

# FY 2010 Chief of Naval Operations Environmental Award Submission

Award Category: Environmental Quality – Industrial Installation  
Fleet Readiness Center East (FRC East), Cherry Point, North Carolina

## INTRODUCTION



The mission of the Fleet Readiness Center East (FRC East) is to provide Unsurpassed Service to the Fleet and Relentless Focus on Quality, Environment and Occupational Health and Safety. FRC East has been working for more than 60 years toward providing the highest quality maintenance, repair and overhaul as well as engineering and logistics processes to support DoD aviation. Located within the city limits of Havelock, North Carolina (Population:

22,500), FRC East is the largest tenant of Marine Corps Air Station Cherry Point. FRC East employs approximately 4,000 civilian, military and contractor personnel, making it the largest industrial employer in Eastern North Carolina. With an average age of 40 years, FRC East facilities include 115 buildings with a total square footage of 1.9 million sq ft, 71% of which is production space. The estimated replacement value of both buildings and equipment is \$1.17 billion. The total facility footprint is approximately 150 acres, with the Neuse River, Croatan National Forest and various freshwater and saltwater creeks, marshes and wetlands nearby.

## BACKGROUND

FRC East's Environmental Management System (EMS) is one of the three pillars of the Integrated Management System (IMS) embraced at all levels throughout the Command. Along with the EMS and associated ISO 14001 principles, the IMS includes Business Management (ISO 9001/AS 9100) and Occupational Health and Safety (OHSAS 18001) Systems. In large part, all environmental awards and recognitions earned by FRC East in the past years were based on a demonstration of core business practices across all competencies that support our EMS as part of an integrated and systematic approach. The Environmental Division's website has been designed to mirror the format of ISO 14001 in order to assist with clarity and transparency of regulatory requirements.

CHERRY POINT WINGSPAN  
Tue, October 26  
WEB  
Environmental Management System Home Page  
Significant Environmental Activities  
Painting  
Blowing

CHERRY POINT WINGSPAN  
UNCLASSIFIED SERVICE TO THE FLEET, RECEIVED 10/26/10

CP Competency Sites Home Comments Site Map Phone Book Search Contact Web Manager

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FRC East's Industrial Environmental Program Division includes Air, Hazardous Material, Hazardous Waste, Solid Waste/Recycling and Water focus areas. With a commitment to continual improvement, these programs ensure compliance with applicable environmental regulations and seek opportunities to reduce environmental impact while improving fleet readiness.

As a heavy industry, FRC East faces a diverse set of environmental challenges and improvement opportunities from numerous industrial processes including painting, paint removal, machining, welding, engine testing, chemical cleaning, and electroplating. FRC East is the largest generator under the MCAS Cherry Point's Resource Conservation and Recovery Act (RCRA) 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.

With facility construction beginning nearly 30 years prior to the landmark environmental legislation that created the Environmental Protection Agency, introduced the Clean Air Act and modernized the Clean Water Act, FRC East faces a significant challenge in enforcing today's standards of environmental compliance on facilities that were designed without consideration of environmental impacts.

Budget cuts during the award period caused a reprioritization of environmental activities, resulting in delay or removal of several initiatives. Maintaining morale among a highly motivated environmental team has been an understandably significant challenge when needed improvements cannot be completed due to lack of funding.

## Outreach



FRC East Environmental is well represented on several planning boards, including the North Carolina Environmental Steward Initiative (ESI). In addition to participating in member activities throughout the year, Environmental team members have also conducted several ESI training sessions. Participation with the ESI Advisory Group brings the additional responsibility of setting standards for membership, program operation, and regulatory interface. As a steward (the highest designation), FRC East routinely assists other ESI members, typically small to middle sized private and publicly held companies, municipalities, and other DoD facilities.



In coordination with local schools, the FRC East team developed an Earth Day Poster Contest for 2009 and 2010. Winning posters were selected from 44 student entries that artistically expressed the theme "What Does Earth Day Mean to Me." The winners were recognized at a ceremony at FRC East and presented awards by the Commanding Officer.



FRC East held its first Individuals with Disabilities Meet and Greet event on 26 August, 2010. This event was part of FRC East's effort to enhance recruitment of qualified, job-ready individuals with disabilities while simultaneously supporting its focus on becoming a preferred employer. The Environmental Division executed one Schedule A Hire to work in the Solid Waste/Recycling area.

## PROGRAM SUMMARY

### Environmental Programs

The Hazardous Waste Program processed 1,024,000 pounds of hazardous waste and transferred 70,460 gallons of used oil to an energy recovery program during FY 09 and FY 10. Hazardous waste operations service 33 ninety-day waste accumulation sites and 77 satellite sites daily.

