 100,000 to 1,000,000 eggs that hatch within 24 hours. The postlarvae shrimp develop through several larval stages as they are carried shoreward by winds and currents. Postlarvae drift or migrate to nursery areas within shallow bays, tidal creeks, and marshes where food and protection necessary for growth and survival are available. There they acquire color and become bottom dwellers. If conditions are favorable in nursery areas, the young shrimp grow rapidly and soon move to the deeper water of the bays. When shrimp reach

juvenile and subadult stages (3-5 inches long) they usually migrate from the bays to the Gulf of Mexico where they mature and complete their life cycles. Most shrimp will spend the rest of their life in the Gulf, which includes the Mobile-North ODMDS.

Epibenthic crustaceans and infaunal polychaetes dominate the diets of higher trophic levels, such as flounder, catfish, croaker, porgy, and drum. The fish species composition of the estuarine and offshore area along the northern Gulf of Mexico is of a high diversity due to the variety of environmental conditions, which exist within the area. The project as proposed will impact Epibenthic crustaceans and infaunal polychaetes within the Mobile-North ODMDS. These impacts are primarily short-term in nature and consist of a temporary lose of benthic invertebrate populations in the areas of disposal activities. As stated these impacts are short-term in nature and will have no impact to identified managed species for the Gulf of Mexico. The epibenthic crustaceans and infaunal polychaetes populations within the disposal area can be expected to recover within a few months of project completion.

Most of the motile benthic and pelagic fauna, such as crab, shrimp, and fish, should able to avoid the disturbed area and should return shortly after the activity is completed. No significant direct impacts to managed species are anticipated. The Mobile-North ODMDS does not provide the only habitat necessary to maintain the existing population levels of the listed species. Other areas in the Gulf of Mexico also provide the required habitat needed to maintain successful populations. Additionally, comparably small percentages of the ODMDS will be utilized during a single event (dredging project). Keeping in mind that the ODMDS site constitutes only a small percentage of the available sand/soft bottom habitat available on the northern Gulf of Mexico continental shelf, temporary impacts to portions of the ODMDS are insignificant to the populations of managed species listed in "Table 1".

Mitigative Measures:

As indicated on the attached diagram, no official artificial reefs are found within the ODMDS. Further the locations of all platforms and wells have been noted and are readily apparent in the field. These structures and their immediate vicinity will be avoided during disposal operations to minimize impacts to fishery resources that tend to congregate around those structures. The area has been utilized as an ODMDS for years with no impact to area fisheries. The change in designation will have no more of an impact to listed species than the presently authorized ODMDS; therefore, we find no need for further mitigative measures.

USACE Views on EFH:

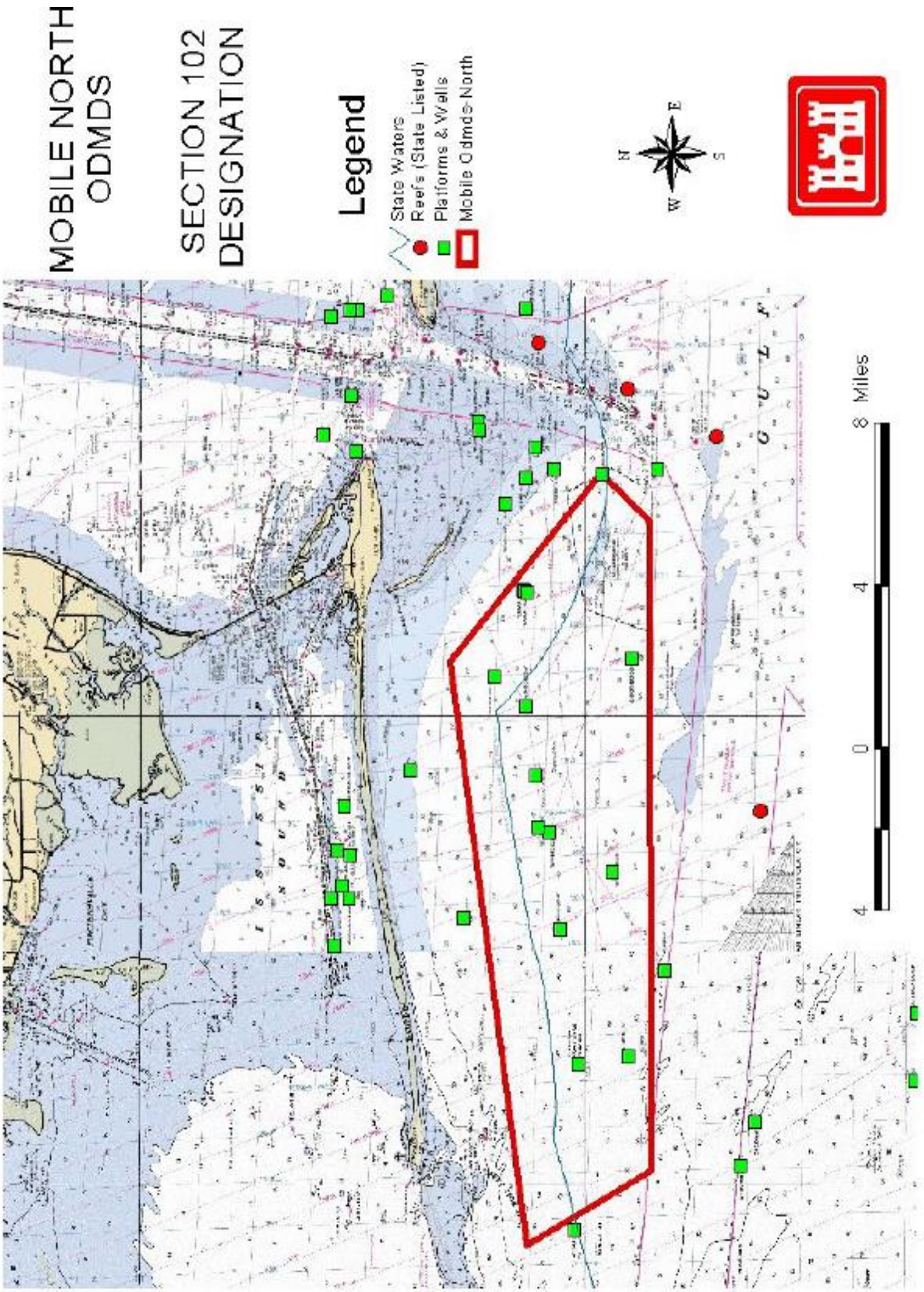
Based on the above assessment of the project in relation to impacts to fisheries resources, the overall impact to identified species is considered negligible. Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (PL 94-265) we request your concurrence with our assertion that the project will not result in significant impacts to essential fish habitat.

If we can be of any further assistance to you, please call Mr. Howard Ladner at 251/690-2023 or e-mail him at howard.w.ladner@sam.usace.army.mil.

Sincerely,

Susan Ivester Rees, Ph.D.
Leader, Coastal Environment Team

Enclosures


MOBILE NORTH
ODMDS
SECTION 102
DESIGNATION
Legend
State Waters
Reefs (State Listed)
Platforms & Wells
Mobile Odmds-North
N
E
S
W
4
0
4
8 Miles

FYI

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

January 17, 2003

Dr. Susan Ivester Rees, Leader
Coastal Environment Team
Department of the Army
Mobile District, Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628-0001

Dear Dr. Rees:

The National Marine Fisheries Service (NOAA Fisheries) has received your December 19, 2002, letter concerning the U.S. Environmental Protection Agency (EPA) proposed re-designation of the Mobile-North Ocean Dredged Material Disposal Site in the Gulf of Mexico, Mobile County, Alabama, from a Section 103 site to a Section 102 site as authorized by the Marine Protection, Research and Sanctuaries Act. The Corps of Engineers, on behalf of EPA, is initiating Essential Fish Habitat (EFH) consultation and has provided an EFH assessment.

The change in designation is an administrative process which will allow all material that meets the criteria to utilize the site. We, therefore, have no EFH Conservation Recommendations to provide regarding this action. We look forward to coordinating on future site use proposals which would require Federal authorization or would be subject to Federal environmental review requirements.

Thank you for consulting with NOAA Fisheries on this proposed action. If we can be of further assistance, please contact Mark Thompson at our Panama City Office at 850/234-5061.

Sincerely,

W. Mark Thompson for

Rickey N. Ruebsamen
Acting Assistant Regional Administrator
Habitat Conservation Division

cc:
SER4

Lang, Matthew J SAM

From: Ryan Hendren - NOAA Affiliate <ryan.hendren@noaa.gov>
Sent: Monday, March 07, 2016 10:28 AM
To: Lang, Matthew J SAM
Cc: Jacobson, Jennifer L SAM; Parson, Larry E SAM; Reynolds, Lekesha W. SAM
Subject: [EXTERNAL] Re: NMFS coordination for the Mobile ODMDS designation

Matt:

Per our discussion, NOAA's National Marine Fisheries Service (NMFS), Protected Resources Division, has reviewed the prior coordination under Public notice FP11-MH01-06 dated November 9, 2011 and consultation letter dated February 15, 2012, which addressed the entire Mobile Harbor Federal navigation project, including the Mobile ODMDS. It is our understanding that the Mobile District proposes to implement modifications to the dredged material placement area associated with the Mobile Harbor Navigation Project (Consultation Number SER-2012-581). This area was previously determined in an email sent on April 9, 2012 to be covered by the Regional Biological Opinion (GRBO) for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number SER-2000-1287).

The proposed modification discussed via phone on March 4, 2016, will change the size of the designated material placement site (Mobile ODMDS) only. All other aspects of this project will remain the same. The historically used 46 square nautical mile site, which was coordinated with NMFS in 2012, will change to a smaller 24 square nautical mile site within the old 46 square nautical mile footprint. Your office has determined that the continued dredging and placement activities associated with the Mobile Harbor Federal navigation project and also the designation of the smaller 24 square nautical mile site within the old larger footprint of the Mobile ODMDS is NLAA any listed threatened and/or endangered species.

Upon review of the project modifications proposed, NMFS believes the project is still consistent with the Mobile Harbor Navigation Project (Consultation Number SER-2012-581) and the GRBO (Consultation Number SER-2000-1287). None of the reinitiation requirements for these consultations have been triggered. Effects to sea turtles or Gulf sturgeon from the proposed project have been analyzed in the GRBO, are included in that opinion's incidental take statement, and are subject to the terms and conditions of that opinion. Placement of dredge material will not occur in any critical habitat regulated by NMFS and will not affect listed species in a way not previously considered. Thus, the designation of the smaller 24 square nautical mile site within the old larger footprint of the Mobile ODMDS, does not change our effects analysis for this project. If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action, consultation will need to be reestablished.

Please contact me if you have any additional questions. -rH

On Fri, Mar 4, 2016 at 5:49 PM, Lang, Matthew J SAM <Matthew.J.Lang@usace.army.mil <mailto:Matthew.J.Lang@usace.army.mil> > wrote:

Ryan:

As we discussed on the telephone today the U.S. Army Corps of Engineers (USACE), Mobile District through coordination with the Environmental Protection Agency (EPA), Region 4 is proposing to designate a 24 square nautical mile (nmi2) Ocean Dredged Material Disposal Site (ODMDS) south of Dauphin Island, Alabama in the Gulf of Mexico.

1

Prior coordination with your office (I/SER/2012/00581) via Public Notice FP11-MH01-06 dated November 9, 2011 and consultation letter dated February 15, 2012 addressed the entire Mobile Harbor Federal navigation project which includes the Mobile ODMDS. The 2012 consultation considered the historical 46 nmi2 Mobile ODMDS. The area in question is outside of Gulf sturgeon critical habitat, outside of all sea turtle critical habitat, and no whale species were determined to be affected by the Mobile Harbor project. The Gulf Regional Biological Opinion (GRBO) of 2003 (amended 2005 & 2007) covers USACE hopper dredging of navigation channels and borrow areas (F/SER/2000/01287). The February 15, 2012 letter sent to NMFS addressed impacts associated with dredging and disposal operations of the Mobile Harbor Federal navigation project. USACE determined that the proposed action was not likely to adversely affect (NLAA) any listed threatened and/or endangered species or associated critical habitat. An email to Larry Parson dated April 9, 2012 was received with a NMFS concurrence that the Mobile Harbor Federal navigation project, and any associated impacts to sea turtles or Gulf sturgeon, was covered by the GRBO.

Currently, a 24 nmi2 is being proposed for designation under Section 102 of the Marine Protection and Sanctuaries Act (MPRSA). The 24 nmi2 site is within the footprint of the previously, and historically used 46 nmi2 site (see attached maps) which was coordinated with NMFS in 2012. The area proposed for designation has historically been used for dredged material placement from Mobile Harbor since the late 1970's and was selected under Section 103 of the MPRSA in 1986. The currently proposed ODMDS designation area is smaller in size and within the footprint of all previous project conditions associated with Mobile Harbor.

Due to past coordination and the proposed site designation providing no further adverse impact to listed species or designated critical habitat in the area, USACE determines continued dredging and placement activities associated with the Mobile Harbor Federal navigation project and also the designation of a 24 nmi1 ODMDS offshore of Dauphin Island, Alabama in the Gulf of Mexico is NLAA any listed threatened and/or endangered species or associated critical habitat.

Please give me a call on Monday so we can discuss this further.

Thanks and have a great weekend.....Matt

Matthew J. Lang
Coastal Biologist - Coastal Environment Team
US Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602
(251) 694-3837 <tel:%28251%29%20694-3837> office
(251) 694-3815 <tel:%28251%29%20694-3815> fax
email: matthew.j.lang@usace.army.mil <mailto:matthew.j.lang@usace.army.mil>

--

Ryan Hendren
Endangered Species Act Consultant
ERT Contractor for
National Marine Fisheries Service
NOAA Southeast Regional Office
Protected Resources Division

263 13th Avenue South
St. Petersburg, Florida 33701
PH: (727) 551-5610 <tel:%28727%29%20551-5610>
FX: (727) 824-5309 <tel:%28727%29%20824-5309>
Email: Ryan.Hendren@noaa.gov <mailto:Ryan.Hendren@noaa.gov>
Web: Blockedhttp://sero.nmfs.noaa.gov/protected_resources/section_7/index.html

"How you climb a mountain is more important than reaching the top." — Yvon Chouinard

On Fri, Mar 4, 2016 at 5:49 PM, Lang, Matthew J SAM <Matthew.J.Lang@usace.army.mil <mailto:Matthew.J.Lang@usace.army.mil> > wrote:

Ryan:

As we discussed on the telephone today the U.S. Army Corps of Engineers (USACE), Mobile District through coordination with the Environmental Protection Agency (EPA), Region 4 is proposing to designate a 24 square nautical mile (nmi2) Ocean Dredged Material Disposal Site (ODMDS) south of Dauphin Island, Alabama in the Gulf of Mexico.

Prior coordination with your office (I/SER/2012/00581) via Public Notice FP11-MH01-06 dated November 9, 2011 and consultation letter dated February 15, 2012 addressed the entire Mobile Harbor Federal navigation project which includes the Mobile ODMDS. The 2012 consultation considered the historical 46 nmi2 Mobile ODMDS. The area in question is outside of Gulf sturgeon critical habitat, outside of all sea turtle critical habitat, and no whale species were determined to be affected by the Mobile Harbor project. The Gulf Regional Biological Opinion (GRBO) of 2003 (amended 2005 & 2007) covers USACE hopper dredging of navigation channels and borrow areas (F/SER/2000/01287). The February 15, 2012 letter sent to NMFS addressed impacts associated with dredging and disposal operations of the Mobile Harbor Federal navigation project. USACE determined that the proposed action was not likely to adversely affect (NLAA) any listed threatened and/or endangered species or associated critical habitat. An email to Larry Parson dated April 9, 2012 was received with a NMFS concurrence that the Mobile Harbor Federal navigation project, and any associated impacts to sea turtles or Gulf sturgeon, was covered by the GRBO.

