FINAL – REVISION 1
Environmental Assessment
Decommissioning and Dismantling of STURGIS and MH-1A

April 15, 2014

Prepared by the
U.S. Army Corps of Engineers
Baltimore District
10 South Howard Street
Baltimore, MD 21201-1715
(410) 962-0030

Environmental Assessment for Decommissioning and Dismantling of STURGIS and MH-1A

ABSTRACT

The United States Army Corps of Engineers has prepared this Environmental Assessment (EA) to evaluate the potential environmental consequences of the proposed decommissioning and dismantling of the vessel STURGIS and associated mobile nuclear high power plant MH-1A (hereafter referred to as STURGIS), currently moored at Maritime Administration (MARAD) James River Reserve Fleet, Virginia. Potential decommissioning and dismantling locations were screened and the sites determined to be the most feasible were evaluated as Proposed Action Alternatives. There are four Proposed Action Alternative locations for which environmental effects were evaluated: Hampton Roads Metropolitan Area, Virginia; Baltimore, Maryland; Charleston, South Carolina; and Galveston, Texas. Additionally, Brownsville, Texas is analyzed as a dismantling option location. Also analyzed is the No-Action Alternative.

The Proposed Action is to decommission, dismantle and dispose of the STURGIS by contract with a domestic company technically capable of dismantling a vessel with a nuclear reactor. The contracted company will tow the vessel to a facility at one of the alternative locations mentioned above and dispose of her in accordance with applicable Federal, state, and local laws and regulations. The purpose of the Proposed Action is to reduce residual radioactivity to levels that allow release of STURGIS and its defueled MH-1A mobile high power nuclear plant for unrestricted use, termination of the Army Reactor Office permit, and segregation and disposal of all wastes, including recyclable materials. The Proposed Action is needed now to reduce costs associated with maintaining STURGIS and to meet the USACE mission objectives to decommission their nuclear reactors and terminate their possession permits.

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code §§ 4321-4370d, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 *Code of Federal Regulations* (C.F.R.) Parts 1500-1508, and Environmental Analysis of Army Actions (AR 200-2) 32 C.F.R. Part 651, and evaluates the potential effects of the Proposed Action on the following resource areas: cultural resources; water resources; biological resources; air quality; waste management; and health and safety.

POINT OF CONTACT

Ms. Brenda Barber
U.S. Army Corps of Engineers
Baltimore District
10 South Howard Street
Baltimore, MD 21201-1715
(410) 962-0030

April 15, 2014

EXECUTIVE SUMMARY

Introduction

This Environmental Assessment (EA) evaluates the potential environmental impacts resulting from the proposed decommissioning and dismantling of the vessel STURGIS and associated mobile high power nuclear plant MH-1A (hereafter referred to as STURGIS), which is currently moored at the Maritime Administration (MARAD) James River Reserve Fleet (JRRF), Joint Base Langley Eustis, Virginia (VA). The United States Army Corps of Engineers (USACE) has prepared this EA in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 United States Code (U.S.C.) §§ 4321-4370d, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 Code of Federal Regulations (C.F.R.) Parts 1500-1508 and Environmental Analysis of Army Actions (AR 200-2) 32 C.F.R. Part 651, which establishes procedures for implementing the NEPA.

Purpose of and Need for the Proposed Action

STURGIS has been inactive, and the onboard MH-1A reactor has been in long-term Safe Storage (SAFSTOR), as a monitored deactivated defueled nuclear plant, for over 35 years. The USACE has no anticipated current or future needs for the vessel or onboard reactor. Furthermore, the USACE is preparing to decommission all their nuclear reactors and terminate their permits with the Army Reactor Office (ARO). The Proposed Action is needed now to reduce costs associated with maintaining STURGIS and meet the USACE mission objectives to decommission their nuclear reactors and terminate their possession permits.

The purpose of the Proposed Action is to reduce residual radioactivity to levels that allow release of STURGIS and MH-1A for unrestricted use, termination of the ARO permit, and segregation of all wastes, including recyclable metal. The Proposed Action meets the decommissioning objectives of protecting the environment and human health, with available equipment and resources. The MH-1A reactor was designed, built and operated as part of the Army Nuclear Power Program under authority granted to the Department of Defense (DOD) by Section 91(b) of the Atomic Energy Act of 1954, as amended. Section 91(b) authorizes DOD to procure and utilize special nuclear material in the interest of national defense and to acquire utilization facilities, i.e., reactors for military purposes. Section 110(b) of the Atomic Energy Act excludes such utilization facilities acquired by DOD from any of the licensing requirements of the Atomic Energy Act. The Proposed Action is within the Atomic Energy Act authorities granted to the DOD, specifically Sections 91(b) and 110(b) which gives DOD the authority to regulate the radioactive materials, and is consistent with relevant guidance identified in 10 C.F.R. 20.1402, the radiological criteria for unrestricted use.

Description of the Proposed Action

The Proposed Action is to decommission, dismantle and dispose of the STURGIS by contract with a domestic company technically capable of dismantling a vessel with a nuclear reactor onboard. The contracted company will tow the vessel to a facility at one of the alternative locations for decommissioning and dismantling, and wastes will be segregated in accordance with applicable Federal, state and local laws and regulations. Two applicable guides for ship dismantling are Environmental Protection Agency (EPA) Ship Scrappers Guide and Occupational Safety and Health Administration (OSHA) Safe Work Practices for Shipbreaking. The decommissioning of STURGIS shall also comply with NRC requirements in 10 C.F.R. 20, Standards for Protection Against Radiation.

If the USACE decides to implement the Proposed Action, neither construction of new facilities nor modifications to the existing facilities would be required. Moreover, no dredging would be required. The vessel is non-operational (no propeller rotation or water intakes/discharges). Therefore, due to the size of the ship, the use of one or more assist tug boats would be required. Ship dismantling contracts include a clause that requires the contractor to comply with all applicable Federal, state and local environmental and occupational safety and health laws and regulations.

For this EA, the Proposed Action consists of actions for the towing of STURGIS from its current location in Virginia to the decommissioning and dismantling facility; the segregation of wastes, decommissioning and termination of the reactor permit, which will ultimately remove STURGIS from USACE control.

Hampton Roads Metropolitan Area, Virginia, Alternative

This alternative would decommission and dismantle STURGIS at a facility in Hampton Roads Metropolitan Area, VA. The Hampton Roads Metropolitan Area is compromised of the Virginia Beach-Norfolk-Newport News, VA metropolitan areas (includes the following: Gloucester County; Isle of Wight County; James City County; Mathews County; York County; City of Chesapeake; City of Hampton; City of Newport News; City of Norfolk; City of Poquoson; City of Portsmouth; City of Suffolk; City of Virginia Beach; and City of Williamsburg). This would be a commercial facility that has the capability of decommissioning and dismantling a vessel of this size and would not require construction of any new facilities. Hampton Roads Metropolitan Area, VA, is located approximately 13 nautical miles downriver from MARAD JRRF and would not involve open ocean transit.

Baltimore, Maryland (MD), Alternative

This alternative would decommission and dismantle STURGIS at a facility in Baltimore, MD. This would be a commercial facility that has the capability of decommissioning and dismantling a vessel of this size and would not require construction of any new facilities. Baltimore, MD, is located approximately 169 nautical miles from MARAD JRRF along rivers and through the Chesapeake Bay and would not involve open ocean transit.

Charleston, South Carolina (SC), Alternative

This alternative would decommission STURGIS at a facility in Charleston, SC. This would be a commercial facility that has the capability of decommissioning a vessel of this size and would not require construction of any new facilities. However, Charleston does not currently completely dismantle vessels and this alternative would potentially require a further tow to Baltimore, MD, or Brownsville, Texas (TX), for complete dismantling. Charleston, SC, is located approximately 426 nautical miles from MARAD JRRF and would involve open ocean transit along with increased vulnerability to major weather events.

Galveston, Texas, Alternative

This alternative would decommission STURGIS at a facility in Galveston, TX. This would be a commercial facility that has the capability of decommissioning a vessel of this size and would not require construction of any new facilities. However, Galveston does not currently completely dismantle vessels and this alternative would potentially require a further tow to Brownsville, TX, for complete dismantling. Galveston, TX, is located approximately 1,659 nautical miles from

MARAD JRRF and would involve open ocean transit along with increased vulnerability to major weather events.

Brownsville, Texas, Dismantling Option

Both the Charleston and Galveston alternatives do not have the capability to fully dismantle the vessel, whereas Brownsville is currently an active full dismantling location. If the Charleston or Galveston alternative is chosen, after decommissioning the vessel could then be towed to Brownsville (or Baltimore) for dismantling.

No-Action Alternative

Under the No-Action Alternative, STURGIS would not be decommissioned and disposal would not occur. The No-Action Alternative maintains the status quo with STURGIS remaining at JRRF; it would require the USACE to maintain its permit with the ARO, as well as continue the regular maintenance of the vessel. The status quo does not meet USACE mission objectives to decommission their nuclear reactors and terminate their possession permits. Therefore, this alternative is not reasonable.

Alternatives Considered but Eliminated

The following are alternatives that were considered for STURGIS but ultimately eliminated from further review:

- A possible alternative decommissioning location investigated was Puget Sound Naval Shipyard and Intermediate Maintenance Facility in Bremerton, Washington. However, the Navy, as opposed to a commercial contractor, owns and operates the facility and the facility is reserved for dismantling Navy vessels. Additionally, the tow to the West coast is cost prohibitive when there are adequate facilities on the East coast.
- An alternative to donate STURGIS following decommissioning was considered rather than fully dismantling the vessel and disposing of wastes and recycling of eligible materials. However, the destructive process needed to remove the MH-1A reactor and other significant components and structures that make up the nuclear mid-section of the vessel during decommissioning, would leave only portions of the existing vessel remaining for use as a potential museum. In effect, most of the nuclear-related structures and components that make STURGIS unique and noteworthy from a historical perspective would be removed and thus would not be available as part of any future museum, thereby making a museum impractical. Additionally, prospective applicants for donations must provide proof of funding for a museum, which would be difficult to obtain for an essentially empty hull in two pieces that would remain following the decommissioning and could lead to a protracted resolution process resulting in additional costs to maintain the remaining pieces of the STURGIS. Therefore, the USACE determined this alternative was not practical or economical.
- An alternative to dispose of STURGIS as an artificial reef following decommissioning was considered. However, after further investigation and completion of a cost benefit analysis, it became apparent that there would be significant costs and uncertainties associated with minimizing the risks to ensure that the vessel would be safe for sinking rather than recycling eligible vessel materials or disposing of various types of wastes generated during decommissioning. Recycling of eligible materials would recover a portion of the decontamination and decommissioning costs that would otherwise not be realized under the reefing option. Stakeholders' acceptance of reefing a former vessel of

this type presents uncertainties that would require additional resources and result in additional project costs necessary to address potential stakeholder concerns for an alternative that has limited probability of success and to maintain the remaining pieces of the STURGIS for an indefinite period of time pending resolution of this alternative. As such, the USACE determined that the reefing alternative would not be practical or economical.

Summary of Environmental Impacts

This EA has determined that implementation of any of the Proposed Action Alternatives or the No-Action Alternative would not result in significant impacts to any resource area. The environmental consequences associated with implementation of these alternatives are presented and compared in Table ES-1. Because STURGIS will be towed to a commercial industrial facility that has restricted access, the Proposed Action presents no risk to many resource areas; only six resources (cultural, biological, water, health and safety, air quality, and waste management) were analyzed in detail. For a detailed description and analysis, refer to Chapter 3, Affected Environment and Environmental Consequences for each of the six resources.

Table ES-1. Summary of Impacts

Resource Area	Hampton Roads Metropolitan Area, VA Alternative	Baltimore, MD Alternative	Charleston, SC Alternative	Galveston, TX Alternative	Brownsville, TX Dismantling Option Location	No-Action Alternative
Cultural Resources	• Adverse effect on the vessel. Compliance with the NHPA and the STURGIS MOA will mitigate the adverse effect; thus, no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with the NHPA and the STURGIS MOA will mitigate the adverse effect; thus, no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with the NHPA and the STURGIS MOA will mitigate the adverse effect; thus, no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with the NHPA and the STURGIS MOA will mitigate the adverse effect; thus, no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with the NHPA and the STURGIS MOA will mitigate the adverse effect; thus, no significant impact. • No adverse effects on other cultural resources.	No adverse effects
Water Resources	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning and dismantling.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning and dismantling.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from dismantling.	No significant impacts
Biological Resources	• Towing may affect but is not likely to adversely affect	• Towing may affect but is not likely to adversely affect	• Towing may affect but is not likely to adversely affect	• Towing may affect but is not likely to adversely affect	• Towing may affect but is not likely to adversely affect	No significant impacts

Resource Area	Hampton Roads Metropolitan Area, VA Alternative	Baltimore, MD Alternative	Charleston, SC Alternative	Galveston, TX Alternative	Brownsville, TX Dismantling Option Location	No-Action Alternative
	threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	
Air Quality	Insignificant temporary impacts during towing, decommissioning, and dismantling.	Insignificant temporary impacts during towing, decommissioning, and dismantling.	Insignificant temporary impacts during towing and decommissioning.	Insignificant temporary impacts during towing and decommissioning.	Insignificant temporary impacts during towing and dismantling.	No impacts
Waste Management	No significant impacts from all activities.	No significant impacts from all activities.	No significant impacts from all activities.	No significant impacts from all activities.	No significant impacts from all activities.	No impacts
Health and Safety	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No impacts

TABLE OF CONTENTS

ABSTRACT i
EXECUTIVE SUMMARY ii
TABLE OF CONTENTS viii
ACRONYMS AND ABBREVIATIONS xii
1 PURPOSE AND NEED 1-16
1.1 Introduction 1-16
1.2 Project Location 1-3
1.3 Vessel History 1-3
1.4 Purpose of and Need for the Proposed Action 1-6
1.5 Applicability of NEPA 1-6
1.6 Intergovernmental Coordination 1-8
2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES 2-1
2.1 Proposed Action 2-1
2.2 Alternatives 2-7
2.3 Hampton Roads Metropolitan Area, Virginia, Alternative 2-9
2.4 Baltimore, Maryland, Alternative 2-11
2.5 Charleston, South Carolina, Alternative 2-13
2.6 Galveston, Texas, Alternative 2-15
2.7 No-Action Alternative 2-16
2.8 Summary of Impacts 2-18
3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-1
3.1 Cultural Resources 3-1
3.1.1 Regulatory Setting 3-1
3.1.2 Affected Environment 3-1
3.1.3 Environmental Consequences 3-5
3.2 Water Resources 3-6
3.2.1 Regulatory Setting 3-6
3.2.2 Affected Environment 3-7
3.2.3 Environmental Consequences 3-12
3.3 Biological Resources 3-14
3.3.1 Regulatory Setting 3-14
3.3.2 Affected Environment 3-14
3.3.3 Environmental Consequences 3-28

3.3.4 Impact Summary 3-37
3.4 Air Quality 3-38
3.4.1 Regulatory Setting 3-38
3.4.2 Affected Environment 3-39
3.4.3 Environmental Consequences 3-40
3.5 Waste Management 3-43
3.5.1 Regulatory Setting 3-43
3.5.2 Affected Environment 3-43
3.5.3 Environmental Consequences 3-47
3.6 Health and Safety 3-48
3.6.1 Regulatory Setting 3-48
3.6.2 Affected Environment 3-48
3.6.3 Environmental Consequences 3-49
4 CUMULATIVE IMPACTS 4-1
4.1 Projects near MARAD JRRF Joint Base Langley Eustis, VA, and Surrounding Area 4-1
4.1.1 Past Projects 4-1
4.1.2 Future Projects 4-1
4.2 Projects near Hampton Roads Metropolitan Area, VA, facility 4-2
4.3 Projects near Baltimore, MD, facility 4-2
4.4 Projects near Charleston, SC, facility 4-2
4.5 Projects near Galveston, TX, facility 4-2
4.6 Projects near Brownsville, TX, facility 4-2
4.7 Environmental Analysis 4-2
4.7.1 Cultural Resources 4-3
4.7.2 Water Resources 4-3
4.7.3 Biological Resources 4-3
4.7.4 Air Quality 4-4
4.7.5 Waste Management 4-4
4.7.6 Health and Safety 4-4
5 OTHER CONSIDERATIONS REQUIRED BY NEPA 5-1
5.1 Possible Conflicts between the Proposed Action and the Objectives of Federal, State, Local, and Regional Land Use Plans, Policies, and Controls 5-1
5.1.1 Federal Acts, Executive Orders, Policies, and Plans 5-1
5.1.2 State, Local, and Regional Plans, Policies, and Controls 5-3

5.2 Energy Requirements and Conservation Potential of Alternatives Including the Proposed Action and All Mitigation Measures Being Considered 5-4
5.3 Irreversible or Irretrievable Commitment of Natural or Depletable Resources 5-4
5.4 Relationship between Local Short-Term Use of the Human Environment and Maintenance and Enhancement of Long-Term Natural Resource Productivity 5-4
5.5 Means to Mitigate and/or Monitor Adverse Environmental Impacts 5-4
5.6 Any Probable Adverse Environmental Effects that cannot be Avoided and are not Amenable to Mitigation 5-5
6 CONCLUSION 6-1
7 PREPARERS 7-1
8 PERSONS AND AGENCIES CONTACTED 8-1
9 REFERENCES 9-1

List of Figures

Figure 1.1 – STURGIS at MARAD JRRF, VA (Historical Site Assessment, 2012) 1-16
Figure 1.2 - STURGIS Location Map at MARAD JRRF, VA 1-3
Figure 1.3 - James River Reserve Fleet, Joint Base Langley Eustis, Virginia (Google, 2012) ... 1-4
Figure 2.1 – Proposed Tow Route from JRRF to James River Bridge 2-3
Figure 2.2 – Proposed Tow Route Monitor-Merrimac Memorial Bridge Tunnel to Hampton Roads Bridge 2-4
Figure 2.3 – Proposed Tow Route Hampton Roads Bridge to Chesapeake Bay Bridge Tunnel 2-4
Figure 2.4 – Project Area Map with Alternatives 2-8
Figure 2.5 – Hampton Roads Metropolitan Area Site 2-10
Figure 2.6 - Probable Tow Route – JRRF to Hampton Roads Metropolitan Area, VA 2-11
Figure 2.7 – Baltimore Site 2-12
Figure 2.8 – Probable Tow Route – JRRF to Baltimore, MD 2-13
Figure 2.9 - Probable Tow Route – JRRF to Charleston, SC then to Dismantling Site 2-14
Figure 2.10 - Charleston Site 2-15
Figure 2.11 – Galveston Site 2-16
Figure 2.12 – Brownsville Site 2-17
Figure 2.13 - Probable Tow Route – JRRF to Galveston, TX then Brownsville, TX 2-18

List of Tables

Table ES-1. Summary of Impacts vi
Table 2-1. Tow Route Distances from JRRF to International Water Boundary 2-2
Table 2-2. Summary of Impacts 2-19
Table 3-1. Threatened and Endangered Species List surrounding MARAD JRRF, VA 3-16
Table 3-2. Threatened and Endangered Species List for Maryland Alternative 3-19
Table 3-3. Threatened and Endangered Species List for South Carolina Alternative 3-22
Table 3-4. Threatened and Endangered Species List for Galveston, Texas location 3-24
Table 3-5. Threatened and Endangered Species List for Brownsville, Texas location 3-27
Table 3-6. Biological Resource Impact Summary 3-37
Table 3-7. Applicable Criteria Pollutant *de minimis* Levels (Tons/Year) for Alternative Locations (40 C.F.R. § 93.153) 3-40

List of Appendices

Appendix A - Record of Non-Applicability (RONA) for Clean Air Act Conformity

Appendix B - Regulatory Correspondence

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ALARA	as low as (is) reasonably achievable
ALU	aquatic life use
APE	Area of Potential Effect
AQCR	Air Quality Control Region
ARB	Air Resources Board
AR	U.S. Army Regulation
ARO	Army Reactor Office
BMP	best management practice
BSC	Brownsville Ship Channel
CA	California
CAA	Clean Air Act
CATEX	Categorical Exclusion
CCD	Coastal Consistency Determination
CCND	Coastal Consistency Negative Determination
CENAB	USACE Baltimore District
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
Ci	Curie
cm^2	square centimeter
CMP	Coastal Management Program
CNYHD	Charleston Naval Yard Historic District
CO	carbon monoxide
CO_2	carbon dioxide
COMAR	Code of Maryland Regulations
CWA	Clean Water Act
CWF	Compact Waste Facility
cy	cubic yards
CZMA	Coastal Zone Management Act
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEM	Department of Environmental Management
DEQ	Department of Environmental Quality
DEP	Department of Environmental Protection
DHR	Department of Historic Resources
DO	dissolved oxygen
DOE	Department of Energy
DOI	United States Department of the Interior
DOT	Department of Transportation
DP	Decommissioning Plan

dpm	disintegrations per minute
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ELMR	Estuarine Living Marine Resources
EO	Executive Order
EPA	United States Environmental Protection Agency
ePIX	Electronic Project Information Exchange
ERL	Environmental Research Laboratories
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FNSI	Finding of No Significant Impact
FR	Federal Register
ft	feet
ft^2	square feet
FWF	Federal Waste Facility
FY	fiscal year
GEIS	Generic Environmental Impact Statement
GHG	greenhouse gas
GMFMC	Gulf of Mexico Fisheries Management Council
h	hour
HAPC	Habitat Areas of Particular Concern
HSA	Historic Site Assessment
IDA	Intensely Developed Area
INACTSHIPMAINTO	Inactive Ship Maintenance Office
JRRF	James River Reserve Fleet
km	kilometer
kph	kilometers per hour
LBP	lead based paint
lbs	pounds
LLMW	Low Level Mixed Waste
LLRW	Low Level Radioactive Waste
LLW	Low Level Waste
LNG	Liquefied natural gas
m	meter
m^2	square meter
MAFMC	Mid-Atlantic Fishery Management Council
MAIA	Mid-Atlantic Integrated Assessment
MARAD	Maritime Administration
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MBTA	Migratory Bird Treaty Act
MD	Maryland
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
MH	Mobile High power
MHT	Maryland Historic Trust

MLLW	Mixed Low Level Waste
MLW	mean low water
MOA	Memorandum of Agreement
mm	millimeter
MMPA	Marine Mammal Protection Act
mph	miles per hour
MSL	mean sea level
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NNSS	Nevada National Security Site
NO_2	nitrogen dioxide
NOx	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NPS	National Park Service
NRC	United States Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
NUREG	NRC Regulatory Guidance
NWR	National Wildlife Refuge
O_3	Ozone
OSHA	Occupational Safety and Health Administration
OTR	Ozone Transport Region
PAH	Polycyclic Aromatic Hydrocarbons
Pb	lead
PCB	polychlorinated biphenyl
PEL	Probable Effects Level
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
ppt	parts per thousand
RCRA	Resource Conservation and Recovery Act
RONA	Record of Non-Applicability
RPV	Reactor Pressure Vessel
SAFMC	South Atlantic Fishery Management Council
SAFSTOR	Safe Storage
SAV	Submerged Aquatic Vegetation
SC	South Carolina
SCDHEC	South Carolina Department of Health and Environmental Control
SCDNR	South Carolina Department of Natural Resources
SHPO	State Historic Preservation Office
SIP	State Implementation Plan

SO_2	sulfur dioxide
SO_x	sulfur oxides
TAC	Texas Administrative Code
T&E	Threatened and Endangered
TBT	Tributyltin
TCEQ	Texas Commission on Environmental Quality
TEL	Threshold Effects Level
THPO	Tribal Historic Preservation Office
TMDL	Total maximum daily loads
TX	Texas
UFC	Unified Facilities Code
U.S.	United States
USACE	United States Army Corps of Engineers
USANCA	United States Army Nuclear and Combating Weapons of Mass Destruction Agency
U.S.C.	United States Code
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
VA	Virginia
VDH	Virginia Department of Health
VHWMR	Virginia Hazardous Waste Management Regulations
VOC	volatile organic compound
VSWMR	Virginia Solid Waste Management Regulations
WAC	Waste Acceptance Criteria
WCS	Waste Control Specialists
WQS	water quality standards
μg/L	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
μR	micro-Roentgens

1 PURPOSE AND NEED

1.1 Introduction

This Environmental Assessment (EA) contains an evaluation of the potential environmental impacts resulting from the decommissioning and dismantling of vessel STURGIS and the associated mobile high (MH) nuclear power plant 1A (also referred to as MH-1A) from the United States Army Corps of Engineers (USACE). The vessel STURGIS and associated reactor MH-1A are hereafter referred to as STURGIS. STURGIS is currently located in the U.S. Department of Transportation (DOT) Maritime Administration's (MARAD) James River Reserve Fleet (JRRF) (Figure 1.1). The JRRF site is within the James River at Joint Base Langley Eustis, Virginia (VA) (Figure 1.2). STURGIS has been moored at this location since September 1978.

Figure 1.1 – STURGIS at MARAD JRRF, VA (Historical Site Assessment, 2012)

This EA presents an analysis of the potential environmental consequences that may result from implementation of the alternatives for proposed decommissioning and dismantling actions and all reasonably foreseeable, connected actions. The EA identifies and analyzes potential effects

on the natural and human environment in sufficient detail to determine the significance of impacts on the affected environment.

The action proponent and lead agency for the Proposed Action is the USACE. There are no cooperating agencies for the preparation of this EA.

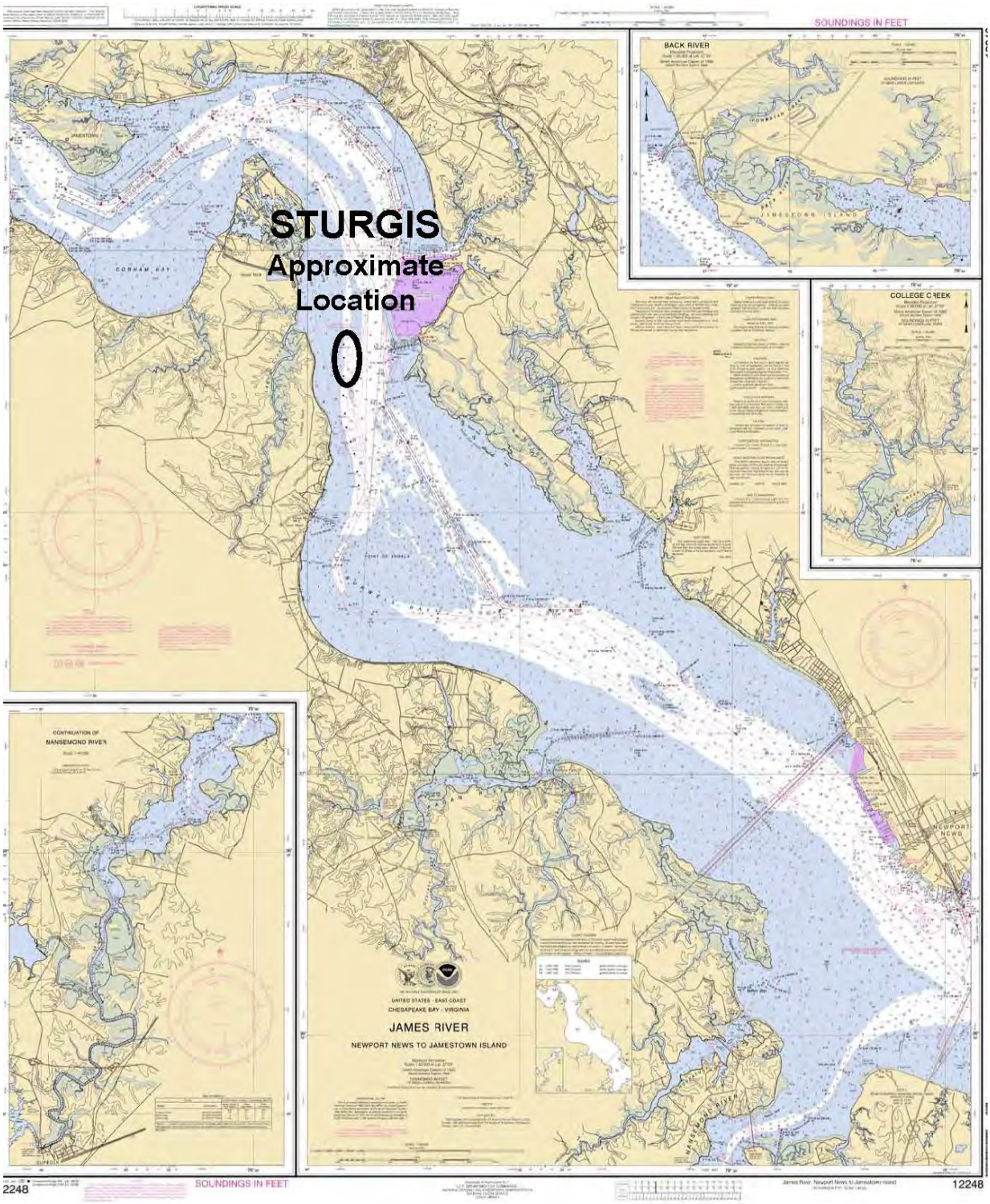


Figure 1.2 - STURGIS Location Map at MARAD JRRF, VA

1.2 Project Location

STURGIS is currently moored on the north end of the MARAD JRRF site on the James River at Joint Base Langley Eustis, VA (Figure 1.3). The JRRF currently hosts 18 additional moored ships, all of which are within the MARAD inventory and designated for disposal. They are anchored in an approximately one square mile area on the James River near Joint Base Langley Eustis. The site is leased from the U.S. Army Transportation Center, Joint Base Langley Eustis.

JRRF is the oldest National Defense Reserve Fleet site, having begun operations during World War I. The USACE owns STURGIS and pays a fee to MARAD which provides for security, access, and maintenance of the vessel. STURGIS has been moored at JRRF since 1978.

Upon award of the decommissioning and dismantling contract, the contractor would take possession of the vessel and tow it to the awarded facility. The contractor would be responsible for the segregation of wastes and decommissioning to support permit termination. USACE would present the information supporting permit termination to the Army. After the Army terminated the Reactor Decommissioning Permit, all radiological controls would be removed making the STURGIS an excess asset. Waste would be enclosed, removed and transported to the final disposal location following Federal and/or state regulations further described in Section 2.1. The USACE has prepared a waste management plan for the Proposed Action and potential impacts are discussed in Chapter 3. Potential decommissioning and dismantling locations were screened and the sites determined to be the most feasible were evaluated as Proposed Action Alternatives. Possible locations for proposed decommissioning and dismantling operations are described in Section 2.2 Alternatives.

It is important to note that the alternative locations represent a range of potential locations that could be selected to complete the Proposed Action. No preferred alternative has been selected at this time; a selection will be made upon award of the contract.

1.3 Vessel History

In March 1963, the World War II Liberty Ship *Charles H. Cugle* was selected from the Mobile Reserve Fleet for conversion to a mobile power source containing a high power (greater than 10 megawatt [MW]) pressurized water nuclear reactor designated MH-1A. The propulsion plant was removed from the vessel and the midsection was replaced with a new midsection containing the mobile high (MH) power plant, a 350-ton steel containment “spheroid,” and a concrete collision barrier. The vessel, which essentially became a barge, was renamed STURGIS. She operated at Ft. Belvoir, Virginia, for about one year and was then transferred to Gatun Lake in the Panama Canal Zone where she was used to generate electricity. STURGIS operated in the Panama Canal from 1968 to 1976 supplying power for military and civilian use at a nominal output of 10 MW electricity.

Since the Panama Canal Company had acquired additional land-based electrical capacity and no longer needed the electrical power produced by STURGIS, the vessel’s reactor was shut down in 1976. During December 1976 to January 1977, STURGIS was taken under tow from Panama destined for Ft. Belvoir. Encountering severe weather enroute, the vessel was diverted to the Military Ocean Terminal at Sunny Point, North Carolina, where it subsequently underwent temporary structural repairs. Following the repairs, STURGIS was again taken under tow during

March of 1977 and arrived three days later at Ft. Belvoir. It was decided to decommission the MH-1A reactor onboard STURGIS.

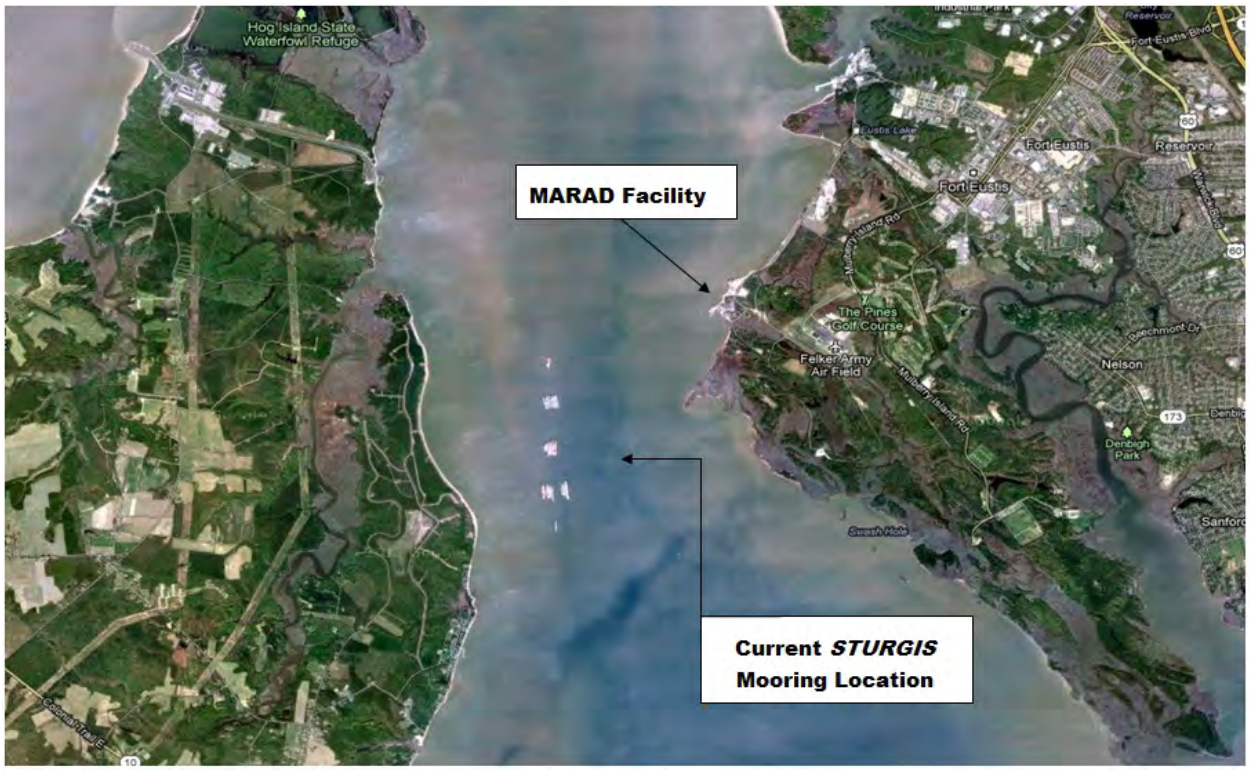


Figure 1.3 - James River Reserve Fleet, Joint Base Langley Eustis, Virginia (Google, 2012)

In 1977, the Department of Army (U.S. Army Facilities and Engineering Support Agency, Ft. Belvoir, VA) prepared an Environmental Impact Assessment, then deactivated and defueled STURGIS. The deactivation objective was to place STURGIS under a safe configuration for long-term storage of radioactive material remaining on board, commonly known as "SAFSTOR." The principal activities involved in deactivation were:

- Defueling and shipping of fuel and core components off-site;
- Disposing of radioactive wastes and selected radioactive components;
- Isolating the remaining materials from the public by appropriate physical barriers;
- Decontaminating all other plant areas to within prescribed limits for release as an unrestricted area [i.e., removable contamination less than 1,000 disintegrations per minute per 100 square centimeter (dpm/100 cm^2) and exposure rate at 3 feet from the source to less than 50 micro-Roentgens per hour (μR/h)].

In late March 1978, STURGIS was towed southward to the Savannah Machine Shipyard Company, Savannah, Georgia. There the hull was dry-docked, inspected, painted, overboard drains closed, certain fittings were made, and STURGIS was essentially mothballed. STURGIS arrived at the MARAD JRRF, Ft. Eustis, VA (now known as Joint Base Langley Eustis), on September 23, 1978, where it is currently moored. MARAD provides for the security and maintenance of STURGIS.

Since the deactivation in 1978, dry-docking of STURGIS has occurred three times. In 1983, she was dry-docked for the first time since initial deactivation at Maryland Dry Dock Company in Baltimore, MD; maintenance on the hull was performed and the vessel was painted. In 1999, STURGIS was dry-docked again for hull maintenance at BWI Sparrows Point, LLC in Baltimore, MD; however, the outside upper decks and superstructure of the vessel were not painted. The most recent dry-docking occurred in 2008 at BAE Systems Ship Repair in Norfolk, Virginia. The dry-docking was conducted to support the cleaning, sand blasting and recoating of all the exterior surfaces, hull and superstructure and allowed for the evaluation, maintenance, repair and upgrade of any systems that were needed for continuing safe storage.

The decommissioning strategy developed in the 1970s recommended that the deactivated reactors be placed into a safe storage mode that would allow the shorter-lived radionuclides to decay. It was expected that delaying decommissioning would reduce radioactive waste volumes and worker exposures. Early plans estimated that decommissioning of STURGIS would begin in 2027. However, studies indicated that the levels of contamination present within the reactors would not be reduced by decay sufficiently to allow for release of the facilities without significant decontamination being performed. The U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency (USANCA) performed a study in 1998 that indicated maintaining STURGIS in a safe store condition may not be the most cost effective strategy due to escalating decommissioning costs, annual maintenance costs, and changing low level radioactive waste disposal options. Due to increasing cost and decreasing availability of radioactive waste disposal, the U.S. Army Reactor Office (ARO) recommended in 1998 that an assessment be performed to develop a more accurate decommissioning cost estimate and to address projected changes in disposal options. Therefore, the USACE decided to proceed with the decontamination and decommissioning of the reactor and reactor facilities and eventual dismantlement of the vessel.

Since deactivation, and from 1978 until 1996, USACE maintained STURGIS under various Army Radiation Authorizations issued by Office of Chief of Engineers. Only after the publication of Army Regulation AR50-7 in 1996 did the U.S. ARO of the USANCA start issuing permits. The initial Nuclear Reactor Possession Permit Number MH1A-1-96 was effective 16 September 1996 through 16 September 1997. The current permit MH1A-1-09 was issued in 2009 by the U.S. ARO under USANCA to ensure safety of the vessel, the public, and the environment.

The ARO 50-7 provides the regulatory requirement for decommissioning within 60 years of the plant ceasing operation, pursuant to 10 C.F.R. 50.82(a)(3). As such, decommissioning of STURGIS is required to be completed by 2036.

STURGIS meets the criteria to be eligible for listing in the National Register of Historical Places (NRHP) under 36 C.F.R. §60.4 Criterion A[1] as STURGIS is significant in the areas of military history and engineering in the development of nuclear power facilities in the United States. The USACE initiated the National Historic Preservation Act (NHPA) Section 106 consultation with the Virginia Department of Historic Resources (VA DHR), which serves as the State Historic Preservation Office (SHPO). The USACE also invited non-government consulting parties (see Appendix B) to participate in the Section 106 process.

When the decommissioning is completed, all ARO permits will be terminated.

[1](a) That are associated with events that have made a significant contribution to the broad patterns of our history.

1.4 Purpose of and Need for the Proposed Action

STURGIS has been inactive, and the onboard reactor has been in SAFSTOR, for over 35 years. The USACE has no anticipated current or future needs for the vessel or onboard reactor. In addition, continued maintenance of STURGIS in a SAFSTOR condition may not be the most cost effective strategy due to escalating decommissioning costs, annual maintenance costs, and changing low level radioactive waste disposal options. Furthermore, the USACE is preparing to decommission all their nuclear reactors and terminate their permits with the ARO. The Proposed Action is needed now to reduce costs associated with maintaining STURGIS and meet USACE mission objectives to decommission their nuclear reactors and terminate their possession permit.

The purpose of the Proposed Action is to reduce residual radioactivity to a level that allows release of STURGIS and MH-1A for unrestricted use, termination of the ARO permit, and segregation of all wastes, including recyclable metal. The Proposed Action meets the decommissioning objectives of protecting the environment and human health and doing so with available equipment and resources. The MH-1A reactor was designed, built and operated as part of the Army Nuclear Power Program under authority granted to the Department of Defense (DOD) by Section 91(b) of the Atomic Energy Act of 1954, as amended. Section 91(b) authorizes DOD to procure and utilize special nuclear material in the interest of national defense and to acquire utilization facilities, i.e., reactors for military purposes. Section 110(b) of the Atomic Energy Act excludes such utilization facilities acquired by DOD from any of the licensing requirements of the Atomic Energy Act. The Proposed Action is within the Atomic Energy Act authorities granted to the DOD, specifically Sections 91(b) and 110(b), which give DOD the authority to regulate the radioactive materials, and will comply with the applicable requirements of 10 C.F.R. 20.1402, the radiological criteria for unrestricted use.

1.5 Applicability of NEPA

Applicability of the National Environmental Policy Act (NEPA) requires Federal agencies to assess any reasonably foreseeable direct and indirect effects of major Federal actions on human health and the environment (42 U.S.C. §§ 4321-4370f). The decommissioning and dismantling of a vessel is considered a “major Federal action” under NEPA. There is no applicable Categorical Exclusion (CATEX) for this action. To satisfy the NEPA, the USACE must evaluate interrelated environmental and cultural resource impacts of the Proposed Action, identify reasonable alternatives and analyze potential direct, indirect, and cumulative impacts that may result, to determine whether the Proposed Action will have a significant impact on the human environment.

This EA documents the USACE’s evaluation and assessment of the potential environmental impacts associated with the decommissioning and dismantling of STURGIS.

This EA has been prepared by the USACE in accordance with the following laws, regulations and policy:

- The National Environmental Policy Act (NEPA) of 1969;
- The Council on Environmental Quality (CEQ) regulations implementing NEPA (40 C.F.R. §§ 1501-1508);
- U.S. Army Regulation (AR) 200-2 Environmental Analysis of Army Actions, 32 C.F.R. Part 651;

- U.S. Army Regulation (AR) 50-7 Army Reactor Program, 28 March 2009;
- Atomic Energy Act, 42 U.S.C. § 2011 et seq., 1954;
- Management Plan for the U.S. Army Reactor Program, U.S. Army Corps of Engineers Directorate of Military Programs Environmental Division, December 1999;
- USNRC Regulatory Guidance (NUREG)-1748 Environmental Review Guidance for Licensing Actions Associated with NMSS Programs;
- USNRC Consolidated Decommissioning Guidance NUREG-1757;
- Generic Environmental Impact Statement (GEIS) in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities, NUREG-1496 Volume 1, July 1997.
- Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, NUREG-0586, Initial Report (1988), Supplement 1, Volume 1 and Volume 2, 2002.

