The following draft Site Management and Monitoring Plan (SMMP) is proposed for the designated Port Everglades Harbor Ocean Dredged Material Disposal Site (ODMDS) pursuant to 40 CFR Section 228.15(h)(22). The draft SMMP was developed jointly by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers (Corps) in accordance with the Water Resources Development Act Amendments of 1992 (WRDA 92) to the Marine Protection, Research, and Sanctuaries Act of 1972 for the management and monitoring of ocean disposal activities.

Concurrent with the issuance of this draft SMMP for the designated ODMDS, the EPA is issuing a proposed rule to modify the ODMDS and an associated draft SMMP for the proposed modification of the ODMDS. Depending on the amount of time needed to take final action on the proposed rule, the EPA and the Corps may proceed with taking final action on the this SMMP for the designated ODMDS prior to taking action on the SMMP for the modified ODMDS.

The SMMP for the designated ODMDS is proposed to be effective for a 1-year period. The SMMP will be replaced with an SMMP for the modified ODMDS, if the rulemaking process and SMMP for the modified ODMDS are finalized within this period.

DRAFT PORT EVERGLADES HARBOR
OCEAN DREDGED MATERIAL DISPOSAL SITE
SITE MANAGEMENT AND MONITORING PLAN

Contents

1.0 INTRODUCTION

It is the responsibility of the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 to manage and monitor each of the Ocean Dredged Material Disposal Sites (ODMDSs) designated by the EPA pursuant to Section 102 of MPRSA. Section 102(c)(3) of the MPRSA requires development of a Site Management and Monitoring Plan (SMMP) for each ODMDS and review and revision of the SMMP not less frequently than every 10 years. The 1996 document, *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites* (EPA/USACE, 1996) and the EPA Region 4 and USACE South Atlantic Division Memorandum of Understanding (EPA/USACE, 2017) have been used as guidance in developing this SMMP.

A SMMP was originally developed as part of the designation process and was published in November 2004 as part of, *Final EIS for Designation of the Palm Beach Harbor Ocean Dredged Material Disposal Site and the Port Everglades Harbor Ocean Dredged Material Disposal Site*, (EPA, 2004), with SMMP revisions in May 2009.These SMMP provisions shall be requirements for all dredged material disposal activities at the site. All MPRSA Section 103 ocean disposal permits or contract specifications shall be conditioned as necessary to assure consistency with the SMMP.

1.1 Site Management and Monitoring Plan Team

An interagency SMMP team was established to assist the EPA and USACE in developing the 2004 Port Everglades ODMDS SMMP. The team consisted of the following agencies and their respective representatives:

- Jacksonville District USACE
- EPA Region 4
- Port of Port Everglades
- State of Florida (Coastal Zone Management Office)
- National Oceanographic and Atmospheric Administration (NOAA)
- U.S. Coast Guard, Station Fort Lauderdale

These agencies will continue to be consulted in revisions to the Port Everglades Harbor ODMDS SMMP.

Specific responsibilities of the EPA Region 4 and the Jacksonville District Corps of Engineers respectively are as follows:

> The EPA is responsible for designating/de-designating, management of MPRSA Section 102 Ocean Dredged Material Disposal Sites, for evaluating environmental effects of disposal of dredged material at these sites, and for reviewing and concurring, concurring with conditions, or not concurring on dredged material suitability for ocean disposal determinations.
>
> The USACE is responsible for evaluating dredged material suitability, issuing MPRSA Section 103 permits, regulating site use and developing and implementing disposal monitoring programs.

2.0 SITE MANAGEMENT

Section 228.3 of the Ocean Dumping Regulations (40 CFR 220-229) states: "Management of a site consists of regulating times, rates, and methods of disposal and quantities and types of materials disposed of; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site evaluation studies; and recommending modifications in site use and/or designation." This plan may be modified if it is determined that such changes are warranted as a result of information obtained during the monitoring process to properly manage the site.

2.1 Disposal Site Characteristics

The regulatory designation language for the Port Everglades Harbor ODMDS can be found in 40 CFR Section 228.15(h)(22). The western edge of the Port Everglades Harbor ODMDS (figure 1) is located 4 nautical miles (nmi) offshore and is 1 nmi by 1 nmi in size (1 nmi^2). As of 2017, it had a depth range of -195 to -225 meters (-640 to -761 feet), with an average depth of 207 meters (-678 feet). The site is centered at approximately 26°07.00'N latitude and 80°01.50'W longitude (NAD 83) or state plane coordinates 649292.4 ft N and 976098.2 ft E (NAD83). The site coordinates are as follows:

Table 1. Port Everglades ODMDS Corner Coordinates

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NE	26°07.50'N	80°02.00'W	973341.1 E	652301.1 N
NW	26°07.50'N	80°01.00'W	9788810.0 E	652342.1 N
SW	26°06.50'N	80°02.00'W	973386.1 E	646,242.9 N
SE	26°06.50'N	80°01.00'W	978,855.7 E	646,283.9 N

Physical and biological conditions at the ODMDS are described in, *Final Environmental Impact Statement for Designation of the Palm Beach Harbor Ocean Dredged Material Disposal Site and the Port Everglades Harbor Ocean Dredged Material Disposal Site,* (EPA 2004) and the *Draft Environmental Assessment on Expansion of the Port Everglades Ocean Dredged Material Disposal Sites (ODMDS) Broward County, Florida* (EPA 2020; out for public review).

2.2 Management Objectives

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

- Protection of the marine environment;
- Documentation of disposal activities and compliance; and
- Maintenance of a long-term disposal alternative for dredged material generated in the Port Everglades, Florida vicinity

The following sections provide the framework for meeting these objectives.

2.3 Disposal History and Dredged Material Volumes

The Port Everglades Harbor ODMDS is intended to be used for the disposal of dredged material from maintenance projects or those new work projects less than 50,000 cubic yards from the greater Broward County, Florida vicinity. The primary user of the Port Everglades Harbor ODMDS is the USACE for the Port Everglades Federal Navigation Project, including material from the Entrance Channel, Main, North, and South Turning Basins, South Access Channel and the Turning Notch. A secondary user is the Port Everglades Port Authority, including material from the South Turning Basin beyond Civil Works authorized depths, Port Slips, and Port Berthing Areas. The U.S. Navy and U.S. Coast Guard also have facilities in the area that may require use of the ODMDS although no need has currently been identified.

Historically, an ocean site approved for ocean dumping on an interim basis (interim MPRSA disposal site) located approximately 1.6 nautical miles from shore was used for ocean disposal of dredged material from Port Everglades Harbor; use of this site was discontinued in the 1980s due to concern that material drifted back onto the nearby reef. This former site has been documented to contain various amounts of man-made debris including concrete pilings, steel and concrete frameworks, and tires (Messing, 2003).

Due to the lack of an ODMDS in the vicinity of Port Everglades after the interim site was discontinued, the Port Everglades Harbor ODMDS was designated in 2005 approximately 4.3 nmi offshore. The ODMDS, 1 nmi^2 in size, was designated to accommodate dredged material from periodic maintenance events from the Port Everglades Harbor. The Jacksonville District Corps of Engineers estimated an annual average disposal rate of approximately 30,000 cubic yards of material. Maintenance occurs only as needed and in 2005, 46,686 cubic yards of dredged material from Port Everglades Harbor was disposed in this site, and in 2013, 413,932 (*in situ*) cubic yards of dredged material was disposed at the site (USACE, 2013). Maintenance volumes from the Port Everglades Federal Navigation Project are not expected to significantly increase and are expected to average approximately 300,000 cy over a ten-year period. Maintenance events are listed below, since 2005 designation.

Table 2. Dredged Material Disposal Projects placed into the ODMDS (2005-2013)

Year	Volume (cy) *in situ*	Dredge Area[1]	Dredge Method	Disposal Location	Sponsor
2005	46,686	NTB	Hopper	ODMDS	Civil Works
2013	353,243	MTB, NTB, SAC, TN (federal)	Clam Shell	ODMDS	Civil Works
2013	60,689	STB, Berth 19, 30 (port)	Clan Shell	ODMDS	Port Everglades

[1] MTB (Main Turning Basin); NTB (North Turning Basin); STB (South Turning Basin); SAC (South Access Channel); TN (Turning Notch).

2.4 Dredged Material Characteristics

2.4.1 Previously Disposed Materials

Materials disposed in the Port Everglades Harbor ODMDS have historically consisted of sand, silt, clay, and a small amount of gravel from Port Everglades Harbor and entrance channel. Material from the Harbor that was found to be suitable for beach nourishment was placed on nearby beaches in accordance with State of Florida standards and not evaluated under MPRSA as disposal material.

