



**US Army Corps  
of Engineers**

MISSISSIPPI RIVER, SOUTHWEST PASS, LOUISIANA

SITE MANAGEMENT PLAN  
FOR THE SOUTHWEST PASS  
OCEAN DREDGED MATERIAL DISPOSAL SITE

AS REQUIRED BY  
SECTION 102 OF THE  
MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT

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**DEPARTMENT OF THE ARMY**  
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS  
7400 LEAKE AVENUE  
NEW ORLEANS, LOUISIANA 70118

June 7, 2017

REPLY TO  
ATTENTION OF

Operations Division  
Technical Support Branch

Ms. Karen McCormick, Chief  
Marine & Coastal Protection Section (6WQ-EC)  
U.S. Environmental Protection Agency  
1445 Ross Avenue  
Dallas, Texas 75202-2733

Dear Ms. McCormick:

Enclosed is a signed original copy of the 2017 Site Management and Monitoring Plan (SMMP) for the Southwest Pass Ocean Dredged Material Disposal Site for your agency's records. The New Orleans District has an additional signed original copy on file, as well as a digital scan in our electronic database. We thank you and your staff for your assistance and patience in preparing this SMMP.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Corbino", is positioned above the printed name.

Jeff Corbino  
Environmental Specialist

Enclosure

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## LIST OF TERMS

|       |                                                                                 |
|-------|---------------------------------------------------------------------------------|
| CEMVN | U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District |
| CFR   | Code of Federal Regulations                                                     |
| DQM   | Dredging Quality Management                                                     |
| EPA   | U.S. Environmental Protection Agency                                            |
| FR    | Federal Register                                                                |
| EIS   | Environmental Impact Statement                                                  |
| MLG   | Mean Low Gulf                                                                   |
| MPRSA | Marine Protection, Research, and Sanctuaries Act of 1972                        |
| NAD   | North American Datum                                                            |
| NMFS  | National Marine Fisheries Service                                               |
| ODMDS | Ocean Dredged Material Disposal Site                                            |
| R6    | U.S. Environmental Protection Agency - Region 6                                 |
| RIA   | Regional Implementation Agreement                                               |
| SMMP  | Site Management and Monitoring Plan                                             |
| SWP   | Southwest Pass                                                                  |
| USACE | U.S. Army Corps of Engineers                                                    |
| USEPA | U.S. Environmental Protection Agency                                            |
| WRDA  | Water Resources Development Act of 1992                                         |
| XML   | eXtensible Markup Language                                                      |

**SITE MANAGEMENT AND MONITORING PLAN**  
**MISSISSIPPI RIVER, SOUTHWEST PASS, LOUISIANA**  
**OCEAN DREDGED MATERIAL DISPOSAL SITE**

**1.0 GENERAL**

The Southwest Pass (SWP) Ocean Dredged Material Disposal Site (ODMDS) is a feature of the Mississippi River, Baton Rouge to the Gulf of Mexico, Louisiana, Federal navigation project. The SWP ODMDS is co-regulated by the Environmental Protection Agency, Region 6 (EPA-R6), and the Army Corps of Engineers, New Orleans District (CEMVN). The management and monitoring strategies for disposal of suitable dredged material from the SWP Channel vicinity are described in this Site Monitoring and Management Plan (SMMP).

In accordance with Section 102(c)(3) of the Marine Protection, Research and Sanctuaries Act, as amended by the Water Resource and Development Act (WRDA) of 1992, this SMMP includes the following information:

- A. A baseline assessment of site conditions;
- B. A program for monitoring the ODMDS;
- C. Special management conditions and practices for site operation;
- D. Considerations for the quantity of dredged material to be discharged at the site, and the presence of contaminants in shoal material;
- E. Anticipated use of the ODMDS over the long term; and
- F. A schedule for review and revision of the SMMP.

The structure and content of this SMMP is based on recommendations provided in the *“Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites”* (EPA and USACE, February 1996).

Final designation of the SWP ODMDS was first sought in August 1984 with the release of the draft Environmental Impact Statement (EIS). After review, the draft was approved as final and the Final Rule for designation was published in the Federal Register March 31, 1989 (54 FR 61).

A SMMP was first developed for the SWP ODMDS in December 1996. SMMP provisions shall be requirements for all dredged material disposal and monitoring activities at the site. All MPRSA Section 103 ocean disposal permits or contract specifications shall be conditioned as necessary to assure consistency with the SMMP.

This revision to the SWP ODMDS SMMP supersedes all previous SMMPs. The SMMP itself, however, does not authorize the use of any ODMDS for ocean disposal of dredged materials.

Use of any ODMDS for ocean disposal of dredged materials is regulated under a permit (or contract specification) under MPRSA Section 103.

## **2.0 SITE MANAGEMENT**

The MPRSA of 1972 (33 U.S.C. Section 1401, et seq.) is the legislative authority regulating the disposal of dredged material into ocean waters, including the territorial sea. The transportation of dredged material for the purpose of placement into ocean waters is permitted by the USACE or, in the case of Federal projects, authorized for disposal under MPRSA Section 103(e), applying environmental criteria established by the EPA in the Ocean Dumping Regulations (40 CFR Parts 220-228).

Section 228.3 of the Ocean Dumping Regulations established general disposal site management responsibilities, stating that "management of a site consists of regulating times, rates, and methods of disposal and quantities and types of materials disposed of; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site designation and evaluation studies; and recommending modifications in site use and/or designation." This SMMP relates these management responsibilities to observed environmental conditions in the SWP ODMDS vicinity, dredged material characteristics, and dredging and disposal methods.