This EA draws upon information in the possession of and obtained by the USACE, and other readily available public sources of information. The NEPA, the CEQ regulations, and the USACE's procedures for implementing the NEPA specify that an EA should only address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact. The proposed Federal action is decommissioning and dismantling of the vessel through an acceptable contractor, which includes relocation, via tow, to an established domestic facility that would not be expected to involve construction activities. The five potential locations considered are Hampton Roads Metropolitan Area, Virginia (VA), Baltimore, Maryland (MD), Charleston, South Carolina (SC), Galveston, Texas (TX), and Brownsville, TX.

Environmental resources potentially affected by the Proposed Action and all reasonably foreseeable actions to be evaluated in this EA include:

- Cultural Resources
- Biological Resources
- Water Resources
- Health and Safety
- Air Quality
- Waste Management

Because the vessel would be towed to and then decommissioned and dismantled at a commercial facility, actions would take place on coastal land that is closed to public access, and because no major construction or modifications to facilities are anticipated, the resources that are not evaluated in detail in this EA are:

- Land Use (there would be no change in land use as a result of the Proposed Action)
- Geology, Soils and Seismicity (there would be no effects to these resources)

- Aesthetics and Visual Resources (The vessel does not have aesthetic value that would be negatively affected. The Proposed Action does not have an effect on the existing visual character or quality of the possible dismantling sites and their surroundings.)
- Socioeconomics (the project would not have a negative effect on the state, local and regional economy, housing, or community services)
- Environmental Justice (addresses environmental and human health conditions in minority and low-income communities; the Proposed Action would occur at an existing decommissioning and dismantling facility and would not require construction of new facilities within minority or low income communities. Thus environmental justice concerns are not applicable)
- Transportation (the Proposed Action would not result in increased traffic or number of personnel at the vessel's current location or the dismantling facilities' locations; waste transportation is part of decommissioning and discussed under waste management)
- Noise (the Proposed Action is considered a routine vessel movement and the decommissioning/dismantling would not generate any noise above and beyond what is routinely generated at these facilities)
- Utilities (there is no need for additional utilities for the Proposed Action)
- Emergency Services (there would be no effect on emergency services as a result of the Proposed Action)
- Wetlands and floodplains (the Proposed Action would not affect wetlands or floodplains)

1.6 Intergovernmental Coordination

This EA includes consideration of the following statutes and their respective implementing regulations to determine permits, certifications, and/or determinations that may be required for the Proposed Action and all reasonably foreseeable, related actions. The statutes pertaining to the Proposed Action and all reasonably foreseeable, related actions include but are not limited to:

- The National Historic Preservation Act (NHPA);
- The Coastal Zone Management Act (CZMA) of 1972, as amended (16 U.S.C. § 1451 et seq.);
- The Endangered Species Act of 1973;
- The Clean Air Act (CAA) as amended (42 U.S.C. § 7401 (1994)), including the 1990 General Conformity Rule;
- The Clean Water Act (CWA), Section 404 (33 U.S.C. § 1344); 401 Water Quality Certification (33 U.S.C. § 1341);
- Executive Orders (EOs) 13186 Responsibilities of Federal Agencies to Protect Migratory Birds, and 12088 Federal Compliance with Pollution Control Standards.

As part of the NEPA compliance process, coordination with regulatory agencies has been initiated to obtain regulatory input related to all Proposed Actions and to clearly define the regulatory requirements for all Proposed Actions. The USACE has notified, or informally consulted with, potentially interested local, state and Federal stakeholders, including the

following: the VA DHR, U.S. Fish and Wildlife Service (USFWS), and National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS). A notice of intent letter and correspondence with these agencies are included in Appendix B.

The Proposed Action will not have an impact on any coastal use or natural resource of the coastal zone.

This EA has been prepared using a systematic, interdisciplinary assessment process designed to provide decision makers with an organized analysis of the potential environmental consequences of implementing the Proposed Action and all reasonably foreseeable, related actions. The EA is organized by various topics and contains the following sections:

Section 1 provides a discussion of the Purpose and Need for the Proposed Action;

Section 2 discusses the Proposed Action in greater detail and provides a discussion of reasonable alternatives to the Proposed Action;

Section 3 provides a description of the affected environment and an analysis of potential environmental impacts and cumulative impacts;

Section 4 discusses the cumulative impacts on the environment resulting from past, present, and reasonably foreseeable future actions.

Section 5 discusses other NEPA considerations;

Section 6 provides the conclusion;

Section 7 provides a list of preparers of this EA;

Section 8 consists of a list of conferred parties; and

Section 9 lists references used in the preparation of this EA.

2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action considered in this EA is the decommissioning and dismantling of STURGIS. The Proposed Action is to decommission, dismantle and dispose of the STURGIS by contract with a domestic company that is technically capable of dismantling a vessel with a nuclear reactor onboard. The contracted company will tow the vessel to the selected facility, decommission it, and segregate wastes in accordance with applicable permits, licenses, and Federal, state and local laws and regulations. The contract would include a clause noting that the contractor is required to comply with all applicable Federal, state and local environmental and safety and health laws and regulations. The vessel is currently moored at MARAD JRRF, VA. Two applicable ship dismantling guides, Environmental Protection Agency (EPA) Ship Scrappers Guide, and Occupational Safety and Health Administration (OSHA) Safe Work Practices for Shipbreaking, shall be followed. The decommissioning of STURGIS shall comply with NRC requirements in 10 C.F.R 20, Standards for Protection Against Radiation.

If the USACE decides to implement the Proposed Action, no major construction of new facilities would be anticipated. Moreover, no dredging would be required.

For this EA, the Proposed Action consists of: actions for the towing of STURGIS from its current location in the James River to the decommissioning facility; the decommissioning (which includes waste transport and disposal off-site); completion of any necessary repairs to make the vessel seaworthy followed by a second towing (if needed) to the dismantling facility (if a separate location from decommissioning); and the dismantling of the vessel for recycle and/or waste disposal. The Proposed Action is expected to take approximately two years to complete and does not currently have a seasonal restriction for towing(s). These actions are described below.

<u>Towing</u>

STURGIS would be towed from its present location at MARAD JRRF to a decommissioning facility and then, if necessary, to a separate facility for dismantling. Prior to departure, MARAD is under agreement with Virginia to clean the hull with a capture device that captures hull fouling and loose paint chips, while minimizing impacts to the hull and coatings. The contractor would be responsible for the tow. Towing would be a direct route from MARAD, along the shipping channel of the James River, then on to one of the four decommissioning locations. Depending on the decommissioning location, the vessel may also require towing to a separate dismantling facility. The vessel is non-operational (no propeller rotation or water intakes/discharges); therefore, due to the size of the ship, the use of one or more assist tug boats would be required.

Towing would be performed by the contractor in accordance with requirements of Appendix H of the *U.S. Navy Towing Manual Sl740-AA-MAM-010, Rev 3, July 2002*. The contractor would be responsible for making all applicable notifications associated with the towing activity and would adhere to all applicable safety requirements for towing STURGIS. Commercial pilots would be utilized for departures from and entries into ports. A Tow Plan would be prepared by the decommissioning contractor to outline the procedures and guidelines for towing the unmanned defueled vessel/barge.

Navigation

The JRRF is located on the James River in Virginia, approximately 30 miles upstream from the Chesapeake Bay in Norfolk, VA and 45 miles from the Atlantic Ocean. Departing MARAD navigationally would not be a concern.

The tow would begin when STURGIS is released from the JRRF mooring anchorage and secured by the contractor's tugboat(s). The James River channel has a maintained depth of at least 23 feet. There are four fixed bridges, each with adequate clearance; STURGIS has been towed to and from JRRF numerous times for drydocking. The tows would head southeast, underneath the James River Bridge and over the Monitor-Merrimac Memorial Bridge Tunnel. The vessel would then travel underneath the Hampton Roads Bridge and the Chesapeake Bay Bridge. From there, the ship will be towed to its final destination. The total distance of the tow route from JRRF to the international water boundary is 56.8 nautical miles. See Table 2.1 for the specific segment distances along the tow route. Figures 2-1 through 2-3 show the channel detail and probable tow route from JRRF to the Chesapeake Bay. The remainder of the transit from the Chesapeake Bay is described under each Proposed Action Alternative description.

Table 2-1. Tow Route Distances from JRRF to International Water Boundary

Leg	Length (nautical miles)
James River Anchorage to James River Bridge	13.3
James River Bridge to Monitor-Merrimac Memorial Bridge Tunnel	5.1
Monitor-Merrimac Memorial Bridge Tunnel to Hampton Roads Bridge	5.4
Hampton Roads Bridge to Chesapeake Bay Bridge	10.2
Chesapeake Bay Bridge to International Water Boundary	22.8
Total	**56.8**

Decommissioning

The decommissioning actions would potentially take place at one of four decommissioning locations, namely Hampton Roads Metropolitan Area, VA, Baltimore, MD, Charleston, SC or Galveston, TX. Procedures may vary slightly among facilities. The following general description is the basis for the analysis in Chapter 3.

According to the NRC's Consolidated Decommissioning Guidance NUREG-1757, decommissioning means to safely remove a facility or site from service and reduce residual radioactivity to a level that permits release of the property and termination of the license. This process involves waste removal, transport and disposal. The contracted facility would perform the decommissioning operations with the USACE overseeing the activities. The contracted facility and decommissioning contractor would have adequate radiation protection procedures and capabilities, and will implement decontamination and remediation to keep exposure to radioactive materials as low as is reasonably achievable (ALARA).

Decommissioning activities within the contracted facility would be completed within engineered systems designed to physically isolate the contamination, and to control potential emissions to the human and natural environment. Additionally, the facility would be equipped with waste management infrastructure to complete decommissioning following all applicable local, state and Federal laws and regulations.

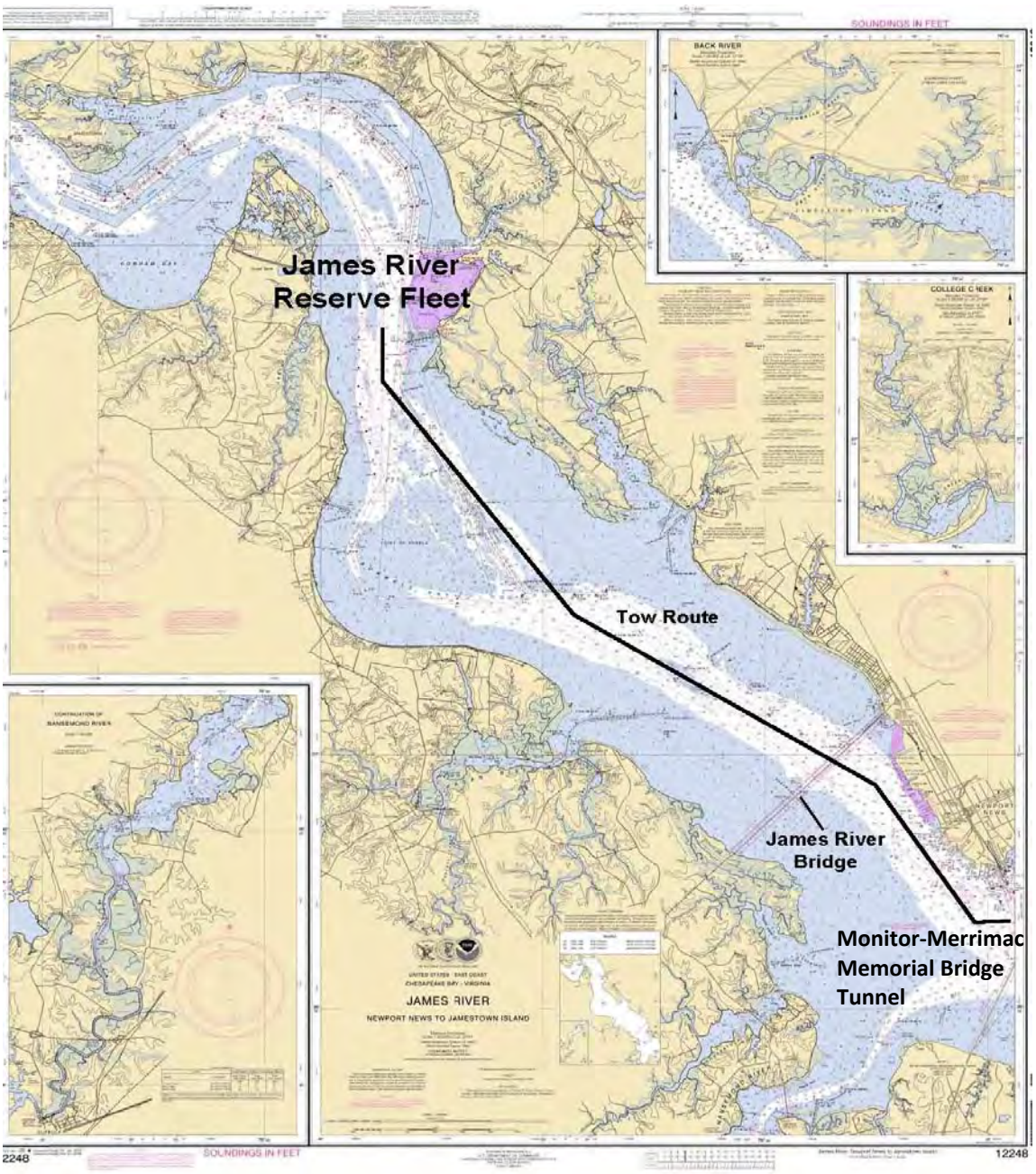


Figure 2.1 – Proposed Tow Route from JRRF to James River Bridge

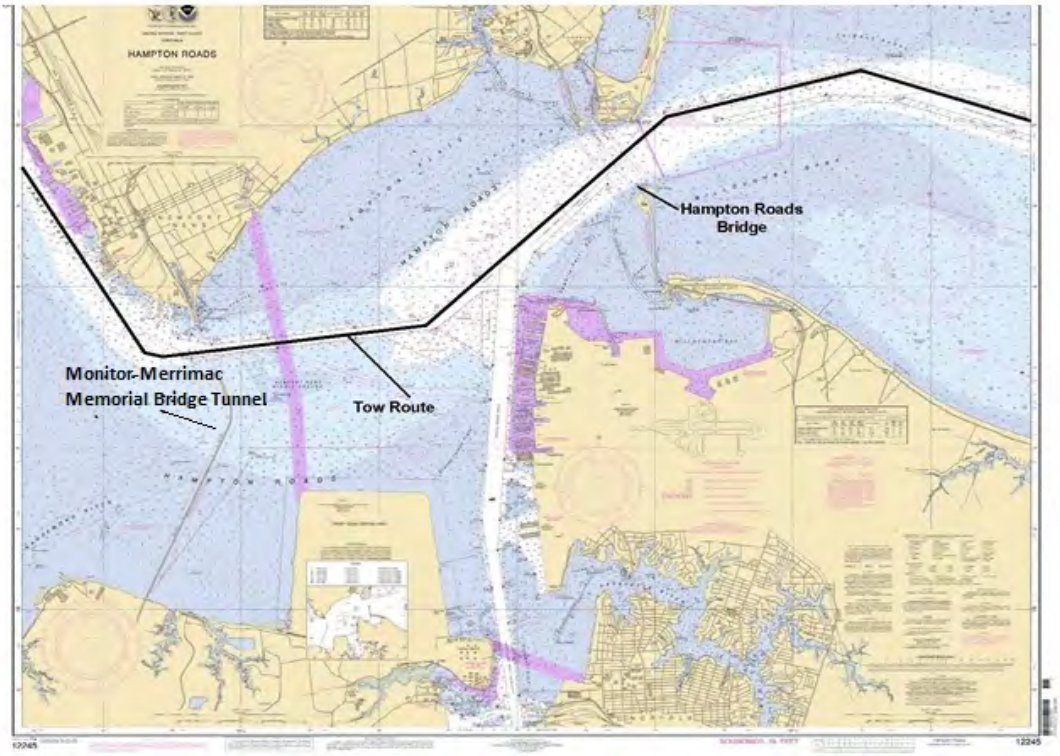


Figure 2.2 – Proposed Tow Route Monitor-Merrimac Memorial Bridge Tunnel to Hampton Roads Bridge

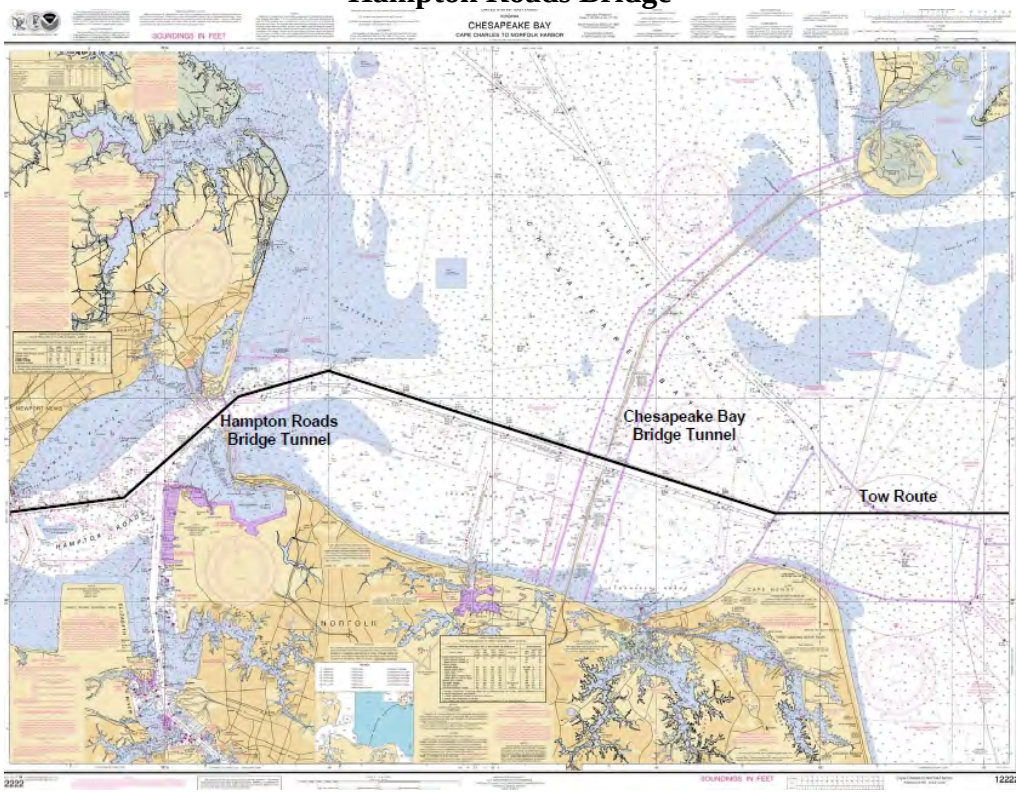


Figure 2.3 – Proposed Tow Route Hampton Roads Bridge to Chesapeake Bay Bridge Tunnel

It is anticipated that three radioactive waste categories would be generated during decommissioning activities: solid radioactive waste, liquid radioactive waste, and mixed waste. The radioactive potential contaminants of concern are primarily in the form of activation and corrosion products. All radioactive materials above guidance limits would be removed. The reactor pressure vessel (RPV) and ancillary components (e.g. piping, valves, pumps) within the containment vessel would be disconnected and removed piece by piece. It is anticipated that the RPV would remain intact and removed as one piece. The spent fuel storage tank would also be removed. The components would be enclosed in DOT approved containers for appropriate transport to an approved waste disposal site.

All remaining liquid hydrocarbons (fuels and oils), all semi-solid hydrocarbons (grease), and all loose paint which may contain lead, asbestos containing materials (ACM), and electrical wiring contaminated with radioactive materials would be removed and disposed of appropriately. All fuel tanks and inner bottoms would be pumped and cleaned. Bilge water, ballast water, and waste water would be removed, treated as necessary, and discharged or disposed of according to applicable regulations in 10 C.F.R. 20 for radioactive contaminants. All machinery, materials of salvageable quality, and pollutants would be removed or cleaned and left in place.

The Low Level Waste (LLW) material would be transported to a disposal location via secure methods and routes typically used to ship low-level radioactive waste. NRC, DOT, and Department of Energy (DOE) regulate the transport and disposal of radioactive waste, and have specific regulations for shipping and planning for potential accidents. Trucks and tractor-trailers, as well as railways and barges, are typically used to transport low-level radioactive wastes, and are placarded to comply with DOT requirements to indicate that hazardous materials are contained within the waste packages. Waste transporters are trained and licensed for the safe handling and transport of these materials. Local agencies and states have emergency response plans in place in case of accidents.

The radioactive waste removed from STURGIS would be disposed of according to Federal regulations and applicable state regulations at an approved facility. The NRC, DOE, EPA and individual states govern the operations of waste disposal sites to protect human health and the environment. Potential licensed commercial waste sites capable of receiving STURGIS waste include: Energy*Solutions* facility in Clive, Utah; Energy*Solutions* facility in Barnwell County, SC; and Waste Control Specialists (WCS) in Texas. WCS operates both a Compact Waste Facility (CWF) and a Federal Waste Facility (FWF). A potential government facility is the Nevada National Security Site (NNSS) in Nevada.

The proposed decommissioning process is described in detail in the STURGIS Decommissioning Plan in accordance with the guidance provided in NUREG-1757, *Consolidated Decommissioning Guidance*. Additionally, the proposed decommissioning of STURGIS will comply with the applicable requirements of 10 C.F.R 20.1402, the radiological criteria for unrestricted use.

<u>Dismantling</u>

The dismantling actions would potentially take place at one of three dismantling locations. Currently, Hampton Roads Metropolitan Area, VA, Baltimore, MD, and Brownsville, TX, can dismantle vessels completely, though Hampton Roads Metropolitan Area does not routinely perform this function. The other two locations, Charleston, SC and Galveston, TX, could only

provide partial dismantling, with the completion of the dismantling requiring transfer of the vessel to Baltimore, MD or Brownsville, TX. Procedures may vary slightly among facilities. The following general description is the basis for the analysis in Chapter 3.

Dismantling, also called ship breaking and ship scrapping, is any breaking down of a vessel's structure to dismantle the vessel. Two methods of dismantling a ship are the afloat (moored) method and the dry-dock method. Most ship dismantling is performed afloat in slips, which are dredged openings in the bank of the ship channel. Slips are generally 400 to 700 feet long and 100 to 120 feet wide at the entrance. A large winch at the head of the slip is used to drag the hull farther into the slip as work progresses: as material is removed from the ship, it becomes lighter and is pulled ashore, a little more each day. Booms are placed around the ship to help contain any spills.

There are trade-offs to both methods. The afloat method is generally less expensive than the dry-dock method, but this cost savings comes with greater difficulty than the dry-dock method. Dismantling a ship while in the water is more difficult because of the need to strip the inside of the ship before dismantling can begin. For the dry-dock method, workers can immediately begin separating the vessel into large sections, and then move the large sections to other areas to be cut into smaller sections.

Dismantling consists of removing mechanical, hydraulic and/or electronic components that have potential market value for resale or reuse and then physically cutting the remainder of the hull to allow the recycling of metals and other material by sale to salvage yards or smelters. Fixtures, anchors, chains, and small equipment are removed initially. Machinery components are typically removed throughout the recycling process. During the preparation phase of dismantling, small articles and the propellers are removed, which allows the hull to be pulled into shallow water where cutting usually takes place. As layers of the ship are cut, large reusable or recyclable components are removed as they become accessible (MARAD, 2009). Dismantling is a very labor-intensive, manual process.

When removed from the ship, ship machinery components are typically handled in the yard, or what is commonly called the scrap yard. These components, which may be stripped of valuable materials and/or cut into smaller pieces, may contain or be contaminated with hazardous materials, including asbestos, polychlorinated biphenyls (PCBs), lead based paint (LBP), oils, and fuels.

ACM is removed from cut lines and compartments so that large sections of the ship can be removed. The engine rooms usually contain the most asbestos and, therefore, take the longest for asbestos removal to be complete. Any PCB-containing materials that are accessible are removed, as well as any PCB-containing paint coatings from areas to be cut. Some PCB-containing materials may be left in place on the room-sized pieces, only to be removed after the large piece is moved to shore. Following asbestos and PCB removal, paint is removed, if required, from surfaces to be cut. Paint may have lead in it, and would be removed and disposed of in accordance with applicable regulations.

Scrap metals, including steel, aluminum, copper, copper nickel alloy, and lesser amounts of other metals, are sorted by grade and composition and sold to remelting firms or to scrap metal brokers. Other materials that are not recycled, including hazardous materials and other wastes, are disposed of according to applicable local, state and Federal laws and regulations.

The U.S. Navy and the MARAD work closely and cooperatively with the EPA and OSHA to ensure that domestic ship dismantling facilities have the capability of dismantling ships in a manner that protects the environment, worker safety and health. Contractors are required to have a Technical Operational Plan, an Environmental Management Plan, and a Safety and Health Management Plan in place for their work. USACE will ensure that the facility selected for the dismantlement meets the applicable requirements to support the dismantlement efforts.

2.2 Alternatives

Ten years ago, the USACE began exploring options to decommission STURGIS. Several options were considered by taking into account multiple waste types and availability of facilities. DOE and NRC licensed disposal facilities use different terms to classify radioactive and mixed waste. As a deactivated nuclear power plant, the vessel contains LLW, Mixed Low Level Waste (MLLW), Low Level Radioactive Waste (LLRW), and/or Low Level Mixed Waste (LLMW) which limits the number of disposal facilities that would accept the waste. Currently only four facilities are available for LLW/MLLW/LLRW/LLMW disposal as discussed in Section 2.1. From there, shipyards along the East and Gulf Coast were contacted that would have the ability to dismantle and/or decommission the vessel with respect to adequate facility size, crane capacity and other equipment. Currently, only two locations completely decommission and dismantle vessels and the other three locations could do some or the majority of the work for this project.

Due to the limited number of government-owned vessels requiring dismantling, there are a limited number of domestic recyclers and locations available[2]; however, no new dismantling facilities are needed to fulfill the Proposed Action. The Proposed Action may be implemented at private sector facilities located in one of four alternative locations: (1) Hampton Roads Metropolitan Area, VA; (2) Baltimore, MD; (3) Charleston, SC; and (4) Galveston, TX. If the Charleston, SC, or Galveston, TX, Alternative is selected, then facilities at Brownsville, TX or Baltimore, MD would be used to complete the vessel dismantling. The NEPA requires that the USACE evaluate a No-Action Alternative in addition to the other reasonable alternatives that are being analyzed for potential environmental impacts. The No-Action Alternative for this Proposed Action is to keep and maintain the vessel at MARAD JRRF, VA. These alternative locations are shown in the Project Area Map (Figure 2.4).

<u>Alternatives Screening Analysis</u>

STURGIS has the following characteristics, which were considered in the screening analysis:

Length Overall: 441.5 feet (ft)
Beam: 65.0 ft
Draft: 19.0 ft
Air draft: 69.5 ft
Current Displacement: 8,280 long tons

Screening criteria were developed to identify reasonable alternatives based on the purpose and need of the Proposed Action and to eliminate those that did not meet the criteria. For an alternative to be considered reasonable, it must:

- Be at an approved commercial domestic facility without limitations for working with radioactive materials and that is within a region that will allow for the disposal of

[2] If the future contract is awarded to a new dismantling location, this EA can be amended by a Supplemental EA.

LLW/MLLW/LLRW/LLMW at a licensed/permitted disposal facility.

- Be geographically close to the JRRF to minimize transportation costs and potential environmental impacts.
- Have waterways leading up to the facility that are currently deep enough to allow STURGIS to be towed to the site without dredging.

Figure 2.4 – Project Area Map with Alternatives

Alternatives Considered but Eliminated

The following alternatives were considered for STURGIS but ultimately eliminated from further review:

- A possible alternative decommissioning location investigated was Puget Sound Naval Shipyard and Intermediate Maintenance Facility in Bremerton, Washington. However, the Navy, as opposed to a commercial contractor, owns and operates the facility and the facility is reserved for Navy vessels. Additionally, the tow to the West coast is cost prohibitive when there are adequate facilities on the East coast.
- An alternative to donate STURGIS following decommissioning was considered rather than fully dismantling the vessel and disposing of wastes and recycling of eligible materials. However, the destructive process needed to remove the MH-1A reactor and other significant components and structures that make up the nuclear mid-section of the vessel during decommissioning, would leave only portions of the existing vessel remaining for use as a potential museum. In effect, most of the nuclear-related structures and components that make STURGIS unique and noteworthy from a historical perspective would be removed and thus would not be available as part of any future museum, thereby making a museum impractical. Additionally, prospective applicants for donations must provide proof of funding for a museum, which would be difficult to obtain for an essentially empty hull that would remain following the decommissioning and could lead to a protracted resolution process resulting in additional costs to maintain the remaining pieces of the STURGIS. Therefore, the USACE determined this alternative was not practical or economical.
- An alternative to dispose of STURGIS as an artificial reef following decommissioning was considered. However, after further investigation, it became apparent that there would be significant costs and uncertainties associated with minimizing the risks to ensure that the vessel would be safe for sinking rather than recycling eligible vessel materials or disposing of various types of wastes generated during decommissioning. Recycling of eligible materials would recover a portion of the decontamination and decommissioning costs that would otherwise not be realized under the reefing option. Stakeholders' acceptance of reefing a former vessel of this type presents uncertainties that would require additional resources and result in additional project costs necessary to address potential stakeholder concerns for an alternative that has limited probability of success and to maintain the remaining pieces of the STURGIS for an indefinite period of time pending resolution of this alternative. As such, the USACE determined that the reefing alternative would not be practical or economical.

2.3 Hampton Roads Metropolitan Area, Virginia, Alternative

This alternative would decommission and dismantle STURGIS in Hampton Roads Metropolitan Area, Virginia (Figure 2.5). A commercial facility at the southeastern tip of the Virginia peninsula along the James River has the capability of dismantling a vessel of this size and would not require construction of any new facilities. There have been numerous government and commercial vessels constructed and deactivated at the five pier areas and in the four drydocks at the facility, which routinely conducts ship repairs and upgrades, as well as scheduled and emergent maintenance work.

Hampton Roads Metropolitan Area is located approximately 13 nautical miles down the James River from JRRF. The transit down the James River would pass under the fixed James River Bridge. There would be no navigational concerns with this alternative, since the vessel has previously been dry-docked at this location and towed along this route. This alternative requires no open ocean towing and would likely have minimal to no impact from major weather events.

The towing to Hampton Roads Metropolitan Area meets the requirements for safety, navigation, environmental, and other safeguards. A possible tow route is shown in Figure 2.6.

Figure 2.5 – Hampton Roads Metropolitan Area Site

Figure 2.6 - Probable Tow Route – JRRF to Hampton Roads Metropolitan Area, VA

2.4 Baltimore, Maryland, Alternative

This alternative would decommission and dismantle STURGIS at a facility in Baltimore, Maryland (Figure 2.7). This commercial facility has the capability of dismantling a vessel of this size and would not require construction of any new facilities. There have been dozens of vessels, including Navy, MARAD and commercial vessels, dismantled at the Baltimore facility, which is capable of dismantling three or more vessels at a time at two piers and a graving dock. Also in Baltimore, the NS SAVANNAH, which was the first nuclear-powered cargo-passenger ship, is undergoing decommissioning activities that were covered under an EA prepared by MARAD.

The facility is located approximately 6.5 miles from Baltimore's Inner Harbor when entering the port from the Chesapeake Bay, approximately one mile from the main channel. There would be no navigational concerns with this alternative, since the vessel has previously been dry-docked in Baltimore and towed along this route. This alternative requires no open ocean towing and would likely have minimal to no impact from major weather events.

The transit from MARAD JRRF to Baltimore is approximately 169 nautical miles. Navigationally, continuing from Hampton Roads Metropolitan Area, one would pass over the Chesapeake Bay Bridge Tunnel and under the Chesapeake Channel Fixed Bridge with a horizontal clearance of 1500 ft and vertical clearance of 182 ft, confirmed by both the chart and the Coast Pilot. The shallowest part of the transit is going into the shipyard, where the chart depth shows 30 ft but there are existing permits for maintenance dredging to 39 ft. The rest of the transit uses a deep water channel that has a depth of 47 ft or greater. The tidal range in the Port of Baltimore is up to 2 ft (less for varying phases of the moon).

The towing to Baltimore meets the requirements for safety, navigation, environmental, and other safeguards. A possible tow route is shown in Figure 2.8.

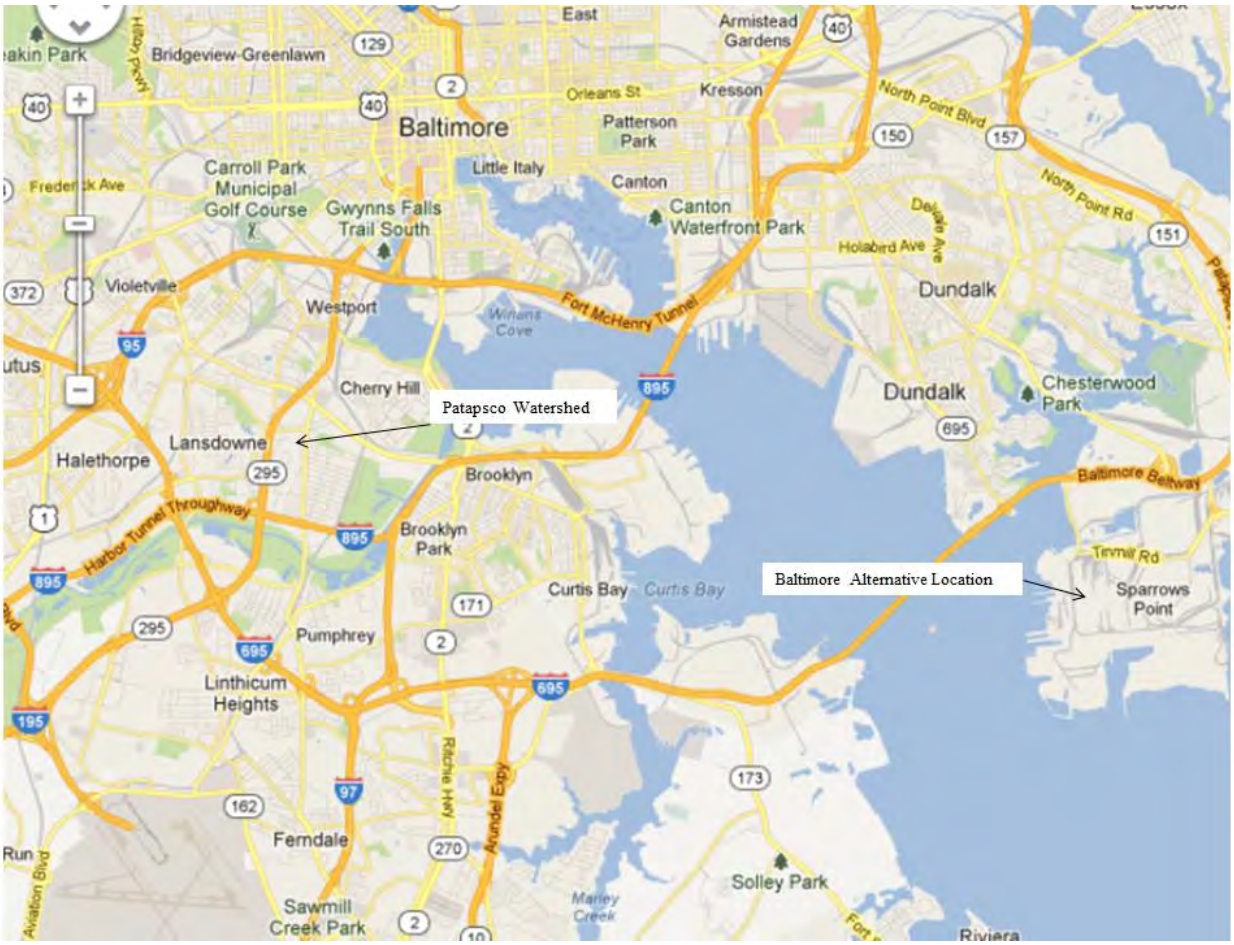


Figure 2.7 – Baltimore Site

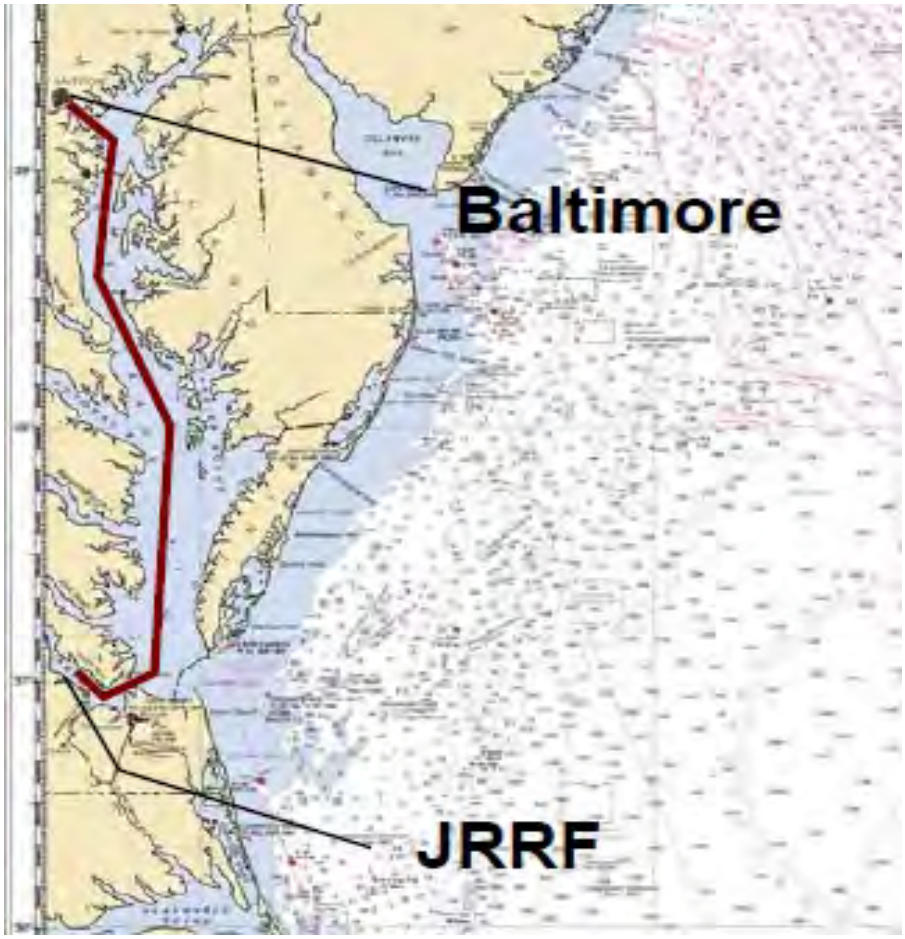


Figure 2.8 – Probable Tow Route – JRRF to Baltimore, MD

2.5 Charleston, South Carolina, Alternative

This alternative would decommission and partially dismantle STURGIS at a facility in Charleston, South Carolina. The commercial facility located in North Charleston along the upper Cooper River has the capability of decommissioning (but not dismantling) a vessel of this size in their four dry docks and adequate pier space, and would not require construction of any new facilities. The Charleston Naval Shipyard operated in this area until 1996 with work on numerous nuclear vessels.

Charleston is a coastal city located approximately 426 nautical miles from JRRF. The transit from the Atlantic Ocean entrance to the potential facility is approximately 12 miles. Navigationally, the ship channel has one bridge, the Arthur Ravenel Jr Bridge with 186 ft vertical clearance, thus there are no air draft issues. Dockside draft is 42 feet mean low water (MLW). The harbor channel is 45 feet MLW and the entrance channel is 47 feet MLW.

This alternative would include potential towing 552 nautical miles to Baltimore, MD, or 1,426 nautical miles to Brownsville, TX, for the completion of vessel dismantling after decommissioning activities are complete.

The towing for this alternative meets the requirements for safety, navigation, environmental, and other safeguards. The towing would include open ocean and would have a potential for impacts from major weather events. A possible tow route to Charleston and possible tow routes from

Charleston to Baltimore, MD or Brownsville, TX are shown in Figure 2.9. The location of the Charleston facility is shown in Figure 2.10.

Figure 2.9 - Probable Tow Route – JRRF to Charleston, SC then to Dismantling Site

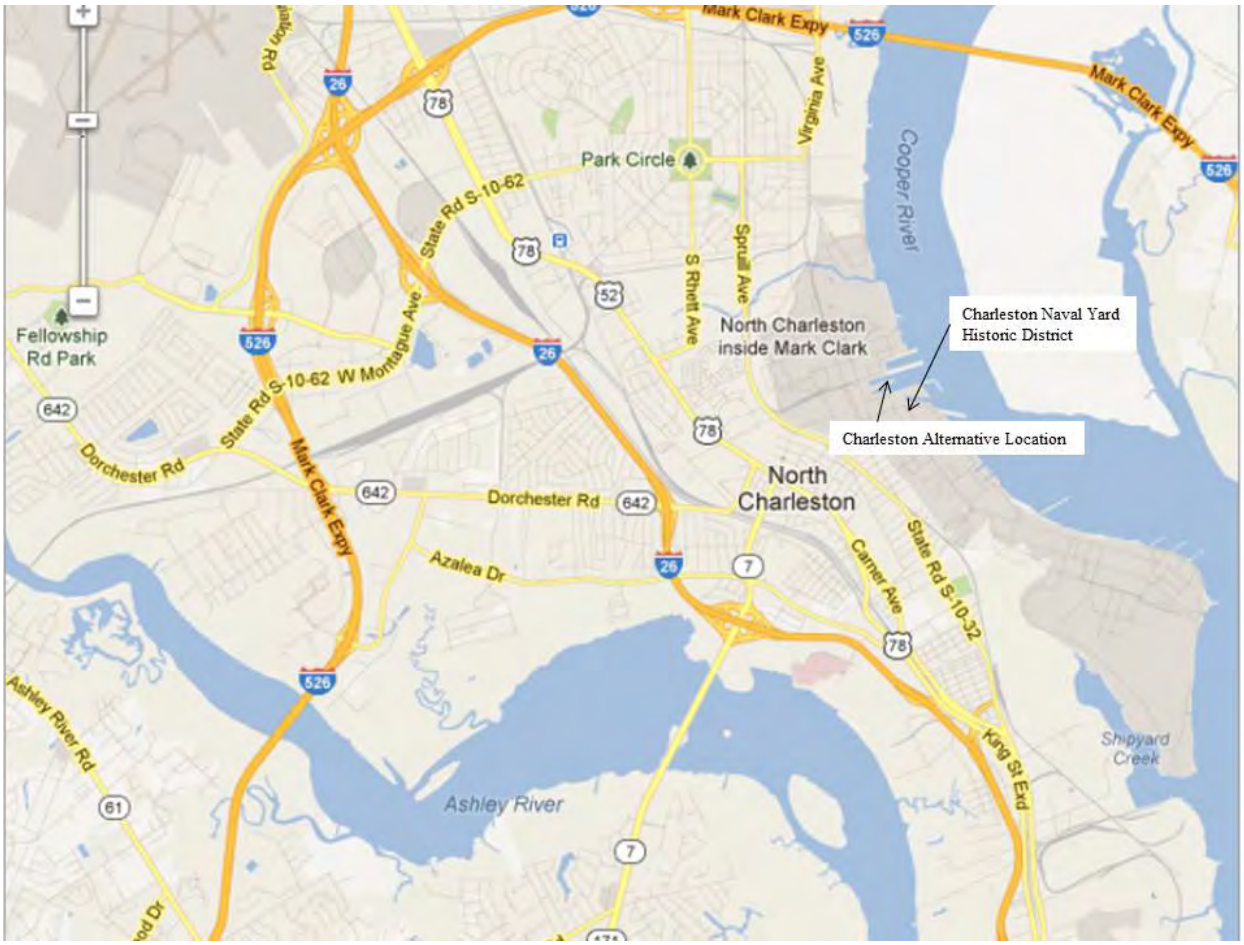


Figure 2.10 - Charleston Site

2.6 Galveston, Texas, Alternative

This alternative would decommission and partially dismantle STURGIS at a facility in Galveston, Texas. The commercial facility has a small (300 ft) dry dock and adequate dockside space for decommissioning a vessel of this size (but no accommodations for dismantling) and would not require construction of any new facilities.

