FINAL
MEETING MINUTES
Technical Project Planning 3 Meeting

Remedial Investigation and Feasibility Study
Military Munitions Response Program
Ricochet Area Munitions Response Site
State Game Lands 211, PA

19 December 2011
1000-1130
PA Air National Guard Conference Room, Headquarters PA Army National Guard and PA Department of Military and Veterans Affairs, Building 0-47, Fort Indiantown Gap, PA

Attendees:

Scott Bills – Pennsylvania Game Commission (PGC) - Land Management Group Supervisor
George Hartenstein – Pennsylvania Department of Environmental Protection (PADEP)
Colonel Sam Hayes – Fort Indiantown Gap National Guard Training Site, Garrison Commander
Kim Harriz – Army National Guard Directorate, Cleanup Program Manager and Contracting Officers Representative (COR)
John Fronko – PAARNG – Department of Military and Veterans Affairs (DMVA), Environmental Division Chief
Jo Anderson – PAARNG – DMVA, Environmental Management, Project Manager
Emily Schiffmacher - U.S. Army Corps of Engineers (USACE), Technical Support
Tom Colozza –USACE, Technical Support/Project Geophysicist
John Gerhard – WESTON, Project Manager
Ryan Steigerwalt – WESTON, MMRP Technical Manager

See Attached Sign-In Sheet for Phone Numbers
Presentation Material – Attached

- Introductions

- Jo Anderson PAARNG kicked off meeting with introductions from attendees.

- Presentation – Combination of WESTON representatives, ARNG and PAARNG.

- Discussion Topics:

  - Summary of Remedial Investigation Results
    - 9 unexploded ordnance (UXO) (75mm and 155mm recovered projectiles)
    - 4 DMM (MK2A4 primers from a 155mm at 1 ft at cold spring firing point
    - 66% of the items were found on the ground surface (0 inches)
    - 25% of the items were found at >0 inches to 3 inches below ground surface

  - Feasibility Study Alternative Summary. Each alternative was briefed.

- Alternative 4 was identified as the preferred alternative in the Draft Final FS. This alternative includes focused surface and subsurface removals. PADEP was concerned with UXO items that would potentially remain after the surface removal action and how these items would be accounted for moving forward. Containment and controls are used to help manage the ongoing hazards with remaining items within the MRS. Additionally the group discussed that if items are found by the public after the removals the 3Rs (Recognize, Report and Retreat) should be followed. This process would initiate an Explosive Ordnance Disposal (EOD) response for the subject item through the 911 process. The CERCLA 5 year review process would also document number of EOD responses or number of items being found and could invoke additional CERCLA response actions if required.
- PADEP asked if the locations of subsurface contacts would be documented if they were not investigated. The group agreed that this can be part of the Remedial Design (Work Plan) for the preferred alternative.
- PGC stated that the MRS and the future work will be captured in the Land Management Plan which is being crafted for SGL211. This is a document that PGC uses when staff is turning over so that information is not lost but successfully transferred to future managers of property. Additionally the FS should not refer to Game Food Plots within SGL 211 but as herbaceous openings (HO). These are not always planted with food. HOs are former log landings.
- PADEP and PGC will provide a letter documenting their position on the FS and the preferred alternative. The group will attempt to provide comments within the next couple of weeks to maintain the project schedule.
- ARNG indicated the remaining phase of work including the Proposed Plan, Record of Decision and Explosive Safety Submission will most likely take 1 year to complete. Funding for projects has become more of an issue recently but this MRS is ranked as one the highest so it is likely to receive funding above lower ranked sites.
- While discussing the ESS it was identified that PAARNG Safety Manager Peggy Hengeveld will be retiring in spring 2013. Additionally ARNG has a new lead for explosive safety documents Chuck Fowler.
- The group discussed the Proposed Plan format and content. PADEP requests that all information is included in the Proposed Plan that is necessary to make decisions but it needs to be written so the public can understand. Public Meeting should be held when the public can attend.
- USACE requests that the FS specifies the number of acres that the containment and controls will cover as well as the acreage where the focused surface and subsurface removals will occur.
- ARNG and PADEP will consult their legal groups to determine if PADEPs signature is required on the ROD.

❖ Action Items

- Confirm acreage is specified in FS for each alternative.
- Revise food plots to herbaceous openings.
- ARNG and PADEP will consult their legal groups to determine if PADEPs signature is required on the ROD.
- PADEP and PGC will send FS comments or concurrence letters.

