

**2014 Secretary of Defense Environmental Award
Environmental Quality – Industrial Installation
Fleet Readiness Center Southeast (FRCSE)**

INTRODUCTION

Mission: FRCSE is one of eight Fleet Readiness Centers tasked with providing maintenance and repair services and only one of three providing in-depth modifications and overhaul of Naval aircraft, engines, weapons systems and components. FRCSE is a full spectrum maintenance operation with all the key capabilities required to maintain high-performance aircraft including comprehensive in-service engineering and logistics services for support of assigned air vehicles, engines and weapons systems. Maintenance is performed on the P-3 Orion Antisubmarine Patrol Aircraft, F/A-18 Hornet Carrier-based Strike Fighter/Attack Aircraft, T-34 and T-44 Trainer Aircraft, EA-6B Prowler Joint Carrier-based Electronic Warfare Aircraft, and SH-60 Seahawk Utility/Assault Helicopter. In addition, FRCSE performs complete overhaul capabilities for many Navy as well as Air Force aviation engines and components.

Environmental, Geographic and Community Setting: FRCSE is the largest tenant command on Naval Air Station (NAS) Jacksonville and the largest industrial employer in Northeast Florida and Southeast Georgia. It is located within Florida Environmental Protection Agency (FEPA) Region 4. FRCSE has more than 3,600 employees representing more than 100 trades, occupations and professions. FRCSE covers 127 acres and occupies 63 buildings with more than 2.5 million square feet of industrial, office and warehouse space. FRCSE lies within the City of Jacksonville and borders the St. Johns River which is designated an American Heritage River by the FEPA to ensure natural resource protection and economic, historic and cultural preservation.

BACKGROUND

Environmental Aspects and Challenges: FY14 was an amazing year for the FRCSE environmental program. FRCSE had no findings by the Florida Department of Environmental Protection (FDEP) during the 2014 Hazardous Waste audit. No findings identified during an ISO 14001 audit and the petroleum storage tank audit by the City of Jacksonville Environmental Quality Division. As stated in a personal letter from the Secretary of the FDEP, FRCSE has implemented “a highly successful compliance management system that is delivering superior results”. In support of Naval aviation, FRCSE operates many industrial processes that present substantial environmental challenges. Significant environmental aspects are associated with chemical and mechanical depainting, surface coating, chemical cleaning and degreasing, machining, composite repair, nondestructive testing, heat treating and jet engine testing. Other aspects are associated with repair and test of electronic systems, oxygen systems, hydraulic and fuel systems, and the reassembly and test of aircraft. FRCSE also operates two industrial wastewater treatment plants which pre-treat wastewater prior to discharge to the sanitary sewer system. Other environmental aspects are associated with the upgrade of industrial facilities and processes, disposal of excess equipment and the maintenance of ground support equipment. Packaging, preservation and transportation of products also factor into the environmental footprint. Operations are maintained through various service contracts and the Naval Facilities Engineering Command Southeast (NAVFAC Southeast) Public Works Department.

Program Management:

FRCSE considers environmental stewardship to be of equal importance to productivity, quality, and safety. FRCSE maintains an externally certified International Organization for Standardization (ISO) 14001:2004 Environmental Management System (EMS) program and drives its program by the Environmental Policy Statement. FRCSE environmental programs are planned and executed accordingly. FRCSE is also committed to mission sustainment at the least cost while meeting the goals of the Department of Defense (DoD) Strategic Sustainability Performance Plan (SSPP) in support of Executive Order (EO) 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*) and the more recent EO

13514 (*Federal Leadership in Environmental, Energy and Economic Performance*). FRCSE has integrated these goals as a priority of its EMS program. The program is managed by the environmental director with a staff of 17 professional and technical personnel who are responsible for environmental compliance, environmental operations and environmental quality. To provide top quality services and continuous improvement, the environmental team coordinates closely with internal stakeholders from production, safety, engineering and logistics, along with external stakeholders from the NAS Jacksonville Environmental office, City of Jacksonville Environmental Resource Department, the FDEP and the business community of Northeast Florida.

