

**FY08 POLLUTION PREVENTION AWARD
NAVAL AIR STATION, WHIDBEY ISLAND
OAK HARBOR, WASHINGTON**

**Category: Pollution Prevention - Non-Industrial Installation
 NAVAL AIR STATION WHIDBEY ISLAND**

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ACHIEVEMENTS OF THE NOMINEE

The combined pollution prevention efforts of employees from Naval Air Station Whidbey Island have resulted in substantial reductions of hazardous waste, solid waste, air and water contaminants, and many other types of pollutants. Examples include:

- Implementation of our Environmental Management System (EMS) increased the station's capability to track ongoing environmental program requirements which ultimately aids in maintaining a high level of compliance. As a result, during the 12 external agency audits conducted in FY07 and FY08, there were no Notices of Violations issued.
- At the Whidbey Recycle and Compost Center, 100% of the Station's biosolids were diverted from landfills through biosolid composting, saving the station \$50,000 annually on disposal cost. A total of 517 tons were processed from FY06 through FY08. The composted final product is used in unimproved grounds to enhance vegetation and ground stabilization.
- Greenhouse Gas emissions decreased by 780 tons in FY08 due to equipment replacement with more efficient combustion and air conditioning systems.

In addition to protecting the environment, conserving our valuable cultural, natural, and energy resources, NASWI P2 has freed up millions of dollars to support the defense of our country. The men and women at Whidbey Island and those who practice P2 throughout the Navy and industry have combined to make P2 and national defense go hand in hand at a time when our country needs it most.

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INTRODUCTION

Naval Air Station Whidbey Island (NASWI) is a U.S. Department of Defense facility with a mission to support electronic countermeasures, submarine patrol, and electronic surveillance in peacetime and wartime. The Station employs 8796 military and approximately 2,400 civilians and contractors, covers 7,000 acres and is the home for the Navy's EA-6B electronic attack squadrons, P-3C/EP-3 maritime patrol squadrons and Fleet Readiness Center Northwest (FRCNW). Other NAS Whidbey Island commands include Search and Rescue, Explosive Ordnance Disposal, Naval Ocean Processing Facility. NASWI property includes Ault Field, Seaplane Base, Outlying Field Coupeville, and Naval Weapons Systems Training Facility, Boardman Oregon. An integral part to the above missions is NASWI's commitment to area residents and to the nation to protect natural resources on and around the station, and to prevent the generation of pollution.



BACKGROUND

NASWI has 8 major departments, 46 tenants, and 20 aircraft squadrons and maintenance activities. The biggest environmental challenges facing the station during the past two years involve maintaining compliance with the myriad of evolving regulations while reorganizing to meet changing Navy mission requirements and ever tightening budget constraints. This was achieved through NASWI's successful P2 program. While the P2 program is centralized through the Environmental Division, it is implemented through a network of 146 Environmental Activity Managers (AEM) and Environmental Activity Coordinators (AEC). These sailors and civilians serve as points of contact for each department and tenant command. They work with the environmental staff to train their people, ensure environmental compliance, and identify opportunities for process improvement and pollution prevention. External P2 opportunities come from industry, business, academia, test and evaluation, regulators, and other Navy installations. A cross-functional Pollution Prevention Team was created by the Environmental Division to funnel those opportunities through a Navy regional coordinator for quick and easy implementation by each and every NASWI employee.

PROGRAM SUMMARY

NASWI is carrying out its pollution prevention program as a comprehensive, systematic approach to ensure environmental compliance without degradation of the Navy's defense mission. The program is designed so that P2 practices are implemented and sustained to keep pace with dynamic aircraft operational tempos, maintenance policy changes, and military personnel turnover. By tracking ever-improving technologies and identifying better and safer materials and processes, the P2 program directly enhances military readiness. NASWI considers

