



## SECRETARY OF DEFENSE 2005 ENVIRONMENTAL AWARD ENVIRONMENTAL QUALITY, NON-INDUSTRIAL INSTALLATION NAVAL STATION NORFOLK

### INTRODUCTION

Naval Station Norfolk (NSN) is the world's largest Naval Station. Its mission is to support and improve the personnel and logistics readiness of the United States Atlantic Fleet. Situated on 4,631 acres, NSN is home to 69 ships, including aircraft carriers, cruisers, destroyers, large amphibious ships, submarines, and supply and logistic ships. Chambers Field, located in the center of the station, is home to 133 aircraft. Almost 54,000 military personnel and over 11,000 civilians work at NSN. Major tenant commands include: Commander, Naval Air Force, Atlantic Fleet; Commander, Second Fleet; Fleet Industrial Supply Center; Mid-Atlantic Regional Maintenance Center; Defense Distribution Depot, Norfolk; and Naval Facilities Engineering Command, Mid-Atlantic. NSN is one of nine major shore commands reporting to Commander Navy Region, Mid-Atlantic (CNRMA). The station is supported by a regionalized environmental staff that services bases in the Navy concentration area of southeast Virginia.



An aerial view of Naval Station, Norfolk

NSN is located in the northwest corner of Norfolk, Virginia, on a peninsula known as Sewells Point. The city has a population of nearly 300,000. The station is bounded on the north by Willoughby Bay, the Elizabeth River to the west, and shares its eastern and southern boundaries with various residential and commercial areas within the City of Norfolk. The land is generally flat with most of the drainage flowing into the Elizabeth River, Willoughby Bay, Bousch Creek, or Mason Creek. Waters from these sources ultimately flow into the Chesapeake Bay.

### BACKGROUND

Environmental and natural resource protection is an ongoing, critical part of the Station's mission. As the Station is located near the mouth of the Chesapeake Bay, the nation's largest estuary and the first to be targeted by Congress for ecosystem restoration, the potential for military operations to impact the bay is significant. NSN has over 316 acres of tidal wetlands, which serve as habitat for wildlife and help filter pollutants, and over eight miles of shoreline, riparian forest and dune systems critical to coastal ecosystems. Balancing the military mission, while protecting these natural resources, presents many challenges. In addition to the bay restoration challenges, a myriad of permits with varied compliance requirements and the constant turnover of military personnel provide additional environmental management challenges for the station. One solution to these challenges is through the implementation of a Regional Environmental Management System (EMS). The environmental permits are centrally managed by the regional environmental staff. Environmental protection specialists are forward deployed at the station and interface with various tenants process and practice owners. EMS assures the integration of day-to-day operational requirements with permit requirements.



The initial "fence line" of the EMS covers all managed compliance points currently covered by various internal inspection checklists. Using these checklists, the environmental staff oversee permits, programs and compliance. Permitted compliance points, such as aircraft wash racks, oil water separators, paint spray booths and fuel storage tanks, with potential mission or environmental impacts are

assigned high priority. On a quarterly basis, a cross-functional team reviews all compliance findings, conducts root cause analysis and problem solving, and performs risk assessment of compliance point inventories. Also, on a quarterly basis, Naval Station offers multi-media environmental awareness training for station personnel. EMS is covered in the training, which focuses on the associated aspects and impacts that the tenants' practice and process owners may encounter during operations. These aspects may potentially affect the mission, compliance posture, or the environment. To support EMS documentation requirements, existing roles and responsibilities were reviewed and procedures for addressing non-conformances were developed.

NSN has forged significant relationships with the community, many of which are detailed later in this document. In partnerships with the Elizabeth River Project and Norfolk Environmental Commission, NSN shares its expertise and develops joint goals with the community. Through its participation in Business for the Bay and Elizabeth River Project's River Stars Program, NSN mentors small businesses and demonstrates its environmental leadership.

Major operations at the station are covered under plans, instructions and guides. These plans are listed below and available on the regional environmental website as well as distributed to tenants where appropriate.

