



National Defense Reserve Fleet (NDRF) Recapitalization Industry Day

**U.S. Department of Transportation
Maritime Administration
May 22, 2018**

Agenda

- Administrative & Coordinating Information
- Leadership Introductions
- Ready Reserve Force Recapitalization Presentation
 - Question and Answer Session
- NS SAVANNAH Decommissioning Presentation
 - Question and Answer Session
- Training Ship Recapitalization/NSMV Presentation
 - Question and Answer Session
- Review the MARAD Message and Project Takeaways



Information Administrative & Coordinating



- Welcome
- General Information and Safety
 - Cell phones
 - Restrooms
 - In case of emergency
- Conduct of Industry Day
 - Topic Presentation followed by Discussion, for each topic
 - If you have a question, please come up to the microphones, and please write it down so we can properly post it later
- Following the Industry Day
 - Please Email Questions to NSMV@dot.gov (for 2 weeks)
 - MARAD will Post Questions and Response (within 4 weeks)
 - MARAD will Post Presentations, Drawings and Technical Information
 - RFIs, Draft RFPs, Industry Day, and RFPs

MARAD Leadership Team



The Honorable, **Mark Buzby**, Maritime Administrator

Mr. **Richard Balzano**, Deputy Maritime Administrator

Mr. **Douglas Burnett**, Chief Counsel

Mr. **Kevin Tokarski**, Associate Administrator for Strategic Sealift

Ms. **Delia Davis**, Head of the Contracting Activity and Associate Administrator for Administration

Mr. **William Cahill**, Deputy Associate Administrator for Federal Sealift

Dr. **Shashi Kumar**, Deputy Associate Administrator for Maritime Education and Training

About the Maritime Administration



- **The Maritime Administration Mission**

- The mission of the Maritime Administration (MARAD) is to promote the development and maintenance of an adequate, well-balanced, United States merchant marine:
 - sufficient to carry the Nation's domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and
 - capable of serving as a naval and military auxiliary in time of war or national emergency
- MARAD also seeks to ensure that the United States enjoys adequate shipbuilding and repair service, efficient ports, effective intermodal water and land transportation systems, and reserve shipping capacity in time of national emergency

- **The National Defense Reserve Fleet (NDRF)**

- Established under Section 11 of the Merchant Ship Sales Act of 1946, the NDRF serves as a reserve of ships with value for national defense purposes. These ships could be activated to meet shipping requirements during national emergencies.





MARAD NATIONAL DEFENSE RESERVE FLEET

MARAD has several major projects and contracting actions taking place over the next few years and will reach out to industry with RFIs, project specific industry days, and RFPs to successfully accomplish them.

This Industry Day is the first step in a series of future activities and is intended to inform you of our intent, gather insights from Industry and answer your questions.



Recapitalization of the

READY RESERVE FORCE (RRF)

RRF Recapitalization

- Number and type of vessels for recapitalization is outlined in the *Sealift That The Nation Needs* report to Congress
- FY18 NDAA authorized acquisition of two used vessels
- Request for Information December 2017 to identify vessels



Recapitalization Requirements



- MARAD is partnering with DoD components to prioritize vessel recapitalization
 - U.S. Transportation Command
 - Military Sealift Command
 - Office of the Chief of Naval Operations (N42)
- Development of the Operational Requirements Document (ORD) is ongoing

