



Columbus Air Force Base

Environmental Quality Award for Non-Industrial Installation

The mission of Columbus Air Force Base (CAFB) is to build the world's best warriors, leaders and professional pilots. We are committed to conducting this mission in an environmentally safe and responsible manner that will protect human health, natural resources and the environment. This commitment goes beyond compliance and encompasses the integration of sound environment, safety and occupational health practices into our daily decisions and activities.

The Commander's Environmental, Safety and Occupational Health (ESOH) Policy Statement makes it clear that the pursuit of ESOH goals is the responsibility of every member of the CAFB community. In 2003 - two years ahead of the 2005 federal mandate - CAFB established an Environmental Management System (EMS). Implementation of the EMS has developed a mature network of dedicated professionals working toward the objective of sustaining and enhancing mission capabilities by integrating sound ESOH practices into their daily activities.



Key components of the ESOH Policy Statement include the following mandates:

- Comply with applicable federal, state, local and Air Force environmental, safety and occupational health laws, standards and other requirements.
- Continually assess Columbus Air Force Base activities to determine ESOH aspects and hazards and their subsequent impact on the environment and safety of our personnel. Identify significant impacts and risks and ensure they are considered when establishing mission objectives and targets.
- Actively seek opportunities for pollution prevention, waste reduction and safe work practices.
- Strive for continual improvement in our ESOH performance.

SIGNIFICANT ACCOMPLISHMENTS

The installation's accomplishments highlight the commitment to continual improvement - beyond compliance - in environmental performance at Columbus AFB.

- Successfully developed and implemented an integrated management system using the international standards ISO 14001 for Environmental Management Systems and OHSAS 18001 for Occupational Health/Safety Management Systems.

- Continued the exemplary compliance record - 2007 marked the 15th straight year without a Notice of Violation.
- Diverted over 4.1 million pounds of solid waste from landfill disposal, avoiding \$695,000 in disposal fees and reduced hazardous waste disposal by 12%.
- Completed General Plan-Based Environmental Impact Analysis Process in just seven months. This comprehensive plan assessed environmental impacts of 15 projects estimated at \$62M and ensures no project delays as 14 FTW accepts new missions.
- Reduced regulated air emissions by 12%, thereby expanding the base's ability to accommodate future mission growth by operating well below permitted air emissions levels.
- Established the "Green Team," which spearheaded efforts to purchase \$1.2M in recycled/recovered content products in FY 2006 and showcased "The Green Room," a conference room that is outfitted with recycled-content carpet and furniture, and low-volatile organic content paint.
- Converted all diesel fuel underground storage tanks to biodiesel, ensuring 100% of fleet diesel vehicles use biodiesel (B20), surpassing the AF goal of 80%!

INTRODUCTION

Located on a bluff overlooking the Tennessee-Tombigbee Waterway in rural Lowndes County in northeast Mississippi, Columbus AFB is home to the 14th Flying Training Wing (14 FTW) of the Air Force's Air Education and Training Command (AETC). The primary mission of the 14 FTW is Specialized Undergraduate Pilot Training in the T-1A "Jayhawk," T-6A "Texan," T-37B "Tweet," and the T-38C "Talon" aircraft. The history of Columbus AFB dates back to 1942, when Columbus was selected as a site to build a new Army Air Corps Flying School as part of the effort to ramp up pilot production for the war. Today, the wing flies about 250 sorties using 17,500 cubic miles of unrestricted airspace, making Columbus AFB the busiest flying wing in the Air Force. In FY 2007, Columbus AFB trained 326 pilots--one-third of all new Air Force pilots, plus 24 international student pilots from 20 allied countries.

The 1,341 military and 2,017 civilian employees of Columbus AFB proudly deliver unmatched



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training, maintenance, and support to the Air Force and over 6,200 retired military in the Columbus area. In FY 2006, the base generated \$277 million in economic activity and provided over 1,180 indirect jobs.

The 14 FTW Civil Engineer Squadron's Environmental Flight (CEV) is the active steward of the base's natural infrastructure including water, soil, flora and fauna, and air resources. These proud professionals are responsible for ensuring environmental compliance is prioritized at each level of installation decision making with regard to environmental impacts. They also actively partner with the local community to ensure that citizens are appropriately notified of activities that may affect the environment, and they embody the Wing's "BLAZE" motto of Building Leaders, Advancing Integrity, Service Before Self and Excellence in All We Do--especially in the area of Environmental Quality. The Air Force recognized their efforts by naming them the Air Force 2007 Outstanding Civil Engineer Environmental Flight of the Year.

