

**Secretary of the Navy
FY03 - Environmental Awards Nomination
Environmental Quality – Individual/Team Category**

Nominee: Mrs. Mary E. Wheat



**Submitted by Col S. L. Forand
Commanding Officer, MCAS New River**

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BACKGROUND

Mary E. Wheat, Manager
Safety and Environmental Affairs Department
Marine Corps Air Station, New River



POSITION DESCRIPTION

Mrs. Wheat serves as the Installation Safety and Environmental Affairs (SEA) Manager for Marine Corps Air Station (MCAS), New River. In this capacity, she manages a special staff department providing a full range of environmental protection and safety services to all persons stationed at, employed by, visiting, or residing aboard the installation. She is responsible for the planning, implementation and evaluation of all environmental programs for the installation. She provides professional and technical assistance to the Commanding Officer and other staff officers, to include tenant commands, on environmental compliance, pollution prevention, and environmental conservation issues.

Mrs. Wheat oversees the Environmental Compliance Evaluation (ECE) program for the installation. Through self-audits or studies performed by her staff, she determines the existing state of compliance in all environmental media and directs appropriate corrective actions. She coordinates with appropriate commands if notifications or compliance agreements with regulatory agencies are required, provides CMC with current environmental deficiency data, and programs funding to achieve compliance. She is responsible for an environmental budget that annually exceeds \$900,000.

Mrs. Wheat keeps abreast of and assesses all new actions conducted aboard the installation to determine their potential environmental impact. When applicable, she ensures the action is processed through the National Environmental Policy Act process. She reviews proposed construction designs and contracts to ensure compliance with applicable environmental regulations, recommending alternatives where appropriate.

Mrs. Wheat keeps abreast of current regulatory trends and environmental technology and methodology. She implements changes in business practices and procedures aboard the installation, directs new equipment procurement, etc. to conform to new requirements and technology. She actively seeks the cooperation of supervisors and commanders to effect new procedures and technology.

Mrs. Wheat oversees the management of the Comprehensive Environmental Training and Education Program, which encompasses all installation personnel. She directs training needs assessments, identifies training resources, and oversees the conduct and documentation of training, and subsequent evaluation of effectiveness.

Mrs. Wheat represents the Commanding Officer in conferences and meetings relating to safety and environmental matters with federal and state officials. She attends staff meetings, professional meetings and conferences, and is responsible for the preparation of various internal and external environmental reports and documents.

SERVICES

Mrs. Wheat has been active in planning and participating in various environmental efforts, both on the installation and out in the community. She has been eager to share her technical expertise and knowledge for the public benefit.

Per her direction, SEA sponsored an Earth Day event on April 21, 2001. The effort consisted of a streamside stabilization project, where land had been cleared too close to the shoreline, and the potential for serious erosion concerns existed. SEA



obtained a Department of Defense streamside restoration grant of \$5,000 to purchase native riparian plants for the effort. Approximately 30 local youngsters, consisting of the Lejeune High School ecology club and the Young Marines youth organization, volunteered on a warm Saturday morning to plant the native vegetation, sow wildflower seeds, and spread hay over an area covering an estimated 0.5



acres. Mrs. Wheat was very active in the planning and publicity of the event, and even worked side-by-side on her hands and knees with the volunteers.

In October 2003, again per Mrs. Wheat's direction, MCAS New River participated in BigSweep, an annual streamside cleanup effort held nationwide. Mrs. Wheat assisted the planning of the event and enlisted the aid of the Headquarters and Headquarters Squadron Marines to work out the logistics and provide volunteers. Approximately 75 Marines and 15 civilians, on the shore and in boats, participated in the event collecting everything from old crab pots, 55-gallon plastic drums, wood debris, and over 80 bags of smaller trash totaling an estimated 1600 pounds in weight. Once again, Mrs. Wheat was participating in the event with her husband in their private boat, picking up debris from shorelines that were not accessible by foot.