2.4.2. Anticipated Materials

Two basic sources of material are expected to be disposed at the site; new work dredged material and maintenance material from Port Everglades harbor and entrance channel. These materials will consist of mixtures of silt, sand, gravel, cobble, and boulder sized components in varying percentages. Maintenance material is expected to be silty sands with small rock and shell. New work material is expected to be more variable. The geotechnical boring analysis conducted as part of the disposal modeling conducted by Taylor Engineering (Taylor, 2010) for the Port Everglades Deepening Project estimates approximately 34% of material to be dredged is either hard rock (requiring blasting for pre-treatment), medium rock or soft rock (can be excavated without pre-treatment). Depending on dredging method the size of the rock disposed could be as large as 30 inches in diameter for cutterhead dredges (Herbich, 1992) and 3 to 10 feet in diameter for mechanical dredges (USACE, 2003). The remaining material is expected to be sand (56%) and silt (12%). However, no new work material can be placed in the site in which total volumes exceed 50,000 cubic yards.

2.4.3 Associated Beach Quality Materials

USACE Beneficial Use of Dredged Material EM 1110-2-5026 requires that the beneficial use of dredged material be maximized within the coastal system. Dredged materials that qualify for beach or near-shore placement per the Florida Department of Environmental Protection's (FDEP) 'Sand Rule' shall be beneficially placed in such location under CWA Section 404 authorities, to the maximum extent practicable. It is expected that the State of Florida will exercise its authority and responsibility, regarding beach nourishment, to the full extent during any future permitting activities. Beneficial use of beach compatible dredged material for beach nourishment is strongly encouraged and supported by the EPA.

2.4.4 Dredge Material Quality Verification

The suitability of dredged material for ocean disposal must be verified by the USACE and agreed to via written concurrence from the EPA prior to disposal, per the MPRSA. Concurrence on the suitability of material for ocean disposal will be valid for three years.

Verification process:

1) Case-specific evaluation against the exclusion criteria (40 CFR 227.13(b))
2) Determination of testing requirements for non-excluded material based on the potential of sediment contamination since last verification.
3) When applicable, execute testing and determination of suitability of non-excluded material for ocean disposal.

Documentation for suitability will be completed and concurred upon by the EPA prior to use of the Port Everglades Harbor ODMDS. Documentation will be in the form of a MPRSA Section 103 Evaluation. Potential testing and the Evaluation will follow the procedures outlined in the 1991 EPA/USACE Dredged Material Testing Manual and Southeast Regional Implementation Manual (SERIM) or the appropriate updated versions. This includes how dredging projects will be subdivided into project segments for sampling and analysis. The MPRSA Section 103 Evaluation will be in the form outlined in Appendix C of the SERIM. Water Quality Compliance determinations will be made using the STFATE (ADDAMS) model and the input parameters provided in Appendix A of this document. Only material determined to be suitable through the verification process by the USACE and the EPA will be placed at the Port Everglades Harbor ODMDS.

2.5 Time of Disposal

At present no restrictions have been determined to be necessary for disposal related to seasonal variations in ocean current or biotic activity. As monitoring results are compiled, should any such restrictions appear necessary, disposal activities will be scheduled so as to avoid adverse impacts. Additionally, if new information indicates that endangered or threatened species are being adversely impacted, restrictions may be incurred.

Transportation of dredged material shall only be allowed when weather and sea state conditions, and scow loading level, will not interfere with safe transportation and will not create risk of spillage, leak or other loss of dredged material during transit. No disposal trips shall be initiated when the National Weather Service has issued a gale warning for local waters during the time period necessary to complete dumping operations. Transportation for the purposes of ocean dumping begins when the vessel is full and begins transiting to the ODMDS.

2.6 Disposal Technique

Transit to the ODMDS begins as soon as dredged material loading into the disposal vessel is completed and the vessel begins moving to the ODMDS. While in route to the ODMDS, the

disposal vessel must remain within the navigation channel while west of the buoy G"3". No dredged material shall be leaked or spilled from vessels while west of the G"3" buoy. Leakage or spillage of material east of the sea buoy is limited to 1.5 feet of draft loss (average between forward and aft sensors) during transit to the ODMDS. Disposal shall be initiated within the specified disposal release zone and shall be completed (doors closed) prior to departing the ODMDS. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Port Everglades Harbor ODMDS. All appropriate measures to avoid spillage during transit must be taken. Appropriate measures may include but are not limited to: up-to-date U.S. Coast Guard and/or American Bureau of Shipping certification of all disposal-related vessels; maintenance (inspection and/or replacement) of gaskets on barge doors, pre-transit testing of barge door hydraulics, and pre-transport verification of appropriate weather and sea state conditions. Standard surveillance and evasive measures to protect sea turtles and marine mammals shall also be employed during all disposal operations at the Port Everglades Harbor ODMDS as provided in the South Atlantic Regional Biological Opinion from NMFS.

2.7 Disposal Location

40 CFR §227.28 requires that disposal occur no less than 330 feet (100 meters) inside the designated site boundaries. A release zone has been established to satisfy this criterion as well as manage dredged material disposal and contain impacts to within the ODMDS boundaries. The release zone is described below in Table 3.

Table 3. Port Everglades Harbor ODMDS Disposal Release Zone

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NW	26º 06.9280'N	80º 01.8150'W	974,362	648,843
NE	26º 06.9280'N	80° 01.2720'W	977,348	648,866
SW	26º 06.7660'N	80º 01.8150'W	974,386	647,862
SE	26º 06.7660'N	80° 01.2720'W	977,356	647,884

2.8 Permit and Contract Conditions

The disposal monitoring and post-disposal monitoring requirements described under Site Monitoring will be included as permit conditions on all MPRSA Section 103 permits and will be incorporated in the contract language for all federal projects. Template language that can be used is included in appendices (see Appendix C and D).

2.9 Permit Process

All disposal of dredged material in the ocean, with the exception of Federal Civil Works projects, requires an ocean dumping permit issued by the USACE pursuant to Section 103 of the MPRSA. Permitting procedures are outlined in 33 CFR Parts 320, 324 and 325. Additional guidance is available in the SERIM.

3.0 SITE MONITORING

The MPRSA establishes the need for including a monitoring program as part of the Site Management and Monitoring Plan. Site monitoring is conducted to ensure the environmental integrity of a disposal site and the areas surrounding the site. Compliance with the site designation criteria, any special management conditions, and with permit requirements is lso verified. 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:

> (1) Information indicating whether the disposal activities are occurring in compliance with the permit and site restrictions;
> (2) Information indicating the short-term and long-term fate of materials disposed of in the marine environment.
> (3) 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 in the future. A monitoring program, under MPRSA, also establishes an empirical basis for site designation/de-designation, assesses trends in environmental condition changes due to dredge disposal operations, determine if dumping shall be prohibited (MPRSA 103((c)(2)), and supports future modifications to site management and monitoring plans as required under MPRSA 102((c)(3)).

3.1 Baseline Monitoring

Site characterization surveys of the ODMDS were conducted by EPA and the USACE as part of the designation process. Results from these surveys were used in part as baseline data for the

monitoring of impacts associated with use of the Port Everglades Harbor ODMDS since designation. The results of investigations presented in the designation FEIS (EPA 2004) and the Environmental Assessment for the Expansion of the Port Everglades Harbor ODMDS (EPA, in press) and subsequent surveys are listed in Table 4 and serve as the main body of data for the monitoring of the impacts associated with the use of the Port Everglades Harbor ODMDS. In addition, a baseline hard-bottom habitat study will be conducted prior to use of the expanded portion of the ODMDS for disposal of new work material.

