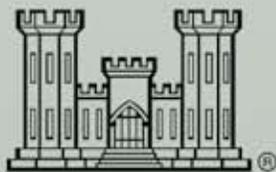


The Role of the Federal Standard in the Beneficial Use of Dredged Material from U.S. Army Corps of Engineers New and Maintenance Navigation Projects

Beneficial Uses of Dredged Materials



U.S. Environmental Protection Agency, Washington, DC

U.S. Army Corps of Engineers, Washington, DC

Cover Photos

Background: Aransas National Wildlife Refuge, Texas. Maintenance dredged material was used for stabilization of eroded marsh shoreline.
U.S. Army Corps of Engineers

Top: A sea-going hopper dredge splits its hull to drop into an underwater placement area in the Gulf of Mexico near Galveston, Texas.
U.S. Army Corps of Engineers

Bottom: Forster's terns inhabiting a marsh created by dredged material on Poplar Island, Maryland.
U.S. Army Corps of Engineers

Preface

Much of the several hundred million cubic yards of sediment dredged each year from U.S. ports, harbors, and waterways could be used in a beneficial manner, such as for habitat restoration and creation, beach nourishment, aquaculture, forestry, agriculture, mine reclamation, and industrial and commercial development. Yet most of this dredged material is instead disposed of in open water, confined disposal facilities, and upland disposal facilities. The most commonly cited hurdles to using dredged material beneficially are increased costs, the need for earlier planning and more widespread coordination, lack of complementary federal and state regulatory frameworks for evaluating dredged material as a resource, and a widespread misperception that dredged material is a waste instead of a resource.

The National Dredging Team recognizes that a number of steps will need to be taken so that dredged material is used beneficially to the greatest extent possible. The National Dredging Team's action plan, "Dredged Material Management: Action Agenda for the Next Decade" (NDT 2003) describes a number of recommended actions intended to enhance and facilitate efforts to increase the beneficial use of dredged material. Among these actions is the recommendation to develop a national guidance document that explains the role of the Federal Standard in implementing beneficial uses of dredged material from U.S. Army Corps of Engineers' new and maintenance navigation projects. This paper has been developed as a guide for U.S. Army Corps of Engineers (USACE) Districts, other federal agencies, state agencies, local governments, and private interest groups on using dredged material as a resource to achieve environmental and economic benefits. It is intended as a companion piece to the U.S. Environmental Protection Agency (EPA) and USACE joint document, "Identifying, Planning, and Financing Beneficial Use Projects Using Dredged Material: Beneficial Use Planning Manual" (EPA/USACE 2007).

Important Note

The discussion in this document is intended solely as guidance. The statutory provisions and regulations described in this document contain legally binding requirements. This document is not a regulation itself, nor does it change or substitute for those provisions and regulations. Thus, it does not impose legally binding requirements on USACE, EPA, or any other entity, including the regulated community. This guidance does not confer legal rights or impose legal obligations upon any member of the public.

Introduction

In 2003, the National Dredging Team (NDT) published a new action plan entitled “Dredged Material Management: Action Agenda for the Next Decade.” The Action Agenda addresses a number of issues currently facing dredging and dredged material management. One of the recommendations listed by the Action Agenda directs the NDT to develop guidance to demonstrate how beneficial uses of dredged material can be incorporated into new and maintenance U.S. Army Corps of Engineers (USACE) navigation projects and to explain the role of the Federal Standard in that process. In response to that recommendation, this paper was developed as a guide for USACE Districts, other federal agencies, state agencies, local governments, and private interest groups on using dredged material as a resource to achieve environmental and economic benefits.

The nation’s marine transportation system consists of about 25,000 miles of navigable channels, of which about 12,000 miles are commercially important. The system is supported by about 900 federal channel projects, including both deep (greater than 12 feet) and shallow (12 feet or less) draft harbors (US DOT 1999). Approximately 200 to 300 million cubic yards of material are dredged annually by USACE, as well as other federal and private interests, to improve and maintain the harbors and channels in this system. The majority of this dredging is by USACE and other federal interests. Placement of this dredged material provides an opportunity to generate both environmental and economic benefits (see Box 1). USACE estimates that 20 to 30 percent of the total volume dredged is currently used beneficially.

Box 1

What are examples of beneficial uses of dredged material?

