



2018 Chief of Naval Operations Environmental Awards  
Award Category: Environmental Sustainability, Individual/Team  
Fleet Readiness Center East, Cherry Point, North Carolina  
Col. Clarence T. Harper III, Commanding Officer

## INTRODUCTION

Fleet Readiness Center East's (FRC East) mission is *Generating Combat Air Power for America's Marine and Naval Forces*. FRC East has provided the highest quality services in maintenance, repair, and overhaul as well as engineering and logistics processes to support Department of Defense (DOD) aviation for more than 70 years. Located within the city limits of Havelock, North Carolina, FRC East is the largest tenant of Marine Corps Air Station (MCAS) Cherry Point. FRC East employs approximately 3,800 civilian, military, and contract personnel, making it the largest industrial employer in Eastern North Carolina. FRC East facilities include 119 buildings with a total of 2.1 million square feet, 1.6 million square feet of which is industrial production space. The estimated replacement value of both buildings and equipment is \$1.36 billion. The total facility footprint is approximately 147 acres bordered by Slocum Creek, the Neuse River, and the Croatan National Forest. The command also has permanent sites at Marines Corps Air Stations New River, NC, and Beaufort SC, and Joint Base McGuire-Dix Lakehurst, NJ.

## BACKGROUND

FRC East's commitment to environmental sustainment has been demonstrated throughout the installation's history. From our initial work on the historic aircraft of World War II, to the current work on the F-35 Lightning II and future H-53K, we have shown we can continue to be the DOD's Vertical Lift Center of Excellence.

FRC East artisans perform phased depot maintenance, planned maintenance intervals, integrated maintenance concepts, modernizations, conversions, overhaul or in-service repair on the AV- and TAV-8B Harriers, the V-22 Osprey, the AH-1W Super Cobra, the AH-1Z Viper, the UH-1N Huey, the UH-1Y Venom, the CH-53E Super Stallion, and MH-53E Sea Dragon, the F/A-18 Hornet, the F-35B Lightning II, the H-3 Sea King; the H-60 Seahawk; the EA-6B Prowler; and the C-130 Hercules. FRC East is also the repair point for the drive and rotary systems of the MQ-8B Fire Scout. FRC East overhauls, assembles and tests a number of aircraft engines including the F402 (AV- and TAV-8B), the T400 (AH-1W and UH-1N), the T64 (CH-53E, and MH-53E), and the T58-400B (in support of the Presidential VH-3D Sea King). The facility's In-Service Support Center provides worldwide engineering and logistics management for the maintenance and design fields, and works side-by-side with FRC East production artisans developing and refining overhaul, repair, test and troubleshooting procedures.

The command's customers include all Navy and Marine Corps aviation activities, 30 foreign nations, five Air Force activities, three Army activities, and two federal agencies. FRC East is - most importantly – dedicated to generating combat air power while minimizing our

environmental impact. Since the dawn of the country's environmental awareness movement, FRC East's Industrial Environmental Division has led the way in embracing the concept of protecting our environment through improved processes, procedures and equipment.

As an integral part of a heavy industry facility, the Industrial Environmental Division faces a multitude of environmental challenges and diligently researches improvement opportunities for its numerous industrial processes, which include aircraft disassembly, paint removal, chemical cleaning, machining, welding, painting, electroplating, and engine testing. FRC East is the largest generator of Hazardous Waste (HW) under the MCAS Cherry Point's Resource Conservation and Recovery Act permit, and is the most significant contributor to the Air Station's industrial wastewater treatment plant. Due to its unique emissions and regulatory requirements, FRC East holds its own Clean Air Act Title V Air Permit.

The Industrial Environmental Division is the Individual/Team nominated for this award. We are comprised of 33 interdisciplinary environmental engineers and scientists, environmental protection specialists, hazardous waste handlers, and other support personnel, whom manage the facility's environmental compliance programs and monitor the command's environmental posture.

#### SUMMARY OF ACCOMPLISHMENTS

The Industrial Environmental Division has the distinction of incorporating and registering its entire facility, fence line to fence line, under a comprehensive Environmental Management System (EMS), making FRC East the first DOD facility to do so. The Industrial Environmental Division's EMS/ISO program, in keeping with ISO 14001 principles, is continually improving and seeking ways to sustain these improvements. For more than 14 years, FRC East's award winning program has sustained continual registration to the ISO 14001 standard through third party surveillance and registration audits. Noteworthy accomplishments include:

1. Community Outreach: With a mature and successful EMS, looking deeper and working harder for continued improvements and sustainment to environmental systems has become a necessity. The Industrial Environmental Division, hereafter referred to as the Environmental Division, has made efforts over the past two years (and beyond) to reach out to the community for opportunities to learn, share, and build on the established foundation of sustainment.

