

PROACT SUCCESS STORY

of Compliance and Pollution Prevention



- An Environmental Resource sponsored by HQ Air Force Center for Environmental Excellence -

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Robins AFB

Robins Air Force Base (AFB), is the largest industrial complex in Georgia. It is situated on 8,722 acres and contains more than 14 million square feet of facilities. Robins has the longest runway in Georgia and more than 1,400 military family housing units. The base was named after Brigadier General Augustine Warner Robins, the Center's first commander, and was established in 1941. Robins AFB is home of the Warner Robins Air Logistics Center (WR-ALC), one of the Air Force's three Air Logistics Centers. The Center has worldwide management and engineering responsibility for the repair, modification and overhaul of the F-15 Eagle, the C-130 Hercules, the C-141B Starlifter, the C-5 Galaxy, and all Air Force helicopters. The Center also provides logistical support for the C-17 Globemaster III, all Air Force missiles, vehicles, general-purpose computers, as well as avionics and electronic systems on most aircraft. Robins is home to more than 62 hosted organizations, including the Air Force Reserve Command, the 116th Air Control Wing and its E-8C Joint Surveillance Targeting and Attack Radar System aircraft, the 5th Combat Communications Group, the 19th Refueling Group and its KC-135R Stratotankers. Robins AFB has a tremendous responsibility—returning Air Force weapon systems to duty as quickly and efficiently as possible without impacting the surrounding forest, wetlands, plants, and animals native to the area. Native species must be protected and encouraged without adversely affecting the mission of inspecting, repairing, painting, and returning to duty aircraft of responsibility.

The Environmental Management Directorate manages the Center's environmental programs. The Environmental Protection Committee (EPC), chaired by the installation's Vice Commander, meets quarterly to discuss and track environmental programs and potential problem areas; plus pursue new technologies that will allow greater mission accomplishment in the most environmentally sound and cost effective manner.

Environmental Successes

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Major organization's directors/commanders are active members of the EPC. The Center's commitment to reduce environmental liabilities starts at the front of the process—with their Environmental Management System (EMS) and Compliance through Pollution Prevention (CTP2) approach. The goal of the EMS and CTP2 are to reduce compliance cost and Environmental, Safety, and Occupational Health (ESOH) risks.

One of the principal ways of accomplishing this goal was by developing a compliance site inventory (CSI) that related cost and risk factors to regulated activities. The CSI database facilitates linking of environmental factors such as hazardous material usage and cost, hazardous waste disposal and costs, volatile organic compounds (VOC), hazardous air pollutant (HAP) emissions, and wastewater flows; as well as concentrations of pollutants to process groups. Compliance sites are grouped into processes that represent the activities that use hazardous materials and emit pollutants and waste to air, land, and water. The activities are ranked according to burden, which assists in planning and programming a process specific opportunity assessment (PSOA) or project implementation. PSOAs are used to develop potential solutions in the most cost-effective and environmentally sound manner.

Robins AFB's environmental successes allowed them to be selected for the Air Force General Thomas D. White Environmental Award for Pollution Prevention

for Team Excellence in Fiscal Years 2001/2002 (FY01/02) for Pollution Prevention. The installation also received an Honorable Mention in the Natural Resources Conservation category. Winning awards is nothing new at Robins. The Pollution Prevention Program has received the top Secretary of Defense award four times since 1995 (the only military installation to win more than one time) and the Recycling Program has received the top recognition twice.

Industrial Process Modifications/Improvements

CFC-113 Elimination

In the gyroscope repair facility, HFE-71DE (hydrofluoroether azeotrope) has essentially eliminated the use of CFC-113 a Class I ozone-depleting substance. HFE-71DE, demonstrated and validated through the Toxic Release Inventory Alternative Development (TRIAD) process, resulted in a 99.9% reduction in the use of CFC-113, from approximately 5,000-pounds per year to just 1-pound per year.

