Piñon Canyon Maneuver Site, Colorado

February 2023

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 (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 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. Army ORAs assess potential off-range migration of MC along surface water system and groundwater migration pathways.

Installation Overview

Piñon Canyon Maneuver Site encompasses 235,896 acres of land in southeast Colorado, in Las Animas County. The installation is located approximately 150 miles southeast of Fort Carson. The cantonment area is located at the west central edge of Piñon Canyon Maneuver Site. Land adjacent to Piñon Canyon Maneuver Site is used primarily for livestock grazing, agriculture, and recreation.

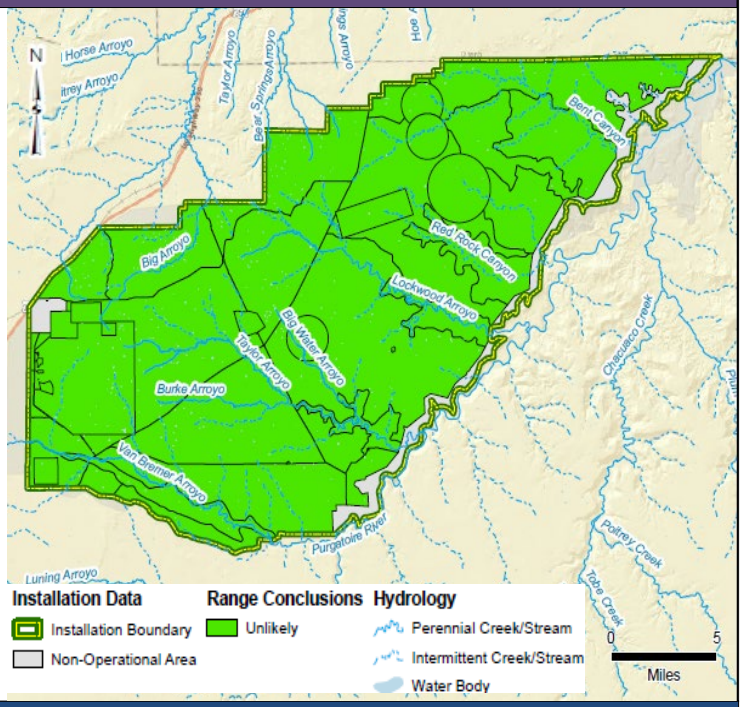
Operational Range Assessment Findings (02/2023)

Based on updated data, no off-range MC release or substantial threat of an off-range MC release currently exists. Therefore, there is no risk to off-range receptors. The operational ranges remain categorized as Unlikely.

Next Steps

Piñon Canyon Maneuver Site's operational ranges should be included in the FY23-37 cycle of ORAs to satisfy re-assessment requirements.

Map of Range/Range Area



Previous ORA Investigations

The initial 2008 qualitative assessment for Piñon Canyon Maneuver Site consisted of collecting, evaluating, and presenting available data to establish if there is an interaction between the on-range sources of MCOC and off-range receptors (source/receptor interaction). During the Phase I assessment, Piñon Canyon Maneuver Site had a total of 38 operational ranges, totaling 223,428 acres.

The Phase I identified limited or no military munitions use at all 38 operational ranges. At the time of the 2008 Phase I, the live-fire ranges had been in use for a maximum of two years with minimal usage of small arms rounds. Additionally, casings from expended or misfired rounds were required to be collected/policed. All 38 ranges were categorized as being Unlikely to have potential MCOC migrate off-range and affect human or ecological receptors and were placed into a periodic review cycle.

The purpose of the 2014 Periodic Review Piñon Canyon Maneuver Site was to re-evaluate the 2008 Phase I and determine whether the sources, pathways, and receptor evaluation completed during the initial assessment remain valid.

The primary findings of the Periodic Review were as follows.

- A convoy live-fire range had been activated since the 2008 Phase I and had been used on a regular basis since 2007, bringing the range count to 39.
- The highest potential for a concentrated source existed within the impact berms (evidence of munitions impacts and munitions debris) of the four small arms ranges which were found to have significant increases in munitions expenditures since the 2008 Phase I. Very limited evidence of munitions debris was observed in any areas outside of the range boundaries.
- Potential surface water pathways were deemed incomplete due to the surrounding calcareous soils that provide a high buffering capacity and the installation drainage being limited to ephemeral arroyos, which only flow as a result of significant precipitation events.
- The source/receptor interaction for groundwater was deemed incomplete due to the

Previous ORA Investigations (Continued)

downgradient distance of off-range groundwater receptors from source areas. The source/receptor interaction for groundwater was also deemed incomplete due to the lack of receptors present, since on-range supply wells were inactive and never utilized as an off-range potable resource.