Examples of these efforts include:

a. The Environmental Division has initiated and sustained membership as a proud Environmental Steward of the North Carolina Department of Environmental Quality's (NC DEQ) Environmental Stewardship Initiative (ESI) since 2004. The ESI is a recognition program within the NC DEQ's Department of Environmental Assistance and Customer Service designed to promote and encourage superior environmental performance by North Carolina's regulated community. The ESI is a voluntary program which provides technical assistance and networking opportunities allowing the Environmental



Division to both reach out and be made available to others wishing to share lessons learned in all things environmental. The program encourages pollution prevention while using and sharing innovative approaches to reduce the impact on the environment beyond measures required by any permit or rule, producing a better environment, conserving natural resources, and resulting in long-term economic benefits.

b. Earth Day has most recently been celebrated by digging through the trash. The Environmental Division schedules Earth Day dumpster dives to evaluate the types of recyclable materials continuing to find its way into the trash. Once this waste was evaluated, informational materials (video, posters, emails) were generated to educate the workforce on the importance of their continued diligence in our recycling program. The Environmental Division cannot be everywhere, all of the time, so we use this type of educational opportunity to remind the personnel of both the importance of recycling and that we do monitor what goes into the dumpsters. FRC East artisans and employees are our local community as well. Lessons learned at work will be taken home and translated into their own personal recycling programs.



2. Sustainment and Maturity of the System: The Environmental Division integrates EMS practices into its core business functions through all levels of the organization: production, engineering, logistics, contractors, military personnel, and management. Due to the Environmental Division's efforts, the EMS has sustained command-wide implementation (every shop, every industrial and administrative process) through extensive operational controls (including standard operating procedures, instructions, and embedded software system controls).

One example of continual process improvement for operational controls is through the latest water conservation efforts and reduction savings. The Environmental Division's Water Quality Program incorporates all aspects of potable and drinking water, storm water discharges associated with industrial activities, permitted industrial waste water management, and sanitary sewer discharges. In late 2016, the Water Quality Program Manager (PM) began to target industrial processes that utilized a high volume of potable water and discharged or generated additional high volumes of industrial waste water. Utilizing MCAS Geographic Information System data layers, the Water Quality PM investigated potable water meters to identify buildings and/or industrial processes that were utilizing high volumes of potable water and discharging high volumes of water to the industrial waste water treatment plant (IWTP). One of the largest building sites identified was at the Naval Engine Air Foil Center, Building 4225. Building 4225 was constructed in 1993 and is comprised of over 420,000 square feet. It incorporates over 27 industrial activities to include: welding, blending, painting, coatings, blasting, non-destructive investigation, examination/evaluation, de-plating, washing/cleaning, foundry/kiln operations, cooling towers, chill water processes, and furnace shop operations. Based upon water meter data, the Water Quality program found that this building was utilizing on average nearly 79,000 gallons of water a day.

The Water Quality PM next started working directly with the artisans over the processes which utilized significant amounts of water in Building 4225, such as the cleaning lines, cooling towers, and furnaces. Through the following efforts of the Water Quality PM and process artisans, nearly 44,000 gallons of water per day have been reduced from Building 4225's water releases:

- Updated clean-line automation, actuated valves, solenoids, and related pumping systems
- Conversion and operation of the air scrubbing system as a closed-loop system
- Conversion from overflow rinse tanks to artisan-initiated hose flushing

Through the efforts of David Balog (Water Quality PM), Robert Elfers (Engineering Support), Jim Small and Robbie Gray (Production Artisans), Building 4225 has sustained 56 percent reduction in potable water usage. In addition, they have supported an annual reduction in industrial waste water discharges by 9 percent and have drastically reduced the level of treatment chemicals required at the IWTP (62 percent). To date, the average daily potable water consumption at Building 4225 averages 34,600 gal per day for primarily clean-line operations. A utility credit of \$540,000 was realized in fall 2017 as a direct result of these conservation efforts.

