

SUBMITTAL FOR  
2010 SECRETARY OF DEFENSE - NAVY  
ENVIRONMENTAL QUALITY - 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 Clinic (NAVC). 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; 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 Environmental Management Program:** Marine Corps Air Station (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).

In January 2004, the initial EMS was implemented at MCAS Cherry Point which consisted of four pilot organizations aboard the Air Station. During the period of February to November 2004, an initial inventory of practices, aspects, and impacts (PAI) was conducted at all four pilot organizations. Then, the EMS Core Team conducted a risk ranking exercise to prioritize those practices and aspects that represent a risk to the Air Station mission. Once EMS training was provided to Air Station personnel in November 2004, the Chief of Staff endorsed the EMS Core Team Charter in January 2005. In February and March 2005, the first set of objectives and targets (O/T) were developed for significant aspects resulting from the pilot organization risk ranking of practices and aspects. The O/Ts were developed by Environmental Affairs Department (EAD) personnel.

In April 2005, the Installation Commander endorsed the Environmental Policy Statement. Environmental management procedures (EMPs) and an EMS manual were drafted in 2005. During May to August 2005, the process of developing and monitoring environmental action plans (EAPs) to achieve O/Ts was implemented. In September 2005, EAD conducted EMS Policy training at different organizations, units, and departments aboard the Air Station. A plan was developed to expand the EMS across the entire installation. The Fleet Readiness Center – East (FRC-East) and Naval Health Clinic (NHC) are required to implement an EMS at the

organizational level per Navy guidance. These organizations have chosen to develop and implement EMS independently of the Air Station's EMS. However, they participate at the Air Station's EMS Core Team meetings and vice versa. This relationship has been documented in the EMS Manual.

Additionally, an EMS conformance status report was submitted to Headquarters Marine Corps (HQMC) on September 30, 2005. HQMC recognized MCAS Cherry Point for completing all seven USMC EMS implementation criteria before December 31, 2005 for the pilot organizations. Cherry Point was one of three Marine Corps installations recognized by HQMC for achieving the implementation criteria.

In May 2007, the installation participated in the HQMC external ECE EMS audit. The installation received zero major non-conformances and only seven minor non-conformances. In September 2007, the installation submitted a declaration of self-conformance to HQMC documenting that the installation had met the HQMC EMS conformance criteria by the 31 December 2007 deadline.

The EMS is reviewed and updated annually to ensure it remains suitable to the current mission and is effective in achieving MCAS Cherry Point's environmental policy, objectives, and targets. MCAS Cherry Point uses the HQMC Environmental Management (EM) Portal intranet site as a tool to facilitate communication for its environmental program areas, maintain the EMS PAI inventory, and objective and target data, and also serve as a document repository.

An EMS requires continual improvement, which is currently reflected through efforts such as increased EMS training, implementing EMS contract language to meet the intent of Executive Order (EO) 13423, improving document and record control procedures, continuing to develop environmental standard operating procedures (ESOPs), establishing an Air Station order to implement the 44 existing ESOPs, and tracking/modifying EAPs associated with minimizing animal air strike incidents, conserving energy and water, improving water quality, promoting renewable energy projects, and reducing greenhouse gas emissions.

**b. Overview of Outstanding Program Features and Accomplishments:** Recognition of past achievements in environmental stewardship is evidenced through receipt of the following awards during 2009 and 2010. This record is evidence of our commitment to environmental excellence and demonstrates our innovative management approach.

<b>Date Received</b>	<b>Award</b>
2009	2008 Secretary of the Navy Environmental Quality Award - Industrial Installation
2010	2009 Secretary of the Navy Sustainability 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 22 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.

**c. Reducing Solid Waste by Education:** Education is the key to the success of an environmental program. With this idea as the corner stone, the Environmental Affairs Department started a comprehensive education program. The program includes a quarterly environmental newsletter featuring articles about various environmental subjects, pamphlets describing environmental activities and environmentally friendly tips, and outreach awareness training to various school groups. The program has been an overwhelming success with the military and civilian personnel aboard the Air Station becoming proactive in recycling plastics, aluminum cans and cardboard.

