Donnelly Training Area, Alaska

May 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

Donnelly Training Area occupies approximately 655,191 acres in the interior region of Alaska. The installation is directly south of Delta Junction and 108 miles southeast of Fairbanks, Alaska. Donnelly Training Area, formerly part of Fort Greely, was realigned in 1995 and is now under the control of U.S. Army Alaska at Fort Wainwright. The entire footprint of Donnelly Training Area is operational area and includes 119 operational ranges.

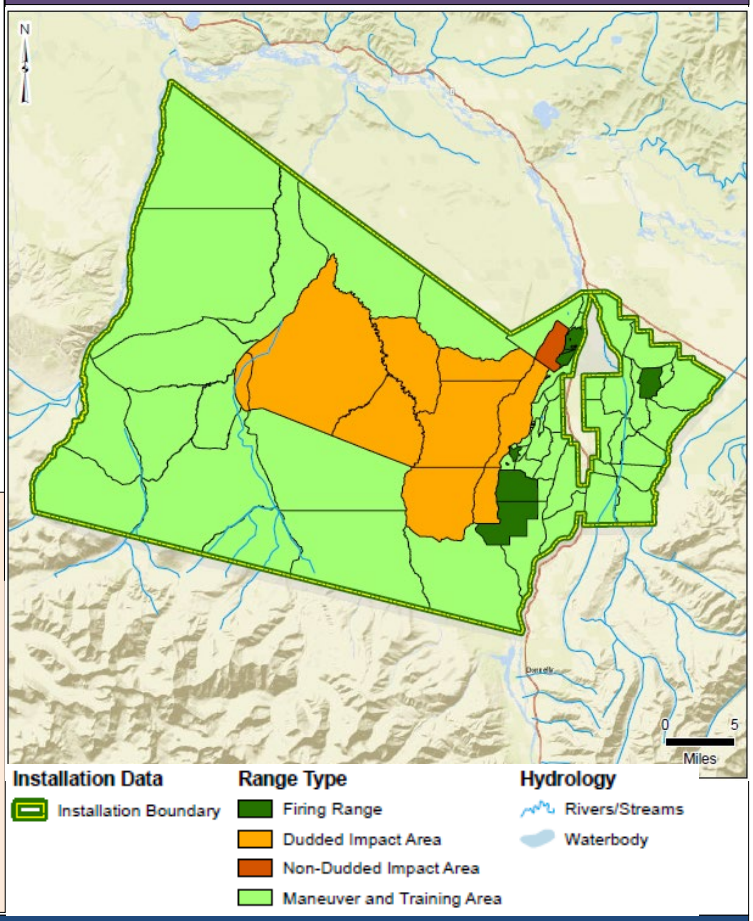
Operational Range Assessment Findings (05/2023)

Based on observed conditions, updated data, results of the Advanced Assessment FRESCO Advanced Tier 2 modeling, no off-range MC release or substantial threat of an off-range MC release currently exists. MC associated with the most heavily used ranges are not migrating and are therefore not present at levels that pose an unacceptable risk to off-range human and/or ecological receptors.

Next Steps

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

Installation Layout



Previous Assessment Overview

In 2009, the Phase I was conducted for all 124 operational ranges at Donnelly TA to determine if there was or could be an interaction between potential MCOC and off-range human and/or ecological receptors. The Phase I concluded that the potential for MCOC to migrate from 122 operational ranges was Unlikely due to lack of source and/or pathway. The remaining two ranges were determined to have potential for MCOC to migrate via surface water, sediment, and groundwater at levels that may pose an unacceptable risk to off-range human and/or ecological receptors and were categorized as Inconclusive.

After the Phase I, information contained in an Archive Search Report (U.S. Army Corps of Engineers 2008) revealed that a historical Davy Crockett surface danger zone once existed, which overlapped a portion of an operational maneuver and training area that was categorized as Unlikely. To account for any historical sources of MCOC associated with the Davy Crockett range, a 984-acre portion of this maneuver and training area was re-categorized as Inconclusive. Therefore, a total of three Inconclusive ranges covering 8,363 acres were included for Phase II quantitative assessment.

