



**US Army Corps  
of Engineers®**  
New Orleans District

CALCASIEU RIVER & PASS, LOUISIANA

SITE MANAGEMENT PLAN  
FOR THE MAINTENANCE DREDGING  
OCEAN DREDGED MATERIAL DISPOSAL SITE

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

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**SITE MANAGEMENT PLAN**  
**CALCASIEU RIVER & PASS, LOUISIANA**  
**OCEAN DREDGED MATERIAL DISPOSAL SITES**

**I. General**

The Marine Protection, Research and Sanctuaries Act (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 Corps of Engineers or, in the case of Federal projects, authorized for disposal under MPRSA Section 103(e), applying environmental criteria established by the Environmental Protection Agency in the Ocean Dumping Regulations (40 CFR Parts 220-229).

Section 102(c) of the MPRSA and 40 CFR 228.4(e)(1) authorize the Environmental Protection Agency (EPA) to designate ocean dredged material disposal sites (ODMDSs) in accordance with requirements at 40 CFR 228.5 and 228.6. Section 103(b) of MPRSA requires that the Corps of Engineers (USACE) use dredged material sites designated by EPA to the maximum extent feasible. Where use of an EPA-designated site is not feasible, the USACE may, with concurrence of EPA, select an alternative site in accordance with MPRSA 103(b).

Section 228.3 of the Ocean Dumping Regulations established disposal site management responsibilities; however, the Water Resources Development Act of 1992 (WRDA 92; Public Law 102-580) included a number of amendments to the MPRSA specific to ODMDS management. Section 102(c) of MPRSA as amended by Section 506 of WRDA 92 provides that:

1. Site management plans shall be developed for each ODMDS designated pursuant to Section 102(c) of MPRSA.
2. After January 1, 1995, no ODMDS shall receive a final designation unless a site management plan has been developed.
3. For ODMDSs that received a final designation prior to January 1, 1995, site management plans shall be developed as expeditiously as practicable, but no later than January 1, 1997, giving priority to sites with the greatest potential impact on the environment.

4. Beginning on January 1, 1997, no permit or authorization for dumping shall be issued for a site unless it has received a final designation pursuant to Section 102(c) MPRSA or it is an alternate site selected by the USACE under Section 103(b) of MPRSA.

This Site Management Plan, for the Calcasieu River & Pass, LA Ocean Dredged Material Disposal Sites, was developed jointly by the U.S. Environmental Protection Agency, Region 6 (EPA, Region 6) and the U.S. Army Corps of Engineers, New Orleans District (CEMVN). In accordance with Section 102(c)(3) of the MPRSA, as amended by WRDA 92, the plan includes the following:

1. A baseline assessment of conditions at the site;
2. A program for monitoring the site;
3. Special management conditions or practices to be implemented at the site that are necessary for protection of the environment;
4. Consideration of the quantity of dredged material to be discharged at the site, and the presence, nature, and bioavailability of the contaminants in the material;
5. Consideration of the anticipated use of the site over the long term, including the anticipated closure date for the site, if applicable, and any need for management of the site after the closure;
6. A schedule for review and revision of the plan.

## **II. Site Management Objectives**

The purpose of ODMDS management is to ensure that placement activities do not unreasonably degrade the marine environment or interfere with other beneficial uses (e.g., navigation) of the ocean. The specific objectives of management of the Calcasieu River & Pass, LA Ocean Dredged Material Disposal Sites for maintenance material are as follows:

1. 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;

2. Avoidance of excessive mounding either within the site boundaries or in areas adjacent to the site, as a direct result of placement operations.

These objectives 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.