Paint Substitution Initiatives

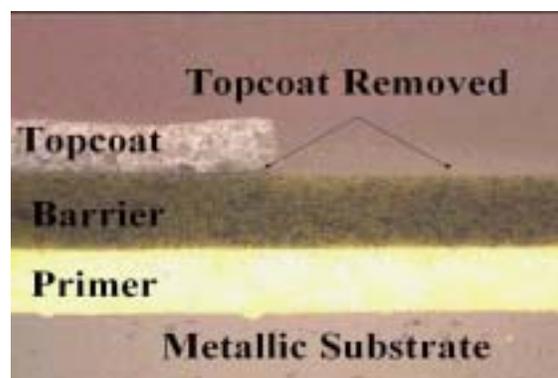
WR-ALC is leading the effort to identify acceptable alternate coating systems. Successful implementations include thermal spray coatings and thermoset powder coatings. The thermal spray coating process passes powdered paint particles through an electrical arc that heats and melts the particles. The melted particles then impact the surface resulting in an extremely durable coating without generating volatile organic compound (VOC) emissions or hazardous waste. The thermoset powder coating system application was prototyped, and implemented at WR-ALC to replace solvent-borne coating processes used on pressurized cylinders (oxygen, fire, etc.) maintained by the Hydrostatic Shop. The new coating process eliminates all VOCs, hazardous air pollutants (HAPs), and hazardous wastes associated with the previous processes. The powder coating system will pave the way for other applications within the depot system.

Ultraviolet (UV) Light Disinfection at the Wastewater Treatment Plant

The use of approximately 10,000-pounds of chlorine per year at the wastewater treatment plant would have required a Risk Management Plan (RMP) for that operation. Robins has avoided this requirement by implementing a commercial off-the-shelf ultraviolet light disinfection technology. This system has improved the quality of the water being discharged to the environment, eliminated the use of chlorine in the treatment plant, and eliminated the requirement for an RMP.

Selective Stripping Coating System (SSCS) - Barrier Coat

The barrier coat system consists of a chromated primer applied over bare substrate (current method), a barrier coat, and a topcoat. The significant difference between the barrier coating system and the current coating system is seen when the aircraft requires repainting. With the barrier coat in-place, only the topcoat is stripped using either medium pressure water (8,000 to 10,000 psi) or dry media that does not remove or damage the barrier coat or primer coat. This selective stripping system leaves the barrier coat and primer coat in-place; thereby dramatically reducing the usage of chromate conversion coating (alodine) and the chromated primer



Barrier Coat

coating. Generation of chrome-containing waste is essentially eliminated, plus, the water or dry media used in the depainting process can be recycled. Aside from the environmental benefits and cost savings that result from the reduction in man-hours for depaint and paint processes, there is an additional benefit for employees who will no longer be exposed to chromate during depainting.

A project to qualify and prototype this innovative selective stripping technology is now being validated. Flight testing is being conducted on three military aircraft (two F-15 & one C-130), with two more in the testing phase. Implementation of a barrier coating is projected to save \$22 million per year and reduce worker exposure to hazardous materials by 97%.

Flashjet Paint Stripping System Implementation

Flashjet is a coating removal system that uses pulsed light energy from a xenon flash lamp and a carbon dioxide (CO₂) pellet cleaning system. The xenon flash lamp energy bursts ablate the surface coating while a continuous stream of dry ice pellets sweeps away the carbonized residue and maintains the temperature of the substrate below 200°F. Hazardous waste generation and subsequent disposal is reduced to near zero, and there are no HAPs generated. This process lessens damage to the composite substrate surfaces, extending the life of aircraft radomes and composite parts. Previously, these parts were stripped using methylene chloride-based paint removers. Residual coatings were removed with methyl ethyl ketone (MEK). A specialized C-130 radome was stripped by hand sanding, which could take up to two weeks and increased the risk of damage to the substrate material. The Flashjet workload is estimated to be approximately 250 radomes and 1,000 parts processed through the facility per year. This process is projected to save over \$900,000 annually, reduce methylene chloride use by approximately 22,000-gallons, and MEK use by 2,000-gallons per year. It will also reduce hazardous waste disposal by approximately 122,000-pounds. The Flashjet operation at WR-ALC is the first in the Air Force;



Flashjet Depaint of an F-15 Radome

however, in April 2001, the applicable Technical Orders were changed to reflect its approval for Air Force-wide use.

