

US EPA ARCHIVE DOCUMENT

5.0 MANAGEMENT OF THE DISPOSAL SITE

5.1 MANAGEMENT OF DISPOSAL SITES

As discussed previously, verification that significant impacts do not occur outside of the site boundaries will be demonstrated through implementation of the Site Management and Monitoring Plan (SMMP) developed as part of the proposed action. The SMMP includes physical monitoring to confirm that the material that is deposited is landing where it is supposed to land as well as monitoring to confirm that the deposited sediment quality appears consistent with results of the pre-disposal testing. An appropriately developed SMMP will be implemented regardless of which alternative is selected for implementation.

The main purpose of the SMMP is to provide a structured framework for resource agencies to ensure that dredged material disposal activities will not unreasonably degrade or endanger human health, welfare, the marine environment, or economic potentialities as stated in Section 103(a) of the MPRSA. Three main objectives for management of either of the two proposed Guam ODMDS sites are:

- Protection of the marine environment.
- Beneficial use of dredged material whenever practical.
- Documentation of disposal activities at the ODMDS.

The USEPA and USACE Honolulu District personnel will achieve these objectives by jointly administering the following activities:

- Regulation and administration of ocean disposal permits.
- Development and maintenance of a site monitoring program.
- Evaluation of permit compliance and monitoring results.
- Maintenance of an active database for dredged material testing and site monitoring results to document non-degradation goal and compliance with annual disposal volume targets in order to facilitate future revisions to the SMMP.

Other activities implemented through the SMMP to achieve these objectives include:

- Regulating quantities and types of material to be disposed of, and the time, rates, and methods of disposal.
- Recommending changes for site use, disposal amounts, or designation for a limited time based on periodic evaluation of site monitoring results.

5.1.1 Ocean Disposal Permits

Dredging projects that propose disposal at an ODMDS require permits. Disposal of materials into the ocean is only permitted if there are no practical alternatives. Environmental risks, impacts, and costs of ocean disposal are some factors evaluated in this process. As such, information required for permit applications must be consistent with USACE's Regulatory Program requirements (33 CFR 320-330), NEPA regulations (33 CFR 230 and 325), and

Chapter 5:

5.0 *Management of the Disposal Site*

5.1 *Management of Disposal Sites*

5.2 *Characteristics Common to Both ODMDS "Action" Alternatives*

5.3 *ODMDS Management*

USEPA's Ocean Dumping Regulations (40 CFR Parts 220, 225, 227, and 228), and may include the following:

- Written documentation of the need to dispose of dredged material in the ocean.
- Description of historical dredging and activities at or adjacent to the proposed dredging site that may represent sources of contamination to the site.
- Type and quantity of the dredged material proposed for disposal at the site.
- Existing conditions of the proposed dredging area including the proposed dredging depths, overdredge depths, and depths adjacent to the boundary of the proposed dredging area.
- Composition and characteristics of the proposed dredged material including the results from physical, chemical, and biological testing. These data are used to determine whether the proposed dredged material is suitable for ocean disposal at the site.
- Estimate of the planned start and completion dates for the dredging operation; this information is needed to avoid potential resource conflicts and may be used to schedule inspections at the dredging site and/or the disposal site.
- Development of a debris management plan that addresses the disposal of materials other than the dredged sediment (e.g., pilings or metal debris) to ensure that these other materials are not discharged at the disposal site.

In accordance with the requirements and procedures defined in the USEPA's Ocean Dumping Regulations (40 CFR Parts 220, 225, 227, and 228), the suitability of dredged material proposed for disposal at the ODMD S must be demonstrated through appropriate physical, chemical, and biological testing. Ocean Dumping Regulation Section 227.6 prohibits the disposal of certain contaminants other than trace chemical constituents of dredged material. Further, regulatory decisions rely on assessments of the potential for unacceptable adverse impacts based on persistence, toxicity, and bioaccumulation of the constituents instead of specific numerical limits (USEPA and USACE 1991).