Currently, a 24 nmi2 is being proposed for designation under Section 102 of the Marine Protection and Sanctuaries Act (MPRSA). The 24 nmi2 site is within the footprint of the previously, and historically used 46 nmi2 site (see attached maps) which was coordinated with NMFS in 2012. The area proposed for designation has historically been used for dredged material placement from Mobile Harbor since the late 1970's and was selected under Section 103 of the MPRSA in 1986. The currently proposed ODMDS designation area is smaller in size and within the footprint of all previous project conditions associated with Mobile Harbor.

Due to past coordination and the proposed site designation providing no further adverse impact to listed species or designated critical habitat in the area, USACE determines continued dredging and placement activities associated with the Mobile Harbor Federal navigation project and also the designation of a 24 nmi1 ODMDS offshore of Dauphin Island, Alabama in the Gulf of Mexico is NLAA any listed threatened and/or endangered species or associated critical habitat.

Please give me a call on Monday so we can discuss this further.

Thanks and have a great weekend.....Matt

Matthew J. Lang
Coastal Biologist - Coastal Environment Team

3

US Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602
(251) 694-3837 office
(251) 694-3815 fax
email: matthew.j.lang@usace.army.mil <mailto:matthew.j.lang@usace.army.mil>

--

Ryan Hendren
Endangered Species Act Consultant
ERT Contractor for
National Marine Fisheries Service
NOAA Southeast Regional Office
Protected Resources Division
263 13th Avenue South
St. Petersburg, Florida 33701
PH: (727) 551-5610
FX: (727) 824-5309
Email: Ryan.Hendren@noaa.gov <mailto:Ryan.Hendren@noaa.gov>
Web: Blockedhttp://sero.nmfs.noaa.gov/protected_resources/section_7/index.html

"How you climb a mountain is more important than reaching the top." — Yvon Chouinard

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P. O. Drawer 1190
Daphne, Alabama 36526

IN REPLY REFER TO:
03-0336a

February 6, 2003

CELEBRATING A CENTURY of CONSERVATION 1903-2003

District Engineer
U. S. Army Corps of Engineers
P. O. Box 2288
Mobile, AL 36628

ATTN: Mr. Howard Ladner, PD-EC

Dear Sir:

The U. S. Fish and Wildlife Service (Service) has reviewed your letter of December 19, 2002 concerning the U.S. Environmental Protection Agency's (EPA) proposed redesignation of the Mobile-North Ocean Dredged Material Disposal Site (ODMDS) from a Section 103 site to a Section 102 site as authorized by the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA). No significant adverse effects on fish and wildlife resources are expected to result from this proposed work. As we understand the procedure, the Service will have the opportunity to review any proposals to utilize the ODMDS by private or local entities through the MPRSA and therefore we have no objections to the redesignation, at this time. Our comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Please keep us informed of your action regarding this matter.

Sincerely,

Patric Harper
Acting Field Supervisor

cc: EPA, Atlanta, GA
ADCNR, MRD, Dauphin Island, AL
ADEM, Mobile, AL

PHONE: 334-441-5181 www.fws.gov FAX: 334-441-6222
SHIPPING ADDRESS: 1208-B Main Street, Daphne, AL 36526

Executive Summary

Field Sampling

Field sampling occurred from October 19, 2009 (Mobilization only) to October 23, 2009. All field activities outlined in the Scope of Work were accomplished.

Field Data

In situ measurements at each station are presented in Table 2. Measurements recorded at each station include the date and time of sample collection, geographical coordinates in latitude and longitude, sample depth, field description of the sediment, and any general observations regarding sampling. Additional information included in Table 2 includes air temperature, sea state, tide cycle, and weather. These measurements were obtained from the ship's log book prior to departure from the vessel.

Physical Testing Data (Tables 3A and 3B)

Results of physical testing for grain size distribution and total solids are presented in Tables 3A and 3B. Lab data and grain size curves are presented in Appendix B. Grain size compositions vary considerably throughout the proposed disposal area, and within each disposal zone. Composite samples from each zone correspond well to the average grain size at each location within the zone.

Chemistry Data

Analytical results for sediment and site water chemistry are presented in Tables 4 through 12.

Sediment Chemistry Data

Analytical results for sediment chemistry are presented in Tables 4 through 9. Analytical results were compared to published sediment screening values where appropriate for the threshold effects level (TEL) and the effects range low (ERL). The TEL represents the concentration below which adverse effects are expected to occur only rarely, and the ERL is the value at which toxicity may begin to be observed in sensitive species (Buchman 2008).

Metals (Table 4)

All samples had detectable levels of all or most metals. With the exception of arsenic, no metal in any sample exceeded the TEL or ERL. Most of the samples have arsenic concentrations which exceed both the TEL and ERL (7.24 mg/kg and 8.20 mg/kg, respectively). The samples which exceed these limits are shown below:

Sample ID	Arsenic concentration, mg/kg	Sample ID	Arsenic concentration, mg/kg
MB09s-ZF-03	11.5	MB09s-ZC-20	13.7
MB09s-ZA-10	11.1	MB09s-ZC-21	12.8
MB09s-ZA-11	9.47	MB09s-ZC-22	12.4
MB09s-ZA-14	10.8	MB09s-ZC-23	13.1
MB09s-ZB-15	7.97	MB09s-ZC-24	14.1
MB09s-ZB16	16.7	MB09s-ZE-25	12.5
MB09s-ZB-17	11.9	MB09s-ZE-26	11.6
MB09s-ZB-18R	13.4	MB09s-ZD-28	10.6
MB09s-ZB-19	10.7	MB09s-ZD-29	11.8

Total Organic Carbon (TOC) (Table 4)

Sample concentrations for TOC range from 0.039% at MB09s-ZF-05 to 2.21% at MB09s-ZC-22.

Oil and Grease (Table 4)

Sample concentrations for Oil & Grease range from non-detects for numerous samples to a high of 470 mg/kg at MB09s-ZA-11.

Pesticides (Table 5)

The majority of pesticides analyzed for were not detected at or above the MDL in any sample. Only 2,4' DDE, 2,4 DDT, 4,4' DDE, and 4,4' DDT were detected in the samples, and only in samples MB09s-ZA-10 through MB09s-ZA-13, and MB09s-ZC-20. No detected pesticide exceeded the TEL or ERL.

PAHs (Table 6)

PAHs were detected in all samples. Four individual PAHs were detected in several samples above the TEL or ERL. All other PAHs were detected in some samples, however they did not exceed the TEL or ERL.

PAH	Samples above the TEL or ERL
Fluoranthene	MB09s-ZF-03, MB09s-ZA-11, MB09s-ZB-17, MB09s-ZC-24, MB09s-ZE-25
Pyrene	MB09s-ZC-24, MB09s-ZE-25
Chrysene	MB09s-ZF-03, MB09s-ZA-11, MB09s-ZC-22, MB09-ZC-24, MB09-ZE-25
Dibenz(a,h)anthracene	MB09s-ZF-03, MB09-ZA-11, MB09-ZB-16, MB09-ZC-24, MB09-ZE-25

In addition to individual PAHs, Table 5-5 and Section 7.3.1 state that low molecular weight, high molecular weight, and total PAHs should also be reported. None of these values exceeded the TEL or ERL for any sample.

PCBs (Table 7)

No PCB congener was detected in any sample. No sample had an EPA Region 4 total PCB or NOAA total PCB concentration greater than the TEL or the ERL.

Dioxins/Furans (Table 8)

Most individual dioxin/furan congeners were not detected in any sample, including 2,3,7,8 TCDD. 1,2,3,4,6,7,8 HpCDD, OCDD, 1,2,3,4,6,7,8 HpCDF, and OCDF were the only congeners detected in any samples. Toxicity equivalency factors (World Health Organization, 2005) were used to determine the total toxicity equivalent (TEQ) as specified in Appendix M of the SERIM. No sample had a TEQ above the TEL. No ERL is available for this test.

DDT and derivatives (Table 9)

No DDT or any derivative was detected in any sample.

Organotins (Table 9)

Organotins were detected in all samples. Total organotins were calculated using Equation 7-2 in the SERIM. Total organotin concentrations range from 2.4 to 9.9 µg/kg.

Site Water and Elutriate Chemistry Data

Analytical results for site water chemistry are presented in Tables 10 through 12. Results for site water samples were compared to published national water quality criteria where applicable. The criterion continuous concentration (CCC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The criteria maximum concentration (CMC) is an estimate of the highest concentration of a pollutant in saltwater to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. These values are found at the EPA website at http://www.epa.gov/waterscience/criteria/wqctable/index.html#cmc.

Metals (Table 10)

Except for mercury, all metals were detected in some or all samples. No sample result was greater than the CCC or CMC for any metal.

Pesticides (Table 11)

Twenty three of the twenty eight pesticides analyzed were not detected in any sample. Of those pesticides which were detected (beta-BHC, heptachlor epoxide, delta-BHC, oxychlordane, and trans-nonachlor), none exceeded the applicable CCC or CMC. It should be noted that the target detection limits for toxaphene and chlordane are greater than their corresponding CCCs and CMCs. No sample had detectable levels of either compound, however.

PAHs (Table 12)

All samples had detectable levels of PAHs. CCCs and CMCs are not available for any individual PAH compound, total LMW PAHs, total HMW PAHs, or total PAHs.

Approach for Evaluating Sediment for Proposed Ocean and Near Coastal Placement: Determining Oil Contamination from the Deepwater Horizon Spill

18 August 2010

Introduction and Background

The BP Deepwater Horizon spill released oil in Gulf of Mexico and created uncertainty whether ongoing and future dredging projects will meet environmental compliance criteria and requirements for ocean dumping and near coastal placement as required by the Marine Protection, Research and Sanctuaries Act (MPRSA) and Clean Water Act (CWA). The USACE manages 102 planned or active dredging projects in the region and, along with EPA, manages 15 ocean dredged material disposal sites (ODMDS). Prior to the spill:

- All projects were tested and found to be suitable for ocean disposal or near coastal placement;
- All ODMDSs were acceptable for continued use; and,
- All reference sites were found to be substantially free of contaminants.

Because of the BP oil spill, the CWA and MPRSA require an evaluation of potential contamination of the material proposed for disposal, reference sites, and placement/disposal sites. The purpose of this document is to provide a transparent process for sampling, testing, and evaluating sediments for Federal navigation projects. This process is the result of a collaborative effort between the U.S. EPA and USACE. Specifically it includes:

- A listing of projects that may be impacted
- Likelihood of oil contamination at each site
- Statutory authority (i.e., CWA or MPRSA) at each site
- Priority for testing based on priority of project and/or dredging schedule
- Process for determining testing requirements for compliance

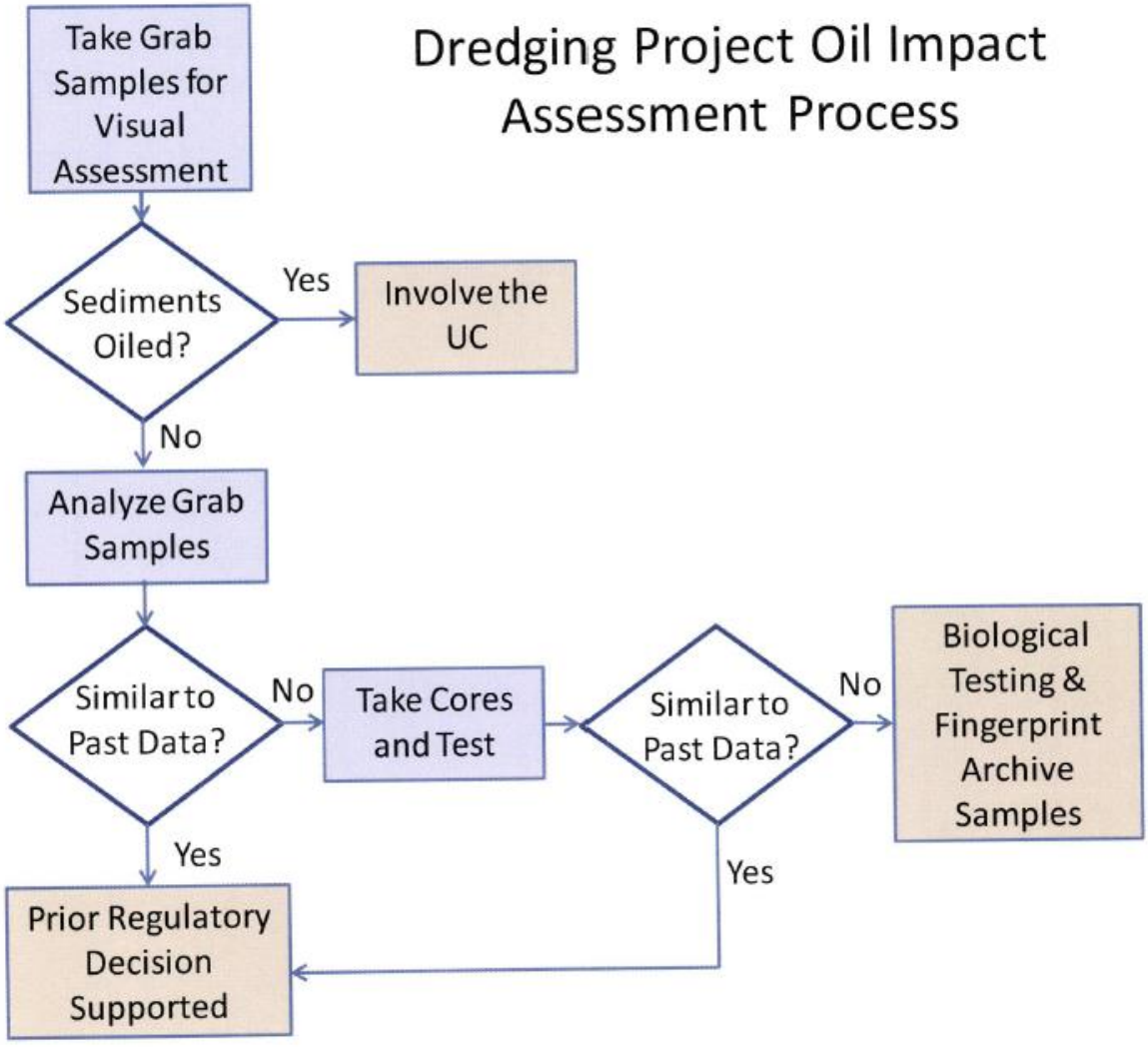
Project Listing

For the purposes of narrowing the evaluation process, projects from the Texas/Louisiana State line to Panama City Florida were considered to be most relevant and were included in the list. The spreadsheet will be available online at http://el.erdc.usace.army.mil/oilspill.cfm.