BACKGROUND

Columbus AFB personnel recognize that sustainment of the environment is critical to sustainment of the 14 FTW mission, to "defend the United States of America by developing the world's best warriors, leaders and professional military pilots." Acknowledging the adverse impact that the degradation of the quality of land, air, and water resources can have on the mission, the base began developing its EMS in 2003 and further expanded its scope to establish an Environment, Safety and Occupational Health Management System (ESOHMS) in early 2006.

Through a partnership grant with the US Environmental Protection Agency and the University of Tennessee, CEV identified over 2,000 environmental aspects associated with its activities and operations, to include 280 air emission sources, four regulated storm water outfalls, 33 restoration sites, 90 above ground and underground storage tanks, 180 acres of wetlands, and 1,200 acres of commercial forest. Perhaps the most significant environmental aspect at the installation is the management of fuel. Columbus AFB uses over 16 million gallons of fuel each year and maintains over two linear miles of underground fuel pipelines.

Columbus AFB is committed to preserving and enhancing not only the natural infrastructure but also the workforce infrastructure. In 2005, Columbus established the first Environmental Safety and Occupational Health (ESOH) Council in AETC. The ESOH Council, chaired by the installation commander, includes all base senior leadership.

Leveraging the incredible support of wing leadership, Columbus AFB developed the command's first cross-functional team, chaired by the vice wing commander. This unique team, consisting of representatives from operations, logistics, medical, civil engineer, communications, contracting, safety and finance, developed and aided in the implementation of a conforming ESOHMS, a holistic management approach that assesses mission impacts of environmental aspects and safety/occupational health risks.

Community involvement and awareness are keys to the success of Columbus's ESOH program. CEV maintains positive working relationships with more than 45 active partners including universities, government agencies, industries, and local communities.



Timberlane Nature Trails — Mississippi State University professors identifying significant trees and plants along the Timberlane Nature Trails. The team identified 69 trees and plants by scientific and common names. This information was used to develop the Columbus AFB Trail Guide Book.

PROGRAM SUMMARY

Over the past two years, Columbus AFB has made great strides in improving environmental stewardship while supporting the base's flying mission. During the achievement period, the base identified 10 significant ESOH aspects and

CAFB ESOH Management System Objectives/Targets		
TARGET	OPR	STATUS
Reduce energy consumption by 3% in FY07 based on 2003 baseline	Civil Engineer/ Operations	●
Conduct 100% joint ESOH Squadron commander In-briefs by end FY07	Ground Safety	●
Reduce carbon monoxide levels below 12.5 ppm at the indoor firing range by 1 st Qtr FY07	Bioenvironmental Engineering	●
Reduce consumption of ground fuels by 30% by FY 2010	Logistics/ Fuels	●
Investigate and implement short-term solution to minimize potential environmental impact of fuel spill at the Refueler Parking Area	Civil Engineer/ Environmental Logistics/Fuels	●

A sampling of ESOHMS Objectives and Targets "Stop light" format is used to update senior leadership.

established 35 objectives and targets to minimize or mitigate negative impacts on the environment and workforce. These aspects include Facility Energy Consumption, Fuel Energy Consumption, Air Emissions, Hazardous Materials, Installation Restoration Site/Spill Site 32, Refueling Operations, Joint ESOH inspections, Combat Arms Training, Hearing Conservation, and Green Procurement. Currently, Columbus AFB met, or is on target to meet, over 90% of the ESOH objectives and targets established.

As part of the continual improvement process, CEV completed two internal audits, streamlining the process with the installation Environment, Safety and Occupational Health Compliance Assessment Management Program (ESOH CAMP) and two management reviews of the ESOHMS. The ESOHMS implementation at Columbus AFB was so successful that it was highlighted at the 2006 DoD Joint Services Environmental Management Conference and the 2006 and 2007 Air Force ESOH Symposia.



ACCOMPLISHMENTS

Eliminating Hazardous Substances Reduces Risk to Personnel and the Environment!

In 2006, Columbus AFB decreased hazardous material usage by 12,000 lbs, and the base maintained stock levels below reportable Toxic Release Inventory (TRI) thresholds for the past four years. The base replaced the antiquated chlorine gas system at the base pool with an in-situ hypochlorite disinfection system. This process change eliminated the only regulated extremely hazardous substance (EHS) remaining on base.

