



SABINE-NECHES WATERWAY, TEXAS
OCEAN DREDGED MATERIAL DISPOSAL
SITES 1-4 AND A-D

SITE MANAGEMENT AND MONITORING PLAN

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of Engineers®**

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Southwestern
Division,
Galveston
District

Date

The following Site Management and Monitoring Plan (SMMP) for the eight Sabine-Neches Waterway (SNWW) Ocean Dredged Material Disposal Sites (ODMDSs) complies with Section 102(c)(3) of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. Section 1401, et seq.) as amended by Section 506 of the Water Resources Development Act (WRDA) Amendments of 1992 (Public Law 102-580), and has been approved by the following officials of the U.S. Environmental Protection Agency (USEPA) Region 6 and the U.S. Army Corps of Engineers (USACE), Southwestern Division, Galveston District.

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This plan is effective from the date of the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) signatures for a period not to exceed ten years.

**SNWW OCEAN DREDGED MATERIAL DISPOSAL SITES
MANAGEMENT AND MONITORING PLAN**

1	INTRODUCTION	1
1.1	SNWW SITE MANAGEMENT AND MONITORING PLAN ROLES AND RESPONSIBILITIES	3
1.2	MODIFICATION OF THE SNWW ODMDSs SMMP	3
1.3	IMPLEMENTATION OF THE SNWW ODMDSs SMMP	3
2	SITE DESCRIPTIONS	4
2.1	SITE DESIGNATION HISTORY	4
2.2	SITE LOCATIONS	5
2.3	RECORD OF PAST MONITORING ACTIVITIES	6
2.4	SITE CHARACTERIZATIONS	8
2.4.1	PHYSICAL CHARACTERIZATION.....	8
2.4.2	CHEMICAL CHARACTERIZATION	9
2.4.3	BIOLOGICAL CHARACTERIZATION.....	10
2.4.4	DISCUSSION OF CRITICAL AMENITIES	11
2.5	REFERENCE SITE CHARACTERIZATIONS	11
2.6	SNWW HISTORICAL AND FUTURE SITE USE	12
3	SITE MANAGEMENT	13
3.1	DREDGED MATERIAL QUALITY VERIFICATION.....	13
3.2	DISPOSAL REQUIREMENTS	15
3.2.1	OCEAN DUMPING CRITERIA (ODC) COMPLIANCE PROCESS	16
3.2.2	DISPOSAL LOCATIONS	16
3.2.3	DISPOSAL TRACKING	17
3.2.4	INFORMATION MANAGEMENT OF DREDGED MATERIAL DISPOSAL ACTIVITIES	17
4	SITE MONITORING.....	17
4.1	BASELINE MONITORING	18
4.2	DISPOSAL MONITORING.....	19
4.3	POST DISPOSAL MONITORING REQUIREMENTS	20
4.4	DISPOSAL EFFECTS MONITORING	20
4.5	SITE MONITORING PLAN SUMMARY	21

4.6	REPORTING AND DATA FORMATTING.....	27
4.6.1	PROJECT INITIATION AND VIOLATION REPORTING REQUIREMENTS	28
4.6.2	DISPOSAL MONITORING DATA.....	28
4.6.3	POST-DISPOSAL SUMMARY REPORTS	28
4.6.4	ENVIRONMENTAL MONITORING DATA	29
5	REFERENCES	30
	APPENDIX A - SITE CHARACTERIZATION	33
	APPENDIX B - TEMPLATE OF GENERIC CONDITIONS FOR MPRSA SECTION 103 PERMITS FOR THE SNWW ODMDSS.....	47

LIST OF FIGURES

Figure 1 Sabine-Neches Waterway ODMDs 1-4 and A-D Site Area Map
Figure A1 Sabine-Neches Waterway ODMD 1
Figure A2 Sabine-Neches Waterway ODMD 2
Figure A3 Sabine-Neches Waterway ODMD 3
Figure A4 Sabine-Neches Waterway ODMD 4
Figure A5 Sabine-Neches Waterway ODMD A
Figure A6 Sabine-Neches Waterway ODMD B
Figure A7 Sabine-Neches Waterway ODMD C
Figure A8 Sabine-Neches Waterway ODMD D
Figure A9 Sabine-Neches Waterway Reference Sites

LIST OF TABLES

Table 1 Surveys and other studies conducted in the vicinity of the eight SNWW ODMDs
Table 2 Site Monitoring Strategies and Thresholds for Action
Table A1 SNWW ODMDs Buffer and Disposal Zone Boundary Coordinates (NAD83)
Table A2 SNWW Reference Sites 1&2, 3&4 and A-D Coordinates (NAD83)
Table A3 Disposal history of SNWW ODMD 1
Table A4 Disposal history of SNWW ODMD 2
Table A5 Disposal history of SNWW ODMD 3
Table A6 Disposal history of SNWW ODMD 4
Table A7 Particle-Size Distribution Trend Data for SNWW ODMD 1
Table A8 Particle-Size Distribution Trend Data for SNWW ODMD 2
Table A9 Particle-Size Distribution Trend Data for SNWW ODMD 3
Table A10 Particle-Size Distribution Trend Data for SNWW ODMD 4

LIST OF ACRONYMS

CFR	Code of Federal Regulations
CY	Cubic yards
DQM	Dredge Quality Management
EIS	Environmental Impact Statement
EPA R6	U.S. Environmental Protection Agency Region 6
ERL	Effects Range Low
ERM	Effects Range Median

ETS	Electronic Tracking System
FR	Federal Register
LPIL	Lowest possible identification level
MCY	Million cubic yards
MLLW	Mean Lower Low Water datum
MPRSA	Marine Protection, Research and Sanctuaries Act of 1972
NAD 83	North American Datum of 1983
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
ODMDS(s)	Ocean Dredged Material Disposal Site(s)
PCBs	Polychlorinated Biphenyls
PAHs	Polycyclic aromatic hydrocarbons
RIA	Regional Implementation Agreement
SMMP	Site Management and Monitoring Plan
SNWW	Sabine-Neches Waterway
SNWW CIP	Sabine-Neches Waterway Channel Improvement Project
SPCS	State Plan Coordinate System
SPI	Sediment Profile Imaging
TX	Texas
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
WRDA	Water Resources Development Act
XML	Extensible Markup Language

1 INTRODUCTION

The Marine Protection, Research and Sanctuaries Act (MPRSA), sometimes referred to as the Ocean Dumping Act, regulates the transportation and disposal of any material into ocean waters. Under the MPRSA, no permit may be issued for ocean disposal where such disposal will unreasonably degrade or endanger human health or the marine environment. Most materials disposed of today is dredged material (i.e., sediments) removed from the bottom of water bodies to maintain navigation channels and berthing areas.

In the case of dredged material, the U.S. Army Corps of Engineers (USACE) is responsible for issuing ocean disposal permits and authorizing federal projects involving ocean disposal of dredged material (MPRSA section 103). USACE complies with the U.S. Environmental Protection Agency (EPA) ocean disposal criteria when evaluating permit requests for, and implementing federal projects involving, the transportation of dredged material for the purpose of disposal into ocean waters. MPRSA permits and federal projects involving the ocean disposal of dredged material are subject to EPA review and written concurrence. EPA may concur with or without conditions or decline to concur on the permit or federal project, i.e. non-concur. If EPA concurs with conditions, the final permit or federal project authorization must include those conditions. If EPA declines to concur (non-concurs) on an ocean disposal permit or federal project, the USACE cannot issue the permit or authorize the transportation to and disposal of dredged material in the ocean associated with that federal project.

Under the MPRSA section 102, EPA is responsible for the designation of ocean disposal sites and the management all such designated sites. EPA's ocean dumping regulations at 40 CFR Part 228 establish procedures for the designation and management of ocean disposal sites and lists the available EPA-designated ocean disposal sites by EPA Region (40 CFR 228.15). Management of a site consists of regulating times, rates, and methods of disposal as well as quantities and types of materials disposed of; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site evaluation studies; and recommending modifications in site use and/or designation (40 CFR 228.3(a)).

EPA shares the responsibilities of conducting management and monitoring activities at EPA-designated Ocean Dredged Material Disposal Sites (ODMDSs). Under MPRSA section 102, EPA, in conjunction with the U.S. Army Corps of Engineers (USACE), is also responsible for a site management and monitoring plan (SMMP) for

each designated ODMDS. The goal of an SMMP is to ensure that ocean dredged material disposal activities will not unreasonably degrade the marine environment or endanger human health, economic potentialities or other uses of the ocean. The SMMP provisions are an integral part of managing all disposal activities at a disposal site.

Preparation of this SMMP has been informed by the Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites (EPA and USACE, 1996). This SMMP provides a framework for site monitoring and management as required by MPRSA.

This SMMP may be modified if it is determined that such changes are warranted, including as a result of information obtained from monitoring or due to other factors. The MPRSA, as amended by Water Resources Development Act of 1992 (WRDA), provides that the SMMP shall include but not be limited to:

- A baseline assessment of conditions at the site;
- A program for monitoring the site;
- Special management conditions or practices to be implemented at each site that are necessary for the protection of the environment;
- Consideration of the quantity and biological, physical, and chemical characteristics of dredged materials to be disposed of at the site;
- Consideration of the anticipated use of the site over the long-term; and
- A schedule for review and revision of the plan

The SMMP will be reviewed and revised, as needed, or at least every ten years.

The provisions in this SMMP apply for all dredged material disposal activities at the eight Sabine-Neches, TX Dredged Material Sites 1, 2, 3, 4, A, B, C, and D, herein referred to as Sabine-Neches Waterway (SNWW, SNWW 1-4, and SNWW A-D) Ocean Dredged Material Disposal Sites (ODMDSs), including monitoring and management activities by the federal agencies. This SMMP also includes template provisions for USACE to include in subsequently issued permits (see Appendix B). In this document to matters that “will be required” refers to implementation in a subsequent proceeding to authorize disposal of dredged material, such as in a permit, in contract or other Federal project specifications for the transportation and disposal of dredged material, or by the USACE directly. This SMMP does not itself impose binding requirements or obligations, though the SMMP does identify binding rights and obligations established by other final agency actions. Other than section 3.2, matters that “will be required” will be implemented through application of the

template language included in the Appendices or the language may vary from the terms of the Appendices. The issuance of this SMMP does not determine the rights or obligations of any third party. EPA can ensure implementation of the template provisions as necessary through EPA's concurrence actions. All MPRSA Section 103 ocean disposal permits or contract specifications will assure implementation of the SMMP.

1.1 SNWW SITE MANAGEMENT AND MONITORING PLAN ROLES AND RESPONSIBILITIES

Specific responsibilities of EPA and the USACE are:

EPA: EPA is responsible for designating/de-designating ODMDs under MPRSA section 102, managing these sites by regulating site use, developing and implementing disposal monitoring programs, evaluating environmental effects of disposal of dredged material at the sites, and for reviewing for concurrence dredged material suitability determinations for MPRSA section 103 permits or federal projects authorizing the ocean disposal of dredged material.

USACE: USACE is responsible for evaluating dredged material suitability, issuing MPRSA Section 103 permits and project authorizations, and cooperating with EPA in regulating site use and developing and implementing disposal monitoring programs through development and use of SMMPs.

1.2 MODIFICATION OF THE SNWW ODMDs SMMP

SMMPs are required to be reviewed and revised at least every 10 years. Upon approval of this SMMP, the next revision will be 2031. SMMP updates consider, among other things, the results of site monitoring. EPA will provide another opportunity for public input before the next SMMP update.

1.3 IMPLEMENTATION OF THE SNWW ODMDs SMMP

This plan is effective and available for implementation from the date of signature for a period not to exceed ten years. EPA, in conjunction with the USACE, will review and revise more frequently if site use and conditions at the site indicate a need for revision. EPA and USACE share responsibility for implementation of the SMMP. Site users may be required to undertake monitoring activities as a condition of their permit.

The USACE and any USACE contractor will remain responsible for implementation of the SMMP for Federal new work and maintenance projects.

2 SITE DESCRIPTIONS

2.1 SITE DESIGNATION HISTORY

In 1977, EPA approved the four SNWW ODMDs 1-4 for interim use under the MPRSA (42 FR 7) based on historical use of the sites for the disposal of dredged material.¹ In August 1982, the draft Environmental Impact Statement (EIS) to support the evaluation of the SNWW ODMDs 1-4 for final designation under the MPRSA was released for review. The draft EIS was approved as final and titled “Final Environmental Impact Statement (EIS) for the Sabine-Neches, Texas Dredged Material Disposal Site Designation” (USEPA, 1983). EPA Final Rule designating the SNWW ODMDs 1-4 pursuant to the MPRSA was published in the Federal Register September 10, 1987 and became effective October 13, 1987 (52 FR 175). Only dredged material from the Sabine-Neches area may be disposed at these four ODMDs.

In December 2009, the draft EIS to support the evaluation of four SNWW ODMDs A-D was released for review. The draft EIS was approved as final and included as Appendix B titled “Environmental Impact Statement Sabine-Neches Waterway Channel Improvement Project, Texas Ocean Dredged Material Disposal Site Designation” (PBS&J, 2010) of the “Final Feasibility Report For Sabine-Neches Waterway Channel Improvement Project Southeast Texas and Southwest Louisiana (USACE, 2011).” On December 5, 2013, EPA Final Rule designating four SNWW ODMDs A-D pursuant to the MPRSA was published in the Federal Register; and became effective January 6, 2014 (78 FR 234). The SNWW ODMDs A-D were designated to accommodate disposal of dredged material from the Sabine-Neches extension channel.

The first SMMP for the SNWW ODMDs 1-4 was developed in August 1996 and revised in December 2008. A subsequent SMMP was written to include four proposed channel extension ODMDs (A-D) in May 2010.

¹ When EPA originally promulgated the ocean dumping regulations in the 1970s, the Agency made provisions for, among other things, interim ocean disposal sites. These interim provisions were designed to be temporary measures that would expire under certain conditions, primarily when final sites were designated, and criteria were established.

This revision of the SNWW ODMDSs SMMP replaces the 2010 SMMP and includes site monitoring and management for all eight SNWW ODMDSs: Sites 1-4 and A-D.

