



## 2015 SECRETARY OF DEFENSE ENVIRONMENTAL AWARD ENVIRONMENTAL QUALITY - OVERSEAS MARINE CORPS BASE CAMP SMEDLEY D. BUTLER

### INTRODUCTION

Marine Corps Base Camp Smedley D. Butler (MCB Butler) is a dynamic collection of installations and training areas widely distributed throughout Okinawa, Japan. This creates various unique environmental challenges that require creativity and flexibility to excel as environmental leaders in the Pacific.

As the base support for III Marine Expeditionary Force (III MEF), MCB Butler provides training



The island of Okinawa, Japan is a key training location for the Marine Corps. MCB Butler's innovative soil erosion efforts have been instrumental in protecting this vital coral habitat. *Photo by Maurice Dudley*

areas and support for current and future combat readiness. III MEF is a Marine-Air-Ground Task Force, rapidly-deployable to conduct operations across the spectrum from humanitarian assistance to amphibious assault and high intensity combat. MCB Butler is also the command support element for Marine Corps Installations Pacific (MCIPAC), which encompasses Marine Corps Installations in Hawaii, Japan and Korea. Supporting more than 32,000 active duty military and civilians and encompassing over 45,000

acres, MCB Butler provides unique training opportunities in various environmental habitats: from the only U.S. Marine Corps (USMC) Jungle Warfare Training Center (JWTC), to the only U.S. controlled live fire ranges in Japan. More than 3,000 species of flora and fauna, of which approximately 260 are rare, threatened or endangered, and hundreds of archeological sites can be found throughout MCB Butler. Because of the various types of training and facilities supported by MCB Butler, the environmental program is constantly focused on supporting military readiness while balancing environmental sustainability.

As environmental leaders, it is our mission to support our customers and to be conscientious stewards of the Japanese lands entrusted to us. As a team, we integrate a customer-oriented attitude into our daily plans, programs, and operations, and motivate our personnel to protect the environment. We support the Marine Corps mission by having an aggressive and innovative environmental program that allows for a collaborative environmental stewardship between the U.S. and Japanese governments.



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### ENVIRONMENTAL QUALITY ACCOMPLISHMENTS

#### 1. HAZARDOUS WASTE MANAGEMENT

Our Hazardous Waste Management Program made great strides in reducing the overall amount of hazardous waste requiring disposal. In an effort to reduce waste and the associated costs of disposal, MCB Butler has implemented several recycling and reuse programs that have resulted in cost savings totaling more than \$380,000.



Our coolant recycling system reduces the need for expensive contracts by utilizing in-house personnel and resources.

Instead of relying on high cost contracted service providers to recycle spent coolants, MCB Butler instead utilizes in-house personnel and resources resulting in a significant cost savings. The specific system being used is manufactured by KFM, LLC., which combines multi-stage filtering with dual ion exchange resin bed technology to strip out the suspended solids, dissolved solids, and the worn out additive package leaving an end product of ethylene glycol and water. The mixture is then brought up to specification by adjusting the freeze point and adding a pre-measured volume of corrosion inhibitors (additive package). MCB Butler is able to

produce a 250 gallon tote of final formulated recycled antifreeze that meets ASTM D6210 specification for military vehicles within 4 hours. The process allows MCB Butler to provide 50/50 and 60/40 ratio mixtures depending on unit demand and equipment needs in the field. All recycled antifreeze is packaged using recycled drums, reducing the base cost for purchasing new drums, and provided to marine units and shops free of charge. In FY13 and FY14, MCB Butler recycled more than 180 drums of formulated coolant for customer reuse resulting in a cost savings of more than \$140,000 to Marine Corps units. This program significantly reduces off site transfers by eliminating local vendors from the processing and potentially impacting the local community.

MCB Butler launched its Hawker Battery Reuse Program in FY13, and in its short operation time has generated a total cost savings of more than \$228,000 through the significant reduction of new battery purchases. The pulse technology takes the batteries to an



MCB Butler's Hawker Battery Reuse Program has significantly reduced the amount of battery waste.



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internal testing phase, plate desulfination without the need for a technician to continuously monitor the process. MCB Butler also implemented a load testing check after the conditioning process to ensure the battery meets manufacturer load and output specifications prior to sending the battery out for reuse. Once a battery is conditioned, it can be issued out to a requesting unit or shop within that same day to be installed on a tactical asset. Even if a unit sends a battery out as waste, MCB Butler still performs a conditioning check and load test to see if battery can be revived. Typically 70% of waste batteries turned in are recouped by the efforts of our waste handling technicians. The system has been so successful that since the program started in FY13, no conditioned battery has made its way back through the waste disposal process.