Determining the suitability of dredged material involves a multi-tiered testing procedure. Lower tiers apply existing or easily obtained information and limited chemical testing to predict effects. If it is predicted that the dredged material has any potential for significant adverse effects, higher tiers are activated. Water column and benthic bioassay and bioaccumulation tests are utilized in higher tiers to determine effects on representative marine organisms.

The USEPA Green Book (USEPA and USACE 1991) protocols will be used when testing the bioaccumulation potential of dredged material proposed for ocean disposal. The Green Book protocols state that if testing results indicate that the bioaccumulation of contaminants statistically exceeds that of reference material tests, the following eight factors will be assessed to evaluate Limited Permissible Concentrations (LPC) compliance (USEPA and USACE 1991):

- Number of species in which bioaccumulation from the dredged material is statistically greater than bioaccumulation from the reference material.
- Number of contaminants for which bioaccumulation from the dredged material is statistically greater than the bioaccumulation from the reference material.

- Magnitude by which bioaccumulation from the dredged material exceeds bioaccumulation from the reference material.
- Toxicological importance of the contaminants whose bioaccumulation from the dredged material statistically exceeds bioaccumulation from the reference material.
- Phylogenetic diversity of the species in which bioaccumulation from the dredged material statistically exceeds bioaccumulation from the reference material.
- Tendency for contaminants with statistically significant bioaccumulation to biomagnify within aquatic food webs (Biddinger and Gloss 1984; Kay 1984).
- Magnitude of toxicity and number of phylogenetic diversity of species exhibiting greater mortality in the dredged material than in the reference material.
- Magnitude by which contaminants whose bioaccumulation from the dredged material exceeds that from the reference material also exceeds the concentrations found in comparable species living in the vicinity of the proposed disposal site.

Decisions regarding the suitability of dredged material to be disposed of in the ocean will be guided by the criteria contained in the MPRSA and USEPA's Ocean Dumping Criteria. The USACE is authorized by the MPRSA to issue permits for dredged material disposal. The USACE, Honolulu District will prepare the Public Notice concerning the proposed disposal operation. USEPA Region 9, as well as other Federal and state agencies, will participate in the review of the application. USEPA Region 9, in accordance with 40 CFR 220.4(c), will approve, disapprove, or propose conditions on the MPRSA Section 103 permit before USACE can issue a permit. USEPA Region 9 will not approve disposal of material into the ocean that has the potential for significant adverse biological impacts.

Additional conditions on the disposal operations may be imposed for disposal permits subsequently issued for individual projects in order to preclude or minimize potential interference with other activities and/or uses of the ocean. There are several management options for the permitting process including but not limited to: disposal volume limits, seasonal restrictions, full or partial approval of dredged material proposed for disposal, disposal within a spatially-limited portion of the disposal site, or other requirements such as dredged material barge operators to stay within a specified transit path, utilize navigation equipment for specified accuracy, and maintain appropriate ship logs.

USEPA Region 9 will work with the USACE Honolulu District and the USCG to monitor, inspect, and conduct surveillance of disposal operations in the Guam area. As authorized under MPRSA Section 105(a), USEPA Region 9 may take appropriate enforcement actions if violations of the permit(s) are detected.

5.1.2 Site Management and Monitoring

In accordance with 40 CFR 228.3, the EPA is responsible for management of ocean disposal sites, including the Guam ODMDS. Additionally, in accordance with 40 CFR 228.9(c) the EPA requires full participation of the permittees and encourages participation by state, federal, and local agencies in the development and implementation of monitoring programs for disposal sites.

In concert with the implementation of this action, a detailed SMMP has been developed by the USEPA and USACE. The main purpose of the SMMP is to provide a structured framework for resource agencies to ensure that dredged material disposal activities will not unreasonably degrade or endanger human health, welfare, the marine environment, or economic potentialities

(Section 103(a) of the MPRSA). It is the next step in the continuum of effective resource management that starts with the site designation process.

The SMMP provides a framework for evaluating the performance of the site by tracking all disposal activities for compliance and comparing the observed disposed material footprint to model predictions. Another key aspect of the SMMP is its inherent flexibility to accommodate unforeseen needs and the associated ability to revise the plan, if necessary, as changes arise or needs are identified in the future. While the basic management and monitoring plan has been structured based on the experience to date at other dredging disposal sites, there is always the possibility that an unanticipated event or problem will arise that will require accommodations to this current framework. To this end, USEPA Region 9 and the USACE Honolulu District will periodically review the SMMP to discuss potential problems or address concerns of other state and federal regulatory agencies or the public regarding disposal activities.