The Hazardous Material (HM) Program conforms to the Navy's Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP). The primary objective of the program is to provide life cycle management of hazardous material in order to minimize waste and manage cost. The fully implemented system enables efficient annual processing of approximately 250,000 material usage records and 168 material reviews prior to use. Hazardous material is distributed through 11 pharmacy style centers, and material usage is electronically recorded enabling real time reporting and true cradle-to-grave management of hazardous materials. The system also provides a review process of all hazardous materials prior to purchase and use.

During the performance period, the Solid Waste/Recycling Program diverted more than 5 million pounds of recyclable material away from landfills, for a diversion rate of 85%. As part of this effort, FRC East:

- Donated over 29,000 pounds of toner cartridges to local schools, enabling the purchase of eight science tables and other educational program improvements.
- Recycled approximately 3.3 million pounds of metal from scrap aircraft parts, metal stock from manufacturing and other sources.
- Baled nearly 626,000 pounds of cardboard.
- Contributed 736,518 pounds of our wood waste to the Station's compost program.
- Collected over 375,000 pounds of mixed paper from bins throughout the plant and recycled as feed stock for paper products such as diapers.



FRC East is a Clean Air Act Title V facility. The Air Quality Program manages the monitoring and recordkeeping requirements for more than 1,000 emission sources using a computerized system to oversee the performance of 130 air pollution control devices. This system continued to improve efficiency and record-keeping quality while lowering monitoring cost by detecting issues immediately and alerting staff by electronic paging, allowing prompt resolution of problems.

The Water Quality Program monitors local streams with sophisticated remote monitoring equipment which take hourly readings for pH, turbidity, total dissolved solids, conductivity, and dissolved oxygen. Data is compiled and reported to the North Carolina Department of Environment and Natural Resources (NCDENR) on a monthly basis. The Water Quality Program is also leading the charge on FRC East's water conservation efforts with education programs, such as the EMS Annual Refresher course, IMS Overview training, FRC East Environmental Newsletter and shop education in high water use areas.

All environmental media program managers review facility engineering project submittals to ensure conformance with environmental regulations. The interaction between the facility engineering personnel and environmental program managers in the project planning phase is vital to the long-term environmental quality goals of FRC East's facility development. During FY 09 and FY 10, 114 environmental reviews were conducted on 97 projects that included new construction, repairs/renovations/upgrades to existing structures, system/utility upgrades and equipment changes.

### **Continuous Improvement**

FRC East uses the tool *AIRSpeed*, a formal method of Continuous Process Improvement (CPI), to review and improve processes. This tool utilizes Lean, Six Sigma and the Theory of Constraints methodologies. Through *AIRSpeed*, FRC East continues to improve the environmental and fiscal efficiency of all operations.



The Internal Audit Program is designed to improve FRC East's management practices. The program documents best practices and shares those practices with all stakeholders, identifies areas of nonconformance and noncompliance and provides FRC East with direction on corrective actions. The audit team verifies that all processes are relevant to the latest applicable work documents and technical data. This critical assessment is considered one of the principal forms of objective evidence of conformance to the standards. The audit team conducted 107 System Audits and 575 Process Product Audits during FY 09 and FY 10.



Electronic Continual Analysis and Metrics (eCAM) was developed as the corporate solution by the FRC East Integrated Project Team (IPT) to provide a single point of access for tracking statistical reporting, comparison, and measurement. eCAM allows for proper accountability, notification, and turn around of all time-constrained inspections and investigations pursued on a daily basis. By engaging employees at all levels along the Chain of Command, eCam instills a sense of ownership and accountability in all stakeholders. It consists of defined workflows, user roles and groups with authority to perform the actions necessary to complete the process from beginning to end. Work is automatically and electronically passed to the next Team Member according to the workflow chart. This eliminates the need for paper copies, provides for an online history of every work item and shows status of a given work item at any point in time. FRC East has been designated as the Command Fleet Readiness Center Data Management/Work Facts Center of Excellence for eCAM and is paving the way for other Fleet Readiness Centers, which will be adopting this system. Employees submitted 2,172 concerns (2% environmental-related), of which 46 percent resulted in action plans (4% environmental-related) during FY 09 and FY 10.

### **Integration and Program Continuity**

In November 2003, FRC East became the first DoD facility to implement a comprehensive EMS incorporating its entire facility, fence line to fence line. Our award winning program is founded upon the ISO 14001 model and has been continuously registered through third party surveillance and re-registration audits, exceeding Presidential Executive Orders 13148 and 13423, DoD and DON requirements. The current EMS is a mature program, fully integrated into all levels of our planning and operations. We are the only Federal facility registered to the four major management standards: Quality (ISO 9001), Aircraft Quality (SAE AS9100), Environmental (ISO 14001), and Safety (OHSAS 18001).

