



Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms Twentynine Palms, California

Range Environmental Vulnerability Assessment (REVA) Factsheet

July 2022

Background

DoD uses and manages operational ranges to support national security objectives and maintain the high state of operational readiness essential to its mission requirements.

DoD conducts non-regulatory, proactive, and comprehensive operational range assessments (ORAs) to support the long-term sustainability of these ranges while protecting human health and the environment.

The purpose of an ORA is to determine whether there is a release or substantial threat of a release of munitions constituents (MC) from an operational range to an off-range area that exceeds an applicable regulatory standard or creates a potential unacceptable risk to human health or the environment.

The Range Environmental Vulnerability Assessment (REVA) Program is the U.S. Marine Corps (USMC) program implemented to meet the DoD ORA requirements.

Operational Ranges Overview

MCAGCC Twentynine Palms encompasses over 700,000 acres (1,100 square miles) in the southern high desert region of the Mojave Desert in San Bernardino County, California. The primary mission of Twentynine Palms is to conduct relevant live-fire combined-arms training, urban operations, and Joint/Coalition-level integration training that enhances the combat readiness of the operating forces.

Operational ranges are administratively subdivided into 30 RTAs. Live fire, as well as practice and blank ammunition, are authorized throughout the installation except within 1,000 meters of the installation boundary and off-limit areas.

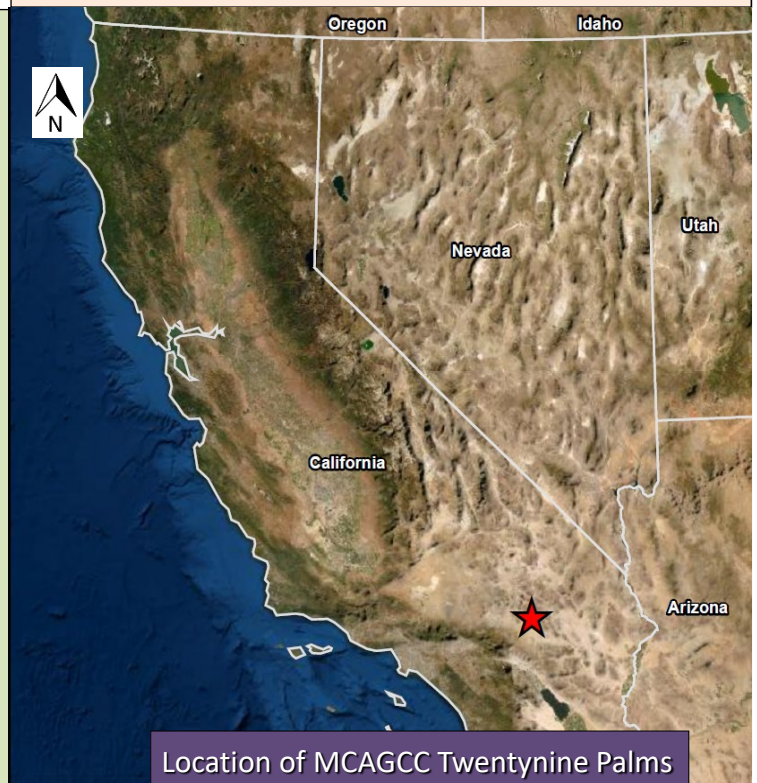
The MC evaluated at MCAGCC Twentynine Palms during the current periodic review period (2015-2020) are lead on small arms ranges and lead, perchlorate, and explosive constituents on the ranges and RTAs.

ORA Findings (September 2021)

The MCAGCC Twentynine Palms REVA Periodic Review concluded that MC source-receptor pathways are incomplete, indicating there is no known off-range migration of MC (lead, explosives, or perchlorate). MC sources are created across the installation from the use of 63 ranges and range training areas (RTAs). Munitions used include small arms, high explosives, and pyrotechnics. Off-range migration of MC is unlikely due to the dry desert conditions and lack of perennial surface waterbodies. Rain events are infrequent, but when they do occur, stormwater either evaporates or infiltrates into surficial soils. There is no known off-range MC migration that presents a potential unacceptable risk to human health or the environment.

Next Steps

The operational ranges will be reassessed during the next REVA Periodic Review (5 years) or sooner if there are changes to site conditions.