Most recently, Mrs. Wheat has been providing technical guidance for stormwater management alternatives at the Onslow County Agriculture Extension Office. The office recently moved into a renovated building, and with the renovation, stormwater management is now required at the site. On a side-note, the local Master Gardeners organization is working with the office to construct various gardens at the site, for aesthetic purposes. Mrs. Wheat has been involved in the effort, by providing guidance on the use of Low Impact Development (LID) stormwater management techniques, such as rain-gardens and bioretention/biofilter beds. Incorporation of these techniques at the facility will not only solve the stormwater management compliance issues, but can be seamlessly incorporated into the landscaping efforts provided by the Master Gardeners. Additionally, the construction of a stormwater pond can be avoided, saving space and keeping to the goal of having an aesthetically pleasing facility.

ACCOMPLISHMENTS

Air Pollution Control

Automated Manometers

With the advent of the MCAS New River falling under the Aerospace NESHAP and Title V permitting, it became apparent to Mrs. Wheat that the station would be dealing with significant new recordkeeping and reporting requirements. Two concerns immediately arose from this realization.

First, the station's compliance stance suddenly becomes more tenuous, with new, additional administrative permit requirements. Secondly, the new permit requirements will require much more time and attention from the Marines operating the emission sources. Marines that are not directly in the environmental compliance business, rather are in the business of accomplishing the mission of running an Air Station. In an effort to improve both the compliance stance and minimize the effort placed on the operating forces, Mrs. Wheat felt that automating the data collection and reporting would be beneficial. After inquiring upon other installations, an on-the-shelf automated data collection solution was found. Mrs. Wheat justified the project and was successful in programming environmental funding to install automated manometers on the five primary paint spray booths affected by the Aerospace NESHAP and Title V permit throughout the station. The system is now operational and has been beneficial in ensuring the data is collected, and that the Marines, have been relieved of some of the recordkeeping and reporting burden.



Corrosion Control Facility Filters

MCAS New River constructed a large Corrosion Control Facility in FY'00. The facility is effectively a massive paint spray booth, capable of handling entire aircraft. To control particulates from the painting operations, the facility has a large bank of



filters, consisting of three layers.

The cost for one change-out of all three layers of filters is approximately \$25k. The installation's compliance stance is directly affected if the filters are not replaced properly and when necessary. Mrs. Wheat foresaw potential problems with the Station's ability to use standard operational budget monies to purchase new filters when they need replacement. In order to keep from

compromising the Station's compliance stance and potentially affecting operations by shutting down the facility, she has successfully justified environmental funding for the filter change-outs.



Water Pollution Control

Stormwater Infrastructure Upgrades

A series of hurricanes and tropical storms have been hitting the coast of North Carolina since the late 1990's. During these large rain events, it became apparent that the installation's stormwater infrastructure was not working adequately, and that Station facilities were imperiled. Though owned and managed by Marine Corps Base Camp Lejeune per a Logistics Support Agreement between MCAS New River and MCB Camp Lejeune, Mrs. Wheat felt it was in the best interest to the Marine Corps to have the condition of the infrastructure studied, and where needed, repaired. The project has been tackled in phases, spanning over the past three years, costing close to \$2M. One of the most significant repairs, was cleaning out vegetation from large ditches, particularly the large ditch immediately downstream of the installation fuel farm. Prior to cleaning out the ditch, a release from the fuel farm would have been very difficult to capture and clean up. The ditches are now clear of debris, convey stormwater more effectively and can be maintained much more easily.



Washrack Studies

As previously mentioned all MCAS New River facilities, including the wastewater collection, conveyance, and treatment system, is owned and managed by MCB Camp Lejeune. During heavy rainfall events, significant flows are experienced at the lift stations and further downstream at the wastewater treatment plant itself. In fact, historically, there have been wastewater spills due to the burden placed on the sanitary system by heavy rainfall events. Additionally, the wastewater treatment plant's



effectiveness is impaired when it receives such large quantities of stormwater, and treating essentially clean stormwater in a treatment plant is a waste of resources. Potentially, if the stormwater-to-sanitary sewer issue isn't corrected, future expansion or addition of facilities might be impaired.

