

Inside

.....

Environmental
Management
Systems

3

Waste/Pollution
Prevention

5

Recycling

8

Green
Purchasing

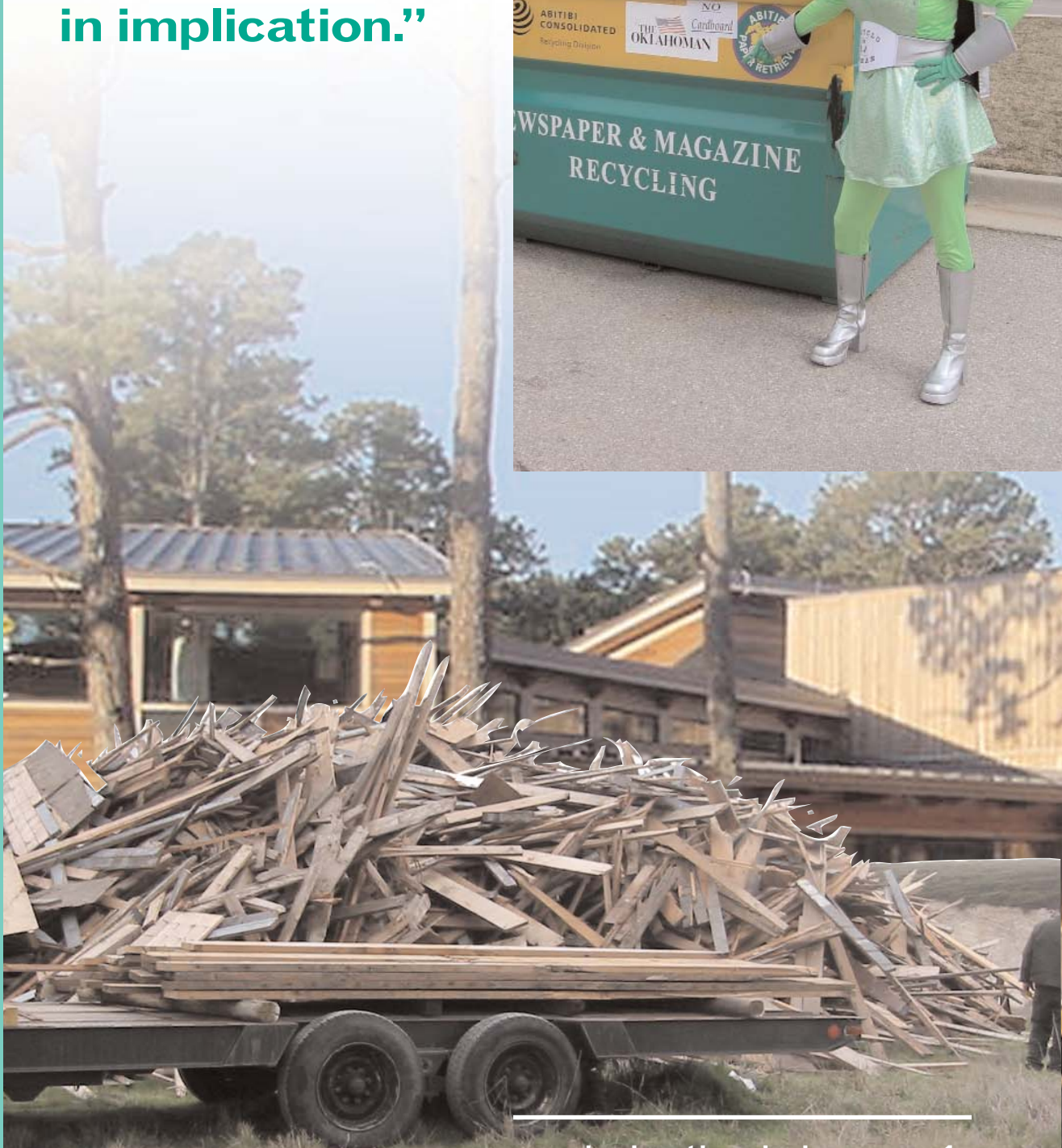
11

Sustainable
Design/Green
Buildings

13

Closing the Circle News

“Sustainable practices not only improve the environment, but are long term in implication.”



Sustainable practices are those practices, technological applications, and methodologies that not only improve the environment, but also go beyond and do so in a way that is more long term in thinking and implications. Specifically, OFEE focuses on the practices of waste and pollution prevention, recycling, sustainable or green buildings, and green purchasing. We believe that the use of Environmental Management Systems (EMS) is the primary management approach to determining, prioritizing, implementing, and improving upon those environmental issues that will lead to sustainable environmental stewardship.

Over the past year, Federal agencies continued their efforts to adopt these practices and implement them in their organizations. New levels have been reached in environmental excellence, with innovative techniques and strategies being employed nationwide. The 12 White House Closing the Circle Award winners from 2004 showed accomplishments in environmental stewardship that go above and beyond the rest. The success stories of the agencies are as diverse as the agencies themselves.

Battelle Memorial Institute efficiently and effectively applied an EMS to its three national laboratories, allowing for the improvement of environmental practices through information sharing. In order to make green purchasing easier at Homestead Air Reserve Base, the base environmental department, headed by Larry Ventura, created an “Environmentally Friendly Products Section” at the local

Base Supply Store. Unique ideas for waste prevention have helped a histopathology laboratory supervisor, Mark Boyers of the New Mexico Veterans Affairs Healthcare System, direct the use of a variety of toxic chemicals and organic solvents and focus on innovative ways to reduce the waste generation and environmental impact of these materials. Vandenberg Air Force Base, under the guidance of Patrick Maloy, has obtained an astounding 92.9 percent diversion rate for calendar year 2003 and has helped the base avoid over \$2 million in landfill disposal costs.

These individual endeavors have made, and continue to create, an important impact on the environment in their respective regions. This commitment to progress in sustainable environmental stewardship can be used as a tool for facilitating further action in the Federal government. The accomplishments of one agency can provide the knowledge, framework, and resources necessary to improve the practices of others, both in the public and private sectors. Through continued diligence, innovative technological advancements, and the passionate pursuit of environmental improvements, the Federal government will one day stand as the paradigm for environmental stewardship. We are pleased to be able to share this year’s award-winning programs with you.