2.2 SITE LOCATIONS

The SNWW ODMDSs are located west of the navigation channel in Sabine Pass, Texas. The eight SNWW ODMDSs are shown in Figure 1, and the coordinates of the boundaries are listed in Table A1 in Appendix A. A brief description of sites 1-4 and A-D is presented in this section.

A buffer zone of 500 feet will be implemented for each of the eight SNWW ODMDSs to ensure that the dredged material is deposited within each site's boundaries. Buffer zone coordinates for each site can be found in Appendix A. However, EPA in consultation with the USACE can determine on a case-by-case basis that further modeling may be required to change the buffer zone(s) if warranted.

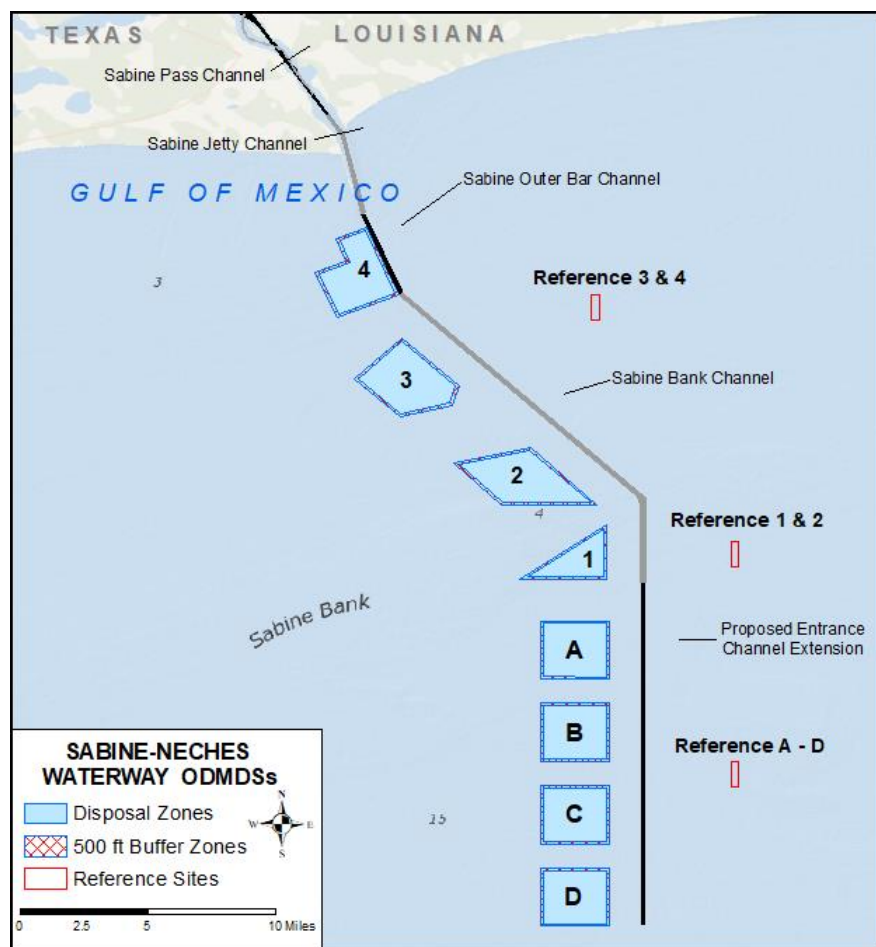


Figure 1 Sabine-Neches Waterway ODMDSs 1-4 and A-D Site Area Map

SNWW ODMDS 1 is located approximately 16 nautical miles from shore, about 6,000 feet west of the Sabine Bank Channel. This site occupies an area of approximately 2.4 square nautical miles, with depths ranging from 36 to 43 feet. ODMDS 1 is situated adjacent to the productive habitat on Sabine Bank.

SNWW ODMDS 2 is located approximately 11.8 nautical miles from shore, about 6,000 feet southwest of the Sabine Bank Channel. This site occupies an area of approximately 4.2 square nautical miles, with depths ranging from 30 to 43 feet.

SNWW ODMDS 3 is located approximately 6.8 nautical miles from shore, about 6,000 feet southwest of the Sabine Bank Channel. This site occupies an area of approximately 4.7 square nautical miles, with a depth of about 33 feet.

SNWW ODMDS 4 is located approximately 2.7 nautical miles from shore, about 500 feet southwest of the Sabine Pass Outer Bar Channel. This site occupies an area of approximately 4.2 square nautical miles with depths ranging from 16 to 30 feet.

SNWW ODMDS A is located approximately 18.2 nautical miles from shore. The site occupies an area of 4.02 square nautical miles and is square in shape. The water depth at the site ranges from 44 to 46 feet and the bottom topography is flat. Sabine Bank, at its nearest, is located roughly 1.7 miles northwest of the northwest corner of ODMDS A.

SNWW ODMDS B is located approximately 20.9 nautical miles from shore. The site occupies an area of 4.02 square nautical miles and is square in shape. The water depth at the site ranges from 44 to 46 feet and the bottom topography is flat.

SNWW ODMDS C is located approximately 23.5 miles from shore. The site occupies an area of 4.02 square nautical miles and is square in shape. The water depth at the site ranges from 44 to 46 feet and the bottom topography is flat.

SNWW ODMDS D is located approximately 26.1 miles from shore. The site occupies an area of 4.02 square nautical miles and is square in shape. The water depth at the site ranges from 44 to 46 feet and the bottom topography is flat.

2.3 RECORD OF PAST MONITORING ACTIVITIES

Baseline assessments and routine monitoring before and after disposal activities provide an important record of any changes or impacts that have occurred at or near the site. These monitoring data also inform future monitoring activities and site disposal activity.

Table 1 Surveys and other studies conducted in the vicinity of the eight SNWW ODMDs

Survey/Study Title	Conducted By	Date	Purpose	Results
Baseline Survey	Interstate Electronics Corporation	September 1979, January 1980	Collect physical, chemical, and biological data on sediments and water for ODMDs 1-4.	Results included in USEPA (1983).
Region VI Contaminated Sediment Study – Phase III	Batelle	1995	Bulk sediment, toxicology, benthics, fish community, and tissue analysis in ODMDs 1-4.	Results included in Trulli (1996).
Sabine-Neches Waterway Entrance Channel, Contaminant Assessment	PBS&J	2004	Collect physical, chemical, and biological data on sediments and water for ODMDs A-D.	Results published in PBS&J (2004).
Trend Assessment Survey	EPA	September 2013	Collect data to assess the overall environmental impact of past and recent disposal operations to the benthic infaunal community and bottom sediments and determine if the disposal footprint has extended past the site boundaries of ODMD 1, 2, 3, or 4. The survey was conducted for ODMDs 1-4.	Using sediment profile imaging (SPI), Region 6 observed that the dredged material footprint centered over the disposal sites and that the material extended beyond the boundaries of ODMDs 1, 3, and 4. Historical and recent dredged material was observed beyond the boundaries at ODMD 1, and only historical dredged material was found beyond the boundaries at ODMDs 3 and 4. Region 6 determined that disposal activities have not adversely impacted the benthic community at ODMDs 1-4. To better assess the extent of the disposal footprint, Region 6 plans to collect samples from stations beyond the area of the 2013 survey during future surveys (USEPA, 2014).
Bathymetric Surveys	USACE	Before and after each dredging event	Monitor bathymetry changes in ODMDs.	Safe navigation depths have been maintained as confirmed in post-disposal reports and bathymetry analyses.

2.4 SITE CHARACTERIZATIONS

Baseline conditions at the SNWW ODMDSSs 1-4 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 Sabine-Neches, Texas Dredged Material Disposal Site Designation” (USEPA, 1983).

Conditions were also assessed and contained in the 2013 Status and Trends Report (USEPA, 2014). From the 2013 survey report, no use changes were recommended at the time of reporting to the SMMP for the SNWW ODMDSSs 1-4.

Baseline conditions at the SNWW ODMDSSs A-D 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 “Environmental Impact Statement Sabine-Neches Waterway Channel Improvement Project, Texas Ocean Dredged Material Disposal Site Designation” (PBS&J, 2010).

2.4.1 PHYSICAL CHARACTERIZATION

Predominant longshore currents at the ODMDSSs flow east to west causing longshore transport of disposed material at those sites; dredged material transport modeling shows that disposed dredged materials at the eight ODMDSSs will not enter or otherwise affect Louisiana’s coastal zone (PIE, 2003). According to EPA (1983), dredged material is likely to disperse completely within one to two years due to tropical storms or hurricanes. Therefore, steady longshore transport and occasional storms, including hurricanes, are expected to remove the disposed material from the sites through dispersal, horizontal transport, and vertical mixing. Pre- and post-dredging bathymetry surveys have demonstrated that dredged material disposed of in the SNWW ODMDSSs does not accumulate; it disperses quickly after disposal in the offshore environment (USACE, 2011).

The designation survey for ODMDSSs 1-4 found that from the shoreline to a distance about 10 nautical miles offshore, clay is the predominant sediment. The area’s sediment composition ranged from 63%-70% clay, 23%-33% silt and 3%-4% sand. The area from shoreline to ~10 nautical miles would include ODMDSSs 3 and 4 (USEPA, 1983).

Further offshore, silt becomes the major size fraction. The area’s sediment composition ranged from 43%-59% silt, 33%-45% clay and 7%-12% sand. The area beyond ~10nmi

from shore would include ODMDSSs 1 and 2 (USEPA, 1983). Grain size distributions for ODMDSSs 1-4 from past surveys are listed in Appendix A.

ODMDSSs A-D have not received any disposal material at the time this SMMP was issued. From the designation survey, sediments in the area of ODMDSSs A-D are characterized as predominantly sand: 26% of samples contained >90% sand, 41% of samples contained >80% sand, and only two samples had a sand content less than 50% (PBS&J, 2004).

2.4.2 CHEMICAL CHARACTERIZATION

At the time of designation, chemical constituents of the water at ODMDSSs 1-4 did not exceed EPA (1976) water-quality criteria (USEPA, 1983).

Sediment chemistry data for metals and PAH compounds from the 1995 Battelle survey of sites 1-4 (Trulli, 1996) was compiled for comparison to sediment data collected in the 2013 survey. Semivolatile compounds analyses were not conducted in 1995. PCBs data could not be compared because PCB congeners were analyzed in 1995 and PCB aroclors in 2013. Pesticides detected in 1995 at ODMDSSs 1-4 are as listed:

- ODMDSS 1: aldrin, 4',4'-DDE and 4',4'-DDD
- ODMDSS 2: hexachlorobenzene, aldrin, 4',4'-DDE, 4',4'-DDD, and 4',4'- DDT
- ODMDSS 3: hexachlorobenzene, lindane, 4',4'-DDE and 4',4'-DDD
- ODMDSS 4: hexachlorobenzene, lindane, dieldrin, and 4',4'-DDE

No pesticides were detected in samples from the 2013 survey for any of these sites (USEPA, 2014)

Metals analysis for sediment samples from the SNWW ODMDSSs and reference sites was compiled from Sabine-Neches Contaminant Reports (103 evaluations) for the years 1993, 1999, 2004, and 2010 and compared against the ODMDSSs 1-4 sediment sample results from the 2013 survey (USEPA, 2014). The concentrations of arsenic, nickel, beryllium, silver, zinc, selenium, and barium from 2013 exceeded the historical maximums within ODMDSSs 3 and 4. Sediment chemical analysis from the 2013 study found both arsenic and nickel at levels of concern. The arsenic and nickel concentrations exceeded the NOAA (National Oceanic and Atmospheric Administration) ERL (Effects Range Low) in sediments collected within and surrounding ODMDSSs 3 and 4. Sediment chemical concentrations above the NOAA ERL, but below the NOAA ERM (Effects Range Median) are not likely to be harmful to benthic organisms but are considered by EPA in the context of other evidence when making environmental management decisions. Selenium and barium concentrations in 2013 exceeded the

historical maximums at ODMDs 1 and 2. Data can be found in “Sabine-Neches ODMD Sites 1-4 Status and Trends-2013 Site Monitoring Assessment Report” (USEPA, 2014). The source for the increased arsenic and nickel concentrations observed in sediments is unknown and warrants further investigation (USEPA, 2014).

2.4.3 BIOLOGICAL CHARACTERIZATION

SNWW ODMDs are comprised of organisms living in both the water column and benthos. Water column biota include phytoplankton, zooplankton, and nekton; benthic biota is composed of infaunal and epifaunal organisms (USEPA, 1983).

The following excerpt is from USEPA (1983):

The Existing Sites [ODMDs 1-4] are between the shrimp spawning grounds of the Mid-Shelf and the important nursery area of Sabine Lake, therefore they could be passageways of commercially valuable species (EHA, 1979). However, the sites represent only a minor portion of the entire range of shrimp along the Gulf coast and thus would only affect a small percentage of the existing population. Many commercially and recreationally important species of fish also occur in this region; however, most recognized breeding and spawning grounds occur in the productive marshes and estuaries of the coastal region or in the midwater areas of the Gulf (Chittenden and McEachran, 1976).

USEPA (2014) survey report concluded that “the benthic macroinfaunal assemblages found at SNWW ODMDs 1-4 were typical for shallow water habitats in the Gulf of Mexico (Vittor, 2014).” Sites 1-4 were dominated by polychaete assemblages, primarily of genera *Mediomastus*, *Meredithia*, *Paraprionospio*, *Prinospio*, and *Cossura*.

Taxa richness and density were generally higher at ODMDs 1 and 2 than sites 3 and 4 (USEPA, 2014). The benthic community indices (Pielou, 1966), taxa richness and density, did not differ significantly between the disposal sites, nearby surrounding area, and reference sites for ODMDs 1, 2 and 4. For ODMD 3, taxa densities and richness at stations within the site where the 2012 disposal event occurred were found to be significantly higher than stations representing areas within the site that were not used during the 2012 disposal event. EPA R6 concluded that dredged material disposal at ODMDs 1 and 3 did not have an impact on benthic assemblages, because taxa richness and densities were higher at stations where dredged material was placed during the 2012 disposal event (USEPA, 2014).

