Marine Corps Base (MCB) Quantico
Quantico, Virginia

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 implemented to meet the DoD ORA requirements.

Operational Ranges Overview

MCB Quantico occupies more than 59,000 acres in Prince William, Stafford, and Fauquier Counties in northern Virginia, approximately 30 miles south of the District of Columbia. Marine Corps Installations National Capital Region (MCINCR) MCB Quantico commands and controls assigned organizations and provides facilities and services to tenant commands, military and civilian personnel, and family members in order to promote and sustain training, readiness and facilitate Inter-Agency, Joint, and Service-level missions.

A variety of munitions training was recorded at MCB Quantico during the periodic review period (2013-2018), ranging from firing small arms to training with medium and large caliber high explosives items. The primary MC deposited on the ranges and evaluated under REVA are lead, perchlorate, and explosives.

ORA Findings (09/2020)

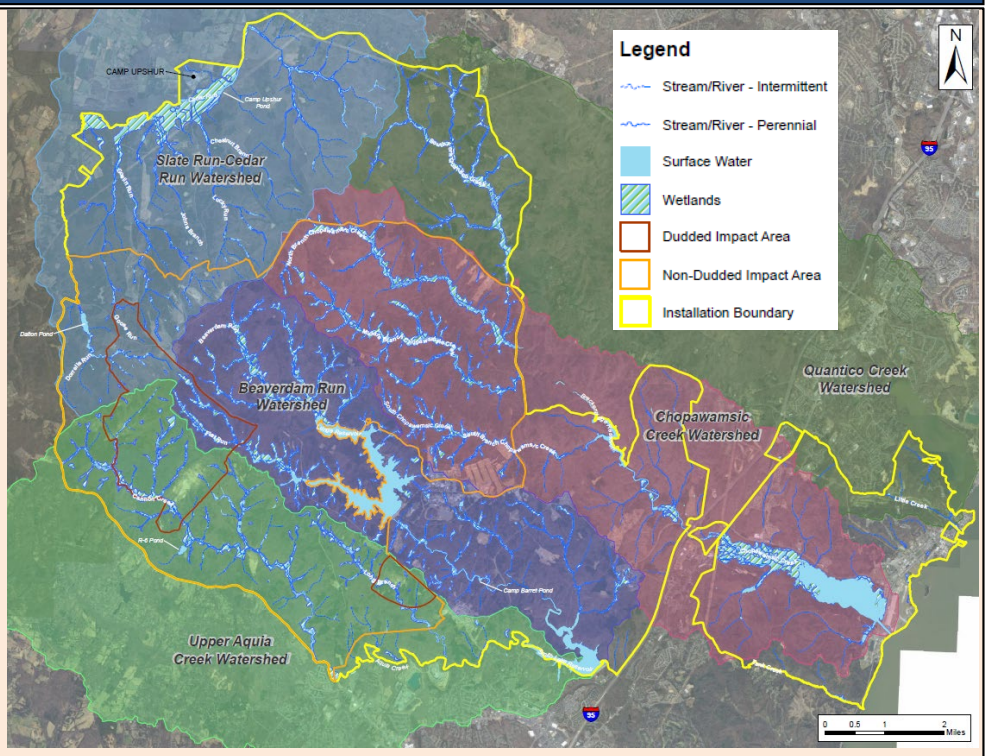
The MCB Quantico REVA Periodic Review concluded MC source – receptor pathways vary by watershed. A viable MC source, migration pathway, and receptor are present for various media and receptors at Beaverdam Run, Upper Aquia Creek, Chopawamsic Creek, and Slate Run-Cedar Run watersheds. Sampling conducted during the current review period indicates that MC concentrations at or near the off range boundaries are 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.

Range Assessment Overview

Scope: This REVA Periodic Review for MCB Quantico covers munitions use on operational ranges that occurred from 2013 through 2018. The previous REVA study at MCB Quantico (for the years 2007 through 2012) concluded that there was no immediate threat to identified off range receptors; however, sampling was recommended. 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 mechanisms 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 2012. 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 migration pathways, and changes to receptors (e.g., newly installed groundwater supply wells, ecological).

Results: At MCB Quantico, the CSM pathways for MC migration from the operational ranges to off range receptors are complete for several media in several watersheds. However, analytical sampling results indicated that MC concentrations at or near the off range boundaries are below human and ecological screening criteria.

Source: The quantity of MC (lead, explosives, perchlorate) generated during training is high. Engineering and natural controls inhibit MC migration off range. Small arms present the largest MC source at the installation, but completed and planned best management practice projects mitigate migration of lead from the highest use small arms ranges. Use of high explosives and perchlorate-containing munitions have decreased during the current review period.

Transport Mechanisms: The transport mechanism for MC in surface water from the range or impact area to off range surface water or sediment is via hydraulic connection, current, or flow. The remaining transport mechanisms are MC in surface soil traveling off range via stormwater runoff (overland flow) or infiltrating/percolating to groundwater.

Off Range Receptors: No critical habitats have been designated at MCB Quantico, but several threatened and endangered species are present. Recreational use occurs within several off range areas. Drinking water at MCB Quantico is sourced from both surface water reservoirs and groundwater supply wells. However, MC sample analytical results from surface water, sediment, and groundwater were below screening criteria and state and federal drinking water standards and therefore do not pose a risk to receptors.

Conclusion: The REVA Periodic Review of MCB Quantico 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).
For more information on the DoD Operational Range Assessment Program visit http://www.denix.osd.mil/sri/home/