Results of the Phase II sampling and data analysis indicate that potential MCOC associated with the Inconclusive ranges at Donnelly TA were not migrating at levels that posed an unacceptable risk to off-range human and/or ecological receptors. The effect of glacial flour, which is the component of glacier sediment that is much finer than sand and the smallest size of sediment, on metals concentrations combined with a lack of statistical difference in surface water and sediment metal concentrations between reference and downstream locations on the Delta River demonstrated that elevated metals are not a result of off-range migration of MCOC. No explosives were detected in any surface water, sediment, or groundwater samples, at concentrations that exceeded associated screening levels. Uranium activity ratios calculated for surface water, sediment, and groundwater samples suggested the detected isotopes originated from naturally occurring sources (activity ratio approximately 1) and were not attributable to depleted uranium-containing munitions potentially used within the Inconclusive range area.

Previous Assessment Overview (continued)

No benthic community metrics at the downstream location were significantly different from the reference during either the wet or dry season, indicating that the benthic community was not adversely affected by the munitions use associated with the Inconclusive range area at Donnelly TA.

Based on the Phase II sampling results, the three Inconclusive ranges were re-categorized as Unlikely and entered into the review cycle to periodically update the CSM.

Advanced Assessment

This Advanced Assessment addressed the study goal through the collection of updated source, pathway, and receptor data. The data were used to update the Conceptual Site Model (CSM) and model MC concentrations in surface water and groundwater at Donnelly Training Area.

Currently, Donnelly TA uses 119 operational ranges including 45 maneuver training areas, 15 live-fire ranges, 10 impact areas, 5 landing zones/helipads, 7 drop zones, 19 firing points, and 18 Training Sites. Based on the updated CSM developed during the Advanced Assessment, the ranges that represent the greatest potential for the off-range migration of MCOC (source area ranges) are drained primarily by the Delta River. The Delta River bisects the operational range area at Donnelly TA, flowing from south to north, and receives water from small drainage basins as it flows through the installation. The majority of the source areas at Donnelly TA lie within the braided streambed of the Delta River.

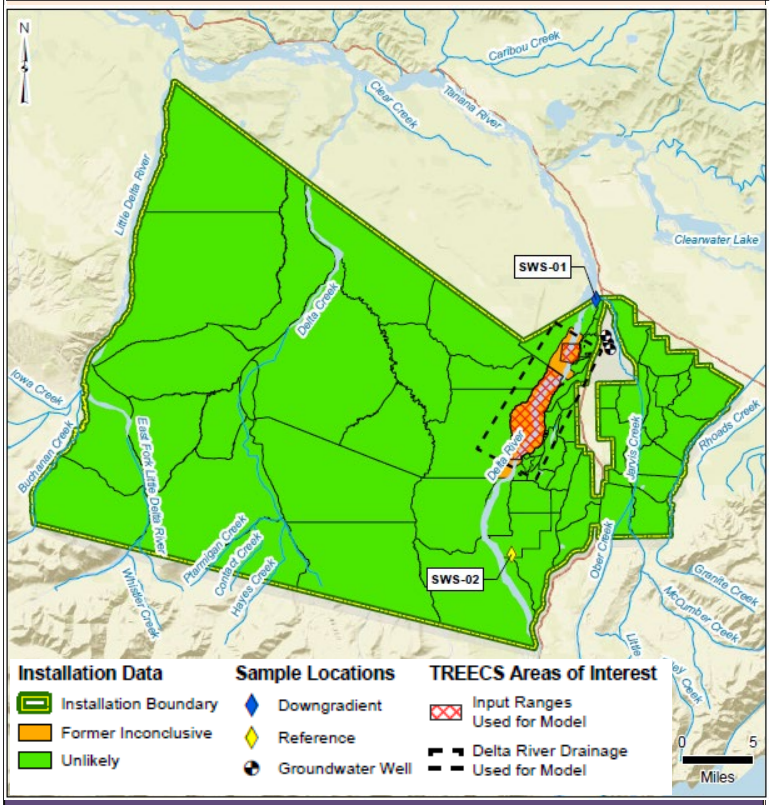
The surface water and groundwater modeling approach included the development of an Advanced Tier 2 FRESCO model to predict if MC concentrations in off-range media exceeded or may exceed protective human health and ecological screening benchmarks in the future. To determine the Area of Interest (AOI) to be used in the model, an evaluation of the Phase II results, updated Range Facility Management Support System (RFMSS) data, and current range usage was conducted as part of the preparatory steps for developing the model input parameters.