The SMMP, which is included as Appendix C of this EIS, will undergo final public review as part of the proposed rule package for this action required by NEPA

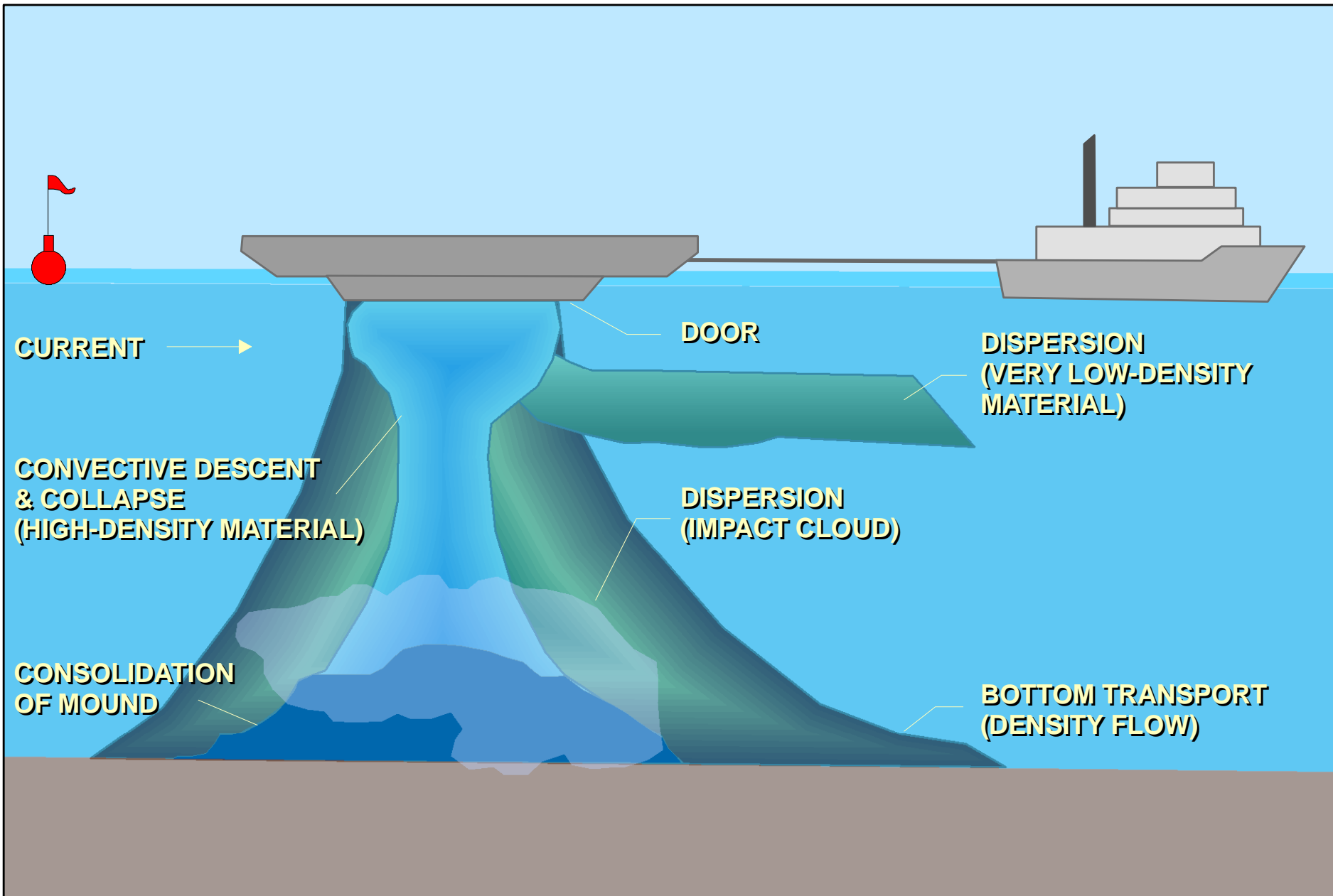
5.2 CHARACTERISTICS COMMON TO BOTH ODMDS “ACTION” ALTERNATIVES

There are physical and management characteristics common to all designated ODMDS. These are not site-specific and are discussed in this section. The short-term conceptual fate of the dredged material once it is released at the ODMDS and the management of the ODMDS is the same for both alternatives.