3. Continual and Sustained Improvement: Building on the Environmental Division's past successes in reductions in hazardous materials usage (to include paint, solvents, and strippers), we have broadened our objectives to be more inclusive of all personnel. While we continue these efforts, our EMS now focuses on objectives with a more command-wide impact. The current team's EMS objectives are aligned with COMFRC objectives and incorporated into the Command's Strategic Plan, the core of our business.

a. Increasing Water Conservation – The Water Quality Program, along with Engineering Support, is currently evaluating the water usage at the facility's plating shop, Building 4035. The evaluation phase is focusing directly on reutilizing the dilute Rinsate from the wet air scrubber systems in operation at the plating shop. Smaller successes in water conservation have been found by correcting identified illicit discharges, e.g. storm water runoff has been rerouted from the IWTP drain and into the storm water drain at Building 4466. Overall water savings are:

- 2017 Reduction of 13.3 million gallons to the IWTP (represents a decrease of 13.6 percent)
- 2018 Wastewater to IWTP is 77.1 million gallons (25 percent reduction from targeted goal)

b. Increasing Energy Conservation – FRC East's Energy Management team joined the 2017 joint effort Utilities Energy Service Contract (UESC) study/audit with the MCAS Cherry Point and Progress Energy. Assessments were performed to identify significant energy conservation measures aboard both MCAS Cherry Point and FRC East. The Energy Management team jointly identified cost effective energy/utility conservation initiatives throughout the facility to include:

- steam trap evaluations, heating plant solution with possible decentralization
- electrical distribution, lighting, and compressed air upgrades
- water upgrades including potential electrocoagulation treatment
- heating, ventilation, and air conditioning system upgrades and controls

- developed area development plan to improve energy efficiency, and
- developed a facility utilization survey to optimize operations efficiency

The energy reduction objective for 2017-2018 was an overall 22 percent reduction from the baseline year of 2015, the Energy Management team achieved an overall reduction of 25 percent.

c. Increase Landfill Diversion - Executive Order 13693 required facilities to meet a diversion rate of 50 percent. The FRC East Environmental Division has aggressively set its goal at 60 percent to be achieved by 2020. In FY2018, the Environmental Division's Hazardous Materials and Recycling Programs achieved a 61 percent landfill diversion rate (target diversion rate was 56 percent). The Environmental Division is continually seeking ways to achieve and exceed this goal. The Environmental Division has not seen a diversion rate below 50 percent during the reporting period (FY2016 – 51 percent, FY2017 – 57 percent).

The Environmental Division's Recycling Program includes various scrap metal, unpainted wood, tires, batteries, paper, cardboard, and mixed recyclables. The Recycling Program provides 27 cardboard and 37 mixed recyclables containers, approximately 180 various metal collection containers, and two wood hoppers, all located strategically throughout our facility to promote increased recycling. Mixed recyclables include glass, steel and aluminum cans and plastic bottles. In addition, each evaluation dumpster dive yields less recyclable materials than the previous year, and it is our belief this is due to the continual outreach, educational opportunities, and management and shop involvement at FRC East.

4. Environmental Program Improvements - The Environmental Division performs annual internal program reviews to identify potential areas for streamlining and increased efficiency in support of the FRC East continuous process improvement program (CPI). Accomplishments follow for multiple program areas.

#### **EMS / ISO PROGRAM**

Specific attention was placed upon the EMS/ISO Program during 2017-2018 in preparation of an EMS facility review by a third party audit resulting in a successful upgrade to ISO 14001:2015

- Evaluated by INTERTEK (Commander, Fleet Readiness Centers, 3rd Party Auditor)
- FRC East certification obtained and upgraded from 2004 to 2015 ISO 14001 Standards
- Continuous improvement efforts in preparation for April 2019 INTERTEK Audit

#### **WASTE MANAGEMENT PROGRAM**

Environmental staff evaluated several FRC East waste management programs and identified areas for improvement between 2017 and 2018. Specific attention was placed upon more effective and efficient ways to handle and manage wastes outside of standard regulatory requirements. New or updated activities include:

#### **SOLID WASTE STREAM TRACKING**

- Tracking solid waste and recyclables by individual streams & media types
- Solid waste broken down by non-divertible and divertible waste streams
- Perform required chemical analysis for 53 common process mixtures

FRC East is now able to identify successes and areas which need improvement regarding specific solid waste content such as mixed recyclables, scrap metal, wood, cardboard, and miscellaneous recyclables.

