

SUBMITTAL FOR
2002 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 Naval Aviation Depot (NAVAVNDEPOT). 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 NAVAVNDEPOT, 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 Environmental Management Program:** Accomplishments of the environmental quality programs have largely resulted from following the management objectives set forth in the Air Station Environmental Strategic Plan adopted in 1993 and updated annually. The objectives and significant overall achievements relative to each are detailed below:

(1) Awareness: Awareness is provided through effective interaction with appropriate national, state, regional, and local agencies; education of ourselves, our customers, and our suppliers on the proper care of the environment and natural resources and through training of our team to meet and surpass established environmental performance standards.

(2) Planning: In concert with existing regulations and in anticipation of projected changes, we work closely with responsible agencies to plan for our development and that of our surrounding communities and region. Furthermore, established cooperative agreements and plans with surrounding county governments have positioned the Air Station as a leader in addressing regional environmental issues.

(3) Prevention: We implement changes to our processes to prevent pollution. We comply with existing regulations; monitor all processes to ensure compliance; and seek ways to improve. During the past two years, as documented by our Environmental Compliance Evaluation (ECE), the Air Station is shifting the environmental management emphasis to issues dealing with prevention rather than compliance.

(4) Reduction: We are actively working to reduce the amount of waste generated, both hazardous and otherwise, by careful selection of material and using closed loop systems and recycling. As indicated by our achievements in pollution prevention, it is possible to achieve significant waste reduction through changing the status quo relative to process modification and solid waste management.

(5) Remediation: We actively seek and identify hazardous waste sites. We remediate sites by cutting edge and proactive cleanup procedures in keeping with regulatory standards. All historic hazardous waste chemical release sites aboard the Air Station have been identified and programmed for remediation.

b. **Overview of Outstanding Program Features and Accomplishments**: Recognition of past achievements in environmental stewardship is evidenced through receipt of the following awards during 2001 and 2002. This record is evidence of our commitment to environmental excellence and demonstrates our innovative management approach.

Date Received	Award
2001	2000 Secretary of the Navy Recycling Award - Industrial Installation
2001	2000 Secretary of the Navy Environmental Quality Award - Industrial Installation
2002	2001 Secretary of the Navy Environmental Quality Award - Industrial Installation (Runner Up)
2002	2001 Secretary of the Navy Pollution Prevention Award - Industrial Installation (Runner Up)
2002	Secretary of the Navy Environmental Cleanup Award- Installation (Runner Up)

In 1995, MCAS Cherry Point won the first White House Closing the Circle Award in Recycling. This award was won in competition with 233 other applicants throughout 15 Federal agencies and demonstrates the level of proficiency achieved by the Air Station's recycling programs. By winning the 1997 Renew America's Environmental Sustainability in Hazardous Waste Management and Recycling, Cherry Point was 1 of only 24 winners who were selected from over 1,600 applicants. As a testament to Cherry Point's environmental education campaign, the winning poster came from MCAS, Cherry Point for the United States Marine Corps Earth Day '97 Poster contest. MCAS Cherry Point has excelled among DoD facilities by winning the Commander in Chief's Installation Excellence Award on six occasions over the past 11 years since the award has been given, 1988, 1994, 1996, 1997, 1999 and 2000. 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 \$1,200,000 received from this source has been utilized to improve the working and living environment aboard the Air Station. MCAS Cherry Point was named as one of only six selections as the "Facility of the Year for 1997" by the Environmental Protection magazine in its January 1998 issue.



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 five 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. **Coal Ash Recycling**: The project consisted of surfacing a 6400-foot section of an existing dirt road using coal ash treated with Perma Zyme 11X (enzyme) to create a cement-like surface similar to asphalt. The total project cost was \$80,095 and utilized 2,320 tons of coal ash from the installation's coal ash stockpile and 4,030 tons of asphalt from the installation's asphalt stockpile with an additional 2,175 tons of removed soil stockpiled for future use for a total waste diversion of 8,525 tons. The estimated cost savings was \$365,000 in acquisition costs and \$852,500 in disposal costs for a total cost savings to the government of approximately

1.2 million dollars. The successful demonstration of this environmental quality initiative will pave the way for additional coal ash use in future road and parking lot projects aboard MCAS Cherry Point.