Table 4. Surveys and Studies Conducted at the Port Everglades Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Benthic Macroinfaunal Analysis of the Port Everglades and Palm Beach, Florida ODMDS Surveys	Battelle for U.S. EPA Region 4	1984	Characterization Survey (sediment analysis, benthic biota)	Characterization of benthos for February & November 1984.
Field Studies in Nearshore Areas at Port Everglades, Palm Beach County, and Brevard County, Florida	Continental Shelf Associates for U.S. EPA Region 4	1986	Benthic characterization of one square mile candidate site (4-mile candidate site) through sidescan and bathymetry.	No high relief ledges, rock outcrops or steep slopes detected. Occasional rubble or cobbles and some low relief rock outcrop.
Video, Still Camera, and Side Scan Sonar Survey of the Seafloor Within and Downcurrent of a Tentative Alternative ODMDS off Port Everglades, Florida	Continental Shelf Associates for U.S. EPA Region 4	1986	Look for presence of natural resources (critical habitat) and presence of manmade obstruction on the bottom and down current of site.	Data showed a predominately fine-to-course sediment covered bottom with scattered rocks, areas of rock rubble and sand ripples.
Sediment & Water Quality of Candidate Ocean Dredged Material Disposal Sites for Port Everglades and Palm Beach, Florida	U.S. EPA Region 4	1999	Characterization Survey (water column profiles, water quality, sediment characteristics, benthic biota)	Conditions at the site are relatively pristine. Water column is clear with low suspended sediment concentrations (2-20mg/l). Sediments consists of mostly fine sand (70%) and have low level of contaminants.
Sidescan Survey of Candidate Ocean Dredged Material Disposal Sites for Port Everglades and Palm Beach, Florida	U.S. EPA Region 4	1999	Look for presence of natural resources (critical habitats) and presence of manmade obstructions on the bottom.	The side-scan sonar data indicated a fine sandy bottom with scattered rubble zones throughout the site and areas 2 miles to the north and 2 miles south of the site. No areas of rock outcrops or potential wrecks were identified through the side-scan record within the site or north or south of the site.
Pre-Disposal Bathymetry	USACE	July 2005	Pre-disposal survey	Established baseline condition for post-disposal bathymetry

Table 4. Surveys and Studies Conducted at the Port Everglades Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
Post-Disposal Bathymetry	USACE	December 2005	Post-disposal survey	No changes were observable from the pre-disposal survey.
Rapid Seafloor Reconnaissance and Assessment of Southeast Florida Ocean Dredged Material Disposal Sites Utilizing Sediment Profile Imaging – Post Disposal SPI Mapping at the Port Everglades ODMDS	Germano & Associates for U.S. EPA Region 4	May 2006	Map the spatial distribution of disposed dredged material on the seafloor, characterize physical changes in the seafloor resulting from disposal, and evaluate the extent of benthic infaunal recolonization through the mapping of infaunal successional stages.	Dredged material formed an elliptical deposit on the seafloor with the upper half of the elliptical deposit occurring to the north of the disposal site. The main physical change resulting from disposal appeared to be a subtle shift in sediment texture. Overall, at the majority of stations within the dredged material footprint and in surrounding areas, it did not appear that there had been any adverse changes in oxygen demand, redox state, or other geochemical properties as a result of disposal. Local benthic communities are rapidly recolonizing the sandy dredged material that had been deposited at the Port Everglades Harbor ODMDS and are at an intermediate stage of recolonization. The release zone was moved in 2009 to keep future disposal deposits within the ODMDS boundaries.
Site Expansion Preliminary Characterization Study	EPA Region 4 / Water & Air Research / ANAMAR	October 2007	Characterize the grain size, chemistry, and biology of the benthos and the physiochemical properties of the water column for future potential site expansion.	Water column is well mixed over the upper 70 meters. Photic zone extends to 55 meters. DO is low (<5mg/l) below 140 meters. No chemicals were found above federal water quality criteria. Sediments ranged from sandy silt to silty sand. Organic tins, metals and PAHs were detected at low levels in the sediments.
Site Designation Study for the Port Everglades Harbor Ocean Dredged Material Disposal Site Expansion	ANAMAR Environmental Consulting for USACE	May 2011	Characterization survey (water column profiles, water quality, sediment characteristics, benthic biota)	Water column is well mixed over the upper 20 meters. Photic zone extends to 65 meters. DO is low (<5mg/l) below 100 meters. Total suspended solids ranged from 6 to 13 mg/l. Sediments were silt/clay & med/fine

Table 4. Surveys and Studies Conducted at the Port Everglades Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
				sand. Sediments in the expansion area had lower levels of metals, organic tins, PAHs, pesticides and PAHs than the within the ODMDS.
Pre-Disposal Photographic Mapping for the Port Everglades Harbor Ocean Dredged Material Disposal Site Expansion	EPA Region 4 and Newfields	May 2011	Baseline SPI data for future SPI surveys and to photograph areas identified as having potential for hard bottom habitats.	Sediments consisted of compact fine to very fine sand throughout the site. Stage III organisms present throughout the site in low densities. Exposed limestone rocky outcrops present in some locations. Carbonate rocks also present. The rocky outcrops provide habitat for fish, crab, sea anemones, and other epibenthic organisms. The area of rocky outcrops was estimated from point data using thiessen polygons at 28.6 acres, and rocks at 39.7 acres.
Pre-Disposal Bathymetry	USACE	Feb 2012	Pre-disposal survey	The shallowest portion of the site is the northwest corner (~180meters); the deepest the southeast corner (~230meters)
Post-Disposal Bathymetry	USACE	May 2013	Post-disposal survey	No discernable change in bathymetry. (see figure 2)
Benthic Mapping Survey of the Port Everglades Harbor ODMDS	EPA Region 4 and Battelle	September 2014	Map footprint of 2013 maintenance event and document changes to the benthic habitat	The revised release zone was effective at containing almost all of the dredged material disposal impact within the ODMDS boundaries. Only one station (50 meters south of the ODMDS) had any measurable amount of dredged material in excess of 5 cm. The sea star *Coronaster briareus*, a species managed by the SAFMC, was the only species to show a benthic habitat preference being almost twice as abundance on unconsolidated soft sediment dredged material relative to native soft sediment and dredged material hard carbonate bottoms. Given the estimated successional stage, OSI, and high level of bioturbation, it appeared that infaunal communities have successfully

Table 4. Surveys and Studies Conducted at the Port Everglades Harbor ODMDS

Survey/Study Title	Conducted By:	Date	Purpose	Results
				recolonized the dredged material within 17 months of completion of the 2013 disposal event.

3.2 Disposal Monitoring

For all disposal activities, an electronic tracking system (ETS) must be utilized. The ETS will provide surveillance of the transportation and disposal of dredged material. The ETS will be maintained and operated to continuously track the horizontal location and draft condition (accuracy± 0.1 foot) of the disposal vessel (i.e. hopper dredge or disposal scow) from the point of dredging 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 twelve seconds or every 30 feet of travel, while the hull status is open within the ODMDS. In addition to the continuous tracking data, the following trip information shall be electronically recorded for each disposal cycle:

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

It is expected that disposal monitoring will be conducted utilizing the Dredge Quality Management (DQM) system for Civil Works projects [see http://dqm.usace.army.mil/Specifications/Index.aspx], although other systems are acceptable. Disposal monitoring and ETS data will be reported to EPA Region 4 on a weekly basis (within one week of disposal) utilizing the eXtensible Markup Language (XML) specification and protocol per Section 3.5. More frequent reporting may be required on a project specific basis. EPA Region 4 and the USACE Jacksonville District shall be notified within 24 hours if disposal occurs outside of the ODMDS or specified disposal zone or if any apparent leaking or spilling of dredged material occurs as indicated by a loss of disposal vessel draft. The draft change threshold for notification is 1.5 feet as outlined in Section 2.6.

3.3 Post Disposal Monitoring

The USACE or other site user will conduct a bathymetric survey within 30 days after disposal project completion. Surveys will not be required for projects less than 50,000 cubic yards. Bathymetric surveys will be used to monitor the disposal zone to assist in verification of material placement, to monitor bathymetry changes and trends and to ensure that the site capacity is not exceeded, i.e., the mound does not exceed the site boundaries. Surveys will conform to the minimum performance standards for Corps of Engineers Hydrographic Surveys as described in the USACE Engineering Manual, EM1110-2-1003, *Hydrographic Surveying* dated November 30, 2013 [http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1003.pdf] or updates. The number and length of transects required will be sufficient to encompass the release zone and a 500 foot-wide area around it. Single beam surveys will be taken along lines spaced at 200-foot intervals or less. Multibeam surveys will provide 100%

coverage. The minimum performance standards from Table 3-1 in *Hydrographic Surveying* shall be followed. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing a differential global positioning system. The vertical datum will be referenced to prescribed NOAA Mean Lower Low Water (MLLW) datum. The horizontal datum should be referenced to the local State Plane Coordinate System (SPCS) for that area or in Geographical Coordinates (latitude-longitude). The horizontal reference datum should be the North American Datum of 1983 (NAD 83).