Edwin Piñero
Acting Federal Environmental Executive



EMS – Military

Sustainable Fort Bragg SMS Team: The Right Way, The Green Way, All the Way! (Fort Bragg, NC)

Fort Bragg maintains a vast infrastructure of roads, buildings, parks, and training areas. With a daytime population of more than 100,000 people, it is a city unto itself. Its successful operation requires clean air and water, thousands of kilowatt-hours of electricity, and expansive, undamaged training areas to effectively train troops. The need for expanded use of these resources continues to grow, which creates substantial environmental challenges due to the resources' limited availability. Only with a truly sustainable approach can the base continue to maintain readiness and fulfill its mission.

Fort Bragg implemented a Sustainability Management System (SMS) that combines the ISO 14001 Environmental Management System framework with the base's recently completed Integrated Strategic Sustainability Plan. This approach focuses on Fort Bragg's theme of: "Sustainable Fort Bragg . . . The Right Way - The Green Way - All the Way" -meaning that the SMS policy directs compliance with environmental laws and regulations (The Right Way), incorporates pollution prevention measures (The Green Way), and continually improves environmental practices (All the Way). Base Commanders recognized that sustainability planning offers a possible solution to reduce the risk of threats to the installation's preparedness, such as incompatible land use and limited natural resources. Fort Bragg used its overall vision as a guide when developing the SMS, and the "Plan-Do-Check-Act" model has been implemented to assure its continual improvement.

The vision of Fort Bragg's SMS combines achieving military goals while remaining a steward of the environment. Fort Bragg has made a concerted effort to provide soldiers with training to ensure mission success without compromising local or regional environmental quality. These actions confirm the commitment the base has made to being recognized as a world leader in practicing global citizenship while promoting sustainable values. The base is continuously seeking new technologies, communicating

manual defines the mission of the SMS and provides an overarching roadmap of policies and procedures. The manual documents the installation's environmental policy within the Installation Strategic Plan, and sets guidelines in such areas as compliance, roles of responsibility, training opportunities, enforcement of operational controls and documentation, emergency preparedness and response, monitoring and measurement of key factors, audits, and management overview. The SMS Implementation Plan is an easy reference document that will provide the means to identify significant aspects in relationship to the responsible business center or activity. The plan identifies the ISO 14001 requirements for an EMS, references the correlating SMS procedures, identifies the responsible party, and establishes a timeline for completion of the SMS procedure. The SMS framework also allows senior leadership to review goals and targets, and team leaders and managers to track progress towards goals for corrective action.

The SMS policy is now inserted into contracts and distributed to military and civilian personnel, so that both base personnel and support contractors are aware of the SMS.

The base uses teams to implement the goals established in the SMS. For example, utilizing a team approach, the installation addressed air quality impacts, which led to the use of a shuttle bus system and the conversion of heavy equipment used for range maintenance from JP-8 fuel to biodiesel. Other successes include a 59 percent landfill diversion rate, construction and demolition debris recycling, and curbside recycling.

The formulation of distinct long-term goals not only protects Fort Bragg's mission, but also shows the installation's continued efforts to provide greater overall benefit to the installation and the surrounding community now and in the future. This commitment has been recognized by State and Army leadership, which has made Sustainable Fort Bragg the new model for installation planning. For more information, contact Christine Hull at (910)432-8873, or by email at hullcg@bragg.army.mil. ■

Fort Bragg's first "gold" SPiRiT rated building is the new home for the Army's Golden Knights professional parachute team.

EMS – Civilian

Battelle Memorial Institute – Laboratory Operations Group: Corporate Commitment to Environmental Stewardship and Environmental Management Systems (Columbus, Ohio)

The corporate commitment to environmental stewardship and the creation of enhanced Environmental Management Systems (EMSS) show the continued dedication of Battelle's Laboratory Operations Group to its own mission as well as to Executive Order "Greening the Government Through 13148." Three of the Battelle-managed laboratories have EMSs that focus on environmental hazard identification, control, and monitoring. These EMSs go beyond ISO 14001 by placing additional emphasis on achievement of full compliance, pollution prevention, and effective and focused communications and community outreach. Both the Brookhaven National Laboratory (BNL) and Pacific Northwest National Laboratory (PNNL) EMSs are ISO 14001 registered, with Oak Ridge National Laboratory (ORNL) currently undergoing its registration audit. The registered laboratories have shown \$6.8 million and \$9.8 million, respectively, in cost savings/avoidance from pollution prevention within a four-year period.

Battelle Columbus generated significant savings through implementing its Pollution Prevention Plan, which calls for material substitution and process modification to minimize

low level radioactive and mixed waste prior to generation. In 2001, Battelle Columbus used diamond wire saw technology to reduce the size of an activated concrete/steel rebar bioshield wall as an alternative to traditional demolition. This process saved an estimated 26 cubic feet in packaged low-level radioactive waste volume and created \$1.5 million in avoided disposal costs.

BNL's Pollution Prevention Council involves line organizations in proposing return-on-investment projects that they then have a vested interest in implementing.

PNNL Facilities and Operations has developed a system to establish specific goals, assign responsibility, develop project plans that include schedules, milestones and resource assignments, and track performance.

Examples of successes in the EMSs of the individual laboratories are numerous. ORNL's electronic Research Safety Summary generates the equivalent of an operating procedure, complete with requirements. Its online purchasing systems require management approval to use chemicals that could result in hazardous waste generation and have successfully reduced the number of unique chemicals procured by more than 50 percent. The LEED Silver-rated buildings of the East Campus employ the use of energy efficient roofs, low emission materials, recycled-content materials, and native landscaping. Both ORNL and BNL have projects to dispose of legacy waste and made significant investments in expediting its removal.

Battelle continues to communicate efficient and effective management strategies throughout the labs, including EMS development and implementation, innovative work planning and control processes, and the use of Standards Based Management to deliver requirements to the laboratory staff. As a result, Battelle and the laboratories have observed improved accountability; reductions in hazards, waste generation, and resource use; cost savings in regards to pollution prevention; and improved compliance status. Battelle's Environmental Management Systems have helped to set the standard for other laboratories and organizations. Other DOE sites, the Department of Defense, educational institutions, and industrial clients are coming to Battelle to learn from their success stories and also are requesting assistance with the development of future EMSs.

For more information, contact Susan Briggs at (614) 424 5351, or by email at briggs@battelle.org. ■



Battelle raises its Performance Track flag at its Pacific Northwest National Laboratory (PNNL) to announce that it is a member of this EPA program.

Waste/Pollution Prevention – Military

Environmental Management Directorate: Taking Strides Forward in Pollution & Waste Prevention at Robins AFB (Robins Air Force Base, GA)

Robins Air Force Base is home to Warner Robins Air Logistics Center and more than 60 other units that make up a vital part of the Air Force war fighting team. One of the Air Force's five air logistics centers, Warner Robins Air Logistics Center has worldwide management and engineering responsibility for the repair, modification and overhaul of the: F-15 Eagle; C-130 Hercules; C-141 Starlifter; all Air Force helicopters; and all special operations aircraft and their avionics systems. The base's dedication to providing mission success, however, has not hindered its efforts to become the leading environmental steward within the Air Force.

