



2024 Secretary of Defense

Environmental Awards

Environmental Quality, Team

SLD 45 Environmental Quality Team, Patrick Space Force Base

Introduction

Patrick Space Force Base (PSFB) is the headquarters installation for United States Space Force (USSF) Space Launch Delta 45 (SLD 45) and encompasses 2,002-acres on a barrier island between the Atlantic Ocean and the Banana River. PSFB is one of four Florida installations that constitutes SLD 45 along with the 16,198-acre Cape Canaveral Space Force Station (CCSFS), 640-acre Malabar Transmitter Annex located in Palm Bay, 11-acre Jonathan Dickinson Missile Tracking Annex located in Jupiter, and the Ascension Auxiliary Airfield on Ascension Island in the south Atlantic Ocean. Additionally, SLD 45 operates the Eastern Range, a land- and sea-based tracking network which encompasses 15 million square miles extending from

Florida across the southern Atlantic Ocean and into the Indian Ocean.

The SLD 45 mission is “One Team... Delivering Assured Space Launch, Range and Combat Capabilities for the Nation.” SLD 45 oversees the preparation and launch of U.S. government and commercial satellites from CCSFS. There are more than 74 mission partners and tenants at SLD 45, consisting of 3,807 military, 2,418 civilian, and 4,553 contractor personnel. SLD 45 also serves the needs of more than 6,200 military dependents and 125,000 retirees. The space launch mission brings new launch customers, increased workforce/contractors, and tourists that generates an estimated economic impact of \$2.4B per year.

The SLD 45 Environmental Quality Team (EQT) ensures environmental compliance, protecting the natural and built infrastructure in support of Assured Access to Space! Team members are employed by the 45th Civil Engineer Squadron of SLD 45 or by the Air Force Civil Engineer Center comprising of Laurie Fisher, Environmental Compliance Chief and team lead; Steven Baker, Water Quality Program Manager; Martha Carson, Staff Biologist; Angy Chambers, Wildlife Management Program Manager; Keitha Dattilo-Bain, Land Management Program Manager; Lynda Dawe, Solid Waste Program Manager; Brian Ellis, Installation Restoration Project Manager and former Hazardous Waste Program Manager; Heather Goslin, Environmental Management System Coordinator; Taylor Janise, National Environmental Policy Act (NEPA) Lead; Rachel Mandel, NEPA practitioner; Megan Nicely, NEPA practitioner; Andrew Phillips, Air and Tanks Program Manager; John Tarantine, Wastewater Program Manager; and Cody Villarreal, Environmental Intern.



SLD 45 Environmental Quality Team

The SLD 45 EQ Team. Top, left to right: Andrew Phillips, John Tarantine, Lynda Dawe, Steven Baker, Heather Goslin, Rachel Mandel, Keitha Dattilo-Bain; front: Laurie Fisher. Bottom, left to right: Martha Carson, Megan Nicely, Brian Ellis, Angy Chambers, Cody Villarreal, Taylor Janise

Background

The EQT combines aspects of environmental compliance and conservation measures on all SLD 45 installations to protect the natural and built infrastructure in support of assured access to space. The EQT uses the ISO 14001 framework of a conforming Environmental Management System (EMS) to evaluate and prioritize regulatory risk and develop mitigation measures implemented through environmental action plans; this multi-step process is reviewed and approved annually by the Environmental, Safety and Occupational Health (ESOH) Council which is led by the SLD 45 Commander and includes commanders from all U.S. Air Force/USSF units and Department of Defense (DoD) organizations.

The EQT worked with the EMS Cross Functional Team to update the SLD 45 Environmental Commitment Statement, becoming the first in the USSF to include all required elements. Following the successful Unit Effectiveness Inspection Capstone in 2022 and the 2023 EMS Management Review, the ESOH Leadership Council declared conformance for the SLD 45 EMS on November 7, 2022.



SLD 45 Environmental Commitment Statement

The ESOH Council approved the SLD 45 Environmental Commitment Statement proposed by the EQT. The statement was the first in the USSF to incorporate all required elements.

