U.S. DEPARTMENT OF TRANSPORTATION
MARITIME ADMINISTRATION
WASHINGTON, DC

Transfer of National Defense Reserve Fleet Vessels from the James River Reserve Fleet for Disposal at Able UK Facilities, Teesside, UK

Environmental Assessment

FINAL

June 29, 2004

Prepared for the U.S. Department of Transportation, Maritime Administration

by

The Louis Berger Group, Inc.

Washington, D.C.

[This page intentionally left blank.]

CONTENTS

FIGURES

TABLES

1.0 INTRODUCTION

The U.S. Department of Transportation (DOT), Maritime Administration (MARAD) is charged with disposing of U.S. government-owned merchant type vessels of 1,500 gross tons or more per Section 203 of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. §484 (2000)). The majority of the ships that MARAD disposes of are from the MARAD National Defense Reserve Fleet program or are transferred to MARAD from the U.S. Navy's (Navy) fleet. MARAD currently maintains 146 ships designated as non-retention, obsolete vessels that have reached the end of their useful life and are available for disposal. MARAD's obsolete ships are located at three fleet anchorages near Ft. Eustis, Virginia; Beaumont, Texas; and Suisun Bay near Benicia, California.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, Executive Order (EO) 12114, and guidance on assessing transboundary environmental effects, MARAD has prepared this supplemental Environmental Assessment (EA) to address the potential environmental and socioeconomic impacts of a proposed federal action. This EA follows the Council on Environmental Quality (CEQ) "Regulations for Implementing NEPA" (40 C.F.R. §1500-1508). EO 12114 requires assessment of potential effects outside of U.S. territory under certain circumstances.

The remainder of this section provides background information and describes the purpose and need of the proposed action. Section 2 of this EA describes the proposed action and alternatives. Section 3 describes the affected environment – the baseline conditions and resources in the area where the proposed action would occur. Section 4 provides an analysis of the potential environmental effects if the proposed action is implemented, as well as the potential effects of taking no action.

1.1 BACKGROUND

The mission of MARAD is to strengthen the U.S. maritime transportation system - including infrastructure, industry and labor - to meet the economic and security needs of the United States. MARAD programs promote the development and maintenance of an adequate, well-balanced U.S. merchant marine, sufficient to carry the nation's domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and capable of service as a naval and military auxiliary in time of war or national emergency. MARAD also seeks to ensure that the United States maintains adequate shipbuilding and repair services, efficient ports, effective intermodal water and land transportation systems, and reserve shipping capacity for use in time of national emergency (U.S. Department of Transportation, Maritime Administration (MARAD), 2003a).

1.1.1 NATIONAL DEFENSE RESERVE FLEET

The Merchant Sales Act of 1946, as amended, created the National Defense Reserve Fleet (NDRF) of inactive but potentially useful ships. The NDRF consists of tankers, military auxiliaries, dry cargo vessels, and other types of ships. The Secretary of Transportation, acting through MARAD, maintains the NDRF, which includes 146 ships that have been designated as obsolete.

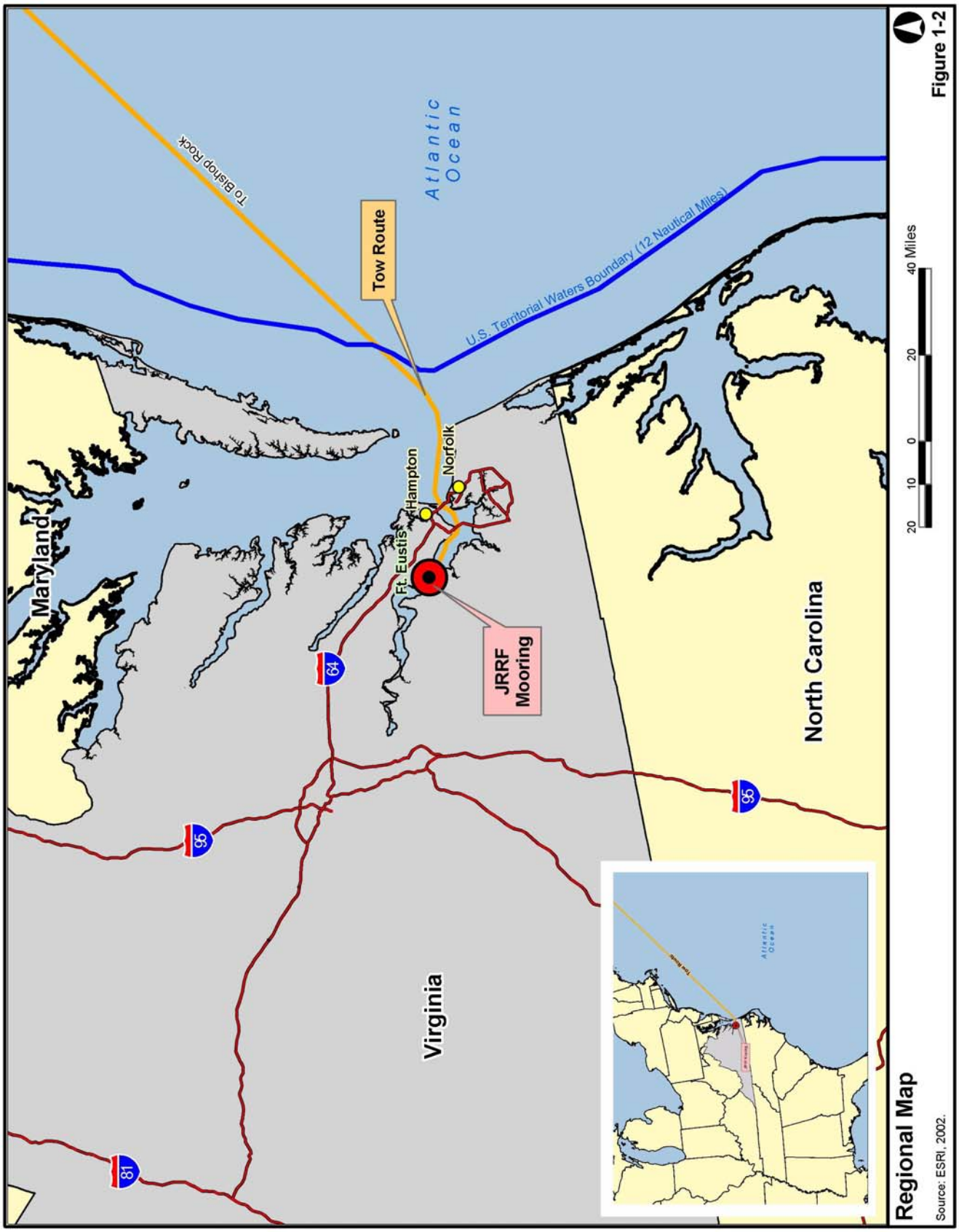
The NDRF is divided into two divisions: the Ready Reserve Force (RRF) and the non-Ready Reserve Force (non-RRF) (MARAD, 1994). The RRF component was established in 1976 to serve as a reserve of vessels that can be activated to help meet U.S. shipping requirements during a national emergency. The RRF is maintained in a condition that would allow ships to be activated in 20 days or less. The non-RRF vessels receive minimal maintenance and would require at least 30 days to be activated (MARAD, 1997).

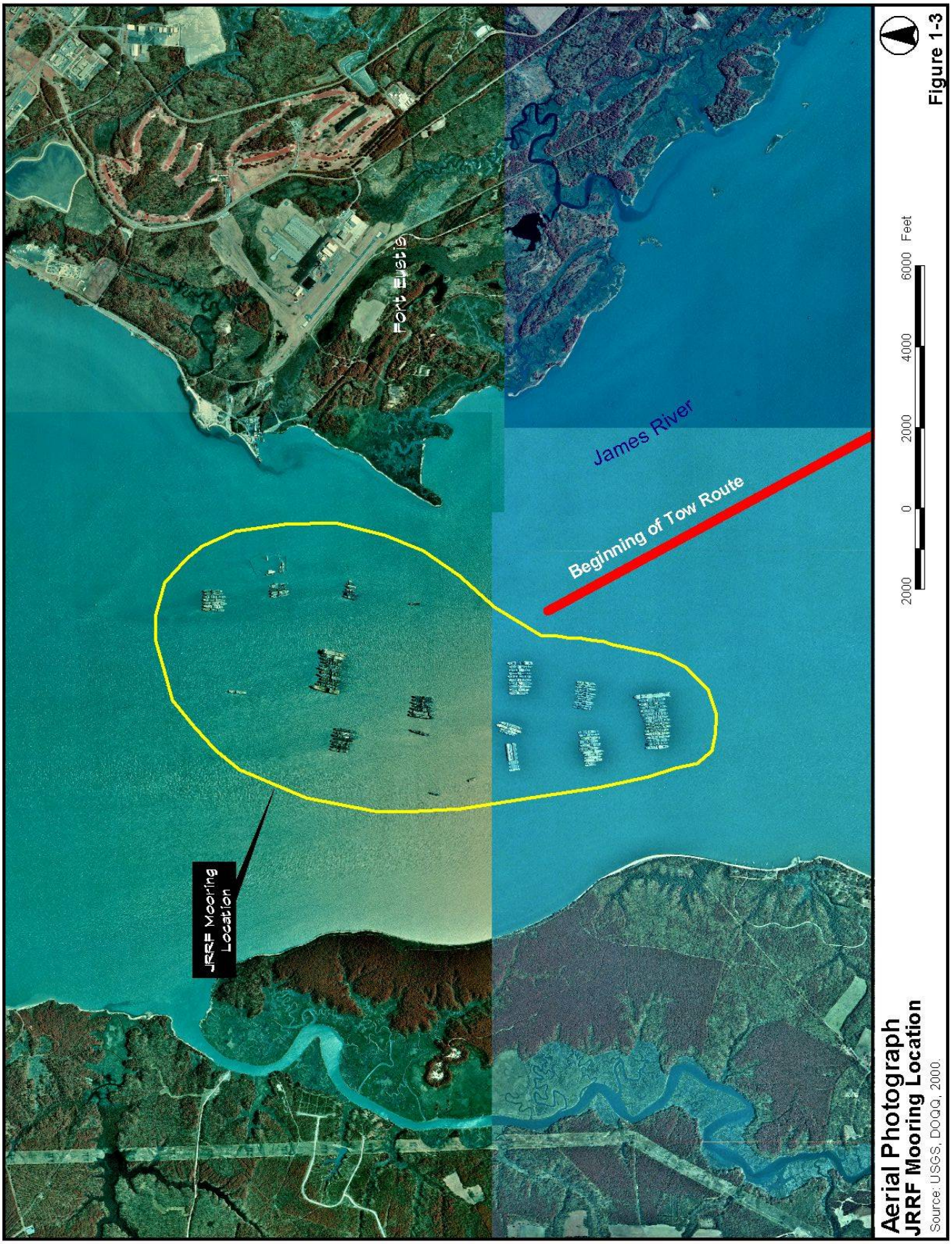
1.1.2 JAMES RIVER RESERVE FLEET

The James River Reserve Fleet (JRRF) in Virginia contains approximately 83 ships that are currently moored at the JRRF. Of this number, approximately 70 are within the MARAD inventory designated for disposal (Figure 1-1). The JRRF is located on the James River in southeastern Virginia (Figure 1-2). The JRRF is approximately 30 miles upstream from the Chesapeake Bay at Norfolk, Virginia and approximately 45 miles from the Atlantic Ocean. The site is leased from the U.S. Army Transportation Center, Fort Eustis (USATCFE) (MARAD, 1994).

The vessels of the JRRF are anchored in an approximately one square mile area on the James River near Fort Eustis. The vessels are anchored together in rows in a bow-to-stern alignment according to type and size (Figure 1-3). The land-based facilities of the JRRF are located at Fort Eustis and consist of buildings and sheds that provide administrative and support services to the fleet (MARAD, 1994).

Figure 1-1. JRRF Obsolete Vessels


To Bishop Rock
Tow Route
Atlantic Ocean
U.S. Territorial Waters Boundary (12 Nautical Miles)
Norfolk
Hampton
Ft. Eustis
JRRF Mooring
Maryland
Virginia
North Carolina
64
95
95
81
20 10 0 20 40 Miles
Figure 1-2
Regional Map
Source: ESRI, 2002.


Fort Eustis
James River
Beginning of Tow Route
JRRF Mooring Location
2000
0
2000
4000
6000 Feet
Aerial Photograph
JRRF Mooring Location
Source: USGS, DOQQ, 2000
Figure 1-3

1.2 LEGAL FRAMEWORK

The National Maritime Heritage Act (NMHA) of 1994 authorizes MARAD to dispose of obsolete NDRF vessels (Pub. L. 103-451). Prior to 1994, MARAD was able to sell obsolete vessels for foreign or domestic disposal to the highest bidder. Market conditions were such that obsolete ships were sold and removed from the fleets before they became an environmental threat due to advanced deterioration. However, as a result of federal prohibitions on the export of polychlorinated biphenyls (PCBs) as well as increasing national and international concerns regarding environmental and worker safety issues, foreign ship sales were stopped in 1995.

In 2000, Congress amended section 6(c)(1) of the NMHA[1] to direct MARAD to dispose of all obsolete vessels by September 30, 2006, and to do so "in the manner that provides the best value to the Government" (Pub. L. 106-398, §3502(a), 114 Stat. 1654a-490 (2000)). In addition, it provided,

> (b) Selection of Scrapping Facilities. The Secretary of Transportation may scrap obsolete vessels pursuant to Section 6(c)(1) of the NMHA of 1994 [16 United States Code (USC) §5405(c)(1)] through qualified dismantlement facilities, using the most expeditious scrapping methodology and location practicable. Dismantlement facilities shall be selected under that section on a best value basis consistent with the Federal Acquisition Regulation (FAR), as in effect on the date of the enactment of this Act, without any predisposition toward foreign or domestic facilities taking into consideration, among other things, the ability of facilities to dismantle vessels -
>
> (1) at least cost to the Government;
>
> (2) in a timely manner;
>
> (3) giving consideration to worker safety and the environment; and
>
> (4) in a manner that minimizes the geographic distance that a vessel must be towed when towing a vessel poses a serious threat to the environment (Pub. L. 106-398, §3502(b), 114 Stat. 1654a-490 (2000).[2]

In Section 3502 of the Fiscal Year (FY) 2001 National Defense Authorization Act, Congress specifically required MARAD to acquire ship disposal services on a best value basis consistent with the FAR.[3] MARAD began a program using a time phased and level-funded approach consisting mainly of domestic vessel dismantlement and recycling. Using the $10 million provided in the National Defense Authorization Act for Fiscal Year (FY) 2001 (Pub. L. 106-398) appropriation, MARAD was able to

---

[1] Section 6 of the NMHA [16 U.S.C. §5405, and Pub. L. 103-451] describes the availability and application of funds received from the sale and dismantling of obsolete vessels under sections 508 and 510(i) of the Merchant Marine Act. Besides authorizing MARAD to acquire ship dismantling services on a best value basis consistent with the Federal Acquisition Regulation (FAR), Section 3502 amended the NMHA to require MARAD to dispose of obsolete vessels in the manner that provides the best value to the Government:

[2] Pub. L. 106-398, § 3502(b), 114 Stat. 1654a-490 (2000). The statute also required MARAD to develop a program for disposing of obsolete NDRF vessels in consultation with the Navy and U.S. EPA. Id. at § 3502(d). MARAD subsequently submitted a report to Congress on the program. Report to Congress on the Program for Scrapping Obsolete National Defense Reserve Fleet Vessels (MARAD, 2001b).

[3] The FAR prescribes policies and procedures for the acquisition, not sales, of goods and services by executive agencies. The Federal Acquisition Regulations System was established for the codification and publication of uniform policies and procedures for acquisition by all executive agencies.

dispose of six high-risk vessels in domestic facilities. However, it became apparent that MARAD would not be able to meet the 2006 deadline to dispose of all obsolete vessels without direct appropriations and the use of additional vessel disposal alternatives. The high costs and limited cost-effective capacity of the domestic ship dismantling industry made it necessary to consider the disposal of obsolete ships at qualified foreign facilities in addition to considering other disposal options such as artificial reefing and deep sinking of ships through a Navy program (Hess et al., 2001).

In October 2001, MARAD initiated a Program Research and Development Announcement (PRDA). The PRDA is a competitive procurement mechanism allowable under the FAR. This competitive announcement solicited ship dismantling/recycling proposals from the ship dismantling industry without any predisposition toward foreign or domestic facilities. The PRDA provided MARAD the opportunity to solicit feasible and cost-effective proposals to solve its ship disposal challenges that were based on capabilities, methods, and innovations in the industry.

In the PRDA process, although proposals are sought from all qualified sources, offerors do not bid against a common requirement, as is the case with Invitations for Bid or Requests for Proposals. Rather each offeror develops management, technical, and pricing solutions that are unique for their business and that satisfy the criteria developed for the PRDA process.

In December 2002, MARAD received, for the first time, a direct appropriation that met its request for the Ship Disposal Program. This appropriation was authorized under the Bob Stump National Defense Authorization Act for Fiscal Year 2003, Pub. L. 107-314, which provided MARAD further authority for exporting obsolete ships and required MARAD and the U.S. Environmental Protection Agency (U.S. EPA) to carry out one or more pilot programs of not more than four vessels in 2003 to explore the feasibility and advisability of various alternatives for exporting obsolete NDRF vessels for dismantling and recycling (MARAD, 2003b). This pilot program would allow MARAD to expedite disposal of ships at qualified facilities located abroad. Section 3504(d) of Pub. L. 107-314 clarified that Section 3504 does not establish a preference for the reefing or export of obsolete vessels in the NDRF over other disposal alternatives, such as domestic scrapping (MARAD, 2003b). The direct appropriation, coupled with additional funding received from the FY 2002 Department of Defense (DoD) appropriation, allowed MARAD to consider feasible PRDA proposals.

In 2003 MARAD made an award to Post-Service Remediation Partners, LLC (PRP), based on its proposal to dismantle and recycle ships in the Teesside, United Kingdom (UK) facility at Able UK. In determining that the award to PRP would be made on a best value basis, MARAD considered the following factors:

- Benefit to the ship disposal program short and long term
- Number of vessels/tonnage
- Rate of vessel removals from MARAD fleets
- Rate of vessel dismantling
- Disposal costs
- Condition of vessel(s) (James River high-risk vessels are the current priority)
- Environmental threat mitigation at MARAD fleets
- Proposal feasibility/risk
- Environment/worker safety protection at dismantling facility
- Proposal approach, methodology, special provisions

Two other PRDA awards were made to domestic dismantling companies while the PRP PRDA proposal was under consideration. Since the PRP award, another PRDA award was made to a domestic company for the disposal of five ships. During that same time, MARAD also posted two non-PRDA Invitations for

Bid involving the domestic disposal of another four obsolete vessels that have since resulted in contract awards.

The 2003 award required PRP to tow approximately 13 obsolete non-RRF vessels to the UK for dismantling and recycling. Four of these vessels have completed the trans-Atlantic tow to the UK. However, a Temporary Restraining Order (TRO) issued in the United States District Court for the District of Columbia in *Basel Action Network v. Maritime Administration*, Civil Action No. 03-200 (RMC) requires that

> Before sending any additional NDRF vessels through the Chesapeake Bay and United States coastal waters, MARAD must perform, at a minimum, a supplemental EA specific to those ships that addresses the environmental impact of such action in the United States.

The October 2, 2003 TRO enjoined MARAD "from exporting more than four NDRF vessels, which have been certified by the United States Coast Guard as seaworthy and with sufficient and safe towing arrangements for the purpose of crossing the Atlantic Ocean, until the Court has ruled on Plaintiffs' motion for a preliminary injunction."

1.3 PURPOSE AND NEED

The purpose of the proposed action is to transfer approximately nine obsolete vessels from the NDRF – JRRF to PRP for disposal at the Able UK facility in Teesside, UK. The vessels are inactive and obsolete vessels that Congress has directed MARAD to dispose of under the NMHA, as amended by the National Defense Authorization Act for FY 2001, Pub. L. 106-398, §3502(b).

The underlying need for the proposed action is to dispose of obsolete vessels from the NDRF by September 30, 2006, as directed by Congress. As noted above, there is also a requirement that MARAD select dismantling facilities on a "best value" basis, without predisposition toward domestic or foreign qualified facilities, in order to address the growing backlog of obsolete vessels in the NDRF.

[This page intentionally left blank.]

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The NEPA requires that federal agencies explore a range of reasonable alternatives. The alternatives under consideration must include the "no-action" alternative as prescribed by 40 C.F.R. §1502.14.

Alternatives selected for full analysis in this environmental assessment must meet MARAD mission requirements, while meeting the purpose and need for the action. As stated in the CEQ guidance, a "range of alternatives" includes all reasonable alternatives, which must be rigorously explored and objectively evaluated, as well as those other alternatives eliminated from detailed study (40 C.F.R. §1502.14). MARAD objectively evaluated four alternatives and eliminated two of them from detailed study. The following two alternatives were carried forward for further detailed analysis:

> Proposed Action Alternative — Transfer nine obsolete ships (or tonnage equivalent) to Able UK for disposal.
>
> No-Action Alternative — No transfer of the approximately nine obsolete NDRF vessels to the Able UK facility for disposal.

This section of the EA describes all reasonable alternatives considered to meet the purpose and need for the action. It also provides a discussion of alternatives considered during the planning process but eliminated from detailed impact analysis after further evaluation.

2.1 PROPOSED ACTION ALTERNATIVE

The proposed action is to transfer approximately nine obsolete vessels (or tonnage equivalent) from the JRRF to the Able UK facilities for the purposes of disposal of the vessels.

Nine vessels are currently identified as potential vessels to be transferred for disposal (Table 2-1). However, MARAD may substitute other vessels by mutual agreement with PRP, subject to finalization of the terms of any such agreement; vessels would be substituted only after completion of inspections and a tow survey for each vessel.

Under the PRDA process, MARAD solicited proposals from interested parties for the disposal of obsolete vessels. The proposal from PRP to dispose of the obsolete vessels at the Able UK facility was evaluated and found to provide the "best value" to the U.S. Government, in that it would dispose of obsolete ships in an economic and cost-effective manner, with processes and methodologies that protect the environment and worker health and safety. The Able UK facility was evaluated by MARAD and the U.S. EPA, by review of documentation and an on-site visit. Through this evaluation MARAD and the U.S. EPA concluded that the facility met or exceeded appropriate standards for facility capacity and capabilities, worker safety, environmental protection, and hazardous materials management. MARAD relied on the professional judgment of the U.S. EPA in terms of facility environmental safeguards and on the UK Environmental Agency (UKEA) for facility licensing and approval standards and processes.

As part of the pilot program authorized by Congress, four obsolete vessels were towed to Able UK facilities in October 2003. The proposed action evaluated in this EA addresses towing approximately nine vessels to the Able UK facility for disposal. Figure 2-1 illustrates the anticipated route that the proposed tows will follow while inside U.S. territorial waters.