Use Options

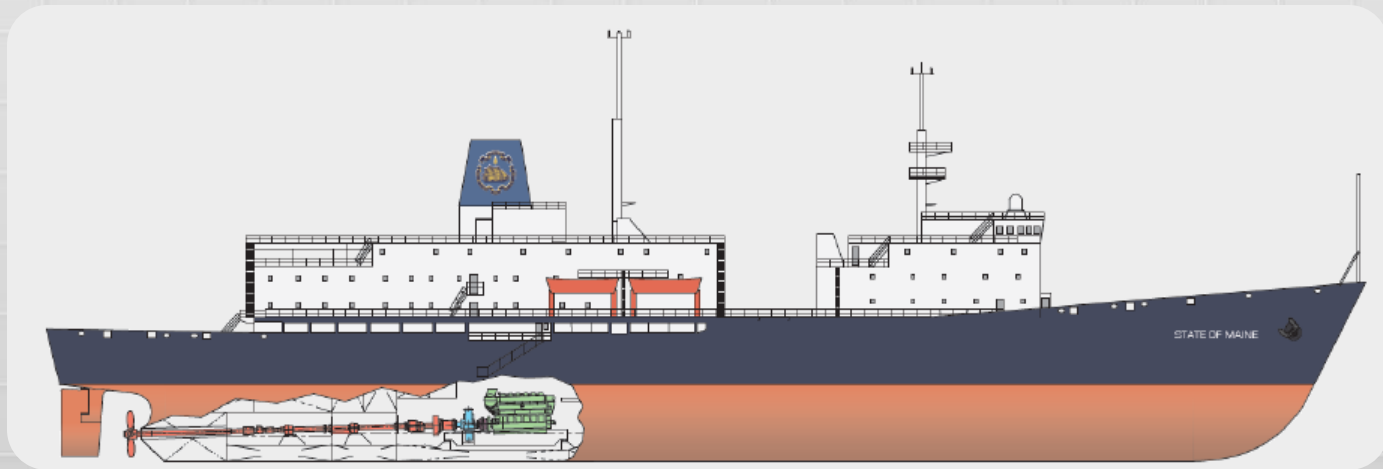
- MARAD is considering multiple options upon acquisition
 - Delivery to NDRF site
 - Delivery to layberth or shipyard
 - Conversion by Offeror or General Agent
 - Delivery to Military Sealift Command
- Priority is Ro/Ro or RoCon vessel, followed by special purpose ships
- Intent is an additional 20-25 years of militarily useful service in RRF



Next Steps

- Refine ORD
- Prioritize listing of vessels to be recapitalized
- Determine funding constraints
- Prepare a Request for Proposal (RFP) for vessel offerors
- Targeting an FY19 solicitation on FedBizOpps





Repowering of the

TRAINING SHIP STATE OF MAINE

Purpose & Background



Purpose – To identify main propulsion and electrical generating plant replacement options for the TS STATE OF MAINE (TSSOM) to retain the vessel in active service until 2040.

Originally built as the USNS Tanner (AGS-39), as a survey ship for Military Sealift Command (MSC).

1993 – vessel experienced a main engine crankshaft failure on one of the engines and was removed from MSC service.

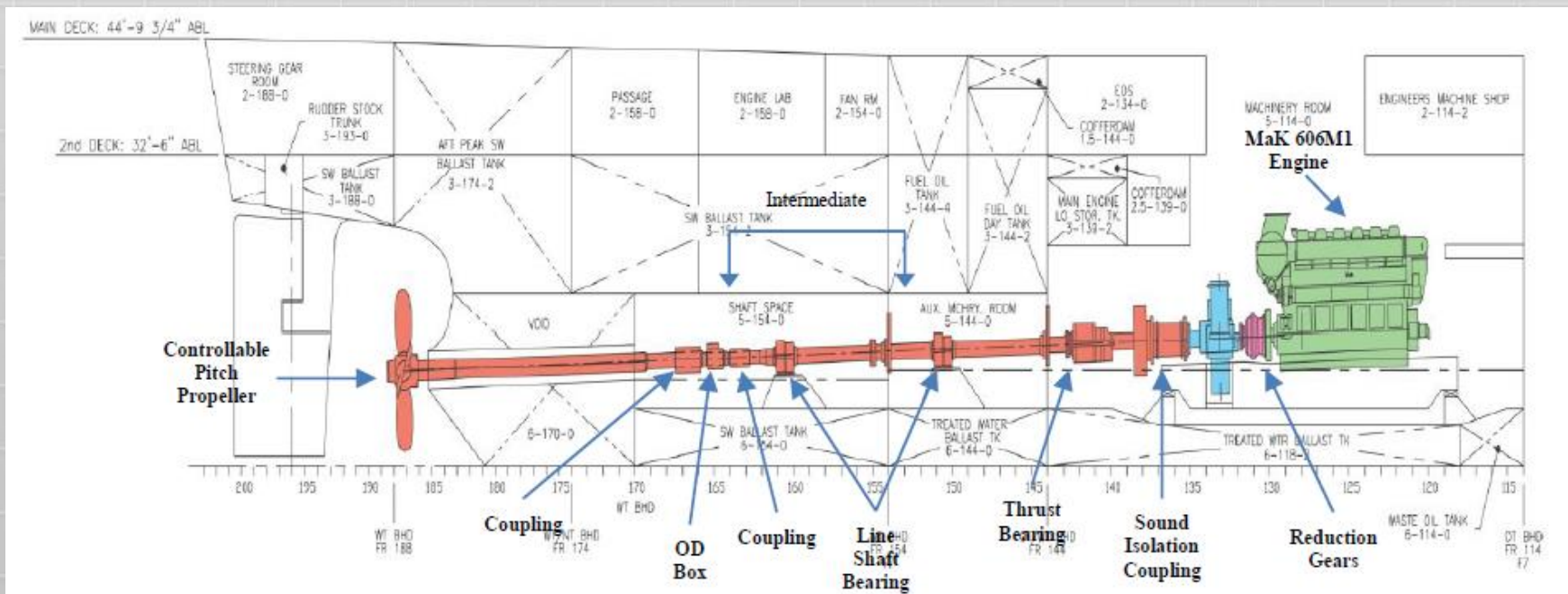
1996 – MARAD took ownership of the vessel and replaced the main propulsion engines, with a used engine. Simultaneously, the vessel was outfitted to accommodate a total of 298 students and crewmembers, increase demand on all ship systems.

