



Red River Army Depot, Texas

April 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 Army ORA effort was developed to address DoD requirements detailed in DoD Directive 4715.11 (10 May 2004) and DoD Instruction 4715.14 (15 November 2018). The overall objective of the ORA is to assess operational ranges/range complexes to determine if an off-range MC release or substantial threat of an off-range MC release exists; if an off-range MC release exists, does it exceed an applicable regulatory reporting standard; and if an MC release or substantial threat of a release exists, determine whether it creates a potentially unacceptable risk to off-range human health or the environment.

Range Overview

The Red River Army Depot (RRAD) is located in Bowie County Texas, approximately 18 miles west of Texarkana. The installation was originally established in 1941 as an ammunition storage facility. In 1946, RRAD was combined with the Lone Star Army Ammunition Plant (LSAAP) and renamed Red River Arsenal. In 1951, LSAAP was reactivated as a separate facility. Red River Arsenal was renamed RRAD in 1962. Although the installation served for a short time as a training facility, it has primarily supported military missions through combat and tactical systems

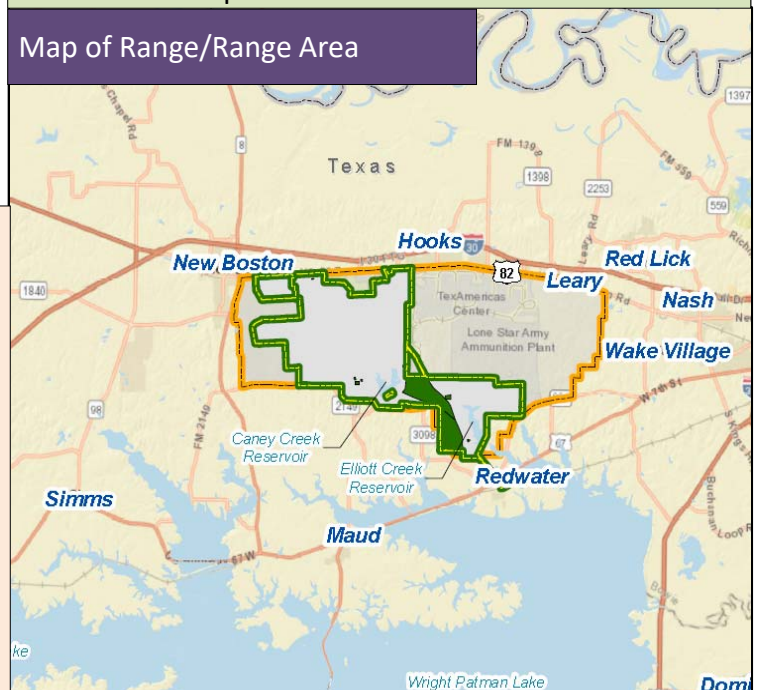
Operational Range Assessment Findings (04/2020)

- The 95 percent UCLMs of copper and lead exceeded their respective screening levels in surface water.
- MC metals (antimony, copper, lead, and zinc) detected in surface water and sediment did not significantly exceed their respective reference concentrations indicating MC are not migrating to off-range areas attributable to the operational range area.
- No detected concentrations of MC in sediment significantly exceeded their respective average reference concentrations.
- Results of the Advanced Assessment sampling investigation show no potential migration of range-related metals in surface water/sediment and no range-related risk to off-range human or ecological receptors.

Next Steps

The installation's operational ranges should be included in the FY23-27 cycle of ORAs to satisfy re-assessment requirements.

Map of Range/Range Area



Range Overview (Continued)

maintenance, munitions assembly, ammunition storage, and rubber production.

As of 2019, RRAD consists of 15,375.27 acres with a total of nine operational ranges encompassing 1,176.16 acres. Four ranges (three open berm/open detonation areas and one trap and skeet range) are programmatically excluded from ORA and encompass 33.24 acres. The remaining five operational ranges, totaling 1,142.92 acres, were identified as three maneuver and training areas and two firing ranges (one small arms range and one test range). The remaining 14,199.11 acres contain non-operational cantonment area.