Since the passage of the landmark Water Resources Development Act (WRDA) of 1986, there has been a major evolution of law and policy concerning the beneficial use of dredged material. Environmental restoration is now a priority mission of USACE, along with the traditional mission areas of flood damage reduction and inland and coastal navigation. New laws have established the authority of USACE to use dredged material for environmentally beneficial purposes, and programs have been initiated to implement these laws. The remaining challenges to increasing the number of beneficial use projects include educating those with an interest in these new opportunities and creating partnerships to develop and implement them.

What is the role of the Federal Standard in the beneficial use of dredged material?

The Federal Standard is defined in USACE regulations as the least costly dredged material disposal or placement alternative (or alternatives) identified by USACE that is consistent with sound engineering practices and meets all federal environmental requirements, including those established under the Clean Water Act (CWA) and the Marine Protection, Research, and Sanctuaries Act (MPRSA) (see 33 CFR 335.7, 53 FR 14902). The term “base plan” is a more accurate operational description of the Federal Standard, because it defines the disposal or placement costs that are assigned to the “navigational purpose” of the project. The costs assigned to the navigational purpose of the project are shared with the non-federal sponsor of the project, with the ratio of federal to non-federal costs depending on the nature and depth of the project (see Box 2).

Box 2

Who bears the costs assigned to the “navigational purpose” of a dredging project?

New Navigation Projects

(deepening or widening of an existing federal navigation channel or creation of a new federal navigation channel)

For the portion of the project with a depth:	The non-federal share is:
Up to 20 ft	20% (10% during construction + 10% over 30 years)*
Over 20 ft and up to 45 ft	35% (25% during construction + 10% over 30 years)*
Over 45 ft	60% (50% during construction + 10% over 30 years)*

Operation and Maintenance of Existing Navigation Projects

1. Operation and Maintenance Dredging: Federal share is 100% (except for harbors greater than 45 feet, where the non-federal share is 50% of the costs beyond those which would be incurred for a project with a depth of 45 ft or less).

2. Constructing land-based and aquatic disposal facilities:

For the portion of the project with a depth:	The non-federal share is:
Up to 20 ft	20% (10% during construction + 10% over 30 years)*
Over 20 ft and up to 45 ft	35% (25% during construction + 10% over 30 years)*
Over 45 ft	60% (50% during construction + 10% over 30 years)*

3. Operating and maintaining land-based and aquatic disposal facilities: Federal share is 100%.†

* The non-federal share includes 10%, 25%, or 50% to be paid during construction. It may include an additional 10% share of the total project costs to be paid over 30 years. The value of lands, easements, rights-of-way, and relocations required for the project is credited to this 10%, which is to be paid over 30 years.

† In some cases, the federal cost may be determined by legislation authorizing construction and maintenance of the confined disposal facility.

Establishing the Federal Standard for a particular dredging project is not the same as selecting a disposal or placement option for that project, nor does it limit potential federal participation in the project. Other factors beyond cost contribute to decisions on placement or disposal options for dredging projects. Ecosystem restoration is recognized as one of the primary missions of USACE under its planning guidance (USACE 2000), and the placement or disposal option that is selected for a project should maximize the sum of net economic development and national environmental restoration benefits. Therefore, a beneficial use option may be selected for a project even if it is not the Federal Standard for that project. Additionally, a project may have more than one purpose, such as navigation and flood control. The placement or disposal option preferred when two project purposes are considered jointly may be different from those resulting from separate considerations of navigation and flood control options.

If a beneficial use is selected for a project and that beneficial use happens to be (or be part of) the Federal Standard or base plan option for the project (because it is the least costly alternative that is consistent with sound engineering practices and meets all federal environmental requirements), the costs of that beneficial use are assigned to the navigational purpose of the project and are shared with the non-federal sponsor as described in Box 2.

If a beneficial use is selected for a project, and that beneficial use is not the Federal Standard option, the costs for the beneficial use option are divided into two categories for the purpose of determining the federal and non-federal sharing ratios. First, the costs assigned to the navigational purpose of the project (i.e., the amount it would have cost to implement the Federal Standard option) are shared with the non-federal sponsor as described in Box 2. Second, the costs beyond the navigational purpose costs (termed “incremental costs”) are shared on a different basis, depending on the type of beneficial use (see Box 3).