- Storm Water Pollution Prevention Plan, updated April 2005
- Storm Water Management Phase II Plan, revised in March 2003
- Outfall Sampling Plan, last revision February 2003, currently under review
- Drinking Water Bacteriological Monitoring Plan, currently under review, last revision November 2003
- Drinking Water Disinfectant By-Product Plan, last revision September 2002
- HRSD Pretreatment Device Management Plan, updated June 2004
- Clean Air Compliance Guide, routinely updated as needed
- Hazardous Material, Hazardous Waste, Minimization, Reutilization and Disposal Guide, updated December 2005
- Regional Spill Instruction, dated April 2004
- Pollution Prevention Plan, prepared November 2004 and updated July 2005
- Bird Air Strike Hazard (BASH) Plan, dated September 1999
- Hazardous Waste Plan prepared in 1994, part of RCRA permit currently in revision
- Spill Prevention Control and Countermeasure (SPCC) Plan, dated December 2004
- Oil Discharge Contingency Plan/Facility Response Plan, dated July 2002
- Solid Waste Management Plan, dated January 2003
- Pest Compliance and Pest Management Plan, currently in draft.

As detailed in the following sections, NSN has effectively met its goals for the environmental program: to improve the efficiency of the overall operation and to reduce the compliance burdens on Navy sailors, while maintaining compliance, enhancing environmental quality, and supporting all mission requirements.

## **PROGRAM SUMMARY**

Once the region completes its management review in December, the Regional EMS, which includes Naval Station Norfolk, will be fully implemented for its initial "fence line." Recognizing environmental stewardship is essential to the safe, healthful and compliant execution of its mission, NSN committed to preventing pollution at the source, integrating sound environmental practices throughout its operations and business decisions, ensuring continuous improvement, and maintaining full compliance with local, state and federal environmental laws, regulations and policies. Throughout the EMS implementation process, there has been a steady improvement in NSN's compliance posture. As outlined in the Accomplishments section, the Station's compliance posture has improved, hazardous waste has been reduced, and air and water quality improvements were achieved.

## **ACCOMPLISHMENTS**

### **EMS Implementation**

In February 2003, the NSN Commanding Officer and other members of the region's senior leadership formally signed an EMS Policy Statement. During the spring of 2003, the EMS team conducted a self-assessment to analyze

recurring compliance findings and root causes identified during internal environmental inspections. An EMS implementation plan based on a gap analysis was developed to ensure full EMS implementation before December 31, 2005. Considering the Naval Station's vast size, diverse operations and processes, and overall complexity, developing a complete list of aspects was a daunting task. Utilizing compliance checklists and guides developed for all environmental media, all aspects of the environmental program were inventoried. These aspects were risked-ranked based on impacts to the environment, mission, compliance posture, public perception and the severity or frequency of occurrence. Current stakeholder involvement includes any tenants and activities where there is a compliance point. Environmental training is routinely held for tenants and activities with environmental impacts.

Naval Station held problem-solving exercises and brain storming sessions to develop corrective actions and continuous process improvement. During the second round of the self-assessment meetings, the EMS implementation team developed the risk ranking criteria. In 2005, the Station completed its environmental aspect inventory, prioritized ranking of aspects and set its initial environmental objectives and targets. On November 7, 2005, the senior leadership for the Region, including the Naval Station Commanding Officer, received refresher EMS training and updated the EMS Policy. The leaders committed to comply with environmental regulations with local, State, and Federal environmental laws and policies. The CNRMA EMS Policy, summarized, is an acknowledgement that environmental stewardship is essential to the safe, healthful, and compliant execution of our mission and the preservation and protection of our land, air, and water. The completion of the management review is scheduled for early December 2005.

