# Operational Range Assessment
# F.E. Warren Air Force Base

**Air Force Operational Range Assessment Program** April 2021

## 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

F.E. Warren AFB is in Cheyenne, Wyoming, in Laramie County, approximately 3 miles west of downtown Cheyenne. F.E. Warren AFB occupies approximately 5,866 acres. In addition to the main base area, the 90th Missile Wing is responsible for Missile Alert Facilities and Launch Facilities over an area encompassing 9,600 square miles in the states of Colorado, Nebraska, and Wyoming.

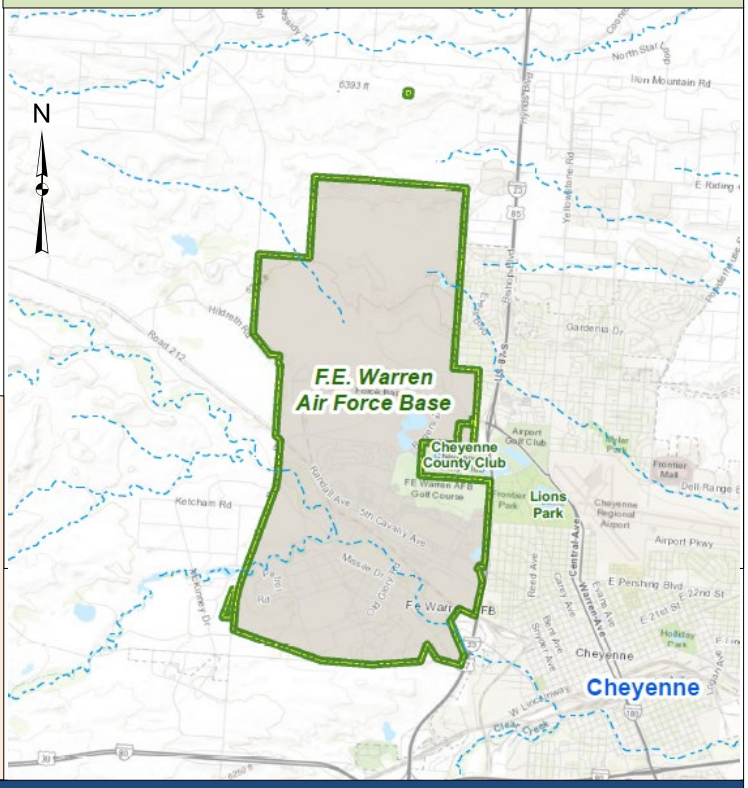
## ORAP Findings: April 2021 ORA Report

- Munitions Constituents (MC) including metals, explosives, and perchlorate may be transported through the groundwater pathway.
- No actual threat of an off-range MC release exists for areas evaluated at F.E. Warren AFB.
- No unacceptable risks to human health or the environment were identified.

## Next Steps

F.E. Warren AFB 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.

- Due to possible MC migration, majority of areas are scheduled for Phase 2 assessments.



Installation Overview (Continued)

During implementation of the ORAP at F.E. Warren AFB, three operational areas were determined to be eligible and assessed under the USAF ORAP – the Explosive Ordnance Disposal (EOD) Range, Combat Arms Training and Maintenance (CATM) Facility, and the Practice Grenade Range. A Tool Training Area was determined to be eligible for assessment under the ORAP but was not in the scope of this effort and will be evaluated during the next scheduled installation-wide assessment.

The following sections summarize USAF ORAP efforts for the ranges. This is the third ORA conducted at the EOD Range, CATM Facility, and Practice Grenade Range. The CATM Facility and Practice Grenade Range were previously assessed as part of a virtual complex.

EOD Range Assessment Overview

The EOD Range encompasses 467.62 acres and is in the northwestern corner of the installation. The range contains a current and historical detonation area, two explosives holding pads, a safety bunker, a training area, and a simulated runway approach area. The range boundary is defined by a fence encompassing the detonation area and associated 2,500-ft safety zone. The current detonation area has been used since 2011. The range is used for proficiency training approximately twice per month, and for emergency detonations approximately once per month.