d. Reducing Solvent Tanks Greatly Reduces Air Station Costs: To facilitate analysis of Cherry Point's Used Solvent Elimination (USE) program, our Environmental Affairs Department (EAD) with assistance from Lead Maintenance Technology Center for the Environment (LMTCE) conducted a base-wide survey of solvent part washers at MCAS Cherry Point. The primary goal of the survey was to reduce program costs, currently over \$147,000 per year, and solvent usage, currently over 25,000 gallons per year, while still satisfying mission needs. Secondary goals were to verify part washer's model and serial numbers, document their location for future inclusion into a Global Information System (GIS) layer, and identify potential pollution prevention opportunities such as aqueous part washers and steam cleaning systems

The survey was conducted over a 30-day period and consisted of visually identifying each part washer, verifying operation and operational condition, checking mechanical condition, interviewing shop personnel, and plotting locations for future GIS applications. Upon implementation of survey recommendations, the \$147,452 annual program cost to Cherry Point was reduced by 57% to \$63,402 per year. Just as important to our environment, our solvent usage was reduced by 73% from 25,457 gallons to 6,887 gallons per year.

e. Expansion of Cherry Point's Curbside Recycling Program: Since cardboard is our largest recyclable, a mandatory cardboard recycling program needs to be implemented aboard the Air Station in addition to the current cardboard recycling that is taking place. CMC-LFL validated and funded a project to construct a new Material Recovery Facility (MRF) to include a central drop off area to collect and process cardboard. Construction of this new MRF began in October 2001. A further improvement to cardboard recycling was achieved in fiscal year 2001 by expanding the curbside recycling program to include the collection of corrugated cardboard in the housing areas. Cardboard is presently collected, bailed and recycled at the commissary, MCX, NADEP, and the Servmart. Additional high generation locations were incorporated in fiscal year 2001, which included MALS-14 supply, building 1016, and Station Supply/DLA, building 159.

The addition of mixed paper collection to the curbside recycling program was implemented at the same time as cardboard collection began in the housing areas along with a drop off area located at the MRF. These new recycling programs will also bring the Air Station much closer toward reaching the 40% reduction goals outlined in the Department of Defense's MoM and North Carolina House Bill 1109.

The estimated diversion of 3,481 tons will move Cherry Point closer to meeting mandated goals and reduce the cost of solid waste disposal when looking at tipping fees alone. By including all the costs to collect, transport, and bury it in the regional landfill, the Air Station will save approximately \$301,220 per year (Full cost to dispose minus cost to implement recycling programs).

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 28.5 million pounds through the Defense Reutilization and Marketing Office, the QRP has generated nearly \$1.8 million in revenue for the Air Station since the programs inception. In FY01/02, over 3.5 million pounds were recovered and recycled, producing over \$256,845 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
3,548,788	\$256,845.95	N/A

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

Gallons	Income	Cost avoidance
161,166	\$3,576.39	\$317,304.01

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
23,431	N/A	\$75,079.87

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

Gallons	Income	Cost avoidance
34,132	N/A	\$204,396.00

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 2840 base housing units.

Pounds	Income	Cost avoidance
863,240	N/A	\$64,743.00

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

Pounds	Income	Cost avoidance
6,268,352	N/A	\$106,561.00

Total Income: \$260,422 Total Cost Avoided Savings: \$768,084

(2) **Toxic and Hazardous Material 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 01 and FY 02, for the reuse program are:

HM reissued by HMCC.....	\$895,481.
HM disposal cost avoidance.....	\$516,865.

Total cost avoidance\$1,412,346.

b. Pollution Prevention Initiatives:

(1) **Blending Facility:** The operation of the Marine Corps Air Station at Cherry Point, North Carolina produces recyclable petroleum by-products. These recyclable petroleum products include used oils, used fuels and fuels recovered by groundwater remediation systems. The Air Station is currently handling the recycling of these petroleum products by a variety of means including removal and recycling by outside contractors, using the petroleum as fuel at the central heating plant and using the petroleum in fire fighting training exercises. The Environmental Affairs Department, wanted to streamline the petroleum-recycling program, began an evaluation with the objective of determining the most cost effective means of recycling these petroleum products.

The evaluation included a detailed review of the current recyclable oil handling practices. The current annual recyclable petroleum product production is approximately 270,000 gallons and is expected to decrease to approximately 228,000 gallons per year by 2009. These recyclable petroleum products are frequently tested to determine suitability for use as a fuel at the central heating plant. Sulfur, ash, percentage of water, and flash point parameters associated with the individual petroleum products (oils and fuel) that constitute the recyclable petroleum stream often do not meet requirements for use at the central steam plant. However, blending the constituent recyclable petroleum products can produce a product that will be suitable for use at the central heating plant. The annual demand for oil-based fuel at the central heating plant 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.