5.2.1 Physical Characteristics of ODMDS Use

The goal is to minimize significant changes to the topography of the ocean floor outside of the ODMDS boundaries; temporary physical changes are expected inside site boundaries. The material will not be solidified or compacted prior to disposal. The characteristics of the dredged materials to be disposed at the ODMDS are modeled as described in the *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual* (USEPA and USACE 1998).

Barges are designed with bottom doors or with a split-hull, and the contents are emptied within seconds, essentially as an instantaneous discharge. Often sediments dredged by clamshell remain in fairly large consolidated clumps and reach the bottom in this form. Whatever its form, the dredged material descends rapidly through the water column to the bottom, and only a small amount of the material remains suspended (USEPA and USACE 1998). Figure 5-1 is a conceptual representation of the short-term phases of dredged material disposal at either ODMDS alternative. In general, the behavior of the material during disposal is assumed to be separated into three phases: 1) convective descent, during which the disposal cloud falls under the influence of gravity and its initial momentum is imparted by gravity; 2) dynamic collapse, occurring when the descending cloud either impacts the bottom or arrives at a level of neutral buoyancy where descent is retarded and horizontal spreading dominates; and 3) passive bottom transport dispersion, commencing when the material transport and spreading are determined more by ambient currents and turbulence than by the dynamics of the disposal operation (USEPA and USACE 1998).



5-5

Figure 5-1.
Short-term Fate of
Dredged Material Disposal

5.3 ODMDS MANAGEMENT

5.3.1 Dredging Permits

Formal designation of an ODMDS in the FR does not constitute approval of dredged material for ocean disposal. Designation of an ODMDS provides an ocean disposal option for consideration in the review of each proposed dredging project. Ocean disposal is only allowed when: 1) USEPA and USACE determine that the dredged material is environmentally suitable according to specified criteria (40 CFR Parts 225 and 227), as determined through physical, chemical, and bioassay/bioaccumulation testing (USEPA and USACE 1991), and 2) beneficial reuse is not practical for reasons described in Section 1.3.1.

USACE may issue ocean disposal permits for dredged material if USEPA concurs with the decision (MPRSA Section 103). The permitting regulations promulgated by the USACE, under the MPRSA, appear at 33 CFR Parts 320 to 330 and 335 to 338. Roles and responsibilities associated with the ODMDS are as follows:

- USEPA (and USACE for federal projects in consultation with USEPA) would conduct surveillance, monitoring, and site management at the ODMDS.
- USACE issues the permits for specific dredging activities with USEPA concurrence.
- USCG is responsible for vessel traffic-related tracking and monitoring.
- Permittee is responsible for implementing and financing all permit conditions, including any site monitoring.

Dredged material proposed for ocean disposal undergoes a multi-tier evaluation to demonstrate compliance with the requirements of 40 CFR Part 227. USEPA follows the procedures described in the *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual* (USEPA and USACE 1991), which is summarized in Section 2.7 and in the text of this section. At each tier, there is an assessment of potential impacts to the water column and the benthic habitat. The intent of the tiered approach is to use resources efficiently by testing only as intensely as is necessary to provide sufficient information for making decisions. The initial tiers use existing information and relatively simple, rapid procedures for determining potential environmental impact of the dredged material in question. In some cases, these alone are sufficient to characterize the potential impact or lack of impact of the dredged material on the water column and the benthic community. However, additional tests may be needed for other dredged materials with less clear potential for impact or for which the existing information is inadequate. Each successive tier incorporates more procedures that provide increasingly detailed information for assessing the potential environmental impacts of the dredged material.