Robins is situated on 8,800 acres of upper coastal plain, of which 2,250 acres are natural wetlands and 600 acres are mixed hardwood and pine forests. It is the largest industrial complex in Georgia, employing a work force of over 25,584 civilian, contractor, and military members. The installation serves as a glowing success story for waste and pollution prevention, with the Environmental Management Directorate placing continued emphasis on taking strides forward. These efforts have led to reduced waste generation; reuse of materials; reduced waste disposal; less toxic materials being used in industrial processes; and cleaner air, land, and water for everyone in the middle Georgia area.

Robins is leading the Air Force in baselining waste-stream flow and acting to reduce or eliminate it. Successes include testing an aircraft paint coating that could potentially save \$75 million annually by eliminating 97 percent of hazardous waste, reducing the use of materials by 65 percent, and reducing labor hours. Robins also developed the first functional Compliance Site Inventory (CSI) in the Air Force Materiel Command. Providing a systematic process for reducing compliance costs and associated risks, 2,797 compliance sites were assigned to 169 process specific groups to associate hazardous materials and wastes, air/water pollutants, safety/health, mission impact, and past audit findings. The system is an outstanding method of identifying, ranking, and programming pollution prevention projects.

Compliance Through Pollution Prevention (CTP2) and continuous process improvement were achieved as seen in Process Specific Opportunity Assessments (PSOAs) which established road maps for reducing and eliminating hazardous chemicals in depot operations. Robins has successfully replaced methyl ethyl ketone in regulated sources, identified non-hazardous solvents for paint gun cleaning, and replaced hazardous air pollutants (HAP) in aircraft integral fuel tank cleaning operations. Many such efforts are already in the implementation phase with prototypes operating successfully.

Attempts to prevent pollution throughout its operations have led to a variety of changes, such as use of a new flightline vacuum

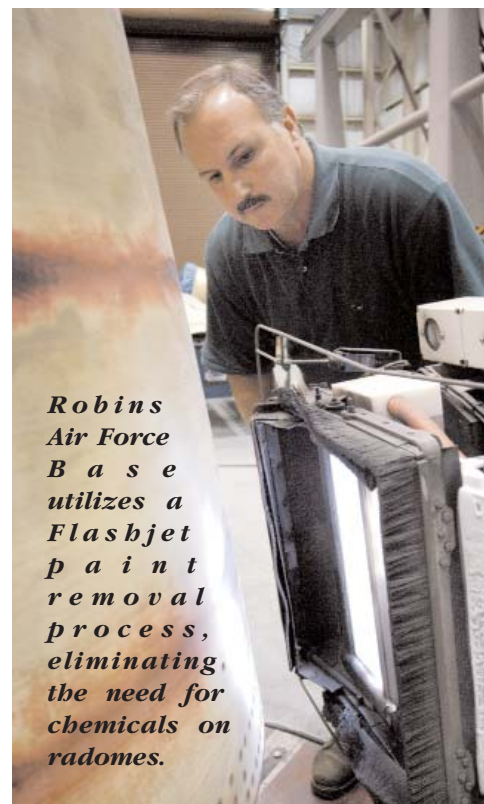
engine coolant, purchases re-refined lubricating oil, and uses antifreeze that has been recycled through a reclamation unit. Recycling of hazardous hexavalent chrome from industrial processes diverted 856 tons of waste from the solid waste stream. The base also is using alternative fuel vehicles, using an alternative solvent, starting green construction projects, and trapping bullets from the small arms range.

Robins has a small arms range for training Air Force personnel, primarily for the M-16 rifle, 9mm pistol, and shotgun. Previously these rounds were fired into a dirt berm, where the lead accumulated in the soil. After extensive research by the Environmental Management and Security Forces that operate the range, it was determined that traps using low angle steel plates to deflect the bullets into a cylindrical deceleration chamber were the best option. The system keeps the bullets intact while generating the lowest levels of lead particles and dust. The unit is approximately 150 feet wide allowing for roughly 25 firing positions, and includes a vacuum dust collection system that draws air through the front of the trap into a filter unit to prevent any lead dust from escaping. It also features a pneumatic system that moves the spent bullets from the trap to a drum for recycling. These two items greatly reduce exposure to lead for the workers at the range.

The duties and responsibilities of Robins Air Force Base are vital to the safety and security of Americans both domestically and abroad. The task for Robins is simple; ensure mission success. This, however, has not limited the scope of its environmental stewardship. Robins continues to dedicate itself to improved environmental practices, making it an excellent example of the successes that can be achieved through waste and pollution prevention.

For more information, contact Linda Larson at (478)926-1197, or by email at Linda.Larson@robins.af.mil. ■

waste collection process. These changes are responsible for a 41ton decrease in waste per year, which translates into almost \$100,000 of savings annually. Robins was able to reduce its use of CFC-113, a Class 1 ozone depleting substance, from 5,000 lbs. per year to just 1 lb. through the introduction of a safer alternative. The base uses reclaimed



Robins Air Force Base utilizes a Flashjet paint removal process, eliminating the need for chemicals on radomes.

Waste/Pollution Prevention – Civilian

Federal Law Enforcement Training Center: Green Ammunition (Glynco, GA)

The Federal Law Enforcement Training Center (FLETC) serves as the Nation's lead organization for interagency law enforcement training, providing basic and advanced training for 75 diversified Federal law enforcement organizations. The FLETC primarily trains Federal officers, but also serves state, local and international law enforcement communities with training programs tailored to their special needs. Annually, FLETC provides approximately 40,000 students with 250,000 student-weeks of training through the simultaneous execution of more than 300 different training programs.

FLETC's use of reduced hazard training ammunition demonstrates a concerted effort to prevent waste and pollution within its facilities. This project also shows how Federal purchasing power can help to influence the types of products available in the marketplace. FLETC manages 54 ranges and has accounted for 20 million rounds of fired ammunition, a number that is only exceeded by the military. Presently, only 25 percent of the training ammunition contains lead. This is a staggering improvement from 1997 when 100 percent of the ammunition was lead! The lead waste from the training sites has been reduced by more than 35 tons.

