



Marine Corps Base Camp Lejeune, North Carolina

Range Environmental Vulnerability Assessment (REVA) Factsheet

April 2024

Background

Department of Defense (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 implemented to meet the DoD ORA requirements.

Operational Ranges Overview

The primary mission of MCB Camp Lejeune is to maintain combat-ready units for expeditionary deployment. The installation is located in eastern North Carolina adjacent to the city of Jacksonville consisting of 14 miles of beach front along the Atlantic Ocean. Its 107,263-acre training footprint includes 85 training areas, 3 impact areas, and 143 operational ranges.

A total of 32 MC source areas were identified during PR2 (2015-2022). These areas were broken down into 26 individual ranges and 6 aggregate areas where multiple locations fire into a single point. The 6 aggregate MC source areas include the G-10 Impact Area, K-2 Impact Area, N1/BT-3 Impact Area, F-Ranges, Mobile MOUT Complex, and the Stones Bay Area. Primary MC evaluated during PR2 were high explosives, perchlorate, and lead.

ORA Findings (10/2023)

The Marine Corps Base Camp Lejeune Periodic Review 2 (PR2) concluded that the MC source-receptor pathways are incomplete for groundwater, surface water, and soil, indicating there is no known off-range migration of MC (lead, high explosives [HE], perchlorate) that presents a potential unacceptable risk to human or environmental health. Potential for off-range migration of MC is limited due to periodic range clearance activities, use of bullet traps at multiple small arms ranges and distance between human and environmental receptors to source areas. Sampling conducted in previous periodic reviews as well as during PR2 further confirmed incomplete MC source-receptor pathways.

Next Steps

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



Range Assessment Overview

Scope and Previous Assessment: The REVA PR2 evaluated munitions use at MCB Camp Lejeune from 2015 to 2022. The previous REVA study (PR1) concluded there was no immediate threat to off-range receptors due to MC migration from operational ranges.

Approach: REVA uses a Conceptual Site Model (CSM) to inform decision making. A complete CSM pathway consists of an MC source (lead, HE, and/or perchlorate), transport mechanism of MC to an off-range exposure media, and receptor interaction with the off-range media. For PR2, data were collected to update the previous CSM (2011-2014). This included reviewing operational ranges and any changes in range use, migration pathways, and off-range receptors.

Source: MC source areas were identified at 26 individual ranges and 6 impact areas into which multiple range facilities fire. These MC source areas are located in 10 of 11 subwatersheds within MCB Camp Lejeune’s range boundaries.

Transport Mechanisms: A CSM transport mechanism is a method in which MC in the secondary source/media (surface water or surface soil in the MC deposition area) travels to exposure media (surface water, sediment, surface soil, or groundwater) off-range. The identified transport mechanisms for MC to potentially travel off-range at MCB Camp Lejeune include: 1.) through surface water and sediments via hydraulic connection, current, or flow and/or 2.) infiltration and percolation through groundwater.

Off Range Receptors: A potential exposure pathway for human receptors is present through groundwater as it is a possible drinking water source and can be consumed via ingestion/incidental ingestion. Surface water presents a potential pathway for human exposure as well, primarily through dermal contact and incidental ingestion.



MCB Camp Lejeune

= installation boundary

Ecological special status species and their habitats are present, including the red-cockaded woodpecker, rough-leaved loosestrife, American alligator, and the bald eagle. Surface water and sediment/soil are both potential exposure pathways for ecological receptors as the surface water and sediments comprise these species’ habitats. No direct ecological receptors were identified for groundwater.

Results: The CSM pathways were determined to be incomplete for migration of all MC to off range receptors. Initial analyses determined CSM pathways to be unviable for MC source areas located within 5 of 11 subwatersheds. Surface water, sediment, and soil samples collected at or near range boundaries within the remaining 6 of 11 subwatersheds confirmed no known MC migration within those watersheds that pose an unacceptable risk to human health and the environment.

Conclusion: The REVA PR2 for MCB Camp Lejeune concludes there is no known MC off-range migration that creates an unacceptable risk to human health or the environment. The operational ranges will be reassessed during the next REVA Periodic Review.

For more information, contact Ian Thompson (ian.thompson@usmc.mil); 571-256-2812.
 For more information on the DoD Operational Range Assessment Program visit <http://www.denix.osd.mil/sri/home/>