



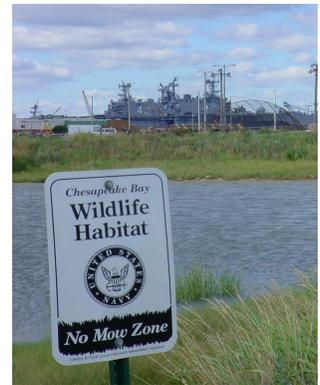
SECRETARY OF DEFENSE 2004 ENVIRONMENTAL AWARD POLLUTION PREVENTION, NON-INDUSTRIAL INSTALLATION Commander Navy Region Mid-Atlantic

INTRODUCTION

The Commander, Navy Region Mid-Atlantic (CNRMA) operates thirteen installations and annexes in Virginia and four installations in Pennsylvania. The Virginia installations are located in the Hampton Roads area and extend from Naval Weapons Station, Cheatham Annex in the north to Naval Support Activity Norfolk Northwest Annex in the southeast. Naval installations in Pennsylvania include the Navy retained property at the Philadelphia Naval Business Center, the Naval Support Activities in Northeast Philadelphia and Mechanicsburg, and the Naval Air Station at the Joint Reserve Base in Willow Grove. CNRMA is home to 119,600 military and civilian personnel and provides BOS services to the largest concentration of shore commands and operational surface, air and submarine forces in the Navy, to include: 92 homeported ships, 536 aircraft, and 300 tenant commands. CNRMA maintains four airfields, 76 piers and two fuel terminals on 41,374 acres to meet the needs of the Fleet.

BACKGROUND

The Chesapeake Bay is the nation's largest estuary and the first to be targeted by Congress for ecosystem restoration. Most of CNRMA's installations are located in the Bay watershed. The potential for Bay impacts from military operations is tremendous. CNRMA has over 1,354 acres of tidal wetlands, which serve as habitat for wildlife and help filter pollutants, and over 22 miles of shoreline, riparian forest and dune systems critical to coastal ecosystems. Balancing the military mission, while protecting these natural resources presents many challenges. One solution to these challenges is Pollution Prevention (P2). Further success is assured through the incorporation of P2 into the CNRMA Environmental Management System (EMS).



CNRMA environmental staff coordinates environmental protection efforts under a matrix organization with regional environmental media manager experts overseeing permits, programs and compliance for the many installations throughout the region. During quarterly installation meetings, a cross-functional team reviews compliance findings, conducts root cause analysis and problem solving, and performs risk assessment of compliance point inventories. Permitted compliance points, such as aircraft wash racks, associated oil water separators, paint spray booths and fuel storage tanks, with potential mission or environmental impacts are assigned high priority. Regional EMS documentation requirements are being met by reviewing and revising our existing roles and responsibilities and developing EMS procedures for non-conformances. NASJRB Willow Grove has already fully implemented its installation specific EMS and is now branching out to include tenants and sharing lessons learned with other installations in the region. CNRMA quarterly environmental awareness training for base personnel has been expanded to include EMS, focusing on communicating associated aspects and impacts that base tenants or customers may encounter during operations potentially affecting the mission, compliance posture, or the environment.

In CNRMA's Pollution Prevention Program, P2 media managers are responsible for program direction and oversight, while installation compliance staffs at each base liaise with clients to introduce new technologies, provide training, spearhead identification and implementation of P2 projects within shops, encourage waste segregation, and determine disposition of wastes. Cross-functional teams of air, water, storage tank, hazardous waste media managers, and recycling personnel work jointly with base personnel to identify P2 opportunities. Proper environmental management and coordination at CNRMA is necessary to comply with federal, state and local regulations, to sustain the overall mission by preventing time delays or operational shutdowns, and to support good public relations.

PROGRAM SUMMARY

One of the tools utilized to fulfill CNRMA's environmental protection mission is Pollution Prevention (P2). P2 program refers to the implementation of practices or operations that reduce or eliminate the creation of pollutants through process improvements, technology upgrades, use of less toxic materials, and waste recycling/reuse. It is the preferred method of environmental management. A top priority for CNRMA's regional environmental program was to develop a Regional P2 plan. This Plan takes advantage of similarities between shops and processes across the region and defines how both Navy environmental and operations personnel will implement P2 on a continuous basis.