The engineering plant is no longer supported by the manufacture, making it increasingly more costly and difficult to service each year.

Current Configuration



- One MaK 6M601AK Main Propulsion Engine (originally 8000 BHP @ 425RPM but derated to 6000 BHP)
- Siemens 1500 kW e-motor Electric Drive
- Three 900 kW each Ship Service Diesel Generators



Major Requirements

- Replace the Propulsion Engine and Electric Drive
- Evaluate and determine the need to remove and replace the main reduction gear, shaft, controllable pitch propeller system, and propeller
- Replace the Three Ship Service Diesel Generators





Decommissioning of the

NUCLEAR SHIP (NS) SAVANNAH

BACKGROUND

- NS Savannah was launched in 1959 as a demonstration project under President Eisenhower's Atoms for Peace Program.
- The vessel was deactivated and de-fueled in 1971.
- The nuclear plant comprising the containment vessel and reactor remain on the vessel.
- The vessel is licensed by the Nuclear Regulatory Commission (NRC) and will remain licensed until the nuclear plant is dismantled, removed from the ship, and properly disposed – an NRC regulated process collectively known as Decommissioning.
- The vessel is presently located in Baltimore, MD and is maintained by MARAD in a state of protective storage.



HISTORIC VESSEL

- NS Savannah was nominated to the National Register of Historic Places in 1981.
- It was named an International Historic Mechanical Engineering Landmark by the American Society of Mechanical Engineers in 1983.
- It was named a Nuclear Engineering Landmark by the American Nuclear Society in 1991.
- In recognition of the Savannah's exceptional national significance to the nuclear and maritime heritages of the United States, it was named a National Historic Landmark by the U.S. Department of Interior, National Park Service in 1991.
- From the outset of the decommissioning project, MARAD has been guided by the stewardship and preservation responsibilities outlined in the National Historic Preservation Act of 1966.

- Decommissioning – is a process where nuclear power plants are retired from service and terminate their NRC operating licenses.
- NRC has regulations and specific guidance to ensure decommissioning is safe and environmentally sound.
- MARAD, as the vessel owner, remains accountable to the NRC until decommissioning is complete and the license is terminated.



The decommissioning process involves:

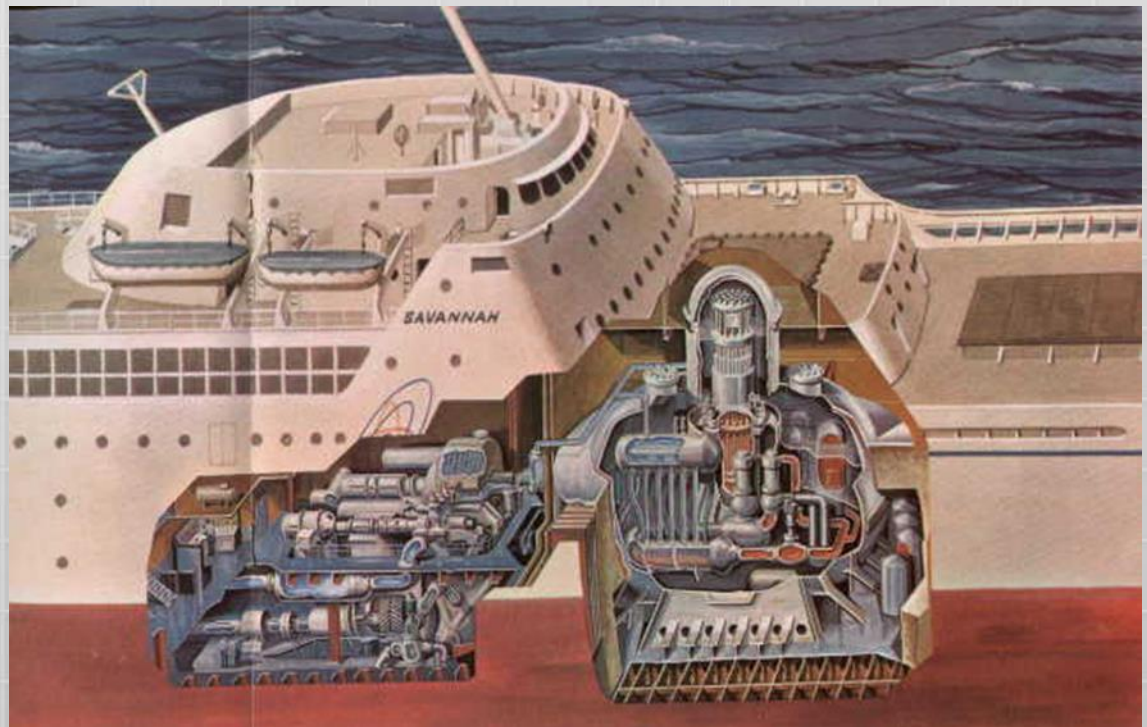
- Decontaminating the facility, the ship itself, to reduce residual radioactivity,
- Dismantling and removing the reactor components and associated structures,
- Removing and packaging contaminated materials for transportation to appropriate disposal facilities,
- Terminating the NRC license and releasing the ship for future disposition.



