SUBMITTAL FOR

2011 SECRETARY OF NAVY - DEFENSE

SUSTAINABILITY - INDUSTRIAL INSTALLATION AWARD
MARINE CORPS AIR STATION CHERRY POINT

INTRODUCTION

a. **Mission:** Marine Corps Air Station (MCAS) Cherry Point maintains and operates facilities and provides services and material to meet the operational requirements of the assigned tenants and commands. The missions of the major tenants that the Air Station hosts are as follows:

(1) The Second Marine Aircraft Wing (2d MAW). The supporting air component of Marine Forces, Atlantic, the mission of the aircraft wing is to conduct air operations to include offensive air support, antiair warfare, assault support, aerial reconnaissance including active and passive electronic countermeasures (EMC), and control of aircraft and missiles. As a collateral function, the wing may participate as an integral component of Naval aviation in the execution of such other Navy functions as the fleet commander may direct.

(2) The Fleet Readiness Center – East (FRC-East). Performs a complete range of depot level rework operations on designated weapons systems, accessories, and equipment. It manufactures parts and assemblies as required, provides engineering services in the development of changes in hardware design, and furnishes technical and other professional services on aircraft maintenance and logistics problems. This is the largest single-sited industry in eastern North Carolina, employing over 4,100 personnel.

(3) The Naval Hospital (NAVHOSP). Provides general clinical and hospitalization services to all armed services active duty and dependents, and other authorized persons. The hospital cooperates with military and civilian authorities in matters pertaining to health, sanitation, local disasters, and other emergencies.

b. **Environmental and Geographical Setting:** MCAS Cherry Point encompasses 11,485 acres and is located in the Coastal Plains area of eastern North Carolina, Craven County, approximately midway between New Bern and Morehead City. U.S. Highway 70 and NC Highway 101 provide highway access. The Air Station proper is located on a peninsula bounded on the north by the Neuse River, on the east by Hancock Creek, and on the west by Slocum Creek. The southern boundary borders on NC Highway 101. The Croatan National Forest is located adjacent to the Air Station boundary. In addition, the Air Station maintains three outlying airfields and two target complexes totaling 15,732 acres. The Air Station, 2d MAW, and its industrial tenant command, the FRC-EAST, have continued for more than a half-century to carve their places in history as service/industrial organizations that support the training and maintenance of our nation's sophisticated national defense machine. One might think of MCAS Cherry Point as being comparable to a small city with a large industry and an international airport (120,000 operations per year) populated by 10,000 marines and sailors, their 13,500 dependents, and more than 6,500 civilian employees for a total population of approximately 30,000.

BACKGROUND

a. **Environmental Challenges at MCAS Cherry Point:** Enactment of the Resource Conservation and Recovery Act (RCRA) in 1976, followed by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or "Superfund" of 1980, and the Hazardous and Solid Waste Amendments (HSWA) of 1984 provided impetus to clean up federal facilities, preserve the natural environment, and improve quality of life. Prior to passing RCRA, CERCLA, and HSWA Congress had passed the Clean Air Act, the Clean Water Act, and the National Environmental Policy Act (NEPA). Those laws and their amendments, together with additional state and federal environmental laws and Executive Orders, resulted in a mammoth undertaking by the Air Station to properly manage environmental resources and properly respect the environment in the planning and execution of new projects. Headquarters Marine Corps (HQMC) incorporated the environmental management requirements set forth in current law in the USMC

Environmental Compliance and Protection Manual, Marine Corps Order (MCO) P5090.2A dated 10 Jul 98. This Order and other environmental directives required U. S. Marine Corps commands to comply with federal, state, and local environmental and natural resource laws and regulations. Guidelines were thus established for a Marine Corps-wide policy to address environmental concerns.

(1) The three Marine Air Groups of the 2d MAW, located aboard MCAS Cherry Point, operate facilities and maintain aircraft in support of the wing mission. Aircraft currently based at MCAS Cherry Point, in squadron strength, include the AV-8B Harrier II, EA-6B Prowler, and C-130 Hercules. Marine Aircraft Group-14 operates maintenance and repair facilities for 145 aircraft currently assigned. Marine Wing Support Group-27 operates engineering support and construction equipment. Marine Air Control Group-28 operates electronic support equipment, air defense operations, and facilities in support of the 2d MAW. These groups operate maintenance and repair facilities for the wide variety of equipment assigned to each unit.