### **Pollution Prevention and Waste Reduction Efforts**

Across the various environmental media, the Station has made continual improvements in environmental management. The Water Quality Program at Naval Station Norfolk includes the management of 62 oil water separators, nine silver recovery units, and numerous other pretreatment devices which discharge to the sanitary sewer system. To ensure the proper operation and management of these pretreatment devices, individual Pretreatment Device Management Plans and inspection checklists were developed and are maintained. Due to NSN's good compliance record, during a recent permit renewal, the environmental staff negotiated for reduced outfall sampling requirements. This lowers the potential for violations and decreases the sampling and analysis costs. In addition, the staff saved approximately \$60K by preparing the NPDES permit annual compliance evaluation in-house. In 2004, Naval Station Norfolk was recognized by the Hampton Roads Sanitation District (HRSD) with a Pretreatment Excellence and Pollution Prevention Award. The water program has achieved the following cost avoidance over the last two years:

- Completed annual Consumer Confidence Reports in-house at a cost savings of \$20K annually. In addition, updated the Bacteriological Sampling Plan in-house for an annual cost savings of \$15K.
- Inventoried sites and processes, performing an aspect/impact analysis to prioritize wastewater aspects for implementation of Best Management Practices (BMPs) and performance of periodic compliance inspections.
- Saved approximately \$20,000 by preparing a NPDES permit reapplication for a large bulk fuel storage tank remediation site in-house.

In the Air Quality Program, Naval Station Norfolk has nine individual New Source Review permits as well as a facility-wide Title V permit. The Title V covers 871 individual emission units, 90 of which are significant with applicable requirements. Individual permits cover utility boilers, peak shaving generators, paint booths, blast booths, fiberglass operations, and firing ranges. The permits incorporate all State and Federal requirements, including New Source Performance Standards for steam generating boilers and VOC storage vessels. In addition, Naval Station Norfolk is classified as a major source of Hazardous Air Pollutants (HAPS) and has many operations governed by the various National Emission Standards for Hazardous Air Pollutants (NESHAP) such as Aerospace, Shipbuilding, Wood Furniture Manufacturing, Off-Site Waste, Containers, Boilers and Process Heaters, Reciprocating Internal Combustion Engines, and Site Remediation NESHAPs. These varied and rigorous air regulations applicable to the Station contain strict material usage, monitoring, work practice, recordkeeping, and reporting requirements. In the last two years, the air program:

- Developed and distributed local environmental policy, guidance, and operational procedures, including standardized compliance procedures and recordkeeping forms for owners/operators of air emission operations and units. This guidance is continuously evaluated and updated as needed for clarity and regulatory changes.
- Developed permit applications, reviewed draft permits, and managed final permits, including negotiation with DEQ to permit two new paint booths and a helicopter paint/depaint facility in-house, saving approximately \$20,000.
- Prepared semi-annual Ship and Aerospace NESHAP compliance reports, semi-annual Title V monitoring reports, annual Title V compliance reports, and annual Emissions Inventory reports, in-house saving approximately \$80,000 annually.

Nearly 5.4 million gallons of petroleum products are stored in 257 aboveground storage tank (ASTs) and 38 underground storage tanks (USTs) across the Station. While risk ranking the aspect inventory, spills and leaks were identified as significant aspects. To enhance spill prevention, several projects were initiated: the coordination and execution of regional pipeline pressure testing and API 653 tank inspection contracts, upgrades to leak detection of regulated USTs, and upgrades and replacements to non-regulated USTs and ASTs. In 2004-2005, the petroleum storage tank program achieved the following:

- Successfully passed a US EPA UST inspection. The program was found to be in full compliance with all applicable requirements.
- Submitted SPCC to VDEQ to comply with the five year update requirement; the plan was updated and maintained in-house, saving approximately \$50,000.
- Maintained the tank inventory and performed various remediation activities and report writing in-house, saving approximately \$25,000.

Pollution Prevention (P2) is an integral part of the overall regional EMS and has decreased the demand for hazardous materials, reduced waste disposal, and reduced the Navy's external liability, thus protecting the environment and sustaining the Navy's mission. One P2 objective targeted source reduction through new technologies to reduce or eliminate paint and solvent waste streams. Another objective has been to eliminate permitted sources of air and water pollution. Some of the material substitution initiatives over the last two years include:

- Issued rechargeable gel-cells throughout NSN. This eliminates disposal of acid from associated processes.
- Identified a metal free floor finish as an alternative to zinc containing floor products to eliminate a product that negatively impacted our compliance posture.

