



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

HOUMA NAVIGATION CANAL, 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

SITE MANAGEMENT PLAN

HOUMA NAVIGATION CANAL, LOUISIANA OCEAN DREDGED MATERIAL DISPOSAL SITE

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 Houma Navigation Canal, LA Ocean Dredged Material Disposal Site, was developed jointly by the U.S. Environmental Protection Agency, Region 6 (EPA, Region 6) and the U.S. Army Corps of Engineers, Mississippi Valley Division, 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 Houma Navigation Canal (HNC) Ocean Dredged Material Disposal Site for maintenance material are as follows:

1. Beneficial use of dredged material;
2. 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;
3. Avoidance of excessive mounding either within the site boundaries or in areas adjacent to the site, as a direct result of placement operations.

The specific objectives of management of the HNC ODMDS are as follows:

1. Beneficial use of dredged material;
2. Ocean disposal 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 and;
3. Avoidance of excessive and prolonged mounding either within the site boundaries or in areas adjacent to the site as a direct result of routine disposal operations.

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 March 15, 1988, 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 ODMDS, 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 ODMDS, 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 Houma Navigation Canal Project ODMDS is located west of and parallel to the Cat Island Pass section of the HNC and is 6.4 kilometers (4 miles) long (Figure 1.). The northern side of the ODMDS is approximately 12.8 kilometers (8 miles) south of the Terrebonne Parish mainland and 4.8 kilometers (3 miles) west of Timbalier Island, and is bounded by the following coordinates:

29° 05' 22.3" N, 90° 34' 43" W;
29° 02' 17.8" N, 90° 34' 28.4" W;
29° 02' 12.6" N, 90° 35' 27.8" W;
29° 05' 30.8" N, 90° 35' 27.8" W.

Baseline conditions at the Houma Navigation Canal 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 "Final Environmental Impact Statement (EIS) for the Houma Navigation Canal Ocean Dredged Material Disposal Site

Designation" (EPA 1989). In 1994, EPA collected and characterized sediment and biological samples at the Houma Navigation Canal ODMDS. This information updates the EIS baseline conditions at the disposal site.

B. *Historical Use of the Site.* The HNC was constructed by Terrebonne Parish in 1962 from Houma, Louisiana (Mile 36.6) to the -18 foot contour National Geodetic Vertical Datum (NGVD) in the Gulf of Mexico (Mile -3.9), a distance of 40.5 miles. The Rivers and Harbors Act of October 23, 1962, authorized the maintenance of the HNC, after completion, to channel dimensions of the 15.8 feet NGVD depth and 150 feet width. Maintenance by the United States was initiated on November 27, 1964. In accordance with Section 5 of the Rivers and Harbors Act of 1915 authority was granted on August 23, 1973, to increase the project dimensions for Cat Island Pass (Mile 0 to Mile -3.9) to a depth of 18.8 feet NGVD and a width of 300 feet. This enlargement was completed in July 1974.

The present configuration of the site was established during the site designation process. The existing site received a three year interim designation for disposal of dredged material from the Cat Island Pass reach of the HNC in 1977 (42 FR 2461 *et seq.*). The interim designation of the site was extended indefinitely in 1980. The Houma Navigation Canal ODMDS received final designation on September 18, 1989 (54 FR 134).

History of disposal of dredged material prior to 1976 is incomplete. Dredging records dating back to 1964 indicate discontinuous reaches of Cat Island Pass were maintained with cutterhead dredges or hopper dredges. The Environmental Impact Statement (EPA, 1989), indicates historical disposal in the existing ODMDS began in 1964.

