

FY 2004
Secretary of Defense
Environmental Award Submission
Pollution Prevention
Non-Industrial Installation



Marine Corps Base Hawaii

INTRODUCTION - Mission, Population and Acreage. Our mission is to provide facilities and services that support combat readiness and promote the well-being, morale, and safety of military and civilian personnel that live and work aboard Marine Corps Base Hawaii. MCBH manages installations on 4,500 acres on Oahu, including Camp Smith, Kaneohe Bay, Marine Corps Training Area Bellows, Manana Family Housing Area, Pearl City Warehouse Annex, and Pu'uloa Range Complex. We support over 25,000 Marines, Sailors, civilian employees and family members working or living aboard MCBH. Over 10,000 retirees regularly access base facilities.

BACKGROUND - Environmental Challenges. The richness and sensitivity of natural resources in Hawaii is reflected by the fact that over 25 percent of all endangered species in the United States are found here. Cultural resources significant to native Hawaiians are greatly valued by outspoken advocacy groups. MCBH Kaneohe Bay is the most environmentally sensitive of all MCBH properties. We are surrounded by pristine waters that are of tremendous importance to the lives and livelihoods of many Hawaii residents; consequently, state water quality standards are more stringent than federal ones. Living coral reefs and threatened green sea turtles inhabit our waters, along with endangered humpback whales and Hawaiian monk seals. We are subject to many environmental constraints, such as endangered species habitat, historic sites, and erosion-prone coastlines. Aircraft flight paths are governed by noise impacts and accident risks to adjacent communities.

MCBH is a model steward of the naturally and culturally rich lands under its control while supporting combat readiness. Our greatest environmental challenge is successfully executing these potentially competing tasks. For MCBH, the best solutions involve pollution prevention (P2), recognized as a vital key to mission support and essential in conserving valuable military resources, while strengthening the trust of the local community.

Organization and Staffing. The Environmental Compliance and Protection Department was established in 1993 and is staffed by 30 military and civilian environmental professionals. In addition, nine contractor personnel operate our Hazardous Material Minimization (HAZMIN) and Hazardous Waste (HW) facility. Our programs are organized as follows:

TEAM	PROGRAMS	STAFFING
Pollution Prevention	HAZMIN, HW, EPCRA, P2 Initiatives, Oil and Hazardous Substances	3 civilians and 9 contractors
Compliance	UST, SPCC, Drinking Water, Storm Water, Wastewater, Oil-Water Separator, Air, Noise, Solid Waste, Recycling, Landfill, PCB, Installation Restoration	10 civilians
Conservation	Cultural and Natural Resources, NEPA	5 civilians
Sustaining	Emergency Response, Training, Environmental Management System (EMS), Environmental Inspectors, Budget, GIS, Information Systems Management	4 Marines and 8 civilians

Management Approach. We support a work environment that capitalizes on innovative ideas for using limited resources; integrating sustainable practices which meet the needs of the present without compromising the ability of future generations to meet their needs; having a commitment to consider the environmental effects of all mission-critical decisions; and assuming a leadership role to protect the environment in those decisions. We believe P2 is the solution to compliance issues and work to expand our sustainability efforts by using fewer resources in a more efficient way. While not a Marine Corps EMS prototype installation, we independently took proactive steps to implement EMS. In FY03-04, we established an EMS Team and completed a compliance self-audit plan, EMS implementation plan, installation-wide gap analysis, identification of objectives and targets for minimizing risk to mission, and an environmental policy statement signed by our Commanding General. EMS enables us to reduce our environmental impacts and increase our operating efficiency.

Partnering to Improve Stakeholder Involvement. Because P2 Program efforts increase efficiency, decrease waste, and result in enhanced mission capability, P2 initiatives are fully supported and actively promoted by the command and throughout the workforce at MCBH. P2 concepts have been successfully integrated into the daily operations of our base and tenant commands. We regularly publicize success stories to provide our customers with concrete examples of the innovative ideas they helped to create to improve the quality of our environment. Stakeholder involvement has been critical to the extraordinary success of the P2 Program.

PROGRAM SUMMARY - Objectives. We promote P2 as an integral part of supporting mission readiness; we reduce environmental liabilities and protect public health and the environment by eliminating/minimizing the volume and toxicity of hazardous substances used aboard MCBH; and use a systems approach to adopt a long-term strategy to ensure compliance, while protecting our unique island environment.