MCB Butler has also significantly reduced the amount of contaminated absorbent waste disposal throughout FY14. Many factors played a role in achieving this reduction. MCB Butler has improved training and increased the number of briefings available to units and shops who typically generate large amounts of contaminated absorbents. We have also improved our spill response techniques through the utilization of oily rag recycling to clean up small spills instead of using absorbent materials. A final systematic approach was initiated to minimize waste going out to the hazardous waste treatment, storage and disposal facilities for disposal by utilizing a wringer system at Hazardous Waste Storage Area by removing the heavy oil liquids out of the absorbents, resulting in reduced weight and increase energy recovery from the used oils. Because of these efforts, MCB Butler reduced the amount of contaminated absorbent waste disposal by 18.5% resulting in a cost savings of \$14,013.69 in disposal fees through FY14.

### 2. NATURAL RESOURCES MANAGEMENT

Invasive species control plays a vital role in the protection of natural resources at MCB Butler. Located in the northern part of Okinawa and covered mostly with subtropical rainforest, the Northern Training Area is home to a variety of endemic and rare species; approximately twenty threatened/endangered and protected species, such as Okinawa Woodpecker (*Sapheopipo noguchii*), Okinawa Rail (*Gallirallus okinawae*), and Jamber Long-armed Beetle (*Cheirotonus jambar*).

The Small Indian Mongoose (*Herpestes javanicus*), an invasive exotic animal, was first introduced to southern Okinawa in 1910 in an effort to control rats and poisonous snakes. Since then, the mongoose population has expanded its habitat to northern Okinawa Island, posing a significant threat to the existence of native



Examples of protected species in Okinawa: Top Left: Okinawa Woodpecker (*Sapheopipo noguchii*); Top Right: Okinawa Rail (*Gallirallus okinawae*); Bottom Left: Jamber Long-armed Beetle (*Cheirotonus jambar*).



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animal species inhabiting the region. The existence of the mongoose has adverse impacts on the native animal species and will degrade the quality of the natural environment in the JWTC.

Through a collaborative partnership, MCB Butler worked closely with the Okinawa Prefectural Government and the Japanese Ministry of the Environment to trap and remove mongoose in the Northern Training Area in an effort to protect the endemic and rare species of Okinawa. The Mongoose Trapping project has resulted in the successful removal of 22 mongooses from the Marine Corps training area during FY13 and FY14.

Throughout FY13 and FY14, MCB Butler provided assistance to several erosion control and revegetation projects. During FY13 through early FY14, MCB Butler worked closely with the U.S. Air Force to revegetate a 1,710 square meter area which was heavily disturbed following a training exercise in the Central Training Area (CTA). MCB Butler employed several erosion control measures which would aid in the revegetation of the area including silt fencing and aerial hydroseeding. Using a combination of rye grass, crimson clover and natural vegetation, aerial hydroseeding is a highly effective erosion control method that would allow the disturbed area to recover prior to the summer typhoon season.

Throughout FY14, MCB Butler worked in close coordination with Range Control and Marine Wing Support Squadron on a soil erosion control project for the maintenance at Landing Zone (LZ) Starling in the CTA. Typhoons and torrential rain severely impacted the LZ resulting in red soil erosion that threatened freshwater and coastal resources. Through swift action and successful collaboration, earth berms, silt fencing and hydroseeding were implemented and monitored allowing for the completion of maintenance work at LZ Starling while reducing red soil erosion, effectively protecting water resources. As a result of our extensive erosion control program, Marines can continue to use our robust training areas for live fire and jungle warfare training.



Before (top) and after (bottom) aerial hydroseeding was used to revegetate a highly disturbed area in the CTA.



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MCB Butler is the only USMC overseas installation which maintains archeologists on staff. We currently have one U.S. and one Japanese archeologist, who also provide support to other U.S. installations in Japan and Korea. Having our own archeologists allows us to develop projects quickly, eliminating the need for outside contractors to conduct archeological work. MCB Butler works closely with the local Board of Education (similar to the State Historic Preservation Office in the U.S.) allowing our archeologists to approve cultural clearances at MCB Butler sites. MCB Butler conducted five major archaeological test excavations and numerous archeological test digs throughout FY13 and FY14. In FY 13, MCB Butler began a large-scale project involving archival research, field verification, inventory survey, probability analysis, and testing at the Ie Shima Training Facility (ISTF). The project surveyed the entire installation, marking the first time that extensive systematic archeological survey and testing had taken place at the ISTF. The discovery of Jomon period pottery dating to more than 2,400 years ago was the first such discovery on this portion of the island. The ISTF Cultural Resources Survey is a significant example of how MCB Butler continues to support the Marine Corps mission, while maintaining good stewardship of the Host Nation's cultural assets.

### 3. ENVIRONMENTAL STEWARDSHIP

In June 2014, engineers and scientists from MCB Butler and the Okinawa Prefectural Government (OPG), Department of Environmental Affairs gathered for the first Okinawa Environmental Forum since 2003. Set to occur annually, this forum affords the opportunity for MCB Butler and OPG to come together and share some of the environmental initiatives and projects that have been occurring throughout the island. This year's forum was hosted by OPG at their offices in Naha and featured six presentations on various environmental programs.



MCB Butler Staff provided three presentations regarding various USMC environmental projects at the 2014 Environmental Forum.