The EMS program is supported by a working level EMS and Pollution Prevention (P2) team. The working-level EMS/P2 team includes representatives from the environmental office, engineering, integrated product teams, as well as various support organizations. Environmental representatives from NAS Jacksonville also serve on the team. The EMS/P2 team is co-chaired by the EMS/P2 manager. All EMS documentation is maintained on the FRCSE environmental website to ensure all employees, contractor workers and military personnel are aware of the environmental policy, the elements of the EMS program.

FRCSE Environmental Team provides monthly briefings directly to the Executive Officer on all aspects of the environmental program, and often includes plant walk-arounds to review actual plant conditions and recognize environmental and production employees for their hard work and commitment to environmental goals. Internal and external compliance audits, as well as EMS management reviews are managed as opportunities to improve the environmental program. To meet the ISO standard, EMS management reviews are conducted annually and include a review of EMS program performance in terms of mission benefits and cost savings.

Military and Partnership Awards/Acknowledgements:

2014 First Coast Manufacturers Association (FCMA) Environmental Protection Award
2013 SECNAV Energy and Water Management Award, Blue Level of Achievement
2013 SECDEF Performance Based Logistics (PBL) Award, Components Level, F414 Engine PBL
2012 Chief of Naval Operations Aviation Safety Award
2012 Chief of Naval Operations Safety Excellence Unit Award for Medium Industrial, Shore Activity
2012 JAXUSA Partnership Industry Leader Award for Business Achievements/Corporate Citizenship
2011 NAVAIR Commander's Award: FRCSE Environmental Program Team – Program Management

SUMMARY OF ACCOMPLISHMENTS

1. Process Improvements:

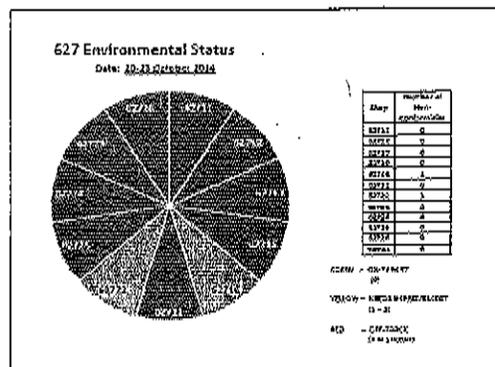
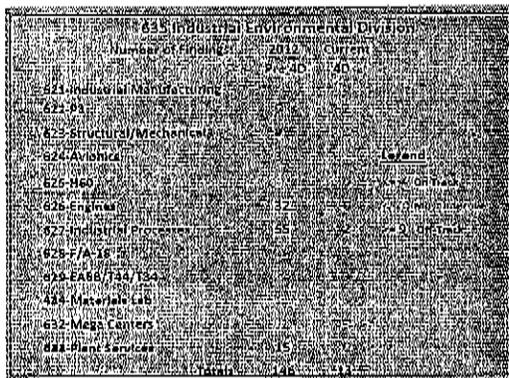
a. Implement More Efficient Industrial Wastewater Treatment: The environmental team continues to implement process changes at two industrial wastewater treatment plants to reduce HM, HW and water use. Working with treatment plant managers, production and engineering, the environmental office targeted point source waste streams for reduction, implemented more cost effective operating procedures for water treatment, and leveraged existing capabilities of NAVFAC Southeast Public Works Department for final water treatment. In recent years, FRCSE has reduced its annual HW stream by more than 80 percent, about 900,000 pounds, and reduced the cost of operations by more than \$720,000 annually. Further, as a target of EMS, contracts have now been awarded to replace the current, aging treatment plants with high efficiency wastewater treatment technologies that will optimize water reuse and reduce cost. This treatment plant

modernization is estimated to reduce HM and HW by another 50 percent and reduce cost by more than \$1.5 million annually. It is on target for completion in 2015.