Dredging Project Oil Impact Assessment Process

A multi-step process was developed to initially screen and evaluate sediments from dredging projects and is illustrated in the flowchart below. A sampling plan will be developed by USACE for each project and approved by the EPA. Grab samples will be initially used to provide a conservative estimate of recent oil contamination. Grab samples will be collected by PONAR or Eckman sampler and evaluated for the presence of newly oiled sediments. If obvious oil is encountered, then the Unified Command (UC) will be contacted to assist with further assessment of the sampling, fingerprinting, and remediation. If no obvious oil is detected in the grab sample the sediment will be analyzed for oil-

related contaminants (e.g., PAH, TPH, Oil and Grease) identified in regional guidance. If results of the analysis are similar to previous testing results, then the materials meet the requirements of the CWA or MPRSA as previously determined. This determination should be made using a statistical comparison and consider background concentrations of oil and analytical variability. If the results from this analysis reveal substantially greater levels of oil, then project managers may decide to defer dredging and contact the Unified Command or collect core samples for further analysis. Core samples should be collected to project depth and analyzed for the same analytes as those determined in the grab sample. In addition, sediment should be archived for additional tests as needed. Results of the chemical analysis will be evaluated using a statistical comparison and consider background concentrations of oil and analytical variability. If the results from this analysis reveal substantially greater levels of oil, then project managers may decide to defer dredging or evaluate archived samples using biological tests and oil fingerprinting techniques. Ultimately this information may be used to evaluate sediment management alternatives.



The process was developed as part of the *Dredging Program Technical Workshop: Addressing the Deepwater Horizon Oil Spill* held on 11-12 August 2010 at the U.S. Army Engineer Research and Development Center (ERDC-EL), Vicksburg, MS.

Contributors included representatives from the USACE Headquarters, USACE Mobile District, USACE New Orleans District, USACE Galveston District, USACE ERDC, U.S. EPA Headquarters, U.S. EPA Office of Research and Development, U.S. EPA Region 4, and U.S. EPA Region 6.

Proceedings from the workshop can be accessed online at: http://el.erdc.usace.army.mil/oilspill.cfm

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers – Mobile District (USACE–Mobile) is tasked with the maintenance of the Mobile Harbor Federal Navigation Channels, which require frequent dredging and the environmentally suitable placement of dredged sediment. Prior to dredging and placement of sediments, an evaluation of the proposed dredged material is necessary to ensure that the sediments are appropriate for available placement options.

The purpose of the Post Post-Oil Spill Surface Sediment Evaluation in the Mobile Federal Navigation Channels was to collect and analyze data to characterize the physical and chemical quality of the proposed dredged material samples obtained from the Federally authorized navigation channels in Mobile Harbor, Alabama and to determine if the sediments in the channels were impacted by the *Deepwater Horizon* Oil Spill, which began on 20 April 2010 and continued through 15 July 2010.

EA Engineering, Science, and Technology, Inc. (EA) was contracted by the Louis Berger Group to collect and analyze sediment for the project. The investigation consisted of sediment sampling at four locations in the Mobile Harbor Lower Ship Channel, four locations in the Mobile Bar Channel, one location at the Mobile Reference Site, and three locations at the Mobile Ocean Dredged Material Disposal Site (ODMDS) (Figure 1-1); conducting analytical testing of sediments; and evaluating test results.

ES.1 TECHNICAL APPROACH

Surficial sediment from a total of eight locations in the Mobile Harbor Channels, one USEPA-designated reference location in the Gulf of Mexico, and three locations within the Mobile ODMDS were sampled on 18 November, 01 December, and 02 December 2010. Sediment from eight individual locations and two composite samples in the Mobile Harbor Channels, one individual sediment sample from the Mobile Reference Site, and three individual sediment samples from the Mobile ODMDS were submitted for analysis. Field sampling and analytical components of the Mobile Harbor Channels project were consistent with previous sediment studies conducted for Mobile Harbor (EA 2005, 2008, 2010a).

The testing program was based on guidance derived from the following documents:

- USEPA-Region 4/USACE-South Atlantic Division (SAD), 2008. *Regional Implementation Manual, Requirements and Procedures for Evaluation of the Ocean Disposal of Dredged Material in Southeastern Atlantic and Gulf Coastal Waters (SERIM).*
- USEPA, 2001. *Methods for Collection, Storage, and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual.*
- USEPA/USACE, 1998 (EPA-823-B-98-004). *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.-Testing Manual [Inland Testing Manual (ITM)]*

- USEPA/USACE, 1995 (EPA-823-B-95-001). *QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations*.

- USEPA/USACE, 1991. *Evaluation of Dredged Material Proposal for Ocean Disposal, Testing Manual (commonly called "The Green Book").*

The physical composition of the sediment was described by grain size, Atterberg limits, specific gravity, total solids determinations, and unified soil classification (USC). Chemical concentrations of polycyclic aromatic hydrocarbons (PAHs), total organic carbon (TOC), and total petroleum hydrocarbons (TPH), were also identified in the sediment samples. TPH testing included diesel range organics (DRO), oil range organics (ORO), and gasoline range organics (GRO).

ES.2 SUMMARY OF RESULTS

The physical and chemical characteristics of twelve individual sediment samples and two composite sediment samples from the Mobile Harbor Lower Ship Channel, Mobile Bar Channel, Mobile Reference Site, and Mobile ODMDS were determined to assess whether or not sediments were impacted by the *Deepwater Horizon* Oil Spill (Table 1-1). Concentrations of detected analytes in sediment samples from the Mobile Harbor project were compared to sediment quality guidelines (SQGs) for marine sediments, where applicable, to assess the sediment quality (MacDonald 1994; Long et al. 1995; MacDonald et al. 1996). SQGs were used to identify potential adverse biological effects associated with contaminated sediments. Threshold Effect Limits (TELs) typically represent concentrations below which adverse biological effects were rarely observed, while Probable Effect Limits (PELs) typically represent concentrations in the middle of the effects range and above which effects were more frequently observed (Long and MacDonald 1998).

Sediment composition at the Mobile Harbor Channel locations varied from predominantly silt+clay to predominantly sand. Sediments from the Mobile Harbor Lower Ship channel were mostly silt+clay, ranging from 75 to 99 percent. Total organic carbon (TOC) concentrations at these locations ranged from 1.43 to 1.92 percent. The grain size of sediments from the Mobile Bar Channel were variable with two locations composed of more than 90 percent sand (MHX-13 and MHX-14) and two locations composed of roughly 50 percent sand and 50 percent silt+clay (MHX-12 and MHX-15). TOC concentrations at these locations ranged from 0.75 to 1.34 percent.

The reference location was composed predominantly of sand (82 percent), and the TOC concentration was 0.27 percent. Two of the three locations at the Mobile ODMDS (MHX-ZA-09 and MHX-ZA-10) were composed of approximately 50 percent sand and 50 percent silt+clay, and the third location (MHX-ZA-11) was composed predominantly of silt+clay (87 percent). TOC at the ODMDS ranged from 0.79 to 2.17 percent. Chemical analysis of the sediment indicated that:

- Five PAHs were detected at low concentrations below the reporting limit (RL) at one location in the Mobile Harbor Lower Ship Channel (MHX-10);

- Two PAHs were detected at low concentrations below the reporting limit (RL) at one location at the ODMDS (MHX-ZA-11);

- Total PAH (ND=½MDL) concentrations in the channels were low and comparable to total PAH (ND=½MDL) concentrations at the reference site and ODMDS locations;

- DRO was detected at five of eight channel locations at concentrations ranging from 21 to 41 mg/kg, comparable to DRO concentrations at the reference site and ODMDS (11 to 48 mg/kg). DRO was detected at the remaining three channel locations at low levels below the RL;

- ORO was detected at seven of the eight channel locations at concentrations ranging from 79 to 250 mg/kg, comparable to ORO concentrations at the reference site and ODMDS (66 to 280 mg/kg). ORO was not detected at location MHX-14; and

- GRO was not detected at any of the channel locations, reference site, or ODMDS.

ES.3 COMPARISON OF RESULTS TO PREVIOUS INVESTIGATIONS

Results from the post-oil spill sampling effort were compared to results from a previous investigation conducted in March 2010 (EA 2010) and to the site-designation report for the Mobile ODMDS conducted in October 2009 (ANAMAR 2010) to determine if there were any discernable changes to the sediment quality in the Mobile Harbor Ship Channels and Mobile ODMDS that could potentially be attributed to the *Deepwater Horizon* oil spill. PAH concentrations in sediment from locations MHX-08 through MHX-11, in the Mobile Harbor Lower Ship Channel, locations MHX-ZA-09, MHX-ZA-10, and MHX-ZA-11, in the Mobile ODMDS, and the sediment from the Mobile reference site were compared to the results from previous studies.

When compared to the PAH concentrations from March 2010, the results from the November/December 2010 study indicate that there was no discernable change in the PAH concentrations in the Mobile Harbor Lower Ship Channel in the last year. Similarly, the total PAH concentrations (ND=½RL) detected at the Mobile ODMDS (121, 295, and 535 ug/kg) (ANAMAR 2010) were slightly higher than concentrations detected in this study, and still well below the TEL value.

Likewise, individual PAH concentrations and total PAH (ND=½MDL) concentrations at the reference site do not indicate a change in sediment quality, between March and December 2010.

Although the PAH concentrations at the Mobile Bar Channels and ODMDS cannot be compared to data from March 2010 (not sampled), based on their location relative to the Gulf of Mexico, low PAH concentrations in November/December 2010, and the comparative data from the

Mobile Harbor Lower Ship Channel and reference site, results indicate that observed concentrations are most likely similar to background concentrations in the area.

Based on results of PAH and TPH testing of surface sediments collected in the Mobile Lower Ship Channel, Mobile Bar Channel, USEPA-designated reference site, and Mobile ODMDS in November and December 2010, there are no discernable changes in the sediment quality that are attributable to the Deepwater Horizon Oil Spill.

Figure 1-1. Mobile Harbor Channels, Reference Site, and ODMDS Sampling Locations, Mobile, Alabama (November & December 2010)

Appendix C: Mobile Ocean Dredged Material Disposal Site

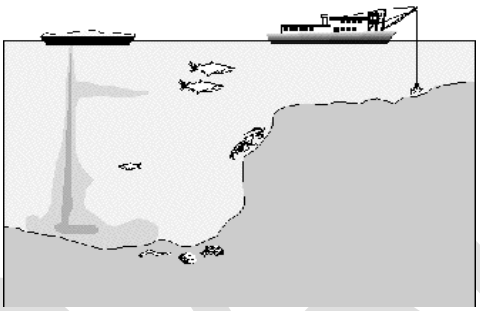
Draft Site Management and Monitoring Plan

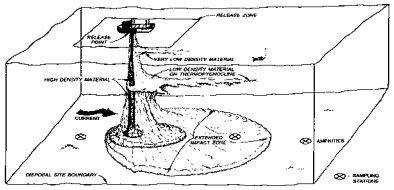
Mobile

OCEAN DREDGED MATERIAL DISPOSAL SITE

SITE MANAGEMENT AND MONITORING PLAN

September 2018





U.S. Army Corps of Engineers
Mobile District

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

Sebastien P. Joly Date
Colonel, Corps of Engineers
District Commander

Onis "Trey" Glenn, III 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 the site indicates a need for revision.

This page left blank intentionally

MOBILE OCEAN DREDGED MATERIAL DISPOSAL SITE SITE MANAGEMENT MONITORING PLAN

List of Tables

List of Figures

MOBILE ODMDS SMMP

1.0 INTRODUCTION.

It is the responsibility of the EPA and the USACE under the MPRSA of 1972 to manage and monitor each designated ODMDS by the EPA pursuant to Section 102 of the MPRSA. The goal of this management and monitoring plan 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 Mobile ODMDS. This plan will include past monitoring results and will comply with provisions of WRDA of 1992 and a 2017 Memorandum of Understanding (MOU) between EPA, Region 4 and USACE, South Atlantic Division (SAD). Upon finalization of this SMMP, these provisions shall be requirements for all dredged material disposal activities at the Mobile ODMDS site. All Section 103 MPRSA ocean disposal permits or evaluations shall be conditioned as necessary to assure consistency with the SMMP.

This SMMP has been prepared in accordance with the *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites* (EPA & USACE, 1996). This document provides a framework for the development of SMMPs required by MPRSA and WRDA of 1992. The SMMP may be modified if it is determined that such changes are warranted because of information obtained during the monitoring process. The SMMP will be reviewed and revised as needed or every ten years, whichever period is shorter.

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

USACE, Mobile District
Mr. Matthew Lang

EPA, Region 4
Ms. Lena Weiss

U.S. Coast Guard
Sector Mobile Commander
CAPT Rob McLellan

Alabama State Port Authority (ASPA)
Mr. James K. Lyons

Alabama Department of
Environmental Management
Mr. Scott Brown

National Oceanic and
Atmospheric Administration
Dr. Roy Crabtree

Other agencies, such as the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and the Bureau of Ocean Energy Management (BOEM) will be asked to participate where appropriate. The SMMP team will assist the EPA and the USACE 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 the EPA and the USACE on deciding on appropriate monitoring techniques, level of monitoring, significance of results, and potential management options.

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

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

USACE: The 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.

ODMDS management involves a broad range of activities including regulating the schedule of use, quantity, and physical/chemical characteristics of dredged materials disposed of at the site. It also involves establishing disposal controls, conditions and requirements to avoid and minimize potential impacts to the marine environment. Finally, ODMDS management involves monitoring 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 Code of Federal Regulations (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 because of information obtained during the monitoring process. MPRSA, as amended by WRDA of 1992, 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 Mobile ODMDS (Figure 1) encompasses an area approximately 24 square nautical miles (nmi^2). The corner coordinates are as follows (Table 1):

Table 1: Mobile ODMDS Corner Coordinates

Mobile ODMDS Corner Coordinates (North American Datum (NAD) 83))	
Latitude 30° 13.0'N	Longitude 88° 08.8'W
Latitude 30° 09.6'N	Longitude 88° 04.8'W
Latitude 30° 08.5'N	Longitude 88° 05.8'W
Latitude 30° 08.5'N	Longitude 88° 12.8'W
Latitude 30° 12.4'N	Longitude 88° 12.8'W

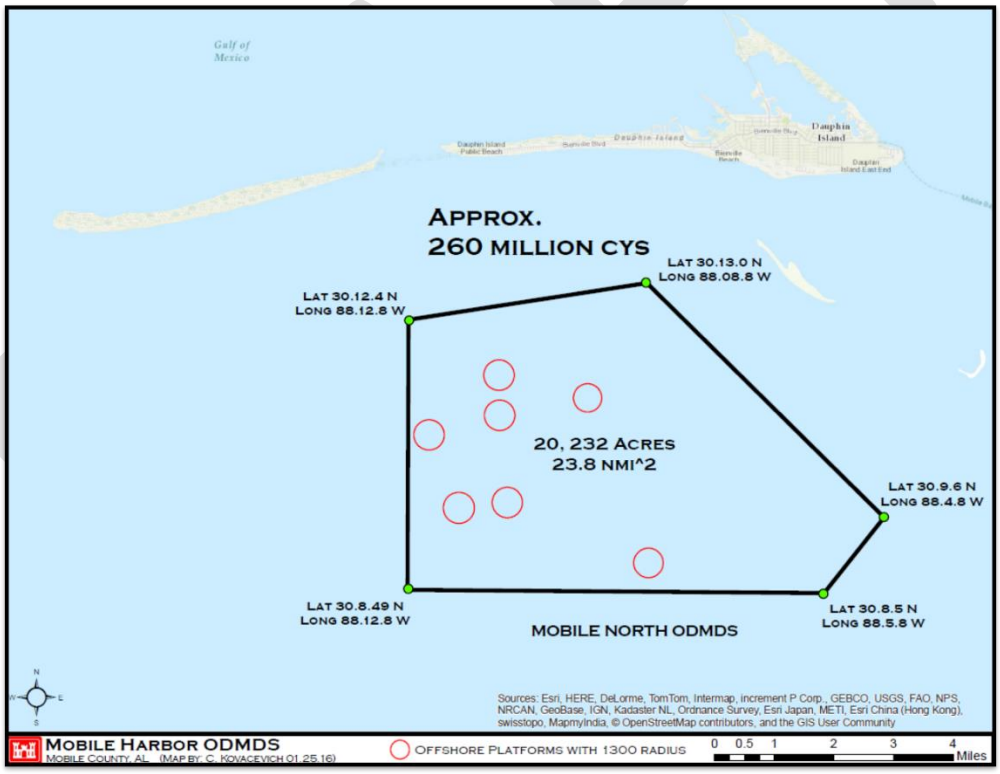


Figure 1: Location of the Mobile ODMDS

The Mobile ODMDS is located between two and six miles due south of Dauphin Island, Alabama. The site is due north of a navigational safety fairway. It is adjacent to, and just west of, the approaches to the Mobile Harbor Navigation Channel with the Fort Morgan peninsula located northeast of the site. Dauphin Island is a part of the barrier island system that extends east from Louisiana to the

Florida panhandle. North of Dauphin Island is the Mississippi Sound and south of Dauphin Island is the Gulf of Mexico.