With hard work, proactive planning, innovation, and effective partnering, we consistently exceed the objectives established for our P2 Program. Aggressive goals were met by integrating P2 throughout all environmental compliance programs to achieve regulatory compliance at reduced costs, effectively utilizing land/water/air and financial resources, improving mission support and fostering community relations. We assimilated EMS into all environmental programs, identified priorities, provided training, and worked with practice owners to translate environmental requirements into work place actions. Inspections conducted by our regulators during FY03-04 yielded no violations. Monthly self-inspections are conducted at all work centers. Updated plans/permits during FY03-04 include: P2 Plan, Hazardous Chemical/Waste Management Plan, Comprehensive Environmental Training and Education Program Plan, Storm Water Pollution Management Plan, Solid Waste Management Plan, Pest Management Plan, and Recycle Center Permit-by-Rule.

ACCOMPLISHMENTS - Because we provide facilities and services that sustain the readiness of our troops, activities in support of our mission have the potential to impact our air, land or water resources. Seizing upon opportunities that these challenges present, effective program management, orientation to mission, stakeholder involvement, and innovative ideas that can be transferred to similar DoD installations resulted in improved mission readiness and tremendous cost savings as illustrated by the following outstanding accomplishments.

Material Substitution →*Toxic Chemical Elimination.* Methylene chloride, a suspected human carcinogen and a hazardous air pollutant, was used to control aircraft corrosion throughout MCBH. We aggressively targeted this chemical for elimination by the end of FY05. A fully automated, heated paint stripping system is being installed; ensuring personnel will spend less time and effort stripping parts by using safer chemicals in this high-performance system. To completely eliminate this chemical, product substitutes are being stocked at the HAZMIN Center and a portable maintenance facility that utilizes plastic blast media is being tested.

Process Modification or Improvement

→***Impressive Water Conservation.*** On the densely populated island of Oahu, water conservation is critical to preserving limited drinking water supplies. By using our Water Reclamation Facility effluent to irrigate our golf course, we saved 240M gallons of potable water, which translated into \$336,000 savings achieved in FY03-04.

→***Successful Partnering With Our Regulators Saves Money.*** Spent fluorescent bulbs require painstaking packaging for shipment for disposal or recycling. To save time, space, and money, MCBH researched and selected a bulb crusher with an advanced method of containing mercury vapors, saving MCBH \$4,500/year in disposal costs. We worked with our regulators to obtain a critical exemption from Universal Waste rules.

→***Saving Time and Money to Support Mission Readiness.*** By hiring a local company to recycle antifreeze on-site, spills are minimized and significant time is saved by our military. They no longer have to accumulate and properly dispose of antifreeze, or maintain an antifreeze recycler. In FY04, MCBH saved \$6,800 in purchase and disposal costs. Greater savings are anticipated as more units participate in this program.

→***Support Provided to Family Housing Residents.*** The Family Housing Reuse Room was established to divert household waste from the local landfill, save money and protect the environment. Housing residents now take useable, but unwanted HM to the Reuse Room. Anyone living or working aboard MCBH can take these materials home for their own use. This is a valuable service for families that are transferring to/from Hawaii.

→***Awareness and Education for Auto Skills Center Patrons.*** New procedures were initiated at the Auto Skills Center that includes revised Stall Rental Agreements, which describe how customers can minimize and manage wastes generated during vehicle maintenance. Because customers must read and sign this agreement each time they rent a stall, they are more aware of the wastes they generate and the importance of waste minimization practices such as not mixing wastes, not

using chlorinated solvents, and using rags to wipe off excess grease before using a parts washer. Oil eater boxes will replace an AST previously used to store used oil. Oil eater boxes, along with other oily wastes generated, will be burned for energy recovery at the City and County contracted incinerator, H-Power. Oil eater boxes minimize spills associated with storing and pumping oil from a storage tank. These initiatives reduce Auto Skills Center waste disposal costs by 77%.

→**Simple Changes Yield Substantial Savings.** Storing used oil in double-walled ASTs instead of 55-gallon drums saved us nearly \$28K/year in recycling costs. We switched from disposing of non-hazardous sandblast grit in 55-gallon drums to tri-walls, reducing the cost of disposing this waste stream from 32 cents per pound to 6.5 cents per pound. This initiative saves us approximately \$4,240/year in waste disposal costs.