**d. Blending Facility for Burning Used Oil at the Central Heating Plant:** Blending of the recyclable petroleum required the construction and operation of a blending facility. 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. Blending the recovered fuels, used oil, and used fuels, which amounts to 270,000 gallons per year, saves the Air Station \$237,600 per year.

## 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, waste oil, JP-4/JP-5 fuel, tires, batteries, and HM. By recycling more than 65 million pounds through the Defense Reutilization and Marketing Office, the QRP has generated over \$3.9 million in revenue for the Air Station since the program's inception. During FY09/10, over 7.6 million pounds were recovered and recycled, producing \$411,223 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
7,631,864	\$411,223.65	N/A

**Waste Oil Wealth Program.** The sale 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
199,621	\$33,654.07	\$374,289.38

**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
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132,171	N/A	\$554,605.40
<b>Used Solvent Elimination.</b> 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, office/mixed paper, cardboard and newsprint; initially utilizing a drop-off type program and then adopting a curbside collection for 1719 Air Station housing units.

Pounds	Income	Cost avoidance
727,180	N/A	\$54,538.50

**Wood Waste Recycling.** Wood wastes deposited into the construction debris landfill aboard the Air Station.

Pounds	Income	Cost avoidance
3,555,600	N/A	\$67,556.40

**Total Income: \$444,878 Total Cost Avoided Savings: \$1,154,622**

(2) **Toxic and Hazardous Material Management:** The Air Station has made significant progress in improved material management by creating and maintaining a *hazardous materials 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 09 and FY 10, for the reuse program are:

HM reissued by HMCC.....	\$173,494
HM disposal cost avoidance.....	\$161,855
Total cost avoidance .....	\$335,349

**b. Pollution Prevention Initiatives:**

(1) **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 120,000 gallons were delivered to the CHP for burning during FY 2009-2010, thus saving \$255,900 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 505,095 gallons has been recycled saving the Air Station from purchasing over \$986,959 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.

(2) **Solar Photovoltaic Panels:** A building aboard Marine Corps Air Station Cherry Point began displacing some of its electrical consumption by harnessing the sun's power using solar energy panels. Southern Energy Management in conjunction with Quality Roofers was awarded the environmentally friendly project of installing 240 solar photovoltaic (PV) panels on top of Building 1016, a warehouse that is located on 6th Avenue. This project, which originated through the Energy Initiative Program, will offset energy use and demonstrate using renewable energy as an alternative source. Renewable energy (RE) can also be sold as renewable energy credits (RECs) to competing utility companies. RECs allow RE generator output to be sold in 1000 kilowatt-hour increments to power companies to comply with "green energy" mandates or consumers who wish to buy renewable energy in a desire to "go green". Solar PV panels directly convert sunshine to direct current electricity which is converted to alternating current electricity and fed into the electrical system using a piece of equipment called a Grid Intertie Inverter. This inverter converts the DC electricity input from the PV panels to AC electricity that is compatible with the normal utility electricity and has safety features which shut the inverter down if there is a utility power outage. Metering is also provided to measure the energy produced. The PV system at building 1016 has a maximum power output of 50 kilowatts and is expected to have an annual energy production of 90,000 KWH. This is comparable to the yearly energy consumption of four average size homes. We expect about 25% of Building 1016's energy will be supplied by the PV system during sunny hours. Our marginal electrical KWH price at Cherry Point varies from about 6 cents to as high as 60 cents during peak load hours which generally occur during daytime, so this system will help displace some of the most expensive energy we purchase.



(3) **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.



(4) **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.



### **Narrative Summary:**

MCAS Cherry Point is proud of its environmental stewardship. Our management accomplishments emphasize the mutually beneficial relationship between the Air Station, the surrounding communities, and the natural environment we share. Emphasis for the 2009 and 2010 Environmental Quality Program was founded on the development of innovative pollution prevention and comprehensive waste minimization and recycling initiatives.

During 2009-2010, environmental innovations and recycling initiatives have produced a grand total of **\$4,270,748** 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.

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.

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