### **III. Roles and Responsibilities**

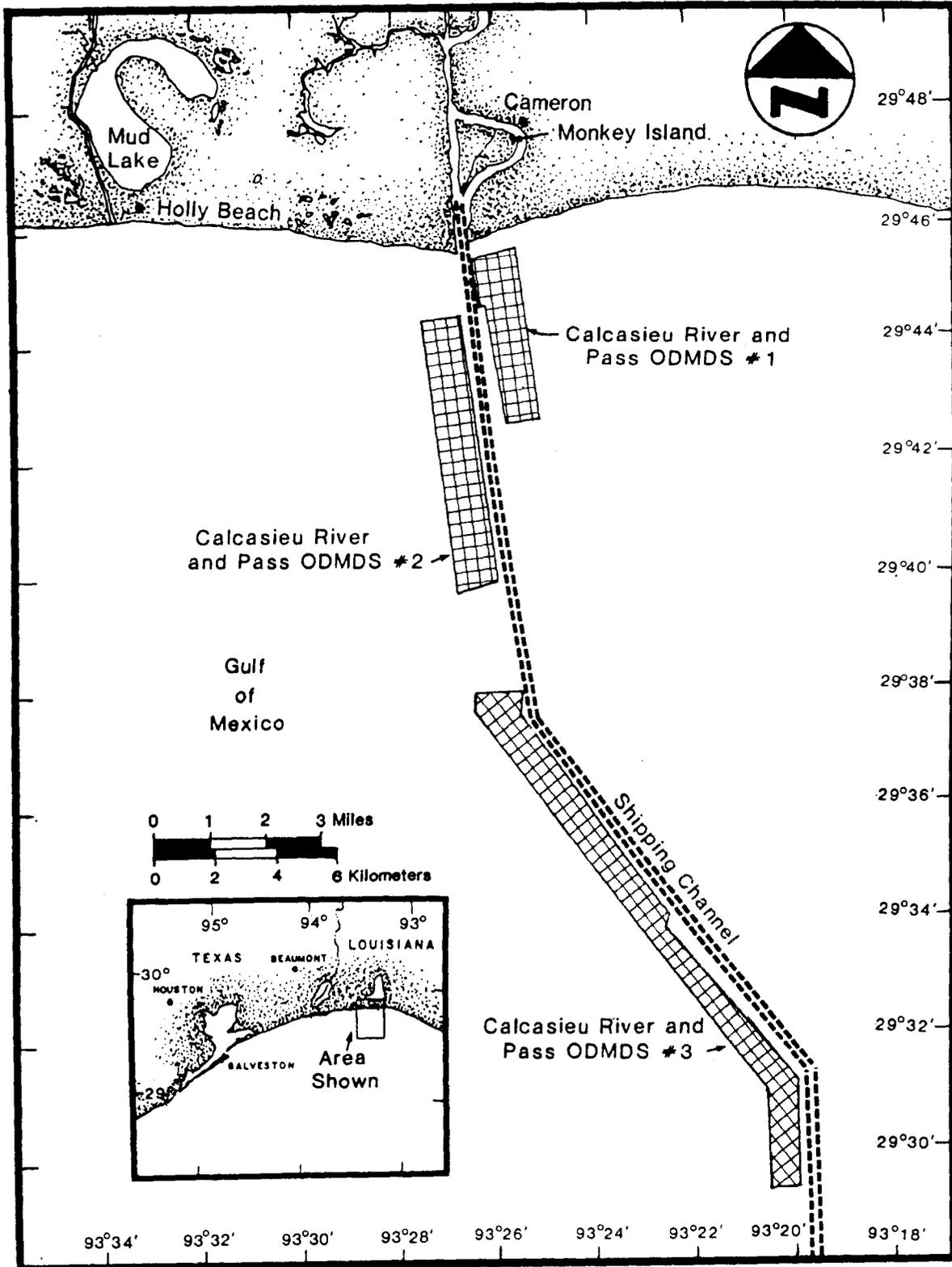
In accordance with Section 102 (c) of the MPRSA and with the Regional MOU between CEMVN and EPA, Region 6 on Management of ODMDSs signed August 13, 1993, EPA is responsible for designation of ODMDSs. Where use of an EPA-designated site is not feasible, the CEMVN may, with concurrence with EPA, Region 6 select an alternative site in accordance with Section 103(b) of the MPRSA as amended by Section 506 of WRDA 1992.

Development of site management plans for ODMDSs within the New Orleans District is the joint responsibility of EPA, Region 6 and the CEMVN. Both agencies are responsible for assuring that all components of the site management plans are implementable, practical, and applicable to site management decision-making.

### **IV. 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 five years, or as necessary to address contaminant concerns due to unanticipated events, and will be funded by the permittee if the project is permitted or CEMVN for Federal projects. The permittee or CEMVN, as appropriate, shall also be responsible for costs associated with placement site hydrographic monitoring. Should monitoring indicate that additional studies and/or tests are needed at the ODMDSs, the cost for such work would be shared by the permittee or CEMVN and EPA, Region 6. Physical, chemical, and biological effects-based testing at the ODMDSs, or in the site environs after discharge, that is not required as a result of hydrographic monitoring, shall be funded by EPA, Region 6. Federal funding of all aspects of this Site Management Plan is contingent on availability of appropriated funds.

### **V. Baseline Assessment**



**A. *Site Characterization.*** The Calcasieu River and Pass, LA, navigation project extends south from the port of Lake Charles, LA, through Calcasieu Lake and Calcasieu Pass to the 42-foot contour in the Gulf of Mexico. The bar channel of the waterway extends from Mile 0 at land's end to the sea buoy at Mile -32.0. Dredged material from maintenance of the bar channel is placed into three ODMDSs (Figure 1) as follows:

a. Site 1.

1. Location: On the left-descending bank of the Calcasieu bar channel approximately 0.5 nautical miles (nmi) from shore and extending gulfward approximately 3 nmi.
2. Depth: Depth range from 2 to 8 meters (6.6 to 26.0 feet)
3. Boundary coordinates:
  - 29° 45' 39" N, 93° 19' 36" W
  - 29° 42' 42" N, 93° 19' 06" W
  - 29° 42' 36" N, 93° 19' 48" W
  - 29° 44' 42" N, 93° 20' 12" W
  - 29° 44' 42" N, 93° 20' 24" W
  - 29° 45' 27" N, 93° 20' 33" W

b. Site 2

1. Location: On the right-descending bank of the Calcasieu bar channel approximately 0.5 nmi from shore and extending gulfward approximately 6 nmi.
2. Depth range from 2 to 11 meters (6.6 to 36 feet)
3. Boundary coordinates:
  - 29° 44' 31" N, 93° 20' 43" W
  - 29° 39' 45" N, 93° 19' 56" W
  - 29° 39' 34" N, 93° 20' 46" W
  - 29° 44' 25" N, 93° 21' 33" W