Improved Material Management

→**\$1.4M Savings and Improved Readiness.** Our commitment to promote P2 as an integral part of supporting mission readiness begins with eliminating/reducing hazardous material (HM) usage. The Hazardous Material Consolidation Program (HCP) consolidates HM base-wide, improves inventory control, reduces operating costs, and minimizes HW. Currently, 90% of MCBH is covered under our HCP, and 100% participation will be achieved by March 2005. Our Hazardous Materials Minimization (HAZMIN) Center saved the Marine Corps nearly \$1.4M in FY03-04 by diverting over 55,000 lbs. of HM from disposal, redistributing the excess at no cost to units, and reducing the amount of effort (nearly 96,000 hours) expended by personnel managing HM. By significantly reducing personnel requirements to oversee HM, the HCP has enhanced the combat effectiveness of our fighting forces.

→**Outstanding Mission Support and Phenomenal \$1M Savings.** The HAZMIN Center was instrumental in supporting the 1106th Aviation Classification Repair Activity Depot (AVCRAD) out of Fresno, California during FY03-04. We provided personnel to manage compliance issues, shelf life, ordering, receiving, inventory tracking, and accountability of all AVCRAD HM. Since MCBH facilities were used for stripping and repainting Hawaii Air National Guard helicopters, we helped AVCRAD save \$1 million over a two-year period.

→**\$100K Savings Scored.** Attentive HAZMIN Center personnel questioned the turn-in of six highly classified cesium lamps for disposal. Research revealed the lamps were still new. By avoiding a costly, time-consuming demilitarization process, disposal and purchase costs, we prevented the unnecessary expenditure of \$100K.

→**Saving Our Troops Money While Providing Valuable Support.** When the Hawaii Army National Guard deployed to Operation Iraqi Freedom, we arranged to have nearly \$9K worth of their unwanted HM inventory transferred to our HAZMIN Center for redistribution at no cost to our tenant commands, saving them valuable operational funds. Similarly, coordination with the Navy enabled us to transfer 23 drums of aircraft soap worth \$8.6K from Pearl Harbor, saving purchase costs for the Marine Corps as well as disposal costs for the Navy.

Compliance with EO 13123, "Greening the Government Through Efficient Energy Management"

→**\$1.2M Savings.** Energy-efficient features are implemented in each funded project for alterations and new construction in our MCBH Energy Savings Performance Contract. Six task orders have been awarded for a total capital cost of \$7.3M, generating total annual savings of \$1.2M. Three water conservation projects were completed, replacing plumbing fixtures in older Unaccompanied Personnel Housing. Approximately 1,300 bathrooms were retrofitted with new fixtures, saving \$34,000 and 17 million gallons of potable water annually.

→**Phenomenal Energy Savings.** Previously, existing 1000W metal halide light fixtures in five aircraft hangars at MCBH remained on almost all day and night. Energy efficiency was improved when existing light fixtures were replaced with new 400W adjustable, dual reflector metal halide fixtures, together with a computerized day-lighting control system. The lighting control system enhances the overall energy efficiency by shutting down lights during unoccupied periods and by optimizing the use of available day-lighting through existing skylights and open hangar doors. Installation of the light fixtures by shop forces kept project costs within available budget. A \$41,475 rebate from Hawaiian Electric Company further lowered initial costs. The new system provides better light at all times, while using 50% less energy, saving \$134,000 during FY03, and annually thereafter. Teflon-coated bulbs eliminate environmental contamination in the event a bulb falls. The savings in

electricity reduces air pollution, since 96% of electrical power on Oahu is generated from oil and coal. The project reduces annual emissions by 2,414,900 lbs. of CO₂, 7,261 lbs. of NO_x and 6,363 lbs. of SO₂.

Recycling Program →***Deforming DOD Brass Shell Casings Sustains Program.*** The P2 Program purchased a brass deformer to process brass shell casings for recycling, relatively expensive and the only machine of this type on Oahu. MCBH was approached through the joint-service/State Dept. of Health, Hawaii Pollution Prevention Partnership to explore the possibility of deforming brass shells for all military, avoiding duplication of effort and investment. The State Department of Health streamlined the permitting process, which made it possible for MCBH to successfully form a cooperative partnership with several DoD recycling programs to process all military shells. This enabled Army, Navy, Air Force and Coast Guard installations to avoid having to spend funds to purchase expensive equipment that may be used infrequently; providing facilities for deforming; or training personnel. The MCBH Recycling Program now generates enough revenue from this initiative to sustain its operation and continue to be an environmentally responsible neighbor to the community.