### **2.1 Site Management Objectives**

The purpose of ODMDS management is to ensure that placement activities do not unreasonably degrade or endanger human health, welfare, the marine environment, or economic potentialities. The objective of the SMMP is to provide guidelines in making management decisions necessary to fulfill mandated responsibilities to protect the marine environment.

The specific management objective for the SWP ODMDS is to ensure ocean discharge of only that dredged material that satisfies the criteria set forth in 40 CFR Part 227 Subparts B, C, D, E, and G and Part 228.4(e) and is suitable for unrestricted placement at the ODMDS.

This objective will be achieved through the following measures:

1. Regulation and administration of ocean dumping permits;
2. Development and maintenance of a site monitoring program;
3. Evaluation of permit compliance and monitoring results.

### **2.2 Site Management Roles and Responsibilities**

Development of SMMPs for ODMDSs within CEMVN's area of operation is the joint responsibility of EPA-R6 and the CEMVN. Both agencies are responsible for assuring that all components of the SMMP are implementable, practical, and applicable to site management decision-making.

In accordance with Section 102 (c) of the MPRSA, EPA is responsible for designation of ODMDSs, evaluation of environmental effects of dredged material disposal at these sites, determining the need for modification of site use or site closure based on observed environmental

impacts, and for reviewing and concurring on dredged material suitability determinations. The CEMVN is responsible for evaluating dredged material suitability and issuing MPRSA Section 103 permits, regulating site use, and monitoring and documenting dredged material transport and disposal actions.

Where use of an EPA-designated site is not feasible or not permitted, the CEMVN may, with concurrence with EPA-6, select an alternative site in accordance with Section 103(b) of the MPRSA.

## **2.3 Funding**

Physical, chemical, and biological effects-based testing shall be undertaken on sediments to be deposited at the ODMDS. This testing will be conducted at least every 5 years, contingent on the availability of funds, or as necessary to address contaminant concerns due to unanticipated events, and will be funded by the CEMVN for Federal projects. When a Section 103 permit is issued by the CEMVN for placement of material in the SWP ODMDS, the project permittee will be responsible for funding any testing required. The permittee or CEMVN, as appropriate, shall also be responsible for costs associated with placement site hydrographic monitoring and remote surveillance of hopper dredges utilizing the SWP ODMDS. EPA-R6 will be responsible for costs associated with trend assessment surveys of the ODMDS and surrounding environs; and independent processing of hopper dredge surveillance data provided by CEMVN or the permittee, as appropriate. Federal funding of all aspects of this SMMP is contingent on availability of appropriated funds.

## **2.4 Baseline Assessment**

Baseline conditions at the SWP ODMDS were assessed during the site designation process. Details of baseline conditions, including descriptions of the marine environment in the site vicinity and the physical, chemical and biological characteristics of the sediments and the water column at the site, are contained in the draft (EPA 1984) and "Final Environmental Impact Statement (EIS) for the Mississippi River, Southwest Pass Ocean Dredged Material Disposal Site Designation" (EPA 1988). In 1995 and 2012, EPA-R6 collected and characterized sediment and biological samples at the SWP ODMDS to assess trends and for comparison to baseline conditions at the disposal site (Trulli 1996; Newbert 2014; Newfields 2014).

### **2.4.1 Disposal and Reference Site Characterization**

#### **2.4.1.1 Disposal Site Characterization**

The SWP ODMDS is located west of and parallel to the SWP bar channel (Figure 1), approximately 1.75 nautical miles from the mouth of SWP. The site is rectangular with an area of about 3.4 square nautical miles. Both the position and size of the ODMDS were initially based on maintenance dredging requirements and historic use of the site by the CEMVN. Water depths range from about -18 feet Mean Low Gulf (MLG) in the northernmost portion of the ODMDS to about -160 feet MLG in the southernmost portion.