To promote stakeholder involvement, FRC East utilizes a multidisciplinary EMS Team with members from across the command including production and maintenance shops, unions and engineering offices. The EMS Team ensures quality of the environmental program through joint development of objectives, targets, and plans connected with production activities.

Senior management has recognized the potential environmental impacts of FRC East’s activities and has embraced the role of environmental steward. Environmental goals and requirements are woven into FRC East’s Strategic Business Plan, which is developed using the Hoshin methodology. The Executive Leadership Committee (ELC), serving as the management review board, holds biannual meetings to update Senior Management on the progress of EMS goals. The EMS team, in turn, holds quarterly meetings. Comprised of FRC East’s Commanding Officer, Executive Officer and Department Heads, the ELC provides support for EMS structure and goals and demands full environmental regulatory compliance with a continual decrease in environmental footprint and continual improvement in overall quality.

FRC East integrates EMS practices into its core business functions through increased accountability for environmentally sensitive activities at all levels of the organization: production, engineering, logistics, contractors, military personnel and management. This accountability is established and verified through routine management review meetings to evaluate environmental business initiatives and concerns, communication to personnel on progress toward environmental goals and issues, employee recognition for success related to environmental goals and inclusion of environmental requirements in process improvement programs (CMT, Kaizen, Lean Manufacturing, Six Sigma, 5S Plus One, Theory of Constraints etc.). Expanding access of the corrective and preventive actions reporting system to all personnel has assisted in this achievement by increasing visibility.

## ACCOMPLISHMENTS

Environmental Awards & Recognition	
2009	Chief of Naval Operations Environmental Award
2008	Sustainable NC (Greater Good) Award for sustainable efforts by non-profit or government entities
	Chief of Naval Operations Environmental Award
	Secretary of the Navy Environmental Award
	Secretary of Defense Environmental Award – Honorable Mention
2007	Chief of Naval Operations Industrial Environmental Quality Team Award
2006	Chief of Naval Operations Environmental Quality Award (Industrial)
	White House Closing the Circle Award - Honorable Mention
2005	Membership to EPA National Environmental Performance Track
	Secretary of Defense Environmental Award Honorable Mention
	Membership to NCDENR Environmental Steward Initiative Advisory Board
	Chief of Naval Operations Environmental Quality Team Award
	Secretary of the Navy Environmental Quality Team Award
2004	N.C. Sustainability (Pollution Prevention) Award
	Chief of Naval Operations Environmental Award
	Secretary of the Navy Environmental Award
2003	Secretary of Defense Environmental Award
	Secretary of the Navy Environmental Award – co-recipient
	Secretary of Defense Environmental Award – co-recipient

### Notable Improvements

FRC East successfully substituted #6 Glass Bead with recycled Crush Glass 40-70 mesh/medium for blasting all support equipment and reusable shipping and storage containers. In addition to directly benefitting the environment by using 100 percent recycled material, this substitution also provides an annual cost savings of 61 percent. The non-reactive, inert material eliminates health risks of airborne

carcinogens because the dust is classified by the Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health (OSHA/NIOSH) as "nuisance" dust, containing less than 1 percent free silica, and has virtually none of the OSHA-identified heavy/toxic metals associated with other mineral abrasives. The crushed glass delivers a natural, whiter metal finish and has up to 5 times fewer embedment issues than other materials, improving the customer's final product.

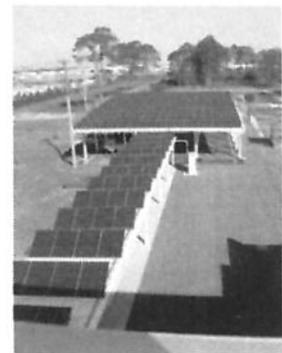
FRC East continued to be a leader in aircraft paint removal technology with the implementation of an innovative laser paint removal system that can strip paint one layer at a time, thus preserving the base coat. In addition to pollution prevention benefits, this increases productivity and reduces turnaround time. With the new laser system, FRC East reduced its abrasive blast waste stream and expects to avoid tons of plastic media blast dust over the next few years.

