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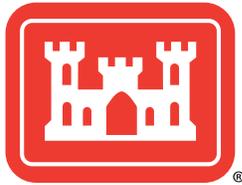
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**LAND USE CONTROLS IMPLEMENTATION PLAN  
FOR RICOCHET AREA MUNITIONS RESPONSE SITE  
IN STATE GAME LANDS 211, PENNSYLVANIA**

Contract No.: W912DR-09-D-0006

**January 2014**

*Prepared for:*



**U.S. Army Corps of Engineers  
Baltimore District  
Baltimore, MD 21203**



**Army National Guard Directorate  
Arlington, VA 22204**

*Prepared by:*



**Weston Solutions, Inc.  
West Chester, PA 19380**

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Delivery Order No.: 0009

*Prepared For:*



**U.S. ARMY CORPS OF ENGINEERS  
BALTIMORE DISTRICT**

10 South Howard Street

Baltimore, MD 21203



**ARMY NATIONAL GUARD DIRECTORATE**

111 South George Mason Drive

Arlington, VA 22204

and

**PENNSYLVANIA ARMY NATIONAL GUARD**

Department of Military and Veterans Affairs

Fort Indiantown Gap Military Reservation

Annville, PA 17003

*Prepared By:*

**WESTON SOLUTIONS, INC.**

1400 Weston Way

West Chester, PA 19380

January 2014

W.O. 03886.551.009

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## LIST OF ACRONYMS AND ABBREVIATIONS

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ARNG	Army National Guard
CENAB	USACE, Baltimore District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CTT	closed, transferred, and transferring
DERP	Defense Environmental Restoration Program
DMM	discarded military munitions
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FIG	Fort Indiantown Gap
FS	Feasibility Study
ft	feet
HRR	Historical Records Review
IC	institutional control
LS	lump sum
LUCIP	Land Use Controls Implementation Plan
LUC	land use control
MC	munitions constituents
MD	munitions debris
MEC HA	Munitions and Explosives of Concern Hazard Assessment
MEC	munitions and explosives of concern
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
N/A	not applicable
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PAARNG	Pennsylvania Army National Guard
PADEP	Pennsylvania Department of Environmental Protection
PGC	Pennsylvania Game Commission
PP	Proposed Plan
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SGL	State Game Lands
SI	Site Inspection
U.S.	United States
USACE	U.S. Army Corps of Engineers
UXO	unexploded ordnance
WESTON®	Weston Solutions, Inc.

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## GLOSSARY OF TERMS

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**Administrative Record** – A collection of documents containing all the information and reports generated during the entire phase of investigation and cleanup at a site, which are used to make a decision on the selection of a response action under CERCLA. This file is to be available for public review and a copy maintained near the site.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)** – A Federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA) to investigate and clean up hazardous substances.

**Construction Support** – Assistance provided by the Department of Defense Explosive Ordnance Disposal or unexploded ordnance (UXO)-qualified personnel during intrusive construction activities on property known or suspected to contain UXO, other munitions that may have been subject to abnormal environments (e.g., discarded military munitions), or munitions constituents in high enough concentrations to pose an explosive hazard. This assistance is provided to ensure the safety of personnel or resources from any potential explosive hazard. (Department of the Army, 2005)

**Discarded Military Munitions (DMM)** – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded explosive ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 U.S. Code [U.S.C.] 2710(e)(2))

**Explosive Safety Risk** – The probability for a munitions and explosives of concern (MEC) item to detonate and potentially cause harm to people, property, the environment, or operational capability and readiness as a result of human activities. An explosive safety risk exists if a person can come into contact with a MEC item and act upon it to cause detonation. The potential for an explosive safety risk depends on the presence of three critical elements: a source (presence of MEC), a receptor or person, and an interaction between the source and the receptor (such as

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## GLOSSARY OF TERMS (CONTINUED)

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picking up the item or disturbing the item by plowing). There is no explosive safety risk if any one element is missing.

**Feasibility Study (FS)** – An evaluation of potential remedial technologies and treatment options that can be used to clean up a site.

**Land Use Controls (LUCs)** – Physical, legal, or administrative mechanisms that restrict the use of, or that limit access to, contaminated property to reduce risk to human health and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination and physical barriers to limit access to property, such as fences or signs. The legal mechanisms are generally the same as those used for institutional controls (ICs) as discussed in the National Contingency Plan. ICs are a subset of LUCs and are primarily legal mechanisms imposed to ensure the continued effectiveness of land use restrictions imposed as part of a remedial decision. Legal mechanisms include restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and ordinances, construction permitting, or other existing land use management systems that may be used to ensure compliance with use restrictions. (*Management Guidance for the Defense Environmental Restoration Program*, DoD, 2012)

**Military Munitions** – All ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the DoD, the U.S. Coast Guard, the Department of Energy, and the Army National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear

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## GLOSSARY OF TERMS (CONTINUED)

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weapons program of the Department of Energy after all required sanitization operations under 42 U.S.C. 2011 (Atomic Energy Act) have been completed. (10 U.S.C. 2710(e)(3)(A) and (B))

**Munitions Constituents (MC)** – Any materials originating from UXO, DMM, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (10 U.S.C. 2710(e)(3))

**Munitions Debris (MD)** – Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization or disposal. (Department of the Army, 2005)

**Munitions and Explosives of Concern (MEC)** – This term distinguishes specific categories of military munitions that may pose unique explosive safety risks, including: (1) UXO, (2) DMM, and (3) munitions constituents (e.g., trinitrotoluene, Royal Demolition Explosive [RDX]) present in high enough concentrations to pose an explosive hazard. (Department of the Army, 2005)

**Munitions Response Site (MRS)** – A discrete location within a munitions response area that is known to require a munitions response. (Department of the Army, 2005)

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** – The Federal regulation that implements CERCLA. The NCP was revised in February 1990. The purpose of the NCP is to provide the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, or contaminants.

**Proposed Plan (PP)** – A document that presents a proposed cleanup alternative, rationale for the preference, and requests public input regarding the proposed alternative.

**Record of Decision (ROD)** – A decision document used to select and document the remedy selection decision. The ROD documents the remedial action plan for a site or operable unit and serves the following three basic functions: (1) certifies that the remedy selection process was carried out in accordance with CERCLA and, to the extent practicable, with the NCP; (2) describes the technical parameters of the remedy, specifying the methods selected to protect

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## GLOSSARY OF TERMS (CONTINUED)

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human health and the environment, including treatment, engineering, and IC components, as well as cleanup levels; and (3) provides the public with a consolidated summary of information about the site and the chosen remedy, including the rationale behind the selection.

**Recurring Reviews** – Review required by CERCLA no less than every 5 years to assure that human health and the environment are being protected by the selected remedial action, where the remedial action does not allow for unlimited use and unrestricted exposure.

**Remedial Action Objective (RAO)** – Objectives established for remedial actions to guide the development of alternatives and focus the comparison of acceptable remedial action alternatives, if warranted. RAOs also assist in clarifying the goal of minimizing risk and achieving an acceptable level of protection for human health and the environment.

**Remedial Investigation (RI)** – A study of a site that provides information supporting the evaluation for the need for a remedy and/or the selection of a remedy for a site where hazardous substances have been disposed of. The RI identifies the nature and extent of contamination at the facility.

