2015 NOMINATION FOR CHIEF OF NAVAL OPERATIONS
ENVIRONMENTAL QUALITY SUBMARINE AWARD

1. Introduction. USS TENNESSEE (SSBN 734) is home ported in Kings Bay, GA. Proactive environmental compliance and crew-led initiatives have helped TENNESSEE preserve the environment and natural beauty of St. Mary's, GA. With 346 shipboard personnel across two crews, TENNESSEE leads the way in environmental stewardship, operational effectiveness, and strategic nuclear deterrence.

2. Background.

2.1 Environmental Challenges.

2.1.1 Upkeep Period. TRIDENT submarines have the most rigorous mission of any ship in the fleet because of very limited upkeep periods. Where many surface ships and SSNs have long work-ups to deployment, upkeep for the TENNESSEE often starts even before one crew returns to port to turn over the ship to the other crew. Standard REFIT periods are only 35 days long, requiring both crews to resolve all outstanding issues before the ship can redeploy. Where TENNESSEE excels is in its efficiency in both production and environmental safety. Where "haste makes waste" could be an acceptable norm, TENNESSEE takes every precaution to keep the environment safe in only a fraction of the time it might take another ship to accomplish the same results.

2.1.2 Safety Center Survey. TENNESSEE was inspected by the Naval Safety Center on 13 May 2014 as ABOVE STANDARDS. The ship was able to decrease total discrepancies by 19% and repeat discrepancies by 42%. TENNESSEE has a unique challenge compared to other Navy ships because TENNESSEE is shared by two crews. This makes constant communication between counterparts on each respective crew paramount to success. TENNESSEE has shown sustained, superior performance over the past two fiscal years despite numerous personnel changes because of excellent communication and thorough turnovers.

2.1.3 Underway Operations. The TRIDENT submarine mission creates an interesting interaction between the ship and the environment. Where a surface ship can store waste onboard and dispose of it during a port visit, TRIDENTs do not have that luxury due to storage limitations and the fact that TRIDENT submarines almost never port. Due to the mission, TENNESSEE participates in the Plastic Reduction in the Marine Environment (PRIME) program. This program eliminates plastic pollution in the ocean by storing plastic waste onboard in odor barrier bags, heat-sealing the bags to save space, and properly disposing of waste upon return to port. Biodegradable solid waste is disposed of through the Trash Disposal Unit (TDU). Such waste is sorted out and loaded into the TDU and expelled from the submarine in 60 pound increments to the bottom of the ocean. This process greatly increases the survivability and endurance of the submarine by preventing frequent off-loads of waste via port calls.

2.2 Environmental Management, Organization, and Staffing. Environmental compliance was pervasive across all departments, with major contributions from engineering, navigation/operations, weapons, and supply. The Supply Officers were designated by each crew's respective Commanding Officer (CO) as the afloat environmental protection coordinators and worked with the safety officers and Damage Control Assistants (DCA) to ensure compliance across all aspects of TENNESSEE's environmental protection program.

2.2.1 Food Service division professionally operated the TDU, which ensured only environmentally-friendly biodegradable waste was discharged from the ship into the undersea environment. Under direction of the Supply Officers, food service division trained over 100 personnel in operating and maintaining waste processing equipment. TENNESSEE properly disposed of 3.5 tons of plastic waste during strategic deterrent patrols in fiscal years 2014 and 2015.

2.2.2 Under the direction of the Supply Officers, Safety Officers, and DCAs, TENNESSEE ran 21 oil and HAZMAT spill drills throughout the previous two fiscal years ensuring all emergency response teams were properly trained to handle accidental discharges. The teamwork between each crew's respective Supply Officers, Safety Officers, and DCAs was a vital component to the organized damage control environmental protection.

2.2.3 The main propulsion assistants supervised the movement of all fuels and oils onboard TENNESSEE and was present for every on-load of fuels and oils. The tactical systems officers maintained oil spill kits in the torpedo room and the forward Damage Control (DC) locker. The supply officers and damage control assistants worked together to train the entire crew on fuel spill response in the case of an emergency. Machinery division managed environmental protection efforts for diesel fuel and lube oil and was instrumental in the prevention of F-76 spills. TENNESSEE loaded over 24,000 gallons of F-76 and lube oil without incident over the previous two fiscal years.