3.4 Material Tracking and Disposal Effects Monitoring

Surveys can be used to address possible changes in bathymetric, sedimentological, chemical, and biological aspects of the ODMDS and surrounding area as a result of the disposal of dredged material at the site. A summary of available technologies is provided in USACE (1990). Techniques anticipated to be utilized at the Port Everglades Harbor ODMDS include, but is not limited to:

- Multibeam Sonar: Mapping disposed dredged material; identifying hard bottom
- Sidescan Sonar: Mapping disposed dredged material; identifying hard bottom
- Sediment Profile Imaging: Mapping disposed dredged material; characterizing physical, chemical and biological seafloor processes; evaluating benthic infaunal recolonization through the mapping of infaunal successional stages
- Planview Image Acquisition and Analysis: enumeration of biological features (biogenic mounds, burrows, tracks, feeding pits/furrows and epifauna); enumeration of physical sedimentary features (rocks, hard bottom, sand ripples), and apparent presence/absence of dredged material
- Benthic infauna sampling: document and quantify benthic infauna communities; identify absence of any pollution sensitive organisms
- Benthic chemical sampling: document changes in sediment chemistry and identify any contaminant concentrations that may pose a threat to the environment or human health
- Benthic grain size sampling: document changes in the grain size of the benthos that could affect benthic populations
- Water quality sampling: document any changes in the chemical and physical properties of the water column that may adversely affect the marine environment or human health; collect data for risk assessment models for evaluating the effects of dredged material disposal

3.4.1 Summary of Results of Past Monitoring Surveys

Surveys conducted at the Port Everglades Harbor ODMDS are listed in Table 4. Two disposal events have occurred since site designation. After the first event, no measurable change in bathymetry was detectable. A post disposal benthic assessment using Sediment Profile Imaging (SPI) showed that dredged material disposal formed an elliptical deposit on the seafloor within the northern portion and extending north of the original ODMDS. This resulted in a shift to a slightly sandier substrate at the ODMDS. There was no indication of any adverse changes in oxygen demand, redox state, or other geochemical properties as a result of disposal. Results

suggested that while benthic communities over the dredged material deposit were rapidly approaching those on the ambient seafloor relatively soon after disposal, this process was still ongoing at the time of the survey and not yet complete. Limited sampling conducted as part of the site expansion survey in 2011 indicated that concentrations of metals, organic tins, PAHs, PCBs and pesticides within the original ODMDS are above background levels. However, they remain below Probable Effect Levels as well as levels found in the dredged material tested and accepted for ocean disposal and therefore no adverse effects are expected.

As a result of the post-disposal SPI survey above, the release zone was modified. The 2013 maintenance dredging project utilized the new release zone. In 2014, a SPI and trend assessment study was conducted. The SPI results demonstrated that the revised release zone was effective at containing almost all of the material within the ODMDS boundaries. Only one station about 50 meters south of the ODMDS boundary was impacted by more than 5 cm of dredged material (6 cm). The main physical change in benthic habitats from dredged material disposal were a subtle shift in sediment texture and redox state of surface sediments with grain size slightly coarse, establishment of hard bottom within the ODMDS boundary, a higher proportion of fine shell hash, and apparent shallowing of the aRPD layer depth relative to native sediments. Most of the difference between dredged material and native sediment was likely due to elevated percentages of silt clay in the dredged material. High levels of biogenic activity were found at the majority of unconsolidated soft sediment stations, whether dredged material or native sediments. Except for there being fewer feeding mounds at dredged material stations, there were no other patterns in density and spatial distribution of biogenic features across the area. The sea star *Coronaster briareus* was the only species to show a benthic habitat preference being almost twice as abundant on unconsolidated soft sediment dredged material relative to native soft sediment and dredged material hard carbonate bottoms. It appears that infaunal communities have successfully recolonized the dredged material within 17 months of completion of the 2013 disposal event.

Macroinfauna sampling as part of the 2014 trend assessment study showed that annelids, primarily polychaetes, comprised the majority of the taxa assemblages, both inside (62.5%) and outside (67.4%) of the Port Everglades ODMDS. The mean number of individual organisms and taxa density was over 50% greater outside the ODMDS versus inside the ODMDS. The mean number of taxa was also greater outside the ODMDS versus inside. However, due the large variability between stations, there was statistically no difference inside versus outside the Port Everglades ODMDS regarding benthic assemblages. These changes are expected to return to baseline condition over time and will be evaluated in future status and trend surveys.

3.4.2 Future Monitoring Surveys

Based on the type and volume of material disposed and impacts of concern, various monitoring surveys can be used to examine if and the direction the disposed dredged material is moving, and what environmental effect the material is having on the site and adjacent areas.

It is expected that changes in sediment composition within the ODMDS due to disposed dredged

material will likely alter the benthic community structure somewhat. However, based on previous benthic studies, it is unlikely that permanent or long-term adverse impacts will result due to changes in sediment composition (see section 3.4.1).

A Trend Assessment and Baseline study is planned for 2020 to ascertain baseline conditions for future trend analysis. Additionally, an SPI study will be conducted following the next major new work project to evaluate the effectiveness of the new work release zone on maintaining material within the ODMDS, if indicated.

Table 5. Port Everglades Harbor ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Trigger/ Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Characterize Existing Hard bottom (quantity and quality)	pending	Site User or USACE/ EPA	Determine baseline for impact assessment	Prior to use of expansion area	N/A	N/A	N/A
Quantify the amount of natural hard-bottom habitats buried and the quantity and quality of hard-bottom habitat created	Same as above	USACE and EPA	Determine the net effect of ODMDS use on local species	Within 2 years of project completion and 10 years thereafter	Functional assessment shows net decrease in function	Monitor once more at a future time further removed from site usage.	-Modify disposal practices -Continue Monitoring -Alter site utilization
Trend Assessment (40CFR228.9)	Water and Sediment Quality, Benthic Community Analysis (40CFR228.13)	EPA	Periodically evaluate the impact of disposal on the marine environment (40CFR 228.9)	Approximately every 10 years or as warranted due to heavy use.	-Absence from the site of pollution sensitive biota -Progressive non-seasonal changes in water or sediment quality	Continue Monitoring Regularly	-Conduct Environmental Effects Monitoring or Advanced Environmental Effects Monitoring -Review dredged material evaluation procedures

Table 5. Port Everglades Harbor ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Trigger/ Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Environmental Effects Monitoring	Chemical Monitoring	EPA	Determine if chemical contaminants are significantly elevated[1] within and outside of site boundaries	If disposal footprint extends beyond the site boundaries or if results of monitoring or other information warrant.	Contaminants are found to be elevated	Discontinue monitoring	- Implement case specific management options (i.e., Remediation, limits on quantities or types of material). -Perform biological testing of site material -Consider isolating dredged material (capping) - Institute Advanced Environmental Effects Monitoring
	Benthic Monitoring	EPA	Determine whether there are adverse changes in the benthic populations outside of the site and evaluate recovery rates		Adverse changes observed outside of the site that may endanger the marine environment		
Advanced Environmental Effects Monitoring	Tissue Chemical Analysis	EPA/ USACE	Determine if the site is a source of adverse bioaccumulation which may endanger the marine environment	Implement if Environmental Effects Monitoring (chemistry) warrants.	Benthic body burdens and/or risk assessment models indicate potential for food chain impacts.	Discontinue monitoring	-Discontinue site use - Implement case specific management options (i.e. Remediation, limits on quantities or types of material).
	Benthic Monitoring		Determine if the site is a source of adverse sub-lethal[2] changes in benthic organisms which may endanger the marine environment		Sub-lethal effects are unacceptable.		

Table 5. Port Everglades Harbor ODMDS Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Trigger/ Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Monitor Bathymetric Trends	Bathymetry	User/ USACE	Determine the extent of the disposal mound and major bathymetric changes	Pre and post disposal for significant projects (>50,000cy)	Disposal mound occurs outside ODMDS boundaries	Continue Monitoring for each utilization	-Modify disposal method/placement -Restrict disposal volumes -Enlarge site
Short and Long-term Fate of Disposed Dredged Material	Sediment Profile Imaging	User/ EPA	Confirm aerial extent of disposal mound and benthic impact.	Following change in release zone and major new work projects	Measurable deposition (>5cm) outside of site boundaries	-Continue site use without restrictions	-Increase buffer as needed. -Restrict disposal volumes. -Create berms to retard dredged material transport.
Compliance	Disposal Site Use Records in EPA Region 4's XML format	Site User	Ensure management requirements are being met To assist in site monitoring	Weekly during the project	Disposal records required by SMMP are not submitted or are incomplete	Continue Monitoring	-Restrict site use until requirements are met

[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.

3.5 Reporting and Data Formatting

3.5.1 Project Initiation and Violation Reporting

The USACE or other site user shall notify EPA 15 days prior to the beginning of a dredging cycle or project disposal and include contract/permit numbers, start date, dates of relevant EPA concurrence, estimated end date and any other pertinent information. The user is also required to notify the USACE and the EPA within 24 hours if a violation of the permit and/or contract conditions related to MPRSA Section 103 or SMMP requirements occur during disposal operations.