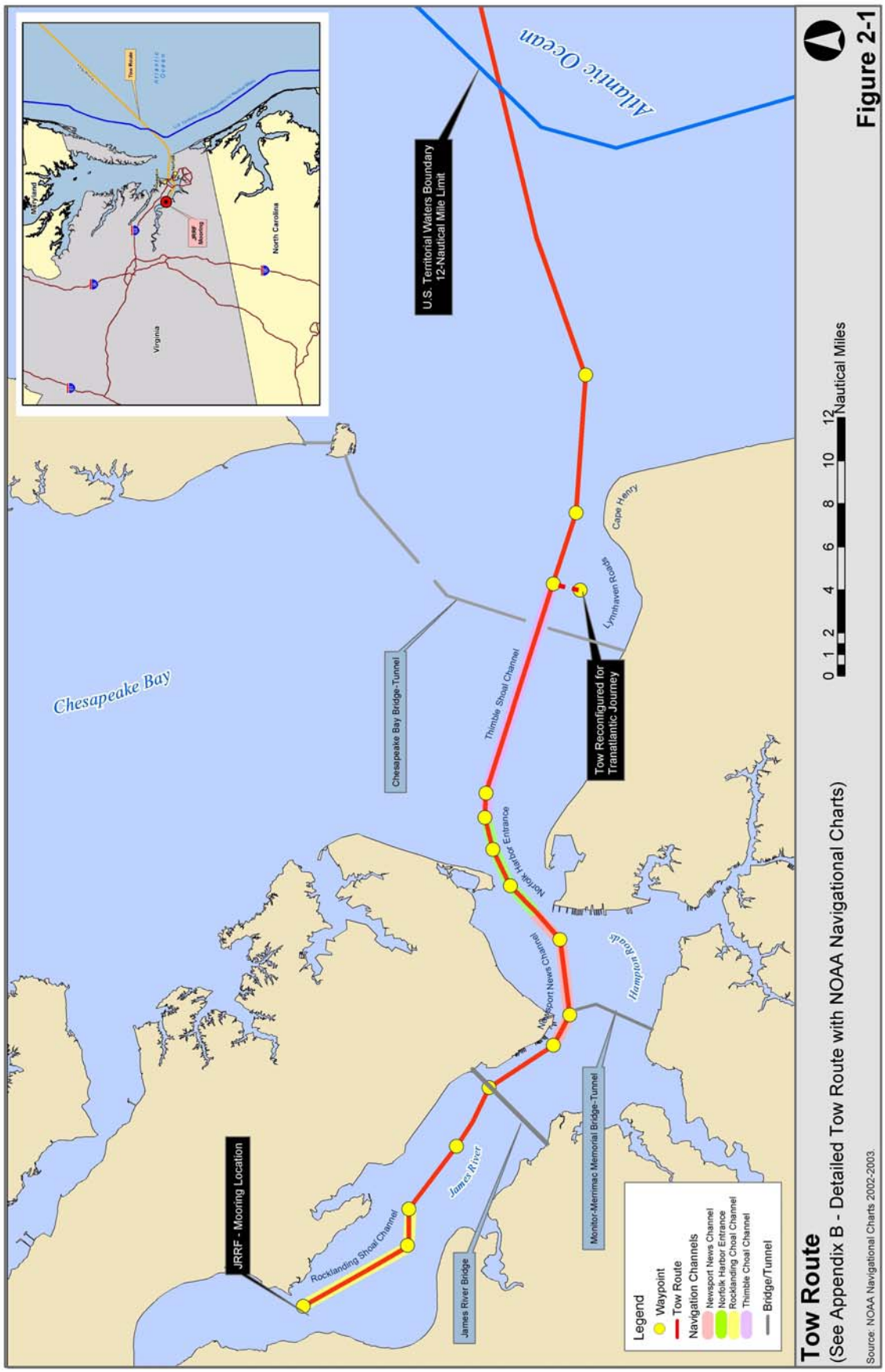

Atlantic Ocean
Chesapeake Bay
U.S. Territorial Waters Boundary
12-Nautical Mile Limit
Tow Reconfigured for
Transatlantic Journey
JRRF - Mooring Location
Chesapeake Bay Bridge-Tunnel
Thimble Shoal Channel
Norfolk Harbor Entrance
Newsport News Channel
Rocklanding Shoal Channel
James River
James River Bridge
Monitor-Merrimac Memorial Bridge-Tunnel
Hampton Roads
Lynnhaven Roads
Cape Henry
Virginia
North Carolina
JRRF Mooring
Legend
Waypoint
Tow Route
Navigation Channels
Newsport News Channel
Norfolk Harbor Entrance
Rocklanding Choal Channel
Thimble Choal Channel
Bridge/Tunnel
0 1 2 4 6 8 10 12 Nautical Miles
Tow Route
(See Appendix B - Detailed Tow Route with NOAA Navigational Charts)
Source: NOAA Navigational Charts 2002-2003.
Figure 2-1

Table 2-1. NDRF Vessels Anticipated for Transfer and Disposal

Vessel	Type/Last Owner	Year Built	Gross Tonnage	Location
American Banker	Cargo/private	1962	16,300	JRRF
American Ranger	Cargo/private	1965	11,250	JRRF
Donner	LSD 20/Navy	1945	8,151	JRRF
Mormacmoon	Cargo/private	1965	11,202	JRRF
Mormacwave	Cargo/private	1962	12,691	JRRF
Protector	Z-EC2/Navy	1945	7,176	Portsmouth, Virginia
Rigel	R3/Navy	1955	13,101	JRRF
Santa Cruz	Cargo/private	1966	9,313	JRRF
Santa Isabel	Cargo/private	1967	9,322	JRRF

LSD 20: Cabildo-class Landing Ship Dock

R3: Rigel-class Store Ship

Z-EC2: Radar Picket Ship

A number of approvals, inspections, licenses, and other procedures are required prior to removing a vessel from the JRRF and towing it to an approved disposal facility. These procedures are dictated by MARAD, the U.S. Coast Guard (USCG), U.S. EPA, foreign authorities, private insurers, and local governments to ensure that tows are accomplished in full compliance with safety, navigation, environmental, and other safeguards.

The next two sections detail the approvals, certifications, and surveys that would occur prior to any vessel tow to Able UK facilities, and provide a summary list of events under the proposed action.

2.1.1 APPROVALS REQUIRED PRIOR TO COMMENCEMENT OF PROPOSED TOWS

Table 2-2 provides a list, not in chronological order, of the certifications, studies, approvals, and plans that must be completed prior to the commencement of any proposed vessel tows. These plans and approvals provide for a comprehensive review and approval process for the proposed vessel tows by a number of agencies and authorities, to ensure the soundness of the vessels for tow, the safety of the proposed tow procedures, and the ability of Able UK facilities to dispose of the vessels in full compliance with appropriate environmental and safety regulations.

Table 2-2. Summary of Approvals Required Prior to Vessel Towing

Approval/Document	Agency/Responsible Party	Purpose
Vessel Surveys • MARAD • PRP/Able UK • Tow company • Tow company insurance underwriters • Independent surveyor	Multiple	Each survey, conducted by a recognized and approved Marine Surveyor, assesses complete vessel for hull condition, equipment, and on-board materials. Surveys include recommendations for vessel preparation prior to tow, removal of materials, securing items, sealing holds and hatches, etc. The USCG reviews these recommendations and makes some or all of them binding.
Communications Plan	Tow company	Details communications gear and protocols during tow.

Approval/Document	Agency/Responsible Party	Purpose
Oil Spill Contingency Plan	Tow company	Details safeguards and procedures to be employed during tows in the event of an oil spill; provides list of responsible individuals and contact information.
Dead-Ship Tow Proposal Form	MARAD	Includes tank layout with types, amounts, and locations of hazardous and other materials aboard vessel. Required and approved by USCG.
Weather Contingency Plans	MARAD (JRRF) Tow contractor	• Addresses weather-related procedures and contingencies at the JRRF. • Addresses weather-related procedures and contingencies during the vessel tow.
Tow Survey Certificate	Issued by recognized and approved Marine Surveyor to USCG, MARAD, PRP, Tow contractor	Lists detailed towing arrangements – lines, bridles, stowage – that must be followed during tow operations.
Towage Manual	Tow contractor	Summarizes towage arrangements, tow route, navigational aids, lists all relevant contact personnel, weather conditions expected and contingencies. Provides for daily situation report.
Marine Environmental Risk Assessment	Produced for Able UK and Tow contractor (required by UK Maritime & Coastguard Agency (MCA))	Includes summary of materials onboard vessels and risk assessment for oceanic tow.
International Loadline Exemption Certificate	Issued by USCG Marine Safety Office (MSO) Hampton Roads – Marine Inspector	One for each vessel - this is the formal approval to tow. Also includes required safety and tow operations measures.
Transfrontier Movement of Waste Authorizations	Transfrontier Movement of Waste Authorization (Issued by United Kingdom Environmental Authority [UKEA] to MARAD)	Formal approval of trans-Atlantic transfer of vessels.
Technical Compliance Plan (TCP)	Able UK (required by MARAD)	Provided in July 2003, the TCP includes information on Able UK facility on hazardous materials management, handling, storage, disposal, and monitoring; worker safety and health; environmental controls and permits. Includes a detailed Waste Management Compliance Plan. The TCP describes procedures that will be followed by Able UK during dismantling and recycling activities.
Environmental Compliance Plan	Contractor (required by MARAD as part of TCP)	Addresses hazardous materials management.

Approval/Document	Agency/Responsible Party	Purpose
Waste Management License Planning Permission (No. TDC/96/091) – TERRC (Teesside Environmental Recycling and Reclamation Centre) License for Work with Asbestos Insulation or Asbestos Coating (No. 4870002914) – Able UK License for Work with Asbestos Insulation or Asbestos Coating (No. 4840200109) – Stephenson Demolition Co Ltd Waste Management License (No. CLE403) – Seaton Meadows Waste Management License (No. CLE411/1) - TERRC Exemption for Importation of Asbestos under the Asbestos Prohibition Regulations 1992 (amended 1999)	Multiple	Able UK facility approvals and licenses.

2.1.2 SEQUENCE OF EVENTS

Table 2-3 provides a list of actions that would take place under the proposed action. These actions, which were followed for the transfer of four previous vessels in October 2003, are designed to ensure that: (1) the vessels are properly evaluated and prepared prior to tow; (2) the tow operations are conducted under established and recognized safety standards; (3) the vessels are disposed of in accordance with applicable UK environmental and safety requirements; and (4) participants throughout the process – preparation, tow, and disposal – are properly trained, licensed, and approved by applicable agencies.

Table 2-3. List of Actions

Action/Event	Participants	Purpose
Meetings with USCG MSO Hampton Roads	MARAD (JRRF), Able UK, USCG	Brief participants on USCG requirements for tow of specific vessels.
Response letter from USCG	MARAD/JRRF, USCG	Details USCG requirements for Tow Package (vessel surveys, tow plans, specific safety measures).
Vessel surveys	Multiple surveys of each vessel may occur so that each party is assured of vessel condition for tow	Provide comprehensive survey of each vessel by Marine Inspectors.
Recommendations for loadline items and tows	May occur at various times concurrent with formal survey.	Provides final recommendation list for individual vessel pre-tow actions (such as securing loose items on deck, sealing hatches, etc.).
Transfrontier Shipment Notification Form	MARAD to UKEA	Application for transfrontier shipment of vessel(s).
Transfrontier Shipment Notification Form approval	UKEA approval	Approval for the waste to enter the UK.
Transfrontier Shipment Certificate of Satisfaction	Issued by UKEA to MARAD	International approval to tow.
Licenses and Permission Certification	Able UK	Certifies that receiving facility has obtained or holds proper licenses and approvals.
Towage Manual	Provided to MARAD and USCG by tow contractor	Required by USCG.

Action/Event	Participants	Purpose
Oil Spill Contingency Plan	Provided to MARAD and USCG by tow company	Not required by USCG.
Tow Survey Certificate	Issued by approved Marine Inspector to USCG, MARAD, Able UK, tow company	Independent Surveyor certification that vessel tow preparations have been completed satisfactorily.
USCG review of tow package	USCG	Results in USCG recommendations for revisions (if any).
Pre-tow conference	USCG, MARAD, tow company	If necessary, to address any remaining USCG requirements.
Tow Package	USCG review and approval	Generally provided five working days prior to tow date. Includes revised: • Dead-Ship Tow Proposal Form • Tow operations and procedures • Oil Spill Contingency Plan • Vessel surveys • Communications Plan • Weather Contingency Plans
Issuance of International Loadline Exemption Certificate(s)	USCG	USCG formal approval for tow.
Date of tow (weather dependent)	Able UK tow company	• Break-out from JRRF • Operational control hand-over to tow contractor • James River – Hampton Roads tow • Transition to trans-Atlantic tow configuration • Tow to Teesside, UK (approximately 28 days)

In addition to the approvals and steps listed in Table 2-2 and Table 2-3, additional specific recommendations and mitigation measures are described in the appropriate sections of this EA (e.g., Navigation, Hazardous Materials).

2.1.3 VESSEL MOVEMENT AND PROPOSED TOW ROUTE

This section describes the specific navigation and tow plans by which the obsolete vessels would move from their moorings in the James River to the Atlantic Ocean and subsequently to Able UK facilities in Teesside, UK.

Under the proposed action, tugboats would tow each vessel from the JRRF to Teesside, UK via dead-ship tows, which are tows of vessels in configurations that do not allow them to be independently powered and navigated. The tow operations will utilize standard shipping routes used by commercial vessels when moving downstream in the James River and heading to sea (reference Figure 2-1).

Each tow would begin when the vessels are released from the JRRF and secured by the contractor's tugboats. The tows would then head downstream (roughly southeast) through Rocklanding Shoal Channel, which is a federally dredged navigation channel (approximately 24 feet) for roughly 5 nautical miles (nm). Another 6.5 nautical miles downstream and the tow will go through the James River Bridge, which will be opened for passage of the vessels. If two vessels are being towed by the same tow across the Atlantic then individual tow boats, along with smaller escort tugs, will be assigned to move the vessels separately from the JRRF through the James River Bridge, at a safe distance apart so as to require only one bridge opening.

The tows will travel another 4.5 nautical miles into Hampton Roads and pass over the *Monitor-Merrimac* Memorial Bridge-Tunnel and enter the Newport News Channel (dredged to approximately 50 feet)

heading easterly. In the case of a double tow, it is at this point in the transit that the two tows will be breasted together for the transit to Cape Henry. From there, the vessels will transit the Norfolk Harbor Entrance Reach (also about 50 feet channel depth) and make their way northeasterly to the Thimble Shoal Channel. Once at Thimble Shoal Channel the vessels will proceed according to the Traffic Separation Scheme (i.e., outbound and inbound vessels keep to the right of their respective navigational channels) for this federally regulated navigation channel.

The vessels will follow the channel for approximately 10 nautical miles until they pass the Chesapeake Bay Bridge-Tunnel. At this point in the transit, the tows will head south of the Thimble Shoal Channel into the bight at Lynnhaven Roads where the towing configuration will be shifted from breasted to tandem for the trans-Atlantic journey. Once configured, the crews will depart the vessels and the tow will re-enter the separation scheme of Thimble Shoal Channel and head towards the 2 nm Precautionary Area at the Chesapeake Bay Sea Buoy, just northeast of Cape Henry. [A nautical Precautionary Area is an area where inbound and outbound vessel traffic meets. The Precautionary Area at the entrance to Chesapeake Bay demarks the area where inbound and outbound traffic - and the associated Traffic Separation Schemes - to and from the bay meet. The Chesapeake Bay Entrance Traffic Separation Schemes have been established for the control of maritime traffic to prevent potential collisions at the entrance to the Chesapeake Bay].

The tow will then transit the Precautionary Area and exit the northeast, outbound lane. Once clear of the northeast, outbound lane the tow will steer a rhumb line course for Bishop Rock, England and the entrance to the English Channel enroute to Teesside, UK (see Appendix B).

The approximate total distance of the tows from the JRRF to the offshore Precautionary Area is 41 nautical miles, and is described below (Table 2-4).

Table 2-4. Proposed Action Vessel Tow Segments

Tow Segment	Segment Length (nautical miles)
JRRF to Rocklanding Shoal Channel	5.0
Rocklanding Shoal Channel to the James River Bridge	6.5
James River Bridge to the *Monitor-Merrimac* Memorial Bridge-Tunnel	4.5
Monitor-Merrimac Memorial Bridge-Tunnel to the Thimble Shoal Channel	7.0
Thimble Shoal Channel to Lynnhaven Roads	10.0
Lynnhaven Roads to the Pilotage area	4.0
Pilotage area to the NE outbound lane of the Precautionary Area	4.0
APPROXIMATE TOTAL DISTANCE	**41.0**

2.2 NO ACTION ALTERNATIVE

Under the No Action alternative, MARAD would not transfer the approximately nine obsolete NDRF vessels to the Able UK facility for dismantling and recycling. These vessels would remain moored at the JRRF until funding was available and/or they were disposed of via another cost-effective, best value proposal made through the PRDA process, or through an invitation for bid. The longer the vessels remain in the fleet, the greater the environmental risks become due to the volumes of fuel oil remaining in fuel tanks with deteriorating hulls. Because leaving the vessels moored at the JRRF for an indefinite period

would not be responsive to Congressional direction to remove obsolete vessels by September 2006, the No Action alternative does not meet the purpose and need for the action.

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

In addition the Proposed Action alternative and the No Action alternative analyzed in detail in this EA, MARAD also considered a number of other alternative approaches to meeting Congressional direction. The following alternatives were initially evaluated but found to not meet the purpose and need of the action, and therefore were not carried forward for additional analysis in this EA.

2.3.1 DOMESTIC DISPOSAL FACILITIES

As discussed in Section 1.2, Congress has imposed on MARAD a deadline of 2006 to dispose of all NDRF obsolete vessels. In order to meet this deadline, ship disposal facilities that can accommodate a number of obsolete vessels simultaneously are needed.

MARAD routinely contracts with domestic facilities to dispose of obsolete vessels. Under the PRDA process, domestic ship disposal facilities submitted qualified proposals that met the basic evaluation criteria. However, no U.S. disposal facility currently has the capacity to accommodate a large number of ships simultaneously or can fully meet the cost-effectiveness required by MARAD to meet the congressionally-imposed deadline of September 2006, especially given the level of funding appropriated. Domestic facilities include those that have responded to MARAD solicitations for ship disposal and are in the competitive range, and/or facilities that have been awarded MARAD disposal contracts and have actually disposed of or are in the process of disposing of MARAD obsolete vessels.

2.3.2 OTHER FOREIGN DISPOSAL FACILITIES

The Able UK facility was the only facility under the PRDA that was assessed to be capable of meeting the technical, environmental, and safety standards necessary for complete disposal of the vessels. Given the due diligence process necessary to properly assess and qualify foreign facilities, Able UK was judged to be the best value at the time.

2.4 SCOPING/PUBLIC NOTIFICATION

Under this NEPA process, coordination with local and federal agencies was conducted to identify issues and/or concerns related to the proposed action (see Appendix C). Notification of the availability of this EA was published in the *Federal Register*, *The Virginian-Pilot*, and *The Daily Press* and a 30-day public comment period was provided. The EA was made available for public viewing on the MARAD website (www.marad.dot.gov) and at the following locations: Groninger Library, Army Transportation Center, Bldg. 1313, Ft. Eustis; Grissom Public Library, 366 DeShazor Dr., Newport News; Christopher Newport College Library, 1 University Pl., Newport News; Newport News Public Library, 110 Main St., Newport News; Pearl Bailey Branch Library, 2510 Wickham Ave., Newport News; West Avenue Library, 30th St. & West Ave., Newport News; Hampton Public Library, 4207 Victoria Blvd., Hampton; Hampton University Library, 130 E. Tyler St., Hampton; Thomas Nelson Community College Library, 99 Thomas Nelson Dr., Hampton; Earl Gregg Swem Library, College of William & Mary, Williamsburg; Henry Clay Hofheimer II Library, 1584 Wesleyan Dr., Norfolk; Little Creek Branch Library, 7853 Tarpon Pl., Norfolk; Blyden Branch Library, 879 East Princess Anne Rd., Norfolk; Kirn Memorial Main Library, 301 East City Hall Ave., Norfolk; Old Dominion University Library, 4427 Hampton Blvd. Norfolk; Norfolk State University Library, 700 Park Ave., Norfolk; Larchmont Branch Library, 6525 Hampton Blvd., Norfolk; Janaf Branch Library, 124 Janaf Shopping Center, Norfolk; Pretlow Branch Library, 9640 Granby St., Norfolk; Lafayette Branch Library, 1610 Cromwell Dr., Norfolk; Park Place Branch Library,

620 West 29th St., Norfolk; Van Wyck Branch Library, 1368 DeBree Ave., Norfolk; Virginia Beach Public Library, 4100 Virginia Beach Blvd., Virginia Beach. In addition, the EA was mailed directly to those who had previously expressed interest.

[This page intentionally left blank.]

3.0 AFFECTED ENVIRONMENT

This chapter of the environmental assessment describes existing environmental conditions in the area potentially affected by the proposed action. This section will describe the following resource areas: air quality, water quality, geology and soils, coastal resources, terrestrial resources, aquatic resources, navigation, hazardous materials, historical and cultural resources, and visual and aesthetics. Potential impacts are discussed in the "Environmental Effects" section following the same order.

3.1 AIR QUALITY

The U.S. EPA defines ambient air in 40 C.F.R. §50 as "that portion of the atmosphere, external to buildings, to which the general public has access." In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA) 42 U.S.C. §7401 *et seq*., the U.S. EPA has promulgated the National Ambient Air Quality Standards (NAAQS) for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the U.S. EPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), particles with a diameter less than or equal to a nominal 10 micrometers (PM_{10}), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). An area that has air quality as good as or better than the national ambient air quality standards is termed as being in "attainment." An area with air quality poorer than the national ambient air quality standards is termed as being in "non-attainment." An area may be an attainment area for one pollutant and a non-attainment area for others.

Federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (the Conformity Rule). Under this rule, an air conformity applicability analysis must be performed for projects in non-attainment areas to determine if a formal conformity determination must be made. The proposed action is located in the following jurisdictions: Northampton County, Surry County, Isle of Wright County, City of Newport News, City of Hampton, City of Suffolk, City of Portsmouth, City of Norfolk, and City of Virginia Beach. All of these jurisdictions are in attainment for all six criteria pollutants; thus the Conformity Rule does not apply for this area.

Since the towing activities would take place within the James River from Fort Eustis, Virginia to Virginia Beach, Virginia, this entire area, on either side of the shoreline, was considered the affected environment. U.S. EPA Aerometric Information Retrieval Systems (AIRS) data for the nine jurisdictions in this area was used to determine impacts to air quality in the area (U.S. EPA, 2003a).

3.2 WATER QUALITY

The project area spans four distinct ecological systems: the James River, Hampton Roads, Lower Chesapeake Bay, and U.S. territorial waters. Because the proposed action involves the towing of vessels, the water column of each system is considered part of the potentially affected environment.

The U.S. EPA has developed national recommended water quality criteria for priority pollutants in ambient water for the protection of aquatic life and human health (U.S. EPA, 1998). These criteria have been adopted as enforceable standards by most states, including the Commonwealth of Virginia.

Under Virginia water quality standards, the supporting uses of a waterbody are determined by its class. Virginia has established criteria that first determine the class of the waterbody and then determines the supporting use of the waterbody. Class I waterbodies are Open Ocean; Class II are Estuarine Waters (tidal water- coastal zone to fall line).

