



2019 Secretary of Defense

Environmental Awards

Environmental Quality – Overseas Installation
Royal Air Force Lakenheath

Introduction

Royal Air Force (RAF) Lakenheath, United Kingdom (UK), is home to the 48th Fighter Wing, which consists of more than 4,500 active-duty military members, over 1,000 British and United States (US) civilians, and one geographically-separated unit (GSU) at nearby RAF Feltwell. RAF Lakenheath is the largest US Air Force-operated base in England and the US Air Forces in Europe (USAFE) F-15 Fighter Wing. The 48th Fighter Wing's mission is to provide responsive combat airpower, support, and services to meet our nation's and allies' international objectives. The 48th Fighter Wing, also known as the Liberty Wing, brings unique air combat capabilities to the fight, providing all-weather, day-or-night air superiority and air-to-ground

precision combat capability. RAF Lakenheath is also devoted to the local community, which extends beyond the gates and into the villages, towns, and cities many Liberty Airmen call home.

RAF Lakenheath is situated in the local setting of East Anglia, Suffolk in eastern Great Britain. The Installation is located approximately 25 miles northeast of Cambridge and 70 miles northeast of London and comprises an area of approximately 2,300 acres surrounded by coniferous woodland, lowland heath, and farmland. The airfield itself lies within the low-lying Breckland Plateau and consists of open, closely mowed grassland. The Breckland habitat is considered to have outstanding conservation value at both a national and European level.



RAF Lakenheath Airfield

RAF Lakenheath is home to the 48th Fighter Wing, USAFE's fighter wing of F-15s. 243 acres of the Installation, including much of the airfield, has European Union and United Kingdom designations for protection status due to several rare species of plants and insects.

Background

The 48th Civil Engineer Squadron's Environmental Element is responsible for environmental stewardship at RAF Lakenheath and its GSU at RAF Feltwell. The Element manages 15 Wing environmental programs and protects natural and cultural resources for 2,300 acres to ensure compliance for 26 units and \$10.3 billion in infrastructure.

The Environmental Element is comprised of 14 US and UK civilians responsible for ensuring compliance with the United Kingdom Final Governing Standards (FGS), the primary governing document for environmental regulations. The Element coordinates environmental responsibilities closely across the Wing, ensuring cooperation with Host Nation regulators and community stakeholders. The Environmental Element authored eight planning documents to ensure operational controls are current and in place to effectively oversee compliance programs and procedures across the Wing. The Element also proactively trains to maintain expedient and compliant environmental spill response capabilities. During the annual fuel spill response exercise,

Element personnel demonstrated their skill and teamwork to integrate response efforts for a substantial 500,000-gallon spill scenario that garnered a rare "Outstanding" rating from the Wing's Inspector General.

RAF Lakenheath ensures effective processes and communications are in place to collect and assess critical data. The Installation completed an Installation-wide survey to collect data for 119 Oil-Water Separator units, which corrected 101 records in the Real Property and Geographic Information System databases. This effort improves the Installation's ability to manage, repair, and upgrade infrastructure assets critical to Wing operational support while enhancing readiness for spill response and containment. It also improved financial compliance earning RAF Lakenheath a "Superior Element" award during the Wing's Unit Effectiveness Inspection. A focus on utilizing accurate and pertinent data for continual improvements also enabled the Installation to complete seven lengthy higher headquarters data reports. One data report focused on Department of Defense (DoD) climate change adaptation initiatives that incorporated the UK's approach to climate change infrastructure resiliency. This precise and timely information is indispensable to judicious policy makers.

RAF Lakenheath's effective working relationship with environmental regulators and stakeholders ensures superior operational support and compliance with environmental guidelines. As a member of the RAF Lakenheath Bird/Wildlife Aircraft Strike Hazard (BASH) Working Group, Environmental Element personnel identified bird conservation regulations pertinent to new BASH equipment. The Installation then authored new operating procedures with flight safety professionals and regulators to secure

approval and proactively improve airfield safety and operational capabilities.

