



**U.S. AIR FORCE**

**FINAL**

**OPERATIONAL RANGE ASSESSMENT  
MUNITIONS CONSTITUENT MIGRATION REPORT  
MARCH AIR RESERVE BASE**

**UNITED STATES AIR FORCE  
OPERATIONAL RANGE ASSESSMENT PROGRAM**

**Prepared for:  
March Air Reserve Base, California  
Air Force Reserve Command  
and  
Air Force Civil Engineer Center  
Joint Base San Antonio – Lackland, Texas**



**Prepared by:  
EA Engineering, Science, and Technology, Inc., PBC  
Hunt Valley, Maryland**

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# Operational Range Assessment March Air Reserve Base

Air Force Operational Range Assessment Program

January 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. The Department 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 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 USAF Operational Range Assessment Program (ORAP), established to comply with DoD policy, sets forth procedures for consistently conducting ORAs throughout the Air Force. The USAF ORAP assessment methodology uses an installation-wide approach to verify the ORAP inventory and accomplish range-specific assessments. An Air Force ORA is comprised of two primary phases: Qualitative Assessment, Phase 1 and Quantitative Assessment, Phase 2 (if required).

- A Qualitative Assessment, Phase 1, encompasses records review, interviews, and a visual survey.
- A Quantitative Assessment, Phase 2, encompasses records review, interviews, visual survey, and environmental media sampling.

## Installation Overview

March Air Reserve Base (ARB) is located in Riverside County, California, approximately 70 miles east of downtown Los Angeles. It is bisected by Interstate 215 (I-215) in a northwest-southeast direction.

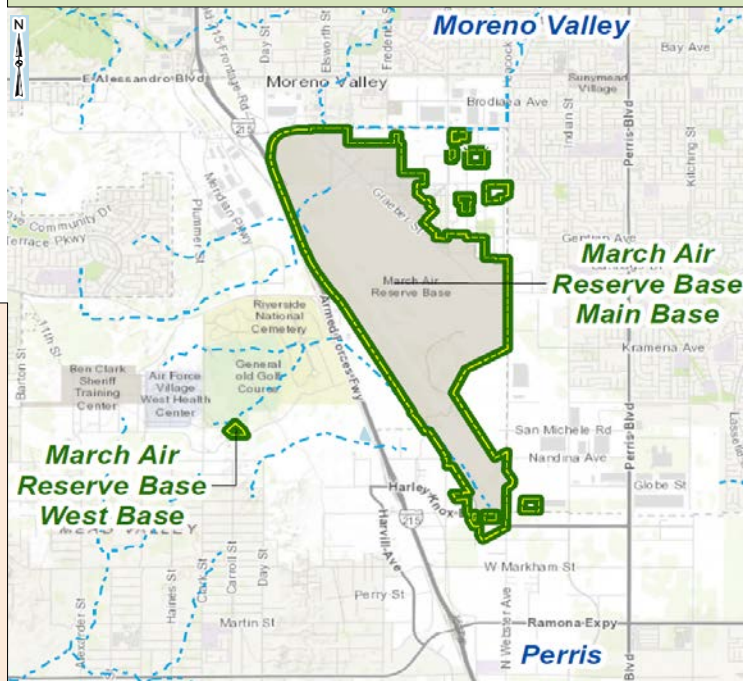
## ORAP Findings: January 2020 ORA Report

- Munitions constituents (MC) including metals (iron and tungsten) may be transported off-range via groundwater, and metals (copper, iron, lead, and, zinc) may be transported off-range via surface water/ sediment.
- A confirmed MC release exists for one of the two areas assessed at March ARB.
- No unacceptable risks to humans were identified for the areas evaluated at March ARB; however, a potential unacceptable risk to the environment was identified for one of the assessed areas.

## Next Steps

March ARB is scheduled to be assessed in accordance with USAF and DoD policy specifying periodic assessment at least every five years or sooner if significant changes occur that may impact assessment decisions.

- One area is scheduled for further evaluation earlier than the specified five years due to an off-range MC release finding.



### Installation Overview Continued

During implementation of the ORAP at March ARB, two ranges were determined to be eligible and assessed under the USAF ORAP –an Explosive Ordnance Disposal (EOD) Range and a Small Arms Range (SAR). An additional site that will be used for military training, EOD Military Operations on Urban Terrain Site, is currently being built and will be eligible for assessment in the future.

This is the third assessment for both the EOD Proficiency Training Range and the SAR.

### EOD Proficiency Training Range Assessment Overview

The EOD range, constructed in 2000, is located in the southern portion of Main Base. The range includes a detonation area and 500-ft buffer zone. The range is used for proficiency training approximately two times per month, with a maximum limit of 5 pounds non-fragmenting high explosives. Emergency disposal operations occur infrequently at the range.

In 2011, the initial Phase 1 ORA was completed. A potential source of MC was identified within soils at the detonation area. The Phase 1 determined that the groundwater pathway was potentially complete to human receptors and a Phase 2 was recommended.

In 2014, a Phase 2 ORA was completed. On-range soil samples were collected and analyzed for metals and explosives. The effort confirmed MC was present in soil within the detonation area. An explosive compound, RDX, was detected above protection of groundwater screening levels. However, modeling indicated that RDX was not expected to reach groundwater for 18 years. The Phase 2 concluded MC were not migrating off-range and that there was no current risk to receptors via the groundwater pathway.

In 2019, a periodic Phase 2 ORA was completed. Downgradient groundwater samples were collected and analyzed for metals and explosives. No MC were determined to be migrating off range and no potential risks to off-range receptors were identified.

### SAR Assessment Overview

The SAR has been in used since the 1940s. The SAR contains four bays. Only Bay 1 is currently active to qualification training but Bays 3 and 4 are currently used for shoot-move-communicate training. Frangible small arms and Simunition® rounds are currently used; however, non-frangible rounds were historically used, as well as medium caliber practice munitions.

In 2014, the initial Phase 1 ORA was completed. A potential source of MC was identified in the impact berms. The Phase 1 concluded there was a potential for MC to migrate off-range to ecological receptors via the surface water pathway. No human receptors were identified. A Phase 2 was recommended.

In 2017, a Phase 2 ORA was completed at the SAR. Soil samples were collected on-range and at the off-range surface water/sediment discharge point, and analyzed for metals (copper, iron, lead, tungsten, and zinc). The Phase 2 concluded that an off-range release has occurred based on off-range soil containing copper, lead, and zinc above background levels and lead and zinc above ecological screening criteria. However, no ecological receptors were identified, and it was determined that there was no complete exposure pathway and no unacceptable risk for off-range ecological receptors.

In 2019, a periodic Phase 2 ORA was completed. Off-range soil samples were collected downstream of the SAR. An off-range release was identified with a complete exposure pathway to ecological receptors. Copper, lead, and zinc were detected above human and/or ecological project action limits (PALs) and background levels at the SAR boundary. Detections further downstream were still above ecological PALs, but below background levels. The range was recommended for an MC Migration/Mitigation Study in addition to the required periodic Phase 2.

**For more information on this assessment or the Air Force Operational Range Assessment Program contact the Ranges Subject Matter Expert, Technical Branch, Environmental Quality Directorate, Air Force Civil Engineer Center**  
**For more information on the DoD Operational Range Assessment Program visit <http://denix.osd.mil/orap/home/>**