

2018 SECRETARY OF DEFENSE ENVIRONMENTAL NARRATIVE ENVIRONMENTAL RESTORATION

Introduction:

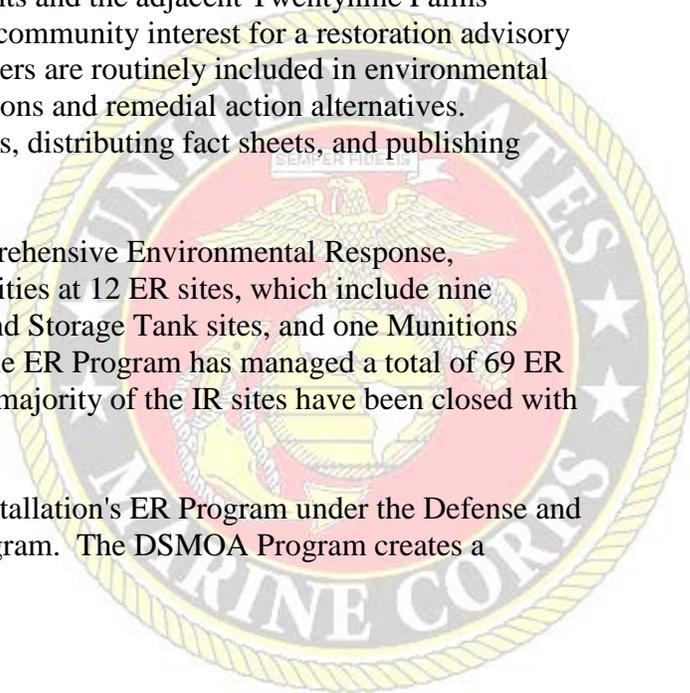
Marine Corps Air Ground Combat Center (MCAGCC) is the Marine Corps' largest installation, occupying approximately 707,840 acres (1,106 square miles). MCAGCC is home to the Marine Air Ground Task Force Training Command, whose primary mission is to train military personnel under live-fire conditions in a manner that enables commanders and Marines to practice essential skills for combat brigade and battalion-sized exercises. MCAGCC trains over 45,000 Marines annually and relies upon a civilian/military population of 20,918 individuals and infrastructure assets of over 1,000 buildings and structures. The Mainside area, which contains most of the MCAGCC infrastructure, is located approximately 5 miles north of the city of Twentynine Palms, California and is separated from the developed area of the nearby community by approximately 2 miles of sparsely populated desert. Other communities within the vicinity of MCAGCC include Joshua Tree, Yucca Valley, and Landers, California. MCAGCC is located in the southern Mojave Desert and has an arid, upland desert climate. High temperatures (up to 120°F), low humidity, and clear sunny days occur in the summer months. In winter months, temperatures can drop to as low as 15°F. MCAGCC is located in a dynamic desert environment and is home to the Desert Tortoise, which is protected under the Endangered Species Act. The Environmental Restoration (ER) Program is in place to clean and secure the area for future land use, while continuing to enable the Marine Corps units and tenant commands to achieve their mission.

Background:

MCAGCC's ER Program is a collaborative effort between the Environmental Affairs (EA) Division, Naval Facilities Engineering Command (NAVFAC) Southwest, installation Directorates, units, tenant commands, Base residents and the adjacent Twentynine Palms community. Although a survey found insufficient community interest for a restoration advisory board or technical review committee, all stakeholders are routinely included in environmental management decisions such as future land use options and remedial action alternatives. Outreach activities include holding public meetings, distributing fact sheets, and publishing information in the base and local newspapers.

EA and NAVFAC are currently performing Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) activities at 12 ER sites, which include nine Installation Restoration (IR) sites, two Underground Storage Tank sites, and one Munitions Response Program (MRP) site across the base. The ER Program has managed a total of 69 ER sites since inception of the program in 1980. The majority of the IR sites have been closed with zero future land use restrictions.

The State regulatory agencies participate in the installation's ER Program under the Defense and State Memorandum of Agreement (DSMOA) Program. The DSMOA Program creates a



partnership between the state and installation, which accommodates implementation of the ER Program in an efficient manner in compliance with applicable laws and regulations. The Joint Execution Plan is updated yearly with a schedule of planned ER activities.

ER challenges include funding reductions, emerging contaminants, and coordination of ER and operational requirements. Despite these challenges, 57 ER sites have been closed with no further action required since inception of the program. ER plans in the next two years, as developed in the Joint Execution Plan, include closure of nine IR sites with no further action required.

Summary of Accomplishments:

Accelerated Environmental Cleanup:



Located at the top of a hill overlooking the Desert Winds Golf Course is IR Site 65, where an aboveground water storage tank used to sit. The water was used for golf course irrigation. With an addition of nine holes to the golf course, the tank system became an insufficient watering source and was removed in fiscal year (FY) 2010. The golf course currently uses recycled waste water for irrigation. The site of the former tank was contaminated with lead from flaking lead-based paint and petroleum, oil, and lubricants from historical use for dust suppression in the area of the tank pad and as a rust deterrent on the exterior of the tank. Due to the recreational use of the site by nearby residents and the presence of ecological receptors, the site cleanup has been accelerated in order to alleviate the potential risk. The initial removal of the tank occurred in FY11, which included minimal top soil removal. Soil samples were taken in FY16 and results indicated contaminated soil was still present at the site. A time critical removal action (TCRA) will be conducted in January 2018 consisting of simple dig and haul, and will result in no further action required for the site. A TCRA is justified given the small size of the site and the limited extent of contamination. The use of a TCRA resulting in no further action will avoid costs associated with performance of subsequent CERCLA phases.