Summary of Accomplishments

Preparation for 5th Generation Airpower

The 48th Fighter Wing will be home to the first permanent international site for F-35 aircraft in USAFE. In preparation for the advanced aircraft's arrival in November 2021, RAF Lakenheath completed several significant studies of their potential environmental impacts. They implemented the UK's environmental planning and analysis requirements, executing a \$557,000 project to produce an Environmental Impact Assessment that secured Host Nation approval for F-35 beddown construction efforts. RAF Lakenheath coordinated the collection of technical data from Wing Operations, Lockheed Martin, and the F-35 Joint Program Office to enable the RAF Aviation Noise experts to predictively model the Installation's future noise contours. This critical study provided the local council insight into F-35 noise projections, a significant and sensitive community issue. With the F-35 aircraft and engine specialists from the Joint Program Office and Pratt & Whitney, the Installation ensured timely completion of an air emission analysis. The results detailed a 21% reduction in Nitrogen Oxide emissions, assuring stringent regulatory approval for imminent mission growth.

Proactive planning and conservation of natural resources is integral to new electrical infrastructure construction required for mission growth. The Installation required a new electrical feed and substation to power the facilities essential for the F-35 beddown. To enable the power upgrade, RAF Lakenheath drove a \$102,000 project to mitigate environmental impacts of the new 15 megawatt substation, secure a license from Host Nation regulators, and translocate a rare plant

found within the footprint of the substation. Efforts protected over 200 plants of the perennial knawel, a species so rare that 95% of the global population is found at RAF Lakenheath and ensured project timelines critical to the \$33 million power upgrade and \$825 million of F-35 beddown construction were met.



F-35 at RAF Lakenheath

The 48th Fighter Wing will be home to the first permanent international site for United States Air Force F-35s in Europe. The Installation completed noise, air quality, ecological, and other environmental studies to produce an Environmental Impact Assessment that secured Host Nation approval for the F-35 beddown.

Waste Reduction and Management Efforts

The 48th Fighter Wing proactively minimizes waste generation and maximizes material reutilization opportunities. The Installation executed a \$225,000 Hazardous Waste Program that safeguarded the collection, storage, and disposal of 176 tons and 2,000 containers of hazardous waste. This support is critical to the daily aircraft maintenance and launch of over 31,000 sorties.

Through a comprehensive shelf-life management program and with squadron teammates, RAF Lakenheath established alternate use procedures for over 20 tons of materials initially slated for disposal and avoided \$53,000 in potential costs. The Installation also conducted in-house sampling

collections of fire suppression system wastewater suspected of containing perfluorooctanesulfonic acid (PFOS). The waste disposal was quickly scrutinized and found PFOS-free, avoiding \$20,000 in potential disposal costs and negating any PFOS risk to human health. By providing key waste disposal expertise and support, their superior efforts culminated in the safe disposal of 18,000 gallons of fire suppression foam to implement an Air Force-wide initiative to install newly formulated foam. Their expertise assured environmentally friendly and effective firefighting capabilities in three aircraft maintenance facilities and 11 firefighting vehicles, proactively eliminating all PFOS-containing foam to demonstrate the Air Force's commitment to improving environmental performance while meeting mission requirements.

RAF Lakenheath's Solid and Hazardous Waste Programs are perpetually recognized as benchmarks for exceptional management and innovation. The RAF Lakenheath Hazardous Waste Program hosted a workshop for 19 program managers from across USAFE, providing tours of the Installation's waste collection sites and sharing best practices. This workshop provided far-reaching impacts through professional growth and cross-feed for attending Air Force peers and synchronized best practices across the Command. In addition, RAF Lakenheath's Solid Waste Program Manager was handpicked to be one of five Subject Matter Experts across the Air Force to partner with Army counterparts and develop a contemporary DoD solid waste management electronic database. Efforts optimize efficient, accurate, and standardized administration of the Solid Waste Program for all DoD current and future environmental managers.