**Removal Action** – The cleanup or removal of released hazardous substances from the environment. Such actions may be taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances; the disposal of removed material; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under Section 9604(b) of this title, and any emergency assistance which may be provided under the Disaster Relief and Emergency Assistance Act [42 U.S.C. 5121 et seq.] The requirements for removal actions are addressed in 40 CFR §§300.410 and 330.415. The three

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## GLOSSARY OF TERMS (CONTINUED)

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types of removals are emergency, time-critical, and non-time-critical removals. (*DoD Management Guidance for the DERP*, DoD, 2012)

**Unexploded Ordnance (UXO)** – UXO are military munitions that:

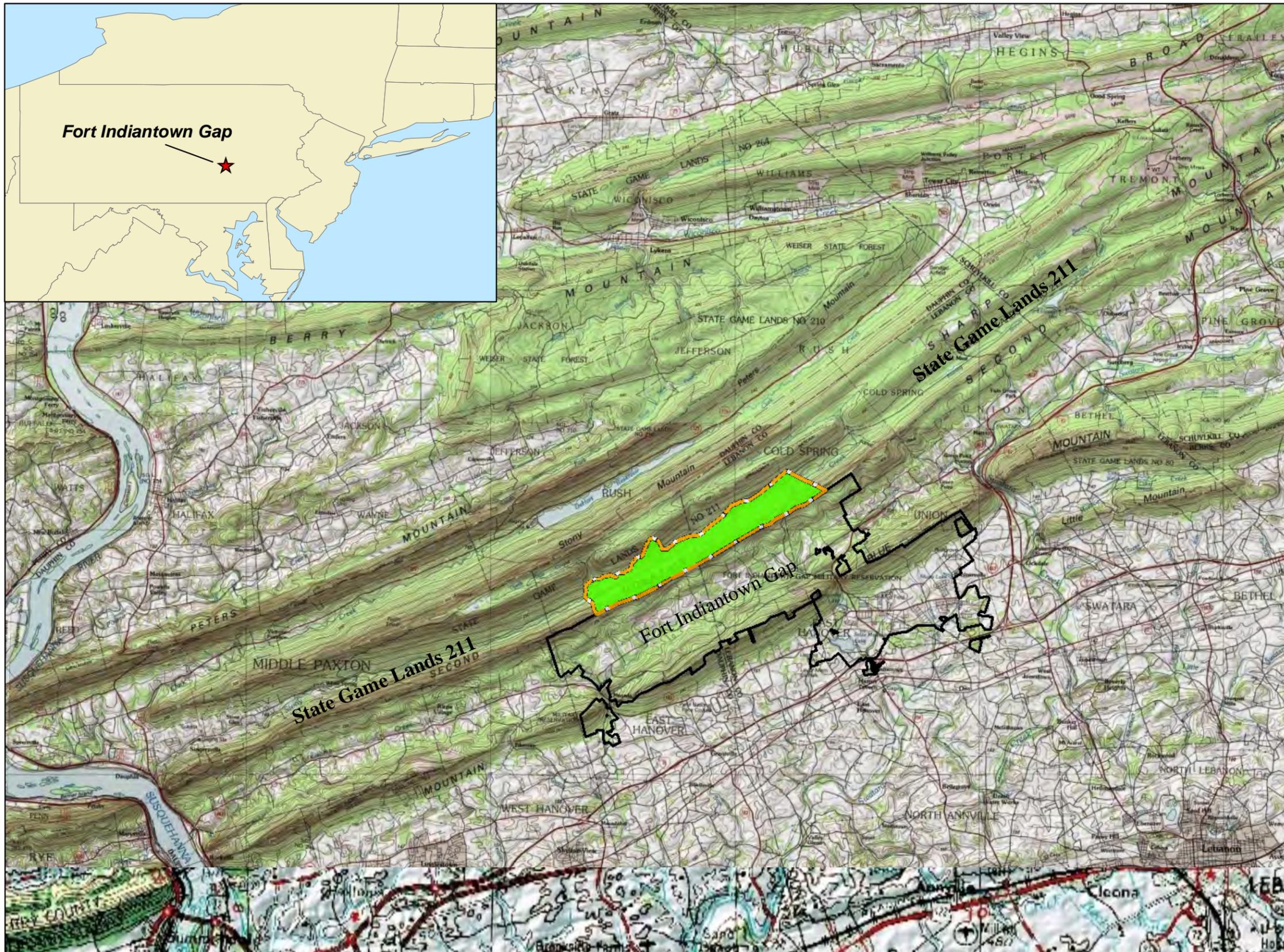
- Have been primed, fused, armed, or otherwise prepared for action.
- Have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material.
- Remain unexploded, whether by malfunction, design, or any other cause. (10 U.S.C. 101(e)(5))

*Note to the reader: Definitions of bold-faced terms in the text are provided in the “Glossary of Terms” located at the front of this document.*

## 1. PURPOSE

The purpose of the Land Use Controls Implementation Plan (LUCIP) is to detail the approach for providing containment and controls/**land use controls** (LUCs) for the Ricochet Area **Munitions Response Site** (MRS) (FTIG-003-R-01) located in State Game Lands (SGL) 211, Pennsylvania (see **Figure 1-1**). The Ricochet Area MRS (see **Figure 1-2**) is one of the sites included in the Defense Environmental Restoration Program (DERP) – Military Munitions Response Program (MMRP). The remedy presented in the May 2013 **Record of Decision** (ROD) was selected in accordance with the **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA) (42 U.S.C. 960 et seq.) of 1980 and its amendments, and to the extent practicable, the **National Oil and Hazardous Substances Pollution Contingency Plan** (NCP) (40 CFR 300). This decision is based on the MRS investigation documents contained in the **Administrative Record** for the Ricochet Area MRS. The ROD was issued by the Army National Guard (ARNG), the lead agency managing remediation of **munitions and explosives of concern** (MEC) and **munitions constituents** (MC) at the Ricochet Area MRS, in accordance with CERCLA as required by DERP.

The Ricochet Area MRS is not included on the National Priorities List promulgated under CERCLA and the NCP, and maintained by the United States Environmental Protection Agency (EPA). Under DERP-MMRP, ARNG is establishing containment and controls for the MRS with regulatory support provided by the Pennsylvania Department of Environmental Protection (PADEP) and the Pennsylvania Game Commission (PGC).



