



# Marine Corps Base (MCB) Camp Pendleton Oceanside, California

Range Environmental Vulnerability (REVA) Factsheet

September 2020

## 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 if 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 designed to meet the DoD ORA requirements.

## Operational Ranges Overview

MCB Camp Pendleton is located in southern California, approximately 38 miles northwest of downtown San Diego, bordering the Pacific Ocean in San Diego County. The mission of MCB Camp Pendleton is “to operate a training base that promotes the combat readiness of the Operating Forces and the mission of other tenant commands by providing training opportunities, facilities, services and support responsive to the needs of Marines, Sailors and their families.”

A variety of munitions training was recorded at MCB Camp Pendleton during the periodic review period (2012-2017). Munitions use includes small arms to large dud-producing and non-dud-producing impact areas. The primary MC deposited on the ranges, and evaluated under REVA, are lead on small arms ranges and lead, perchlorate, and explosive constituents on the high impact areas.

## ORA Findings (09/2020)

The MCB Camp Pendleton REVA Periodic Review concluded MC source – receptor pathways vary by watershed, but the majority are incomplete, indicating there is no known off range migration of MC (lead, explosives, or perchlorate). Two complete pathways were evaluated further at locations within the Aliso Canyon and the Santa Margarita River watersheds. Lead was detected in off range sediment above background levels; however, levels were below human and ecological screening criteria. There is no known off range migration of MC 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 or training.

## Location of MCB Camp Pendleton, California



Range Assessment Overview

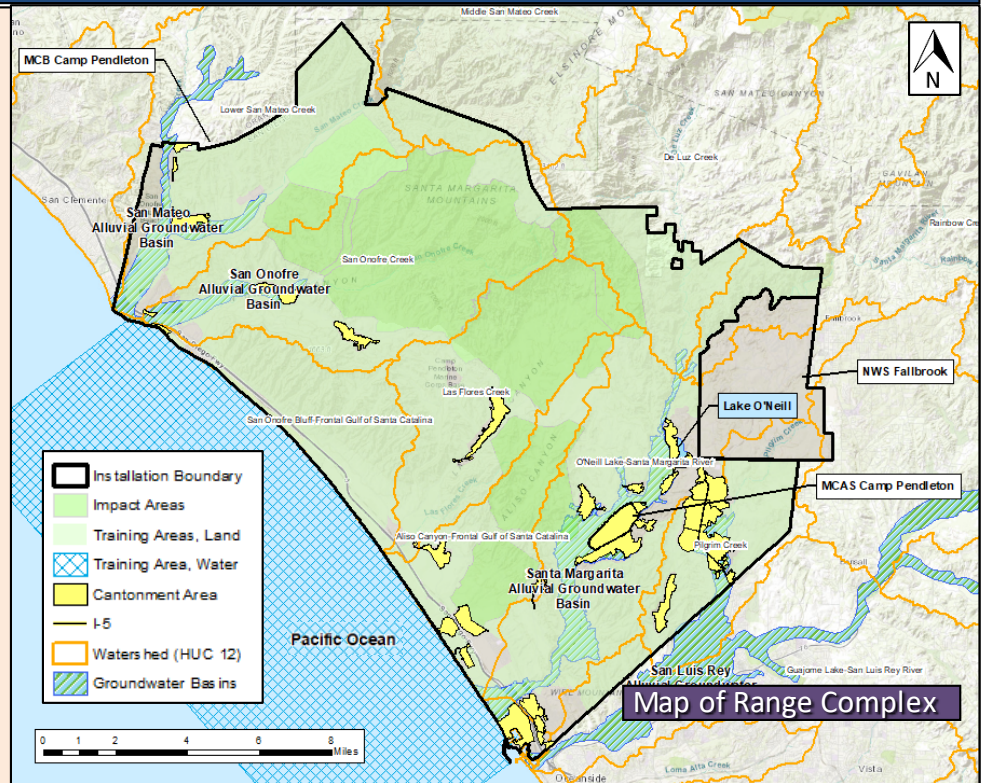
**Scope:** This REVA Periodic Review for MCB Camp Pendleton covers munitions use on operational ranges that occurred from 2012 through 2017. The previous REVA study at MCB Camp Pendleton (for the years 2006 through 2011) concluded that there was no known threat to identified receptors. As a proactive measure, a follow-on field sampling plan was completed during the current review period.

**Approach:** REVA uses a conceptual site model (CSM) to inform decision making. A complete CSM pathway consists of a source of MC, transport mechanism of MC to an off range exposure media, and receptor interaction with the off range exposure media.

For this REVA Periodic Review, data were collected to update the CSM since the previous REVA review was completed in 2011. This included a review of the operational ranges (e.g., range inventory and changes in design), changes in range use (e.g., amounts and types of munitions expenditure), changes in potential migration pathways, and changes to receptors (e.g., newly installed groundwater supply wells, ecological).

**Results:** At MCB Camp Pendleton, the CSM pathways for MC migration from the operational ranges to off range receptors are incomplete for the groundwater basins and incomplete at the majority of surficial watersheds. This is predominantly due to the transport mechanisms and distances to off range boundaries. Two sediment samples had lead at concentrations above the background reference level, but below human and ecological screening values, indicating there is no known threat to human health or the environment.

**Source:** The quantity of MC (lead, explosives, perchlorate) generated during training is high. Engineering and natural controls inhibit MC migration off range.



**Transport Mechanisms:** The primary transport mechanism for off range MC migration is stormwater runoff moving surface soil from the MC deposition areas (impact areas) toward off range areas. Rainfall totals are relatively low, evaporation is high, and storm water pH is near neutral at MCB Camp Pendleton, all of which are conditions not conducive to MC migration. However, storms can be intense and fires occur throughout the impact areas, which can create conditions conducive to erosion. There are no permanent surface water bodies in the impact areas (where MC is deposited). Infiltration of MC to groundwater at the impact areas is limited by shallow bedrock.

**Off Range Receptors:** Most surface water drainage areas remain on the range complex for long distances, and there are limited opportunities for off range interaction. Groundwater is used as a drinking water source.

**Conclusion:** The REVA Periodic Review of MCB Camp Pendleton concludes that there is no known off range migration of MC that presents a potential unacceptable risk to human health or the environment. The operational ranges will be reassessed during the next REVA Periodic Review.

For more information on this range/range complex/installation contact Jennifer Wilber ([jennifer.wilber@usmc.mil](mailto:jennifer.wilber@usmc.mil)). For more information on the DoD Operational Range Assessment Program visit <http://www.denix.osd.mil/sri/home/>