Galveston is a coastal city located approximately 1,659 nautical miles from JRRF. The Houston-Galveston Navigation Channels are located along the Gulf of Mexico coast in eastern Texas. These channels include the Galveston Entrance Channel; Galveston Channel; Bolivar Roads; Texas City Channel; and the Houston Ship Channel, which branches off the Bolivar Roads Channel, traverses Galveston Bay, and ends in Houston. The Galveston Bay segment of the Houston Ship Channel is 40 feet deep below mean low tide. Navigationally, there are no bridges or other obstructions and the water has an adequate depth. See Figure 2.11.

After decommissioning, this alternative would include potential towing from Galveston 262 nautical miles along the Texas coastline and Brownsville Ship Channel (BSC) to Brownsville, TX, for vessel dismantling. There are multiple dismantling facilities in Brownsville that can complete this work. See Figure 2.12. There have been hundreds of vessels, including Navy, MARAD and commercial vessels, dismantled along the BSC in 7 slots that can dismantle up to

20 vessels at one time. There are current dismantling and recycling activities occurring under Navy and MARAD contracts.

The towing for this alternative meets the requirements for safety, navigation, environmental, and other safeguards. The towing would include open ocean and would have a potential for impacts from major weather events. A possible tow route to Galveston is shown in Figure 2.13.

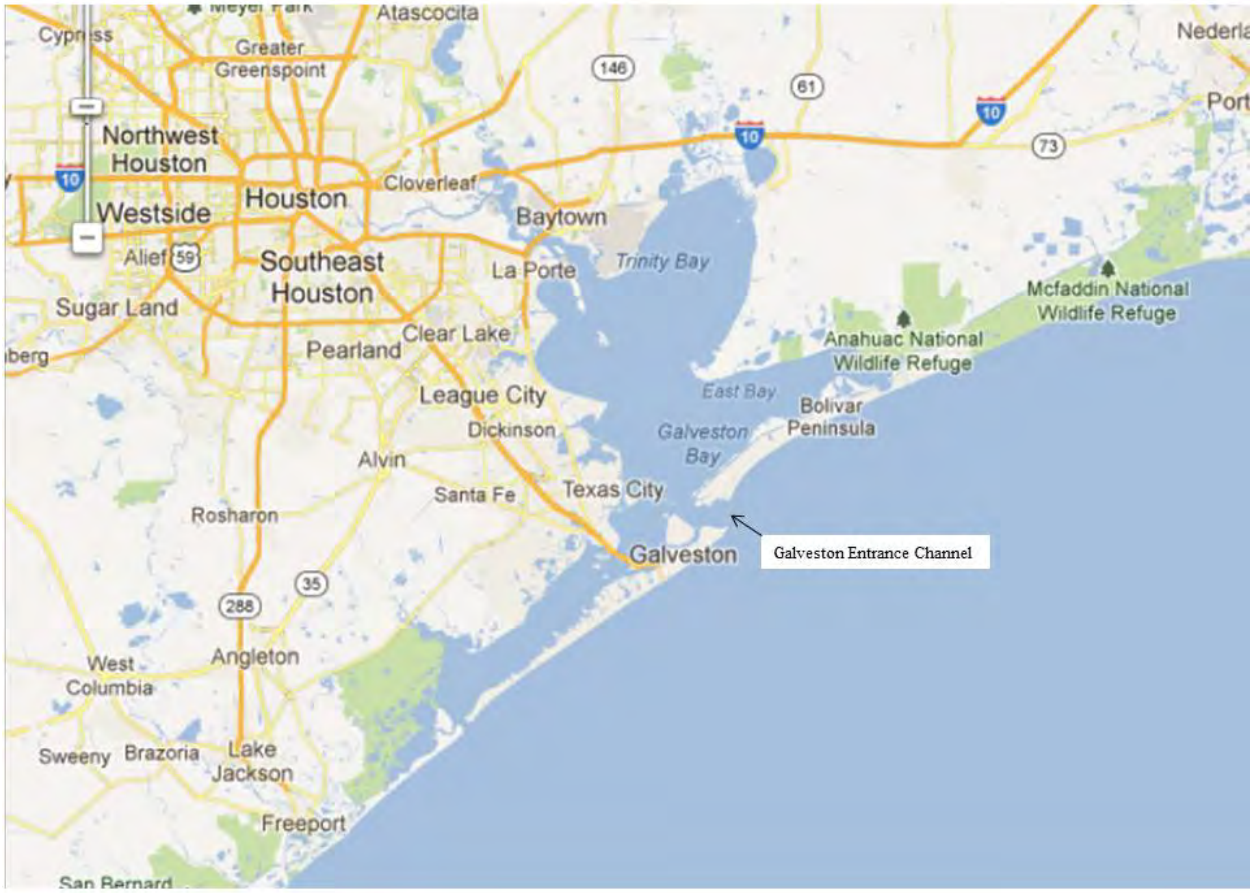


Figure 2.11 – Galveston Site

2.7 No-Action Alternative

Under the No-Action Alternative, STURGIS would not be decommissioned and disposal would not occur. The No-Action Alternative maintains the status quo with STURGIS remaining at JRRF. It would require the USACE to maintain its license with the ARO, as well as continue the regular maintenance of the vessel. The status quo does not meet USACE mission objectives to decommission their nuclear reactors and terminate their possession permit. Therefore, this alternative is not reasonable.

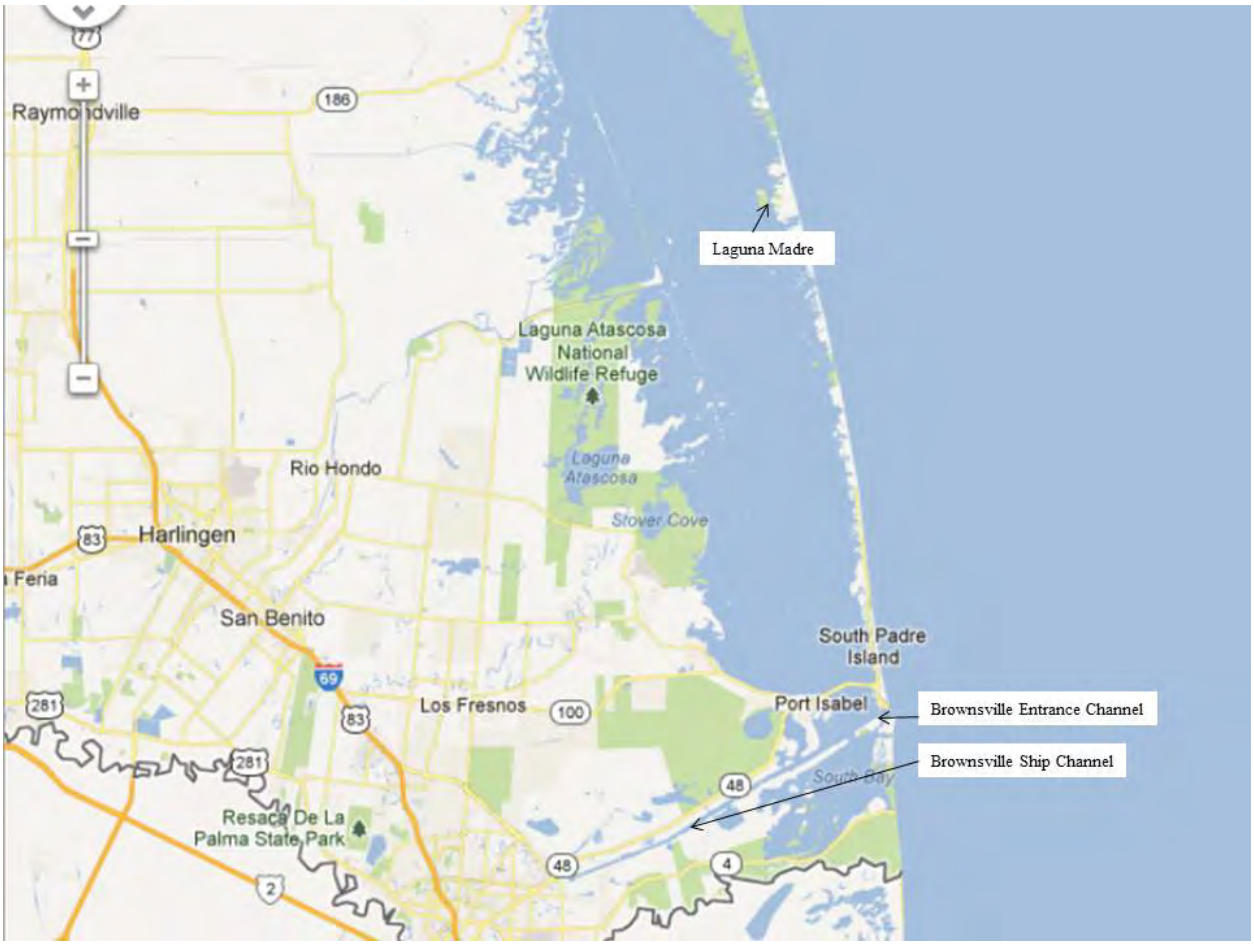


Figure 2.12 – Brownsville Site

Figure 2.13 - Probable Tow Route – JRRF to Galveston, TX then Brownsville, TX

2.8 Summary of Impacts

This EA has determined that implementation of the Proposed Action or the No-Action Alternative would not result in significant impacts to any resource areas. The environmental consequences associated with implementation of the Proposed Action and the No-Action alternative are presented and compared in Table 2-2. For a detailed description and analysis, refer to Chapter 3, Affected Environment and Environmental Consequences.

Table 2-2. Summary of Impacts

Resource Area	Hampton Roads Metropolitan Area, VA, Alternative	Baltimore, MD, Alternative	Charleston, SC, Alternative	Galveston, TX, Alternative	Brownsville, TX, Dismantling Option Location	No-Action Alternative
Cultural Resources	• Adverse effect on the vessel. Compliance with VADHR prior to dismantling will mitigate the adverse effect; thus no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with VADHR prior to dismantling will mitigate the adverse effect; thus no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with VADHR prior to dismantling will mitigate the adverse effect; thus no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with VADHR prior to dismantling will mitigate the adverse effect; thus no significant impact. • No adverse effects on other cultural resources.	• Adverse effect on the vessel. Compliance with VADHR prior to dismantling will mitigate the adverse effect; thus no significant impact. • No adverse effects on other cultural resources.	No adverse effects
Water Resources	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning and dismantling.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning and dismantling.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from decommissioning.	Insignificant temporary impacts of turbidity and potential spills from towing activities. Compliance with Federal, state, and local regulations and permit requirements would avoid significant impacts from dismantling.	No significant impacts
Biological Resources	• Towing may affect but is not likely to	• Towing may affect but is not	• Towing may affect but is not	• Towing may affect but is not	• Towing may affect but is not	No significant

Resource Area	Hampton Roads Metropolitan Area, VA, Alternative	Baltimore, MD, Alternative	Charleston, SC, Alternative	Galveston, TX, Alternative	Brownsville, TX, Dismantling Option Location	No-Action Alternative
	adversely affect threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	likely to adversely affect threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	likely to adversely affect threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	likely to adversely affect threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	likely to adversely affect threatened and endangered species • No reasonably foreseeable takes are expected for marine mammals. • Insignificant temporary impacts of turbidity from towing activities. • No effect on Essential Fish Habitat.	impacts
Air Quality	Insignificant temporary impacts during towing, decommissioning, and dismantling.	Insignificant temporary impacts during towing, decommissioning, and dismantling.	Insignificant temporary impacts during towing and decommissioning.	Insignificant temporary impacts during towing and decommissioning.	Insignificant temporary impacts during towing and dismantling.	No impacts
Waste Management	No significant impacts from all activities.	No significant impacts from all activities.	No significant impacts from all activities.	No significant impacts from all activities.	No significant impacts from all activities.	No impacts
Health and Safety	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No significant impacts to health and safety from all activities.	No impacts

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Cultural Resources

3.1.1 Regulatory Setting

Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historical properties. The lead Federal agency must also allow the Advisory Council on Historic Preservation (ACHP) an opportunity to participate in Section 106 consultation whenever it determines that the proposed undertaking will adversely affect historic properties or resources that are eligible for listing in the NRHP. The Federal agency, in consultation with the relevant SHPO, the ACHP, and other consulting parties, must consider methods that would minimize, mitigate, or avoid any adverse effects that such undertakings would cause on properties that are listed in the NRHP, or that are determined to be eligible for listing. Sections 106 and 110 of the NHPA require Federal agencies to identify, evaluate, inventory, and protect historic properties (that are eligible for listing in or are already listed in the NRHP) that are under their jurisdiction and control. The NHPA imposes no absolute preservation requirements; however, the USACE must follow and document mandated procedures for any USACE decision regarding undertakings that may affect cultural resources.

The Department of the Interior (DOI), through the National Park Service (NPS), established four criteria for determining whether a property is eligible for listing in the NRHP. The four evaluation criteria are codified in 36 C.F.R. §60.4. As a result, vessels that meet the following conditions would be determined eligible for listing in the NRHP:

A. are associated with events that have made a significant contribution to the broad patterns of our history; or
B. are associated with the lives of persons significant in our past; or
C. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. have yielded, or may be likely to yield, information important in prehistory or history.

The USACE, in considering listing a historical vessel in the NRHP under Criteria A, has prepared an Intensive Level Survey and consulted with the appropriate SHPO, the VA DHR.

Requirements regarding consultation with consulting parties such as the ACHP, SHPO, Tribal Historic Preservation Office (THPO), Indian tribes, and interested public vary on a case by case basis. In general, Federal agencies should initiate consultation at the earliest stage in the planning process to allow consideration of all possible alternatives that would minimize, mitigate, or avoid adverse effects to a historic property.

3.1.2 Affected Environment

STURGIS meets the criteria to be eligible for listing in the NRHP under 36 C.F.R. §60.4. STURGIS, a former World War II Liberty ship, was converted into a mobile pressurized water nuclear reactor power plant and was operated in the Panama Canal Zone from 1968 to 1976. As result, STURGIS qualifies for NRHP consideration under Criterion A. Due to the physical changes this vessel has undergone from its beginnings as a Liberty Ship, STURGIS is not

eligible under Criterion C. USACE initiated the National Historic Preservation Act (NHPA) Section 106 consultation with the VA DHR which is the SHPO. USACE also invited non-government consulting parties (see Appendix B) to participate in the Section 106 process.

A Decommissioning Plan and Historical Site Assessment (HSA) are being developed to support the termination of the ARO permit. Historical documents related to STURGIS are maintained and stored at the Humphreys Engineering Center in Alexandria, VA and the USACE Baltimore and Philadelphia District offices. Historical documents include blueprints, plans, photographs, surveys, design documents and drawings, as well as operational manuals. The USACE initiated archiving efforts to digitize the STURGIS historical documents and to create a historical document repository.

The USACE has prepared an Intensive Level Survey and consulted with the VA DHR (SHPO).

A Memorandum of Agreement (MOA) with the VA DHR will establish responsibilities for the USACE to complete prior to moving forward with the Proposed Action. USACE has agreed upon the following mitigation measures with the VA DHR as part of the MOA:

A. 1. The Baltimore District shall ensure that a non-technical exhibit, WebPage, Internet video, brochure, interpretive display, video, wayside, or other interpretive/educational mechanism is prepared that incorporates and synthesizes all of the available documentation regarding the history and significance of the *STURGIS* barge. The documentation shall emphasize the nature of the electrical power generation capabilities of the *STURGIS* during its 10 years of service in the Panama Canal Zone, and will also address the origins of the vessel as a World War II -era Liberty Ship and its post-operational "mothballed" status after its retirement from the Panama Canal Zone. This documentation will be suitable for dissemination to the general interested public with the goal of creating a better understanding of the history of the *STURGIS* barge. This documentation will include information obtained from the USACE's Office of History, including motion picture film, photographs, and documents, as appropriate.

   2. The Baltimore District is in possession of literally thousands of electronic copies of primary measured drawings, architectural plans (including as-builts), photographs, and related material that meet the goals of Level II Historic American Engineering Record documentation, i.e., to provide comprehensive information on the historical, architectural, and technological significance of the vessel. Using these primary resources, the documentation to be produced for Public Interpretation under Stipulation I.A.1 of the draft MOA will satisfy the goals of HAER documentation. This documentation shall include a complete history of the *STURGIS* design with respect to both the nuclear reactor – MH-1A and the vessel itself. Utilizing existing documentation, the Baltimore District shall prepare a complete historical record of the *STURGIS*. The Baltimore District shall ensure that all historical documents are legible for public use. Additionally, all video footage shall be updated for viewing using today's technologies.

B. The Baltimore District shall produce a plan for implementing Stipulation IA within six (6) months of the execution of this MOA. The implementation plan shall be provided to the Virginia SHPO and the other consulting parties to this MOA for review and comment for a period of thirty (30) days. The plan shall include the proposed design, text, medium,

venue for installation, and schedule for implementation of the non-technical public interpretation mechanism. The Baltimore District shall take the Virginia SHPO's and consulting parties' comments into account in developing the final public interpretation mechanism. If the Virginia SHPO or the other consulting parties do not comment on the plan within the thirty (30) day review period the Baltimore District may assume that the non-responding party has no comment.

C. The Baltimore District shall provide the Virginia SHPO and the other consulting parties thirty (30) days to review and comment on a draft of the interpretation mechanism resulting from the plan in Stipulation I.B. above. If the Virginia SHPO or the other consulting parties do not comment on the plan within the thirty (30) day review period the Baltimore District may assume that the non-responding party has no comment.

D. The Baltimore District shall complete the requirements of Stipulation IA within two (2) years of the execution of this MOA.

E. The Baltimore District shall provide the Virginia SHPO two (2) archival bound copies and one (1) electronic copy on a preserved disc of the completed public interpretation mechanism and any written materials. The Baltimore District shall also provide one (1) electronic copy on a preserved disc of the completed public interpretation mechanism and any written materials to the other consulting parties in a medium of their choice, one (1) electronic copy on a preserved disc and one (1) archival bound copy to the Isle of Wight County public library system, and other interested parties with electronic access to the completed public interpretation mechanism, and copies of any written materials.

3.1.2.1 JRRF, Joint Base Langley Eustis, VA

STURGIS is currently moored at the JRRF at Joint Base Langley Eustis, VA. The JRRF currently contains 18 additional moored ships, all of which are within the MARAD inventory designated for disposal. The land-based facilities of the JRRF are located at Joint Base Langley Eustis and consist of buildings and sheds that provide administrative and support services to the fleet. The JRRF site does not contain any sensitive historical, cultural or archaeological resources that would be impacted by the Proposed Action.

3.1.2.2 Hampton Roads Metropolitan Area, VA

Hampton Roads Metropolitan Area is located on the James River, a tributary of the Chesapeake Bay, in the Hampton Roads region of Virginia. Hampton Roads is an industrial, commercial, and residential area and is home to manufacturing, shipbuilding, tourism, and military facilities, as well as businesses that support these industries. The dismantling facility in Hampton Roads Metropolitan Area, VA, operates along the industrial estuaries surrounding the Norfolk Naval Shipyard. The area is zoned "Heavy Industrial" by the City of Hampton Roads Metropolitan Area and classified as an "Intensely Developed Area" (IDA) under the Chesapeake Bay Preservation Act. The dismantling facility does not satisfy eligibility criteria for listing in the NRHP and is not considered a historic property. The facility does not operate under any restrictions pertaining to historic or cultural resources. Therefore, it is concluded that this proposed location does not contain any sensitive historical, cultural or archaeological resources that would be impacted by the Proposed Action.

3.1.2.3 Baltimore, MD

The Port of Baltimore is located in the Baltimore-Towson metropolitan area that lies above the Chesapeake Bay at the head of the Patapsco River Estuary. The Port of Baltimore is an important seaport with ship repair facilities and a richly diverse economy. Reaching the sea through the Chesapeake Bay and the Chesapeake and Delaware Canal, it is a major shipping hub for automobiles. In addition to the seaport, the Port of Baltimore is a busy center for education, healthcare, finance, and insurance industries, as well as Federal government and military installations. Manufacturers in Baltimore produce processed foods, steel, electronics, aircraft parts, and paper and plastic products.

Among the shipyards in the Port of Baltimore, the Sparrows Point Shipyard (Maryland Historic Trust [MHT] Inventory No. BA-3208) is identified as a historic district that is eligible for listing in the NRHP. The Sparrows Point Shipyard Industrial Complex is a 226-acre facility constructed in 1889 and was the site of ship construction from 1891 to the early 1990s. Current operations consist solely of ship dismantling and scrapping. Due to previous extensive ground disturbances from industrial land use, no sensitive terrestrial archaeological resources are expected within the Sparrows Point Shipyard. Based on a marine archaeological remote sensing survey undertaken in July 2006 (Pelletier et al., 2006), no submerged cultural deposits exist in the Sparrows Point Shipyard area. The Port of Baltimore does not contain any resources that would be impacted by the Proposed Action.

3.1.2.4 Charleston, SC

The Port of Charleston is within the Charleston-North Charleston-Summerville metropolitan area and located on the estuaries where the Ashley and Cooper Rivers meet. It is also a historic urban center with deep roots in the history of the country. The Port of Charleston is the sixth biggest container port in the United States by cargo value, and it is a mainstay of the local economy.

The Port of Charleston's waterfront area called Rainbow Row boasts many historic homes. The Charleston Naval Yard Historic District (CNYHD) was designated a National Register Historic District in August 2006. The historic district, shown in Figure 2.10, includes 57 contributing historic buildings, structures, and objects associated with the Charleston Navy Yard, which served the United States Navy from 1903 to 1996. The historic resources in the district include machine shops, storage facilities, a power house, dry docks, piers, administrative facilities, and other buildings and structures related to ship construction and repair. These historic resources reflect the evolution of the Navy Yard and the U.S. Navy throughout the 20th century, especially during and around World War II, when the yard experienced its most dramatic expansion. Although the Charleston ship decommissioning facility is in close proximity to the CNYHD, the facility is highly industrial and does not contain any resources that would be impacted by the Proposed Action.

3.1.2.5 Galveston, TX

With more than 850 acres of port facilities, the Port of Galveston is the oldest port in the Gulf of Mexico west of New Orleans. The marine repair facilities provide maintenance and repair services of vessels and drilling rigs. According to the Texas Historic Sites Atlas, there are two seaside historic properties near the decommissioning facility. The tall ship Elissa and Pier 19 Mosquito Fleet Berth are listed in the NRHPs. However, the decommissioning facility is not considered a historic property and does not operate under any restrictions pertaining to historic or

cultural resources. Therefore, it is concluded that this proposed location does not contain any sensitive historical, cultural or archaeological resources that would be impacted by the Proposed Action.

3.1.2.6 Brownsville, TX

The Port of Brownsville lies on the shores of the Rio Grande River across from Matamoros, Mexico, 22 miles from the Gulf of Mexico. The port complex and industrial and agribusiness center includes Brownsville, Harlingen, and San Benito. The Port of Brownsville hosts industries in the areas of petrochemicals, food processing, tourism, and aircraft repair.

The Port of Brownsville has been in operation since 1936 when the BSC was originally dredged. It has undergone vast growth since then and can support large vessels. The ship dismantling facility is not listed in the NRHP and does not operate under any restrictions pertaining to historic or cultural resources. Therefore, it is concluded that the Brownsville, TX, location does not contain any sensitive historic, cultural or archaeological resources that could be impacted by the Proposed Action.

3.1.3 Environmental Consequences

STURGIS is eligible for listing in the NRHP and the USACE has determined that the Proposed Action will have an adverse effect on the vessel. According to 36 C.F.R. § 800.5(a)(1), an adverse effect results "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."

Prior to dismantling the vessel, the USACE shall follow the MOA stipulations discussed in Section 3.1.2 to mitigate the adverse effect resulting from the Federal undertaking.

For any alternative, the Proposed Action would not combine with impacts from other past or future projects in such a manner that would create a cumulative impact.

3.1.3.1 Hampton Roads Metropolitan Area, VA, Alternative

The dismantling of STURGIS would require demolition of the ship. There would, therefore, be an adverse effect from the Proposed Action; however, the USACE has undergone the Section 106 process and the MOA will be followed for any/all mitigation for the vessel. The USACE provided the VA DHR with the Electronic Project Information Exchange (ePIX) form for the proposed action (see Appendix B) and an intensive level Phase II survey. VA DHR determined the vessel to be eligible for listing in the NRHP and consultation resulted in the MOA.

The towing of STURGIS from its current location to Hampton Roads Metropolitan Area does not require dredging, so there would be no impact on any submerged maritime archaeological sites. There are no historic properties in JRRF and Hampton Roads Metropolitan Area to be affected. The proposed action does not require construction; besides the vessel itself, there would be no effects to cultural resources as a result of this alternative. Appendix B provides concurrence from DHR agreeing with the finding of no historic properties affected.

3.1.3.2 Baltimore, MD, Alternative

Under this option, the ship would be towed to the dismantling facility in Baltimore, MD. Impacts of decommissioning and dismantling on cultural resources would be the same as those described

for the Hampton Roads Metropolitan Area Alternative. Besides the vessel itself, there would be no effect on historic property from this alternative. Dismantling of the vessel would not affect any historic properties in the Port of Baltimore.

3.1.3.3 Charleston, SC, Alternative

Under this option, the ship would be towed to the decommissioning facility in Charleston, SC for the decommissioning of the reactor. Final ship dismantling would be conducted in Brownsville, TX or Baltimore, MD. Impacts of decommissioning on cultural resources would be the same as those described for the Hampton Roads Metropolitan Area Alternative. Besides the vessel itself, there would be no effect on historic property from this alternative. Dismantling of the vessel would not affect any historic properties at Brownsville, TX or Baltimore, MD.

3.1.3.4 Galveston, TX, Alternative

Under this option, the ship would be towed to the decommissioning facility in Galveston, TX for the decommissioning of the reactor. Final ship dismantling would be conducted in Brownsville, TX. Impacts of decommissioning on cultural resources would be the same as those described for the Hampton Roads Metropolitan Area Alternative. Besides the vessel itself, there would be no effect on historic property from this alternative. Dismantling of the vessel would not affect any historic properties at Brownsville, TX.

3.1.3.5 No-Action Alternative

Under the No-Action Alternative, the vessel would remain in JRRF, VA and there would be no adverse effects on cultural resources at the facility, or on the vessel itself. The vessel would continue to be maintained in SAFSTOR condition. This alternative would require USACE to maintain its license with the ARO, as well as continue the regular maintenance of the vessel.

3.2 Water Resources

This section describes the existing conditions and potential environmental consequences for water resources, including water and sediment quality in the project area. Surface water includes bays and estuaries, lakes and ponds, rivers and creeks, and overland precipitation runoff. Sediment quality describes the chemical and physical composition of sediment in bodies of water. For the purposes of this analysis, water and sediment quality is evaluated with respect to possible disturbances of existing conditions associated with the proposed project activities. This project is entirely in-water and all considered alternatives are at hard shorelines developed with piers and other facilities, thus no groundwater would be impacted.

3.2.1 Regulatory Setting

Water resource regulations focus on the protection of beneficial uses of water within the vicinity of the project area. The principal Federal law protecting water quality is the CWA, as amended (33 U.S.C. § 1251 et seq.), which is enforced by the U.S. EPA. Under Section 303(d) of the CWA and EPA's Water Quality Planning and Management Regulations (40 C.F.R. Part 130). States are required to develop total maximum daily loads (TMDLs) for impaired waterbodies unable to meet their designated uses. A TMDL "establishes the amount of a pollutant that a waterbody can assimilate without exceeding its water quality standard for that pollutant."

Section 307(c) of the CZMA requires that any Federal actions that would directly or indirectly affect any land or water use or natural resource of the coastal zone must be consistent to the

maximum extent practicable with the state program. The states of Virginia, Maryland, South Carolina, and Texas have prepared Federally-approved Coastal Management Programs (CMPs).

3.2.2 Affected Environment

3.2.2.1 JRRF, Joint Base Langley Eustis, VA

Water Quality

Joint Base Langley Eustis is located within the city of Hampton Roads Metropolitan Area, Virginia. The area around the post is used for a combination of rural, residential, commercial and industrial activities. The post is bounded by the James River to the west and south and the Warwick River to the east. These rivers are commonly used for recreational boating and fishing activities. Commercial fishing also occurs in the vicinity of the post.

Past projects include replacement of a concrete pier and break wall constructed approximately fifteen years ago that was covered under an EA, mooring dolphins replaced around a dockside in 2012 covered by a CATEX, and smaller routine dockside/pier maintenance work covered by CATEX documents. Future projects include replacement of original JRRF dilapidated pilings and a break wall planned for FY 2013, which will require USACE and VA Marine Resources Commission permits and be covered under a CATEX.

The James River basin is 410 miles long and drains approximately 10,300 square miles of land throughout Virginia before emptying into the Chesapeake Bay. The JRRF is located approximately 30 miles upstream from the Chesapeake Bay, in tidally influenced, brackish waters.

Water quality impairments have been detected throughout the Chesapeake Bay and its tributaries. James River is designated as a Class II water body and has been placed on the Section 303(d) list of impaired water bodies. Water quality designation is EPA Category 5 (waters are impaired or threatened and a TMDL is needed). All segments of the James River failed to meet chlorophyll a criteria due to the presence of algal blooms. All segments of the James River, except for the lower tidal fresh zone, attained the assessed dissolved oxygen criteria. Benthic communities are impaired due to inadequate conditions for growth of submerged aquatic vegetation.

The prevalent forms of pollution affecting the James River are sediment, nitrogen and phosphorus. High levels of nitrogen, phosphorus and sediment enter the water from a variety of sources, including agricultural operations, urban and suburban runoff, wastewater facilities, onsite septic systems, air pollution, and other sources. In December 2010, the EPA established the Chesapeake Bay TMDL, which includes limits on nitrogen, phosphorus and sediment. The James River is the only river in the Chesapeake Bay watershed with a numeric TMDL standard for chlorophyll. As a result, in addition to nutrient and sediment reductions necessary to help achieve dissolved oxygen standards in the mainstream of the bay, EPA has called for additional reductions to meet the James River specific chlorophyll standard.

Sediment Quality

Sediment pollution continues to have widespread impacts throughout the James River system. These impacts include silting in critical stream and river habitat, as well as clouding the water and blocking sunlight from underwater grasses. James River is susceptible to high pollution levels during years with heavy rainfall. In 2010, the sediment pollution level was above the TMDL.

Areas of the lower James River (e.g. Willoughby Bay, Hampton Roads Metropolitan Area) have been observed to contain toxic sediments. Further up the James River, extensive contaminant data are lacking, but the river has health advisories due to historical Kepone contamination. Kepone is a toxic pesticide that was discharged illegally from a plant in Hopewell, Virginia between 1966 and 1974. State officials closed the plant in 1975. The Virginia Department of Environmental Quality (DEQ) and the Virginia Department of Health (VDH) regulate Kepone in the James River. Kepone settles in the soils in the bed of the rivers and creeks and is an issue when dredging channels in contaminated areas. Additionally, VDH has issued PCB fish consumption advisories for the James River, due to potentially harmful levels of PCBs in the fish.

3.2.2.2 Hampton Roads Metropolitan Area, VA

Water Quality

Spanning more than 550 acres, Hampton Roads Metropolitan Area, VA is at the mouth of the Chesapeake Bay and occupies 2.5 miles of waterfront property along the James River. Given the heavy industrial nature of the project area, water quality is similar to the current location at JRRF.

New nuclear-powered aircraft carriers, including Gerald R. Ford (CVN 78) and John F. Kennedy (CVN 79), are currently under construction, and the inactivation of USS Enterprise (CVN 65), which is the world's first nuclear-powered aircraft carrier and the only ship of its class, is scheduled to begin in 2013.

Tributyltin (TBT) is a regional water quality issue and is regulated by the EPA and DEQ. TBT is used by the local shipyards as an antifouling paint and is extremely toxic to shellfish. Shipyards are either banned from using TBT, or have an annual load limit of 5 grams per year or a water concentration limit of 0.72 micrograms per liter. If a banned facility desires to use TBT, they are required to notify DEQ and modify their permit. DEQ and VDH close beaches in Hampton Roads Metropolitan Area and other localities because of high fecal coliform counts that resulted in an ongoing TMDL study for fecal coliform for the Warwick River, James River, and Deep Creek.

Sediment Quality

Given the heavy industrial nature of the project area, sediment quality is anticipated to be poor and similar to the current vessel location at JRRF. Fish consumption use is impaired based on mercury and PCB found in fish tissue. The Navy conducts environmental monitoring in harbors where U.S. naval nuclear-powered ships have been regularly based, overhauled, or built. Results from the 2010 survey indicated that no radioactivity was detected in the sediment and marine life samples taken from Hampton Roads Metropolitan Area (U.S. Navy, 2011).

3.2.2.3 Baltimore, MD

Water Quality

The Baltimore facility has pier improvements for future operations as a long-term project that has been permitted and is currently under construction, as well as proposed future dredging of its channel to maintenance depth that is currently not scheduled.

Water quality at the Baltimore Harbor is impaired due to contamination by chlordane, PCBs, metals, low oxygen, and bacteria in tidal waters. Siltation in non-tidal waters, a consequence of

urban runoff, habitat alteration, and channelization, results in the failure of some areas to meet all designated uses. Fish consumption advisories are in place for Baltimore Harbor (MDE, 2011).

Baltimore Harbor lies in the Patapsco watershed. The Patapsco River is a 39-mile-long river in central Maryland which flows into Chesapeake Bay. The river's tidal portion forms the harbor for the city of Baltimore. Maryland Department of the Environment (MDE) has designated the Patapsco River as Classification II for Tidal Water indicating migratory spawning and nursery use (February 1 through May 31), shallow water submerged aquatic vegetation use (April 1 through October 30), open water fish and shellfish use (January 1 through December 31), seasonal deep water fish and shellfish use (June 1 through July 30), and seasonal deep channel refuge (June 1 through September 30).

The Baltimore Harbor is within the Upper Chesapeake Subregion which is part of the Mid-Atlantic Watershed Region of the Chesapeake Bay basin. The Chesapeake Bay basin encompasses 64,000 square miles of land including portions of six states (Maryland, Virginia, New York, Pennsylvania, West Virginia, and Delaware) and the District of Columbia. Approximately 94 percent of Maryland drains to Chesapeake Bay (USGS, 2007).

In 2012, the Baltimore Harbor was listed as an impaired waterbody for aquatic life and wildlife use (MDE, 2012). The watershed area surrounding the decommissioning and dismantling facility is primarily urban, with a population of nearly 1.5 million people; it has been impacted by point source and non-point source pollution resulting in water quality degradation. The Baltimore Harbor has TMDL for nutrients, chlordane, bacteria, chromium, PCB, zinc and lead.

Sediment Quality

Sediments from the Port of Baltimore are composed primarily of clay particles and have been classified as impaired by the MDE. Specific contaminants for the Baltimore Inner Harbor include PCBs, polycyclic aromatic hydrocarbons (PAHs), chlordane, mercury and nickel; Sparrows Point sediments include PAHs and metals. Chlordane and PCB contamination were found in sediment of Baltimore Harbor (MDE, 2012).

Sediment analyses were conducted in 2006 and 2007 by the Federal Energy Regulatory Commission (FERC) for the construction and operation of a liquefied natural gas (LNG) import terminal and natural gas pipeline facilities. Sediment test results were compared to the Threshold Effects Levels (TELs)[3] and the Probable Effects Levels (PELs)[4] as provided by the EPA Marine Sediment Guidelines. Results found PAHs exceeded the PELs at multiple surface locations. The locations with the most elevated concentrations of PAHs were close to shore along the finger docks of the historic shipbuilding docks. The concentrations of metals generally decreased with depth, with fewer exceedances of the PELs in the intermediate and deep samples. All metals exceeded PEL at the shallow depth and most exceeded at the intermediate depth interval. Only arsenic and mercury exceeded sediment criteria at depth (FERC, 2008).

3.2.2.4 Charleston, SC

Water Quality

Maintenance dredging occurs annually at various slips at this facility on a rotating basis and at other locations along the Cooper River under USACE permits. Also near this facility, the Navy

[3] TEL represents the concentration below which adverse effects are expected to occur only rarely.
[4] PEL is the level above which adverse effects are frequently expected.

has an EA for planned expansion of their Goose Creek nuclear training school which has two submarines based there.

The 2010 South Carolina CWA §303(d) list includes North Charleston (Filbin Creek at Virginia Ave) as an impaired water body. Although the list identifies a point location, the impairment is considered to extend for some distance upstream and/or downstream of the point location listed. Due to fecal coliform bacteria, the area is designated as impaired for recreational use. Additionally, the Cooper River is considered impaired due to mercury, fecal coliform bacteria, and dissolved oxygen limitations (SCDHEC, 2010). The Cooper River is classified as a Class Saltwater "B" (SB) water body. SB waters must maintain dissolved oxygen (DO) daily averages of 4.0 milligrams per milliliter (SCDHEC, 2008).

Sediment Quality

The U.S. Navy regularly monitors river water, sediment, and marine life for radioactivity associated with naval nuclear propulsion plants operating along the Cooper River on Joint Base Charleston. Sediment samples are collected and analyzed specifically for the presence of cobalt-60, which is the predominant radionuclide of environmental interest resulting from naval nuclear reactor operations. Summaries of 2009 surveys for cobalt-60 sampling show no detectable levels of cobalt-60 in sediment. The cobalt-60 detection limit for Navy radiological surveys is generally less than 0.01 picocuries per gram, with the actual value dependent on the amount of naturally occurring radioactivity in the survey sample. No cobalt-60 has been detected in river water samples in areas where the Navy ships are berthed, nor from upstream and downstream locations. Marine-life samples, such as mollusks and crustaceans, have been taken from the Cooper River. No buildup of cobalt-60 has been detected in these samples of marine life. Shoreline areas uncovered at low tide are surveyed with sensitive gamma scintillation detectors to determine if any radioactivity from bottom sediment has washed ashore. The results of these surveys are consistent with natural background radiation levels in these regions (U.S. Navy, 2012).

3.2.2.5 Galveston, TX

Water Quality

Galveston Bay is the most important estuary in Texas for shipping, industrial use, and shellfish production. Galveston Bay has three of the biggest shipping ports in the United States, including the Port of Houston, the Port of Texas City, and the Port of Galveston. The bay is also used for recreational boating and fishing. There are no plans for major construction projects at this facility.

For the most part, Galveston Bay has been able to maintain good water quality because it is shallow, well-mixed, and well-aerated. The vast majority of water quality problems are concentrated in the western, urban tributaries of the bay, where municipal and industrial development is most pronounced.

Low DO levels in the Lower Galveston Bay watershed can result from pollution, poor mixing and flushing, and periodic storms. The Houston Ship Channel and other portions of the bay exhibit impaired water quality and depressed DO levels. While the declining trends in DO may be cause for concern, on average DO levels appear healthy and remain well above 5 mg/L. The pH of water is critical to the survival of most aquatic plants and animals. Many aquatic species have trouble surviving if the pH levels drop below 5.0 (too acidic) or rise above 9.0 (too alkaline). The average pH of Galveston Bay and its tributaries is approximately 7.8.

The 2010 Texas Integrated Report indicates that Galveston Bay has Category 5 impairments due to dioxin and PCBs in edible tissue, and Category 4 impairment for bacteria (oyster waters). Category 4 impairments indicate a standard is not supported or a TMDL has already been approved, while Category 5 Impairments may be suitable for development of a TMDL (303d List).

Sediment Quality

Sediment quality is improving overall with cadmium, chromium, copper, and lead concentrations exhibiting declines in the sediments of the Houston Ship Channel. However, some metals such as mercury still exhibit spikes in concentration in the sediments of the Houston Ship Channel. Monitoring of water and sediment contamination by assaying the concentration of pollutants in tissues of organisms shows elevated concentrations of PCBs and dioxins, and some peaks in mercury concentrations.

The Galveston Bay Status and Trends Project compared concentrations of metals in sediment to screening levels established by the Texas Commission on Environmental Quality Ecological Assessment Program. The upper and lower Galveston Bay generally rate very well in terms of sediment concentrations of metals in the decade since 2000. Galveston Bay has had large industrial complexes operating along its shore for more than 50 years. As a result, some areas of the lower Galveston Bay watershed have problems with contamination of chlorinated organic compounds. This type of contamination is often associated with high intensity land use. Contamination of fish and shellfish by PCBs and other chlorinated organic compounds, such as dioxins, has led to a series of seafood consumption advisories issued by the Texas Department of State Health Services. Samples collected from the Houston Ship Channel show elevated concentrations of PCBs and semivolatile organics, including PAHs. Some PAHs are manufactured, but most are created through the incomplete combustion of organic compounds.