Blending of the recyclable petroleum required the construction and operation of a blending facility. The evaluation included a conceptual design of a blending facility. The proposed blending facility would operate on a batch basis. The batch frequency was determined based on recyclable petroleum production rates, plausible petroleum storage capacities and administrative considerations. A batch frequency of two weeks was proposed for a blending facility with two pairs of two 8,000-gallon capacity holding tanks and one 20,000-gallon capacity blended oil tank.



Final inspection of Blending Facility

Two other considerations were evaluated for the proposed blending facility. These include the blending facility location and the blending facility operating entity. The Air Station identified two potential locations for the blending facility, Building 4331 and the central heating plant. Building 4331 is where used oil collected from throughout the Air Station is currently stored. The evaluation also reviewed two options for operating the blending oil facility. Operators from outside contractors as well as from within the Air Station were considered.

The evaluation also considered which Air Station department is best suited, from a logistical perspective, to operate the proposed blending facility in the event that Air Station operation of the blending facility proved most economical. The evaluation considered the departments currently involved with handling the recyclable petroleum, which includes Environmental Affairs Department, Facilities Maintenance Department, Fuels Department and the central heating plant. The review concluded that, if Air Station operation of the proposed

blending facility is economically favorable, the department best suited to operate the facility is the Fuels Department.

A life cycle cost analysis was conducted considering the following five competing alternatives: (A) blending oil at the central heating plant with Air Station personnel, (B) blending oil at Building 4331 with Air Station personnel, (C) blending oil at the central heating plant with an outside contractor, (D) blending oil at Building 4331 with an outside contractor and (E) removal and off-site recycling of recyclable petroleum by an outside contractor. Design, construction, operation, administration and closeout costs were included in the life cycle cost analysis for the four blending oil alternatives. The off site recycling alternative includes the costs to purchase virgin petroleum, administration costs and the benefit of revenues generated from the sale of recyclable petroleum the recycling contractor.

The life cycle cost analysis indicated that the construction and operation of a blending facility for preparing recyclable petroleum for use at the central heating plant boilers is a more cost effective petroleum recycling approach than using an outside contractor to remove and recycle these petroleum products. The analysis indicated that the cost savings, of constructing and the blending facility were greatest (55%), for Alternative A and least for Alternative D (27%).

Based on the data evaluated during this investigation the most efficient and cost effective means of recycling petroleum at the Air Station is to: 1) construct a recyclable petroleum blending facility, 2) locate the blending facility at the central heating plant, 3) operate the facility using Air Station personnel, 4) use Facilities Maintenance personnel and equipment to collect all recyclable petroleum and deliver the petroleum to the blending facility, and 5) use Fuels Department personnel to operate and maintain the blending facility.

The construction phase of the blending facility began in FY 2001 and is nearly complete. By blending the recovered fuels, used oil, and used fuels, which amounts to 270,000 gallons per year, will save the Air Station \$237,600 per year. At this savings level, the investment for construction of the blending facility will have a payback period of less than 23 months.

(2) Expansion of the Recycling Program: Executive Order 13101, GREENING THE GOVERNMENT THROUGH WASTE PREVENTION, RECYCLING, AND FEDERAL ACQUISITION, dated 14 September 1998 requires each executive agency to incorporate waste prevention and recycling in the agency's daily operations and work to increase and expand markets for recovered products. This EO makes it a national policy to prefer pollution prevention. Pollution that cannot be prevented should be recycled. Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be employed only as a last resort. In May 2000 CMC-LFF issued further clarification on Qualified Recycling Programs in base operations (CMC ltr. 11350 of 25 May). This clarification again employed the "Environmental Management Hierarchy" that disposal of solid waste is the last resort. Several other important regulatory laws and mandates have been passed concerning the importance of reducing the amount of waste disposed at landfills. According to the North Carolina House Bill 1109, G.S. 130A-309.04(c), it is the goal of the state to reduce the municipal solid waste stream through source reduction, reuse, recycling, and composting forty percent (40%) by 30 June 2001. North Carolina General Statute 130A-309.10(f)(6) prohibits the landfilling of aluminum cans after 1 July 1994. Under a draft proposal of the State Solid Waste Management Plan, there will be a landfill ban of cardboard by 2004. The new DoD Pollution Prevention Measure of Merit (MoM), established 13 May 1998, for the "Non-Hazardous Solid Waste Diversion Rate" is: By the end of FY2005, ensure the diversion rate for non-hazardous solid waste is greater than 40%, while ensuring integrated non-hazardous solid waste management programs provide an economic benefit when compared with disposal using landfilling and incineration alone.