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c. Site 3

1. Location: On the right-descending bank of the Calcasieu bar channel approximately 8 nmi from shore and extending gulfward approximately 17.5 nmi.
2. Depth range from 11 to 14 meters (36 to 46 feet)
3. Boundary coordinates:
  - 29° 37' 50" N, 93° 19' 37" W
  - 29° 37' 25" N, 93° 19' 33" W
  - 29° 33' 55" N, 93° 16' 23" W
  - 29° 33' 49" N, 93° 16' 25" W
  - 29° 30' 59" N, 93° 13' 51" W
  - 29° 29' 10" N, 93° 13' 49" W
  - 29° 29' 05" N, 93° 14' 23" W
  - 29° 30' 49" N, 93° 14' 25" W
  - 29° 37' 26" N, 93° 20' 24" W
  - 29° 37' 44" N, 93° 20' 27" W

Current patterns in the vicinity of the ODMDSs are influenced primarily by wind, particularly in late autumn through early spring. The water column is well-mixed in the winter, with stratification in late spring and summer. Surface currents average 0.8 to 1.0 knots (kn) (41 to 51 cm/sec) and flow primarily to the west. Bottom currents are generally less than 0.8 kn (41 cm/sec) and also flow predominantly to the west.

Baseline conditions at the three Calcasieu River and Pass ODMDSs were assessed during the site designation process. Details of baseline conditions, including descriptions of the marine environment in the vicinity of the sites, and the physical, chemical and biological characteristics of the sediments and the water column at the sites, are contained in the "Final Environmental Impact Statement, Calcasieu River and Pass Ocean Dredged Material Disposal Site Designation" (EPA, 1987).

***B. Historical Use of the Site.***

The Rivers and Harbor Act of July 24, 1946 and prior Rivers and Harbors Acts authorized the CEMVN to construct and maintain the Calcasieu River and Pass, LA, project which provided a navigation channel 35- by 250-feet from the wharves of Lake Charles Harbor and Terminal District to the Gulf of Mexico; a channel 35 to 37- by 250 feet between the jetties; and

an approach channel 37- by 400-feet seaward to the -37-foot contour of the Gulf of Mexico. Construction of the channel was completed in 1953.

The Rivers and Harbors Act of July 14, 1960 authorized an increase channel depth and width to 40- by 400-feet from the Lake Charles Harbor and Terminal District to the Gulf of Mexico; a channel 40 to 42- by 400 feet between the jetties; and an approach channel 42- by 800-feet seaward to the 42-foot contour in the Gulf of Mexico. Construction of this enlarged channel was completed in 1968.

The Calcasieu River and Pass ODMDSs numbers 1, 2, and 3 received final designation on March 14, 1988 (53 FR 49). The present configurations of the sites were established during the site designation process. Seven sites received interim designation for disposal of dredged material from the Calcasieu bar channel in 1977(42 FR 7). Because some of the seven sites either shared a common boundary or overlapped another site, they were combined to form three sites of similar total area.

Dredging records indicate that the Calcasieu River and Pass ODMDSs have been used for placement of dredged material from maintenance of the Calcasieu bar channel since 1960. Records prior to 1992 do not indicate which of the sites was used during a given maintenance event; however, because hopper dredges have been used exclusively in the bar channel, it is likely that dredged material was placed in the sites on the right-descending bank of the channel. Table 1 provides a summary of the dredged quantities since 1960.

<b>Maintenance Dredging History</b>		
STARTED	COMPLETED	QUANTITY DREDGED (CUBIC YARDS)
March 29, 1960	April 11, 1960	1,102,161
September 22, 1960	September 11, 1960	
March 1, 1961	March 14, 1961	1,972,892
September 22, 1961	October 8, 1961	
October 20, 1961	November 3, 1961	1,943,203
December 25, 1962	February 12, 1963	
September 19, 1963	October 29, 1963	5,705,536
July 18, 1963	October 4, 1963	
December 11, 1963	January 31, 1964	9,006,388
December 2, 1964	January 18, 1965	4,692,332
September 8, 1965	November 5, 1965	
December 29, 1965	June 24, 1966	

