



Remedial Investigation Former Camp Breckinridge Range Investigation Munitions Response Site

U.S. ARMY CORPS OF ENGINEERS

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Introduction

This fact sheet describes the status of the investigation of the former Camp Breckinridge Range Investigation Munitions Response Site (MRS) East of Morganfield, Kentucky. The Range Investigation MRS is a 20,766-acre area comprised of overlapping former ranges used from 1942-1962 for troop training and later Annual Field Training Support for summer National Guardsmen and Army Reserve Unit training and Army Units Special Field Training. It contained 33 former ranges (rifle, pistol, tank subcaliber, and machine gun small arms ranges, recoilless rifle ranges, grenade ranges, rocket ranges, demolition ranges, close combat ranges, and attack and assault courses) with direction of fire towards the center of the range complex. In addition, an 18-acre area of concern (the Mortar Round Site) is included because mortars were found in the area in 2006.



Use of Advanced Geophysical Sensors at the site
(Metal Mapper 2x2)

Formerly Used Defense Sites Program

The U.S. Army Corps of Engineers (USACE), Louisville District manages the former Camp Breckinridge Formerly Used Defense Sites (FUDS) project. Congress established the FUDS program in 1986 to address environmental concerns at properties that were previously under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Department of Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. USACE manages the FUDS program, which includes the Military Munitions Response Program (MMRP) that addresses FUDS where military munitions may be present.

Previous Investigations

Archive Search Report (ASR) (1994). An archive search was performed to research and analyze munitions used and recent discoveries of unexploded ordnance (UXO) and explosive items at the MRS. The report documented 136 munitions, many of which were high explosive projectiles, discovered in and around the former Camp Breckinridge from 1989-1993. The ASR declared the potential for explosive hazards over the entire 20,766-acre MRS.

Site Inspection (SI) (2007). A SI was performed to identify whether Munitions and Explosives of Concern (MEC) could be present onsite. For the SI, visual examination of areas of the site for evidence of munitions, cratering, and other features was performed. MEC was identified (two fuzed 60 millimeter [mm] mortars, two unfuzed 60mm mortars, and two unfuzed 81mm mortars). Surface soil samples were also collected and analyzed for munitions constituents (MCs) throughout the MRS. No human health concerns associated with MC were identified. Lead and zinc in surface soil was determined to potentially pose a hazard to ecological receptors.

Remedial Investigation/Feasibility Study

USACE conducted a remedial investigation (RI) for Range Complex No.1 MRS at the former Camp Breckinridge with data from 2017 to 2020. Of the 20,766-acre area comprising Range Investigation MRS, 8,795 acres were investigated and characterized. The remaining 11,971 acres were not investigated or characterized; and are not subject

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to the conclusions and recommendations of this study. The 11,971 acres were either in-eligible for current funding or inaccessible because access was not permitted by landowners. The remedial investigation was expanded beyond the MRS boundary to include an additional 838.8 acres for a total of 9,633.8 acres (hereafter referred to as the “investigation area”). The fieldwork consisted of a geophysical investigation using analog geophysical methods, digital geophysical mapping (DGM), and advanced geophysical classification (AGC) sensors. DGM was performed on 410-ft spaced transects within the investigation area (covering 209.6 miles) to locate subsurface anomalies which may indicate the presence of munitions or other metallic objects. Next, 100 percent DGM coverage areas (100 ft by 100 ft to 200 ft areas or “grids”) were surveyed and select anomalies were subject to AGC. In this phase, AGC sensors were used to predict whether subsurface anomalies matched specific munitions items. Targets were selected and investigated by digging with hand tools. The mapping of anomalies and investigation of anomalies during the RI was used to confirm the presence and extent of munitions use. MEC was rendered safe and recovered munitions debris (MD) was recycled offsite.