After a combined 16% reduction in the Air Station's solid waste going to the regional landfill in 1998 over the base year of 1992 with the present recycling programs, there was nearly an 11% increase for landfilled tons in 1999. This was a disturbing trend that needed to be reversed. In order to meet the 40% goal, the Air Station must reduce the total landfilled tons to 5770. The tipping fee cost alone associated with the 1999 increase in landfilled tons is \$34,640 (\$39.50 per ton cost effective July 1, 1999).

SOLID WASTE DISPOSED IN THE REGIONAL LANDFILL

FISCAL YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
TOTAL TONS	9366	9028	9616	9151	8611	8200	8594	8384	8067	8944

The combined waste streams of corrugated cardboard and mixed grade paper account for nearly 40% of the total municipal solid waste (MSW) stream at the Air Station. If mixed grade paper was included in the Air Station's recycling programs and the corrugated cardboard recycling program was expanded, an additional estimated 2,086 tons could have been diverted from the landfill saving \$82,397 in tipping fees in 1999.

Environmental Affairs (EAD) believes that goal oriented planning at this point is required to meet DOD requirements and future regulatory mandates. Because of the current depressed market for recycling commodities, recycling and pollution prevention programs may not show a visible profit. However, the economic benefit (diversion of waste from landfills) outweighs the cost of implementing and sustaining these programs. For example, in today's current market environment, it costs approximately \$45.00 per ton for a contractor to process typical household recyclables from the curbside recycling program. When full cost accounting methods are employed, which include the cost for labor, equipment and contract administration, the Air Station spends approximately \$120.00 to \$150.00 per ton to collect, compact, transport and landfill these recycling materials. Because these programs are not self-sustaining, EAD must rely on command support. While partially driven by environmental requirements, an ongoing successful recycling program with the resultant long term reduction in landfill tonnage is no different from operation of the water plant, waste water plant, Land Clearing and Inert Debris Landfill (LCIDL), sludge management, etc.

Since cardboard is our largest recyclable, a mandatory cardboard recycling program needed to be implemented aboard the Air Station in addition to the current cardboard recycling that is taking place. CMC-LFF validated and funded a project to construct a new Material Recovery Facility (MRF) to include a central drop off area to collect and process cardboard. Construction of this new MRF began in October 2001. A further improvement to cardboard recycling was achieved in fiscal year 2001 by expanding the curbside recycling program to include the collection of corrugated cardboard in the housing areas. Cardboard is presently collected, baled and recycled at the commissary, MCX, NADEP, and the Servmart. Additional high generation locations were incorporated in fiscal year 2001, which included MALS 14 supply, building 1016, and Station Supply/DLA, building 159.

The addition of mixed paper collection to the curbside recycling program was implemented at the same time as cardboard collection began in the housing areas along with a drop off area located at the MRF. These new recycling programs will also bring the Air Station much closer toward reaching the 40% reduction goals outlined in the MoM and North Carolina House Bill 1109.



The "Right Thing to Do"

The estimated diversion of 3,481 tons will move Cherry Point closer to meeting mandated goals and reduce the cost of solid waste disposal when looking at tipping fees alone. By including all the costs to collect, transport, and bury it in the regional landfill, the Air Station will save approximately \$301,220 per year (Full cost to dispose minus cost to implement recycling programs).

(3) Coal Ash Recycling:



The project consisted of surfacing a 6400-foot section of an existing dirt road using coal ash treated with Perma Zyme 11X (enzyme) to create a cement-like surface similar to asphalt. The total project cost was \$80,095 and utilized 2,320 tons of coal ash from the installation's coal ash stockpile and 4,030 tons of asphalt from the installation's asphalt stockpile with an additional 2,175 tons of removed soil stockpiled for future use for a total waste diversion of 8,525 tons. The estimated cost savings was \$365,000 in acquisition costs and \$852,500 in disposal costs for a total cost savings to the government of approximately 1.2 million dollars.

The successful demonstration of this environmental quality initiative will pave the way for additional coal ash use in future road and parking lot projects aboard MCAS Cherry Point.

During 2001-2002, environmental innovations and recycling initiatives have produced a grand total of **\$4,281,222** in cost 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.