Conceptual Approach

Remove systems, structures and components as needed to meet license termination:

- Control Rod Drive System
- Pressurizer
- Reactor Pressure Vessel
- Neutron Shield Tank
- Steam Generators
- Primary System piping
- Outlying equipment



Disposal of items in licensed low-level radioactive waste disposal sites.

Decommissioning Objective

- **Develop radiological characterization data and analysis to determine the extent of site clean-up.**
- **Perform component removal and remediation efforts as defined by the radiological characterization data and analysis.**
- **Terminate the NRC license without restrictions or conditions.**
- **Release the ship from NRC oversight for disposition.**



Recapitalization of the

TRAINING SHIPS

Current School Ship Fleet

| Training Vessel | School | Year Built | Age (2018) | Year Converted | Cadet Capacity | Planned End of Service Life | Certificate of Inspection (USCG) // Classification Inspection (ABS) (Next Special Survey) | Propulsion Type |
|--------------------------|------------------------------|------------|------------|----------------|----------------|-----------------------------|---|-----------------|
| EMPIRE STATE | SUNY Maritime | 1962 | 56 | 1989 | 666 | 2019/TBD | June 2018//Dec 2019 | Steam |
| KENNEDY | Massachusetts Maritime | 1967 | 51 | 2003/2009 | 600 | 2025 | January 2019//May 2018 | Steam |
| GENERAL RUDDER | Texas Maritime Academy | 1984 | 34 | 1992 | 50 | 2035 | May 2018//June 2019 | Diesel |
| STATE OF MICHIGAN | Great Lakes Maritime Academy | 1985 | 33 | 2002 | 64 | 2045 | May 2018//July 2020 | Diesel |
| GOLDEN BEAR | California Maritime Academy | 1989 | 29 | 1996 | 295 | 2035 | March 2019//March 2019 | Diesel |
| STATE OF MAINE | Maine Maritime Academy | 1990 | 28/35 | 1997 | 244 | 2025 if not repowered | May 2018//June 2022 | Diesel |

- **MARAD has evaluated many options with respect to plans for recapitalize the School Ship fleet**
 - Build five new NSMV ships
 - Three new NSMV and two Service Life Extensions Plans (SLEP)
 - One new construction and two SLEPs and two Conversion
 - Three conversions and two SLEPs
- **The plan is to replace the oldest ships first and uses all the MARAD assets to accommodate all the training needs until the fleet is fully recapitalized**
- **All six State Maritime Academies and USMMA have been included in this planning process, and development/refinement of requirements and evolution of design, over the past 4 years**

Purpose

- Recapitalize the Training Ship Fleet
 - A purpose built NDRF vessel to meet requirements of licensing of U.S. Merchant Mariners; and leverage the ship for humanitarian assistance/disaster relief response
 - MARAD, working with Federal partners and industry, investigated all recapitalization options, and the business case analysis shows that new construction is the least expensive across the life cycle and the best value to Government
 - Standard design – reduces construction and operating cost, allows for configuration management, and provides consistency and back-up across the training platforms
 - Time sensitive priority - aging fleet; two ships over 50 years old.