Location of MCAGCC Twentynine Palms

Range Assessment Overview

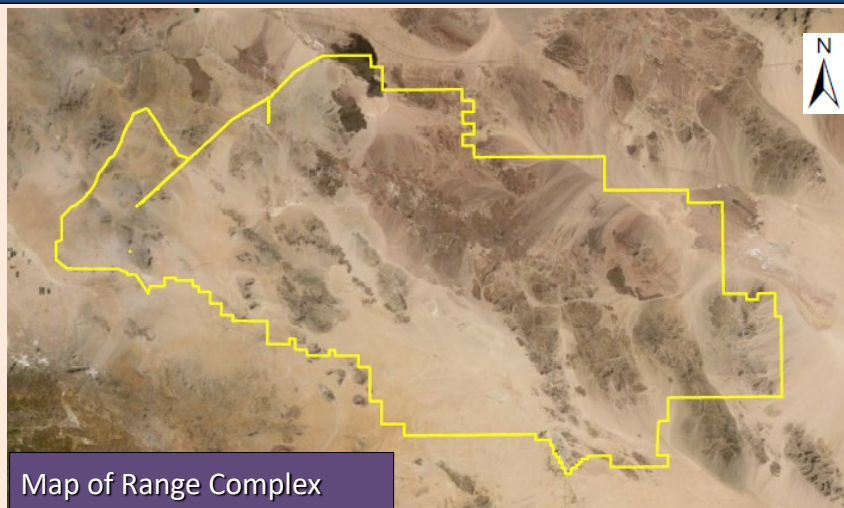
Scope: This REVA Periodic Review for MCAGCC Twentynine Palms covers munitions used from 2015 through 2020. The previous REVA study at MCAGCC Twentynine Palms (for the years 2011 through 2014) concluded that there was no immediate threat to identified off-range receptors.

Approach: REVA uses a conceptual site model (CSM) to inform decision making. A complete CSM pathway consists of a source of MC (lead, explosives, or perchlorate), transport mechanisms of MC to off-range exposure media, and receptor interaction with said media. For this REVA Periodic Review, data were collected to update the 2015 CSM. This included a review of the operational ranges (range inventory, expenditures, use/design), changes in range use (amounts and types of munitions expenditure), changes in migration pathways, and changes to receptors (ecological, off-limit areas).

Results: The MCAGCC Twentynine Palms CSM concluded that MC source-receptor pathways are incomplete, indicating there is no known off-range migration of MC (lead, explosives, or perchlorate). Off-range migration is unlikely due to the dry desert conditions and lack of perennial surface waterbodies. Rain events are infrequent, but when they occur, most stormwater either evaporates or infiltrates into surficial soils.

Expenditures decreased for small arms and perchlorate-containing munitions. The installation increased the use of large high explosive munitions.

Source: Due to the large number of munitions expenditures, a viable MC source is present at MCAGCC Twentynine Palms. The installation has an active range management program that includes MC source removal via operational range clearance, as well as minimization of off-range MC migration via berm maintenance and revegetation.



Map of Range Complex

Transport Mechanisms: There are no perennial surface waterbodies within MCAGCC Twentynine Palms; any permanent water sources are manmade ponds. No munitions are expended directly into water (i.e., waterbodies are not used as a munitions target or range impact area), so surface water as a secondary source/media is an incomplete pathway. The remaining transport mechanisms are MC in surface soil traveling off-range via stormwater runoff (overland flow) or infiltrating/percolating to groundwater. When rain events occur, stormwater either evaporates or infiltrates into surficial soils.

Off-Range Receptors: Drinking water for MCAGCC Twentynine Palms is supplied by groundwater wells. Potential MC exposure to humans from groundwater use is unlikely. Vertical migration of MC to groundwater at the installation is very slow and limited due to the low rainfall, high evapotranspiration, and deep depth to groundwater. Ranges are not in vicinity of supply wells, and sampling confirms lead and perchlorate concentrations are below regulatory requirements. Two federal and/or state-listed endangered or threatened species are present off-range, the Agassiz’s desert tortoise and the Mojave fringe-toed lizard. Exposure to surface water or sediment is limited by low precipitation, the ephemeral nature of streams and lakes, and the saline quality of playa water.

Conclusion: The REVA Periodic Review of MCAGCC Twentynine Palms for 2015 through 2020 concludes that there is no known MC off-range migration. Therefore, there is no unacceptable risk to human health or the environment. The operational ranges will be reassessed during the next REVA Periodic Review.

For more information on MCAGCC’s REVA Program, contact Jennifer Simmons (jennifer.simmons@usmc.mil). For more information on the DoD Operational Range Assessment Program, visit <http://www.denix.osd.mil/sri/home/>.