3.5.2 Disposal Monitoring Data

Disposal monitoring data shall be provided to EPA Region 4 electronically on a weekly basis. In some cases, reporting may be required on a more frequent basis. Data shall be provided per the EPA Region 4 XML format and delivered as an attachment to an email to DisposalData.R4@epa.gov. The XML format is available from EPA Region 4.

3.5.3 Post Disposal Summary Reports

A Post Disposal Summary Report shall be provided to EPA within 90 days after project completion. These reports should include: dredging project title; permit number and expiration date (if applicable); contract number; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal timeframes for each vessel; volume disposed at the ODMDS (as paid *in situ* volume, total paid and un paid *in situ* volume, and gross volume reported by dredging contractor), number of loads to ODMDS, type of material disposed at the ODMDS; identification by load number of any misplaced material; dates of pre and post disposal bathymetric surveys of the ODMDS and a narrative discussing any violation(s) of the 103 concurrency and/or permit (if applicable). The narrative should include a description of the violation, indicate the time it occurred and when it was reported to the EPA and USACE, discuss the circumstances surrounding the violation, and identify specific measures taken to prevent reoccurrence. The Post Disposal Summary Report should be accompanied by the bathymetry survey results (plot and X, Y, Z ASCII data file), a summary scatter plot of all disposal start locations, and a summary table of the trip information required by Section 3.2 with the exception of the disposal completion data. If all data is provided in the required XML format, scatter plots and summary tables will not be necessary.

3.5.4 Environmental Monitoring

Material tracking, disposal effects monitoring, and any other data collected shall be provided to federal and state agencies as appropriate. Data will be provided to other interested parties requesting such data to the extent possible. Data will be provided for all surveys in a report generated by the action agency.

The report should indicate:

1) How the survey relates to the SMMP and previous surveys at the Port Everglades Harbor ODMDS
2) Provide data interpretations, conclusions, and recommendations
3) Project the next phase of the SMMP and any management alterations required for future site use

Monitoring results will be summarized in subsequent revisions to the SMMP.

4.0 MODIFICATION OF THE PORT EVERGLADES HARBOR ODMDS SMMP

Should the results of monitoring surveys or reports from other sources indicate that continued use of the ODMDS would lead to unacceptable effects as determined by EPA and USACE; the ODMDS SMMP will be modified to mitigate the adverse impacts. The SMMP will be reviewed and revised at a minimum of every ten years. The SMMP will be reviewed and updated as necessary if site use changes significantly. For example, the SMMP will be reviewed if the quantity or type of dredged material placed at the site changes significantly or if conditions at the site otherwise indicate a need for revision.

5.0 REFERENCES

Herbich, J.B. 1992. *Handbook of Dredging Engineering*. McGraw-Hill, Inc. New York. 1992.

Messing, Charles G., Moyer, R., Gilliam, D.S., Walker, B.K., Dodge, R.E., 2003. *Deep-water biological habitat survey report for the Tractebel Calypso natural gas pipeline extension of existing survey to 200m depth.* Submitted to URS Corporation. June 2003.

Taylor, 2010. Evaluation of Dredged Material Behavior at the Port Everglades Harbor Federal Project Ocean Dredged Material Disposal Site. Prepared for ANAMAR Environmental Consulting by Taylor Engineering. November 2010.

U.S. Army Corps of Engineers (USACE). 1990. *Selected Tools and Techniques for Physical and Biological Monitoring of Aquatic Dredged Material Disposal Sites.* Dredging Operations Technical Support Program Technical Report D-90-11. Waterways Experiment Station. September 1990.

U.S. Army Corps of Engineers (USACE). 2003. *Beneficial Use of Dredged Bedrock in the New York/New Jersey Harbor*. USACE Engineer Research and Development Center. TR-03-7. July 2003.

U.S. Army Corps of Engineers (USACE). 2013. *Port Everglades Harbor, Maintenance Dredging, 42-foot Project, W912EP-13-C-0001 Post Disposal Summary Report*.

U.S. Environmental Protection Agency (EPA). In press. *Environmental Assessment on Expansion of the Port Everglades Ocean Dredged Material Site (ODMDS).*

U.S. Environmental Protection Agency (EPA). 2004. *Final Environmental Impact Statement (EIS) for Designation of the Palm Beach Harbor Ocean Dredged Material Disposal Site and the Port Everglades Harbor Ocean Dredged Material Disposal Site,* July 2004.

U.S. Environmental Protection Agency (EPA). 2015. Palm Beach/Port Everglades FL, Ocean Dredged Material Disposal Site (ODMDS) Status and Trends Assessment Report SESD Project #14-0339. September 2-11, 2014. USEPA Region 4, Science and Ecosystem Support Division. Athens, GA.

U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal (Testing Manual)*, February 1991. Prepared by Environmental Protection Agency Office of Marine and Estuarine Protection and Department of Army United States Army Corps of Engineers under EPA Contract No. 68-C8-0105.

U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, 1996. *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites*, February 1996. Prepared by Environmental Protection Agency Office of Water and Department of Army United States Army Corps of Engineers.

U.S. Environmental Protection Agency, Region 4 and U.S. Army Corps of Engineers, South Atlantic Division, 2007. *Memorandum of Understanding Between U.S. Army Corps of Engineers, South Atlantic Division and U.S. Environmental Protection Agency, Region, 4 on Ocean Dredged Material Disposal*, April 2007.

U.S. Environmental Protection Agency, Region 4 and U.S. Army Corps of Engineers, South Atlantic Division, 2008. *Southeast Regional Implementation Manual (SERIM) Requirements and Procedures for Evaluation of the Ocean Disposal of Dredged Material in Southeastern Atlantic and Gulf Coastal Waters*, August 2008.

APPENDIX A

WATER COLUMN EVALUATIONS
NUMERICAL MODEL (STFATE) INPUT PARAMETERS

Water Column Evaluations
Numerical Model (STFATE) Input Parameters
Port Everglades Harbor ODMDS

SITE DESCRIPTION

Parameter	Value	Units
Number of Grid Points (left to right)	40	
Number of Grid Points (top to bottom)	60	
Spacing Between Grid Points (left to right)	400	ft
Spacing Between Grid Points (top to bottom)	400	ft
Constant Water Depth	645	ft
Roughness Height at Bottom of Disposal Site	.005[1]	ft
Slope of Bottom in X-Direction	0	Deg.
Slope of Bottom in Z-Direction	1.0	Deg.
Number of Points in Ambient Density Profile Point[2]	5	
Ambient Density at Depth = 0 ft	1.0237	g/cc
Ambient Density at Depth = 65 ft	1.0238	g/cc
Ambient Density at Depth = 164 ft	1.0246	g/cc
Ambient Density at Depth = 328 ft	1.0272	g/cc
Ambient Density at Depth = 645 ft	1.0282	g/cc

AMBIENT VELOCITY DATA[3]

Parameter	Value	Units
Profile	2-Point at constant depth	
X-Direction Velocity = 33 feet	-2.7	ft/sec
Z-Direction Velocity = 33 feet	1.1	ft/sec
X-Direction Velocity = 197 feet	-2.2	ft/sec
Z-Direction Velocity = 197 feet	0.9	ft/sec

DISPOSAL OPERATION DATA

Parameter (New Work Zone)	Value	Units
Location of Disposal Point from Top of Grid	13,307	ft
Location of Disposal Point from Left Edge of Grid	7,078	ft
Dumping Over Depression	0	

Parameter (Maintenance Zone)	Value	Units
Location of Disposal Point from Top of Grid	18,173	ft
Location of Disposal Point from Left Edge of Grid	9,157	ft
Dumping Over Depression	0	

INPUT, EXECUTION AND OUTPUT

Parameter	Value	Units
Location of the Upper Left Corner of the Disposal Site - Distance from Top Edge	6636	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	3461	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	20282	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	12139	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