For SNWW ODMDs A-D, PBS&J (2004) also found that for the vicinity of the ODMDs polychaetes were the most numerous organisms. The dominant taxa were *Spiophanes bombyx*, *Mediomastus* (LPIL), *Magelona*, and *Prionospio*.

2.4.4 DISCUSSION OF CRITICAL AMENITIES

The only biologically sensitive area near the SNWW ODMDs is the Sabine Bank, a sand bank located roughly 1.7 miles northwest of the northwest corner of ODMD A (Blum et al., 2002) and would not be impacted by the use of the ODMDs (PBS&J, 2010). There are no nearby fish havens, and the jetties, which provide excellent fish habitat, are more than 16 miles away (PBS&J, 2010). The nearest artificial reef is 6.6 miles from ODMD B (PBS&J, 2010). The only marine fish with Critical Habitat near the ODMDs is the Gulf sturgeon, which has a present range of Lake Pontchartrain and the Pearl River system in Louisiana east to the Suwannee River in Florida (68 FR 13370). The nearest portion of the Critical Habitat is Lake Pontchartrain east of the Lake Pontchartrain Causeway and is, therefore, not affected.

The NMFS issued a biological opinion on August 13, 2007, that the proposed activities of disposal at the “existing ODMDs” (1-4) and the “proposed ODMDs” (A-D) are unlikely to adversely affect sea turtles. The biological opinion also stated “furthermore, the disposal of dredged material will occur in areas that are not preferred sea turtle foraging grounds”. The biological opinion can be found in Appendix G of the Feasibility Report (USACE, 2011).

The following excerpt is from PB&J (2010) regarding ODMDs A-D:

“Since this is a short-term effect [disposal], and considering the mobility of the sea turtle species and the lack of limestone ledges in the proposed ODMDs, the sea turtles should easily be able to avoid a descending plume, and available food sources should not be seriously reduced (NOAA, 2003).”

2.5 REFERENCE SITE CHARACTERIZATIONS

Reference sediment is defined in the RIA as a sediment, “substantially free of contaminants, that is as similar as practicable to the grain size of the dredge material and the sediment at the disposal site, and that reflects the conditions that would exist in the vicinity of the disposal site had no dredged material disposal ever taken place but had all other influences on sediment conditional taken place. The reference sediment serves as a point of comparison to identify potential effects of contaminants in the dredged material.” (USEPA and USACE, 2003)

Reference sediment test results are an important point of comparison for determining suitability of a dredging project's sediments for disposal at each of the SNWW ODMDSSs (1-4 and A-D for a total of eight sites). Sediment from a proposed dredging project and from the reference area are collected according to an approved sampling and analysis plan. Section 5 of the Region 6 Regional Implementation Agreement (RIA) provides additional guidance on sample design and approach.

The three SNWW reference sites were selected to be used with specified SNWW ODMDSSs. Reference Site 1&2 is for use with ODMDSSs 1 and 2 and is located east of the Sabine Bank Channel. Reference Site 3&4 is for use with ODMDSSs 3 and 4 and is located northeast of the Sabine Bank Channel. Reference Site A-D is for use with ODMDSSs A, B, C and D and is located east of the Extension Channel. All three reference sites are shown on Figure 1 above. Reference site coordinates and particle size distributions are presented in Appendix A.

2.6 SNWW HISTORICAL AND FUTURE SITE USE

Dredged material has been disposed of at SNWW ODMDSSs 1-4 since 1976; ODMDSSs A-D have not yet received any dredged material at the time this SMMP was issued.

Historically, the dredging frequency for this navigation project ranges from one year for the Outer Bar Channel to 5 years for the Jetty Channel, with an average of about 3.5 MCY (million cubic yards) of material excavated per dredging contract. Dredging occurs on at least one channel segment of the SNWW every 18 months. After the completion of the deepening and widening project, the proposed future maintenance dredging quantities for ODMDSS 1-4 would be 10.5 MCY of dredged material from the extension channel on a frequency specific to that channel section and 7.4 MCY of dredged material from the existing channel maintenance on a frequency specific to that channel section. ODMDSSs A-D would receive a total of 3.0 MCY of dredged material on a 4-year cycle from the extension project maintenance (PBS&J, 2010). It is anticipated that the volume of new work dredged material from the channel improvement project, estimated at 50 MCY, will be distributed over the 8 designated ODMDSSs with material being placed in ODMDSSs closest to their channel stations.

At the time this SMMP was issued, the ODMDSSs had only received dredged material from the federally maintained Sabine-Neches Waterway. Material from other sources is not currently disposed at these sites, and none is expected in the foreseeable future. Records of disposal history for each of the sites 1-4 are included in Appendix A.

3 SITE MANAGEMENT

Appropriate management of an ODMDS is aimed at assuring that disposal activities do not unreasonably degrade or endanger human health, welfare, the marine environment or economic potentialities (MPRSA §103(a)). The primary objectives in the management of these ODMDSs are:

- Protection of the marine environment, which includes:
 - No unacceptable physical, chemical, or biological impacts inside or outside the disposal site
 - Adequate site monitoring to detect environmental impacts
- Documentation of disposal activities and compliance with permit and/or contract conditions
- Only material meeting suitability requirements of the MPRSA/EPA/USACE Dredged Material Testing Manual (Green Book)/RIA is disposed within the designated disposal site
- Identification of special management conditions to be implemented by EPA and the USACE and those to be required in contracts/permits
- Maintenance of a long-term disposal alternative for dredged material, while encouraging beneficial use of dredged material where practicable
- Identification of a schedule or condition triggering a review or renewal of this SMMP.

3.1 DREDGED MATERIAL QUALITY VERIFICATION

Before any person can dispose of dredged material at any of the eight SNWW ODMDSs, EPA and the USACE must evaluate the project according to the ocean dumping regulatory criteria (40 CFR 227) and the USACE must authorize the disposal under section 103 of the MPRSA. EPA and the USACE agree on the sampling and analysis plan for each project prior to any samples of the material to be dredged being collected. The USACE relies on EPA's ocean disposal criteria when evaluating permit requests for (and implementing federal projects involving) the transportation of dredged material for the purpose of disposal into ocean waters and making a determination of the suitability of the dredged material. MPRSA permits and federal projects involving ocean disposal of dredged material are subject to EPA's review and concurrence in accordance with 33 U.S.C. § 1413(c). EPA may concur with or without conditions or decline to concur (i.e., non-concur) on the permit or federal project authorization. If EPA concurs with conditions, the final

permit or authorization must include those conditions. If EPA declines to concur, the USACE cannot issue the permit for ocean disposal of dredged material or authorize the transportation to and disposal of dredged material in the ocean associated with the federal project.

According to the RIA (USEPA and USACE, 2003), MPRSA permits for, and federal projects involving, the transportation of dredged material for the purpose of disposal into ocean waters may not exceed five years.

The process for determining the suitability of dredged material proposed for disposal at the eight SNWW ODMDs is described in the EPA/USACE Dredged Material Testing Manual (USEPA and USACE, 1991) and the RIA (USEPA and USACE, 2003) and includes:

- 1) Case-specific evaluation against the exclusion criteria (40 CFR 227.13(b)),
- 2) Determination of the need to test non-excluded material based on the time since previous testing and the potential of sediment contamination since last verification, and
- 3) Conducting required testing to determine the suitability of the material for ocean disposal.

Only material determined to be suitable and in compliance with the Ocean Dumping Criteria (40 CFR Part 227) may be considered for transportation and disposal in any of the SNWW ODMDs.

The Sabine-Neches Waterway currently has three sections from which material is dredged and then disposed of in ODMDs 1-4. The maintenance material dredged from Sabine Pass Channel averages 89% silt/clay and 11% sand. Material dredged from Sabine Pass Outer Bar Channel averages 96% silt/clay and 4% sand, while material dredged from the Sabine Bank Channel averages 76% silt/clay and 24% sand (Parchure et al., 2005).

The Sabine-Neches Waterway Channel Improvement Project (SNWW CIP) is made up of inland and open water segments; 10% of the project is the inland segment and 90% of the project is open water. Grain size analyses for the new work material shows a grain size distribution of 1.4% gravel, 7.4% sand, 30.1% silt and 61.1% clay for the inland portion representing 10% of the project area. The remaining materials from open water segments of the project area are composed of 4.4% sand, 25.6% silt and 70.0% clay representing 5% of project area; 0.1% gravel, 25.7% sand, 23.5% silt and 50.7% clay representing 25% of the project area; and 0.1% gravel, 15.3% sand,

45.8% silt and 38.9% clay representing 60% of the project area (Montgomery et al., 2020).

3.2 DISPOSAL REQUIREMENTS

The eight SNWW ODMDs were designated by EPA through promulgation in the Ocean Dumping Regulations and are listed at 40 CFR part 228.15(j)(8) through (11) and (22) through (25).

SNWW Sites 1-4 (see in Section 228.15(j)8-11) have the following restriction:

- Disposal shall be limited to dredged material from the Sabine-Neches area.

SNWW Sites A-D (see Section 228.15(j)22-25) have the following restrictions:

- Disposal shall be limited to dredged material from the Sabine-Neches 13.2-mile Extension Channel that complies with EPA's Ocean Dumping Regulations.
- Dredged material that does not meet the criteria set forth in 40 CFR part 227 shall not be placed at the site.
- Disposal operations shall be conducted in accordance with requirements specified in a Site Management and Monitoring Plan developed by EPA and USACE, to be reviewed periodically, at least every 10 years.

This SMMP describes the disposal operation conditions that will be considered for management of all eight of the SNWW ODMDs (not just A-D) as described in 40 CFR Section 228.15(j)22-25.

Enforceable conditions for dredged material disposal operations at the eight SNWW ODMDs are included in USACE-issued permits and authorizations for Federal projects, based on EPA's and USACE's identification of necessary conditions under MPRSA Section 103(a) or 103(e), or through EPA's concurrence under 103(c) of the MPRSA, and the ocean dumping regulations at 40 CFR Parts 220-228. The following summary provisions of this SMMP and the template language in Appendix B are intended to be applicable to dredging projects permitted by USACE (federal and non-federal), or to USACE-authorized Federal dredging projects, whether using Government owned and operated dredging equipment such as the Wheeler hopper dredge or using contracted equipment.

Conditions and reporting requirements become enforceable when and as specified or confirmed by EPA in its ocean disposal concurrence letters for individual projects and would be in addition to any other conditions USACE may include in its MPRSA Section

103 permits or authorizations. In the event of any conflict or inconsistency between the conditions in EPA's project-specific concurrence letter and the most recent SMMP, the former establishes the enforceable obligations. EPA may determine not to include one or more of the conditions identified in the Appendix, or to require additional conditions, on a project-specific basis. Otherwise, EPA intends to apply many of the conditions (along with any supplemental conditions included in EPA concurrence letters) as conditions in concurrence actions for all projects involving transportation and disposal of dredged material at any of the eight SNWW ODMDs. Violations of the MPRSA, including conditions established in an MPRSA permit or federal and non-federal project authorization by a permittee or dredging contractor are subject to compliance action including suspension of disposal operations, or possible assessment of substantial administrative, civil, or criminal penalties as appropriate.

3.2.1 OCEAN DUMPING CRITERIA (ODC) COMPLIANCE PROCESS

Only material determined to be suitable and in compliance with the Ocean Dumping Criteria (40 CFR Part 227) may be considered for transportation and disposal in the SNWW ODMDs. Projects that are not Federal Civil Works, or other federal projects involving ocean disposal of dredged material, require an ocean disposal permit issued by the USACE pursuant to Section 103 of the MPRSA. Federal Civil Works projects, though not required to have a permit, must adhere to the same criteria, factors to be evaluated, procedures, and requirements that apply to permits, including the process for evaluation of the project, and must receive EPA's concurrence prior to awarding any contract for transportation and disposal of dredged material at an ODMD. A summary of the permitting process can be found at: <https://www.epa.gov/ocean-dumping/ocean-disposal-dredged-material>.

3.2.2 DISPOSAL LOCATIONS

The regulation at 40 CFR §227.28 requires that all disposals occur at least 330 feet (100 meters) inside ODMD boundaries. A buffer zone of 500 feet will be implemented for all eight SNWW sites to ensure that the dredged material is deposited within the site boundaries. Release zones within the sites will be established by EPA and the USACE on a project specific basis at the time of site use to maintain compliance with the Ocean Dumping Criteria set forth in 40 CFR Part 227. This specificity will allow the historical data associated with maintenance material to be utilized as well as new data that may be generated for new work and third-party dredging projects. Disposal will be initiated within the applicable release zone boundary and completed (i.e. doors closed) prior to

leaving the ODMDs. Disposal methods, which prevent mounding of dredged materials from becoming an unacceptable navigation hazard, must be used.

3.2.3 DISPOSAL TRACKING

For all permits and projects, an automated disposal tracking system must be utilized. The Electronic Tracking System (ETS) will provide surveillance of the transportation and disposal of dredged material. The ETS will be maintained and operated to continuously track the horizontal location and draft condition (accuracy ± 0.1 foot) of the disposal vessel from the point of dredging or loading to the disposal site and return to the point of dredging or loading. Data shall be collected at least every 0.25 nautical mile or every 4 minutes during travel to and from the ODMDs and every 12 seconds or every 30 feet of travel while within the ODMDs. The tracking system must also indicate and record the time and location of the beginning and end of each disposal event (e.g., opening and closing of hull or doors). Data recorded from the disposal tracking system must be provided to EPA Region 6, the Galveston District USACE, and any other requirements identified within the dredging contract at a minimum on a weekly basis during disposal operations. For each disposal trip the records shall include disposal trip number and date, estimated volume of material disposed, and a visual display of the beginning and ending locations of the disposal event relative to the disposal zone.

3.2.4 INFORMATION MANAGEMENT OF DREDGED MATERIAL DISPOSAL ACTIVITIES

As part of site management, EPA and the USACE will continue to investigate implementable, practical, and applicable alternatives for appropriate data management. The USACE has an Ocean Disposal Database (<https://odd.el.erdc.dren.mil/>) maintained by the Engineering Research and Development Center (ERDC). This database provides the quantities disposed of at the eight SNWW ODMDs and whether the project is from a civil works project or private entity. EPA Region 6 and USACE Southwestern Division (SWD) have agreed on using an extensible Markup Language (XML) standard for sharing of disposal monitoring data (see also Section 4.6).