Beneficial use and new navigation projects

New navigation projects, which include the deepening or widening of existing federal navigation channels and the creation of new federal channels, provide an excellent opportunity for the beneficial use of dredged material (see Box 4 for a description of the Oakland Harbor Deepening new navigation project). New navigation projects require specific authorization by the Congress based upon a major planning effort culminating in the preparation of a feasibility study, an Environmental Impact Statement (EIS), and a Report of the Chief of Engineers. This comprehensive planning effort normally spans 3 to 4 years and includes detailed economic, environmental, and engineering evaluations.

Box 3

Who bears the incremental costs of a beneficial use project?

Beneficial use project costs exceeding the cost of the Federal Standard (or “base plan”) option become either a shared federal and non-federal responsibility, or entirely a non-federal responsibility, depending on the type of beneficial use. The cost-sharing provisions for beneficial uses that protect, restore, or improve the environment, or contribute to storm damage reduction, are listed below. In cases in which the beneficial use of the dredged material does not contribute to USACE navigation, ecosystem restoration, or flood and storm damage reduction missions, the project partner using the material pays the full costs of that beneficial use project.

- **Improvement of the Quality of the Environment. Section 1135 of WRDA 1986**, as amended by Section 202 of WRDA 1992 and Section 204 of WRDA 1996, authorizes the review of water resources projects, primarily flood control and navigation projects, to determine the need for modifications in the structures and operations of such projects for the purposes of improvement of the quality of the environment. The incremental costs of these modifications are shared on a 75 percent federal and 25 percent non-federal basis. The federal share per project is usually \$5 million or less, with an annual appropriation limit of \$25 million.
- **Protection, Restoration, or Creation of Aquatic and Related Habitats. Section 204 of WRDA 1992**, as amended by Section 207 of WRDA 1996 and Section 209 of WRDA 1999, authorizes USACE to carry out projects for creating, protecting, and restoring aquatic and ecologically related habitats, including wetlands, in connection with dredging for constructing, operating, or maintaining USACE navigation projects. The incremental costs of such projects are shared on a 75 percent federal and 25 percent non-federal basis. Unlike the more general Section 1135 described above, Section 204 is specific to beneficial use of dredged material. This is the most commonly used authority for funding beneficial uses of maintenance dredging both because of this specific focus and because it is appropriated programmatically. It has an annual appropriation limit of \$15 million.
- **Placement of Dredged Materials on Beaches. Section 145 of WRDA 1976**, as amended by Section 933 of WRDA 1986, Section 207 of WRDA 1992, and Section 217 of WRDA 1999, authorizes USACE to place suitable dredged material on local beaches if a state or local government requests it. Although placement for restoration purposes may be authorized under it, this provision is primarily used for storm damage control purposes. The incremental costs of beach nourishment are shared on a 65 percent federal and 35 percent non-federal basis. This authority is appropriated programmatically.
- **Achieving Environmental Benefits. Section 207 of WRDA 1996** allows selection of a disposal or placement method other than the Federal Standard option in order to achieve environmental benefits. The incremental costs of such a project are shared on a 75 percent federal and 25 percent non-federal basis. Use of this section requires a specific Congressional appropriation for each project. This authority is primarily used for new navigation projects or for maintenance projects with large incremental costs. Because this section does not have an appropriation limit, it is more applicable for larger projects.

Planning for major navigation improvements is conducted under authority in the *Principles and Guidelines* adopted by the Water Resources Council and signed by the President in 1983. USACE’s “Planning Guidance Notebook” (USACE 2000) that implements the *Principles and Guidelines* identifies national ecosystem restoration as one of the objectives to consider in planning new navigation projects.

Box 4**Oakland Harbor Deepening A New Navigation Project**

The Water Resources Development Act of 1999 authorized the deepening of Oakland Harbor from 42 to 50 feet. The plan for the Oakland Deepening provides for the beneficial use of all but a small fraction of the project's dredged material. Approximately 6 million cubic yards of dredged material will be placed in a previously deepened portion of the harbor to create the Middle Harbor Enhancement Area of shallow water habitat and eelgrass beds. About 2.5 million cubic yards of dredged material will be placed at the Hamilton Wetland Restoration project, which is a cooperative effort involving USACE, the California Coastal Conservancy, and a number of other local, state, and federal agencies to restore 990 acres of wetland and related habitat at the former Hamilton Army Airfield. Approximately 3 million cubic yards of dredged material will be placed at the privately developed Montezuma Wetland Restoration project; of this amount 1.5 million cubic yards have been placed since 2003.