Acknowledging that move-and-shoot survival courses have an increased training risk, the Firearms Training Staff recognized that traditional duty, service ammunition posed additional dangers. Although FLETC possessed "total containment" ranges which minimize environmental concerns, it realized that continued use of lead ammunition would not only have a profound negative impact on the safety and health of the instructors and students, but would seriously restrict training exercises involving the use of steel targets because of the increased risk of ricochet and splash back.

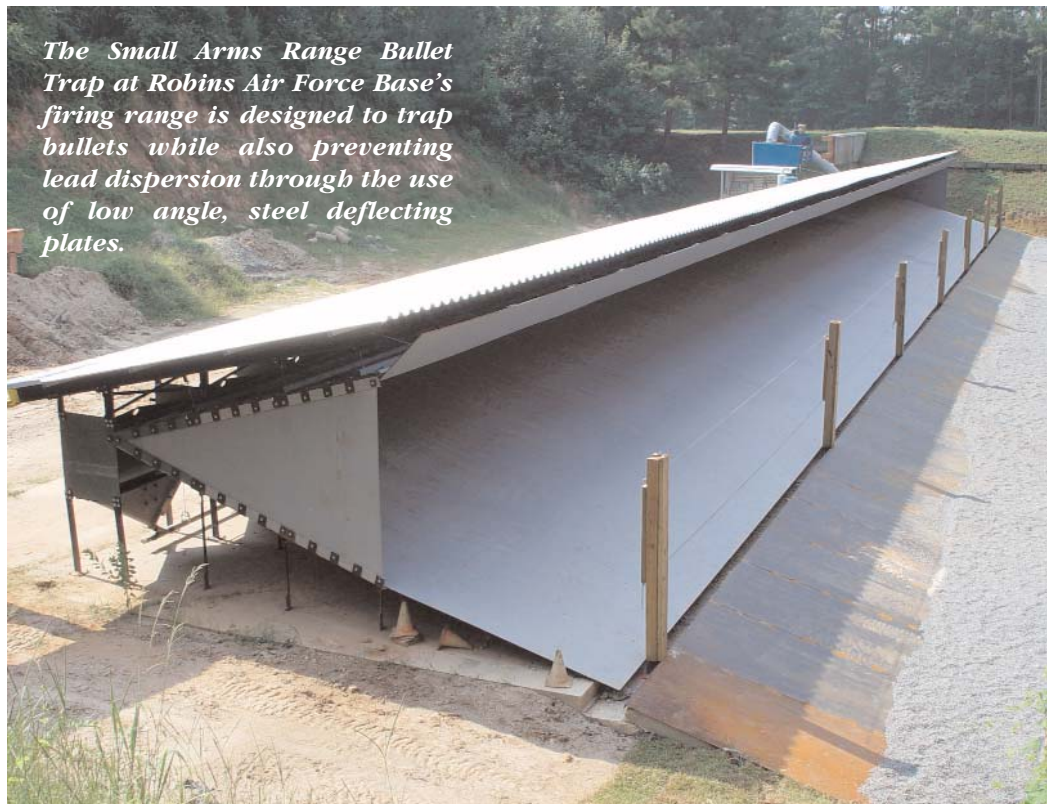
FLETC requested that manufacturers produce reduced hazard ammunition (RHA) having the same performance characteristics as traditional ammunition without the associated health and safety risks for the students, staff, community, and environment. FLETC supported product development by establishing \$43 million worth of

contracts over a three-year period, which allowed manufacturers to invest large amounts of funding into product research and development. These efforts resulted in substantial reduction in contract prices upon their renewal in 2003. As of September 2003, more than 30 agencies used the FLETC contracts to purchase RHA directly from the

manufacturers without any added surcharge. Presently, there are a total of 12 contracts with an ordering capacity in excess of 3 billion rounds of 20 different small arms RHA calibers. RHA usage has made lead levels negligible within the bodies of instructors, and as a result, blood tests for detecting high levels of lead are no longer mandatory. The facilities have also been able to avoid high costs and prevent waste when managing and disposing of hazardous materials. Physical barriers have been constructed to prevent lead migration into the environment, while also effectively addressing the issue of noise pollution prevention for the surrounding areas. Efforts have also been made to employ various techniques and a variety of equipment to effectively and efficiently capture lead waste and prevent it from being absorbed by humans and the environment. FLETC utilizes administrative controls for continually improving range cleaning, maintenance, recycling, and waste disposal. The state-of-the-art firing ranges have become models for the industry based on these design features of sound attenuation and lead recovery and containment.

For more information, contact John Dooher at (202) 233-0260, or by email at John.Dooher@dhs.gov. ■

The Small Arms Range Bullet Trap at Robins Air Force Base's firing range is designed to trap bullets while also preventing lead dispersion through the use of low angle, steel deflecting plates.



Waste/Pollution Prevention – Civilian

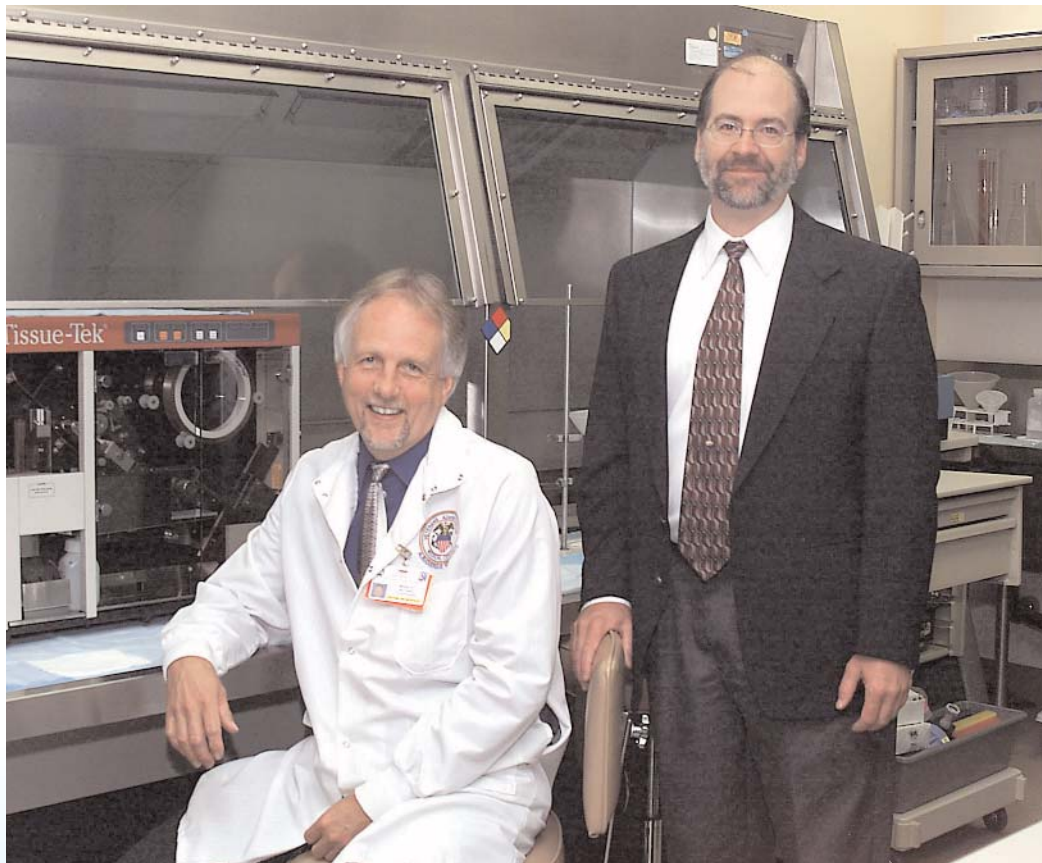
Mr. Mark D. Boyers -
New Mexico VA Healthcare System:
Hazardous Waste Reduction at the
NM VA Healthcare System (Albuquerque, NM)