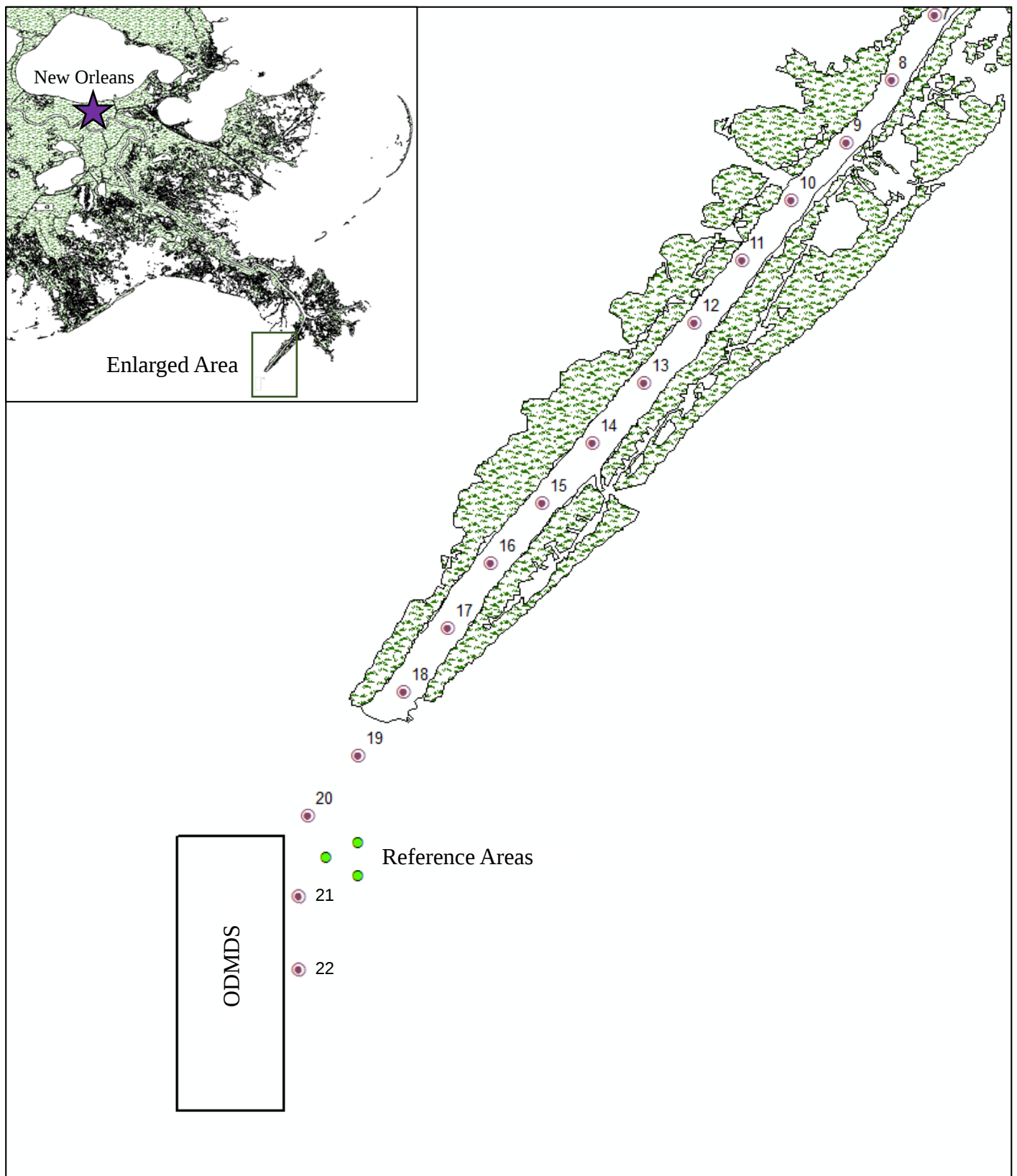


Figure 1. Southwest Pass ODMDS and Reference Areas. Shoal material removed by hopper dredges during maintenance of the navigation channel between miles 11 and 22 (numbered and ringed circles) is typically discharged into the ODMDS.

The existing site received interim designation for disposal of dredged material from SWP in 1977 (42 FR 2461 et seq.). Interim status of the site was extended indefinitely in January 1980. The SWP ODMDS received final designation on May 1, 1989 (54 FR 61).

The coordinates of the rectangular-shaped site are as follows:

| NAD 27     |            | NAD 83        |               |
|------------|------------|---------------|---------------|
| 28°54'12"N | 89°27'15"W | 28°54'12.86"N | 89°27'15.17"W |
| 28°54'12"N | 89°26'00"W | 28°54'12.86"N | 89°26'00.17"W |
| 28°51'00"N | 89°27'15"W | 28°51'00.87"N | 89°27'15.17"W |
| 28°51'00"N | 89°26'00"W | 28°51'00.87"N | 89°26'00.17"W |

The SWP ODMDS is small in relation to the overall Mississippi River delta area. It is situated in a dynamic nearshore environment that is dominated by riverine and coastal forces. These forces act on the entire delta area and mask any potential effects of dredged material disposal – making the ODMDS indistinguishable from surrounding environs with respect to physical, chemical, and biological characteristics of the substrate and water column.

Substrates within the area have a general increase in fine-grained sediments with distance from the mouth of the river, and bathymetry is primarily determined by flow from SWP. Instability of the area favors small-bodied opportunistic macrofauna capable of re-colonization of disturbed sediments. The degree of water column stratification is dependent on river discharged. Waters are well-oxygenated, and turbidity is a function of suspended load carried by the river and resuspension of sediment from the seafloor. Low-levels of hydrocarbons are detectable in both the sediment and water column.

The location and configuration of the ODMDS involves only short transit of the hopper dredge from the navigation channel to the ODMDS (approximately 150 feet from the channel edge to the ODMDS boundary). This minimizes interference with other activities such as fishing and navigation in the site environs during dredging and disposal operations. The site also is easily accessible for surveillance of dredged material disposal operations and monitoring.

Nearshore fisheries feeding and breeding grounds occur throughout the delta. Estuaries bordering the river begin approximately 2 nautical miles north of the ODMDS, with major estuaries no closer than 11 nautical miles to the site. There are no marine sanctuaries, special aquatic sites, historically significant artifacts, or critical amenities near the project area.

**2.4.1.2 Reference Site Characterization.** Reference sampling stations for this project have been established east of the SWP ODMDS based on the Area Approach (Figure 1). An alternate station within the original reference area assessment footprint was introduced in 2016 due to increased depth and heavy ship traffic near two of four sampling stations listed in the 2003 Regional

Implementation Agreement (RIA). Sampling stations currently used during ocean dumping evaluations are located at the following coordinates (NAD 1983):

| NAD 83     |            |
|------------|------------|
| 28°53'58"N | 89°25'31"W |
| 28°53'45"N | 89°25'09"W |
| 28°54'09"N | 89°25'09"W |

## 2.4.2 Disposal Site History and Dredged Material Volumes

**2.4.2.1 Historical Use of the Site.** The SWP ODMDS is utilized during maintenance of the Mississippi River, SWP navigation channel. Construction and maintenance of the SWP navigation channel is authorized under the Rivers and Harbors Acts of 1946 and 1962, the Supplemental Appropriations Act of 1985, and the Water Resources Development Act of 1986 (Public Law 99-662) which provide for the construction of a 55-foot-deep channel in the Mississippi River from the Gulf of Mexico to Baton Rouge, LA. The SWP navigation channel is currently maintained to an elevation of -45 feet MLG and a width of 750' from Mile 11.0 Above Head of Passes (AHP) to Mile 17.5 Below Head of Passes (BHP), transitioning to a channel width of 600' between Mile 17.5 BHP and Mile 18 BHP, and continuing to Mile 22.0 BHP.