2.2.4 Engineering department guaranteed all oil used in shipboard machinery remained onboard, properly maintained the appropriate oil collecting tank, and ensured only clean water was discharged overboard. Engineering also ran damage control central efficiently to constantly monitor fluid levels and prevent HAZMAT from being pumped over the side.

2.2.5 Navigation/Operations and Weapons department planned evolutions to minimize environmental impact using the latest Protective Measures Assessment Protocol (PMAP) software. They ensured all watch-standers were properly trained to stop evolutions when they presented an environmental hazard and identify marine mammals, especially the Right Whale breeding ground northeast of Kings Bay.

2.2.6 The HAZMAT Coordinator and Afloat Environmental Protection Coordinators are Thomas M. Schwander LT, SC, USN and Vincent A. Cipollone ENS, SC, USN Email: thomas.schwander@navy.mil vincent.cipollone@navy.mil Phone: (912)573-4922/4492. The HAZMAT Technicians are LSC(SS) Allen Trogdon and LS1(SS) Michael Felder. Email: allen.trogdon@navy.mil michael.felder@navy.mil Phone: (912)573-4922/4492

2.3 **Environmental Guidance, Directives, and Plans.**

TENNESSEE annually reviewed, revised, and updated the following instructions:

(a) SSBN734BLUEINST 5100.2A, Command Oil and Hazardous Substance (OHS) Spill Contingency Plan, 25 March 2015

(b) SSBN734BLUEINST 5090.5C, Submarine Plastics Waste Control Program, 24 February 2014

(c) SSBN734BLUEINST 5100.1A, Command Hazardous Material/Hazardous Waste Program, 14 April 2015

(d) Commanding Officer's Standing Orders, 14 July 2015

(e) Solid Waste Management Plan

(f) Gas Free Bill

3. Program Summary.

3.1 Environmental Program and Compliance with Chapter 35 and Appendix D of OPNAV M5090.1.

3.1.1 TENNESSEE has consistently met and exceeded all requirements of the Navy's Environmental and Hazardous Material Programs. LT Thomas M. Schwander and ENS Vincent A. Cipollone, the Supply Officers onboard manage both programs with LSC Allen Trogdon and LS1 Michael Felder as their Hazardous Material Technicians. Over the past two fiscal years, TENNESSEE conducted seven strategic deterrent patrols and subsequent upkeep periods. The upkeep period for the TRIDENT submarine is typically only 35 days. During the past two fiscal years, TENNESSEE was assessed as ABOVE STANDARDS for four consecutive TYCOM-directed Supply Management Inspections (SMI) with ABOVE STANDARDS evaluations in HAZMAT Management in every inspection. Additionally, the ship was assessed as ABOVE STANDARDS during the most recent Naval Safety Center Survey in May 2014 and was awarded the Secretary of the Navy Award for Excellence in Submarine Safety for 2014.

3.1.2 The Environmental Awareness and HAZMAT Programs have command level attention and focus. An intense training program and rigorous self-assessment program have yielded an atmosphere where the entire crew supports the mission of Environmental Awareness and sound environmental stewardship. Due to crew support, TENNESSEE was awarded the 2014 Chief of Naval Operations Environmental Quality Award in the small ship category.

3.2 Most Outstanding Program Features and Accomplishments.

3.2.1 Hazardous Material and Atmosphere Contaminant Control programs assessed as ABOVE STANDARDS on all SMI's for the last two fiscal years.

3.2.2 Completed the last seven REFIT upkeep periods with zero environmental discrepancies.

3.2.3 The ship was evaluated as above standards during the most recent Naval Safety Center Survey, meeting or exceeding all fleet requirements for environmental awareness and hazardous material management. TENNESSEE had 20% less significant discrepancies than the fleet average and 55% less total discrepancies than the fleet average.

3.2.4 TENNESSEE was awarded the 2014 Secretary of the Navy Award for Excellence in Submarine Safety and the 2014 Chief of Naval Operations Environmental Quality Award in the Submarine Category.

4. Accomplishments.

4.1. Air Pollution Control. TENNESSEE continues to maintain a strong and healthy environmental and HAZMAT program through HAZMAT minimization and an intense self-assessment program. Logistics Specialists screen all hazardous material in compliance with the submarine material control list (SMCL) to ensure that all atmosphere control items are properly labeled, preventing occupational illnesses and degradation of ship's systems due to air pollution. Additionally, the crew is trained on HAZMAT minimization every pre-deployment training period. Division officers routinely audit their hazardous material stowage locations, monitor personnel performance, and report the results to the command team and HM Coordinator for evaluation and corrective measures when appropriate.