Intention

- NSMV will improve the quality of training, using modern systems and equipment and incorporating modern teaching and training facilities, adaptive for long-term training support for int'l requirements
- Accommodates current and future Cadet capacity demand for at-sea training as defined by SMAs
- Designed to meet Safety of Life at Sea (SOLAS) & Public Nautical School Ship (Subchapter R) requirements, classed as a Special Purpose Ship
- Compliant with all environmental standards (air emissions, ballast water, treated waste water)
- The NSMV is designed to maximize multiple capabilities and minimize acquisition/life cycle costs
- Incorporates design features to enhance response capabilities, and to accommodate modular configuration to support mission specific functions, providing maximum Federal flexibility at the lowest impact and cost





Development of Requirements and Consideration of Options

- Concept Design – maximizing capabilities / minimizing acquisition and operating costs (2015)
 - Requirements developed working with SMAs, Federal Partners, and Industry
 - Working with Naval Architects from Herbert Engineering Corp
 - Incorporating new technology and planned flexibility for future requirements
 - Investigated multiple options/features for technical feasibility, cost and training value
- Conversion Concept Designs – NDRF ship (2015) and Commercial ship (2017)

Design Spiral – requirements development to validated design

- Concept (2015)
- 3 levels of Design & Model Testing - refined after model testing to reduce power requirement
- ABS Approval in Principle (2018)
- Highly detailed **Guidance Design – Specifications and Drawings prepared in sufficient detail for Shipyards to bid on construction; lays out well required capabilities**
- **The final design is the responsibility of the shipyard**

Documents to be made available

- Outline Specification;
- Electric Load Analysis;
- General Arrangement;
- Electrical One Line Diagram;
- NSMV Capabilities & Requirements;
- Ship Network Diagram;
- NSMV Phase 3 Basis of Design;
- Primary Structure Scantling Plan;
- Lightship Weight Report;
- Simplified Shell Expansion;
- Rules and Regulations Applicable to the NSMV;
- Galley & Mess Arrangement;
- NSVM Stability Report (without the Appendices);
- HVAC Layout Diagram;
- Midship Section;
- Master Documents Register



NSMV Capabilities & Particulars

- Maneuvering – Docking without tugs
 - Bow Thruster – normal maneuvering and azimuthing type for “Take Home” power
 - Stern Thruster
 - Flap type rudder – improved maneuvering
- Accommodation
 - Training Ship Mode – 600 cadets, 100 officer, faculty, staff & crew
 - Surge capacity for Humanitarian Assistance/Disaster Response missions
 - ✓ Food Storage for 60 days
 - ✓ Fresh Water Storage for 14 days
- Teaching & Training
 - 8 Classrooms
 - Workshops for Cadets
 - Lab/Training areas for Cadets
 - Training Bridge and Navigation Lab
 - Large Multi-Purpose Space



NSMV Capabilities & Particulars

○ Principle Dimensions

- Length 159.85 m (524'- 1")
- Beam 27.0 m (88'- 7")
- Depth 16.8 m (55'- 1.5")
- Design Draft 6.5 m (21'- 4")

○ Range

- 11,000+ miles at 18 knots

○ Propulsion, Speed & Consumption

- Diesel Electric – 4 main engines divided between 2 engine rooms
- Total Installed Power – 15,700 kW Main Engines (four 3,900 kW);
Plus one, 900 kW Auxiliary Generators
- Full Speed – 18 knots with 15% sea margin – 4 engines
- Cruising Speed – 12 knots with 2 main engines in one engine room
- Uni-fuel for simplicity and operation in the US ECA – MGO only





- Leverage Commercial Best Practices – from Design through Construction
 - Constructed using commercial design standards and commercial construction practices that are consistent with the best interests of the Federal Government
 - This is NOT a DOD Project
 - The expectation is to model Commercial Procurement for a Jones Act eligible ship, using commercially available products
- MARAD (as Owner) will contract with a Construction Manager
 - It is anticipate Construction Program Manager to be the ship manager during the warranty period
- NSMV Design is a **Guidance Design**
 - The design is bid package ready, has been validated by ABS, and refined after model testing reducing the power requirement
 - **The final design is the responsibility of the shipyard**

NSMV Next Steps

- Publish Questions and Response from Industry Day
- Design Documents and Presentation to be made available
- Issue a Request for Information for the Construction Manager
- Industry Day for the Construction Manager
- Issue a Solicitation
- MARAD will work with Construction Manager for the competitive selection of the Shipyard
- The Construction Manager will work with the shipyard to construct and deliver the ship(s)

Commercial Ship Acquisition; Guidance Design; Contracts for the Construction Manager and Shipyard will be competed



Thank You For Joining Us We Look Forward To Hearing From You

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