Handheld Laser Project

The maintenance weapon systems environmental, safety, and occupational health (ESOH) team is participating in a DoD prototype project to validate handheld lasers for small area depaint projects. When validated, this technology will complement the Center's existing paint stripping processes, including Flashjet.

Environmentally-Friendly Aircraft Parts Paint Removal

A process change using Plastic Media Blast (PMB) in lieu of chemicals to depaint aircraft parts is projected to reduce the use of methylene chloride by 200,000-pounds, and hazardous waste disposal by 145,000-pounds per year. The list of candidate parts for this process spans all weapon systems serviced at the Center, from wings and landing gear doors to fuel tanks. The use of PMB is a closed loop process that entails leasing the PMB, with waste material returned to the provider for use in the manufacture of new products such as concrete blocks. The newly manufactured products are then returned to the marketplace. This project is slated for implementation in December 2003.

Hazardous Material Dispensing Station at Point-of-Use (POU)

The purpose of POU dispensing stations is to provide hazardous materials from the pharmacy directly to

the mechanics in their workplace, thereby saving valuable man-hours that were previously used when the mechanics left their workplace to obtain needed materials. When the POU station concept was being formalized, each work zone was evaluated for the best placement of the POU station. This evaluation included not only how convenient it would be to the mechanics, but also consultation with safety and fire officials to ensure each location was easily and safely accessible. An assessment was conducted to determine chemical compatibility, compliance with environmental recordkeeping, regulatory requirements and what quantities of each material would constitute a two-day supply. As a result of this assessment, POU stations are now located in several work zones in the major repair facilities throughout the ALC. Personnel from the pharmacy either purchase or dispense materials in containers appropriate for each application; the closer to actual use size, the less waste generated. Pharmacy personnel also track materials issued to each work zone POU station, inspect the station locker(s) every day to ensure a two-day supply is maintained, and restock each hazardous material as needed. The use of POU stations has increased work efficiency and available man-hours by allowing mechanics to obtain the materials they need in their work zone. If

a change in material use is noted by pharmacy personnel, they contact the work zone chief to determine if the need for a specific material has increased or decreased; the POU station stocking requirement is adjusted accordingly. If a special job is scheduled that requires added material, the work zone chief notifies pharmacy personnel and those additional materials are made available to the work zone when the job commences. A list of all materials contained in each locker is posted on the outside of the locker. Additionally, an initial accumulation point (IAP) container is provided at each POU station for collection of waste materials.

Easy Open Lid

The Georgia Environmental Protection Division (EPD) enforces a strict interpretation of the ‘closed container’ rule. The Department of Natural Resources (DNR) considers a 55-gallon drum for waste materials in an initial accumulation point (IAP) closed only if the bungs and the locking ring around



Point-of-Use (POU) Hazardous Material Dispensing Station



Easy Open Lid

the top of the drum are tight. By ‘tight,’ the DNR means they cannot be loosened by hand. In order to place used shop rags in a 55-gallon drum, personnel previously had to use a wrench to loosen the locking ring, open the lid, deposit the used rags, replace the locking ring, and then immediately tighten it with the wrench. This requirement resulted in a waste of man-hours at each IAP. Through coordination with the DNR the “easy open lid” was proposed and

permanently affixed to the lid of 55-gallon drums at certain IAPs. The Easy Open Lid used at the ALC is available from at least two sources (contact PROACT for source information). An instruction sheet (also available from PROACT upon request) was developed by the ALC with instructions for proper installation of the Easy Open Lid to a 55-gallon drum lid. Once the Easy Open Lid is permanently affixed, the modified lid replaces the regular drum lid. While the drum is in the IAP, the Easy Open Lid is twist-opened to place used shop rags into the drum. When the drum is full, the modified lid is replaced with the regular drum lid, and the full drum is removed to the 90-day accumulation point for further processing. The Easy Open Lid can be cleaned and used over and over again on 55-gallon drums in the IAP. Even though this procedure was developed for used shop rags, it is becoming popular for other hazardous wastes that cannot easily be placed in a 55-gallon drum.