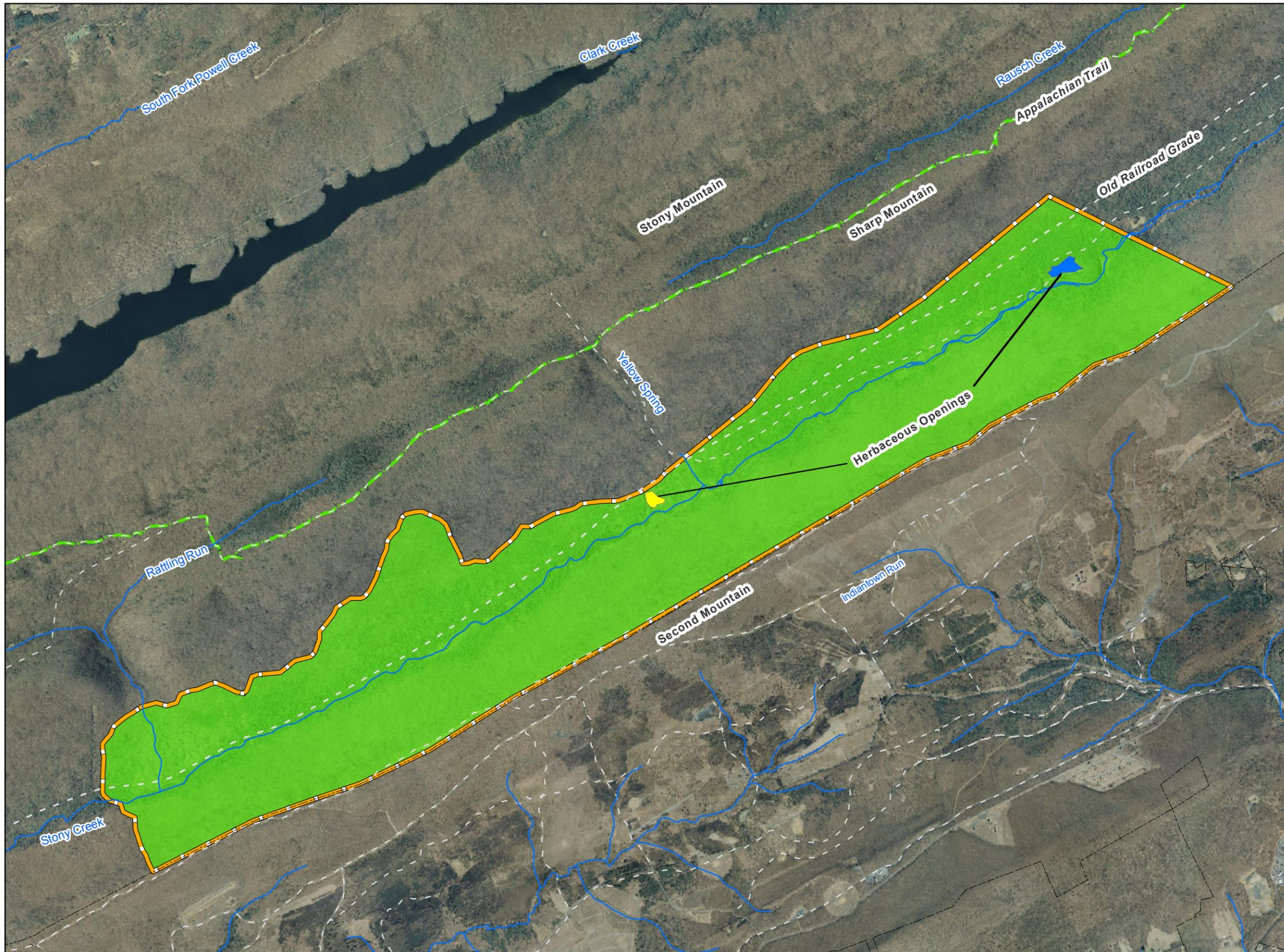
**Legend**

- FIG Installation Boundary
- █ Ricochet Area MRS Boundary

Source: PA USGS 7.5 minute Topographic Maps, 1996



Figure 1-1  
Ricochet Area and  
Fort Indiantown Gap, Annville, PA



**Legend**

- FIG Installation Boundary
- Water
- Appalachian Trail
- Trails
- ▭ Ricochet Area MRS (3,262 Acres)
- Herbaceous Openings**
- ▭ Cold Spring (6.49 Acres)
- ▭ Yellow Spring (3.78 Acres)

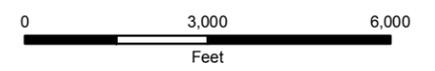


Figure 1-2  
 MRS Location Map  
 Ricochet Area MRS  
 State Game Lands 211, PA

## 2. SITE CONDITIONS AND BACKGROUND

### 2.1 SITE DESCRIPTION

The Ricochet Area MRS is 3,262 acres and is located in SGL 211, which is owned by the Commonwealth of Pennsylvania and managed by PGC, and lies within East Hanover Township in Dauphin County and Cold Spring Township in Lebanon County (see **Figure 1-2**).

The southern boundary of the Ricochet Area MRS abuts the Fort Indiantown Gap (FIG) Military Reservation property, located in Annville, PA, and follows the ridgeline of Second Mountain. The northern MRS boundary is just north of the old railroad grade and parallel to Stony Creek. The east and west boundaries correspond to the area documented as Restricted Airspace R5802A or as Restricted Area R5802A in the United States (U.S.) Army Garrison Safety Range Regulation (Army Regulation 385-1) for FIG (URS, 2008). This regulation describes the area as “a fall area for spent ordnance which ricochets north of Second Mountain” (U.S. Army Garrison, 1995).

Past **military munitions** training activities conducted at FIG, adjacent to the southern boundary of the Ricochet Area MRS, resulted in MEC contamination within the MRS boundaries.

### 2.2 CURRENT AND FUTURE USE

Current land uses include recreational activities such as fishing, hunting, hiking, running, bicycle riding, snow shoeing, dog sledding, cross-country skiing, snowmobiling, horseback riding, Fall Drive-Thru, and bird watching. The Horse-Shoe Trail, Yellow Spring Trail, and the old railroad grade traverse the MRS.

Non-recreational activities within the MRS include trail, game, and forest maintenance performed by PGC employees or their contractors and organizations. The PGC plan for current and future land use includes continued recreational use, road construction and maintenance, special wildlife area management, timber management, prescribed burns, and preservation area maintenance. Regular maintenance is performed at the Yellow Spring and Cold Spring herbaceous openings maintained as food plots for wild game such as turkey and deer. The Cold Spring herbaceous opening is approximately 7 acres, and the Yellow Spring herbaceous opening

is approximately 4 acres. The herbaceous openings are prepared for planting by using agricultural tractors, plows, and disking. Intrusive depth for this work is estimated at 1 foot.

Timber harvests are also periodically conducted within SGL 211. In general, there is a timber harvest every 4 to 5 years, but the frequency or schedule can vary based on timber conditions. The locations of harvests are selected based on timber surveys/inventories to identify manageable timber and areas where potential habitat improvement projects will be completed.

Following the selection of harvestable areas, timber harvests are completed in a multiple-phase process. Timbering plans are first developed to identify the boundaries of the harvestable areas, access roads, log landings, and potential skidding trails. The timber harvest area, if needed, is surface sprayed with herbicides to kill undesirable plant species in the understory. The spraying is usually performed 1 year in advance of timber harvesting. The next step is the construction of access roads to the designated timber harvest areas using heavy equipment, including bulldozers and excavators. These access roads are generally up to a maximum of 7,500-feet (ft) long and up to 12-ft wide. The roads are constructed with required erosion and sedimentation controls, including a 2-ft shoulder on either side of the road for a total width of 16 ft. The actual placement of the road can vary up to 10 ft on either side of the centerline of the chosen pathway to avoid difficult terrain and other obstacles. The road construction is estimated to take 2 weeks.

There may be four to six log landings up to 0.75 acre in size established to access and manage the harvestable timber. The log landings are graded with bulldozers to allow a level staging area to sort and load the harvested timber for transport. Subsurface disturbance is typically based on the terrain and the placement of access roads and log landings. The depth of intrusive work is based on the topography of the location. In some areas, a cut and fill approach is used to create a log landing. On sites of that nature, the uphill side could have a 4-ft to as much as a 10-ft sloped bank, and the low side would be filled with the cut material. Water would be drained from the upslope side by use of a swale. All disturbed areas are seeded immediately following construction.

The last phase in the timber harvesting process is the actual timbering activities and loading of harvested timber. Timber is cut and dragged along established skidding trails to the designated log landings. Intrusive work associated with this phase is the cutting and dragging of trees by

tracked vehicles along skidding trails to the designated log landings. The timber contract will run for approximately a 2-year time period, which is the window for the contractor to construct roads and log landings, harvest the designated trees, and retire the harvest site. Retirement of the harvest site will include grading of the access roads (existing and new), grading of the log landings, grading and construction of water bars on the skid trails, and seeding of all designated log landings.