Each class of water is assigned dissolved oxygen, potential of hydrogen (pH), and temperature requirements. For each class of waterbody, Virginia also assigns designated uses for the protection of

aquatic life, fish consumption, shellfish consumption, swimming, and public water supply. In addition to the designated uses, each class is also assigned numeric standards for various criteria such as dissolved oxygen, temperature, toxics, bacteria, and metals. These numeric criteria determine whether or not a waterbody can support the designated uses. If the waterbody does not meet the numeric criteria it is then considered impaired and placed on a statewide list according to section 303(d) of the Federal Clean Water Act.

3.2.1 JAMES RIVER

The James River is a tributary flowing in an easterly direction to the Lower Chesapeake Bay and drains an area of approximately 25,600 square kilometers. Virginia classifies the Lower James River as a *Class II: estuarine water* (tidal water-coastal zone to fall line). The JRRF is located approximately 30 miles upstream from the Chesapeake Bay and 45 miles from the Atlantic Ocean. The river in the vicinity of the JRRF is tidally influenced with semidiurnal tides and contains brackish water. Average summer bottom water salinity in the James River ranges from 5 to 15 parts per thousand (ppt) at the uppermost portion of the project area to greater than 15 ppt in the lower James River.

Virginia lists the James River as Impaired for Aquatic Life Use (partially supporting), due to excess nutrients. The river receives the highest nutrient inputs of any river in Virginia, contributing approximately 20 percent of the total phosphorus load to the Chesapeake Bay (U.S. Geological Survey [USGS], 2001). Nutrient loads into the river include point sources (municipal and industrial wastewater treatment facilities) and nonpoint sources (agricultural crop and pasture land and developed urban/suburban land).

The current state of the James River was described by the Virginia Department of Natural Resources in 2000 as follows:

> There is no significant problem with low dissolved oxygen levels in the James River; nitrogen levels have been reduced in the upper river; and, chlorophyll levels throughout the James River estuary are elevated. In particular, chlorophyll *a* concentrations are high in the tidal portions of the James River.[4]

In 1998, Dauer et al. conducted a review of trends in water quality and living resources in the Chesapeake Bay, Virginia, including the James River, between 1985 and 1997. That report found an improving trend of lowered total and dissolved inorganic nitrogen in the lower river, which includes the JRRF area. There were no degrading trends in bottom dissolved oxygen in the James River. There was a degrading trend in water clarity at the mouth of the river, and no improving trend in surface total suspended solids in the James River through 1997.

Since 1988, the VA DEQ has collected monthly water quality data from the James River near Buoy 12, which is located in the Lower James River south of the JRRF southeast of Burwell Bay. Water clarity (i.e., turbidity) and total suspended solid concentrations have been generally consistent from 1997 through 2003 (www.deq.state.va.us/watermonitoring/monitoring.html).

3.2.2 HAMPTON ROADS

Hampton Roads is located at the mouth of the James River and the confluence of the Chesapeake Bay. The Virginia Department of Environmental Quality (VDEQ) includes it as part of the James River Watershed. It receives input from the Elizabeth River, which flows south to north. Water and sediment

[4] *Tributary Strategy – Goals for Nutrient and Sediment Reduction in the James River*. Virginia Secretary of Natural Resources, et al. 2000.

quality in the Elizabeth River have been degraded historically from industrial point source discharges. Dauer et al. (1998) reported that nitrogen, phosphorous, and chlorophyll *a* concentrations ranged from fair to poor in the river. Dauer et al. (1998) also reported a degrading trend in water clarity, but improving trend in total and inorganic nitrogen, at their sampling station located in the Hampton Roads segment. VDEQ reported in the *Elizabeth River Project's State of the River 2000* report (VDEQ, 2004) that dissolved oxygen was showing an improving trend, nutrient levels were generally decreasing, only copper exceeded the Virginia chronic water quality criterion, and that no toxic effects from the water column were determined at the 11 monitoring stations.

3.2.3 CHESAPEAKE BAY

The Chesapeake Bay is one of the largest and most productive estuaries in the U.S. It has a surface area of approximately 3,900 square miles and a watershed of nearly 70,000 square miles. The Lower Chesapeake Bay is designated a Class II waterbody by VDEQ and therefore has the same target numerical criteria as the lower James River. Salinity ranges in the Lower Chesapeake within the study area from approximately 15 to 25 ppt. In 1998, Dauer et al. reported that the water quality of the Chesapeake Bay has declined over the past several decades. Several ecological problems in the Bay have been found to be associated with deteriorating water quality, including: submerged aquatic vegetation (SAV) reduction in certain regions of the Chesapeake Bay, declines in the abundance of commercially- and recreationally-important species, increases in the occurrences of low dissolved oxygen events, and changes in the Bay's food web (Dauer et al., 1998). SAV reduction has been tied to high sedimentation loads, reduced water clarity, and high nutrient (i.e., phosphorus and nitrogen) levels. High nutrient levels can also cause outbreaks of nuisance species such as the phytoplankton *Pfiesteria piscicadia* (Dauer et al., 1998). This dinoflagellate has been associated with toxic events such as fish kills in the Bay.

3.2.4 ATLANTIC OCEAN (U.S. TERRITORIAL WATERS)

The portion of the Atlantic Ocean within Virginia state waters (out to three nautical miles) has been designated a Class I waterbody. Numerical water quality criteria include a minimum dissolved oxygen content of 5.0 milligrams/liter (mg/l) and pH levels ranging from 6.0 to 9.0. Nearshore salinity ranges from approximately 25 to more than 30 ppt.

The open ocean between the Virginia 3-nm limit and the U.S. territorial waters 12-nm limit is marked by varying natural turbidity in the water column. Natural turbidity (or suspended matter concentrations) in the water column of the ocean varies depending on the sea state. Comparatively low concentrations exist during calm periods. Turbidity increases during storms, particularly at the ocean floor. Existing concentrations of suspended matter in the Mid-Atlantic shelf waters are typically low and vary between surface and bottom waters, between different seasons due to potential stratification in the water column, and in different areas due to different sources and grain sizes.

Generally, dissolved oxygen concentrations on the Mid-Atlantic shelf are highest in the winter and decrease in the summer, particularly in the absence of summer storms. Salinity levels of nearshore waters are primarily affected by input of freshwater from streams and rivers, and from intrusion of continental slope water from far offshore onto the shelf. The salinity of the shelf water ranges between 30 and 35 ppt.

3.3 GEOLOGY AND SOILS

The geology and soils along the shorelines of the James River and the Lower Chesapeake Bay are considered part of the potentially affected environment, because the proposed action involves the towing of vessels through these waterbodies. The sedimentary environment in the James River in the JRRF anchorage area is also considered part of the potentially affected environment because the tows originate in this area. Due to much greater water depths, sedimentary environments at the bottom of the waters of

the Lower Bay and open ocean are not considered because they are unlikely to be affected by the proposed action.

3.3.1 GEOLOGIC RESOURCES

Fort Eustis and the area along the tow route to the edge of the Continental Shelf off the coast of Virginia lie within the Embayed Section of the Coastal Plain Physiographic Province. The Coastal Plain is an elevated sea bottom characterized primarily by unconsolidated sediments deposited in various onshore, near-shore, and offshore environments during the Cretaceous, Tertiary, and Quaternary periods. Fort Eustis lies on the Pleistocene age (early Quaternary period) Princess Anne terrace formation. Approximately 2,000 feet of unconsolidated Cretaceous period and Tertiary period sediments separated by an unconformity lie between the terrace and the granite basement rock. These sedimentary deposits thicken and drop eastward, and consist of clay, silt, sand, and gravel with variable amounts of shell material. Pleistocene deposits along the James River include the Windsor and overlying Norfolk Formations that are components of the Columbia Group of terraces, consisting of fossil deficient, cross-bedded sands and gravels.

3.3.2 SOILS

Shorelines at Fort Eustis and along the proposed tow route are comprised primarily of unconsolidated sediments associated with stream/river banks and beaches, vegetated shorelines associated with tidal marshes, and hardened shorelines associated with developed areas. Fort Eustis has over 20 miles of open tidal shoreline located along the James River to the west, the Warwick River to the east, and Skiffes Creek to the north. The open tidal shorelines of Fort Eustis are generally undergoing erosion because they are subject to forces of waves and currents (VIMS, 1997 as cited in USATCFE, 1998).

The wave climate at Fort Eustis varies from the dominant northwest exposure along the James River shoreline from Goose Island to Mulberry Point to southwesterly to southern exposures from Mulberry Point to Jail Point. Skiffes Creek is very fetch, meaning it is a limited wind/wave generating area. Streambank erosion on Skiffes Creek is probably more the result of boat wakes than wind driven waves. Along the lower Warwick River, Mulberry Island has a limited exposure to the north and the northeast, while the upper Warwick River shoreline, above Thorofare Island, is seasonally impacted by boat wakes from pleasure boats (VIMS, 1997 as cited in USATCFE, 1998).

The majority of shore erosion along the tow route occurs during storms. The sediment transport rates and direction depend on storm duration, storm surge, and wind direction and intensity. Annual average wave conditions impacting a given section of undeveloped shoreline operate almost exclusively on the beach and intertidal zone under normal or seasonal water levels. These wave conditions provide the somewhat constant undercutting associated with marsh peat erosion. During storms, the undercut peat mats may tear off and become deposited in the near-shore area, where they are broken down by waves and currents (VIMS, 1997 as cited in USATCFE, 1998).

3.3.3 SEDIMENT

Sediments in the Lower James River are comprised primarily of fine-grained silt and clay. The lower portion of the river experiences heavy sediment loads from upper portions of the watershed; over 70 percent from the Piedmont and Upper James regions (Dauer et al., 1998). Approximately 95 percent of the sediment loading in the basin is from agricultural land.

The river was contaminated as early as 1967 with the pesticide Kepone, which was manufactured until 1975 by a company located at Hopewell near the upstream limits of the estuarine reach (National Academy of Sciences [NAS], 1997). Subsequent sediment deposition and mixing (clean sediment entering the river from upstream mixing with contaminated material, and sedimentation and burial within

the deeper, low-energy regions of the river channel) have resulted in a progressive decrease in Kepone concentrations in surface sediments. The natural sedimentation processes have reduced near-surface concentrations of Kepone and the associated exposure potential for biota. A fish consumption advisory for Kepone, issued in 1988, remains in effect for fish taken from the Lower James River.

Additional contaminants have been reported from sediment in the Lower James River. Polychlorinated Biphenyls (PCBs) were recently reported in the James River in 2002 (The Daily Press, 2003). The source of the PCBs has not yet been determined. Results of sediment and fish samples collected by the VDEQ should be available in early 2004. A fish consumption advisory for PCBs exists for fish taken from the Lower James River. In addition, tributyl tin which was used as an anti-fouling paint on ships hulls has been reported in sediments in the area of Newport News, which hosts a substantial shipbuilding and repair industry.

Section 3.7.3 provides details on the number of vessel movements annually in the Hampton Roads area.

3.4 COASTAL RESOURCES

The shorelines along the James River in the vicinity of the study area are predominantly composed of solid manmade structures, fine- and coarse-grained sand beaches, riprap, exposed tidal flats, and fringing intertidal salt marsh. Shorelines in smaller tributaries are predominantly composed of sheltered tidal flats, fringing intertidal and supratidal salt marsh, and fresh marsh.

The most sensitive habitats in the vicinity of the study area include intertidal and freshwater marshes, which are highly productive, serving as important wildlife habitat and nursery areas for fish, shellfish and waterfowl, including several species of commercial and recreational importance (see Section 3.5.3 Wetlands).

There are no SAV beds in the Lower James River (Virginia Secretary of Natural Resources et al., 2000). Elevated levels of suspended sediment have reduced light penetration and prevented the growth of SAV. Historic SAV beds have been noted in the lower portion of the river.

3.5 TERRESTRIAL RESOURCES

Terrestrial flora and fauna are characterized for the areas along the proposed tow route and within the vicinity of the JRRF.

3.5.1 FEDERALLY LISTED TERRESTRIAL SPECIES

The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) have responsibility for the listing of threatened and endangered species, and make determinations as to whether formal Section 7 consultation is necessary for a proposed action. Formal Section 7 consultation is required in the event that there is a possibility of an adverse effect on a federally listed threatened or endangered species, or upon designated critical habitat. Individual states also list threatened and endangered species.

Piping plover (federally threatened species), Wilson's plover (state endangered species), and the gull-billed tern (state threatened species) are found at locations in the James River and Chesapeake Bay area. The federally threatened bald eagle and state threatened peregrine falcon are also commonly found throughout the James River and Chesapeake Bay. There are about 20 eagle nests along the tow path of the vessels, which is outside of what the state of Virginia considers to be eagle concentration areas. Virginia species of special concern are noted by the state but not afforded the regulatory protection of state- or federal-listed threatened and endangered species. Virginia listed species of special concern that may occur in the area include least tern, caspian tern, and Forster's tern. Other species of concern, such as

the brown pelican and black rail, are also common throughout the area. The federally threatened roseate tern may migrate through the bay area, but it is not common.

3.5.2 AVIAN RESOURCES

The Chesapeake Bay is located along the Atlantic flyway, and every year channels the annual seasonal flights of millions of migratory birds. For some birds, the Chesapeake Bay area is their winter destination. Many migratory songbirds, shorebirds, and raptors rest and refuel in the bay area during their spring and fall migrations. Other birds winter south and return to the Chesapeake Bay watershed each spring to breed. The bay area is a favored winter residence or stopover for many species of waterfowl on the way south from their summer breeding grounds. About one million swans, geese and ducks winter in the bay area. This is roughly one third of all waterfowl wintering along the Atlantic Coast. High concentrations of waterfowl are found throughout the area (Table 3-1).

Table 3-1. Avian Species that May Occur in the Project Area

Common Name	Scientific Name	Common Name	Scientific Name
Waterfowl			
mallard	*Anas platyrhynchos*	ruddy duck	*Oxyura jamaicensis*
black duck	*A. rubripes*	pintail	*A. acuta*
blue-winged teal	*A. discors*	scoters	*Melanitta* spp.
green-winged teal	*A. crecca*	gadwall	*A. strepera*
lesser scaup	*Aythya affinis*	American wigeon	*A. americana*
greater scaup	*Aythya marila*	merganser	*Mergus merganser*
canvasback	*Aythya valisineria*	redhead	*Aythya americana*
shoveler	*A. clypeata*	bufflehead	*Bucephala albeola*
ring-necked duck	*Aythya collaris*	Canada goose	*Branta canadensis*
wood duck	*Aix sponsa*	mute swan	*Cygnus olor*
goldeneye	*Bucephala clangula*	tundra swan	*Cygnus columbianus*
Shorebirds			
double crested cormorants	*Phalacrocorax auritus*	spotted sandpiper	*Actitis macularia*
American oystercatcher	*Haematopus palliatus*	willet	*Catoptrophorus semipalmatus*
semipalmated plover	*Charadrius semipalmatus*	dunlin	*Calidris alpina*
Piping plover*	*Charadrius melodus*	Wilson's plover**	*Charadrius wilsonia*
Wading Birds			
great blue heron	*Ardea herodias*	great egret	*Ardea alba*
snowy egret	*Egretta thula*	little blue heron	*Egretta caerulea*
green-backed heron	*Butorides virescens*	black crowned night heron	*Nycticorax nycticorax*
Virginia rail	*Rallus limicola*	king rail	*Rallus elegans*
black rail	*Laterallus jamaicensis*	roseate tern*	*Sterna dougallii*
Gulls and Terns			
laughing gull	*Larus atricilla*	ring-billed gull	*Larus delawarensis*
great black-backed gull	*Larus marinus*	herring gull	*Larus argentatus*

Common Name	Scientific Name	Common Name	Scientific Name
gull-billed tern**	*Gelochelidon nilotica*	Caspian tern	*Sterna caspia*
least tern	*Sterna antillarum*	Forster's tern	*Sterna forsteri*
Raptors			
osprey	*Pandion haliaetus*	red-shouldered hawk	*Buteo lineatus*
American kestrel	*Falco sparverius*	bald eagle*	*Haliaeetus leucocephalus*
peregrine falcon***	*Falco peregrinus*		

* Federally threatened species

** State endangered species

*** State threatened species

Dabbling ducks including mallard, black duck, gadwall, and blue winged teal can be found in protected nearshore areas and intertidal marshes throughout the year. Wood duck can be found in spring, summer, and fall in freshwater marshes in the area. Other dabbling ducks including pintail, American widgeon, shoveler, and green-winged teal may be found during fall and winter migrations and may overwinter in protected nearshore areas and intertidal marshes. Diving and sea ducks, including scaup, canvasback, redhead, bufflehead, ruddy duck, scoters, and oldsquaw may be present during fall and winter migrations and may overwinter in open waters. Canada goose, greater snow goose, and tundra swan may also be present in the area during the fall and winter (MARAD, 2001a).

Moored vessels at the JRRF site are known to provide opportunistic nesting habitat for ospreys.

3.5.3 WETLANDS

Over 2,000 acres of tidal and nontidal wetlands occur on the U.S. Army Transportation Center, Fort Eustis, most of which are associated with the extensive estuarine ecosystem that surrounds most of the installation (Figure 3-1). Fort Eustis encircles one of the largest principally intact wetland systems in the lower James River. Estuarine marshes on Fort Eustis have largely been maintained in a natural state in contrast to those found in adjacent areas such as Newport News, which have been largely altered by dredging and filling activities (VIMS, 1977a).

Tidal marsh habitats occur on Fort Eustis in association with Skiffes Creek, Bailey's Creek, Milstead Island Creek, Goose Island, numerous tidal creeks on Mulberry Island and the shoreline of the Island, and the Warwick River and its associated tributaries.

Much of the tidal wetland habitat in the City of Newport News has been impacted as a result of dredging, filling and shoreline development. Tidal wetlands in the area occur primarily in association with urbanized areas along Deep Creek and Fishers Creek (VIMS, 1977a).

The shoreline of the James River between Newport News and Hampton Roads includes few tidal wetland areas due to the high-energy nature of the shoreline and as a result of extensive industrial development along the shore (VIMS, 1977a).

Approximately 625 acres of brackish marsh occur along the west shore of the James River from just upstream of Days Point, across the river from Fort Eustis, downstream to the mouth of the Pagan River. An additional approximately 155 acres of wetlands occur adjacent to the mouth of the Pagan River in association with Jones Creek. The Ragged Island Marsh Complex occurs on the west bank of the James River south of the Pagan River from near the mouth of Ballard Creek downstream to the mouth of Ragged Island Creek. This complex comprises approximately 1,350 acres (VIMS, 1981).

Tidal wetlands are sparse along the shore of the James River between the Ragged Island Marsh Complex and Willoughby Bay as a result of shoreline development. Tidal fringe and instream wetlands do occur in

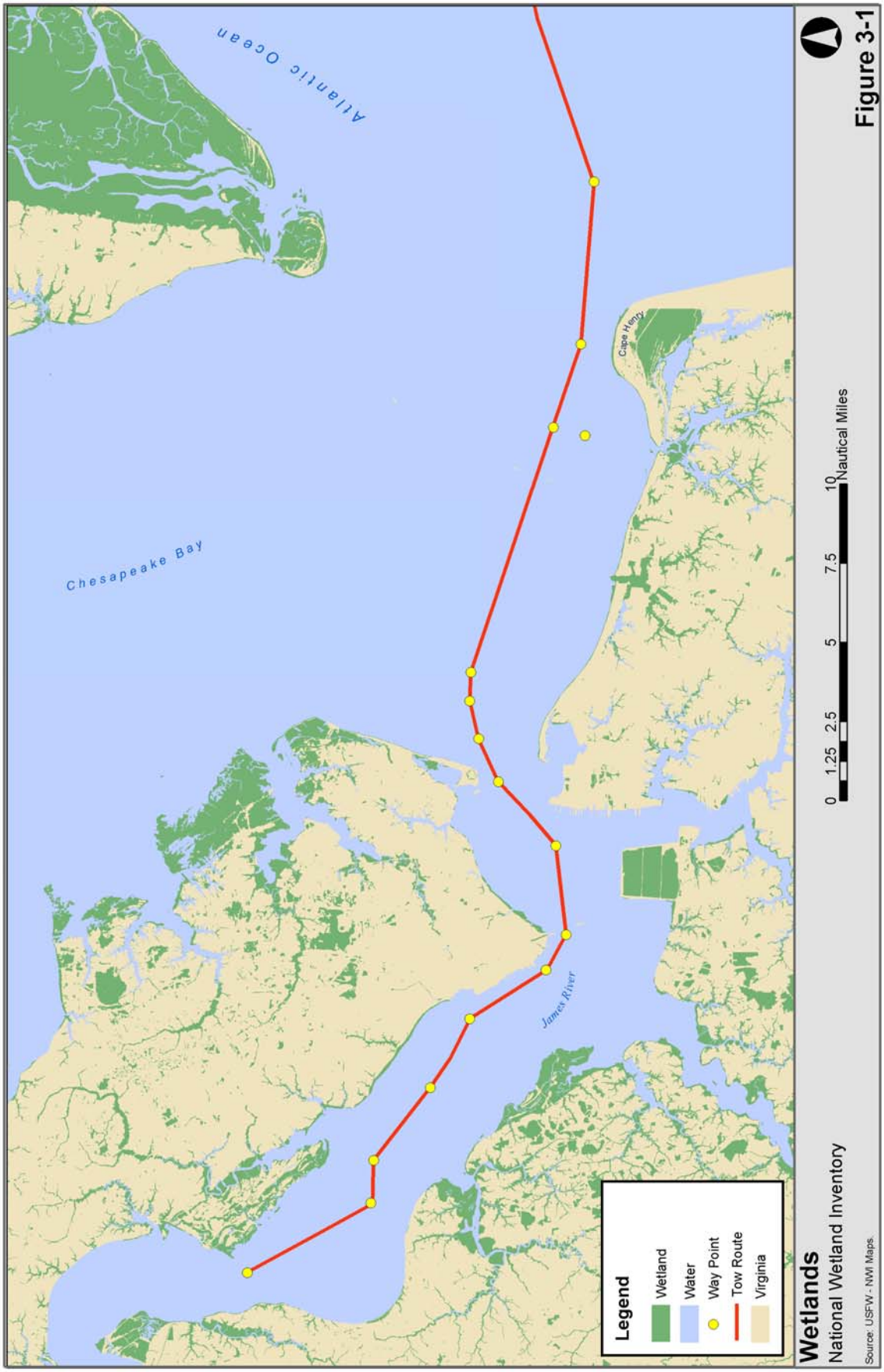
association with Hoffler Creek and Craney Island Creek just upstream of the mouth of the Elizabeth River (VIMS, 1989).

Tidal wetland habitats are very sparse on the eastern shore of the Chesapeake Bay to the north of the James River between the City of Hampton and Northend Point at the mouth of the Back River. Wetland habitats occur in association with Mill Creek within the boundaries of Fort Monroe, with the Salt Pond marshes within the Long Creek complex, and in association with Long Creek. These wetlands are bordered on their eastern boundaries by shoreline beaches associated with the Chesapeake Bay (VIMS, 1975).