Partnerships Addressing Environmental Restoration Issues Between DoD and Other Entities:

Underground Storage Tank (UST) Site 10 is located in the southeastern portion of Mainside. The facility was a fueling and service station from 1986 until 2010, when the USTs were removed. On March 11, 2000, up to 7,000 gallons of gasoline were accidentally released during filling of the USTs, initiating remedial investigations and actions at UST Site 10. Cleanup activities have included soil excavation, soil vapor extraction, and in situ chemical oxidation. Based on the results of cleanup activities and additional investigation, a corrective action plan was recently

submitted to the California Regional Water Quality Control Board demonstrating that the site is suitable for closure with long term monitoring conducted for a period of 2 years.

Reevaluation of Site Conditions Resulting in Site Closure

IR Site 21 was a gravity-type oil and water separator (OWS) located in Mainside near a former vehicle maintenance facility. The OWS consisted of a 40-foot by 20-foot, three-chambered, rectangular concrete collection basin. An unlined high-water diversion channel collected overflow from the OWS and directed it to another unlined runoff diversion channel. From 1980 to 1990, wash water from the nearby vehicle maintenance facility was routinely routed through the OWS. The OWS was removed in early 1996 along with contaminated soil from the diversion channel. However, polycyclic aromatic hydrocarbons (PAHs) remained in soil at concentrations greater than acceptable for residential use. The site was initially managed using land use controls that restricted against residential use.

The U.S. EPA revised the risk-based screening levels for PAHs in June 2017. Review of the site data showed that all PAH concentrations at the site are below the new residential screening levels. A revised closure summary report was submitted to the State in June 2017 recommending site closure with no further action. Site closure with no further action is expected.

Reducing Risk to Human Health and the Environment:

Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) are emerging contaminants with a focus of the possibility of them reaching the water table. PFOA/PFOS may pose significant risks to human health and the environment. IR Site 17 and 18 are located approximately 8 miles northwest of Mainside, at Camp Wilson/Strategic Expeditionary Landing Field. IR Site 17 was a Fuel Bladder Spill Area, and IR Site 18 was the Crash Fire Rescue training facility. Because of the potential for these chemicals to have been used at these two sites, groundwater monitoring was conducted in 2017. Results showed that PFOA/PFOS is present at IR Site 17 at concentrations below risk-based screening levels and is present at IR Site 18 at concentrations above risk-based screening levels. Site groundwater is not used for drinking water and there is currently no potential for exposure to PFOA/PFOS at these sites. However, further investigation has been accelerated to provide the data needed to ensure the protection of human health. A base-wide preliminary assessment/site inspection will be conducted in FY18.

IR Site 56/Underground Storage Tank (UST) 8 is a former gas station located on 1st street in the Mainside area of the installation. An unknown amount of gasoline and diesel fuels were historically released from six USTs. IR Site 56 had approximately 120 yards of impacted soil excavated at a depth of 14 feet below ground surface. The excavated soil had concentrations of Total Petroleum Hydrocarbons (TPH) below the laboratory reporting limit so the soil was used as Alternative Daily Cover at the installation landfill. Due to the close proximity of office buildings and the TPH contamination in soil, a Soil Vapor Extraction (SVE) system was installed. The SVE system is an in situ remediation process which physically treats volatile contaminants in soil by extracting contaminated gases from the subsurface into an aboveground system for treatment. Results of an additional investigation indicated that the soil vapor extraction ongoing at the site could be eliminated in favor of monitored natural attenuation

(MNA) with continued protection of human health and the environment, and cost savings to the government. The MNA remedy at IR Site 56 has received concurrence from California regulatory agencies.

Green Remediation:

MCAGCC currently utilizes a Bioremediation Facility, unique to the Marine Corps, to address disposal needs for stockpiled and generated hydrocarbon-contaminated soils resulting from training/operations and accidental discharges. Aerobic bioremediation (the use of naturally occurring aerobic microorganisms to degrade hydrocarbon contaminants via soil aeration with ambient air) was selected as the treatment mechanism because of its technological applicability, efficiency, and low cost. Following laboratory studies to identify the optimal conditions for bioremediation to occur in the desert soils, the facility is permitted, and constructed to allow for the processing of 2,500 yds³ of soil per remediation cycle. Depending on the level of soil contamination, one to two “biopile” cycles can be processed annually, with minimal daily oversight. With completion of the biopile, soils contaminated with jet fuel, diesel, oils/lubricants, coolants, and hydraulic fluids can be remediated to meet regulatory cleanup criteria which allow these soils to be used as daily cover at the Base landfill. Bioremediation Facility operations dramatically reduce MCAGCC’s off-site disposal requirements and reliance upon the limited landfill capacities in Southern California. Savings realized from biopile operations are significant. Annual operational and on-site treatment costs for a single biopile is \$193K when compared to \$1.7M that would have been incurred for the handling, hauling, and off-site disposal of the contaminated soils.