As the laboratory supervisor, Mr. Mark Boyers implemented procedures to prevent a variety of regularly used toxic chemicals and organic solvents from reaching the environment. Mr. Boyers is pictured here with Dr. Larry Massie.

Mark Boyer's waste prevention efforts at the New Mexico VA Healthcare System are unique because of the nature of histopathology laboratories, which use a variety of toxic chemicals and organic solvents to create microscopic diagnostic slides from human tissue. As the laboratory supervisor, Mr. Boyers implemented procedures to prevent a variety of regularly used toxic chemicals and organic solvents from reaching the environment. His successes have been numerous and are connected to the continual examination of the procedures utilized within the laboratory.

Recycling xylene, an organic solvent, is possible within the laboratory; the reconfiguration of the recycling still saves the laboratory 40,000 gallons of potable water per year. An astounding 173,000 gallons of distilled water and 68 gallons of organic solvents are saved per year by using more efficient instrumentation.

Other successes include reducing the use of fixatives containing both picric acid, from 63 liter to 0.1 liter per year, and formaldehyde, by 36 liters per year; reducing mercury usage by 70 percent per year, and eliminating it completely in some areas; filtering 152 liters of carcinogen waste and concentrating it to 1 liter of waste; and reducing reagent use and hazardous waste by 624 liters per year in 2003. Even actions as simple as reducing packaging by purchasing bulk chemicals have had an effect on minimizing waste



generation. For example, the bulk purchase of chemical buffers resulted in a \$600 savings and reduced waste by 29 plastic chemical containers per year.

All of these procedures can be implemented in other laboratories both within and outside the VA system. Some procedures require acquisition or modification of equipment such as recycling stills and strainers for their implementation. Many others could be implemented through recognizing the value of small procedural changes. Mr. Boyers is an excellent illustration of the difference that can be made simply by remaining ever mindful of waste and pollution prevention.

For more information, contact Mark Boyers at (505)265-1711, or by email at Mark.Boyers@med.va.gov. ■

Recycling – Military

Tinker Air Force Base Solid Waste / Recycling Team: Rejuvenation of Base Recycling Program at Tinker AFB (Oklahoma City, OK)

Tinker Air Force Base rejuvenated a declining recycling program by changing its collection system and increasing education and outreach. The decline in recycling significantly increased the quantity of waste requiring disposal. To accomplish its goal for an improved recycling program, Tinker AFB switched responsibility for white paper collection to the Qualified Recycling Program and utilized innovative outreach activities to increase recycling awareness both on-base and throughout the community.

The facility purchased new, and more clearly marked, recycling containers, which were placed throughout the base to make it easier to collect and recycle white office paper. The number of on-base white paper pick up locations increased from 300 to 700. By increased focus on regular pick-up, delivery, and proper placement of the new recycling containers, the team was able to significantly increase the amount of paper recycled. These efforts resulted in a 120 percent increase in recycling with recycling revenues of

more than \$3,000 per month. It is now mandatory that all of the base's industrial facilities recycle white paper and corrugated. To improve recycling in base family housing, Tinker purchased new color-coded collection bins for newspapers, aluminum cans and glass, and new slotted dumpsters to segregate waste materials from recyclable corrugated. The team procured the most customer-friendly bins available and even had wheels installed on them to facilitate easy movement to and from curbside. The solid waste recycling team developed and mailed out informational flyers to all base residents, and after convincing base leadership of the program's importance, the Base Commander signed out a letter to all residents encouraging their participation in curbside recycling. Due to the team's dedicated efforts, curbside recycling has seen almost a tenfold increase since November 2002!

The team developed user-friendly specifications for base construction projects to ensure that construction and demolition waste is properly tracked and that actions are taken to recycle these wastes whenever possible. The wooden pallet recycling program was created in an attempt to divert several thousand damaged pallets from landfill disposal each year. In the first month of operation alone, more than 800 pallets were collected!

Community outreach and awareness is an integral part of

Tinker's strategy to increase recycling on base and in the surrounding areas. Efforts to educate do not stop with base personnel; Tinker strives to enhance the recycling knowledge by talking with schools and area youth. The team used Tinker's recycling super-duo, Recycloman and Recyclowoman, to make a dull subject fun. These two characters use their super powers for good to spread the word about recycling.

Overall the solid waste diversion rate has increased from approximately 30 percent to more than 47 percent, which is well above the DOD mandated goal of 40 percent. The recycling team's motto - Be earth friendly! Recycle!

For more information, contact Trudi Logan at (405)734-5199, or by email at Trudi.Logan@tinker.af.mil. ■



Recycloman and Recyclowoman help Tinker Air Force Base spread the word about the importance of recycling.

Recycling – Military

Patrick Maloy – Vandenberg Air Force Base:
Vandenberg AFB QRP Exceeds
90% Diversion Rate
(Vandenberg AFB, CA)

The Vandenberg AFB Qualified Recycling Program (QRP), headed by Patrick Maloy, has achieved numerous waste reduction and recycling successes not only on base, but also in the surrounding community. The astounding 92.9 percent diversion rate for calendar year 2003 has helped the nation's third largest Air Force Base reach \$2.2 million in avoided landfill disposal costs. Much of Mr. Maloy's success can be attributed to a fully integrated closed loop solid waste management program. In order to maximize solid waste reduction and recycling, Mr. Maloy implemented a management strategy that entails affirmative procurement initiatives, characterization of waste generation processes through waste audits, proactive application of recycling/reuse opportunities, and an aggressive community outreach program. This strategy ensures full support of the Air Force mission as well as maintaining important and essential relationships with the local community and addressing its needs through partnership with local organizations.

