Sierra Army Depot, California

June 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 (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.

Range Overview

Sierra Army Depot occupies approximately 30,048 acres and is in the Honey Lake Valley of Lassen County, adjacent to the town of Herlong in northeastern California, 4 miles west of the Nevada State line. Sierra Army Depot consists of two noncontiguous parcels, the Main Depot and the Upper Burning Ground. Sierra Army Depot currently consists of 13 operational ranges (totaling 9,168 acres). The remaining area consists of the non-operational Upper Burning Ground and other non-operational area, totaling 20,880 acres.

Operational Range Assessment Findings (08/2020)

Based on data evaluated for the updated CSM, the conclusions from the 2013 Phase II remain valid and sampling is not required at this time. The Advanced Assessment determined that potential MC, associated with current and historical training at Sierra Army Depot, are not migrating off-range via surface water or groundwater and do not pose a risk to human and/or ecological receptors.

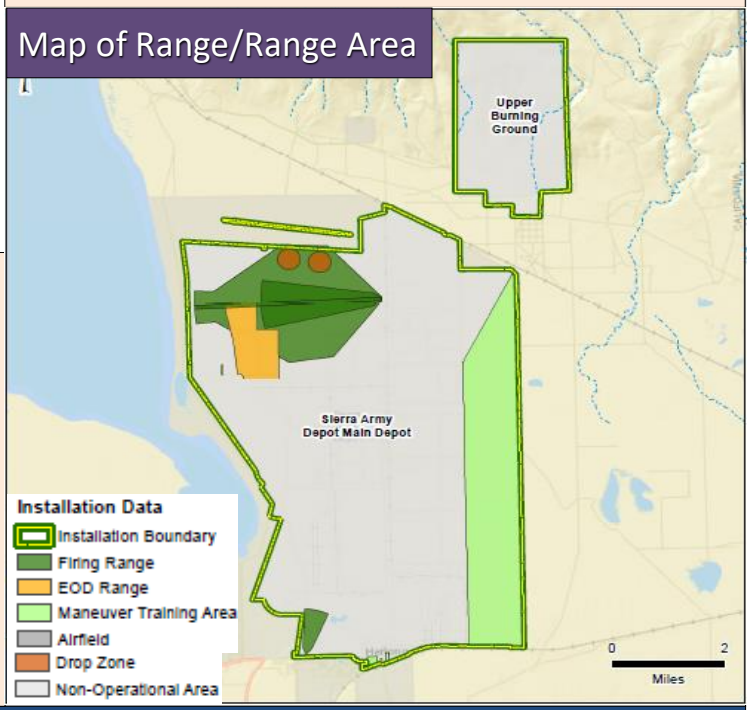
Next Steps

The installation's operational ranges should be included in the FY23-27 cycle of ORAs to meet DoD Policy (DoDI 4715.14) re-assessment requirements.

Range Overview (continued)

The 13 operational ranges are comprised of four maneuver training areas, three small arms firing ranges, two drop zones, one explosive ordnance disposal range, one runway, one grenade range, and one obstacle course.

Map of Range/Range Area



Previous ORA Investigations

The 2008 Phase I ORA evaluated 10 operational ranges. The ORA concluded that five ranges were unlikely to have a source-pathway-receptor interaction due to limited to no munitions use on the ranges. Three ranges (the demolition range, the obstacle course, and an inactive small arms range) were identified to have a historical munitions source; however, no pathways were identified for the ranges. Two ranges were categorized as Inconclusive based on the presence of a historical and current source, a potential surface water migration pathway, and off-range ecological receptors. The groundwater pathway was not considered a viable pathway due to the arid climate of the region combined with the low volume of precipitation, high evaporation rates, flat topography, heterogenic sediments underlying Sierra Army Depot resulting in isolated pockets of perched groundwater, and a lack of hydraulic connection of water bearing units at Sierra Army Depot to Honey Lake and/or surrounding wetlands. The two Inconclusive ranges were recommended for further evaluation through a Phase II.

The 2013 Phase II ORA re-evaluated the 10 ranges that were identified during the Phase I using additional information collected during the site visit. Upon re-evaluation of the ORA Phase I CSM, it was determined that seven ranges should be categorized as Unlikely because there was limited to no munitions use on the ranges. These seven ranges include the five identified as having a limited source during the ORA Phase I (three maneuver training areas, one runway, and one drop zone) and two additional ranges (one demolition range and one obstacle course) were added based on a re-evaluation of the data provided. No munitions use data was available for the demolition range; however, interview records from the Phase I indicated that use of the area for live-fire training was limited and ended in the mid-1990s. Similarly, no munitions data was available for the obstacle course. Interview records indicated the range was used from 1986 through 1998 as an endurance/obstacle course. In the 1970s, the obstacle course was used for limited mine testing. Based on a re-evaluation of the information provided in the Phase I, the demolition range and obstacle course were determined to have a limited historical source of MC.

Previous ORA Investigations (continued)

The inactive small arms range identified as having a source area, but no migration pathways was confirmed during re-evaluation of the CSM.

The 2013 Phase II ORA site reconnaissance focused on the two ranges identified as Inconclusive during the Phase I, a small arms range and the grenade range. During the site reconnaissance, it was noted that the small arms range berm was not vegetated and showed significant signs of erosion. Sparse vegetation was also observed at the grenade range. Due to the lack of surface water and surface water drainage pathways off-range for these two ranges, it was determined that MCOC were not expected to migrate off-range and pose an unacceptable risk to potential off-range ecological receptors (intermittent wetlands). No human receptors were identified during the Phase II ORA. When present, surface water stayed on range and eventually evaporated within the large on-range depression identified immediately behind the small arms range impact berm. Similar to the Phase I, the groundwater pathway was not considered viable due to the arid climate, the low volume of precipitation, high evaporation rates, flat topography, isolated pockets of perched groundwater, and a lack of hydraulic connection of water bearing units at Sierra Army Depot to Honey Lake and/or surrounding wetlands.