### 2.3 MMRP ACTIONS TO DATE

ARNG and Pennsylvania Army National Guard (PAARNG) conducted an inventory of closed, transferred, and transferring (CTT) military ranges and defense sites at FIG in 2003. The Ricochet Area MRS was identified as MMRP eligible. The next phase of the CERCLA process at FIG was the Site Inspection (SI).

The SI was completed in a two-phase approach. The Historical Records Review (HRR) (URS, 2007) was the initial step in the MMRP SI. During the HRR, records searches were performed to supplement the information gathered during the CTT and to facilitate decision-making processes to determine where SI field work should take place.

Field inspections were completed in 2008 (URS, 2008) and included magnetometer-assisted visual surveys and the collection of eight soil samples at pre-determined locations within the MRS. No MEC or MC was detected during the SI. However, based on the limited scope of the SI and Explosive Ordnance Disposal Unit reports confirming that MEC had been previously recovered in the Ricochet Area MRS, a recommendation was made to further evaluate the MRS for MEC and MC during the **Remedial Investigation** (RI) phase of the CERCLA process.

An **RI/Feasibility Study** (FS), completed in accordance with the NCP [40 CFR 300.430(d) and (e)], was initiated in 2009 and concluded in 2012. The RI field work was conducted between March 2010 and May 2010 to characterize the nature and extent of MEC and MC on the ground surface and subsurface of the Ricochet Area MRS (WESTON, 2011). The sources of data evaluated as part of the RI to characterize contamination at this MRS included historical information and archival searches, results of the RI field effort, site layouts based on historical maps and photos, and inspection of terrain and structures. The data collected during the field

investigation and the conclusions drawn in the RI regarding hazards and risks to human health and the environment were used to prepare the FS, finalized in February 2012 (WESTON, 2012a).

During the RI, all MEC and **munitions debris** (MD) were recovered within a 3,262-acre area between the Stony Creek Valley and the ridgeline of Second Mountain. No evidence of MEC or MD was found from the southern slope of Sharp Mountain extending north to the Stony Mountain ridgeline. As a result, the Ricochet Area MRS boundary was delineated during the RI to include only the area where MEC and MD were encountered. The new MRS is 3,262 acres. Within the Ricochet Area MRS, an area exhibiting a higher probability to encounter MEC was identified as 1,334 acres in size and exhibits estimated densities greater than 0.5 MEC and MD per acre (see **Figure 2-1**). The Cold Spring herbaceous opening is the location of a former artillery firing point. At the Cold Spring herbaceous opening, four **discarded military munitions** (DMM) (MK-2A4 primers) and firing point debris (e.g., fuze shipping containers, 155mm rotating band covers, and 155mm lifting lugs) were recovered during the RI field work. MC was also evaluated during the RI, and no risk associated with MC was identified for the Ricochet Area MRS. The results of the RI are discussed in greater detail in the *Final Remedial Investigation Report for the Ricochet Area Munitions Response Site, State Game Lands 211, Pennsylvania* (WESTON, 2011).

The FS included development of **Remedial Action Objectives** (RAOs), followed by the development and evaluation of remedial alternatives to address MEC in the MRS to protect human health and the environment. Five remedial alternatives were developed for the MRS, including no action, containment/controls, and variations of combination remedies (removal with containment/controls). These alternatives provided a range of options for comparison in their ability to meet the nine criteria prescribed by the NCP [40 CFR 300.430(e)(9)(iii)(A)-(I)] that should be considered for remedy selection.

The results of the FS were presented in the *Final Feasibility Study, Ricochet Area Munitions Response Site, State Game Lands 211, Pennsylvania* (WESTON, 2012a), and summarized in the *Final Proposed Plan, Ricochet Area Munitions Response Site, State Game Lands 211,*

*Pennsylvania* (WESTON, 2012b). As required by the NCP [40 CFR 300.800(a)], both technical documents are on file as part of the Administrative Record.

The **Proposed Plan** (PP) was finalized in June 2012, and submitted with an opportunity for public comment (7 June through 6 July 2012). All public comments received were considered prior to selecting the final remedy. The recommended alternative was identified as Alternative 4, Focused Surface and Subsurface Removal of Munitions with Containment and Controls.

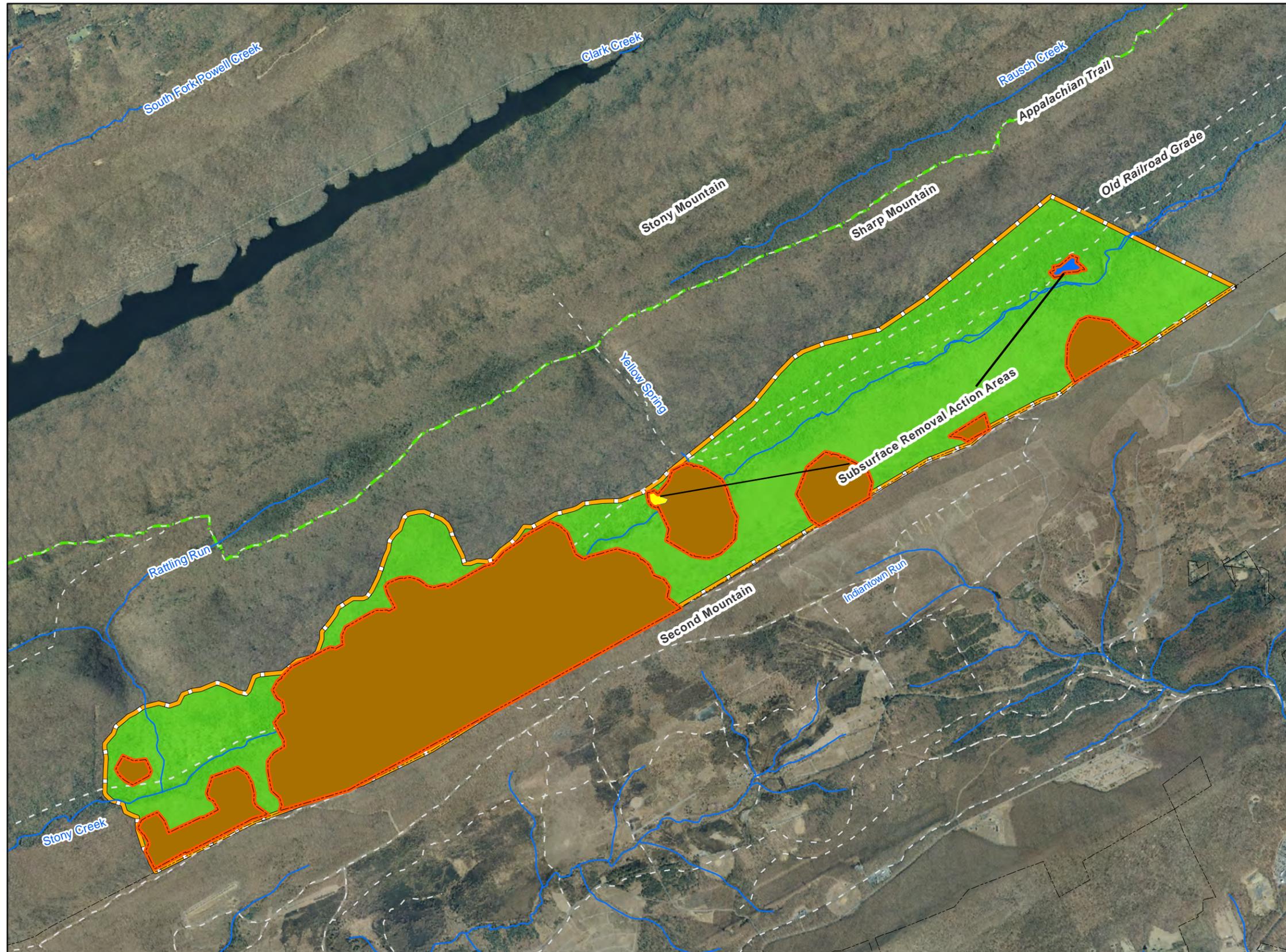
Following the PP, ARNG responded in writing to comments in a responsiveness summary that became part of the May 2013 ROD (WESTON, 2013). ARNG has determined that the remedial alternative selected in the ROD for the Ricochet Area MRS is necessary to protect public health, welfare, and/or the environment from the hazards associated with MEC, based on the current and intended future use of the MRS. PGC and PADEP concurred with this determination.