COEFFICIENTS

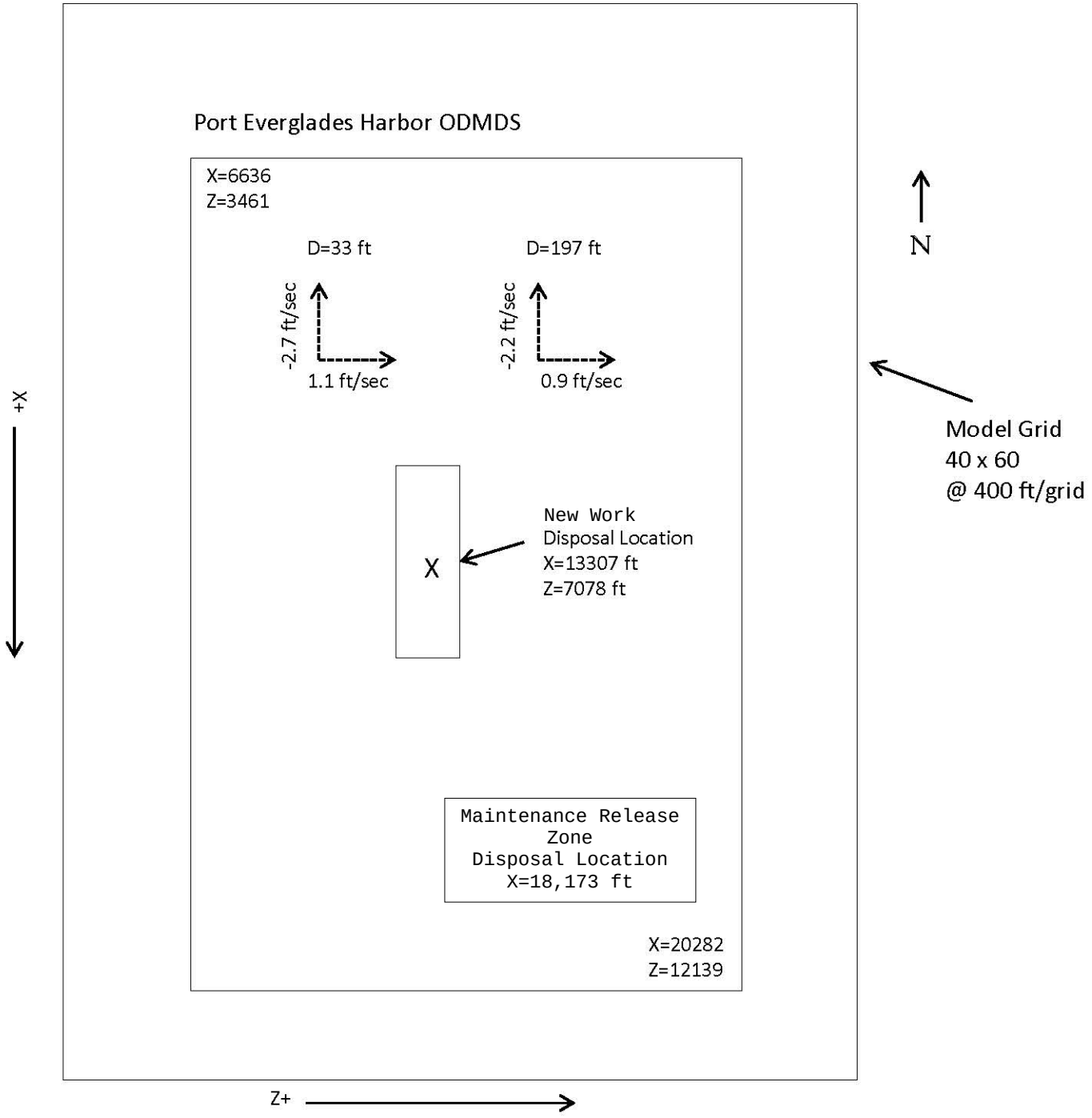
Parameter	Keyword	Value
Settling Coefficient	BETA	0.000[1]
Apparent Mass Coefficient	CM	1.000[1]
Drag Coefficient	CD	0.500[1]
Form Drag for Collapsing Cloud	CDRAG	1.000[1]
Skin Friction for Collapsing Cloud	CFRIC	0.010[1]
Drag for an Ellipsoidal Wedge	CD3	0.100[1]
Drag for a Plate	CD4	1.000[1]
Friction Between Cloud and Bottom	FRICTN	0.010[1]
4/3 Law Horizontal Diffusion Dissipation Factor	ALAMDA	0.001[1]
Unstratified Water Vertical Diffusion Coefficient	AKYO	Pritchard Expression
Cloud/Ambient Density Gradient Ratio	GAMA	0.250[1]
Turbulent Thermal Entrainment	ALPHAO	0.39[4]
Entrainment in Collapse	ALPHAC	0.100[1]
Stripping Factor	CSTRIP	0.003[1]

[1] Model Default Value

[2] Profile from EPA 2011 measurements (ANAMAR 2012)

[3] Velocity data represents average conditions. Determined from WES 1998 analysis of ADCP data offshore Ft. Lauderdale, FL.

[4] Calculated from NOAA Field Work at Miami (1991)


Port Everglades Harbor ODMDS
X=6636
Z=3461
D=33 ft
D=197 ft
-2.7 ft/sec
1.1 ft/sec
-2.2 ft/sec
0.9 ft/sec
N
+X
Model Grid
40 x 60
@ 400 ft/grid
X
New Work
Disposal Location
X=13307 ft
Z=7078 ft
Maintenance Release
Zone
Disposal Location
X=18,173 ft
X=20282
Z=12139
Z+

Port Everglades ODMDS Background Water Concentration.	
Compounds	**Background Concentration Levels (µg/l)**
Arsenic	1.54 [1]
Cadmium	0.021 [1]
Chromium (VI)	0.15 [1]
Copper	0.16 [1]
Lead	0.012 [1]
Mercury	0.1[1,2]
Nickel	0.25 [1]
Selenium	0.5 [1,2]
Silver	0.01[1,2]
Zinc	0.88[1]
Cyanide	1.0 [1,2]
Tributyltin (TBT)	0.025 [1,2]
Aldrin	0.0043 [1,2]
Chlordane	0.1 [1,2]
DDT	0.0017 [1]
Dieldrin	0.0043 [1,2]
alpha - Endosulfan	0.0043 [1,2]
beta - Endosulfan	0.0043 [1,2]
Endrin	0.0043 [1,2]
gamma-BHC (Lindane)	0.0043 [1,2]
Heptachlor	0.0043 [1,2]
Heptachlor Epoxide	0.0043 [1,2]
Toxaphene	.24 [1,2]
Pentachlorophenol	0.47 [1,2]

[1] Samples collected by EPA, Region 4, October 2007 at the Port Everglades ODMDS (USACE 2010) – Values taken from near bottom samples.

[2] Analyte not detected. Value based on one half the reporting limit.

APPENDIX B

SCOW CERTIFICATION TEMPLATE

SCOW CERTIFICATION CHECKLIST	USACE PERMIT or CONTRACT #		4/17/2015
[PROJECT NAME]	DATE:		

CHECKLIST ITEM	RECORD DATA	INITIALS	
	TO BE FILLED OUT AND SIGNED WITHIN 1 HOUR PRIOR TO DEPARTURE TIME IN NO. 3.	CONTRACTOR	Permittee or Authorized Representative
1. OCEAN DISPOSAL TRIP NUMBER			
2. DEPARTURE DATE TO ODMDS			
3. DEPARTURE TIME TO ODMDS			
4. DEPARTURE LOCATION (dredge, berth, etc.)			
5. SCOW NAME			
6. SCOW CAPACITY (CY)			
7. TUG NAME			
8. TUG CAPTAIN'S NAME			
9. DREDGED MATERIAL SOURCE (area, reach, berth, etc.)			
10. CUBIC YARDS HAULED			
11. SCOW FORE DRAFT / AFT DRAFT / AVG AND TIME			
12. SCOW FORE DRAFT / AFT DRAFT / AVG AND TIME (must be at least one hour prior to time in No. 11)			
13. DRAFT CHANGE (No 12 - No. 11)			
14. FREEBOARD OF MATERIAL AND/OR WATER SURFACE			
15. NWS COASTAL MARINE FORECAST (out to 20 nm)	DATE / TIME OF REPORT		
[area]	_____ WAVE HT (FT)		
WRITE-IN APPROPRIATE FORECAST PERIODS (ie, TODAY, TONIGHT, TOMORROW)	_____ WIND SPEED (KTS) PERIOD (SEC) COMMENTS:		
16. SCOW TRACKING SYSTEM FUNCTIONING?	☐ YES ☐ NO		
17. HELMSMAN DISPLAY FUNCTIONING ON TUG?	☐ YES ☐ NO		
18. GPS FUNCTIONING ON TUG?	☐ YES ☐ NO		
19. COMMENTS			
20. CONTRACTOR'S SIGNATURE	PRINT NAME:	TIME / DATE:	
21. PERMITTEE/REPRESENTATIVE'S SIGNATURE	PRINT NAME:	TIME / DATE:	
22. THE DECISION TO PROCEED TO THE OCEAN DISPOSAL SITE, BASED UPON ALL AVAILABLE DATA INCULDING THE RECORDING AND CALCULATIONS ON THIS FORM, IS ALSO SUBJECT TO THE PROFESSIONAL JUDGEMENT OF THE TUG CAPTAIN AS TO THE SAFETY OF THE CREW AND VESSEL.			
TUG CAPTAIN'S SIGNATURE:	PRINT NAME:	TIME / DATE:	

DATE/TIME OF DUMP: _____

BARGE X OR LONGITUDE: _____

BARGE Y OR LATITUDE: _____

TUG X OR LONGITUDE: _____

TUG Y OR LATITUDE: _____

DATE/TIME OF DISPOSAL VESSEL CLOSURE: _____

BARGE X OR LONGITUDE: _____

BARGE Y OR LATITUDE: _____

TUG X OR LONGITUDE: _____

TUG Y OR LATITUDE: _____

ADDITIONAL COMMENTS, PROBLEM DESCRIPTIONS, ETC.