Environmental Compliance



Stone Curlew

The stone curlew is a United Kingdom-protected ground-nesting bird known to flock to RAF Lakenheath's airfield. The Installation protected 16 nests and eight new chicks that fledged.

RAF Lakenheath strives for the most efficient and effective methods to ensure Air Force and FGS compliance while facilitating uninterrupted combat mission flying operations. During the accomplishment period, two initiatives were implemented to ensure proper oversight of crucial fuel infrastructure and hazardous material sites. The Installation authored a Performance Work Statement and awarded a \$1.4 million contract that enhanced inspection and maintenance procedures for 137 underground and above ground fuel tanks necessary to provide fuel for heat, hot water, and backup power generation for all mission critical base facilities. By establishing contract support, a team of professional personnel provided proactive oversight of fuel tanks, improving spill prevention measures, minimizing the extent of potential spills, and eliminating 5,000 man-hours of additional duties across the Wing. Details of this innovative contract approach were shared as a best management practice. The approach was duplicated by RAF Mildenhall, a nearby installation, leading to improved program oversight for 110 fuel tanks. Similarly, the Installation spearheaded the Hazardous

Materials Management Process Team that assessed training protocols for RAF Lakenheath Airmen. This Team produced a new Wing policy which streamlined training procedures and saved nearly 9,000 man-hours. Both initiatives ultimately advanced the Wing's environmental performance by establishing improved management of fuel tanks and hazardous materials, enhanced mission operations, and allowed Airmen to focus on their primary duties.

Environmental Management

The 48th Fighter Wing utilizes an International Standards Organization 14001-conforming Environmental Management System (EMS) as the framework to control environmental impacts and ensure programs and processes are comprehensively managed, and in so doing enable the Wing mission. Through working groups, cross-functional teams, and management reviews, the Installation spearheads the successful implementation of the EMS across the Wing to ensure compliance with environmental regulations, reduce risk, and continually improve performance. Emphasis on continual environmental improvements were validated during a Unit Effectiveness Inspection. During the inspection only three minor deficiencies were identified, a substantial 82% reduction in environmental findings from the Wing's previous inspection. Through the development of environmental action plans that address significant environmental aspects, RAF Lakenheath roadmaps activities, progress, and resources. The action plans are instantly accessible to leadership to track program initiatives and successes. Having completed one such action plan, the Installation successfully advocated for a \$4.9 million project to upgrade a 70-year old oil-water separator and drainage system. The plan and resulting project strengthen

environmental performance and diminishes the risk of airfield flooding.



Archeology Efforts

RAF Lakenheath is home to rich cultural and archaeological resources from Roman, Saxon, and Bronze-age sites. Sites include vast Saxon burials and cemeteries. The Installation completed over 70 archaeological digs to preserve and protect 139 different known sites during the accomplishment period.

Conservation of protected natural and cultural resources are also incorporated into all vital RAF Lakenheath operations. The Installation provided robust oversight of 74 facility project designs and 277 construction permits. They ensured local history and archaeological resources were protected, while negating design, schedule, or construction impacts to necessary facility and infrastructure upgrades. This included a critical \$3 million upgrade of the Installation's refueler truck parking area that protected a human burial find while improving the location's surface water drainage to protect water quality resources. The Installation streamlined consultations and partnerships with local regulators, archaeologists, and project engineers. The result of their harmonized efforts includes completing 70 archaeological digs, unearthing

a rare Saxon-era burial for preservation, and safeguarding 139 Roman, Saxon, and Bronze-age sites for future studies.

RAF Lakenheath expertly provided day-to-day environmental assistance to a multi-disciplined engineering and scientist team to review \$110 million in facility sustainment, restoration, and modernization projects. Subsequent projects support current flying operations and bolstered significant future mission planning and development efforts. Environmental program managers served as key Subject Matter Experts for the Installation Complex Encroachment Management Action Plan development and several F-35 beddown planning charrettes. Their participation ensured environmental processes and requirements are identified and formulated early to enable mission growth.