3.2.2.6 Brownsville, TX

Water Quality

The City of Brownsville is located near the U.S.-Mexico border, where the Rio Grande River flows into the Gulf of Mexico. Ship dismantling facilities in the vicinity are located within the Port of Brownsville, which is in a man-made inlet south of South Padre Island. The Port connects to the Gulf via Brazos Santiago Pass. The BSC (five mile section of the navigation channel) extends from the Port to the Laguna Madre. The remaining twelve mile section of the channel was dredged through coastal prairie and passes adjacent to or through three salt marsh areas (Vadia Ancha, Bahia Grande, and San Martin Lake). There is ongoing routine dredging of the BSC. The Port of Brownsville completed dredging of the BSC in 2010.

The Laguna Madre, which is a shallow productive lagoon, lies between the mainland and the barrier islands. The Laguna Madre drains most of the Nueces-Rio Grande Coastal Basin (10,442 square miles) and is one of only five hypersaline or negative estuaries in the world. The Laguna Madre is a shallow, bar-built coastal lagoon with limited freshwater inflow and a surface area at mean high tide of 729 square miles. Freshwater inflows to lower Laguna Madre average less than 530,000 acre-feet per year and an important conduit of freshwater to the lagoon is the BSC. Tides in the Laguna Madre are minimal. Ecologically, the Laguna is characterized as exhibiting hypersaline conditions, barren shorelines with extensive wind-tidal flats, extensive submerged seagrass meadows, and a highly productive fin fishery (TCEQ, 2008).

The BSC is listed as having impairment for bacteria as a result of a 2010 assessment. This impairment may be related to the numerous wastewater treatment plants that discharge to the segment. The aquatic life use (ALU) designation is exceptional. The ship channel also has a concern for depressed DO based on screening levels (TCEQ, 2010). TMDL has not been established for this water body.

Historical data from the USACE regarding metals, several pesticides, and PAHs indicate that the water quality in the entrance channel is generally good. Samples collected in April 2004 also indicate that water quality is good (USACE, 2004). None of the contaminants of concern exceeded applicable EPA Water Quality Criteria or Texas Surface Water Quality Standards (WQS). For example, arsenic was detected at 2.33 μg/L as compared to the WQS acute level of 149 μg/L and chronic level of 78 μg/L. Since 1998, the Gulf of Mexico along the entire Texas coast has been listed by the Department of State Health Services as being impaired for mercury contamination. Health advisories were issued concerning the consumption of large king mackerel (over 43 inches in total length) taken from the Gulf of Mexico due to high levels of mercury found in fish tissue.

Sediment Quality

The sediments at the navigation channel consist of deposited sands transported by littoral currents. Sediments in the jettied segment of the Brownsville Entrance Channel have been regularly sampled for size characteristics between dredging cycles since the early-1990s. The sediment in this channel reach is primarily sand with silt and a small clay fraction. Historical USACE data of this deposited material in the navigation channel indicate that the sediment quality is good. Elutriate data showed that none of the contaminants of concern exceeded the Texas Surface WQS. Although currently there is no EPA quality criteria for sediments, sediment samples were compared with the sediment quality screening guidelines from the NOAA Environmental Research Laboratories (ERL). Results indicate that none of the contaminants of concern exceeded the screening levels. For example, the maximum concentration of arsenic in sediment samples was detected at 5.05 mg/kg, which is below the NOAA ERL screening level of 8.2 mg/kg (USACE, 2004). The BSC has a concern for iron in sediment on a screening level basis.

3.2.3 Environmental Consequences

3.2.3.1 Hampton Roads Metropolitan Area, VA, Alternative

The Proposed Action does not require dredging, thus the impact on water resources would be minimal and temporary from towing within the vicinity of Hampton Roads Metropolitan Area, VA. Potential impacts include temporary bottom sediment disturbance and surface water turbidity resulting from towing operations. In general, vessel operation may cause sediment resuspension through the generation of surface wakes and propeller wash. However, as the towing operations will be conducted in compliance with applicable wake and speed limits, the impact on sediment resuspension will be minimal. Towing can pose a risk to water quality if significant levels of contamination from exfoliating paint chips on vessel hulls are released into the environment. However, the cleaning of the hull with the capturing device prior to vessel removal from JRRF, as well as drydockings that have removed the majority if not all lead paint, will minimize any discharge of paint chips. There is potential risk for oil spill due to collision, grounding, or tank or hull rupture or leakage. However, such events are rare. Additionally, the vessel is subject to detailed inspections to ensure it is safe for towing. The ship will be towed

according to Appendix H of the *U.S. Navy Towing Manual Sl740-AA-MAM-010, Rev 3, July 2002*. Towing procedures and safety measures would be implemented to minimize potential for collision or grounding of the vessel during transport. Overall, the Proposed Action would not have a significant impact on water quality.

The Proposed Action does not involve new construction, only the removal, transportation and disposal of regulated materials. The contracted decommissioning/dismantling facility must have possession of all permits necessary for the performance of ship decommissioning and dismantling activities. The facility will be closely monitored by the EPA, state environmental protection agencies, the OSHA, and other relevant agencies and boards to ensure compliance with rigorous environmental and worker safety requirements. Compliance with regulations would avoid significant impacts on water and sediment quality. The decommissioning and dismantling contract includes a clause that requires the contractor to comply with all applicable Federal, state and local environmental and occupational safety & health laws and regulations. Because the Proposed Action is to decommission and dismantle STURGIS at an existing industrial facility capable of these actions, it is not anticipated that the contractor will need to obtain any additional regulatory permits in order to perform the requirements of the contract.

The project areas would be returned to the pre-existing conditions following the removal of the ship. Due to the industrial nature of the site, no submerged vegetation or sensitive marine habitat exists in the project area. Potential biological impacts and waste management are analyzed in Sections 3.3 and 3.5 of this EA. The NRC completed a GEIS on the decommissioning of nuclear facilities in 1988 and a supplemental document in 2002 (NUREG-0586). The GEIS indicates no significant impact on water quality. The Proposed Action would not combine with impacts from other past or future projects in such a manner that would create a cumulative impact.

3.2.3.2 Baltimore, MD, Alternative

Potential impacts to water resources for the Baltimore, MD, Alternative are similar to those described under Hampton Roads Metropolitan Area, VA, Alternative. Except for temporary bottom sediment disturbance and surface water turbidity, the Proposed Action should have no adverse impacts on water and sediment quality and no cumulative impacts. All activities will be conducted in compliance with applicable Federal and state environmental laws. Compliance with regulations would avoid significant impacts on water and sediment quality. The general environmental impacts associated with decommissioning and dismantling are described in Section 3.2.3.1 and are not repeated here.

3.2.3.3 Charleston, SC, Alternative

Similar to the Hampton Roads Metropolitan Area, VA, Alternative, the Charleston, SC, Alternative requires removal of the vessel from JRRF through towing. Except for temporary bottom sediment disturbance and surface water turbidity, the Proposed Action, including both tow actions, should have no adverse impacts on water and sediment quality and no cumulative impacts. Ship dismantling would be conducted in Brownsville, TX or Baltimore, MD. All activities will be conducted in compliance with applicable Federal and state environmental laws. Compliance with regulations would avoid significant impacts on water and sediment quality. The general environmental impacts associated with decommissioning and dismantling are described in Section 3.2.3.1 and are not repeated here.

3.2.3.4 Galveston, TX, Alternative

Similar to the Hampton Roads Metropolitan Area, VA, Alternative, the Galveston, TX, Alternative requires removal of the vessel from JRRF through towing. Except for temporary bottom sediment disturbance and surface water turbidity, the Proposed Action, including both tow actions, should have no adverse impacts on water and sediment quality and no cumulative impacts. Ship dismantling would be conducted in Brownsville, TX. All activities would be conducted in compliance with applicable Federal and state environmental laws. Compliance with regulations would avoid significant impacts on water and sediment quality. The general environmental impacts associated with decommissioning and dismantling are described in Section 3.2.3.1 and are not repeated here.

3.2.3.5 No-Action Alternative

Under the No-Action Alternative, STURGIS would not be contracted for decommissioning and dismantling and would not be removed from JRRF. As a result, there would be no significant immediate water resources and quality impacts to JRRF as a result of this action.

3.3 Biological Resources

3.3.1 Regulatory Setting

The Federal Endangered Species Act (ESA) protects Federally-listed threatened and endangered (T&E) plant and animal species. Threatened and endangered species are defined as those plant and animal species in danger of extinction throughout all or a significant portion of its range, by the USFWS, NMFS, or appropriate state agency. The Marine Mammal Protection Act (MMPA) protects marine mammals from “take” (harm or harassment). The Federal laws and requirements protecting many bird species are the Migratory Bird Treaty Act (MBTA) and EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds. Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act, which prohibits the “take” of bald or golden eagles in the United States.

3.3.2 Affected Environment

Biological resources consist of native and nonnative plant and animal species and the habitats in which they occur. Biological resources can be grouped into two primary categories: terrestrial and marine resources. Since this project is almost entirely in water, the discussion will focus on marine resources as well as migratory birds.

Marine biological resources are transient resources that can range in and out of surrounding habitat area. As a result, this section not only includes species that are within the project action area but also ones that may be affected by the project. For example, a fish may be included if it lives downstream from the area, and birds include resident and migratory species.

Each location section is divided into subsections that address: 1) wetlands; 2) benthic communities; 3) fish and Essential Fish Habitat (EFH); and 4) protected species in the area.

3.3.2.1 JRRF , Joint Base Langley Eustis, Virginia

Wetlands

Wetlands found within the vicinity of the MARAD JRRF are predominately tidal wetlands that border the river along its lower reaches. They are a combination of estuarine and palustrine emergent wetlands. These sensitive ecosystems vary in plant communities, salinity, and tidal

influence, depending on their distance from both the Chesapeake Bay and the James River shoreline. Species richness is very low, with one to a few submerged vascular aquatics present. These consist primarily of beaked ditch-grass (*Ruppia maritima*), common eel-grass (*Zostera marina*), horned pondweed (*Zannichellia palustris*), and sago pondweed (*Potamogeton pectinatus*). Riverine marshes are strongly dominated by saltmarsh cordgrass (*Spartina alterniflora*), often in association with big cordgrass (*Spartina cynosuroides*) or saltmarsh bulrush (*Scirpus robustus*) (Fleming et al., 2010).

Benthic Communities

The major natural environmental factor influencing faunal distribution in estuaries is salinity. The JRRF is located in the oligohaline (0.5 to 5.0 parts per thousand (ppt)) salinity zone, which extends an additional 10 miles up-river from the JRRF location. The mesohaline (5.0 to 18.0 ppt) zone begins within five miles below the JRRF and continues 10 to 15 miles down-river to the polyhaline (18.0 to 30.0 ppt) Hampton Roads region (Diaz, 1989).

Dominant species in the oligohaline zone surrounding the JRRF are likely to include the bivalve *Rangia cuneata*, the polychaete *Scolecolepides viridis*, and amphipods in the genus Gammarus. The common rangia (*R. cuneata*) is a common estuarine clam (Diaz, 1989). Salt-tolerant freshwater species such as the Asiatic clam (*Corbicula fluminea*), tubificid oligochaetes of the genus *Limnodrilus*, and the chironomid insect larvae *Coelotanypus* and Cryptochironomus became dominant at the upper end of the oligohaline zone and into the tidal freshwaters (Diaz, 1989). Dominant species in the mesohaline zone included the amphipods *Leptocheirus plumulosus* and *Corophium lacustre*, the oligochaete *Tubificoides heterochaetus*, the bivalve *Brachidontes recurvus*, and the polychaetes *Paraprionospio pinnata* and *Heteromastus filiformis* (Diaz, 1989).

NOAA's Estuarine Living Marine Resources (ELMR) program determined the invertebrates Daggerblade grass shrimp (*Palaemonetes pugio*) and Blue crab (*Callinectes sapidus*) were both highly abundant throughout the oligohaline and mesohaline zones of the estuary. Daggerblade grass shrimp use the estuary during all life stages, while blue crabs move offshore to brood eggs and release larvae (Stone et al., 1994). American oyster (*Crassostrea virginica*) and northern quahog (*Mercenaria mercenaria*) are abundant during all life stages, but are not typically numerical dominants in the estuary. Blue mussel (*Mytilus edulis*) and sevenspine bay shrimp (*Crangon septemspinosa*) are considered to be common, and softshell clam (*Mya arenaria*) and brown shrimp (*Penaeus aztecus*) are found in the estuary but considered rare (Stone et al., 1994).

Submerged aquatic vegetation (SAV) refers to vascular, rooted, flowering plants that live and grow mostly underwater. Salt-tolerant SAV such as widgeon grass (*Ruppia maritima*) is likely to be found in the vicinity of the JRRF. Wild celery, hydrilla, redhead grass, sago pondweed, and Eurasian watermilfoil, also thrive in low salinity and are found in the middle and upper reaches of the estuary (VIMS, 2011). The prevalence and health of SAV is largely dependent on salinity and water quality; thus the improving quality in the region has increased the abundance of SAV.

Several invasive invertebrates have been reported from Chesapeake Bay including the zebra mussel (*Dreissena polymorpha*), the Asiatic clam (*Corbicula fluminea*), and the Japanese shore crab (*Hemigrapsus sanguineus*) (Moser, 2002). The zebra mussel has been found within a limited range in the upper reaches of Chesapeake Bay (ELI, 2007). The Asiatic clam has already become established throughout the Bay, and is a community dominant in the oligohaline zone of the James River estuary (Moser, 2002; Diaz, 1989).

Fish and Essential Fish Habitat

Due to salinity levels, fewer species of fish are likely to occur near the JRRF than in other reaches of the estuary. Atlantic menhaden (*Brevoortia tyrannus*), bay anchovy (*Anchoa mitchilli*), killifishes (*Fundulus* species), silversides (*Menidia* species), and hogchoker (*Trinectes maculatus*) were all identified as numerical dominants in the estuary. White perch (*Morone Americana*), bluefish (*Pomatomus saltatrix*), spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), and gobies (*Gobiosoma* species) are not typically identified as numerical dominants, but are all considered abundant in the James River Estuary (Stone et al., 1994). Common species that are frequently encountered but not in high numbers include common cownose ray (*Rhinoptera bonasus*), American eel (*Anguilla rostrata*), blueback herring (*Alosa aestivalis*), alewife (*Alosa pseudoharengus*), American shad (*Alosa sapidissima*), channel catfish (*Ictalurus punctatus*), oyster toadfish (*Opsanus tau*), northern pipefish (*Syngnathus fuscus*), striped bass (*Morone saxatillis*), black sea bass (*Centropristis striata*), yellow perch (*Perca flavescens*), pinfish (*Lagodon rhomboides*), spotted seatrout (*Cynoscion nebulosus*), weakfish (*Cynoscion regalis*), black drum (*Pogonias cromis*), red drum (*Sciaenops ocellatus*), tautog (*Tautoga onitis*), butterfish (*Peprilus triacanthus*), and summer flounder (*Paralichthys dentatus*). Other ecologically or economically important fish that are occasionally found in the James River Estuary, but are considered rare include Atlantic stingray (*Dasyatis sabina*), Atlantic sturgeon (*Acipenser oxyrhynchus*), Atlantic herring (*Clupea harengus*), red hake (*Urophycis chuss*), northern searobin (*Prionotus carolinus*), scup (*Stenotomus chrysops*), northern kingfish (*Menticirrhus saxatilis*), mullets (*Mugil* species), Atlantic mackerel (*Scomber scombrus*), windowpane flounder, and winter flounder (*Pleuronectes americanus*) (Stone et al., 1994).

The Mid-Atlantic Fishery Management Council (MAFMC) is one of eight regional fishery management councils and is responsible for the creation of Fishery Management Plans in Federal waters off New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. The MAFMC has designated the waters surrounding these eastern coastal states as EFH for 13 species; nine of these species, including bluefish, windowpane flounder, black sea bass, butterfish, summer flounder, red drum, king mackerel, Spanish mackerel (*Scomberomorus maculatus)*, and cobia, are EFH-designated for the James River Estuary. Habitat Areas of Particular Concern (HAPC) for sandbar shark have been designated in the project area.

Threatened and Endangered Species

According to the USFWS, there are 54 animal and 15 plants that are listed as Federal T&E species in Virginia. No Federally listed species occur in Hampton Roads Metropolitan Area (City) County where the JRRF is located. Additionally, no listed species occur in surrounding Suffolk, Isle of Wight, or Hampton Counties, but four listed animal species occur in the waters of Virginia Beach County (USFWS, 2013); all four are sea turtles. See Table 3-1. No critical habitat for Federally listed T&E species has been designated in the project area.

Table 3-1. Threatened and Endangered Species List surrounding MARAD JRRF, VA

Common Name	Scientific Name	Status	Listing
REPTILES			
Hawksbill sea turtle	*Eretmochelys imbricata*	E	Federal, Virginia
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	Federal, Virginia

Common Name	Scientific Name	Status	Listing
Green sea turtle	*Chelonia mydas*	T	Federal, Virginia
Leatherback sea turtle	*Dermochelys coricea*	E	Federal, Virginia

E = Endangered, T = Threatened

Kemp's ridley, leatherback, and green sea turtles are known to be present in Chesapeake Bay seasonally. Recent data from sightings and incidental captures in fishing gear indicate that Kemp's ridley is the sea turtle species most likely to be found in the waters of the bay, while leatherback and green sea turtles are relatively less common. When not migrating, green turtles prefer sea grass flats which occur in shallow areas of the Chesapeake Bay in late summer and early fall. Hawksbills generally like the habitat of coral reefs, which are not near the James River. Only two hawksbill strandings have been reported in Virginia; both of these are considered "strays" from the tropical waters they normally inhabit (VIMS, 2013). Typically sea turtles do not enter riverine environments and are unlikely to be present within the James River.

Although bald eagles are no longer listed as a threatened or endangered species, they are still protected under the Protection of Bald & Golden Eagle Act. Bald eagles range from Alaska to the northern border of Mexico, and from the Pacific to the Atlantic coast, and can be found in all the lower 48 states. In the Chesapeake Bay area, breeding activity begins in November and can last through mid-July (VADGIF, 2011). Nests are generally built in one of the largest live trees available with accessible limbs capable of supporting the nest. Bald eagles in the Great Lakes region and adjacent areas in Canada migrate eastward to winter along the Atlantic Coast from Maine and New Brunswick to Chesapeake Bay. Because of its rich food resources, Chesapeake Bay also is host to a large influx of summer migrants from Florida and other Gulf Coast states from May to September.

Osprey (*Pandion haliaetus*), a protected migratory bird, undergoes conservation and management from the authorities of the VA Department of Game and Inland Fisheries and the USFWS. There is a guideline for Removal or Relocation of Osprey Nests in Virginia that follows USFWS regulations. MARAD has an agreement across the JRRF to determine if any nests are present on the vessel that would need to be removed prior to the vessel leaving JRRF. This determination and removal/relocation would be made prior to STURGIS leaving JRRF.

3.3.2.2 Hampton Roads Metropolitan Area, Virginia

Hampton Roads Metropolitan Area, VA is located 13 nautical miles down-river from MARAD JRRF and has the same benthic communities, fish and EFH, and protected species, as well as a lack of wetlands. The affected environment is described previously for the JRRF in Section 3.3.2.1.

3.3.2.3 Baltimore, Maryland

Wetlands

Wetlands in Chesapeake Bay are designated open water and tidal estuarine emergent wetlands. There are no wetlands identified at the decommissioning and dismantling facility in Baltimore.

Benthic Communities

Sampling conducted at the proposed site for the FERC for the construction and operation of a liquefied natural gas (LNG) Environmental Impact Statement (EIS) indicated that the benthic community consisted of 13 species and was dominated by the polychaete *Nereis succinea* (47%

of collected individuals) followed by the bivalve *Tellina agilis*, and the polychaete *Streblospio benedicti* (combined 15% of collected individuals). Other invertebrates, such as grass shrimp, would also be expected in such estuarine habitats.

According to surveys completed for, and studies referenced in, the LNG EIS from December 2008, there is no SAV in the project area. There is no sensitive vegetation within this highly industrial area.

The Chesapeake Bay supports a major blue crab fishery. Low numbers of blue crabs were found in bottom trawls in the vicinity of the proposed LNG terminal. Due to the industrial nature of the facility, none are expected in the area of the decommissioning and dismantling facility.

Fish and Essential Fish Habitat

This is a highly industrialized area with an estuarine water characterization supporting fish species that can tolerate a wide range of salinities. Water in this area is an impaired waterbody for aquatic life and wildlife use. However, the Chesapeake Bay Program is attempting to reduce nutrient and sediment loads in the bay.

The open waters of the Patapsco River provide a migratory corridor for anadromous and catadromous[5] fish that move between their respective spawning and nursery grounds in the main stem of the river and tributaries. These fish species include alewife, blueback herring, American shad, white perch, yellow perch, and American eel (NMFS, 2005). The American eel is the only true catadromous fish that may occur in the project area. Bluefish (*Pomatomus saltatrix*), and summer flounder, are the species for which EFH has been identified by NMFS in the vicinity. Bluefish are present in the project area only in low numbers and only during a few months of the year. Summer flounder occupy inshore shallow coastal and estuarine waters during spring and summer and migrate offshore in the fall. They are not likely to be found in polluted areas or areas with inadequate circulation in Maryland coastal bays. Therefore, summer flounder do not generally occur in the project area during winter or spring and they may be present in the project area in low numbers during the late summer and early fall when they migrate offshore.

River herring, white perch, and yellow perch are not designated as EFH species but are important forage fish for managed game fish in the project area. River herring (also called alosine species) include American shad, hickory shad (*Alosa mediocris*), alewife (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*). The annual migration of river herring in the area occurs from late February through early June. During sampling for the LNG EIS in June and October 2006, no suitable habitat was identified for the American shad and none were captured in trawls. White perch are ubiquitous in estuaries and freshwater ecosystems and were the most abundant fish found in the area.

Protected Species

The state government entity responsible for protection of state listed species in the project area is the Maryland Department of Natural Resources (MDNR). Thirty species that are Federally listed as endangered or threatened are found in Maryland and nine potentially occur within the Project area. These include five mammals (North Atlantic right whale, humpback whale, fin whale, sperm whale, and sei whale), three reptiles (Kemp's ridley sea turtle, green sea turtle, leatherback sea turtle), and one fish species (shortnose sturgeon). See Table 3-2. No critical habitat for Federally listed threatened and endangered species has been designated in the project area.

[5] Catadromous fish spawn in the ocean but complete most of its life cycle in fresh water.

Peregrine falcons (designated by Maryland as a Species In Need of Conservation) nest high on towers and bridges and are not expected near the facility. The Chesapeake Bay watershed supports one of the highest concentrations of bald eagles in the continental U.S., with most being found within one mile of the bay and its tidal tributaries. The bald eagle would occur over the waterway only as transient individuals during migration or moving within their range across Chesapeake Bay.

Table 3-2. Threatened and Endangered Species List for Maryland Alternative

Common Name	Scientific Name	Status	Listing
MAMMALS			
North Atlantic right whale	*Eubalaena glacialis*	E	Federal, Maryland
Humpback whale	*Megaptera novaeangliae*	E	Federal, Maryland
Fin whale	*Balaenoptera physalus*	E	Federal, Maryland
Sperm whale	*Physeter macrocephalus*	E	Federal*, Maryland
Sei whale	*Balaenoptera borealis*	E	Federal*, Maryland
REPTILES			
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	Federal, Maryland
Green sea turtle	*Chelonia mydas*	T	Federal, Maryland
Leatherback sea turtle	*Dermochelys coricea*	E	Federal, Maryland
FISH			
Shortnose sturgeon	*Acipenser brevirostrum*	E	Federal, Maryland
BIRDS			
Peregrine falcon	*Falco peregrinus*	N	Maryland
Bald eagle	*Haliaeetus leucocephalus*	W	Maryland (for breeding species)

E = Endangered, T = Threatened, N = Species in need of conservation, W= Watch List
* Found in deep ocean water

Waterbirds use the open water habitat adjacent to the facility. Seabirds and waterfowl within the Chesapeake Bay include gulls, terns, ducks such as scaup and scoters, double-crested cormorant, and brown pelican. A midwinter waterfowl survey is conducted annually by MDNR biologists during the month of January, when waterfowl are considered to be in their wintering areas and migration has ended. Species observed in this area include Canada goose; American black duck; mallard; gadwall; American wigeon; canvasback; redhead; bufflehead; hooded, common and red-breasted mergansers (MDNR, 2012). Most of the various bird species are well adapted to human activity and may be present in and around the project area during towing and mooring activities. However, the MDNR has established 0.25-mile radius protection zones around nesting sites for the colonial waterbird colonies on Sparrows Point and Fort Carroll Island. Since both waterbird colonies are located over 0.5 miles away, no effect on nesting sites is expected. The

MDNR has similarly established timing restrictions as protection guidelines for nesting peregrine falcon on the Francis Scott Key Memorial Bridge. These protections extend for approximately 0.25 mile outward from the nesting site. No effect on the nesting site is expected, since the nesting site is located approximately 1.5 miles away.

The NMFS reports that North Atlantic right whales, humpback whales and fin whales are rare visitors to the Chesapeake Bay and project site, but the area outside of the Bay is a high use area for these species, especially during migration. Sperm and sei whales are found farther offshore than the other whales and their potential presence would be remote from the facility and unlikely in the Bay. Though very unlikely considering this alternative would not involve any open ocean towing, sperm and sei whales may be present within the towing path.

The Kemp's ridley and green sea turtles are known to be present in the Chesapeake Bay from April 1 to November 30, but mainly in the late spring, summer, and early autumn when water temperatures are relatively warm. Leatherback turtles are seasonally present in the Bay. Recent data from sightings and incidental captures in fishing gear indicate that Kemp's ridley are the sea turtle species most likely to be found in the waters of the bay, while leatherback and green sea turtles are relatively less common. In general, sea turtles are less common in the upper bay; however, data from the MDNR sea turtle tagging program and from the Sea Turtle Stranding Salvage Network indicate that sea turtles have been found near the mouth of the Patapsco River. Typically sea turtles are unlikely to be present near the facility.

A small and vulnerable population of shortnose sturgeon is known to be present in the Chesapeake Bay though no shortnose sturgeon were reported during June and October 2006 marine surveys in the Patapsco River.

3.3.2.4 Charleston, South Carolina

Wetlands

Tidal wetlands in Charleston Harbor include emergent tidal marshes dominated by cordgrass species and black rush. High marsh areas contain sea oxeye (*Borrichia frutescens*), salt grass (*Distichlis spicata*) and salt meadow hay (*Spartina patens*), and scrub shrub wetlands are dominated by wax myrtle (*Myrica cerifera*), salt marsh elder (*Iva frutescens*), and groundsel tree (*Baccharis halimifolia*). Common reed (*Phragmites australis*) is also found along the fringe of the high marsh. However no wetlands abut the navigation channel (USACE, 2009). There are no wetlands identified at or adjacent to the decommissioning facility in Charleston.

Benthic Communities

Dominant species in the harbor channels include mollusks, polychaetes, oligochaetes, nematodes, and amphipods (USACE 2006). Populations in the navigation channel are assumed to be not as stable and numerically abundant as in nearby wetlands and mudflats due to the frequent disturbance by ongoing maintenance.

Fish and Essential Fish Habitat

The Cooper River is a valuable fisheries resource and contributes to the local economy from the rich finfish and shellfisheries. The Cooper River and its tributaries support a wide variety of fish species, including some game fish (e.g., trout, flounder, drum, and croaker) as well as prominent freshwater species in the sunfish, bass, and catfish families. A study of the Charleston Harbor by Van Dolah et al. (1990) identified many important finfish species within the lower Cooper River, including Atlantic menhaden, bay anchovy, silver perch (*Bairdiella chrysoura*), weakfish, spot,

Atlantic croaker, and star drum (*Stellifer lanceolatus*) in large numbers. Summer flounder and southern flounder (*Paralichthys lethostigma*), two important recreational species, were caught in low numbers throughout the year. Sharks, skates and rays can all also potentially be found in the project area. Schwartz (2003) reported that six species of sharks can pup their young in Carolinian waters during warm summer months: smooth dogfish, spiny dogfish, blacknose, Atlantic sharpnose, tiger, and dusky sharks.

The Cooper River, the connecting tidal creeks, and the surrounding coastal marsh provide habitat for a wide variety of fish and invertebrate species that are dependent on coastal marshes and tidal inlets as part of their lifecycles. The South Atlantic Fishery Management Council (SAFMC) has identified EFH for white shrimp (*Litopenaeus setiferus*) and brown shrimp within these marshes and inlets because the shrimp maintain high growth and survival rates within these habitats. Species in the snapper-grouper complex (e.g., flounder, bluefish (*Pomatomus saltatrix*), black drum, Atlantic menhaden, and blue crab) provide prey to larger species (e.g., snapper, grouper) managed by the SAFMC and migratory species (e.g., sharks, billfishes) managed by the NMFS. EFH for these prey species, identified for their ability to provide nursery and forage areas, includes estuarine emergent vegetated wetlands, tidal creeks, estuarine scrub/shrub, oyster reefs and shell banks, and unconsolidated bottom (USACE, 2009). No EFH or HAPC were identified within the project area in North Charleston.

Protected Species

The state government entity responsible for protection of state-listed species in the project area is the South Carolina Department of Natural Resources (SCDNR). Fifteen Federally listed endangered or threatened species potentially occur in Charleston County; however only thirteen have the potential to occur within the project area (either at the facility or along the tow path). These include seven mammals (North Atlantic right, humpback, fin, blue, sei and sperm whales, and West Indian manatee), four reptiles (Hawksbill sea turtle, Kemp's ridley sea turtle, green sea turtle, leatherback sea turtle), and two fish species (shortnose and Atlantic sturgeon) as shown in Table 3-3. No critical habitat for Federally listed threatened and endangered species has been designated in the project area.

The North Atlantic right whales, humpback whales and fin whales would not be found at the facility in the upper Cooper River, but the area outside of the bay is a high use area for these species, especially during migration. Sperm whales tend to inhabit areas with a water depth of 1,968 ft or more, and are uncommon in waters less than 984 ft deep (NMFS, 2013). Blue whales are rarely seen in shelf waters and sei whales are usually observed in deeper waters of oceanic areas far from the coastline. As sperm, blue and sei whales are found farther offshore than the other whales, their potential presence would be remote from the facility, however, they may be present within the towing path.

There is, however, habitat in the Cooper River to support two threatened or endangered species—the West Indian Manatee and shortnose sturgeon. Manatees are migratory in South Carolina and begin their slow migration up the coast from Florida each spring when water temperatures rise into the upper 60s. They can be found in tidal rivers, estuaries, and near-shore marine waters (such as the Cooper River) throughout the summer months. As water temperatures cool, the manatees return to Florida in September and October (SCDNR, 2010). Shortnose sturgeon occur within most major river systems along the Atlantic Coast of North America including the Santee/Cooper River complex and have been documented in the systems for over a hundred years. However, shortnose sturgeon prefer deep water and are often found in areas with

soft substrate and a vegetated bottom. In South Carolina, adult Atlantic sturgeons also occur in most rivers and estuaries along the coast.

Table 3-3. Threatened and Endangered Species List for South Carolina Alternative

Common Name	Scientific Name	Status	Listing
MAMMALS			
West Indian Manatee	*Trichechus manatus*	E	Federal, South Carolina
North Atlantic right whale	*Eubalaena glacialis*	E	Federal, South Carolina
Humpback whale	*Megaptera novaeangliae*	E	Federal, South Carolina
Fin whale	*Balaenoptera physalus*	E	Federal, South Carolina
Sperm whale	*Physeter macrocephalus*	E	Federal*, South Carolina
Sei whale	*Balaenoptera borealis*	E	Federal*, South Carolina
Blue whale	*Balaenoptera musculus*	E	Federal*, South Carolina
REPTILES			
Hawksbill sea turtle	*Eretmochelys imbricata*	E	Federal, South Carolina
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	Federal, South Carolina
Green sea turtle	*Chelonia mydas*	T	Federal, South Carolina
Leatherback sea turtle	*Dermochelys coricea*	E	Federal, South Carolina
FISH			
Shortnose sturgeon	*Acipenser brevirostrum*	E	Federal, South Carolina
Atlantic Sturgeon	*Acipenser oxyrinchus oxyrinchus*	E	Federal, South Carolina

E = Endangered, T = Threatened, * Found in deep ocean water

Kemp's ridleys and green turtles use South Carolina inshore and near shore waters as developmental foraging grounds from April through November. Hawksbills are rarely seen in South Carolina waters. Kemp's ridleys prefer Gulf of Mexico waters for nesting and foraging, green turtles nest in Florida and waters south, and hawksbills prefer warm shallow waters of the Gulf and Florida, with only rare sightings north of Florida. Leatherbacks are common visitors throughout state waters during spring and, to a lesser degree, in the fall, but nesting in South Carolina is rare to infrequent (SCDNR, 2013).

3.3.2.5 Galveston, Texas

Wetlands

Estuarine or tidal fringe wetlands can be vegetated (marshes) or unvegetated (mud and sand flats), and are found between the open saltwater of the bays or Gulf and the uplands of the coastal plain and barrier islands (Texas Coastal Wetlands, 2013). These wetlands may occur in small strips just 10 to 20 feet wide or may be several miles wide and occupy thousands of acres.

Marshes are almost always in protected areas along bay shorelines or on the bay sides of barrier islands and peninsulas, and also may extend inland a few miles along some of the major and minor streams that drain into the Gulf. Without protection, wave energy is too great for salt marsh vegetation to get established, which is why salt marshes are seldom seen on Gulf-facing beaches. There are no wetlands located at the Galveston facility.

Cordgrasses of the *Spartina* genus are the most prominent salt marsh vegetation. Flooding frequency, duration, and the salinity level are the most important variables that control the kinds of plants that occur in the salt marsh. In the high marsh, saltmeadow cordgrass might be the most common grass, whereas in the lower marsh, saltmarsh cordgrass is more common. Additional vegetation includes saltgrass, saltmarsh bulrush, and needlegrass rush among others. Typical animals include herons, egrets, ibises and other wading birds that feed on the fish, shrimp, crabs and other invertebrates found in the wetlands. Shorebirds and waterfowl are abundant. The American alligator feeds on fish, snakes, turtles, frogs, muskrats, nutria, swamp rabbits, rats and anything else it can catch. Bobcats, coyotes, raccoons, skunks, mink and river otters also hunt in the marshes.

Benthic Communities

Salinity is a dominant factor controlling the distribution of estuarine organisms and community composition. The NOAA ELMR program categorizes faunal distribution in Gulf of Mexico estuaries based on the following three salinity zones: tidal fresh (0.0 to 0.5 ppt), mixing (0.5 to 25 ppt), and seawater (>25 ppt). The Galveston Bay Estuary was characterized by the ELMR program as having all three zones (Nelson, 1992).

The ELMR program compiled data on ecologically or economically important fauna in Gulf of Mexico estuaries. For Galveston Bay, American oyster, brown shrimp, common rangia (*Rangia cuneata*), and grass shrimp were considered highly abundant in the estuary. White shrimp and Blue crab were considered to be abundant. Bay squid (*Lolliguncula brevis*), Gulf stone crab (*Menippe adina*), and hard clam (*Mercenaria* species) were considered common. Bay scallop (*Argopecten irradians*) and pink shrimp (*Penaeus duorarum*) are present in the estuary, but considered rare (Nelson, 1992). Many of these taxa inhabit estuaries found throughout the Gulf of Mexico. Several of these invertebrates are targeted by commercial fisheries in the Gulf of Mexico.

The Texas Parks and Wildlife Department (1999) reports four of the five genera of salt-tolerant SAV (*Halodule*, *Thalassia*, *Halophila*, and *Ruppia*) that occur in Texas waters are found in Galveston Bay, which supports 280 acres of seagrass, the smallest acreage in the Texas bay system. There are limited seagrass beds in the bay consisting of shoalgrass (*Halodule wrightii*) with patches of turtlegrass (*Thalassia testudinum*) and clovergrass (*Halophila*) (TPWD, 1999).

Fish and Essential Fish Habitat

The relatively high salinities of this estuary play an important role in determining the composition of the fish community. Fishes identified as highly abundant in Galveston Bay were bay anchovy and Atlantic croaker. Hardhead catfish (*Arius felis*), sheepshead minnow (*Cyprinodon variegates*), silversides, Gulf menhaden (*Brevoortia patronus*), Gulf killifish (*Fundulus grandis*), pinfish, spot, striped mullet (*Mugil cephalus*), and southern flounder were considered abundant in the estuary. Common fish that are not typically found in high numbers include sheepshead (*Archosargus probatocephalus*), silver perch, spotted seatrout, sand seatrout, gizzard shad (*Dorosoma cepedianum*), Crevalle jack (*Caranx hippos*), Florida pompano

(*Trachinotus carolinus*), Spanish mackerel, black drum, and red drum. Snook (*Centropomus undecimalis*), blue runner (*Caranx crysos*), bluefish (Pomatomus saltatrix), gray snapper (*Lutjanus griseus*), Bull shark (*Carcharhinus leucas*), tarpon (*Megalops atlanticus*), code goby (*Gobiosoma robustum*), and Gulf flounder (*Paralichthys albigutta*) are all occasionally found in Galveston Bay, but are considered to be rare (Nelson, 1992).

The Gulf of Mexico Fisheries Management Council (GMFMC) is responsible for designating EFH in Texas, Louisiana, Mississippi, Alabama, and Florida. The GMFMC has designated the entire Gulf of Mexico, which is the nearest major body of water where EFH is designated, as EFH for white shrimp, pink shrimp, brown shrimp, spiny lobster (*Panulirus argus*), gulf stone crab, stone crab, gray snapper, red drum, and Spanish mackerel (GMFMC, 2008). It is reasonable to assume that habitat for most of these species occurs in Galveston.

Protected Species

According to the USFWS, 66 animal and 28 plant Federal T&E species occur in the state of Texas, however only 9 listed species occur in Galveston County, where the decommissioning facility is located (USFWS, 2012). There is no designated critical habitat for these species in this county. There is also a state-listed species, the Eastern brown pelican, that has been Federally delisted. Table 3-4 lists the T&E species in the project area.

Table 3-4. Threatened and Endangered Species List for Galveston, Texas location

Common Name	Scientific Name	Status	Listing
MAMMALS			
West Indian manatee	*Trichechus manatus*	E	Federal, Texas
Humpback whale	*Megaptera novaeangliae*	E	Federal, Texas
North Atlantic right whale	*Eubalaena glacialis*	E	Federal
Sperm whale	*Physeter macrocephalus*	E	Federal*
REPTILES			
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	Federal, Texas
Green sea turtle	*Chelonia mydas*	T	Federal, Texas
Leatherback sea turtle	*Dermochelys coricea*	E	Federal, Texas
Hawksbill sea turtle	*Eretmochelys imbricata*	E	Federal, Texas
FISH			
Smalltooth sawfish	*Pristis pectinata*	E	Federal, Texas

E = Endangered, T = Threatened, * Found in deep ocean water

West Indian manatees are found in rivers, estuaries, and coastal areas of the tropical and subtropical New World from the southeastern United States coast along Central America and the West Indies to the northern coastline of South America. Manatees are extremely rare in Texas and are thought to be wanderers from the Florida or Mexican populations.

Blue, fin and sei whales are not found in the Gulf of Mexico but may be encountered along the tow route. North Atlantic right whales are not common to gulf waters and are not likely to occur

there, but may be encountered along the tow route. Humpback whales are more likely to be found in gulf waters in the winter nearshore and at continental shelf waters and in deep waters of the Atlantic coast during migration. Sperm whales are abundant in Gulf waters and are generally associated with waters over the continental shelf edge, continental slope, and offshore waters.

Kemp's Ridley sea turtles are found in the coastal waters and bays of the Gulf of Mexico and Atlantic Ocean. Adults essentially are restricted to the Gulf of Mexico, but immature turtles inhabit the Gulf and also the U.S. Atlantic coast. A nesting beach at Rancho Nuevo, Tamaulipas, Mexico is the primary nesting site for these turtles. It is the only known major nesting beach for this species in the world. A secondary nesting population has been established on Padre Island National Seashore and has had limited success.

Green sea turtles feed in shallow water areas with abundant seagrasses or algae. The major nesting beaches are always found in places where the seawater temperature is greater than 77 degrees Fahrenheit. In Texas, green sea turtles are found in the Gulf of Mexico. They occasionally visit the Texas coast (TPWD, 2009). As water temperatures rise from April to June, green sea turtle numbers increase in the continental shelf waters off Galveston Bay and in those waters associated with the continental shelf break northeast of Corpus Christi. The sparse sighting records in Louisiana and Texas waters, as well as nesting records on the southern Texas coast, indicate that green turtles are found in the northwestern Gulf of Mexico during spring but in far fewer numbers than in the northeastern Gulf (NUWCD, 2012).

Leatherback sea turtles prefer the open ocean and move into coastal waters only during the reproductive season. Leatherbacks inhabit primarily the upper reaches of the open ocean, but they also frequently descend into deep waters from 650 to 1,650 feet in depth. In Texas, the leatherback sea turtle occurs in the Gulf of Mexico; it is a rare visitor to the Texas Gulf Coast.

Hawksbill sea turtles are found primarily in warmer waters of the Atlantic, Pacific, and Indian Oceans from Japan to Australia and the British Isles to southern Brazil. They are also found in the southern waters of Florida, the Gulf of Mexico, and the Caribbean. In Texas, the hawksbill is found in the Gulf of Mexico and occasionally on the Texas coast (TPWD, 2009). While hawksbills are known to occasionally migrate long distances in the open ocean, they are primarily found in coastal habitats and use nearshore areas more exclusively than other sea turtles.

Overall, sea turtles may be found along the transit route, but not in the area surrounding the decommissioning facility.

Smalltooth sawfish are found in shallow waters very close to shore over muddy and sandy bottoms, as well as in sheltered bays, on shallow banks, and in estuaries or river mouths. They feed on a variety of fish species and crustaceans. Sawfish are currently found mostly on the lower tip of Florida, as the species is declining, though they are still listed as endangered in Texas.

Eastern brown pelicans nest on small, isolated coastal islands where they are safe from predators such as raccoons and coyotes. Brown pelicans are found along the Atlantic and Gulf of Mexico coasts.