4 SITE MONITORING

Under the SMMP, site monitoring is conducted to ensure the environmental integrity of a disposal site and the areas surrounding the site, as well as to verify compliance with the site designation criteria, any special management conditions, and 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 program is to provide the following:

- Information indicating whether the disposal activities are occurring in compliance with the permit and site restrictions;
- Information indicating the short-term and long-term fate of materials disposed of in the marine environment.
- Information concerning the short-term and long-term environmental impacts of the disposal;

The main purpose of a disposal site monitoring program is to determine whether dredged material site management practices, including disposal operations, at the site need to be changed to avoid significant adverse impacts.

4.1 BASELINE MONITORING

The results of investigations presented in the designation EIS (USEPA, 1983) and subsequent surveys listed in Table 1 serve as the main body of data for the monitoring of impacts associated with use of the SNWW ODMDs and serve, in part, as baseline data for future use of the ODMDs.

Bathymetric surveys will be required to monitor the mounding to ensure a navigation hazard is not produced, to assist in verification of material disposal, to monitor bathymetry changes and trends, and to ensure that the site capacity is not exceeded, i.e., the dredged sediment does not exceed the site boundaries on disposal.

For all permits and projects, the USACE and permittees will conduct bathymetric surveys along transects spaced at 500-foot intervals or less to a degree in which the number and length shall be sufficient to encompass the defined disposal zone within the SNWW ODMDs and a 500-foot-wide area around the periphery of the disposal zone. Transects shall be taken perpendicular to the channel with a depth recording density of 20 to 70 feet. The minimum performance standards for bathymetric surveys are as follows:

- Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either microwave line of sight system or differential global positioning system.
- Vertical datum will be referenced to prescribed NOAA Mean Lower Low Water (MLLW) datum.
- Horizontal datum shall be referenced to the local State Plane Coordinate System (SPCS) for that area or in Geographic Coordinates (latitude-longitude).

- Horizontal reference datum shall be the North American Datum of 1983 (NAD 83). State Plane coordinates shall be reported to the nearest 0.10 foot and latitude and longitude coordinates shall be reported as degrees and decimal minutes to the nearest 0.01 minutes.

All data shall be collected using methodology described in Engineer Manual EM 1110-2-1003. (https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1003.pdf).

Pre-disposal bathymetric surveys will be conducted by the USACE or site user within three (3) months of project disposal. Post-disposal bathymetric surveys will be conducted as described in Section 4.3. Results from post- and pre-dredge bathymetry shall be provided to EPA R6 when completed as part of the post disposal summary report.

4.2 DISPOSAL MONITORING

All permits and projects will require use of an electronic tracking system (ETS). An ETS provides surveillance of the transportation and disposal of dredged material. The ETS shall consist of a visual display of the beginning and ending locations of the disposal event relative to the disposal zone and shall be maintained and operated to continuously track the horizontal location and draft condition (accuracy \pm 0.1 foot) of the disposal vessel (i.e. hopper dredge or disposal scow) from the point of dredging to the disposal site and return to the point of dredging. Data shall be collected at least every 0.25 nautical mile or every four minutes during travel to and from the ODMDS and every 12 seconds or every 30 feet of travel within the ODMDS and while hull status is open. In addition to the continuous tracking data, the following trip information shall be electronically recorded for each disposal cycle:

- Load Number
- Disposal Vessel Name and Type (e.g. scow)
- Estimated volume of Load
- Description of Material Disposed
- Source of Dredged Material
- Date, Time and Location at Initiation and Completion of Disposal Event

It is expected that disposal monitoring will be conducted utilizing the Dredge Quality Management (DQM) system [i.e., <http://dqm.usace.army.mil/Specifications/Index.aspx>], or equivalent acceptable system. Disposal monitoring ETS data will be reported to EPA Region 6 on a weekly

basis utilizing the eXtensible Markup Language (XML) specification and protocol as described above.

EPA Region 6 and the USACE Galveston District shall be notified within 24 hours (or the next business day) if any apparent leaking or spilling of dredged material occurs as indicated by an average loss of draft during transit from the dredging area to the disposal release zone(s) in excess of 2.0 feet. An average loss of draft transit is defined as forward draft loss plus aft draft loss divided by 2. In addition, the permittee understands that no debris is to be placed in the SNWW ODMDs. Alerts must be sent via email within 24 hours of USACE or the permittee becoming aware of the apparent issue. Both for federal and non-federal projects, the USACE representative must send the notification via email to the EPA Region 6 Ocean Dumping Coordinator and pertinent Ocean Dumping Program Staff (<https://www.epa.gov/ocean-dumping/forms/regional-contacts-ocean-dumping-management-program>). If the event occurs on the weekend or holiday, notification shall take place the following business day. If EPA deems the event warrants further investigation, they will contact USACE and the USACE representative will follow up in a timely manner with a letter of justification, including how the incident occurred, how the issue will be addressed, pertinent dates, and corrective actions to be implemented to prevent repetition in the future.

4.3 POST DISPOSAL MONITORING REQUIREMENTS

For all permits and projects, the USACE and other site users will be required to conduct a post-disposal bathymetric survey consistent with pre-disposal survey requirements within 45 days after disposal project completion. If a release zone is utilized and adhered to, the number and length of transects required will be sufficient to encompass the release zone and a surrounding 500-foot wide buffer zone.

4.4 DISPOSAL EFFECTS MONITORING

Based on the type and volume of material disposed, various monitoring techniques can be used to examine if the disposed dredged material is moving and in what direction.

There are also techniques to assess potential environmental effects that the material is having on the site and adjacent areas. A tiered approach will be used to determine the level of monitoring effort required following each disposal event. With a tiered approach, an unacceptable result may trigger further and more complex monitoring. The monitoring program for the eight SNWW ODMDs is structured to address

specific questions (hypotheses) and measure key indicators and endpoints, particularly those defined during site designation or specific project issues.

At a minimum, bathymetry will be required to be conducted after all disposal events, and detailed summary project reports will certify either total compliance with all disposal requirements, or explain when and where any deviations occur and a description of actions taken to remedy the cause for such deviations.

At a minimum, a Trend Assessment Survey (40 CFR 228.13) will be conducted approximately every ten years. The Trend Assessment surveys focus on changes in overall health and viability of the benthic communities over time and compare areas where disposal has occurred to areas where it has not. Such a survey will be used to detail temporal changes that may be occurring across benthic communities in the northern Gulf of Mexico relative to the ODMDs.

EPA R6 Ocean Dumping Team will continue to use the phased approach to suggest appropriate monitoring techniques and level of monitoring required for a specific action. Team suggestions are based on type of disposal activity (i.e., maintenance vs. construction), quality of material, location of disposal activity within an ODMD, or quantity of material. EPA and USACE will ultimately determine the actual monitoring activities to be required.

Future surveys will focus on determining the rate and direction of disposed dredged material dispersal and the capacity of the ODMDs. Should future disposal at the SNWW 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, this SMMP may be revised based on the outcome of the monitoring program.

4.5 SITE MONITORING PLAN SUMMARY

The table below (Table 2) describes all routine monitoring activities that are currently planned for the sites as well as actions that may occur if a threshold for any of the routine monitoring is exceeded.

Table 2 Site Monitoring Strategies and Thresholds for Action

Goal	Technique	Responsible Entity	Rationale	Frequency	Threshold for Action	Threshold Not Exceeded	Threshold Exceeded
Monitor Bathymetric Trends	Bathymetry	USACE and Site User	Determine the extent of the disposal mound and major bathymetric changes.	Post-Disposal for projects	Disposal mound occurs outside ODMS boundaries.	Continue monitoring.	-Modify disposal method/disposal. -Restrict disposal volumes.
Model Bathymetric Capacity	Bathymetry and modeling	USACE or Site User	Determine that large project volumes can be accommodated based on most recent bathymetry.	All projects	Verify that disposal will remain in the ODMS at proposed (maximal) volume.	No action.	-Modify disposal. -Restrict disposal volumes. -Expand or modify the site.
Benthic Effects Monitoring & Trend Assessment (40 CFR §228.13)	Sediment Mapping (Gamma/ CS ³) Water and Sediment Quality, Benthic Community Analysis (40CFR §228.13)	EPA	Determine areal influence of dredged material. Periodically evaluate the impact of disposal on the marine environment (40CFR §228.9).	Approximately every 10 years.	-Absence of pollution sensitive biota from the site. -Progressive non- seasonal changes in water or sediment quality.	Continue monitoring on prescribed schedule.	-Conduct Environmental Effects Monitoring or Advanced Environmental Effects Monitoring. -Review dredged material evaluation procedures and amend, if necessary. -Discontinue site use. -De-designate site.

Goal	Technique	Responsible Entity	Rationale	Frequency	Threshold for Action	Threshold Not Exceeded	Threshold Exceeded
Ensure Safe Navigation Depth & Monitor Bathymetric Trends	Bathymetry	Site User	Determine height of mound and any excessive mounding.	Pre & Post disposal for projects	Mound height greater than 10 feet from existing bottom elevation	Continue Monitoring.	<ul style="list-style-type: none"> -Modify future disposal method or disposal -Restrict disposal volumes
Compliance	Disposal Site Use Records & DQM data	Site User	Ensure management requirements are being met.	Continuously during the project with weekly reports to project manager/EPA.	<ul style="list-style-type: none"> -Disposal records required by EPA/USACE are not submitted or are incomplete. -Review of records indicates a disposal occurred outside ODMDS boundary, excessive leakage en route to disposal. 	<ul style="list-style-type: none"> -Disposal records required by SMMP are not submitted or are incomplete. -Continue constant monitoring and reporting. 	<ul style="list-style-type: none"> -Restrict site use until requirements are met. -Notify EPA Region 6 & USACE and investigate why non-compliance occurred. -Verify corrective actions to be enacted; or -Take appropriate enforcement action.

¹ Significantly elevated: Concentrations above the range of contaminant levels in dredged sediments that the Regional Administrator and the District Engineer found to be suitable for disposal at the ODMDS.

² Examples of sub-lethal effects include without limitation the development of lesions, tumors, development abnormality, and/or decreased fecundity

4.6 REPORTING AND DATA FORMATTING

4.6.1 PROJECT INITIATION AND VIOLATION REPORTING REQUIREMENTS

The USACE (or other site user) will notify EPA at least 15 days prior to the beginning of a dredging cycle or disposal project. The user also will be required to notify the USACE and EPA within 24 hours if a violation of the permit and/or contract conditions related to required terms of the permit or project authorization occur during disposal operations.

Alerts regarding any degree of apparent disposal outside the Sabine-Neches Waterway ODMS boundaries, and/or regarding any apparent substantial leakage/spillage or other loss of material on route to the SNWW ODMSs must be sent via email within 24 hours of USACE or the permittee becoming aware of the apparent issue. Both for federal and non-federal projects, the USACE representative must send the notification via email to the EPA Region 6 Ocean Dumping Coordinator and pertinent Ocean Dumping Program Staff (<https://www.epa.gov/ocean-dumping/forms/regional-contacts-ocean-dumping-management-program>). If the event occurs on the weekend or holiday, notification shall take place the following business day.

If EPA deems the event warrants further investigation, the USACE representative will follow up in a timely manner with a letter of justification, including how the incident occurred, how the issue will be addressed, pertinent dates, and corrective actions to be implemented to prevent repetition in the future.

4.6.2 DISPOSAL MONITORING DATA

Disposal monitoring will be conducted ideally utilizing the Dredge Quality Management (DQM) system (see <http://dqm.usace.army.mil/Specifications/Index.aspx>), although other systems are acceptable. The USACE will provide (or require another user to provide) disposal monitoring data to EPA Region 6 electronically on a weekly basis, per EPA Region 6 XML format and delivered as an email attachment. The XML format is available from EPA Region 6.

4.6.3 POST-DISPOSAL SUMMARY REPORTS

A site user will be required to provide a Post-Disposal Summary Report to EPA within 90 days after project completion. Post-Disposal reports will be required to include: vessel name, disposal start and end dates and times; dredging project; volume disposed, number of loads completed, type of material disposed; name of contractor conducting the work, permit and/or contract number; identification of any misplaced material; and dates of bathymetric surveys of the ODMSs. The disposal summary

reports must be submitted with the bathymetry survey results (contour plot and X, Y, Z ASCII data file).

4.6.4 ENVIRONMENTAL MONITORING DATA

EPA and/or the USACE will coordinate material tracking, disposal effects monitoring and any other data collected and provided to federal and state agencies as appropriate. The report should indicate how the survey relates to the SMMP and previous surveys at the SNWW ODMDs and should provide data interpretations, conclusions, and recommendations, and should project the next phase of the SMMP. Monitoring results will be summarized in subsequent modifications to the SMMP posted to EPA's website (<https://www.epa.gov/ocean-dumping>).

