



2018 Secretary of Defense Environmental Award Sustainability – Industrial Installation Marine Corps Logistics Base Barstow

Introduction

Marine Corps Logistics Base (MCLB) Barstow supports approximately 95 military personnel and their families and 1,840 civilian employees, and is located in the high desert of western San Bernardino County, California, 3.5 miles (6 kilometers) east of the City of Barstow. The base is positioned at a significant crossroads; two major interstate highways, I-15 and I-40, state highways 58 and 247, and historic Route 66 (National Trails Highway) converge in Barstow, and the Burlington Northern Santa Fe (BNSF) and Union Pacific Railways meet just west of the base. MCLB Barstow is separated into three functional areas and is a diverse collection of cantonment and range areas that encompass 5,567 acres (2,253 hectares) within the DoD Southwest Range Complex. The base includes Nebo, a cantonment area which houses the MCLB Barstow headquarters and tenant logistical capabilities, Yermo, an industrial repair and storage complex which is also home to the largest rail facility in the Department of Defense, and a range which includes a live-fire known distance range complex and open training area.

As one of only three logistics bases operated by the Marine Corps, MCLB Barstow serves an important role as a logistics and maintenance hub supporting Marine Corps activities west of the Mississippi River and in the Pacific theater. The key functions of the base are to receive, store, and distribute supplies and equipment as needed, and to repair and rebuild USMC and other DoD equipment. MCLB Barstow also provides a platform for the technical and sustainment training of Marines, including maintaining combat skills and on the job training.

Background

During FY2016 – FY 2017 there were numerous projects were completed or mechanisms implemented aboard the installation to include, implementing energy reduction best management practices throughout the installation, enhancing purchases of green products, and secured contractor support to study microgrid opportunities which integrates renewable energy generation and energy storage to enhance energy security and resiliency, provide a long-term investment strategy and enable the installation to maintain continuity of operations in the event of interruption of utility services following a natural or manmade disasters. A project package is being finalized from the study that breaks it into four phases that will cover mission critical



Map depicting MCLB Barstow's location within the high desert of Southern California. The Base is unique and complex, and includes 13.24 miles of railroad.



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assets and then all other loads on the base. This has been a collective effort from all activities to reduce energy consumption, reduce use of hazardous chemicals, increase recycling, and minimize the Marine Corps environmental footprint.



By installing a conditioning monitoring system, the base will be able to run an additional 325 kW. The monitoring system will also aid in preventing very costly equipment failures.

Summary of Accomplishments

Energy Program

MCLB Barstow was awarded a gold level award as part of the FY17 Secretary of the Navy Energy and Water Management Awards for a very good/outstanding energy program. MCLB Barstow received blue level awards in FY15 and FY16 for a well-rounded energy program.

- Re-envisioned Energy Working Group (EWG) and Utilities Conservation and Appraisal Board (UCAB) concept of operations. Implemented a new energy program concept of operations, codifying roles and responsibilities for the EWG and UCAB. EWG membership expanded to provide diverse and innovative solutions and actionable recommendations for energy and water conservation initiatives to meet energy and water mandates and directives, support compliance with Executive Order 13693, comply with the Energy Management System, and submit recommendations to UCAB. Monthly EWG meetings enable representatives from departments aboard the installation as well as tenant commands to participate and consider ways to reduce energy consumption, conserve energy, and promote energy awareness across the base. The UCAB is made up of installation leadership, department heads, and leadership from tenant organizations, the UCAB meets quarterly to provide steering and support resourcing and approval of recommendations provided by the EWG in support of key energy initiatives in alignment with MCICOM Energy Tenets (energy ethos, energy information, energy efficiency,



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renewable energy and alternative fuels, and energy security) as well as identifying gaps in energy resiliency that support the framework for the installation.



The UCAB provides steering and support resourcing and approval of recommendations from the Energy Working Group.