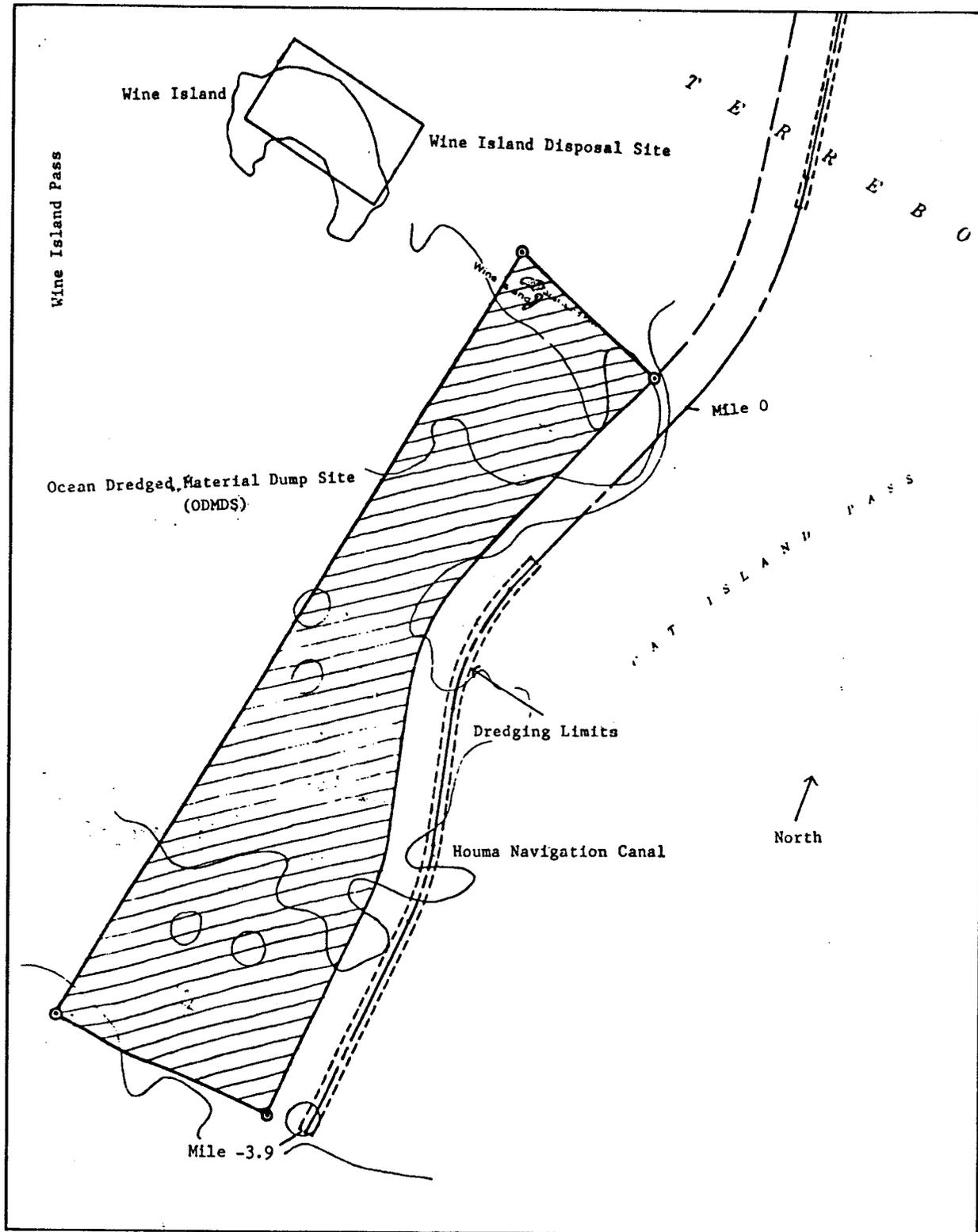


FIGURE 2. Wine Island Disposal Site

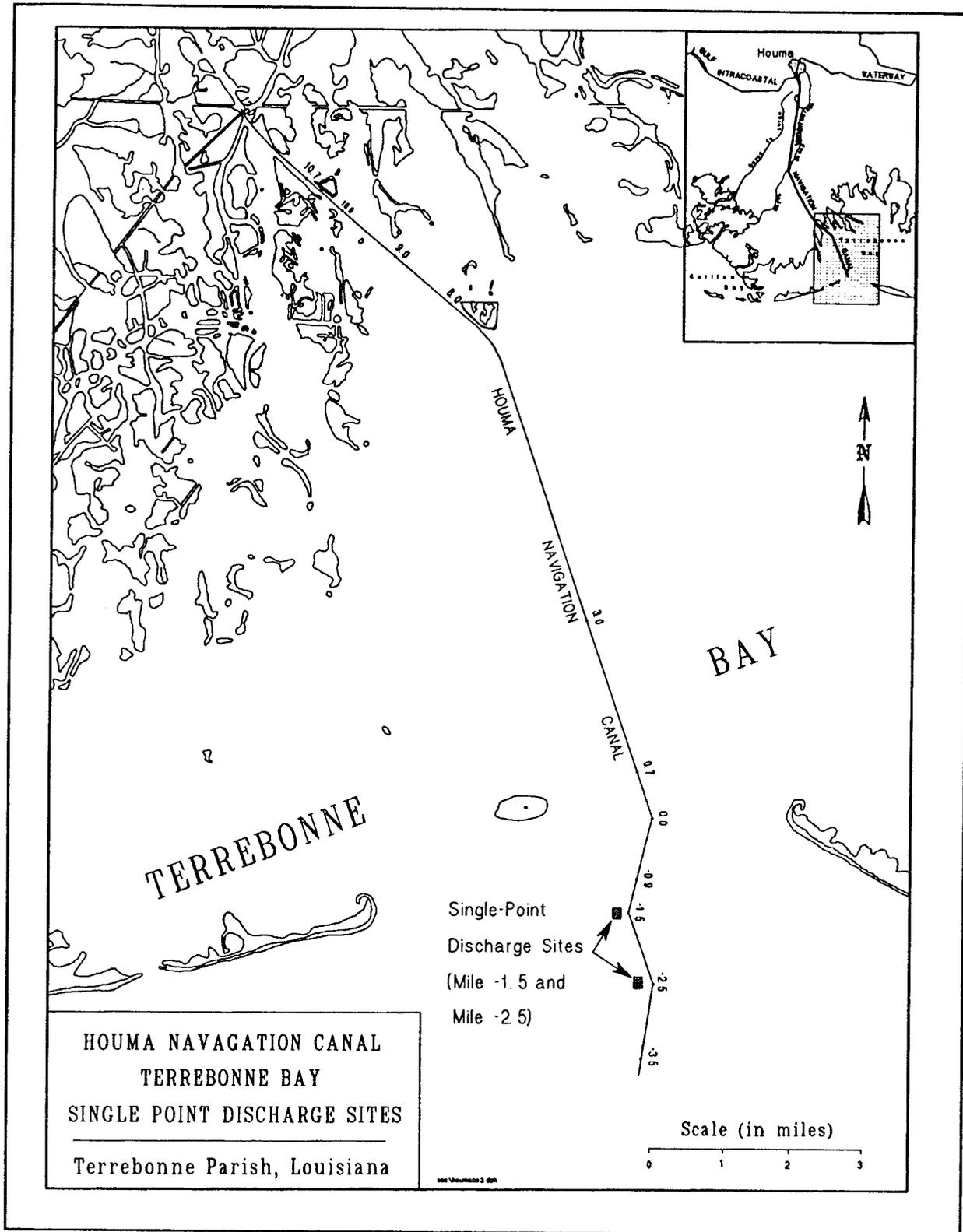


FIGURE 3. Single point Discharge Disposal Areas

Between 1976 and 1990, all of the dredged material removed during routine maintenance of Cat Island Pass (Mile 0 to Mile -3.9) was placed in the ODMDS. Since 1991 dredged material removed from Cat Island Pass has been used beneficially either for island restoration/ construction or to feed material to shoals located within the boundaries of the ODMDS.

Prior to the 1991 maintenance event, CEMVN obtained authority and funding pursuant to Section 1135 of the Water Resources Development Act of 1986(WRDA 86) to use dredged material from Cat Island Pass to restore Wine Island, one of the chain of barrier islands formed on the abandoned Lafourche delta periphery. A disposal area on Wine Island shoals was designated under section 404 of the Clean Water Act for placement of dredged material (Figure 2). The State of Louisiana and Terrebonne Parish jointly funded and constructed a retention dike encircling an approximately 23-acre area at Wine Island Shoal. During the 1991 maintenance event approximately 580,000 cubic yards of shoal material were removed with a hydraulic cutterhead dredge from between Mile -1.5 and Mile -2.2 of Cat Island Pass and placed within the retention dike. An additional 380,000 cubic yards were removed from Cat Island Pass Mile -2.2 and Mile -3.9 during 1991 and placed in the ODMDS.

