



Operational Range Assessment Barksdale Air Force Base

Air Force Operational Range Assessment Program

February 2019

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

Barksdale Air Force Base (AFB), part of Air Force Global Strike Command, is located in northwest Louisiana in Bossier Parish within the Shreveport-Bossier City Metropolitan area. Barksdale AFB is divided into two main areas: the Main Base Area and the East Reservation. The Main Base Area, located in the northwestern section of the installation. The East Reservation comprises the eastern half of the base.

ORAP Findings: October 2017 ORA Report

- Migration mechanisms were identified as unlikely to transport munitions constituents (MC) to off-range locations.
- No actual or potential off-range migration of MC exists for the areas assessed.
- No unacceptable risks to human health or the environment were identified.

Next Steps

Barksdale AFB (to include Claiborne Range) is scheduled to be assessed in accordance with USAF and DoD policy specifying periodic assessment at least every five years.

- Claiborne Range is scheduled for further evaluation earlier than the specified five years due to detections of an explosive compound.



Installation Overview Continued

Barksdale AFB also has real property accountability of a geographically separate parcel of land which comprises Claiborne Bombing and Gunnery Range (Claiborne Range). Although Barksdale AFB provides logistical support, Claiborne Range is operated and managed by the Air Force Reserve Command. Claiborne Range is located approximately 150 miles south/southeast of Barksdale AFB in Rapides Parish, Louisiana.

During implementation of the ORAP at Barksdale AFB seven areas (to include Claiborne Range) were verified as eligible and assessed under the USAF ORAP – Claiborne Range; Small Arms Firing Range (SAFR) Complex, M203 Grenade Range (GR); Explosive Ordnance Disposal (EOD) Proficiency Range; EOD Range; Survival Training Area (TA); and Warrior Training Center (WTC). An eighth area (Warrior Center) was scheduled for an assessment as it was identified as operational during a Military Munitions Response Program investigation; however, it was determined that no munitions were authorized for use as such there is no suspected MC source and the area was not further evaluated.

SAFR Complex Assessment Overview

The SAFR Complex, encompassing approximately 2.3 acres, is located along the north central portion of Barksdale AFB. A fence surrounds the SAFR Complex. It is estimated that the SAFR Complex has been in use since the 1940s. Historically, the complex was associated with three sub-areas: pistol (M-9), rifle (M-16), and machine gun (M-60). However, the complex was reconfigured in 2005 and 2010 which has resulted in only two sub-areas: Range A and Range C. Modification of the complex did not disturb existing berms. Currently only Range A is active; Range C has not been utilized since at least 2012. The SAFR Complex is used for small arms practice approximately three times a week and as needed prior to deployment. Annually, the Army and Navy Reserve Units will utilize the SAFR Complex

In 2017 an initial ORA was completed. The assessment concluded remnant MC, if present, would likely be in the subsurface soil from past use as such the former backstop berms present a source of MC. Surface water

SAFR Complex Assessment Overview Continued

discharge from the SAFR Complex has been eliminated through the permanent closure of outfall drainage valves. Subsequently, stormwater is retained within the complex and either evaporates or infiltrates to the subsurface. Shallow groundwater is primarily recharged by infiltration; and groundwater discharges to surrounding surface water bodies. However, due to environmental conditions (e.g., soil characteristics), vertical migration of MC through the soil column to shallow groundwater was deemed unlikely. Although there is a source of MC at the SAFR Complex, migration of MC to off-complex locations is not expected; therefore, no complete exposure pathways were identified for humans or ecological receptors.

GR Assessment Overview

The M203 Grenade Training Range, encompassing a total area of roughly 18.5 acres, is located in the East Reservation. The GR is rectangular-shaped consisting of an open grassy field and five targets covers approximately 10.5 acres. Based on historical aerial photographs, the area appears to have initially been developed in 1959 as a communication station. The first sign that the range was operational appears in 1984, but with a significantly different layout. The current range configuration does not appear until 1989, but does include the entire area from the previous layout. The GR has not been utilized for grenade training since around 2014 due to potential proximity to hunters authorized to utilize Barksdale AFB. However, dye marking rounds are used approximately every six months for training.