The selected remedial action is Alternative 4, and consists of three components:

- Focused Surface Removal of MEC – Removal of MEC and MD detected on the ground surface in the area identified as exhibiting a higher probability of encountering MEC and MD (**Figure 2-1**) within the Ricochet Area MRS.
- Subsurface removal of MEC – Removal of surface and subsurface MEC and MD on 11 acres of the Yellow Spring and Cold Spring herbaceous openings due to the increased human activity in these locations.
- Containment and controls will include the following:
  - Signs.
  - Notification during permitting and contracting.
  - Brochures/fact sheets.
  - Information packages to public officials and emergency management agencies.
  - Awareness video.
  - Classroom education.
  - Internet website.
  - Appalachian Trail Guide editorials.
  - **Unexploded ordnance (UXO)** construction support activities.
  - **Recurring reviews** completed by ARNG.

## **2.4 ROLE OF FEDERAL, STATE, AND LOCAL AUTHORITIES**

ARNG is the lead agency for investigating, reporting, making cleanup decisions, and taking cleanup actions regarding MEC at the MRS, with technical support provided by the U.S. Army Corps of Engineers (USACE), Baltimore District (CENAB). ARNG is responsible for funding the efforts at the Ricochet Area MRS. PADEP is the lead regulatory agency. PGC manages the lands on behalf of the Commonwealth of Pennsylvania.



**Legend**

- FIG Installation Boundary
- Water
- Appalachian Trail
- Trails
- ▭ Ricochet Area MRS (3,262 Acres)
- ▭ ROD Selected Removal Action Areas
- Subsurface Removal Action Areas**
- ▭ Cold Spring (6.49 Acres)
- ▭ Yellow Spring (3.78 Acres)
- Surface Removal Action Areas**
- ▭ Densities Greater than 0.5
- ▭ MEC/MD Per Acre (1,334 Acres)

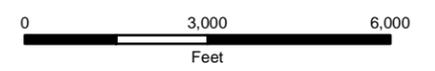


Figure 2-1  
 ROD Selected Removal Action Areas  
 State Game Lands 211, PA

### 3. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Based on the screening-level risk assessment completed in the RI, MC, including metals and explosive compounds, was not detected at concentrations that pose an unacceptable risk to human health or the environment. Therefore, the only risk considered at the Ricochet Area MRS is explosive hazards associated with MEC.

An explosive hazard is the probability for a MEC item to detonate and potentially cause harm because of human activities. An explosive hazard exists if a person can come into contact with a MEC item and act upon it to cause detonation. The potential for **explosive safety risk** depends on the presence of three critical elements: a source (presence of MEC), a receptor (person), and interaction between the source and receptor (such as picking up the item or disturbing the item). There is no explosive safety risk if any one element is missing.

Explosive hazards for the Ricochet Area MRS were evaluated in accordance with the 2008 *Interim Munitions and Explosives of Concern Hazard Assessment Methodology* (MEC HA) (EPA, 2008), designed to be used as the CERCLA hazard assessment methodology for MRSs where there is an explosive hazard from the known or suspected presence of MEC. The MEC HA was used to evaluate the baseline hazard associated with the MRS based on the nature and extent of MEC and exposure risks related to the current use identified during the RI. Subsequently, the MEC HA methodology was used to facilitate the evaluation of remedial alternatives by adjusting the input parameters to account for the potential effects of remedial alternative implementation.

Based on the current use scenario, the Ricochet Area MRS was assigned a baseline Hazard Level Category of 3. This category indicates that the MRS has a moderate hazard potential based on surface and near surface MEC and MD, coupled with exposure limited to a low number of contact hours by the public and maintenance personnel.

### 3.1 RISK TO HUMAN HEALTH AND THE ENVIRONMENT

The Selected Remedy, Alternative 4, will protect public health and welfare through mitigation of hazards to public health and welfare from exposure to potential residual MEC. This alternative will provide protection through the following activities:

- Removal of surface and subsurface MEC from focused areas of the MRS determined to pose the greatest risk to potential receptors due to the nature and extent of MEC identified within the MRS and the current land use.
- Education of current users of the area regarding the potential existence of MEC, and its recognition and avoidance; and the provision of UXO construction support for intrusive activities (i.e., timber management activities).

Threats to the environment are not anticipated while the suspected MEC remains in place. The ecological risk assessment concluded that the potential risk from MC in soil to populations (i.e., plants and wildlife) is low.

## 4. SELECTED RECORD OF DECISION LUC ACTIONS AND ESTIMATED COSTS

### 4.1 SELECTION OF ROD LUC ACTIONS

Detailed documentation describing the development of each of the five alternatives with the results of the detailed and comparative analyses conducted as part of the FS are available for review in the Administrative Record [see *Final Feasibility Study, Ricochet Area Munitions Response Site, State Game Lands 211, Pennsylvania* (WESTON, 2012a)]. In the FS, the alternatives were evaluated and compared in relation to the nine NCP criteria prescribed for remedy selection in accordance with CERCLA.

The selected remedy for the Ricochet Area MRS is Alternative 4 – Focused Surface and Subsurface Removal of MEC with Containment and Controls. Under Alternative 4, MEC detected either fully or partially exposed at the ground surface will be removed in areas with the highest probability for encountering MEC. The Yellow Spring and Cold Spring herbaceous openings within the MRS, which are planted with forages and regularly maintained by PGC personnel as feeding plots for wild game, will undergo actions to remove MEC in the subsurface to the depth of instrument detection. Removal activities will be focused on these herbaceous openings due to the increased intrusive activities in these locations. This alternative reduces exposure risks to the public and PGC personnel. In addition, containment and controls, including MEC **construction support** as needed during timber management activities, will be implemented to reduce exposure to any MEC remaining after the **removal action**.

#### 4.1.1 Description of LUCs

In general, all organizations interviewed for the FS, including PGC and the Appalachian Trail Conservancy, expressed an interest/willingness to participate in containment and controls. Containment and controls recommended for the Ricochet Area MRS include the following:

- Signs.
- Notification during permitting and contracting.
- Brochures/fact sheets.
- Information packages to public officials and emergency management agencies.
- Awareness video.

- Classroom education.
- Internet website.
- Appalachian Trail Guide editorials.
- UXO construction support activities.
- Recurring reviews completed by ARNG.

It is estimated that over the course of 30 years, six UXO construction support events will be needed to support timbering activities within the Ricochet Area MRS. Each UXO construction support event would last approximately 2 weeks and would support the construction of access roads, building of log landings, and soil moving activities.

CERCLA, Section 121(c), and Section 300.430(f)(4)(ii) of the NCP require the review of remedial actions no less than every 5 years to ensure that human health and the environment are being protected. Recurring reviews (see Subsection 5.3.2) for MEC remedial actions determine whether a remedial action continues to minimize explosives safety risks and continues to be protective of human health, safety, and the environment, and provide an opportunity to assess the applicability of new technology for addressing previous technical impracticability determinations. Because the selected alternative for the MRS does not allow for unlimited use and unrestricted exposure, recurring reviews will be completed by ARNG at least every 5 years.