(2) The Air Station maintains support and maintenance facilities for two C-9B aircraft, two C-12 aircraft, and three CH-46 search and rescue helicopters. More than 1,000 items of garrison mobile equipment are in use by the Air Station in support of the 2d MAW and tenant commands. The Air Station operates two equipment maintenance facilities for mobile garrison equipment.

b. **Organization, Staffing and Management Approach:** The Environmental Affairs Department (EAD) of the Air Station Facilities Directorate manages all environmental matters for MCAS Cherry Point; Marine Corps Auxiliary Landing Field (MCALF), Bogue; Marine Corps Outlying Landing Field (MCOLF), Atlantic; Marine Corps Outlying Field, Oak Grove; and tenant commands. The department has oversight for and advises the Commander, Marine Corps Air Bases, Eastern Area on environmental matters for MCAS Beaufort; MCAS New River; and Marine Corps Air Field, Quantico. An environmental staff of thirty-two professional and technical personnel, distributed within the Environmental Compliance Division, Restoration & Recycling Division, and Natural Resources Division, carries out these tasks.

PROGRAM SUMMARY

a. **Objectives of the Sustainability Program:** MCAS Cherry Point is committed to sustain and enhance mission readiness through compliance with relevant laws and regulations, prevention of pollution, and continual program improvement through an environmental management system (EMS).

b. **Overview of Outstanding Program Features and Accomplishments:** Recognition of past achievements in environmental stewardship is evidenced through receipt of the following awards during 2010 and 2011. This record is evidence of our commitment to environmental excellence and demonstrates our innovative management approach.

Date Received	**Award**
2010	2009 Secretary of the Navy Sustainability Award - Industrial Installation
2011	2010 Secretary of the Navy Environmental Quality Award - Industrial Installation

MCAS Cherry Point has excelled among DoD facilities by winning the Commander in Chief's Installation Excellence Award on seven occasions over the past 24 years since the award has been given, 1988, 1994, 1996, 1997, 1999, 2000 and 2003. This award is unique in that it provides a monetary award of $200,000 which has been used for quality of life programs for the Marine and civilian work force. The $1,400,000 received from this source has been utilized to improve the working and living environment aboard the Air Station. This prestigious award designation was the result of Cherry Point's sustained commitments in innovative recycling, pollution prevention, and hazardous waste (HW) management programs. Furthermore, the EAD staff has received seven prestigious Commander in Chief's Awards for outstanding achievements by individuals. This record of previous achievement sets the stage for continuing

efforts toward environmental quality.

ACCOMPLISHMENTS

a. **Waste Management and Resource Recovery:**

(1) **Resource Recovery** - A Recycling Program was initiated at MCAS, Cherry Point in 1988, with the development of an infrastructure for an Industrial Qualified Recycling Program (QRP) to recycle commodities on a value priority basis. The Air Station has developed a recycling program for items such as steel, white and yellow metals, fired brass, high temperature alloys, used oil, JP-4/JP-5 fuel, tires, batteries, and HM. By recycling more than 68.57 million pounds through the Defense Reutilization and Marketing Office, the QRP has generated over $4.4 million in revenue for the Air Station since the program's inception. In FY 10/11, over 7.1 million pounds were recovered and recycled, producing over $800,603 in income for the Air Station. From March 1994 to August 1998, over $845,000 has been provided to the MCCS Directorate for quality of life projects. The following projects are among some of what the QRP proceeds were used for: the purchase of a large tour bus, a recreational addition to Hancock Boating Marina, an outdoor entertainment stage, the purchase of carpet cleaners with cleaning fluids, locks, medicine cabinets for the troops in their new barracks, and picnic shelters.

The following is a summary of the more outstanding recycling savings and income achieved in the past 2 years:

Qualified Recycling Program. The recycling of steel, white and yellow metals, fired brass, high temperature alloys, tires, batteries, and miscellaneous items.

Pounds	Income	Cost avoidance
7,189,049	$800,603.06	N/A

Waste Oil Wealth Program. The sale/donation of used oil as a result of adoption of a program to source segregate chlorinated solvents from used oil and resource recovery by burning used oil in the central heating plant.