14 CES/CEV also implemented a mandatory "Paint Policy." This policy authorizes only six basic paint colors to be used in base projects, significantly reducing paint-related waste. The decrease in hazardous materials and the mandatory paint policy resulted in an overall 12% reduction in hazardous waste disposal in 2007.

The Air Force selected CAFB as the Qualification Operational Test and Evaluation Base for a non-chromium-containing coating system for the T-38 aircraft in 2007. The critical field test will evaluate the appearance and effectiveness of the corrosion protection provided by a non-chromium pretreatment. These efforts are of particular interest to the ESOH Council. If successful, this process change will reduce the overall quantity of chromium in the total coating system and significantly reduce the quantity of chromium-containing hazardous waste generated as well as provide greater employee protection due to the reduced risk of exposure to chromium.

Broad Participation is the Key to Success!

One-hundred percent of all incoming active duty military and civilian personnel receive ESOHMS awareness training as part of their base in-processing. CAFB utilizes an ESOH Training Network, a web-based tool that provides employees access to over 100 environmental awareness-level courses at their workstations. CAFB has not received an enforcement action in 15 consecutive years--proof positive that ESOH awareness and ownership at the lowest level works!

Participation in the base recycling program soared from 12% to over 84% in FY 2006. CAFB has also been recognized as a state leader

in recycling, accepting the Mississippi Federal Recycler of the Year designation for 2003-2006 and the Keep Mississippi Beautiful Award for 2005-2007. Perhaps the most notable accomplishment is the appointment of CAFB Pollution Prevention Manager to the Governor's Task Force on Recycling. In 2006, this task force assessed the state recycling industry and recyclable materials markets, providing over 25 recommendations to the state legislature to improve Mississippi's recycling program.

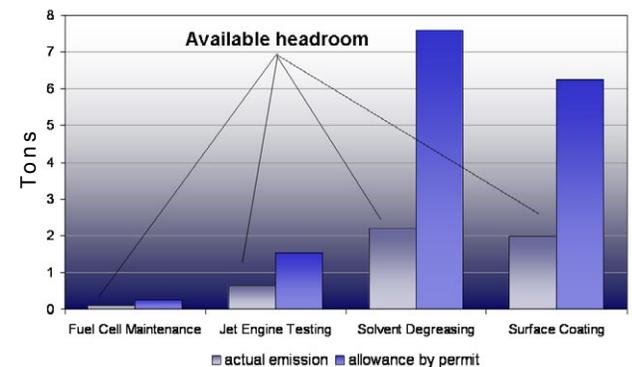
Columbus's ESOH program is not limited to active duty and civilian employees. ESOH requirements are included in all contracts, including mandatory training and membership in the installation's cross-functional team. Additionally, all contractors view the ESOH Management Policy as they in-process through the base visitor center. To encourage contractor compliance with all environmental requirements, CEV also developed the "Contractor's Easy Environmental Guide." This handy brochure highlights the environmental requirements associated with conducting work on CAFB.

Proactive Planning Expands Capacity for Future Mission Growth!

Columbus AFB successfully completed a comprehensive General Plan-Based Environmental Impact Analysis Process (GEIAP). The GEIAP assessed the environmental impacts of construction, renovation and demolition projects estimated at \$62M, in accordance with the National Environmental Policy Act. The GEIAP was completed in just seven months, allowing Columbus to quickly award several Base Realignment and Closure (BRAC) projects that supported the new Introduction to Fundamental Fighter mission.

The installation operates equipment that produce regulated air emissions under a Synthetic Minor Operating Permit (SMOP). Because the base is able to minimize its emissions of hazardous air pollutants by imposing operational controls on the equipment, the actual emissions are far below the permitted emission ceilings, and this translates into available emissions capacity for future mission growth requirements.

Columbus AFB Air Emissions Capacity



Strategic Management of Forested/Landscaped Areas Enhances both Safety and the Environment!

Over the past two years Columbus AFB has identified and tracked the planting, health, removal, and maintenance of 6,500 trees using the Urban Tree Inventory tracking system. The base improved more than 200 acres of land through a tree thinning and forest mowing program, which promoted regrowth and regeneration and reduced the risk of fires. During the same period, the base developed and implemented a Wildland Fire Management Plan to reduce threats to personnel, mission and

wildlife during fires and incorporated the AETC Tree Policy — replacement of removed trees on a two-for-one basis - into all relevant projects. The natural resources professionals in CEV developed a list of available native trees and shrubs that require minimal irrigation and maintenance, and the planting of native trees and shrubs has resulted in \$50,000 in savings.