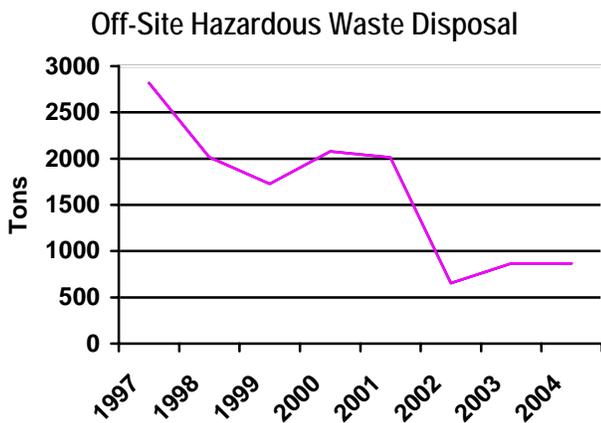


High Pressure Jet Blasting on non-skid coating on a submarine

Working with tenants, the environmental staff developed several new processes with Navy-wide application. For example, originally, non-skid coating was removed from the submarine topsides through physical grinding methods, which create large volumes of fugitive dust. Working cooperatively with submarine overhaul crews and Carolina Equipment Company conducted a pilot test of a High Pressure Water Jet Blasting system for non-skid surface removal. Initial testing showed no visible dust and reduced labor cost. For weapons cleaning, NSN began using Aqueous Weapons Cleaning units at the Police Precinct. The units are approved for all small arms and up to 50 caliber machine guns. This effort reduces labor by 80% while removing solvents from the workplace, reducing the Navy's air compliance burden, worker exposure and the volume of waste disposed.

NSN refined material management procedures to reduce costs and environmental impacts. Hazardous materials are parceled out to the shops on an as needed basis, minimizing hazardous materials storage at the shops and reducing generation of expired shelf-life materials. Process owners can return unused/unopened materials to the HazMin

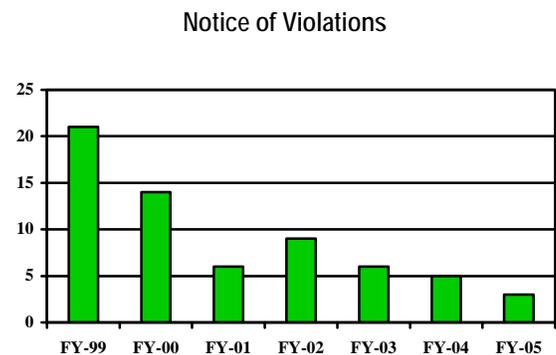
Center or reuse store; the returned material is offered and reissued at no cost to other customers, thus reducing waste and material costs. Under the region's "Solvent Free Shop Program," automotive and helicopter repair shops no longer use solvents in their operations. For example, PD-680 in Type I & II Paint Gun Cleaners has been replaced with non-solvent EP-921. In addition, aqueous Parts washing systems were installed in 50% of the Station's repair shops. NSN has eliminated conventional wet chemistry used for Non-Destructive Testing at AIMD and replaced with Digital Imaging. Using digital imaging reduces the hazardous materials used, hazardous waste and wastewater generated. Overall, NSN P2 Program has decreased the demand for hazardous materials, reduced worker exposure, reduced off-site waste disposal, thereby reducing the Navy's external liability, thus protecting the environment while sustaining the Navy's mission.



In 2005, NSN recycled 8,647 tons of office paper, corrugated cardboard, scrap metal, batteries, rope, aluminum cans, newspaper, green waste and plastics. NSN recycled over 107 K tons of concrete generated from construction and demolition projects on the waterfront. In 2004, the Solid Waste Management Department won the Solid Waste Association of North America silver excellence award for Collection Systems for the Navy's efforts in implementing automated collection and processing systems that replaced labor-intensive and expensive systems for recycling. Increasing environmental awareness is important to the success of the recycling program. On America Recycles Day, NSN staff distributed information and recycling pledge cards to promote recycling efforts. Through recycling and innovation, overall cost for solid waste disposal has been reduced.

### Environmental Compliance Assessment And Management Program

The environmental staff maintains good relationships with local, state, and federal regulators. Any areas of concern identified during an inspection are addressed and resolved promptly. All Notices of Violation (NOV) receive high visibility; the flag officer at CNRMA and the installation commander are briefed on any instances of noncompliance and the resulting corrective actions. As can be seen in the NOV chart to the right, the Station's environmental posture has steadily improved over the last seven years.