Goals of the P2 program reflected in the Regional P2 plan have been to: decrease the highest volume waste streams (paints and solvents), eliminate reporting of releases under the Emergency Planning and Community Right to Know Act; and minimize sources of air and water pollution. The region has achieved progress towards these goals. Elimination of air and water pollution sources is an ongoing effort. Over 90 aqueous parts washers have been installed across the region to eliminate solvent usage and reduce air permitting. From 1997 – 2003, the region reduced the amount of hazardous waste shipped offsite by 71%.

PROGRAM ACCOMPLISHMENTS

CNRMA's P2 program initiatives have resulted in significant cost savings and substantial reductions in the generation of hazardous and solid waste. These initiatives not only protect the environment, they improve the region's ability to meet its military mission by increasing productivity and controlling costs. Regional environmental staff routinely present case studies of new technologies or processes at technical conferences. Congressional visitors and Navy officials from other countries frequently tour CNRMA installations; P2 technologies are highlighted on these tours. Some of the significant accomplishments across the breadth of the program are described below.

Material Substitution

The Region's strategy for material substitution has been to focus on source reduction through new technologies to reduce or eliminate paint and solvent waste streams. A secondary goal has been to eliminate permitted sources of air and water pollution. In Fiscal Years 2003 and 2004, environmental:

- Issued over 400 rechargeable gel-cells throughout the region. This eliminates disposal of acid from associated processes.
- Introduced Natural Orange or other similar non-solvent cleaning products in all 91 aqueous parts washers in the region.
- Investigated Metal Free floor finishes to identify a metal free floor finish as an alternative to zinc containing floor products. We tested one such product at HM-14 Squadron. Identifying and removing high zinc-containing floor products from the stock system is a continuing initiative between CNRMA Environmental Directorate and FISC/HMPO East to eliminate products that negatively impact our compliance posture.

Process Modification or Improvement

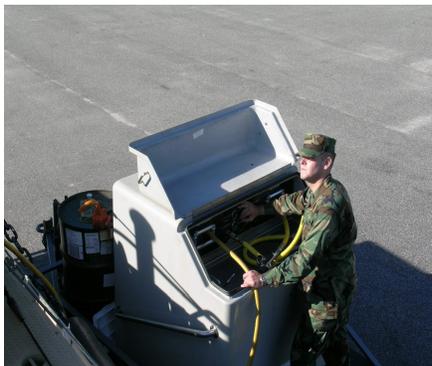
Working with installation personnel, the region's P2 media managers developed several new processes with Navy-wide application. Below are detailed descriptions of the regions top projects:

- **Non-Skid Surface Removal** - The Spruce Barge at Naval Station Norfolk is responsible for assisting submarines perform minor interior maintenance and resurface the topside of the sub. Originally, non-skid coating was removed from the topsides through physical grinding methods, which create large volumes of fugitive dust. Regional P2 is working with Carolina Equipment Company and Spruce Barge staff to pilot test a High Pressure Water Jet Blasting system for non-skid surface removal. Initial testing showed no visible dust and reduced labor cost. Additional testing will occur in spring of 2005.



High Pressure Jet Blasting on anti-skid from submarines

- **Equipment Labeling** - The P2 Team issued stencil label makers at two locations to reduce aerosol can and stencil paper related waste. The units make computer-generated adhesive back labels for all types of equipment. At one command, this reduced aerosol can waste by 4500 cans annually and has the potential to reduce reporting under installation air permits.
- **Aqueous Weapons Cleaning** - Over the past two years, Aqueous Weapons Cleaning Units were installed at Fleet Antiterrorist Support Team (FAST), NAB Police Precinct and Seal Delivery Vehicle Team Two and Outdoor Range, Northwest. 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.
- **New vacuum sanding system design for aircraft paint removal** - In May 2002, an industrial hygienist identified a concern with personnel exposure to paint dust generated in aviation hangars by orbital-sanders used for aircraft paint removal. CNRMA staff partnered with Naval Air Engineering Center Lakehurst, several aircraft squadrons, and the paint sander manufacturer to design an orbital angle sander and shroud housing for existing vacuum pickups. After demonstration and evaluation of the equipment, a change to the sanding process in the Navy's Corrosion Control Manual was approved. A \$60,000 Pollution Prevention Equipment Program (PPEP) contract was awarded for the manufacture of 12 kits, which were delivered in March 2003
- **Laser Touch Paint Trainer** - CNRMA issued this piece of equipment to the Paint School at NAMTRACEN and the AIMDs at NAS Oceana and Naval Station Norfolk. The laser sighting system provides painters with immediate feedback on the distance of the spray gun from the part and the angle of the gun with respect to part being painted. This improves the transfer efficiency and paint finish, thereby reducing painting time, material usage, and wastes generated from painting operations.