12/19/14 TIP #3 SIGN-IN SHEET

NAME	ORG	PHONE
John Gerhard	WESTON	610-701-3793
RYAN STEIGERWALT	WESTON	410-612-5900
George Hartenstein	PA DEP	717-787-1915
Emily Schifsmacher	USACE	410-962-3253
TOM COLOZZO	USACE	410-962-6647
JA Anderson	DMVA	717-861-4414
Kim Harris	ARNG Directorate	703-607-7991
Scott Bills	PGC	717 418-1487
COL SAM HAYES	FTG GARRISON	717 861-8155

Remedial Investigation and Feasibility Study

Military Munitions Response Program

Ricochet Area Munitions Response Site

State Game Lands 211, PA

Technical Project Planning Meeting

12/19/2011

AGENDA

- Introductions

- Summary of Remedial Investigation Results

- Feasibility Study
    - Alternatives Summary
    - Preferred Alternative
    - PADEP Comments
    - Final Feasibility Study

- Next steps in CERCLA Process
    - Proposed Plan
    - Record of Decision

Fort Indiantown Gap, Pennsylvania
Military Munitions Response Program

Ricochet Area
Overview of Remedial Investigation

19 December 2011

WESTON SOLUTIONS
The Trusted Integrator for Sustainable Solutions

10M-0107

Overview

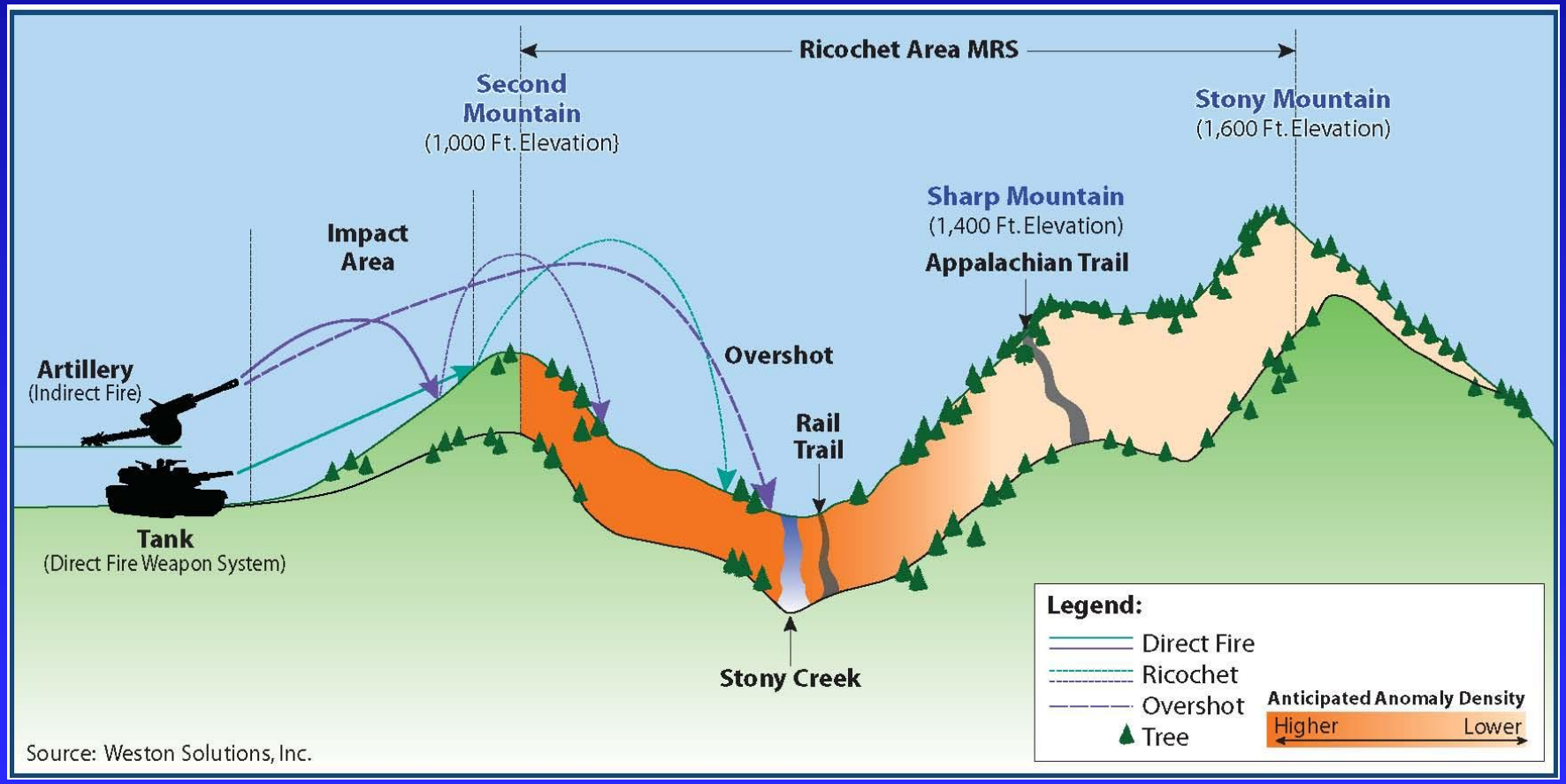
- Remedial Investigation Objectives
- Remedial Investigation Results
- Remedial Investigation Recommendations