STARTED	COMPLETED	QUANTITY DREDGED (CUBIC YARDS)
December 30, 1965	February 22, 1966	12,534,441
August 18, 1966	October 28, 1966	
December 15, 1966	January 31, 1967	6,024,734
August 16, 1967	October 28, 1967	
January 9, 1968	January 31, 1968	9,333,787
August 14, 1968	August 18, 1968	
September 25, 1968	October 11, 1968	
January 26, 1969	February 7, 1969	4,594,258
November 6, 1969	November 27, 1969	
February 5, 1970	April 9, 1970	10,520,574
October 1, 1970	October 20, 1970	
November 3, 1970	December 3, 1970	
June 10, 1971	June 30, 1971	8,374,001
July 1, 1971	August 16, 1971	
August 12, 1971	November 26, 1971	
January 10, 1972	February 10, 1972	
June 8, 1972	June 30, 1972	20,822,109
July 1, 1972	December 1, 1972	15,107,591
January 30, 1974	February 5, 1974	1,751,422
August 26, 1974	January 16, 1975	15,784,174
October 6, 1975	December 27, 1975	9,325,692
November 28, 1976	March 30, 1977	12,525,510
June 16, 1980	November 5, 1980	10,843,628
January 3, 1981	February 12, 1981	
March 12, 1981	April 30, 1981	
May 1, 1981	June 10, 1981	8,829,272
October 1, 1982	October 29, 1982	769,400
March 23, 1983	May 24, 1983	5,561,149
April 14, 1984	July 7, 1984	
August 5, 1984	September 30, 1984	12,685,376
March 2, 1985	March 28, 1985	
July 11, 1985	August 18, 1985	6,088,679
December 4, 1985	January 25, 1986	

STARTED	COMPLETED	QUANTITY DREDGED (CUBIC YARDS)
May 6, 1986	June 19, 1986	10,307,630
September 2, 1987	December 2, 1987	4,000,000
June 2, 1988	June 23, 1988	
September 29, 1988	November 17, 1988	12,822,967
July 27, 1989	September 7, 1989	4,000,000
October 8, 1989	October 14, 1989	
August 10, 1990	October 16, 1990	5,282,957
August 11, 1991	November 13, 1991	8,233,523
October 22, 1991	November 15, 1991	
August 6, 1992	November 8, 1992	7,733,869
August 20, 1993	December 20, 1993	7,398,555
July 21, 1994	September 27, 1994	7,288,260
April 27, 1995	May 4, 1995	
May 4, 1995	May 26, 1995	
May 12, 1995	July 8, 1995	6,687,985
January 7, 1996	February 27, 1996	4,959,761
FY 1997		165,284
FY 1998		112,873
FY 1999		155,000
FY 2000		462,780
FY 2001		320,585
FY 2002		466,152
FY 2003		1,703,596
FY 2004		494,207
FY 2005		1,070,499
FY 2006		2,584,253
FY 2007		197,618
<b>Total</b>		<b>282,346,663</b>
<b>Average</b>		<b>6,137,971</b>

Maintenance dredging of the Calcasieu bar channel (Mile -1.7 to -32.0) is required on an annual basis and only dredged material from the navigation channel is placed in the ODMDSs. Material is removed using a deep draft hopper dredge. Two methods of dredging and disposal

are used when working in the Calcasieu bar channel: agitation dredging and dredge and haul. Agitation dredging consists of filling a hopper dredge to capacity and allowing it to continuously overflow. The very fine suspended sediments are released and swept away by littoral currents which generally flow westward. Dredged material that accumulates in the hopper and is not re-suspended during agitation is hauled and deposited into the ODMDSs.

Tangent 1 (Mile -1.7 to -9.9) and Tangent 2 (Mile -9.9 to -19.2) are maintained annually; Tangent 3 (Mile -19.2 to -32.0) rarely requires maintenance. Dredged material from Tangents 1 and 2 is removed by both agitation and dredge and haul. Dredged material from Tangent 3 (Mile -19.2 to -32.0) is removed by dredge and haul. It is likely that some of the dredged material agitated from Tangents 1 and 2 settles into ODMDSs 2 and 3. Material hauled from Tangent 1 is deposited into ODMDS 2 and material hauled from Tangents 2 and 3 is deposited into ODMDS 3.

Maintenance dredging of the Calcasieu bar channel usually takes place from December 1 through March 31. When a hopper dredge is working in the bar channel, dredging and disposal operations will occur 24 hours a day, 7 days a week until authorized channel dimensions are restored.

## **VI. Quantity of Material and Level of Contamination**

**A. *Summary of information used to determine size of the site.*** The Calcasieu River and Pass ODMDSs are located adjacent to and along the bar channel reach of the Calcasieu River and Pass, LA, navigation channel. The location and configuration of the ODMDSs probably originated from ease of disposal from the Calcasieu bar channel. The proximity led to the establishment of long narrow sites paralleling the navigation channel. The location of the ODMDSs minimizes interference with other activities such as fishing and navigation in the vicinity during dredging and disposal operations. The sites also are easily accessible for surveillance of dredged material disposal operations and monitoring activities.

The Calcasieu River and Pass ODMDSs are dispersive sites. The dredged material discharged into any one of the sites is expected to erode because of the high-percentage of very fine-grained components and because of the location of the sites in a high energy inshore environment where waves, currents, wind and tides constantly resuspend, mix, and redistribute the sediments and thus, the dredged material, over a wide area.

Since 1960, the Calcasieu bar channel has been dredged annually and dredged material has

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been placed in the ODMDSs. Historically, approximately 7,000,000 cubic yards of dredged material are removed from the bar channel during each maintenance event. The dredged material generally can be characterized as sandy-clayey-silts (24.9% sand, 21.8% clay, 53.3% silt). Dredged material from Tangent 1 (Mile -1.7 to -9.9) is comprised of clayey-sandy-silts (34.4% clay, 15.4% sand, 50.2% silt) and dredged material from Tangent 2 is comprised of sandy-clayey-silts (35.8% sand, 7.4% clay, 56.8% silt). It is anticipated that annual maintenance of the Calcasieu bar channel and disposal of dredged material into the ODMDSs will continue in the future. During each maintenance event, from 200,000 to 1,000,000 cubic yards of dredged material would be discharged into the ODMDSs.