Depths at the Mobile ODMDS range from 34 to 57 feet with an overall average depth of approximately 45 feet. Most hopper dredges require a minimum depth of at least 25 feet to safely dispose dredged material; therefore, the larger majority of the ODMDS is currently suitable for hopper dredge disposal. Sediment composition at this site consists of sands, silts and clays in varying percentages. Some samples consisted of nearly 100% sand while others were nearly 100% silts and clays. The physical, chemical, and biological conditions at the Mobile ODMDS are described in: *Final Report Mobile ODMDS Designation Survey Mobile, Alabama W91278-08-D-0053* (Anamar, 2010). Additional reports titled: *Post-oil Spill Surface Sediment Evaluation: Mobile Harbor Federal Navigation Channels Mobile, Alabama Final Report* (USACE, 2012) dated March 2012 and *Final Evaluation of Dredged Material – Federally Authorized Navigation Projects Mobile Harbor, Mobile, Alabama* (EA Engineering 2011) contain detailed information on sediment characteristics of material typically dredged from Mobile Harbor and placed in the Mobile ODMDS.

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)). There are three primary objectives in the management of the Mobile 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 Disposal History and Dredged Material Volumes. It is intended that the Mobile ODMDS will be used for dredged material (both maintenance and new work) from the greater Mobile Bay, Alabama vicinity. The primary users of the Mobile ODMDS are:

- USACE Mobile District
- ASPA (i.e. Regulatory Actions)
- Private Applicants (i.e. Regulatory Actions)

Disposal history can be found at the Ocean Disposal Database maintained by the Engineering Research and Development Center (ERDC) (http://odd.el.erdc.dren.mil/). Ocean disposal has been used for placement of dredged material from the Mobile Bay area since the late 1970s. A Section 103 ODMDS was selected by the USACE, Mobile District in the mid-1980's with a smaller Section 102 EPA designated ODMDS shortly thereafter. As both the Section 102 and Section 103 ODMDS footprints overlapped, records show that all material from Mobile Harbor for ocean disposal were placed within the footprint of the newly modified Mobile ODMDS. Since 1987, approximately 123 million cubic yards (cys) (Table 2) of dredged material have been placed within either the Section 102 or Section 103 Mobile ODMDS overlapping footprints. The composition of the dredged material is primarily silts and clays. Most sandy material is placed in the Sand Island Beneficial Use Area (SIBUA) located due east of the Mobile ODMDS.

Table 2: USACE Mobile ODMDS Annual Quantities
of Dredged Material Placed from 1987 to 2017

USACE Mobile ODMDS Annual Quantities of Dredged Material Placed from 1987 to 2017	
Date	**Quantity in Cubic Yards**
1987	101,400 cys
1989	16,000,000 cys
1990	6,755,400 cys
1991	6,888,500 cys
1992	4,939,400 cys
1993	1,945,300 cys
1994	2,400,000 cys
1995	2,636,600 cys
1996	3,028,400 cys
1997	5,503,100 cys
1998	7,425,100 cys
1999	2,617,000 cys
2000	5,911,300 cys
2001	4,593,800 cys
2002	4,101,400 cys
2003	6,785,700 cys
2004	7,848,900 cys
2005	3,223,900 cys
2006	2,546,600 cys
2007	1,952,800 cys
2008	2,235,993 cys
2009	5,979,800 cys
2010	4,361,670 cys
2011	3,500,844 cys
2012	1,592,204 cys
2013	1,901,591 cys
2014	2,037,900 cys
2015	652,338 cys
2016	2,200,000 cys
2017	1,027,500 cys
Total 122,694,440 cys placed in Mobile ODMDS	

Future volumes and rates of disposal, from both Federal and private applicants, are expected to be similar to previous years. The Federal Mobile Harbor navigation project is segmented into the River, Bay, and Bar channels. Approximately 1,200,000 cys of dredged material is removed from the River channel on an annual basis. Dredged material removed from the River channel is typically placed within previously-approved upland disposal areas located in the upper harbor area, or the Mobile ODMDS (with Gaillard Island as a possible emergency alternative). The Bay channel historically requires annual O&M removal of approximately 4,000,000 cys of material to maintain channel dimensions. All material removed from the Bay channel is placed in the Mobile

ODMDS or, under emergency conditions, at Gaillard Island. Additionally, approximately 300,000 cys of sandy material is removed from the Bar channel annually and placed in the SIBUA. Also, the Mobile Harbor Turning Basin constructed in 2010 requires annual maintenance dredging of approximately 400,000 cys per year. Historically, the average annual disposal volume in the Mobile ODMDS from O&M material was approximately 4,400,000 cys. However, this estimate may change if it is determined deepening and widening the Federal channel into Mobile Harbor is feasible. A recent change in dredging operations occurred in July 2014 with the reinstatement of in Bay open-water disposal practices associated with O&M dredged material (Public Notice FP14-MH01-10).

Since 2012, open-water in bay thin-layer disposal of dredged material has been utilized on an annual basis for O&M material from Mobile Harbor. First, in June 2012 approximately 9 million cys, under an emergency provision, were placed via thin layer techniques throughout Mobile Bay due to increased shoaling and limited supplemental funding from hurricane related impacts to address the problem between 2006 and 2012. Subsequent open-bay placement events in 2014 (850,000 cys), 2015 (1,200,000 cys), 2016 (2,000,000 cys), and 2017 (2,400,000 cys) added more O&M material to multiple open-water sites. The USACE, Mobile District anticipates approximately 1,500,000 cys of material dredged from within Mobile Bay could potentially be placed, annually, in authorized open-water disposal areas adjacent to the Federal Mobile Harbor navigation project. Thus, 2,900,000 cys of sediment still needing placement in the Mobile ODMDS are anticipated to be dredged annually to maintain the existing Federal Mobile Harbor navigation project.

In June 2014 the ASPA, the non-Federal sponsor for Mobile Harbor, requested via letter to commence a study on major project improvements to consider deepening and widening the Federal Mobile Harbor navigation project to federally authorized project dimensions described in WRDA of 1986. The proposed project would potentially add an approximate 100,000,000 cys of new work material and associated annual O&M of approximately 2,000,000 cys. These proposed project improvements could also increase the need of private applicants (Regulatory actions) to use the Mobile ODMDS as a viable disposal alternative. The Mobile ODMDS covers an area to accommodate approximately 260,000,000 cys over the next 25 years while also accounting for site/resource buffers (EPA and BOEM suggested buffers) and unforeseen constraints.

The Mobile ODMDS has been determined to be a dispersive site, particularly during hurricane season (Byrnes *et al.,* 2010). However, the dispersiveness of the site, and consequently the ultimate capacity of the Mobile ODMDS, is subject to unpredictable variability.

2.4 Dredged Material Suitability.

USACE Beneficial Use of Dredged Material Engineer Manual (EM) 1110-2-5026 requires dredged material be maximized within the coastal system. Dredged materials that qualify for beach or near-shore placement per the applicable State standards shall be beneficially placed in such locations, to the maximum extent practicable. It is expected that the applicable State will exercise its authority and responsibility, regarding beach nourishment, to the full extent during any future permitting activities. Beneficial use of compatible dredged material for beach nourishment is strongly encouraged and supported by the EPA. Most sandy material is placed in the open-water environment of the SIBUA located due east of the Mobile ODMDS (USACE, 2013). In fact, the USACE manages its dredged material under its Regional Sediment Management (RSM) initiative to be used beneficially. As a result, the USACE 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 material to be placed so that it will be within, or accessible to, the sand-sharing system, to the maximum extent practicable, and following the provisions of the Clean Water Act (CWA).

Two potential sources of material are expected to be placed at the site: new work and maintenance dredged material. These materials will consist of mixtures of silts, clays, and sands in varying percentages. Sediments dredged for navigation in Mobile Harbor include mainly bay and estuarine sources (silts and clays, and littoral materials). Shoals occur where specific physical factors promote deposition or movement of sediments. These factors may vary spatially and temporally.

The suitability of dredged material for ocean disposal must be verified by the USACE and concurred with by the EPA prior to disposal. Verification will be valid for three years from the most current verification.

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 testing (where needed) and determining if the non-excluded, tested material is suitable for ocean disposal.

Verification documentation for suitability will be completed prior to use of the ODMDS. Documentation will be in the form of a MPRSA Section 103 Evaluation. Potential testing and the evaluation will follow procedures outlined in the 1991 EPA/USACE Dredged Material Testing Manual (Green Book) and 2008 Southeast Regional Implementation Manual (SERIM), or 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 short-term fate of dredged material (STFATE-ADDAMS) model. Only material determined to be suitable and in compliance with the Ocean Dumping Criteria (40 CFR §227) through the verification process by the USACE and the EPA, Region 4 can be disposed in this 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 biotic activity. As monitoring results are compiled, should any such restrictions appear necessary, disposal activities will be scheduled so as to avoid adverse impacts. Monitoring and precautions necessary to protect sea turtles and Gulf sturgeon, as described in *Section 2.6*, are required when using hopper dredges. If new information indicates that endangered or threatened species are being adversely impacted, additional restrictions may be incurred.

2.6 Disposal Techniques. To protect sea turtles and Gulf sturgeon, the NMFS requires monitoring according to guidance outlined in the *Regional Biological Opinion for Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by USACE Galveston, New Orleans, Mobile, and Jacksonville Districts* (NMFS 2003, amended 2005 & 2007). In addition, standard surveillance and evasive measures to protect sea turtles and marine mammals shall be employed during all disposal operations at the Mobile ODMDS.

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 zones, pre-transit testing of barge door hydraulics, and pre-transport verification of appropriate weather and sea state conditions.

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. Disposal shall not occur closer than 1,300 feet to any oil or gas platform that may be present within the site boundaries (BOEM recommendation). Placement methods that promote mounding are beneficial for creating relief on the ocean floor for habitat; however, the USACE will prevent mounded dredged material from becoming an unacceptable navigation hazard. Dredged material shall be placed so at no point will depths less than -25 feet Mean Lower Low Water (MLLW) occur. To maximize ODMDS capacity and promote mounding of material, disposal shall be within a specific area identified by the USACE in consultation with the EPA, Region 4. Release zones may be established by the EPA and/or the USACE at the time of site use for operational reasons or to ensure

compliance with the Ocean Dumping Criteria (40 CFR §227). Depths at the time of disposal will be monitored to detect if adjustments in disposal methods are needed in order to prevent unacceptable mounding. The physical removal or leveling of material above -25 feet MLLW is a management alternative should mounds greater than that elevation occur.

2.8 Permit and Contract Conditions. 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 contractual 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	SMMP pages 9&10, SERIM
Disposal within Appropriate Zones	SMMP page 11
Post Bathymetric Surveys within 30 days of a disposal event following project completion	SMMP pages 16
Disposal Monitoring and Recording of Disposal Locations	SMMP page 15&16
Reporting Requirements: Daily & Monthly Operations Reports and Disposal Summary Reports within 90 Days of Project Completion	SMMP page 20

2.9 Permit Process. All disposal of dredged material in the ocean, with the exception of Federal Civil Works projects, requires an ocean dumping permit issued by the USACE pursuant to Section 103 of the MPRSA. A summary of the permitting process can be found at: http://www.epa.gov/ocean-dumping/ocean-disposal-dredged-material. Additional guidance is found in the SERIM.

2.10 Information Management of Dredged Material Placement. As discussed in the following sections, a substantial amount of diverse data regarding use of the Mobile ODMDS and the effects of disposal is required from many sources (EPA, USACE, and ASPA). 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 material dredged and placed correctly?
- What will happen to the environment at the disposal site?

As part of site management, the EPA and the USACE will investigate alternatives for appropriate data management. The USACE has an Ocean Disposal Database (http://odd.el.erdc.dren.mil/) maintained by 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 works project or private entity.

The Mobile District Spatial Data Branch (CESAM-OP-J) has created an online Sediment Sampling Mapping Module that has capacity to organize and access all data relating to core borings and sediment testing activity. This application allows users to retrieve detailed sediment sample properties (e.g. X, Y locations, harbor bottom elevations, top of rock elevation, or material characteristics) correlating with all relevant sediment testing (chemical, biological, or physical) results, and link related documents such as core borings, gradation curves or sediment testing reports.

In an attempt to streamline data sharing, EPA Region 4 and USACE, SAD has agreed to an eXtensible Markup Language (XML) standard for sharing of disposal monitoring data (see also *Section 3.5*).

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 environmental integrity of a disposal site and areas surrounding the site and to verify compliance with 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;

(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 altered to avoid significant adverse impacts.

Table 4 lists surveys and studies conducted at, or in the vicinity of, the Mobile ODMDS dating back to 1982.

