FY 2013 NOMINATION FOR CHIEF OF NAVAL OPERATIONS ENVIRONMENTAL QUALITY—LARGE SHIP AWARD

1. Introduction. USS NIMITZ (CVN 68) is home ported in Everett, WA. Proactive environmental compliance and crew led initiatives helped NIMITZ preserve the environment and natural beauty of Puget Sound. With 2,800 shipboard personnel and an embarked air wing of 1,700 Sailors, NIMITZ leads the way in environmental stewardship, combat effectiveness and worldwide power projection.

2. Background

2.1 Environmental Challenges. NIMITZ met many challenges over the last two years. Three of these challenges included:

2.1.1 During the Great Green Fleet demonstration, our greatest challenge was the management of bio-fuel, an innovative renewable jet fuel which had to be kept separate from regular jet fuel and pumped to the flight deck for initial testing in carrier-born aircraft. Prior to receipt of the bio grade fuel at sea, Fuels Division performed extensive planning to ensure both tank and piping availability would prevent the accidental mixing of bio fuel with conventional fuel. A bio-grade fuel section was created inside NIMITZ' existing fuel network to handle the receiving, transfer, and distribution of the environmentally-friendly fuel. The use of alternative fuel sources is a key component of our National Strategy for America's Energy Security. One of the White House's top goals was to "promote the development and deployment of alternative fuels" and "build a 21st century clean energy economy and win the future." It was NIMITZ' great honor to partake in this historic achievement.

2.1.2 The last two years also included an arduous workup cycle followed by a nine-month deployment across four fleets with sixteen restricted water transits, seven port calls, and over two dozen Replenishments At Sea (RAS) where 22.9 million gallons of fuel were safely transferred with zero environmental incidents.

2.1.3 Limited lines of communication during a deployment extension in FIFTH Fleet to the Red Sea resulted in a shortage of offload capacity for plastics and hazardous materials. In order to ensure both plastics and hazardous materials were properly disposed of in accordance with local laws, Supply Department located additional storage space for low-priority offload materials and held the excess plastics and inert hazardous wastes onboard. Offload was conducted routinely as capacity became available at each RAS and port call. NIMITZ forwarded this lesson learned to FIFTH Fleet which will help the fleet maintain efficient environmental stewardship for future Red Sea operations.

2.2 Environmental Management, Organization, and Staffing. Environmental compliance was pervasive across all departments on NIMITZ, with major contributions from Reactor, Engineering, Operations, Air, Supply and Safety. The ship's Industrial Hygiene Officer was designated by the Commanding Officer as the Afloat Environmental Protection Coordinator and worked with the Safety Officer to ensure compliance across all aspects of NIMITZ' environmental protection strategy.

2.2.1 Engineering Auxiliaries professionally operated trash processing equipment which ensured only legal waste discharges went overboard. Under direction of the Auxiliaries Officer, workcenter EA14 trained 12 personnel in operating and maintaining waste processing equipment. NIMITZ efficiently processed 2.3 million pounds of solid waste during 300 underway days in 2012 and 2013.

2.2.2 Under the direction of the Fire Marshal, NIMITZ ran 15 oil and hazmat spill drills throughout the year which ensured all emergency response teams were properly trained to handle accidental discharges. The ship's Fire Marshall was a vital component to the organized damage control environmental protection plan.

2.2.3 Aviation Fuels handled the movement of fuels and oils onboard NIMITZ, maintained oil spill kits in the hangar bay and pump rooms, and trained fuel spill responders in case of emergency. The Fuels Bos'n managed environmental protection efforts for fuel and was instrumental in NIMITZ' bio-fuel success during the Great Green Fleet demonstration.

2.2.4 The Reactor Department ensured all oil used in shipboard machinery remained onboard, properly maintained the oily-water separator, and ensured only clean water was discharged overboard. Reactor and Engineering Department ran damage control central efficiently to constantly monitor fluid levels in order to prevent HAZMAT from being pumped over the side.