Flightline Vacuum Waste Disposal Improvement Process

Flightline vacuum waste is generated at various locations associated with aircraft maintenance. The former waste collection process utilized at Robins AFB generated approximately 250,000-pounds of waste per year at a disposal cost of \$204,000. A PSOA was used to identify a process improvement that has significantly reduced hazardous waste disposal and costs. Based on documented results,



Vacuum Waste Disposal

the new process generates only 168,000-pounds of waste per year at a disposal cost of only \$97,000. Prior to the process change, wastes were collected in vacuum units which, when filled, were transported to a centralized location where they were manually drained, cleaned, and the waste transferred to drums for disposal as hazardous waste. The PSOA produced a preferred solution: separate the water from the oil as it is removed from the vacuum unit. A follow-on project was implemented to design and build a prototype separation unit. This unit automatically separates the water from the oil via a sensor placed in the vacuum unit. It sends the water directly to the industrial wastewater treatment plant via a connection to the underground pipeline collection system, and only the waste oil is pumped into drums for disposal as hazardous waste. Another follow-on project is focused on determining if the waste oil can be classified as used oil instead of hazardous waste. If this is possible the oil will be sold to a recycling company to further reduce costs.

Air Force Corrosion Program Office (AFCPO)—P2 Partners

The AFCPO, located at Robins AFB, is at the forefront of research and development for testing and acquiring the most environmentally friendly and cost-effective corrosion technologies for use on Air Force weapons systems. The AFCPO is continually testing alternative products and chemicals to determine if they will work on Air Force systems without damaging the parts they are designed to protect.

The AFCPO team is presently conducting research to identify a low/no VOC and non-chromate coating system for support equipment. Any alternative product or system must meet stringent sustainability and maintainability requirements. Processes being evaluated in field tests are powder coatings, waterborne coatings, advanced film technology, and metallization. Technologies that pass field-testing and are adopted for Air Force use will provide environmentally compliant corrosion protection for support equipment.

A UV-cured coating is also under test and evaluation by AFCPO as a possible replacement for solvent-borne coatings on Air Force equipment and components. Thermoset powder coating technology has proven to be an effective and environmentally friendly alternative to solvent-borne coatings; however, the heat required to cure these coatings makes them unsuitable for certain heat-sensitive materials, such as honeycomb panels, plastics, composites, and thin sheet aluminum. Tests are focusing on what specific weapon system and support equipment parts are suitable for this coating application. Once specific parts are identified, field-testing will be conducted at operational facilities.

The AFCPO is also concerned with repainting alternatives, and is testing non-solvent processes. Implementation of proven processes at WR-ALC has already resulted in an 88% reduction in use of toxic chemicals from the 1992 baseline.

Alternative Fueled Vehicle Programs

Robins AFB is home to the Air Force Alternative Fueled Vehicle Systems Program Office (AFVSPO), which maintains a focus on reducing vehicle emissions through the use of alternative fuels. Some alternative fuels and systems are currently in-use, others are in the testing stage, and still others are in the design and development stage. The AFVSPO team, with Environmental Management support, is encouraging the use of all the fuels and systems that show promise for Air Force use. The AFVSPO has 7 propane, 35 electric, 9 hybrid, & 33 compressed natural gas (CNG) alternative fueled vehicles in operation on Robins and many more at other Air Force installations. AFVSPO is in contact with fuels and systems researchers so the Air Force can evaluate new processes that demonstrate advantages (lower emissions, lower environmental impact, multi-mission capability, less maintenance, less cost, etc.) over conventionally fueled vehicles.