Table 4: Surveys and Studies Conducted at or in the vicinity of the Mobile ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Cultural Resources Survey Study	USACE	1982	Survey Area to determine areas of low and high potential for Cultural Resources. Determine areas of avoidance during placement operations.	A maritime investigation of this site has previously been conducted to identify areas of high and low probability of submerged resources. Past efforts showed the presence of anomalies that should be avoided in the Mobile ODMDS.
Analysis & Synthesis of Oceanic Conditions in the Mississippi Sound Offshore Region	USACE	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.
Sediment Mapping	UGA Center for Applied Isotopes for the EPA	2002	Characterization of bottom sediments using gamma spectrometry in the Eastern portion of the Mobile ODMDS surrounding the EPA Section 102 site	- Baseline Survey
Mobile ODMDS Designation Survey Benthic Community Assessment	USACE/EPA	2010	-Collect physical and chemical data on sediments and water -Sample the benthic organisms and conduct a trend assessment	-Collected and analyzed 30 sediment and 10 water samples covering entire ODMDS -Baseline analysis of current situation
Status and Trend Assessment (40 CFR §228.13) of Mobile ODMDS	USACE/EPA	2010	To determine the physical, chemical, geological, and biological structure of the ODMDS	-Collected and analyzed 30 sediment and 10 water samples covering entire ODMDS -Baseline analysis of current situation
Channel Dredging and Geomorphic Response at and Adjacent to Mobile Pass, Alabama	USACE/ERDC	Sep 2010	To evaluate the potential impact of construction and O&M dredging activities for the Federal navigation project in Mobile Outer Bar Channel on ebb-shoal changes and shoreline response along Dauphin Island, Alabama.	Sediment transport from the Mobile ODMDS travels in a north-northwest direction making the site dispersive in nature.
Mobile ODMDS Post Oil Spill Sediment Sampling	USACE	Dec 2010	Determine if any oil from the Deep Water Horizon Oil Spill has contaminated the sediments.	-Test results released February 2011 indicate there were no discernible changes in the sediment quality attributed to the Deepwater Horizon Oil Spill

Mobile ODMDS Status and Trends Survey	USEPA	Oct 2017	Monitor for any adverse effects (includes assessment of the macroinfaunal communities within and outside of the ODMDS, sediment grain size, sediment chemistry, and water quality).	- Collected and analyzed 30 sediment samples covering entire ODMDS - Comparison to previous baseline analyses
Bathymetric Survey	USACE	Before and After Each Event	Monitor bathymetry changes	- Baseline analysis
Disposal Monitoring	USACE	During each Event	Compliance	- Database

3.1 Baseline Monitoring. Disposal has occurred at the present site since the late 1970s, when a historically used area south of Dauphin Island garnered an interim site designation in 1977 as part of the EPA's Ocean Dumping Regulations. This interim site eventually became an EPA designated 102 ODMDS through an Environmental Impact Statement (EIS) in 1986. Prior to this designation, in 1985, the USACE selected a Section 103 ODMDS, which contained the smaller EPA 102 ODMDS within its boundaries. Currently, the Mobile ODMDS encompasses the old EPA 102 ODMDS and a portion of the USACE-selected 103 ODMDS in its current configuration. The results of investigations presented in the EPA designation EIS (1986) and subsequent surveys listed in Table 4 will serve as the main body of data for impact monitoring associated with use of the current Mobile ODMDS.

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 (accuracy± 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 mile or every four minutes during travel to and from the Mobile ODMDS and 12 seconds or every 30 feet of travel, whichever is smaller, while the hull status is open within the Mobile 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 the EPA, Region 4 utilizing the XML specification and protocol per *Section 3.5*.

Prior to conducting disposal operations for Civil Works Projects, the contractor is required to have a current certification from the National DQM Program for scow and hopper dredge instrumentation systems. Certification shall be based on most recent criteria posted on the National DQM Program web site http://dqm.usace.army.mil/Certifications/Index.aspx, and an on-site scow/hopper dredge inspection conducted by DQM Support Center personnel. The National DQM certification is valid for one year from the date of certification and is contingent upon the system's ability to meet specific performance requirements. If issues with data quality are not corrected within 48 hours, the system certification shall be revoked and recertification may be necessary.

The EPA, Region 4 and the USACE, Mobile District shall be notified within 24 hours if disposal occurs outside of the Mobile ODMDS or specified disposal zone or if excessive leakage occurs.

3.3 Post Discharge Monitoring. The USACE or other site user will conduct a detailed bathymetric survey of the placement area within 30 days of a disposal event following project completion. Surveys will not be required for projects less than 50,000 cy. Surveys will conform to Class 2 specifications as described in the USACE EM1110-2-1003, *Hydrographic Surveying*, dated November 30, 2013 and the USACE's Engineering Circular (EC) 1130-2-210, *Hydrographic Surveying*, dated October 1, 1998, to the extent practicable. The number and length of transects required will be sufficient to encompass a 500-foot wide area around the disposal zone. The survey area may be reduced on a case-by-case basis if disposal zones are specified and adhered to.

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 Mobile ODMDS and surrounding areas as a result of the disposal of dredged material at the site.

3.4.1 Summary of Results of Past Monitoring Surveys. The surveys/studies listed in Table 4 have indicated that the Mobile ODMDS is a dispersive site for fine-grained material and as a result dredged material may extend beyond the designated site boundaries in some areas (USACE, 1984). This extension does not violate any permit condition as the migration of fine grain sediment would not exit the ODMDS within the four-hour time frame set forth in the STFATE model.

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 of, the disposed dredged material is moving, and what environmental effect the material is having on the site and adjacent areas.

Within 30 days of a disposal event following project completion, detailed bathymetric surveys of the placement area will be completed. 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 (i.e. potential cultural resources) or potential adverse impacts associated with a specific event. If the result of bathymetric survey does not indicate any anomalies or adverse impacts, no additional monitoring will be required for the disposal event. Reassessment of the site (Status and Trends Assessment) will be undertaken in accordance with 40 CFR §228.13 approximately every 10 years. Status and trend assessments include characterization of water quality, benthic communities, and sediment size/chemistry allowing for identification and interpretation of changes in community structure. 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 Mobile ODMDS is at least one nautical mile from all known fish havens, artificial reefs, and fishing areas. The site has been designated as dispersive, meaning 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.

Future surveys as outlined in Table 5 will assist in determining the rate and direction of dredged material dispersal and the capacity of the Mobile ODMDS. The management plan presented may require revision based on the outcome of any monitoring program.

Table 5: Mobile ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Monitor Bathymetric Trends	Bathymetry	Site User	Determine the extent of the disposal mound and major bathymetric changes	Post-Disposal for projects greater than 50,000 cy	Disposal mound occurs outside ODMDS boundaries	Continue monitoring	-Modify disposal method/placement -Restrict disposal volumes
Benthic Effects Monitoring & Trend Assessment (40 CFR §228.13)	Sediment Mapping (Gamma/ CS[3])	EPA	Determine aerial influence of dredged material	Approximately every 10 years	-Absence of pollution sensitive biota from the site -Progressive non-seasonal changes in water or sediment quality	Continue monitoring on prescribed schedule	-Conduct Environmental Effects Monitoring or Advanced Environmental Effects Monitoring -Review dredged material evaluation procedures and amend, if necessary
	Water and Sediment Quality, Benthic Community Analysis (40CFR §228.13)	EPA	Periodically evaluate the impact of disposal on the marine environment (40CFR §228.9)	Approximately every 10 years			
Environmental Effects Monitoring	Chemical Monitoring Benthic Monitoring	EPA/ USACE	Determine if chemical contaminants are significantly elevated[1] within and outside of site boundaries Determine whether there are adverse changes in the benthic populations outside of the site and evaluate recovery rates	Implement if disposal footprint extends beyond the site boundaries or if Trend Assessment results warrant.	Contaminants are found to be elevated[1] Adverse changes observed outside of the site that may endanger the marine environment	Discontinue monitoring.	- Institute Advanced Environmental Effects Monitoring - Implement case-specific management options (i.e. Remediation, limits on quantities or types of material). -Consider isolating dredged material (capping)

[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. Mobile 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	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	- Implement case-specific management options (i.e. Remediation, limits on quantities or types of material). - Discontinue site use
	Benthic Monitoring		Determine if the site is a source of adverse sub-lethal[2] changes in benthic organisms endangering the marine environment		Sub-lethal effects are unacceptable.		
Site Capacity	MPFATE/ Long Term Fate	USACE/ Site Users	Determine dispersiveness of site and long and short-term capacity Determine Need to Implement Phase II Use	-As resources allow -Prior to any project in excess of 5 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		
					New work volumes exceed estimated capacity		
Ensure Safe Navigation Depth	Bathymetry	Site User	Determine height of mound and any excessive mounding	Post Disposal for projects greater than 50,000 cy	Mound height > -30 feet MLLW	Continue monitoring	-Modify disposal method/placement
					Mound height > -25 feet MLLW	Continue monitoring	-Restrict disposal volumes - Halt disposal - Physically level material
Cultural Resource Information	Magnetometer, side-scan sonar	USACE	Determine where cultural/historic resources are located within the ODMDS	Once, if necessary	Any magnetometer hit would be avoided during placement operations	Dispose dredged material anywhere within ODMDS	-Avoid all magnetometer anomalies within the ODMDS
Com-pliance	Disposal Site Use Records	Site User	-Ensure 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 the EPA, Region 4/USACE, 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.

3.5.1 Project Initiation and Violation Reporting. The USACE or other site user shall notify the 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 (or next business day) 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. The user will be required to prepare and submit to the USACE daily reports of operations and a monthly report of operations for each month or partial month's work. Disposal monitoring data shall also be provided to the 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 R4_DisposalData@epa.gov. The XML format is available from the EPA Region 4.

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 ensure that mounding limits are not being exceeded.

3.5.3 Post-Disposal Summary Reports. A Post-Disposal Summary Report shall be provided to the EPA within 90 days after project completion. These reports should include: vessel name, disposal start and end dates and times; dredging project; volume disposed, number of loads completed, type of material disposed; contractor conducting the work, permit and/or contract number; identification of any misplaced material; and dates of bathymetric surveys of the ODMDS. The disposal summary reports should be accompanied by the bathymetry survey results (contour plot and X, Y, Z ASCII data file). These reports can be accessed by USACE personnel at the DQM Website: http://dqm-portal.usace.army.mil.

4.0 MODIFICATION OF THE MOBILE ODMDS SMMP.

If the results of the monitoring surveys or reports from other sources indicate that continued use of the ODMDS would lead to unacceptable effects, then the management of the ODMDS will be modified to mitigate the effects. The SMMP will be reviewed and updated at least every 10 years or if necessary if site use changes significantly. For example, the SMMP will be reviewed if the quantity or type of dredged material placed on 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.

5.0 IMPLEMENTATION OF THE MOBILE ODMDS SMMP.

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

conditions at the site indicates a need for revision. The EPA and USACE shall share responsibility for implementation of the SMMP. Site users may be required to undertake monitoring activities as a condition of their permit. The USACE will be responsible for implementation of the SMMP for Federal new work and maintenance projects.

6.0 REFERENCES.

ANAMAR Environmental Consulting, Inc. 2010. Final Report Mobile ODMDS Designation Survey Mobile, AL. W91278-08-D-0053. Project 09-0011, May 2010.

Byrnes, M.R., S.F. Griffee, and M.S. Osler. 2010. *Channel Dredging and Geomorphic Response at and Adjacent to Mobile Pass, Alabama.* Technical Report 10-8, US Army Corps of Engineers, Engineer Research and Development Center, Vicksburg, MS.

Center for Applied Isotope Studies, 1996. Postdisposal Areal Mapping of Sediment Chemistry at the Mobile, Mississippi ODMDS. EPA Contract No. 68-C2-0134, April 8, 1996.

EPA, SESD 2018. Mobile, AL Ocean Dredge Material Disposal Site (ODMDS) Trend Assessment Final Report. SESD Project 18-0002. October 26-31, 2017.

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.

NMFS, 2003. Regional Biological Opinion for Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredging by USACE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number F/SER/2000/01287), NOAA, NMFS, Southeast Regional Office, Protected Resources Division, St. Petersburg, FL, 121 pp.

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

U.S. Army Corps of Engineers, 2012. Post-oil Spill Surface Sediment Evaluation: Mobile Harbor Federal Navigation Channels Mobile, Alabama Final Report. March 2012.

U.S. Army Corps of Engineers, 2006. Final Sediment Quality Characterization of the Mobile Harbor Federal Navigation Channel, Mobile, MS. U.S. Army of Corps of Engineers, Mobile District. Mobile, AL.

U.S. Army Corps of Engineers (USACE). 2002. *Hydrographic Surveying*. Engineering Manual 1110-2-1003, Department of the Army, Washington D.C.

U.S. Environmental Protection Agency, Region 4, 2007. Dredged Material Ocean Disposal Verification System - Specifications for Data Submittal, revised October 30, 2007. Prepared by Wetlands and Marine Regulatory Section.

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

Mobile SMMP
Appendix A

WATER COLUMN EVALUATIONS NUMERICAL MODEL (STFATE) INPUT PARAMETERS MOBILE ODMDS

Appendix A: Water Column Evaluations Numerical Model (STFATE) Input Parameters Mobile ODMDS

SITE DESCRIPTION

Parameter	Value	Units
Number of Grid Points (left to right)	96	
Number of Grid Points (top to bottom)	96	
Spacing Between Grid Points (left to right)	500	ft
Spacing Between Grid Points (top to bottom)	500	ft
Constant Water Depth	46	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[1]	3	
Ambient Density at Depth = 3 ft	1.0206	g/cc
Ambient Density at Depth = 26 ft	1.0206	g/cc
Ambient Density at Depth = 46 ft	1.0207	g/cc

[1] from EPA Mobile ODMDS Designation Survey Report (2009) for Zone A

AMBIENT VELOCITY DATA

Parameter	Value	Units
Profile[2]	2-Point at constant depth	
X-Direction Velocity = 11 feet	0.12	ft/sec
Z-Direction Velocity = 11 feet	-0.41	ft/sec
X-Direction Velocity = 33 feet	0.22	ft/sec
Z-Direction Velocity = 33 feet	-0.37	ft/sec

[2] from EPA Mobile ODMDS Designation Survey Report (2009)

DISPOSAL OPERATION DATA

Parameter	Value	Units
Location of Disposal Point from Top of Grid	16,400	ft
Location of Disposal Point from Left Edge of Grid	28,800	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	4,500	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	9,000	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	28,000	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	46,000	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

COEFFICIENTS

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

[1] Model Default Coefficient

Mobile ODMDS Background Water Concentration.	
Chemicals of Concern	**Background Concentration Levels (µg/l)**
Arsenic	1.66 [1]
Cadmium	0.01 [1]
Chromium (VI)	0.75 [1]
Copper	1.11 [1]
Lead	0.75 [1]
Mercury	0.10 [1,3]
Nickel	0.75 [1]
Selenium	0.23 [1]
Silver	0.005[1]
Zinc	3.78[1]
Cyanide	
Tributyltin (TBT)	0.025 [2,3]
Aldrin	0.005 [1,3]
Chlordane	0.10 [1,3]
DDT	0.05 [1,3]
Dieldrin	0.005 [1,3]
alpha - Endosulfan	0.005 [1,3]
beta - Endosulfan	0.005 [1,3]
Endrin	0.005 [1,3]
gamma-BHC (Lindane)	0.005 [1,3]
Heptachlor	0.005 [1,3]
Heptachlor Epoxide	0.005 [1,3]
Toxaphene	.25 [1,3]
Pentachlorophenol	5.0 [2,3]

[1] Mobile ODMDS Site Designation Study (2010)
[2] Pensacola ODMDS Trend Assessment Study (2013)
[3] Analyte not detected. Value based on one half the reporting limit.

Mobile SMMP
Appendix B

TEMPLATE
For
Generic Special Conditions
For
MPRSA Section 103 Permits
Mobile ODMDS

Appendix B: TEMPLATE GENERIC SPECIAL CONDITIONS FOR MPRSA SECTION 103 PERMITS Mobile 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 Mobile ODMDS, proper disposal of dredged material at the disposal area within the Mobile ODMDS, and transportation of the hopper dredge or disposal barge or scow back to the dredging site.

B. The Mobile ODMDS is defined as the trapezoid with corner coordinates as follows:

Mobile ODMDS Corner Coordinates (North American Datum (NAD) 83))	
Latitude 30° 13.0'N	Longitude 88° 08.8'W
Latitude 30° 09.6'N	Longitude 88° 04.8'W
Latitude 30° 08.5'N	Longitude 88° 05.8'W
Latitude 30° 08.5'N	Longitude 88° 12.8'W
Latitude 30° 12.4'N	Longitude 88° 12.8'W

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 Mobile ODMDS.

D. The permittee shall use an electronic positioning system to navigate to and from the Mobile ODMDS. For this section of the permit, the electronic positioning system will be as per the DQM specifications. 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 Mobile ODMDS. The certification shall be accomplished by providing current certification documentation from the National DQM Program for scow and hopper dredge instrumentation systems. The National DQM certification is valid for one year from the date of certification.