2.2.5 Operations Department planned events to minimize environmental impact using the latest Protective Measures Assessment Protocol (PMAP) software. They ensured all watch standers were properly trained to identify marine mammals and stop evolutions when they presented an environmental hazard. The Meteorology and Oceanography Officer performed PMAP analysis of all weapon shoots, anchor details, and other required evolutions.

2.2.6 The Supply Department's Hazardous Material Minimization Center consolidated and re-used hazardous materials to ensure a minimum quantity of material was ordered, used, or wasted. The Hazardous Materials Officer also ensured all hazardous waste onboard was properly disposed of in accordance with local laws.

2.3 Environmental Guidance, directives, and plans. NIMITZ annually reviewed, revised and updated the following instructions:

NIMITZINST 1601.1J	Commanding Officer's Standing Orders for the Officer of the Deck	25 May 2012
NIMITZINST 3570.3	Close-in Weapons System (CIWS) Pre-Action Aim Calibration Firing (PACFIRE)	28 June 2013
NIMITZINST 5090.2A	Oil Spill Contingency Plan	25 August 2013
NIMITZINST 5090.3	Solid Waste Management Plan	11 November 2012
NIMITZINST 5100.3	Lead Control Program, Change 1	01 November 2012
NIMITZINST 5100.30E	Hazardous Material, Excess Hazardous Material (EHM) Management and Control	18 June 2012
NIMITZINST 5100.4A	Asbestos Control Program	05 December 2012
NIMITZINST 6260.19D	Control of Mercury and Mercury Compounds	21 May 2013
NIMITZINST 8025.1E	Torpedo Otto Fuel Handling, Storage, and Spill Response	07 November 2012
NIMITZINST 9192.1B	Gas Free Engineering, Hot Work and Cold Work Program	03 July 2013

3. Program Summary

3.1 Environmental program and compliance with Chapter 22 and Appendix K of OPNAVINST 5090.1C. NIMITZ has a strong commitment to preserving the environment and routinely used the environmental practices self-assessment from Appendix K of OPNAVINST 5090.1C. HAZMINCEN operations saved $1.6 million dollars by reusing excess hazardous materials and reducing the volume of hazardous materials ordered in just the last year. Engineering Department provided continuous support to ensure our environmental protection equipment and solid waste processing equipment were fully operational. Environmental stewardship was addressed at quarterly meetings, and crew environmental compliance was stressed at multiple stand-downs in 2012 and 2013.

3.2 Most Outstanding Program Features and Accomplishments

3.2.1 NIMITZ flawlessly managed the first time on-load and issuance of 187,000 gallons of bio grade JP-5 fuel during RIMPAC 2012. The creative isolation of bio grade fuel within the pumping systems allowed simultaneous JP-5 operations across all Fuels Division mission areas without incident. These efforts contributed to a highly successful, first ever JP-5 bio-fuel demonstration and validated operational implementation for the Navy's future energy security programs. 153 aircraft were safely fueled with bio grade JP-5 fuel over three flying days to successfully accomplish Great Green Fleet objectives.

3.2.2 NIMITZ received the 2013 Navy Environmental Stewardship Community Service Flagship Award. Noted community service projects included cleaning a Hawaiian beach, rehabilitating an animal shelter, participating in a forest preservation project in Snohomish County, and the Everett Green Partnership Project. Thirty six Sailors joined together with children from Wikoliana Educational Excursions to collect discarded fishing gear, clothes, broken equipment, and other debris from an ocean-side barrier during a RIMPAC port visit. On July 3rd, 2012 NIMITZ volunteers spent over four hours cleaning two miles of Honolulu Harbor while on liberty. NIMITZ coordinated an event with volunteers from USS INGRAHAM (FFG 61) and Puget Sound Naval Shipyard & Intermediate Maintenance Facility to conduct minor repairs and a new coat of paint for the Northwest Organization for Animal Help facility. NIMITZ' commitment to the environment was shown both in our Sailor's initiative and focus on promoting environmental volunteerism.