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APPENDIX A SITE CHARACTERIZATION

Table A1 SNWW ODMDSS Buffer and Disposal Zone Boundary Coordinates (NAD83)

	Buffer Zone Latitude	Buffer Zone Longitude	Disposal Zone Latitude	Disposal Zone Longitude
ODMDS 1	29°28'03"N	93°41'14"W	29°27'54.15"N	93°41'20.24"W
	29°26'11"N	93°41'14"W	29°26'16.79"N	93°41'20.24"W
	29°26'11"N	93°44'11"W	29°26'16.79"N	93°43'54.11"W
ODMDS 2	29°30'41"N	93°43'49"W	29°30'36.37"N	93°43'51.35"W
	29°28'42"N	93°41'33"W	29°28'47.79"N	93°41'47.24"W
	29°28'42"N	93°44'49"W	29°28'47.78"N	93°44'47.24"W
ODMDS 3	29°30'08"N	93°46'27"W	29°30'06.06"N	93°46'16.45"W
	29°34'24"N	93°48'13"W	29°34'17.86"N	93°48'13.43"W
	29°32'47"N	93°46'16"W	29°32'46.27"N	93°46'22.95"W
	29°32'06"N	93°46'29"W	29°32'10.90"N	93°46'34.16"W
ODMDS 4	29°31'42"N	93°48'16"W	29°31'48.30"N	93°48'14.95"W
	29°32'59"N	93°49'48"W	29°32'59.93"N	93°49'40.54"W
	29°38'09"N	93°49'23"W	29°35'13.30"N	93°50'21.63"W
	29°35'53"N	93°48'18"W	29°36'35.17"N	93°51'02.12"W
	29°35'06"N	93°50'24"W	29°36'58.08"N	93°49'59.35"W
ODMDS A	29°36'37"N	93°51'09"W	29°37'44.08"N	93°50'19.35"W
	29°37'00"N	93°50'06"W	29°38'03.32"N	93°49'26.63"W
	29°37'46"N	93°50'26"W	29°35'56.43"N	93°48'25.98"W
	29°24'47"N	93°43'29"W	29°24'42.05"N	93°43'23.34"W
ODMDS B	29°24'47"N	93°41'08"W	29°24'42.05"N	93°41'13.69"W
	29°22'48"N	93°41'09"W	29°22'52.98"N	93°41'14.60"W
	29°22'49"N	93°43'29"W	29°22'53.90"N	93°43'23.34"W
ODMDS C	29°21'59"N	93°43'29"W	93°43'23.34"W	93°43'23.34"W
	29°21'59"N	93°41'08"W	93°41'13.69"W	93°41'13.69"W
	29°20'00"N	93°41'09"W	93°41'14.60"W	93°41'14.60"W
ODMDS D	29°20'00"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
	29°19'11"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
	29°19'11"N	93°41'09"W	93°41'14.64"W	93°41'14.64"W
ODMDS E	29°17'12"N	93°41'09"W	93°41'14.64"W	93°41'14.64"W
	29°17'12"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
	29°16'22"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
ODMDS F	29°16'22"N	93°41'10"W	93°41'15.64"W	93°41'15.64"W
	29°14'24"N	93°41'10"W	93°41'15.64"W	93°41'15.64"W
	29°14'24"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W