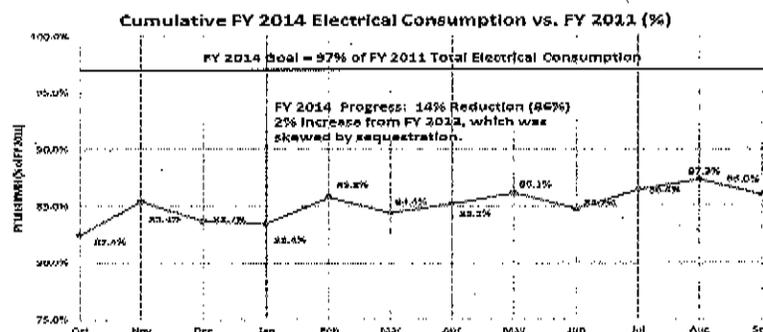
b. Improve Material Management: During the period, the environmental team renewed its efforts to reduce HM procurements, improve shelf life management and reduce waste. During FY13/14, the environmental office together with material supply personnel, production personnel, and material engineers reduced the number of expired shelf life items by more than 2,600, reduced HM procurement costs by \$64,000 and reduced HM waste by more than 11,000 pounds. The success of this effort is attributed to improving HM procurement & management processes, ensuring HM training & use procedures are accurate & adequate, ensuring availability of HM to meet production needs, eliminating non-essential use of HM, ensuring all HM orders are logged in Hazardous Material Management System (HMMS), and eliminating duplicate HM ordering.

c. Improve Production Waste Cost Savings: FRCSE began using a waste compactor in July 2014 for production waste. Initially, compacted waste was shipped for disposal in roll-off containers which we found to be more costly than using 1.8 cubic yard bags. Estimated annual savings is approximately \$17,000.

d. Environmental Wildly Important Goal: FRCSE established a Wildly Important Goal (WIG) to develop an environmental acumen across the Command by applying 4D principles at the shop level. This effort initially directed by the XO and led by the environmental office in collaboration with production evolved into a game plan identifying four specific actions for achieving the goal: Training, Coaching, Scoring, and Reviewing/Correcting. During FY14 the WIG game plan was implemented in five additional IPTs. This effort increased shop awareness of the top 14 shop work practices that lead to compliance and provided lead measures and environmental scoreboards to measure performance. This effort resulted in a significant decrease in the number of non-conformities. Below chart shows pre-4D non-conformities for all shops totaled 146 and current number of non-conformities significantly decreased to only 13. Also shown is an example scoreboard showing the current compliance status for the 627 IPT individual shops.



2. Compliance with Executive Order (EO) 13423 and EO 13514: FRCSE continues to make significant progress toward the goals of EO 13423, EO 13514 and specifically in regard to environmental, energy and economic performance as it sustains the maintenance mission of FRCSE.



Energy Performance: FRCSE continues to be very successful in addressing energy and utility conservation in all phases of work and continues to exceed the three percent per year reduction mandated by EO 13423 and EO 13514. As shown above, FRCSE has reduced energy intensity by 81 Million British Thermal Units (MBTU) per thousand square feet (KSF) since 2003. The energy manager attributes this success to a close partnership with NAVFAC for more than 25 years. During this time, FRCSE has implemented many energy conservation projects and collaborated on larger base and regional conservation efforts including the NAS Jacksonville Steam Decentralization Project and service air improvement projects. Further, industrial process engineers regularly review processes for ways to reduce energy, water and compressed air use through industrial equipment acquisition projects and LEAN/Six Sigma initiatives, i.e., older machines are targeted for replacement with energy saving components and control systems including high-efficiency motors and digital control systems used in high-speed lathes and milling machines, etc. Facility engineers are integrating energy and utility savings initiatives into facility and space rehabilitation and Heating Ventilation Air Conditioning (HVAC) projects. In a continuing effort to reduce energy consumption and improve production capability, the energy manager received approval on a \$2.8 million military construction project to modernize the aircraft paint facility, provide sustainable aircraft paint operations and reduce annual consumption of steam and electricity. This project is anticipated to reduce energy use by more than 31,000 MBTU/year with a cost avoidance of \$985,000 annually. During FY12, the energy manager also established lines of accounting for 10 Integrated Product Teams (IPTs) to monitor and measure actual electrical use and target areas for reduction. Additionally, FRCSE continues to work closely with NAVFAC Southeast to develop renewable and alternative energy sources to meet the EO requirement for onsite energy generation. FRCSE received the 2013 Secretary of the Navy Energy and Water Management Award, Blue Level Achievement in recognition of its efforts.