In accordance with 40 CFR Parts 225 and 227 of the Ocean Dumping Regulations, national implementation guidance for the MPRSA Section 103 Program (Ocean Dumping Program) was developed jointly by the Corps of Engineers and the Environmental Protection Agency. The guidance was to define technical procedures for testing dredged material to assess its compliance with the applicable physical, chemical, and biological test provisions of Part 227 of the Ocean Dumping Regulations. A national guidance manual was first issued in 1977 and an updated version, "Evaluation of Dredged Material Proposed for Ocean Disposal (Testing Manual)," was issued in February, 1991.

The 1991 manual, commonly referred to as the "1991 Green Book," contains summaries and discussions of the procedures for ecological evaluation of dredged material required by the Ocean Dumping Regulations, tests to implement them, definitions, sample collection, and preservation procedures, evaluative procedures, calculations, and interpretive guidance. The manual also provides supporting references required for the evaluation of dredged material discharge applications in accordance with the regulations.

Because the "1991 Green Book" was national in scope, development of more detailed implementation guidance tailoring the procedures of the manual to local needs was encouraged. In October, 1992, the CEMVN and EPA, Region 6 signed the "Regional Implementation Agreement (RIA) for Evaluating Dredged Material Proposed for Ocean Disposal Off the Texas and Louisiana Coasts Under Section 103 of the Marine Protection, Sanctuaries and Research Act." This agreement was jointly developed by CEMVN and EPA, Region 6 to adapt the "1991 Green Book" procedures to the region.

The RIA applies to Corps Civil Works projects as well as to MPRSA Section 103 permit applications. It describes in detail the coordination process to be followed for dredged material evaluations to facilitate early coordination and to ensure each agency is aware of when in the process information exchange is required. The RIA contains lists of contaminants of concern of

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general application to the Louisiana coast. It addresses the implementation of a tiered testing framework specifying preferred test methods; procedures for collecting and storing samples of water and sediment for use in testing; specific benthic and water column test species to be used; required method detection limits; decision values to be used; and procedures for interpreting bioaccumulation results to make Tier III and Tier IV decisions. Locations of established reference sites also are included in the RIA.

In accordance with Part 225 of the Ocean Dumping Regulations, prior to the discharge of dredged material into the ODMDS the CEMVN must evaluate the proposed discharge in accordance with the criteria set forth in Part 227. The RIA requires that the information listed below be submitted by CEMVN to EPA, Region 6 at least 3 months before the advertisement date for the proposed maintenance event. When government dredges will perform maintenance, the information must be submitted at the beginning of the fiscal year or at least 3 months before anticipated dredging. After receiving the required information, EPA, Region 6 will make an independent evaluation of the proposed discharge in accordance with the criteria within 15 working days. EPA, Region 6 must inform CEMVN in writing whether or not the proposed discharge complies with the criteria. If EPA determines that the proposed discharge complies with the criteria, the CEMVN may proceed. If EPA determines that the proposed discharge does not comply with the criteria, ocean disposal of the dredged material is prohibited unless procedures for invoking economic impact are followed in accordance with 40 CFR Part 225.3 and EPA, Region 6 grants a waiver pursuant to 40 CFR Part 225.4.

Information provided to EPA, Region 6 prior to the discharge of dredged material into the ODMDS will include the following:

a. The proposed dredging project will be described to include: the volume and area to be dredged; extent of shoaling; interruption or changes in standard operations resulting from shoaling; the anticipated type of dredge and disposal vessel; anticipated start date and duration of the disposal operations; large scale map showing the location of the project; the project plan drawing; design depth and allowable over-depth; and disposal quantities and work details.

b. A short description of the last maintenance dredging performed.

c. A dredged material characterization/evaluation to include the following:

1. At a minimum, a Tier I evaluation consisting of a comprehensive analysis of existing and readily available information on the proposed dredged material shall be conducted for every dredging operation that will result in dredged material being discharge into the

ODMDS. It is necessary to proceed through the tiered-testing procedures defined in the "1991 Green Book" and the RIA until sufficient information for making a definitive decision about the suitability of the dredged material for ocean disposal has been generated.

2. Copies of the test results conducted according to the site specific sampling design and methods discussed in the RIA. These test results include data for all tests (physical, chemical, and biological), and the name of the laboratory(s) which performed the tests. When previous test results are being used for the evaluation, the date of the original submittal should be referenced.

3. A description of the sampling survey, including dates, sampling devices used, and the location of the sediment sampling stations, for each dredging area and reference site station by latitude and longitude, LORAN-C, or Global Positioning System and also in general terms, i.e., by channel marker, buoy number or other significant landmark.