The southern half of Virginia's eastern shore peninsula within Northhampton County includes some of the most extensive wetland habitats found in the Commonwealth. The area includes approximately 36,625 acres of tidal marshes. Approximately 96 percent or 35,220 acres of these wetlands occur on the eastern shore between the numerous barrier islands and the mainland shoreline. Only 1,405 acres of wetlands occur along the western shoreline of the county bordering the Chesapeake Bay primarily in association with tidal creeks draining to the bay. Approximately 17,700 acres of tidal wetlands occur in association with barrier islands from around Cape Charles to the southern end of the eastern shore peninsula. Tidal wetland habitats along the ocean side of the Cape Charles area consist of both broad and fringing tidal marshes along Magothy Bay and extensive marsh areas associated with Raccoon Creek. Approximately 1,155 acres of wetland habitats occur in these areas. An additional approximately 620 acres of tidal marsh habitat occur in association with Fisherman's Island at the southern end of the eastern shore peninsula. Tidal wetlands on the Chesapeake Bay side to the south of Cape Charles occur in association with Old Plantation Creek and Elliot's Creek. Approximately 220 acres of salt marsh habitat occurs within the two tidal creeks (VIMS, 1977b).

Tidal wetlands on the eastern shore of the Chesapeake Bay to the south of the James River between Willoughby Bay and Virginia Beach occur as small intertidal marshes in Little Creek and as small fringe, pocket, and instream marshes in the Lynnhaven River. No tidal wetlands occur immediately along the Chesapeake Bay shoreline (VIMS, 1989 and 1979).

Vegetation in tidal marshes along the James River and the Chesapeake Bay shoreline in the study corridor is characterized primarily by black needlerush (*Juncus roemerianus*), saltmarsh cordgrass (*Spartina alterniflora*), big cordgrass (*Spartina cynosuroides*), saltmeadow cordgrass (*Spartina patens*), and saltbush (*Atriplex* spp.) species including marsh elder (*Iva frutescens*) and sea myrtle (*Baccharis halimifolia*). Disturbed areas are typically characterized by a dominance of common reed (*Phragmites australis*). Black needlerush and saltmarsh cordgrass communities occur at lower elevations in the marsh system, especially along the creek channels. An important value of the needlerush marshes is that they resist erosion. This shoreline stabilization function is particularly important along the James River where erosion from storm waves and currents occurs. Saltmeadow grasses are scattered throughout areas of higher elevation within the saltmarsh. In upstream creek sections, where salinities are very low, marsh species such as marsh mallow (*Hibiscus moscheutos*), cattails (*Typha* spp.) and saltbush occur.


Atlantic Ocean
Chesapeake Bay
Cape Henry
James River
Legend
Wetland
Water
Way Point
Tow Route
Virginia
Wetlands
National Wetland Inventory
Source: USFW - NWI Maps.
0 1.25 2.5 5 7.5 10 Nautical Miles
Figure 3-1

3.6 AQUATIC RESOURCES

Aquatic flora and fauna are characterized for the water column and sediments in the JRRF anchorage area and the water column in the Lower Chesapeake Bay and the Atlantic Ocean within U.S. territorial waters.

3.6.1 FEDERALLY LISTED AQUATIC SPECIES

There are a limited number of aquatic-dependent threatened or endangered species within the project area as described below.

The National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) have responsibility for the listing of threatened and endangered marine species, and makes determinations as to whether formal Section 7 consultations under the Endangered Species Act (ESA) are necessary in regards to a proposed action. Formal Section 7 consultations are required in the event that there is a possibility of an adverse effect on a federally listed threatened or endangered species, or upon designated critical habitat. Individual states also list threatened and endangered species.

Fish

The shortnose sturgeon (*Acipenser brevirostrum*) is a federally listed species that has been reported to occur in the Chesapeake system as early as 1876 (NMFS, 1998). Shortnose sturgeon was listed as endangered on March 11, 1967 (32 C.F.R. §4001), and has remained on the endangered species list since that time (NMFS, 1998). Although the James River appears to have suitable spawning habitat for the Chesapeake Bay shortnose sturgeon, past sedimentation in tidal freshwater spawning reaches has greatly reduced the amount of suitable habitat.

Shortnose sturgeon spend most of their life in their natal river systems, only occasionally entering higher salinity environments. They are benthic omnivores and continuously feed on benthic and epibenthic invertebrates including mollusks, crustaceans and oligochaete worms. Shortnose sturgeon depend on free-flowing rivers and seasonal floods to provide suitable spawning habitat. For shortnose sturgeon, spawning grounds have been found to consist mainly of gravel or rubble substrate in regions of fast flow. In these regions, flowing water provides oxygen, allows for the dispersal of eggs, assists in excluding predators, and during seasonal floods scours substrates free of sand and silt, which might otherwise suffocate eggs.

Shortnose sturgeon spawn in upper, freshwater sections of rivers and feed and overwinter in both fresh and saline habitats. In populations that have free access to the total length of a river (absent of dams), spawning areas are located at the farthest accessible upstream reach of the river, often just below the fall line (NMFS, 1998).

According to the National Marine Fisheries Service Shortnose Sturgeon Recovery Plan, shortnose sturgeon can be affected by habitat degradation or loss resulting from dams, bridge construction, channel dredging, and pollutant discharges. In addition, mortality can also result from impingement on cooling water intake screens, dredging and incidental capture in other fisheries (NMFS, 1998).

Reptiles

Marine sea turtles include the federally endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), and hawksbill sea turtle (*Eretmochelys imbricata*); and the federally threatened loggerhead sea turtle (*Caretta caretta*), and green sea turtle (*Chelonia mydas*). Sea turtles are migratory and enter the Chesapeake Bay in late May to early June when water temperatures rise and then depart between late September and early November. An estimated 3,000 to as many as 10,000 loggerhead turtles, and perhaps 500 Kemp's ridley sea turtles, use the Chesapeake Bay (U.S. EPA,

2003b). Approximately 95 percent of the loggerheads found in the Chesapeake Bay are juveniles, and the area from the mouth of the Bay to the Potomac River serves as an important foraging area for this life stage. Loggerhead sea turtles tend to forage along channel edges in the Bay and tidal rivers while Kemp's ridley sea turtles feed in the water flats. Sea turtles in the Chesapeake Bay (mostly loggerheads and Kemp's ridleys) forage on crustaceans (e.g., crabs) and mollusks. Threats to the turtles include incidental takes, poaching, pollution, and marine habitat degradation. Recovery plans include protection of nesting habitats, eliminating mortality from incidental catch in commercial fishing, and reduction of marine pollution (U.S. EPA, 2003b).

Mammals

Various marine mammals such as the endangered blue whale (*Balaenoptera musculus*), sei whale (*Balaenoptera borealis*), sperm whale (*Physeter catodon*), northern right whale (*Eubalaena glacialis*), humpback whale (*Megaptera novaeangliae*) and finback whale (*Balaenoptera physalus*) occur in ocean waters off the coast of Maryland and Virginia (U.S. EPA, 2003b). Healthy whales also occasionally use bay waters. While whales are occasionally seen in the Chesapeake Bay, it is not considered critical habitat for them (U.S. EPA, 2003b). Recovery plans include maintaining and enhancing whale habitats, and identifying and reducing death, injury or disturbance to whales caused by humans.

Northern right whales of the western North Atlantic population occur on the continental shelf from Florida to Nova Scotia. Individuals of this population migrate from wintering and calving grounds in coastal waters of the southeastern United States to summer feeding, nursery, and mating grounds in New England waters and northward to the Bay of Fundy and the Scotian Shelf. Five major congregation areas are used by this species. These are coastal Florida and Georgia, the Great South Channel east of Cape Cod, Cape Cod and Massachusetts Bay, the Bay of Fundy, and Browns and Baccaro Banks south of Nova Scotia. Movements within and between these high-use areas may be fairly extensive. The current western North Atlantic population abundance estimate for this species is 291 individuals. This estimate is based on analysis conducted in 1998 using photo-identification techniques (Waring et al., 2000).

The West Indian manatee (*Trichechus manatus latirostris*) is another endangered mammal species that occasionally occurs in the Chesapeake Bay. Typically manatees live in warm marine/estuarine waters, and eat aquatic grasses, algae, mangrove leaves, and water hyacinths. They usually migrate because of water temperature and salinity. The Baltimore Aquarium has reported manatee sightings in the Chesapeake Bay every year since 1994 (U.S. EPA, 2003b). Enough of the sightings have been confirmed that scientists believe this wandering behavior may not be unusual.

3.6.2 FISHERIES/ESSENTIAL FISH HABITAT

Many fish species of commercial and recreational importance may be present particularly in the James River and Lower Chesapeake Bay during different times of the year, including: silversides (*Menidia* spp.), minnows (*Cyprinodon* spp.), killifish (Cyprinodontidae family), mummichog (*Fundulus heteroclitus*), anchovy (*Anchoa* spp.), mullet (*Mugil* spp.), Atlantic menhaden (*Brevoortia tyrannus*), bluefish (*Pomatomus saltatrix*), spot (*Leiostomus xanthurus*), weakfish (*Cynoscion regals*), spotted sea trout (*Cynoscion nebulosus*), black sea bass (*Centropristis striata*), red drum (*Sciaenops ocellatus*), black drum (*Pogonias cromis*), silver perch (*Bairdiella chrysoura*), American eel (*Anguilla rostrata*), Atlantic croaker (*Micropogonias undulatus*), striped bass (*Morone saxatilis*), and summer flounder (*Paralichthys dentatus*). White (*Ameiurus catus*) and channel catfish (*Tetalurus punctatus*), white perch (*Morone americana*), and yellow perch (*Perca flavescens*) may be present in freshwater tributaries and marshes. Anadromous fish found in the area include striped bass, American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*).

Magnuson-Stevens Act, Essential Fish Habitat (EFH)

Section 305(b)(2)-(4) of the Magnuson-Stevens Act outlines the process for NOAA's National Marine Fisheries Service (NMFS) and the Regional Fishery Management Councils (in this case the Mid-Atlantic Fishery Management Council) to comment on proposed activities that may adversely impact areas designated as Essential Fish Habitat (EFH). EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. §1802(10)). Under the Magnuson-Stevens Act, NMFS and the eight regional Fishery Management Councils were directed to describe and identify EFH in fishery management plans developed by each Council to reduce the adverse effects of fishing on EFH and to encourage the conservation and enhancement of EFH.

The study area includes portions of the James River, Chesapeake Bay, Hampton Roads, and portions of the Atlantic Ocean within U.S. territorial waters. Because the study area includes estuarine and open water habitats, it contains EFH for many species and their life stages. However, as described previously the study area is comprised primarily of open water habitat. Bottom habitat is only present within the JRRF anchorage area. The study area has been identified as EFH for 30 species of fish. The species and life stages for the study area are listed in Table 3-2.

3.6.3 INVERTEBRATES

The JRRF anchorage portion of the study area is comprised of unvegetated soft-sediment. Bottom-dwelling (i.e. benthic) invertebrates present include a variety of infaunal species of polychaete worms, crustaceans such as amphipods, and bivalves. Estuarine benthic communities are generally adapted to a variety of physical conditions such as fluctuations in salinity, temperature, and sedimentary processes.

The vessels themselves provide habitat area for sessile epifaunal organisms that attach to the subsurface structure. These fouling organisms include barnacles, tunicates, hydroids, bryozoans, and algal species.

The lower James River contains important populations of several commercially harvested shellfish species, including blue crab, oyster, hard clam, and soft-shell clam. Blue crabs are present throughout the James River during fall. At its historic peak in the late 1940s, oyster spat (newly settled oysters) production in the James River was ten times as high as production in Maryland. Due to overharvesting and the diseases MSX and Dermo, harvestable oyster populations in the James River and throughout the Chesapeake Bay ecosystem have dropped to their lowest levels in history. Despite severe depletion of oyster populations, spat production in the James River continues to be higher than most rivers (Virginia Secretary of Natural Resources et al., 2000). Favorable dissolved oxygen levels and habitat conditions help oysters survive long enough to spawn in the James River.

3.6.4 MARINE MAMMALS

Bottlenose dolphins may occur in the James River, more commonly, in the southeast portion near Newport News. Protected marine mammal species that may occur within the project area are discussed in Section 3.6.1.

3.6.5 MARINE REPTILES

The federally threatened loggerhead sea turtle may occur in the James River, probably in the southeast portion. Section 3.6.1 provides additional discussion of marine reptiles documented to occur in the study area.

Table 3-2. Essential Fish Habitat Designated Species and Life Stages within the Study Area

Species	Eggs	Larvae	Juveniles	Adults
Red hake (*Urophycis chuss*)	x	x	x	x
Whiting (*Merluccius bilinearis*)	x	x	x	-
Winter flounder (*Pleuronectes americanus*)	x	x	x	x
Witch flounder (*Glyptocephalus cynoglossus*)	x	x	-	-
Yellowtail flounder (*Pleuronectes ferruginea*)	-	x	-	-
Windowpane flounder (*Scopthalmus aquosus)*	x	x	x	x
Atlantic sea herring (*Clupea harengus*)	-	-	-	x
Monkfish (*Lophius americanus*)	x	x	-	-
Bluefish (*Pomatomus saltatrix*)	x	x	x	x
Atlantic butterfish (*Peprilus triacanthus*)	x	x	x	x
Long-finned squid (*Loligo pealei*)	-	-	x	x
Summer flounder (*Paralichtys dentatus*)	x	x	x	x
Surf clam (*Spisula solidissima*)	-	-	x	x
Spiny dogfish (*Squalus acanthias*)	-	-	x	x
Scup (*Stenotomus chrysops*)	-	-	x	x
Black sea bass (*Centropristus striata*)	-	x	x	x
King mackerel (*Scomberomorus cavalla*)	x	x	x	x
Spanish mackerel (*Scomberomorus maculates*)	x	x	x	x
Cobia (*Rachycentron canadum*)	x	x	x	x
Red drum (*Sciaenops occelatus*)	x	x	x	x
Atlantic sharpnose shark (*Rhizoprionodon terraenovae*)	-	-	-	x
Sand tiger shark (*Odontaspis taurus*)	-	x	-	x
Dusky shark (*Charcharinus obscurus*)	-	x	x	-
Scalloped hammerhead shark (*Sphyrna lewini*)	-	-	x	-
Shortfin mako shark (*Isurus oxyrhyncus*)	-	x	-	-
Tiger shark (*Galeocerdo cuvieri*)	-	x	x	x
Sandbar shark (*Charcharinus plumbeus*)	-	x	x	x
Bluefin tuna (*Thunnus thynnus*)	-	-	x	x
Skipjack tuna (*Katsuwonus pelamis*)	-	-		x
Swordfish (*Xiphias gladius*)	-	-	x	-

Source: NMFS, 2003.

3.7 NAVIGATION

The waterways of concern for this EA are the James River, Hampton Roads, southern portions of the Chesapeake Bay and the waters of the Atlantic Ocean offshore of Virginia and Maryland (Delmarva Peninsula).

3.7.1 JAMES RIVER

The James River flows southeastward for over 295 miles from its headwaters in the Alleghany Mountains of west-central Virginia to the Chesapeake Bay at Norfolk, Virginia. The head of commercial navigation is at Richmond, Virginia. River width varies widely from 1,000 feet at Richmond to 4.3 miles at the mouth (see Appendix B). Commercial navigation consists largely of various cargo, tobacco, livestock, chemicals, and paper products (NOAA, 2003).

3.7.2 JAMES RIVER RESERVE FLEET

The JRRF is located in southeastern Virginia on the James River, approximately 30 miles upstream from the Chesapeake Bay at Norfolk, Virginia and approximately 45 miles from the Atlantic Ocean (MARAD, 1994).

Vessels at the JRRF are moored in the James River in a roughly two nautical mile segment that is adjacent to the U.S. Army Transportation Center, Fort Eustis, east of Lawnes Neck and west of Mulberry Point. The vessels are oriented in an upstream/downstream fashion just east and west of the main channel of the river. The vessels for the most part are breasted and moored with alternating vessels pointed upstream/downstream such that the bow of one vessel is aligned with the stern of the adjacent vessel. The breasted ships combine to make up units that are aligned east to west in the river. There are approximately 11 units and each unit can have up to 12 or 18 vessels depending on which side of the main channel they are located. In general, ships of the same type and size are moored together. There are approximately 83 ships currently moored at the JRRF. The fleet and surrounding waters are restricted from public access (NOAA, 2003). The portion of the James River where the JRRF resides is located partially within the City of Newport News, Virginia, and partially within Isle of Wright County, Virginia.

The Fleet Superintendent for the JRRF is responsible for the inspection, maintenance, and monitoring of these vessels. Fleet Superintendent offices and other land-based facilities are leased from the U.S. Army Transportation Center, Fort Eustis, Virginia.

As part of MARAD's responsibility to maintain the JRRF, the agency has devised contingency plans that address severe weather and accidental spills. The JRRF Tactical Response Plan (TRP) establishes emergency contact information, identifies environmentally sensitive areas and resources at risk, and defines MARAD's response organization (MARAD, 2001a). The severe weather plan addresses emergency operations and organization in the event that a hurricane or tropical storm threatens the area.

3.7.3 PORT OF HAMPTON ROADS

The Port of Hampton Roads, just 18 miles from the open sea, is one of the world's busiest ports and is the second largest port on the U.S. East Coast in terms of general cargo (Hampton Roads Maritime Administration [HRMA], 2003). The port boasts 25 square miles of waterways and primary navigation channels maintained at depths of 50 feet. In 2001, general cargo tonnage totaled 11.5 million tons, and total cargo handled by the port was over 37 million tons (HRMA, 2003). Hampton Roads is also the largest coal port in the world, and hosts a wide variety of ship-building and Naval facilities.

As a major port, there are thousands of vessel movements annually in the Hampton Roads area. Bulk cargo such as coal, petroleum products, grain, sand and gravel, and fertilizer constitute more than 90 percent of the heavy vessel (cargo) movements (NOAA, 2003). Table 3-3 shows the number of *commercial* vessel arrivals and departures from the Port for the years 1996 through October of 2002. It should be noted that this data does not include U.S. Naval traffic to and from Norfolk Naval Shipyard, and the numerous other Naval facilities in the area. Naval traffic is estimated at 3,500 vessel movements annually (Norfolk Naval Shipyard, Port Operations, personal communication, December 8, 2003). The table also does not include fishing vessel traffic or pleasure craft.

Table 3-3. Vessel Arrivals and Departures from Hampton Roads (1996-2000)

Year	2002*	2001	2000	1999	1998	1997	1996
Major Commercial Vessel Movements	4148	4952	5398	5090	5130	5264	5398

*Data for partial year through October 2002.

Source: Adapted from HRMA, 2003.

3.7.4 USCG MARINE SAFETY OFFICE HAMPTON ROADS

The USCG Captain of the Port (COTP), MSO Hampton Roads has federal jurisdiction for the Virginia Coastal Area, defined as the coastal areas from the Virginia-North Carolina border to the Virginia-Maryland border. This includes navigable portions of the James River, Hampton Roads, Virginia waters of the Chesapeake Bay, and the waters of the Atlantic Ocean offshore of Virginia and Maryland (Delmarva Peninsula) (USCG, 1996 and 2002). Among other duties, the COTP has responsibility for marine safety, pollution prevention, vessel certifications and inspections, control of anchorages, enforcement of regulated navigational areas and enforcement of U.S. and international maritime regulations. MSO Hampton Roads also reviews and approves dead-ship tows, which are a common maritime practice for moving vessels. Through November 2003, there were 50 dead-ship tows (11 of which were for the JRRF) approved by MSO Hampton Roads (Lieutenant Mike Dolan, MSO Hampton Roads, personal communication, December 5, 2003), in which the towed vessel exceeded 400 feet in length. Not reflected in these numbers are tows in which the towed vessel did not exceed 400 feet, or tows that were strictly a Naval dead-ship tow operation, neither of which are under the purview of the USCG.

3.7.5 MID-ATLANTIC COASTAL AREA CONTINGENCY PLAN (ACP)

The COTP is also the pre-designated Federal on Scene Coordinator for planning and responding to oil spills or releases of hazardous materials in these waterways. As required by Section 4202 of the Oil Pollution Act (OPA) of 1990 (as amended, 33 U.S.C. §2702), the USCG, along with other federal, state and local trustees, is responsible for developing an Area Contingency Plan (ACP) for such spills or releases. The ACP for this region is the Mid-Atlantic Coastal ACP and is the primary document governing planning for, and responding to, pollution emergencies. The ACP contains information on agency points of contact, areas of particular environmental concern, response organization, availability of response equipment, and other related issues.

3.8 HAZARDOUS MATERIALS

Hazardous and toxic materials incorporated into ship structures during construction are often found throughout older ships (others may be found in ship systems). Such materials may include PCBs, asbestos, ozone-depleting substances (ODS), mercury, lead, fuel, oils, and lubricants. For many years these materials were widely used throughout the U.S. and the world for a variety of industrial, shipbuilding, and materials applications.

PCBs were used for a number of purposes throughout many industries, including shipbuilding, because of their insulating properties. Potential locations on older obsolete ships include gaskets, grout, thermal insulation, transformers, capacitors, dielectric fluids in electric transformers, ballasts for fluorescent lighting, and electrical cables. Prior to 1980, PCBs were often added or used in materials without being listed. Due to this practice, the presence of PCBs cannot always be determined through a review of specification documents.

Asbestos was used extensively in the ship-building industry as a fire retardant and insulator, and is often found in the materials of older ships. Potential locations include adhesives, tiles, cable coverings, heat shields, and acoustic and thermal insulation.

Ozone-depleting substances (ODS) such as chlorofluorocarbons (CFCs) and halons were introduced in the 1930s and were widely used as refrigerants and in solvents. Halon has been used extensively in fire fighting systems. All Class I CFCs were banned from production in the U.S. in 1996. Halon production was banned in the U.S. in 1994. Class II hydrochlorofluorocarbons are scheduled for a production ban beginning in 2015. Ozone depleting substances, such as freon, are not maintained in the larger shipboard air conditioning or refrigeration systems once a ship has been designated for disposal. The gas is evacuated to bottles and the systems are purged, due to the likelihood of leakage from system coils and seals. This philosophy was applied for many of the ships designated for lay-up, whether permanent or temporary.

Mercury is found in older equipment, including shipboard thermometers, heat sensors, lighting fixtures, switches, and other equipment. Since temperature is a basic engineering variable, measurement of temperature is essential for the proper operation of the engineering plant. Many of the shipboard thermometers are the liquid-in-gas type, with mercury as the liquid. Barometers and manometers used for measuring pressure can also be mercury-filled. Mercury has also been found on ships in heat sensors, pneumercator systems and in some light fixtures. However, most mercury is found in self-contained systems and at the time of disposal most of the equipment has already been removed. Mercury, if found, would be in small quantities.

Lead was a major ingredient in paints and was used extensively throughout the U.S. It is also found in other coatings, some plumbing joints, and gaskets. Lead-based paint was discontinued in 1980 but is found extensively in older structures, including ships.

Fuel, oils, and lubricants are not by definition hazardous materials, but may contain contaminants if improperly stored (MARAD, 1997). Fuel, oils, and lubricants, while not hazardous materials per se, are regulated under 33 U.S.C. §2702, the federal Oil Pollution Act (OPA), 33 U.S.C. § 1251-1376, the Clean Water Act (CWA), and international marine pollution regulations.

Sodium Chromate. For many years hexavalent chromium was used as a corrosion inhibitor in ballast water. To date, hexavalent/trivalent chromium has not been an issue in ballast water of MARAD ships being dismantled nor has it ever been found in ballast mud. During the late 1960s and early 1970s, when ships were placed in long term lay-up, this inhibitor was added to the water in tanks. The chemical characteristics of hexavalent chromium contribute to the low probability of it actually existing in ballast water tanks.