In October 2003 the mobile bilge systems was deployed at Beach Masters Unit-two

- **Mobile Bilge Cleaner and Oil Evacuation System** - In October 2003, Naval Amphibious Base (NAB) Little Creek deployed a mobile bilge system at Beach Master Unit-two to eliminate oily bilge water discharges to the Chesapeake Bay. The mobile bilge cleaner is self-powered and consists of a steam cleaner, vacuum system, filters, a collection tank, and an oil-water separator. The longer length of vacuum and steam hoses allows bilge cleaning on RHIBS and LARC-V boats while the boat is still in the water. In addition, the Mobile Oil Evacuation System was deployed to eliminate the potential for oil spills during oil changes on the Navy's RHIBS and LARC-V boats. Benefits of both systems include the elimination of oil discharge to waterways, reduction in hazardous waste generation (no rags or degreaser required) and a safer working environment.

- **Solargizers** – CNRMA is currently testing Pulse Technology Solargizers to extend lead acid battery life. Solargizers work by eliminating sulfur buildup, the main cause of battery failure. The use of Solargizers prevents dead batteries, maintains peak battery performance, increases battery life and prevents the normal loss of battery power on stored boats no matter how long they sit unused. Test sites selected are NALF Fentress arresting gear, NASO Natural Resources heavy equipment, NABLC Port Ops remote boom deployment, and NABLC CB-423 arc welder and air compressor units.

Improved Material Management

The Mid-Atlantic Region continues to refine material management procedures to reduce costs and environmental impacts. The Fleet and Industrial Supply Center Norfolk (FISC) supplies hazardous materials to shops and work centers throughout the Region utilizing the Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP). CHRIMP is an intrinsic and important component of the Regional P2 program. 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. Shop/work centers can return unused/unopened materials to the FISC HazMin Center or reuse store; the returned material is offered and

reissued at no cost to other customers, thus reducing waste and material costs. Utilizing the Hazardous Substance Management System (HSMS) software, FISC: tracks hazardous material and quantities issued to specific Shops/Work Centers; coordinates approval of new hazardous materials for use utilizing the Regional Authorized Use List system; and works with NAVFAC MIDLANT to recover unopened hazardous materials turned in for disposal by ship and shore activities.

Federal Compliance with EO 13123 “Greening the Government through Efficient Energy Management,” June 3, 1999

CNRMA is taking an aggressive stance in reducing energy consumption and dependence on petroleum, lowering greenhouse gas production, and utilizing renewable energy resources. In FY03, NAVFAC MIDLANT, on behalf of CNRMA, reduced energy consumption by 27.3% compared to the 1985 Baseline. Several large energy projects recently undertaken will allow CNRMA to surpass the goals set forth in EO 13123. These projects include a Steam Plant Conversion at NAB Little Creek, a Ground-Source Heat Pump Project at NAS Oceana, and a Water Conservation Project at the Naval Station Norfolk.

- **Steam Plant Conversion at NAB Little Creek** - The coal-fired plant was oversized for the current steam loads at NAB Little Creek and generated air pollution and hazardous waste. The new steam plant currently under construction utilizes natural gas as its primary fuel and reduces annual thermal energy usage by 335,000 MBTUs and electricity consumption by almost two million KWHs. It will also reduce water usage by 30 million gallons, the production of greenhouse gases by 348 tons, and almost eliminate the production of hazardous waste. The energy costs will be about \$200,000 less per year; operational efficiencies will yield over a million dollars in annual savings. Plant construction is slated to be completed in 2006.
- **Ground-Source Heat Pump Project at NAS Oceana** – In 2004, high efficiency ground-source heat pumps were installed at 16 buildings at NAS Oceana. The heat pumps operate by piping water underground and using the ground as a heat source or heat sink, essentially using geothermal renewable energy. The anticipated annual energy reduction will be 57,000 MMBTU for an energy cost savings of \$890K . Removing the remote buildings from the central steam plant system also allows the central plant to operate at a higher efficiency.
- **Water Conservation Project** - A groundwater treatment plant at a Naval Station (NS) Norfolk CERCLA site currently discharges effluent to the storm sewer. A proposed water conservation project will divert the effluent discharge and pump it through a pipeline to the base central steam plant. The effluent discharge will provide 10 to 15 percent of the make-up water required for the plant. This project will conserve 40 million gallons of water per year and save approximately \$145,000. This project is anticipated to begin in late fiscal year 2005.