Ocean disposal at the San Francisco Deep Ocean Disposal Site (SF-DODS) is the Federal Standard or base plan for the project. Therefore the federal share for the project is 75 percent of the ocean disposal cost for the portion of the project to 45 feet, and 50 percent of the ocean disposal cost for the rest of the project. In this case, the additional 10 percent costs for the non-federal share were offset by lands, easements, rights-of-way, and/or relocations. Beneficial use at the Montezuma and Hamilton wetlands projects, combined, involves costs beyond the base plan; these incremental costs will be shared on a 75 percent federal and 25 percent non-federal basis with the Port of Oakland and the California Coastal Conservancy primarily under the authority of Section 204 of WRDA 1992. The beneficial use plan for Oakland Harbor is the product of a cooperative interagency planning effort led by the Port of Oakland, and furthers the objectives of the interagency Long-Term Management Strategy (LTMS) for San Francisco Bay.

This guidance provides the basis for considering beneficial uses of dredged material in the planning effort for new navigation projects.

Federal agencies, state and local government agencies, non-government organizations, private entities, and the general public all have opportunities to identify beneficial use options during the planning effort for new navigation projects. These opportunities are provided through legislation such as the National Environmental Policy Act (NEPA), which mandates coordination among and input from interested stakeholders. NEPA recognizes the need for public review and provides a number of opportunities for agency and public input, starting with NEPA scoping at the beginning of the study process. For example, the NEPA process fostered collaboration between federal, state, and local groups on the 1996 Houston-Galveston Navigation Channels project, which beneficially used 350 million cubic yards of dredged material to improve aquatic habitat and received broad support from local citizens, environmental groups, and government agencies.

Other legislation also affects new navigation projects. The Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act give the U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration's National Marine Fisheries Service a consultation and assessment role in USACE's

navigation feasibility studies. EPA has a legally mandated programmatic role under NEPA, the Clean Water Act (CWA), and the Marine Protection, Research, and Sanctuaries Act (MPRSA). State coastal zone management agencies have a role through the Coastal Zone Management Act, and state water quality agencies have a role under the CWA and the MPRSA (e.g., water quality certifications). Public input occurs primarily through the NEPA process, but is also solicited in the course of issuing any necessary permits or authorizations (such as under the CWA and MPRSA) and can be supplemented with other public involvement efforts depending on the size and complexity of the project.

These legislatively mandated roles are useful for soliciting input on potential beneficial uses for dredged material from new navigation projects, but often the most effective coordination mechanisms are less formal and more collaborative. For example, the NDT and its federal agency members have recommended the formation of local planning groups or beneficial uses groups in conjunction with USACE navigation studies to provide a mechanism for identifying and evaluating beneficial use opportunities. Local planning groups (LPGs) are interagency federal/state/local teams, including non-government stakeholders, that develop dredged material management plans at the local and regional level. These groups generally function within the context of USACE dredged material management planning process. A primary goal of the LPGs is to maximize the beneficial use of dredged materials.

Beneficial use and maintenance of existing navigation projects

The largest quantities of dredged material are generated from the maintenance of existing federal navigation projects. Where a beneficial use is (or is part of) the Federal Standard or base plan option, it can be accomplished using federal operation and maintenance funding for the dredging (i.e., the federal share is 100 percent); the cost of constructing any necessary facilities would be shared, with federal and non-federal costs depending on the nature and depth of the project (see Box 2 on page 2). This is the most common way of using dredged material from maintenance projects beneficially. (For an example of a maintenance project, see Box 5.)