SWP maintenance dredging is conducted approximately between Mile 10.0 AHP and Mile 22.0 BHP. Deep draft hopper dredges are utilized for maintenance along the entire channel length. Typically, shoal material removed from the lower jetty and bar channel dredging reaches (Mile 11.0 BHP to Mile 22.0 BHP) by deep draft hopper dredges is deposited in the SWP ODMDS. On rare occasions, hopper dredges working upriver of Mile 11.0 BHP may utilize the SWP ODMDS for disposal. Only dredged material from the SWP navigation channel is placed in the SWP ODMDS.

The earliest record of hopper dredges utilizing a Gulf of Mexico disposal site adjacent to and west of the SWP jetties during maintenance of the Mississippi River dates back to 1919. Annual use of the site by hopper dredges has likely occurred since at least 1940. An evaluation of environmental impacts associated with site use was conducted during the late 1970s and 1980s, culminating in formal ODMDS designation in 1989 after it was documented that impacts of historical and continued use to the surrounding environment were not significant.

Volume of dredged material placed within the SWP ODMDS in any given year is highly variable, and fluctuates with river conditions and unpredictable shoaling patterns. From 1996 to 2014, between 2,000,000 and 11,000,000 cubic yards of dredged material were placed annually in the SWP ODMDS by hopper dredges operating in dredge and haul mode. Historical dredging records exhibit an even greater variation where reported volumes ranged from less than 32,000

cubic yards to greater than 21,000,000 cubic yards per year. From 1996 to 2014, an average of approximately 6.2 million cubic yards of SWP dredged material were annually placed in the SWP ODMDS.

**2.4.2.2 Dredged Material Transport and Disposal Methods.** Routine bathymetric surveys are made within the SWP portion of the Mississippi River navigation channel to identify shoals that may pose a navigation hazard. Based on review of these bathymetric surveys, daily dredging assignments are made to remove critical shoals. Dredging is conducted on non-continuous reaches typically beginning in the winter and continuing to the late summer, often with multiple deep draft hopper dredges working together. When a deep draft hopper dredge is working in the channel, dredging and disposal operations will occur 24 hours a day, 7 days a week until the authorized channel dimensions are restored.

Shoal material removed by hopper dredge is transported within the vessel's on-board hopper and discharged within the boundaries of the SWP ODMDS by opening the hopper's bay doors or flushed by separating the hull of split-hull hoppers. While individual SWP dredging reaches or assignments may be located more than 10 miles upriver of the SWP ODMDS, the transportation distance between the navigation channel and the SWP ODMDS is between 125 and 150 feet. Dredged material volume for each hopper load varies by vessel size, and may range between 2,000 and 6,000 cubic yards. Location of discharge within the SWP ODMDS is typically near the eastern boundary of the ODMDS to reduce overall transit time, and somewhat dependent on draft requirements of a loaded hopper dredge. Smaller hopper dredges may use the upper portion of the SWP ODMDS where depths of about 25 feet are common; while larger hopper dredges tend to utilize the seaward portion of the SWP ODMDS where depths are greater than 40 feet.

#### **2.4.2.3 Summary of Monitoring Reports.**

1. *"Report of Field Survey"*, IEC 1984. Seasonal field surveys were conducted at 10 stations in and adjacent to the SWP ODMDS. Water column measurements were taken for conventional parameters (salinity, temperature, pH, dissolved oxygen, and total suspended solids), dissolved metals, and chlorohydrocarbons. Substrate measurements included sediment grain size, metals, chlorohydrocarbons, and organic carbon. Box-cores and trawls were used to collect macrofauna and epifauna. The survey concluded that effects of dredged material disposal on the surrounding environment could not be identified.

2. *"Evaluation of the Southwest Pass of the Mississippi River Ocean Dredged Material Disposal Site and Channel"*, Batelle 1992. Sediment from the SWP navigation channel, reference areas east of the channel, and the SWP ODMDS were collected for physical, chemical, and biological analyses. Testing was conducted primarily to help select a suitable reference site and to determine if bioassay and bioaccumulation results from the channel should be compared to results from the SWP ODMDS or select reference sites. The reference area identified in this study just east of the navigation channel is used in CEMVN Ocean Dumping Evaluations. The study also concluded that low-levels of contaminants detected in the channel were present at the SWP ODMDS but not at the reference area.

3. *"Region VI Contaminated Sediment Study"*, Battelle Ocean Sciences 1994 (Phase I) and 1995 (Phases II and III). The Phase I study included a literature review to determine data gaps

for multiple ODMDSs along the TX and LA coasts, including the SWP ODMDS. Phases II and III of the study included the development and execution of a sampling and analysis plan to address these data gaps. Raw and tabulated data are included as appendices to the report.

4. “*Analysis of Dredged Material Placement Site Dispersion, Southwest Pass ODMDS*”, USACE Engineer Research and Development Center 2010. Bathymetric surveys of the SWP ODMDS collected between 1999 and 2009 were analyzed to examine changes in seafloor elevation at the site. The study concluded that “...mean bed elevations within the SWP ODMDS have decreased by approximately 7 feet over the 1999-2009 survey period, representing a million cubic yard loss of sediment despite the placement of 57 million cubic yards of dredged material during this same period.” The SWP ODMDS is, thus, a dispersive site exhibiting no long term accumulation of shoal material placed at this site by CEMVN hopper dredges.