3.3.2.6 Brownsville, Texas

Wetlands

Lower coast riparian wetlands are river bottom wetlands and river-associated habitats from the San Antonio River south to the Rio Grande. In this subhumid to semiarid region, some of these habitats are called riparian corridors. Riparian habitats are usually transitional between uplands and wetlands. These depressional wetlands are often freshwater marshes dominated by plants like southern cattail and California bulrush in the wetter areas grading into various grasses and sedges and brush such as Drummond's rattlebush, retama, and salt cedar. Trees and shrubs that dominate these riparian zones include mesquite, huisache, salt cedar, hackberry/sugarberry, retama, cedar elm, Chinese tallow-tree, green ash, black and sandbar willow, and rattlebush. In the lower Rio Grande Valley, evergreen subtropical riparian woodlands can also include brush like brasil, anacua, granjeno, tepeguaje, Texas ebony, and locally, remnant groves of Texas palmetto (sabal palm trees). Animals found in riparian habitats include bald eagles, wading birds, ducks, woodpeckers, warblers, frogs, salamanders, turtles, snakes, alligators, bats, rabbits, beaver, squirrels, bobcats, foxes, river otters, raccoons, and deer. On the lower coast, riparian woodlands and the associated water provide important fish and wildlife habitats. There are no wetlands at or adjacent to the dismantling facilities.

Benthic Communities

Benthic communities near ship dismantling facilities along the BSC will be similar to those found in other parts of the Lower Laguna Madre, which is found between the mainland of South Texas and Padre Island. In comparison to other Gulf of Mexico estuaries, the Lower Laguna Madre receives minimal freshwater input, with average annual evaporation exceeding mean annual input. The Laguna Madre Estuary was characterized by the ELMR program as having only a seawater (salinity >25 ppt) zone (Nelson, 1992).

NOAA's ELMR program reported several species of shrimp among the dominant invertebrate taxa in the Laguna Madre Estuary. The grass shrimp was considered highly abundant, and was frequently found to be among the numerical dominants in the estuary. Pink shrimp, white shrimp, and brown shrimp were identified as sub-dominants, considered to be abundant in the Laguna Madre (Nelson, 1992). Shrimp have also been reported as dominant invertebrate taxa in surveys conducted within the BSC; white shrimp and brown shrimp were identified as the dominant invertebrate taxa in the BSC. Grass shrimp use the Laguna Madre during all life stages, while the penaeid shrimp (pink, white, and brown) use the estuary as a nursery (Nelson, 1992). Blue crab are also considered abundant in the Laguna Madre, using the estuary during all life stages. Bay squid, though not found in large numbers, are considered common. Bay scallop, American oyster, Gulf stone crab, and spiny lobster are all present in the estuary, but considered rare (Nelson, 1992). Many of these taxa inhabit estuaries found throughout the Gulf of Mexico. Several of these invertebrates are targeted by commercial fisheries in the Gulf of Mexico. EFH for any managed invertebrate species is discussed below.

All five genera of salt-tolerant SAV (*Halodule*, *Thalassia*, *Syringodium*, *Halophila*, and *Ruppia*) that occur in Texas waters are found in the Lower Laguna Madre (TPWD, 1999). The Texas Parks and Wildlife Department (1999) reports that the Lower Laguna Madre supports 118,600 acres of seagrass, the largest acreage of seagrass meadows in the Texas bay system. The dominant seagrass species in the Lower Laguna Madre are turtlegrass and manateegrass (*Syringodium filiforme*). The annual widgeongrass (*Ruppia maritima*) and perennial shoalgrass

(*Halodule wrightii*) often occur in mixed beds. Small amounts of clovergrass, a minor, understory species, are also found in the estuary (TPWD, 1999).

Benthos in the BSC is likely to be influenced by human activities. As a highly industrialized man-made navigational corridor, the BSC is subject to impacts from heavy ship traffic, industrial facilities, and dredging. Sections of the channel have been dredged at least every two years, and the entrance to the BSC is now scheduled for annual maintenance.

Fish and Essential Fish Habitat

The relatively high salinities of this estuary play an important role in determining the composition of the fish community. Fish identified as highly abundant in the Laguna Madre were bay anchovy, hardhead catfish, sheepshead minnow, silversides, pinfish, and spot (Nelson, 1992). Atlantic croaker is considered abundant, but not typically among the numerical dominants (Nelson, 1992). Gulf menhaden, Gulf killifish, Crevalle jack, Florida pompano, sheepshead, silver perch, striped mullet, code goby, and southern flounder were also considered abundant in the estuary (Nelson, 1992). Common fish that are not typically found in high numbers include snook, gray snapper, spotted seatrout, black drum, and red drum. Bull shark, tarpon, gizzard shad, sand seatrout, Spanish mackerel, and Gulf flounder are all occasionally found in the Laguna Madre, but are considered to be rare (Nelson, 1992).

The GMFMC has designated the entire Gulf of Mexico as EFH for white shrimp, pink shrimp, brown shrimp, spiny lobster, gulf stone crab, stone crab, gray snapper, red drum, and Spanish mackerel. It is reasonable to assume that habitat for most of these species occurs in Lower Laguna Madre. All except for stone crab have been reported from the Laguna Madre (Nelson, 1992).

Protected Species

According to the USFWS, 16 listed T&E species occur in Cameron County, where the Brownsville dismantling facilities are located, but only six are marine species that have the potential to be impacted by this project (USFWS, 2012). Cameron County has critical habitat for piping plover that nest on beaches; this species would not be impacted by this project. The eastern brown pelican is a state-listed species, but has been Federally delisted. Table 3-5 lists the T&E marine species with the potential to be in the project area.

Table 3-5. Threatened and Endangered Species List for Brownsville, Texas location

Common Name	Scientific Name	Status	Listing
MAMMALS			
West Indian Manatee	*Trichechus manatus*	E	Federal, Texas
REPTILES			
Loggerhead sea turtle	*Caretta caretta*	T	Federal, Texas
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	Federal, Texas
Green sea turtle	*Chelonia mydas*	T	Federal, Texas
Leatherback sea turtle	*Dermochelys coricea*	E	Federal, Texas
Hawksbill sea turtle	*Eretmochelys imbricata*	E	Federal, Texas

E = Endangered, T = Threatened

Manatees, whales and four of the sea turtles were discussed in the Galveston, TX section, and the descriptions are not repeated here. Brownsville is along the southern Texas coast that the USFWS is monitoring for the Loggerhead sea turtle Northwest Atlantic Distinct Population Segment. Loggerheads are capable of living in a variety of environments, such as in brackish waters of coastal lagoons, river mouths, and tropical and temperate waters above 50 degrees Fahrenheit. In Texas, they are found in the Gulf of Mexico and are occasional visitors to the Texas coast. Only minor and solitary nesting has been recorded along the coasts of the Gulf of Mexico (TPWD, 2009). Overall, sea turtles may be found along the transit route, but not at the dismantling facilities.

3.3.3 Environmental Consequences

The potential impacts may vary according to the location of the activity, time of year when the activity occurs, and the location of each species during their respective life cycle.

For all alternatives, tug and tow will transit at speeds of 10 knots or less in accordance with the Whale Ship Reduction Rule (50 C.F.R. 224.105, December 9, 2008) for protection of right whales in seasonal management areas. In addition, whenever marine mammals or sea turtles are sighted in an area, the tug's crew will increase vigilance and take prudent actions to avoid collisions or activities that might result in close interaction of the ship and the animals. Actions may include changing speed and/or direction as dictated by environmental and other conditions (e.g., safety, weather). Towing the vessel may affect, but is not likely to adversely affect, T&E species and designated critical habitat will not be adversely affected or modified by the alternatives discussed below. For any alternative, the Proposed Action would not combine with impacts from other past or future projects in such a manner that would create a cumulative impact.

3.3.3.1 Hampton Roads Metropolitan Area, Virginia, Alternative

This alternative includes potential impacts associated with the removal of the vessel from the MARAD JRRF as well as its conveyance to Hampton Roads Metropolitan Area, Virginia. Both aspects of the alternative are described below.

<u>MARAD JRRF</u>

Wetlands

There would be no significant impacts on wetlands from vessel removal. The vessel would be towed along established tow/navigation routes. Once vessels involved with the towing reach open water, there is no risk of impacts on wetlands. Closer to shore, there is a risk that impacts to wetlands could result if an oil spill were to occur during towing as a result of collision, grounding, or tank or hull rupture or leakage. However, the vessel is subject to detailed inspections to ensure it is safe for towing. Towing procedures and safety measures would be implemented to minimize potential for collision or grounding of the vessel during transport. Overall, there would be no significant impacts on wetlands along the tow path from fuels, oils, and other hazardous materials during towing.

Benthic Communities

Due to poor sediment and water quality, benthic habitat within the project area has very low biodiversity, and is limited to organisms that are tolerant of poor environmental conditions. Therefore, the potential adverse impact to benthic invertebrates is considered minor. The larger, more mobile benthic megainvertebrates, such as shrimp species, would be able to flee the area

during towing and, therefore, would not be significantly affected. Approximately 28,700 ft^2 (2,666 m^2) of benthic habitat would be opened to sunlight as a result of the removal of the vessel, which is a potentially beneficial impact.

SAV would not be affected by the Proposed Action. Turbidity generated by towing activities may temporarily occur within the tow route but would have minimal to no impact to marine vegetation. There may be indirect beneficial impacts on marine vegetation by opening up the substrate to sunlight and promoting the establishment of vegetation and algae.

There are limited species in the project area that can tolerate the poor environmental conditions. The towing of the vessel would result in minimal to no temporary impacts; the approvals, inspections, licenses and other procedures required for towing would minimize the risk of accidental spills or collisions during towing.

Fish and Essential Fish Habitat

Minimal to no impact is anticipated for mobile fish species that can readily avoid the temporary disturbance and potentially increased turbidity in the water column that may temporarily occur because of towing activities. Beneficial impacts to fish may result from long-term decreased shading in the area waters; sunlight would increase potential nutrient growth to support fish habitat. Any impacts would be minor and acceptable, considering the removal of the vessel and towing impacts are less substantial than recent maintenance dredging that occurred in the project area.

Threatened and Endangered Species

Marine mammals engage in avoidance behavior when surface vessels move toward them. In one study, North Atlantic right whales were documented to show little overall reaction to the playback of sounds of approaching vessels, but they did respond to an alert signal by swimming strongly to the surface, which may increase their risk of collision (Nowacek et al. 2004). Aside from the potential for an increased risk of collision addressed below, physical disturbance from vessel use is not expected to result in more than a momentary behavioral response.

Vessel collisions are well known source of mortality in marine mammals and the speed of the ship is an important factor in predicting the lethality of a strike. Vanderlaan & Taggert (2007) concluded that at speeds below 8 knots there was a 20 percent risk of death from blunt trauma. Additionally, there is a possibility a marine mammals could be struck by the tug's propeller. The towed ship would pose the same threat for blunt trauma as the tug, but not possess the added danger of a rotating propeller. Ship towing speeds are four to six knots, which also minimizes potential strike risks; the NMFS' "Vessel Strike Avoidance Measures and Reporting for Mariners" document would also be followed to reduce the potential of vessel strikes to marine species.

The effect of encountering a tow cable has not been widely analyzed. The tow cable has the potential to injure marine mammals because it will be at a depth of up to 100 ft (30 m) and have tension of up to 75 tons. Nowacek et al. (2001) used data recording tags to investigate the diving and surfacing behavior of right whales. It was concluded that during ascent in particular, the animal's positive buoyancy reduced its ability to maneuver, even if a threat was perceived overhead. Studies on tissue injuries in both right and humpback whales resulting from interaction with 6.5 millimeter (mm) and 9.5 mm diameter polypropylene lines used on lobster gear concluded that elasticity of the line, tension applied and the length that was drawn over the skin were factors in how deeply the line penetrated the epidermis. More elastic lines and shorter draw

lengths were less damaging than those lines with minimal stretch and greater length (Winn et al. 2008). Should a large whale surface from beneath the tow cable, the lack of elasticity of wire rope under great strain combined with up to 2,000 ft of draw length has the potential to cause lacerations and injury.

Vessel-related injuries to sea turtles are more likely to occur in areas with high boating traffic. Minor strikes may cause temporary reversible impacts, such as diverting the turtle from its previous activity or causing minor injury. Major strikes are those that can cause permanent injury or death from bleeding/trauma, paralysis and subsequent drowning, infection, or inability to feed. Apart from the severity of the physical strike, the likelihood and rate of a turtle's recovery from a strike may be influenced by its age, reproductive state, and general condition. Much of what is written about recovery from vessel strikes is inferred from observing individuals some time after a strike. Numerous sea turtles bear scars that appear to have been caused by propeller cuts or collisions with vessel hulls (Lutcavage et al. 1997; Hazel et al. 2007), suggesting that not all vessel strikes are lethal. Conversely, fresh wounds on some stranded animals may strongly suggest a vessel strike as the cause of death. The actual incidence of recovery versus death is not known, given available data.

Observance of marine mammals in the James River is very rare; therefore, there would be no reasonably foreseeable takes of marine mammals that pursue their prey species of fish into the James River. There would be no reasonably foreseeable takes of marine mammals; the towing action may affect but is not likely to adversely affect threatened and endangered species. Preventing collision with marine mammals and sea turtles depends on detecting the animal in time to take effective action. The NMFS' "Vessel Strike Avoidance Measures and Reporting for Mariners" document would be followed to reduce the potential of vessel strikes to marine species. Although the tug, tow cable and tow may affect endangered species encountered along the proposed tow routes, the chance that such an encounter would result in serious injury is extremely remote. Based upon the low speed of the tug and tow along with the relatively short periods they will be transiting habitats where the most susceptible species are most likely to be encountered, the USACE concludes that this action may affect but is not likely to adversely affect endangered species.

<u>Hampton Roads Metropolitan Area, Virginia</u>

Wetlands

Although the hazardous materials involved in ship dismantling can pose serious threats to aquatic environments and wetlands, Federal and state regulations would substantially reduce the risk of contamination to nearby wetlands from typical operations. Facility permits would impose regulations that limit the migration of any potentially hazardous materials into aquatic habitats. Thus, there would be no significant impacts to wetlands from vessel dismantling at Hampton Roads Metropolitan Area, VA.

Vessel spills and leaks are possible, but removal of fluids and combustible materials would be regulated so as to minimize or avoid introduction of hazardous waste into the aquatic environment, and non-recyclable material would be disposed of as waste in accordance with applicable regulatory requirements. Metal scrap and waste would be protected from exposure to storm water so that wastes and contaminants from the scrap would not be carried to surface waters and contribute to wetland contamination. Risks of wetland contamination would be further minimized because of the spill prevention and containment measures which are in place, such as booms around the ship (if not in drydock) to help contain any spills as required by the

U.S. Coast Guard. Additionally, wetlands do not occur immediately adjacent to the decommissioning and dismantling facility. Any contaminants would need to travel in aquatic environments some distance to reach any wetlands. Thus, there would be no significant impacts to wetlands from vessel decommissioning and dismantling at the Hampton Roads Metropolitan Area facility.

Benthic Communities

Potential direct, adverse impacts to benthic communities may result from affects of propeller wash and exposure to contaminants, although towing in deep water will reduce the potential for impacts from propeller wash. Turbidity and siltation associated with propeller wash would be local and transient. As a result of decommissioning and dismantling activities, contaminants could be released during ship transport (from accidental spills) or during processing at the facility. However, these impacts would be temporary and minor. The approvals, inspections, licenses and other procedures required for towing would minimize the risk of the tug boat or another vessel being involved in a collision during towing to the facility. The larger, more mobile benthic megainvertebrates, such as shrimp species, would be able to flee the area during towing and, therefore, would not be affected. Considering the industrial nature of the site, the potential impact on benthic communities is considered minor.

No changes to the overall operations at the facility are expected due to the decommissioning and dismantling of this vessel. Additionally, the abundance and distribution of benthos are influenced by heavy ship traffic, industrial activities, and dredging which result in the relatively low occurrence of benthos in the area surrounding the facility. Thus, any impacts to local benthic communities would be comparable to those occurring routinely at this industrial facility. Overall, impacts to the benthos from contaminant exposure, physical disturbance, or suspended sediments resulting from decommissioning and dismantling at the Hampton Roads Metropolitan Area facility are not expected to be significant.

Fish and Essential Fish Habitat

Potential impacts to fish resources from decommissioning and dismantling activities would be similar to those described above for benthic communities; contaminant exposures and re-suspended sediments are potential impacts to fish as well. Minimal to no impact is anticipated for mobile fish species that can readily avoid the temporary disturbance and potentially increased turbidity in the water column that may occur because of towing activities. Overall, impacts to fish resources from contaminant exposure, physical disturbance, or suspended sediments resulting from decommissioning and dismantling at the facility are neither likely nor expected to be significant.

Potential impacts to EFH would be as described above for fish resources and benthic communities. The EFH-designated species are present in the project area only in low numbers. There would be no effect on EFH.

Protected Species

Impacts on sea turtles which may be found in the area are likely to be minimal due to the permits and regulations in place to guard against the discharge of contaminants into the aquatic environment. Additionally, these species inhabit open-ocean and near-coastal environments, which are some distance away from the facility located along the James River. Any contaminants that may enter the water would likely be at low concentrations and the probability that they

would be ingested by sea turtles, or their prey species, is almost non-existent. Thus, there would be no effect on protected sea turtles from decommissioning and dismantling activities.

Impacts to whales and turtles are most often caused by vessel strike. This potential impact would be minimized by the low speed of the tugs (four to six knots) along the channel and at the pier. The NMFS' "Vessel Strike Avoidance Measures and Reporting for Mariners" document would be followed to reduce the potential of vessel strikes to marine species. There would be no reasonably foreseeable takes of marine mammals; the towing action may affect but is not likely to adversely affect threatened and endangered species.

There is a very low probability that the bald eagle (delisted but still protected under the Migratory Treaty Act and the Bald and Golden Eagle Protection Act), could be harmed by ingestion through fish or chemical contaminants released during decommissioning and dismantling activities. It is highly unlikely that the low water concentrations that could result from a release of contaminants could impact fish to such a level that an eagle or falcon ingesting the fish would be adversely impacted. The USACE has determined that there would be no reasonably foreseeable takes of migratory birds including bald eagles.

Considering compliance with all Federal and state regulations, guidelines, and agreements, the removal of the vessel from MARAD JRRF, the short distance of towing in protected waters (no open ocean and not even into Chesapeake Bay) to the Hampton Roads Metropolitan Area, VA facility, and the subsequent decommissioning and dismantling activities are not expected to have significant impacts on biological resources.

3.3.3.2 Baltimore, Maryland, Alternative

This alternative includes potential impacts associated with the removal of the vessel from the MARAD JRRF as well as its conveyance to Baltimore, Maryland. Both aspects of the alternative are described below.

<u>MARAD JRRF</u>
The impacts associated with the removal of the vessel from the MARAD JRRF described in Section 3.3.3.1 for the Hampton Roads Metropolitan Area Alternative would also apply to this alternative.

<u>Baltimore, Maryland</u>
Wetlands
The impacts associated with wetlands described in Section 3.3.3.1 for the Hampton Roads Metropolitan Area Alternative would also apply to this alternative. Thus, there would be no significant impacts to wetlands from vessel decommissioning and dismantling at Baltimore, MD.

Benthic Communities
There are no known stands of SAV within the project area; therefore, SAV would not be affected. There are limited species in the project area that can tolerate the poor environmental conditions. The towing of the vessel would result in minimal to no temporary impacts. Blue crabs are not expected in the area, and would not be impacted.

The impacts associated with benthic communities described in Section 3.3.3.1 for the Hampton Roads Metropolitan Area Alternative would also apply to this alternative. Overall, impacts to the benthos from contaminant exposure, physical disturbance, or suspended sediments resulting from decommissioning and dismantling at the Baltimore facility are not expected to be significant.

Fish and Essential Fish Habitat
The impacts associated with fish and EFH described in Section 3.3.3.1 for the Hampton Roads Metropolitan Area Alternative would also apply to this alternative. Overall, impacts to fish resources from contaminant exposure, physical disturbance, or suspended sediments resulting from decommissioning and dismantling at the Baltimore facility are neither likely nor expected to be significant. There would be no effect on EFH.

Protected Species
The impacts associated with protected species described in Section 3.3.3.1 for the Hampton Roads Metropolitan Area Alternative would also apply to this alternative. There would be no effect on protected sea turtles from decommissioning and dismantling activities. There would be no reasonably foreseeable takes of marine mammals; the towing action may affect but is not likely to adversely affect threatened and endangered species.

There is a very low probability that the bald eagle and peregrine falcon, could be harmed by ingestion through fish or chemical contaminants released during decommissioning and dismantling activities. The USACE has determined that there would be no reasonably foreseeable takes of migratory birds, including bald eagles, and no effect on the peregrine falcon.

Considering compliance with all Federal and state regulations, guidelines, and agreements, the removal of the vessel from MARAD JRRF, the short distance of towing in protected waters (no open ocean) to the Baltimore, MD facility, and the subsequent decommissioning and dismantling activities are not expected to have significant impacts on biological resources.

3.3.3.3 Charleston, South Carolina, Alternative

This alternative includes potential impacts associated with the removal of the vessel from the MARAD JRRF, its conveyance to Charleston, SC for decommissioning, and its subsequent conveyance to Baltimore, MD or Brownsville, TX for dismantling. Each aspect of the alternative is described below.

<u>MARAD JRRF</u>
The same impacts described for the Hampton Roads Metropolitan Area Alternative would apply to this alternative. Specific impacts for MARAD JRRF are provided in Section 3.3.3.1.

<u>Charleston, South Carolina</u>

Wetlands
Wetlands do not occur at or adjacent to the Charleston facility; thus, there would no significant impact to wetlands from vessel decommissioning at the Charleston facility.

Benthic Communities
The proposed decommissioning of the vessel at Charleston, SC could have impacts to benthic communities. Considerations regarding potential impacts are similar to those described above for Baltimore, MD. Implications for benthic communities would likely be more minor in spatial extent and duration than those described for Baltimore activities due to the limited dismantling activities that could occur at this location. Overall, no significant impacts to the benthos would be expected from decommissioning at the Charleston facility.

Fish and Essential Fish Habitat
Considerations regarding impacts to fish resources are the same as those described above for benthos. Exposure to contaminants and suspended sediments from propeller wash would be the

primary concerns. The impact-causing factors would be the same as those described above and specific implications for fish would be similar to those discussed for the Hampton Roads Metropolitan Area and Baltimore decommissioning facilities.

Potential impacts to EFH would be as described above for fish resources and benthic communities. There would be no anticipated effect on EFH.

Protected Species

As summarized in Section 3.3.3.1, the impacts on protected marine species include collision and encountering a tow cable. Impacts on sea turtles which may be found in the area are not expected due to the permits and regulations in place to guard against the discharge of contaminants into the aquatic environment. Additionally, these species inhabit open-ocean and near-coastal environments, which are some distance away from the Charleston facility. Any contaminants that may enter the water would likely be at low concentrations and the probability that they would be ingested by sea turtles, or their prey species, is almost non-existent. Thus, there would be no effect on protected sea turtles from decommissioning. Vessel strike avoidance measures would be the same as previously described for the Baltimore facility, so that there would be no reasonably foreseeable takes on marine mammals; the towing action may affect but is not likely to adversely affect threatened and endangered species.

As mentioned under the Baltimore Alternative, there is a very low probability that the bald eagle could be harmed; there would be no reasonably foreseeable takes of migratory birds including bald eagles.

With respect to the impact of ship decommissioning on the West Indian manatee, contaminants that enter the water from ship decommissioning and potential partial dismantling could have harmful health effects on manatees if ingested. However, with low concentrations of contaminants, if any, that may be released into the water, and with the low probability the manatees would occur near the Charleston facility, there would be no reasonably foreseeable takes and no effect on manatees.

Considering compliance with all Federal and state regulations, guidelines, and agreements, the removal of the vessel from MARAD JRRF, towing to a Charleston, SC facility, and the subsequent decommissioning activities are not expected to have significant impacts on biological resources.

After decommissioning actions at Charleston are complete, the vessel may be towed to Brownsville, TX or Baltimore, MD for final dismantling activities. Each dismantling facility is discussed separately below.

<u>Brownsville, Texas</u>

Wetlands

Wetlands do not occur at or adjacent to the Brownsville facilities; Thus, there would no significant impact to wetlands from vessel dismantling at the Brownsville facilities.

Benthic Communities

The proposed dismantling of the vessel at Brownsville, TX could have impacts to benthic communities. Considerations regarding potential impacts are similar to those described previously for Hampton Roads Metropolitan Area, VA. Overall, no significant impacts to the benthos from dismantling at the Brownsville facilities would be expected.

Fish and Essential Fish Habitat
Considerations regarding impacts to fish resources are the same as those described above for benthos. Specific implications for fish are discussed in the Hampton Roads Metropolitan Area section.

Potential impacts to EFH would be as described above for fish resources and benthic communities; there would be no effect on EFH.

Protected Species
Permits and regulations will be in place during dismantling to guard against the discharge of contaminants into the aquatic environment. Additionally, these species inhabit open-ocean and near-coastal environments, which are at least seventeen miles away from the Brownsville facility. Any contaminants that may enter the water would likely be at low concentrations and the probability that they would be ingested by sea turtles, or their prey species, is almost non-existent. Thus, there would be no effect on protected sea turtles at the dismantling facility. Vessel strike avoidance measures would be the same as described for the Baltimore facility so that there would be no reasonably foreseeable takes on marine mammals; the towing action may affect but is not likely to adversely affect threatened and endangered species as a result of this alternative.

There is a very low probability that marine/migratory birds could be harmed by ingestion of chemical contaminants released during dismantling activities as previously described. There would be no reasonably foreseeable takes of migratory birds, including bald eagles and no effect on piping plover and brown pelican.

There is almost no possibility that the West Indian manatee would be impacted by ship dismantling. Although the possibility exists that manatees could be found in the BSC, manatees are extremely rare in Texas. Contaminants that enter the water from ship dismantling could have harmful health effects on manatees if ingested. However, with low concentrations of contaminants, if any, that may be released into the water, and with the low probability the manatees would occur near the Brownsville facility, there would be no reasonably foreseeable takes and no effect on manatees.

Considering compliance with all Federal and state regulations, guidelines, and agreements, the removal of the post-decommissioned vessel from Charleston, towing to a Brownsville, TX facility, and the subsequent dismantling activities are not expected to have significant impacts on biological resources.

<u>Baltimore, Maryland</u>
The same impacts as previously described for the Baltimore Alternative would apply to this alternative if Baltimore is chosen as the location for dismantling after decommissioning at Charleston. Specific impacts for Baltimore are provided in Section 3.3.3.2.

Overall, with this alternative there is a slightly higher risk of vessel strike impacts to marine mammals and sea turtles due to the extended time towing the vessel through open ocean waters from Chesapeake Bay to Charleston and either back to Chesapeake Bay or on to the Gulf of Mexico.

3.3.3.4 Galveston, Texas, Alternative

This alternative includes potential impacts associated with the removal of the vessel from the MARAD JRRF, its conveyance to Galveston, TX for decommissioning, and its subsequent

conveyance to Brownsville, TX for dismantling. Each aspect of the alternative is described below.

MARAD JRRF

The same impacts as previously described for the Hampton Roads Metropolitan Area Alternative would apply to this alternative. Specific impacts for MARAD JRRF are provided in Section 3.3.3.1.

Galveston, Texas

Wetlands

Wetlands do not occur at or adjacent to the Galveston facility; thus, there would no significant impact to wetlands from vessel dismantling at the Galveston facility.

Benthic Communities

The proposed decommissioning of the vessel at Galveston, TX could have impacts to benthic communities. Potential impacts are similar to those described previously for Hampton Roads Metropolitan Area, VA, but even less likely, considering the dismantling would not occur at this location.

The potential impacts on benthic communities would include exposure to contaminants from the vessel (or from accidental spills) and propeller wash from tug vessels. The Galveston facility would only involve decommissioning actions. Implications for benthic communities would likely be more minor in spatial extent and duration than those described for Hampton Roads Metropolitan Area. Overall, no significant impacts to the benthos from decommissioning at the Galveston facility would be expected.

Fish and Essential Fish Habitat

Considerations regarding impacts to fish resources are the same as those described above for benthos. Exposure to contaminants and suspended sediments from propeller wash would be the primary concern. The impact-causing factors would be the same as those described above and specific implications for fish are discussed in the Hampton Roads Metropolitan Area section.

Potential impacts to EFH would be as described above for fish resources and benthic communities; however, actions at this location would have less potential impact due to only decommissioning actions occurring there. There would be no anticipated effect on EFH.

Protected Species

As summarized in Section 3.3.3.1, the impacts on protected marine species include collision and encountering a tow cable. Impacts on the four species of sea turtles that may be found in the area are not expected due to the permits and regulations in place to guard against the discharge of contaminants into the aquatic environment. Any contaminants that may enter the water would likely be at low concentrations and the probability that they would be ingested by sea turtles, or their prey species, is almost non-existent. Thus, there would be no effect on protected sea turtles from these actions. Vessel strike avoidance measures would be the same as previously described for the Baltimore facility so that there would be no reasonably foreseeable takes on marine mammals; the towing action may affect but is not likely to adversely affect threatened and endangered species as a result of this alternative.

There is a very low probability that bird species could be harmed by ingestion of chemical contaminants released from the decommissioning facility, including the brown pelican, whose habitat is mainly coastal and is rarely seen inland. These contaminants, which if released into the

water would occur in low concentrations, and would not likely be transported to nearby beaches or other coastal habitats due to preventive measures implemented at the facility. Additionally, the levels of hazardous substances if released into the aquatic environment would likely be very small and rapidly diluted to background levels. There would be no reasonably foreseeable takes of migratory birds, including bald eagles and no effect on piping plover and brown pelican.

There is a very low probability that the West Indian manatee would be impacted by ship decommissioning, as manatees are extremely rare in Texas. Contaminants that may enter the water could have harmful health effects on manatees if ingested. However, with low concentrations of contaminants, if any, that may be released into the water, and with the low probability the manatees would occur near the Galveston facility, there would be no reasonably foreseeable takes and no effect on manatees.

Considering compliance with all Federal and state regulations, guidelines, and agreements, the removal of the vessel from MARAD JRRF, towing to a Galveston, TX facility, and the subsequent decommissioning activities at that facility are not expected to have significant impacts on biological resources.

Brownsville, Texas

The same impacts of dismantling at Brownsville as previously described for the Charleston Alternative would apply to this alternative. Specific impacts for Brownsville are provided in Section 3.3.3.3.

Overall, with this alternative, similar to the Charleston Alternative, there is a slightly higher risk of vessel strike impacts to marine mammals and sea turtles due to the extended time towing the vessel through open ocean waters from Chesapeake Bay to Galveston and then to Brownsville.

3.3.3.5 No-Action Alternative

Under the No-Action Alternative, STURGIS would not be removed from MARAD JRRF. The vessel would continue to age and USACE would continue to implement preventative maintenance actions including periodic drydockings to avoid/minimize deterioration. However, over time there will be an increased cost to maintain the vessel and reduce environmental impact.

3.3.4 Impact Summary

Table 3-6. Biological Resource Impact Summary

Environmental Feature	Hampton Roads Metropolitan Area, VA, Alternative	Baltimore, MD, Alternative	Charleston, SC, Alternative	Galveston, TX, Alternative	Brownsville, TX, Dismantling Option location	No-Action Alternative
Wetlands	No impact	No impact	No impact	No impact	No impact	No significant impact
Benthic Communities	Temporary impacts; potential beneficial impact at JRRF	Temporary impacts; potential beneficial impact at JRRF	Temporary impacts; potential beneficial impact at JRRF	Temporary impacts; potential beneficial impact at JRRF	Temporary impacts; potential beneficial impact at JRRF	No significant impact
Fish and Essential Fish Habitat	Temporary impacts to unprotected	Temporary impacts to unprotected	Temporary impacts to unprotected	Temporary impacts to unprotected	Temporary impacts to unprotected	No impact to fish; no effect on

Environmental Feature	Hampton Roads Metropolitan Area, VA, Alternative	Baltimore, MD, Alternative	Charleston, SC, Alternative	Galveston, TX, Alternative	Brownsville, TX, Dismantling Option location	No-Action Alternative
	fish; no effect on EFH	fish; no effect on EFH	fish; no effect on EFH	fish; no effect on EFH	fish; no effect on EFH	EFH
Protected Species	May affect but not likely to adversely affect and no reasonably foreseeable takes	May affect but not likely to adversely affect and no reasonably foreseeable takes	May affect but not likely to adversely affect and no reasonably foreseeable takes	May affect but not likely to adversely affect and no reasonably foreseeable takes	May affect but not likely to adversely affect and no reasonably foreseeable takes	No effect and no reasonably foreseeable takes

3.4 Air Quality

3.4.1 Regulatory Setting

Air quality in a given location is defined by pollutant concentrations in the atmosphere and is generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). One aspect of significance is the concentration of a pollutant in comparison with the national and/or state ambient air quality standard. These standards represent the maximum allowable atmospheric concentrations that may occur and still protect public health and welfare with a reasonable margin of safety. The national standards, established by the U.S. EPA, are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS represent maximum acceptable concentrations that generally may not be exceeded more than once per year, except the annual standards, which may never be exceeded. The six criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM), sulfur dioxide (SO_2), and lead (Pb).

The EPA designates all areas in the country as nonattainment, attainment, maintenance, or unclassifiable with respect to the NAAQS for each criteria pollutant:

- Areas that violate ambient air quality standards are designated as nonattainment areas;
- Areas that comply with Federal air quality standards are designated as attainment areas;
- Areas that have improved air quality from nonattainment to attainment are designated as maintenance areas;
- Areas that lack monitoring data to demonstrate attainment or nonattainment status are designated as unclassified and are considered to be in attainment for regulatory purposes.

Varying levels of nonattainment have been established for ozone, CO, and PM to indicate the severity of the air quality problem (i.e., the classifications runs from marginal to extreme for ozone; moderate to serious for CO).

The CAA requires each state to develop, adopt and implement a State Implementation Plan (SIP) to achieve, maintain, and enforce Federal air quality standards throughout the state. SIPs are developed on a pollutant-by-pollutant basis whenever one or more air quality standards are being violated (nonattainment). Under the EPA's General Conformity Rule (40 C.F.R. § 93), Federal agencies must determine whether the action either is exempt from a Conformity Determination or conforms to the applicable SIP. Actions are exempt when the total of all reasonable foreseeable direct and indirect emissions would be: 1) less than the *de minimis* emission

threshold, and 2) less than ten percent of the area's annual emission budget. If these conditions are met, the requirement for a Conformity Determination is not applicable. In addition, the Conformity Determination Rule contains a number of specific Federal activities that are exempted from Conformity Determination because they will either result in no or *de minimis* increases in emissions (40 C.F.R. § 93(c)(2)).

3.4.2 Affected Environment

The air pollutants that are considered in this analysis include volatile organic compound (VOCs) and nitrogen oxides (NOx), which are precursors to ozone formation, as well as particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The following section summarizes the attainment status and local air quality for each alternative.

Climate change/greenhouse gas (GHG) emissions are by nature global and cumulative in their impacts. Additionally, individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Currently, there are no formally adopted or published NEPA thresholds of significance for GHG emissions; also, towing, which is usually categorically excluded because the action is considered a routine movement of mobile assets, has been found not to have a significant effect on the human environment. For these reasons, climate change is not addressed in this EA.

3.4.2.1 JRRF, Joint Base Langley Eustis, VA

Joint Base Langley Eustis is located within the city of Hampton Roads Metropolitan Area and is part of the Hampton Roads Intrastate Air Quality Control Region (AQCR 6). Current regional air quality is in attainment and no formal conformity review is required.

3.4.2.2 Hampton Roads Metropolitan Area, VA

Air quality is similar throughout the Hampton Roads Metropolitan Area area. Hampton Roads Metropolitan Area is within AQCR 6 and designated as attainment for NAAQS.

3.4.2.3 Baltimore, MD

The Port of Baltimore is located in Baltimore County, Maryland. Baltimore County is within the Metropolitan Baltimore Intrastate AQCR (AQCR 115). With respect to the 2008 8-hour ozone standard, AQCR 115 is classified as moderate non-attainment. With respect to the 1997 8-hour ozone standard, AQCR 115 is classified as serious-nonattainment. For $PM_{2.5}$, AQCR 115 is classified as non-attainment.

Maryland is considered part of the Ozone Transport Region (OTR). The OTR encompasses eleven northeast states and the District of Columbia, all of which have at least some areas not meeting the NAAQS for ozone. Because ozone attainment is a region-wide problem involving interstate transport of ozone precursors, projects located in all areas within the OTR must meet more stringent non-attainment new source review requirements. The applicable emissions thresholds triggering major new source review in the Metropolitan Baltimore Intrastate AQCR are 50 tons per year for either VOCs or NO_x.

The Baltimore Nonattainment Area 8-Hour Ozone SIP was submitted to the EPA in December 2012. The draft Washington DC-MD-VA 1997 $PM_{2.5}$ Maintenance Plan was prepared in January 2013.

3.4.2.4 Charleston, SC

Charleston, SC is within the Charleston Intrastate AQCR (AQCR 9). Current regional air quality is in attainment and no formal conformity review is required.

3.4.2.5 Galveston, TX

Galveston is within Houston-Galveston-Brazoria AQCR (AQCR 12). With respect to the 2008 8-hour ozone standard, the region is classified as marginal non-attainment. With respect to the 1997 8-hour ozone standard, the region is classified as severe non-attainment. The Texas Commission on Environmental Quality adopted the Infrastructure and Transport SIP Revision for the 2008 Ozone NAAQS in December 2012.

3.4.2.6 Brownsville, Texas

Ship dismantling facilities are located in Cameron County within the EPA's Brownsville- Laredo AQCR (AQCR 213). The Brownsville-Laredo Intrastate AQCR includes the counties of Cameron, Hidalgo, Jim Hogg, Starr, Webb, Willacy, and Zapata. The entire AQCR 213 is designated by the EPA as being in attainment for all criteria pollutants, meeting all NAAQS standards. No formal conformity review is required for this location.

3.4.3 Environmental Consequences

Estimated emissions from a proposed Federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations. Impacts would occur if the action alternatives directly or indirectly produce emissions that would be the primary cause of, or would significantly contribute to, a violation of state or Federal ambient air quality standards. Emission thresholds associated with CAA conformity requirements are another means of assessing the significance of air quality impacts. A formal Conformity Determination is required for Federal actions occurring in nonattainment or maintenance areas when the total direct and indirect stationary and mobile source emissions of nonattainment pollutants or their precursors exceed thresholds or de minimis values (Table 3-7). Because two of the Proposed Action locations are in regions of nonattainment or moderate nonattainment, a Record of Non-Applicability (RONA) has been prepared and is included as Appendix A of this EA.

Table 3-7. Applicable Criteria Pollutant *de minimis* Levels (Tons/Year) for Alternative Locations (40 C.F.R. § 93.153)

Location	VOC	NOx	PM2.5
James River Reserve Fleet, VA	--	--	--
Hampton Roads Metropolitan Area, VA	--	--	--
Baltimore, MD	50	100	100
Charleston, SC	--	--	--
Galveston, TX	50	100	--
Brownsville, TX	--	--	--

The Proposed Action would not combine with impacts from other past or future projects in such a manner that would create a cumulative impact.

3.4.3.1 Hampton Roads Metropolitan Area, VA, Alternative

The Proposed Action would not result in significant impact to air quality as the action requires no construction and no dredging. Ongoing operations at the JRRF would not increase since the vessel would be removed from this location. Therefore, there would be no increase in the air quality impacts at the site.

The towing operation would result in a minimal and temporary increase of marine vessel emissions. The towing of the ship qualifies as a "routine movement" by the EPA and is exempt from the requirements of the Conformity Determination Rule. According to 40 C.F.R. § 93.153(c), the Proposed Action qualifies as an action which would result in no emissions increase or an increase in emission that is clearly *de minimis*:

"(viii) Routine Movement of mobile assets, such as ships and aircraft, in homeport assignments and stations (when no new support facilities or personnel are required) to perform as operational groups and/or for repair or overhaul."

Ship decommissioning and dismantling activities can generate air pollutants that are regulated by the CAA. If a facility emits regulated amounts of air pollutants, it must obtain the appropriate operating or preconstruction permit and comply with all emissions requirements set forth in that permit. Specifically, torch cutting may generate large amounts of fumes and some or all of the following materials as particulates: manganese, nickel, chromium, iron, aluminum, asbestos, and lead. It may also initiate small fires when oil or sludge is ignited by the torch. These fires are usually short-lived, but may generate some intense black smoke. The cutting torches themselves can generate NOx and sulfur oxides (SOx), and the process of combustion produces carbon dioxide and carbon monoxide. In spite of these releases, air pollutants from metal cutting are not likely to have a major air quality impact (EPA, 2000).

Fugitive dust may be generated from tailpipe emissions caused by equipment and vehicles. Appropriate fugitive dust control measures are required by the Virginia Regulations for the Control and Abatement of Air Pollution (9 VAC 5-40-90 et seq.). No open burning of ship materials would occur at the project area. Exhaust emissions from the transport of workers and machinery to the site and from construction equipment would be considered *de minimis*.

Worker safety issues during metal cutting as a result of exposure to air contaminants, including metal fumes, particulates, and smoke may be substantial. These contaminants can have acute and chronic toxic effects on workers. OSHA has established exposure limits for various air contaminants that are considered toxic. If instantaneous monitoring is not feasible, the ceiling is a 15-minute time-weighted average exposure, which must not be exceeded at any time over a working day (EPA, 2000). Compliance with OSHA requirements will minimize impacts on worker safety.

No significant impacts to air quality can be attributed to handling, loading, and transportation of hazardous and radioactive materials (see the Waste Management Plan and waste management Section 3.5). Waste management activities would have no impact on non-radiological ambient air quality and would not be expected to cause either radiological or non-radiological air quality impacts to exceed state or Federal standards, or to significantly affect air quality in any other respect at Hampton Roads Metropolitan Area. Details of the air quality impacts are provided in the GEIS on the decommissioning of nuclear facilities.

In general, decommissioning and dismantling activities could result in temporary minor, localized impacts to air quality, but are not expected to change the designation of the area with respect to NAAQS. Additionally, project activities that comply with applicable rules and regulations would not significantly affect air quality. The Hampton Roads Metropolitan Area facility has all required permits. The decommissioning and dismantling of STURGIS would not represent a new or significantly different line of work for the shipyard, with different effects on the environment, but rather a continuation of a long term, ongoing program, with minimal surrounding effect.

3.4.3.2 Baltimore, MD, Alternative

Similar to the Hampton Roads Metropolitan Area, VA, Alternative, the Baltimore, MD, Alternative requires removal of the vessel from JRRF through towing. Towing falls within the meaning of "routine ship movement," which is exempted from the requirements of the General Conformity Rule (40 C.F.R. § 93.153(c)(2)(viii)). The environmental air impacts of decommissioning and dismantling at this location are comparable to those described in Section 3.4.3.1 and are not repeated here.