4.2 Water Pollution Control.

4.2.1 CHT System Management Practices. TENNESSEE adheres to all guidance regarding sewage and discharge requirements and policies at sea as outlined in OPNAVINST 5090.1D.

4.2.2 Oil and Hazardous Substance Spill Prevention and Response. ALL HANDS conduct Hazardous material and spills training annually as part of hazardous material management training. TENNESSEE developed and implemented a thorough Oil and Hazardous Substance Spill contingency plan, and three or more shipboard "spill" drills are conducted every patrol cycle.

4.2.3 Oily Waste System (OWS) Management and Oil Content Monitor Capabilities. TENNESSEE utilizes a robust zone inspection program to identify and immediately correct oil leaks throughout the ship. Material deficiencies that would lead to oil entering the bilges and becoming oily waste are identified, documented, and corrected by ships personnel whenever possible, or entered into the Consolidated Ships Maintenance Project for correction by Trident Refit Facility. While at sea, oily waste is stored in the waste oil collecting tank, and all oily waste is discharged to oily waste collection facilities ashore prior to leaving port to prevent the discharge of oily waste at sea. All oil depletion levels onboard are meticulously tracked and any corresponding rise in waste oil level receives immediate attention so that corrective action can be determined. These efforts have decreased the amount of oily waste generated and maintained on board, and as a result of this superior management TENNESSEE has not pumped oily waste to sea in several years.

4.3 Solid Waste Management and Resource Recovery.

4.3.1 Solid Waste Management Practices. As part of the established Plastics Waste Program, TENNESSEE uses Odor Barrier Bags (OBB) to store plastic waste on board until return to port. All solid waste is segregated and sorted to ensure that only biodegradable materials are disposed of at sea, and upon return to port all plastics are offloaded to the nearest receiving facility. Additionally, PRIME training is conducted during every pre-deployment training cycle as part of the "Back to the Boat" Afloat Environmental Awareness training.

4.3.2 Source Reduction Techniques. TENNESSEE continues long standing efforts to procure and utilize "green" products in as many facets of operations as possible. The use of disposable materials is minimized, and

when used only biodegradable materials are used to the maximum extent possible. Most cleaning and sanitation chemicals carried on board are "green," including laundry detergents and cleaning materials. Additionally, prior to leaving port, every effort is made to ensure all extraneous packaging is removed per PRIME requirements. With a positive track record of crew "buy-in" this has significantly reduced waste production onboard the ship while at sea.

4.3.3 **Resource Recovery Recycling Techniques.** TENNESSEE maximizes all efforts to recycle items such as printer and toner cartridges, unused HAZMAT, and minimizes the amount of aluminum and plastics carried on board. Additionally, reusable materials are used in favor of disposable choices to the greatest extent possible.

4.4 **Hazardous Material (HM)/Hazardous Waste (HW) Management.**

4.4.1 TENNESSEE employs a thorough audit program, using divisional leadership to inspect hazardous material stowage locations and utilization. The Supply Officers ensure that the HAZMAT program is audited by another officer not associated with the supply department annually and the Atmosphere Contaminant Program is audited by another officer semi-annually. Routine monthly inventories are conducted for both Stock and Divisional hazardous materials on board, and during these inventories the ship stresses maintaining on-board allowance. These inventories are subsequently audited by random Department Heads, Chiefs and the Supply Officers for effectiveness. To prevent excessive hazardous materials being carried on board, the ship ensures it is not exceeding the "high" limit prior to requisitioning any hazardous material.

4.4.2 A diligent shelf life program is used to minimize the amount of HAZMAT transferred ashore. Personnel training and the proper use of the First In / First Out (FIFO) program ensures that all expiring material is utilized first to reduce the volume of expired materials being unnecessarily off-loaded to shore collection facilities.

4.4.3 Prior to requisitioning hazardous material, the SMCL and CHRIMP centers in Kings Bay are screened to minimize unnecessary OPTAR costs. This is always TENNESSEE's preferred method for procurement prior to requisitioning new HAZMAT.