3.8.1 REGULATORY BACKGROUND

A number of U.S. federal and international regulations govern hazardous materials. The terms *hazardous substances*, *hazardous wastes*, and *hazardous materials* have very specific legal and scientific definitions under these regulations, and substances regulated under one statute may not be under another. The following sections provide summary definitions and overviews of key regulations.

Hazardous wastes are regulated under 40 U.S.C. §6901, the Resource Conservation and Recovery Act (RCRA) in a "cradle-to-grave" regulatory approach. RCRA lists approximately 450 hazardous wastes. RCRA generally regulates the day-to-day management of these wastes, such as handling, transport, storage, and disposal. RCRA regulations provide for specific standards and requirements for facilities that generate, transport, store, or dispose of listed hazardous wastes. Items which are part of the structure and within the systems of the vessels are not considered to be wastes until they are removed with the

purpose of disposal. Further, public vessels are not subject to RCRA regulations governing hazardous waste storage, reporting, labeling, and handling until the waste is transferred to a shore facility.

Hazardous substances are defined under the CWA and 42 U.S.C. §6901, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and 42 U.S.C. §§11001 *et seq.*, the Emergency Planning and Community Right-to-Know Act (EPCRA) as chemicals that are harmful to public health and welfare or which may affect aquatic life or the environment if spilled or released to the environment.

Hazardous materials are defined under U.S. Department of Transportation regulations as chemicals that present risks to safety, health, and property during transportation (USCG, 2000 and MARAD, 1997).

Summaries of key laws that govern hazardous substances, wastes, or materials are provided below:

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLA of 1980 (42 U.S.C. §6901), as amended by Pub. L. 99-399, the Superfund Amendments and Reauthorization Act of 1986 (SARA), is commonly known as the Superfund law. CERCLA and amendments were enacted to provide for response to remove or clean up abandoned and inactive hazardous waste sites, as well as federal assistance in cases of emergency situations resulting from chemical releases. The law gives the U.S. EPA the authority to collect from responsible parties the cost of cleaning up a release. CERCLA incorporates the provisions for responding to releases of hazardous material into the environment, whether intentional or accidental and whether one-time or continuing.

Under CERCLA, spills or discharges into the environment of certain amounts of substances, designated as hazardous, must be reported immediately to the National Response Center (NRC), which was originally established under the CWA. The NRC then notifies all appropriate governmental agencies, to help coordinate response (as necessary) to the discharge.

Both PCBs and asbestos are regulated as hazardous substances under CERCLA.

Emergency Planning and Community Right-to-Know Act (EPCRA). Congress passed the EPCRA, also known as SARA Title III, in November 1986. The two main purposes of EPCRA are to encourage and support emergency planning for responding to chemical accidents, and to provide local governments and the public with information about possible chemical hazards in their communities. EO 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, directed federal agencies to comply with these emergency planning requirements.

EPCRA focuses on hazards associated with toxic chemical releases. The law designates certain substances as hazardous substances and identifies reportable quantities for those substances. Most notably, specific sections of EPCRA require that immediate notification be made to state and local emergency response planners when there are releases of oil and hazardous substances. The Act also requires that information be compiled on toxic chemicals, and submitted for the Toxic Release Inventory (TRI), a publicly available database containing information on estimated total environmental releases of chemicals included in the list.

International Convention for Prevention of Pollution from Ships, as modified by the Protocol of 1978, as amended (MARPOL 73/78). The MARPOL 73/78 was developed by the International Maritime Organization (IMO), and sets forth the primary international regulations governing pollution control for ships. MARPOL 73/78 provides for inspection and certificates of compliance with marine pollution controls, international cooperation in detecting violations and enforcement measures, reporting requirements for incidents involving harmful substances, settlement of disputes, and technical cooperation. Annex I of MARPOL 73/78 provides regulations for the prevention of oil pollution.

While MARPOL 73/78 regulations expressly exclude warships and other State owned or operated ships used in government non-commercial service, nations that are parties to MARPOL (including the U.S.) are required to establish standards that require such vessels to conform as closely as practicable to the international standards. In the U.S., MARPOL 73/78 regulations are implemented through the Act to Prevent Pollution from Ships (33 U.S.C. §1001-1092) and the CWA (33 U.S.C. §1251 -1376).

Table 3-4 provides a summary of the oil pollution discharge restrictions under MARPOL Annex I. The requirements vary with distance from shore and with location (i.e., if a ship is operating in one of the designated active MARPOL 73/78 "special areas"). "Special Areas" are areas designated under MARPOL as areas that are under additional protection, and generally allow for no discharge of regulated pollutants. There are no MARPOL designated "Special Areas" within the study area.

Table 3-4. MARPOL 73/78 Annex I Oil Pollution Discharge Restrictions

Distance from Shore (Nautical Miles)	Oily Waste
0-3	No sheen <15 ppm oil
3-12	No sheen <15 ppm oil
12-25	No sheen <15 ppm oil
>25	No sheen <15 ppm oil
>50 High Seas	No sheen <15 ppm oil
MARPOL 73/78 "Special Areas" In Effect	No oil waste discharges. Bilge water discharges permitted.

Resource Conservation and Recovery Act (RCRA). Enacted in 1976 (with major amendments in 1980 and 1984), RCRA (40 U.S.C. §6901) established a comprehensive and complex regulatory structure for "cradle-to-grave" regulation and management of the generation, treatment, storage, transport, and disposal of non-hazardous solid wastes and of hazardous wastes. The law requires specific permits and approvals for the day-to-day handling of hazardous wastes and provides detailed and specific regulations governing hazardous waste management practices for generators, transporters, and owners and operators of treatment, storage, and disposal (TSD) facilities. Hazardous waste generators are required to certify that they have a waste minimization program that has been instituted.

RCRA authorizes the U.S. EPA to define those wastes that are hazardous, regulate the generation of hazardous wastes, establish technical and performance standards for hazardous waste management units, and develop a permit system for hazardous waste management facilities.

"Any hazardous waste generated on a public vessel (e.g. USCG cutter) is not subject to the storage, manifest, inspection, or record keeping requirements of Title 42, Chapter 82, Subchapter III, until such waste is transferred to a shore facility" unless the waste is stored on the public vessel for more than 90 days" (RCRA, 42 U.S.C. §6939d, Waste Generated on Public Vessels). Accordingly, ships that are underway are not subject to RCRA regulations regarding hazardous waste storage, reporting, labeling, and handling. Once in port, hazardous wastes that are off-loaded to port facilities become subject to RCRA and the host facility permit requirements. MARAD's NDRF vessels are public vessels.

Toxic Substances Control Act (TSCA). The TSCA (15 U.S.C. §2601 *et seq*.) regulates the introduction of new chemicals or new uses of old chemicals into U.S. industry. Importation of chemicals is included as well as domestic manufacturing. The law places on the manufacturer of the chemicals or the manufacturers of products using the chemicals the responsibility to provide information to the U.S. EPA before manufacturing begins and to comply with health and safety controls that the U.S. EPA may prescribe. Among the chemicals U.S. EPA regulates under TSCA are asbestos, CFCs, and PCBs.

TSCA specifically prohibits the manufacture or use of PCBs within the U.S. PCBs were once used widely as a dielectric and coolant in electrical components of all sizes and kinds. It was also used as a plasticizer, lubricant, mold release agent, extrusion lubricant and other services in production of a very wide variety of plastic and rubber parts. Under TSCA Section 6(e), PCBs are considered to pose an unreasonable risk to health and the environment, and therefore the U.S. EPA regulates their distribution, sale, or transfer. PCBs or items containing concentrations of PCBs in concentrations of less than 50 parts per million (ppm) may be exported for the purpose of disposal. PCBs in concentrations greater than 50 ppm are not to be exported, except under certain conditions and/or regulatory discretions or rule makings by U.S. EPA.

3.8.2 MANAGEMENT PLANS AND DOCUMENTS RELATED TO HAZARDOUS MATERIALS

A number of agencies involved in approving or regulating the proposed action have plans and procedures in place related to the management of hazardous materials. These include MARAD, the USCG, the U.S. Army Transportation Center, Fort Eustis, and the JRRF.

MARAD follows U.S. Department of Transportation environmental regulations and procedures, including DOT Order 5610.1C and MARAD Order 600-1. In addition, MARAD has a Maritime Environmental Program Manual and provides periodic reports to Congress on its environmental activities.

The USCG has an ACP for the Mid-Atlantic Coastal Area (USCG, 2002). This plan was developed to meet requirements of the Oil Pollution Act of 1990, and describes procedures for response to oil spill incidents or the release of a hazardous substance. The ACP also includes activities and precautions designed to minimize the threat of releases of hazardous substances. Together (spill response and prevention) these activities include coordination among agencies, cleanup measures, and identification and protection of environmentally sensitive areas.

JRRF is a tenant organization at the U.S. Army Transportation Center, Fort Eustis. Army installations are governed by DoD environmental directives, and by service environmental regulations, which can be found in Army Regulation (AR) AR-200 series documents, AR 420-47, and AR-700 series regulations. In addition, the U.S. Army Transportation Center, Fort Eustis, has a number of installation-specific guidance and procedure documents related to hazardous materials. These include PCB handling and storage standard operating procedures, a comprehensive Installation Restoration Program, a Pollution Prevention Plan, and a number of specific standard operating procedures that govern hazardous materials handling and movement on the shoreside only.

The JRRF also maintains a number of plans, regulations, and procedural documents that are related to management of risks associated with hazardous materials. These include a Severe Weather Plan, PCB Program Plan, Hazardous Materials Contingency Plan, and a TRP. The Severe Weather Plan directs activities and planning for hurricanes and other severe weather events. The PCB Program Plan documents procedures and regulations for the handling of PCBs. The Hazardous Materials Contingency Plan describes emergency response procedures for JRRF shoreside operations. The TRP details response procedures and activities in the event of an on water oil spill.

The JRRF facilities at the U.S. Army Transportation Center, Fort Eustis, provide for temporary storage of hazardous waste. JRRF contracts with licensed hazardous materials contractors for transport and disposal

of such materials at an approved facility, in accordance with RCRA regulations. PetroChem Recovery Services of Norfolk, VA typically provides this service for JRRF. Additionally, the JRRF is required to have an identified Qualified Individual (QI) that is designated by the agency to have full authority to implement removal actions in the event of a pollution incident, on a 24 hours/7 days per week basis. For the JRRF, MARAD has designated their Ship Operations and Maintenance Officer as their QI (W. Barnes, MARAD, personal communication, January 6, 2004).

3.9 HISTORICAL AND CULTURAL RESOURCES

3.9.1 LEGAL AND REGULATORY REQUIREMENTS

16 U.S.C. §470 *et seq*., The National Historic Preservation Act of 1966, as amended (NHPA), requires that federal agencies or applicants for federal funding and authorizations take into account the effects of their undertakings on historic properties included in or eligible for listing in the National Register of Historic Places (National Register) and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. The procedures for compliance with the NHPA are contained in 36 C.F.R. §800, *Protection of Historic Properties; Final Rule* (commonly referred to as "the Section 106 process"), and in 36 C.F.R. §68, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (*Secretary's Standards*).

The Section 106 process requires the federal agency official to (1) initiate the 106 consultation process by consulting with the appropriate State Historic Preservation Officer (SHPO), identifying consulting parties involved, planning public involvement, and defining the proposed undertaking's *area of potential effect* (APE) for both archaeological and historic architectural resources; (2) identify *historic properties* (property listed on, previously determined eligible for listing, or those potentially eligible for listing on the National Register) within the project's area of potential effect, conducting, if necessary, any studies needed to complete identification and evaluation; (3) determine, in consultation with the SHPO, whether the project will affect any historic properties; (4) apply the *criteria of adverse effect* (36 C.F.R. §800.5), in consultation with the SHPO, to determine if any effects on historic properties will be adverse; (5) consult with the SHPO and any other consulting parties concerning measures to avoid, minimize or mitigate any adverse effects; (6) if necessary, execute a Memorandum of Agreement (MOA) with the SHPO and forward the MOA along with the necessary documentation to the Advisory Council on Historic Preservation for concurrence; and (7) implement any agreed-upon measures in accordance with the MOA.

3.9.2 IMPLEMENTING THE SECTION 106 PROCESS FOR THE NDRF VESSELS

Initiation of the 106 Consultation Process. Initiation of the 106 consultation process with the appropriate SHPO (the SHPO for the state in which the vessel is located at the time of the undertaking) is the responsibility of the Agency's Historic Preservation Officer. For undertakings in multiple states, such as a project involving a fleet of vessels berthed in several locations, the involved SHPOs may elect one SHPO to act on their behalf to fulfill the Section 106 requirements. For floating vessels, the Project APE will usually consist of the vessel only, unless the historic importance of the vessel has been demonstrated to extend beyond the limits of the vessel itself (for example, a ferry along with it's historic docking facilities and equipment).

Identification of Vessels as Historic Properties. All properties, including vessels and maritime resources, are qualified for listing in the National Register by applying the National Register Criteria for Evaluation in accordance with the guidelines contained in National Register Bulletin No. 15, published by the National Park Service (NPS) in 1991. Specialized guidance for vessels is contained in National Register Bulletin No. 20, Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places (NPS, 1992), and summarized below.

To qualify for listing in the National Register, a historic vessel (a vessel over 50 years of age) must be associated with an important maritime historic context, represent one of five specific vessel types, retain integrity of location, design, setting, materials, workmanship, feeling and association, and meet one of the following Criteria for Evaluation:

A. Be associated with events that have made a significant contribution to the broad patterns of our history;

B. Be associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master or possess high artistic values, or represent a significant and distinguishable entity whose components lack individual distinction;

D. Yield, or be likely to yield, information important in prehistory or history.

Associated maritime contexts are identified through research and described in order to evaluate a vessel's significance in the development of American maritime trade, naval power, recreation, government use, commerce, or various designs of waterborne craft.

The five historic vessel types specified in the NPS guidelines which may be eligible for National Register listing include: (a) Floating vessels (more than 40 feet in length and weighing more than 20 tons); (b) Dry-berthed vessels; (c) Small craft (less than 40 feet in length); (d) Hulks (substantially intact abandoned vessels not afloat); or (e) Shipwrecks.

Additional considerations in evaluating a vessel's historic significance include a determination of whether the vessel is the sole, best, or a good representative of a specific vessel type; whether the vessel is associated with a significant designer or builder; and if the vessel was involved in important maritime activities as identified in the historic context study.

The NPS guidelines specify six steps for a typical historic vessel National Register eligibility assessment study:

1) Identification of the specific type of vessel and documentation of its individual characteristics based on a physical inspection of the vessel and a documentation of its history.

2) Identification of the historic context(s) associated with the vessel based on a documentation of its history.

3) Determination that the characteristics of the vessel make it either the best, or a good representative of its type.

4) Evaluation of the significance of the vessel based on the National Register Criteria.

5) Evaluation of the vessel's integrity and a listing of features that the vessel should retain to continue to possess integrity.

6) Evaluation of the vessel's special characteristics that might qualify it for National Register listing even though it might be less than 50 years old or some aspect of its present condition generally would not qualify it for listing.

Upon completion of a National Register eligibility assessment study, a conclusion is rendered by the investigator as to the eligibility of each of the properties (vessels) potentially affected by the proposed undertaking.

Assessment of Effects. Effects on historic properties within the APE are assessed by applying the criteria of adverse effect as defined by the Section 106 regulations: "an adverse effect is found when an undertaking may alter directly or indirectly any of the characteristics of a *historic property* that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the

property's location, design, setting, materials, workmanship, feeling, or association" (36 C.F.R. §800.5(a)(1). The Agency official, in consultation with the SHPO, may propose a finding of no adverse effect when conditions are imposed on the undertaking to avoid adverse effects, such as the subsequent review of a vessel preservation plan by the SHPO to ensure consistency with the *Secretary's Standards* and applicable guidelines (36 C.F.R. §800.5(3)b).

Resolution of Adverse Effects. When an adverse effect is found, the Agency official is required to consult with the SHPO and other consulting parties to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties (36 C.F.R. §800.6).

An alternatives study is required to identify possible methods to avoid and/or minimize adverse impacts to historic properties. In a case where a historic vessel must be disposed of by dismantling and recycling, alternatives that might provide for its long term preservation are researched and identified. The practical and economic feasibility of each alternative is determined. If feasible, a vessel preservation plan is developed in accordance with applicable NPS guidelines including *Standards for Historic Vessel Preservation Projects* published by the National Maritime Initiative. Possible ways to minimize adverse effects are identified, such as the preservation of selected historically important components of a vessel. Lacking reasonable alternatives, steps to mitigate an adverse effect, typically by documenting the vessel to the standards of the Historic American Engineering Record as specified in *Guidelines for Recording Historic Ships* (Anderson, 1988), may be proposed by the Agency official. If the Agency official and SHPO agree on how adverse effects will be resolved, they shall execute a MOA that stipulates the actions to be taken.

The agency official may invite the Advisory Council on Historic Preservation to participate in the consultation process and assist in the resolution of disputes between consulting parties. The Keeper of the National Register may be asked to render a National Register eligibility determination if a disagreement occurs between the Agency official and the SHPO regarding the National Register eligibility of a potentially affected property.

3.10 VISUAL AND AESTHETICS

Visual and aesthetic resources include "viewsheds" from the water and from the land. Visual resource quality is affected by the size of key objects, such as height, similarity to surroundings, and visual "fit." In addition, the value of a viewshed is affected by the number and types of viewers and viewer expectations. These visual elements help to determine the potential effects by a proposed action on existing visual resources. For example, the introduction of a man-made structure into an entirely natural environment could impact visual resources greatly, while the same structure introduced into a developed area might go largely unnoticed by viewers.

The moored ships of the JRRF are observable from the U.S. Army Transportation Center, Fort Eustis (Figure 3-2) and the western shoreline of the James River. Obsolete vessels have been moored at this site since 1924.

3.11 RESOURCES AREAS NOT ADDRESSED

The following resource areas are not analyzed in this EA in detail, as preliminary analysis indicated they would not be affected by the proposed action.

Underwater Cultural and Archeological Resources. Consideration of potential impacts on archeological resources due to an action is part of the Section 106 compliance process. Although underwater archaeological sites are documented along the proposed tow route, none have been identified in the

commercial navigation channels that would be followed under the proposed action. Therefore, no effects on underwater archaeological resources are expected.

Noise. The towing of vessels in the project area is consistent with the level of ship traffic in the region. Because high levels of ship traffic already occur in the region, the proposed tows are not expected to affect noise levels in the region or contribute adversely to the acoustic environment.

Figure 3-2. View of JRRF from the U.S. Army Transportation Center, Fort Eustis

Floodplains. *Executive Order 11988—Floodplain Management* states that each agency shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities. The proposed action would have no effect on area floodplains, as it does not constitute development within a designated floodplain. Accordingly, EO 11988 is not applicable to the proposed action.

Upland Resources. The proposed action would not affect the area's upland resources, such as land use, prime and unique farmlands, etc., because the project area is restricted to vessel tows along aquatic and coastal habitats.

Socioeconomic Resources. The proposed action would not measurably affect the area's socioeconomic resources, including housing, schools, public utilities, transportation, and public services, because the action is limited to towing vessels.

Transportation. Section 4(f), as amended and codified in 49 U.S.C. Section 303, does not apply to the proposed tows. The purpose of a Section 4(f) evaluation is to protect parks, recreation areas,

wildlife/waterfowl refuges, and historic sites by requiring additional scrutiny and meeting of rigorous tests before their use in a transportation project can be approved. In general, rivers are not subject to the requirements of Section 4(f). However, Section 4(f) does apply to rivers contained within the boundaries of parks, recreational areas, refuges, and historic sites, as well as publicly owned waters of designated wild and scenic rivers.

The proposed tow route does not go through boundaries of public parks, recreational areas, wildlife/waterfowl refuges, and historic sites. Nor does the proposed tow route include any wild and scenic rivers, as no such rivers have been designated in Virginia. Neither the James River nor any other waterbody along the tow route is subject to the requirements of Section 4(f).

Environmental Justice. *Executive Order 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations* directs agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement of any adverse effects from federal policies and action on these populations. Local residents may include low-income populations and/or minority populations. However, these populations would not be particularly or disproportionately affected by the proposed action because the proposed action is limited to vessel tows through waterbodies and would have no measurable effects on upland areas, socioeconomic resources, or human health.

4.0 ENVIRONMENTAL EFFECTS

NEPA requires an analysis of the context (regional vs. site specific), duration (short-term vs. long term) and intensity (degree of severity) of potential effects on affected resources. In addition, each alternative must be assessed for direct, indirect and cumulative effects.

Potential impacts of the two alternatives are discussed in this chapter in the same order as the affected environment. The final section for each resource area addresses the impacts to the resource area from each of the alternatives. Each resource impact is assessed to the extent that the effects can be substantially traced, linked, or connected to the proposed action. Each resource area, therefore, has a study area relative to the resource being assessed, and it is further defined in the impact methodology. The extent of the study area includes the JRRF mooring site on the James River near the U.S. Army Transportation Center, Fort Eustis, Virginia, to the navigational channel, out to the 12-nautical mile U.S. territorial waters boundary (see Figure 2-1).

For the purposes of analysis, short-term impacts include those impacts resulting during the 28-day period of tow, while long-term impacts include those impacts with the potential to last beyond that period.

Cumulative effects are addressed in Section 4.11. Other actions considered under the cumulative effects analysis include other tows of obsolete ships from the JRRF and other dead-ship tows in the study area.

Potential effects outside of U.S. territory are considered to the extent such analysis is required by EO 12114.

4.1 AIR QUALITY

The proposed transfer of approximately nine obsolete vessels from the JRRF is outlined in Section 2.1 Proposed Action Alternative. The action will require the use of several tug boats throughout the project. These tug boats have the potential to emit various compounds into the air.

The CAA establishes national ambient air quality standards to protect the public health and welfare from air pollution. Since the region is in attainment for all criteria pollutants (Section 3.1), an air quality applicability analysis was not necessary.

Proposed Action Alternative

Under the proposed action alternative, there would be negligible short-term impacts related to emissions from towing activities. However, these impacts would only last for approximately 28 days, the duration of the entire tow. Impacts within U.S. territory would last for only a few days at most. No new permanent or mobile sources of emissions would occur under the proposed action. Since no new sources would occur and the related towing impacts would be short-term and negligible, any impacts to air quality would not be significant.

No-Action Alternative

Under the No-action alternative, there would be no impact to the regional air quality.

4.2 WATER QUALITY

The study area considered in this section encompasses water resources associated with: the area around Jamestown upstream of Fort Eustis on the James River downstream to the confluence of the river with the Chesapeake Bay; the western shore of the Chesapeake Bay from Hampton north to the mouth of the James River and from Norfolk east to Willoughby Bay; the western shore of the Chesapeake Bay from Fisherman's Island north to Cape Charles; and the Atlantic coastline from the mouth of the Chesapeake

Bay south to Virginia Beach and north to Capeville and outward to the seaward extent of U.S. Territorial Waters.

Proposed Action Alternative

No significant impacts to water quality are expected as a result of implementing the proposed action. As described in the Navigation and Hazardous Materials sections of this EA, a number of approvals, inspections, licenses, and other procedures are required prior to removing a vessel from the JRRF and towing it to an approved ship disposal facility. MARAD relies upon the technical expertise and professional judgment of the USCG, which reviews and approves pre-tow vessel preparation, tow procedures, and spill response plans prior to any tow. These measures are designed to ensure that the tows do not present undue risk to the environment.

