Marine Corps Air Station (MCAS) Yuma

FY2011

Secretary of Defense Environmental Awards

Award Category: Environmental Quality – Non-Industrial Installation
Nominated Installation: MCAS Yuma

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"Environmental Quality – Non-Industrial Installation" Award Category
Marine Corps Air Station (MCAS) Yuma, AZ
Narrative

1 INTRODUCTION

MCAS Yuma is one of the Marine Corps' premier aviation training bases and provides access to over 10,000 square miles of special-use airspace and approximately 2,000 square miles of underlying land for use as aerial bombing and gunnery ranges. MCAS Yuma is located in southwest Arizona and southeast California, near the border of Mexico. The installation is located southeast of the City of Yuma, Arizona, and is comprised of Marines, Sailors, and Civilians. The estimated population is approximately 22,300.

MCAS Yuma maintains 75 percent of all range spaced owned by the United States Marine Corps (USMC), and supports 80 percent of the Marine Corps' air-to-ground aviation training. MCAS Yuma includes the geographically separated units of 16th Street Housing and the Cannon Air Defense Complex, and the Yuma Training Range Complex (YTRC). The YTRC encompasses the Chocolate Mountain Aerial Bombing and Gunnery Range, approximately 5,000 square miles of airspace designated for military use in California, and approximately 5,000 square miles of airspace in the western segment of the Barry M. Goldwater Air Force Range (BMGR) designated for military use in Arizona. The YTRC is the only available location available to and operated by the Marine Corps where the primary mission is to provide full spectrum support for Marine Corps tactical aviation training.

2 BACKGROUND

MCAS Yuma's EMS uses a systematic and sustainable methodology to integrate environmental considerations into mission decisions and operations, and actively encourages continual improvement. Full EMS conformance was achieved in October 2007, two months ahead of the requirement, and the EMS self-declaration is annually validated. The Marine Corps EMS framework is applied to conditions, missions requirements, staffing, organization, and existing environmental programs at MCAS Yuma to mitigate risks to the mission, decrease costs, address regulatory requirements, go above and beyond regulatory requirements, decrease adverse impacts to the environment, address community concern, and ensure long term sustainability. There is installation-wide oversight and support of the EMS, and conformance with ISO 14001:2004(E) and fulfillment of the requirements in Executive Order (EO) 13423 and 13514 are a top priority.

MCAS Yuma has 153 practice types associated to 18 different Environmental Aspects, seven of which are considered Significant Aspects. In an effort to address the environmental impacts to the environment, MCAS Yuma has come up with innovative approaches to: decrease costs associated to recycling and waste disposal, increase the benefits of recycling, further divert waste from the landfill, recover waste wood as biomass fuel/energy; improve the sustainability mission, further centralize waste streams, and further minimize the hazardous air pollutants (HAPs) released. Media management plans incorporate these approaches, and are reviewed annually and

updated as needed. A Sustainability Plan is currently in the process of finalization, and a Pollution Prevention Plan is in place and updated as needed. An Environmental Standard Operating Procedure (ESOP) for each practice is in place, in addition to Station Orders (StaOs) that contain standardized procedures and associated instructions. These StaOs are reviewed and updated as needed, particularly if associated legal requirements change.

MCAS Yuma environmental media programs partner with the Comprehensive Environmental Training and Education Program (CETEP) to develop and update training and outreach in an effort to communicate environmental requirements, manage associated aspects, decrease environmental impacts through increased awareness, and to ensure compliance with laws, regulations, and policies. Each environmental program also partners with other programs and organizations to achieve common goals and minimize impacts and potential impacts to the environment. Other noteworthy partnerships and community involvement activities include, but are not limited to, those referenced below.