The Class III landfill at Vandenberg AFB has the largest remaining disposal capacity of all five landfills in Santa Barbara County. After learning that more than 50 percent of the waste at the base landfill came from a neighboring penitentiary, Mr. Maloy founded a partnership with the Department of Justice and the Federal Bureau of Prisons, helping to facilitate waste reduction and recycling at the prison. The partnership will include audits at three Bureau of Prison facilities as part of a

Vandenberg Air Force Base's on-site asphalt and concrete crushing operations saved nearly \$250,000 in material cost and diverted more than 14,000 tons of inert debris in its first five months.

mutual goal to implement a recycling and reuse program.

Vandenberg recycles a wide variety of materials. Mr. Maloy established on-site asphalt and concrete crushing operations saved nearly \$250,000 in material cost and diverted more than 14,000 tons of inert debris in its first five months. Projections for the first full year

of operation are around 40,000 to 75,000 tons of material. Vandenberg reuses bioremediated soil for land reclamation instead of digging burrow pits to cap the rubble yards; this reuse project provides a cost avoidance of \$1.3 million in contaminated soil removal. Mr. Maloy also began evaluation of past, present, and future planned construction and demolition projects on Vandenberg AFB, resulting in the reuse of 22,000 tons of construction and demolition materials, with savings of more than \$560,000. Projections for calendar year 2004 suggest a cost savings of more than \$3.7 million from debris reuse alone.

Green waste is reused on base to prevent erosion on the slopes surrounding the 140-acre landfill. This approach puts this material to productive use while allowing the base to take diversion credit. The base's implementation of a Biodegradable Bag Program provides bags for green waste, helping to facilitate the composting operations scheduled to commence in calendar year 2005.

The goal of the Mr. Maloy's solid waste outreach program at Vandenberg AFB is to obtain base personnel support for recycling, reuse, affirmative procurement and waste reduction activities and practices. The base now has an A-Z guide to solid waste, a deconstruction manual that is made available to contractors, a monthly waste audit program for on-base facilities, and annual events and activities on both America Recycles Day and Earth Day. Educational efforts extend to development and expansion of recycling programs at on-base schools, as well as organizing student educational field trips to the base recycling and landfill operations.

For more information, contact Patrick Maloy at (805) 605-0544, or by email at Patrick.Maloy@vandenberg.af.mil. ■



Recycling – Civilian

Federal Correctional Complex: Recycling Program at the Federal Correctional Complex (Coleman, FL)

is used to maintain and improve the facility and its program. Through diversion, reclamation, and purchases made with revenue generated from sales, FCC Coleman's Recycling Program now boasts nine bailers, seven trailers, four lift trucks, one vehicle, two electric carts, and a fluorescent bulb processor.

The Federal Correctional Facility encompasses more than 1,400 acres in Coleman, Florida, and consists of four inmate facilities and one administrative building. FCC Coleman has a staff of approximately 1,100 and an inmate population of more than 5,000 offenders. Because of its size and location, it has made quite an impact on the infrastructure of rural Sumter County along with the surrounding environment.

Although located in a rural region, FCC Coleman established a comprehensive recycling program that diverts materials from disposals and created new, local markets for recyclables. Since the facility began using the recycling center four years ago, 2,540 tons of materials have been diverted from the waste stream — positively impacting the environment and the facility's bottom line by \$300,000 in revenue and avoided costs.

The Bureau of Prisons is using this facility as a paradigm in its continuous efforts to meet the challenges of increased inmate population, increased fiscal responsibility, and sustainable environmental stewardship. FCC Coleman was able to address, meet, and exceed these challenges through a comprehensive recycling program that is available to inmates and facility staff. The use of surplus equipment, along with consolidation of the facility's available resources led to the development of an on-site Recycling Center. Additional equipment and resources were brought on line by reclaiming and refurbishing items in FCC Coleman's waste stream.

The center handles the recycling of corrugated, other paper, ferrous and non-ferrous metal, plastic, batteries, lubricants, antifreeze, cooking grease, and various others materials. In addition, wood waste and wooden pallets are recycled into mulch that can be used for all on-site landscaping needs. Recycling revenue

The rural location of FCC Coleman presents other unique challenges. Waste removal contractors capable of handling accounts as large as FCC Coleman's are not readily available. Therefore, the primary goal of the recycling program is to divert as much waste material as possible from the solid waste stream, reducing dependence on outside disposal sources. Because there were no readily available markets for its recyclables, FCC Coleman worked with local vendors to develop product markets. Recovered materials are marketed to these local vendors to support the local economy.

A key aspect of the program's success is the training of inmates as well as staff. Staff members are encouraged to participate in the program and are recognized for their assistance. Inmates have the ability to access and to use recycling drops located throughout the FCC Coleman. Additionally, recycling training is a part of the inmate Admission and Orientation Program conducted by the Safety Department and is included in annual refresher training for staff.

For further information, contact J.R. Robbins at jrobbins@bop.gov. ■



Wood waste and wooden pallets are recycled on-site to provide mulch for all of the Federal Correctional Complex's landscaping needs.

Green Purchasing – Military

Environmental Flight - Homestead Air Reserve Base: Environmentally Friendly Products Section at Homestead Air Reserve Base Store (Homestead, FL)

The 482d Fighter Wing maintains and operates Homestead Joint Air Reserve Base, located near the southern end of the Florida peninsula, about 25 miles south of Miami. It is a fully combat-ready unit capable of providing F-16C multi-purpose fighter aircraft, along with mission ready pilots and support personnel for short-notice worldwide deployment. The wing has more than 1,500 members, including approximately 1,200 reservists, of which 250 are full-time reservists, in addition to 300 full-time civilians. The base mission comprises training and equipping reservists to respond to wartime and peacetime tasks as directed by higher headquarters.

Homestead developed an Affirmative Procurement Plan in April 2001. The plan established specific objectives, goals, and procedures, and includes formal reporting, forms, market research, and fact sheets. It includes environmentally preferable and biobased products as well as recycled content products. The base also created an Affirmative Procurement Committee comprised of many of the base's operating organizations.

In June 2002, to make it easier to find products, Homestead created an Environmentally Friendly Products Section at the base supply store. The formation of this section began with a representative from the base environmental department conducting a complete inventory of all the items at the Base Supply Store, including store and Javits-Wagner-O'Day (JWOD) inventories. The amount of recycled content in each product was noted, as well as whether the product had other environmental attributes, such as if it was a biobased product or biodegradable. As current supplies were depleted, they were replaced with green

products. With continued promotion of the new section, along with consumer education, the base supply store has helped to increase green purchasing on Homestead.