The EQT crosses program boundaries and works collaboratively to support the mission, providing oversight to 234 petroleum, oil and lubricant (POL) tanks, 739 air emission

sources, 32 stormwater facilities, 146 hazardous waste accumulation sites, 17 miles of ocean beach, and 4.5 mile of river shoreline. During the award cycle, the team supported 15 regulatory inspections covering three hazardous waste storage locations, the CCSFS landfill, two drinking water systems and nine POL tank sites, demonstrating 100% compliance. In addition, the team supported the U.S. Army Corps of Engineers, the St. Johns River Water Management District, and the Florida Department of Environmental Protection (FDEP) on 17 regulatory site assessments/wetland delineations/permit closeout inspections for SLD 45 projects and commercial launch provider actions.

Commercial launch providers are responsible for maintaining compliance with all environmental regulations as part of their real estate agreements. When those regulations are tied to the land use either through the utilities, the natural infrastructure or flora/fauna, the EQT becomes more involved. For instance, when a launch provider constructs a new facility, as the landowner the SLD 45 becomes a co-permittee with the commercial entity for any stormwater control features. To stay on top of the fast pace of mission development, the EQT participates in the work order review boards and provides technical input as early as possible in project design, keenly aware the best time to ensure regulatory requirements are appropriately addressed is in the very early planning stages.

Accomplishments

Minimizing Solid Waste through Recycling and Reuse

The installation Material Recovery Facility serves PSFB and CCSFS and is managed under a contract with Bridges, Inc. Qualifying recyclable materials such as paper, cardboard, plastic, glass, and aluminum are collected from facilities throughout the two installations, segregated from municipal waste, and sold to local vendors or through the scrap metal program using vendors identified

by the FDEP Recovered Material Processing Program. The EQT uses a commodity market analysis to track market values and obtain the best possible prices for recycled material within the regulatory time frames for storage.

Unique Scrap Metal Opportunities

Occasionally unique opportunities present themselves, especially to manage scrap metal. During the award period, the 45th Force Support Squadron refurbished the lodging laundry facilities; rather than heading to the landfill, the EQT used their network of other environmental professionals and found a recycler who would take the old washers and dryers, generating revenue for the SLD 45 Qualified Recycling Program. Likewise, when Defense Logistics Agency was not able to accept five out-of-service diesel storage tanks at PSFB, the EQT pivoted and found a local vendor capable of recycling the units.

Challenging Logistics of Overseas Operations

The logistics of large-scale recycling efforts can be a challenge overseas. Ascension Auxiliary Airfield is largely contractor operated and historically scrap metal was landfilled due to contract limitations. Working with the new contractor, the EQT developed a process to ship 383 tons of scrap metal back to the U.S. for recycling instead of being disposed on an island with limited landfill capabilities.

Over the two-year achievement period, the EQT recycled 912 tons of material from all installations, saving \$32,000 in landfill fees and generating \$239,426 in revenue used to offset Material Recovery Facility contract costs.

Troop Training and Reuse Opportunity

Reuse can be overlooked as part of the recycling program, but repurposing material keeps it out of the landfill and decreases operating costs. SLD 45 is required to reduce the nitrogen and phosphorus loads in its stormwater runoff as part of the FDEP effort to improve water quality in the Banana River.



45th Civil Engineer Squadron Airmen Train on Heavy Equipment

As part of a project to reduce nutrient loads to the Banana River, the 45th Civil Engineer Squadron Heavy Equipment Shop executed a pavement removal project which met the goal of nutrient reduction while expeditionary airmen gained hands-on experience with the heavy equipment they would use at deployed locations.

Reducing impervious surface is one means to reduce nutrients; EQT managed an effort to remove a 1.5-acre unused parking lot and restore the site to natural vegetation. Rather than contracting all the work to an outside vendor, EQT convinced the heavy equipment shop in the Civil Engineer Operations Flight to use some of the project as troop training, which provided valuable experience for the airmen on the heavy equipment. Then, instead of hauling the material to the local landfill, the pavement millings were used on several projects around PSFB: as base material in the construction of the new East Gate; to repair the gravel surface of the Force Support Squadron marina boat storage yard; and to restabilize the parking pads at the Family Campground which were damaged by Hurricanes Ian and Nicole. In the end, the project provided 500-person hours of hands-on experience to expeditionary engineers and a cost savings of \$144,000 for SLD 45.