- The MCAS Yuma Recycling Program partners with Army Yuma Proving Ground (YPG) to recycle their lead acid batteries. YPG does not have a Qualified Recycling Program (QRP), and this partnership allows MCAS Yuma to process the YPG lead acid batteries through the MCAS Yuma QRP for recycling. This has resulted in a cost benefit for both YPG and MCAS Yuma, and promotes recycling.
- The MCAS Yuma Recycling Program partners with a local company to sort and recycle plastic. Since plastics no longer need to be sorted on site at MCAS Yuma, it has saved time and money. Not only that, MCAS Yuma benefits from the proceeds made from these recyclables.
- MCAS Yuma hold an Earth Day event each year, and involves the public to promote sustainability and active involvement in the community, increase environmental awareness, and to encourage an earth-friendly way-of-life.
- The MCAS Yuma Environmental Department and several units and groups have “adopted a street” in the City of Yuma. Station personnel perform periodic street clean-ups, and by doing so, demonstrate a commitment to the community and the environment.
- MCAS Yuma formulated a Pollution Prevention Committee that meets on a biannual basis, and that includes representatives from the environmental media programs. The purpose of this meeting is to discuss hazardous waste minimization and pollution prevention aboard the Station. It contributes to the successful management of objectives and targets, and helps enable timely achievement of goals.

Community Tree Planting

3 PROGRAM SUMMARY

Goals cited in the Department of Defense (DoD) Strategic Sustainability Performance Plan (SSPP) are incorporated as objectives and targets for MCAS Yuma, along with additional objectives and targets that are specific to the MCAS Yuma Environmental Aspects and Impacts. Some of the goals for MCAS Yuma include: Green House Gas (GHG) reduction, improved energy efficiency, promotion of pollution prevention and waste reduction, integrated planning for sustainable communities, increased sustainability including sustainable acquisition, use of alternative fuels, improved environmental stewardship, and continual improvement of the EMS. Objectives and targets are associated to each of these goals and progress of these is actively monitored. Operational controls are associated to these objectives and targets, and help to measure and monitor the achievement of goals and level of progress. ESOPs, checklists, inspections, and other management tools are used as operational controls to effectively manage the environmental aspects and associated practices, objectives, and targets.

4 ACCOMPLISHMENTS

4.1 MATERIAL AND WASTE MANAGEMENT

The MCAS Yuma Hazardous Material Consolidation Program (HCP) functions as part of the EMS and coordinates with the Pollution Prevention program in an effort to minimize or eliminate pollution and enhance mission readiness. Efficient mission supporting policies and procedures ensure that organizations fulfill their hazardous material requirements while supporting the mission. The Hazardous Material Management System (HMMS) is a data management tool and environmental reporting system used at MCAS Yuma. It tracks hazardous waste and hazardous materials, including storage, usage, and authorized users for hazardous materials. HMMS also ties hazardous materials to up-to-date material safety data sheets (MSDSs).

HMMS has helped successfully reduced the amount of hazardous material used and hazardous waste generated through life-cycle control, data management, and material authorizations. Material requests are reviewed by multiple activities in HMMS prior to acquisition, then rejected or authorized for use, based on these reviews. This ensures a multi-perspective analysis and encourages material substitutions that are safer for the environment and personnel. Once a material is authorized in HMMS, it is tracked through its life cycle. Materials that are not utilized are returned to the HCP for reuse, re-issue, or recycling. Processes that generate hazardous waste, such as expired materials, are also tracked and managed in HMMS. The HMMS Waste Module tracks hazardous waste from generation to disposal, or from “cradle-to-grave,” and provides an automated

Tracking Waste

interface to the Defense Reutilization and Marketing Office (DRMO) waste management system.

The use of HMMS has given MCAS Yuma the ability to further quantify hazardous material usage and waste reduction goals through more accurate and effective material and waste tracking. HMMS has resulted in increased material substitutions and security, reduced acquisition costs, reduced waste disposal costs, more efficient and accurate reporting, more effective manifest racking, and avoidance of risks to the environment and human health. HMMS, in conjunction with an EMS Working Group, also allows better management of associated objective and targets, including the goals of waste reduction and pollution prevention. It has reduced the amount of hazardous materials used and hazardous waste generated through more successful life-cycle control and data management.

4.2 WASTE MINIMIZATION

MCAS Yuma has a Pollution Prevention and Hazardous Waste Minimization Plan in place that establishes methods to help minimize pollutants and reduce the generation of hazardous waste. It was developed in accordance with EO 12856, EO 13101, EO 13148, the Pollution Prevention Act of 1990, and the Emergency Planning and Community Right-to-Know Act (EPCRA). This plan addresses the goals, objectives, and targets associated with waste minimization, including the objective to minimize the generation of waste and pollutants.