#### **4.1.2 Contribution to Remedial Performance**

The containment and controls will reduce the possibility of direct contact with MEC and will thus reduce the exposure and safety risk to humans at the MRS. However, action will be taken to remove or remediate MEC at the Ricochet Area MRS. Therefore, residual risk from MEC will be reduced on-site.

#### **4.1.3 Project Schedule**

The major milestones for the LUCIP project are summarized in **Table 4-1**.

**Table 4-1 Estimated Project Schedule for LUCs**

Phase	Date
Draft LUCIP	August 2013
Draft Final LUCIP	November 2013
Final LUCIP	January 2014
Milestone Presentation	February 2014
Implementation of Containment and Controls	Summer 2014

## 4.2 ESTIMATING COSTS AND LUC FUNDING

Implementing the LUCs at the Ricochet Area MRS is estimated to cost \$154,596 in the first year (2013), \$10,065 (present value cost) for the first 5-year review, and \$6,765 (present value cost) every fifth year for the following 25 years. The program is projected to continue through FY2044. **Table 4-2** summarizes the costs of LUCs for the Ricochet Area MRS. The basis of these estimated costs is shown in detail in the Final ROD (WESTON, 2013).

**Table 4-2 Cost Estimate for Containment and Controls**

<b>Ricochet Area MRS Containment and Controls</b>									
<b>CAPITAL COST:</b>									
<u>Bid Item No.</u>	<u>Description</u>	<u>QTY</u>	<u>Unit</u>	<u>Team Production (Units/Day)</u>	<u># Teams</u>	<u>Duration (Weeks)</u>	<u>Weekly Cost Per Team</u>	<u>Total</u>	
0100	Work Plans	0.50	LS	N/A	N/A	N/A	\$99,000	\$49,500	
0110	Explosives Safety Submission	0.50	LS	N/A	N/A	N/A	\$38,500	\$19,250	
0800	Containment and Controls	1.00	LS	N/A	N/A	N/A	\$42,350	\$42,350	
	Sub-Total								\$111,100
	Contingency	15%							\$16,665
	Sub-Total								\$127,765
	Infrastructure Improvements	2%							\$2,555
	Project Management	5%							\$6,388
	Remedial Design	8%							\$10,221
	Construction Management	6%							\$7,666
									<b>Total Capital Cost</b>
									<b>\$154,596</b>
<b>PERIODIC COST:</b>									
	<u>Description</u>			<u>Year</u>	<u>QTY</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total</u>	
0900	Containment and Controls - Annual Cost			5 - 30	1	LS	\$1,265	\$1,265	
1000	Five Year Review - First Review			5	1	EA	\$8,800	\$8,800	
1010	Five Year Review - Years 10, 15, 20, 25 & 30			10 - 30	1	EA	\$5,500	\$5,500	
1100	Four to Five Year UXO Construction Support			5 - 30	0	EA	\$24,072	\$0	

**Table 4-2 Cost Estimate for Containment and Controls (Continued)**

<b>Ricochet Area MRS Containment and Controls (continued)</b>						
<b>PRESENT VALUE ANALYSIS:</b>						
<u>Cost Type</u>	<u>Year</u>	<u>Total Cost</u>	<u>Total Cost Per Year</u>	<u>Discount Factor (%)</u>	<u>Present Value</u>	
Capital Cost	0	\$154,596	\$154,596	1	\$154,596	
Periodic Cost	5	\$10,065	\$10,065	0.854	\$8,596	
Periodic Cost	10	\$6,765	\$6,765	0.737	\$4,986	
Periodic Cost	15	\$6,765	\$6,765	0.633	\$4,282	
Periodic Cost	20	\$6,765	\$6,765	0.543	\$3,673	
Periodic Cost	25	\$6,765	\$6,765	0.467	\$3,159	
Periodic Cost	30	\$6,765	\$6,765	0.400	\$2,706	
		\$198,486				\$181,998
<b>Total Present Value of Alternative</b>						<b>\$181,998</b>

**Notes:**

EA = each, LS = lump sum, N/A = not applicable

## 5. IMPLEMENTING LAND USE CONTROLS

### 5.1 INTRODUCTION

This section presents the actions necessary to implement in FY2014, maintain from FY2015 through termination, and terminate (in approximately FY2044) the LUCs at Ricochet Area MRS. Subsection 5.1.1 provides a general overview of the LUCs. Subsection 5.2 describes the specific actions needed for the implementation and maintenance of individual LUC components. Subsection 5.3 presents monitoring, recurring reviews, and records management. These descriptions are based on the guidelines for implementing LUCs found in *DoD Policy on Land Use Controls Associated with Environmental Restoration Activities* (DoD, 2001).

#### 5.1.1 Selected LUCs

The following LUC components were established by the ROD (WESTON, 2013) and will be implemented at the Ricochet Area MRS:

1. Signs.
2. Notification during permitting and contracting.
3. Brochures/fact sheets.
4. Information packages to public officials and emergency management agencies.
5. Awareness video.
6. Classroom education.
7. Internet website.
8. Appalachian Trail Guide editorials.
9. UXO construction support activities.
10. Recurring reviews completed by ARNG.

#### 5.1.2 Responsible Offices

ARNG is responsible for implementing, maintaining, reporting on, and enforcing containment and control measures. Although ARNG may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, ARNG shall retain ultimate responsibility for the remedy integrity. WESTON is under contract to provide

LUC support, which includes development of signage, brochures/fact sheets, information packages, awareness video, and Appalachian Trail Guidebook editorials and information to be posted to the internet. ARNG and PAARNG will be responsible for working with PGC to provide the necessary classroom education and UXO construction support during timbering activities. PGC is responsible for ensuring that during permitting and contracting for activities conducted within the Ricochet Area MRS the necessary LUC information is provided in the appropriate documents.

### 5.1.3 Initial Implementation and Maintenance of LUCs

The actions that will be taken by ARNG to implement the selected LUCs are summarized in **Table 5-1**.

**Table 5-1    Actions to Implement and Maintain LUCs**

LUC Component and Actions	Initial Implementation	Frequency	Responsible Party	
			Initial	Maintenance
1. Signs	Year 1	Once	WESTON	ARNG/PGC
2. Notification during permitting and contracting	Year 1	Ongoing, as needed	PGC	PGC
3. Brochures/fact sheets	Year 1	Once	WESTON	ARNG/PGC
4. Information packages to public officials and emergency management agencies	Year 1	Once	WESTON/ARNG/PGC	ARNG/PGC
5. Awareness video	Year 1	Once	WESTON	ARNG/PGC
6. Classroom education	Year 1	Ongoing, as needed	ARNG	ARNG/PGC
7. Internet website	Year 1	Once	PGC	PGC
8. Appalachian Trail Guide editorials	Year 1	Once	PGC	PGC
9. UXO construction support activities	To coincide with scheduled timbering activities	As needed	ARNG	ARNG
10. Recurring Reviews	Prior to Year 5	No less than every 5 years	ARNG	ARNG

### 5.1.4 Documentation

The key documents used in preparing the Ricochet Area MRS LUCIP are as follows:

- *Final Remedial Investigation Report for the Ricochet Area MRS in State Game Lands 211, Pennsylvania* (WESTON, 2011).
- *Final Feasibility Study Report for the Ricochet Area MRS in State Game Lands 211, Pennsylvania* (WESTON, 2012a).
- *Final Record of Decision for the Ricochet Area MRS in State Game Lands 211, Pennsylvania* (WESTON, 2013).
- GIS shape files: These are data files providing the shape and coordinates of the Ricochet Area MRS.