4. All field sampling, laboratory testing, and quality assurance/quality control (QA/QC) procedures must be described, and analytical methods must be specified. References for laboratory protocols for physical, chemical, and biological analyses must be described including the following:

a) Method detection limits, detection limits achieved by the laboratory, and EPA method numbers and other approved methods that do not have a specific EPA number.

b) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for test species acclimation and holding.

c) Location of control sediment samples and QA/QC procedures and rationale for presuming the control sediment is free of contaminants.

d) Source of seawater used in all biological tests.

e) Bioassay testing procedures and QA/QC information for the bioassays conducted.

f) Statistical analysis procedures.

d. A regulatory compliance evaluation including a review of the following subparts/sections of the Ocean Dumping Regulations:

1. Part 227 Subpart A - General

a) 227.1 Applicability

2. Part 227 Subpart B - Environmental Impact

a) 227.4 Criteria for evaluating environmental impact

b) 227.5 Prohibited materials

c) 227.6 Constituents prohibited as other than trace contaminants

d) 227.9 Limitations on quantities of waste materials

e) 227.10 Hazards to fishing, navigation, shorelines or beaches

f) 227.13 Dredged materials

3. Part 227 Subpart C - Need for Ocean Dumping (all sections)

The CEMVN will evaluate alternative disposal options, particularly alternatives involving the beneficial use of dredged materials. The alternatives analysis will reflect not only current technological and cost considerations but also environmental impact information.

4. Part 227 Subpart D - Impact of the Proposed Dumping on Aesthetic, Recreational and Economic Values (all sections)

5. Part 227 Subpart E - Impact of the proposed Dumping on Other Uses of the Ocean (all sections)

6. Part 227 Subpart G - Definitions

7. Part 228.4(e) - Dredged Material Permits

***B. Summary of testing requirements per Regional Implementation Agreement (RIA) and summary of past dredged material evaluations.***

Dredged material from the Calcasieu bar channel was sampled and analyzed in

accordance with the "1991 Green Book" in 1991 and in accordance with the RIA in 1994 and in 2003. Tier III evaluations consisting of physical analyses, bulk sediment analyses, water chemistry and elutriate analyses, and toxicity bioassays were conducted. The results of the analyses indicated that the dredged material proposed for discharge into the ODMDS was in compliance with the Ocean Dumping Criteria and was suitable for ocean disposal.

Although dredged material from the Calcasieu bar channel has been placed in the ODMDS annually since 2003, no additional sampling or analyses have been performed. Prior to each maintenance event, a Tier I evaluation has been conducted. Comprehensive analyses of existing and readily available information on the proposed dredged material, including spill reports from the U.S. Coast Guard, National Response Center, indicated "no reason to believe" that the proposed discharges of dredged material were not suitable for ocean disposal. The CEMVN and EPA, Region 6, will use best professional judgment in deciding when new chemical and biological data are needed.

On September 24, 1992, a RIA was executed between EPA Region 6, and the New Orleans District. This RIA was updated on November 3, 2003 (U.S. EPA and USACE, 2003), and describes protocols for evaluating the quality of the dredged material and implementation of the "GREEN BOOK" (U.S. EPA and USACE, 1991).

## **VII. Anticipated Site Use**

Maintenance dredging of the Calcasieu bar channel is required on an annual basis and only dredged material from the navigation channel will be disposed into the ODMDSs.

Dredged material will be removed using a deep draft hopper dredge and will be discharged via agitation or dredge and haul into the ODMDS. The dredged material generally is comprised of sandy-clayey-silts (24.9% sand, 21.8% clay, and 53.3% silt).

Dredging in the bar channel normally begins in December and continues through February. When a dredge is working in the bar channel, disposal operations will occur 24 hours a day, 7 days a week until authorized channel dimensions are restored.

It is anticipated that annual maintenance of the Calcasieu bar channel and disposal of dredged material into the ODMDS will continue in the future. During maintenance events, between 200,000 and 1,000,000 cubic yards of dredged material will be discharged into the ODMDSs.



### **VIII. Special Management Conditions or Practices**

Special management conditions or practices applicable to the Calcasieu River and Pass ODMDSs include the following:

a. Numerous options for beneficial use of dredged material taken from the Calcasieu bar channel were considered during development of the Calcasieu River Long-Term Disposal Plan (LTDP). The LTDP concluded that little environmental benefit would result from the additional costs because most of the dredged material removed is from Tangent 1 and is not suitable for stacking to create or restore wetlands. Furthermore, a deep draft hopper dredge is used to maintain the bar channel. A hydraulic cutterhead pipeline dredge with trailing pipe, traditionally used for beneficial use projects, is not used in the bar channel because of rough sea conditions and ship traffic. Nearshore placement for shoreline/beach nourishment is not practical not only because a deep draft hopper dredge cannot maneuver in the shallow nearshore environment but also because of adverse impact to recreational beaches at Holly Beach. Residents of Holly Beach complain that "mud" on the beach interferes with recreational activities.