Partnering with the Community

Located on barrier islands between the Atlantic Ocean and the Banana River, PSFB and CCSFS, along with the adjacent communities, are keenly aware of the

relationship between on-land activities and the quality of the surface water resources. SLD 45 uses those interests to further environmental quality goals.

Beach Cleanup

SLD 45's EQT hosts a semi-annual beach cleanup along the 13 miles of beach shoreline at CCSFS. The 2022 and 2023 events resulted in over 240 volunteers removing well over 24 tons of ocean-borne marine debris and trash, including fishing gear, nets, vessel ropes, cruise ship furniture, shoes, buoys, wood pallets, and all things plastic. The removal of these materials keeps the beach habitat at CCSFS safer for marine wildlife and clears the way for federally protected species that utilize the beach for nesting, loafing, and foraging, such as Loggerhead, Green, Leatherback and Kemp's ridley sea turtles and shorebirds such as least terns and Wilson's plovers.



One Load of Trash from the 2023 Spring Beach Clean Up at CCSFS

In two years, more than 240 volunteers removed more than 24 tons of ocean-borne debris and trash from 13 miles Atlantic Ocean beach at CCSFS.

Protecting the Banana River

In addition, SLD 45's EQT organizes an annual Earth Day volunteer event. In 2022, the PSFB Banana River shoreline cleanup event invited volunteers, guardians and airmen to help clean up trash and storm related debris from the PSFB shoreline. This event removed over 150 pounds of material from the shore to prevent it from being released into the Banana

River, which is a state-listed impaired water body in dire need of pollution prevention. The 2023 PSFB Earth Day Volunteer Storm Drain Labeling Event resulted in 30 volunteers helping to track and mark a total of 184 storm drains at PSFB. These markers help raise awareness to prevent stormwater pollution through the PSFB stormwater system by providing a visual reminder and teaching volunteers that all drains lead to the river to reduce the likelihood of illicit discharges and protect our water bodies. These events allow the EQT to educate volunteers and community members on the importance of preventing pollution and the importance of our stormwater system and the impact our actions can have on the environment.



Drain Stencils Remind Passers-by Rainfall Flows Directly to the Banana River

As part of its Municipal Separate Storm Sewer permit, Patrick SFB implemented a drain stenciling program to remind personnel rainfall flows directly to the Banana River with no treatment and to increase awareness of these direct discharge locations.

Public Outreach

To better disseminate important environmental information to the public and increase transparency of environmental matters, the EQT updated the layout of the SLD 45 public website's Environmental page for a more prominent display of the SLD 45 Environmental Commitment Statement. In addition, the new organization makes it easier for the public and base residents to find drinking water and environmental impact related information. The EQT is heavily

involved in multiple cross functional teams and media specific pollution prevention teams across both installations. These teams allow for open communication to multiple organizations and leadership about potential pollution vulnerabilities, environmental matters, and implementing innovative solutions as better stewards of our environment.

Managing Petroleum, Oil and Lubricants

SLD 45's mission to deliver assured access to space involved the movement of more than 8 million gallons of jet fuel, ultra-low sulfur diesel, and gasoline at PSFB and CCSFS in 2022 and 2023. The Patrick Express gas station, independently operated by the Army Air Force Exchange, dispensed more than 4.5 million gallons of gasoline to active duty, civilians, residents, and retirees.

The EQT ensures oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges; execute procedural protocols; comply with applicable pollution control laws, rules, and regulations; maintain general facility operations; and the contents of its Response Plans. SLD 45 exercises its Facility Response Plan with a collective focus on practical, "real-world" exercises and activities required to successfully address spills. SLD 45 has not had a reportable spill from mishandled fueling operations or tank mismanagement in the past six years.

Not all petroleum, oils, and lubricants are for transportational needs. The EQT discovered used cooking oil spills at one of the dining facilities at PSFB and worked with the 45th Force Support Squadron to install new, larger used cooking oil storage containers along with improved, regular collection at all six dining facilities. The risk of spills and potential regulatory noncompliance dropped to virtually zero and food services for combat-ready airmen and guardians was uninterrupted with no increase in operating costs.