MARAD and the USCG have imposed a number of safety requirements on PRP and their towing company to ensure that potential environmental risks are negligible. The USCG makes recommendations and can impose specific conditions on vessel tows. Such conditions may include vessel preparation requirements, tow specifications, identification of a 24-hour on-call hazardous materials and/or oil spill response contractor, accompaniment by a pollution response vessel while towing through the James River and Hampton Roads area, and requirements for a vessel specific Oil Spill Contingency Plan (that provides details on how the tow contractor meets safety requirements). The Oil Spill Contingency Plan will be provided by the contractor and tailored to the specifics of the dead-ship tow requirements. This plan, which is reviewed and approved by the USCG, includes a list of contact personnel and oil spill response procedures.

Sediments in the Lower James River contain Kepone and more recently discovered PCBs (The Daily Press, 2003). These compounds are bound to the sediments and, if sediment is disturbed, the compounds will be redistributed with the sediment. The proposed vessel tows are not expected to disturb river sediments, and safety measures imposed on the tows are expected to result in no impact on the water quality of the James River, Hampton Roads, Lower Chesapeake Bay, and the Atlantic Ocean portions of the study area.

The removal of obsolete vessels from the JRRF will have a beneficial long-term impact on the water quality of the Lower James River. If left in place, the vessels would continue to age and corrode and could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials or oil to be released to the James River environment.

Potential effects on areas outside of U.S. territory would be similar.

No-Action Alternative

Under the No-action alternative, the proposed tows would not take place. If left in place, the vessels would continue to age and corrode and could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials or oil to be released to the James River environment.

Adverse impacts to water quality would be expected if an oil spill occurred due to leakage from deteriorating JRRF vessels stored over time at the JRRF. However, a TRP has been developed for the fleet and would be implemented if a leak were to occur. As a component of the TRP, booms would be placed around the spill to contain and limit the area of potential effect. If an oil spill were to spread, undeveloped open tidal shorelines could be adversely affected. On sandy beaches, stranding of oil at the high tide line is likely. Burial of oil is possible in the nearshore beach zone, depending on exposure to wave and wind action. Deep penetration of oil is unlikely because of the high viscosity of oil (MARAD, 2001a).

4.3 GEOLOGY AND SOILS

The study area considered in this section includes undeveloped shorelines from: the area of Jamestown upstream of the U.S. Army Transportation Center, Fort Eustis on the James River and downstream to the confluence of the river with the Chesapeake bay; the western shore of the Chesapeake Bay from Hampton north to the mouth of the James River and from Norfolk east to Willoughby Bay; the western shore of the Chesapeake Bay from Fisherman's Island north to Cape Charles; and the Atlantic coastline from the mouth of the Chesapeake Bay south to Virginia Beach and north to Capeville.

Proposed Action Alternative

No impacts to geology or soils are expected in areas along the proposed tow route as a result of implementing the proposed action. Undeveloped open tidal shorelines of the U.S. Army Transportation Center, Fort Eustis and along the proposed tow route are generally undergoing erosion because they are subject to forces of waves and currents. Some erosion occurs as a result of boating traffic in the area. Movement of the JRRF vessels along the proposed tow route in the James River and Chesapeake Bay is not expected to measurably add to shoreline erosion in the area. Long term indirect adverse impacts to undeveloped open shorelines could result if an oil spill were to occur during towing as a result of collision, grounding, or tank or hull rupture and leakage. MARAD vessels that will be towed will be subject to detailed inspections to ensure that they are safe for towage. Towing procedures and safety measures will be implemented to minimize potential for collision or grounding of the vessels during transport. These measures, described in sections 4.7 and 4.8, are reviewed and approved by the USCG prior to any of the proposed tows taking place. An Oil Spill Contingency Plan has been developed by PRP for the towing operations in U.S. waters and would be implemented if a spill were to occur. The plan provides for actions to be taken in order to minimize the impacts of a spill. If an oil spill were to spread, undeveloped open tidal shorelines could be adversely affected. On sandy beaches, stranding of oil at the high tide line is likely. Burial of oil is possible in the nearshore beach zone, depending on exposure to wave and wind action. Deep penetration of oil is unlikely because of the high viscosity of oil (MARAD, 2001a). Potential impacts to tidal, intertidal, and freshwater wetlands occurring along the shoreline are discussed in Section 4.5.

No-Action Alternative

No impacts to geology or soils in the vicinity of the Fort Eustis JRRF storage area are expected as a result of implementing the No-action alternative. Long term indirect adverse impacts to undeveloped open tidal shorelines would be expected if an oil spill occurred due to leakage from deteriorating JRRF vessels stored over time at the JRRF. However, a TRP has been developed for the fleet and would be implemented if a leak were to occur. As a component of the TRP, booms would be placed around the spill to contain and limit the area of potential effect. If an oil spill were to spread, undeveloped open tidal shorelines could be adversely affected. On sandy beaches, stranding of oil at the high tide line is likely. Burial of oil is possible in the nearshore beach zone, depending on exposure to wave and wind action. Deep penetration of oil is unlikely because of the high viscosity of oil (MARAD, 2001a).

4.4 COASTAL RESOURCES

The study area considered in this section includes: the area around Jamestown upstream of Fort Eustis on the James River and downstream to the confluence of the river with the Chesapeake Bay; the western shore of the Chesapeake Bay from Hampton north to the mouth of the James River and from Norfolk east to Willoughby Bay; the western shore of the Chesapeake Bay from Fisherman's Island north to Cape Charles; and the Atlantic coastline from the mouth of the Chesapeake Bay south to Virginia Beach and north to Capeville.

Proposed Action Alternative

No impacts to coastal resources are expected as a result of implementing the proposed action. Consistent with the guidelines established in Section 307 of the Coastal Zone Management Act (CZMA), 16 U.S.C. §1456, as amended, and its implementing regulations at 15 C.F.R. §930, a Federal Consistency Determination was made for the proposed action. MARAD has determined that implementation of the proposed action will not adversely affect land or water uses or natural resources of Virginia's coastal zone. Documentation for the Coastal Zone Management Act consistency determination is included in Appendix D.

No-Action Alternative

Under the No-action alternative, the proposed tows would not take place. If left in place, the vessels would continue to age and corrode and could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials or oil to be released to the James River environment.

Adverse impacts on coastal resources would be expected if an oil spill occurred due to leakage from deteriorating JRRF vessels stored over time at the JRRF. However, a TRP has been developed for the fleet and would be implemented if a leak were to occur. As a component of the TRP, booms would be placed around the spill to contain and limit the area of potential effect. If an oil spill were to spread, undeveloped open tidal shorelines could be adversely affected. On sandy beaches, stranding of oil at the high tide line is likely. Burial of oil is possible in the nearshore beach zone, depending on exposure to wave and wind action. Deep penetration of oil is unlikely because of the high viscosity of oil (MARAD, 2001a).

4.5 TERRESTRIAL RESOURCES

4.5.1 FEDERALLY LISTED TERRESTRIAL SPECIES (USFWS)

The Endangered Species Act (ESA) (16 U.S.C. §1531 *et seq*.) mandates that all federal agencies consider the potential effects of their actions on species listed as threatened or endangered. If MARAD determines that an action may adversely affect a federally listed species, consultation with the USFWS is required to ensure that the action will not jeopardize the species' continued existence or result in the destruction or adverse modification of critical habitat.

Proposed Action Alternative

Informal consultation was initiated with the USFWS. On December 3, 2003, MARAD sent a letter to the USFWS seeking confirmation that the proposed action does not require a formal Section 7 consultation. By letter dated January 5, 2004 (see Appendix C), USFWS expressed concerns about potential injury to natural trust resources in the event of a catastrophic oil spill from vessels in the reserve fleet. The USFWS requested additional information addressing contingency plans and measures that will be implemented to minimize potential for discharges of oil or other hazardous materials from vessels that will be towed. In response to the USFWS letter, MARAD responded on January 26, 2004 to the USFWS letter by providing the information requested.

No-Action Alternative

Under the No-action alternative, the proposed vessel tows would not occur. If left in place, the vessels would continue to age and corrode. This could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials or oil to be released to the James River environment.

4.5.2 AVIAN RESOURCES

The Migratory Bird Treaty Act (16 U.S.C. §703-712; Chapter 128; July 13, 1918; 40 Stat. 755; as amended) protects all common wild birds found in the U.S., except the house sparrow, starling, feral pigeon and resident game birds such as pheasant, grouse, quail, and wild turkeys. Resident game birds are managed separately by individual states. The Migratory Bird Treaty Act makes it unlawful for anyone to pursue, hunt, kill, capture, collect, possess, buy, sell, trade, ship, import or export any migratory bird, including feathers, parts, nests, eggs, or migratory bird products. Pub. L. 95-616 also ratified a treaty with the Soviet Union specifying that both nations will take measures to protect identified ecosystems of special importance to migratory birds from pollution, detrimental alterations, and other environmental degradations.

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, directs federal agencies taking actions having or likely to have a negative impact on migratory bird populations to work with USFWS to develop an agreement to conserve those birds. The protocols developed by this consultation are intended to guide future agency regulatory actions and policy decisions; renewal of permits, contracts or other agreements; and the creation of or revisions to land management plans. In addition to avoiding or minimizing impacts to migratory bird populations, agencies are expected to take reasonable steps that include restoring and enhancing habitat, preventing or abating pollution affecting birds, and incorporating migratory bird conservation into agency planning processes whenever possible.

EO 13186 is designed to assist federal agencies in their efforts to comply with the Migratory Bird Treaty Act. Federal agencies taking actions that are having, or are likely to have, a measurable negative impact on migratory bird populations are directed to develop and implement a Memorandum of Understanding with USFWS for the conservation of migratory birds. The EO also directs agencies to ensure that environmental analyses of proposed federal actions required by the NEPA evaluate the effects of those actions on migratory birds.

Proposed Action Alternative

No impacts to avian species occurring in areas along the proposed tow route are expected as a result of implementing the proposed action. Long-term indirect adverse impacts to avian species could result if an oil spill were to occur during towing as a result of collision, grounding, or tank or hull rupture and leakage. MARAD vessels to be towed will be subject to detailed inspections to ensure that they are safe for towage (see Section 2.1.1). These measures, described in sections 4.7 and 4.8 are reviewed and approved by the USCG prior to any of the proposed tows taking place.

An Oil Spill Contingency Plan has been developed by PRP for the towing operations in U.S. waters and would be implemented if a spill were to occur. The plan provides for actions to be taken in order to minimize the impacts of the spill. If an oil spill were to spread, avian species that spend most of their time on the water surface, such as cormorants and some waterfowl species, would be at high risk for adverse impacts from the spill. Other waterfowl, wading birds, gulls, terns, and raptors could also be impacted as a result of a spill. Birds can become directly oiled by contacting water in the area of the spill or may be oiled on the upper body and feathers by contacting oiled vegetation or wrack. Direct oiling of birds reduces the buoyancy, water repellency, and insulation provided by feathers, and may result in drowning or hypothermia. Preening of oiled feathers may result in ingestion of oil resulting in irritation, sickness, or death. Oiling of birds, particularly waterfowl and wading birds, can continue even after floating oil has been removed as a result of oiling of vegetation (MARAD, 2001a).

Osprey are known to nest on the vessels; however, no impact to osprey is expected. MARAD has a cooperative agreement with scientists at the College of William and Mary, which relocates nests from vessels prior to vessel removal (Bagley, MARAD, personal communication, December 15, 2003).

No-Action Alternative

No effects to avian species are expected as a result of implementing the No-action alternative. Long-term indirect adverse impacts to avian species would be expected if an oil spill occurred due to leakage from deteriorating JRRF vessels stored over time at the Fort Eustis location. However, a TRP has been developed for the fleet and would be implemented if a leak were to occur. As a component of the TRP, booms would be placed around the spill to contain and limit the area of potential effect. If an oil spill were to spread, avian species that spend most of their time on the water surface, such as cormorants and some waterfowl species, would be at high risk for adverse impacts from the spill. Other waterfowl, wading birds, gulls, terns, and raptors could also be impacted as a result of a spill. Birds can become directly oiled by contacting water in the area of the spill or may be oiled on the upper body and feathers by contacting oiled vegetation or wrack. Direct oiling of birds reduces the buoyancy, water repellency, and insulation provided by feathers, and may result in drowning or hypothermia. Preening of oiled feathers may result in ingestion of oil resulting in irritation, sickness, or death. Oiling of birds, particularly waterfowl and wading birds can continue even after floating oil has been removed as a result of oiling of vegetation (MARAD, 2001a).

4.5.3 WETLANDS

EO 11990 requires federal agencies to minimize the loss or degradation of wetlands. The policy requires that impacts to wetlands be avoided if possible and if unavoidable that impacts be minimized. If wetlands are impacted then mitigation may be required. The Virginia Water Permit Program regulates impacts to state waters, including wetlands, and serves as Virginia's 401 Water Quality Certification Program.

The JRRF TRP identifies sensitive sites at risk from a JRRF vessel spill. The ACP component of the TRP identifies areas based on their level of sensitivity. Level A has the highest degree of sensitivity; Level B has a higher level of sensitivity; and Level C has a high degree of sensitivity. Wetlands, seagrass areas, and tidal flats receive the highest degree of sensitivity (Level A) and are prioritized for response actions in the event of a spill.

Proposed Action Alternative

No impacts to tidal, intertidal, and freshwater wetlands occurring along shorelines and tributaries to the James River along the proposed tow route are expected as a result of implementing the proposed action. Long-term indirect adverse impacts to wetland habitats could result if an oil spill were to occur during towing as a result of collision, grounding, or tank or hull rupture and leakage. MARAD vessels to be towed will be subject to detailed inspections to ensure that they are safe for towage. Prudent marine navigation practices will be implemented to minimize potential for collision or grounding of the vessels during transport. An Oil Spill Contingency Plan has been developed by PRP for the towing operations in U.S. waters and would be implemented if a spill were to occur. The plan provides for actions to be taken in order to minimize the impacts of a spill, such as the rapid placement of protective booms around sensitive environments. If an oil spill were to spread to tidal, intertidal, or freshwater wetlands, adverse impacts to important wildlife habitat, including nursery, foraging and resting areas for waterfowl and other avian species, and nursery and cover areas for fish, shellfish and other aquatic species, could occur. Heavy oil can become trapped in wetland vegetation making removal difficult. Occurrence of burrows associated with wildlife in the habitats can add to the difficulty of removal. If wetland habitats become exposed to oil from a spill, lethal and sub-lethal impacts to vegetation can occur (MARAD, 2001a).

No-Action Alternative

No impacts to tidal, intertidal, and freshwater wetlands occurring on shorelines and tributaries to the James River in the vicinity of the JRRF mooring area are expected as a result of implementing the No-action alternative. Long-term indirect adverse impacts to wetland habitats would be expected if an oil spill occurred due to leakage from deteriorating JRRF vessels stored over time at the Fort Eustis location.

However, a TRP has been developed for the fleet and would be implemented if a leak were to occur. As a component of the TRP, Priority A Sensitive Areas, which includes wetlands, would be protected by placing booms around the habitats in the area of potential effect. If an oil spill were to spread to tidal, intertidal, or freshwater wetlands adverse impacts to important wildlife habitat including, nursery, foraging and resting areas for waterfowl and other avian species, and nursery and cover areas for fish, shellfish and other aquatic species could occur. Heavy oil can become trapped in wetland vegetation making removal difficult. Occurrence of burrows associated with wildlife in the habitats can add to the difficulty of removal. If wetland habitats become exposed to oil from a spill, lethal and sub-lethal impacts to vegetation can occur (MARAD, 2001a).

4.6 AQUATIC RESOURCES

The study area considered in this section includes aquatic habitats encompassed by: the area around Jamestown upstream of the U.S. Army Transportation Center, Fort Eustis on the James River and downstream to the confluence of the river with the Chesapeake bay; the western shore of the Chesapeake Bay from Hampton north to the mouth of the James River and from Norfolk east to Willoughby Bay; the western shore of the Chesapeake Bay from Fisherman's Island north to Cape Charles; and the Atlantic coastline from the mouth of the Chesapeake Bay south to Virginia Beach and north to Capeville and outward to the seaward extent of U.S. Territorial Waters.

4.6.1 FEDERALLY LISTED AQUATIC SPECIES

The ESA (16 U.S.C. §1531 *et seq*.) mandates all federal agencies to consider the potential effects of their actions on species listed as threatened or endangered. If MARAD determines that an action may adversely affect a federally listed marine species, consultation with the NMFS is required to ensure that the action will not jeopardize the species' continued existence or result in the destruction or adverse modification of critical habitat. On December 3, 2003, MARAD sent a letter to the NMFS seeking confirmation that the proposed action does not require a formal consultation.

Proposed Action Alternative

No impacts to federally listed aquatic species are expected as a result of implementing the proposed action. Potential impacts to threatened and endangered species as a result of vessel collisions are expected to be negligible because the proposed action would use established navigation channels and dead-ship tow procedures. The study area experiences frequent ship and vessel traffic as discussed in Section 3.7. The route that tow operations will utilize is the standard shipping routes used by commercial vessels when moving downstream in the James River and heading to sea. In addition, the tow speeds will be relatively slow (approximately 6 knots or less) and species should be able to avoid any potential collisions.

Long term indirect adverse impacts to listed species could result if an oil spill were to occur during towing as a result of collision, grounding, or tank or hull rupture and leakage. The potential for a spill to occur during towing is negligible. MARAD vessels to be towed will be subject to detailed inspections to ensure that they are safe for towage. Towing procedures and safety measures will be implemented to minimize potential for collision or grounding of the vessels during transport. These measures, described in Sections 4.7 and 4.8 are reviewed and approved by the USCG prior to any of the proposed tows taking place. An Oil Spill Contingency Plan has been developed by PRP for the towing operations in U.S. waters and would be implemented if a spill were to occur. The plan provides for actions to be taken in order to minimize the impacts of the spill (MARAD, 2001a).

Right Whale

The potential for impacts on northern right whales is expected to be negligible. The vessels will be towed through the migratory route of the northern right whale. Right whales migrate from wintering and calving grounds in coastal waters of the southeastern U.S. to summer feeding, nursery, and mating grounds in New England and Canadian waters. Approximately one third of all right whale mortality is caused by human activities. The small population size of this species and low annual reproductive rate suggest that human sources of mortality may have a greater effect on population growth rates than for other whales. This whale's habit of resting at the surface, surface skim-feeding and surface courtship groups makes it particularly susceptible to ship collisions, which is a primary cause of serious injury and death. Entanglement with fishing gear is secondary to collisions with vessels. Reported human-caused mortality and serious injury has been a minimum of 2.4 right whales per year during the period of 1994-1998 (Waring et al., 2000). This species is listed as endangered under the ESA. A Recovery Plan has been published and is in effect (NMFS, 1991).

The tow operations will utilize standard shipping routes and tow operators will follow established NMFS guidelines for avoidance of any right whales that are observed. Approach closer than 500 yards is prohibited. The tow operations do not pass through any designated northern right whale critical habitat.

No-Action Alternative

Under the No-action alternative, the proposed tows would not take place. If left in place, the vessels would continue to age and corrode and could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials or oil to be released to the James River environment.

Adverse impacts to aquatic species would be expected if an oil spill occurred due to leakage from deteriorating JRRF vessels stored over time at the JRRF. However, a TRP has been developed for the fleet and would be implemented if a leak were to occur. As a component of the TRP, booms would be placed around the spill to contain and limit the area of potential effect (MARAD, 2001a).

4.6.2 FISHERIES/ESSENTIAL FISH HABITAT (EFH)

The proposed action is expected to have negligible effects on aquatic wildlife in the study area. The removal of vessels from the JRRF will have a beneficial long-term impact on the aquatic biota of the Lower James River. If left in place, the vessels would continue to age and corrode and could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials to be released to the James River environment.

Potential effects on EFH as a result of the proposed action are negligible. As described in Section 3.6.2, the study area encompasses estuarine and open ocean habitats, and therefore contains EFH for many species during various life stages. Potentially affected EFH within the study area occurs primarily in association with open water areas.

The potential for adverse impacts to open water EFH associated with implementing the proposed action is negligible. The study area experiences frequent ship and vessel traffic as discussed in Section 3.7. The route that tow operations will utilize is the standard shipping route used by commercial vessels when moving downstream in the James River and heading to sea.

The removal of vessels from the JRRF will have a beneficial long-term impact on the EFH of the Lower James River.

No-Action Alternative

Under the No-action alternative, the proposed tows would not take place. If left in place, the vessels would continue to age and corrode and could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials or oil to be released to the James River environment.

Adverse impacts to EFH would be expected if an oil spill occurred due to leakage from deteriorating JRRF vessels stored over time at the JRRF. However, a TRP has been developed for the fleet and would be implemented if a leak were to occur. As a component of the TRP, booms would be placed around the spill to contain and limit the area of potential effect. If an oil spill were to spread, undeveloped open tidal shorelines could be adversely affected. On sandy beaches, stranding of oil at the high tide line is likely. Burial of oil is possible in the nearshore beach zone, depending on exposure to wave and wind action. Deep penetration of oil is unlikely because of the high viscosity of oil (MARAD, 2001a).

4.7 NAVIGATION

A large number of navigation safety measures are undertaken by MARAD and internationally recognized, licensed tow contractors throughout the process of releasing a vessel from the JRRF and subsequent towing operations. These standard operating procedures address detailed towing configurations and steps, various plans that are in place prior to a tow, and safety measures required by the USCG and other agencies. This section of the EA provides a summary of these measures and an assessment of the potential effects of the proposed action on navigation.

4.7.1 VESSEL SURVEYS

A number of surveys of each vessel are undertaken prior to its release from the JRRF. Each survey, conducted by a recognized and approved Marine Surveyor, assesses the complete vessel, including hull condition, equipment, and materials on-board. Surveys include recommendations for vessel preparation prior to tow, removal of materials, securing items, sealing holds and hatches, and other preparatory recommendations. The USCG receives and reviews these vessel survey reports. The tows cannot take place prior to USCG review of vessel survey data and approval of tow procedures. These individual surveys assess and serve to confirm the safety of these tows for their respective voyages to the UK, including in international and UK domestic waters.

4.7.2 PRE-TOW MEASURES PERFORMED BY MARAD

In accordance with the guidance of Marine Surveyors and in keeping with MARAD policies and regulations, MARAD readies vessels prior to releasing them from the JRRF. Surveys are required to assess the condition of the vessel and to establish and/or confirm her seaworthiness for tow. Marine Surveyors typically list recommended measures to be undertaken prior to a tow to ensure the safety of the vessel for tow. These recommended measures are reviewed by the USCG and required at the discretion of the USCG. Typically these measures include, but are not limited to:

- Ensuring that the vessel's towing gear is in good order (e.g., anchors and anchor chains readied for linking to toe line).
- Secure all loose deck gear and equipment.
- Securely lock the steering gear rams in the amidships position.
- Lock the vessel's propulsion shaft(s).
- Weather proof all goose necks, air and sounding tubes, and accesses to cargo holds and tanks.

- Seal all deck penetrations that were made for vessel dehumidification while at JRRF.
- Paint draft marks near the waterline.
- Install steel boarding ladders.
- Correct any list (roll or slant of the vessel).
- Place generators, de-watering pumps and enough fuel for 48 hours of operation in a weathertight compartment.
- Install search-and-rescue beacons.