## 5.2 COMPONENTS OF THE SELECTED LUCs

The selected LUCs will be implemented once the MEC Removal Action field work is completed in 2014. The selected LUCs listed in Subsections 5.2.1 through 5.2.8 are anticipated to take approximately 45 days to initiate. The selected LUCs can be easily implemented because there are no technical difficulties associated with these controls and the materials and services needed to implement these controls are available.

### 5.2.1 Signs

Posting of signs at major access points into the Ricochet Area MRS is an element of access control and although it will not prohibit activities in the area, it warns the public of the potential hazards and restricts the public from physical contact with MEC by educating them about the 3Rs (i.e., **R**ecognize, **R**etreat, and **R**eport). Signage is effective only if the postings are well placed and maintained (see **Figure 5-1**).

ARNG will be the lead agency responsible for ensuring all signs are maintained throughout the duration of the LUCs. Signs warning of the dangers of MEC will be placed at the following access points that lead into the Ricochet Area MRS:

1. Cold Spring Road adjacent to FIG.
2. Cold Spring Parking Area.

3. East Entrance on old railroad grade off Gold Mine Road.
4. West Entrance on old railroad grade off Allendale Road.

Signs will meet the current PGC specification/requirements so that they fit with the current signage throughout SGL. Additional signs will be prepared so that PGC will have spares in case signs are removed or damaged.

## **5.2.2 Notifications for Permitting and Contracting**

### **5.2.2.1 Permitting**

Special Land Use Permits for SGL 211 in the area of the Ricochet Area MRS are issued through PGC<sup>1</sup> for activities involving more than 10 people. As part of the process of issuing the permits, PGC will make users of SGL 211 aware of the potential MEC hazards associated with the Ricochet Area MRS.

### **5.2.2.2 Contracting**

During the timber harvests, which are conducted every 4 to 5 years, but the frequency or schedule can vary based on timber conditions, PGC will educate the contractors about the potential MEC hazards associated to the Ricochet Area MRS. Information will be provided through the use of brochures (see Subsection 5.2.3) and/or awareness videos (see Subsection 5.2.5). The contracts for these activities within the Ricochet Area MRS will include information about the dangers of MEC and the steps to follow in case suspected MEC is encountered. UXO construction support activities are not included under WESTON's contract. When required, these services will be provided by ARNG to PGC.

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<sup>1</sup> [http://www.portal.state.pa.us/portal/server.pt/community/state\\_game\\_lands/11363](http://www.portal.state.pa.us/portal/server.pt/community/state_game_lands/11363) (refer to the bottom of the website to obtain this document)

### 5.2.3 Brochure and Fact Sheets

Brochures and fact sheets will be handed out to individuals who are requesting a PGC Special Land Use Permit for SGL 211 in the area of the Ricochet Area MRS. A Special Land Use Permit is required if 10 or more people are participating in an activity within SGL. Individuals will also be given a link to an awareness video accessible on the PGC website. Additionally, the Fall Drive-Thru will be a means to make the public aware of issues related to the presence of potential munitions. A brochure and/or fact sheet could be handed out as people enter the area or it could be attached to the self-guided tour brochure created by PGC.

Brochures will be provided to the Susquehanna Appalachian Trail Club for distribution and made available at the bulletin boards. Because of the desire of hikers to limit the weight of their packs, the brochures will also be available through the website maintained by the Appalachian Trail Club and PGC. Thus hikers will have access to this information through the use of smart phones and computers.

PGC personnel should be prepared to answer questions on MEC hazards and to provide assistance to visitors who may encounter MEC. The safety message in the brochure and fact sheet will focus on the “**3Rs**”: **R**ecognize the hazard, **R**etreat from the hazard, and **R**eport the hazard to the appropriate authorities.

### 5.2.4 Information Packages

Information packages to public officials and emergency management agencies will be in the form of brochures and/or fact sheets. At the request of public officials and emergency management agencies, the awareness videos (see Subsection 5.2.5) will also be provided.

### 5.2.5 Awareness Video

Awareness videos have proven a useful tool in educating the public and site workers about the dangers of MEC. The video will educate the contractors and the community about the MEC hazards at the Ricochet Area MRS:

- A “safety” video will stress the importance of the “**3Rs**”: **R**ecognizing MEC as a danger, **R**etreating from the MEC, and **R**eporting the MEC to the proper authorities.

The video will include broader information on the Ricochet Area MRS and will be targeted as an educational tool for the public. This video will provide a history of the Ricochet Area MRS and the activities conducted at the site since 1933, and information on implemented controls for the SGL to minimize the risk of exposure to UXO. The video will also be incorporated into education for PGC employees and contract workers.

The video will be provided to the PGC contractors performing timber operations in the Ricochet Area MRS. The winning bidder should be given a brochure and/or a video should be shown for awareness training and identification of hazards and how to respond when a potential munitions item is encountered. Brochures will also be provided to bidders during site walks.

### **5.2.6 Classroom Education**

To ensure that PGC personnel have the appropriate information to answer the public's questions on MEC issues, a "teach the teachers" approach will be used. A MEC expert will provide the initial instruction to PGC personnel. Classroom instruction and materials will be at a sufficient level of detail so that subsequent instruction to PGC personnel can be provided internally.

PGC personnel can further public awareness by incorporating MEC discussions in the variety of programs PGC offers to the community such as environmental issues and cultural/historical field trips in the Ricochet Area MRS of SGL 211.

### **5.2.7 Internet Website**

Recreational users generally download SGL maps at the PGC website ([http://www.portal.state.pa.us/portal/server.pt/community/state\\_game\\_lands/11363](http://www.portal.state.pa.us/portal/server.pt/community/state_game_lands/11363)). A brochure or awareness bulletin can be attached to the electronic downloadable map explaining the history of the site and the 3Rs. The map could also identify areas requiring UXO awareness in the form of the 3Rs. A link to the brochure will also be provided.

### **5.2.8 Appalachian Trail Guide Editorials**

The Pennsylvania Appalachian Trail Guide will be used to inform users of the Ricochet Area MRS. The guide is updated every several years, and the last update was in 2009. The guide has a brief reference indicating that the Cold Springs side trail to the Appalachian Trail leads to

parking and FIG. A brief sentence could be added warning about potential MEC and the importance of following the 3Rs. Links to the brochure and awareness video could be provided.

### **5.2.9 UXO Construction Support Activities**

UXO construction support will be provided for intrusive activities (i.e., timber management activities) conducted by PCG. It is estimated that over the course of 30 years, six UXO construction support events will be needed to support timbering activities within the Ricochet Area MRS. Each UXO construction support event would last approximately 2 weeks and would support the construction of access roads, building of log landings, and soil moving activities. UXO construction support activities are not included under WESTON's contract. When required, these services will be provided by ARNG to PGC.

## **5.3 MONITORING, REPORTING, AND RECORDS**

### **5.3.1 Monitoring**

PGC will monitor the activities throughout the Ricochet Area MRS to ensure users are aware of the MEC hazards and adhere to the land use restrictions. Additionally, ARNG and PAARNG will conduct 5-year reviews to assess the selected remedial actions.

### **5.3.2 Periodic Reviews**

Periodic reviews will be conducted once every 5 years as required by CERCLA to assess the MRS condition and the degree of protectiveness to human health and the environment. Documentation for recurring reviews will be maintained by ARNG and PAARNG.