APPENDIX C

GENERIC SPECIAL CONDITIONS FOR MPRSA SECTION 103 PERMITS PORT EVERGLADES HARBOR, FL ODMDS

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GENERIC SPECIAL CONDITIONS FOR MPRSA SECTION 103 PERMITS

I. DISPOSAL OPERATIONS

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

B. The Port Everglades Harbor ODMDS is defined as the rectangle with 26°07.00'N latitude and 80°01.50'W longitude (NAD 83) or state plane coordinates 649292.4 ft N and 976098.2 ft E (NAD83). The site coordinates are as follows:

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NE	26°07.50'N	80°02.00'W	973341.1 E	652301.1 N
NW	26°07.50'N	80°01.00'W	9788810.0 E	652342.1 N
SW	26°06.50'N	80°02.00'W	973386.1 E	646,242.9 N
SE	26°06.50'N	80°01.00'W	978,855.7 E	646,283.9 N

C. No more than [NUMBER] cubic yards of dredged material excavated at the location defined in [REFERENCE LOCATION IN PERMIT] are authorized for disposal at the Port Everglades Harbor ODMDS.

D. The permittee shall use an electronic positioning system to navigate to and from the Port Everglades Harbor ODMDS. For this section of the permit, the electronic positioning system is defined as: a differential global positioning system or a microwave line of site system. Use of LORAN-C alone is not an acceptable electronic positioning system for disposal operations at the Port Everglades Harbor ODMDS. If the electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected.

E. The permittee shall certify the accuracy of the electronic positioning system proposed for use during disposal operations at the Port Everglades Harbor ODMDS. The certification shall be accomplished by direct comparison of the electronic positioning system's accuracy with a known fixed point.

F. The permittee shall not allow any water or dredged material placed in a hopper dredge or disposal barge or scow to flow over the sides or leak from such vessels during transportation to

the Port Everglades Harbor ODMDS prior to the sea buoy G"3". No more than 1.5 feet of draft loss is allowable while east of sea buoy G"3".

G. A disposal operations inspector and/or captain of any tug boat, hopper dredge or other vessel used to transport dredged material to the Port Everglades Harbor ODMDS shall insure compliance with disposal operation conditions defined in this permit.

1. If the disposal operations inspector or the captain detects a violation, he shall report the violation to the permittee immediately.

2. The permittee shall contact the U.S. Army Corps of Engineers, Jacksonville District's Regulatory Division [TELEPHONE NUMBER] and EPA Region 4 at (404) 562-8082 (cc: OceanDumpingR4@epa.gov) 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 disposal summary report.

H. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Port Everglades Harbor ODMDS as defined in Special Condition B. Additionally, disposal shall be initiated within the disposal release zone defined by the following coordinates:

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NW				
NE				
SW				
SE				

I. During transit to the Port Everglades Harbor ODMDS, the disposal vessel shall remain within the navigation channel until east of the buoy "G3". Transit begins when the vessel is full and begins to proceed to the ODMDS.

J. The permittee shall use an electronic tracking system (ETS) that will continuously track the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) to and from the Port Everglades Harbor ODMDS. Data shall be collected at least every 500 feet during travel to and from the ODMDS and every minute or every 200 feet of travel, whichever is smaller, while approaching within 1,000 feet and within the ODMDS. The permittee shall use Florida State Plane or latitude and longitude coordinates (North American Datum 1983). State Plane coordinates shall be reported to the nearest foot and latitude and longitude coordinates shall be reported as decimal degrees out to 6 decimals. Westerly longitudes are to be reported as negative. Draft readings shall be recorded in feet out to 2 decimals.

K. The permittee shall record electronically for each load the following information:

a. Load Number
b. Disposal Vessel or Scow Name
c. Estimated volume of Load
d. Description of Material Disposed
e. Source of Dredged Material
f. Date, Time and Location at Start at Initiation and Completion of Disposal Event
g. The ETS data required by Special Condition I.J.

L. The permittee shall conduct a bathymetric survey of the Port Everglades Harbor ODMDS within 30 days following project completion.

1. The number and length of the survey transects shall be sufficient to encompass the release zone specified in Special Condition H and a 500 foot wide area around the site. The transects shall be spaced at 500-foot intervals or less.

2. Vertical accuracy of the survey shall be ±0.5 feet. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either microwave line of site system or differential global positioning system. The vertical datum shall be mean lower low water (m.l.l.w) and the horizontal datum shall use Florida State Plane or latitude and longitude coordinates (North American Datum 1983). State Plane coordinates shall be reported to the nearest 0.10 foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimal points.

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

II. REPORTING REQUIREMENTS

A. All reports, documentation and correspondence required by the conditions of this permit shall

be submitted to the following addresses: U.S. Army Corps of Engineers (Corps), Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, Florida 32232-0019 and U. S. Environmental Protection Agency (EPA) Region 4's Oceans Wetlands Streams Protection Branch, 61 Forsyth Street, Atlanta, GA 30303 (OceanDumpingR4@epa.gov). The Permittee shall reference this permit number, [INSERT PERMIT NUMBER], on all submittals.

B. At least 15 days before initiating any dredging operations authorized by this permit, the Permittee shall provide to the Corps and EPA Region 4 a written notification of the date of commencement of work authorized by this permit, including permit/contract numbers, start date, expected end date, and other pertinent information.

C. Electronic data required by Special Conditions I.J and I.K shall be provided to EPA Region 4 on a weekly basis. Data shall be submitted as an eXtensible Markup Language (XML) document via Internet e-mail to DisposalData.R4@epa.gov. XML data file format specifications are available from EPA Region 4.

D. The permittee shall send one (1) copy of the disposal summary report to the Jacksonville District's Regulatory Division and one (1) copy of the disposal summary report to EPA Region 4 documenting compliance with all general and special conditions defined in this permit. The disposal summary report shall be sent within 90 days after completion of the disposal operations authorized by this permit. The disposal summary report shall include the following information:

1. The report shall indicate whether all general and special permit conditions were met. Any violations of the permit shall be explained in detail.

2. The disposal summary report shall include the following information: dredging project title; dates of disposal; permit number and expiration date; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal timeframes for each vessel; volume disposed at the ODMDS (as paid *in situ* volume, total paid and un paid *in situ* volume, and gross volume reported by dredging contractor), number of loads to ODMDS, type of material disposed at the ODMDS; identification of any misplaced material (outside disposal zone or the ODMDS boundaries); dates of pre and post disposal bathymetric surveys of the ODMDS and a narrative discussing any violation(s) of the 103 permit. The disposal summary report should be accompanied by the bathymetry survey results (plot and X,Y,Z ASCII data file).

III. PERMIT LIABILITY

A. The permittee shall be responsible for ensuring compliance with all conditions of this permit.

B. The permittee and all contractors or other third parties who perform an activity authorized by this permit on behalf of the permittee shall be separately liable for a civil penalty for each violation of any term of this permit they commit alone or in concert with the permittee or other parties. This liability shall

be individual, rather than joint and several, and shall not be reduced in any fashion to reflect the liability assigned to any civil penalty assessed against the permittee or any other third party as defined in 33 U.S.C. Section 1415(a).