The USCG may require additional measures, at their discretion, which must be followed by MARAD and the tow contractor.

4.7.3 SEPARATION FROM THE JRRF

Separation of a vessel from the JRRF is typically conducted by smaller harbor tugboats prior to being made fast to a larger ocean-going tugboat. However, depending on the vessel's position in the unit, the ocean-going tug may be able to access the vessel to be towed without assistance. The responsibility for the vessel remains with MARAD until the tow is made fast to the tugboat. At that point the inherent responsibilities are transferred to the tugboat company or their client (e.g. PRP) (E. Bagley 2003).

4.7.4 USCG REQUIREMENTS

The COTP Hampton Roads has oversight authority for any commercial vessel movement within their Area of Operation, which includes the James River, the Chesapeake Bay and offshore to 200 nautical miles. For dead-ship tows and operations of this nature there are a series of requirements necessary for the COTP to approve the tow. The typical steps leading up to an approved operation are listed below:

- Independent marine survey(s) to determine the vessel's seaworthiness.
- Dead-Ship Tow Proposal.
- Towage Manual.
- Identification and approval of a designated Qualified Individual (QI – a 24-hour on-call hazardous materials and/or oil spill response contact) and the submittal of an Oil Spill Contingency Plan.
- Dead-Ship Tow Approval.
- Pre-tow conference between USCG, MARAD, and the tow contractor.
- Issuance of the International Load-Line Exemption Certificate.

In the case of a dead-ship tow, the COTP issues two formal documents: an approved Dead-Ship Tow Proposal, and an International Load-Line Exemption Certificate. The COTP can also issue to the vessel agent an additional set of requirements prior to issuing the exemption. All three of these documents are described in greater detail below.

Dead-Ship Tow Proposal

Towing companies contracted to conduct dead-ship tows of vessels over 400 feet in length are required to submit a proposal to the COTP for review. The proposal must describe in detail the towing operation including the lead tug's horsepower plus any assist tugs and their horsepower. The proposal also includes a listing of the type and amount of any oil products on board, a drawing or description of where the oil is located, and the name and 24-hour number of the responsible party. The responsible party is the organization (typically a 24-hour on-call specialty contractor) that will take initial actions to prevent, mitigate and/or respond to an accidental oil spill or hazardous chemical release.

Dead-Ship Tow Proposals require that while within Regulated Navigation Areas an emergency secondary towing arrangement must be rigged in case of a failure. According to MSO Hampton Roads' policy, dead-ship tows cannot be conducted in winds exceeding 25 knots. However, MARAD employs a more stringent policy of not conducting towing operations when the winds exceed 20 knots. When the proposal is approved, the MSO drafts a Notice to Mariners (NOTMAR) that is broadcasted on VHF-FM channels 16 and 22A during the operation to advise mariners to use caution when approaching the tow.

Additional USCG Requirements

The COTP has the authority to impose additional requirements to ensure a safe towing operation. These requirements may be identified through a separate letter from MSO Hampton Roads to the contractor, and are at the discretion of the USCG. Some typical additional items include:

- A detailed plan of the breasting operation.
- A communications plan.
- Escort by an oil-skimming vessel as an emergency safety measure.

International Load-Line Exemption Certificate

Load-Line Certificates are issued to vessels by ship classification societies such as the American Bureau of Shipping. Load-lines are established for vessels to determine their safe loading condition when transiting through various waters at different seasons of the year. Under the proposed action, the vessels to be towed are obsolete vessels that would be transferred under dead-ship tow configuration. As such, each vessel will be required to have a valid Load-Line Exemption Certificate prior to the initiation of tow operations.

Typically, independent marine surveyors, hired by the receiving company and/or vessel underwriters, conduct an extensive survey of the vessel to determine its sea worthiness (for towing) and make recommendations on readying a vessel for such a voyage (see above, *Vessel Surveys* and *Pre-Tow Measures Performed by MARAD*). Prior to departure the MSO's Marine Inspectors conduct a final walk-through of the vessel to ensure that all of the requirements of the marine surveyor(s) are met. If the vessel meets the requirements to the satisfaction of the MSO, then the International Load-Line Exemption can be issued. Additional requirements can be added and written into the exemption such as an expiration date for the exemption and requiring that no passengers or crew be allowed to ride the tows once at sea. The issuance of the International Load-Line Exemption Certificate for each vessel by the USCG represents a determination by the Coast Guard that given the conditions in the Certificate, the vessels are safe for trans-Atlantic towing.

4.7.5 COMMONWEALTH OF VIRGINIA REQUIREMENTS

Since tugboat operations are defined as 'commerce' (the conduct of business between Commonwealth of Virginia waters and then overseas, vice coastwise traffic), Virginia requires that foreign flagged vessels have a Virginia licensed pilot aboard while transiting state waters. Pilots are issued their licenses based on their proven knowledge of the local waters and their experience in shiphandling. Pilots are given the responsibility of safely navigating and piloting vessels and provide for an added measure of safety. Therefore, for each tow, the tugboat will have on board –from the JRRF to the Precautionary Area at the Chesapeake Bay entrance– a licensed pilot from the Virginia Pilot Association (Jerry Crooks, Chief of Investigations, MSO Hampton Roads, personal communications, December 10, 2003). Pilots in the Virginia Pilot Association are licensed by the State of Virginia and are certified by the State for individual river systems (a pilot will specialize in one of three river systems of which the James River is one). Additionally, all pilots also hold both a USCG Unlimited Pilot's license as well as a USCG Unlimited Master's license. "Unlimited" refers to tonnage, meaning such a pilot is licensed to pilot any ship.

4.7.6 TOWING OPERATIONS

Towing operations are detailed in the tow company's Towage Manual. Specific towing arrangements are further verified by an independent marine surveyor and documented in a Tow Survey Certificate. Under the proposed action, these documents will describe in detail the towing operations that will be conducted from the JRRF to the English Channel, and in the case of the Towage Manual, the subsequent towing to Teesside, UK. Additionally the documents detail the towing configuration, emergency towing arrangements, and other prudent nautical considerations to ensure a safe voyage. Four vessels have previously been towed from the JRRF to Able UK and therefore the final tow documents referenced above are expected to be similar, subject to USCG review and approval.

Towage Manual

The Towage Manual is produced by the tow company and provides the details of the operations and safety precautions that will be employed throughout the tow. In short, the Towage Manual serves various functions, including (ITC, 2003):

- Providing emergency contact information.
- Establishing the provisions for arranging for a weather forecast and routing service.
- Establishing daily progress reporting requirements.
- Establishing the tugs manning requirements.
- Establishing a heavy-weather protocol for the trans-Atlantic journey.
- Defining the towing configuration.
- Establishing safe navigation requirements such as proper navigation equipments and aids, communication gear, radars, navigation lights and dayshapes for the tows, charts, publications, etc.
- Identifying ports and places of refuge in case of heavy weather or other emergency.
- Identifying contingency plans for emergencies such as heavy weather, or failure of the tug, tow or tow connection.

Tow Survey Certificate

The Tow Survey Certificate is produced by an independent marine surveyor and summarizes the operations detailed in the Tow Manual, and also addresses and verifies some of the pre-tow requirements mandated by the USCG and other marine surveys. The Certificate, which is issued to the COTP, MARAD, and the tug owners, includes and confirms vessels particulars, such as (Fife, 2003):

- Summary of the Inland tow operations.
- Towing bridle is rigged according to plan.
- Emergency towing equipment is rigged according to plan.
- Navigation lights and dayshapes are installed or available.
- Fixed steel boarding ladders have been installed.
- Shaft and rudder locks are in place and satisfactory.
- All watertight requirements have been met.

Under the proposed action, U.S.-issued approvals for the tows would be provided to the UK Maritime & Coastguard Agency (MCA), which issues appropriate permits and approvals for procedures and entry into UK waters and local waterways.

4.7.7 CONCLUSIONS

Proposed Action Alternative

Under the proposed action, navigation safety will be assured through the substantial number of vessel inspections, reviews, tow approvals, and certificates that will be developed for each vessel prior to the initiation of tow activities. The USCG MSO Hampton Roads, which has primary responsibility for ensuring the safety of vessel traffic and the enforcement of safe navigation rules in the U.S. areas of the proposed tow, will review and formally approve tow configurations, safety measures, and routes. Based on this level of review, the effects of the proposed tows on navigation safety are expected to be negligible.

Potential effects on areas outside of U.S. territory would be similar.

Based on the current level of vessel traffic in the Hampton Roads area, and the number of dead-ship tows that occur annually, potential effects on navigation traffic levels would be negligible. Under the proposed action approximately nine vessels would be towed. By comparison 50 total dead-ship tows occurred in 2003 and there were an estimated 8,500 total vessel movements, not including any recreational or fishing vessel movements (see Section 3.7).

No-Action Alternative

Under the No-action alternative, the proposed vessel tows would not occur and there would be no impacts on navigation.

4.8 HAZARDOUS MATERIALS

A number of approvals, inspections, licenses, and other procedures are required prior to separating a vessel from the JRRF and towing it to an approved ship disposal facility. These procedures are dictated by MARAD, the USCG, the U.S. EPA, foreign authorities, private insurers, and local governments to ensure that vessels proposed for towing meet appropriate maritime standards and are in full compliance with safety, navigation, environmental, and other safeguards.

The following sections provide details on measures and activities that would take place under the proposed action, to ensure that the environmental effects of hazardous materials on board the obsolete vessels, if any, would be negligible.

4.8.1 VESSEL SURVEYS

Vessel preparation and tow procedures and actions (described in section 3.7) are required to be performed prior to the proposed tows. These procedures are designed to ensure that: (1) vessels are properly evaluated and prepared prior to tow according to USCG regulations; (2) tow operations are conducted under established and recognized safety standards; (3) vessels are disposed of in accordance with UK environmental and safety regulations; and (4) participants throughout the process – preparation, tow, and disposal – are properly trained, licensed, and approved.

The nine vessels currently identified as likely to be transferred for disposal under the proposed action have been surveyed to confirm types, amounts, and locations of hazardous materials. Given the age of the vessels proposed for tow, the types of materials onboard are typical of vessels of a similar age and type/class, as they represent construction and operational materials that were used extensively in the shipbuilding and ship operations industry at the time that the vessels were built. Hazardous and toxic materials incorporated into ship structures and components during construction are often found throughout older ships. These materials include PCBs (primarily in electrical cables, gaskets, grout/caulking, and miscellaneous electrical components), asbestos (insulation materials and wallboard), mercury in electrical switches and other components, lead (in paints), and limited amounts of ODSs

(residual amounts of refrigerants). For many years these materials were widely used throughout the U.S. and the world for a variety of industrial, shipbuilding, and materials applications.

Estimates are developed for the following potential pollutants:

- PCBs- Electrical cables, ventilation gaskets, rubber gaskets, felt gaskets, fiberglass/foam/cork, grouting/caulking/adhesives/isolation foundation mounts, paint coatings/blasting media, and miscellaneous electrical components.
- Asbestos – engine room, deckhouse
- Mercury
- Ozone depleting substances
- Chromated ballast water
- Waste Water
- Oily Water
- Heavy Fuel Oil
- Marine Diesel Oil
- Lube Oil
- Hydraulic Oil
- Blackwater
- Fixed Ballast
- Unregulated debris
- Biological material

Estimates are prepared based on quantities generated during the dismantling of "sister" or similar ships, extrapolation of data according to common construction features, and through vessel walkovers and reviews of literature.

In addition, tank soundings are made to confirm amounts of fuels and oils that are aboard each vessel. Such surveys and measurements are generally provided when a vessel is first transferred to MARAD custody, although in some cases – vessels that were transferred a number of years ago – both standard practices and records at the time were not up to today's standards. Accordingly, MARAD re-surveys vessels to confirm types, amounts, and locations of hazardous materials and fuels and oils and provides this documentation to the contractor. This data assists the disposal contractor, in this case Able UK, with planning for dismantling and recycling operations. The information is also made available to UK regulatory agencies. MARAD has also conducted sampling of oils (heat transfer fluids) and lubricants to test for the presence of PCBs in concentrations greater than 50 ppm.

MARAD may substitute other vessels by mutual agreement with PRP, and in accordance with the EPA TSCA Enforcement Discretion letter (Appendix A). Any substitute vessels would be expected to contain the same types of hazardous materials as the currently listed vessels, given the types and relative ages of the obsolete vessels within the JRRF inventory. Any substitute vessels would be required to undergo updated surveys and inspections, if necessary, in conformance with USCG regulations and procedures, as well as the MARAD inspection procedures outlined above.

When the final list of vessels to be towed to the UK for dismantling has been agreed upon, MARAD will post information on its website (www.marad.dot.gov) on the survey data for selected vessels for ship conditions and estimates of hazardous materials contained onboard.

4.8.2 MARAD/JRRF ACTIVITIES

Prior to any tow operations, a number of additional surveys of the ships are conducted by different parties (including MARAD, tow company(ies), independent surveyors, insurers, and contractors) to reconfirm estimates of types, amount, and locations of hazardous materials on board each ship. Each survey, conducted by a licensed and approved Marine Surveyor, also assesses the complete vessel, such as hull

condition, equipment, and materials on-board. Surveys include recommendations for vessel preparation prior to tow, such as removal of loose materials such as debris on-deck, securing items, sealing holds and hatches, and other measures. Survey documentation is provided to the USCG for review.

Under the proposed action, MARAD will remove any solid readily removable PCBs with concentrations greater than or equal to 50 ppm prior to towing. "Readily removable" is defined as PCBs or PCB-containing items that can be removed in a cost effective and efficient manner without jeopardizing the structural integrity of the vessel or its seaworthiness and towability (see EPA letter, Appendix A). In addition, MARAD must remove all transformers and large high and low voltage capacitors that contain dielectric fluids with PCBs in concentrations greater than or equal to 50 ppm, and all hydraulic and heat transfer fluids containing PCBs in concentrations greater than or equal to 50 ppm. Materials that are an integral part of a ship's structure (such as cables and cable insulation, pipe insulation, gaskets around hatches, thermal insulation, etc.) would not be removed prior to towing, but would be removed at Able UK facilities. Prior to releasing a ship from the fleet, MARAD must perform an additional inspection to confirm that there are no readily removable hazardous materials on board each vessel.

4.8.3 TOW ACTIVITIES

MARAD has imposed a number of safety requirements on PRP and its tow company under the proposed action to ensure that environmental risks are negligible. MARAD's contract with PRP requires the tow company to meet all USCG and UK MCA requirements. The contractor must also obtain all necessary insurance and bonding. In addition, Able UK must obtain and certify that all requisite licenses and approvals have been obtained. Details on these requirements are provided below.

The USCG makes recommendations and can impose specific conditions on vessel tows. Such conditions generally include vessel preparation requirements, tow specifications, identification of a 24-hour on-call hazardous materials and/or oil spill response contractor, and an Oil Spill Contingency Plan (that provides details on how the tow contractor meets safety requirements). The Oil Spill Contingency Plan, when required, will be provided by the contractor and tailored to the specifics of the dead-ship tow requirements. This plan, which is reviewed and approved by the USCG, includes a list of contact personnel, communications plans, and oil spill response procedures. In some instances the USCG also requires accompaniment by a pollution response vessel during portions of a tow route. The Oil Spill Contingency Plan is specific to each towed vessel or tow and therefore is prepared and submitted for specific vessels. The contingency plans are not developed and submitted until the actual vessels for tow are identified. At that point, MARAD will post the tow plans on the MARAD website (www.marad.dot.gov).

U.S. Coast Guard MSO Hampton Roads implemented a formal dead-ship tow review and approval process in May 2001. From that time through December 2003 the USCG has approved dead-ship tows of 103 vessels. There have been no known pollution incidents during any of those tows (USCG MSO Hampton Roads, LT Dolan, personal communication, 2004).

In addition, prior to any tows MARAD must have received a Transfrontier Movement of Waste Authorization (issued by the UKEA) for the vessel. The UK MCA must also approve the tows before they commence.

Between 1983 and 1994 (when foreign sales were halted), approximately 173 MARAD vessels were towed to overseas locations for scrapping. There were no losses during any of those tows.

4.8.4 ABLE UK SHIP DISPOSAL FACILITIES

Able UK facilities were evaluated by MARAD and the U.S. EPA through a review of documentation and site visits, and were found to be qualified under the PRDA criteria. A joint U.S. EPA/MARAD site visit of Able UK facilities was conducted on February 23-26, 2003. The U.S. EPA determined that Able UK

would be capable of meeting the standards for environmentally sound management – that is, that the facilities would meet or exceed appropriate standards for facility capacity and capabilities, worker safety, environmental protection, and hazardous materials management.

Under the terms of the U.S. EPA TSCA Enforcement Discretion letter and the contract between MARAD and PRP, the U.S. EPA and MARAD are to again jointly evaluate the Able UK shipyard during or after the four ships of the initial pilot program are disposed of, to ensure that adequate environmental and safety standards have been implemented and are being adhered to. Only if and when the evaluation results in a determination that the Able UK facilities are operating in a safe and environmentally responsible manner, would the Able UK facility be able to proceed with disposal of the additional nine ships. The U.S. EPA also has the right to visit the Able UK site for oversight purposes during vessel dismantling and recycling activities.

In the process of disposing of a ship, hazardous and toxic materials would be removed at the Able UK facilities. Removal of these materials (as well as handling, worker safety, training, storage, transport, and disposal) is regulated under a series of UK laws, regulations, and permits. MARAD also requires through contract that Able UK provide a Technical Compliance Plan (TCP). The TCP includes information on Able UK facilities in regards to hazardous materials management, handling, storage, disposal, monitoring, worker safety and health, worker training, environmental controls and permits.

The TCP also includes a detailed Waste Management Compliance Plan. This plan addresses some 38 waste materials (which includes all hazardous materials as well as non-hazardous materials such as ballast water and marine growth). For each type of material, the plan describes Able UK procedures for identification, sampling, testing, removal, storage, disposal, applicable regulations, and documentation.

Upon receipt of the vessels, Able UK is also required by contract to "[i]dentify, sample, and test, if necessary, to remove, handle, store, transport and dispose of all hazardous materials onboard the vessel(s), including but not limited to asbestos, PCBs, mercury, lead, oils/fuels and any other regulated materials in accordance with applicable U.S. and UK government, state and local environmental laws and regulations"(MARAD 2003c). The Able UK facilities at which the vessels would be disposed of under the proposed action either currently possess or are in the process of obtaining all necessary permits and approvals that govern the removal, handling, transport, and disposal of hazardous materials. In no case will ship disposal actions begin until the UKEA has fully approved Able UK to receive and process the vessels. A summary listing of UK approvals and licenses required under the proposed action is provided below:

- MCA risk assessment.
- Waste Management License modification.
- Planning Permission – TERRC.
- License for Work with Asbestos Insulation or Asbestos Coating (No. 4870002914) – Able UK.
- License for Work with Asbestos Insulation or Asbestos Coating (No. 4840200109) – Stephenson Demolition Co Ltd.
- UKEA Transfrontier Movement of Waste Authorization (No. USDC 170603).
- Waste Management License (No. CLE403) – Seaton Meadows.
- Waste Management License (No. CLE411/1) – TERRC.
- Exemption for Importation of Asbestos under the Asbestos Prohibition Regulations 1992 (amended 1999).

Once a vessel has been completely disposed of, Able UK must provide MARAD with an affidavit of compliance certifying that the vessel, parts, and materials were disposed of properly.

4.8.5 CONCLUSIONS

Proposed Action Alternative

The safety and environmental checks, reviews, and approvals (described in Sections 3.8 and 4.8 of this document) – by the USCG, MARAD, the U.S. EPA, the UK MCA, and the UKEA – that would occur prior to implementation of the proposed action ensure that any effects of the tows of JRRF obsolete vessels would not be significant. These agencies review and approve a number of steps in the proposed action (described in Section 2.1 and Table 2-2) and provide recommendations that must be followed to ensure the safety of the proposed vessel tows. These include, as described in Sections 4.8.1 through 4.8.4, vessel surveys, preparation of vessels prior to towing, USCG reviews and approvals prior to tows, implementation of USCG recommendations, including the Oil Spill Contingency Plan, and UKEA licenses and approvals of Able UK ship disposal facilities. In addition and as discussed in Section 4.8.3, the recent history of dead-ship tows in the areas has not resulted in any previous known pollution incidents, based on the USCG review and approval processes.

Based of the requirements, plans, and certifications that are required to be obtained prior to towing obsolete vessels, the potential environmental effects of the proposed action – specifically, the potential for release of hazardous materials into the environment during tow activities – would not be significant, and will be adequately considered, mitigated, and planned for, in accordance with the listed agency requirements.

Potential effects on areas outside of U.S. territory would be similar.

No-Action Alternative

Under the No-action alternative, the approximately nine obsolete ships addressed under the Proposed Action Alternative would remain moored at the JRRF for an indeterminate time period. These vessels would continue to age and corrode and could pose potentially increasing environmental risks over time due to deterioration of their hulls, hull breaches, and/or vessel sinkings that could permit some hazardous materials to be released to the James River environment.

Hull degradations of obsolete vessels have resulted in releases of fuels from obsolete vessels in the past, thus highlighting the importance of disposing of JRRF obsolete ships in a timely manner.

4.9 HISTORICAL AND CULTURAL RESOURCES

Proposed Action Alternative

Under the Proposed Action Alternative, MARAD will conduct reviews of the vessels proposed for towing and disposal to determine whether any vessel has historical significance that would warrant additional research and coordination with the Virginia SHPO. The process outlined in Section 3.9 will be followed prior to the proposed tows. MARAD will review individual ship files to identify any ships that might be eligible for listing on the National Register or otherwise subject to the NHPA. Final determination on individual ship eligibility will be made in coordination with the Virginia SHPO. Under this approach, the proposed action is not expected to have any adverse effects on resources of historical or cultural significance.

No-Action Alternative

Under the No-action alternative, the proposed vessel tows would not occur and no effects on historical and/or cultural resources would occur.

4.10 VISUAL AND AESTHETICS

Proposed Action Alternative

Under the proposed action, MARAD would remove approximately nine obsolete vessels from the JRRF via tow. The removal of these nine vessels would reduce the number of obsolete vessels in the fleet and thus reduce the area of visual and aesthetic impact. Although obsolete vessels have been moored in the James River site since 1924 and viewers are use to their presence, the Proposed Action Alternative would have a beneficial impact on visual and aesthetic resources in the area by reducing the number of vessels.

The Able UK facilities are located in an existing industrial area that is currently in use for dismantling and disposing of marine structures. Accordingly, effects on the visual resources of the area are expected to be negligible.

No-Action Alternative

Under the No-action alternative, the proposed vessel tows would not occur and there would be no visual and aesthetic impact.

4.11 CUMULATIVE EFFECTS

A cumulative effect is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future action regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 C.F.R. §1508.7). The evaluation of cumulative impacts in this EA includes consideration of the proposed action alternative and the No-action alternative with past and present actions, as well as reasonably foreseeable future actions.

Cumulative impacts associated with implementation of the proposed action alternative would include any impacts from other actions that would be incremental with towing the obsolete vessels from JRRF to the Able UK facilities for disposal. For this analysis the vessel tows under the proposed action are considered in the context of the cumulative number of dead-ship tows in recent years, reasonably foreseeable future dead-ship tows, and total vessel traffic in the region.