F. This permit does not authorize leakage or spillage out of barges, dump scows, or hopper dredges of water and/or excavated material while en route to the ODMDS disposal release zone(s). Failure to repair leaks or change the method of operation which is resulting in the leakage or spillage will result in the suspension of dredging operation and require prompt repair or change of operation as prerequisite to the resumption of dredging. 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. The EPA, Region 4 and the USACE, Mobile District shall be notified within 24 hours (or the next business day) if any apparent leaking or spilling of dredged material occurs as indicated by an average loss of draft during transit from the dredging area to the disposal release zone(s) (forward draft loss plus aft draft loss divided by 2) in excess of x.x. feet. In addition, the permittee understands that no debris is to be placed in the Mobile ODMDS.

G. A disposal operations inspector and/or captain of any tugboat, hopper dredge or other vessel used to transport dredged material to the Mobile 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, Mobile District's Regulatory Branch (251) 690-2658 and the EPA Region 4 at (404) 562-9386 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 outside of the boundaries of the Mobile ODMDS as defined in Special Condition B. Additionally, disposal shall occur within a specified disposal zone defined as [DEFINE COORDINATES AND SIZE OF DISPOSAL ZONE]. Disposal shall not occur closer than 1,300 feet to any oil or gas rig that may be present within the site boundaries.

I. The permittee shall use an automated disposal verification system that is certified by the National DQM program to continuously track the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) to and from the Mobile ODMDS. This real-time information is available on-line to the Mobile District and will be provided to the EPA Region 4 on a weekly basis via email using the eXtensible Markup Language (XML) specification and protocol. Data shall be provided per the EPA Region 4 XML format and delivered as an attachment to an email to R4_DisposalData@epa.gov. The XML format is available from the EPA Region 4.

J. The permittee shall conduct a bathymetric survey of the Mobile ODMDS within 30 days of a disposal event following project completion.

1. The number and length of the survey transects shall be sufficient to encompass the defined disposal zone within the Mobile ODMDS and a 500-foot-wide area around the disposal zone. Transects shall be spaced at 500-foot intervals or less with a depth recording density of 20 to 70 feet.

2. Vertical accuracy of the survey shall be ±0.1 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 will be referenced to prescribed NOAA Mean Lower Low Water (MLLW) datum. MLLW is 1.8 feet below NGVD 1929. The horizontal datum will be Alabama State Plane (zone 0102 Alabama West) or Geographic (NAD 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. The permittee has read and agrees to assure they are in compliance with the requirements of the current Mobile ODMDS Site Management and Monitoring Plan (SMMP), and any revisions.

The permittee shall not transport dredged material to the Mobile ODMDS until concurrence is granted by the EPA that the proposed dredge material meets the Ocean Disposal Criteria as given in 40 CFR Part 227.

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

II. REPORTING REQUIREMENTS

A. The permittee shall send the U.S. Army Corps of Engineers, Mobile District's Regulatory Branch and the EPA Region 4's Ocean, Wetlands, and Streams Protection Branch (61 Forsyth Street SW, Atlanta, GA 30303) a notification of commencement of work at least 15 days before initiation of any dredging operations authorized by this permit.

B. The permittee shall submit to the U.S. Army Corps of Engineers and the EPA Region 4 weekly disposal monitoring reports. These reports shall contain the information described in Special Condition I.

C. The permittee shall develop and send one copy of the disposal summary report to the Mobile District's Regulatory Branch and one copy of the disposal summary report to the 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: USACE permit number, actual start date and completion date of dredging and disposal operations, total cubic yards disposed at the Mobile ODMDS, locations of disposal events, 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 U.S.C. Section 1415 (a).

C. If the permittee or any contractor or any 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).

Mobile SMMP
Appendix C

Generic Contract Specification Language for Use of the Mobile ODMDS

Appendix C: Generic Contract Specification Language for Use of the Mobile ODMDS

SECTION 35 20 23.23

NATIONAL DREDGING QUALITY MANAGEMENT PROGRAM
HOPPER DREDGE
X/X/20XX

PART 1 GENERAL

1.1 DESCRIPTION

The work under this contract requires use of the National Dredging Quality Management Program (DQM) to monitor the dredge's status at all times during the contract and manage data history.

This performance-based specification section identifies the minimum required output and precision and instrumentation requirements. The requirements may be satisfied using equipment and technical procedures selected by the Contractor.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office responsible for review of the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00, "SUBMITTAL PROCEDURES":

SD-01, Preconstruction Submittals

Dredge Plant Instrumentation Plan Revisions or Addendum; G, SAM-OP-J

SD-06, Test Reports

Data Appropriately Archived e-mail, section 3.2.10; G, XXX-XX-X *(enter local district)*

SD-07,Certificates

Letter of National Dredging Quality Management Program Certification; G,

XXX-XX-X *(enter local district)*

1.3 PAYMENT

No separate payment shall be made for installation, operation and maintenance of the DQM certified system as specified herein for the duration of the dredging operations; all costs in connection therewith shall be considered a subsidiary obligation of the Contractor and covered under the contract unit prices for dredging in the bidding schedule.

1.4 NATIONAL DREDGING QUALITY MANAGEMENT PROGRAM CERTIFICATION

The Contractor is required to have a current certification from the DQM for the hopper dredge instrumentation system to be used under this contract. Criteria for certification shall be based on the most recent specification posted on the DQM website (http://dqm.usace.army.mil/Specifications/Index.aspx). Compliance with these criteria shall be verified by annual on-site quality assurance (QA) checks conducted by DQM Support Center Data Acquisition and Analysis Team, and by periodic review of the transmitted data. DQM Certification is valid for one year from the date of the annual QA checks. Certification is contingent upon the system's ability to continuously meet the performance requirements as outlined in sections 3.3 and 3.5. If issues with data quality are not corrected within 48 hours, the system certification shall be revoked and additional QA checks by the Data Acquisition Team may be necessary.

Annual DQM Certification shall be based on:

- A series of QA checks as described in Section 3.4 " Compliance Quality Assurance Checks"
- Verification of data acquisition and transfer (Section 3.3)
- Review of the Dredge Plant Instrumentation Plan (DPIP) as described in Section 1.5

The dredging contractor shall have personnel who are familiar with the system instrumentation and who have the ability to recalibrate the sensors on site during the QA process. The dredging contractor shall coordinate pickup times and locations and provide transportation to and from any platform with a DQM system to team personnel in a timely manner. As a general rule, Data Acquisition and Analysis Team personnel will come with PPE consisting of hardhats, steel toe boots, and life jackets. If additional safety equipment is needed, such as eye protection, safety harnesses, work gloves or personal location beacons, these items shall be provided to the team while on site. It is the dredging contractor's obligation to inform the QA team if the location designated for the QA checks has any site specific safety concerns prior to their arrival on site.

The owner or operator of the dredge shall contact the DQM at DQM-AnnualQA@rpsgroup.com on an annual basis, or at least three weeks prior to

certification expiration, to schedule QA checks for renewal. This notification is meant to make the Data Acquisition Team aware of a target date for the annual QA checks for the dredge. At least one week prior to the target date, the dredging contractor shall contact the Data Acquisition team and verbally coordinate a specific date and location. The contractor shall then follow-up this conversation with a written e-mail confirmation. The owner/operator shall coordinate the QA checks with all local authorities, including but not limited to, the local USACE contracting officer.

Re-certification is required for any yard work which produces modification to displacement (i.e. change in dredge lines, repositioning or repainting hull marks), modification to bin volume (change in bin dimensions or addition or subtraction of structure) or changes in sensor type or location; these changes shall be reported in the sensor log section of the DPIP. A system does not have to be transmitting data between jobs, however in order to retain its certification during this period, the system sensors or hardware should not be disconnected or removed from the dredge. If the system is powered down, calibration coefficients shall be retained.

1.5 DREDGE PLANT INSTRUMENTATION PLAN (DPIP)

The Contractor shall have a digital copy of the DPIP on file with the National DQM Support Center. The Contractor shall also maintain a copy of the DPIP on the dredge while working on site which is easily accessible to government personnel at all times. This document shall describe the sensors used, configuration of the system, how sensor data will be collected, how quality control on the data will be performed, and how sensors/data reporting equipment will be calibrated and repaired if they fail. A description of computed dredge specific data and how the sensor data will be transmitted to the DQM Database will also be included. The Contractor shall submit to the DQM Support Center any addendum or modifications made to the plan, subsequent to its original submission, prior to start of work.

The DPIP shall include the following as a minimum:
(DPIP must have table of contents in the following order and tabs separating sections)

Cover Page
- Dredge Name
- Date
- Photo of plant

Table of Contents

New page
- Dredge Contacts
- Dredging Company
  - • Dredge Point of Contact on-site
  - • Phone Number
  - • e-mail address

Dredge Monitoring System Provider
- Dredge Monitoring System Point of Contact
- Telephone Number
- e-mail address

New page Table of dredge characteristics
- Dimensions of dredge
- Dimensions of hopper
- Method of disposal
- Capacity
- Minimum and maximum digging depth
- Minimum and maximum drafts and displacements
- RPM and velocity range
- ID of suction and discharge pipes

New page

Sensor data collection method
- Any averaging
- Route from sensors to DQM computer
- Internet connection type and provider

Sensor descriptions, locations and calibration methods
- Positioning system
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions
- Dredge heading instrumentation
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
- Hull status
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions
  - o Calibration procedure
- Draft
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions
  - o Calibration procedure
- Ullage
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions
  - o Calibration procedure
- Dragarm depths
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions

- o Calibration procedure
- Density
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions including pipe diameter
  - o Calibration procedure
- Velocity
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions including pipe diameter
  - o Calibration procedure
- Pump RPM
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions
  - o Calibration procedure
- Pumpout (if instrumented)
  - o Brand name, model and accuracy
  - o Any calculation done external to the instrumentation
  - o Sensor location with referenced dimensions
  - o Calibration procedure

Calculated Parameters

- Displacement:
  - o Method used by Contractor to calculate displacement
  - o Tables listing (fresh and salt water) displacement as a function of draft in feet and tenths of feet
- Hopper Volume:
  - o Method used by Contractor to calculate hopper volume
  - o Table listing the hopper volume as a function of hopper ullage in feet and tenths of feet
  - o Description of datum for ullage sounding measurements
- Drag Head Position
  - o Method used by Contractor to calculate drag head position
- Load number
  - o Method used to increment load number

Quality Control

- Description of Contractors quality control process
- Log of sensor calibrations, repairs and modifications

Appendices

- Hydrostatic curves
- Certified Displacement and Volume Tables
- Legible Dimensioned Drawings of the Dredge with units in feet

- A typical plan of the dredge showing:
  - Overall dredge and hopper dimensions
  - Locations of required sensors referenced to uniform longitudinal and transverse reference points
  - Distance between the draft sensors
  - Distance between the ullage sensors
  - Dimensions of dragarm
- A profile view of the dredge showing:
  - Overall dredge and hopper dimensions
  - Distance between draft sensors and draftmarks
  - Locations of required sensors referenced to uniform vertical and longitudinal reference points
- Typical vessel cross section through the hopper

- Sensor manuals and certificates of calibration

Any changes to the computation methods shall be approved by the National Dredging Quality Management Program Support Center prior to their implementation.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 REQUIREMENTS FOR REPORTED DATA

The Contractor shall provide, operate and maintain all hardware and software to meet these specifications. The Contractor shall be responsible for replacement, repair and calibration of sensors and other necessary data acquisition equipment needed to supply the required data.

Repairs shall be completed within 48 hours of any sensor failure. Upon completion of a repair, replacement, installation, modification or calibration the Contractor shall notify the Contracting Office's Representative (COR). The COR may request re-calibration of sensors or other hardware components at any time during the contract as deemed necessary.

The Contractor shall keep a log of sensor repair, replacement, installation, modification and calibration in the dredge's onboard copy of the DPIP. The log shall contain a three-year history of sensor maintenance to include: the time of sensor failures (and subsequent repairs), the time and results of sensor calibrations, the time of sensor replacements, and the time that backup sensor systems are initiated to provide required data. It shall also contain the name of the person responsible for the sensor work.

Sensors installed shall be capable of collecting parameters within specified accuracies and resolutions indicated in the following subsections.

Reported sensor values for ullage, draft and draghead depth should represent a weighted average with the highest and lowest values not included in the calculated average for the given interval. This information should be documented in the DPIP sections that say “Calculations done external to the instrumentation”.

3.1.1 Date and Time

The date and time shall be reported to the nearest second and referenced to UTC time based on a 24 hour format; mm/dd/yyyy hh:mm:ss. The reported time shall be the time reported by the GPS in the NMEA string.

3.1.2 Load Number

A load number shall document the end of a disposal event. Load numbering will begin at number 1 at the start of the contract, and will be incremented by 1 at the completion of each disposal event or emptying of the hopper. Whenever possible, the load number shall be calculated off of the sensors aboard the dredge, and shall be a mathematically repeatable routine. Efforts shall be made to include logic that avoids false load number increments while also not allowing the routine to miss any disposal event. If manual incrementing of the load number is in place, extra attention shall be paid to this value in the contractor’s quality control process (section 3.5).

3.1.3 Horizontal Positioning

All locations shall be obtained using a Positioning System operating with a minimum accuracy level of 1 to 3 meters horizontal Circular Error Probable (CEP). Positions shall be reported as Latitude/Longitude WGS 84 in decimal degrees. West Longitude and South Latitude values are reported as negative.

3.1.3.1 Vessel Horizontal Positioning

Geographic coordinates of the vessel as indicated by the location of the GPS antenna.

3.1.3.2 Draghead Horizontal Positioning

Geographic coordinates of the heel on centerline of the draghead(s). Any offset calculations from the GPS antenna should be described in the DPIP.

3.1.4 Hull status

Open/closed status of the hopper dredge, corresponding to the split/non-split condition of a split hull hopper dredge shall be monitored. For dredges with hopper doors, the status of a single door that is the first opened during normal disposal

operations may be monitored. An “OPEN” value shall indicate the hopper door is open, or in the case of split hull dredges, the hull is split. A “CLOSED” value indicates the hopper doors are closed, or in the case of split hull dredges, the hull is not split. *For this contract, hull status shall register closed prior to leaving the disposal area.*

3.1.5 Dredge Course

Dredge course-over-ground (COG) shall be provided using industry standard equipment. The Contractor shall provide dredge course over ground to the nearest whole degree with values from 000 (true north) to 359 degrees referenced to a clockwise positive direction convention.

3.1.6 Dredge Speed

Dredge speed-over-ground shall be provided in knots using industry standard equipment with a minimum accuracy of 1 knot and resolution to the nearest 0.1 knot.

3.1.7 Dredge Heading

Dredge heading shall be provided using industry standard equipment. The dredge heading shall be accurate to within 5 degrees and reported to the nearest whole degree, with values from 000 (true north) to 359 degrees referenced to a clockwise positive direction convention.

3.1.8 Tide

Tide data shall be obtained using appropriate equipment to give the water level with an accuracy of $\pm$ 0.1 feet and a resolution of 0.01 feet. Tide values above project datum described in the dredging specification shall be entered with a positive sign, those below with a negative sign.