Where a beneficial use of dredged material is not (or is not part of) the Federal Standard option, USACE has various legislative authorities to share the incremental costs of the beneficial use option (see Box 3 on page 4). The most commonly used authority for maintenance dredging is Section 204 of WRDA 1992, as amended, which allows incremental costs for protecting, restoring, or creating aquatic and ecologically related habitat to be shared on a 75 percent federal and 25 percent non-federal basis. This is a permanent authority, so projects using

Box 5**Breton Island Restoration A Maintenance Project**

Breton Island is located approximately 45 miles southeast of New Orleans in Plaquemines Parish, Louisiana. The island was severely eroded during the 1998 hurricane season, with overwash breaches in a number of locations. Dredged material from maintenance dredging of the Mississippi River Gulf Outlet was placed on Breton Island to restore the island and to protect the island's upland shallow water habitat. Placement of dredged material at Breton Island was performed under the authority of Section 204 of WRDA 1992, and as part of the base disposal plan for the Mississippi River Gulf Outlet. The island provides nesting grounds for migratory birds and other waterfowl. At one time, shallow water seagrass beds protected by the island provided essential habitat for various species of fish and shellfish. It was hoped that continued restoration would encourage redevelopment of these beds.

The initial Section 204 project, which was completed in 1999, consisted of placement of about 1.1 million cubic yards of dredged material on the island to restore about 29 acres of island habitat and protect 620 acres of shallow intertidal waters. The incremental cost of this placement over the Federal Standard or base plan option was about \$1 million, which was shared on a 75 percent federal and 25 percent non-federal basis with the Louisiana Department of Natural Resources. A second Section 204 project was scheduled for spring of 2006 to involve about 2.8 million cubic yards of dredged material for restoration of an additional 30 acres of island habitat at a proposed incremental cost of about \$2.8 million to be shared on a 75 percent federal and 25 percent non-federal basis with the Louisiana Department of Natural Resources. Due to the 2005 hurricane season, however, maintenance dredging did not occur in the Mississippi River Gulf Outlet in Fiscal Year 06.

In addition to cost sharing Section 204 projects, beneficial placement has occurred using federal operation and maintenance funding (i.e., federal share is 100 percent). This placement qualified as part of the base plan due to the dredged material's close proximity to the Breton Island placement site. In 1993 approximately 1.6 million cubic yards of dredged material were placed in the shallow water adjacent to Breton Island to form a sacrificial berm that would nourish the island through sediment redistribution via wave action at a cost of about \$3 million. In 1999 approximately 3.8 million cubic yards of dredged material were placed at the Breton Island sacrificial berm site at a cost of about \$6.5 million. A 2001 project involved the placement on the island of about 2.3 million cubic yards of dredged material for the restoration of approximately 49 acres of the island at a cost of about \$3.89 million. In 2005 approximately 4 million cubic yards of dredged material were placed at Breton Island to restore damage resulting from the passage of Hurricane Ivan. Actual acreage restored by this effort, as well as the impacts of Hurricane Katrina in August 2005, have yet to be calculated.

it do not require specific Congressional authorization. Because the annual appropriation limit for Section 204 is \$15 million, it is most applicable to smaller beneficial use projects (generally a federal share of \$5 million or less), although there is nothing in the Section 204 authorization that limits the size of the project.

Opportunities for beneficial use projects in conjunction with maintenance dredging are identified through dredged material management planning efforts, through interagency planning and management efforts (e.g., National Estuary Program, Coastal America), through state or local planning efforts, or through general coordination activities with federal and state resource agencies. For Section 204 projects with a federal cost of less than \$1 million, a Planning and Design

Analysis is prepared and approved by the USACE Division office. For a Section 204 project with a federal cost of greater than \$1 million, additional information is required and a detailed project report is prepared for approval by the USACE Division office. In both cases, there is an opportunity for public input through the NEPA process.

Section 207 of WRDA 1996, which amended Section 204 of WRDA 1992, can also be used to authorize funding of incremental costs for beneficial use projects that achieve environmental benefits such as wetlands creation. While smaller projects typically will be pursued within the programmatic limits of Section 204, Section 207 primarily is used for new navigation projects or for maintenance dredging projects with large incremental costs. Under the Section 207 authority, incremental costs are shared on a 75 percent federal and 25 percent non-federal basis. Implementation of this authority is through specific project appropriations, which do not count toward the Section 204 programmatic limit.