In 2011 an initial Phase 1 was completed. All release pathways (surface water, surface and subsurface soils, and air) excluding groundwater were considered incomplete. Groundwater was identified as the primary mechanism potentially capable of transporting MC. However, the effort determined there is minimal potential for significant quantities of MC to be present in on-range soils. As such it was concluded to be unlikely that MC could leach from subsurface soils into groundwater. Based on all available information, no complete source-receptor interaction exists.

GR Assessment Overview Continued

The 2017 Phase 1 ORA verified that the MC in soils at the GR would be minimal, if any, as only practice rounds were used. Based on the lack of an MC source, off-range MC transport through air, soil, surface water/sediment, and groundwater is unlikely. Because there is no identified MC source, no complete exposure pathways were identified for off-range.

EOD Proficiency Range Assessment Overview

The EOD Proficiency Training Range, approximately 20 acres, is located in a forested undeveloped section of the East Reservation. The range consists of an open area surrounded by two fire breaks. The open area covers approximately four acres. An assessment of aerial photographs determined that the range was put into use between 1959 and 1966. Currently, the range is used for training and emergency detonations events. The range is used monthly and has a maximum explosive limit of 100 pounds. However, the maximum limit does not exceed 30 pounds because of restricted use resulting from nearby oil and gas activities.

In 2011 an initial Phase 1 was completed. All release pathways to off-range human receptors (surface water, surface and subsurface soils, and air), excluding groundwater, were considered incomplete. It was determined that the primary mechanism with the greatest potential to transport MC to off-range locations was groundwater. However the effort determined, based on historic sample data, that there is minimal quantities of MC present in on-range soils. As such it was concluded to be unlikely that MC could leach from subsurface soils into groundwater. Based on all available information, no complete source-receptor interaction exists.

The 2017 Phase 1 ORA concluded due to low concentrations anticipated in site media, there is no expected off-range MC transport from the source area to off-range soils, surface water/sediment, air, or groundwater. Therefore, no complete exposure pathway associated with EOD Proficiency Training Range munitions activities and operations were identified. No suspected threat of an off-range MC release was identified and no suspected risks to receptors exists.

EOD Range Assessment Overview

The EOD Training Range, encompassing approximately nine acres, is located on the East Reservation of the base. Usage of the range area began in late 2015. The range is authorized a maximum limit of 226 pounds (non-fragmenting) net explosive weight (NEW). Primary activities performed at the range include training conducted approximately two to three times per month; however, emergency detonations are authorized. The range consists of a central detonation point, an approximate 400-foot by 1,000-foot cleared area, and wooded land. Based on the 226-pound NEW limit, there is a 2,000-foot quantity distance safety arc associated with the range.

The 2017 Phase 1 ORA indicates MC resulting from incomplete detonation would be concentrated in soils at the center of the area within and near the detonation pit. The lateral migration of MC could be occurring to some extent because of surface water runoff; however, it is unlikely this migration extends to the off-range locations. Additionally, limited MC is expected to be available for vertical migration from soils to groundwater through infiltration. Therefore, it is highly unlikely MC could migrate to the primary potable water source aquifer. No significant MC migration is anticipated; therefore, all exposure pathways were determined to be incomplete.

STA Assessment Overview

The Survival Training Area, covering approximately 57 acres, is located on the East Reservation. Training has occurred within the area since the 1990s. The area had no identifiable use prior to survival training. The area is used approximately once per month with three to 12 trainees. The area is approved for ground burst simulators, flares, and obscurant smoke usage.

The 2017 initial Phase 1 assessment concluded due to minimal munitions use and items being expended throughout the area there is no concentrated source of MC. All mechanisms were deemed unlikely to transport MC to off-range areas because limited MC is expected to be present. Due to no identified MC source and limited migration potential to off-range areas, no complete exposure pathway was identified for off-range receptors.