3.1.9 Draft

All reported draft measurements shall be in feet, tenths and hundredths with an accuracy of $\pm$ 0.1 foot relative to observed physical draft readings. The measurements shall be reported at a resolution of two decimal places (hundredths of a foot). Reported forward draft value shall be equal to the sum of the visual forward port and starboard draft mark readings divided by 2. Reported aft draft value shall be equal to the sum of the visual aft port and starboard draft mark readings divided by 2. Forward draft, aft draft and average draft will be reported. Sensors shall be placed at an optimum location on the vessel to be reflective of observed physical draft mark readings at any trim or list. Minimum accuracies are conditional to relatively calm water. The sensor value reported shall be an average of at least 10 samples per event, remove at least one maximum value and one

minimum value, and average the minimum 8 remaining values. When average draft is calculated for the purpose of determining displacement, significant digits for average draft shall be maintained such that if forward draft was 0.15 and aft draft was 0.1 then the average draft would be 0.125.

3.1.10 Hopper Ullage Sounding

All reported ullage soundings shall be in feet, tenths and hundredths with an accuracy of ± 0.1 foot with respect to the combing, and be representative of the forward and aft extents of the hopper as close to centerline as is possible. The measurements shall be reported at a resolution of two decimal places (hundredths of a foot). Forward ullage and aft ullage soundings will be reported. Sensors should be mounted so as to avoid discharge flume turbulence, foam and any structure that could produce sidelobe errors. If sensors must be offset from centerline of the hopper they should be offset to opposite sides of the vessel. If more than one fore or one aft sensor is used, they shall be placed near the corners of the hopper and the average value of the fore sensors and the average value of the aft sensors shall be reported The sensor value reported shall be an average of at least 10 samples per event, remove at least one maximum value and one minimum value, and average the minimum 8 remaining values. When average ullage is calculated for the purpose of determining hopper volume, significant digits for average ullage shall be maintained such that if forward ullage was 0.15 and aft ullage was 0.1 then the average ullage would be 0.125.

3.1.11 Hopper Volume

Hopper volume shall be reported in cubic yards, based on the most accurate method available for the dredge. The minimum standard of accuracy for hopper volume is interpolation from the certified hopper volume table, based on the average fore and aft ullage soundings.

3.1.12 Displacement

Dredge displacement shall be reported in long tons, based on the most accurate method available for the dredge. The minimum standard of accuracy for displacement is interpolation from the displacement table, based on the average draft. For this contract the density of water used to calculate displacement shall be_____ kg/cubic meter and shall be used for an additional interpolation between the fresh and salt water tables. *The water density used is project/location specific. 1000 kg/m^3 (1g/cm^3)- fresh water 1027 kg/m^3 - 1030 kg/m^3 (1.027g/cm^3 - 1.03g/cm^3)- salt water*

3.1.13 Empty Displacement

Empty displacement shall be reported in long tons, and shall be the lightship value of the dredge, or the weight of the dredge with no material in the hopper, adjusted for fuel and water consumption.

3.1.14 Draghead depths

Draghead depths shall be reported with an accuracy of ± 0.5 feet and a resolution to the nearest 0.1 feet as measured from the surface of the water with no tidal adjustments. Minimum accuracies are conditional to relatively calm water. The sensor value reported shall be an average of at least 10 samples per event, remove at least one maximum value and one minimum value, and average the minimum 8 remaining values.

3.1.15 Slurry Densities of Dragarms

A density metering device, calibrated according to the manufacturer's specifications, shall be used to record the slurry density of each dragarm to the nearest 0.0001 g/cc with an accuracy of ± 0.001g/cc. If the manufacture does not specify a frequency of re-calibration, calibration shall be conducted prior to commencement of work.

3.1.16 Slurry Velocities of Dragarms

A flow metering device, calibrated according to the manufacturer's specifications, shall be used to record the slurry velocity of each dragarm to the nearest 0.0001 fps with an accuracy of ± 0.001 fps. If the manufacture does not specify a frequency of re-calibration, calibration shall be conducted prior to commencement of work. The slurry velocity shall be measured in the same pipeline inside diameter as that used for the slurry density measurement.

3.1.17 Pump RPM

Pump RPM shall be measured with the highest level of accuracy that is standard on the vessel operational displays, either at the bridge, at the drag tenders controls, or in the engine room. Dredges with multiple pumps per side shall report RPM for the pump that best describes the dredging process (typically the outboard pump). If requirements of section 3.1.19 are determined based on pump RPM, then that value shall be reported.

3.1.18 Sea Suction Valve for Dragarm

If sea suction can be taken to bypass suction through the draghead, the sea suction location and valve status will be reported. The status of the valve will

change from “closed” to “open” when the valve starts to open and will register “closed” when the valve is fully closed. When applicable, the state of the latch will be reported as “true” or “false”. The sea suction location shall be reported in a standard non-changing name string of no more than 20 characters. These field values will always occur in the XML string as a set. The DQM system can only accommodate up to 4 unique sea suction locations. Suggested options for the naming convention can be found in the Example dataset in section 3.2.9, “Data Format”.

3.1.19 Pumpout

When the hopper dredge is being pumped out, a “True” value shall be reported; when it is not, a “False” value shall be reported. The only permissible values are “TRUE” and “FALSE”.

3.2 NATIONAL DREDGING QUALITY MANAGEMENT PROGRAM SYSTEM REQUIREMENTS

Contractors DQM system shall be capable of collecting, displaying, and transmitting information to the DQM Database. The applicable parameters from section 3.1 shall be recorded as events locally and continually transmitted to the DQM Database anytime an internet connection is available. The Dredge shall be equipped with a DQM computer system consisting of a computer, monitor, keyboard, mouse, data modem, UPS, and network hub. The computer system shall be a standalone system, exclusive to the DQM monitoring system, and will have USACE DQM software installed on it. If a hardware problem occurs, or if a part of the system is physically damaged, then the Contractor shall be responsible for repairing it within 48 hours of determination of the condition.

3.2.1 Computer Requirements

The Contractor shall provide a dedicated on-board computer for use by the Dredging Quality Management system. This computer shall run the USACE’s software and receive data from the Contractor’s data reporting interface. This computer must meet or exceed the following performance specifications:

CPU:	Intel or AMD processor with a (non-overclocked) clock speed of at least 3 gigahertz (GHz)
Hard drive:	250 gigabytes (GB); internal
RAM:	2 gigabytes
Ethernet adapter:	10 or 100 megabit (Mbit) internal network card with an RJ-45 connector

Video adapter:	Must support resolution of 1024x768 at 16 bit color depth
Keyboard:	Standard 101-key
Mouse:	Standard 2-button mouse
Monitor:	17 inch viewable display; must support 1024x768 resolution at 16 bit color depth
CD-ROM drive:	16X read speed/8X write speed
Ports:	2 free Serial ports with standard 9-pin connectors; 1 free USB port
Other hardware:	Category 5 (Cat-5) cable with standard RJ-45 plugs connecting the network adapter to the network hub; one spare cable

Contractor shall install a fully-licensed copy of Windows 7 Professional Operating System on the computer specified above. Contractor shall also install any necessary manufacturer-provided drivers for the installed hardware.

This computer shall be located and oriented to allow data entry and data viewing, as well as to provide access to data ports for connection of external hardware. Location and orientation shall be subject to Contracting Officer's Representative's approval.

3.2.2 Software

The DQM computer's primary function is to transmit data to the DQM shore side database. No other software which conflicts with this function shall be installed on this computer. The DQM computer will have the USACE provided DQMOBS (Dredge Quality Management Onboard Software) installed on it by DQM personnel along with USACE selected software for remote support and management.

3.2.3 Network Hub

The DQM computer shall communicate via IEEE 802.3 Ethernet and the TCP/IP networking protocol. The Contractor shall provide a network hub to allow the temporary addition of the Contracting Officer's representative's portable computer to the computer network. The hub shall provide a minimum of four RJ-45 ports that support Category 5 (Cat-5) cable with standard RJ-45 plugs connecting the network adapter to the network hub; one spare cable shall be available on site to plug into the network hub.

3.2.4 UPS

The Contractor shall supply an Uninterruptible Power Supply (UPS) for the computer and networking equipment. The UPS shall provide backup power at 1kVA for a minimum of 10 minutes. The UPS shall interface to the DQM computer to communicate UPS status. The Contractor shall ensure that sufficient power outlets are available to run all specified equipment.

3.2.5 Internet Access

The Contractor shall maintain an internet connection capable of transmitting real time data to the DQM Server and supporting remote access, as well as enough additional band width to clear historically queued data when a connection is re-obtained. The telemetry system shall be always available and have connectivity in contract area. If connectivity is lost, unsent data shall be queued and transmitted upon restoration of connectivity. The Contractor shall acquire and install all necessary hardware and software to make the internet connection available for data transmission to the DQM web service. The hardware and software must be configured to allow the USACE DQM center remote access to this computer. Coordination between the dredging company's IT and DQM support may be required in order to configure remote access though any security, firewall, router, and telemetry systems. Telemetry systems must be capable of meeting these minimum reporting requirements in all operating conditions.

3.2.6 Data Routing Requirements

Onboard sensors shall continually monitor dredge conditions, operations and efficiency and route this information into the shipboard dredge-specific system computer (DSS) to assist in guiding dredge operations. Portions of this Contractor-collected information shall be routed to the DQM computer on a real-time basis. Standard sensor data shall be sent to the DQM computer via an RS-232 9600- or 19200-baud serial interface. The serial interface shall be configured as 8 bits no parity and no flow control.

3.2.7 Data Reporting Frequency

Data shall be logged as a series of events. Each event will consist of a data set containing dredge information as per section 3.1. Each set of measurements (i.e. time, position, etc…) will be considered an event. All required information in section 3.1 that are not an averaged variable (i.e. draft and ullage) shall be collected within one second of the reported time. A data string for an event shall be sent to the DQM computer every 6 to 12 seconds and this interval shall remain constant throughout the contract; data strings shall never be transmitted more frequently than once per every 5 seconds. Any averaged variable must be collected and computed within this sampling interval.

3.2.8 Data Format

Data shall be reported as an eXtensible Markup Language (W3C standard XML 1.0) document as indicated below. Line breaks and spaces are added for readability, but the carriage return, line feed character combination is only added to delineate records (HOPPER _DREDGING_DATA tag) for actual data transmission.

```
<?xml version="1.0"?>
<HOPPER_DREDGING_DATA version = “2.0”>
   <DREDGE_NAME> string32 </DREDGE_NAME>
     <HOPPER_DATA_RECORD>
        <DATE_TIME> time date string </DATE_TIME>
        <CONTRACT_NUMBER> string32</CONTRACT_NUMBER>
       <LOAD_NUMBER> integer string </LOAD_NUMBER>
        <VESSEL_X coord_type = “LL”> floating point string </VESSEL_X>
        <VESSEL_Y coord_type = “LL”> floating point string </VESSEL_Y>
        <PORT_DRAG_X coord_type = “LL”> floating point string</PORT_DRAG_X>
        <PORT_DRAG_Y coord_type = “LL”> floating point string</PORT_DRAG_Y>
        <STBD_DRAG_X coord_type = “LL”> floating point string</STBD_DRAG_X>
        <STBD_DRAG_Y coord_type = “LL”> floating point string</STBD_DRAG_Y>
        <HULL_STATUS> OPEN/CLOSED string </HULL_STATUS>
        <VESSEL_COURSE> floating point string <VESSEL_COURSE >
        <VESSEL_SPEED> floating point string </VESSEL_SPEED>
        <VESSEL_HEADING> floating point string </VESSEL_HEADING>
        <TIDE> floating point string </TIDE>
        <DRAFT_FORE> floating point string </DRAFT_FORE>
        <DRAFT_AFT> floating point string </DRAFT_AFT>
        <ULLAGE_FORE> floating point string </ULLAGE_FORE>
        <ULLAGE_AFT> floating point string </ULLAGE_AFT>
        <HOPPER_VOLUME> floating point string </HOPPER_VOLUME>
        <DISPLACEMENT> floating point string </DISPLACEMENT>
        <EMPTY_DISPLACEMENT> floating point string </EMPTY_DISPLACEMENT>
        <DRAGHEAD_DEPTH_PORT> floating point string </DRAGHEAD_DEPTH_PORT>
        <DRAGHEAD_DEPTH_STBD> floating point string </DRAGHEAD_DEPTH_STBD>
        <PORT_DENSITY> floating point string </PORT_DENSITY>
        <STBD_DENSITY> floating point string </STBD_DENSITY>
        <PORT_VELOCITY> floating point string </PORT_VELOCITY>
        <STBD_VELOCITY> floating point string </STBD_VELOCITY>
        <PUMP_RPM_PORT> floating point string </PUMP_RPM_PORT>
        <PUMP_RPM_STBD> floating point string </PUMP_RPM_STBD>
       <VALVE_1_LOCATION> string32</VALVE_1_LOCATION>
       <VALVE_1_STATUS>open/closed</VALVE_1_STATUS>
       <VALVE_1_LATCHED>true/false</VALVE_1_LATCHED>
       <VALVE_2_LOCATION> string32</VALVE_2_LOCATION>
       <VALVE_2_STATUS>open/closed</VALVE_2_STATUS>
       <VALVE_2_LATCHED>true/false</VALVE_2_LATCHED>
       <VALVE_3_LOCATION> string32</VALVE_3_LOCATION>
       <VALVE_3_STATUS>open/closed</VALVE_3_STATUS>
       <VALVE_3_LATCHED>true/false</VALVE_3_LATCHED>
       <VALVE_4_LOCATION> string32</VALVE_4_LOCATION>
       <VALVE_4_STATUS>open/closed</VALVE_4_STATUS>
       <VALVE_4_LATCHED>true/false</VALVE_4_LATCHED>
        <PUMP_OUT_ON> true/false/unknown string </PUMP_OUT_ON>
```

</HOPPER_DATA_RECORD>

</HOPPER_DREDGING_DATA>
Carriage return – ASCII value 13
Line Feed – ASCII value 10