3. Environmental and Economic Performance: Highlights of FRCSE environmental, energy and economic performance during the period are captured in the table below identifying projects that support the goals EO 13423, EO 13513, and mission sustainment at reduced cost.

Project Description	Status	Environmental Performance		
		Economic or Avoidance \$s	Energy and Environment	Stakeholder Relations
Reduce HM, HW and Water use in Waste Treatment	Ongoing	Environmental Quality	Contract awarded to modernize treatment plants; Expected to reduce HM and HW by 50 percent and reduce cost by more than \$1.5 million/year 2015	
Reduce Energy Use 32% (81 MBTU/KSF)	Ongoing	Environmental Quality	Monitor, control and report use and integrate energy efficiency improvements	
Reduce Cadmium (Cd) Electroplating	Ongoing	Environmental Quality	Eliminate Cd electroplate (except fasteners and couplings) ; Establish ZnNi capability late 2015	
Eliminate Silver Cyanide Electroplating	Ongoing	Environmental Quality	Eliminate Silver Cyanide Electroplate; Establish non cyanide silver capability 2015	
Eliminate CFC 113 Use for Oxygen Cleaning	Ongoing	Environmental Quality	Eliminate Priority I Ozone Depleting Substance 35 Gal/year 2014	
Eliminate Hard Chrome Electroplating	Ongoing	Environmental Quality	Eliminate Hard Chrome electroplate; Establish nCoP capability late 2017; Reduce Process Time	
Improve Material Shelf Life Management	Ongoing	Environmental Quality	Reduce number of expired shelf life items 2600/year, HM procured \$64,000/year and reduce waste by 1100 pounds/year	

Implement use of air-assisted airless paint guns	Ongoing	Environmental Quality \$15,000/year	Increase paint transfer and reduce paint waste by 20 percent for drop tanks; Target aircraft for paint 2015
Engine Component Rhenium Reclamation	FY14	Environmental Quality Navy Credit	Rhenium totals/FY '14: 32,465 lbs. (16.2 tons) Credits from this metal reclamation comes back to the Dept. of the Navy.
Engine Component Metal Reclamation	FY14	Environmental Quality Navy Credit	Metals Reclamation expanded. FY '14 totals/OEM metals; 183,190 lbs. (91.60 tons). Credit from this metal reclamation comes back to the Dept. of the Navy.
Reclaimed 13 EA-6B Aircraft	FY14	\$94.4 million Part Recovery	Reclaimed 13 SARDIP aircraft and recycled more than 239,000 pounds [120 tons]
Cardboard Recycling	FY14	Environmental Quality	Solid Waste Diversion [53 tons/105,380 lbs]
Misc. Materials Recycling	FY14	Environmental Quality	Bottles/cans, 6500 lbs.; Paper, 64,902 lbs.; Lead acid, 9,000 lbs. Lead Acid battery core credits being applied to final battery costs. Cost avoidance, immediate savings to FRCSE.
Scrap to DRMO/DLA	FY14	Environmental Quality	431,943lbs. [216 tons]
Wood Recycling	FY14	Environmental Quality	168,740 lbs. [84 tons]
Universal Waste for Recycling	FY14	Environmental Quality	Lamps, 11,082 pounds; Recycled batteries, 4162 pounds.
Energy Recovery	FY14	Environmental Quality	Used oil, Waste to Energy: 341,847 lbs. of used oil [171 tons/51,022 gallons]
Energy Reduction	FY14	Environmental Quality	Contaminated Oils, Halogenated .114 tons; 229 lbs.