Advanced Assessment (continued)

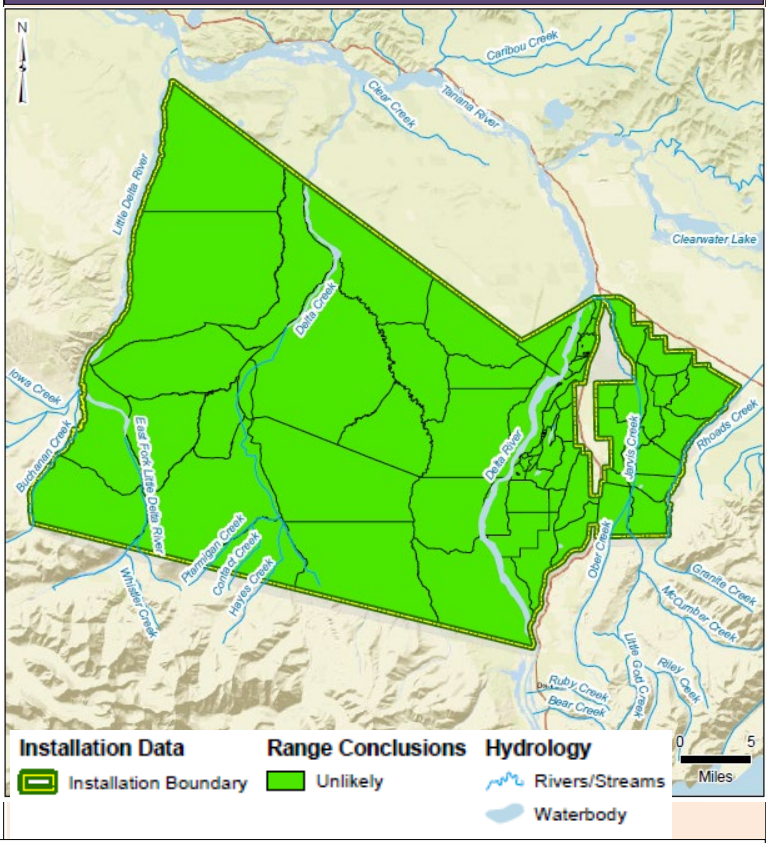
The Advanced Assessment collected updated information regarding source, receptor, and pathway interactions for MCOC on operational ranges at Donnelly TA. Results of the Advanced Assessment modeling conducted in FRESCO showed that potential MC associated with the source areas at Donnelly TA are not migrating at levels that pose an unacceptable risk to off-range human and/or ecological receptors. For surface water and sediment, no modeled constituents were predicted to exceed the applicable regulatory or non-regulatory screening levels (ecological health). For groundwater, no modeled constituents were predicted to exceed the applicable regulatory screening levels (human health).

Based on observed conditions, updated data, and the modeling results, the conclusions of the 2014 Phase II ORA remain valid and no off-range MC release or substantial threat of an off-range MC release currently exists. MC associated with the most heavily used ranges are not migrating and are not present at levels that pose an unacceptable risk to off-range human and/or ecological receptors. As such, Donnelly TA should be included in the FY23-27 cycle of ORAs to satisfy re-assessment requirements.

FRESCO Area of Interest



Conclusions



For more information on Donnelly Training Area, contact the USAG Alaska Public Affairs Office at (907) 353-6700. For more information on the DoD Operational Range Assessment Program visit https://www.denix.osd.mil/orap/home/