To date, beneficial use of dredged material from the Calcasieu bar channel has not been implemented; however, annually prior to the start of each fiscal year beneficial use alternatives are investigated. Should technology and or funding become available that would make beneficial use of the dredged material possible, the CEMVN will incorporate beneficial use into the disposal plan for bar channel reach of the Calcasieu River and Pass, LA, project to the maximum extent practicable.

b. Only dredged material determined by CEMVN and EPA, Region 6 to satisfy the criteria set forth in 40 CFR Part 227 Subparts B, C, D, E, and G and part 228.4(e) of the Ocean Dumping Regulations will be considered for unrestricted placement at the ODMDSs. Additional evaluation of management options will be required for any dredged material which does not meet the criteria.

c. Disposal operations will take place during the winter to the maximum extent practicable to avoid sea turtle interactions, and as far from the shoreline as practical to prevent the movement of dredged material to recreational beaches at Holly Beach.

## **IX. Monitoring Program**

Section 102(c) of the MPRSA, as amended by WRDA 1992, and Part 228 of the Ocean Dumping Regulations establish the requirement for an ODMDS monitoring program. Section 228.9 states that the primary purpose of a monitoring program is to evaluate the impact of disposal on the marine environment by referencing the monitoring results to a set of baseline conditions. The results of a monitoring program are used to determine if site management practices need to be changed to avoid unreasonable degradation of the marine environment.

The results of investigations presented in the site designation Final Environmental Impact Statement (EPA, 1987) will serve as the main body of baseline data for the monitoring of impacts associated with the use of the Calcasieu River and Pass ODMDSs.

The Calcasieu River and Pass ODMDSs have been used historically without significant environmental impacts. The sites are dispersive in nature. Resources or amenities of concern that could be impacted by dredged material disposal at the ODMDSs have been identified and management practices have been implemented to prevent adverse impacts to the same. Monitoring of the beaches at Holly Beach during and immediately after disposal operations is not necessary. Local residents notify the CEMVN immediately when dredged material drifts onshore.

To ensure that persistent mounding is not occurring, hydrographic monitoring will be performed at and adjacent to the site pre- and post-disposal. If the post-disposal survey indicates either mounding greater than 2.0 feet above predisposal elevation has occurred within the site or mounding greater than 12 inches above pre-disposal elevation has occurred off the site, a subsequent hydrographic survey will be conducted prior to the next disposal event to ensure that dispersion of the previously deposited sediments has occurred. If this hydrographic survey indicates that the sediments have dispersed, no further action is necessary. However, should the survey indicate that mounding persists, CEMVN and EPA, Region 6 will determine management actions appropriate to the site to alleviate sediment mounding in subsequent disposal events.

## MAINTENANCE MATERIAL

### TIER M1

Physical and chemical evaluations of the ODMDS material shall be conducted to characterize possible effects from the placement of dredged material occurring at the site. Physical analyses of the sediment can assist in assessing the impact of disposal practices on the benthic environment at the disposal site and determine if dredged material is migrating offsite. Chemical analyses of the sediment shall be conducted to establish whether contaminants of concern are suspected to be affecting the benthic environment at the disposal site.

### Bathymetric Surveys

The ODMDS is located outside of the safety fairway for large vessel traffic, therefore, the mounding will be considered in regard to shallow-draft vessels, only. Considering the grain-size characteristics of typical maintenance dredged material from this channel, significant mounding is not expected subsequent to discharge operations. The threshold elevation for mounding of dredged material within the ODMDS will be two (2) feet above the bottom elevation prior to dredged material disposal.

Since the site is dispersive, movement of material from the site is expected to occur after disposal operations cease. In order to detect if short-term movement of the material out of the designated ODMDS is occurring at a significant rate, hydrographic surveys of the ODMDS shall be obtained before the start of disposal operations, and after completion of disposal operations. An accumulation of one (1) foot of sedimentation along the ODMDS boundary will be considered the threshold level for movement of material outside of the designated ODMDS. This determination shall be based on a comparison of the results of these before and after surveys.

Hydrographic surveys shall be conducted along transects within the ODMDS. These transects shall be oriented perpendicular to the channel in the direction of sediment transport (i.e., southwest). Transect intervals shall be every 1,000 feet extending 1,000 feet outside each boundary. In addition, a depth profile shall be obtained along each boundary.

Surveys shall be obtained using a USACE, or contract survey vessel equipped with electronic surveying capabilities. The vessel must be equipped with positioning equipment with a horizontal precision of one (1) foot. The fathometer, which shall display real-time depth on real-time location, must have a precision of 0.5 feet. All data shall be collected using methodology described in Engineer Manual EM 1110-2-1003, dated January 1, 2002.

### Data Analysis

- ◆ If deposited dredged material is not mounding to elevations greater than the threshold elevation above the existing bottom elevation, and there is no short-term movement of material beyond the limits of the ODMDS, then the management objectives are met. No further post-disposal monitoring will be required.
- ◆ If mounding to elevations greater than the threshold elevation, and/or movement of material out of the ODMDS has occurred, as determined by the post-dredging survey, then the monitoring program shall proceed to Tier M2.