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itself unique in its P2 approach and the actions taken to meet such challenges. The program focuses on hazardous waste (HW) disposal, monitoring and treatment of air, water and toxic emissions, and compliance with other Federal, State, and Navy requirements for safety and health. P2 at NASWI has not only been used as a tool for HW reduction, source reduction, and increased recycling but also as a vehicle to undertake compliance issues with regulations like Clean Air Act (CAA), Clean Water Act (CWA), and Emergency Planning Community Right-to-Know Act (EPCRA). This cross-functional approach consistently achieves new levels of success, and has earned several distinctions from the community, regulators, military and environmental organizations. The most important aspects of the program, however, are the increased level of services that the P2 program has provided. Through an aggressive recycling program the station not only reduces solid waste costs, but also generates income that is funneled directly back into the operational budget and supports quality of life improvements. Another feature of the NASWI P2 program is the training of station personnel. The frequency of training and the curriculum are designed to meet the needs of sailors who are constantly deploying and returning from the Naval aviation mission. Finally, our program has improved its procedures for getting new pollution prevention equipment and material substitutions to our customers quickly and easily, with follow-on effectiveness tracking and customer service.

Last two years the station continued its progress toward full implementation of its Environmental Management System (EMS). NASWI has a long history of innovative practices aimed at stopping pollution from our operations. The incorporation of the P2 program under the EMS has enhanced our management in planning and operation. The program commits to safeguarding the environment through pollution prevention, resource conservation and environmental compliance. The EMS makes a requirement of continual improvement by stating that environmental and pollution prevention factors be considered in all planning, procurement and operations decisions. Our communications have improved and every person is aware of our overarching environmental goals aimed at reducing pollution and conserving our natural resources. The technical merits of our EMS are tracked through our Monitoring and Measurement Procedure, which outlines and demands the use of best management practices. Our established internal audit system verifies our management practices and sets in place corrective and preventive actions. FY07/08, the station had gone through 12 media inspections without any violations.

ACCOMPLISHMENTS

1. Material Substitution.

The station drives P2 initiatives through an employee pollution prevention training program. The HM Substitution process addresses requirements for HM use and is contained in technical manuals and specifications that govern the processes and procedures for systems operation and support. A large number of processes and materials at NASWI are affected by P2 compliance; an example of one process is corrosion control. The NAVAIR's Corrosion Control Manual, NA 01-1A-509 provides P2 compliant direction in this area. To ensure P2 compatibility with flight safety requirements, close coordination also exists between sailors who implement P2 changes and the Naval Air Technical Data and Engineering Services Command (NATEC) representatives. Examples include evaluations of various products used in the painting processes for aircraft and aircraft components.

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Chrome VI Replacement. The station, FRCNW, was selected and obtained approval for evaluating the use of an Anti-Corrosion Inhibitor Primer Formulation at the Ground Support Division, FRCNW. The project will eliminate the military's reliance on hexavalent chromium (Cr(VI)) in coatings applied to aluminum and steel alloys. This will be accomplished by utilizing an electroactive polymer (EAP) as an environmentally benign replacement for CrVI treatments. Chromated coatings are harmful to personnel and the environment. The focus of this evaluation is to demonstrate the viability of EAPs with non-chrome (VI) primers to provide the military with a hexavalent chrome-free coating system. The EAP coatings are non-metallic and non-hazardous. Use of the EAP will eliminate hazardous waste generation and reduce toxic air emissions.

Hazardous Air Pollutant Initiative. All HMs requested or in use throughout the Installation are reviewed for HAP content and tracked monthly for air emission trends. Potential for substitution with materials containing less or no HAPS is investigated and implemented whenever authorized in the Navy technical publications. In FY07-08, all paint removing solvents introduced to FRCNW are HAP free.

2. Process Modification or Improvement.

NAS Whidbey Island processes numerous aviation support equipment (SE) components utilizing high-temperature powder-coating applications. These applications are used in the demanding and corrosive environment of Navy aircraft carriers. Unfortunately, some temperature-sensitive SE components are made of aluminum (e.g., aircraft tow bars and bomb hoists) and cannot withstand the high temperature cure. The Station was selected to test and validate the application of a VOC/HAP-free, Low Temperature Cure Powder (LTCP) coating on aluminum weapons system components. The LTCP is fully curable at 250° F and can replace other powder coatings that require temperatures of 280 to 400° F. This decrease in curing temperature enables temperature-sensitive substrates to be safely powder coated; this meets corrosion protection requirements without compromising the structural integrity of the component. Furthermore, lower temperature curing reduces energy costs associated with this process. This process modification and improvement eliminated use of Volatile Organic Compound (VOC)/Hazard Air Pollutant (HAP) solvent-based chrome primers and topcoats that were being used on these components and substrates. The project is a NAVAIR/Navy specific project with the Department of Defense's Strategic Environmental Research and Development Program and has been planned and executed in full partnership with the Department of Energy and the Environmental Protection Agency (EPA).