Prior Phase 1 ORAs were completed in 2010 and 2015 for the EOD Range which identified a potential source of MC within soils. However, the ORAs determined there were no complete pathways to human or ecological receptors.

In 2021, a periodic Phase 1 ORA was completed. A potential MC source was identified within the soil at the detonation area and to a lesser extent within the safety zone, training area, and simulated runway approach area. The groundwater (for human receptors) and groundwater to surface water (for ecological receptors) exposure pathways were determined to be potentially complete due to the shallow depth to groundwater (approximately 25 ft bgs) and the length of time since the last groundwater sampling event for MC was performed in the vicinity of the EOD

EOD Range Assessment Overview (Continued)

detonation area (wells last sampled in 2001). Based on this Phase 1 for the EOD Range, a Phase 2 is required to sample the existing wells at the EOD Range during the next ORA to identify any change with respect to MC in groundwater since the last sampling event.

CATM Facility Assessment Overview

The CATM Facility is located in the northwestern corner of the installation, near the EOD Range's gated entrance. The range encompasses approximately 0.79 acres. The CATM Facility was originally constructed in 2001 and upgraded in 2011 to a fully contained outdoor range; therefore, the range has no safety zone. Small arms were historically fired into a granulated rubber backstop before the range was renovated. The range was used for qualification with both frangible and non-frangible rounds; however, non-frangible rounds have not been used at the range since April 2020. The range is currently used approximately four times a week.

Prior Phase 1 ORAs were completed in 2010 and 2015 for the CATM Facility as part of a virtual complex. The virtual complex included the CATM facility, a historical Tube Range, and the Practice Grenade Range. A potential source of MC was identified in soil around the target areas during the 2010 ORA prior to the construction of the fully contained range's bullet containment system. However, the ORAs determined there were no complete pathways to human or ecological receptors. During the 2015 ORA, the historical Tube Range was identified as decommissioned and removed, subsequently classroom and shop facilities were constructed within the entire footprint of the former area and adjoin the fully contained range.

In 2021, a periodic Phase 1 ORA was completed. The MC source areas identified for the CATM Facility included the bullet trap, firing line, range floor. MC transported via stormwater runoff from the range floor may be directed underground immediately to the sump adjacent to the building and available for infiltration to groundwater.

CATM Facility Assessment Overview (Continued)

The groundwater (for human receptors) and groundwater to surface water (for ecological receptors) exposure pathways were determined to be potentially complete due to the relatively shallow depth to water (approximately 25-ft bgs) and unknown construction depth of the gravel sump which may bypass the subsurface clay layer. Based on this Phase 1 for the CATM Facility, a Phase 2 is required to sample surface water and/or sediment within the sump at the CATM facility during the next ORA to determine if MC is accumulating in the sump.

Practice Grenade Range Assessment Overview

The Practice Grenade Range, constructed in 2006, is located in the northwestern corner of the installation, to the northwest of the CATM Facility. The Practice Grenade Range encompasses 6.62- acres and includes an associated safety zone. The Practice Grenade Range is used approximately once per week for training with practice 40-millimeter grenades.

Practice Grenade Range Assessment Overview (Continued)

Prior Phase 1 ORAs were completed in 2010 and 2015. A potential source of MC was identified near the firing points and downrange targets. However, the 2010 and 2015 ORAs determined there were no complete pathways to human or ecological receptors.

In 2021, a periodic Phase 1 ORA was completed. Potential source areas were identified at the Practice Grenade Range on the range floor at or near the firing points and target areas. Although a potential source was considered present, the subsurface soils/geology and vegetation were found to prevent the potential migration of MC from the Grenade Range. Therefore, no viable transport mechanisms were identified, and exposure pathways were identified as incomplete to human and ecological receptors.

**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 https://denix.osd.mil/orap/home/**