Using the Environmental Impact Analysis Process (EIAP) to Assure Access to Space

As the host organization, SLD 45 is the focal point for implementing NEPA using EIAP for launch-related federal actions. The EQT fearlessly addressed intricate challenges, numerous first-of-their-kind initiatives, and conquered complex situations as the world's premier gateway to space. The team fostered a spirit of cooperation among diverse groups of professionals consistently resulting in successful issue resolution. By coordinating with large groups and facilitating collaboration, the EQT has ensured effective and innovative solutions for space-related challenges – including newly required heat plume modeling, launch vehicle re-entry operations, large explosive safety quantity distance arcs, rocket noise, development of a new space launch complexes, coordination on maritime and airspace safety, and public engagement to move projects forward. In the global space community, these challenges have become influential and set new precedents, leaving a lasting impact on space exploration success and evolution.

The EQT led 11 Environmental Assessments (EAs), participated as a cooperating agency on three additional EAs, and provided support for two Environmental Impact Statements (EISs). These documents resulted in skillful and tactful communication/coordination with cooperating agencies (U.S. Army, Federal Aviation Administration, National Aeronautics and Space Administration, U.S. Navy, and U.S. Coast Guard [USCG]) to ensure all agency requirements were met in the EIAP analysis. These analyses collectively contributed to the expansion of DoD missions and launch capabilities on the Eastern Range. The impacts of this role and these actions are paramount in securing and strengthening Assured Access to Space for DoD while supporting commercial launch providers and their program growth. Leadership in conducting EAs and active involvement in

EISs reflects a commitment to thorough environmental analysis and responsible space operations, bolstering DoD missions and launch capabilities on the Eastern Range. This role is essential to ensure the security and readiness of space operations, further solidifying the nation's capabilities in space-related endeavors, and instrumental in safeguarding national interests and advancing the field of space exploration.



Launch from CCSFS

The launch complexes at CCSFS are located on a barrier island between the Atlantic Ocean and the Banana River in Florida, providing a reflective backdrop to the busiest spaceport in the world.

The USSF, and SLD 45, held the distinction of being the only invited outside agency to the USCG's Level 1 NEPA Training, signifying SLD 45's essential role in this cooperative effort. The team dedicated a work week to participate in the USCG's Level 1 NEPA Training to understand their environmental policies and practices along with their operational commitment to providing maritime safety for launches. Through this facilitation, both agencies bolstered collaboration not only in environmental matters but also in various areas of mutual interest. The impact of this training was far-reaching and holds substantial implications. By fortifying this relationship, SLD 45 has paved the way for multiple advantages, including enhanced coordination in domains marked by overlapping jurisdiction and shared responsibilities. This heightened cooperation promises more efficient and effective handling

of critical environmental matters, aligning policies for the betterment of both agencies, elevated synergy, and resource-sharing, amplifying the overall capabilities and operational effectiveness of both organizations to support space launch.

Addressing Emerging Contaminants

Managing emerging contaminants such as perfluoroalkyl and polyfluoroalkyl substances (PFAS) requires a cautious but innovative approach. These substances are known to exist in the groundwater at both PSFB and CCSFS, but the extent is not well-defined. To bridge the data gap in the near term, the EQT developed a blanket purchase agreement (BPA) to expedite sampling and analysis services of both groundwater and soil, to detect PFAS and other environmental contaminants such as volatile organic compounds.

The blanket purchase agreement was funded with SLD 45 operational funds and used to collect samples at nine locations not yet eligible for the Installation Restoration Program remediation efforts and not eligible for Environmental Quality sampling and analysis. The data are building a more

complete picture of the impacted areas of the installations and will be used to develop dewatering plans at future construction projects and to support Environmental Baseline Surveys for upcoming real estate transactions. Development and funding of the BPA demonstrates the commitment of the Delta to stay ahead of the curve on emerging issues and to be well-positioned to address future regulatory requirements.



Direct-push Drill Rig Collects Groundwater and Soil Samples

A blanket purchase agreement was established to expedite water and soil sampling and analysis to expand the understanding of the extent of PFAS chemicals in the SLD 45 environment.