### **REDEFINED SOLID WASTE TO INCLUDE ELECTRONICS WASTE (E-WASTE)**

- Worked with the Facilities Maintenance to adjust definition of Category VI Property
- Electronic Waste (E-Waste) now included
- Creates more streamlined management process

### **SUSTAINED PAPER RECYCLING COSTS**

- Selected new paper recycling contractor
- New contract in line with 2013 baseline costs (minor adjustment for inflation)
- Sustain costs through 2021 – 8 years without cost increase (omitting inflation)

### **HAZARDOUS WASTE MANAGER**

Addition of new staff has allowed the CPI team to initiate reviews of existing waste handling programs to further streamline materials management. Currently working on upgrading hazardous waste management by:

- Reduce spending by consolidating waste streams; creating new combined streams
- Utilizing analysis and analytical testing to evaluate materials
- Potentially reducing health & safety, management and disposal costs

### **HAZARDOUS MATERIALS (HM) PROGRAM**

The Environmental staff has worked diligently over the past two years with Shop Performance Teams (SPT) to identify areas of need and potential improvement. The Hazardous Materials Program's involvement on the SPT Teams resulted in:

- Recognition of obtaining safety data sheets for proper handling and emergency response
- Identification of better access to safety data sheets (SDS) by artisans/handlers
- Evaluation of HM processes and completed fact-finding interviews
- Creation of an immediate "one-click" access to material SDS
- Acquiring 31 laptops for production shop use; trained employees

With better understanding, better access to SDSs was created on the floor to insure appropriate material handling. Hazardous Communication shop training was conducted by HM staff during December 2017, implementing cultural change and improving communication to support the facility EMS. Laptop PCs were purchased for electronic access and installed in 2018. HM staff completed analysis and review of the upgraded material management system in October 2018.

### **HAZARDOUS MIXTURE SDS MANAGEMENT**

HM staff has identified a materials streamlining action for the handling of on-site chemical mixtures and process tank solutions as the current methods are not efficient and can be confusing. The following has been achieved:

- Submitted a performance work statement for mixture SDSs
- Revamping current program to have mixture SDSs authored

- Changes will enhance worker comprehension of relevant safety information
- More appropriate and efficient handling of materials

### **SUPPORTED HAZARDOUS MATERIAL NEVER OUT LIST**

HM staff provide timely review and updates to the Never Out List (NOL) to ensure the availability of mission critical HM items by:

- Assisting the business unit by managing the overall NOL process
- Maintains HM usage and monitors disposal of material specified on the NOL
- Information used for future NOL adjustments and validation

### **ENVIRONMENTAL DIVISION - NCDEQ SECRETARY VISIT**

Based on the FRC East’s history as a DOD Center for Environmental Excellence and Sustainability the NCDEQ Secretary and Deputy Secretary visited FRC East and met with Environmental Division staff in August 2018 to review the facility and promote DOD Environmental Excellence throughout NC. The following was achieved:

- Environmental Division staff provided a facility brief and presentation
- Support for DOD membership in the NC ESI program
- Introduced NCDEQ to facility business practices and operations
- Promoted the idea of Co-Op partnerships with private industry
- Presented FRC East as a “model” NC DOD facility, with opportunity to disseminate Environmental Division practices throughout DOD NC

### **ANNUAL NCDEQ AIR QUALITY INSPECTION**

The Air Quality Program prepared and submitted the Title V Air Quality Renewal Air Permit along with several other modification applications, which was issued in November 2017. In addition, Air Quality staff facilitated the annual permit inspection by NCDEQ staff in August 2018. Staff organized and presented all requested annual operating and maintenance records; in addition:

- Staff conducted a complete facility walkthrough inspection
- Commended for maintaining high standards of transparency and excellence
- No violations or findings of non-compliance by NCDEQ inspector

### Conclusion

The FRC East Environmental Division proudly serves the war fighter with a quality product, on time, at cost, while advancing efforts to safeguard the environment. The Environmental Division on behalf of FRC East has been a good neighbor to Eastern North Carolina for more than 70 years and continues looking to the future with anticipation of continued sustainable improvements such as additional green purchasing, increased community involvement, and implementing improved technologies. All FRC East employees are vitally aware of their individual and team contributions to the mission and the need to maintain environmental sustainability, both within the FRC East fence line and beyond. The Environmental Division is proud of its accomplishments and the people (employees, supervisors, managers, etc.) who make these achievements happen.