Green Procurement →***Achieved Program Expansion.*** Our Green Procurement Plan establishes a preference program, an annual monitoring program, a promotion program and procedures for verification of green procurement. Training and resources are provided for all MCBH buyers and is incorporated into our Environmental SOP course, Senior Leaders training, and credit card training. In 2003, contracting, environmental, supply, credit card holders and engineering staffs were trained on procurement requirements, buying recycled products, balancing costs and benefits, and how to include green procurement and recycling requirements in contracts. A specification was also developed requiring contractors to use Green Procurement products in all construction projects.

Education, Outreach and Partnering

→***Motivated Children Recycle.*** The Recycling Program held its annual Mokapu Elementary Recycling Aluminum Can Challenge on America Recycles Day Nov 2002 and 2003. At the conclusion of each 4-week competition, the pre-school/kindergarten class collected an amazing 182 pounds of cans (FY03) and the first grade collected 199 pounds (FY04), each winning the coveted prize of a class pizza party and a field trip to the Base Recycling Center to see their recyclables crushed, compacted, and baled.



→***Committed Partnership Between DoD and Our Regulators.*** Representatives from EPA Region IX, State of Hawaii Department of Health, Coast Guard, Defense Logistics Agency, and DoD installations in Hawaii officially formed the Hawaii Pollution Prevention Partnership (HP3) to develop model P2 initiatives, improve information exchange and protect our unique island environment, while maintaining national defense and community well being. Meetings held every quarter with committed members of DoD and our regulators help us develop economical and innovative P2 solutions to environmental compliance issues. MCBH hosted the HP3 meeting in June 2004 and led a tour of our protected seabird colony.

→***Critical Training Conducted.*** In the classroom and out in the field, monthly New Arrivals Orientation briefs and quarterly Hazardous Chemical/Waste Management classes raised the awareness and educated over 2,300 base personnel on their role in preventing pollution and the efforts of the Environmental Department to support them. Topics included EMS, current P2 projects, HM reduction goals, environmentally-friendly HM substitutions, recycling and diversion practices. User-friendly handouts were distributed to provide information and points of contact for questions related to HM, HW, recycling, and P2.

→***Community Outreach.*** During FY03-04, we hosted 215 visitors in various outreach events and tours to the HAZMIN and Recycle Centers to showcase our P2 efforts. Guests ranged from the U.S. Secretary of Energy, U.S. Deputy Director of the EPA, and citizens from neighboring community organizations. We regularly participate in beach clean-ups, Special Olympics, and various community enhancement projects

→**Published Articles Encourages Base-wide Involvement.** Articles published in the base newspaper, *Hawaii Marine*, helped publicize newly-implemented P2 initiatives, such as establishment of the Family Housing Reuse Room and waste minimization procedures being instituted at the Auto Skills Center.

Reductions Achieved

- Weapons cleaning systems utilizing a non-toxic solvent reduces the time it takes to clean a weapon by 50%. Over 3,000 weapons are cleaned per week at MCBH, equating to an annual savings of \$4 million, which allows 360,000 Marine hours per year to be redirected towards mission essential duties.
- The MCBH Energy Management Program instituted proactive measures to achieve energy efficiency. New systems installed for lighting aircraft hangars saves \$134,000 annually and reduced annual emissions by 2.4M lbs. The Energy Savings Performance Contract generates total annual savings of \$1.2M.
- Our HAZMIN Center saved the Marine Corps \$1.4M in FY03-04 by diverting over 55,000 lbs. of HM from disposal, redistributing excess at no cost to units, and reducing military labor required to manage HM.
- By using Water Reclamation Facility effluent for golf course irrigation, savings of 240M gallons of potable water, or \$336,000 were achieved FY03-04.
- Aggressive efforts to target elimination of methylene chloride were achieved through the purchase of a heat paint stripping system, which utilizes non-toxic chemicals, significantly reducing military labor.



Reduced Environmental Liability Enables Operating Forces to Focus On Mission Readiness

SUMMARY →Model Stewardship. Marine Corps Base Hawaii continues to be a model steward of the naturally and culturally rich lands under its control, while providing responsive support to our operating forces to strengthen global power projection and improve the quality of life. We have shown that the best P2 ideas not only achieve compliance with environmental laws and regulations, they also increase combat readiness through increased efficiency, as evidenced by phenomenal cost and labor savings achieved. With effective program management, stakeholder involvement, and innovative ideas, MCBH continues to set the standard for environmental stewardship and sustainability, while providing uncompromising support to our nation's defense.