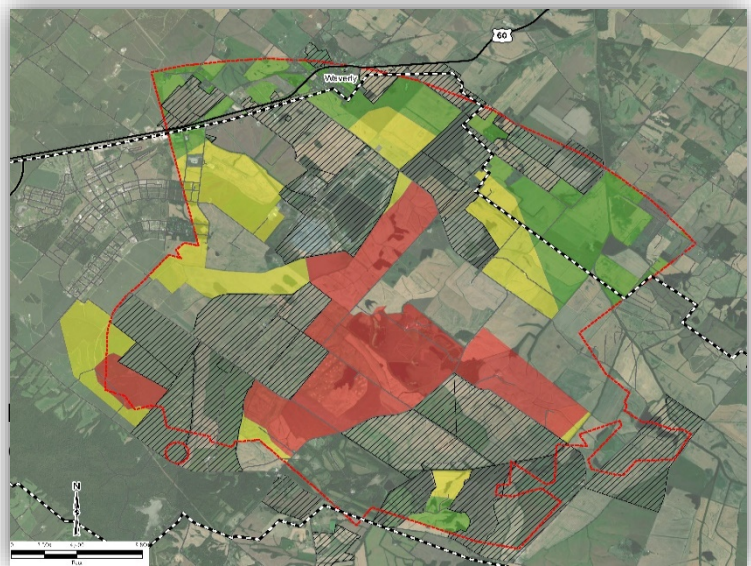
During the remedial investigation, 30 MEC items (60mm and 81mm mortars, a 37mm projectile, a 75mm projectile, and a MK2 hand grenade) and 1,261 pounds (lbs) of munitions debris (MD) were removed in transects and grids. In a 35-acre portion of the site, multiple MEC items were found and USACE acted to reduce risk. A Time Critical Removal Action (TCRA) was performed. In the TCRA, 1,534 MEC items 33,789 lbs of MD were removed. MEC and MD was found at up to 38 inches below ground surface. The intrusive results allowed the site to be divided into areas high, medium, and no munitions use: a High Use Area (HUA), Low Use Area (LUA), and No Evidence of Use (NEU) area. Soil, sediment, and surface water samples were also collected to evaluate whether compounds from munitions such as metals and explosives (called munitions constituents) may be present and if present, the concentrations were used to evaluate risk to human and ecological receptors. Sampling was performed in three phases. A total of 60 surface/subsurface soil samples in areas of high munitions densities and at historical small arms areas, 3 surface water, and 3 sediment samples were collected and analyzed for explosives and the metals antimony, copper, lead, and zinc. Tetryl antimony, copper, and lead were detected above ecological screening values in surface and subsurface soil, however, the risk assessment concluded that there is no unacceptable risk to human health or ecological receptors.

No further action was recommended for the NEU area. A feasibility study (FS) was performed to evaluate remedial alternatives in the HUA and LUA. Four alternatives were developed and evaluated to address risk from MEC:

- 1) Alternative 1- No Action (required for baseline comparison).
- 2) Alternative 2a - Focused Surface and Subsurface Removal (Analog Anomaly Reduction) and Land Use Controls (LUCs) - Surface clearance for MEC over the HUA and LUA; anomaly reduction in the HUA, AGC, and intrusive investigation for removal of MEC and MD from 0 to 3 ft below ground surface. The method for anomaly reduction is by analog geophysical methods. LUCs consisting of educational controls (public education)



60mm mortars (MEC)



would be necessary to minimize the likelihood of human interaction with MEC. Agricultural use of the property would continue without any modification. Five-Year Reviews would be conducted.

3) Alternative 2b- Focused Surface and Subsurface Removal (Sifting for Anomaly Reduction) and LUCs. Focused Surface and Subsurface Removal (Analog Anomaly Reduction) and Land Use Controls- Surface clearance for MEC over the HUA and LUA; anomaly reduction in the HUA, AGC, and intrusive investigation for removal of MEC and MD from 0 to 3 ft below ground surface. Method for anomaly reduction is by remote control excavator and mechanical screening soils and feeding through a magnet plant. LUCs would also apply.

4) Alternative 3-Complete Surface and Subsurface Removal (unlimited use/unrestricted exposure) - Surface clearance for MEC over the HUA and LUA; AGC over all areas, and intrusive investigation of targets of interest.

Proposed Plan

Following the RI/FS, Alternative 2a (Focused Surface and Subsurface Removal [Analog Anomaly Reduction] and Use Controls [LUCs]) is the selected Preferred Alternative for HUA and LUA. The Preferred Alternative for the NEU is no further action. The Preferred Alternative satisfies the remedial action objective by removing surface and subsurface MEC in the HUA, removing surface MEC in the LUA, and providing LUCs to manage remaining explosive hazards in the LUA. Alternative 2a also is protective of human health and the environment, complies with state and federal requirements, and provides the best combination of primary balancing attributes (reduction of toxicity, mobility or volume through treatment; short-term effectiveness, implementability, and cost) that allow for the anticipated current and future land use.

Public Involvement

Public involvement is a key part of the decision making process. The public has the opportunity to comment on the proposed plans for the Range Investigation MRS HUA, LUA, and NEU area. Comments will be incorporated into the Decision Documents for the MRS. For more information you may contact the Louisville District Public Affairs Specialist, Charles Delano at (502) 315-6769, Charles.W.Delano@usace.army.mil or visit: (<https://go.usa.gov/xAFbZ>).

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