Training is an integral part of NSN environmental program and extensive EMS awareness training is included in every session that is presented to a broad range of base employees and navy personnel. In the last two years, the environmental staff trained over 2,400 personnel in 165 formal environmental training sessions covering topics such as stormwater management, spill response, environmental awareness, air emissions compliance and herbicide applications.

NSN comptroller and environmental staff rigidly adhere to Navy policy that environmental funds can only be spent on legally mandated requirements. During FY05, the environmental budget was \$ 4.7M, of which \$2.3M went to salary and support, \$700K to recurring requirements such as sampling and hazardous waste disposal, and \$1.7M for one-time compliance requirements.

## Effective Use Of Funds

This has been demonstrated in the accomplishments described above.

## Community Relations

NSN participates in many local and regional environmental outreach initiatives, including Earth Day celebrations, Clean City USA, Tree City USA (Arbor Day), Clean the (Chesapeake) Bay Day, and National Public Lands Day. NSN continually promotes responsible environmental stewardship and actively engages local government and community-based organizations to advance Chesapeake Bay restoration goals and initiatives. For example, Naval Station Norfolk is a Model-Level River Star in an award-winning program developed by the Elizabeth River Project to encourage pollution prevention and habitat restoration among businesses and industry. In addition, NSN, as part of the region, was recognized by the Environmental Protection Agency Chesapeake Bay Program Businesses for the Bay in 2003 and 2005 with an Outstanding Achievement Award for Federal Government for establishing regional partnerships and excellence in local P2 initiatives. NSN mentors and provide technical assistance to businesses in the region. In support of the Station's storm water phase II permit requirements, volunteers marked storm drains across the Station. NSN's outreach activities demonstrate its commitment to environmental stewardship, the Chesapeake Bay, and to being a good neighbor.



Sailors hauling away trash on  
Clean the Bay Day

Within the region, over 2,000 sailors and civilians have volunteered more than 11,000 hours in the past two years in support of various environmental causes. NSN also won awards from the City of Norfolk for exceptional contributions to Norfolk's Environmental Commission programs and the beauty and cleanliness of Norfolk. Nearly 800 sailors and civilians from the NSN participated in the 2004 and 2005 annual Clean the Bay Day, collecting over 13,000 pounds of trash and debris from the installation shorelines and local beaches.

As discussed in more detail in the section below, environmental justice is fully incorporated into environmental planning in Navy Region, Mid-Atlantic, and all projects are carefully examined to determine whether the potential exists to disproportionately affect disadvantaged, minority, or low-income communities.

## National Environmental Policy Act (NEPA) Planning, Analysis, And Implementation

To ensure all new facilities projects are in full compliance with environmental regulations, the environmental planning staff devised a site approval "Environmental Checklist" for facility planners to identify potential environmental issues and requirements. The Checklist requires "yes" or "no" answers to simple questions regarding the proposed action on environmental issues, such as storm water, air, tanks, natural resources or hazardous waste. The checklist is then forwarded to the environmental staff for follow up. The net results are streamlining of the site approval process, which speeds completion of needed fleet support projects, and significantly improved environmental quality and preservation of our mission real estate and natural resources.

While a construction project is still in its planning phase, the environmental planners determine the environmental requirements of the proposed project, including the appropriate level of NEPA documentation and any other issues to ensure compliance with Coastal Zone Management Act (CZMA), Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Resource Conservation and Recovery Act (RCRA), as well as ensure compliance with VA State Historic Preservation Office. Once all of the issues are identified, the environmental team works together to ensure the issues are addressed and the requirements are met. The goal is to ensure all projects are planned, designed, constructed and operated in an environmentally compliant manner. Approximately 200 proposed projects at Naval Station Norfolk are reviewed annually. In addition, over the last two years, NSN has completed six Environmental Assessments (EA) and currently has three Environmental Impact Statements (EIS) and six EA's underway. All of these NEPA documents are in support of mission operations or facility improvement initiatives; some examples include: replacement of a carrier pier, privatization of Navy Family Housing, new station access gates and various MWR initiatives.