- Enabled the installation to achieve 7% reduction in electricity consumption and 20% reduction in water consumption between FY15 and FY16. Achieved an additional 5.8% reduction in water consumption from FY16 to FY17; MCLB Barstow has reduced water consumption by 50% from the 2007 baseline, above and beyond reduction goals established in EO 13693. Implemented a new base irrigation plan to further reduce water consumption through xeriscaping and/or natural landscaping while maintaining essential vegetation. Developed a project to install recycled asphalt pavement (RAP) to by-pass the water used for dust mitigation that would reduce water consumption an additional 2,254 kgal per year.
- Awarded \$25M energy savings performance contract for energy improvements for building automation systems (BAS)/Energy Management Control Systems; heating, ventilation and air conditioning controls for seven buildings; 2,221 "light emitting diode" lighting fixtures; compressed air system enhancements; and a 1.5 megawatt ground mounted photovoltaic (PV) array projected to save the installation \$880k annually and support alternative energy and conservation, security and resiliency initiatives.



The Bachelor Enlisted Quarters has 75 kW of solar photovoltaic panels installed on the roof of the building as the nearby carport.



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- Integrated Water-Energy Nexus (WEN) into MCLB Barstow energy program, identifying opportunities to improve water security and resilience. Two projects that have been selected by the WEN workgroup to be developed is to put out of commission the Nebo wastewater treatment plant and to reuse the industrial wastewater at Yermo.
- Led the region in energy action month engagements, identifying multiple engagement activities including scavenger hunt, coloring contests, articles in local publications, social media messaging, and participation in a fall festival. Initiated investigation into privatization of base utilities.
- Submitted lighting project for Energy Investment Program (EIP) funding, resilient project that increases controls and monitoring as well additional installation of building automation systems and program optimization, irrigation project for Energy Resilient Conservation Investment Program (ERCIP) funding and increased photovoltaic/wind turbine generator interconnection request to Southern California Edison that, combined, will save 2,756 MWh and 20,905 kgal of potable water, saving the installation \$418k annually.

Comprehensive Environmental Training and Education Program

Establishing a Base Contract that provides the necessary labor and equipment to support the Marine Corps' Comprehensive Environmental Training and Education Program (CETEP) and the Environmental Management System (EMS) program. CETEP supports full compliance with applicable environmental requirements, facilitates Pollution Prevention measures, and equips Marines with training needed to achieve EMS/sustainability objectives. CETEP accomplishes this by analyzing environmental training needs and integrating general awareness, public outreach, and EMS compliance training into environmentally responsible operational behaviors. CETEP develop and disseminate training programs and packages on key environmental issues to educate environmental personnel. Training audiences include Environmental Officers as well as key installation staff including maintenance supervisors and Training Officers. Training covers general environmental information, awareness, and site-specific information such as permit requirements and procedures.



Marquee signs like this is one of many that are displayed to publicize Energy Action Month and conserving energy.



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Installation Restoration Program

Marine Corps Logistics Base (MCLB) Barstow announces publication of the Fourth, Five-Year Review of its environmental cleanup sites. For the purposes of defining environmental cleanup goals, the base has been further divided into what are known as Operable Units (OU). Each OU is generally defined by its location (Nebo Main Base or Yermo Annex) and affected medium (soil or groundwater). There are seven OUs covered in this Five-Year Review. The Five-Year Review was designed as part of the Superfund process to verify that the cleanup activities and other measures remain protective of human health and the environment.

MCLB Barstow installation restoration revise remedy to at CAOC N-2 Area 1. ROD for OU 7 updated via Explanation of Significant Differences (ESD) to document change to cleanup approach. New approach aims to reduce land use restrictions; more property to be returned as unrestricted use, unrestricted exposure. Draft ESD with regulators Nov 2017.