UV Cure Powder Coating. In support of the Environmental Security Technology Certification Program (ESTCP), NASWI was chosen to participate in a joint test protocol for the validation of Ultraviolet Cure Powder Coatings in FY08. UV-cure powder is faster to apply and cure. This results in shorter turnaround times and like all powders has high transfer efficiencies and use of robotics for melting and curing; it enables complex shapes like wheels to be effectively and reliably powder coated. Currently, the station is experiencing some limitations in production for extremely large SE parts that cannot fit into our existing curing ovens. These parts are sent off-site to a depot-level Naval facility. This initiative will help reduce the station's reliance on other

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SE Depot level facilities when processing big parts and reduce energy because energy is focused to a specific part only as long as needed.

3. Improved Material Management.

Hazardous material products have been traditionally used to perform maintenance and a variety of services for aviation operations and base support activities; a hazmat substitution process is now in place that addresses the requirements for material use as specified by Navy technical manuals. The process involves annual review of hazmat as well as review and approval of newly added or deleted materials. The review process engages several installation activities to ensure a multi-perspective analysis to promote substitutions with more sustainable materials from both an environmental standpoint and a personnel safety view. Activities involved include the Environmental Division, Safety Department, Industrial Hygiene, and the Supply Department. To implement changes to materials required by technical specifications, close coordination between sailors and the NATEC representatives was established. An example of the success of this program is the implementation of LTCP coating at FRCNW. This effort totally eliminated liquid paint use by approximately 370 gallons annually. This change not only eliminated use of VOCs present in liquid paints but also enhanced safety in the workplace and reduced waste materials. Additional changes to more sustainable materials and processes include the conversion of the Naval Hospital Oak Harbor from a traditional silver nitrate X-ray process to a digital process, eliminating this hazardous waste entirely.

In late FY06, the station HAZMIN Center expanded their capability to increase storage of hazardous materials to provide HM support to other activities not on line with the center. During the past two years, the HAZMIN Center added seven more station and tenant activities to the Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP). The station continues to encourage future CHRIMP efforts, including establishment of the reuse program. For FY07 and 08, procurement cost avoidance totaled \$67,895.81 with a disposal cost avoidance of \$50,713.67.

4. Compliance with EO 13432, “Strengthening Federal Environmental, Energy, and Transportation Management”.

In FY07 and FY08, the station developed and implemented procedures to ensure that green building practices (i.e., U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) standards) are integrated into design and construction process for all new construction and remodels. This initiative will provide substantial improvement in building operational performance and employee productivity.

Several significant energy reduction projects were completed over the past few years, including: (1) Retrofit aircraft Hangars 6, 8, and 10 from steam unit heaters to modulating infrared heating units, saving 20,531 MBTU annually. These large and difficult to heat buildings, are now much more efficiently heated, while reducing electricity consumption, as well as fuel usage and air emissions from the steam plant. (2) Compressor replacement for two buildings included a 171 kW load reduction with a calculated energy savings of 3,406 MBTU. (3) General facilities exterior and street lighting maintenance has accounted for additional daytime load reduction

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through diligent photocell replacement and manual time clock seasonal adjustments to eliminate daylight operation. (4) Installation of Thermal Equalizer Fans in buildings 2754 and 2789 to conserve energy through more efficient space heating.

Modification to BOSC preventive maintenance schedule on refrigeration units reduced refrigerant use by approximately 25% in FY08. This P2 opportunity and above energy projects reduced our greenhouse gas emissions by approximately 780 tons in FY08.

Reduction of Fresh Water Consumption. Conversion to the recently acquired Mobile Aircraft Firefighting Training Device to replace the open-pit system at the Firefighting Training School created an opportunity for substantial water savings in addition to air emissions reductions. The new system has achieved operational cost reductions and resource conservation through filtering and recycling of the water used to put out the fires in the training process. This system decreased station water usage by approximately 2.2 million gallons per year.

