



2020 Secretary of Defense Environmental Awards Environmental Excellence in Weapon System Acquisition, Large Program Award

Each year since 1962, the Secretary of Defense (SecDef) has honored installations, teams, and individuals for outstanding achievements in Department of Defense (DoD) environmental programs. These accomplishments include outstanding conservation activities, innovative environmental practices, and partnerships that improve quality of life and promote efficiencies without compromising DoD's mission success. The 2020 Secretary of Defense Environmental Awards cycle encompasses an achievement period from October 1, 2017, through September 30, 2019 (Fiscal Year (FY) 2018-2019). A diverse panel of 54 judges with relevant expertise representing Federal and state agencies, academia, and the private sector evaluated all nominees to select one winner for each of the nine categories. These nine categories cover six subject areas including natural resources conservation, environmental quality, sustainability, environmental restoration, cultural resources management, and environmental excellence in weapon system acquisition.

About the Environmental Excellence in Weapon System Acquisition, Large Program Award

The Environmental Excellence in Weapon System Acquisition, Large Program award recognizes efforts to incorporate environment, safety, and occupational health requirements into a large (Acquisition Category I) weapon system acquisition program's system engineering, contracting, and decision-making processes. Adhering to these requirements enhances DoD's acquisition process by ensuring that weapon system programs prioritize the safety of personnel and protection of the environment. The 2020 winner of the Environmental Excellence in Weapon System Acquisition, Large Program award is the *F-35 Joint Program Office, Wright Patterson Air Force Base, Ohio*.

About the F-35 Joint Program Office, Wright Patterson Air Force Base, Ohio

Wright Patterson Air Force Base is located just outside of Dayton, Ohio, and is hosted by the 88th Air Base Wing and the Air Force Materiel Command. The base boasts a total of 27,406 military, civilian, and contract employees and a resident population of 1,821 people. The F-35 Lightning II Program is a DoD Acquisition Category I-D Program, under direction of a Program Executive Officer and managed by the F-35 Lightning II Joint Program Office. The F-35 Joint Strike Fighter Program includes three variants: F-35A conventional takeoff and landing variant; F-35B short takeoff/vertical landing variant; and F-35C carrier variant. The F-35 Joint Strike Fighter aircraft will replace aging inventories of A-10s, F-16s, F/A-18s, AV-8B Harriers, Harrier GR7s, and Sea Harriers. The F-35 Environment, Safety, and Occupational Health (ESOH) Team is responsible for integrating ESOH into F-35 aircraft systems engineering processes and acquisition strategy.



F-35 ESOH Team members include F-35 partner services, Foreign Military Sales (FMS) military services, Pratt & Whitney (P&W), Northrop Grumman (NGC), BAE Systems, and other contractor support. Pictured from left to right: Mike Arthur, FMS ESOH; Allan Aubert, Naval Air Systems Command (NAVAIR) Acoustics; Elaine VandeKerckhove, P&W Hazardous Materials Manager; Richard McKinley, Air Force Research Laboratory (AFRL) Acoustics; Sari Atchue, ESOH Coordinator; Dr. Alan Wall, AFRL Acoustics; James Wilt, Joint Program Office ESOH Lead; Hilary Gallagher, AFRL Hearing Protection & Communication; Gary Gregory, U.S. Navy ESOH; Benjamin Thrasher, U.S. Air Force (USAF) ESOH; and Scott Fetter, Lockheed Martin (LM) Environment, Safety, and Health (ESH) Lead. Other core members not pictured: Robert Roy, Air Vehicle Environmental Lead; Kristen Semrud, NAVAIR Acoustics; Brendan Sweeney, ESOH Coordinator; John Casana, ESOH Coordinator; Julia Lynn, ESOH Coordinator; Nick Yandell, ESOH Analyst; Flint Webb, U.S. Navy Air Quality & Emissions; Ghazi Hourani, U.S. Navy Industrial Hygienist; Mark Conlon, U.S. Navy Industrial Hygienist; Dr. Christin Duran, AFRL Industrial Hygienist; David Blair, USAF Pollution Prevention; Teresa Finke, USAF Pollution Prevention; Rusty Barfield, LM ESH Field Operations Support; Dr. Kristin Butterworth, LM Support Equipment ESH; Megan Brooks, LM Materials and Processes ESH; Rick Shanks, P&W Green Engine Program; Jenna Heffernan, P&W Registration, Evaluation, Authorization, and Restriction of Chemicals Support; Glen Abad, NGC Materials and Processes; and George Jung, NGC ESH.

Major Accomplishments in FY 2018-2019

- The F-35 ESOH Team monitored the usage of cadmium, a human carcinogen and regulated hazardous material, since the early development and production phases of the F-35 aircraft. The Team recently tested and successfully implemented a new zinc-nickel plating alternative that will prevent corrosion on aircraft components and completely remove cadmium plating from F-35 aircraft production.
- The F-35 Program Acoustics Team led two major acoustic measurement efforts to help certify F-35 operations in hardened aircraft shelters. Stakeholders collected and analyzed data for the F-35 acoustic environment to model community noise around installations in compliance with the National Environmental Policy Act. The team also determined maintainer and cockpit pilot noise exposure levels and provided recommendations on hearing protection options for all current users of F-35 aircraft.
- Hexavalent chromium is a heavy metal and known human carcinogen used in various forms of primers, adhesives, sealants, and plating for protection against wear and corrosion. The F-35 ESOH Team has eliminated hexavalent chromium plating from all F-35 external coatings and is on track to eliminate all remaining hexavalent chromium uses, including fuel tank and support equipment primers and coatings.
- The F-35 ESOH Team implemented a facility-wide lighting upgrade project at an F-35 assembly facility in Texas, saving \$1 million annually over the last two years. Visible light emitted has increased by 50%, power loads decreased by 63%, and transformer deck loads decreased by 20%, resulting in brighter work lighting and more efficient electricity use.
- The F-35 ESOH Team installed thermal energy storage tanks that hold two million gallons of water, equivalent to 32,000 ton-hours of cooling or four megawatts of refrigeration demand. This upgrade optimized chiller efficiency and realized a 6% reduction in energy demand. Replacing two chillers with more energy efficient models resulted in a reduction of 4.8 million gallons of condenser water per year.
- The F-35 ESOH Team implemented a low volatile organic compound (VOC) internal aircraft coating, eliminating 21 tons of VOCs and reducing total emissions at a production facility in California. This approach saved \$1.8 million per year in operating costs, realized additional permit cost offsets otherwise required by California regulations, and eliminated the need for an \$18 million acquisition of expensive VOC mitigation equipment.



F-35 Acoustics Team members, including Air Force Research Laboratory and Naval Air Systems Command, analyze the F-35 acoustic environment. Analyses help the Team understand, communicate, and mitigate noise exposure in the community, in the cockpit, on the flight line, onboard aircraft carriers, and in hardened aircraft shelters. Personnel depicted: F-35 Support Technician.



Hexavalent chromium has been eliminated from F-35 exterior coatings. Staff are evaluating, testing, and implementing alternatives for remaining uses. An internal fuel tank coating is the largest remaining use of hexavalent chromium, but it is on track for replacement in 2020. Photo courtesy of Lockheed Martin.