4. Recycling Programs: FRCSE continues to champion recycling to minimize impact to natural resources, reduce cost and reduce the amount of waste sent to landfill.

a. Diversion from Landfill: During FY14, FRCSE diverted more than 881 tons of landfill waste that included recycled bottles, cans, mixed paper, cardboard, metals, lead acid batteries, rubber and wood. FRCSE also recycled over 7 tons of universal waste including bulbs, lamps and sealed batteries and continues to recycle cathode ray tubes and printed circuit cards. In July 2012 FRCSE established a new program to recycle wood and, to date, has recycled nearly 84 tons of shipping crates and wood pallets.

b. Metals Reclamation: Since June 2009, FRCSE has supported NAVAIR's Rhenium reclamation program. During FY14, FRCSE reclaimed more than 16 tons of turbine blades for Rhenium extraction and

remanufacture of new turbine blades. The expansion of NAVAIR OEM propulsion program has reclaimed over 91 tons of F-404, F-414, and TF-34 engine component metals.

c. Returning Value to the Fleet: Under the Navy's Stricken Aircraft Reclamation and Disposal Program (SARDIP), the Naval Supply Systems Command funded the demilitarized 13 EA-6B aircraft, recovered parts valued at \$94.4 million and recycled more than 239,000 pounds of aircraft aluminum during FY13/14. One demilitarized Prowler aircraft is a static display in Heritage Park at NAS Jacksonville.

d. Recycle Used Oil and JP-5 Fuel: FRCSE recycled more than 280 tons of used oil for energy recovery and reduction.

ORIENTATION TO MISSION

1. EMS Program: FRCSE considers environmental stewardship to be a business imperative and is committed to the goals of EO 13514 and the DoD Strategic Performance Plan. Accordingly, FRCSE is dedicated to maintaining ISO 14001 certification and adhering to the elements of the standard to ensure visibility across the enterprise. FRCSE ensures all significant aspects of its process activities are identified and programs are implemented to conserve resources, reduce waste and ensure environmental compliance at the least cost.

2. Continuous Improvement: FRCSE considers continuous improvement vital to its future and key to mission sustainment. The command maintains a continuous improvement database to record all discrepancies and ensure root-cause analysis is performed prior to closure of findings. FRCSE views audit findings as an opportunity to improve environmental compliance. To that end, FRCSE is fully committed to both internal and external reviews of its EMS program against the ISO 14001 standard and the Quality Management System (QMS) requirements of ISO 9001:2000 and AS9100:2004. During the 2014 FDEP inspection there were no findings. The EMS surveillance audit conducted by the ISO 14001 auditor resulted in zero findings. Also, FRCSE petroleum storage tanks were inspected by the City of Jacksonville and no findings were identified. The Southeast Naval Facility Engineering (NAVFAC) commended FRCSE for their excellent EMS program during their EMS audit of Naval Air Station Jacksonville.

3. Environmental Training: FRCSE is fully committed to employee environmental training to ensure compliance, reduce pollution and ensure continuous improvement. General environmental awareness training is provided to all new employees and is reinforced through a system tailored to employee job function. In addition, all production and contract personnel are required to complete specific shop-level, environmental awareness training led by their immediate supervisor.

4. Employee Recognition: FRCSE employees who exemplify environmental stewardship and embody a commitment to the command's environmental policy are recognized by the Environmental Pacesetter of the Quarter Award. Each award is presented by the commanding officer or his representative and each winner is recognized in the Network, the command's employee magazine, and on command social media sites.