5. Recycling Program The recycling center began operations in 1990. Since then the operation has evolved into a facility focusing on reuse, education, outreach, and promoting all facets of recycling and waste reduction. In FY07 and F08, the center achieved an unprecedented 78% rate of recovery of base materials diverted from landfills. The program is truly sustainable, as it not only conserves valuable natural resources, it more than pays for itself through cost avoidance and income generation. Total revenue and cost avoidance was \$ 3.4 million in FY07 and FY08. In addition to the station-operated recycling center, the base strongly supports the federal government's green procurement program.

BiosolidCompost. NASWI operates a Sequencing Batch Reactor (SBR) sewage treatment plant, which historically generated and discharged aerobically digested sludge into an adjacent holding lagoon. In cooperation with the EPA, and in an effort to meet reduced discharge and technology improvement goals, the station completed closure of the lagoon and an upgrade of the SBR in 2005. The upgrade consisted of constructing a dewatering facility adjacent to the existing treatment plant. The station identified two alternatives for biosolid sludge disposal: (1) off-site treatment and disposal and (2) on-site composting. To avoid the high disposal cost, the station elected to perform on-site biosolid composting. In FY 2005-06, the lagoon closure project was completed, along with significant technological upgrades to the SBR and base composting facility. Late FY06, on-site biosolid composting was fully initiated diverting approximately 170 tons of sludge disposal from permitted landfills saving the Navy approximately \$50,000 annually. The composting process was developed by the station to ensure all the parameters required by the EPA for disposal through land application are met. FY06 – FY08, 517 tons were processed and 447 tons of cured biosolids that met EPA's regulatory requirements were land applied on station.

6. Green Procurement. NASWI has long been purchasing and using environmentally friendly materials utilizing recycled materials as a product component. The station has been aggressive in coordinating with Navy supply officials and contractors to provide station consumers with recycled products to use in their daily activities. Serv-Mart, a NAS Whidbey Island office supply distributor, provides 90% of the station's office supplies. During the past five years, Serv-Mart

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has converted their inventory to many recycled materials (e.g., office paper, folders, and toner and printer cartridges). Serv-Mart also requires their distributors to use 80% recycled material for packaging and has modified specifications and contracts to promote the purchase of recycled content items. The station Shipping Department not only procures strictly recycled packaging materials such as packing peanuts, paper and Styrofoam, but also reutilizes all packaging materials used for products received at the station. The recent contract revision for the Base Operation Support Contractor (BOSC) included the Contractor's full participation in pollution prevention initiatives in their own maintenance and operations, and it established a partnership with the station in implementing station identified opportunities. Some BOSC initiatives include: procurement of re-refined oils, engine coolant, and retread tires in their vehicle maintenance shops; engine coolant recycling on-site for reuse in vehicles. Our parks are refurbished with equipment made from recycled plastic, steel, and ground up tires for cushioning. Establishing a Green Procurement program per EO13423 guidelines to improve upon the above accomplishments is currently being included whenever feasible for all project designs, construction, and demolition plans.

7. Education, Outreach and Partnering

Past two years, the following methods were used to involve military personnel, family members, civilian employees, and the public in pollution prevention and recycling:

- Newspaper articles: North Sound Navy News
- Tours: Compost and Recycling Center
- Special events involving more than 500 people: Count Down to Earth Day, Beach and Parks Clean, Dumpster Diving, Energy Awareness Month, America Recycles Day
- Training:
 - Energy Conservation: 40 employees quarterly
 - New Employee Indoctrination: 75 employees monthly
 - Spill Prevention and Response: 40 employees biannually
 - AEM/AEC: 50 employees quarterly

Agency Cooperation. NASWI conducts three annual Spill Response Drills. These events are attended by Washington State Department of Ecology (WDOE). The agency also attends regularly Spill Prevention Training to AEM and AEC. This training is an effective tool specific to the site which provides first response instruction to potential initial responders

Community Involvement. Public tours, open house events, and active participation in Partnership in Education. Each spring "Count Down to Earth Day" is celebrated with environmental and recycling activities. Military and civilian volunteers participate in cleanup projects of station grounds, beaches, roads, and forests.