In accordance with the Pollution Prevention and Hazardous Waste Minimization Plan and in response to discussions of the Pollution Prevention Committee, the Hazardous Waste Program has implemented a procedure for the centralization of waste aerosol cans and the use of an Aerosol Can Crusher to minimize the waste. Each unit immediately turns their spent aerosol cans into the Hazardous Waste Program, rather than collect them in satellite accumulation areas (SAAs) and managing them as separate waste streams. The Hazardous Waste Program then processes each spent aerosol can through the Aerosol Can Crusher, or the "Super 200," that was provided by the Qualified Recycling Program (QRP) revenues. The aerosol can crusher can process numerous aerosol can sizes and utilizes an explosion proof piercing and crushing system. It separates the can's liquid content from the propellants and volatile organic compounds (VOCs) through the use of a blower and activated carbon filter, and removes and captures the hazardous air pollutants (HAPs) so that they are not released into the environment. The aerosol can is hydraulically crushed to a half inch thick while simultaneously emptying the contents and filtering out the HAPs. Because these crushed cans qualify as recyclable scrap metal, they are not subject to the Resource Conversation and Recovery Act (RCRA). MCAS Yuma recycles the crushed cans as scrap metal, through coordination with the QRP.

Aerosol Can Crusher

Residual aerosol can contents drain out the bottom of the can crusher, and collect in a five gallon bucket beneath the Super 200. This waste is then processes as hazardous waste. The filters used in the aerosol can crusher are long lasting, and are sampled to verify they are not considered hazardous waste prior to disposal.

Through the use of the aerosol can crusher and waste centralization, MCAS Yuma has been able to more actively address goals, objectives, and targets including waste reduction, diversion of waste from the landfill, and environmental sustainability. Centralizing waste streams has drastically reduced the hazardous waste management requirements and helped facilitate the implementation of more efficient processes and equipment. A decrease in more than 28 individual waste streams, through the centralization of these waste streams, has resulted from these efforts. This benefits MCAS Yuma through a decrease in man hours and costs associated to inspections, hand puncturing each aerosol can, waste sampling, storage, and transporting. A decrease of 20 hours per week has been saved across the board, per week. Due to the fact that the aerosol can crusher filters out the HAPs, pollutants are not released into the environment and MCAS Yuma contributes to improved air quality in the area. Finally, MCAS Yuma has been able to divert waste from the landfill through recycling the crushed cans, and has actively promoted recycling across the Station.

4.3 *RECYCLING*

The QRP has been revitalized, and as a result has developed into a very robust QRP at MCAS Yuma. The mission of the QRP is to divert recyclable materials from the non-hazardous waste solid waste landfill, in accordance with United States Marine Corps (USMC) goals. Working towards established goals, objectives, and targets established for MCAS Yuma is a priority. This includes the diversion of waste from the landfills through recycling. A new StaO is currently in the process of finalization that provides instruction for the QRP and recycling at MCAS Yuma, and that outlines participation of station activities and tenant commands in the recycling program. It also outlines roles and responsibilities, and provides direction for transferring the funds received from the local sale of recyclable materials on a regular basis to the Commanding Officer Recyclable Materials Program Account for MCAS Yuma.

Recycling Yard

The QRP ensures that scrap metal (such as crushed aerosol cans), paper, cardboard, and aluminum cans are separated and segregated from solid waste and recycled. Glass, newspaper, scrap wood, and other wastes are also targets as the market demands. Plastic is also recycled, and the QRP has partnered with a local recycling company to ease their burden of sorting and packaging prior to recycling, and monetarily profit.

MCAS Yuma focuses recycling efforts on industrial sites such as shops, hangars, and paint booths. The QRP also focuses on office locations and partners with Lincoln Military Housing to

focus on family parks and recreation areas. Each building has four commodities set up to gather white paper, cardboard, plastic, and aluminum cans. Each week, these recyclables are gathered and delivered to a central location where recyclables are sorted and segregated prior to recycling. There are currently over 42 separate locations where recyclables are picked up and taken to the central recycling yard.