WTC Assessment Overview

The Warrior Training Center, covering approximately 40 acres, is located on the East Reservation near the northeast boundary of Barksdale AFB. Approximately 200 personnel use the area once a month for urban warfare training. Training includes expended smokes and dye marking rounds. The buildings associated with the training area were constructed in the late 1980s and early 1990s. This area had no identifiable use prior to its use as a training center.

The 2017 initial Phase 1 assessment concluded based on minimal use and munitions usage being contained within structures that all mechanisms would be unlikely to transport MC to off-range areas. Because there is no identified MC source and limited migration potential to off-range areas, no complete exposure pathway was identified for off-range receptors.

Claiborne Range Assessment Overview

Claiborne Range, operated and managed by the Air Force Reserves, is located within the Kisatchie National Forest (KNF) between Fort Polk and Alexandria, Louisiana. The Range is approximately 10 miles southwest of Alexandria in central Louisiana and 2 miles southwest of the Town of Castor Plunge. The Range currently encompasses approximately 7,800 acres, 672 of which are closed to public access (i.e., impact area). The Range currently includes one primary impact area containing several target sites and strafing pits. The impact area is surrounded by a buffer zone that extends primarily to the north, west, and south; and a safety fan area extends to the southeast. The buffer zone is open to the public and used for camping, hiking, hunting, and logging. A number of archeological sites have also recently been discovered in the buffer zone.

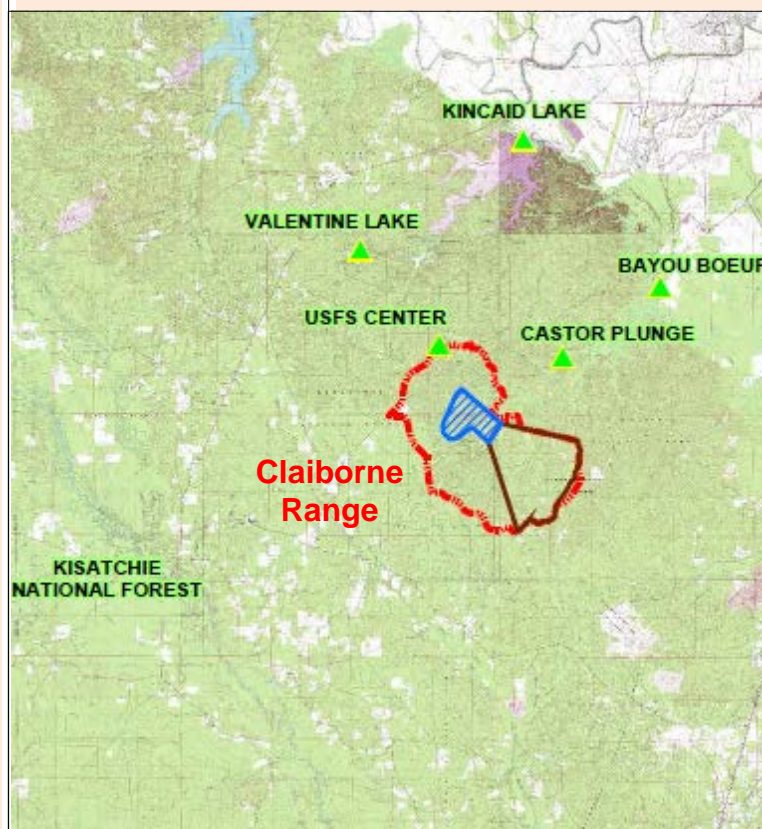
Camp Claiborne was a U.S. Army World War II training facility located within the southeastern portion of the Range and extended to approximately 5 miles southeast of the Range. Camp Claiborne was constructed in 1940 and deactivated in 1945. The lands comprising the Camp were returned to the U.S. Forest Service (USFS). The original USAF Claiborne Range was opened in September 1953, but was located approximately 2.5 miles south of the current Range

Claiborne Range Assessment Overview Continued

boundary. In 1972, the original Range was moved to its current location. At the time the Range occupied 27,500 acres; however, by 1991 the Range area had been reduced in response to mission changes. Former DoD lands were released back to the USFS. The Range was historically used by training squadrons from England AFB in Alexandria, Louisiana.