Gallons	Income	Cost avoidance
215,996	$54,989.07	$404,993.00

Used Fuel. The recycling of jet fuels and supplying fuels for burning at the Air Station main heating plant and training for Crash Crew.

Gallons	Income	Cost avoidance
162,433	N/A	$600,166.55

Used Solvent Elimination (USE). The removal and recycling of spent solvent from parts cleaning machines.

Gallons	Income	Cost avoidance
17,272	N/A	$103,632.00

Household Recycling Program. The recycling of aluminum and steel beverage cans, glass and plastic containers, and newsprint; initially utilizing a drop-off type program and then adopting a curbside collection for 1719 base housing units.

Pounds	Income	Cost avoidance
667,120	N/A	$50,784.00

Wood Waste Recycling. Grinding wood wastes from the construction debris landfill.

Pounds	Income	Cost avoidance
4,416,160	N/A	$83,934.40

Total Income: $855,592.13 Total Cost Avoided Savings: $1,243,509.95

(2) **Improved Material Management -** Pollution prevention is dependent on waste stream management. The Air Station has made significant progress in improved material management by creating and maintaining a hazardous material control center (HMCC), which provides hazardous material (HM) management at all levels. The Supply Directorate consolidates all HM aboard the Air Station into one central

warehouse. This has allowed the Supply Directorate HMCC to have complete control over procurement, issue, delivery, stocking, and reclamation of unused material. Services provided by the HMCC include shelf-life management, just-in-time procurement, and delivery and pickup of HM. Operation costs are limited to manpower, with no direct implementation or maintenance costs. The organizations taking advantage of this program include not only Cherry Point, but other military installations, so that excess material collected at MCAS, Cherry Point is advertised for reuse at MCAS Beaufort, SC and MCAS New River, NC. Actual cost savings for FY 2010 and FY 2011, for the reuse program are:

HM reissued by HMCC..... $161,854.99
HM disposal cost avoidance..... $200,368.05
Total cost avoidance..... $362,241.04

This program not only fosters reduced material procurement costs, but also wide-scale education and participation in pollution prevention. Short and long term goals of the HM Reuse Program are: formation of a management team dedicated to customer satisfaction, improved management of materials to further reduce waste disposal costs, reduction of manpower and financial burdens on the customer, more effective utilization of HM through education programs, and continued reductions of waste stream generations.

(3) **Recharging Non-facility Fire Extinguishers:** The Air Station disposes of a large number of non-facility fire extinguishers. These fire extinguishers must meet the DRMO regulations for cylinder disposal (emptied of contents, valves removed and the container damaged to prevent reuse). This process is labor intensive, costly, may pose a health problem with exposure to dust when damaging the containers to prevent reuse. The Environmental Affairs Department and the Hazardous Minimization Control Center teamed together to sponsor the first Fire Extinguisher clean up week and has implemented a program to recharge, service and reissue fire extinguishers. The clean up initiative collected 400 fire extinguishers from the Air Station during this week. The Air Station will avoid the disposal of used extinguishers and the need to purchase new replacements. The projected savings are approximately $35,000 (Cost of recharging and servicing versus purchasing and disposal).

(4) **Utilizing Coal Ash at the Rifle Range:** For several decades, Cherry Point has operated a 700' wide, 31' high earthen berm to absorb the impact of bullets from live fire rifle training exercises for the marines. Over time, natural erosion and hundreds of thousands of bullet impacts have deteriorated the berm surface to the point where safety and operational readiness had become significantly reduced. A project was completed to restore and enlarge the existing berm plus improve the surrounding areas, including roads and drainage structures by utilizing soil fill supplemented with 16,000 tons of coal ash which saved $2,080,000 in disposal costs.

b. **Process Modification:**

(1) **Installing Drop Inlet Spill Protection Devices:**

By installing drop inlet spill protection devices in the fuel pits along the flightline and providing spill response kits at each of the pits, MCAS Cherry Point has reduced the potential impact to the environment from spills and has improved the Marine's response time for spill cleanup. Safe Drain Inc. manufactures a device that seals to and mounts inside a drop inlet to regulate materials that would normally flow through. The Safe Drain ™ device has a valve that can be closed to prevent drainage. For actuation, a "key" is inserted between the openings in the drain grate to open/close the valve. Our Safe Drain ™ drop inlet spill protection devices are maintained in the closed position and hold back any rainwater\spills for collection in the pits. Collected

rainwater is released following inspection for spills. The spill response kits located at each of the fuel pits have greatly improved the Marine's response time and are preventing spills from entering the environment.