ORA Basic Assessment (2022)

Since the Periodic Review was completed, the operational range count has increased from 39 to 45. This change to the operational range count is a result of the addition of two drop zones within existing maneuver training area and the subdivision of several maneuver training areas into smaller areas.

The 45 operational ranges at Piñon Canyon Maneuver Site include a live-fire range complex comprised of five ranges, one non-dudded impact area, one convoy live-fire range, and 38 non-live-fire ranges used for other training activities. These 38 non-live-fire ranges include 26 maneuver training areas, 8 drop zones, and 4 Military Operation in Urban Terrain (MOUT) facilities. The five live-fire ranges direct fire into the non-dudded impact area include Range 1 (Automated Combat Pistol/Military Police Qualification Course), Range 3 (Automated Record Fire Range), Range 5 (Grenade Launcher Range), Range 5A (Live Fire Shoothouse), and Range 7 (Automated Multipurpose Machine Gun Range). While Range 5 is located within the live-fire range complex, only non-high-explosive M781 40-millimeter practice rounds are authorized for use.

Potential historical and current sources of MCOC exist at the live-fire range complex, non-dudded impact area, and convoy live-fire range. Since the 2014 Periodic Review, additional source loading of small and medium caliber munitions has occurred. There is limited to no military munitions use in the remaining 38 operational ranges which include maneuver training areas, drop zones, and MOUT facilities.

As stated in the 2014 Periodic Review and confirmed in this Basic Assessment, Piñon Canyon Maneuver Site experiences low precipitation and high evaporation rates. Due to semi-arid conditions, on installation drainage is limited to a series of ephemeral arroyos which only flow as a result of significant precipitation

ORA Basic Assessment (2022) (Continued)
events. During the rainfall runoff period (May through October), flash floods occur intermittently. To minimize erosion during rain events, over 500 erosion control dams have been constructed at Piñon Canyon Maneuver Site. Since the prior 2014 Periodic Review, nearly 100 additional erosion control dams have been installed and maintenance is conducted on the existing erosion control dams on an as-needed basis to ensure their functionality. The erosion control dams aid in reducing surface water runoff and erosion. No runoff from the identified source areas is expected to flow off range due to the back berms in place which form partial enclosures around the live-fire range complex, extensive erosion control system in place at the installation, semi-arid site conditions, and low precipitation rate coupled with a high evaporation rate. Additionally, the surrounding silty and calcareous soils provide a high buffering capacity for metals MC, reducing transport potential.

The live-fire ranges are relatively flat and partially vegetated with native grasses. Each range within the live-fire range complex has target and back berms, with the exception of Range 5A due to partially enclosed nature of the range. The target and back berms in place are for over shots. All arroyos leaving potential source areas include several erosion control dams which are conducive to settlement of suspended sediment and inhibit the potential for MCOC migration via surface water drainage. The non-live-fire training areas are partially to well vegetated with native grasses and exhibit minimal evidence of erosion and channelized flow.

This Basic Assessment included an update to the CSM. No changes to the overall range use, potential migration pathways, or potential off-range receptors have occurred since the Periodic Review. The source-pathway-receptor interaction for all ranges remains incomplete. A limited or no source of MCOC was identified at the 38 non-live-fire ranges (26 maneuver training areas, 8 drop zones, and 4 MOUT facilities). Although the number of ranges has increased since the 2014 Periodic Review, overall use of these areas has

ORA Basic Assessment (2022) (Continued)
remained consistent and a limited or no source of MCOC exists. A potential historical and/or current source of MCOC (antimony, copper, lead, and zinc) associated with small and/or medium caliber munitions was identified for 7 ranges including a live-fire range complex (Range 1, 3, Range 5, Range 5A, and Range 7), 1 non-dudded impact area, and 1 convoy live-fire range (Range 9). Due to the semi-arid conditions, on installation drainage is limited to a series of ephemeral arroyos. The erosion control dams in place at the installation aid in reducing surface water runoff and erosion. No runoff from the identified source areas is expected to flow off range due to the extensive erosion control system in place at the installation, semi-arid site conditions, and low precipitation rate coupled with a high evaporation rate. Additionally, the surrounding silty and calcareous soils provide a high buffering capacity for metals MC, reducing transport potential. The limestone geology, low precipitation rate, and high evaporation rate inhibit a groundwater migration pathway. Even where sources of MCOC are found, no potential migration pathways exist; therefore, there is no unacceptable risk to off-range human and ecological receptors.

For more information on Piñon Canyon Maneuver Site, contact Fort Carson's Public Affairs Office at usarmy.carson.hqda-ocpa.list.pao-officer@mail.mil
For more information on the DoD Operational Range Assessment Program visit https://www.denix.osd.mil/orap/home/