TRANSFERABILITY

1. Environmental Compliance Assessment and Management Program

Due to our tremendous success in all areas of environmental stewardship this year, FRCSE was tasked by higher headquarters to conduct hazardous material/hazardous waste program assessments of several intermediate-level activities across the country. This assessment has resulted in the identification of command specific and overall systemic findings that have the potential to significantly improve the procurement, storage, handling, tracking and disposal of hazardous materials at CONUS military sites. FRCSE has a comprehensive compliance assessment program and an Internal Assessment Plan (IAP) to ensure requirements of environmental laws and regulations are met. The environmental office coordinates its actions with internal stakeholders from production, safety, engineering and logistics, and with external

stakeholders from the military installation, the city and the FDEP. The IAP ensures complete compliance evaluations are routinely performed and include scheduled inspections of the EMS and P2 programs; air, fuel/oil and water programs; HW and solid waste programs; HM control management program, as well as projects and operations programs to ensure their effectiveness. The environmental team also performs periodic shop-level process reviews of inventory material used and waste generated to ensure waste profiles remain accurate and/or identify areas for improvement.

FRCSE EMS management reviews are held annually and include a comprehensive review of compliance audits and EMS performance in terms of mission benefits and cost avoidance.

2. Technology Transfer & Integration

FRCSE environmental team and materials engineers are fully engaged with various technology development programs to support Naval aviation needs. FRCSE is supporting several initiatives to eliminate toxic materials including, (1) non-cyanide silver plating as replacement to cyanide silver plating with target transition to production in late 2015, (2) zinc nickel plating as an alternative to cadmium plating with target transition in late 2015 and (3) nano-crystalline cobalt-phosphorus (nCoP) plating technology as replacement for chrome plating with planned transition in 2017. The T-45 trainer aircraft arresting hooks hard coated with nCoP is undergoing a two-year Fleet test with 100 arrestments. FRCSE is testing a Cr6 alternative for magnesium pretreatment to replace the high temperature chromate process with room temperature non-chromate solutions. This improvement will reduce energy costs and personnel exposures to Cr6. This will completely eliminate Cr6 from sealing in its new Advanced Anodizing line. FRCSE is also evaluating trivalent chromium for aluminum pretreatments to improve corrosion performance.

STAKEHOLDER INTERACTION/EDUCATION OUTREACH AND PARTNERING

FRCSE is a charter member of the Northeast Florida Environmental Compliance Partnering Team. The team meets quarterly and includes key environmental professionals from the City of Jacksonville, the FDEP and nearby Navy activities. The team's goal is to promote environmental compliance and sustainability through a cooperative effort aimed at environmental excellence. FRCSE also supports the nation's annual Earth Day celebration by encouraging employee participation in local events.

The FRCSE environmental team provides effective environmental project reviews for all new or modified processes and performs National Environmental Policy Act (NEPA) analyses when required. The team reviewed more than 40 NEPA actions during FY13/14 and recommended reductions in projects environmental aspects/impacts.

PROGRAM IMPACT

FRCSE is committed to maintaining current readiness and future capabilities at the least cost. All military, civilian and contract personnel are committed to compliance and sustainability through pollution prevention, resource conservation and continuous improvement. FRCSE is fully engaged with meeting the goals of EOs and has integrated these goals as a priority of its EMS program. FRCSE had zero violations and won the First Coast Manufacturers Association (FCMA) award against competition that included major well known companies. As a result of these and many other actions, FRCSE recently received a personal letter from the Secretary of the FDEP, which congratulated FRCSE for 'promotion of a culture of environmental stewardship' and implementing 'a highly successful compliance management system that is delivering superior results.' Many of our continuing efforts can be seen in the table in Section 3 of the Summary of Accomplishments. These efforts, along with our commitment to our environmental management system will ensure the sustainability of our current and future efforts in the years to come.