New procedures and partnerships for recycling plastic has helped make the QRP more effective at achieving its goals and resulted in a profit for MCAS Yuma. In the past, plastic had to be sorted and bailed, then shipped to a location where it could be recycled. Through the partnership with a local recycler, a significant amount of time is saved because the plastic does not need to be sorted or bailed prior to delivery. Now, all plastic, regardless of type, can be thrown into a hopper, then the hopper can be taken straight to the local recycler, and the proceeds are immediately received by MCAS Yuma. Through the revitalized QRP:

- MCAS Yuma collects and recycle 52.5% more pounds of recyclables per year, compared to previous years (includes plastic);
- MCAS Yuma collects and recycles 83% more pounds of plastic per year, compared to previous years;
- MCAS Yuma makes 66.2% more money on recyclables (including plastic) per year, compared to previous years (noting that they are currently making almost $.06 more per pound of recyclables, as compared to previous years);
- MCAS Yuma makes 72.25% more money on recycling plastic per year, as compared to previous year, and even though they are making $.79 less per pound as compared to previous years; and,
- The QRP saves over six hours of time that was previously spent sorting and bailing plastic for shipment.

4.4 ENERGY RECOVERY

MCAS Yuma has taken a proactive approach to reach the energy goals referenced in the DoD Strategic Sustainability Performance Plan, EO 13514, EO 13423, the Extended Independence and Security Act (EISA), and the Energy Policy Act (EPAct). Goals, objectives, and targets for MCAS Yuma are oriented towards improving energy efficiency, energy recovery, pollution prevention, alternative fuel use, and decreasing impacts to the natural environment including flora, fauna, and soils. It is an important part of the sustainability mission for MCAS Yuma. Some of the renewable energy generation projects include those referenced below.

Solar Energy

MCAS Yuma has installed sunshades with Photovoltaic (PV) devices for selected vehicle parking areas, at the fast fill CNG dispensing location, and several rooftop locations. This allows MCAS Yuma to capitalize on the many

days of sunshine and convert light energy directly into electrical energy, provides renewable energy sources, and increases the quality of life for building occupants. The energy from this grid-connected PV system generates approximately 200,000 kWh per year and offsets the electrical demand requirements of 85 kW. It results in enhanced reliability, a 20 to 25 year lifetime with low maintenance, no operating costs, and no noise or environmental impacts. Generation of energy on-site reduced the peak demand on the utility grid, and frees up power for other parts of the Station.

MCAS Yuma has converted the irrigation system to maintain recreation areas from costly treated water to untreated water. This reduces the average daily energy demand needed to treat the irrigation water prior to use, as well as reduces the amount of water treatment chemicals that are required. MCAS Yuma has also installed new high-efficiency boilers aboard the installation to increase energy efficiency. MCAS Yuma has saved money and time by doing this, and there is less impact to human health and the environment.

Energy recovery is an important part of the sustainability mission, and MCAS Yuma is taking the proactive approach of recovering waste wood as biomass fuel/energy. MCAS Yuma has 1600 acres of agriculture outleases that present opportunities for energy recovery in the form of waste wood. Many of these outleases contained citrus groves, and each grove has ten years of useful life due to soil nutrient depletion. As a result, every ten years the citrus crops must be replaced with alternative crops, but the land requires clearing before this can occur, resulting in waste wood. In the past, the waste wood has been sent to a landfill or burned in open pits. MCAS Yuma takes the waste wood and grind it up, or mulches it, and inspects it for size and metal debris. The clean wood is then burned at 2,200 degrees in a furnace, and the resultant heat converts boiler water to steam and drives 17-stage steam turbine. This steam turbine turns a 18 MW generator, and the resulting electricity (biomass fuel) is sent to Southern California. The biogenetic ash byproduct of this process is used as organic soil amendment, to improve the soil quality at MCAS Yuma. To date, over 200 acres of old citrus groves have been cleared and turned into biomass fuel, resulting in 1,800 tons of recovered material. This energy recovery process replaces the non-renewable fossil fuels, such as oil or natural gas, and helps achieve the goals of alternative fuel use, energy efficiency, and energy recovery, to name a few. Each ton of wood waste produces approximately 10.4 million BTUs of energy – enough to power the average U.S. household for nearly four months. MCAS Yuma's 1,800 tons of recovered material has resulted in approximately one month of power for 7,400 households.

Waste Wood Mulcher