Hybrid Electric Vehicles

Hybrid electric vehicles use a two-part propulsion system, whereby a small diesel or gasoline engine drives an electric generator that supplies power to a bank of batteries that provide electric power to turn the wheels. Robins AFB has five hybrid electric vehicles in service, three buses and two vans. These vehicles can run on battery power only for short periods, but are designed so that the diesel or gasoline engine will automatically run when needed to recharge the batteries. These hybrid electric vehicles demonstrate a 10-50 percent increase in fuel economy over conventional internal combustion powered vehicles. Newer technologies are currently being pursued that can provide increased range and power. There are also hybrid electric vehicles being developed that will utilize a fuel cell to supply power to the batteries, only emitting water.

Another technology being aggressively pursued, in cooperation with the Army, is a hybrid high mobility multi-wheeled vehicle (HMMWV) with grid-connected technology. These vehicles, once placed in service, can provide electric power to facilities, such as tents or buildings, by plugging into the facility's electrical grid. This could alleviate the need for separate generators, which will reduce the amount of equipment, personnel, and spare parts needed on deployments and bare-base setup operations. Should this hybrid/grid connecting technology prove effective on the HMMWV, it could be adapted to aircraft tow vehicles (i.e. a hybrid electric tow tractor that can provide 72kW to aircraft during towing, systems testing, and engine start-up).



Hybrid Electric Vehicles

Research and Development

The AFVSPO is actively involved in the research to develop a reformer that can generate hydrogen from CNG or Jet Petroleum (JP)-8. The hydrogen would then be used to supply power to a fuel cell.

There are vehicles currently using Biodiesel (B20) fuel, which is 20 percent biodiesel and 80 percent petroleum diesel. It is possible to run vehicles on 100 percent biodiesel; however, the Air Force has not approved their Service-wide use due to problems associated with biodiesel degradation if left in a fuel tank and performance in cold climates. If a vehicle fueled with 100 percent biodiesel sits for an extended period of time, such as when being staged and transported via ship to a deployment area, the biodiesel tends to congeal. This can also occur if a biodiesel fueled vehicle is moved from a warm climate to a cold climate with fuel in its tank. These problems are being studied, and it is hoped that a solution will be found that will allow Air Force-wide use of biodiesel fuel with higher biodiesel content.

Electric/CNG Vehicles

Robins AFB and the AFVSPO have numerous fully electric vehicles in operation. There are S-10 and Ranger pickup trucks plus smaller Neighborhood Electric Vehicles (NEVs) in use. These vehicles are used by various organizational personnel to travel from building-to-building on base. They are quiet and produce no emissions; however, their present range is limited to approximately 20 miles between charges, and they must be trickle charged, which can take several hours. Newer NEVs are being produced with a quick charge capability that reduces charge time to approximately 15 minutes. This is better suited to an industrial environment with more than one shift since the quick charge allows the NEVs to be charged during shift change or during a meal break. Robins AFB has fast charging stations on order, and advanced electric vehicle research is underway to increase range and load carrying capabilities of electric vehicle Robins has an on base CNG fueling station available to anyone with a CNG vehicle and base access; for example, government, private, military, civil service, contractors, or civilian personnel may use the refueling station. The center currently has 33 CNG vehicles in use.



Electric Vehicle

Clean Cities Designation

The AFVSPO and Environmental Management partnered with the City of Macon, Georgia to develop the Middle Georgia Clean Cities Coalition. Robins AFB provided a coordinator during the development stage to assist in getting the Department of Energy designation as a Clean City. Robins AFB, including Houston and Bibb Counties, was designated a Clean City in a ceremony in April 2003.

Non-Hazardous Solid Waste Program

The WR-ALC Environmental Management Directorate has an Integrated Solid Waste Management Plan (ISWMP) that addresses all on-base waste streams, where they are generated, what they consist of, what is being done to reduce or eliminate them, how wastes are recycled when possible, and proper disposal requirements for those that cannot be recycled or reused. The installation's solid waste management goals follow those established in the Department of Defense (DoD) Measure of Merit (MoM) for non-hazardous waste disposal, which is to divert as much waste as possible from landfills, with at least a 40 percent diversion rate by FY05. The Robins AFB solid waste reduction program has consistently exceeded DoD goals by diverting over 50 percent of the waste generated.