The Proposed Action does not require construction activities, thus related air emissions would be expected to be *de minimis*. Moreover, emission of fuel/petroleum/combustible gases from ship decommissioning and dismantling activities would be in compliance with all Federal and state permit requirements. Relevant air emissions would be localized and of short duration. Therefore, implementation of the Baltimore, MD, Alternative would not have a significant impact on air quality.

3.4.3.3 Charleston, SC, Alternative

Similar to the Hampton Roads Metropolitan Area, VA, Alternative, the Charleston, SC, Alternative requires removal of the vessel from JRRF through towing. Towing falls within the meaning of "routine ship movement," which is exempted from the requirements of the General Conformity Rule (40 C.F.R. § 93.153(c)(2)(viii)). The environmental air impacts of decommissioning at this location are comparable to those described in Section 3.4.3.1 and are not repeated here. Ship dismantling would be conducted in Baltimore, MD or Brownsville, TX. All dismantling activities will be conducted in compliance with applicable Federal and state environmental laws. Compliance with regulations would avoid significant impacts on air quality. The impact of dismantling activities in Baltimore, MD is described in Section 3.4.3.2. Brownsville, TX is in attainment for all criteria pollutants; dismantling activities are not expected to generate air pollution that could change the attainment status.

3.4.3.4 Galveston, TX, Alternative

Similar to the Hampton Roads Metropolitan Area, VA, Alternative, the Galveston, TX, Alternative requires removal of the vessel from JRRF through towing. Towing falls within the meaning of "routine ship movement," which is exempted from the requirements of the General Conformity Rule (40 C.F.R. § 93.153(c)(2)(viii)). The environmental air impacts of decommissioning at this location are comparable to those described in Section 3.4.3.1 and are not repeated here. Ship dismantling would be conducted in Brownsville, TX. All dismantling activities will be conducted in compliance with applicable Federal and state environmental laws. Compliance with regulations would avoid significant impacts on air quality. Additionally,

Brownsville, TX is in attainment for all criteria pollutants; dismantling activities are not expected to generate air pollution that could change the attainment status.

3.4.3.5 No-Action Alternative

The No-Action Alternative would leave STURGIS at JRRF. Under the No-Action Alternative, the vessel would continue to be maintained in a safe stowage condition (SAFSTOR). Therefore, no significant impacts to air quality would occur.

3.5 Waste Management

3.5.1 Regulatory Setting

Federal laws and requirements relating to waste management include: Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-5800), as amended by PL 100-582; USEPA, Subchapter I-Solid Wastes (40 C.F.R. § 240-280); Toxic Substances Control Act (PL 94-496); USEPA, Subchapter R-Toxic Substances Control Act (40 C.F.R. § 702-799); and Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition (EO 13101); The Proposed Action is within the Atomic Energy Act authorities granted to the DOD, specifically Sections 91(b) and 110(b) which gives DOD the authority to regulate the radioactive materials, and is consistent with relevant guidance identified in 10 C.F.R. 20.1402, the radiological criteria for unrestricted use. The proposed decommissioning would be completed in compliance with 10 C.F.R. Part 20.1402, "Radiological Criteria for Unrestricted Use." Hazardous Wastes are regulated under 42 USC 6901 (RCRA), and the DOT Hazardous Materials Program Procedures, 49 C.F.R. Part 107.

USACE has prepared a Waste Management Plan for STURGIS in conjunction with the DP, which is available from the USACE Baltimore District.

The NRC GEIS (NUREG 1496) analyzed waste management and determined there would be no significant impacts from decommissioning activities.

3.5.2 Affected Environment

In general, wastes generated during shipyard activities are considered industrial or regulated wastes. The main hazardous material of concern is the generation of LLW/MLLW/LLRW/LLMW present on STURGIS. LLW/MLLW/LLRW/LLMW will be classified and compliant based on a selected disposal facility's acceptance criteria and any applicable Federal and state regulatory requirements. Radioactive wastes that are sent to a commercial radioactive waste disposal facility (all but the DOE site for this project) regulated by an agreement state or Federal government will be classified as required in 10 C.F.R. Part 61.55, Waste Classification, into the following four categories:

> Class A- Low levels of radiation and heat; no shielding required to protect workers or Public; rule of thumb states that it should decay to acceptable levels within 100 years.
>
> Class B- Has higher concentrations of radioactivity than Class A and requires greater isolation and packaging (and shielding for operations) than Class A waste.
>
> Class C- Requires isolation from the biosphere for 500 years; must be buried at least 5m below the surface and must have an engineered barrier (container and grouting).

Greater Than Class C- This low level waste does not qualify for near-surface burial; includes commercial transuranic alpha emitting wastes that have half-lives greater than 5 years and activity concentration greater than 100 nCi/g.

The DOE has determined that there is a nexus and STURGIS waste may be eligible for disposal at a federal facility (either NNSS or WCS FWF). Radioactive wastes being sent to a DOE facility such as the NNSS is not broken into these waste categories as described above. The DOE manages waste consistent with DOE Order 435.1. LLW is acceptable at DOE sites provided they have a "clear and unambiguous nexus" to a DOE-funded project, DOE-performed operation, DOE-owned material/waste, or project whose waste disposition is directed by statute. The FWF at WCS is currently operated under a State of Texas License and follows the classifications similar to those identified in 10 CFR 61.55.

Specifically, the following disposal sites will be evaluated based on availability, waste type eligibility, acceptance conditions and criteria, location with respect to decommissioning location, and costs of disposal:

- FWF at WCS, LLC (Andrews, Texas)
- Energy*Solutions*, Inc. (Barnwell, South Carolina)
- Energy*Solutions*, Inc. (Clive, Utah)
- DOE, NNSS (65 miles northwest of Las Vegas, Nevada)

A key consideration in the selection of the disposal site(s) is where the decommissioning of STURGIS will take place and the associated costs for transportation and disposal fees for each option. Because of compact agreements, only waste generated in certain states may be eligible for disposal at a specific disposal site. Each site selected has its own Waste Acceptance Criteria (WAC) that the decommissioning contractor will comply with and use to ensure proper certification for each waste shipment.

LLW, MLLW, LLRW, LLMW, or hazardous waste (e.g., RCRA) will be properly packaged, removed and transported to the final disposal location. Additional details regarding how waste will be removed from STURGIS, segregated and packaged according to waste type, and shipped to a licensed disposal site will be contained in the Waste Management Plan and the Decommissioning Plan.

The Energy*Solutions* facility in Barnwell County, SC holds a South Carolina Department of Health and Environmental Control Radioactive Materials License #097 as a LLRW Disposal Site, and #287-04 as a Processing Facility. The Energy*Solutions* facility in Clive, Utah holds a State of Utah Radioactive Material License UT 2300249. The DOE NNSS holds a State of Nevada (delegated from USEPA) Division of Environmental Protection permit for mixed low level waste. The State of Nevada does not regulate the disposal of radioactive material at NNSS. Only through their RCRA authority do they regulate that component of the mixed waste sent to the site. Waste Control Specialists in Texas holds a LLRW Disposal License R04100 and a By-Product Material Disposal Facility License R05807. Waste Control Specialists operates a Compact Waste Facility as well as a Federal Waste Facility for the DOE. The FWF can take both LLW and MLLW.

In addition, other possible hazardous materials that may be removed include PCBs (mainly in electrical cables, gaskets, grout/caulking, and other electrical components), ACM (insulation materials and wallboard), LBP, mercury in electrical switches and other components, fuels, oils,

lubricants, and some ozone depleting substances in refrigerants. The removal of hazardous materials from STURGIS is required to be in accordance with Federal, state and local regulations. The majority of materials would be recycled for beneficial reuse to the maximum extent practicable to reduce the use of local landfills or other disposal sites.

3.5.2.1 MARAD JRRF

There are numerous vessels moored at JRRF with hazardous materials present. When STURGIS was placed in SAFSTOR, much of the hazardous materials were removed. However, any remaining materials aboard the vessel are monitored by MARAD.

3.5.2.2 Hampton Roads Metropolitan Area, Virginia

This industrial shipyard facility routinely works on vessels with various types of waste. The decommissioning/dismantling contract will require that the facility has all required permits and licenses to operate, adheres to safety procedures and waste management requirements, and follows all required regulations.

The EPA CERCLIS database contains information on hazardous waste sites, potentially hazardous waste sites, and remedial activities across the nation, including sites proposed for the National Priorities List (NPL) or actually listed on the NPL (i.e. Superfund sites). Areas listed in the CERCLIS database located near Hampton Roads Metropolitan Area include Fort Eustis, which is an NPL site; Patrick Henry Airport in Hampton Roads Metropolitan Area City; and Goodwin Junkyard in Isle of Wight County. Neither Patrick Henry Airport nor Goodwin Junkyard is an NPL site. Numerous sites are listed in the RCRA online database that generate, store, transport or dispose of hazardous wastes, including stores and various companies such as dry cleaning, sign manufacturing, natural gas distribution, as well as ship facilities in Hampton Roads Metropolitan Area. None of these sites are anticipated to be impacted during this project.

Wastes that are generated during decommissioning or dismantling must be characterized, tested (as necessary) and disposed of in accordance with applicable Federal, state, and local laws and regulations. While it is not anticipated that any impacts to soil will occur as a result of the Proposed Action, any soil that is suspected of contamination must be managed in the same manner described for wastes above. In addition to the Federal waste management regulations listed in Section 3.5.1, some of the applicable state laws and regulations that should be followed are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). All structures being demolished/renovated/removed should be checked for ACM and LBP prior to demolition. If ACM or LBP are found, in addition to the Federal waste-related regulations mentioned above, State regulations 9VAC 20-81-620 for ACM and 9VAC 20-60-261 for LBP must be followed.

3.5.2.3 Baltimore, Maryland

This industrial facility also routinely works on vessels with various types of waste. The decommissioning/dismantling contract will require that the facility has all required permits and licenses to operate, adheres to safety procedures and waste management requirements, and follows all required regulations.

The CERCLIS database lists 51 CERCLIS sites in Baltimore County, with 39 listed in the City of Baltimore, of which all but five are not NPL sites; those five are Colgate Pay Dump (part of

an NPL site), Curtis Bay Coast Guard Yard (NPL site), Kane and Lombard Street Drums (NPL site), Picorp – Operable Unit (part of NPL site) and RM Winstead Co (part of NPL site). Similar to Hampton Roads Metropolitan Area, the RCRA database lists numerous facilities that manage hazardous wastes in Baltimore. None of these sites are anticipated to be impacted by this project.

In addition to the Federal waste management regulations listed in Section 3.5.1, some of the applicable state laws and regulations that should be followed are: Code of Maryland Regulations (COMAR) 26.15 *et. Seq*., Disposal of Controlled Hazardous Substances — Radioactive Hazardous Substances; COMAR 26.16 *et. Seq*., Lead; COMAR 26.02 *et. Seq*., Occupational, Industrial, and Residential Hazards; COMAR 26.04 *et. Seq*., Regulation of Water Supply, Sewage Disposal, and Solid Waste; COMAR 26.10 *et. Seq*., Oil Pollution and Tank Management; COMAR 26.13 *et. Seq*., Disposal of Controlled Hazardous Substances; and COMAR 26.14 *et. Seq*., Hazardous Substance Response Plan.

3.5.2.4 Charleston, South Carolina

This industrial shipyard facility also routinely works on vessels with various types of waste. The decommissioning/dismantling contract will require that this facility and the dismantling facility have all required permits and licenses to operate, adhere to safety procedures and waste management requirements, and follow all required regulations.

There are 10 CERCLIS sites listed in North Charleston, all but one (Macalloy Corporation which is an NPL site) are not NPL sites, and additional facilities that manage hazardous wastes; none of these sites are anticipated to be impacted by this project.

In addition to the Federal waste management regulations listed in Section 3.5.1, some of the applicable state laws and regulations that should be followed are: South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management requirements; South Carolina Hazardous Waste Management Act; South Carolina Pollution Control Act; South Carolina Hazardous Waste Management Regulations R.61-79; Atomic Energy and Radiation Control Act; Title A: Radioactive Materials Regulations; Transportation of Radioactive Waste Into or Within South Carolina Regulations; and Solid Waste Policy and Management Act.

3.5.2.5 Galveston, Texas

This industrial shipyard facility also routinely works on vessels with various types of waste. The decommissioning/dismantling contract will require that this facility and the dismantling facility have all required permits and licenses to operate, adhere to safety procedures and waste management requirements, and follow all required regulations.

There are six CERCLIS sites listed in Galveston, none of which are NPL sites, and additional facilities that manage hazardous wastes; none of these sites are anticipated to be impacted by this project.

In addition to the Federal waste management regulations listed in Section 3.5.1, some of the applicable state laws and regulations that should be followed are: Texas Administrative Code (TAC) 30, Part 1, Chapter 335, Industrial Solid Waste and Municipal Hazardous Waste; TAC 30, Part 1, Chapter 336, Radioactive Substance Rules; TAC 30, Part 1, Chapter 328, Waste Minimization and Recycling; TAC 30, Part 1, Chapter 323, Waste Disposal Approvals; TAC 30, Part 1, Chapter 314, Toxic Pollutant Effluent Standards; and TAC 30, Part 1, Chapter 327, Spill Prevention and Control.

3.5.2.6 Brownsville, Texas

The industrial dismantling/shipyard facilities also routinely work on vessels with various types of waste. The decommissioning/dismantling contract will require that the facility has all required permits and licenses to operate, adheres to safety procedures and waste management requirements, and follows all required regulations.

There are two CERCLIS sites in Brownsville, neither are NPL sites, and additional facilities that manage hazardous wastes; none of these sites are anticipated to be impacted by this project.

Applicable state regulations are included in Section 3.5.2.5 (Galveston, TX).

3.5.3 Environmental Consequences

Controls will be required in the decommissioning permit that will prevent the spread of contamination beyond the radiological exclusion zone, and therefore no significant release of airborne or liquid contamination is anticipated during decommissioning or demolition activities. The decommissioning permit will also require environmental monitoring to ensure controls are adequate to protect human health and the environment. Waste material generated during decontamination activities would be managed to minimize disposal volumes and take advantage of opportunities to segregate wastes/debris for non-contaminated disposal or recycling. Worker radiation exposures would be limited in accordance with the USACE Safety and Health Requirements Manual, EM 385-1-1. Characterization of waste for radiological and non-radiological hazardous constituents will assure waste is acceptable for off-site disposal. All wastes generated would be disposed of according to Federal regulations at one of the approved regulated/permitted facilities discussed previously in Section 3.5.2.

During dismantling, pollution prevention principles will be implemented, including the reduction, reuse, and recycling of all solid wastes generated. Best Management Practices should be implemented to ensure none of the dismantled or removed materials are placed in areas that could impact the surrounding environment (e.g., wetland or other coastal resources) and that hazardous materials are disposed of in accordance with applicable Federal and state requirements as specified. Reasonable safeguards should be taken when storing or staging dismantled materials on barges or upland storage sites to ensure the materials or particulate matter from the materials do not reenter coastal waters.

In considering the Proposed Action Alternatives, the effects at the facilities would be the same regardless of which alternative is chosen. The Proposed Action would not combine with impacts from other past or future projects in such a manner that would create a cumulative impact.

3.5.3.1 Hampton Roads Metropolitan Area, Virginia, Alternative

<u>MARAD JRRF</u>
There would be no construction, no waste disturbance or segregation, and no transportation or disposal of wastes from this site, other than the vessel towing itself. These actions would have no significant impacts due to waste management.

<u>Hampton Roads Metropolitan Area, Virginia</u>
Considering compliance with all Federal and state regulations, guidelines, and agreements, the removal of the vessel from MARAD JRRF, towing to this decommissioning and/or dismantling facility, and the subsequent decommissioning and dismantling activities are not expected to have significant impacts due to waste management.

3.5.3.2 Baltimore, Maryland, Alternative

The same impacts as the Hampton Roads Metropolitan Area Alternative would apply to this alternative. Specific impacts are provided in Section 3.5.3.1.

3.5.3.3 Charleston, South Carolina, Alternative

The same impacts as the Hampton Roads Metropolitan Area Alternative would apply to this alternative. Specific impacts are provided in Section 3.5.3.1.

3.5.3.4 Galveston, Texas, Alternative

The same impacts as the Hampton Roads Metropolitan Area Alternative would apply to this alternative. Specific impacts are provided in Section 3.5.3.1.

3.5.3.5 No-Action Alternative

Under the No-Action Alternative, STURGIS would not be removed from MARAD JRRF and there would be no significant impacts as a result of this action.

3.6 Health and Safety

3.6.1 Regulatory Setting

Federal regulations for protecting health and safety include OSHA (29 C.F.R.), and 10 C.F.R. 20, "Standards for Protection Against Radiation," and 40 C.F.R. 61 Subpart I – "National Emission Standards for Radionuclide Emissions From Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered by Subpart H." The proposed decommissioning would be completed in compliance with 10 C.F.R. Part 20.1402, "Radiological Criteria for Unrestricted Use." Additionally, shipyards have worker safety and health programs such as worker safety plans and spill prevention plans to adhere to OSHA regulations.

3.6.2 Affected Environment

USACE is responsible for ensuring that STURGIS is in compliance with the ARO permit that incorporates by reference NRC regulations to ensure adequate protection for worker and public health and safety and protection of the environment. For individual ports, the US Coast Guard and the Port Authority, or similar office, usually maintain health and safety plans as well as emergency response plans for the port area. They are often responsible for inspecting commercial vessels for compliance with Federal laws and regulations, responding to oil spills and hazardous material releases into the marine environment, enforcing safety and security zones, investigating marine casualties such as collisions, groundings, and fires, issuing licenses and Mariner's documents to merchant seamen, and monitoring the transfer of bulk liquid products at marine facilities. Vessel movements in port areas, such as vessels under tow or under control of the Port Pilots must comply with these regulations. The USACE is responsible for ensuring that the towing of STURGIS is in compliance with all US Coast Guard and Port Authority requirements.

The Proposed Action involves only the removal, transportation and disposal of regulated materials. Transportation corridors are disturbed areas, no construction is planned, and transportation will be conducted in accordance with regulations such as NRC, DOT, and applicable state requirements; minimal impacts to health and safety via transportation are anticipated. Disposal locations are regulated and licensed to ensure no impacts to health and safety.

Each of the four alternatives has similar affected environments with regards to health and safety. All of the locations considered are governed by the same Federal and very similar state regulations to ensure minimal to no impacts to health and safety.

3.6.3 Environmental Consequences

Controls will be required in the decommissioning permit that will prevent the spread of contamination beyond the radiological exclusion zone, and therefore no significant release of airborne or liquid contamination is anticipated during decommissioning or demolition activities. The decommissioning permit will also require environmental monitoring to ensure controls are adequate to protect human health and the environment. Waste material generated during decontamination activities would be managed to minimize disposal volumes and to maintain proper containment of hazardous materials. Worker radiation exposures would be limited in accordance with 10 C.F.R. Part 20. Additionally, actions would comply with a site-specific Radiation Protection Program in order to minimize all radiation exposures to both workers and the public.

The decommissioning work would be completed by trained workers who will isolate the vessel to ensure that all waste is contained to prevent release to the off-site environment. According to NRC, the exposure to occupational workers for this kind of activity is considered minor (NRC 1988). Public exposure to radiation would be significantly less than that of workers and meet requirements identified in the decommissioning permit. The radiation dose to the public from the transportation of radioactive wastes is estimated to be minor, if at all, and considerably below the average background levels of radiation; thus impacts are expected to be negligible.

Inhalation is considered the dominant exposure pathway for public radiation exposure from naturally occurring radioactive materials. According to NRC's GEIS on decommissioning, the inhalation radiation dose to the public from airborne radionuclide releases during decommissioning of nuclear facilities in general is estimated to be negligible (NRC 1988). These minor adverse exposures to the public would be offset by the beneficial impacts of permanently removing the waste from the vessel and properly disposing of it and other waste materials.

The NRC GEIS has analyzed decommissioning activities and determined that there would not be significant impacts to health and safety. In considering the proposed alternative locations, the effects would be the same regardless of which alternative is chosen; though varying populations may be exposed.

Final vessel dismantling will be conducted in accordance with all applicable waste management laws and regulations. Dismantling activities are considered routine operations at the shipyards, thus no significant impacts to health and safety are expected.

Considering compliance with all Federal and state regulations, guidelines, and agreements, the removal of the vessel from MARAD JRRF, towing to facilities, and the decommissioning and dismantling activities are not expected to have significant impacts on health and safety. The Proposed Action would not combine with impacts from other past or future projects in such a manner that would create a cumulative impact.

3.6.3.1 No-Action Alternative

Under the No-Action Alternative, STURGIS would not be removed from MARAD JRRF, MARAD would continue to monitor the vessel and USACE would continue to maintain the vessel. STURGIS would continue to age, posing an increasing threat to the environment over the

long-term. The increased threat will likely increase costs for the USACE to ensure protection of human health and the environment. Since the JRRF is closed to public access there would be no significant impacts on health and safety.

4 CUMULATIVE IMPACTS

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R. § 1508.7). To be considered cumulative impacts, the effects must meet the following criteria: the effects would occur in a common locale or region; the effects would not be localized (i.e., they would contribute to effects of other actions); the effects would impact a particular resource in a similar manner; and the effects would be long term (short-term impacts are temporary and would not typically contribute to significant cumulative impacts).

Federal regulations implementing NEPA (42 U.S.C. 4321 et seq.) and Environmental Analysis of Army Actions (32 C.F.R. § 651), AR 200-2, require that the cumulative impacts of a Proposed Action be assessed. The CEQ regulations implementing the procedural provisions of the NEPA define cumulative impacts as:

"The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 C.F.R. § 1508.7)

To analyze cumulative impacts, a cumulative impacts region must be identified for which the Proposed Action and other past, proposed, and reasonably foreseeable actions would be cumulatively recorded or experienced. Consequently, the area of potential effects where cumulative impacts may occur consists of six locations that include MARAD JRRF, VA and the surrounding area, as well as the five potential decommissioning and dismantling locations. Therefore, this analysis considers impacts arising from the Proposed Action combined with the impacts of other known past, present, and reasonably foreseeable future actions within the regions. Past, present, and reasonably foreseeable future actions in the cumulative impacts region are briefly described below.

4.1 Projects near MARAD JRRF Joint Base Langley Eustis, VA, and Surrounding Area

The following sections provide general information regarding other projects located at MARAD JRRF and in the nearby area.

4.1.1 Past Projects

Approximately fifteen years ago, there was a replacement concrete pier and break wall constructed that was covered under an EA. In 2012, mooring dolphins were replaced around a dockside and are covered by a CATEX. Other smaller routine dockside/pier maintenance work has been covered by CATEX documents.

4.1.2 Future Projects

Replacement of dilapidated pilings and a break wall that has been erected since the fleet has been in the James River is planned for FY 2013. This work will require USACE and VA Marine Resources Commission permits and be covered under a CATEX.

No significant or long-term cumulative impacts are expected from implementation of these projects.

4.2 Projects near Hampton Roads Metropolitan Area, VA, facility

The Hampton Roads Metropolitan Area, VA facility routinely conducts ship repairs and upgrades, as well as scheduled and emergent maintenance work. The inactivation of USS Enterprise (CVN 65), which is the world's first nuclear-powered aircraft carrier and the only ship of its class, is scheduled to begin in 2013. New nuclear-powered aircraft carriers, including Gerald R. Ford (CVN 78) and John F. Kennedy (CVN 79), are currently under construction. There have been numerous government and commercial vessels constructed and deactivated at the five pier areas and in the four drydocks at the facility. There is no known construction project planned for the dismantling facility, nor in the nearby area that would have a significant impact on the project area.

4.3 Projects near Baltimore, MD, facility

There have been dozens of vessels, including Navy, MARAD and commercial vessels, dismantled at the Baltimore facility, which is capable of dismantling three or more vessels at a time at two piers and a graving dock. Pier 3 improvements for future operations are a long-term project that has been permitted and is currently under construction. The facility has proposed future dredging of its channel to maintenance depth but currently does not have a planned date. There is no known construction project at the facility that would have a significant impact on the project area. Also in Baltimore, the NS SAVANNAH, which was the first nuclear-powered cargo-passenger ship, is undergoing decommissioning activities that were covered under an EA.

4.4 Projects near Charleston, SC, facility

The Charleston facility is capable of decommissioning (but not dismantling) vessels in their four dry docks and adequate pier space. Maintenance dredging occurs annually at various slips on a rotating basis and at other locations along the Cooper River under USACE permits. There is no known construction project planned at the facility that would have a significant impact on the project area. Also near this facility, the Navy has an EA for planned expansion of their Goose Creek nuclear training school which has two submarines based there. The Charleston Naval Shipyard operated here until 1996 with work on numerous nuclear vessels.

4.5 Projects near Galveston, TX, facility

The Galveston facility has a small (300 ft) dry dock and adequate dockside space for decommissioning, but no accommodations for dismantling. There is no known construction project planned at the dismantling facility, nor in the nearby area that would have a significant impact on the project area.

4.6 Projects near Brownsville, TX, facility

There have been hundreds of vessels, including Navy, MARAD and commercial vessels, dismantled along the BSC in 7 slots that can dismantle up to 20 vessels at one time. There are current dismantling and recycling activities occurring under Navy and MARAD contracts. There is ongoing routine dredging of the BSC. The Port of Brownsville completed dredging of the BSC in 2010. There is no known construction project planned at the dismantling facilities that would have a significant impact on the project area.

4.7 Environmental Analysis

The Proposed Action generally would have a lesser impact to the project area than existing or completed nearby projects and dismantling actions. Other projects in the same locations are generally larger in scope than the Proposed Action, and have their own environmental analysis.

Past and ongoing dredging projects also were found not to have a significant effect on the environment, individually or cumulatively. Below, cumulative impacts are discussed within each impact area. Due to the fact that STURGIS would be towed and dismantled at a commercial facility with no construction required and the vessel would be closed to public access, the project would have no impact on land use, geology, soils and seismicity, socioeconomics and environmental justice, transportation, noise, utilities, aesthetics and visual resources. Therefore, it would have no cumulative impacts on these resources when considered with other projects.

4.7.1 Cultural Resources

The cumulative consequences of other projects together with the Proposed Action would not significantly affect cultural resources besides the vessel itself. STURGIS is eligible for listing in the NRHP and has undergone the Section 106 process, which includes compliance with the MOA. There would be no impacts on cultural resources at any of the dismantling facilities. As a result, the Proposed Action would not combine with impacts from other past and future projects in a manner that would create a cumulative impact.

4.7.2 Water Resources

The Proposed Action would cause temporary impacts to water quality as a result of increased turbidity. However, when considered with the dredging projects and other in-water work, the Proposed Action would not significantly impact sediment or water quality. Towing procedures would be implemented so as to avoid sediment disturbance. Moreover, the past in-water projects qualified as CATEX actions, with no significant environmental impacts. Therefore, the Proposed Action would not have a cumulative impact when considered with these projects.

Other projects in the region could produce minor discharges that would flow into surface drainages and eventually to the marine environment. However, these projects would also be required to comply with applicable Federal, state, and local regulations, as well as general and construction stormwater permits. These mandated requirements would reduce potential impacts on water quality to less than significant levels. Therefore, the cumulative impact on water resources would reflect several actions with individual effects that are not significant. The Proposed Action and reasonably foreseeable projects would not likely be occurring at the same time, in the same area. Therefore, the Proposed Action would not have any cumulative impact when considered with these projects.

4.7.3 Biological Resources

The Proposed Action would not significantly affect marine biological resources. Due to the limited scope and local area of the impacts associated with the other identified projects there would be no significant cumulative impacts on biological resources. The Proposed Action and other projects would have the potential to temporarily affect marine species and their habitat, including sea turtles and marine mammals, but there would be no significant impact on these species because they are highly mobile and able to avoid the disturbance area. Moreover, these projects would not likely be occurring at the same time in the same area. No significant in-water work is planned in the vicinity of the dismantling facility portions of the project area. No cumulative effects to EFH due to towing are anticipated. No cumulative impacts to biological resources are anticipated.

4.7.4 Air Quality

Impacts resulting from project emission sources, in combination with impacts from any past and reasonably foreseeable future projects, would not have any cumulative impacts. Temporary and minimum impact to air quality would occur during towing, decommissioning, and dismantling activities. However, the Proposed Action and reasonably foreseeable projects would not likely be occurring at the same time in the same area, so potential impacts would be moderated over time and space. Additionally, ambient air quality is expected to return to the original condition upon the completion of each project. As a result, the Proposed Action would not have cumulative impacts to air quality when considered with other activities in the project area.

4.7.5 Waste Management

Other projects, specifically other shipyard dismantling actions, could produce hazardous waste. However, these projects would also be required to comply with applicable Federal, state, and local regulations. Additionally, the decommissioning permit will identify limits for release of materials and radioactive waste disposal sites are subject to strict siting, maintenance, and monitoring criteria. These mandated requirements would reduce potential impacts to less than significant levels. Therefore, the cumulative impact would reflect several actions with individual effects that are not significant. As a result, the Proposed Action would not have any cumulative impact when considered with these projects.

4.7.6 Health and Safety

Other projects in the region have the potential to produce minor impacts to health and safety. However, these projects would also be required to comply with applicable Federal, state, and local regulations. These mandated requirements would reduce potential impacts on health and safety to less than significant levels. Therefore, the cumulative impact would reflect several actions with individual effects that are not significant. As a result, the Proposed Action would not have any cumulative impact when considered with these projects.

5 OTHER CONSIDERATIONS REQUIRED BY NEPA

5.1 Possible Conflicts between the Proposed Action and the Objectives of Federal, State, Local, and Regional Land Use Plans, Policies, and Controls

Implementation of the Proposed Action would comply with existing Federal regulations state, regional, and local policies and programs. The Federal acts, EOs, policies, and plans that apply include the following: NEPA; CAA and Federal General Conformity Rule; CWA; CZMA; ESA; MBTA and EO 13186; MMPA; NHPA; and EO 12372, Coordination with state and regional agencies. Applicable state, local, and regional plans, policies, and controls include: state Coastal Zone Management Programs; state ESAs; and the relevant AQCR rules and regulations.

5.1.1 Federal Acts, Executive Orders, Policies, and Plans

National Environmental Policy Act

This EA has been prepared in accordance with the NEPA of 1969, 42 U.S.C. §§ 4321-4370d, as implemented by the CEQ regulations, 40 C.F.R. §§1500-1508, and Environmental Analysis of Army Actions (AR 200-2) 32 C.F.R. Part 651. EO 11991 of 24 May 1977 directed the CEQ to issue regulations for procedural provisions of the NEPA; these are binding for all federal agencies.

The NEPA, and the implementing regulations promulgated by the CEQ, require that environmental information is made available to decision makers and citizens before making decisions and taking major Federal actions, and that the NEPA process should identify and assess reasonable alternatives to Proposed Actions to avoid or minimize adverse environmental effects.

Clean Water Act

The Federal CWA was enacted as an amendment to the Federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the U.S. The CWA includes programs addressing both point source and nonpoint source pollution, and empowers the states to set state-specific water quality standards and to issue permits containing effluent limitations for point source discharges. Virginia, Maryland, South Carolina, and Texas are the delegated permit authorities in the project area. The states administer point source discharges of pollutants through an EPA-approved Program. Indirect industrial discharges of effluent to publicly owned treatment works are subject to pretreatment standards promulgated by the EPA and the state.

Clean Air Act and General Conformity Rule

The CAA of 1955 and subsequent amendments specify regulations for control of the nation's air quality. Federal and state ambient air standards (NAAQS) have been established for each criteria pollutant: SO_2, CO, PM_{10} and $PM_{2.5}$, NO_2, lead, and O_3. National emissions standards were set for individual sources of hazardous air pollutants as well as regulation of mobile sources of air emissions and a permit program for stationary sources. The results of the air quality analysis determined that the emissions associated with the Proposed Action would not contribute to an exceedance of an ambient air quality standard.

Achieving CAA standards is the responsibility of the states. Each state must develop SIPs that outline to the EPA how it will achieve and maintain the standards. SIPs implement CAA programs such as the Title V operating permit, new source performance standards (NSPS), new source review, and national emission standards for hazardous air pollutants (NESHAPs) at the

state and local level. States may require pollution control and prevention standards that are more stringent than those mandated by the EPA, but may not allow measures that are less stringent. Federal agencies must comply with the requirements of Federal, state, interstate, and local air pollution regulations.

The CAA requires Federal actions to conform to the goals of the applicable SIP before proceeding with the action. The USACE has determined that this Proposed Action would conform to the SIPs. A Record of Non-Applicability (RONA) is included as Appendix A of this EA.

Coastal Zone Management Act

The CZMA of 1972 requires that Federal actions that affect any land or water use or natural resource of the coastal zone must be consistent to the maximum extent practicable with the state program. State CZMA programs include point and non-point source pollution control, flood control, sediment control, grading control, and stormwater runoff control. Virginia, Maryland, South Carolina, and Texas have prepared Federally-approved CMPs, which are known as the Virginia Coastal Zone Management Program, Maryland Chesapeake and Coastal Program, South Carolina Coastal Program, and Texas Coastal Management Program respectively. Pursuant to Section 307(c) of the CZMA, the removal of STURGIS from MARAD JRRF would not affect the coastal zone. The USACE has determined that the Proposed Action would be consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Program and dismantling facility permits and practices already established.

Endangered Species Act

The ESA of 1973 and subsequent amendments provide for the protection of threatened and endangered species of fish, wildlife, and plants and their habitats. The act requires Federal agencies to ensure that no agency action is likely to jeopardize the continued existence of endangered or threatened species. The ESA prohibits Federal agencies from taking any action that would adversely affect any endangered or threatened species, or critical habitat. The ESA prohibits all persons subject to U.S. jurisdiction, including Federal agencies, from “taking” endangered species. The taking prohibition includes any harm or harassment, and applies within the U.S. and on the high seas. Although the USACE is not required by law to protect state listed rare and endangered species, USACE policy encourages cooperation with states and territories to protect such species. The USACE has concluded that the Proposed Action may affect but is not likely to adversely affect sea turtles and would have no effect on other threatened or endangered species.

National Historic Preservation Act

The NHPA was passed in 1966 to provide for the protection, enhancement, and preservation of those properties that possess significant architectural, archaeological, historical, or cultural characteristics. 36 C.F.R. Part 800 further defined the obligations of Federal agencies concerning this act.

Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties qualifying for inclusion in or eligible for listing in the NRHP and afford the Council a reasonable opportunity to comment on such undertakings. An undertaking is defined as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal

permit, license, or approval. The governor of each state or territory appoints a SHPO who is responsible for administering cultural resources programs within a given jurisdiction, and the USACE initiates consultation procedures with the respective SHPO in accordance with the NHPA. The Proposed Action would not adversely affect any cultural resources besides the vessel itself, which has already gone through the Section 106 process.

Migratory Bird Treaty Act

Marine birds are protected under the MBTA and Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, which direct Federal agencies to avoid or minimize adverse effects on migratory birds, to protect their habitats, and to consider effects on migratory birds in NEPA documents. The USACE has determined that the Proposed Action would have no reasonably foreseeable takes and would have no effect on migratory birds.

Marine Mammal Protection Act

The 1972 MMPA established a Federal responsibility to conserve marine mammals with management vested in the Department of the Interior for sea otter, walrus, polar bear, dugong, and manatee. The Department of Commerce is responsible for cetaceans and pinnipeds, other than the walrus. With certain specified exceptions, the Act establishes a moratorium on the taking and importation of marine mammals as well as products taken from them, and establishes procedures for waiving the moratorium and transferring management responsibility to the states. The law authorized the establishment of a Marine Mammal Commission with specific advisory and research duties. The analysis provided in this EA concludes the Proposed Action would have no reasonably foreseeable takes of marine mammals (i.e., cause harm or harassment of any marine mammals) and may affect but is not likely to adversely affect marine mammals. The Proposed Action would comply with the MMPA.

Executive Order 12372

EO 12372, Intergovernmental Review of Federal Programs, was issued in 1982 in order to foster an intergovernmental partnership and a strengthened federalism by relying on state and local processes for the state and local government coordination and review of proposed Federal financial assistance and direct Federal development.

The USACE pursues close and harmonious planning relations with local and regional agencies and planning commissions of adjacent cities, counties, and states for cooperation and resolution of mutual land use and environment related problems. In preparing this EA, relevant data from state, regional, and local agencies were reviewed in order to determine regional and local conditions associated with the Proposed Action. With respect to the Proposed Action, no mutual land use or environmental issues require resolution.

5.1.2 State, Local, and Regional Plans, Policies, and Controls

State Coastal Zone Management Program

The USACE has determined that there is no effect on the coastal zone. The project is consistent with the Virginia and other state CMPs.

State Endangered Species Acts

Although states ESAs do not apply to Federal actions, some state-listed species are addressed in this document. The USACE has concluded that there would be no effect from the Proposed Action on species covered under the state ESAs.

Air Quality Management District Rules and Regulations

The Proposed Action air emissions would comply with all applicable AQCR rules and regulations.

5.2 Energy Requirements and Conservation Potential of Alternatives Including the Proposed Action and All Mitigation Measures Being Considered

The Proposed Action would not result in any additional energy requirements above the current routine operations of the decommissioning and dismantling facilities. Therefore, no mitigation and/or monitoring measures will be implemented.

5.3 Irreversible or Irretrievable Commitment of Natural or Depletable Resources

The NEPA requires an analysis of significant, irreversible effects resulting from implementation of a Proposed Action. Resources that are irreversibly or irretrievably committed to a project are those that are typically used on a long-term or permanent basis; however, those used on a short-term basis that cannot be recovered (e.g., non-renewable resources such as metal, wood, fuel, paper, and other natural or cultural resources) are also irretrievable. Human labor is also considered an irretrievable resource. All such resources are irretrievable in that they are used for one project and thus become unavailable for other purposes. An impact that falls under the category of the irreversible of irretrievable commitment of resources is the destruction of natural resources that could limit the range of potential uses of that resource.

Implementation of the Proposed Action would result in an irreversible commitment of fuel for towing vehicles and decommissioning and dismantling, human labor, and other resources. These commitments of resources are neither unusual nor unexpected, given the nature of the action.

The Proposed Action would not result in the destruction of environmental resources such that the range of potential uses of the environment would be limited, nor affect the biodiversity of the region.

5.4 Relationship between Local Short-Term Use of the Human Environment and Maintenance and Enhancement of Long-Term Natural Resource Productivity

The NEPA requires consideration of the relationship between short-term use of the environment and the impacts that such use could have on the maintenance and enhancement of long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. Such impacts include the possibility that choosing one option could reduce future flexibility to pursue other options, or that choosing a certain use could eliminate the possibility of other uses at the site.

Implementation of the Proposed Action would not result in any such environmental impacts because it would not pose long-term risks to health, safety, or the general welfare of the communities surrounding the project area that would significantly narrow the range of future beneficial uses. In addition, biological productivity would not be affected as implementation of the Proposed Action would not result in cumulative impacts to any biological resources.

5.5 Means to Mitigate and/or Monitor Adverse Environmental Impacts

The Proposed Action would result in only one potentially significant environmental impact: the decommissioning and dismantling of the vessel. Therefore, the only mitigation and/or monitoring measures that will be implemented are stipulated in the MOA between the USACE and VA DHR.

5.6 Any Probable Adverse Environmental Effects that cannot be Avoided and are not Amenable to Mitigation

This EA has determined that the Proposed Action would not result in any significant immitigable impacts; therefore, there are no probable adverse environmental effects that cannot be avoided or are not amenable to mitigation.

6 CONCLUSION

Overall, no significant environmental impacts are expected to occur as a result of the Proposed Action. STURGIS is eligible for listing in the National Register of Historic Places. Through consultation with the VA DHR (acts as the VA SHPO), a MOA has been prepared and it addresses the required mitigation efforts for vessel disposal.

The Proposed Action would comply with all Federal and state regulations, guidelines, and agreements. All four Proposed Action Alternatives are environmentally equal and there is no preferred alternative location. However, the Hampton Roads Metropolitan Area and Baltimore Alternatives have an advantage as they would not involve open ocean towing and would not require a secondary tow to a separate location for dismantling. Additionally, there would be minor differences with respect to towing distances and waste transportation and disposals depending on the alternatives. However, none of the differences would involve significant impacts. Based on the findings from this EA, a FNSI shall be prepared.

7 PREPARERS

This EA has been prepared by the USACE Baltimore District and BMT Designers & Planners Inc. Members of the STURGIS Team professional staff who contributed to the preparation of this document are listed below:

Carol Berger, Integrated Environmental Management, Inc.
Program Manager

Jack Buddenbaum, Integrated Environmental Management, Inc.
Project Manager

David Kindig, BMT Designers & Planners, Inc.
Senior Program Manager

Jill Enright, BMT Designers & Planners, Inc.
Senior Technical Project Manager/NEPA Program Manager

Cindy Chen, BMT Designers & Planners, Inc.
Project NEPA Planner

David Schanzle, BMT Designers & Planners, Inc.
Environmental Scientist, GIS

8 PERSONS AND AGENCIES CONTACTED

John G. Bulman, Vice President, Sparrows Point Shipyard, LLC

Loy Stewart, Jr., President, Detyens Shipyards, Inc.

Marc Holma, Architectural Historian, Office of Review and Compliance, VA DHR Richmond

Ellie Irons, Program Manager, Office of Environmental Impact Review, VA DEQ

Daniel Yuska, MARAD HQ Environmental Protection Specialist

Calvin Ferguson, MARAD JRRF Environmental Protection Specialist

Carolyn Junemann, MARAD JRRF ballast water/hull cleaning, invasive species expert

Stan Rogers, NOAA NMFS HQ, Acting Chief ESA Interagency Cooperation Division

9 REFERENCES

Atkinson et al., 1990. Atkinson, Robert B., Bodkin, Norlyn L., Perry, James E. 1990. New County Records Collected in Tidal Wetlands of Four Coastal Plain Counties Along the James River, Virginia. http://www.vims.edu/people/perry_je/pubs/1990Atkinson-Bodkin-Perry-Castanea.pdf.

The Center for Land Use Interpretation (CLUI), *American Ship Breaking: It All Comes Apart at the Bottom of America*, The Lay of the Land Newsletter, Spring 2010.

Chesapeake Bay Program, Chesapeake Bay Watershed Population. http://www.chesapeakebay.net/status_population.aspx?menuitem=19794.

City of Newport News, Framework for the Future 2030. http://www2.nngov.com/newport-news/plan/framework2008/index.html.

City of North Charleston, *North Charleston Comprehensive Plan Update*, July 2008.

Department of Defense, Department of the Navy, *A Report to Congress on Scrapping Naval Ships Under the Ship Disposal Project*, 2000.