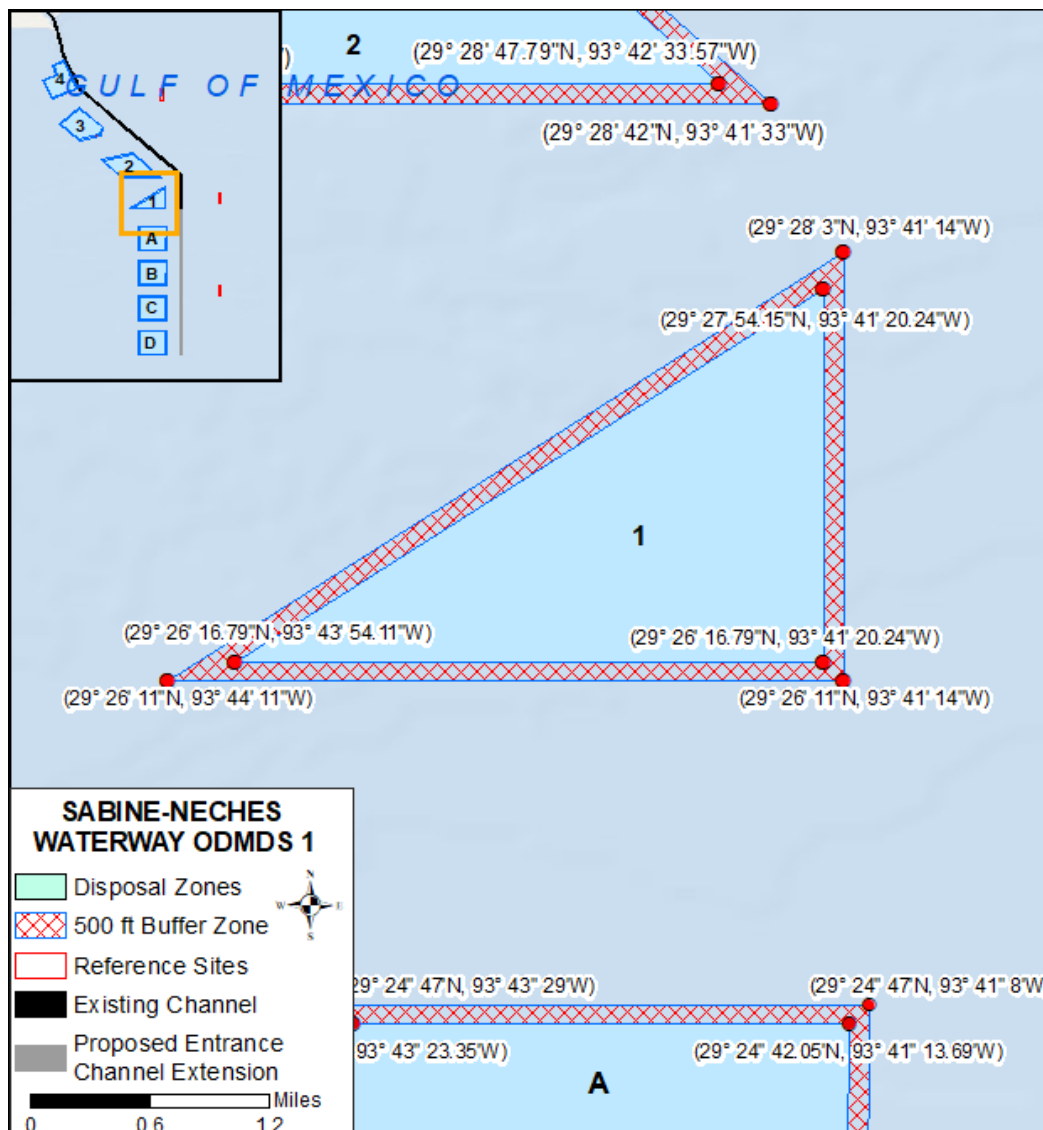


Figure A1 Sabine-Neches Waterway ODMDs 1

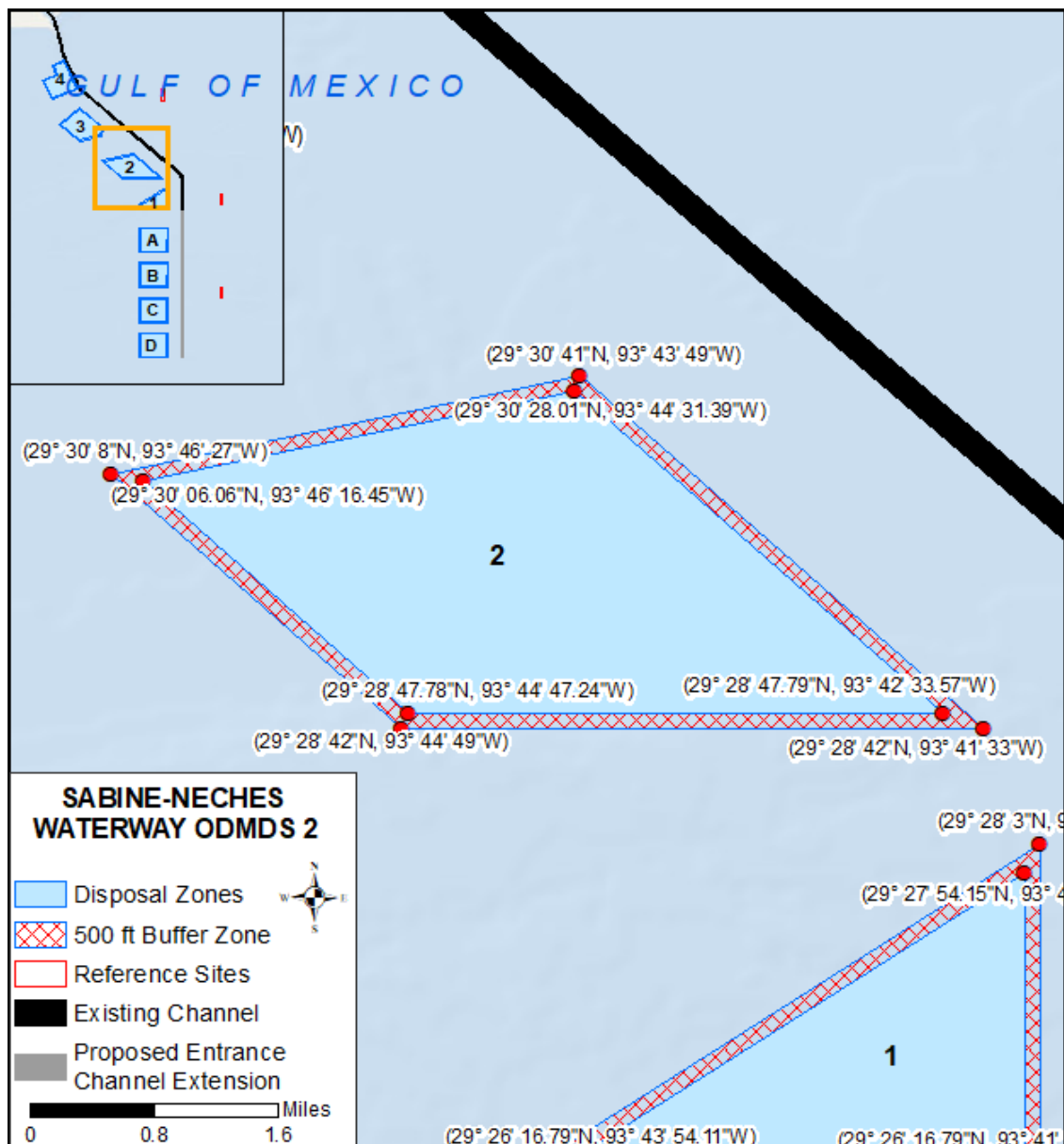


Figure A2 Sabine-Neches Waterway ODMDS 2

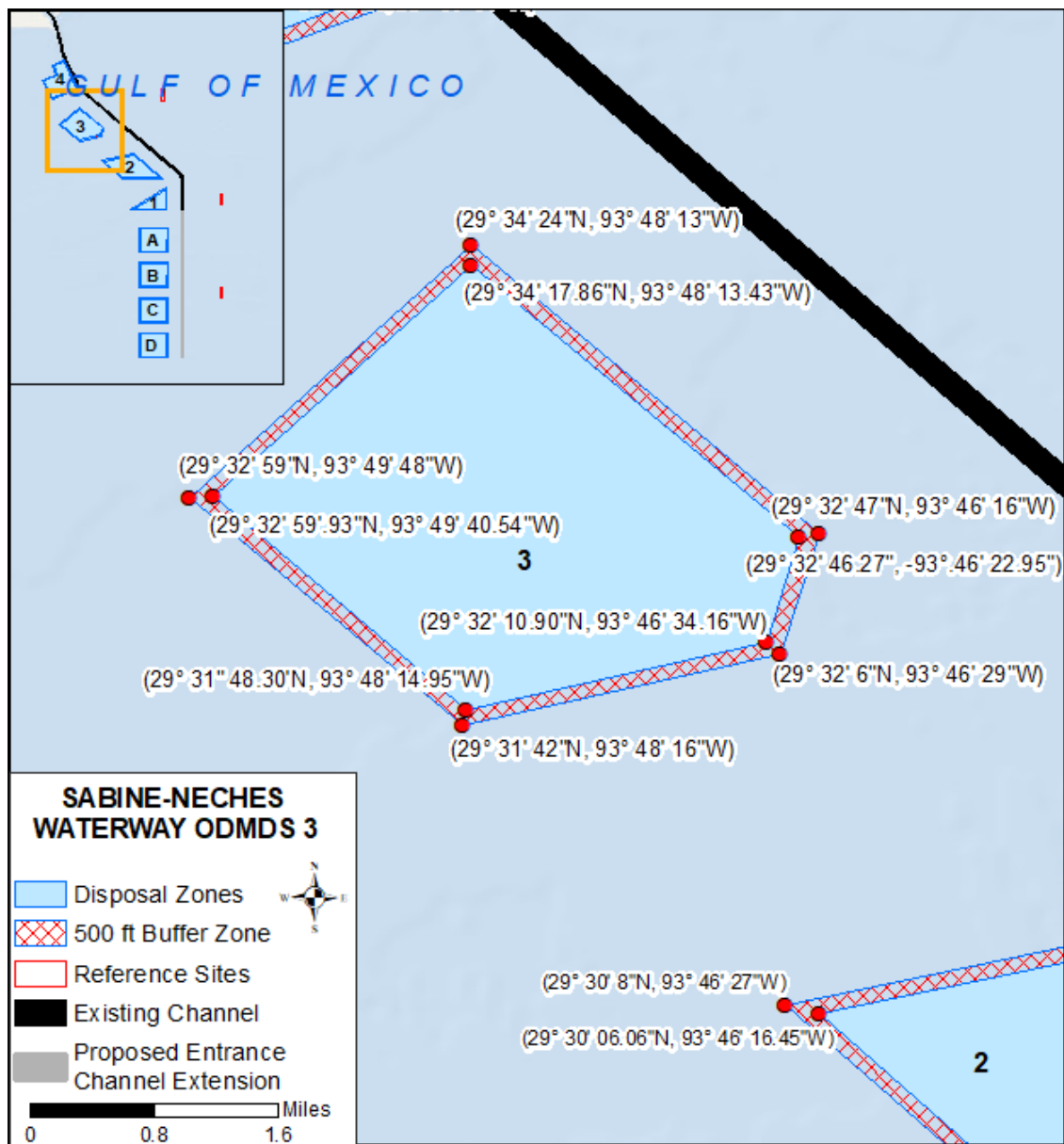


Figure A3 Sabine-Neches Waterway ODMDS 3

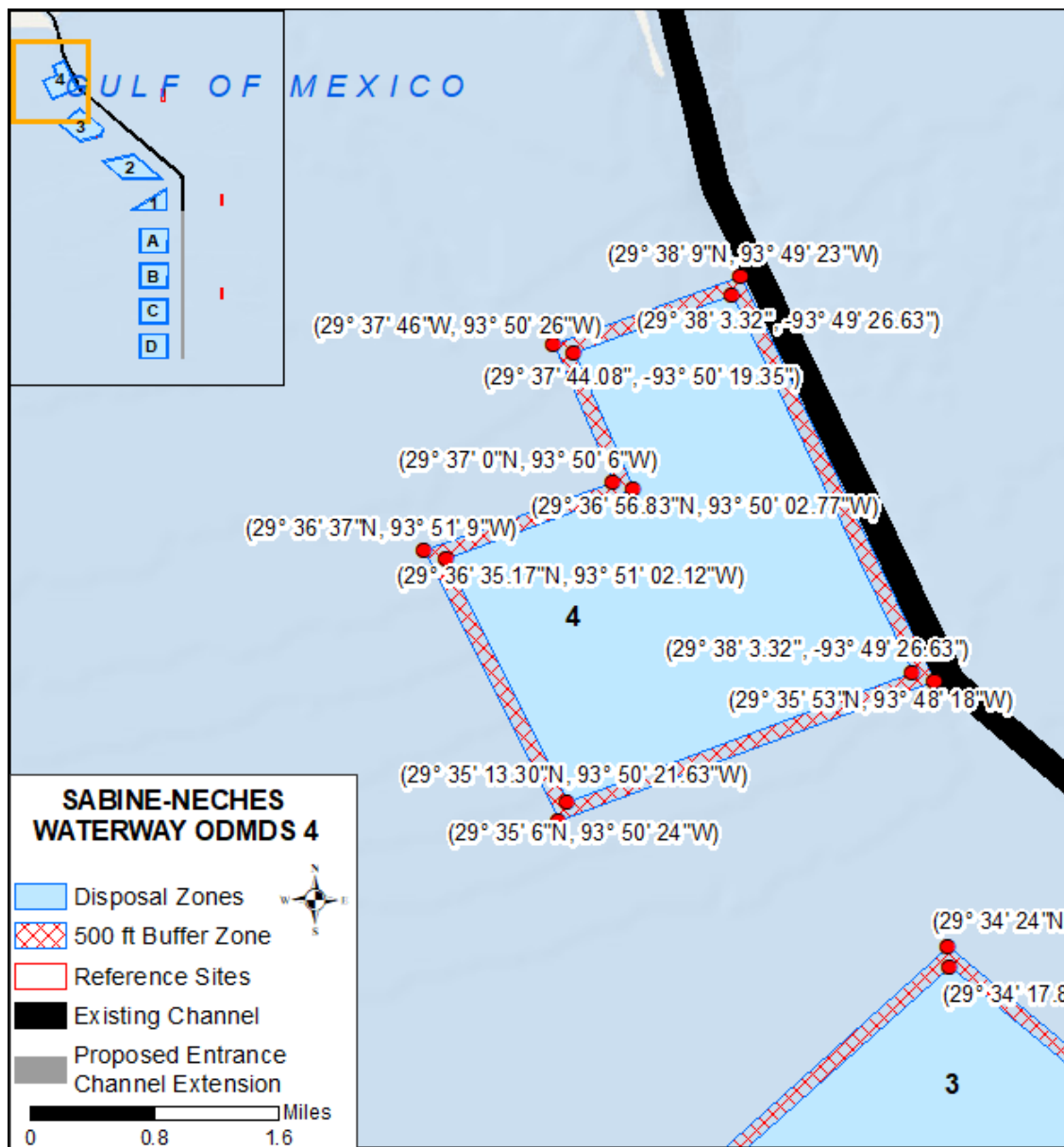


Figure A4 Sabine-Neches Waterway ODMDS 4

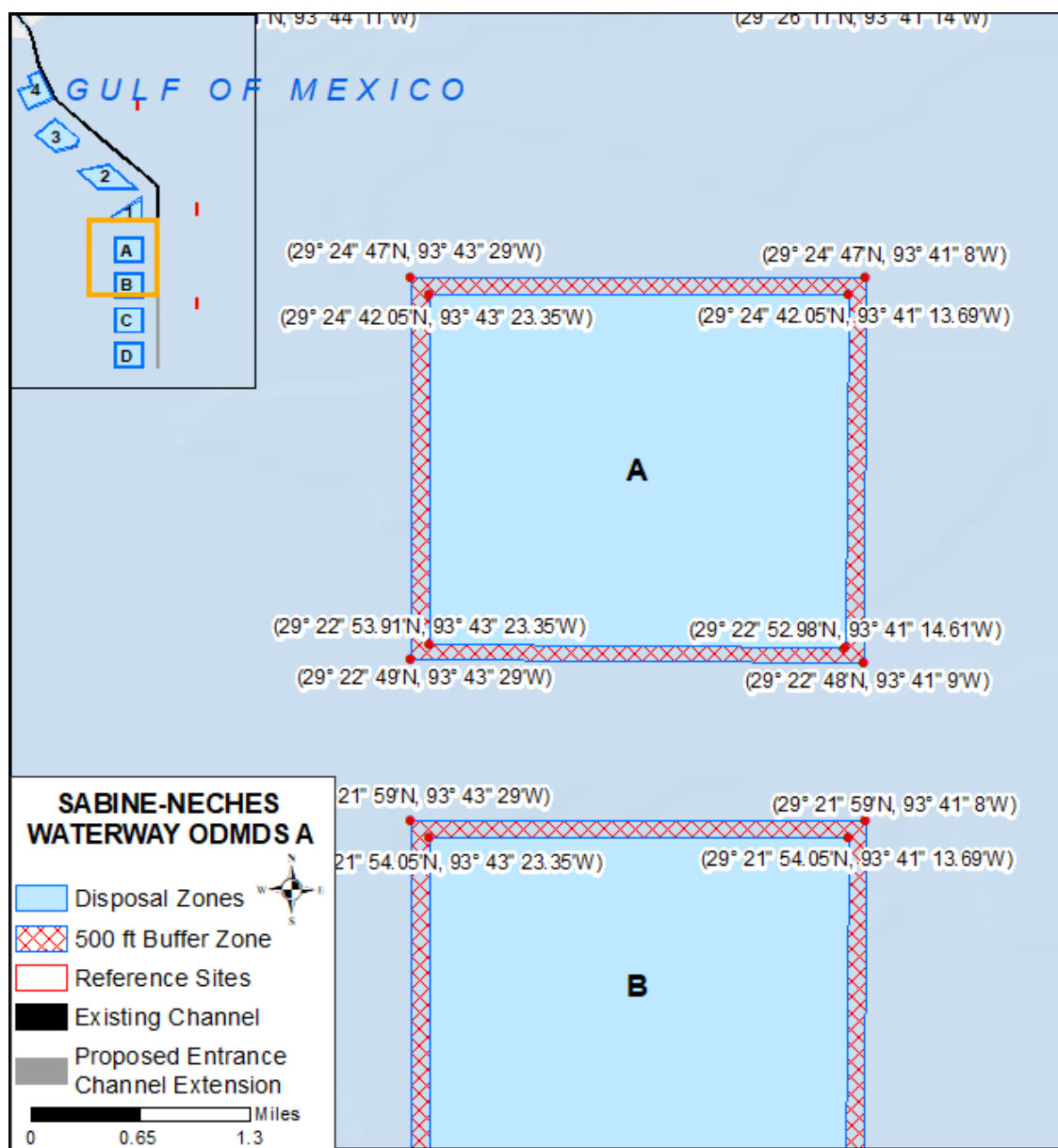


Figure A5 Sabine-Neches Waterway ODMDS A

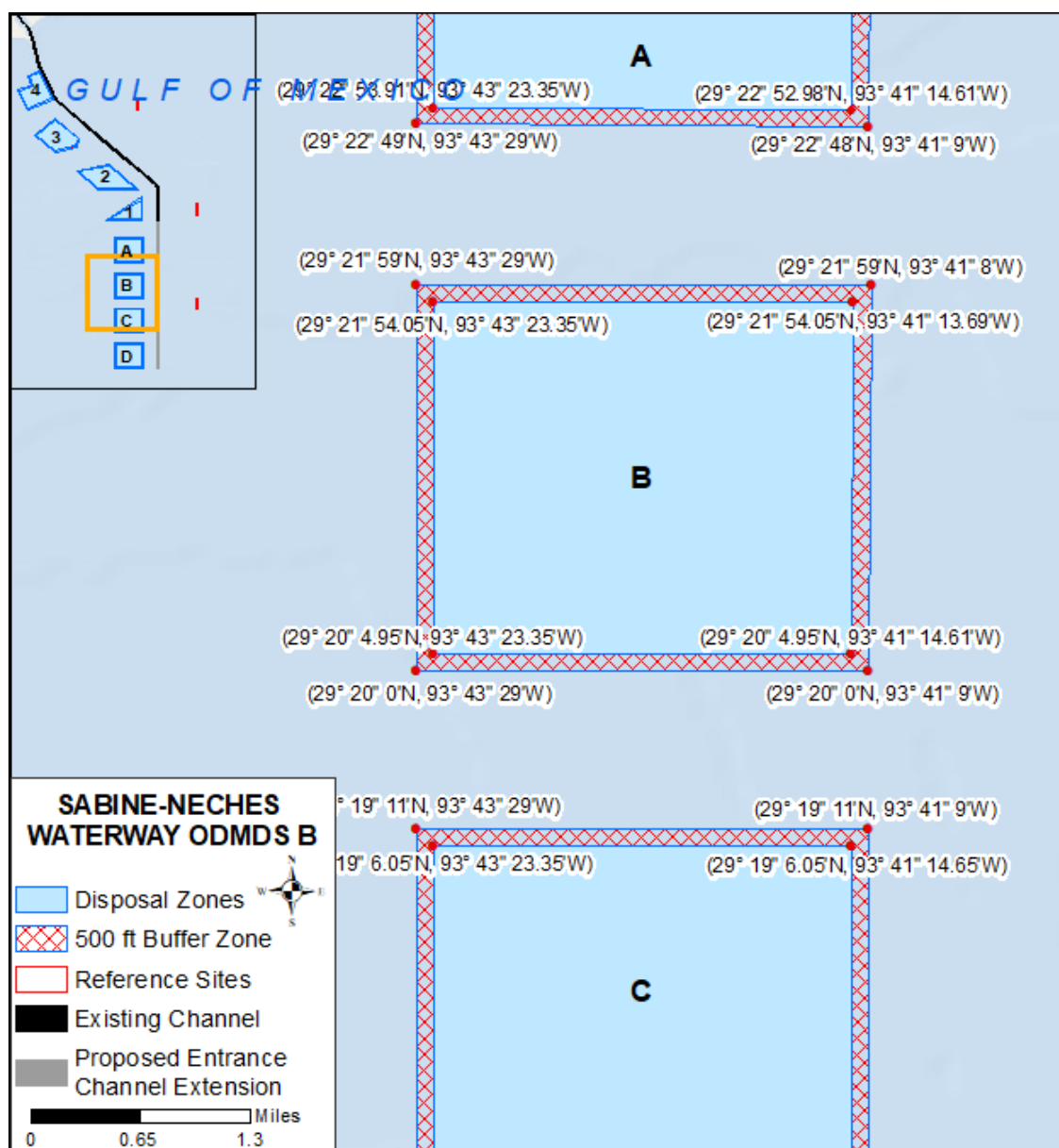


Figure A6 Sabine-Neches Waterway ODMDS B

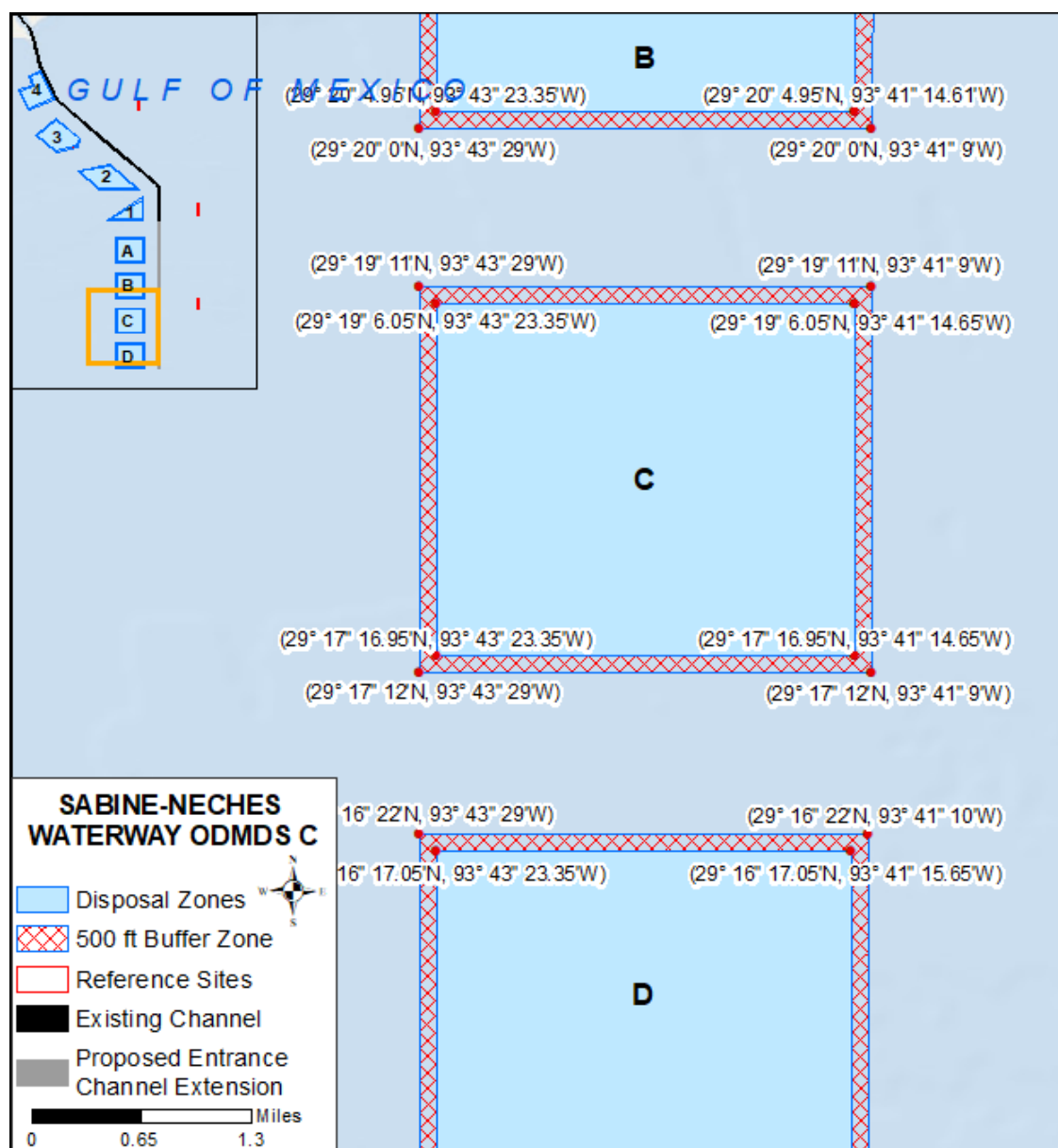


Figure A7 Sabine-Neches Waterway ODMDs C

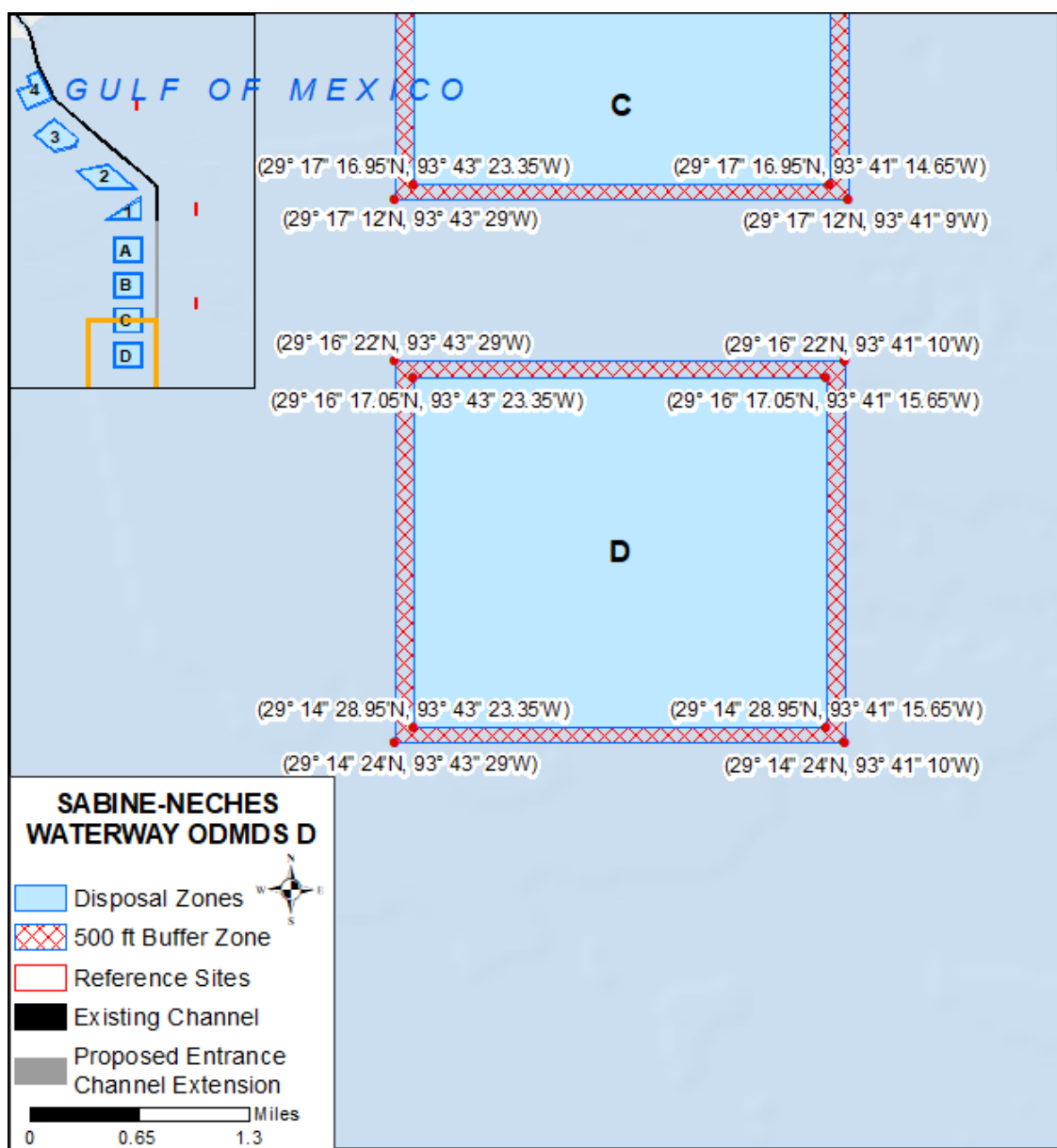


Figure A8 Sabine-Neches Waterway ODMDs D

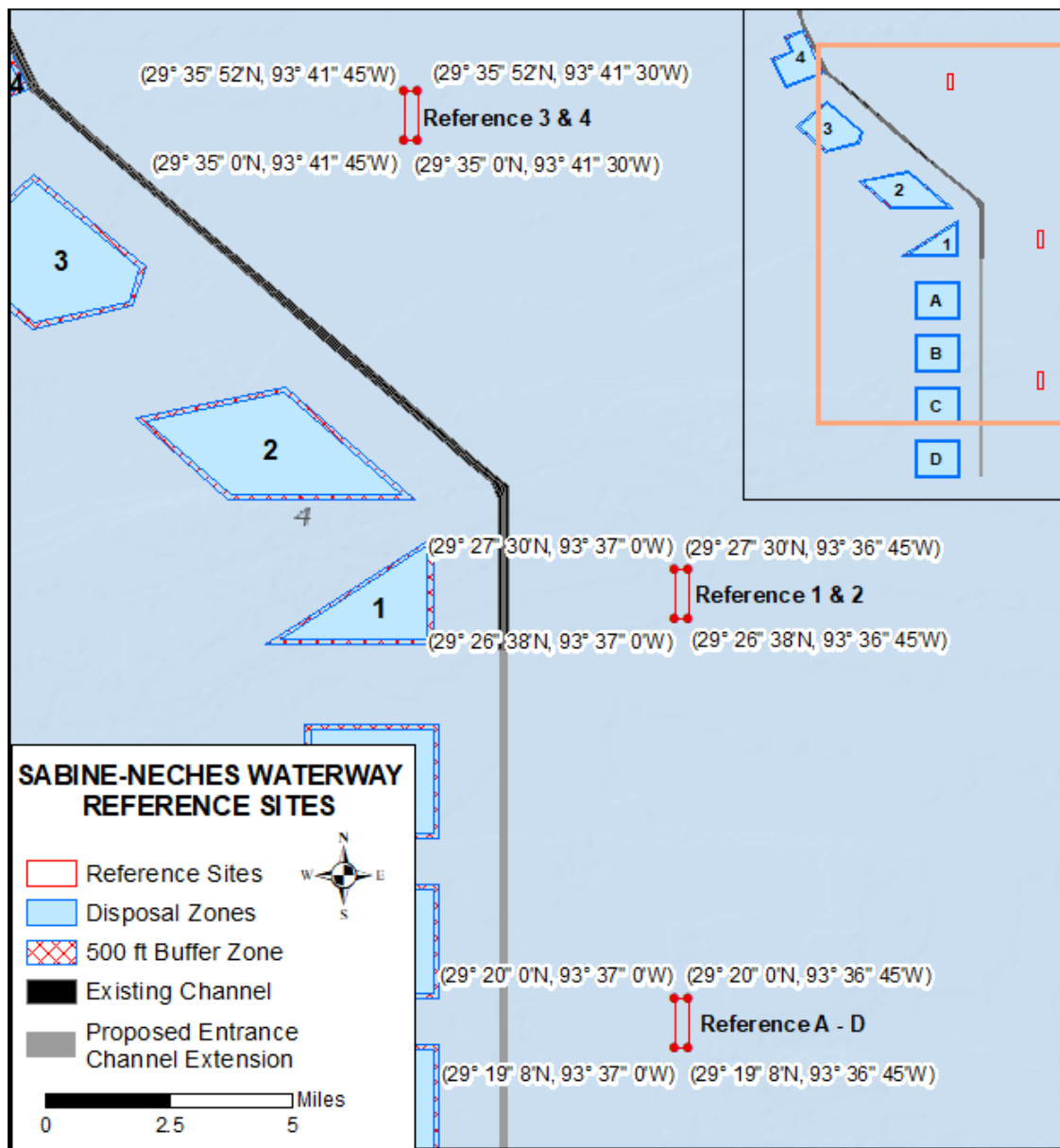


Figure A9 Sabine-Neches Waterway Reference Sites

Table A2 SNWW Reference Sites 1&2, 3&4 and A-D Coordinates (NAD83)

	Reference Site Latitude	Reference Site Longitude
Reference Site 1&2	29°27'30"N	93°37'00"W
	29°27'30"N	93°36'45"W
	29°26'38"N	93°36'45"W
	29°26'38"N	93°37'00"W
Reference Site 3&4	29°35'52"N	93°41'45"W
	29°35'52"N	93°41'30"W
	29°35'00"N	93°41'30"W
	29°35'00"N	93°41'45"W
Reference Site A-D	29° 20' 00" N	93° 37' 00" W
	29° 20' 00" N	93° 36' 45" W
	29° 19' 08" N	93° 36' 45" W
	29° 19' 08" N	93° 37' 00" W

Table A3 Disposal history of SNWW ODMDs 1

Disposal Start Date	Disposal End Date	Quantity of Dredged Material (cy)
03/03/1976	09/15/1976	1,169,165
06/01/1977	09/18/1977	967,708
07/18/1978	12/31/1978	5,589,100
10/01/1979	10/04/1979	58,080
07/24/1983	08/07/1983	50,003
04/05/1991	10/21/1991	1,680,432
03/12/1997	09/25/1997	576,553
07/27/2002	08/13/2002	438,118
08/06/2003	09/27/2003	730,300
12/17/2004	12/31/2004	292,220
07/28/2006	08/26/2006	965,400
07/09/2009	09/14/2009	962,200
06/28/2012	11/15/2012	2,049,404
10/19/2016	12/31/2016	566,860
01/01/2017	01/19/2017	126,798
Total cy disposed:		16,222,341

Table A4 Disposal history of SNWW ODMDS 2

Disposal Start Date	Disposal End Date	Quantity of Dredged Material (cy)
03/03/1976	09/15/1976	1,169,166
06/01/1977	09/18/1977	967,708
07/24/1983	08/07/1983	50,003
06/13/1985	09/07/1985	5,353,000
04/05/1991	10/21/1991	1,224,832
08/12/1994	09/12/1994	1,337,096
03/12/1997	09/25/1997	1,370,551