The base-wide Recycling Integrated Product Team (IPT) works to reduce or eliminate waste, promote recycling, and crossfeed information to and from other agencies and organizations. This approach to solid waste reduction and recycling resulted in a 50.5 percent diversion rate in FY02. 12,390-tons of non-hazardous solid waste was generated, with 6,254.8-tons recycled, and 6,132.8-tons landfilled.

Qualified Recycling Program

The recycling team has worked tirelessly to ensure that it is as easy to recycle materials as it is to throw them in the trash. Mandatory recycling accounted for the diversion of more than 6,000-tons of materials from the installation's solid waste stream. Materials recycled include: aluminum cans, cardboard, high-grade and mixed-grade paper, newspaper, glass, industrial wood, metal scraps, tires, cooking grease, plastics (type 1&2), telephone directories, magazines, used oil, and construction and demolition debris. Buildings, both administrative and industrial, have central recycling collection centers that are serviced weekly. Curbside recycling for military family housing units is also provided weekly. Cardboard is collected in large "Cardboard Only" containers strategically placed around the base. The containers are routinely collected and delivered directly to the recycling contractor's facility by the base refuse contractor. Robins AFB has an agreement with the Happy Hour Recycling Center in Warner Robins. The Happy Hour facility accepts recyclable materials



Recycling Collection Center

from the base and local community, processes these materials using people from the National Institute for the Severely Handicapped (NISH), and seeks buyers offering the highest dollar amount for specific materials. In addition, on-call pick up is provided to organizations and family housing residents generating one-time large quantities of recyclable materials. Refuse and grounds maintenance contractors deliver yard waste and horse stable waste to the Warner Robins compost facility. Certain materials (metals, tires, used oil) continue to be recycled through the Defense Reutilization and Marketing Office (DRMO) with proceeds being returned to the base industrial fund account or recycling proceeds account. Total annual economic benefit using the QRP approach has been calculated at \$953,000.

Reuse Sludge from Sanitary Wastewater Treatment Plant

An agreement with the local landfill diverted over 325 tons of non-hazardous dried sludge from landfill disposal in FY02. The landfill's permit allows them to use the dried material, mixed with soil, as a part of their daily cover requirements. The landfill operators are allowed to use the material in meeting their Georgia reduction goals as well.

Composting Program

The base generates approximately 3,500-tons of yard waste per year and 200-tons of horse stable waste per year, the installation's second largest non-hazardous waste stream. This waste is currently being composted through an agreement with the local community. However, with P2 funding in place, a contract has been initiated to establish an on-base composting facility. The anticipated start up date is October 2003. It will provide a mechanism for future material diversions such as the non-hazardous sludge and possibly food waste.

Affirmative Procurement

An Affirmative Procurement Program for acquisition of recycled products, using the Environmental Protection Agency (EPA) and Air Force procurement guidelines, is currently in place at Robins

AFB. The ISWMP provides guidance on all current EPA-designated items. The quarterly training, provided by base contracting to all base cardholders, includes all affirmative procurement requirements. Environmentally friendly products are encouraged in new contracts, including products made from post-consumer materials. For example, the base custodial contract requires all paper products and plastic trash liners contain post-consumer content. In addition, the base vehicle contract requires the purchase of retread tires, antifreeze recycling, re-refined oil purchases, and recycled paper purchases.

Since 1996 the installation has purchased approximately \$110,000 of playground equipment containing post-consumer content. The Museum of Aviation, located on Robins AFB, spent approximately \$1,648 for aircraft wheel chocks made from recycled plastic milk jugs. Unlike wooden chocks, plastic chocks will never rot due to weather conditions or insect damage, and will never need painting or replacing. The estimated five-year savings is approximately \$6,000.