4. Accomplishments.

4.1 Air Pollution Control Practices and Improvements. NIMITZ technicians took great pride in maintaining the ship's refrigeration systems. They aggressively ensured the proper disposal of refrigerant and strictly adhered to procedures which prevented the unintentional release of hazardous compounds. All ten of NIMITZ' 365-ton air conditioning plants were optimized to use environmentally-friendly R-236 FA refrigerant and ozone-friendly R-134 refrigerant in the galley. The need to add refrigerant was greatly reduced by equipping each air conditioning plant with an installed recovery receiver to pump down refrigerant which minimized the amount necessary to maintain the system. The ship utilized two recovery units to capture refrigerant and guard against unintended release during maintenance. Thirteen highly sensitive Parasense detectors were installed in every space in which refrigerant was used. These systems indicate the slightest release of refrigerant and were monitored constantly by technicians, food service personnel and engineering watch standers. Refrigerant management was streamlined through the use of secure bottle storage racks adjacent to the air conditioning plants, which allowed the Parasense detectors to verify the integrity of the cylinders. Procedural compliance and

innovative management lead to a flawless environmental safety at sea record during all underway operations from RIMPAC 2012 through a nine-month deployment in 2013.

4.2 Water Pollution Control

4.2.1 CHT System Management Practices. NIMITZ' Collection, Holding, and Transfer (CHT) operations were consistently conducted in accordance with the Sewage Disposal Operational Sequencing System (SDOSS) guidelines and maintained the strictest adherence to the highest levels of cleanliness. Through an in-depth qualification process that included PQS and hands on training, NIMITZ' Repair Division ensured assigned personnel were experts in all facets of the CHT system. NIMITZ' CHT system was maintained in excellent condition from carrier qualifications in 2012 throughout a nine-month deployment to THIRD, SEVENTH, FIFTH, and SIXTH Fleets. Repair Division completed more than 35 welds, braze, and ring repairs to sewage and flushing piping and corrected 650 sewage related flushing trouble calls. Additionally, NIMITZ completed 50 transits within restricted waters, two passages through the Suez Canal and safely flow metered and transferred 2.9 million gallons of sewage to barges and trucks in five different countries with zero spills.

4.2.2 Oil and Hazardous Substance Spill Prevention and Response. NIMITZ conducted more than 36 replenishments at sea in 2012 and 2013, moving over 1,000 pallets of hazardous materials and 22.9 million gallons of fuel without incident in the Pacific and Indian Oceans and the Mediterranean and Tyrrhenian Seas. After use, the hazardous materials were segregated by type and offloaded in 900 pallets during replenishments at sea and pier-side transfers. Damage Control and Fuels Divisions trained extensively for prompt response to both potential onboard and overboard spills. Immediate response teams consisted of the Fire Marshall, affected repair locker, Fuels Bos'n and the Fuels LCPO. These personnel were experts at isolating the source of a leak, preventing overboard discharge through the use of absorbents, and ultimately cleaning any potential spill with minimal damage to the environment or exposure to personnel.

4.2.3 Oily Waste System (OWS) Management and Oil Content Monitor Capabilities. During the past two years, NIMITZ' ability to reduce oily waste through efficient plant maintenance practices significantly minimized bilge water production and enhanced processing productivity. The replacement of pump packing, piping gaskets and the elimination of leaks into bilges contributed to a decrease in the generation of oily waste. Stringent maintenance practices and aggressive corrective maintenance over the last two years have greatly enhanced the efficiency of the OWS. The OWS utilized gravity coalescence separation to efficiently remove oil from oily water. The separated oil was diverted to a waste oil tank for storage until it was transferred for off-hull processing. The separated water is monitored by Oil Content Monitors (OCM) that are set at 15 parts per million (ppm) of oil and automatically control solenoid diverting valves. The OCM only allowed processed water to be discharged overboard. Water exceeding limits was recycled back to the oily waste holding tank and reprocessed to prevent oily water from being discharged over the side. This reprocessing further reduced the volume of oily waste that must be transferred off-hull by continuously separating free water from oily waste.