DON, 2012. Department of the Navy, *Naval Nuclear Power Training Unit-Charleston (NPTU Charleston) Facilities Expansion Draft Environmental Assessment*, September 2012.

Diaz, 1989. Diaz, R.J. 1989. Pollution and tidal benthic communities of the James River Estuary, Virginia. Hydrobiologia. 180, 195 – 211.

ELI, 2007. The Environmental Law Institute. 2007. Halting the Invasion in the Chesapeake Bay: Preventing Aquatic Invasive Species Introduction through Regional Cooperation. http://www.elistore.org/reports_detail.asp?ID=11257.

Energy*Solutions* website http://energysolutions.com/customer-portal/clive/licenses.

EPA, The Green Book Nonattainment Areas for Criteria Pollutants, http://www.epa.gov/oaqps001/greenbk/.

EPA, 2000. U.S. Environmental Protection Agency, *A Guide to Ship Scrappers: Tips for Regulatory Compliance*, EPA-315-B-00-001, Office of Enforcement and Compliance Assurance, Washington, D.C. 20460.

EPA, 2008. U.S. Environmental Protection Agency (EPA), Office of Research and Development, Office of Water. 2008. *National Coastal Condition Report III*. EPA/842-R-08-002. http://www.epa.gov/owow/oceans/nccr3/downloads.html.

EPA, 2009. State Implementation Plan (SIP) Revision & Designated Pollutant Plan Approvals. http://www.epa.gov/reg3artd/airregulations/frns/frapprove.htm.

EPA, 2010. Chesapeake Bay Use Attainability Analysis. http://water.epa.gov/scitech/swguidance/waterquality/standards/uses/uaa/chesapeake.cfm.

FERC, 2008. Federal Energy Regulatory Commission, *Final Environmental Impact Statement on Sparrows Point LNG and Mid-Atlantic Express Pipeline Project* (Docket Nos. CP07-62-000, CP07-63-000, CP07-64-000, and CP07-65-000). December 5, 2008.

Fleming et al., 2010. Fleming, G.P., P.P. Coulling, K.D. Patterson, and K. Taverna. 2006. *The natural communities of Virginia: classification of ecological community groups. Second approximation.* Version 2.3. http://www.dcr.virginia.gov/natural_heritage/ncoverview.shtml.

GMFMC, 2008. Gulf of Mexico Fisheries Management Council. http://www.gulfcouncil.org/

Hazel, J., I. R. Lawler, H. Marsh, and S. Robson (2007), "Vessel Speed Increases Collision Risk for the Green Turtle Chelonia mydas," Endangered Species Research, vol. 3, pp. 105-113.

JRA, 2011. James River Association. 2011. *State of the James River* 2011. http://www.jamesriverassociation.org/the-james-river/state-of-the-james/.

Lutcavage, M. E., P. T. Plotkin, B. E. Witherington, and P. L. Lutz (1997), "Human Impacts on Sea Turtle Survival," in The Biology of Sea Turtles, vol. I, P. L. Lutz and J. A. Musick (eds.), CRC Press, New York, pp. 387-410.

MacDonald et al., 2000. MacDonald, D.D., C.G. Ingersoll, and T.A. Berger, Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems. Arch. Environ. Contam. Toxicol. 39:20-31.

MAFMC, 2008. Mid-Atlantic Fishery Management Council. 2008. Mid-Atlantic Fishery Management Council—Homepage. http://www.mafmc.org/.

MDE, 2012. MD Department of the Environment, 2012 Integrated Report of Surface Water Quality, 2012. http://www.mde.state.md.us/programs/Water/TMDL/Integrated303dReports/Pages/Programs/WaterPrograms/TMDL/Maryland%20303%20dlist/index.aspx

MDE, 2011. Department of the Environment, Maryland Fish Consumption Advisories, 2011.

MDE, 2008. Maryland Department of the Environment, State Implementation Plans. http://www.mde.state.md.us/Programs/AirPrograms/air_planning/index.asp#SIP

Maryland Department of the Environment, Current Status of TMDL Development in Maryland. http://www.mde.state.md.us/programs/Water/TMDL/CurrentStatus/Pages/Programs/WaterPrograms/TMDL/Sumittals/index.aspx

MDNR, 2012. Maryland Department of Natural Resources. *Atlantic Flyway Council Midwinter Waterfowl Survey – 2012.*

Moser, 2002. Moser, F.C. (editor). 2002. Invasive Species in the Chesapeake Bay Watershed. A Workshop to Develop Regional Invasive Species Management Strategies: Held May 7-8, 2002, Baltimore, MD. Final Report to the Chesapeake Bay Program, Invasive Species Working Group. ftp://ftp.mdsg.umd.edu/Public/MDSG/exotics/isrpt02.pdf.

Nelson, 1992. Nelson, D.M. (editor). *Distribution and abundance of fishes and invertebrates in Gulf of Mexico estuaries, Volume I: data summaries*. ELMR Rep. No. 10. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD.

Nevada National Security Site, http://www.nv.energy.gov/emprograms/default.aspx.

Newport News Shipbuilding, http://nns.huntingtoningalls.com/products/carriers/inactivation/index.

NOAA, 2007. Magnitude and Extent of Contaminated Sediment and Toxicity in Chesapeake Bay, January 2007.

NOAA, 2008. National Oceanic and Atmospheric Administration. 2008. Summary of Essential Fish Habitat (EFH) Designations: James River, Virginia. http://www.nero.noaa.gov/hcd/va3.html.

Nowacek, D. P., M. P. Johnson, and P. L. Tyack (2004), "North Atlantic Right Whales (Eubalaena glacialis) Ignore Ships but Respond to Alerting Stimuli," Proceedings of the Royal Society of London: Series B Biological Sciences, vol. 271, pp. 227-231.

Nowacek, D. P., M. P. Johnson, P. L. Tyack, K. A. Shorter, W. A. McLellan, and D. A. Pabst (2001), "Buoyancy of North Atlantic Right Whales (Eubalaena glacialis) May Increase the Risk of Ship Strikes," 14th Biennial Conference on the Biology of Marine Mammals, Vancouver, Canada.

NMFS, 2013. NOAA Fisheries Endangered and Threatened Marine Mammals. http://www.nmfs.noaa.gov/pr/species/esa/mammals.htm.

NMFS, 2005. *Endangered Species Act, Fish and Wildlife Coordination Act and Magnusun-Stevens Act Correspondence for Maintenance Dredging of the Reserve Basin.* Reviewing Biologists: Anita Riportella and Sara McNulty. April 26, 2005.

NMFS, 2008. *Vessel Strike Avoidance Measures and Reporting for Mariners,* NOAA Fisheries Service, Southeast Region. February 2008.

NRC, 2002. U.S. Nuclear Regulatory Commission, *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities. Supplement 1. Final Report.* NUREG-0586. Office of Nuclear Reactor Regulation. Washington, D.C. 2002.

NRC, 1988. *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities*. NUREG-0586. Office of Nuclear Research. August 1988.

Nueces River Authority, *2010 Basin Highlights Report*, 2010.

NUWCD, 2012. Naval Undersea Warfare Center Division, Newport RI, *Biological Analysis for Species Listed Under the Endangered Species Act in the Atlantic Ocean, Gulf of Mexico and Pacific Ocean*, September 2012.

ODU, 2005. Old Dominion University. *Status and Trends in Water Quality and Living Resources in the Virginia Chesapeake Bay: James River (1985-2003)*. Principal Investigators: Dauer, et al. January 2005. http://sci.odu.edu/chesapeakebay/reports/trends/2003/James_03.pdf.

Pelletier, J.B., T.J. Nowak, and M.R. Williams. 2006. Phase I Marine Archaeological Remote Sensing Survey of a 600.0 x 300.0 ft (182.9 x 91.4 m) Turning Basin Area of the Sparrows Point LNG Dock and Facility Project, Baltimore Harbor, Baltimore County, Maryland. R. Christopher Goodwin & Associates, Inc. Frederick, Maryland.

Ray, 2005. Ray, G. L. *Invasive estuarine and marine animals of the Gulf of Mexico*, ANSRP Technical Notes Collection (ERDC/TN ANSRP-05-4), U.S. Army Engineer Research & Development Center, Vicksburg, MS. http://el.erdc.usace.army.mil/elpubs/pdf/ansrp05-4.pdf.

SCDHEC, 2008. South Carolina Department of Health and Environmental Control, 2008. R.61-68 Water Classifications and Standards. April 2008.

SCDHEC, 2010. 2010 State of South Carolina Integrated Report, March 2010.

SCDNR, 2010. South Carolina Department of Natural Resources 2010, News: Boaters Urged Caution as Manatees Return to S.C. http://www.dnr.sc.gov/news/yr2010/may10/may10_manatee.html.

SCDNR, 2013. Marine Turtle Conservation Program, *Leatherback Sea Turtles*, http://www.dnr.sc.gov/seaturtle/dc.htm, and Sea Science, *Sea Turtles*, http://www.dnr.sc.gov/marine/pub/seascience/seaturtle.html.

Schwartz, F. 2003. *Sharks, Skates, and Rays of the Carolinas*. University of North Carolina Press.

Sea Distances - Voyage Calculator (nautical miles) at http://sea-distances.com/.

South Carolina Department of Archives and History, http://www.nationalregister.sc.gov/charleston/S10817710175/index.htm.

Sparrows Point Shipyard website, http://www.spshipyard.com/default.aspx.

Stone et al., 1994. Stone, S.L., T.A. Lowery, J.D. Field, C.D. Williams, D.M. Nelson, S.H. Jury, M.E. Monaco, and L. Andreasen. 1994. Distribution and abundance of fishes and invertebrates in Mid-Atlantic estuaries. ELMR Rep. No. 12. NOAA/NOS Strategic Environmental Assessments Division, Silver Spring, MD. 280 pp.

The STURGIS Memorandum of Agreement with the VA SHPO and the USACE Regarding Disposal of STURGIS and MH-1A, to be added upon completion

TCEQ, 2008. Texas Commission on Environmental Quality, Total Maximum Daily Load Program. *Improving Water Quality in Oso Bay and Laguna Madre*. 2008. http://www.tceq.state.tx.us/assets/public/implementation/water/tmdl/24osolagunado/24-osobay.pdf.

TCEQ, 2010. 2010 Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d), November, 2011.

TCEQ, 2011. *The State of the Bay*, December 2011.

TCEQ, No date. Air Quality Index: Table of Today's Pollution Levels in Texas' Metro Areas. http://www.tceq.state.tx.us/cgi-bin/compliance/monops/aqi_rpt.pl.

TCW, 2003. Texas Coastal Wetlands. 2003. Wetland Types Map. http://www.texaswetlands.org/lowercoast.htm.

Texas Historical Commission, Texas Historic Sites Atlas, http://atlas.thc.state.tx.us/index.asp.

TPWD, 1999. Texas Parks and Wildlife Department. *Seagrass Conservation Plan for Texas*. Texas Parks and Wildlife Department, Resource Protection Division. Austin, Texas. http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_r0400_0041.pdf.

TPWD, 2009, Texas Wildlife Fact Sheets, http://www.tpwd.state.tx.us/huntwild/wild/species/ and http://www.tpwd.state.tx.us/gis/ris/es/

TPWD, 2010, *Endangered and Threatened Animals of Texas*, http://www.tpwd.state.tx.us/huntwild/wild/species/endang/index.phtml.

USACE, 1977. *Environmental Impact Assessment, Decommissioning of Nuclear Power Barge STURGIS*. 30 March 1977.

USACE, 2004a. U.S. Army Corps of Engineers, Environmental Assessment, Brazos Island Harbor, Texas, *Extension of Beach Nourishment Area on South Padre Island*, October 2004.

USACE, 2006. Charleston District. *Final Environmental Impact Statement, Proposed Marine Container Terminal at the Charleston Naval Complex*, North Charleston, South Carolina. http://www.porteis.com/project/documents.htm.

USACE, 2009. *Final Environmental Assessment Charleston Harbor Additional Advanced Maintenance Dredging* Charleston Harbor, SC. September 2009.

U.S. Army Nuclear and Chemical Agency, "United States Army Reactor Disposition Study," January 1998.

U.S. Department of Transportation Maritime Administration, *Removal and Disposal of No-Retention Vessels from the National Defense Reserve Fleet Final Programmatic Environmental Assessment*, August 2009.

USFWS, 2012. United States Fish and Wildlife Service. 2012. Endangered Species Program: Species Information. http://www.fws.gov/Endangered/ and http://ecos.fws.gov/tess_public/StateListing.do?state=all.

USGS, 2005. *The Impact of Sediment on the Chesapeake Bay and its Watershed*.

USGS, 2007. *Water Fact Sheet: Lower Susquehanna River*. http://water.usgs.gov/nawqa/ne/lsus/lsus_factsheet.html.

U.S. Navy, 2009. U.S. Navy, Addendum to the Environmental Assessment and Revised Finding of No Significant Impact for the Use of a More Efficient Shipping Container System for Spent Nuclear Fuel From Naval Aircraft Carriers, October 2009.

U.S. Navy, 2011. U.S. Navy, Environmental Monitoring and Disposal of Radioactive Wastes from U.S. Naval Nuclear Powered Ships and Their Support Facilities, May 2011.

U.S. Navy, 2012. Naval Nuclear Power Training Unit-Charleston (NPTU Charleston), Joint Base Charleston, NPTU Charleston Facilities Expansion Draft Environmental Assessment, February 2012.

VADGIF, 2011, Virginia Department of Game and Inland Fisheries. *Bald Eagle Facts*, http://www.dgif.virginia.gov/wildlife/birds/bald-eagles.asp.

Van Dolah, R.F., P.H. Wendt, and E.L. Wenner, eds. 1990. A Physical and Ecological Characterization of the Charleston Harbor Estuarine System. Marine Resources Division, S. Carolina Wildlife and Marine Resources Dept.

Vanderlaan, A. S. M. and C. T. Taggart (2007), "Vessel Collisions with Whales: The Probability of Lethal Injury Based on Vessel Speed," Marine Mammal Science, vol. 23, no. 1, pp. 144-156.

VDEQ, 2010. Virginia Department of Environmental Quality, 2010 Water Quality Assessment GIS Applications, http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS/2010WQMAssessmentGISApplications.aspx.

VDEQ, 2011. Water Quality Assessment Guidance Manual for 2012, 305(b)/303(d) Integrated Water Quality Report, June 2011.

VDEQ, 2012a. Draft 2012 305(b)/303(d) Water Quality Assessment Integrated Report, March 2012.

VDEQ, 2012b. 2012 Draft Water Quality Assessment GIS Applications, http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS/2012DraftWQMAssessmentGISApplications.aspx.

VIMS, 2011. Virginia Institute of Marine Science, College of William and Mary. 2011. Submerged Aquatic Vegetation (SAV) in Chesapeake Bay and Delmarva Peninsula Coastal Bays. http://web.vims.edu/bio/sav/index.html.

VIMS, 2013. *Virginia's Sea Turtles*, http://www.vims.edu/research/units/programs/sea_turtle/va_sea_turtles/

Virginia Department of Health, Fish Consumption Advisories, http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/.

APPENDICES

APPENDIX A
RECORD OF NON-APPLICABILITY (RONA)
FOR CLEAN AIR ACT CONFORMITY

APPENDIX A
RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY

UNITED STATES ARMY CORPS OF ENGINEERS
STURGIS DECOMMISSIONING AND DISMANTLING

Introduction

The U.S. Environmental Protection Agency (EPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule*, in the 30 November 1993, Federal Register (40 C.F.R. Parts 51 and 93). U.S. Army issued Regulation (AR) 200-2 Environmental Analysis of Army Actions (32 C.F.R. Part 651). These publications provide implementing guidance to document Clean Air Act (CAA) Conformity Determination requirements.

Federal regulations prohibit any Department, Agency, or instrumentality of the Federal Government to engage, support, provide financial assistance, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable implementation plan before the action is taken (40 C.F.R. Part 51.850(a)).

Federal actions may be exempt from a formal Conformity Determination if: (1) the actions fit within one of the exemption categories or (2) their emissions do not exceed designated *de minimis* levels for criteria pollutants (40 C.F.R. § 93.153(c)). The exemption categories apply to actions that would result in no emission increase or an increase in emission that is clearly *de minimis*.

Proposed Action

Action Proponent: United States Army Corps of Engineers (USACE). STURGIS is wholly owned by the U.S. Army. The U.S. Army Reactor Office under the U.S. Army Nuclear and Chemical Agency issued the Nuclear Reactor Possession Permit to the USACE. The USACE is responsible for management of the vessel.

Location: The barge vessel along with the associated mobile high (MH) power plant 1A, hereafter together referred to as STURGIS, is currently located at the U.S. Department of Transportation Maritime Administration's (MARAD) James River Reserve Fleet (JRRF). The JRRF site is within the James River at Joint Base Langley Eustis, VA.

Proposed Action Name: Decommissioning and dismantling of STURGIS

Proposed Action and Emission Summary:

The purpose of the Proposed Action is to dispose of STURGIS by decommissioning and dismantling. Five alternatives, including the no-action alternative, are under consideration. The Proposed Action Alternatives would not require construction of new facilities because existing facilities have the capability of dismantling a vessel of this size. As an inactive vessel, STURGIS would be towed from its current location in JRRF, VA, to the dismantling facility; no dredging is required. Each alternative is briefly discussed below.

Hampton Roads Metropolitan Area, VA, Alternative. This alternative would decommission and dismantle STURGIS at a facility in Hampton Roads Metropolitan Area, VA. The vessel

would be towed from its current location at the JRRF to the facility in Hampton Roads Metropolitan Area, VA. The vessel will be dismantled in accordance with applicable Federal, state and local laws and regulations.

Baltimore, MD, Alternative. This alternative would decommission and dismantle STURGIS at a facility in Baltimore, MD. The vessel would be towed from its current location to a facility in Baltimore, MD. The vessel will be dismantled in accordance with applicable Federal, state and local laws and regulations.

Charleston, SC, Alternative. This alternative would decommission STURGIS at a facility in Charleston, SC. The vessel would be towed from its current location to a facility in Charleston, SC for decommissioning and potential partial dismantling. The vessel would then be towed to Baltimore, MD or Brownsville, TX for final dismantling in accordance with applicable Federal, state and local laws and regulations.

Galveston, TX, Alternative. This alternative would decommission STURGIS at a facility in Galveston, TX. The vessel would be towed from its current location to a facility in Galveston, TX for decommissioning and potential partial dismantling. The vessel would then be towed to Brownsville, TX for final dismantling in accordance with applicable Federal, state and local laws and regulations.

No-Action Alternative. The No-Action Alternative includes continued berthing of STURGIS at JRRF, VA. Under the No-Action Alternative, existing conditions would remain unchanged and no emissions would be generated to trigger a Conformity Determination.

Pursuant to the National Ambient Air Quality Standards (NAAQS), Table 1 summarizes the attainment status for each alternative. Table 2 presents the *de minimis* levels for the applicable criteria pollutants.

Table 1. Attainment Status for Alternative Locations

Location	**Attainment Status for Criteria Pollutants[6]**
Hampton Roads Metropolitan Area, VA, Alternative	Attainment for all criteria pollutants.
Baltimore, MD, Alternative	Moderate non-attainment for the eight-hour ozone standard and nonattainment for the $PM_{2.5}$ standard.
Charleston, SC, Alternative	Attainment for all criteria pollutants.
Galveston, TX, Alternative	Marginal non-attainment for the eight-hour ozone standard.
JRRF, VA[7]	Attainment for all criteria pollutants.
Brownsville, MD[8]	Attainment for all criteria pollutants.

[6] The six criteria pollutants are ozone (O_3), CO, NO_2, PM, SO_2, and lead (Pb).
[7] The no-action alternative would not trigger a conformity review. The information is presented here because the four action alternatives require the towing of the vessel from JRRF, VA.
[8] Brownsville, TX is presented here because the Charleston, SC and Galveston, TX alternatives would potentially require the dismantling of the vessel in Brownsville, TX.

Table 2. Applicable Criteria Pollutant *de minimis* Levels (Tons/Year) for Alternative Locations (40 C.F.R. § 93.153)

Location	VOC	NOx	$PM_{2.5}$
Baltimore, MD, Alternative	50	100	100
Galveston, TX, Alternative	50	100	--

The Proposed Action is subject to the General Conformity Rule because the project area is within nonattainment areas and the Proposed Action will cause air pollutant emissions. However, the Proposed Action does not require construction, and the air pollutant emissions from towing are temporary and clearly *de minimis*. According to 40 C.F.R. § 93.153(c), the Proposed Action qualifies for the following exemption category:

"(vii) Routine Movement of mobile assets, such as ships and aircraft, in homeport assignments and stations (when no new support facilities or personnel are required) to perform as operational groups and/or for repair or overhaul."

The Baltimore, MD and Galveston, TX facilities are within nonattainment areas. Calculations of the emissions from the tugs result in significantly less than one ton per year for each of VOC, NO_x, and $PM_{2.5}$. The towing to Baltimore, MD or Galveston, TX is less than the *de minimis* emission threshold.

In general, vessel decommissioning and dismantling activities could result in temporary minor, localized impacts to air quality, but are not expected to change designation of the area with respect to NAAQS. Additionally, decommissioning and dismantling activities that comply with applicable rules and regulations would not significantly affect air quality. The Baltimore, MD and Galveston, TX facilities have all required permits. The decommissioning and dismantling of STURGIS would not represent a new or significantly different line of work for the shipyard, with different effects on the environment, but rather a continuation of a long term, ongoing program, with minimal surrounding effect.

In summary, the Baltimore, MD and Galveston, TX locations are in nonattainment areas, but the USACE is exempt from preparing a Conformity Determination because the action falls within one of the exemption categories and emissions from the towing action are considered *de minimis*. No significant impacts to air quality can be attributed to decommissioning and dismantling activities. Details of the air quality impacts are provided in the STURGIS Environmental Assessment and Nuclear Regulatory Commission (NRC) Generic Environmental Impact Statement (GEIS) on the decommissioning of nuclear facilities. The Hampton Roads Metropolitan Area, VA; Charleston, SC; and Brownsville, TX locations are in attainment areas; therefore, the CAA General Conformity Rule does not apply to these locations.

Affected Air Basins: Baltimore, MD and Galveston, TX

Date RONA prepared: 1 August 2013

Proposed Action Exemption

The Proposed Action is located within nonattainment areas; therefore, the Proposed Action is not exempt from the General Conformity Rule. However, per 40 C.F.R. § 93.153(c) the Proposed

Action qualifies as a "routine movement" and fits within one of the EPA's exemption categories. Additionally, the towing to Baltimore, MD and Galveston, TX is less than the *de minimis* emission threshold. Vessel decommissioning and dismantling activities could result in temporary minor, localized impacts to air quality, but are not expected to change designation of the area with respect to NAAQS. Hampton Roads Metropolitan Area, VA; Charleston, SC; and Brownsville, TX are in attainment areas. Therefore, the Proposed Action is exempt from a formal Conformity Determination.

Attainment Area Status and Emission Evaluation Conclusion

Baltimore, MD is in a moderate nonattainment area for the 8-hour ozone standard and nonattainment for $PM_{2.5}$ standard; VOCs and NOx are precursors to the formation of ozone. Moreover, Galveston, TX is in a marginal nonattainment area for the 8-hour ozone standard.

The USACE concludes that the conformity requirements do not apply to the Proposed Action. At JRRF, VA, the removal of the vessel is considered a "routine movement" which would result in a temporary increase of marine vessel emissions that are clearly *de minimis*. Moreover, the vessel emissions emitted during tow to Proposed Action locations fall well below the *de minimis* thresholds. Vessel decommissioning and dismantling activities that comply with applicable rules and regulations would not significantly affect air quality. 40 C.F.R. § 93.153(c) supports the conclusion that the *de minimis* thresholds for applicable criteria pollutants would not be exceeded as a result of implementation of the Proposed Action. Therefore, the USACE concludes that further formal Conformity Determination procedures are not required, resulting in this RONA.

RONA Approval

To the best of my knowledge, the information presented in this Record of Non-Applicability is correct and accurate and I concur with the finding that the Proposed Action does not require a formal Conformity Determination.

Brenda M. Barber, P.E. 15 April 2014

Brenda M. Barber, P.E.
USACE Project Manager

Date

APPENDIX B
REGULATORY CORRESPONDENCE

Notice of Intent and Reponses

US Army Corps of Engineers®

Public Notice

Environmental Assessment
MH-1A *Sturgis* Barge Decommissioning and Disposal
MARAD James River Reserve Fleet
Fort Eustis, VA

All Interested Parties: The U.S. Army Corps of Engineers (USACE), Baltimore District is preparing an Environmental Assessment (EA) to evaluate potential ecological, cultural, water, public health and safety, and waste management effects associated with the proposed decommissioning and disposal of MH-1A *Sturgis*. *Sturgis* is a nuclear reactor barge that potentially meets the criteria to be eligible for listing in the National Register of Historical Places (NRHP).

In March, 1963, the World War II Liberty Ship *Charles H. Cugle* was selected from the Mobil Reserve Fleet for conversion to a mobile power source containing a high power (>10,000 kW) pressurized water nuclear reactor designated MH-1A. The propulsion plant was removed from the vessel and the midsection was replaced with a new midsection containing the power plant, a 350-ton steel containment "spheroid," and a concrete collision barrier. The vessel, which essentially became a barge, was renamed *Sturgis*. It operated at Fort Belvoir, VA for about one year and was then transferred to Gatun Lake in the Panama Canal Zone where it was used to generate electricity for military and civilian use. The reactor was shut down in 1976 and the *Sturgis* was returned to Fort Belvoir. The reactor was de-fueled, decontaminated, and sealed before being towed to the James River Reserve Fleet for storage.

Sturgis is currently located at the U.S. Department of Transportation Maritime Administration's James River Reserve Fleet (JRRF) at Fort Eustis, VA (Enclosure 1). The vessel has been moored at this location in a Safe Storage condition since 1978.

This EA will evaluate the potential environmental effects that may occur as a result of the Proposed Action and will be prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended.

The Proposed Action includes a contract award to decommission, dismantle, and dispose of the *Sturgis*. The contracted company would tow the vessel to a location able to support these activities, segregate all hazardous/radioactive wastes, and decommission the *Sturgis* in accordance with applicable Federal, State and local laws and regulations. The contract would include a clause noting that the contractor is required to comply with all applicable Federal, State and local environmental and safety and health laws and regulations. Specifically, the contractor will need to address the Army Reactor Office Permit, the dismantlement, decommissioning, and disposal of Hazardous, Toxic, Radioactive Waste materials from the *Sturgis*, and also comply with the Nuclear Regulatory Commission requirements in 10 C.F.R 20, Standard for Protection Against Radiation.

The four alternative locations (Enclosure 2) to be evaluated in the EA for potential decommissioning and dismantling include: 1) Newport News, VA; 2) Baltimore, MD; 3)

Charleston, SC; and 4) Galveston, TX. A decommissioning/dismantling contractor will tow the vessel from JRRF to one of these locations and be responsible for the segregation of wastes, decommissioning and termination of the existing Army Reactor Office Permit.

Interested parties are invited to submit written comments for consideration within 30 days of this notice. Any comments received will be considered in the preparation of the EA. This Public Notice is being distributed to organizations and individuals that are known to have an interest in this project (Enclosure 3). Please bring this matter to the attention of any other organizations or individuals with an interest in this matter.

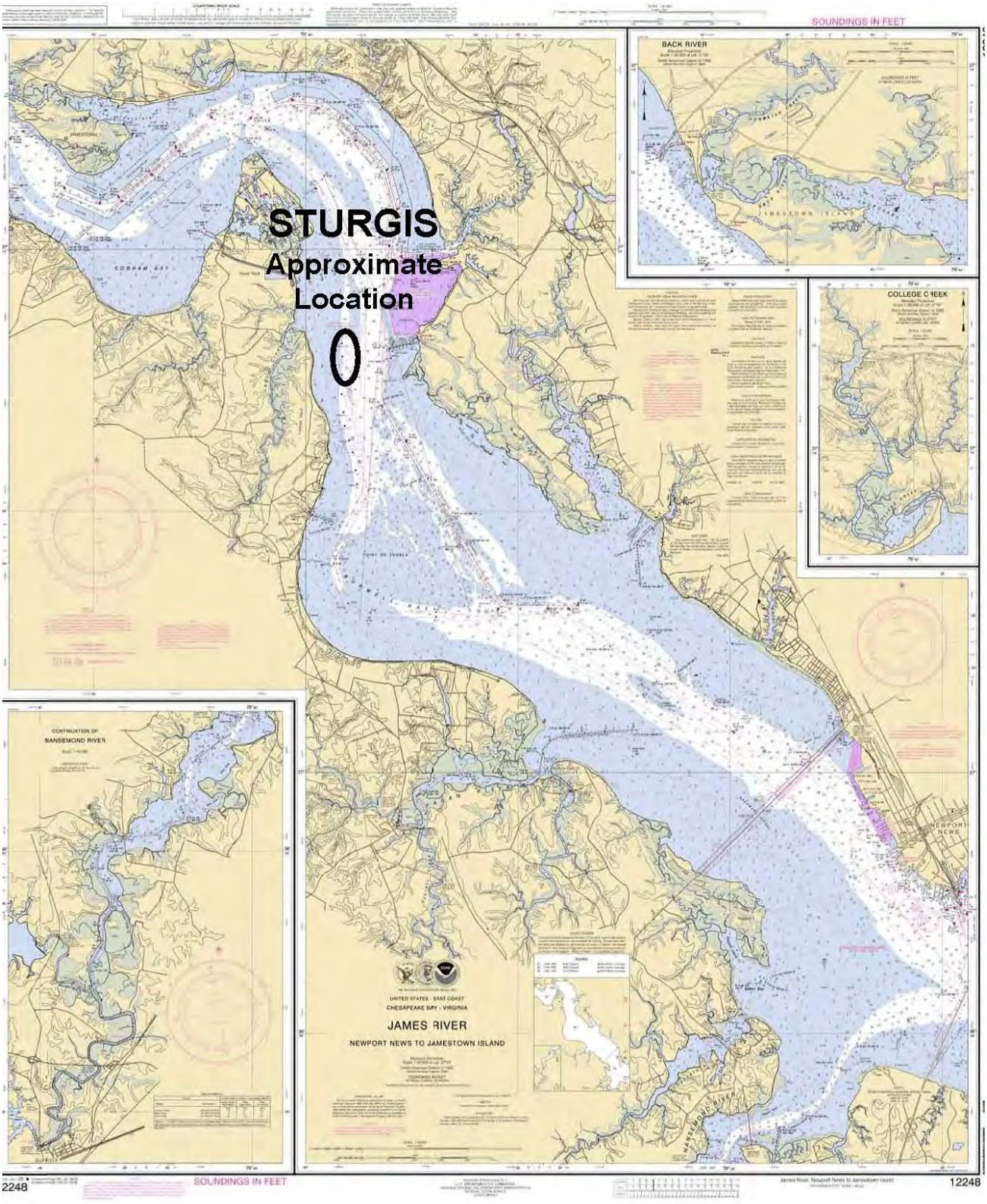
Comments must be submitted within 30 days of the date of this notice to: Brenda.M.Barber@usace.army.mil.

Brenda M. Barber, P.E., CHMM
Project Manager
Environmental and Munitions Design Center

Date: 21 February 2013

Enclosures

Enclosure 1. Map of current *Sturgis* location



Enclosure 2. Project Area Map with Alternatives.

Enclosure 2. Organizations and Individuals Interested in this Project

Federal Agencies	
United States Environmental Protection Agency Region 3 Water Protection Division (3WP00) 1650 Arch Street Philadelphia, PA 19103-2029	United States Environmental Protection Agency Region 6 Water Quality Protection Division Fountain Place 12th Floor, Suite 1200 1445 Ross Avenue Dallas, TX 75202-2733
United States Environmental Protection Agency Region 4 Water Protection Division Sam Nunn Atlanta Federal Center 61 Forsyth Street, SW Atlanta, GA 30303-8960	**Mr. Trevor Clark** (Section 7) U.S. Fish & Wildlife Service Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401 410-573-4599 trevor_clark@fws.gov
Jay B. Herrington - Field Supervisor U.S. Fish and Wildlife Service 176 Croghan Spur Road, Suite 200 Charleston, SC 29407 Phone: 843-727-4707	U.S. Fish and Wildlife Service Southwest Regional Office P.O. Box 1306 Albuquerque, NM 87103-1306 **Dr. Benjamin Tuggle**, Regional Director RDTuggle@fws.gov
U.S. Fish and Wildlife Service Virginia Field Office 6669 Short Lane Gloucester, VA 23061 (804) 693-6694	
State Agencies	
Agreement State Director **Aaron A. Gantt**, Chief Dept of Health & Environmental Control Bureau of Radiological Health 2600 Bull Street Columbia, SC 29201 PH (803)545-4420 FX (803)545-4412 ganttaa@dhec.sc.gov	**State Liaison Officer** **Susan Jenkins**, Assistant Director Dept of Health & Environmental Control Bureau of Land and Waste Management Division of Waste Management 2600 Bull Street Columbia, SC 29201 PH (803)896-4271 FX (803)896-4242 jenkinse@dhec.sc.gov

Agreement State Director **Steve A. Harrison**, Acting Director Division of Radiological Health Department of Health 109 Governor Street, Rm 730 Richmond, VA 23219 PH (804)864-8151 FX (804)864-8155 steve.harrison@vdh.virginia.gov	State Liaison Officer (for Nuclear Materials) **Michael M. Cline**, State Coordinator Virginia Dept of Emergency Management 10501 Trade Court Richmond, VA 23236-3713 PH (804)897-6501 FX (804)897-6506 michael.cline@vdem.virginia.gov
Agreement State Director **Roland G. Fletcher** Environmental Program Manager III Radiological Health Program Air & Radiation Management Adm. Maryland Dept of the Environment 1800 Washington Blvd Baltimore, MD 21230-1720 PH (410)537-3300 FX (410)537-3198 rfletcher@mde.state.md.us	**State Liaison Officer** **Tom Levering**, Emergency Response Director Maryland Dept of the Environment 1800 Washington Blvd, Suite 7111 Baltimore, MD 21230-1720 PH (410)537-4460, 24 hour (443)721-7891 FX (410)537-3888 TLevering@mde.state.md.us
Agreement State Director **Richard A. Ratliff**, P.E., L.M.P., Chief Radiation Safety Licensing Branch Manager Division for Regulatory Services TX Dept. of State Health Services P.O. Box 149347-Mail Code 2835 Austin, TX 78714-9347 PH (512)834-6679 FX (512)834-6716 richard.ratliff@dshs.state.tx.us	**State Liaison Officer** **Roger Mulder**, Director State Energy Conservation Office Comptroller of Public Accounts P.O. Box 13528 Austin, TX 78701-3528 PH (512)463-1866 FX (512)463-2569 roger.mulder@cpa.state.tx.us
Charles Maguire Director Radiation Materials Division, MC 233 Texas Commission on Environmental Quality P.O. Box 13087 Austin, TX 78711-3087 PH (512)239-5308 FX (512)239-6464 charles.maguire@tceq.texas.gov	

Department of Environmental Quality Office of Environmental Impact Review 629 East Main Street, 6th Floor Richmond, VA 23219 Environmental Impact Review Coordinator John Fisher (804) 698-4339 Environmental Impact Review Coordinator Julia Wellman (804) 698-4326	Virginia Marine Resources Commission Main Office 2600 Washington Avenue, 3rd Floor Newport News, VA 23607

Chesapeake & Coastal Service Joe Abe, Coastal Policies and Project Review Maryland Department of Natural Resources Tawes State Office Building E-2 580 Taylor Avenue Annapolis, Maryland 21401 410-260-8740, jabe@dnr.state.md.us	Office of the Secretary Maryland Department of the Environment 1800 Washington Blvd. Baltimore, MD 21230 Phone: 410-537-3000 Toll free at 1-800-633-6101
Texas Commission on Environmental Quality 5425 Polk St., Ste. H Houston TX 77023-1452 Special Assistant - Dan O'Brien Special Assistant - Nicole Bealle	South Carolina Department of Natural Resources Marine Resources Division PO Box 12559 Charleston, SC 29422
South Carolina Department of Health and Environmental Control Ocean & Coastal Resource Management 1362 McMillan Ave. Suite 400 Charleston, SC 29405 John Cox Coastal Zone Consistency Coordinator 843-953-0860 john.cox@dhec.sc.gov	South Carolina Department of Archives and History 8301 Parklane Road Columbia, SC 29223 W Eric Emerson, Ph.D. – SHPO 803-896-6187 eemerson@scdah.state.sc.us

Maryland State Clearinghouse Maryland Office of Planning, Suite 1101 301 West Preston Street Baltimore, MD 21201-2365	Texas Historical Commission P.O. Box 12276 Austin, TX 78711 512.463.6100 thc@thc.state.tx.us
Department of Planning Maryland Historical Trust – Crownsville Office 100 Community Place Crownsville, MD 21032-2023 J Rodney Little – Director & SHPO 410-514-7601 RLittle@mdp.state.md.us	
Regional and Local Offices	
Ms. Ellie Irons, Program Manager Office of Environmental Impact Review P.O. Box 1105 Richmond, VA 23218 Ellie.Irons@deq.virginia.gov	Environmental Protection and Sustainability Environmental Impact Review Jefferson Building 105 West Chesapeake Avenue Suite 400 Towson, MD 21204 Phone: 410-887-3980 Fax: 410-887-4804 E-Mail: eps@baltimorecountymd.gov
Galveston Bay Estuary Program Administrative Assistant Doretta Gale Thomas 17041 El Camino Real, Ste. 210 Houston TX 77058	

March 1, 2013

Ms. Brenda Barber, P.E.
Project Manager, Environmental and Munitions Design Center
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: **MD20130222-0103**
Reviewer Comments Due By: March 28, 2013
Project Description: Environmental Assessment (EA): MH-1A Sturgis Barge Decommissioning and Disposal MARAD James River Reserve Fleet
Project Location: State of Virginia
Clearinghouse Contact: Sophia Richardson

Dear Ms. Barber:

Thank you for submitting your project for intergovernmental review. Participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps ensure project consistency with plans, programs, and objectives of State agencies and local governments. MIRC enhances opportunities for approval and/or funding and minimizes delays by resolving issues before project implementation.

The following agencies and/or jurisdictions have been forwarded a copy of your project for their review: the Maryland Department(s) of Natural Resources, the Environment, Transportation; the Maryland Office(s) of Maryland Military Department; the County(ies) of Baltimore City; and the Maryland Department of Planning; including Maryland Historical Trust. They have been requested to contact your agency directly by **March 28, 2013** with any comments or concerns and to provide a copy of those comments to the State Clearinghouse for Intergovernmental Assistance. Please be assured that after **March 28, 2013** all MIRC requirements will have been met in accordance with Code of Maryland Regulations (COMAR 34.02.01.04-.06). The project has been assigned a unique State Application Identifier that should be used on all documents and correspondence.

If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at srichardson@mdp.state.md.us. Thank you for your cooperation with the MIRC process.

Sincerely,

Linda C. Janey, J.D., Assistant Secretary

P.S. Great News!! Your project may be eligible to be "FastTracked" through the State permitting processes. For more information, go to: http://easy.maryland.gov/wordpress/fasttrack/.

LCJ:SR
Enclosure(s)
cc: Greg Golden – DNR Amanda Degen – MDE Melinda Gretsinger – MDOT Lawrence Leone – MILT Jaime Cramer – BCIT
Peter Conrad – MDPL Beth Cole – MHT *13-0103_NDC.NEW.doc*

Good morning Ms. Barber,

We processed **MD20130222-0103 - Environmental Assessment (EA): MH-1A Sturgis Barge Decommissioning and Disposal MARAD James River Reserve Fleet** as a Direct Comment. With Direct Comment projects we ask the reviewing agencies to respond directly to the applicant. Therefore, we do not issue a formal Review and Recommendation letter with these projects.

In regard to comments received:

Reviewers	Response Codes	Comments
Maryland Department of the Environment	R2	Comments sent separately
Baltimore City		No comment
Maryland Department of Planning	R1	Please refer to MHT comments regarding National Register eligibility.
Maryland Historical Trust	P7	MH-1A Sturgis is potentially eligible for listing in the National Register of Historic Places. The proposed action includes decommissioning, dismantling, and disposal of Sturgis and will result in an adverse effect on historic properties. The lead federal agency should consult with the appropriate state historic preservation office in the state where the proposed action will occur to avoid, minimize, or mitigate the adverse effect.

Please be assured that all MIRC requirements were met in accordance with Code of Maryland Regulations (COMAR 34.02.01.04-.06).
Thanks Sophia

Bryan W. Shaw, Ph.D., *Chairman*
Carlos Rubinstein *Commissioner*
Toby Baker, *Commissioner*
Zak Covar, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 11, 2013

Ms. Brenda M. Barber, P.E. CHMM
Environmental and Munitions Design Center

Re: TCEQ Grant and Texas Review and Comment System (TRACS) #2013-185, Galveston County, Project James River Reserve Fleet

Dear Ms. Barber:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced project and offers the following comments:

Please be aware that a hazardous waste determination must be made on any waste generated. Although any demolition, construction, rehabilitation or repair project may produce dust and particulate emissions, these actions are not anticipated to result in a significant impact upon air quality standards. Any dust and particulate emission should be easily controlled by using standard dust mitigation techniques. Any debris or waste disposal should be at an appropriately authorized disposal facility.

We have no further comment on this project.

Thank you for the opportunity to review this project. If you have any questions, please contact Ms. Melanie Aldana at (512) 239-1622 or melanie.aldana@tceq.texas.gov.

Sincerely,

Susana M. Hildebrand, P.E.
Chief Engineer

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

March 15, 2013

Ms. Brenda Barber
Project Manager
Environmental and Munitions Design Center

Dear Ms. Barber:

On February 22, 2013, the Department of Environmental Quality received your scoping request email regarding the proposed de-commissioning and disposal of the MH-1A Sturgis Barge from the MARAD James River Reserve Fleet, Fort Eustis, VA. DEQ's Division of Land Protection and Revitalization (DLPR) staff has reviewed your letter re: the Public Notice of Environmental Assessment and has the following comments concerning the waste issues associated with this project:

Solid and hazardous waste issues were generally addressed in the scoping request. The request did not indicate a search of waste-related data bases.

When the environmental impact report is written or compiled, it should include an environmental investigation on and near the property to identify any hazardous waste sites or issues. The report author should analyze the data in the web-based Waste Division databases to determine if the project would affect or be affected by any sites identified in the databases. These are the CERCLA Facilities and Hazardous Waste Facilities databases.

CERCLA Facilities Database
A list of active and archived CERCLA (EPA Superfund Program) sites.