Columbus AFB was also the first base in AETC to use a wood processor to clean up commercial forestry sites. Wood chips produced by the slash at five separate logging sites were diverted to the local Weyerhaeuser Paper Plant and used as fuel. The base's efforts in the area of forest management resulted in receipt of the 14th consecutive Tree City USA designation and the 5th Growth Award from the Mississippi Forestry Commission.



Col Dave Gerber, 14 FTW Installation Commander accepts the 15th consecutive Tree City USA flag from Mr. Rick Olson, MS Forestry Commission during Columbus AFB's 2007 Arbor Day Celebration.

Reducing Reliance on Landfills Saves Money and Promotes Community Relations!

During the achievement period, the installation diverted over 4.1 million pounds of solid waste from the landfill, avoiding approximately \$695,000 in off-site landfill disposal fees. CEV also operates a state-permitted composting facility on-site, successfully diverting over 293,000 lbs of green waste from landfill and realizing savings of \$20,000. Compost, along with colored mulch produced in-house, are free for base and military family housing beautification projects.

As part of the repair of the 1,200-foot center runway in 2006, the base reused or recycled 122 million pounds of runway demolition debris. Some of the materials were used on site to restructure the landscape and correct existing airfield surface water drainage problems. **The recycling efforts diverted 99% of the repair project debris from landfill, far exceeding the Air Force's 40% diversion goal!**

Columbus AFB earned Air Force "Best Practice" recognition for its glass recycling process. The base joined forces with East Mississippi Community College Truck Driver School to provide free transportation of pulverized glass collected on base to the Holcim Cement Company. In turn, Holcim Cement reuses the pulverized glass in its process to make new cement. To date, this dynamic partnership diverted approximately 40,000 lbs of pulverized glass from the landfill and aided in providing critical truck driving training, all at no cost to the government!

Green Purchasing and Energy Conservation Demonstrates Strength in Environmental, Energy and Transportation Management!

Columbus AFB established an aggressive Green Procurement Program, directed by a dedicated "Green Team" that is co-chaired by CEV and base Contracting. The installation purchased \$1.2 million in recycled products in FY 2006 alone and collaborated with the base service store to establish a "Green Store" and adjacent green conference room. Both the store and conference room are outfitted with low volatile organic-content paint, recycled-content carpet and furniture, and Energy Star appliances. The store highlights all green products, making it easy for customers to "GO GREEN!"



"Green" cleaning products highlighted for sale at the base service store.

The conservation of energy resources has always been a focus for Columbus AFB. In 2006, the installation initiated a pilot study on the use of Solar Reflective Window Film on every "energy hog" building. The base is currently tracking the effectiveness of this solar film with the anticipation of a

3.5-year payback. If successful, solar film will be placed on all “energy hogs,” thus reducing overall energy costs associated with both heating and air conditioning. Columbus AFB has also been successful at reducing consumption of motor gasoline (MOGAS)—down by 9% in 2007, and transitioning ground vehicles to alternative fuels such as biodiesel—100% usage in all fleet diesel-powered vehicles. Realizing that this reduction represents just a small portion of the overall energy usage, the installation is currently tracking aviation fuel usage and will research conservation initiatives that will result in a “leaner” and more productive process without impacting the flying training mission.

Proactive Efforts Protect the Local Watershed!

CEV worked proactively, with the full support of the ESOH Council, to construct a \$270,000 Spill Gate at the base’s most vulnerable storm water outfall. This outfall receives discharges from 90 percent of the base surface water drains, including discharges from drains in the one-million-gallon-capacity Jet Fuel Storage Area. The spill gate provides a barrier that supple-



The New Spill Gate installed at outfall 1, South Gate can be remotely controlled by the Energy Management Control Center and protects a 6100 sq mile watershed.

ments the existing containment infrastructure in case a fuel spill should occur in the Bulk Fuel Storage Area. The spill gate effectively protects the 6100-square mile local watershed, which includes wetlands, endangered streams and a wildlife conservation area.

Community Outreach Provides Foundation for Successful Future Initiatives!