The Installation also planned and executed critical geotechnical and ecological site surveys covering 54 acres that will be developed into the future F-35 campus. Their proficiency, substantiated with these surveys, drastically reduce risk of future developments encountering unknown contamination or Host Nation protected species. The Installation's proactive efforts supported over \$1 billion in planned upgrades and development. Strategic enhancements include the European Deterrence Initiative mission, European Infrastructure Consolidation Initiative, and a \$52 million Base Exchange upgrade. Specifically, RAF Lakenheath coordinated surveys for both reptile and bat species, monitoring 20 reptile traps and three bat detectors over a four-month study. This eliminated potential environmental constraints for the development of the \$68 million new high school construction. Surveys identified one bat roost in the Installation's existing hospital, which enabled the identification and development of mitigation measures that were integrated into the design of

a new \$330 million hospital which will support over 44,000 patients annually.

Effective Use of Funds



Liberty Wing Recycling Center

The Liberty Wing Recycling Center supports approximately 14,000 personnel including military, civilians, and families with convenient and cost-effective recycling services. The Recycling Program's mascot, Chuck-It, helps promote recycling awareness throughout the year at RAF Lakenheath events and outreach initiatives.

The Liberty Wing Recycling Program continually finds innovative ways to efficiently boost recycling efforts while increasing Program revenue. Through astute market research and close coordination with local recycling vendors, the Liberty Wing Recycling Program advanced initiatives to expand recycling opportunities beyond traditional commodities such as cardboard, paper, metal, plastic, and glass. These expanded recycling opportunities resulted in recycling textiles, pallets, and other waste, diverting 15 tons of refuse and debris from the landfill, and providing \$14,000 in Program revenue. The Liberty Wing Recycling Program participates in a local recycling credit program, strengthens relations with off-base community stakeholders, and additionally increased annual revenue by \$15,000. Their pragmatic efforts ensured the Program is a financially self-sustaining operation.

Community Relations

RAF Lakenheath organizes stakeholder engagement and outreach events throughout the year to increase environmental awareness at the Installation and across the local community. They also strive to provide services that help improve community quality of life for military and civilian personnel and their families.

Throughout the month of April, RAF Lakenheath celebrates Earth Month, expanding on the traditional Earth Day celebrated across the world, with several outreach events designed to educate Air Force community school students about Installation ecological resources and recycling programs. During the accomplishment period, the Installation held 18 biodiversity courses and recycling center tours for 450 students and faculty. The biodiversity courses allowed students to conduct investigations and observations of plant, insect, and amphibian life in an Installation pond. These studies spark interest in biosciences for future generations. The recycling center tours provide insight on what happens to recyclables when students and their families recycle at school, work, and home. Students also get a chance to meet Chuck-It, the enthusiastic RAF Lakenheath recycling mascot who encourages sustainability ideals and makes recycling practices part of everyday life.

Annual Installation-wide challenges are held to encourage and assist the RAF Lakenheath population to improve recycling and energy reduction efforts. During the challenges, squadrons compete to drop off the most recyclables, as well as appliances or electrical equipment that use excess energy and are no longer needed. The squadrons that recycle the most and dispose of the worst “energy hog” appliances are awarded prizes. During the accomplishment period, the recycling program collected 75 tons of material. In addition, the

Installation organized dedicated clean-up events to collect 29 tons of recyclable materials from Military Family Housing residents.



Earth Month Pond Dipping

RAF Lakenheath held 18 biodiversity courses for local students during Earth Month celebrations. Pond Dipping courses allow students to conduct investigations of plant, insect, and amphibian life on the Installation.

RAF Lakenheath has made significant progress to support a unique and precise combat flying mission while protecting human health in the areas of environmental planning, waste management, and compliance with FGS and Air Force regulations. Utilizing successful tools and innovative techniques, while effectively communicating common objectives, ensures RAF Lakenheath’s future success.