Marine Corps Air Station (MCAS) Miramar, California

Range Environmental Vulnerability Assessment (REVA) Factsheet April 2024

Background

The 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 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 program implemented to meet the DoD ORA requirements.

Operational Ranges Overview

The primary mission of MCAS Miramar is to maintain and operate Air Station facilities and property while providing services, material support, and training venues that promote combat readiness and support the missions of 3rd Marine Aircraft Wing and other tenants aboard the installation.

MCAS Miramar is in San Diego County, California, 11 miles north of downtown San Diego and 4 miles east of the Pacific Ocean. It is divided into three geographic regions: East Miramar, Main Station, and West Miramar. All the operational ranges at MCAS Miramar are located in East Miramar.

MC source areas identified during the 2023 PR (2017-2022) were impact berms containing lead at the nine small arms ranges. Perchlorate was not used, and high explosives (HE) were used minimally for disposal operations, thereby not creating an HE source for potential off-range migration.

2023 PR Findings

The Marine Corps Air Station (MCAS) Miramar 2023 Periodic Review (PR) 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, HE, perchlorate) that presents a potential unacceptable risk to human or environmental health. Potential for off-range migration of MC is limited due to low annual precipitation, absence of perennial surface water, non-acidic storm water runoff, high evaporation rate, presence of an impermeable hardpan at depth below the ground surface, and deep groundwater. Small arms range engineering controls further limit stormwater runoff, inhibiting the potential for MC (lead) off-range migration.

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.

Location of MCAS Miramar

Range Assessment Overview

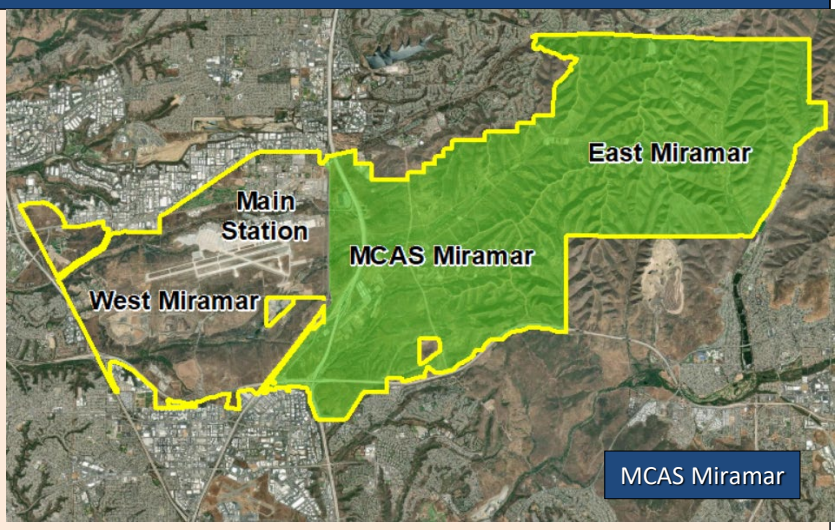
Scope and Previous Assessment: The REVA 2023 PR evaluated munitions use at MCAS Miramar from 1 October 2017 to 30 September 2022. The previous REVA assessment concluded there was no immediate threat to off-range receptors due to MC migration from operational ranges.

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 this REVA PR, data were collected to update the previous CSM (2013-2017). This included reviewing any changes in range use, environmental conditions, migration pathways, and off-range receptors.

Source: MC source areas are present in the impact berms of nine small arms ranges. The very low use of HE at the EOD Range and EOD Training Range does not create an MC source. Periodic projectile reclamation reduces the MC source in the berms.

Transport Mechanisms: Surface runoff and infiltration of precipitation to groundwater are the potential MC transport mechanisms at MCAS Miramar. Stormwater runoff may transport MC through dissolution of lead into runoff or by carrying eroded soil from impact berms. There are no perennial surface waterbodies on the installation and no waterbodies used as targets or impact areas; therefore, surface water as a transport mechanism is an incomplete pathway. Groundwater at the installation is very deep (160 to 200 feet below ground surface [bgs]), and the soils are underlain by an impermeable hardpan layer. Therefore, infiltration to groundwater is an incomplete pathway.

Off-Range Receptors: Off-range human receptors are present in the form of commercial development and retail stores. Off-range ecological receptors include certain federally endangered and/or protected plant and animal species identified near or downstream from range areas, including vernal pool areas.



Surface water flow occurs solely after rainfall events, and there are no permanent surface water features connecting MCAS Miramar to the off-range areas. Furthermore, groundwater is not utilized on or near the MCAS Miramar premises. The low MC source and very limited surface water reduces the potential for any receptor interaction with or impacts from MC.

Results: The CSM pathways were determined to be incomplete for MC migration to off-range receptors. This conclusion was reached for groundwater and surface runoff based on low annual precipitation and high annual evaporation resulting in little water available for surface runoff or infiltration. While erosion potential and drainage of the soils are favorable for transport, the semi-arid, Mediterranean climate and relatively neutral storm water and soils are generally not conducive to substantial leaching of lead from the impact berms. Low MC source, recurring lead removal actions, distances from MC sources to the range boundaries, and erosion control measures at the impact berms lessen the potential for off-range MC migration. Off-range MC migration via stormwater runoff is further limited by engineering controls that direct runoff away from impact berms. Direct infiltration of precipitation to groundwater is limited by the depth of groundwater (approximately 160 to 200 feet bgs).

Conclusion: The REVA 2023 PR for MCAS Miramar 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 PR in 5 years or sooner if changes in environmental conditions or range use warrants.

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For more information on the DoD Operational Range Assessment Program, visit http://www.denix.osd.mil/sri/home/.