5. A baseline and trend study of five ODMDSs located along the Louisiana coast was conducted in 2012 by the U.S. EPA-R6 Marine & Coastal Section to assess the chemical, physical, and biological characteristics within the ODMDSs and surrounding areas. The following reports are a result of this monitoring.

- “*USEPA Region 6 Sorting, Identification, Enumeration, Data, Analysis and Reporting of Benthic Macroinvertebrate and Sediment Samples for None Ocean Dredged Material Disposal Sites – Louisiana and Texas*” prepared February 10, 2014 for EPA-R6 by EcoAnalysts, Inc. The report concluded that the annual dredge material disposal at the SWP ODMDS has only a temporary impact and that since 1995 the benthic communities were actively recolonizing the area.
- “*2012 Texas and Louisiana Ocean Dredged Material Disposal Sites (ODMDSs) Sediment Profile Imaging Survey: Date Report (February 24, 2014)*” prepared for EPA-R6 by NewFields. The SPI report concluded that there was no evidence of long-term, adverse impacts at any of the sites from the placement of dredged material.

**2.4.2.4 Enforcement Activities.** No enforcement actions have been required or taken since designation of the SWP ODMDS.

### 3.0 SITE MONITORING

The MPRSA Section 102 establishes the need for including a monitoring program as part of the SMMP. Site monitoring is conducted to ensure the environmental integrity of a disposal site and the areas surrounding the site and to verify compliance with the site designation criteria, any special management conditions, and with permit requirements. Monitoring programs should be flexible, cost effective, and based on scientifically sound procedures and methods to meet site-specific monitoring needs.

The intent of the monitoring program is to provide the following:

1. Information indicating whether the disposal activities are occurring in compliance with the permit and site restrictions;

2. Information indicating short-term and long-term fate of materials disposed of in the marine environment; and
3. Information concerning the short-term and long-term environmental impacts of the disposal.

The primary purpose of the SMMP is to determine whether dredged material site management practices, including disposal operations, at the site need to be changed to avoid unreasonable degradation or endangerment of human health, welfare, the marine environment, or economic potentialities.

Monitoring results will be used for making decisions, preventing unacceptable adverse effects beyond each site's boundary, and ensuring regulatory compliance over the life of the ODMDS. The baseline assessment conducted during site designation and subsequent trend assessment surveys have not identified any topics of special concern or restrictions on site use. Research conducted to date suggests that no degradation or endangerment of human health, welfare, the marine environment or other uses of the ocean have occurred from annual discharge of dredged material into the SWP ODMDS. In the absence of specific areas of concern or critical research needs, the primary objective of the monitoring program is to confirm that the decisions made regarding the suitability of the dredged material are correct and that the material is not having an adverse impact to the environment.

### **3.1 Baseline Monitoring**

Table 1 summarizes various site characterization surveys of the SWP ODMDS conducted by the USACE, EPA-R6, and others as part of the designation process and subsequent monitoring to evaluate the dredge material management effectiveness for the ODMDS. These existing data include but are not limited to water and sediment chemistry, sediment mapping, bathymetry, physical oceanographic conditions and biological studies related to benthic macroinvertebrates and fisheries. These data, as well as data from future surveys that will be added to the database will serve to define baseline conditions for comparative purposes for evaluation of placement and potential impacts associated with the use of the SWP ODMDS.

### **3.2 Site Monitoring**

The EPA and the USACE implement a "tiered" testing approach to evaluate benthic and water column impacts of dredged material proposed for ocean disposal. This approach is designed to aid in generating only enough information to characterize the dredged material and make a regulatory compliance decision. This allows optimal use of resources by focusing the least effort on dredging operations where impacts are clear, and expending the most effort on operations requiring more extensive investigations to determine the potential for impacts. It is necessary to proceed through the tiers only until information sufficient to demonstrate compliance with or noncompliance with 40 CFR 227.6 and 227.13 has been obtained.

The evaluation of shoal material suitability may be divided into reoccurring tasks. Annual evaluations are performed by reviewing all available contaminant and maritime accident reports in the vicinity of SWP to determine if a significant pollution event has occurred (Tier 1).

Table 1. Summary of site characterization surveys and other studies associated with the SWP ODMDS.