(2) **F0606 Solvent to Replace Antiquated Methylene Chloride Dip Tank:** The Airframes Division of Marine Aviation Logistics Squadron (MALS)-14 at MCAS Cherry Point is responsible for second-echelon (or intermediate) maintenance of all tactical aircraft within 2D-MAW, including AV-8B Harriers, EA-6B Prowlers, and KC-130 Hercules. As part of this maintenance, MALS-14 Airframes requires the use of a chemical paint stripper to remove paint from various aircraft parts. Prior to 2006, Airframes used a dip tank containing methylene chloride (also known as dichloromethane) and phenol, which are listed as federal HAPs, North Carolina TAPs, and EHSs. Additionally, these chemicals contribute to a significant source of hazardous waste generation and pose both OSHA and NFPA concerns. The actual dip tank was nothing more than three metal dip tanks welded together by shop personnel and was located outside to address OSHA ventilation concerns.

The Environmental Affairs Department recognized this concern and commissioned a study to evaluate less toxic paint strippers that still met MILSPEC standards. The results of this study allowed for the procurement of a Ramco AJA Kleen System with F0606 solvent for the squadron to replace the antiquated methylene chloride dip tank. Besides the clear benefit of elimination of methylene chloride and phenol, other benefits were recognized.

(3) **Blending Facility:** The annual demand for oil-based fuel at the Central Heating Plant (CHP) is approximately 1.4 million gallons. Since the recyclable petroleum can be made suitable for use at the central heating plant and the production rate is less than the demand, a viable alternative for the recycling of the blended recyclable petroleum is to use it as a fuel at the central heating plant.

The construction phase of the blending facility began in FY 2001 and was completed and a contract for the operation of the blending facility was awarded in FY 2003. By blending the recovered fuels, used oil, and used fuels saves the Air Station money. At current savings levels, the investment for construction of the blending facility had a payback period of less than 23 months. The first shipments of recycled used oil to the Blending Facility began in January 2004. A total of 105,000 gallons were delivered to the CHP for burning during FY 2010-2011. Thus saving $148,050 in purchasing virgin heating oil for the Air Station's CHP. There has been an increase from $.87 per gallon cost for #2 heating oil in FY 2004 to $3.98 per gallon in FY 2008. Since the Environmental Affairs Department started providing the CHP with recycled used oil for burning in their heating plant in 2004, a total of 575,095 gallons has been recycled saving the Air Station from purchasing over $1,085,659 worth of virgin #2 heating oil. This blending facility is the only one of its kind in the Marine Corps and is also unique in that the operation and burning includes recovered remediated JP-5 jet fuels.

(4) **Personally Identifiable Information (PII) Recycling:** MCAS Cherry Point's Environmental Affairs Department has contracted with PROSHRED® to perform on-site document destruction aimed at safeguarding personally identifiable information (PII) as set forth in the DoD Privacy Program (DoD 5400.11-R, May 14, 2007). This program allows both military and civilian personnel at 111 locations throughout the air station to place sensitive PII documents into one of 155 secured tamper proof 96-gallon or executive containers that are emptied bi-weekly into a specially-equipped truck that instantly shreds the paper as the container is emptied of its contents. During FY 2010/2011, 265,900 pounds (132.95 tons) of sensitive PII

was shredded on-site with 100% of the material recycled resulting in more than $19,942 savings in disposal costs and just as important, significantly reduced our environmental footprint. By recycling paper, we save both energy and resources that would otherwise go into producing virgin paper from trees. Recycling one (1) ton of paper saves 580,000 gallons of water, 640,000 gallons of oil, 340,000 kilowatt hours of electricity, 5,000 pounds of air pollutants, 1,400 trees, and 250 cubic yards of landfill space. This secured on-site destruction method safeguards sensitive information, maintains legislation compliance, and avoids situations that could result in negative publicity while providing a convenient, cost-effective, and environmentally conscious method to destroy PII documents.