Concerned with the Station's impact on the system and the potential long-term impacts, Mrs. Wheat wanted to pursue a project to investigate the impact of the inadvertent collection of stormwater at the installation's washracks on the sanitary system, and recommend potential fixes at each facility. The study estimated the amount of stormwater that is collected at each washrack, due to direct collection (rain falling directly on the washrack), stormwater run-on from ancillary facilities, and roof drain run-on. It then investigated various methods of minimizing the collection of stormwater at these washracks in the most economically feasible manner. Due to this effort, a project to divert stormwater at the washracks, using additional berming and automated diversion valves was designed in FY03 and is currently in the construction phase.

Low Impact Development

After exploring the stormwater issues discussed above, and after gaining an understanding of the NPDES Phase I & II permitting requirements, Mrs. Wheat wished to investigate stormwater management options that do not only improve the impact of stormwater on the Station facilities and environment, but are sustainable, low-maintenance and attractive. With this in mind, she wished to explore the feasibility of the use of Low Impact Development (LID) stormwater management techniques on Station. The goal of LID is to maintain, as much as possible, the natural hydrologic cycle in areas that are developed. Both runoff quantity and quality are improved by slowing the runoff down, filtering it, and infiltrating it back into the ground as much as possible. This is accomplished using techniques, such as rain-gardens, bioretention/biofilter beds, permeable pavement, cisterns and planters; techniques other than typical stormwater management practices, such as stormwater detention or retention ponds, which take up considerable space, are unattractive, and undesirable from a Bird/Aircraft Strike Hazard at an Air Station. Therefore, a project was developed, to assess the success of different LID techniques at various locations on Station. The study estimated the amount of stormwater generated at each site, made site-specific recommendations of the most appropriate LID technique, and estimated the technique's effectiveness at each location. Due to the positive findings of the study, Mrs. Wheat has decided to pursue a project to construct a set of bioretention/biofilter strips around the Station Headquarters parking lot, and two planters designed to collect roof runoff from the Station Officer's Club. Both projects are in highly visible locations in order to receive close scrutiny while verifying and demonstrating the effectiveness of LID techniques.

No-Foam Units



The Aircraft Rescue and Firefighting (ARF) unit on Station is required to test the nozzles on its P-19 "fire trucks" on a regularly scheduled basis. The tests include spraying water and spraying Aircraft Fire Fighting Foam (AFFF). AFFF is an expensive, specially designed chemical foam used by ARF to smother and extinguish fuel fires. Generally, these tests are held on open terrain that runs off into the stormwater system, because AFFF cannot be

placed into the sanitary system due to its foaming effect, which has a negative impact on the wastewater treatment plant's operations. In an effort to minimize the impact of regular AFFF releases to the environment, and to reduce the cost of re-supplying AFFF, Mrs. Wheat chose to purchase NoFoam units for ARF. NoFoam technology allows the ARF crews to test their equipment using dyed water, rather than AFFF. The cost of the initial purchase was \$34,000, however annual savings by reducing the purchase of AFFF is estimated at \$46,000, providing a payback of just less than 9 months.

Noise

AICUZ Study

Per Mrs. Wheat's direction, and after the decision to base the V-22 Osprey at MCAS New River, the Air Installation Compatible Use Zone (AICUZ) study was recently updated, using environmental funding. Fortunately, the study found very little evidence of noise issues directly related to the Station's operations. It has been provided to the S-4 Facilities Department for their planning use and implementation. Based on the information provided in the AICUZ, facilities can be designed and located in such a fashion as to minimize the impact of noise on the Station's employees and residents. Additionally, the S-4 Officer is the MCAS New River representative in a combined Joint Land Use Study (JLUS) with MCB Camp Lejeune, Onslow County and the various local communities. The JLUS is currently in the draft stages, and is being hotly debated within Onslow County. The Marine Corps hopes to structure an agreement with the local governments in such a fashion, as to minimize encroachment on the military training mission. The MCAS New River's AICUZ, along with MCB Camp Lejeune studies, provides a foundation for the JLUS.