During 1992, Hurricane Andrew made landfall on the Louisiana Coast causing significant property damage. State and Terrebonne Parish government supplied Federal Emergency Management Act funds to the CEMVN to pay the incremental costs of pumping material to restore Wine Island. A total of 523,005 cubic yards of shoal material removed from between Mile -1.4 and -2.7 of the Cat Island Pass reach were deposited within the 23-acre Wine Island disposal area. During that same maintenance event, 187,000 cubic yards of dredged material were placed in the ODMDS.

Prior to the 1995 maintenance event, two shoals were designated under section 404 of the Clean Water Act for placement of dredged material (Figure 3). These shoals are located within the existing ODMDS. The purpose of placement of dredged material on the shoals was twofold:

1) to concentrate material on the shoals; and 2) to monitor the natural transport of the material. The shoals are east of Isles Derniers Island, and it is anticipated that sediment from these shoals is transported naturally to the Island. If monitoring indicates material from the shoals is transported or feeds sediments to Isles Derniers, modifying disposal operations to continue to concentrate material at the shoals could influence accretion at Isle Derniers. During 1995 maintenance approximately 791,524 cubic yards of shoal material was concentrated on two shoals located west of the channel. Pre- and post-disposal monitoring was conducted to evaluate the benefits of disposal on the shoals. The results of the monitoring neither supported nor rejected the hypothesis that the dredged material placed on the shoals would be transported to Isle Derniers.

During 1997, additional material was placed on the two section 404 shoal sites. Again, pre- and post-disposal monitoring was conducted to determine the benefits of disposal on the shoals. Monitoring to determine the effectiveness of placing material on the two 404 sites, using bathymetric surveys, beach profiles on Isle Derniers, and sediment characterization studies proved to be non-conclusive.

Frequency of maintenance dredging of the Cat Island Pass section of the HNC has varied. Between 1976 and 1995 this section was dredged 9 times and only material from the navigation channel was placed in the ODMDS. Material is removed using a cutterhead dredge or hopper dredge and is deposited into the ODMDS. Historically, the time of year for dredging has varied. When a dredge is working in Cat Island Pass, disposal operations occur 24 hours a day, seven days a week until the authorized channel dimensions are restored. Table 1. provides a summary of the dredged quantities since 1976.

Since 1993, Cat Island Pass shoal material has primarily been placed at the two single-point discharge sites (SPD) located at Miles -1.7 and -2.5 within the ODMDS boundaries. The two exceptions where shoal material was placed into the ODMDS occurred in FY 98 and FY 03. A Section 204 project to pump Cat Island Pass material to Wine Island has been on the books

since the late 1990s, but has not been implemented for a couple of reasons: the need to dredge in the winter months when seas are too rough for long cutterhead pipelines, and the lack of funding on the Federal side for Section 204 projects.

The Army Corps' Engineering Research and Development Center (ERDC) did a limited study on current patterns and sediment movements for the Gulf of Mexico in the vicinity of the HNC Terrebonne Bay and Cat Island Pass channels for the HNC Deepening Study. The study was not definitive in where the sediment was ultimately destined, but did show that sediment movement was generally in a westerly direction. It is anticipated that continued use of the SPDs may result in the creation of islands for colonial nesting wading birds and seabirds. If island creation does occur any erosion of sediments from these islands would presumably still drift in a westerly direction towards Isle Dernieres while providing colonial nesting wading birds and seabirds a viable nesting site removed from predation pressures.

Table 1 provides a summary of dredged quantities since 1976.

Table 1. Summary of Dredged Quantities for Houma Navigation Canal.