At present, the Claiborne Range is mainly used by the Air Force as well as other regional military installations (e.g., the Navy from the Naval Air Station Joint Reserve Base New Orleans). Airborne munitions used include only training rounds; no high explosive or incendiary rounds are authorized. Barksdale AFB Explosive Ordnance Disposal personnel conduct annual range clearance activities to address any munitions and explosives of concern identified on the Range.

In 2004, the USAF conducted a limited field study on air-to-ground ranges. During the study samples were collected at or near the range boundary along suspected MC migration routes. For Claiborne Range soil, surface water, and sediment samples were obtained and analyzed for metals, explosives, and perchlorate. All results were below detection limits



Claiborne Range Assessment Overview Continued

and/or below identified screening levels. The study found MC is not migrating to off-range locations.

In 2007 an assessment was completed. The effort included collection of surface water, sediment, and groundwater samples downgradient from the impact area as well as from upgradient locations. Samples were analyzed for explosives, metals, perchlorate, and white phosphorus. Groundwater level measurements indicate that shallow groundwater flows to the northeast. No MC were reported above screening levels in any of the groundwater, surface water, or sediment samples collected. It should be noted that one groundwater result for an explosive compound (RDX) had an estimated value equal to the screening level. However based on the results, no release or substantial threat of release of MC was identified and no unacceptable risks were observed.

In 2011 a Phase 2 ORA was finalized. The effort confirmed remnant MC are likely to be present in soils at the impact area which may be susceptible to migration through surface water/sediment and groundwater. Generally, shallow groundwater flows toward topographic lows, but regional flow has been demonstrated to be directed to the northeast. Surface water, sediment, and groundwater samples were collected at previously sampled locations and analyzed for MC of potential concern. Nitrobenzene and 2-nitrotoluene (2-NT) were reported in several monitoring wells at concentrations exceeding their respective screening levels. However, these explosive compounds were also detected, above screening levels, in the reference well (upgradient of the suspected source area). No other MC of potential concern were reported above their respective screening levels in surface water, sediment, or groundwater samples. The effort concluded, based on historical and current Range information, a release of MC to off-range areas from range activities appears to be improbable as there is no known documented use of MC of concern (nitrobenzene and 2-nitrotoluene) at the Range.

Claiborne Range Assessment Overview Continued

The 2017 a Phase 2 ORA was completed. The effort confirmed MC would likely be within surface or subsurface soil in and around the target areas including space surrounding the impact area as the majority of this area has been historically used for air-to-ground munitions training. Based on prior sampling results under the ORAP, potential migration through surface water was deemed unlikely as such no surface water or sediment samples were collected. As MC could leach from soils, groundwater samples were collected. Groundwater samples were analyzed for explosives, metals, and perchlorate. In the identified upgradient monitoring well one explosive compounds (2-NT) was detected at levels exceeding screening values. RDX and nitrocellulose were also detected but below screening values. Metals (chromium and lead) were also reported at concentrations above screening levels. The explosive compound, 2-NT, was also detected in downgradient wells and in crossgradient wells (on of which is off-range). The metals (chromium and lead) were only detected in two other on-range wells (crossgradient of the impact area) at concentrations exceeding screening levels.

The effort concluded an unknown upgradient source is likely present because several wells, including the upgradient well and crossgradient wells (to include an off-range well), are not located within the anticipated downgradient groundwater flow pattern of the impact area or the historical Claiborne range which is southeast of the current Range boundary. Additionally, with the reported use of only practice bombs, limited MC (explosive compounds) is expected to be available for vertical migration from soils to groundwater through infiltration. Therefore, no MC release was identified at Claiborne Range. No unacceptable risks were identified as detections are within an acceptable risk range.

It should be noted, the USAF, due to detections and a suspected unknown source has planned for an additional investigation at Claiborne Range.

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/>