| Survey/Study                                                                                                    | Site           | Date         | Conducted by      | Objectives                                                                                                  | Reference          |
|-----------------------------------------------------------------------------------------------------------------|----------------|--------------|-------------------|-------------------------------------------------------------------------------------------------------------|--------------------|
| Mississippi River-South and Southwest Pass maintenance dredging ocean disposal and water quality assessment     |                |              |                   |                                                                                                             | USACE 1976         |
| Laboratory evaluation of the toxicity of material to be dredged from Southwest Pass, LA. (summer series – 25°C) |                |              |                   |                                                                                                             | USACE 1979         |
| Laboratory evaluation of the toxicity of material to be dredged from Southwest Pass, LA. (winter series – 15°C) |                |              |                   |                                                                                                             | USACE 1980         |
| Appendix B - Report of Field Surveys                                                                            | ODMDS          | 1980-1981    | IEC               | Sediment and water chemistry, grain size, bioassays, and bioaccumulation done in ODMDS and surrounding area | USEPA 1984         |
| Evaluation of the Southwest Pass of the Mississippi River Ocean Dredged Material Disposal Site and Channel      | ODMDS, channel | Apr-92       | PNWL              | Sediment and water chemistry, bioassays, and bioaccumulation                                                | USEPA 1992         |
| Southwest Pass Navigation Channel Contaminant Assessment                                                        | Channel        | Oct-95       | EH&A              | Sediment, water, and elutriate chemistry, grain size, bioassays, and bioaccumulation                        | USACE 1995         |
| Region VI Contaminated Sediment Study – Phase III                                                               | ODMDS          | Jun/Jul 1996 | Battelle          | Bulk sediment, toxicology, benthics, fish community, and tissue analysis in ODMDS and reference sites       | Trull 1996         |
| Southwest Pass Navigation Channel Dredged Material Assessment                                                   | Channel        | May-97       | EH&A              | Sediment, water, and elutriate chemistry, grain size, bioassays, and bioaccumulation                        | USACE 1997         |
| Final Report for Dredged Material Assessment for Southwest Pass, Louisiana – April 1999                         | Channel        | Apr-99       | Battelle          | Sediment, water, and elutriate chemistry, grain size, bioassays, and bioaccumulation                        | Dahlen et al. 2000 |
| Bathymetry                                                                                                      | ODMDS          | Oct-00       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Jan-01       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Jan-02       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Sep-02       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Oct-03       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Sep-04       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Jan-06       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Nov-06       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Mississippi River-Southwest Pass Louisiana Contaminant Assessment                                               | ODMDS, channel | Jul-07       | PBS&J             | Sediment, water, and elutriate chemistry, grain size, bioassays, and bioaccumulation                        | USACE 2007         |
| Bathymetry                                                                                                      | ODMDS          | Nov-07       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Dec-08       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Bathymetry                                                                                                      | ODMDS          | Aug-09       | USACE-MVN         | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Analysis of Dredged Material Placement Site Dispersion, Southwest Pass ODMDS                                    | ODMDS          | Aug-10       | USACE/ERDC        | Sediment dispersivity study conducted at the ODMDS                                                          | USACE 2010         |
| Mississippi River-Southwest Pass, Louisiana, Contaminant Assessment                                             | ODMDS, channel | Oct-10       | PBS&J             | Sediment, water, and elutriate chemistry, grain size, bioassays, and bioaccumulation                        | USACE 2011         |
| Bathymetry                                                                                                      | ODMDS          | Sep-10       | USACE             | Depth soundings at ODMDS and adjacent bar channel                                                           | 10/11/12 Letter    |
| Region VI Status and Trends Survey, Benthic Report                                                              | ODMDS          | Feb-14       | EcoAnalysts, Inc. | Benthic Analysis and sediment grain size                                                                    | Neubert 2014       |
| Region VI Status and Trends Survey, SPI report                                                                  | ODMDS          | Feb-14       | New Fields        | Sediment Profile Image Analysis                                                                             | New Fields 2014    |
| Mississippi River-Southwest Pass, Louisiana, Contaminant Assessment                                             | ODMDS, channel | Apr-16       | USACE-MVN         | Sediment, water, and elutriate chemistry, grain size, bioassays, and bioaccumulation                        | USACE 2016         |

Approximately every 5 years, or as necessitated by significant incidence of pollution, an “Ocean Dumping Evaluation” is performed using a battery of complex physical, chemical, and biological effects-based testing of shoal material, sediment, and water collected from the SWP vicinity (Tiers 2-3). Site monitoring for permittee’s is the same as that for civil works projects except that ocean dumping evaluations are required initially as part of the permit process and have a life of 3 years consistent with the life of the permit.

A. Annual Review. Contaminant spill reports available from the U.S. Coast Guard National Response Center (NRC) are reviewed by the CEMVN before the beginning of each fiscal year to evaluate all incidences of pollution in the vicinity of SWP as part of the Tier 1 evaluation process. Maritime accident reports available from media outlets are also regularly monitored over the course of each fiscal year. All significant pollution events are investigated to determine if contaminants have the potential to become incorporated with channel shoal material. This investigation may include consultation with regional pollution experts and / or collection and analysis of shoal material from the impacted area. A summary of the NRC review and investigation of significant pollution events are provided to the EPA-R6 by letter prior to the beginning of each fiscal year.

B. Ocean Dumping Evaluations. Approximately every 5 years, or sooner if warranted by changing conditions or pollution incidents, Tier 2-3 physical, chemical, and biological evaluations of the SWP shoal material are conducted to characterize the channel’s dredged material and determine if it is suitable for placement at the SWP ODMDS. The CEMVN collects and analyzes shoal material and site water from dredged material management units within the navigation channel; site water from the SWP ODMDS; and sediment from a nearby reference area un-impacted by dredging and disposal operations. Collected materials are subject to physical and chemical testing, and used as media in biological effects-based tests pursuant to the EPA criteria at 40 CFR, Part 227 and 228, and in accordance with the 2003 RIA and the Green Book (USEPA/ USACE, 1991) procedures. The CEMVN evaluates the data produced by this testing to determine if dredged material from the Mississippi River is suitable for discharge into the SWP ODMDS. This evaluation may be divided into “Solid Phase” and “Suspended Particulate Phase” components:

(1) *Solid Phase Evaluation*. Potential impacts to the benthos are addressed through performance comparisons between sensitive benthic organisms exposed to channel shoal material and reference sediment – rated both by mortality rate and propensity of contaminants to accumulate in tissues of test organisms. The benthic evaluation draws inferences from contaminants detected in project shoal material and reference sediments.