01/11/2000	05/02/2000	2,842,002
08/06/2003	09/27/2003	393,500
12/17/2004	12/31/2004	511,420
07/28/2006	08/26/2006	558,803
07/09/2009	09/14/2009	3,215,900
10/19/2016	12/31/2016	566,860
01/01/2017	01/19/2017	126,798
08/07/2018	09/29/2018	767,320
	Total cy disposed:	20,454,959

Table A5 Disposal history of SNWW ODMDS 3

Disposal Start Date	Disposal End Date	Quantity of Dredged Material (cy)
03/03/1976	09/15/1976	1,169,166
07/24/1983	08/07/1983	50,003
04/05/1991	10/21/1991	2,155,132
09/01/1994	10/30/1994	2,899,203
01/23/1996	04/26/1996	3,723,835
03/12/1997	09/25/1997	424,637
08/13/1998	10/07/1998	681,764
05/12/2001	06/18/2001	2,441,500
07/27/2002	08/13/2002	562,700
08/06/2003	09/27/2003	287,100
12/17/2004	12/31/2004	1,056,115
01/01/2005	01/08/2005	335,005
07/09/2009	09/14/2009	1,633,500
06/28/2012	11/15/2012	3,401,718
08/08/2014	10/15/2014	2,329,286
01/01/2017	01/19/2017	126,798
08/07/2018	09/29/2018	767,320
	Total cy disposed:	24,044,782

Table A6 Disposal history of SNWW ODMDS 4

Disposal Start Date	Disposal End Date	Quantity of Dredged Material (cy)
03/03/1976	09/15/1976	1,169,166
03/19/1981	05/30/1981	3,589,510
04/27/1982	05/20/1982	1,693,275
07/24/1983	08/07/1983	50,003
07/22/1984	09/22/1984	5,835,479
05/12/1986	07/13/1986	5,626,837
07/11/1987	09/21/1987	3,972,320
09/04/1988	10/16/1988	3,002,319
04/05/1991	10/21/1991	5,758,031
09/11/1992	11/07/1992	2,363,981
12/10/1993	12/31/1993	955,656
01/01/1994	01/10/1994	955,655
03/12/1997	09/25/1997	2,370,724
08/13/1998	10/07/1998	3,716,300
01/11/2000	05/02/2000	1,940,700
05/12/2001	06/18/2001	1,622,103
07/27/2002	08/13/2002	1,877,100
08/06/2003	09/27/2003	2,134,056
01/01/2005	01/08/2005	727,705
12/28/2007	12/31/2007	497,281
01/01/2008	04/24/2008	2,149,181
09/29/2010	11/14/2010	2,669,300
08/08/2014	10/15/2014	1,802,615
01/01/2017	01/19/2017	126,798
08/07/2018	09/29/2018	767,320
Total cy disposed:		57,373,415

Table A7 Particle-Size Distribution Trend Data for SNWW ODMDS 1

Year	% Gravel	% Sand	% Silt	% Clay
1980	4.6	79.2	12.6	3.7
1995	10.3	66.5	17.5	5.7
1999	0.0	96.6	3.4	0.0
2013	1.0	54.1	27.3	17.7
Mean	4.0	80.8	11.2	3.1

Data Source: 2013 SNWW Status & Trends Survey (USEPA, 2014)