Waste Management and Resource Recovery

CHRIMP Consolidation Effort

MCAS New River has successfully operated two Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) centers for years, one at each Marine Aircraft Group (MAG) located on Station. Mrs. Wheat wanted to investigate the possibility of consolidating everything into one Station-wide CHRIMP center. Currently each of the centers consists of mobile maintenance vans where hazardous materials are requisitioned, stored, issued, and returned for handling as waste. Total staffing for the two centers consists of 28 Marines. A project was developed to



draft a Consolidated Hazardous Material Implementation Plan that looked at the feasibility of consolidating the two Centers and bringing in the remaining MCAS New River units. The study identified a total manpower requirement of 11 man-years, which would allow the return of a minimum of 17 Marines to the Fleet. Based on the clear savings identified in the study, a project was designed to clear property adjacent to the existing hazardous waste facility, provide a

1500 sq ft admin building with utilities, and a 200' x 200' concrete pad which would co-locate the vans and relocate the recycling center to one location, at an initial cost of \$740,000. The estimated total cost savings, which includes manpower savings, reduction in hazardous waste costs due to improved management of hazardous materials, and sharing of equipment, is an estimated \$706,000 per year, for a payback of just under one year. Along with the cost savings, the consolidated center would provide "one-stop-shopping" to customers by having all hazardous material/waste/recycling operations in

one location. This will also improve the Station's hazardous waste compliance posture with improved and consolidated management and oversight. This project made so much sense that it was initially approved for funding as a "Smart Works" project. Unfortunately, due to the war against terrorism, the Smart Works money was re-programmed elsewhere. Mrs. Wheat, however, has been successful in justifying the project for Centrally Managed Program funding, and it should be constructed in FY04.

Bulb Crushers

The management of fluorescent bulbs and fixtures has long been a confusing adventure and a source of concern from a hazardous waste standpoint. Furthermore, Mrs. Wheat felt that the testing information used to justify the ability to dispose of fluorescent bulbs in the landfill was, in a word, shaky. In an effort to improve the compliance stance concerning these bulbs, Mrs. Wheat initiated conversations with North Carolina



Department of Environment and Natural Resources (NCDENR). In particular, she wanted to explore the possibility of using bulb crushers, which capture and filter the mercury dust and vapors, to manage the waste stream. After negotiations, NCDENR agreed to the notion that the crushed glass and metal pieces were not a hazardous waste, and that the filters could then be TCLP tested to determine whether they were hazardous waste or not. In any case, the ability to crush bulbs allows SEA to reduce the volume of the solid waste and collect the hazardous constituents in a safe manner, and it improves the Station's hazardous waste compliance stance, by not relying on questionable data, and definitively establishing an understanding with NCDENR on managing this waste. After negotiating the agreement, Mrs. Wheat decided to purchase one large crusher, operated by SEA, to handle bulbs generated by Station, and two smaller crushers, one at each CHRIMP center, to handle bulbs generated by units of the two MAGs. The cost avoidance, vice using a recycling contract to manage the bulbs, is an estimated \$4,000 per year.

Used Petroleum/Oil/Lubricants (POL) Rag Centrifuges

SEA collects used POL rags for hazardous waste disposal. The rags are generated at the various maintenance shops around the Station, and finally collected at the SEA hazardous waste warehouse in a roll-off container, for contractor removal and ultimate disposal. The disposal cost is dependent upon the weight of the rag-filled container. After researching several different ways to reduce the weight, Mrs. Wheat decided to purchase a centrifuge for each CHRIMP center. The rags, which once arrived dripping wet and heavy, are now spun in the centrifuges and collected relatively dry and light. The used POLs that were spun out of the rags are collected and managed in the closed loop used oil recycling program. The resulting cost savings has been estimated as high as \$20,000 per year. Additionally, the management of the rags is much cleaner, reducing the possibility of leakages/spills, which in turn improves the Station's compliance posture.

Hazardous Material Management System (HMMS)

MCAS New River purchased and used a software program, seemingly the Head Quarters Marine Corps (HQMC) preferred product, to track Hazardous Materials and Hazardous Wastes. Unhappy with its performance, Mrs. Wheat decided that MCAS New River would investigate the use of HMMS instead, though it appeared that HQMC might not support the decision. Mrs. Wheat successfully justified the purchase of HMMS, its annual maintenance costs, and training costs for both SEA staff and Marines managing the CHRIMP centers. Though it is not possible to calculate a cost savings on things that “could’ve happened”, it has become apparent that HMMS is a much easier program to use, that it has more functionality, and provides an enhanced hazardous waste compliance stance, as opposed to the previous software tool which was difficult to use and cumbersome. Mrs. Wheat’s willingness to question the established program and move forward in another direction, allowed MCAS New River to improve its hazardous material and hazardous waste management operations. In fact, HMMS is now regarded as one of the better hazardous material/hazardous waste compliance tracking systems, and several other Marine Corps installations are currently switching over to its use.