4.3 Solid Waste Management and Resource Recovery

4.3.1 Solid Waste Management Practices. During the past two years, NIMITZ processed between 3.5 and 4 tons of solid waste per day. Diligent use of the plastics shredder and five plastics waste processor compressed melt units (CMUs) reduced the volume of 1,400 pounds of plastic waste per day by 30 to 1, saving 217,000 cubic feet of landfill space. This allowed NIMITZ to store and transfer plastic waste to Military Sealift Command ships for proper

disposal ashore. Two large solid waste pulpers converted an average of 4,600 pounds per day of food, paper waste, and cardboard into slurry for overboard discharge. An additional 1,200 pounds of metal and glass was shredded and disposed of daily. The greatest strength of NIMITZ' solid waste management program was the culture of environmental stewardship. Labeled containers in the ship's spaces were utilized to divide waste into disposal or recycling categories, and the crew was trained on the environmental significance of separating solid waste and in-port recycling. Trained waste room operators verified trash was properly separated before disposal and NIMITZ employed a second look to provide a final check before waste was processed in the shredder or pulper. This diligence assured NIMITZ discharged zero plastic waste into the ocean and allowed the ship to operate for extended periods with confidence in environmentally sensitive areas off Washington, California, Hawaii, and while deployed in the Pacific Ocean, Indian Ocean, and Mediterranean Sea per Maritime Pollution (MARPOL) regulations.

4.3.2 Source Reduction Techniques. NIMITZ employed practical but effective source reduction techniques to minimize the amount of solid waste produced and pollution generated by its disposal. For example, paper towels in heads were replaced by hand driers which ran off low pressure air to prevent circulation of airborne bacteria. Sensitive documents were confetti shredded and then pulped prior to overboard discharge. This method of disposal was far preferable to using the incinerator which wasted fuel and generated large amounts of carbon dioxide and other benzene-derivative environmental contaminants. NIMITZ also operated a robust recycling program while in-port.

4.4 Hazardous Material (HM)/Hazardous Waste (HW) Management. HMs were controlled by the HAZMINCEN under the guidance of HAZMO. Toxic substances were replaced with more environmentally friendly products, such as biodegradable detergents. In coordination with the Industrial Hygiene Officer and Afloat Environmental Protection Coordinator, new product requests were screened for personnel and environmental safety. Materials turned in for disposal were consolidated in a single container and re-used once there was sufficient quantity for re-issue. The HAZMINCEN worked with shore-side facilities to use excess hazardous material and ensured they didn't order materials that NIMITZ had in excess.

4.5 Protective Measures Assessment Protocol (PMAP). Meteorology and Oceanography performed analysis of all major exercises which had the potential to affect marine wildlife. First, the latest version of the PMAP software was run to ensure operations weren't conducted near an environmentally sensitive area. Then, a briefing was provided to the bridge watch, lookouts, and other personnel involved in the exercise. All lookouts and watchstanders were vigilant for nearby marine mammals, floating debris, and other sea life habitats. PMAP was an essential element of NIMITZ' environmental awareness culture.

4.6 Environmental Awareness. Multiple command and crew initiated programs focused on environmental awareness. These included:

4.6.1 NIMITZ' Community Relations (COMREL) Program emphasized environmental stewardship by encouraging volunteers to clean up the environment in conjunction with local groups. NIMITZ' COMREL program was the winner of the 2013 Navy Community Service Environmental Stewardship Flagship Award in the Large Sea category.

4.6.2 Environmental education during safety stand-downs included topics such as the Admiral Kuznetsov oil spill off the coast of Cork, Ireland and energy conservation in port, at home and at sea.

4.6.3 Firefighting and spill drills were held in hazardous material spaces with special considerations given to the toxic gases produced and ensured quick containment of hazardous materials before they impacted the environment.

4.6.4 An in-port recycling program was developed for the return to homeport from deployment. This program was initiated at an enlisted safety committee meeting by recommendation of the crew with the potential to generate $34,000 in cost savings for Naval Station Everett annually.