(2) *Suspended Particulate Phase Evaluation*. Potential impacts to the water column at the SWP ODMDS are addressed by comparison of contaminant concentration observed in dredge elutriates to established regulatory water quality criteria and background concentrations measured in SWP ODMDS site water; and mortality rates of sensitive water column organisms exposed to dredge elutriates and control seawater. The water column evaluation identifies any dilution requirements from these two comparisons, and concludes with an estimate of dilution potential available at the disposal site.

All data and reports generated during the collection and analyses, and the CEMVN's evaluation of the data, are provided to EPA-R6 for an independent review. After review, EPA-R6 notifies the CEMVN with a letter of concurrence or non-concurrence regarding suitability of dredged material for discharge into the SWP ODMDS. The EPA-R6 independent review is typically performed within 45 days of receiving a complete data submittal, but may extend up to 90 days in cases where new or complex data have been generated. If bioassay results indicate that SWP dredged material is not suitable for ODMDS placement, the CEMVN and EPA-R6 will consider various management options to rectify the situation.

Other federal and state agencies, academia, and non-government organizations periodically conduct research in the area around the SWP outlet. EPA-R6 and the CEMVN will periodically review the findings of these groups or request data that are relevant to the SWP navigation channel, ODMDS, and project area to improve our understanding of site environs. Conversely, EPA-R6 and the CEMVN should make every effort to provide project reports and data to interested parties upon request. New or existing information that is relevant to management of the SWP ODMDS should be incorporated into future versions of this SMMP.

### **3.3 Special Management Conditions or Practices**

Currently, no special management conditions or practices related to placement of dredged material into the designated SWP ODMDS are required. As previously discussed, evaluations of sediment quality have indicated that the material from the channel is suitable for offshore placement without such requirements. However, all operations shall be conducted such that the dredged material remains within the bounds of the SWP ODMDS immediately following descent to the ocean floor.

The following management practices have been adopted by the agencies to monitor dredging and disposal operations. These management practices are also applicable to Permittees.

*A. Routine Coordination Before and After Maintenance Dredging.* As described in the RIA, the CEMVN provides an annual letter to EPA-R6 at the end of each fiscal year that describes maintenance dredging work that was completed in that fiscal year and a description of planned maintenance that will be performed in the subsequent fiscal year. To complement this letter, the CEMVN will notify EPA-R6 at least 10 days prior to the start of new work and provide a "Post-Disposal" report for all completed contracts and government work within 90 days of completion.

(1) Notification of upcoming work will be transmitted by e-mail and include: contract # and contractor name (or notation of work performed by the government); names of hopper dredges; anticipated schedule; and list of available disposal areas.

(2) Post-disposal reports will be transmitted by letter and include: a brief narrative describing the work; contract # and contractor name (or notation of work performed by the government); names of hopper dredges; start and end dates for each dredge; disposal areas utilized by each hopper with total volume of dredged material discharged at each site; discharge coordinates in cases where loads were placed in the SWP ODMDS; and a description of any unauthorized discharges including suspected cause and management actions taken.

(3) Bathymetric surveys of the SWP ODMDS associated with routine channel maintenance will be obtained annually between dredging cycles, typically between September and November of each calendar year. For scheduled work or permitted actions, bathymetric surveys will be obtained before the start of disposal operations and within 45 days following completion of disposal operations. Bathymetric readings will be collected along parallel transects running perpendicular to the channel and spaced approximately 500 feet apart. The survey limits may be adjusted depending on the spatial extent of disposal for a given project. A comparison between pre- and post-dredging bathymetry (or of annual surveys bookending maintenance dredging events) should be made, and graphical and descriptive results of elevation changes should be provided to EPA-R6 as part of the Post-Disposal Report.

*B. Remote Surveillance of Hopper Dredges.* Hopper dredges will be monitored during performance of SWP channel maintenance, and vessel movements will be recorded during transport and discharge of dredged material for each hopper load. Currently, monitoring of all private industry hopper dredges is performed by the CEMVN through the USACE Dredging Quality Management (DQM) system. An overview of the DQM system is available at: <http://dqm.usace.army.mil/Specifications/Index.aspx>. For all hopper dredges utilizing the SWP ODMDS, vessel monitoring data for each hopper load is provided to EPA-R6 as an XML file that is compatible with the agency's independent vessel monitoring system. Submittals are provided by the CEMVN or Permittee to EPA-R6 on a weekly basis during maintenance dredging operations. Any suspected discharges outside of the SWP ODMDS boundaries (often referred to as "short dumps") or other anomalies detected during transport of dredged material to the site (such as excessive leakage) will be investigated to determine their cause upon discovery by either agency through the respective surveillance systems. Except in cases of sensor error, all incidences of short dumps, excessive leakage, or other dredge malfunctions will be documented by the agencies and furnished immediately to the CEMVN Contracting Division for action to remedy or prevent reoccurrence.

*C. Modification of Disposal Limits along the SWP ODMDS Eastern Boundary.* A 500-foot "restricted discharge" buffer has been established on the eastern boundary of the SWP ODMDS, and is intended to reduce the occurrence of false "short dump" warnings that may be triggered in EPA's vessel tracking system by hopper dredges discharging their loads immediately upon entry into the SWP ODMDS. The buffer appears as a modification to the "government furnished disposal area" on CEMVN contract drawings, such that the area available for disposal is reduced in size and distance between the navigation channel and eastern limit of disposal extended by 500 feet (total distance between the channel and SWP ODMDS extended from about 150 feet to 650 feet). The actual SWP ODMDS boundaries will remain intact, and the discharge buffer is intended solely to reduce the incidence of false warnings and resultant coordination between agencies to investigate their cause.