### Sediment Chemistry

Sediment chemistry analyses shall be conducted in conjunction with the dredged material evaluations from samples collected in the navigation channel. Collecting samples from both the navigation channel and ODMDS during the same sampling event has been determined to be the most efficient use of resources. Because most ODMDSs lie directly adjacent to the navigation channels, there are relatively short distances between the two areas. As described in the RIA, sediment testing in the navigation channels generally occurs on a five-year cycle. Sediment chemistry results from the ODMDS should be compared to the results collected from the reference area and the navigation channel. Significantly elevated sediment concentrations are defined as 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.

### Data Analysis

- ◆ If contaminant concentrations are not significantly different than navigation channel concentrations then no further testing is needed.
- ◆ If significant increases in levels of contaminants are observed at the ODMDS, then a determination will be made whether a bioassay/bioaccumulation study is warranted to determine effects on the benthic community. The studies are described below as Biological Testing under Tier M2.

TIER M2

### Bathymetric Surveys

If transport of material from the site is occurring, hydrographic surveys shall be expanded to include the impacted area and shall be performed on a semi-annual basis to determine the changes in dispersion of the material until the impacts are no longer observed. An accumulation of more than one (1) foot of sedimentation along the ODMDS boundary will be considered the threshold level for significant movement of material outside of the designated ODMDS.

### Data Analysis

- ◆ If deposited dredged material is mounding to elevations above the threshold value, but less than four (4) feet above the existing bottom elevation and there is no significant short-term transport of material beyond the limits of the ODMDS, then semi-annual post-disposal monitoring shall occur as described.
- ◆ If at six months after disposal, deposited dredged material remains mounded to elevations greater than half the post-disposal elevations, then bathymetric surveys shall be continued.
- ◆ If deposited dredged material is mounding to elevations greater than fifteen (15) feet, and/or significant movement of material out of the ODMDS has occurred, the New Orleans District together with EPA Region 6 will consider various management options to rectify the situation. Such options could include, but are not limited to expansion of the ODMDS; or relocation of the ODMDS within the zone of siting feasibility described in the designation EIS.

### Biological Testing

If the results of the Tier M1 sediment chemistry evaluation suggest the need for additional testing, then solid-phase bioassay and bioaccumulation testing shall be conducted in accordance with the procedures described in the RIA. If the sediment can be attributable to recent dredging, funding for testing under this Tier will be provided by CEMVN or the permittee, as appropriate; otherwise funding will be provided by EPA, Region 6. Any such testing is contingent on availability of appropriated funds.

### Data Analysis

- ◆ If toxicity is not indicated, then no further testing is needed and disposal activities can continue at the ODMDS.
- ◆ If toxicity is indicated at the ODMDS, the New Orleans District together with EPA Region 6 will consider various management options to rectify the situation. Because the ODMDS is a dispersive site, potential sources of toxicity other than dredged material must also be considered. If planned use of the ODMDS is imminent, a decision must also be made whether to allow continued use of this site.

## X. References

- Maurer, D.L., R.T. Keck, J.C. Tinsman, W.A. Leathem, C.A. Wethe, M. Huntzinger, C. Lord, and T.M. Church. 1978. Vertical Migration of Benthos in Simulated Dredged Material Overburdens, Vol. 1: Marine Benthos. Technical Report D-78-35. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- NMFS (National Marine Fisheries Service), 2007. Revision 2 to the November 19, 2003 Biological Opinion concerning Dredging of Gulf of Mexico Navigation Channels and Sand Mining (“Borrow”) Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number F/SER/2000/01287).
- U.S. EPA and USACE. 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual*. EPA-503/8-91/001. U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, Washington, D.C.
- U.S. EPA and USACE. 2003. *Regional Implementation Agreement for Testing and Reporting Requirements for Ocean Disposal of Dredged Material off the Louisiana and Texas Coasts Under Section 103 of The Marine Protection, Research and Sanctuaries Act*. U.S. Environmental Protection Agency, Region 6 and U.S. Army Corps of Engineers, Galveston and New Orleans Districts.

## **XI. Site Management Plan Review and Revision**

Pursuant to Section 102(c) of the MPRSA, as amended by WRDA 1992, the Site Management Plan for the Calcasieu River & Pass ODMDS will be reviewed and revised, if necessary, not less frequently than 10 years after adoption and every 10 years, thereafter.

Modifications or updates to the Site Management Plan may be necessary, based on specific needs identified for specific authorized projects. Modifications or updates to the Site Management Plan may be proposed by either the CEMVN or EPA Region 6. Following a thirty (30) day review period of the changes(s), the modifications may be incorporated into the plan by mutual consent of both agencies.

This Site Management Plan complies with Section 102(c)(3) of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. Sections 1401, et seq.) as amended by Section 506 of the Water Resources Development Act of 1992 (WRDA 92; Public Law 102-580), and has been approved by the following officials of Region 6 of the U.S. Environmental Protection Agency, and New Orleans District of the U.S. Army Corps of Engineers. This plan goes into effect upon the date of the last signature:

\_\_\_\_\_  
 Richard E. Greene  
 Regional Administrator  
 Region 6  
 U.S. Environmental Protection Agency

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 Date

\_\_\_\_\_  
 Alvin B. Lee  
 Colonel, US Army  
 District Commander  
 New Orleans District  
 U.S. Army Corps of Engineers

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 Date