C. 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).

APPENDIX D

TYPICAL CONTRACT LANGUAGE FOR IMPEMENTING THE PORT EVERGLADES HARBOR ODMDS SMMP REQUIREMENTS

TYPICAL CONTRACT LANGUAGE FOR IMPEMENTING SMMP REQUIREMENTS

3.3 DISPOSAL OF DREDGED MATERIAL

3.3.1 General

All material dredged shall be transported to and deposited in the disposal area(s) designated on the drawings. The approximate maximum and average distance to which the material will have to be transported are as follows:

Disposal Area	Maximum Distance Statute Miles	Average Distance Statute Miles
Port Everglades Harbor ODMDS		
[INSERT DISPOSAL ZONES	[XX miles]	[XX miles] AREA 2]

[IF MATERIAL FROM DIFFERENT PROJECT AREAS GO TO DIFFERENT DISOSAL AREAS, IT SHOULD BE SPECIFIED HERE]

3.3.2 Ocean Disposal Notification

a. The Corps or the contractor shall notify EPA Region 4 's Oceans, Wetlands, and Stream Protection Branch (61 Forsyth Street, Atlanta, GA 30303) or OceanDumpingR4@epa.gov at least 15 calendar days and the local Coast Guard Captain of the Port at least 5 calendar days prior to the first ocean disposal. The notification will be by certified mail with a copy to the Contracting Officer. The following information shall be included in the notification:
   (1) Project designation; Corps of Engineers' Contracting Officer's name and contract number; and, the Contractor's name, address, and telephone number.
   (2) Port of departure.
   (3) Location of ocean disposal area (and disposal zone(s)).
   (4) Schedule for ocean disposal, giving date and time proposed for first ocean disposal.

3.3.3 Ocean Dredged Material Disposal Sites (ODMDS)

The material excavated shall be transported to and deposited in the Port Everglades Harbor ODMDS as shown on the drawings. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Port Everglades Harbor ODMDS. Additionally, disposal shall be initiated within the disposal release zone(s) defined by the following coordinates:

[insert coordinates for appropriate release zone(s)]

Vertices	Geographic NAD 83		State Plane (Florida East 0901 U.S. Ft) NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NW				
NE				
SW				
SE				

During transit to and from the Port Everglades Harbor ODMDS, the disposal vessel shall remain within the navigation channel until east of the buoy G"3". Dredged material shall not be leaked or spilled from vessels while west of the G"3" buoy. Leakage or spillage of material east of the sea buoy is limited to 1.5 feet of draft loss (average between forward and aft sensors) during transit to the ODMDS. Transit to the ODMDS begins as soon as dredged material loading into the disposal vessel is completed and the vessel begins moving to the ODMDS.

3.3.4 Logs

The Contractor shall keep a log for each load placed in the Port Everglades Harbor ODMDS. The log entry for each load shall include:

h. Load Number
i. Disposal Vessel or Scow Name
j. Estimated volume of Load
k. Description of Material Disposed
l. Source of Dredged Material
m. Date, Time and Location (coordinates) at Start of Initiation and Completion of Disposal Event

At the completion of dredging and at any time upon request, the log(s) shall be submitted in paper and electronic formats to the Contracting Officer for forwarding to the appropriate agencies.

3.3.5 Overflow, Spills and Leaks

Water and dredged materials shall not be permitted to overflow or spill out of barges, hopper dredges, or dump scows while filling or during transport to the disposal site(s) while within the Federal channel (west of Sea Buoy G"3"). Loss of dredged material during transit east of the sea buoy (G"3") is limited to 1.5 feet (average of forward and aft sensors.) Failure to repair leaks or change the method of operation which is resulting in overflow or spillage will result in suspension of dredging operations and require prompt repair or change of operation to prevent overflow or spillage as a prerequisite to the resumption of dredging.

3.3.6 Electronic Tracking System (ETS) for Ocean Disposal Vessels

The Corps shall use Dredge Quality Management (DQM) to monitor dredging and dredge material disposal. The contractor shall use an Electronic Tracking System (ETS) to navigate to and from the harbor to the ODMDS. This ETS shall be established, operated and maintained by the contractor to continuously track in real-time the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) for the entire dredging cycle, including dredging area and disposal area. The ETS shall be capable of displaying and recording in real-time the disposal vessel's draft and location 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. The contractor shall certify the accuracy of the electronic positioning system proposed for use during disposal operations. 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

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[USE LANGUAGE BELOW FOR NON DQM PROJECTS]

The Contractor shall furnish an ETS for surveillance of the movement and disposition of dredged material during dredging and ocean disposal. This ETS shall be established, operated and maintained by the Contractor to continuously track in real-time the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal barge or scow) for the entire dredging cycle, including dredging area and disposal area. The ETS shall be capable of displaying and recording in real-time the disposal vessel's draft and location.

3.3.6.1 ETS Standards

The Contractor shall provide automated (computer) system and components to perform in accordance with COE EM 1110-1-2909. A copy of the EM can be downloaded from the following web site: http://www.usace.army.mil/inet/usace-docs'eng-manuals/em.htm. Horizontal location shall have an accuracy equal to or better than a standard DGPS system, equal to or better than plus/minus 10 feet (horizontal repeatability). Vertical (draft) data shall have an accuracy of plus/minus 0.5 foot. Horizontal location and vertical data shall be collected in sets and each data set shall be referenced in real-time to date and local time (to nearest minute), and shall be referenced to the same state plane coordinate system used for the survey(s) shown in the contract plans. The ETS shall be calibrated, as required, in the presence of the Contracting Officer at the work location before disposal operations have started, and at 30-day intervals while work is in progress. The Contracting Officer shall have access to the ETS in order to observe its operation. Disposal operations will not commence until the ETS to be used by the Contractor is certified by the Contracting Officer to be operational and within acceptable accuracy. It is the Contractor's responsibility to select a system that will operate properly at the work location. The complete system shall be subject to the Contracting Officer's approval.

3.3.6.2 ETS Data Requirements and Submissions

a. The ETS for each disposal vessel shall be in operation for all dredging and disposal activities and shall record the full round trip for each loading and disposal cycle. (NOTE: A dredging and disposal cycle constitutes the time from commencement of dredging to complete discharge of the material.) The Contracting Officer shall be notified immediately in the event of ETS failure and all dredging operations for the vessel shall cease until the ETS is fully operational. Any delays resulting from ETS failure shall be at the Contractor's expense.

b. Data shall be collected, during the dredging and disposal cycle, every 500 feet (at least) during travel to the disposal area, and every minute or every 200 feet, whichever is smaller, while approaching within 1,000 feet and within the disposal area.

c. Plot Reporting (2 types):

a. Tracking Plot - For each disposal event, data collected while the disposal vessel is in the vicinity of the disposal area shall be plotted in chart form, in 200-foot intervals, to show the track and draft of the disposal vessel approaching and traversing the disposal area. The plot shall identify the exact position at which the dump commenced.
b. Scatter Plot - Following completion of all disposal events, a single and separate plot will be prepared to show the exact disposal locations of all dumps. Every plotted location shall coincide with the beginning of the respective dump. Each dump shall be labeled with the corresponding Trip Number and shall be at a small but readable scale.
c. Summary Table – A spreadsheet which contains all of the information in the log(s) above shall be prepared and shall correspond to the exact dump locations represented on the Scatter Plot.

d. ETS data and log data required by Section 3.3.4 shall be provided to EPA Region 4 on a weekly or more frequent basis. Data shall be submitted to EPA Region 4 as an eXtensible Markup Language (XML) document via Internet e-mail to DisposalData.R4@epa.gov. XML data file format specifications are available from EPA Region 4. All digital ETS data shall be furnished to the Contracting Officer within 24 hours of collection. The digital plot files should be in an easily readable format such as Adobe Acrobat PDF file, Microstation DGN file, JPEG, BMP, TIFF, or similar. The hard copy of the ETS data and tracking plots shall be both maintained onboard the vessel and submitted to the Contracting Officer on a weekly basis.

[FOR DQM PROJECTS]

See: http://dqm.usace.army.mil/Specifications/Index.aspx

For scows, the monitoring profile, TDS profile or Ullage profile shall be used.

3.3.6.3 Misplaced Materials

Materials deposited outside of the disposal zone specified in 3.3.3 will be classified as misplaced material and will result in a suspension of dredging operations. Re-dredging of such materials will be required as a prerequisite to the resumption of dredging unless the Contracting Officer, at his discretion, determines that re-dredging of such material is not practical. If re-dredging of such material is not required then the quantity of such misplaced material shall be deducted from the Contractor's pay quantity. If the quantity for each misplaced load to be deducted cannot initially be agreed to by both the Contractor and Contracting Officer, then an average hopper/scow load quantity for the entire contract will be used in the determination. Misplaced loads may also be subject to penalty under the Marine, Protection, Research and Sanctuaries Act. Materials deposited above the maximum indicated elevation or outside of the disposal area template shown will require the re-dredging or removal of such materials at the Contractor's expense. In addition, the Contractor must notify the Contracting Officer and the Environmental Protection Agency Region 4 's Oceans Estuary and Marine Management Section (OceanDumpingR4@epa.gov) within 24 hours of a misplaced dump or any other violation of the Site Management and Monitoring Plan for the Port Everglades Harbor ODMDS. Corrective actions must be implemented by the next dump and the Contracting Officer must be informed of actions taken.