Example

```
<?xml version="1.0"?>
<HOPPER_DREDGING_DATA version = “2.0”>
  <DREDGE_NAME>Essayons</DREDGE_NAME>
    <HOPPER_DATA_RECORD>
        <DATE_TIME>04/11/2002 13:12:05</DATE_TIME>
       <CONTRACT_NUMBER>GDSNWP-11-G-0001</CONTRACT_NUMBER>
        <LOAD_NUMBER>102</LOAD_NUMBER>
        <VESSEL_X coord_type = "LL">-80.123333</VESSEL_X>
        <VESSEL_Y coord_type = "LL">10.123345</VESSEL_Y>
        <PORT_DRAG_X coord_type = "LL">-80.1233371</PORT_DRAG_X >
        <PORT_DRAG_Y coord_type = "LL">10.12335</PORT_DRAG_Y >
        <STBD_DRAG_X coord_type = "LL">-80.123339</STBD_DRAG_X >
        <STBD_DRAG_Y coord_type = "LL">10.123347</STBD_DRAG_Y >
        <HULL_STATUS>CLOSED</HULL_STATUS>
        <VESSEL_COURSE>258</VESSEL_COURSE>
        <VESSEL_SPEED>3.4</VESSEL_SPEED>
        <VESSEL_HEADING>302</VESSEL_HEADING>
        <TIDE>-0.1</TIDE>
        <DRAFT_FORE>10.05</DRAFT_FORE>
        <DRAFT_AFT>15.13</DRAFT_AFT>
        <ULLAGE_FORE>10.11</ULLAGE_FORE>
        <ULLAGE_AFT>10.22</ULLAGE_AFT>
        <HOPPER_VOLUME>2555.2</HOPPER_VOLUME>
        <DISPLACEMENT>4444.1</DISPLACEMENT>
        <EMPTY_DISPLACEMENT>2345.0</EMPTY_DISPLACEMENT>
        <DRAGHEAD_DEPTH_PORT>55.10</DRAGHEAD_DEPTH_PORT>
        <DRAGHEAD_DEPTH_STBD>53.21</DRAGHEAD_DEPTH_STBD
        <PORT_DENSITY>1.02</PORT_DENSITY>
        <STBD_DENSITY>1.03</STBD_DENSITY>
        <PORT_VELOCITY>22.1</PORT_VELOCITY>
        <STBD_VELOCITY>23.3</STBD_VELOCITY>
       <PUMP_RPM_PORT> 55 </PUMP_RPM_PORT>
       <PUMP_RPM_STBD> 54 </PUMP_RPM_STBD>
       <VALVE_1_LOCATION> Starboard Dragarm </VALVE_1_LOCATION>
       <VALVE_1_STATUS>open</VALVE_1_STATUS>
       <VALVE_1_LATCHED>true</VALVE_1_LATCHED>
       <VALVE_2_LOCATION> Port Dragarm</VALVE_2_LOCATION>
       <VALVE_2_STATUS> closed</VALVE_2_STATUS>
       <VALVE_2_LATCHED>false</VALVE_2_LATCHED>
```

```
        <VALVE_3_LOCATION>Port Sea Chest</VALVE_3_LOCATION>
        <VALVE_3_STATUS> closed</VALVE_3_STATUS>
        <VALVE_3_LATCHED>false</VALVE_3_LATCHED>
        <VALVE_4_LOCATION>Starboard Sea Chest</VALVE_4_LOCATION>
        <VALVE_4_STATUS>open </VALVE_4_STATUS>
        <VALVE_4_LATCHED> false</VALVE_4_LATCHED>
         <PUMP_OUT_ON>false</PUMP_OUT_ON>
        </HOPPER_DATA_RECORD>
</HOPPER_DREDGING_DATA>
<cr>
<lf>
<DREDGE_NAME>Essayons</DREDGE_NAME>
   <HOPPER_DATA_RECORD>
         <DATE_TIME>04/11/2002 13:12:10</DATE_TIME>
        <CONTRACT_NUMBER>GDSNWP-11-G-0001</CONTRACT_NUMBER>
         <LOAD_NUMBER>102</LOAD_NUMBER>
         <VESSEL_X coord_type = "LL">-80.123334</VESSEL_X>
         <VESSEL_Y coord_type = "LL">10.123346</VESSEL_Y>
         <PORT_DRAG_X coord_type = "LL">-80.1233372</PORT_DRAG_X >
         <PORT_DRAG_Y coord_type = "LL">10.12336</PORT_DRAG_Y >
         <STBD_DRAG_X coord_type = "LL">-80.123340</STBD_DRAG_X >
         <STBD_DRAG_Y coord_type = "LL">10.123348</STBD_DRAG_Y >
         <HULL_STATUS>CLOSED</HULL_STATUS>
         <VESSEL_COURSE>259</VESSEL_COURSE>
         <VESSEL_SPEED>3.5</VESSEL_SPEED>
         <VESSEL_HEADING>300</VESSEL_HEADING>
         <TIDE>-0.1</TIDE>
         <DRAFT_FORE>10.00</DRAFT_FORE>
         <DRAFT_AFT>15.15</DRAFT_AFT>
         <ULLAGE_FORE>10.15</ULLAGE_FORE>
         <ULLAGE_AFT>10.20</ULLAGE_AFT>
         <HOPPER_VOLUME>2555.5</HOPPER_VOLUME>
         <DISPLACEMENT>4444.0</DISPLACEMENT>
         <EMPTY_DISPLACEMENT>2345.0</EMPTY_DISPLACEMENT>
         <DRAGHEAD_DEPTH_PORT>55.15</DRAGHEAD_DEPTH_PORT>
         <DRAGHEAD_DEPTH_STBD>53.19</DRAGHEAD_DEPTH_STBD
         <PORT_DENSITY>1.00</PORT_DENSITY>
         <STBD_DENSITY>1.01</STBD_DENSITY>
         <PORT_VELOCITY>22.5</PORT_VELOCITY>
         <STBD_VELOCITY>23.3</STBD_VELOCITY>
        <PUMP_RPM_PORT> 55 </PUMP_RPM_PORT>
        <PUMP_RPM_STBD> 54 </PUMP_RPM_STBD>
        <VALVE_1_LOCATION> Starboard Dragarm </VALVE_1_LOCATION>
        <VALVE_1_STATUS>open</VALVE_1_STATUS>
        <VALVE_1_LATCHED>true</VALVE_1_LATCHED>
        <VALVE_2_LOCATION> Port Dragarm</VALVE_2_LOCATION>
```

<VALVE_2_STATUS> closed</VALVE_2_STATUS>
<VALVE_2_LATCHED>false</VALVE_2_LATCHED>
<VALVE_3_LOCATION>Port Sea Chest</VALVE_3_LOCATION>
<VALVE_3_STATUS> closed</VALVE_3_STATUS>
<VALVE_3_LATCHED>false</VALVE_3_LATCHED>
<VALVE_4_LOCATION>Starboard Sea Chest</VALVE_4_LOCATION>
<VALVE_4_STATUS>open </VALVE_4_STATUS>
<VALVE_4_LATCHED> false</VALVE_4_LATCHED>
<PUMP_OUT_ON>false</PUMP_OUT_ON>
</HOPPER_DATA_RECORD>
</HOPPER_DREDGING_DATA>
<cr>
<lf>

3.2.9 Data Reporting

The system shall transmit correctly formatted event data XML strings to the DQM Database continuously from mobilization until the last USACE post-dredging survey has been accepted. If the internet connection (section 3.2.6) is non-operable, manual backups from the dredge computer of the XML data string which would have been transmitted to the DQM computer over the serial connection shall be performed for each day the device is inoperable and submitted to the DQM center within 48 hours. This submission does not replace the requirement of correcting the issue affecting automatic transmission of data. In the event of data transfer, transmission, or hardware failure; a manually recorded disposal log shall be maintained. It shall consist of a series of events. These events are: start of dredging, end of dredging, pre-disposal and post-disposal events. Each event shall include: time stamp (GMT), position (Latitude and Longitude WGS84), draft, ullage, volume and displacement. Disposal logs shall be submitted on a daily basis to the Contracting Officer's Representative during the time when the system is not operational.

3.2.10 Contractor Data Backup

The Contractor shall maintain an archive of all data sent to the DQM computer during the dredging contract. The COR may require, at no increase in the contract price, that the Contractor provide a copy of these data covering specified time periods. The data shall be provided in the XML format which would have been transmitted to the DQM computer. There shall be no line breaks between the parameters; each record string shall be on separate line. Naming convention for the files shall be <dredgename>_<StartYYYYMMddhhmmss>_<EndYYYYMMddhhmmss>.txt . Data submission shall be via storage medium acceptable to the COR.

At the end of the dredging contact, the Contractor shall contact the National DQM Support Center prior to discarding the data to ensure it has been appropriately archived. The Contractor shall record in a separate section at the end of the dredge's on-board copy of the DPIP the following information:

a. Person who made the call
b. The date of the call
c. The DQM representative who gave permission to discard

The same day of the phone call and prior to discarding the data, the Contractor shall submit a "Data Appropriately Archived e-mail" to the local districts Contracting Officer's Representative with the above information, and Cc: the DQM Support Center representative providing permission. In addition to the above information, also include in the e-mail:

d. Project name and contract number
e. Dredge start and end dates
f. Name of hopper dredge

3.3 PERFORMANCE REQUIREMENTS

The Contractor's DQM system shall be fully operational at the start of dredging operations and fully certified prior to moving dredge material on the contract (see Section 1.4, National Dredging Quality Management Program Certification). To meet contract requirements for operability, in addition to certification, the Contractor's system shall provide a data string with values for all parameters while operating, as described within the specifications. Additionally, all hardware shall be compliant with hardware requirements (Section 3.2). Quality data strings are considered to be those providing values for all parameters reported when operating according to the specification. Repairs necessary to restore data return compliance shall be made within 48 hours. If the Contractor fails to report required data within the specified time window for dredge measurements (see Sections 3.2.7 "Data Measurement Frequency" and 3.2.9 "Data Reporting"); the system will be declared not fully operational, and the Contractor will be assessed liquidated damages equivalent to the additional oversight hours that would be required for USACE personnel to be on site from the first full day after the system is deemed not operational through to the time when the system is returned to fully operational status. For this contract, the liquidated damages shall be ***$***_____ per day. *(A spread sheet of how to calculate this is available at the DQM support center; this is NOT just the DQM day rate)*

3.4 COMPLIANCE QUALITY ASSURANCE CHECKS

Quality assurance checks are required prior to the commencement of dredging, and at the discretion of a COR periodically throughout the duration of the contract.

Detailed instructions for performing these checks and a spreadsheet for recording the results are available at http://dqm.usace.army.mil/Certifications/Index.aspx . Incoming data shall be periodically reviewed to assure compliance with performance requirements outlined in section 3.3. In addition to making sure the data received meets the reporting requirements outlined in the sub sections under section 3.1, a more detailed description of some of the quality assurance methods are outlined below.

For annual instrumentation checks and compliance monitoring, the DQM Data Acquisition Team personnel attempt to be as flexible as possible in performing their checks so as not to delay work; however, in order to expedite matters as much as possible, it is necessary that they receive the support and cooperation of the local district and dredging contractor. The dredging contractor shall coordinate pickup times and locations and provide transportation to and from any platform with a DQM certified system in a timely manner. Calibrations to the sensors should already be performed before DQM personnel arrive on site.

3.4.1 Draft & Displacement Check

The COR shall periodically verify the accuracy of the fore and aft system reported draft values by comparing the vessel hull draft marks to the corresponding sensor readings indicated on the DQM screen. The vessel's hull draft reading shall be viewed from a contractor supplied auxiliary vessel circling the dredge. The COR shall review the difference between averaged drafts recorded by the instruments and those estimated from the draft marks to insure that the system is operating within the acceptable accuracy of approximately $\pm$ 0.1 ft. in calm seas conditions. Reported draft values will be verified light, loaded, and at other intervals at the discretion of the COR. If sensors responsible for collecting draft values are not located on centerline, verification may be required under different trim and list conditions. If values are outside the acceptable range, the Contractor shall re-calibrate or repair system components as necessary. This check may be performed separately or as a part of the Water Load Test. For each system provided fore and aft draft, an average draft value will be calculated during the draft check, and the corresponding displacement will be verified longhand using the supplied draft/displacement tables.

3.4.2 Draghead Depth Check

The COR may require periodic calibration checks of the reported draghead depth using manual means such as tape measures or sounding lines to directly measure draghead depth. The Contractor shall furnish a steel tape, chain, or wire with clearly visible flags/tags placed at 1 foot increments within the operational range of the dragarm. These devices shall be capable of measuring the depth below the water surface to the lowest fixed point of each draghead (often the heel) with sufficient length to measure 5 feet more than the maximum project depth. Pressure sensors may be used to verify calibration of the draghead sensors only in areas

where current flow past the vessel/dragarm cannot be reduced sufficiently to allow safe handling of manual measuring devices. Pressure sensors, used for this purpose shall be vented pressure gages and shall be subjected to an annual manufacturer's calibration. Prior to the dragarm depth check, the sensor shall be checked at a known depth, and may be required to be zeroed at this point according to manufacturer's specifications. Care shall be taken not to kink the cable or restrict the vent during deployment.

The COR shall review the draghead depth data to insure that the system is operating within acceptable accuracy, and may direct the Contractor to re-calibrate or repair system components as necessary. If a bubbler type system is used, weekly calibration of the draghead sensors is recommended, as they are sensitive to environmental conditions.

3.4.3 Ullage Sounding & Volume Check

The COR shall periodically check the reported hopper ullage sounding using a tape measure or other distance measuring device. The Contractor shall furnish a clearly readable weighted tape, marked in tenths of a foot, capable of measuring throughout the full range of hopper depth. The weight for this tape shall be a 6-inch diameter disk weighing between 2 and 3 pounds. The COR shall review the hopper dredge ullage sounding data to insure that the system is operating within acceptable accuracy (0.1 feet). Reported ullage soundings will be verified light, loaded, and at other intervals at the COR's discretion. Measurements can be taken from multiple locations along the combing or from sensor location at the COR's discretion. If values are outside the acceptable range, the Contractor shall re-calibrate or repair system components as necessary. This check may be performed separately or as a part of the Water Load Test. For each sensor provided fore and aft ullage sounding value, an average ullage sounding value will be calculated during the ullage sounding check, and the corresponding volume will be verified longhand using the supplied hopper volume tables.

3.4.4 Position Check

During the QA checks the reported position of the dredge shall be verified by comparison with readings from a handheld GPS receiver. Throughout the contract, the COR shall periodically take readings from an independent GPS to verify locations.

3.4.5 Water Load Test

Water Tests shall consist of pumping the hopper dredge out to its lowest level and then filling it to capacity with water, taking ullage and draft measurements at both levels to determine hopper dredge volume and displacement. The objective of the water test is to validate the dredge's reported displacement and hopper volumes. If the results of the water test indicate that the system is not operating within

acceptable accuracy, the Contractor shall correct the deficiencies causing the error, and repeat the water test until the results are acceptable.

The Contractor shall provide a handheld refractometer with automatic temperature compensation to measure the hopper dredge water specific gravity during water tests. The refractometer shall be capable of measuring the hopper dredge water specific gravity with a resolution of 0.001 and minimum accuracy of ± 0.001. The Contractor shall also provide a water-sampling device to retrieve a sufficient volume of water from various depths in the hopper dredge to accurately determine specific gravity with the refractometer, and a sufficient volume of deionized water for calibration of the device.

3.5 CONTRACTOR QUALITY CONTROL

Dredging contractor shall designate a quality control systems manager (QCSM), who shall develop and maintain daily procedures to ensure the contractor's quality control (CQC) of the DQM system. These methods shall include a procedure by which data being collected is checked against known values, telemetry is verified to be functioning, and the DQM computer is verified to be on and the DQMOBS is running. The Contractor Quality Control Plan which describes these methods and procedures shall be included in the DPIP as per section 1.5 Table of Contents, item 27. This is the only section which shall be submitted to the local district and is a required submittal prior to the start of the contract. CQC Reports may be required at the discretion of the QAR daily. Annotations shall be made in the CQC Report documenting all actions taken on each day of work including all deficiencies found and corrective actions taken.

3.6 LIST OF ITEMS TO BE PROVIDED BY THE CONTRACTOR

DPIP	Sec 1.5 Dredge Plant Instrumentation Plan
DQM SYSTEM	
Sensor Instrumentation	Sec. 3.1 Specifications for Reported Data
DQM Computer	Sec. 3.2 National Dredging Quality Management System Requirements
DREDGE DATA	
Event documentation	Sec. 3.2.9 Data Reporting
Dredge Data Backups	Sec 3.2.10 Contractor Data Backups
QA EQUIPMENT ON DREDGE	
Ullage tape	Sec. 3.4.3 Ullage Sounding & Volume Check
Dragarm depth chain	Sec. 3.4.2 Draghead Depth Check
Refractometer –measuring in grams/cubic centimeter with a resolution of 0.001 and a minimum accuracy of ± 0.001	

with calibration water	Sec. 3.4.5 Water Load Test
Water sampling device	Sec. 3.4.5 Water Load Test