The findings from the periodic reviews will be compiled into a Recurring Review Report. The report will be placed in the internal files at PGC. The results of the 5-year reviews will be made available upon request to regulatory stakeholders. Recurring reviews will be completed by ARNG and PAARNG and will include the following general steps:

- Prepare Recurring Review Plan.
- Establish project delivery team and begin community involvement activities.
- Review existing documentation.
- Identify/review new information and current site conditions.

- Prepare preliminary Site Analysis and Work Plan.
- Conduct site visit.
- Prepare Recurring Review Report.

### 5.3.3 Records Management

Records associated to the Ricochet Area MRS are located at <http://www.dmva.state.pa.us>, and will be maintained by ARNG and PAARNG. Hard copies of documents are also available at the Annville Free Library, 216 East Main Street, Annville, PA 17003.



**Legend**

- FIG Installation Boundary
- Appalachian Trail
- Trails
- ▭ Ricochet Area MRS (3,262 Acres)
- ✱ Awareness Sign 3Rs (i.e., Recognize, Retreat and Report)
- Herbaceous Openings**
- ▭ Cold Spring (6.49 Acres)
- ▭ Yellow Spring (3.78 Acres)

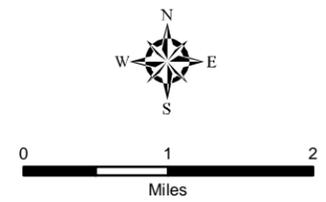
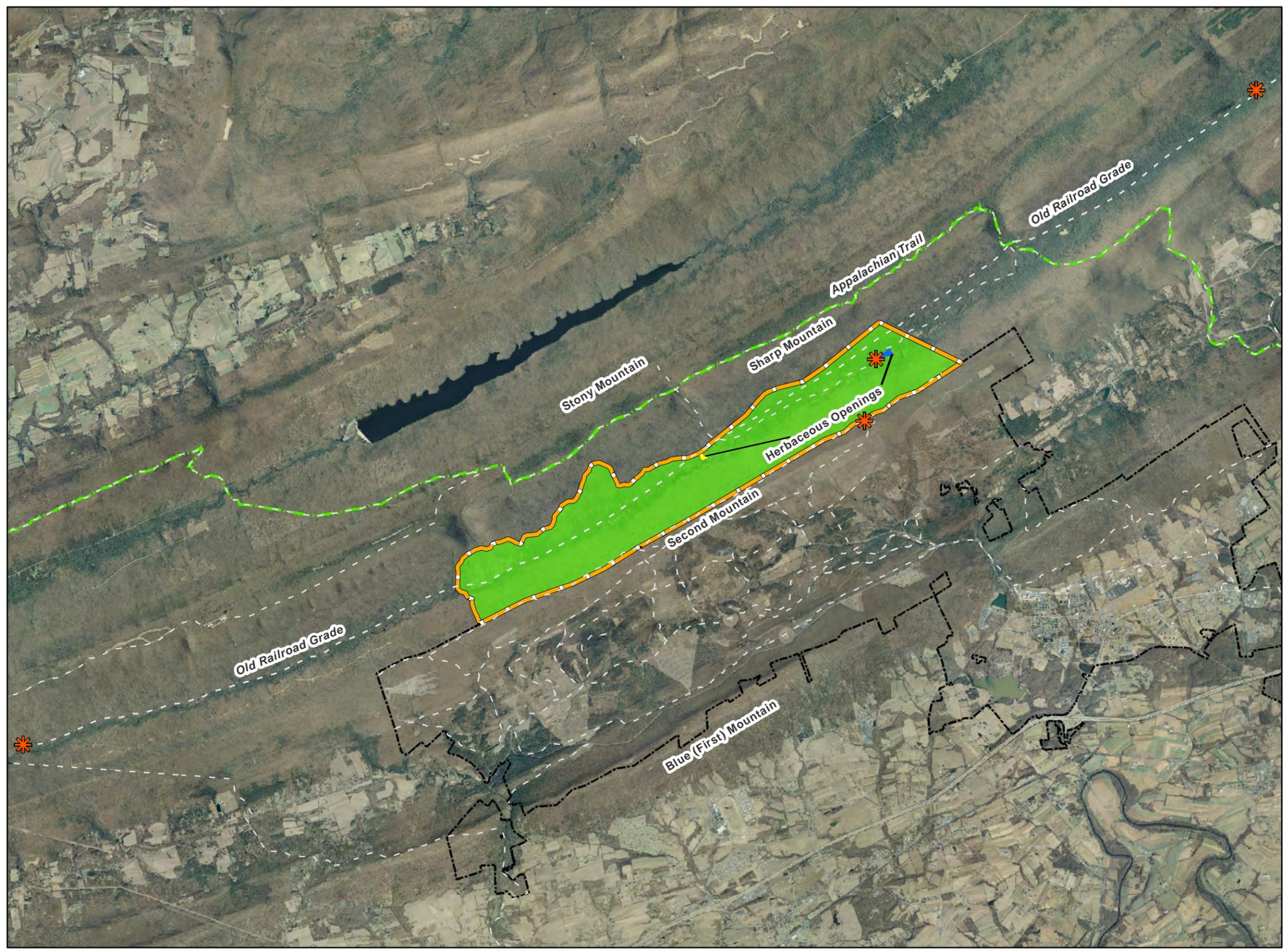


Figure 5-1  
Location of Awareness Signs  
Ricochet Area MRS  
State Game Lands 211, PA

## 6. REFERENCES

Department of the Army. 2005. Memorandum for the Assistant Chief of Staff for Installation Management re: Munitions Response Terminology. April 21, 2005.

Department of Defense (DoD). 2001. ODUSD(ES) Memorandum. Subject: *DoD Policy on Land Use Controls Associated with Environmental Restoration Activities*, 17 January 2001.

Department of Defense (DoD). 2012. ODUSD(I&E) *Management Guidance for the Defense Environmental Restoration Program*. September 2012.

EPA (U.S. Environmental Protection Agency). 2008. *Interim Munitions and Explosives of Concern Hazard Assessment Methodology* (MEC HA).

URS (URS Group, Inc.). 2007. *Final Historical Records Review, Fort Indiantown Gap, Pennsylvania*. Prepared for the U.S. Army Corps of Engineers (USACE), Baltimore District. June 2007.

URS (URS Group, Inc.). 2008. *Final Site Inspection Report, Fort Indiantown Gap, Pennsylvania*. Prepared for the U.S. Army Corps of Engineers (USACE), Baltimore District. September 2008.

U.S. Army Garrison. 1995. Safety Range Regulation for Fort Indiantown Gap. Army Regulation 385-1. Fort Indiantown Gap, Annville, PA.

WESTON (Weston Solutions, Inc.). 2011. *Final Remedial Investigation Report for the Ricochet Area Munitions Response Site, State Game Lands 211, Pennsylvania*. Prepared for the Army National Guard Directorate and Pennsylvania Army National Guard. July 2011.

WESTON (Weston Solutions, Inc.). 2012a. *Final Feasibility Study for the Ricochet Area Munitions Response Site, State Game Lands 211, Pennsylvania*. Prepared for Army National Guard Directorate. January 2012.

WESTON (Weston Solutions, Inc.). 2012b. *Final Proposed Plan, Ricochet Area Munitions Response Site, State Game Lands 211, Pennsylvania*. June 2012.

WESTON (Weston Solutions, Inc.). 2013. *Final Record of Decision, Ricochet Area Munitions Response Site, State Game Lands 211, Pennsylvania*. May 2013.