Digital Photography at Training Aids and Visual Support Center (TAVSC)

For years, SEA has paid for a contract to collect photographic developing wastes, laden with silver, which are kept from the sanitary sewer system due to its toxicity. With the advent of affordable digital photography equipment, Mrs. Wheat decided to purchase digital cameras and equipment for TAVSC, in order to reduce the amount of hazardous waste generated, which ultimately reduced the cost of the silver recovery contract. The estimated reduction in the contract cost is \$1,000 per year. Though not calculated, additional savings to the Station were realized, due to the reduction in the purchase of film, developing chemicals, and other incidental supplies.

Environmental Compliance Assessment and Management Program

Self-assessments and Follow-up

Under Mrs. Wheat’s direction, MCAS New River has a robust self-assessment program. This is evidenced by the minimal number of discrepancies found in the 2002 HQMC sponsored Environmental Compliance Evaluation. The ECE uncovered 5 discrepancies and 12 findings, most of which were administrative in nature and were corrected either on-site or within days. In fact, the ECE brought forth 5 positive findings, which included the successful use of HMMS, innovative Pollution Prevention equipment and operations, and the condition of the stormwater infrastructure system, as previously discussed in this document.

Environmental Training

Facing limited staff resources, Mrs. Wheat decided that computer based training (CBT) aids were one of the most effective methods to get the environmental message to the Marines stationed aboard MCAS New River. CBT modules were developed for General Environmental Awareness, Hazardous Material and Hazardous Waste Management, and the Aerospace NESHAP. Working with the two MAG CHRIMP centers’ Environmental Compliance Officers, the HM/HW and NESHAP CBT modules, specifically, have been

placed on computers that are accessible to the Marines working in applicable areas. New Marines are tasked to take the training and pass the tests at the end of the module. Additional painting training is provided by SEA to those Marines working in the areas affected by the Aerospace NESHAP. Another example of Mrs. Wheat's training focus is her directive for the self-audit program to not only inspect facilities in order to maintain compliance, but to provide on-the-spot, face-to-face training and guidance to the Marines working in these areas. Most recently, a new hire (replacing a retired employee) was specifically chosen based on his past environmental training experience. Mrs. Wheat has tasked the new employee to expand the Environmental Training program by developing a short Environmental Awareness brief to be presented at the "Welcome Aboard" briefs, and to explore the expanded use of the General Awareness CBT throughout the Station.

Environmental Signage Project

In another effort to minimize or eliminate potential releases to the environment, Mrs. Wheat conceived a project to develop simple signage at various pollution abatement or pollution control facilities on the Station. Her pet name for the project is "Pollution Abatement for Dummies". The idea is to have simple, easy to read, visual guidance located at various facilities, such as oil/water separators, washracks, and paint spray booths. This is in the form of simple signage explaining the proper use of these facilities, so that the typical Marine operating in the area can understand what he/she should or should not do. It not only serves to improve MCAS New River's compliance posture, it also provides some general environmental awareness training to Marines and civilian employees working in these areas.



SUMMARY

As the Manager of the MCAS New River, Safety and Environmental Affairs Department, Mrs. Wheat has supervisory oversight of the various programs where the aforementioned accomplishments have occurred. However, due to the small staff and her personal drive and interests, Mrs. Wheat's role is more than as just "the boss." Her vision and creativity has spawned many of these innovative measures, and in every case she has been intimately involved, whether at the planning, implementation, or funding stages. Mrs. Wheat prides herself in the ability to identify opportunities where MCAS New River's impact on the environment can be minimized, while also reducing the strain on the operating forces' resources and on the Station in general. Finally, it should be noted that rather than solely focusing on her "rice bowl," it is readily apparent that her efforts are always focused on the best interest of the Marine Corps.