Promoting the beneficial use of dredged material

The success of beneficial use projects depends on the creation of partnerships between federal and non-federal interests. Each of the USACE's beneficial use funding authorities includes a requirement for non-federal cost sharing of a minimum of 25 percent for incremental costs. Therefore, beneficial use projects require local leadership and local financial commitments to succeed. Experience to date with beneficial use projects indicates that this leadership can come from either the economic development or environmental communities. For example, ports provided local leadership and financing for recent beneficial use projects in the Chesapeake Bay (Poplar Island restoration) and Galveston Bay (wetlands restoration). These ports realized that beneficial use projects are not only important in furthering their environmental stewardship responsibilities, but are also important in building support for new and maintenance navigation projects. In the case of the Hamilton Wetland Restoration project in San Francisco Bay (see Box 4 on page 5), local leadership came from environmental interests and the state of California through the California Coastal Conservancy and the San Francisco Bay Conservation and Development Commission. The Hamilton project involved a broad array of partners, including Department of Defense programs (Base Realignment, Closure, and Formerly-Used Defense Sites), the USACE Civil Works Program, the Port of Oakland, and the California Coastal Conservancy. Port of Oakland and the California Coastal Conservancy provided the non-federal funding.

Beneficial use projects create a win-win situation for the environment and the economy. Successful projects are developed through collaborative and consensus-building planning processes involving

Box 6**Steps for Considering Beneficial Use Options for New and Maintenance Dredging Projects:
A General Approach**

- Initiate a collaborative effort involving USACE, EPA, ports, federal/state/local agencies, environmental interest groups, and other interested stakeholders.
- Identify all potential beneficial uses, including their costs and benefits, during the process of establishing the Federal Standard or base plan option. (Note: Ideally a local planning group could identify beneficial use projects in advance of the initiation of formal planning for a new or maintenance project.)
- If a beneficial use does not qualify as the Federal Standard option, evaluate whether the beneficial use maximizes the sum of net economic development and national environmental restoration benefits, identify potential project sponsors, and identify the appropriate statutory authority for federal cost sharing of the beneficial use project's incremental costs.
- Identify non-federal funding sources (e.g., Coastal America, Coastal Wetlands Restoration Partnership). Build support. Obtain commitments.
- Obtain USACE's approval of beneficial use project.
- Develop Project Cooperation Agreement with local sponsor.

USACE, EPA, the ports, federal, state, and local resource and regulatory agencies, and environmental interest groups (see Box 6 for a general approach to considering beneficial use options). USACE's dredged material management planning program can be the framework for these efforts. National programs such as the National Estuary Program and Coastal America also can provide the framework for the broad partnerships needed for successful beneficial use planning. One of the primary roles of the NDT and the Regional Dredging Teams is to promote these partnerships.

Additional Information

For additional sources of information on beneficial use of dredged material, see the resources listed below:

Beneficial Uses of Dredged Material Website. <http://el.erdc.usace.army.mil/dots/budm/budm.cfm>
U.S. Environmental Protection Agency/U.S. Army Corps of Engineers, Washington, DC.

Identifying, Planning, and Financing Beneficial Use Projects Using Dredged Material: Beneficial Use Planning Manual. EPA842-B-07-001. U.S. Environmental Protection Agency/U.S. Army Corps of Engineers, Washington, DC.

Case Study: Beneficial Uses of Dredged Material San Francisco Bay Region. EPA842-F-07-001A. U.S. Environmental Protection Agency/U.S. Army Corps of Engineers, Washington, DC.

Case Study: Beneficial Uses of Dredged Material Jetty Island, Puget Sound. EPA842-F-07-001B. U.S. Environmental Protection Agency/U.S. Army Corps of Engineers, Washington, DC.

Case Study: Beneficial Uses of Dredged Material Poplar Island, Chesapeake Bay.
EPA842-F-07-001C. U.S. Environmental Protection Agency/U.S. Army Corps of Engineers, Washington, DC.

Fact Sheet: Beneficial Uses of Dredged Material Project Partners and Decision Makers.
EPA842-F-07-001D. U.S. Environmental Protection Agency/U.S. Army Corps of Engineers, Washington, DC.

Fact Sheet: Beneficial Uses of Dredged Material Public Involvement and Outreach.
EPA842-F-07-001E. U.S. Environmental Protection Agency/U.S. Army Corps of Engineers, Washington, DC.

National Dredging Team Website. <http://www.epa.gov/owow/oceans/ndt/>.
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October 2007

EPA842-B-07-002

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