Education, Outreach, and Partnering

With an on-base community of more than 26,000 individuals, education in environmental matters is both a necessity and an opportunity. Team initiatives include

- 🌐 Institutionalized annual Earth Day celebration, that includes a Historic Forest tree planting ceremony; an Environmental Awareness Fair with participants from base organizations, local businesses, local government, and local schools; and a kraft grocery bag art contest with the base school that has become an annual event. Children decorate a bag with an environmental message; a local art association judges the bags, then selected bags are displayed at the fair where winners are recognized. All remaining decorated bags are returned to the commissary and used to bag groceries on Earth Day, sending the children's messages into shoppers' homes.

- 🌐 First-ever Middle Georgia Odyssey Day promoting the use of alternative fueled vehicles.

- 🌐 Pollution prevention requirements are included in all host-tenant support agreements.

- 🌐 The Base's Annual America Recycles Day event was selected as 'Event of the Year' by the Georgia Recycling Coalition. The Base had the highest number of pledges to recycle.

- 🌐 An educational website detailing the Robins AFB program, is available to not only base personnel and organizations, but also the general public.

Material Recycling Savings

- ↪ **Used oil, fluorescent bulbs, and lead acid/NiCad battery** recycling reduced hazardous waste disposal by over 408-tons.

- ↪ **Solid waste** is consistently diverted, resulting in 50% of the waste stream being reused and recycled. Recent calculations show a \$954,000 annual savings using the qualified recycling program approach to solid waste management.

- ↪ **Closed-loop recycling projects**, such as tire retreading, composting, paint gun cleaning unit with solvent recovery system, and toner cartridge recycling programs have been implemented to reduce the waste stream.

- ↪ **Source reduction projects**, such as two-sided copying, the use of electronic mail, using a "Post-it" FAX note instead of a FAX cover sheet, upgrading copiers/printers to print two sided, and the use of reusable envelopes for internal mail have all helped reduce waste paper generation

- ↪ **Used tires**, approximately 104-tons have been recycled by retreading or recycling, an exciting change in FY02 resulted in finding a market that purchases waste tires, eliminating a previous tipping fee to recycle.

Green Building Construction

In their efforts to comply with Executive Order 13123, "Greening the Government Through Efficient Energy Management," Robins AFB conducted workshops to train architects, engineers, contracting officers, and construction project managers to apply green principals to siting, design, and construction of new facilities on the installation. A central element in this process is the Leadership in Energy and Environmental Design (LEED) concept. LEED requirements are being included in new construction design projects at Robins AFB. The first project with LEED considerations from start to finish is a new base entrance and visitors' center. This project is now being evaluated for LEED certification, and is ahead of Air Force pilot project requirements by one year.

Natural and Cultural Resources

Natural Resources

Located within the Upper Coastal Plain, Robins AFB is situated on the low alluvial terrace of the Ocmulgee River and features a mixture of habitats, including eight significant natural communities. The longleaf pine forest community once dominated the ecosystem in this area; however, deforestation, introduction of faster growing pine species, and a substantial reduction in the use of prescribed burning has led to the near-elimination of this natural community. In response, the base has initiated a longleaf pine reforestation project on 23 acres, including the planting of 15,000 seedlings, the suppression of competing species (particularly exotics), and the institution of a prescribed burning program.

There are eight management emphasis areas on Robins AFB including: Natural Habitat, Managed Natural Habitat, Natural Habitat Multiple Use, Recreation and Training, and Lake & Watercourse. Nearly one-third of Robins is comprised of wetlands and the base features three lakes, plus picnic areas, a nature center, and camping areas. Hiking and jogging trails are located in forested areas near the

lakes, as well as two nature trails that provide information on the plants and animals likely to be seen on base. Other recreational opportunities for outdoor enthusiasts include approximately 3,000 acres where hunting is authorized for game species such as white-tailed deer and hog, and the three lakes are open for fishing. One of the lakes (Duck Lake) underwent a restoration project that involved the removal of non-native vegetation and the reintroduction of native plant and fish species.