This Environmentally Friendly Products Section was further promoted through classroom and web-based training sessions for all Government

Wide Purchase Card holders. Homestead continues to provide monthly training sessions for the latest members of the base community. During the training, affirmative procurement is explained and stressed, as is the need to buy from the base supply store. At this time more than 200 personnel have received this training.

The base supply store is currently in use and is operated by the Industry for the Blind. The store helps those on base avoid the time-consuming research process, while assuring customers that all the items purchased from the Environmentally Friendly Products Section are both green and meet the JWOD requirements. The green products section has been so successful that it already has expanded three times!

For more information, contact Larry Ventura at (305) 224-7163, or by email at Lawrence.Ventura@homestead.af.mil. ■



Larry Ventura, of Homestead Air Reserve Base, spearheaded the effort to create an Environmentally Friendly Products Section at the Base Supply Store.

Green Purchasing – Civilian

Green Construction Purchasing Team - Sandia National Laboratories: Five Keys to Success: Continuous Improvement for Construction Purchases (Albuquerque, NM)

Since 1949, Sandia National Laboratories (SNL) has developed science-based technologies that support national security. Today, more than 272 million Americans depend on SNL's technology solutions to solve national and global threats to peace and freedom. SNL employs about 8,300 people and manages about \$2.2 billion of work per year. The laboratories are funded primarily by the U.S. Department of Energy and are managed by the Lockheed Martin Corp. Partnerships have been developed with a variety of other government, industry, and academic institutions to accomplish SNL's work.

To help support its mission, SNL is committed to purchasing green construction materials. The Green Construction Purchasing Team tracks purchases of certain Environmental Protection Agency (EPA) - designated recycled content construction items. Construction procurement personnel began to include reporting requirements in all of their construction contracts beginning in fiscal year 2003. In fiscal year 2003, purchasing of items meeting EPA's recycled content recommendations increased from \$509,640 the previous year to \$839,640, a 40 percent improvement. More than 99 percent of total purchases met the recycled content recommendations.

The team attributes five factors to the success of this program: contract language, reports required before invoice payments, construction inspector support, training, and performance monitoring. These steps can be replicated at

any facility. Green contract language was added to the template for all construction contracts. This template is used by all project managers when requesting proposals from new contractors and developing work scope for pre-approved contractors. For example, SNL's latest building is constructed with recycled content

material that will incorporate many other green design features including daylighting, storm water harvesting, and water conservation technology.

SNL Facilities Business Office requires reports to be filed by the contractor prior to invoice payment. Failure to do so can lead to a delay in payment, helping to ensure compliance. Construction inspector's support helps ensure that reports are accurate, with payment being withheld until inaccurate reports are corrected. Training helps contractors identify locally available recycled content products and also instructs how to properly complete forms. Monitoring performance simply tracks the number of reports received from contractors. It is also important to note that reporting on recycled content products caused no price increase; fear of cost increases had been a major source of resistance to the adoption of contractual requirements for green purchasing.

The benefits from the employment of these five steps include improved reporting, the creation of local sources of recycled content products, improved markets for recycled content products, and decreased environmental degradation by encouraging the recycling of resources. Often, local distributors are unaware of the manufacturer's ability to provide recycled content products. By requesting recycled content, both Sandia and its contractors increase awareness of product availability.

For more information, contact Kristin Klossner at (505)844-9204, or by email at kakloss@sandia.gov. ■



This building is being constructed under Sandia's new green construction contract language.

Sustainable Design / Green Buildings – Military

Sue Ibrahim – US Army Yuma Proving Ground: YPG Energy Efficient Model Home (Yuma, AZ)

education, became a key example of environmentally concerned design for Southwest Arizona. The comfort and beauty of this house are not just in its outward appearance, but also in the principles of sustainability, energy efficiency, and resource efficiency that it embodies. The home uses energy and water efficient products, recycled

U.S. Army Yuma Proving Ground (YPG) is a general purpose facility with more than 50 years experience testing weapon systems of all types and sizes in a joint environment. The proving ground conducts tests on medium and long-range artillery, aircraft target acquisition equipment and armament, armored and wheeled vehicles, a variety of munitions, and personnel and supply parachute systems. Testing programs are conducted for all United States military services, friendly foreign nations and private industry. Yuma also serves as the model for on-base facilities that are sustainable and energy efficient.

YPG houses thousands of military personnel and employees and accommodates approximately 10,000 visitors throughout the year. Being an older military facility, most of the buildings were constructed in the 1950s and are extremely inefficient in their use of resources. As a result, there has been an increased need to make base housing more energy efficient. Sue Ibrahim, Yuma's Technology Transfer Program Manager, devised a demo home — the Yuma Energy Efficient Model Home — which uses technology and incorporates a sustainable design in an attempt to reduce energy costs. The model home has been used as a demo for the Department of the Army and other agencies exemplifying how housing can be replaced or upgraded to make it more cost effective and sustainable.

This project, with its emphasis on conservation and

content products, and xeriscaping. It incorporates sustainable design strategies utilizing the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, and also qualifies for an Energy Star® rating. The home shows at least a 66 percent improvement from the required standards of the Model Energy Code for Arizona. The model uses less than 20,000 Btu per square foot per year. It consumes only 1/3 the energy of a standard home, with annual energy usage of 7100 kWh in comparison with 20,902 kWh.

The water efficiency goal for the Environmental Model Home is to reduce indoor and outdoor water use by 50 percent compared to a typical production home in Arizona. Water efficient products include low-flow fixtures and water-saving devices in sinks, showerheads, toilets, and dishwasher. The landscaping guidelines maximize the use of drought tolerant plants, and provide maximum shade or sun where most beneficial.

The features within the Yuma Energy Efficient Model Home were incorporated into the fiscal year 2003 construction program and will be incorporated into the programs for 2005 and 2007 fiscal years, which will eventually replace all current housing for enlisted and officer personnel.

For more information, contact Sue Ibrahim at (928)328-3021, or by email at Soheir.Ibrahim@yuma.army.mil. ■



Yuma's Technology Transfer Program Manager, Sue Ibrahim, devised the Yuma Energy Efficient Model Home that uses innovative technology and incorporates a sustainable design in an attempt to reduce energy costs.