Compliance with Executive Order (EO) 13148, "Greening the Government through Leadership in Environmental Management," April 26, 2000

EO 13148 updated reporting, record keeping, and notification requirements for the Emergency Planning and Community Right-to-Know Act (EPCRA). Under the original EO guidelines ethylene glycol was the only reportable toxic chemical for CNRMA. In 2003, the P2 program provided ethylene glycol users with recycling units that remove particulates and maintain low fluid acid levels to eliminate the waste. The environmental staff has developed an automated EPCRA reporting system that reduces the time required to prepare reports by 55%. CNRMA also participates in Local Emergency Planning Committees.

Section 201 of EO 13148 addressed environmental management systems (EMS). In 2004, the Regional Commander, Installation Commanders, and Program Managers signed CNRMA's Environmental Management System Policy statement, which covers the Hampton Roads region. To comply with section 202 requirements, Internal Assessment Plans (IAPs) have been developed or are in draft form for each CNRMA installation. Quarterly EQA and EMS meetings are held at each installation to review environmental findings for trends and root causes. Environmental problems and issues are revealed during quarterly site compliance inspections and are documented and tracked to resolution with an emphasis on pollution prevention. Expert media managers resolve findings that require higher-level programmatic involvement or project development to remedy compliance or environmental risks or impacts.

The quarterly compliance reviews support the EMS requirement for self-assessments and continuous process improvement. Additionally, a list of proactive environmental objectives is currently under development. Based on our EMS gap analysis, the CNRMA implementation process is 45% of the CNO and DoD goal of full implementation by December 2005. Our initial EMS fence line includes all of our environmental compliance points. As our EMS matures, we intend to move the fence line out to the practice and process owners whose operations may impact the environment while supporting the mission.

Section 505 of the Executive Order establishes goals for reduction of ozone-depleting substances. The Region has developed and distributed standardized compliance procedures for owners/operators of air emission operations and units, including refrigerant and Halon handling, to ensure proper management of the remaining ozone depleting substances in the region.

Compliance with Executive Order (EO) 13149, “Greening the Government through Federal Fleet and Transportation Efficiency,” April 21, 2000

NAVFAC MIDLANT manages the government vehicle fleet of over 5,600 vehicles and engineering equipment for CNRMA. In order to comply with EO 13149 goals, NAVFAC MIDLANT is pursuing a multi-faceted compliance strategy. Each year, NAVFAC MIDLANT purchases as many Alternative Fuel Vehicles (AFVs) as are available; currently 5% of CNRMA vehicles in inventory are alternative or dual-fueled vehicles. By the end of 2005, the region plans a 20% reduction in petroleum consumption by increasing AFVs purchases, replacing diesel with biodiesel, and purchasing vehicles with higher fuel economy ratings.

Recycling/Solid Waste Management

One regional recycling program services all CNRMA installations. Recycling staff recycled 23,000 tons of material in FY04 from six locations across the region. Commodities recycled include office paper, corrugated cardboard, scrap metal, batteries, rope, aluminum cans, newspaper, green waste and plastics. In FY04, the Solid Waste Management Department won the Solid Waste Association of North America silver excellence award for Collection Systems. The award recognized for the Navy’s efforts in implementing automated collection and processing systems that replaced labor-intensive and expensive systems for recycling.



Recycling managers Tony Kealy and Mike Berry accept the Solid Waste Association of North America Silver Excellence Award.

In 2004, the final phase of establishing an Integrated Solid Waste Management Program (ISWMP) was completed, consolidating all in-house services and contracts to provide overall management of the solid waste stream in the Region. Recycling managers are responsible for managing and reducing the region’s overall cost for solid waste disposal through recycling and innovation. Some of the program initiatives for FY04 are:

- At Naval Amphibious Base Little Creek, the transfer station sorts recyclables from trash. This initiative has reduced the solid waste leaving the base by 32%, and has led to a decrease in solid waste pickups.
- Under the construction and demolition program, Naval Station Norfolk recycled over 107 K tons of concrete generated from construction and demolition projects on the waterfront.