Remedial Investigation Objectives

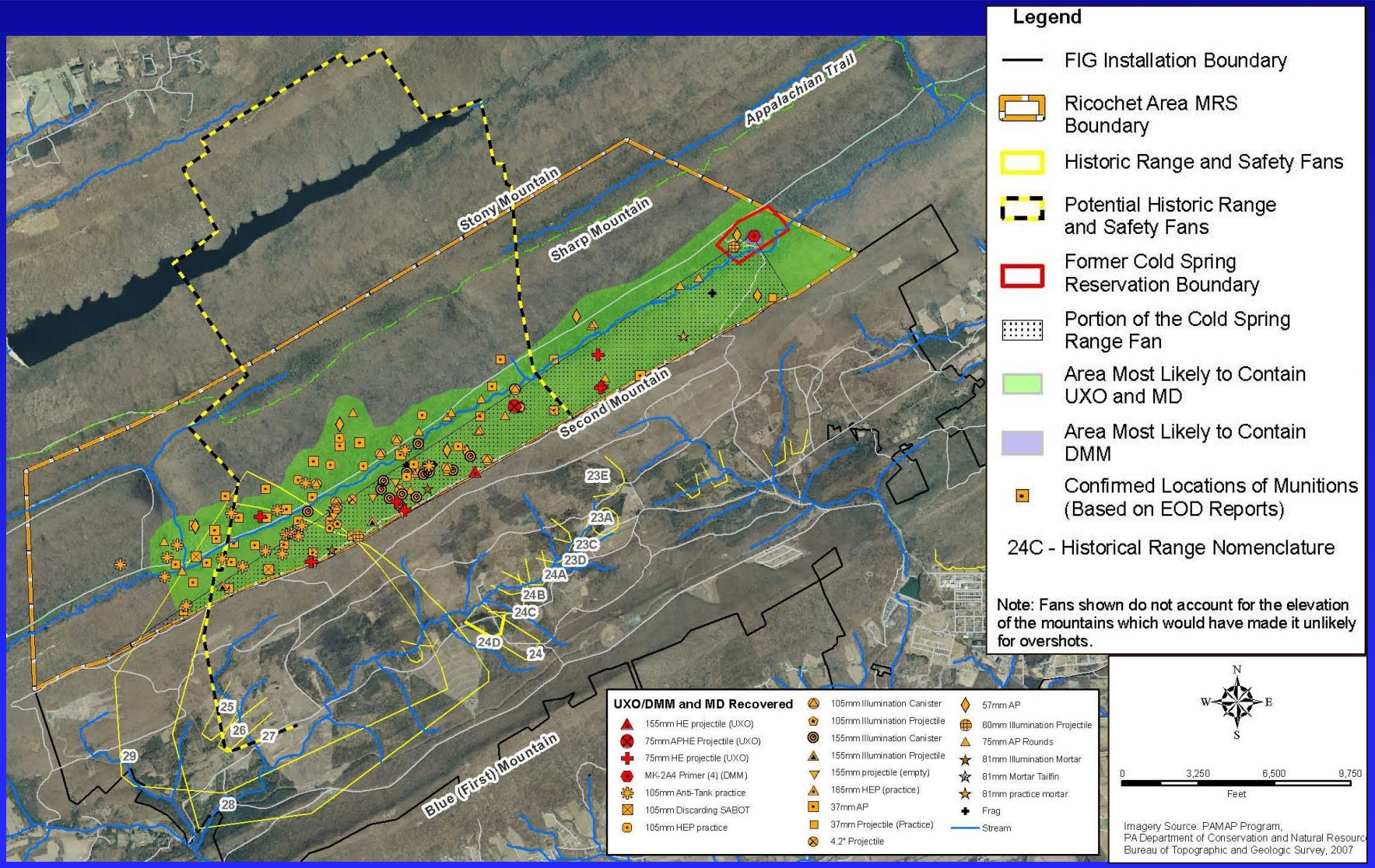
- Investigate the Ricochet Area to determine:
  - Nature and extent of munitions and explosives of concern (MEC)
  - If MEC is present, assess explosive safety hazards
  - Characterize nature and extent of munitions constituents (MC), metals and explosives contamination
  - MEC → Hazard assessment
  - MC → Baseline risk assessment