Ten rare plant species are found on base, including two that are protected by state law: Ocmulgee Skullcap and Harper's Bog Heartleaf. Additionally, Robins is home to numerous species of wildlife such as black bear, bobcat, prothonotary warbler, Swainson's warbler, American alligator, and the eastern cottonmouth. Base personnel have created nesting, foraging, and basking habitat for many species of wildlife such as the red-headed woodpecker, eastern bluebird, common snapping turtles, big brown bat, and purple martin. Another



Long Leaf Pine Forrest

example of a wildlife habitat enhancement project involved establishing wildflowers on a closed landfill.

Another way in which wildlife and plant diversity has been promoted is through strict control over the ways in which pesticides are used. During the last five years there has been a concerted effort to promote integrated pest management, a process which encourages pest control managers to place a greater reliance on the use of physical and biological control methods, rather than relying on chemical means as a principal source of pest control. This new approach has resulted in an 80 percent reduction in the amount of pesticides used since its inception.

The Environmental Resources Division produced pamphlets that explain what resources are available for public use, what can be done to protect native plants and animals, and explain some of the dangers that can be encountered when walking through the local forests and wetlands (venomous snakes, alligators, bears, poisonous plants, etc.).

Cultural Resources

As with many Air Force Base Cultural Resource programs, the mission of the Robins AFB program is to identify, inventory, preserve, and protect those resources found on the installation. This includes, when appropriate, nomination of significant facilities and areas to the National Register. Some historic facilities are best maintained by adaptive reuse, which means continuing to use the facility as an office or home, while protecting its historic integrity. When adaptive use is not feasible, restoration and curation of artifacts is desired. Educating the base and local community in the historic significance of buildings and sites, such as Native American artifacts, is a valuable part of preserving them. Robins AFB has incorporated this aspect of historic preservation by establishing the “Windows to a Distant Past” archaeology museum at the aviation museum on base. There are 38 documented archaeological sites on base, and five have been determined to be eligible for the National Register. There are presently four historic industrial buildings on base, two historic residential districts, and two historic cemeteries, one

dating to 1842. The first archaeological survey was conducted in 1977. There is now a list of 1,130 potential historic sites requiring surveys, and priorities have been assigned to each. All construction and modification plans are processed through the Cultural Resources office, where the project locations are compared to a map showing historic facilities and sites, including potential sites that have yet to be surveyed. Once it has been determined that the probability of disturbing a historic site is remote, the project receives approval from this office.

Robins AFB has established communication and cooperation with Federal, State, and local agencies and American Indian tribes with a connection to the area. Just 12 miles up the road in Macon is the Ocmulgee National Monument, a large Indian burial mound. The connection with an Indian past is very prominent in the area of Robins AFB. In fact, the base has hosted meetings with representatives from 12 Federally-recognized American Indian Nations for the purpose of establishing procedures for the disposition of funerary objects and remains.



Community Involvement

Students from on-base and local schools have been shown how archaeological surveys are conducted without damaging the items discovered. Robins AFB also funded a cultural exchange where teachers from the Muskogee (Creek) Nation came to local elementary schools and taught children about their native culture and history.

When it was determined that the air traffic control tower needed to be replaced, the old tower was removed and taken to the Aviation Museum on-base, to be restored and made into an exhibit.

Environmental Excellence For Today And Tomorrow

Robins AFB is meeting objectives and exceeding goals in all facets of its pollution prevention program. Personnel are looking to the future with confidence that they can accomplish their mission more effectively and efficiently when programs and projects they are developing and testing today will be implemented tomorrow. All their hard work is paying off, and will continue to do so, because they have made pollution prevention, waste reduction, conservation, recycling, and preservation a normal part of everyday life. Robins AFB, WR-ALC, and tenant unit personnel, military and civilian, can be proud of their accomplishments and the fact that they are among the first to use innovative technologies that will some day be a normal way of doing the job in the Air Force.

Success Story of Compliance Assurance and Pollution Prevention - Robins AFB, June 2003

Success stories are a product of PROACT, a service of the Environmental Quality Directorate, Headquarters Air Force Center for Environmental Excellence (HQ AFCEE/EQ), Brooks City-Base, Texas. Any comments or suggestions are welcomed and should be directed to PROACT at DSN 240-4240, (800) 233-4356, or proact@brooks.af.mil.