Bioaccumulation of chemicals of concern (COCs) from the material remaining in the water column is generally of minor concern because of the short exposure time as described under the Fate of the Dredged Material section of this EIS and rapid dilution. The LPC is the concentration of any dissolved dredged material constituent that, after making allowance for initial mixing, will not exceed applicable marine water-quality criteria (WQC) in the water column. Chemical analyses of dredged material dissolved in water are performed for a range of chemicals that may be released, and the results are compared to the WQC for these contaminants. This provides an indirect evaluation of the potential biological impact because the WQC were derived from toxicity tests of solutions of the various contaminants. Water column/suspended phase bioassays are conducted to directly evaluate the potential for adverse impact on the water column (USEPA and USACE 1991).

The greatest potential for environmental impact from dredged material is in the benthic environment. The impact of the dredged material on bottom-dwelling animals that live and feed in and on deposited material for extended periods is of greater concern than the impact on the water column. The testing guidance prescribes whole-sediment bioassays to evaluate potential impact of the solid phase of the dredged material. Chemical analyses of dredged material determine the presence and concentration of COCs. However, direct chemical analysis of sediment does not reflect the bioavailability of the chemicals, so living organisms are exposed to the dredged material to assess potential impacts to the benthic environment (USEPA and USACE 1991).

All dredging permits require compliance with a Dredge Operation Plan that addresses all phases of a specific dredging project, including reporting and monitoring requirements, environmental protection measures, safety precautions, and requirements for dredged material screening (e.g., unexploded ordnance, size), if necessary. During dredging activities, agencies would have remote access to data collected from a real-time Global Positioning System (GPS) automated vessel location logging system. The system allows agencies to monitor the location and draft of the vessel transporting the dredged material. If the vessel draft decreases (e.g., dredged material is leaked or accidentally released (disposed)) prior to reaching the ODMDS, it is readily apparent in the graphical representation viewed on a computer screen. Alarms can be set through the remote system to notify supervising agencies when conditions are not met for draft loss or travel route. Agencies can respond quickly to halt the disposal operators and investigate the situation. The remote tracking software available under various names and vendors (e.g., eTrac™ or ADISS™) has been successfully used to monitor dredging operations at various USEPA designated ODMDS for more than 10 years.

5.3.2 ODMDS Management: Enforcement of Dredging Permit Conditions

The MPRSA authorizes USEPA to assess civil penalties up to \$50,000 for each violation of a permit or permit requirement, taking into account such factors as gravity of the violation, prior violations, and demonstrations of good faith. Criminal penalties (including seizure and forfeiture of vessels) for knowing violations of the MPRSA also are authorized. The USCG is also directed to conduct surveillance and other appropriate enforcement activities to prevent unlawful transportation of material for dumping, or unlawful dumping.

In conjunction with the MPRSA, the CWA regulates all discharges into navigable waters including the territorial seas. Although these two laws overlap in their geographic coverage of discharges from vessels within the territorial jurisdiction (3 nm [5.6 km]), USEPA takes the lead in enforcement of transportation for the purpose of ocean disposal.

5.3.3 ODMDS Management: Long-term

The designation of the Guam ODMDS is anticipated in 2010 and expected to be effective for 50 years; therefore, examination for continued use is anticipated in 2060. USEPA can shorten the life-cycle or interrupt the use of the ODMDS at its discretion.

The maximum allowable annual capacity would be 1,000,000 cy (760,555 m³), which results in a maximum of 50,000,000 cy (38,227,800 m³) over 50 years. Subsequent decisions to increase capacity would be subject to a NEPA EIS evaluation.

Section 228.3 of the MPRSA (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.

No ODMDS shall receive a final designation unless a management plan has been developed pursuant to Section 102(c) of MPRSA. A SMMP was drafted for the Guam ODMDS and is included as Appendix C. The SMMP outlines requirements for monitoring specific disposal operations and long-term site conditions. Should the monitoring reveal unanticipated adverse environmental impacts, management actions would include modification of the site use/disposal procedures, additional site monitoring or site closure. The SMMP is updated every 10 years and public notice is required for each SMMP update.

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