*D. Management of Unauthorized Discharges.* Discharges of dredged material outside of the SWP ODMDS boundaries will be treated as "unauthorized discharges". Such discharges may occur as a result of dredging equipment malfunction during transport to the SWP ODMDS with spillage of material outside of the SWP ODMDS boundaries, or discharge of dredged material in close proximity to a SWP ODMDS boundary such that it falls outside of the site during descent to the seafloor. Should an unauthorized discharge occur outside of the SWP ODMDS, the CEMVN

or Permittee will notify EPA-R6 within a reasonable period of time upon discovery of the event, and coordination between EPA-R6 and the CEMVN or Permittee will determine appropriate management actions based on the cause and potential environmental impact of the discharge. Such actions may include documentation of the event and its underlying cause to reduce reoccurrence in the future; bathymetric surveying to identify the extent of the affected area and/or estimate the quantity of dredged material associated with the discharge; notation of poor performance during rating of the dredging contract; or enforcement of financial penalties and mitigation requirements for contractors (in instances of flagrant and repeated unauthorized discharges).

E. *Trend Assessments.* Trend assessment surveys of the sediment, benthos and water column will continue to be performed periodically (approximately every 10 years) by EPA-R6 as budgets allow. Should future disposal at the SWP ODMDS result in unacceptable adverse impacts, further studies may be required to determine the persistence of these impacts, the extent of the impacts within the marine system, and/or possible means of mitigation. In addition, the management plan presented may require revision based on the outcome of any monitoring program.

### **3.4 Quantity of Material and Presence of Contamination**

#### **3.4.1 Quantity of Material Allowable for Disposal at the ODMDS**

An average of approximately 6.2 million cubic yards of dredged material are annually removed from the SWP lower jetty and bar channel reaches and placed in the SWP ODMDS. The SWP ODMDS is a dispersive site with sufficient capacity to accommodate the annual discharge of up to 33,000,000 cubic yards of dredged material. The dredged material discharged into the site is reworked by wave action, littoral currents, and river currents and eventually transported out of the SWP ODMDS. It is expected that this material will not move in distinct mounds, but instead will blend with the surrounding environment causing a progressive transition to sediment containing a higher percentage of silt and clay. Net dispersion from the SWP ODMDS is to the southwest and influenced primarily by river discharge and storm events. An estimated 77,000,000 cubic yards of sediment per year is carried out into the Gulf of Mexico via SWP.

Due to the quantity of sediment carried naturally by the river, any potential impacts of dredged material discharge or dispersion of dredged material from the SWP ODMDS are effectively masked by the river plume both inside and outside of the SWP ODMDS boundaries. Interference from disposal operations on other uses of the ocean, including shipping and fishing, are minimal and related to the physical presence of dredging equipment during transport and discharge operations (as opposed to the formation of vertical mounds of shoal material that may present a navigation hazard). There are no special aquatic sites or amenity areas in the SWP ODMDS vicinity that would be adversely impacted by the dispersion of dredged material.

#### **3.4.2 Presence, Nature and Bioavailability of Contaminants in Dredged Material**

The general procedure for evaluating dredged material is provided in section 3.2 “Site Monitoring”. A summary inclusive of all three evaluations is provided below.

The grain size distribution of SW Pass shoal material is variable. The observed range in sand content across evaluations was approximately 6% to 60%. Within the corresponding large range of percent fines, the silt to clay ratio of fines was fairly consistent across samples and about 2:1 on average. The detection of metals and ammonia at regional background levels was common to all evaluations, and low-levels of petroleum related contaminants were observed in the 2011 report. Survival of sensitive benthic organisms exposed to shoal material was 90% or greater, and with no observed ecologically-significant bioaccumulation of contaminants. Organism survival and contaminant bioaccumulation were similar between shoal material and reference sediment exposures.

Survival of sensitive water-column organisms exposed to channel elutriates was typically 80% or greater across evaluations, and not significantly different than survival of organisms exposed to laboratory-prepared dilution water. Characteristic of dredged material removed from waterways across coastal Louisiana, ammonia was detected in elutriates at concentrations that may occasionally be above seasonally dependent water quality criteria (as observed in the 2011 evaluation). Sufficient dilution potential exists within the boundaries of the SWP ODMDS for rapid dilution of ammonia to non-toxic levels and transformation to non-toxic forms.

### **3.5 ANTICIPATED SITE USE**

It is anticipated that annual maintenance of the SWP navigation channel and disposal of SWP dredged material into the SWP ODMDS will continue in the future. During each maintenance event, an average of approximately 6.2 million cubic yards of dredged material removed by deep draft hopper dredges will be discharged into the SWP ODMDS. SWP maintenance dredging typically begins in the winter and continues into the late summer, and dredging and disposal operations will occur 24 hours a day, 7 days a week until authorized channel dimensions are restored. Use of the site for dredged material disposal by other governmental or private entities is not expected. There is no anticipated closure date for the SWP ODMDS.

### **4.0 SITE MANAGEMENT PLAN REVIEW AND REVISION**

Pursuant to Section 102(c) of the MPRSA, as amended by WRDA 1992, EPA-R6 and the CEMVN will review this SMMP no less frequently than every 10 years after adoption and every 10 years, thereafter. Modifications or updates to the SMMP may be proposed by either agency – and may be based on environmental compliance deficiencies identified during periodic reviews; specific results from monitoring surveys or other reports; and / or routine coordination between agencies related to dredged material transport, discharge, or disposal site monitoring. Following a 30-day agency review period to determine if the proposed changes are justified and practicable (implementable), the modifications may be incorporated into the plan by mutual consent of both agencies.

### **5.0 IMPLEMENTATION**

This plan is effective from the date of signature for a period not to exceed 10 years as outlined in Section 4.0.

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