Previous ORA Investigations

In 2008, a Phase I ORA evaluated seven operational ranges including the four programmatically excluded ranges, a maneuver and training area, and the two firing ranges. Due to the limited source of MC and limited potential for off-range migration, the test range and maneuver and training area were categorized as Unlikely. The Phase I ORA concluded that a potential source of MC from the small arms range had the potential to migrate off-range, via shallow groundwater to surface water, and interact with human and ecological receptors. As such, the small arms range was categorized as Inconclusive and recommended for further evaluation under a Phase II.

In 2013, a Phase II ORA re-evaluated the Phase I Conceptual Site Model (CSM) using additional information gathered prior to sample collection. Based on the CSM from the Phase I ORA and confirmed during the Phase II ORA, surface water was considered a surrogate for shallow groundwater and the primary pathway for MC migration. As such, MC migration via both surface water and groundwater pathways from the small arms range to downstream receptors was evaluated. Therefore, the Phase II evaluated the small arms range via the sampling of surface water and sediment pathways.

The multi-season field sampling was conducted at RRAD during May 2012 and September 2012. Surface water, sediment, and benthic macroinvertebrate samples were collected from two locations: one location

Previous ORA Investigations (Continued)

downstream of the potential MC source area, and one reference location upstream. Based on the data collected as part of the Phase II ORA, concentrations observed in surface water during the sampling event were not thought to be attributable to the small arms range. Therefore, no unacceptable off-range risk to human or ecological receptors was identified for the small arms range, which was re-categorized as Unlikely.

Advanced Assessment Overview (2019)

For the Advanced Assessment, the CSM developed during the Phase II was updated and the sampling approach included multi-season surface water and sediment collection from one upstream and one downstream location. No groundwater sampling was again performed as shallow groundwater underlying the small arms range discharges to downgradient surface water.

Surface water samples were analyzed for metals, hardness, and biotic ligand model (BLM) parameters. Sediment samples were analyzed for metals, total organic carbon, and simultaneously extracted metals (SEM)/acid volatile sulfide (AVS).

For surface water, the 95 percent upper confidence limit of the mean (UCLM) of copper and lead exceeded their respective freshwater ecological project action limits at the downstream sampling location. However, no average downstream concentrations of metals MC in surface water were significantly greater than their respective average reference concentrations, which indicated that MC are not migrating from the operational range area to off-range areas via surface water. In addition, copper did not exceed the Biotic Ligand Model-adjusted project action limits and was not expected to pose a risk to downstream ecological receptors. Based on these results, the conclusions of the Phase II remain valid and no risk to off-range ecological receptors is expected to be attributable to the small arms range. No metals MC in surface water exceeded PALs for drinking water; therefore, MC are unlikely to pose an unacceptable risk to human health.

For sediment, no detected concentrations of metals MC exceeded their respective freshwater ecological

Advanced Assessment Overview (2019) (continued)

screening levels and no detected concentrations significantly exceeded their respective average reference concentrations. Therefore, no metals migration is occurring and there is no risk to off-range ecological receptors in sediment. Furthermore, the SEM/AVS results indicated that divalent metals should not cause direct toxicity to benthic organisms.

Results of the Advanced Assessment sampling investigation show no potential migration of range-related metals in surface water/sediment and no range-related risk to off-range human or ecological receptors. Therefore, the conclusions of the 2013 Phase II ORA remain valid, and the three operational ranges should remain categorized as Unlikely. In addition, the newly identified maneuver and training areas should also be categorized as Unlikely.

For more information on Red River Army Depot, contact Red River Army Depot's PAO [903-334-4446]
For more information on the DoD Operational Range Assessment Program visit <https://www.denix.osd.mil/orap/home/>