Sustainable Design / Green Buildings – Civilian

Chincoteague National Wildlife Refuge: Going Green Over Buildings at Chincoteague NWR (Chincoteague Island, VA)

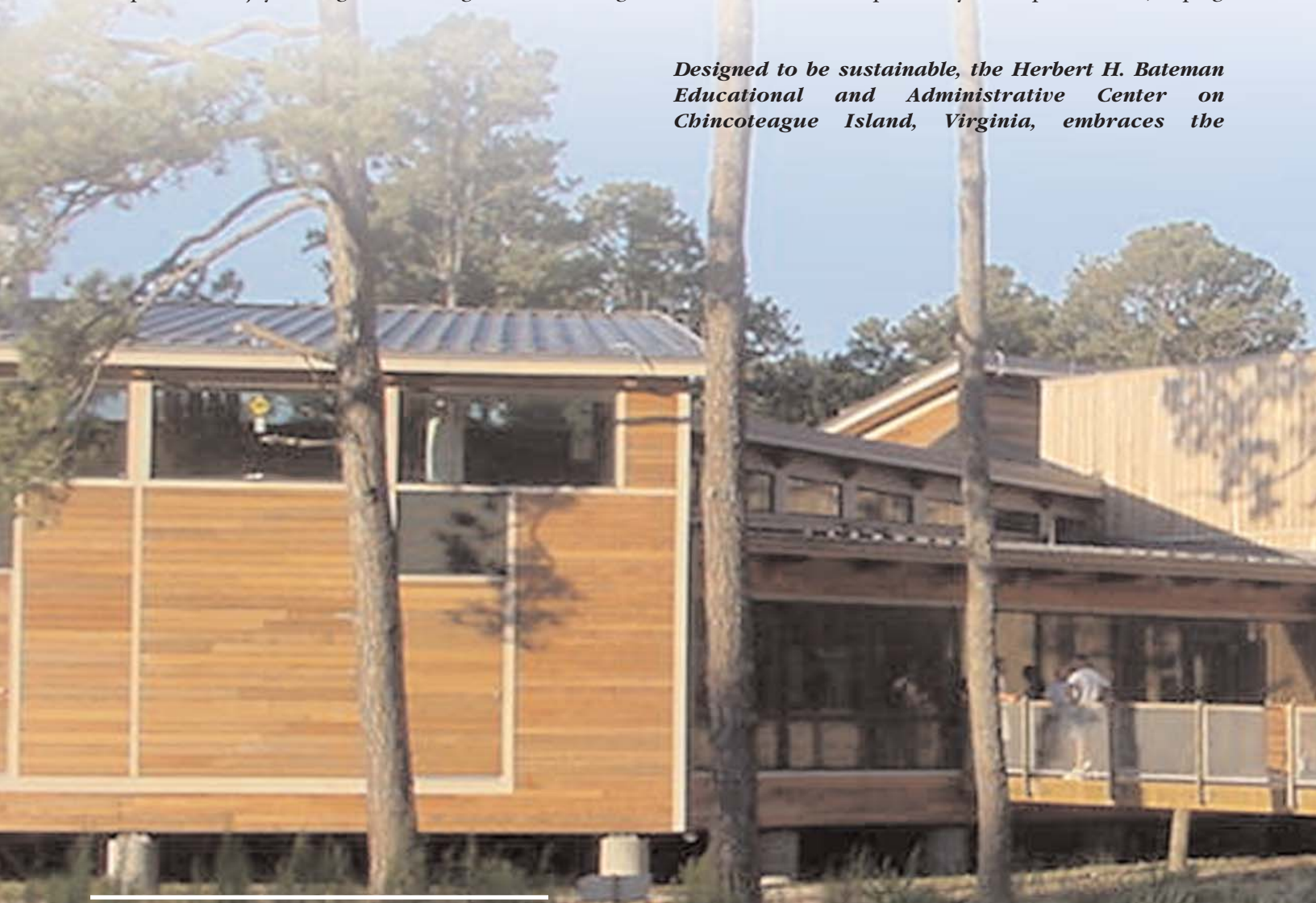
The Herbert H. Bateman Educational and Administrative Center embraces the principles of sustainable design through minimizing energy use, using resources efficiently, and also by treating the site sensitively. The project design for the center was made possible through collaborative efforts involving community partners, area residents, refuge visitors, The Nature Conservancy, the National Park Service (NPS), and the U.S. Fish and Wildlife Service. The partnership developed the green architecture principles that guided the construction of the facility.

Chincoteague Island, a barrier island located off the coast of Virginia, has a uniquely sensitive ecosystem. The center's sustainable design minimizes the negative environmental impacts on this ecosystem while still allowing the public to enjoy visiting and learning about the refuge.

The facility itself utilizes a number of innovative techniques to accomplish this end. The center's construction involved the use of a variety of recycled content and energy efficient products, along with the reuse of demolition and construction materials. The building embraces efficient energy use, including using a geothermal heating and cooling system, natural ventilation, natural day lighting, solar power, and a well insulated building envelope. Efforts to maintain a clean and reusable source of water involve a constructed, natural-looking wetlands for wastewater treatment. Treatment occurs through the action of bacteria and other organisms living on the roots of the wetlands plants; the treated water is reused within the facility for flushing toilets. The restrooms are also equipped with waterless urinals, which are reported to save more than 100,000 gallons of water each year. The parking lot surfaces are gravel instead of pavement to allow rainwater to percolate into the ground, reducing storm water runoff.

Further steps to ensure minimal environmental impact were also taken during the selection of the site. The center was constructed on a previously developed location, helping

Designed to be sustainable, the Herbert H. Bateman Educational and Administrative Center on Chincoteague Island, Virginia, embraces the



to minimize the intrusiveness of the construction process. Construction required the removal of less than a dozen trees, and negatively impacted less than 0.1 acre of additional habitat. Five buildings and a parking area were removed during the construction and demolition of the

site. Two additional buildings are being removed in another location, and this area will soon be restored to native habitat. In fact, by the time of the facility's completion, more habitats had been added or restored to the grounds than those that had been negatively affected by the construction.

principles of sustainable design through minimizing energy use, using resources efficiently, and treating the site sensitively.

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The Office of the Federal Environmental Executive thanks the U.S. General Services Administration for its generous help and support in producing this newsletter.

The various signs, exhibits, and programs on the grounds of the facility highlight water conservation, solar power, recycled content materials, energy efficiency, and natural vegetation landscaping. Consequently, the center serves as a tool not only for the protection of the surrounding environment, but

also for the education of the 1.5 million visitors to the refuge each year.

For more information, contact John Schroer at (757)336-6122, or by email at John.Schroer@fws.gov. ■