The 14 FTW is an active member of the Mississippi Task Force on Recycling, Mississippi Environmental Restoration Tier I and II partnering groups, and Technical Review Committee. The base encourages robust partnering with state and federal regulators, and in 2007 this effort led to state acceptance of land use control as remedy for selected contaminated sites, opening the door to site closure for 12 remaining restoration sites on the base, and additionally ensuring that Columbus AFB meets the Air Force goal of 2012 for Remedy-In-Place.



SAC-era Metal Ammunition Demolition Furnace uncovered during restoration activities at former open burn / open detonation area. Columbus estimates a \$1.8 million dollar savings as a result of approved land use controls and proactive remedial efforts.

The associated potential savings could reach \$5.3M. The Air Force recognized the base’s success in the area of public outreach by awarding it “Honorable Mention” for the 2007 General Thomas D. White Environmental Restoration Award for Public Outreach.



Mr. DeFillipo, Mississippi Museum of Natural Sciences, educates 4th graders on local alligator species at Columbus’s 2007 annual Earth Day Celebration.

During the achievement period, CAFB hosted two annual Earth Day and Arbor Day Celebrations. Over 1,000 local schoolchildren were educated on environmental issues including energy conservation, recycling, threatened and endangered species, alternative fuels, and protection of natural resources. These world class events were supported by over 15 community sponsors, who setup and manned environmental learning stations, and provided free bus transportation and lunch to attendees. The 2006 event was so successful it was featured on Air Force News.



Butterfly attracted to a newly planted butterfly bush, *Buddleia davidi*. A public lands day grant was utilized to develop Butterfly Gardens with plants that produce nectar for the adults and vegetative material for the larvae.

In an effort to make the Columbus AFB Commissary more “earth friendly,” CEV donated 500 recycled-content cloth grocery bags to replace existing plastic on Earth Day 2007. Encouraged by this effort and the positive customer response, the Commissary now offers their own reusable cloth grocery bags for a small fee.

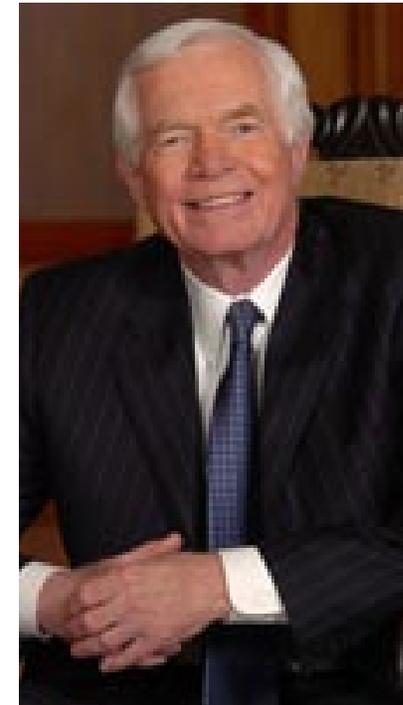
The installation celebrated National Public Lands Day on October 20, 2007 with activities that included the unveiling of the Butterfly Gardens adjacent to the SAC Lake nature trails. Planting of the gardens was made possible through a Legacy Grant from the National Environmental Education Foundation, which provided the necessary funds to purchase plants and tools.

The Butterfly Gardens were designed, created and established solely by volunteer efforts. 45 volunteers worked hand in hand to plant 330 butterfly bushes and plants. The Butterfly Gardens will provide a place to observe, enjoy and study a diverse population of butterflies. Next summer the garden flowers will also generate seed that can be harvested and used by base gardeners.

CONCLUSION

The Columbus AFB ESOH program is continually evolving and maturing. Going beyond environmental compliance, the ESOHMS framework established ensures both natural and workforce infrastructure impacts are afforded appropriate consideration early in the planning and decision making process.

CEV and the entire “BLAZE Team” are dedicated to striking the critical balance between the success of the mission and stewardship of human and environmental resources. This dedication has earned recognition from Mississippi Senator Thad Cochran for the outstanding performance of the Columbus AFB ESOH program.



“Columbus Air Force Base’s excellence in environmental stewardship makes it a valued community partner and neighbor. Having been previously recognized for its environmental leadership, Columbus Air Force Base could have rested on its accomplishments. However, the base continues to focus on improving its environmental record by slashing hazardous material use and disposal, increasing recycling, and working with our universities on innovative solutions to be better stewards of our environment.”

Thad Cochran
United States Senator

2007

SECRETARY OF DEFENSE
ENVIRONMENTAL AWARDS



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Columbus Air Force Base

Nominee: 14th Civil Engineering Squadron
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