Table A8 Particle-Size Distribution Trend Data for SNWW ODMDS 2

Year	% Gravel	% Sand	% Silt	% Clay
1980	0.7	68.6	21.1	9.7
1995	0.4	69.5	23.8	6.6
1999	0.0	61.1	23.4	15.5
2013	1.5	68.9	17.8	21.1
Mean	0.7	66.4	22.8	10.6

Data Source: 2013 SNWW Status & Trends Survey (USEPA, 2014)

Table A9 Particle-Size Distribution Trend Data for SNWW ODMDS 3

Year	% Gravel	% Sand	% Silt	% Clay
1980	4.6	46.7	23.5	25.2
1995	4.3	45.3	33.6	16.7
1999	0.0	64.9	25.8	9.3
2013	0.4	6.0	53.5	40.3
Mean	1.6	55.1	29.7	13.0

Data Source: 2013 SNWW Status & Trends Survey (USEPA, 2014)

Table A10 Particle-Size Distribution Trend Data for SNWW ODMDS 4

Year	% Gravel	% Sand	% Silt	% Clay
1980	0.0	1.7	27.8	70.5
1995	0.1	5.7	47.2	46.9
1999	0.0	24.8	59.9	15.3
2013	1.0	5.3	34.2	60.3
Mean	0.3	10.7	45.0	44.2

Data Source: 2013 SNWW Status & Trends Survey (USEPA, 2014)

APPENDIX B TEMPLATE OF GENERIC CONDITIONS FOR MPRSA SECTION 103 PERMITS FOR THE SNWW ODMDSS

MPRSA section 102(c)(3) directs EPA in conjunction with the USACE to develop site management and monitoring plans for dredged material disposal sites and such plans are implemented through MPRSA permits issued by USACE or through Federal projects subject to the same criteria, evaluation factors, procedures and requirements as permits. EPA in conjunction with USACE developed the template language below for inclusion in permits, though the template language is intended to be include on a case- by-case basis. Neither the SMMP nor this Appendix impose requirements on a permittee. Instead, the terms of any particular permit would impose requirements specific to the permitted activity. The USACE is not obligated to impose any particular permit term based on the template language; the language is provided to facilitate USACE permit development and to provide notice to third parties. For any future permit, EPA's concurrence review would confirm that appropriate terms are included to assure adequate implementation of the SMMP.

B1 DISPOSAL OPERATIONS

B1.1 For this permit, the term disposal operations shall mean: navigation of any vessel used in disposal of operations, transportation of dredged material from the dredging site to the SNWW ODMDSSs, proper disposal of dredged material at the disposal area within the SNWW ODMDSSs, and transportation of the hopper dredge or disposal barge or scow back to the dredging site.

B1.2 The SNWW ODMDSSs are defined as follows (NAD83):

	Buffer Zone Latitude	Buffer Zone Longitude	Disposal Zone Latitude	Disposal Zone Longitude
ODMDS 1	29°28'03"N	93°41'14"W	29°27'54.15"N	93°41'20.24"W
	29°26'11"N	93°41'14"W	29°26'16.79"N	93°41'20.24"W
	29°26'11"N	93°44'11"W	29°26'16.79"N	93°43'54.11"W
ODMDS 2	29°30'41"N	93°43'49"W	29°30'36.37"N	93°43'51.35"W
	29°28'42"N	93°41'33"W	29°28'47.79"N	93°41'47.24"W
	29°28'42"N	93°44'49"W	29°28'47.78"N	93°44'47.24"W
ODMDS 3	29°30'08"N	93°46'27"W	29°30'06.06"N	93°46'16.45"W
	29°34'24"N	93°48'13"W	29°34'17.86"N	93°48'13.43"W
	29°32'47"N	93°46'16"W	29°32'46.27"N	93°46'22.95"W
ODMDS 4	29°32'06"N	93°46'29"W	29°32'10.90"N	93°46'34.16"W
	29°31'42"N	93°48'16"W	29°31'48.30"N	93°48'14.95"W
	29°32'59"N	93°49'48"W	29°32'59.93"N	93°49'40.54"W
ODMDS 4	29°38'09"N	93°49'23"W	29°35'13.30"N	93°50'21.63"W
	29°35'53"N	93°48'18"W	29°36'35.17"N	93°51'02.12"W
	29°35'06"N	93°50'24"W	29°36'58.08"N	93°49'59.35"W
ODMDS A	29°36'37"N	93°51'09"W	29°37'44.08"N	93°50'19.35"W
	29°37'00"N	93°50'06"W	29°38'03.32"N	93°49'26.63"W
	29°37'46"N	93°50'26"W	29°35'56.43"N	93°48'25.98"W
ODMDS A	29°24'47"N	93°43'29"W	29°24'42.05"N	93°43'23.34"W
	29°24'47"N	93°41'08"W	29°24'42.05"N	93°41'13.69"W
	29°22'48"N	93°41'09"W	29°22'52.98"N	93°41'14.60"W
ODMDS B	29°22'49"N	93°43'29"W	29°22'53.90"N	93°43'23.34"W
	29°21'59"N	93°43'29"W	93°43'23.34"W	93°43'23.34"W
	29°21'59"N	93°41'08"W	93°41'13.69"W	93°41'13.69"W
ODMDS C	29°20'00"N	93°41'09"W	93°41'14.60"W	93°41'14.60"W
	29°20'00"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
	29°19'11"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
ODMDS D	29°19'11"N	93°41'09"W	93°41'14.64"W	93°41'14.64"W
	29°17'12"N	93°41'09"W	93°41'14.64"W	93°41'14.64"W
	29°17'12"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
ODMDS D	29°16'22"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W
	29°16'22"N	93°41'10"W	93°41'15.64"W	93°41'15.64"W
	29°14'24"N	93°41'10"W	93°41'15.64"W	93°41'15.64"W
ODMDS D	29°14'24"N	93°43'29"W	93°43'23.35"W	93°43'23.35"W

B1.3 No more than [NUMBER] cubic yards of dredged material excavated at the location defined in [REFERENCE LOCATION IN PERMIT] are authorized for disposal at the SNWW ODMDs.

B1.4 The permittee shall use an electronic positioning system to navigate to and from the SNWW ODMDs. For this section of the permit, the electronic positioning system will be as per the DQM specifications. If the electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected.

B1.5 The permittee shall certify the accuracy of the electronic positioning system proposed for use during disposal operations at the SNWW ODMDs. The certification shall be accomplished by providing current certification documentation from the National DQM Program for scow and hopper dredge instrumentation systems. The National DQM certification is valid for one year from the date of certification.

B1.6 This permit does not authorize leakage or spillage out of barges, dump scows, or hopper dredges of water and/or excavated material while on route to the ODMDs disposal release zone(s). Failure to repair leaks or change the method of operation which is resulting in the leakage or spillage will result in the suspension of dredging operation and require prompt repair or change of operation as prerequisite to the resumption of dredging. Transit to the ODMDs begins as soon as dredged material loading into the disposal vessel is completed and the vessel begins moving to the ODMD. All appropriate measures to avoid spillage during transit must be taken. Appropriate measures may include but are not limited to: up-to-date U.S. Coast Guard and/or American Bureau of Shipping certification of all disposal-related vessels; maintenance (inspection and/or replacement) of gaskets on barge doors, minimization of excess free liquids in barge loads, pre-transit testing of barge door hydraulics, and pre-transport verification of appropriate weather and sea state conditions. EPA Region 6 and the USACE Galveston District shall be notified within 24 hours (or the next business day) if any apparent leaking or spilling of dredged material occurs as indicated by an average loss of draft during transit from the dredging area to the disposal release zone(s) in excess of 2.0 feet. An average loss of draft transit is defined as forward draft loss plus aft draft loss divided by 2. In addition, the permittee understands that no debris is to be placed in the SNWW ODMD. Alerts must be sent via email within 24 hours of USACE or the permittee becoming aware of the apparent issue. Both for federal and non-federal projects, the USACE representative must send the notification via email to the EPA Region 6 Ocean Dumping Coordinator and pertinent Ocean Dumping Program Staff (<https://www.epa.gov/ocean-dumping/forms/regional-contacts-ocean-dumping-management-program>). If the event occurs on the weekend or holiday, notification shall take place the following business day. If EPA deems the event warrants further investigation, the USACE representative will follow up in a timely manner with a formal letter of justification, including how the incident occurred, how the issue will be addressed, pertinent dates, and corrective actions to be implemented to prevent repetition in the future.

B1.7 A disposal operations inspector and/or captain of any tugboat, hopper dredge or other vessel used to transport dredged material to the SNWW ODMDSs shall insure compliance with disposal operation conditions defined in this permit.

- If the disposal operations inspector or the captain detects a violation, he shall report the violation to the permittee immediately.
- The permittee shall contact the U.S. Army Corps of Engineers, SWG District's Regulatory Branch (409) 766-3869 and EPA Region 6 via email to the Ocean Dumping Coordinator and pertinent staff (<https://www.epa.gov/ocean-dumping/forms/regional-contacts-ocean-dumping-management-program>) to report the violation within twenty-four (24) hours after the violation occurs. A complete written explanation of any permit violation shall be included in the post-dredging report.

B1.8 When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the SNWW ODMDSs as defined in Special Condition B. Additionally, disposal shall occur within a specified disposal zone defined as [DEFINE COORDINATES AND SIZE OF DISPOSAL ZONE]. Disposal shall not occur closer than 1,300 feet to any oil or gas rig that may be present within the site boundaries.

B1.9 The permittee shall use an automated disposal verification system that is certified by the National DQM program to continuously track the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) to and from the SNWW ODMDSs. This real-time information is available on-line to the SWG District and will be provided to EPA Region 6 on a weekly basis via email using the eXtensible Markup Language (XML) specification and protocol. Data shall be provided per EPA Region 6 XML format and delivered as an attachment to an email to the Ocean Dumping Coordinator for EPA Region 6 (<https://www.epa.gov/ocean-dumping/forms/regional-contacts-ocean-dumping-management-program>). The XML format is available from EPA Region 6.

B1.10 The permittee shall conduct a pre-disposal bathymetric survey of the SNWW ODMDSs within three months of project commencement and a post-disposal bathymetric survey within 30 days after project completion.

- The number and length of the survey transects shall be sufficient to encompass the defined disposal zone within the SNWW ODMDSs and a 500-foot-wide area around the disposal zone. Transects shall be spaced at 500-foot intervals or less with a depth recording density of 20 to 70 feet.
- Vertical accuracy of the survey shall be ± 0.1 feet. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either microwave line of sight system or differential global positioning system. The vertical datum will be referenced to prescribed NOAA Mean Lower Low

Water (MLLW) datum. MLLW is 1.8 feet below NGVD 1929. The horizontal datum will be Texas State Plane (zone 4204 Texas South) or Geographic (NAD 1983). State Plane coordinates shall be reported to the nearest 0.10 foot and latitude and longitude coordinates shall be reported as degrees and decimal minutes to the nearest 0.01 minutes.

B1.11 The permittee has read and agrees to assure its actions are consistent with any revisions to the SNWW ODMDs Site Management and Monitoring Plan (SMMP) in effect at the time of permit issuance.

B1.12 The permittee shall not transport dredged material to the SNWW ODMDs until it confirms that EPA has concurred that the proposed dredge material meets the Ocean Disposal Criteria as given in 40 CFR Part 227.

B1.13 Enclosed is the Gulf Regional Biological Opinion (GRBO) dated [INSERT DATE], for swimming sea turtles, whales, and sturgeon. The GRBO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with “incidental take” that is also specified in the GRBO. Authorization for transportation and ocean disposal of dredged material at the SNWW ODMDs under the U.S. Army Corps of Engineers (USACE) permit is conditional upon compliance with all of the mandatory terms and conditions associated with the incidental take of the attached GRBO, which terms and conditions are incorporated by reference in the permit. Failure to comply with the terms and conditions associated with the incidental take of the GRBO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your USACE permit. Depending on the affected species, National Marine Fisheries Service (NMFS) is the appropriate authority to determine compliance with the terms and conditions of its GRBO and with the Endangered Species Act. For further clarification of this point, contact the project managers at USACE and the NMFS. Should a determination be made that the conditions of the GRBO have been violated, the violation may be enforced administratively by EPA, or referred to the Department of Justice for further investigation and appropriate enforcement.

B2 REPORTING REQUIREMENTS

B2.1 The permittee shall send the U.S. Army Corps of Engineers, SWG District's Regulatory Branch and EPA Region 6's Marine, Coastal & Non-Point Source Section (1201 Elm Street, Suite 500) a notification of commencement of work at least 15 days before initiation of any dredging operations authorized by this permit.

B2.2 The permittee shall submit to the U.S. Army Corps of Engineers and EPA Region 6 weekly disposal monitoring reports. These reports shall contain the information described in Special Condition I.

B2.3 The permittee shall develop and send one copy of the disposal summary report to the USACE SWG District's Regulatory Branch and one copy of the disposal summary report to EPA Region 6 documenting compliance with all general and special conditions defined in this permit. The disposal summary report shall be sent within 90 days after completion of the disposal operations authorized by this permit. The disposal summary report shall include the following information:

- The report shall indicate whether all general and special permit conditions were met. Any violations of the permit shall be explained in detail.
- The disposal summary report shall include the following information: USACE permit number, actual start date and completion date of dredging and disposal operations, total cubic yards disposed at the SNWW ODMDs, locations of disposal events, and post disposal bathymetric survey results (in hard and electronic formats)

B3 PERMIT LIABILITY

B3.1 The permittee and all contractors or other third parties who perform an activity authorized by this permit on behalf of the permittee shall be separately liable for a civil penalty for each violation of any term of this permit committed alone or in concert with the permittee or other parties. Liability shall be individual, rather than joint and several, and shall not be reduced in any fashion to reflect the liability assigned to and civil penalty assessed against the permittee or any other third party as defined in 33 U.S.C. Section 1415(a).

B3.2 If the permittee or any contractor or other third party knowingly violates any term of this permit (either alone or in concert), the permittee, contractor or other party shall be individually liable for the criminal penalties set forth in 33 U.S.C. Section 1415(b).