Research, Development, and Technology Demonstration/ Validation

CNRMA staff supports various research and development initiatives sponsored by Naval Facilities Engineering Service Center (NFESC) and Naval Air Systems Command. NAS Oceana is currently piloting "The Navy Online Environmental Compliance Checklist System (NOECCS)". This is a prototype web-based inspection checklist database module developed and implemented under a NFESC contract. This one-year field study serves as the prototype development site to assess NOECCS's capability to enhance the Navy's compliance inspection process.

Naval Station Norfolk is currently in the final stages of testing for High Pressure Water Jet System for Non-Skid removal on Submarines. The Spruce Barge and P2 staffs have worked closely with the manufacturer on mower head design to reduce water loss due to the curvature of the submarine and weld seams around the ports and sail areas.

Green Procurement

As part of the Environmental Planning process, all construction and demolition projects are reviewed for conformance with Affirmative Procurement requirements such as purchasing playground equipment made from recycled plastic or ceiling tiles containing recycled content material. Green Procurement educational articles are routinely included in the region's environmental newsletter, "The REC Update," individual installations' websites, Plans of the Week, and newsletters.

Education, Outreach, and Partnering

In an initiative to share successes with DoD counterparts, CNRMA led the establishment of a Virginia-DoD P2 Partnership. The P2 partnership meets two to three times a year to identify opportunities, develop solutions, and promote successes in P2. This partnership is in the process of evolving into a Sustainability Partnership to address broader environmental issues.

One original goal of the P2 partnership was to increase member participation in Virginia Naturally and the EPA Chesapeake Bay Program's Businesses for the Bay (B4B). CNRMA's contributions to the B4B program include establishing, implementing, and meeting annual P2 goals, providing P2 and hazardous waste minimization training, and acting as mentors to provide technical assistance to other businesses in the region. CNRMA received the B4B 2003 Outstanding Achievement Award for Federal Government for established regional partnerships and excellence in local P2 initiatives. Naval Station Norfolk is a Model-Level River Star in an award-winning program developed by the Elizabeth River Project (ERP) to foster pollution prevention and habitat restoration among businesses and industry. CNRMA participates in a myriad of local environmental outreach programs, including Earth Day celebrations, the Tree City USA (Arbor Day) program, Clean the (Chesapeake) Bay Day, and National Public Lands Day. In 2003 and 2004, CNRMA-based military and civilian groups were recognized for the following awards: Community Environmental Partnership, Clean the Bay Day, Earth Day, Storm Drain Stenciling, Helping Hands, and Targeted Cleanup Awards in 2003 and 2004.

Reductions Achieved

From 1994 to 2004, CNRMA achieved a 100% reduction of releases and off-site transfers of toxic chemicals and reduced its Right-to-Know reporting burden from eight to zero chemicals in 2001. In 2002, the EPCRA exemptions for personal heating and transient aircraft and vessels were removed. As a result, CNRMA Form "R" reporting increased to seven for 2004. CNRMA should see a significant reduction in Form R reporting when the NAB Little Creek coal burning steam plant is replaced by a cleaner natural gas plant.

From 1997 – 2003 the region reduced the amount of hazardous waste shipped offsite by 71%. Under CNRMA's "Solvent Free Shop Program" 14 production repair shops are no longer using solvents in their operations. One such example is the replacement of PD-680 in Type I & II Paint Gun Cleaners with non-solvent EP-921. We installed aqueous parts washing systems in 80% of our repair shops. Also, we are continuing to replace lead acid batteries with sealed maintenance free batteries, which are recycled off-site. CNRMA eliminated conventional wet chemistry used for Non-Destructive Testing at AIMD, Oceana and Naval Station Norfolk. These systems reduced the hazardous materials used, hazardous waste and wastewater generated.

Overall, CNRMA's P2 Program 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.

Green Buildings

In October 2004, a new Personnel Support Facility opened at NAB Little Creek. This is one of the few Navy buildings to obtain Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council. This process verifies the building has been designed and constructed to minimize site impact, conserve energy, provide a healthy and safe indoor environment, and divert materials from the waste stream to support environmental conservation.