Area	Project	Effect	
Hazardous Waste	Reconfigured drum lids	Quicker and easier for artisans to fasten	Facilitated proper disposal of waste
Painting	Improved kit size selection	Reduced paint usage, paint waste, turn around time and manpower	Reduced total paint used by 15 percent, or 120,000 pounds of paint materials
	Adopted more efficient painting techniques		
	Minimized paint color changes		
Water Conservation	Installed a drum washer that recycles rinse water	Reduced water usage and associated wastewater flow by 120,000 gallons per year	
	Four project concepts in planning	Estimated to eliminate 47 million gallons annually	19 percent water use reduction
Energy Conservation	Replaced T8 fluorescents with more efficient T5 bulbs in the cafeterias & replaced metal halide bulbs with fluorescent bulbs	Reduced annual electrical usage by 116,000 kilowatt hours	
	Extension of maintenance intervals (more time on wing) of T64 and T58 engines	Lowered environmental impact by reducing the amount of maintenance and material required to keep the engines in service	
	Repaired chiller system in Building 4225	\$40,000 energy cost per year savings	
	Alterations to air compressors in Buildings 4032 & 4173	\$10,000 energy cost per year savings	
	Replaced HVAC systems in Building 4032 and Mezzanine E, Building 137	\$40,000 energy cost per year savings	
	Replaced high pressure steam leak between Buildings 4034 and 245	\$50,000 energy cost per year savings	
	Installed compressed air meters in Buildings 133, 139 and 4225	\$12,000 energy cost per year savings	
Plating	Prototyped a new surface pretreatment process that replaced hexavalent chromium alodine with a less toxic trivalent chromium form* * Being implemented Navy-wide	New material can be sprayed directly on the aircraft and provides a better coating, quicker throughput, and improved durability	Cost savings of \$10,000 per aircraft, resulting in a \$500,000/yr savings in hazardous material, disposal costs, and man-hours
Recycling	Redesign of recycle carts	Increased carrying capacity and improved safety	
	A collection schedule was developed in order to streamline weekly services	Reduced the number of weekly shuttles by approximately 50%	Reduced labor cost approx. 810 hours (\$24,000), reduced carbon footprint due to lower vehicle use

**Outstanding Accomplishments**

FRC East maintains a transportation incentive program (TIP), which serves 818 employees (around 20 percent of the work force) in 94 van pools. During the award period, the program conserved over one million gallons of gasoline and approximately 16 million pounds of green house gases (carbon dioxide, CO2). TIP reduced FRC East's environmental footprint by more than offsetting CO2 production in the facility's manufacturing processes.





The design and construction of FRC East's first LEED-certified project took place over the past two fiscal years. The project, a \$17 million new Engineering Product Support Facility, is the first building constructed in the former Hancock residential area off of NC Hwy 101. This location has been targeted as a key area for new FRC East facilities, with an emphasis on sustainable building practices and environmentally responsible land use. This first project set a high standard for future projects by going above the minimum requirement of LEED-Silver and targeting LEED-Gold designation.

Leadership in Energy and Environmental Design (LEED) Items	Points Available	Points Received
Site Selection	1	1
Alternative Transportation (bike racks and fuel efficient vehicle parking spaces)	2	2
Site Development (Maximized Open Space)	1	1
Innovation in Design Credit – Additional Open Space	1	1
Storm Water Design Quantity and Quality Control	2	2
Heat Island Effect (white reflective roof)	1	1
Water Efficient Landscaping with No Potable Water Use and No Irrigation	2	2
Water Use Reduction (30%)	2	2
Optimized Energy Performance	10	7
On Site Renewable Energy (Photovoltaic System for 23% of Energy Use)	3	3
Innovation in Design Credit – Onsite Renewable Energy or Green Power	1	1
Enhanced Refrigerant Management	1	1
Green Power	1	1
Utilized Construction Waste Management (80%)	2	2
20% Post Consumer and Pre Consumer Recycled Content	2	2
Innovation in Design Credit – 30% Recycled Content	1	1
20% regional materials (Increased to 30%)	2	2
Certified Wood	1	1
Outdoor Air Delivery Monitoring	1	1
Construction Indoor Air Quality Management Plan	2	2
Low Emitting Material Usage	4	4
Indoor Chemical and Pollutant Source Control	1	1
Controllability of the Lighting System	1	1
Thermal Comfort in Design	1	1
Innovation in Design Credit - Reduced Mercury in Light Bulbs	1	1
LEED Professional	1	1

FRC East fosters a work environment that capitalizes on innovative ideas from qualified in-house staff and teams, considers environmental effects of all mission-critical decisions and assumes leadership roles to protect, restore and enhance the environment in all business decisions. FRC East employees are environmentally aware and understand the direct link between the work they do and its impact on the local environment. They are vitally aware of their individual and team contributions to the mission and the need to maintain environmental quality both within the FRC East fence line and beyond. FRC East continues to operate a results oriented environmental program woven into the fabric of the Command's overall Integrated Management System.