Environmental Compliance Evaluation & Environmental Management Systems

MCLB Barstow engaged the Installation Commands and Tenants organizations into a new reporting mechanism to support environmental compliance, conformance and initiatives aboard MCLB Barstow. Senior leadership from across the installation meets quarterly to report and discuss their command's environmental issues, environmental training status, and environmental compliance status. The established partnerships are part of the Command's Environmental Management System, which provides a framework to engage the entire organization in the quest to maintain strong community relations, build trust, and demonstrate MCLB Barstow's commitment to environmental compliance and protection of our natural resources. This new reporting mechanism is giving environmental ownership to both Installation Commands (including Tenant organizations), and their Environmental Compliance Coordinators.



The energy team at MCLB Barstow participated in the fall festival as part of energy action month. One of many events as well activities that the team stays engage in spreading energy.



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Environmental Compliance Evaluation (ECE)

MCLB Barstow established and trained established Environmental Compliance Coordinators, ECCs. ECC's were established for all Installation Commands and Tenant Organizations, fence-line-to-fence-line. On a monthly basis, ECC's are being trained to be the eyes and ears for their Command's environmental awareness. The ECC's served as the bottom-up communication channels assisting their command to meet MCLB Barstow's annual environmental objectives and targets. MCLB Barstow created organization specific data system that will help organizations to track their environmental training requirements. As a result, improvements to meet environmental training requirements have increased by 50% in some areas.

Water Quality

- Potable water reduction: In FY15 MCLB Barstow used 138 million gallons of potable water. The installation reduced this amount to 102 million gallons in FY17. This is a reduction of 26% in two years. MCLB Barstow is currently working on a project to further reduce this amount by another 20% by removing irrigation requirements off the drinking water systems and utilizing the installation non-potable wells.
- Water sampling price reduction: MCLB Barstow reduced costs for drinking water, domestic wastewater, and industrial wastewater with the new contract award for FY17. The projected price for sampling was \$1.2 million for FY17. As a result of establishing a new contract, reducing/eliminating work previously performed by the contractor, and using in-house resources to complete specific duties project cost were reduced from \$1.2 million to \$0.6 million.
- Government partnering: MCLB Barstow established an agreement to partnering with the City of Barstow on our routine water sampling analysis. With this new agreement the installation will save an additional \$30,000 in laboratory fees. This is the first partnering agreement of this nature with an outside government agency for the Marine Corps.
- QISP: The installation was required by the State of California to have a Qualified Industrial Storm Water Practitioner to be in compliance with the new General Permit. This was accomplished by the Water Program Manager in a very short time. Mr. Ulibarri was the 257th person to receive their QISP certification out of over 8,000 facilities required in California.

Air Quality

FY 16, the air quality program ensured total compliance with all permits to include Title V federal operating permit; resulting in full compliance during the Mojave Desert Air Quality Management District annual inspection. Other noteworthy actions include the opening of the new Dynamometer facility at the Marine Depot Maintenance Center replacing the older, outdated facility.



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Dust mitigation is handled by utilizing all-important water resources that watering trucks spread throughout the base. With a project in place to use recycled asphalt, the base will realize increased resiliency and significantly decrease the consumption of water.

Natural Resources

In FY 17 MCLB Barstow completed the Integrated Natural Resources Management Plan and Biological Opinion, thus allowing for flexibility in operations while preserving our natural resources. In addition, the installation established a Memorandum of Understanding with the Mojave Desert Resource Conservation District (MDRCD), RCA Associates, and California Department of Fish and Wildlife, in which three acres of the Marine Base Wetland Wildlife Sanctuary was enhanced and restored through the removal/control of salt cedar (*Tamarisk* spp.) including stump cutting and chipping. The work was performed to open up the canopy and allow more water for existing and future (naturally) occurring natives (cottonwood/willow/mesquites).

Cultural Resources

MCLB Barstow established Native American Tribe government-to-government consultation. In addition, the installation has implemented an outreach program to enhance relationships with local Tribes, and to foster better collaboration on projects of cultural significant/concern.