4.5 **Protective Measures Assessment Protocol (PMAP).** TENNESSEE complies with all PMAP requirements.

4.6 **Sonar Positional Report System.** Submarine class does not possess the capability to transmit MFA.

4.7 **Environmental Awareness.** TENNESSEE incorporates hazardous material and Atmosphere control audits into day-to-day operations to emphasize senior command leadership involvement within the audit process, resulting in the ship consistently receiving ABOVE STANDARDS scores during inspections by various outside entities. TENNESSEE currently has two Afloat Environmental Protection Coordinator (APEC) qualified personnel onboard with associated Commanding Officer designation letters. TENNESSEE does not participate in the SONAR Positional Reporting System (SPORTS) because the ship has no capability to transmit active SONAR, and has not had any reportable pollutant spill or discharged any shipboard weapons systems in violation of PMAP. TENNESSEE has

not reported any anchoring or SONAR evolutions that violated PMAP directives or other training restrictions in recorded ship's history.

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SUMMARY FOR AWARDS BROCHURE AND NARRATIVE

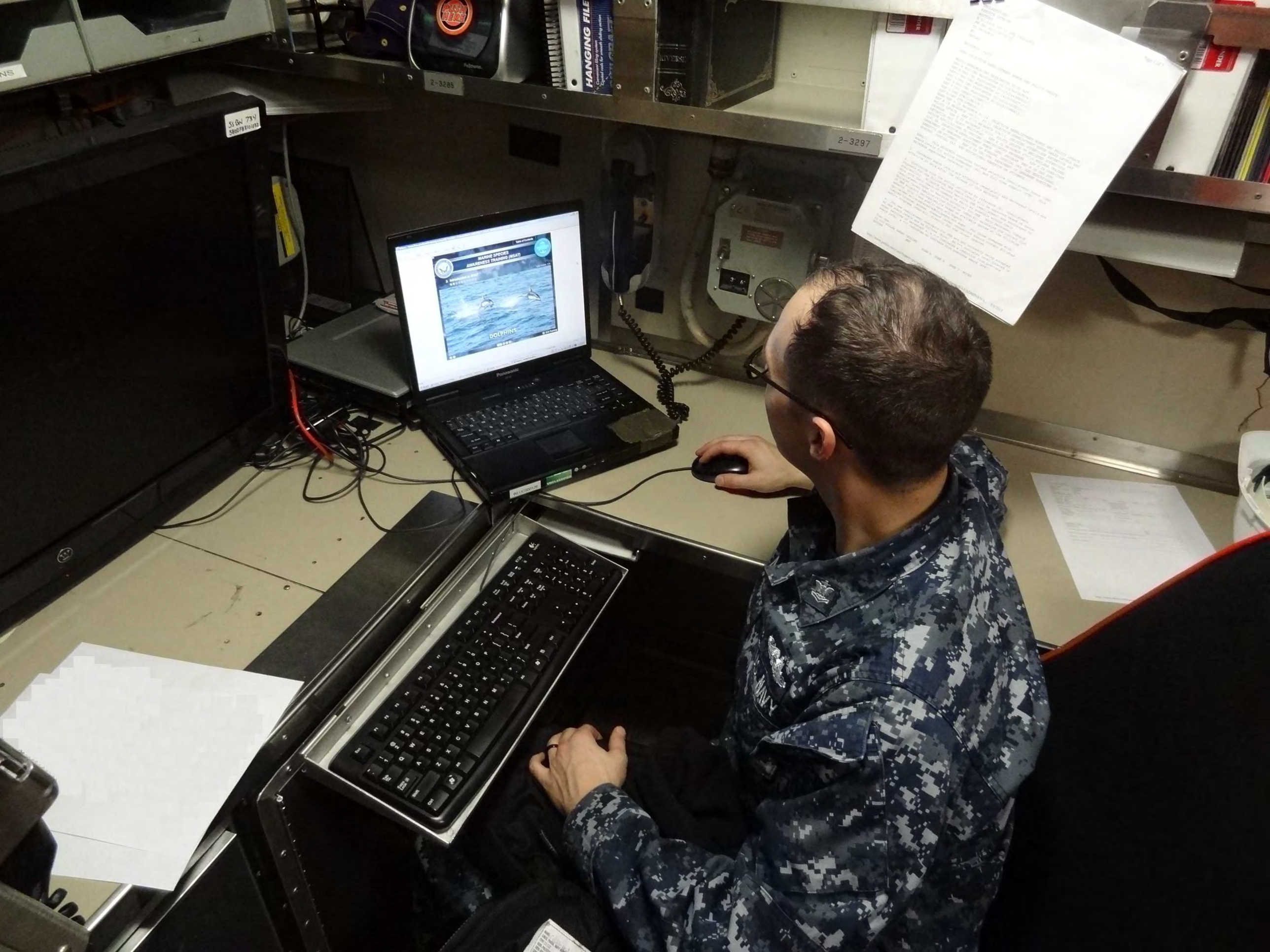
USS TENNESSEE has consistently met and exceeded all requirements of the Navy's Environmental and Hazardous Material Programs. Over the past two fiscal years, the ship has undergone two dry-dock REFIT periods, conducted seven strategic deterrent patrols and subsequent upkeep periods. The Environmental Awareness and HAZMAT Programs have command level attention and focus. An intense training program and rigorous self-assessment program have yielded an atmosphere where the entire crew supports the mission of Environmental Awareness and sound environmental stewardship. Specific accomplishments include:

- The ship was assessed as ABOVE STANDARDS during the previous four TYCOM-directed Supply Management Inspections with ABOVE STANDARDS evaluation in HAZMAT Management in each inspection.

- The ship was assessed as ABOVE STANDARDS during the most recent Naval Safety Center Survey in May 2014.

- Conducted over 1,500 man-hours of environmental awareness training for the entire crew to maximize crew attention and awareness.

- Successfully offloaded thousands of pounds of hazardous waste with zero environmental deficiencies during seven refit periods.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AWARENESS TRAINING (MSAT)
DOLPHINS
HANGING FILE
2-3285
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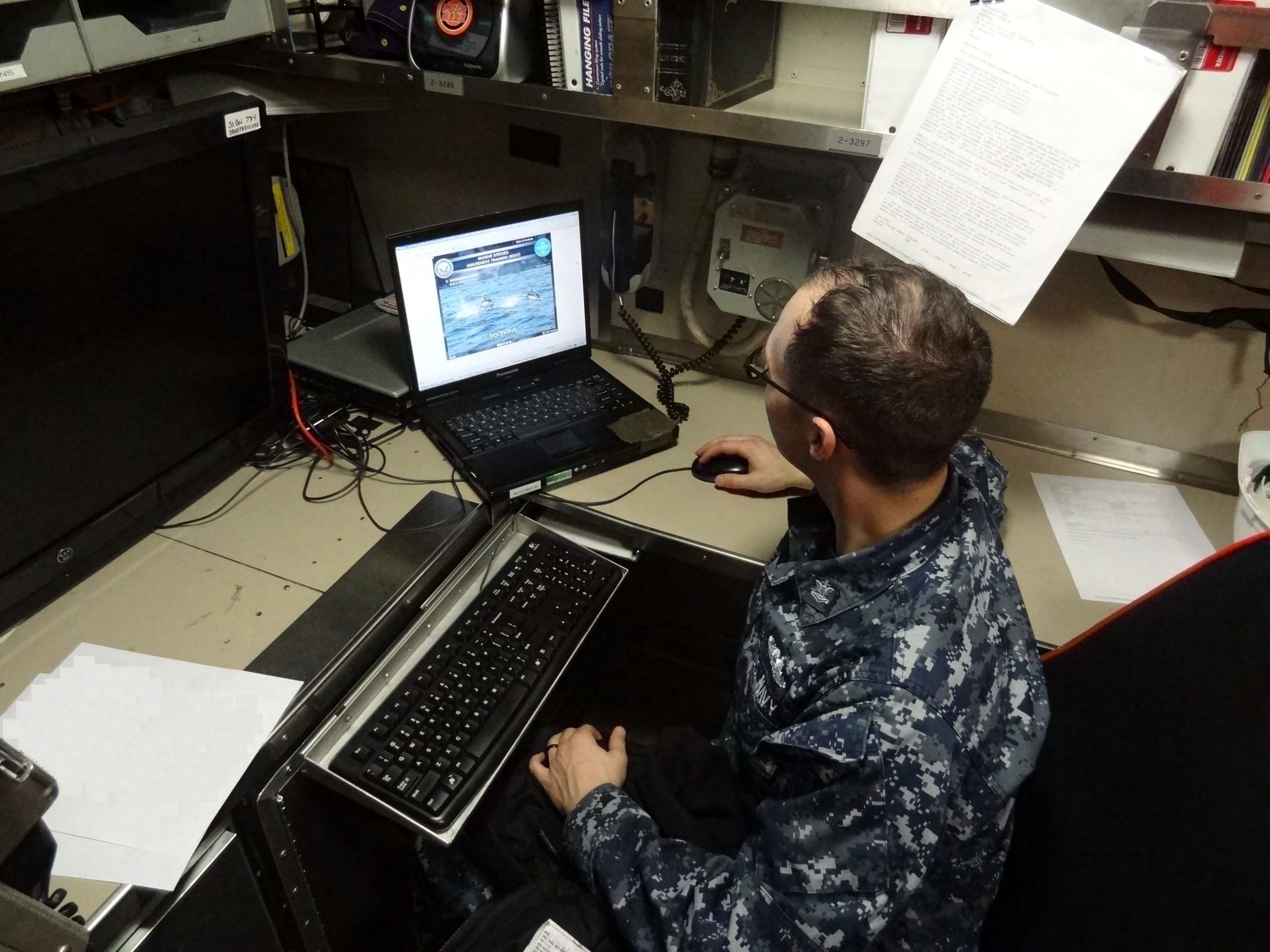
MARINE SPECIES
AWARENESS TRAINING (MSAT)
DOLPHINS
HANGING FILE
2-3285
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U.S. NAVY
U.S. NAVY