Dredging Interval	Quantity Dredged (cubic yards)
08/03/76 - 08/29/76	94,400
05/18/78 - 06/20/78	589,000
07/07/83 - 08/20/83	760,100
09/18/84 - 10/24/84	723,500
10/20/85 - 11/15/85	897,700
10/28/87 - 12/30/87	300,800
CY - 91	380,000

	(580,000 deposited at Wine Island)
08/27/93 - 10/17/93	198,000 (523,005 deposited at Wine Island)
CY - 95	791,524 (Shoals aka SPDs)
FY - 98	117,412
FY - 03	1,197,531

Since 1976, the HNC Cat Island Pass has been dredged an average of every 2.9 years. An average of 550,000 cubic yards of dredged material, are disposed in the ODMDS during each maintenance event. The dredged material generally can be characterized as mixtures of sand, silt and clay. In general, sediment grain size decreases in the offshore direction, with sands being predominant in the northern portion of the ODMDS (EPA, 1989). The average percentages of sands, silts and clays sampled from 6 stations in Cat Island Pass were: sand 52.6 %, silt 36.4 %, and clay 10.9 %. It is anticipated that maintenance of the HNC Cat Island Pass and disposal of dredged material at the Section 404 sites will continue into the future. If additional funding becomes available, future beneficial disposal also may occur at Wine Island. Although not anticipated, the CEMVN would utilize the ODMDS in the future if monitoring of the material placed on the Section 404 sites and beach profiles at Isles Derniers indicate this placement is not nourishing barrier islands, or if additional authority and funding are not forthcoming for placement on Wine Island. Closure of the ODMDS is not anticipated even if beneficial use is continued.

VI. Quantity of Material and Presence of Contamination

A. *Summary of information used to determine size of the site.* The HNC ODMDS is a long narrow site paralleling the Cat Island Pass section of the HNC, LA, navigation channel. When EPA designated it an interim ODMDS in 1977, the site had been used for disposal of

dredged material from Cat Island Pass since 1964. The configuration of the site resulted from ease of disposal from the navigation channel. In January 1980 the interim status of the site was extended indefinitely. On August 14, 1989, final designation of the ODMDS was completed. No recommendations for changes in the size of the site were made as a result of the site designation studies.

In 1995, two shoals located within the boundaries of the ODMDS were designated as Section 404 single point discharge disposal areas (SPDs) for the purpose of beneficially using dredged material. It is anticipated that sediment from the shoals is transported naturally to barrier islands west of the shoals. This 404 designation did not reduce the area of the ODMDS, however.

The location and configuration of the ODMDS involves only minimal floating pipe for the cutterhead dredge to transport the material to the ODMDS or only a short transit of the hopper dredge from the navigation channel to the ODMDS. 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.

Like most ODMDSs in the Gulf of Mexico, the HNC ODMDS is a dispersive site. The dredged material discharged into the site is reworked by waves and littoral currents and moved out of the ODMDS. Therefore, the site will be available for long term use and closure of the site is not anticipated.

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

protocols describe chemical parameters to be analyzed, as well as required detection limits. It also specifies how toxicity testing and bioaccumulation assessments are to be conducted, as well as organisms to be utilized. Since that time, all sediment evaluations have been conducted in accordance with the RIA. Since the mid-1970s, before development of the RIA, dredged material from the Houma Navigation Canal Project had been evaluated numerous times to determine suitability for offshore placement. This testing was performed to determine levels of metals and organic constituents, as well as toxicity and bioaccumulation assessments. Tier III evaluations consisting of physical analyses, bulk sediment analyses, water chemistry and elutriate analyses, and toxicity bioassays were conducted in November 1994 and July 2002. 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 without special management conditions.

Although dredged material from the Houma Navigation Canal has been placed in the ODMDS, sampling or analyses has not been performed prior to or subsequent to each event. 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 adhere to the RIA in deciding when new chemical and biological data are needed.

VII. Anticipated Site Use

Maintenance dredging of the HNC Cat Island Pass is required on an average of every 2.2 years. It is anticipated that disposal of dredged material at the Section 404 SPDs will continue into the future. Dredged material will be removed using a hydraulic cutterhead dredge or hopper dredge and discharged into the Section 404 SPDs. It is anticipated that the HNC ODMDS would

only be used in situations where cutterhead dredges cannot employ pipeline of sufficient length to utilize the Section 404 SPDs for all Cat Island Pass maintenance dredging needs. Closure of the ODMDS is not anticipated. Disposal in the ODMDS involves placing dredged material within the ODMDS usually immediately opposite the location where shoaling is occurring in the channel. The dredged material is comprised of sand, clay and silt (52.6 % sand, 36.4 % silt and 10.9 % clay).