The analysis contained in Section 4 of this EA documents that the proposed action would have negligible or not significant impacts on all resource areas. A number of approvals, inspections, licenses, and other procedures are required prior to removing a vessel from the JRRF and towing it to an approved ship disposal facility. USCG MSO Hampton Roads has primary oversight and approval authority for ensuring the safety of vessel traffic and the enforcement of safe navigation rules in the U.S. areas of the proposed tow. MARAD relies upon the technical expertise and professional judgment of the USCG, which reviews and approves pre-tow vessel preparation, tow procedures, and spill response plans prior to any tow. These measures are designed to ensure that the tows do not present undue risk to the environment. USCG requirements are applicable for all regulated dead-ship tows.

When the proposed action is added to all other MSO Hampton Roads approved dead-ship tows and other regional vessel movements, cumulative effects are expected not to be significant, for the following reasons:

1. The proposed action is a very small fraction (<1%) of total vessel movements in the area. Vessel traffic in the Hampton Roads area is estimated at over 8,500 vessel movements annually (see Section 3.7.3 for details). This figure does not include pleasure craft or fishing vessels.
2. The USCG, UK MCA, USEPA, and UKEA all conduct reviews and have approval authority over key steps in the vessel tow and disposal processes, as documented in this EA. Each of these

agencies also may impose additional safety measures and mitigation measures if deemed necessary to ensure that the tows are safe.

3. There have been no known pollution incidents under USCG MSO Hampton Roads approved dead-ship tows since the formal dead-ship tow approval process was implemented in May 2001. According to USCG MSO Hampton Roads, from May 2001 through December 2003 the USCG approved dead-ship tows of 103 vessels. 50 of these tows occurred during 2003 (USCG MSO Hampton Roads, LT Dolan, personal communication, 2004). Note that other dead-ship tows occur in the area. Accordingly, the USCG figures do not include dead-ship tows conducted by Federal tugs (such as Navy tugs) and do not include any tows of vessels under 400 feet in length, which are not reviewed and approved by MSO Hampton Roads under the dead-ship tow policy. It is estimated that approximately 34 MARAD dead-ship tows would occur in FY 2004 and 26 in FY 2005 (S. Ireland, MARAD, personal communication, February 9, 2004). These include tows of vessels into and out of the JRRF.

In summary, the cumulative impacts of the proposed action and other similar tows and vessel movements would not be significant. The implementation of the safety measures and requirements described in this EA would be expected to limit overall cumulative impacts to the natural and human environment.

4.12 POTENTIAL LOSS IN LONG-TERM AVAILABILITY OR PRODUCTIVITY TO ACHIEVE SHORT-TERM GAIN

Under the proposed action, there would be no losses in long-term availability of the vessels for commercial or other purposes, or other productivity for the purposes of short-term gain. The vessels proposed for tow and disposal are obsolete and no longer usable for commerce or Navy activities.

4.13 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

No irreversible or irretrievable commitments of resources would occur if the proposed action were implemented. Implementation of the proposed action would not obligate MARAD to make commitments to other future actions. Specifically, the proposed action would not obligate MARAD to tow other vessels, or make other commitments to Able UK.

[This page intentionally left blank.]

5.0 GLOSSARY

Affected Environment — The existing environment to be affected by a proposed action and alternatives.

Ambient Air — Any unconfined portion of the atmosphere: open air, surrounding air.

Attainment Area — An area considered to have air quality as good as or better than the national ambient air quality standards as defined in the *CAA*. An area may be an attainment area for one pollutant and a nonattainment area for others.

Contributing Resource — A building, site, structure, or object that adds to the historic significance of a property or district.

Cultural Resources — Prehistoric and historic districts, sites, buildings, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason.

Deciduous — Describing trees species that have leaves that fall off every season.

Endangered Species — "…any species (including subspecies or qualifying distinct population segment) that is in danger of extinction throughout all or a significant portion of its range (ESA Section 3(6))."

Estuarine — Formed, deposited, growing in, inhabiting, or found in the widening channel of a river where it nears the sea or in an area of fresh water and salt (tidal) water mixing.

Executive Order (EO) — Official proclamation issued by the President that may set forth policy or direction or establish specific duties in connection with the execution of federal laws and programs.

Federal Acquisition Regulation (FAR) — The Federal Acquisition Regulations System is established for the codification and publication of uniform policies and procedures for acquisition by all executive agencies. The Federal Acquisition Regulations System consists of the Federal Acquisition Regulation (FAR), which is the primary document, and agency acquisition regulations that implement or supplement the FAR. The FAR System does not include internal agency guidance of the type described in 1.301(a)(2).

Fauna — Animals, especially the animals of a particular region or period, considered as a group.

Floodplain — The flat or nearly flat land along a river or stream or in a tidal area that is covered by water during a flood.

Flora — Plants considered as a group, especially the plants of a particular country, region, or time.

Historic District — An area that generally includes within its boundaries a significant concentration of properties linked by architectural style, historical development, or a past event.

National Ambient Air Quality Standards (NAAQS) — Standards established by the Environmental Protection Agency that apply for outdoor air throughout the country. The NAAQS represent maximum air pollutant standards that the U.S. EPA set under the *CAA* for attainment by each state.

National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470 *et seq*.) — Enacted in 1966 and amended in 1970 and 1980, this federal law provides for a National Register of Historic Places to include districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture. Such places may have national, state or local significance. The act provides funding for the State Historic Preservation Officer and his or her staff to conduct surveys and comprehensive preservation planning. The act establishes standards for state programs and requires states to establish mechanisms for Certified Local Governments to participate in the National Register nomination and funding programs. Section 106 of the Act requires that federal agencies having direct or indirect jurisdiction over a proposed federal, federally assisted, or federally licensed undertaking, prior to

approval of the expenditure of funds or the issuance of a license, take into account the effect of the undertaking on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment with regard to the undertaking. This Council appointed by the President has implemented procedures to facilitate compliance with this provision at 36 CFR Part 800.

National Register of Historic Places (National Register) — A register of districts, sites, buildings, structures, and objects important in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior under authority of Section 2(b) of the *Historic Sites Act of 1935* and Section 101(a)(1) of the *NHPA of 1966*, as amended.

Nonattainment Area — Area that does not meet one or more of the NAAQS for the criteria pollutants designated in the *CAA*.

Non-Contributing Resource — A building, site, structure, or object that does not add to the historic significance of a property or district.

Primary Air Quality Standards — A pollution standard based on human health effects.

Secondary Air Quality Standards — A pollution standard based on environmental effects.

Topography — The physical features of a surface area including relative elevations and the position of natural and man-made (anthropogenic) features.

Viewshed — A physiographic area composed of land, water, biotic, and cultural elements which may be viewed and mapped from one or more viewpoints and which has inherent scenic qualities and/or aesthetic values as determined by those who view it.

Wetlands —Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

6.0 BIBLIOGRAPHY

Anderson, Richard K.

1988 *Guidelines for Recording Historic Ships.* National Park Service, U.S. Department of the Interior, Washington, D.C.

Council of Environmental Quality.

1997 Memorandum to Heads of Agencies on the Application of the National Environmental Policy Act to Proposed Federal Actions in the United States with Transboundary Effects.

The Daily Press

2003 James River Pollution Source Elusive. November 28, 2003. Accessible at http://www.dailypress.com/news/local/virginia/dp-va--james-riverpollut1128nov28.story. Date Accessed: December 8, 2003.

Dauer, D.M., M.F. Lane, H.G. Marshall, and K.E. Carpenter

1998 Status and trends in water quality and living resources in the Virginia Chesapeake Bay: 1985 – 1997. Prepared for Virginia Department of Environmental Quality. AMRL Technical Report No. 3090, 88 pp.

Det Norske Veritas Limited

2003 Marine Environmental Risk Assessment for Post-Service Remediation Partners LLC.

General Services Administration

1997 NEPA Technical Inquiry 0139 – Supplemental Environmental Assessment (EA) and Consideration of Transboundary Effects.

1998 Interesting Technical Inquiries, NEPA Call-In.

Fife, Alyn F., Marine Surveyor

2003 Tow Survey Certificate (for Canisteo and Caloosahatchee). September 2, 2003.

Halliburton NUS Corporation

1994 Environmental Analysis of the Maritime Administration Ship-Disposal Program.

Hampton Roads Maritime Association (HRMA)

2003 Port Of Hampton Roads Annual Report.

Hess, R. D., Rushworth, M.V. Hynes, and J.E. Peters

2001 Disposal Options for Ships. RAND National Security Research Division. Washington, DC. 148 pp. Accessible at: www.rand.org/publications/MR/MR1377/.

ITC Management B.V.

2003 ITC Towage Manual for MARAD Scrap Vessels. August 25, 2003.

Kaplan, Stephen H.

1993 December 6, 1993 opinion of Stephen H. Kaplan, Department of Transportation General Counsel, in the form of a cover letter to The Honorable Steven S. Honigman, General Counsel, Department of the Navy with accompanying memorandum to RADM John E. Shkor, Chief Counsel, Maritime Administration.

Mineral Management Service (MMS)

2003a NEPA Procedures – Transboundary Environmental Impacts. Visited November 6, 2003. Accessible at: http://www.mms.gov/eppd/compliance/nepa/procedures/trans/

2003b Executive Order 12114 – Environmental Effects Abroad. Visited November 6, 2003. Accessible at: www.mms.gov/eppd/compliance/12114/.

National Academy of Sciences (NAS)

1997 Contaminated Sediments in Ports and Waterways: Cleanup Strategies and Technologies. Committee on Contaminated Marine Sediments. National Academy Press, Washington, D.C.

National Marine Fisheries Service (NMFS)

1991 Recovery plan for the Northern right whale (*Eubalaena glacialis*). Prepared by the right whale recovery team for the Office of Protected Resources, National Marine Fisheries Service, National Ocean and Atmospheric Administration, Silver Spring, MD.

1998 Recovery plan for the shortnose sturgeon (*Acipenser brevirostrum*). Prepared by the shortnose sturgeon recovery team for the NMFS, Silver Spring, MD.

2003 "Summary of Essential Fish Habitat (EFH) Designation." Visited December 12, 2003. Accessible at www.nero.noaa.gov/ro/STATES4/VirgMary.htm.

National Oceanic and Atmospheric Administration (NOAA)

2003 United States Coast Pilot 3 Atlantic Coast: Sandy Hook, NJ to Cape Henry, Virginia.

UK Environment Agency

2003 Briefing on the U.S. Waste Ships – Environment First.

U.S. Army Transportation Center, Fort Eustis (USATCFE)

1998 Integrated Natural Resource Management Plan. Prepared by the U.S. Army Corps of Engineers, Mobile District.

U.S. Coast Guard (USCG)

1996 Virginia Coastal Area – Area Contingency Plan.

2000 Commanding Officer's Environmental Guide. Report Number: COMDTPUB P5090.1A.

2001a Dead-Ship Tows & Tug Escorts.

2001b Programmatic Environmental Assessment. Proposed Decommissioning and/or Excessing of the Remaining United Coast Guard Cutters in the 180-Foot Seagoing Buoy Tender Class, and

the Excessing of the Former United States Coast Guard Cutter, the *Fir*. USCG-2001-9188-2. Contract Number: DTCG47-97-D-3EFK09/TOK09-0002. March 2001.

2002 Mid-Atlantic Coastal Area - Area Contingency Plan.

U.S. Department of the Interior, National Park Service (NPS)

n.d. National Maritime Initiative. Standards for Historic Vessel Preservation Projects. http://www.maritime.org/standa.htm. Accessed 26 November 2003.

1992 "Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places." National Register Bulletin No. 20.

U.S. Department of Transportation Maritime Administration (MARAD)

1994 Environmental Analysis of the Maritime Administration Ship-Disposal Program. Prepared by Halliburton NUS Corporation.

1997 Environmental Assessment of the Sale of National Defense Reserve Fleet Vessels for Scrapping. Report Number: MA-ENV-820-96003.

2001a Maritime Administration James River Fleet Tactical Response Plan.

2001b A Report to Congress on the Program for Scrapping Obsolete National Defense Reserve Fleet Vessels.

2001c B—Program Research and Development Announcement (PRDA) for Ship Disposal Solutions.

2001d Requirements for Sponsors of Vessels Held in Storage in the National Defense Fleet Sites.

2003a MARAD Mission, Goals, and Vision. Visited November 6, 2003. Accessible at: www.marad.dot.gov/mission.html.

2003b Appendix – Public Laws of the 107th Congress, Second Session, Providing or Amending Certain Maritime Laws. Visited November 20, 2003. Accessible at: www.marad.dot.gov/publications/complaw03.appendix.html.

2003c PRP Contract, Section C.1; Document No. DTMA1CO3010/0003. Modification 0004. October 3, 2003.

2003d The National Defense Reserve Fleet. Visited November 7, 2003. Accessible at: www.marad.dot.gov/Offices/Ship/press-gm.htm.

2003e National Defense Reserve Fleet. Visited November 7, 2003. Accessible at: www.marad.dot.gov/programs/NDRF.html.

2003f Draft – NDRF Vessel Condition Summary

U.S. Environmental Protection Agency (U.S. EPA)

1998 "National Recommended Water Quality Criteria." *Federal Register* 63 (Dec. 10): 68353–64.

2003a *EPA AIRData*. Site updated October 8, 2003. Accessible at: www.epa.gov/air/data/index/ . Accessed December 2, 2003.

2003b Biological evaluation for the issuance of ambient water quality criteria for dissolved oxygen, water clarity and chlorophyll a for the Chesapeake Bay and its tidal tributaries. Region III, Chesapeake Bay Program Office. 56 pp.

2003c Environmental Protection Act 1990 Section 37, Waste Management License Notice of Modification.

U.S. Geological Survey (USGS)

2001 Chesapeake Bay River Input Monitoring Program. Available at: http:/va.water.usgs.gov/chesbay/RIMP/ 02035000.html.

Virginia Coastal Area Committee

1995 Virginia Coastal Area Contingency Plan.

Virginia Department of Conservation and Recreation (VDCR)

1999 "1998 Unified Watershed Assessment and Restoration Priorities." Available at www.epa.gov/owow/uwa/va.pdf. Accessed Aug. 29, 2001.

Virginia Department of Environmental Quality (VDEQ)

2004 "Elizabeth River Watershed Action Plan." Available at www.deq.state.va.us/bay/eliz/html. Accessed January 9, 2004.

Virginia Institute of Marine Sciences (VIMS)

1975 City of Hampton Tidal Marsh Inventory. Special Report No. 60 in Applied Marine Science and Ocean Engineering. VIMS Gloucester Point, Virginia.

1977a City of Newport News and Fort Eustis Tidal Marsh Inventory. Special Report No. 137 in Applied Marine Science and Ocean Engineering. VIMS, Gloucester Point, Virginia.

1977b Northhampton County Tidal Marsh Inventory. Special Report No. 139 in Applied Marine Science and Ocean Engineering. VIMS Gloucester Point, Virginia.

1979 City of Virginia Beach Marsh Inventory – Volume 2. Lynnhaven River, Lake Rudee and Their Tributaries. Special Report No. 217 in Applied Marine Science and Ocean Engineering. VIMS Gloucester Point, Virginia.

1981 Isle of Wright County Tidal Marsh Inventory. Special Report No. 213 in Applied Marine Science and Ocean Engineering. VIMS, Gloucester Point, Virginia.

1989 City of Portsmouth Tidal Marsh Inventory. Special Report No. 299 in Applied Marine Science and Ocean Engineering. VIMS, Gloucester Point, Virginia.

Virginia Secretary of Natural Resources, Virginia Chesapeake Bay Local Assistance Department, Virginia Department of Conservation and Recreation, and Virginia Department of Environmental Quality

2000 Commonwealth of Virginia Tributary Strategy Goals for Nutrient and Sediment Reduction in the James River. August 2000. 42 pp.

Waring, G. T., J. M. Quintal, and S. L. Swartz, (eds.)

2000 U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2000. National Oceanic and Atmospheric Administration. NOAA Technical Memorandum NMFS-NE-162.

6.1 PERSONAL COMMUNICATIONS

Bagley, Ed. MARAD. Personal communication. November 13, 2003.

Barnes, Willie. Environmental Manager. MARAD. Personal communication. December 3, 2003.

Bauer, Eric, LT. USCG G-MOR-2, Headquarters. Personal communications. April 28, 2004.

Crooks, Jerry. Chief of Investigations, MSO Hampton Roads. Personal communication. December 10, 2003.

Dolan, Mike, LT. MSO Hampton Roads. Personal communication. December 5, 2003.

Dolan, Mike, LT. MSO Hampton Roads. Personal communication. February 2, 2004.

Dolan, Mike, LT. MSO Hampton Roads. Personal communication. April 28, 2004.

Ireland, Shawn. MARAD. Personal communication. February 9, 2004.

Klein, Don. Hazardous Materials Manager. MARAD. Personal communication. December 3, 2003.

Norfolk Naval Shipyard, Port Operations. Personal communication. December 8, 2003.

6.2 FEDERAL LAWS & CODES

6.2.1 UNITED STATES CODE

15 U.S.C. §§ 2601 *et seq.* Toxic Substances Control Act (TSCA).

16 U.S.C. §§ 703 *et seq.*, especially § 712; Chapter 128; July 13, 1918; 40 Stat.755, as amended. The Migratory Bird Treaty Act.

16 U.S.C. §§ 1451 *et seq.*, especially § 1456, as amended. Coastal Zone Management Act.

16 U.S.C. § 1531 *et seq*. The Endangered Species Act (ESA).

16 U.S.C. §§ 1801 *et seq.*, especially § 1802(10). Magnuson-Stevens Act.

16 U.S.C. §§ 5401 *et seq.*, especially § 5405(c)(1). National Maritime Heritage Act (NMHA) of 1994.

16 U.S.C. §§ 470 *et seq*., The National Historic Preservation Act of 1966, as amended (NHPA).

33 U.S.C. §§ 1901 *et seq.*, especially § 1902, October 1980 as amended. Act to Prevent Pollution from Ships (APPS).

33 U.S.C. §§ 1251 *et seq.* Clean Water Act (CWA).

40 U.S.C. §§ 6901 *et seq.* Resource Conservation and Recovery Act of 1976 (RCRA).

40 U.S.C. §§ 101 *et seq.*, especially § 554 (Revised Aug. 21, 2002 Pub.L. 107-217, 116 Stat. 1062). Federal Property and Administrative Services Act of 1949, as amended.

42 U.S.C. §§ 4321 *et seq*. National Environmental Policy Act of 1969 (NEPA), as amended.

42 U.S.C. §§ 7401 *et seq.* Clean Air Act (CAA).

42 U.S.C. §§11001 *et seq.*, the Emergency Planning and Community Right-to-Know Act (EPCRA)

42 U.S.C. § 6901 *et seq.* Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

6.2.2 PUBLIC LAW (PUB. L.)

Pub. L. 107-314 § 3504 (c,d). National Defense Authorization Act for Fiscal Year 2003.

Pub. L. 106-398 § 3502(a), 114 Stat. 1654a-490 (2000); § 3502(b).

Pub. L. 103-451. National Maritime Heritage Act (NMHA) of 1994.

Pub. L. 106 - 398. The National Defense Authorization Act for Fiscal Year 2001.

6.2.3 CODE OF FEDERAL REGULATIONS (C.F.R.)

15 C.F.R. § 930. Federal Consistency with Approved Coastal Management Programs.

32 C.F.R. § 4001. Listing of the Shortnose Sturgeon as endangered, U.S. Fish and Wildlife Service, March 11, 1967.

33 C.F.R. § 3.25-10 (2002). Hampton Roads Marine Inspection Zone and Captain of the Port Zone.

36 C.F.R. § 800.5(a)(1). Protection of Historic and Cultural Properties. Criteria of adverse effect.

36 C.F.R. § 800.5(3)(b). Protection of Historic and Cultural Properties. Phased application of criteria, Finding of no adverse effect.

36 C.F.R. § 800.6. Protection of Historic and Cultural Properties. Resolution of adverse effects.

40 C.F.R. § 50. National Primary and Secondary Ambient Air Quality Standards

40 C.F.R. § 1500-1508. Regulations for Implementing NEPA.

48 C.F.R. § 1.101. Federal Acquisition Regulation, Purpose.

6.2.4 EXECUTIVE ORDERS (EO)

EO 12114 (1979) Environmental Effects Abroad of Major Federal Actions

EO 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements.

EO 11988, Floodplain Management

7.0 LIST OF PREPARERS

Casella, Richard. Senior Architectural Historian.

Cauley, Shannon. CWD. Senior Scientist.

Cherian, Ed. Senior Environmental Planner.

Gutman, Lori. AICP. Planner.

Mepani, Anjana. Environmental Planner.

Morris, Jim. Senior Marine Scientist.

Otto, Dana. AICP. Senior Environmental Scientist.

Reidenauer, Jeff. PhD. Senior Scientist.

Schuster, Michael. AICP. Planner.

Watson, Jeter. JD. Environmental Attorney.

[This page intentionally left blank.]

8.0 ACRONYMS AND ABBREVIATIONS

ACP	Area Contingency Plan
AIRS	Aerometric Information Retrieval Systems (U.S. EPA)
APE	Area of Potential Effect
APPS	Act to Prevent Pollution from Ships
AR	Army Regulations
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CEQ	Council on Environmental Quality
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COTP	Capitan of the Port
CWA	Clean Water Act
DoD	Department of Defense
DOT	Department of Transportation
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
FAR	Federal Acquisition Regulation
FY	Fiscal Year
IMO	International Maritime Organization
JRRF	James River Reserve Fleet
MARAD	Maritime Administration
MARPOL 73/78	International Convention for Prevention of Pollution from Ships
MCA	Maritime & Coastguard Agency (UK)
mg/l	milligrams/liter
MOA	Memorandum of Agreement
MSO	USCG Marine Safety Office
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Sciences
National Register	National Register of Historic Places
NDRF	National Defense Reserve Fleet
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NMHA	National Maritime Heritage Act
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
non-RRF	non-Ready Reserve Force
NOTMAR	Notice to Mariners
NPS	National Park Service

NRC	National Response Center
O_3	Ozone
ODS	Ozone-Depleting Substances
OPA	Oil Pollution Act
Pb	Lead
PCBs	Polychlorinated Biphenyls
pH	Potential of Hydrogen
PM_{10}	Particulate Matter up to 10 Micrometers in Size
ppm	parts per million
ppt	parts per thousand
PRDA	Program Research and Development Announcement
PRP	Post-Service Remediation Partners, LLC
Pub. L.	Public Law
QI	Qualified Individual
RCRA	Resource Conservation and Recovery Act
RRF	Ready Reserve Force
SARA	Superfund Amendments and Reauthorization Act of 1986
SAV	Submerged Aquatic Vegetation
SHPO	State Historic Preservation Officer
SO_2	Sulfur Dioxide
TCP	Technical Compliance Plan
TERRC	Teesside Environmental Recycling and Reclamation Centre
TRI	Toxic Release Inventory
TRO	Temporary Restraining Order
TSCA	Toxic Substances Control Act
TSD	treatment, storage, disposal
UK	United Kingdom
UKEA	United Kingdom Environmental Authority
USATCFE	United States Army Transportation Center, Fort Eustis
USC	United States Code
USCG	United States Coast Guard
U.S. EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VAC	Virginia Administrative Code
VDEQ	Virginia Department of Environmental Quality