CAUTION
HAZARDOUS MATERIAL STORAGE AREA
T6
CAUTION
HAZARDOUS MATERIAL STORAGE AREA
B3
V6
CAUTION
HAZARDOUS MATERIAL STORAGE AREA
V6
V4
N1
CAUTION
HAZARDOUS MATERIAL STORAGE AREA
N1
CAUTION
HAZARDOUS MATERIAL STORAGE AREA


CAUTION
BOSCH
Doboy


CAUTION
BOSCH
Doboy


OFF
ON
ON
OFF
CLOCKWISE TURN ONLY
2-3175
AIR BREATHING
MASKS - QTY 2
EAB
DANGER
WARNING


THINK


THINK


DANGER
LOWER ALL MASTS
AND ANTENNAS

TNS Photo 1 Hazmat Audit
A division officer monitors a Tennessee sailor conducting a Hazmat Inventory. The division officers are required to audit their hazardous material locations monthly and report the results to the command team and HM Coordinator. Due to the rigorous self-assessment program, the entire crew supports the mission of Environmental Awareness and sound environmental stewardship, resulting in TENNESSEE being awarded the 2014 Chief of Naval Operations Environmental Quality Award in the small ship category.

TNS Photo 2 Hazmat Spill Drill
A Tennessee sailor cleans up a simulated hazmat spill onboard the ship. TENNESSEE ran 21 oil and HAZMAT spill drills throughout the previous two fiscal years, ensuring all emergency response teams were properly trained to handle accidental discharges.

TNS Photo 3 Laundry
A Tennessee sailor loads a shipboard washing machine. Tennessee has made a distinct effort to buy into and incorporate "green" products in as many facets of operations as possible. All cleaning and sanitation chemicals carried on board, including laundry detergents, are "green".

TNS Photo 4 Hot Sealing Bag
TENNESSEE participates in the Plastic Reduction in the Marine Environment (PRIME) program. This program eliminates plastic pollution in the ocean by storing plastic waste onboard in odor barrier bags, heat-sealing the bags to save space, and properly disposing of waste upon return to port.

TNS Photo 5 Sorting Garbage
Biodegradable solid waste is sorted and disposed of through the Trash Disposal Unit (TDU). Such waste is loaded into the TDU and expelled from the submarine in 60 pound increments to the bottom of the ocean, ensuring only environmentally-friendly biodegradable waste is discharged from the ship into the undersea environment.

TNS Photo 6 Environmental Training
A Tennessee sailor uses online training to complete marine mammal safety training. All watch-standers are trained to stop evolutions when they may present an environmental hazard and identify marine mammals, especially the Right Whale breeding ground northeast of Kings Bay.