MCB Butler provided three presentations focused on natural and cultural resources on U.S. Marine Corps Installations in Okinawa: red soil erosion in the Jungle Warfare Training Area, accomplishments of invasive species management and cultural resources management. OPG provided three presentations regarding particulate matter (PM 2.5), the handling of Bird Flu in wild fowl, and a look at the Home Appliance Recycling Law. The highly infectious, highly-pathogenic bird flu has become an increasingly widespread issue in wild fowl. A collaborative effort between several agencies, the Okinawa Ministry of the Environment has been working to identify migratory bird routes to determine the route of infection. Increased monitoring of



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migratory bird species is necessary to understand the status of the infection. MCB Butler will be joining the collaborative effort by sharing information regarding wild fowl mortality on U. S. military installations in Okinawa. The Okinawa Environmental Forum was a great success and an example of the Marine Corps' commitment to continued environmental stewardship and support of the U.S.-Japan alliance.

### 4. ENVIRONMENTAL MANAGEMENT

MCB Butler, through the use of in-house staff and resources, maintains a fully implemented Environmental Management System (EMS) that has exceeded DoD requirements by creating and implementing a regional EMS that incorporates three different countries: Japan, Korea and the U.S. Our management review board is chaired by our Commanding General (CG) and attended by senior leaders from all Marine Corps installations within Japan, Korea and Hawaii. This allows for sharing challenges, successes, and lessons learned and for visibility of EMS objectives and targets throughout the Pacific region.

EMS objectives and targets are developed with the support of a cross-functional team which includes Major Subordinate Command Representatives and tenant commands, and are approved by the CG and senior staff. In FY13 and FY14, MCB Butler exceeded EMS Targets to include:

- Divert 60% of non-hazardous solid waste from the waste stream in FY13.
  - Accomplishment: We exceeded the FY13 target, achieving a 66% diversion rate. The high diversion rate is a result of expanded pick-up locations and amount of recyclables collected. Also, the solid waste contractor diverts the recyclables that they collect.
- Implement Hawker battery reuse program in FY13.
  - Accomplishment: This target was achieved. MCB Butler implemented the program in August 2013 with two battery rejuvenation units. 111 batteries were rejuvenated resulting in a \$36,000 cost avoidance to the units during the first three months of operation. Additional battery types have been added to the program. 2,100 batteries were received in FY13 from the U.S. Army and were issued to MCB Butler units at no cost.
- Reduce use of petroleum products by vehicle fleets by 30% by FY20 using 2005 as baseline (FY14 Target: 2% from FY13).
  - Accomplishment: We surpassed MCB Butler and DoD targets by achieving a 30.7% reduction in fuel since 2005. This impressive reduction was achieved by analyzing the fleet and implementing system and methodology change to exploit efficiencies.
- Reduce contaminated absorbent (consorb) waste disposal by 5% in FY14.
  - Accomplishment: Exceeded the target by achieving an 18.5% reduction resulting in a \$14K cost savings in disposal.

### 5. ENVIRONMENTAL TRAINING AND COMPLIANCE

In FY14, MCB Butler implemented a new method of identifying training needs using annual



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Environmental Compliance Assessment results. A measure of overall compliance with Environmental policies and procedures was generated by compiling environmental assessment results to create a unique presentation of Environmental requirements in Okinawa using actual performance metrics from the previous fiscal year. The review of environmental requirements using environmental compliance assessment results drives the curriculum for the Environmental Compliance Course, which provides training for hazardous waste handling and disposal and is mandated by the Japan Environmental Governing Standards (JEGS).

Compliance results scoring less than 80% received extra attention in presentation. These results were coupled with a review of Environmental requirements inspiring the compliance question, such as local standard operating procedures, Marine Corps Orders and bulletins, and the JEGS. Graphic illustrations of installation compliance have generated more conversation and discussion among students, which may lead to a friendly, competitive spirit for future fiscal year assessment cycles, both within and across those installations comprising MCB Butler.

This approach to identifying training needs through compliance assessment results is the first of its kind for Okinawa. The use of real data shows active-duty and civilian environmental representatives compliance areas in need of improvement as well as those areas where unit/tenant activity environmental efforts have succeeded. Additional applications of this information outside of training include showing change in performance over time, the effectiveness of MCB Butler corrective actions, and complimentary information to inform results from self-evaluations. The treatment of assessment results as data and associated applications provide a new platform for environmental support, environmental training, and EMS to work collaboratively to improve oversight and target support efforts to areas most in need.

### CONCLUSION

Despite the challenges of being in a remote overseas location with a unique environmental and political climate, MCB Butler has been a leader in enhancing environmental quality while sustaining the Marine Corps' ability to effectively train and maintain readiness. Our outstanding waste minimization efforts are especially important because of our remote location and limited landfill space. We continuously strive to ensure that our program supports military readiness through our extensive natural and cultural resources conservation programs that are critical to training effectiveness. The success of stakeholder interaction is reflected in MCB Butler's numerous partnerships and collaborations with local municipalities and agencies. The success of MCB Butler's environmental program has been a cornerstone in improving relations between the people of Okinawa and the Marine Corps.