Hazardous Waste Facilities Database
A list of hazardous waste generators, hazardous waste transporters, and hazardous waste storage and disposal facilities. Data for the CERCLA Facilities and Hazardous Waste Facilities databases are periodically downloaded by the Waste Division from U.S. EPA's website.

Accessing the DEQ Databases:

The report author should access the information provided in the February 21, 2013 letter from Ms. Ellie L. Irons, Program Manager, Environmental Impact Review Program at DEQ, and on the DEQ website at http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/ReportsPublications/OriginalReports.aspx. Scroll down to the databases which are listed under Real Estate Search Information heading.

The ***Superfund information*** will be listed by clicking on the Search EPA's CERCLIS database tab and opening the file. Click on the locality box, click on sort, then click on Datasheet View. Scroll to the locality of interest (Newport News if that site is selected for the de-commissioning).

The ***hazardous waste*** information can be accessed by clicking on the Hazardous Waste Facility tab. Go to the Geography Search section and fill in the name of the city or county and VA in the state block, and hit enter. The hazardous waste facilities in the locality will be listed. Scroll to the locality of interest (Newport News if that site is selected for the de-commissioning).

This database search will include most waste-related site information for each locality. In many cases, especially when the project is located in an urban area, the database output for that locality will be extensive.

DEQ's Virginia Geographical Information Systems (VEGIS) database can be accessed at the following web address: http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx. Through VEGIS's search options, you can identify by address (zip code) SW sites, VRP sites, and Petroleum Release sites in the area of the proposed project. Scroll to the locality of interest (Newport News if that site is selected for the de-commissioning).

GENERAL COMMENTS: (construction or demolition projects)

Soil, Sediment, and Waste Management

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Part 107.

Asbestos and/or Lead-based Paint

All structures being demolished/renovated/ removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-

81-620 for ACM and 9VAC 20-60-261 for LBP must be followed. Questions may be directed to Ms. Lisa Silvia at the Tidewater Regional Office (757-518-2175).

Pollution Prevention – Reuse - Recycling

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Steve Coe, Environmental Specialist, at (804) 698-4029.

-----Original Message-----
From: Curtis.Joyner [mailto:joynercm@dhec.sc.gov]
Sent: Wednesday, March 20, 2013 10:02 AM
To: Barber, Brenda M NAB
Subject: comments for EA MH-1A Sturgis Barge Decommissioning and Disposal

Ms. Barber:

Staff with the Coastal Zone Consistency section in South Carolina's Department of Health and Environmental Controls' Division of Ocean and Coastal Resource Management has reviewed the public notice in preparation of an Environmental Assessment of the decommissioning and disposal of the MH-1A Sturgis.

The Sturgis is currently located in the James River Reserve Fleet in Virginia and Charleston, S. C. has been identified as one of four alternative sites for decommissioning and disposal. The decommissioning, dismantling and disposal of the Sturgis includes the segregation of hazardous/radioactive wastes in accordance with federal, state and local statues.

The following comments are in response to the public notice and should be included in the EA if Charleston, S. C. is selected.

Best Management Practices should be implemented to ensure none of the dismantled or removed materials are placed in wetland or other coastal resources and that hazardous materials are disposed of in accordance with our Bureau of Land and Waste Managment requirements and other Federal and State requirements as specified. Reasonable safeguards should be taken when storing or staging dismantled materials on barges or upland storage sites to ensure the materials or particulate matter from the materials do not reenter coastal waters. Additionally, these comments do not authorize the construction of any temporary access (dock or wharf) to the vessel, if needed. Proper permits must be obtained if this type of access is required for staging or dismantling.

The Division asks that the majority of materials be recycled for beneficial reuse to the maximum extent practicable to reduce the use of local landfills or other disposal sites.

Thank you for the opportunity to comment.

Sincerely,
--
Curtis M. Joyner
Manager, Coastal Zone Consistency Section Regulatory Division SCDHEC
1362 McMillan Avenue, Suite 400
Charleston, SC 29405
843-953-0205, 843-953-0201 f
joynercm@dhec.sc.gov

Classification: UNCLASSIFIED
Caveats: NONE

March 20, 2013

Brenda M. Barber
Project Manager
Environmental and Munitions Design Center
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715

Re: Project review under Section 106 of the National Historic Preservation Act of 1966 and the Antiquities Code of Texas
Environmental Assessment, MH-1A *Sturgis* Barge Decommissioning and Disposal, MARAD James River Fleet, Fort Eustis, Virginia
THC Tracking No. 201305266

Dear Ms. Barber:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed federal undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission. As the state agency responsible for administering the Antiquities Code of Texas, these comments also provide recommendations on compliance with state antiquities laws and regulations.

The review staff, comprised of State Marine Archeologist Amy Borgens and William McWhorter, Program Coordinator for the Military Sites Program, has completed its review. The public notice submitted to the Texas Historical Commission does not provide adequate information to assess MH-1A *Sturgis* for eligibility of the National Register of Historic Places. We request a copy of the Environmental Assessment upon its completion. Furthermore, as this vessel is moored outside the State of Texas, in your next correspondence to our agency please address your office's understanding as to the relevance of the Texas SHPO providing comment on a property located in another state.

Thank you for your cooperation in this federal and state review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Amy Borgens at 512-463-9505.**

Sincerely,

for
Mark Wolfe
State Historic Preservation Officer

MW/ab

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

FEB 04 2013

Greetings:

Due to increases in workload and refinement of our priorities in Virginia, this office will no longer provide individual responses to requests for environmental reviews. However, we want to ensure that U.S. Fish and Wildlife Service trust resources continue to be conserved. When that is not possible, we want to ensure that impacts to these important natural resources are minimized and appropriate permits are applied for and received. We have developed a website, *http://www.fws.gov/northeast/virginiafield/endspecies/Project_Reviews_Introduction.html*, that provides the steps and information necessary to allow landowners, applicants, consultants, agency personnel, and any other individual or entity requiring review/approval of their project to complete a review and come to the appropriate conclusion.

The website will be frequently updated to provide new species/trust resource information and methods to review projects, so refer to the website for each project review to ensure that current information is utilized.

If you have any questions about project reviews or need assistance, please contact Troy Andersen of this office at (804) 693-6694, extension 166, or troy_andersen@fws.gov. For problems with the website, please contact Mike Drummond of this office at mike_drummond@fws.gov.

Sincerely,

Cynthia R Schulz

Cindy Schulz
Supervisor
Virginia Field Office

Maryland Department of Planning
Maryland Historical Trust

Sustainable Attainable

March 28, 2013

Brenda M. Barber, P.E., CHMM
Project Manager, Environmental and Munitions Design Center
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715

Re: Public Notice: Environmental Assessment - MH-1A *Sturgis* Barge Decommissioning and Disposal MARAD James River Reserve Fleet, Fort Eustis, VA

Dear Ms. Barber:

Thank you for the opportunity to comment on the above-referenced public notice. MH-1A *Sturgis* is potentially eligible for listing in the National Register of Historic Places. The proposed action includes decommissioning, dismantling, and disposal of *Sturgis* and could result in an adverse effect on historic properties. The lead federal agency should consult with the appropriate state historic preservation office in the state where the proposed action will occur to avoid, minimize, or mitigate any adverse effects.

If you have questions or require further assistance, please contact me at tnowak@mdp.state.md.us.

Sincerely,

Troy J. Nowak
Assistant State Underwater Archeologist
Maryland Historical Trust

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

April 11, 2013

Mr. Jack Buddenbaum
Integrated Environmental Management, Inc.
3286 Maynard Road, Suite A
Shaker Heights, Ohio 44122

RE: U.S. Army Corps of Engineers, Baltimore District - MH-1A Sturgis Barge Decommissioning and Disposal, MARAD James River Reserve Fleet, Fort Eustis, VA

Dear Mr. Buddenbaum:

This responds to your letter, received February 20, 2013, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8, 2007, if your project may cause “disturbance” to the bald eagle, please consult the “National Bald Eagle Management Guidelines” dated May 2007.

If any planned or ongoing activities cannot be conducted in compliance with the National Bald

TAKE PRIDE® IN AMERICA

Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle Management Guidelines can be found at: **http://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf.**

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Trevor Clark at (410) 573-4527.

Sincerely,

G. La Rouche

Genevieve LaRouche
Supervisor

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Joseph P. Gill, Deputy Secretary

June 6, 2013

Mr. Jack Buddenbaum
Integrated Environmental Management, Inc.
3286 Maynard Road, Suite A
Shaker Heights, OH 44122

RE: Environmental Review for MH-1A Sturgis Barge Decommissioning and Disposal Project, Baltimore City, Maryland.

Dear Mr. Buddenbaum:

The Wildlife and Heritage Service does not anticipate any direct adverse impacts to rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. For your general information, however, I am attaching a link to our list of known RT&E species for the general area: http://www.dnr.maryland.gov/wildlife/Plants_Wildlife/espaa.asp should take you to our homepage where you can view lists of animals and plants by the county where they were documented.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER # 2013.0607.bc
Cc: D. Brinker, DNR
K. Charbonneau, CAC

NOAA NMFS

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

April 11, 2013

National Marine Fisheries Service
Office of Protected Resources
1315 East West Highway
13th Floor
Silver Spring, MD 20910
Attn: Acting Director – Helen Golde

RE: Request for informal consultation under section 7(a)(2) of the Endangered Species Act regarding proposed towing, decommissioning and dismantling of STURGIS and MH-1A

Dear Ms. Golde:

The United States Army Corps of Engineers (USACE), Baltimore District is preparing an Environmental Assessment (EA) for the proposed decommissioning and disposal of STURGIS (and MH-1A), currently moored at Maritime Administration's (MARAD) James River Reserve Fleet (JRRF), Ft. Eustis, VA. The Proposed Action involves towing of the vessel from the JRRF to one of five potential locations for decommissioning and disposal: these locations include Newport News, VA; Baltimore, MD; Charleston, SC; Galveston, TX; and Brownsville, TX. The towing may occur at any time during the year. The first two chapters of the EA (the Description of Proposed Action and Alternatives) are enclosed (see Enclosure 2).

The towing portion of the Proposed Action could be located in territorial and non-territorial waters and may affect, but not likely to adversely affect, species listed under the Endangered Species Act (ESA). The following assessment, analysis, and effects determination are provided for your review and response.

STURGIS is 441.5 feet (134.6 meters) in length, with a beam of 65 feet (19.8 meters) and draft of 19 feet (5.8 meters). The tow cable could be up to 2,000 feet long, consisting of 2.25 inch (5.72 centimeter) diameter wire rope. While underway, the cable may dip 100 feet (30 meters) below the surface; the tug would maintain approximately 75 tons (68 metric tons) of strain on the cable.

Towing routes from JRRF would depend upon the destination determined upon contract award. To access facilities at Newport News, the route would include travelling a short distance south along the James River. To access facilities at Baltimore, MD, the proposed route would include travel along the James River to the Chesapeake Bay then north to Baltimore. To access facilities at Charleston, Galveston, or Brownsville, the proposed route would track offshore once departing Chesapeake Bay to remain outside the main axis of the Gulf Stream, nearing the coast approaching Cape Hatteras. For Galveston and Brownsville, the route would then pass through the Straits of Florida before entering the Gulf of Mexico.

The threatened and endangered species identified that could potentially occur in the area of the Proposed Action are listed in Table 1. Encountering strikes from ships' hulls, the tug's propeller, or the tow cable have the potential to cause injury or mortality to marine mammals and sea turtles.

Marine mammals are frequently exposed to vessel movement as a result of research, ecotourism, commercial and private vessel traffic, and government activities. However, vessel strike avoidance measures are limited in a towing situation because a tug is constrained in its ability to turn quickly and rapidly alter speed. As a result, the following protective measures are proposed to be implemented for the Proposed Action:

- The tug and tow will transit at speeds of 10 knots or less in accordance with the Whale Ship Strike Reduction Rule (50 C.F.R. 224.105, 9 December 2008) for protection of right whales in seasonal management areas.

- Whenever marine mammals or sea turtles are sighted in an area, the tug's crew would increase vigilance and take prudent actions to avoid collisions or activities that might result in close interaction of the ship and the animals. Actions may include changing speed and/or direction as dictated by environmental and other conditions (e.g., safety, weather).

The Navy (NAVSEA PMS 333) has recently consulted with your office regarding similar tow paths and potential impacts. The Navy letter was dated 14 August 2012 and your response was dated 10 October 2012. This USACE Proposed Action would occur in a similar project area for potential towing to Baltimore as well as south through the Gulf of Mexico and is expected to have the same species status (see Enclosure 1).

The USACE has determined that towing STURGIS may affect, but is not likely to adversely affect, these ESA-listed species and designated critical habitat would not be adversely affected or modified. Protective measures as described will be implemented, thereby reducing the potential for adverse effects associated with towing operations. USACE respectfully requests your review and concurrence.

The point of contact regarding this project is Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M Barber, P.E., CHMM

Brenda M. Barber P.E., CHMM
Project Manager Environmental and Munitions Design Center
U.S. Army Corps of Engineers - Baltimore District

Enclosures:
1. Table 1: Endangered and Threatened Species that may occur in the Atlantic and Gulf of Mexico Action Areas.
2. Description of Proposed Action and Alternatives

Table 1. Endangered and Threatened Species that may occur in the Atlantic and Gulf of Mexico Action Areas.

Common name	Scientific name	Status	Occurrence	
			Gulf of Mexico	Atlantic
Marine mammals				
Blue whale	*Balaenoptera musculus*	Endangered	X	X
Fin whale	*Balaenoptera physalus*	Endangered	X	X
Humpback whale	*Megaptera novaeangliae*	Endangered	X	X
North Atlantic right whale	*Eubalaena glacialis*	Endangered		X
Sei whale	*Balaenoptera borealis*	Endangered	X	X
Sperm whale	*Physeter macrocephalus*	Endangered	X	X
Sea turtles				
Green turtle	*Chelonia mydas*	Endangered/ Threatened[1]	X	X
Hawksbill turtle	*Eretmochelys imbricata*	Endangered	X	X
Kemp's ridley turtle	*Lepidochelys kempii*	Endangered	X	X
Leatherback turtle	*Dermochelys coriacea*	Endangered	X	X
Loggerhead turtle	*Caretta caretta*	Endangered/ Threatened[2]	X	X
Olive ridley turtle	*Lepidochelys olivacea*	Threatened	X	X[3]
Fish				
Smalltooth sawfish	*Pristis pectinata*	Endangered	X	X
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered	X	X
Atlantic Sturgeon	*Acipenser oxyrinchus oxyrinchus*	Candidate	X	X

[1] As a species, the green turtle is listed as threatened, but the Florida and Mexican Pacific coast nesting populations are listed as endangered.
[2] Nine distinct population segments exist for loggerhead sea turtles. The North Pacific Ocean, South Pacific Ocean, North Indian Ocean, Northeast Atlantic Ocean, and Mediterranean Sea distinct population segments of the loggerhead sea turtle are listed as endangered. The Southeast Indo-Pacific Ocean, Southwest Indian Ocean, Northwest Atlantic Ocean, and South Atlantic Ocean distinct population segments are listed as threatened.
[3] Occurs south of Florida
Source: Navy consultation with NMFS 8/14/2012, and NMFS website

Interested Consulting Parties

Letters and Responses

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

Council of American Maritime Museums
Attn: CAMM President – president@CouncilofAmericanMaritimeMuseums.org

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear President:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

Mystic Seaport - The Museum of America and the Sea
75 Greenmanville Avenue
PO Box 6000
Mystic, CT 06355-0990
Attn: President Stephen C. White
administration@mysticseaport.org

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear President:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

National Maritime Alliance at
Maritime Studies Program
East Carolina University, Eller House
Greenville, NC 27858
Attn: Director

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear Director:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

National Maritime Historical Society Headquarters
5 John Walsh Blvd.
P.O. Box 68, Peekskill, NY 10566
nmhs@seahistory.org

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear President:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

National Trust for Historic Preservation
1785 Massachusetts Ave. NW
Washington, DC 20036-2117
Attn: President Stephanie K. Meeks
members@savingplaces.org

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear President:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

The Nuke Digest
12325 Manitoba ST. NE
Albuquerque, NM 87111-2755
Attn: Mr. Charlie Harmon, editor
charlieharmon@mindspring.com or NUKEDIGEST@gmail.com

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear Mr. Harmon:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

Mr. Frank Faulkner - paintandfly@gmail.com

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear Mr. Faulkner:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

United States Armed Forces Nuclear Energy Association
Attn: usafnea@gmail.com

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear President:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO:

December 11, 2012

American Nuclear Society
555 N. Kensington Avenue
La Grange Park, IL 60526-5535

RE: Proposed *Sturgis* decommissioning and disposal, James River Fleet, Fort Eustis, VA

Dear Director:

The U.S. Army Corps of Engineers (USACE) is proposing to decommission the MH-1A *Sturgis* then dispose of the vessel through dismantling. *Sturgis* is currently located at the Maritime Administration's James River Reserve Fleet on the James River in Virginia. As the world's first floating nuclear power station, USACE considers *Sturgis* eligible for listing in the National Register of Historic Places, according to the evaluation criteria codified in 36 C.F.R. § 60.4.

As part of the National Environmental Policy Act, USACE has begun an Environmental Assessment to analyze the specific impacts of the proposed project and make a determination of effect on *Sturgis*. Pursuant to Section 106 of the National Historic Preservation Act (36 C.F.R. Part 800) requirements, USACE is initiating consultation with the Virginia Department of Historic Resources for the decommissioning and disposal of *Sturgis*. Due to potential adverse effects on historic resources, USACE is sending this letter to determine your interest in becoming a consulting party.

Please respond to this letter within 30 days to be considered a consulting party. Should you have any questions about the *Sturgis* project, please contact Ms. Brenda Barber at 410-962-0030 or Brenda.M.Barber@usace.army.mil.

Sincerely,

Brenda M. Barber, P.E., CHMM

Brenda M. Barber, P.E., CHMM
Project Manager Environmental and Munitions Design Center

From: Jack Buddenbaum [mailto:jebuddenbaum@iem-inc.com]
Sent: Thursday, December 20, 2012 11:05 AM
To: 'Charlie Harmon'
Cc: Barber, Brenda M NAB; Honerlah, Hans B NAB; Barbour, Eric W NAB; Watters, David J NAB; Jill Enright; cdberger@iem-inc.com; Taylor, Kevin (Greenville); Duff, Alan; Steve Jones; David Kindig
Subject: RE: Invitation Letter_Sturgis Decommissioning

Mr. Harmon,

Thank you for your interest and we look forward to your participation on this important project.

Jack Buddenbaum

From: Charlie Harmon [mailto:charlieharmon@mindspring.com]
Sent: Wednesday, December 19, 2012 12:15 PM
To: 'Jack Buddenbaum'
Subject: RE: Invitation Letter_Sturgis Decommissioning

Sir:

Thank you for considering my participation in this effort. I am very interested in the Sturgis decommissioning and would like to be a consulting party.

Regards – Charlie Harmon

Charlie Harmon
112 Harvester Drive
Lake Frederick, VA 22630-2096
Phone: (540) 869-1454
FAX: (540) 869-1419
Cell: (505) 573-6113
E-Mail: charlieharmon@mindspring.com

From: Jack Buddenbaum [mailto:jebuddenbaum@iem-inc.com]
Sent: Wednesday, December 19, 2012 11:45 AM
To: charlieharmon@mindspring.com; NUKEDIGEST@gmail.com
Cc: Jill Enright
Subject: Invitation Letter_Sturgis Decommissioning

Dear Sir:

Acting on the behalf on the Baltimore District Army Corps of Engineers, we direct your attention to the attached letter regarding your invitation to be a consulting party to the decommissioning and disposal planning of MH-1A *Sturgis.*

If you have any questions or require further information regarding the attached letter, please let me know. We look forward to your reply.

Sincerely,

Jack Buddenbaum
Integrated Environmental Management, Inc.
3286 Maynard Road, Suite A
Shaker Heights, Ohio 44122
(216) 938-9416
JEBuddenbaum@IEM-Inc.com

IEM is Certified to the ISO 9001:2008 Standard. Please visit our web site at http://www.IEM-Inc.com.

The information contained in this electronic mail message contains privileged and confidential information intended solely for the use of the individual or entity to whom it is addressed. If you are not the intended addressee, you are hereby notified that any dissemination, distribution or copying of this communication is prohibited and may be unlawful. If you received this communication in error, please notify the sender and delete the communication. Nothing in this communication is intended to operate as an electronic signature under applicable law.

IEM takes precautions to minimize the risk of transmitting software viruses with our electronic communications. However, we advise you to perform your own virus scans on attachments, if any, to this e-mail. IEM does not accept liability for any loss or damage caused by software viruses.

Mr. Harmon,
Thanks again for your interest and we will note that you are representing Nuke Digest. Please let us know which addresses (email addresses or mailing address) you prefer to use for receiving information on the *Sturgis* project so we can eliminate the duplicate correspondence.
Sincerely,
Jack Buddenbaum

From: Nuke Digest [mailto:nukedigest@gmail.com]
Sent: Thursday, December 20, 2012 4:41 PM
To: Jack Buddenbaum
Subject: Re: Invitation Letter_Sturgis Decommissioning

Sir:
I represent the Nuke Digest and have already expressed my desire up be a consulting party to the MH-1A decommissioning.
Regards - Charlie Harmon

Charles D. Harmon
112 Harvester Drive
Lake Frederick, VA 22630-2096
Phone: (540) 869-1454
Fax; (540) 869-1419
Cell: (505) 573-6113
E-Mail: charlieharmon@mindspring.com
On Dec 19, 2012, at 11:45, "Jack Buddenbaum" <jebuddenbaum@iem-inc.com> wrote:

Dear Sir:
Acting on the behalf on the Baltimore District Army Corps of Engineers, we direct your attention to the attached letter regarding your invitation to be a consulting party to the decommissioning and disposal planning of MH-1A *Sturgis.*
If you have any questions or require further information regarding the attached letter, please let me know. We look forward to your reply.
Sincerely,
Jack Buddenbaum
Integrated Environmental Management, Inc.
3286 Maynard Road, Suite A
Shaker Heights, Ohio 44122
(216) 938-9416
JEBuddenbaum@IEM-Inc.com

IEM is Certified to the ISO 9001:2008 Standard. Please visit our web site at http://www.IEM-Inc.com.
The information contained in this electronic mail message contains privileged and confidential information intended solely for the use of the individual or entity to whom it is addressed. If you are not the intended addressee, you are hereby notified that any dissemination, distribution or copying of this communication is prohibited and may be unlawful. If you received this communication in error, please notify the sender and delete the communication. Nothing in this communication is intended to operate as an electronic signature under applicable law.

IEM takes precautions to minimize the risk of transmitting software viruses with our electronic communications. However, we advise you to perform your own virus scans on attachments, if any, to this e-mail. IEM does not accept liability for any loss or damage caused by software viruses.

<Nuke Digest.doc>

-----Original Message-----
From: Barber, Brenda M NAB [mailto:Brenda.M.Barber@usace.army.mil]
Sent: Thursday, December 20, 2012 4:02 PM
To: Honerlah, Hans B NAB; Barbour, Eric W NAB; Watters, David J NAB; Jill Enright; cdberger@iem-inc.com; Taylor, Kevin (Greenville); Duff, Alan; Steve Jones; David Kindig
Subject: FW: Sturgis consulting (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYSA...

Thanks

Brenda M. Barber, P.E., CHMM
U.S. Army Corps of Engineers - Baltimore District Project Manager Environmental and Munitions Design Center
ATTN: CENAB-EN-HN
10 S. Howard St., Rm. 10040-B
Baltimore, MD 21201
410-962-0030 (desk)
443-253-3048 (cell)
410-962-2318 (fax)

-----Original Message-----
From: Maureen Hennessey [mailto:maureen.hennessey@mysticseaport.org]
Sent: Thursday, December 20, 2012 3:59 PM
To: Barber, Brenda M NAB
Subject: Sturgis consulting

Hello -
I am responding on behalf of President Stephen White regarding the December 11 inviting him to be considered as a consulting party for the proposed decommissioning and disposal of Sturgis.

Mr. White respectfully declines.

Thank you, Maureen

Maureen Hennessey, Executive Assistant
Mystic Seaport: The Museum of America and the Sea
P.O. Box 6000, 75 Greenmanville Avenue, Mystic, CT 06355
ph: 860.572.5336 / fx: 860.572-5327 www.mysticseaport.org <http://www.mysticseaport.org>

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: Barber, Brenda M NAB [mailto:Brenda.M.Barber@usace.army.mil]
Sent: Wednesday, January 02, 2013 8:49 AM
To: Jill Enright; cdberger@iem-inc.com; Taylor, Kevin (Greenville); Duff, Alan; Steve Jones; David Kindig; Buddenbaum Jack
Cc: Honerlah, Hans B NAB; Barbour, Eric W NAB; Watters, David J NAB; Barber, Brenda M NAB
Subject: FW: Sturgis decommissioning and disposal (UNCLASSIFIED)
Classification: UNCLASSIFIED
Caveats: NONE

Jack,
Another interested party for the Sturgis. Please add to our list.
Thanks
Brenda M. Barber, P.E., CHMM
U.S. Army Corps of Engineers - Baltimore District Project Manager Environmental and Munitions Design Center
ATTN: CENAB-EN-HN
10 S. Howard St., Rm. 10040-B
Baltimore, MD 21201
410-962-0030 (desk)
443-253-3048 (cell)
410-962-2318 (fax)

-----Original Message-----
From: MEP208 [mailto:mep208@gmail.com]
Sent: Wednesday, January 02, 2013 8:46 AM
To: Barber, Brenda M NAB
Subject: Sturgis decommissioning and disposal

Dead Ms Barber,
: Reference to your letter dtd, December 11, 2012, to the United States Armed Forces Energy Association

My name is Michael Hunter. I served on the Sturgis in Panama from Nov 72 until Feb 76 and then again in 76/77 as part of the decommissioning team at Ft Belvoir. After I retired from the Army, I worked as a DOD civilian for the COE at Ft. Belvoir for 21 years as the Prime Power Program Manager. I retired from civil service in Aug of 2010. I am also on the Board of Directors for USAFNEA.
If at all possible I would very much like to be a part of the team or consulting committee for the Decommissioning and/or Disposal of the Sturgis.
You may contact me via email, mep208@gmail.com or
Michael Hunter
7913 Mulberry Bottom Ct
Springfield, VA 22153
(703) 455-9745
Sincerely,
Mike Hunter
Classification: UNCLASSIFIED
Caveats: NONE

SHPO

Print

Create New Application

This electronic form is to be used for the submission of new projects only. If you wish to submit addtional information in support of an existing project, please contact the reviewer assigned to that project.

Before using this form, please understand that the information being requested is important to our review. Incomplete information may lead to delays in the review of your project. Please read all questions carefully and respond as completely as possible. For security purposes, *your ePIX session will timeout after 20 minutes of inactivity* and any unsaved changes will be discarded. To ensure that no information is lost, we recommend saving your application after the completion of each section. If you have questions concerning the completion of this application, please contact DHR staff at ePIX@dhr.virginia.gov.

SECTION I. CONTACT INFORMATION

Submitted By
```
Mr. Hans Honerlah
10 South Howard St
Baltimore, MD 21201
410-962-9184
410-962-4266
```

Please indicate what your role in this project is:

Applicant RoleEmployee of federal or state agency responsible for compliance

If Other, please specify

SECTION II. GENERAL PROJECT INFORMATION

Project NameDecommissioning and Disposal of MH-1A Sturgis Barge

Agency Project NumberN/A

Associated DHR File NumberN/A

Project Street AddressN/A

Independent Cities and/or Counties (multiple cities/counties are allowed):

City/County Name
Newport News (Ind. City)

Town/Locality, if applicableFort Eustis

Agency Involvement

Please select one of the following options as they relate to the project you are submitting:

- (selected) My project involves a federal or state agency and requires review by DHR under the National Historic Preservation Act (Sections 106 or 110), Virginia Environmental Impact Reports Act or other provision of state or federal law.
- I am seeking Technical Assistance from DHR in the assessment of potential impacts of my project on historic resources (e.g. federal or state involvement anticipated, initial project scoping, local government proffer or ordinance).

It is important that you know the nature of the federal or state involvement in your project. Please note that there are a number of state-managed programs that are federally funded (e.g. Transportation Enhancement Grants, some recreational trail grant programs, and many DHCD programs). Understanding the involvement of the agency and the program is helpful for our review.

In some cases there are multiple agencies involved in a project. In these cases, there is generally a "lead" agency. In order to help clarify this, please list the agencies in the order of their involvement in the project. If, for example, there are two agencies providing funding, please provide the contact information for the primary source of federal funding first.

Please select the agency, relationship, contact and click the **Select** button:

Agency	Relationship
Army Corps of Engineers	Federally Funded

SECTION III. PROJECT DESCRIPTION and CURRENT AND PAST LAND USE

We need to know as much as possible about the project that is being proposed as well as the current condition of the property. In the fields below, you will be required to provide descriptions that are no longer than 2000 characters. Additional and more detailed information can be uploaded and attached at the end of the application.

Overview and existing conditions

Please provide a general description of the project.

Project Description

In March 1963, the World War II Liberty Ship, Charles H. Cugle was selected from the Mobil Reserve Fleet for conversion to a mobile power source containing a high power (>10 Mega Watt) pressurized water nuclear reactor called MH-1A. The propulsion plant was removed from the vessel and the midsection was replaced with a new midsection containing the turbine generator, a 350-ton steel containment “spheroid,” and a concrete collision barrier. The vessel, which essentially became a barge, was renamed Sturgis. It operated at Ft. Belvoir, VA from July 1967 to June 1968 for testing and training. Sturgis was then transferred to Gatun Lake in the Panama Canal Zone where it operated from 1968 to 1976 generating power at a nominal output of ten megawatts electricity for military and civilian use. The reactor was shut down in 1976 and the Sturgis was returned to Ft. Belvoir in 1977. Since 1978, Sturgis has been stored with the James River Reserve Fleet on the James River in Virginia. Prior to being towed to its current location for storage, the reactor was de-fueled, decontaminated, and sealed. The Maritime Administration (MARAD) provides for security, access, and maintenance of Sturgis. To support planning for the decommissioning of the MH-1A Sturgis, the Department of the Army (DA) is preparing an Environmental Assessment (EA) to assess the environmental impact associated with the permit termination activities. The proposed action and action alternatives include dismantling which will have an adverse effect on the vessel. As the world's first floating nuclear power station, Sturgis meets the criteria to be eligible for listing in the National Register of Historic Places (NRHP) according to the evaluation criteria codified in 36 C.F.R. § 60.4. To satisfy the National Environmental Policy Act and Section 106 of the National Historic Preservation Act requirements, the DA is seeking consultation with the Virginia Department of Historic Resources.

How many acres does the project encompass?

Number of Acres0.6

Please describe the current condition and/or land use of the project area (e.g. paved parking lot, plowed field).

Current Condition

Sturgis is currently located at the James River Reserve Fleet, Fort Eustis, Virginia. The vessel is under a safe configuration for long-term storage of radioactive material remaining on board, commonly known as “SAFESTOR.” Since deactivation, the U.S Army Corps of Engineers (USACE) has maintained Sturgis in a safe storage condition and ensured that radiation exposure to the public and the environment were within acceptable levels. The USACE Environmental Division currently holds the Nuclear Reactor Possession Permit MH1A-1-09 issued by the Army Reactor Office (ARO). MARAD provides for the security, access, and maintenance of Sturgis. Surveillance and environmental monitoring are jointly accomplished by MARAD and USACE or through contractors employed by either party signatory to the Joint Interagency Agreement. The Joint Agreement contains technical specifications that delineate certain administrative responsibilities and surveillance requirements, assuring that public health and safety interests will be protected. Under the specifications no radioactive liquids may be discharged to surface waters in which Sturgis is anchored with the Reserve Fleet. The specifications require USACE to submit a written annual report to provide, at a minimum, the following:• Status of the facility.• Results of quarterly radiation surveys.• Results of quarterly environmental sampling.• Results of quarterly intrusion alarm system checks and structural surveillance.• A description of any maintenance or modifications performed.• Any abnormal degradation of one of several boundaries that contain the radioactive material aboard Sturgis.

Please describe any previous modifications to the property, including ground disturbance.

Prior to storage of Sturgis with the James River Reserve Fleet, the following decommission activities were completed:• Defueling and shipping of fuel and core components off-site;• Disposing of radioactive wastes and selected radioactive components;• Isolating the remaining materials from the public by appropriate physical barriers;• Decontaminating all other plant areas to within prescribed limits for release as an unrestricted area [e.g., removable contamination < 1,000 disintegrations per minute per 100 square centimeter (dpm/100 cm2) and exposure rate at 3 feet from the source to less than 50 micro-roentgens per hour (uR/h)]. Drydocking was performed three times. The first drydocking occurred in late March 1978, the second drydocking occurred in April to May 1999, and the third occurred in January to March of 2008. In 1978, the hull was dry docked, inspected, painted, overboard drains closed, certain fittings were made, and STURGIS was essentially mothballed. The second and third drydockings included structural inspection and cleaning/painting. The decommissioning strategy that was developed in the 1970's recommended that the deactivated reactors be placed into a safe storage mode to allow the shorter-lived radionuclides to decay. It was expected that delaying decommissioning would reduce radioactive waste volumes and worker exposures. Early plans estimated that decommissioning of Sturgis would begin in 2027. However, preliminary studies indicated that the levels of contamination present within the reactors would not be reduced by decay sufficiently to allow for release of the facilities without significant decontamination being performed. As a result, the DA is in coordination with appropriate Federal, state, and public parties to support issuance of decommissioning permit and to assess vessel

Previous Modificationsdisposal options.

Work involving buildings or structures

Does the project involve the rehabilitation, addition to, alteration, or demolition of any building structure over 50 years of age?

Buildings Over 50 YearsNo

If yes, please describe the work that is proposed in detail. Current photographs of affected building or structure, architectural or engineering drawings, project specifications and maps may be uploaded at the end of the application.

The vessel is over 50 years old, but the significance came during a modification to the original platform and was completed in 1967. The modification was an addition to the vessel which established it as the first mobile nuclear power plant. The proposed action includes dismantling. The DA shall develop a decommissioning plan in accordance with guidance listed in NUREG 1757, NUREG 1700, NUREG 1575, AR 50-7 and other applicable Federal, state, and local guidance. The decommissioning and dismantling actions would award the project to a team that can decommission and dismantle Sturgis. The contractor accomplishes all work associated with the removal and proper disposal of hazardous radioactive materials, dismantles the ship and recycles the resulting scrap metals and salvageable equipment in accordance with applicable Federal, state and local laws and regulations. Applicable guides for ship dismantling include the Environmental Protection Agency (EPA) Ship Scrappers Guide, and Occupational Safety and Health Administration (OSHA) Safe Work DetailsPractices for Shipbreaking.

Work involving ground disturbance

Is there any ground-disturbance that is part of this project?

Ground DisturbanceNo

If yes, describe the nature and horizontal extent of ground-disturbing activities, including construction, demolition, and other proposed disturbance. Plans, engineering drawings, and maps may be uploaded on the next page at the end of the application.

Extent of ActivitiesN/A

What is the depth of the ground disturbance? If there are several components to the project, such as new building, utility trenches, and parking facilities, provide the approximate depth of each component.

DepthN/A

How large is the area where ground-disturbing activities will take place? (in acres)

Area SizeN/A

SECTION IV. AREA OF POTENTIAL EFFECT (APE)

The Area of Potential Effects (APE) is defined as the geographic area or areas within which a project may directly or indirectly cause changes in the character or use of historic properties, if they exist. It is not necessary for an historic property to be present in order to define an APE.

An example of a direct effect is the demolition of an historic building while an indirect effect would be the alteration of an historic setting resulting from the construction of a communications tower or the introduction of noise as the result of the construction of factory. An area such as the footprint of a proposed building is obviously within the APE, but you must also consider visual effects on the property and the limits of all ground-disturbing activity. So, any project may have two APEs - one for direct effects and one for indirect effects.

Please see our guidance on Defining Your APE for more detailed information on defining direct and indirect APEs. If you are using DHR's Data Sharing System, you should indicate the APE on the DSS map. For instructions on how to do this, consult the DSS general use guidelines.

Please provide a brief summary of and justification for the APE and upload your APE map at the end of the application. The written boundary description must match the submitted APE map.

Sturgis would be towed from its present location at James River Reserve Fleet, VA to a dismantling contractor's facility. The towing would meet the requirements for safety, navigation, environmental, and other safeguards. The dismantling actions would take place at an existing dismantling facility and/or commercial dock. This commercial facility has the capability of dismantling a ship of this size and would not require construction of any new facilities. Environmental resources potentially affected by the Proposed Action and Action Alternatives to be evaluated in the EA include:• Cultural Resources• Water Resources• Biological Resources• Air Quality• Waste Management• Human health and safety Because Sturgis is eligible for listing in the NRHP, the DA has determined that the Proposed Action will have an adverse effect on the ship. Prior to decommissioning and dismantling the vessel, the DA shall comply with Section 106 of the NHPA concerning the evaluation of Sturgis for eligibility for listing in the NRHP and the final disposition of the APEvessel.

SECTION V. CONSULTING PARTIES AND PUBLIC INVOLVEMENT

The views of the public, Indian tribes and other consulting parties (e.g. local governments, local historical societies, affected property owners, etc.) that may have an interest in historic properties that may be affected by the project are essential to informed decision-making. In some cases, the public involvement necessary for other environmental reviews such as that under the National Environmental Policy Act (NEPA) may be sufficient for the Section 106 process, but the manner in which the public is involved must reflect the nature and complexity of the proposed project and its effects on historic resources.

What consulting parties have you identified that have an interest in this project? Please describe your previous and future efforts to involve consulting parties.

The DA has contacted parties via letters/emails and awaiting responses. Those parties include: Council of American Maritime Museums, Mystic Seaport, National Maritime Alliance, National Maritime Historical Society Headquarters, National Trust for Historic Preservation, American Nuclear Society, The Nuke Digest, United States Armed Forces Nuclear Energy Association, and Frank
Consulting PartiesFaulkner.

Please provide information on any previous or future efforts to involve the public, including public hearings, public notices, and other efforts.

The DA will prepare a public notification of the availability of the EA and draft Finding of No Significant Impact (FONSI). The public shall be allowed a review period of 30 calendar days. Following conclusion of the public comment period, the DA shall consolidate all comments, prepare responses, and incorporate the response summary in the final EA documentation. Public notice shall be advertised in the Federal Register and local/regional newspaper. In some cases where publication in large-city newspapers would result in prohibitively high cost, the DA may opt for a broad mail-out of the FONSI to all regulatory and resource agencies, interested or affected parties,
Public Involvementlibraries, and elected officials, instead of newspaper publication.

SECTION VI. PREVIOUSLY IDENTIFIED HISTORIC RESOURCES

In order for this application to be considered complete, you must determine if there are any known historic resources in the APE and provide this information to us. This step is generally referred to as a DHR Archives Search. More information on how to acquire this information can be found in our guidance document Obtaining an Archives Search.

Has any portion of the APE been previously surveyed for archaeological and/or architectural resources?

SurveysNo

If yes, describe and provide the names of any reports that you are aware of.

Survey ReportsACE/DA has historic data for the vessel.

Are there any previously recorded archaeological sites or architectural resources, including historic districts or battlefields within the APE?

Recorded ResourcesNo

You must upload in Section VIII of this application the Archives Search Map showing previously recorded resources in the APE and the DSS reports for all previously recorded resources.

SECTION VII. ADDITIONAL CONTACTS TO THE APPLICATION

Last Name	First Name	Organization
Barber	Brenda	
Honerlah	Hans	Army Corps of Engineers

SECTION VIII. UPLOAD FILES FOR THE APPLICATION

Document Name	File Name	Note
Photographs of buildings	Photographs of Sturgis.docx	
Map of APE	Map of Area of Potential Effect.docx	

COMMONWEALTH of VIRGINIA

Department of Historic Resources

Douglas W. Domenech
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.virginia.gov

January 3, 2013

Hans Honerlah
U.S. Army Corps of Engineers, Baltimore District
City Crescent Building
10 South Howard Street
Baltimore, MD 21201

RE: Decommissioning and Disposal of MH-1A Sturgis Barge
City of Newport News, Virginia
DHR File No. 2012-4280
Received December 11, 2012

Dear Mr. Honerlah:

On December 11, 2012, we received your application in ePIX requesting our comments on the referenced project. It is our understanding the proposed project involves the decommissioning and disposal of the MH-1A Sturgis. The Sturgis is a former World War II-era Liberty Ship, the Charles H. Cugle, which was converted to a barge with a nuclear power source in the early 1960s. In support of the planned decommissioning of this vessel, the Department of the Army is preparing an Environmental Assessment (EA) document in order to assess the potential impact from activities associated with the decommissioning and disposal of the vessel. One of the items which must be considered during the EA process is the impacts this undertaking will have on the vessel as a potential historic property. While the Sturgis does meet the criteria to be considered for inclusion on the National Register of Historic Places (NRHP), DHR will require additional information in order to make a formal determination of the vessel's eligibility for listing.

In order to make this determination, DHR requests that an Intensive-level (Phase II) survey be conducted for the Sturgis. The resulting data from the survey should be submitted to our office on a Data Sharing System (DSS) Intensive Survey form for review. Due to the physical changes this vessel has undergone from its beginnings as a Liberty Ship, it is unlikely that the Sturgis is eligible under Criterion C. However, its conversion to a floating nuclear powerplant and use in that capacity may qualify it for consideration under Criterion A. As research and fieldwork proceeds for the Intensive-level survey, this should be the main argument for or against NRHP eligibility. In addition to the DSS form, we also request photographs of the vessel and any other supporting information necessary to make the case for NRHP eligibility. Guidance for completing these tasks may be found in the National Park Service's *National Register Bulletin 20: Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places* as well as DHR's *Guidelines for Conducting Historic Resources Survey in Virginia* (rev. 2011).

The investigations described above should be conducted by professionals who meet, at minimum, the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-9, September 29, 1983) in the appropriate disciplines and in a manner consistent with the Federal Secretary of the Interior's *Standards for Identification* (48 FR 44720-23) as well as our state *Guidelines* (rev. 2011) mentioned above.

As mentioned above, once we receive the results of the survey and all necessary supporting documentation, we will be in a position to advise on the next steps pursuant to 36 CFR Part 800, the regulations governing Section 106 of the National Historic Preservation Act.

Thank you for giving us the opportunity to comment on this project. If you have any questions concerning our comments, or if we may provide any further assistance, please do not hesitate to contact me at (804) 482-6452; brad.mcdonald@dhr.virginia.gov. We look forward to continuing to work with you on this project.

Sincerely,

Brad McDonald, Archaeologist
Office of Review and Compliance