. (4) **Evaluation of Used Solvent Elimination Program:** To facilitate the analysis of the Used Solvent Elimination (USE) Program, personnel from the Environmental Affairs Department with assistance from the Naval Aviation Depot who are members of the Lead Maintenance Technology Center for the Environment (LMTCE) conducted a base-wide survey of solvent part washers.

The primary goal of the survey was to reduce program costs while still satisfying the activities' mission needs. Secondary goals were to verify part washer's model and serial numbers, document their location for future inclusion into a GIS layer, and identify potential pollution prevention opportunities such as aqueous part washers and steam cleaning systems.

The USE program funds a total of 104 solvent part washers at a cost of \$147,452 per year with an annual solvent (PD680 Type II) usage of 32,334 gallons. Individual part washers consist of the 80-gallon agitating part washer to the 10-gallon paint gun cleaner, 6-gallon brake cleaner, and 5-gallon carburetor cleaner. The majority of part washers consist of 40, 30, and 20-gallon "sink-on-a-drum" units. The service interval times are 4, 8, or 12 weeks. Part washer costs are a function of capacity and service interval but as a rule, the larger the unit and the shorter the service interval time, the higher the cost.

Part washers are supplied to military and support units situated throughout the Air Station and extend literally to the four corners of the installation. Additional part washers are located at both Marine Corps Alternate Landing Fielding (MCALF) Bogue and Bombing Target (BT) Range -11.

To facilitate the survey analysis, the distillation solvent part washer (30-gallon capacity) was assigned an annual cost of \$1,188.00 (based on contractor bid price) and assumed to have zero solvent usage.

SURVEY

The survey was conducted over a 30-day period and consisted of visually identifying each part washer, verifying operation, interviewing shop personnel, and plotting locations for future GIS applications.

Survey personnel visually verified each part washer and recorded the model and serial number and compared to a contractor-supplied list. Operation readiness was demonstrated by activating the part washer to check for sufficient pressure, leaks, hinge function, and fusible link. Discrepancies were noted and recorded.

Interviews with shop personnel were informally conducted to obtain information such as type of part cleaned, quantity, frequency of use, condition of the solvent and part washer. Additional comments were solicited as to whether the part washer(s) met their unit's needs. Additional time was spent discussing alternative part cleaning technology such as distillation solvent part washer, aqueous part washer, and steam cleaning. The goal of the interview was to obtain an accurate assessment of the unit's needs as opposed to their wants.

Shops with multiple part washers were evaluated to determine which units were necessary and in many cases, those shops were reduced to one part washer. In a few cases, the part washers were no longer in use by the shop and were targeted for removal.

Some shops were deemed viable candidates for a distilled solvent part washer where the replacement of the conventional "sink-on-a-drum" part washers would either eliminate the larger, more expensive part washer or replace multiple part washers resulting in an overall cost savings. In some cases, cost savings were realized when a shop was able to downgrade to a smaller unit and/or extend the service interval without an adverse impact on operations.

Some shop operations traditionally performed by the military have been contracted to private companies that have taken over the work areas once occupied by the military. In these cases, the financial responsibility for the part washer will be transferred to the respective contractor.

The location of each part washer was hand plotted on individual building floor plans to be used as a reference for future development of a solvent part washer GIS layer.

RESULTS

Upon implementation of survey recommendations, the \$147,452 annual program cost was **reduced by 57%** to an annual program cost of \$63,402 for a savings of \$84,050 per year.



Distillation Solvent Part Washer (DSPW) in use at MALS- 14 tire shop

The total number of solvent part washers was reduced nearly 36% from the current 104 units to 67 units. A total of 18 part washers will remain in place while 32 units are removed at a cost savings of \$36,241. Distillation solvent part washer will replace 32 units for a savings of \$27,190 while 4 units are downgraded to a smaller capacity unit and/or increase the service interval for a savings of \$2,430. Finally, 11 units will be reimbursed for \$12,455 and the financial responsibility for 5 units will be transferred to the respective contractors for a savings of \$5,734. The 32,334-gallon annual solvent usage was **reduced 79%** to 6,877 gallons per year for an annual reduction of 25,457 gallons.

Secretary of Defense Environmental Awards (FY 2002)

Name of Installation: Marine Corps Air Station, Cherry Point

Award category: Environmental Quality – Industrial Installation

Nominee and POC:

George W. Radford
Environmental Affairs Department LN
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Abstract:

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. During 2001-2002, environmental innovations and recycling initiatives have produced a grand total of \$4,281,222 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, MCAS Cherry Point has saved significant funds, reduced environmental risks, improved processes, and at the same time enhanced our environment.