c. **Green Procurement:**

(1) The Air Station has been buying re-refined motor oil through the Defense Supply Center – Richmond (DSCR) since 1996. This was before the mandate from the Commandant of the Marine Corps in a September 11, 1997 letter requiring the use of re-refined oil in all cases. When it became available, the Air Station started purchasing its motor oil under the Closed Loop Program. This allowed for the pickup of used oil aboard the air station in as little as a 55-gallon capacity anywhere that generated used at Cherry Point by Safety-Kleen, Corp. This has benefited the Air Station greatly when holding capacity became an issue. Under this Closed Loop Program, Safety-Kleen would pick up and remove up to 120% of the ordered quantity without charge to the Air Station. The Air Station's Motor Transport Department services approximately 950 vehicles including gas cars, carts, diesel trucks and aircraft handling equipment utilizing re-refined motor oil.

d. **Education, Outreach and Partnering:** Education is the key to the success of any environmental program. With this idea as its driving principle, The Environmental Affairs Department's (EAD) team continued their comprehensive educational outreach program. The program has been an overwhelming success with the military and civilian personnel aboard the Air Station. This training has motivated personnel to recycle steel, plastic and glass containers, aluminum cans and cardboard. The program has made everyone aware of environmental issues and what they can contribute to protecting our environment. With the implementation of this program, the Air Station will avoid the cost of collecting, transporting and burying its solid waste in the regional landfill.

Recycling aluminum cans, plastic beverage containers and cardboard proved to be successful at the 2010 air show during May 21-23. A select group of volunteers from the Environmental Affairs Department collected and picked up the recyclables from air show vendors and the general public. A total of 2,000 pounds cardboard, 1,620 pounds of plastic bottles, and 120 pounds of aluminum cans were recycled during the air show. Building upon the extremely successful recycling effort initiated at the Cherry Point Air Show, EAD has promoted a voluntary recycling initiative through the issue of 150 recycling containers to military units and civilian departments throughout the air station. These unique eye-catching bottle-shaped recycling containers encourage an individual to recycle their plastic bottles and aluminum cans. The units and departments do their part by depositing their collected bottles and cans in the bulk recycle containers located at the Material Recovery Facility.

The team sponsored several events to promote environmental stewardship this Earth Day. Cherry Point kicked off Earth Day environmental outreach events at the Child Development Center and Cherry Tree House by delivering butterfly kits to afford the children an opportunity to observe the process of caterpillars developing into Painted Lady butterflies. Additionally, nearly 200 children and 15 volunteers participated in a fossil dig (finding ancient shells, bones, and shark's teeth), constructed pine cone birdfeeders, and created fruit and vegetable planters using post-consumer plastic containers. Earth Day awareness was further heightened

by activities such as: a cleanup of the Ordnance Point recreational area and base storm water ponds resulting in the removal of 750 pounds of debris; marines from MWSS-274 planted flowers and landscaping in front of their headquarters building; providing guided forest hike near Bartlett Pond; and sponsoring an Earth Day 5K Fun Run/Walk with approximately 120 participants. Eco-conscious awards were presented to 1st, 2nd, and 3rd place runners. Environmental outreach activities featured West Craven High School's Seed-To-Biofuel demonstration bus as well as information booths to promote energy conservation, marine stewardship, wildfire prevention, local environmental education opportunities, and proper management of fats, oils, and greases.

As an outreach effort to younger generations, the MALS 14 Marines and EAD personnel teamed up to provide a fossil dig for the kindergarten classes at a local elementary school, which includes a discussion of Earth Day and environmental stewardship opportunities for the young citizens. The marl for the fossil dig was provided by PotashCorp located in Aurora, NC. The material contains sharks teeth, fossilized seashells and bones. Mr. Rick Olsen, curator for the Aurora Fossil Museum, was present to help identify the various sharks teeth and items found.

By implementing proper and timely environmental management practices into hazardous waste/material control, pollution prevention measures, and recycling goals along with community involvement, we have saved significant funds, reduced environmental risks, improved processes, and at the same time enhanced our environment.

During 2010-2011, environmental innovations, pollution prevention and recycling initiatives have produced a grand total of **$4,744,335** in income and cost avoidance. These programs have proven to be effective pollution prevention resources and waste reduction mechanisms for Marine Corps Air Station, Cherry Point.