Historically, the time of year for dredging has varied in the HNC. 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 maintenance of the HNC Cat Island Pass and disposal of dredged material into the Section 404 sites will continue in the future.

VIII. Special Management Conditions or Practices

Special management conditions or practices applicable to the Houma Navigation Canal ODMDS include the following:

a. Several options for beneficial use of dredged material taken from HNC Cat Island Pass were considered during both the EIS ODMDS designation process and during the development of the Long Term Disposal Plan (LTDP). The EIS and the LTDP concluded that the significant distance involved in land based disposal and associated higher costs would produce little environmental benefit.

During Fiscal Year 1997, additional placement of material on the two Section 404 SPDs was proposed. Monitoring (e.g. bathymetric surveys and sediment characterization studies) was conducted following placement of the dredged material to determine if concentrating material on the shoals benefits barrier islands by "feeding" sediment to their shorelines.

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 and the Regional Implementation Agreement (RIA) will be considered for unrestricted placement at the ODMDS. Additional evaluation of management options will be required for any dredged material which does not meet the criteria.

IX. Monitoring Program

The primary purpose of the Site Monitoring Program is to evaluate the impact of the placement of dredged material on the marine environment. The evaluations will be used for making decisions, preventing unacceptable adverse effects beyond the site boundary, and ensuring regulatory compliance over the life of the ODMDS. Emphasis will be placed on determining physical impacts, since, to date, dredged material from the Houma Navigation Canal Project has been determined to be acceptable for ocean placement, without special conditions; however, consideration of contaminants will also be included. Testing of dredged material is conducted based on “Greenbook” and RIA procedures; however it is necessary to verify 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. In the event that the material persists in the ODMDS, there may be potential for long-term contaminant effects on the benthos.

The size and location of the Houma Navigation Canal Project ODMDS were determined pursuant to the General Criteria as listed in 40 CFR 228.5, and the Specific Criteria at 40 CFR 228.6(a). There are no significant environmental resources delineated within or immediately outside of the designated ODMDS. Since this site is dispersive in nature, the primary concern of the use of the site is the potential short-term build up of dredged material, such that a hazard to navigation is presented. Another concern is whether there is significant short-term movement of the dredged material beyond the ODMDS boundaries; specifically, the benthic community can be impacted if significant rapid movement of material off the site occurs, resulting in burial of benthic populations

outside the site. Studies have shown that benthic organisms can burrow through 6-9 inches of dredged material without significant impacts on the community (EPA/USACE, 1996).

The Site Monitoring Program is designed as a tiered program. If initial tier results fail predetermined limits, then a more complex set of tests is invoked at the next tier to determine the extent of impact. The tiers are used to facilitate rapid, accurate and economical collection of information for use by the EPA, Region 6, and the CEMVN. The tiered testing for these factors is described below.

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 Canal, significant mounding is not expected subsequent to discharge operations.

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. A post-disposal survey indicating an accumulation of 2.0 feet above the predisposal elevation of sedimentation along the ODMDS boundary or mounding along the ODMDS boundary greater than 1.0 feet above the pre-disposal elevation for movement of material outside of the designated ODMDS will be considered the threshold levels of acceptability.

Hydrographic surveys shall be conducted along transects within the ODMDS. These transects shall be oriented perpendicular to the Canal 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 Canal. Collecting samples from both the navigation Canal 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 Canals, there are relatively short distances between the two areas. As described in the RIA, sediment testing in the navigation Canals generally occurs on a five-year cycle. Sediment chemistry results from the ODMDS should be compared to the results collected from the navigation Canal. 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 Canal 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 fifteen (15) 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

NMFS (National Marine Fisheries Service), 2007. Revision 2 to the November 19, 2003 Biological Opinion concerning Dredging of Gulf of Mexico Navigation Canals 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 U.S. ACE, 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 U.S. ACE, 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 Houma Navigation Canal 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

Date

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

Date