Additionally, Military Munitions Response Program (MMRP) sampling data from 2005 and 2012, pertaining to MCOC from soil sampling locations adjacent to the Inconclusive ranges, were evaluated in relation to ORA screening levels to determine if it could be concluded that MCOC were migrating from the Inconclusive ranges, or if MCOC detected in the MMRP areas are associated with historical ranges. Only one sample from the 2012 data was found to be located near, and potentially downgradient of, the two Inconclusive ranges. This sample had no concentrations of potential MCOC above ORA screening levels.

Based on this re-evaluation, the two Inconclusive ranges were re-categorized as Unlikely as the surface water and groundwater pathways to potential off-range receptors were found to be incomplete, and historical MMRP sampling data showed that potential MCOC were below the respective screening levels.

Advanced Assessment Overview (2020)

The Advanced Assessment CSM update determined that Sierra Army Depot's current operational footprint includes 13 operational ranges covering approximately 9,168 acres. Four of these ranges including the existing small arms range, a new small arms range, the grenade range, and the inactive small arms range are considered potential source areas of MCOC. Based on munitions data provided for 2019 and 2020, approximately 36,000 small caliber munitions and fewer than 15 smoke grenades (limited source) were expended at Sierra Army Depot on the new small arms range and the existing small arms range. While training has not occurred at the grenade range and the inactive small arms range since 2013, historical source loading through the use of live-fire rounds prior to 2013 creates a historical source area. Based on interviews with installation personnel, there has been minimal munitions use on the remaining nine ranges; therefore, these ranges were determined to constitute limited source areas.

Surface water runoff from the existing small arms range and new small arms range pools in a low-lying depression behind the existing small arms range berm where surface water eventually evaporates; no surface water flows off-range and the migration pathway was determined to be incomplete. There are no defined drainages at the inactive small arms range and, combined with the low precipitation and high evapotranspiration rates, the surface water migration pathway from the range was determined to be incomplete. Groundwater underneath Sierra Army Depot is discontinuous, and it is not believed that the water-bearing units underlying the installation are hydraulically connected to Honey Lake and/or surrounding wetlands.

Due to the arid climate, limited precipitation, and high evaporation rates, minimal infiltration occurs in the basin floor where the source area is located. Additionally, the moderate to strongly alkaline soil inhibits mobilization of metals and perched groundwater beneath the installation is discontinuous.

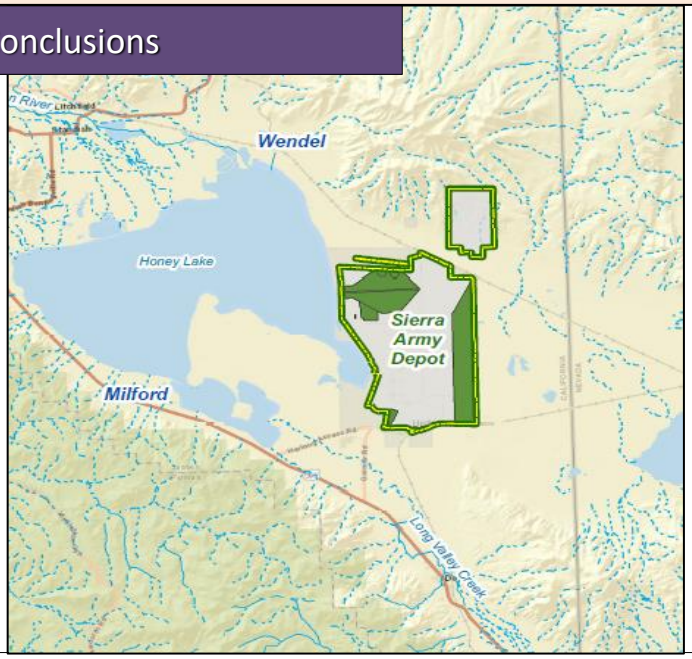
Advanced Assessment Overview (2020) (continued)

There is no indication that these water-bearing units are vertically connected to other regional aquifers. Therefore, the groundwater pathway was determined to be incomplete. Potential human receptors were identified as recreational users of Honey Lake and potable well users; potential ecological receptors were identified as wetlands and special status species.

As there are no surface water or groundwater migration pathways from the four source area ranges, there is no risk to potential human and/or ecological receptors. Additionally, the two supply wells on Sierra Army Depot are located upgradient of the source areas from the existing inactive small arms range, new small arms range, and the grenade range in the southwestern portion of the Depot. While one of the supply wells is located within the footprint of the inactive small arms range, water is obtained from over 100 feet deep and semi-annual sampling data indicates MC metals concentrations were below their respective maximum contaminant levels.

Based on data evaluated for the updated CSM, the Advanced Assessment determined that potential MC, associated with current and historical training at Sierra Army Depot, are not migrating off-range and do not pose a risk to human and/or ecological receptors.

Conclusions



For more information on Sierra Army Depot, contact Sierra Army Depot's PAO at 530-827-4343
For more information on the DoD Operational Range Assessment Program visit https://www.denix.osd.mil/orap/home/