Conceptual Site Model

- Source and Release Mechanisms



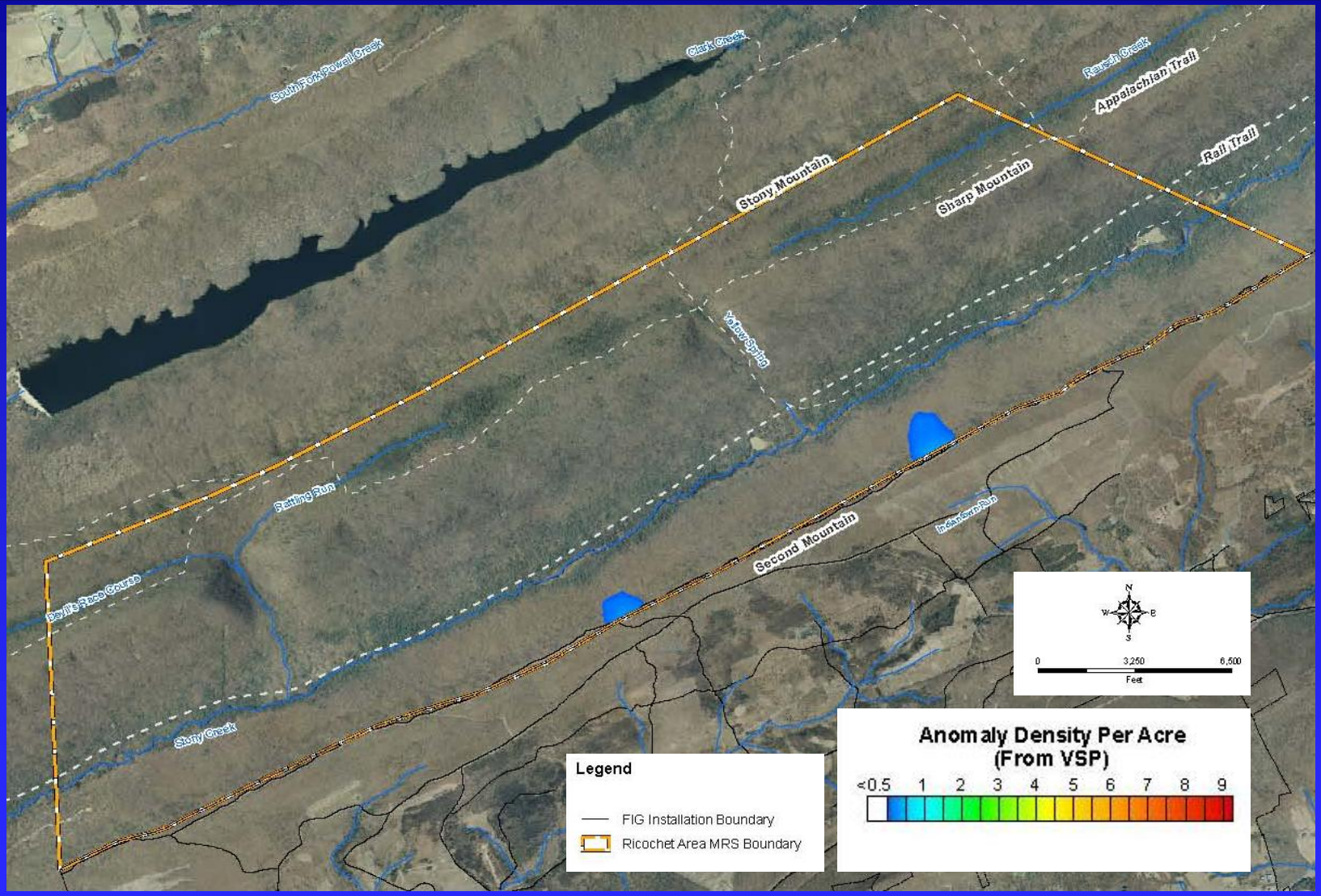
Munitions Items Distribution



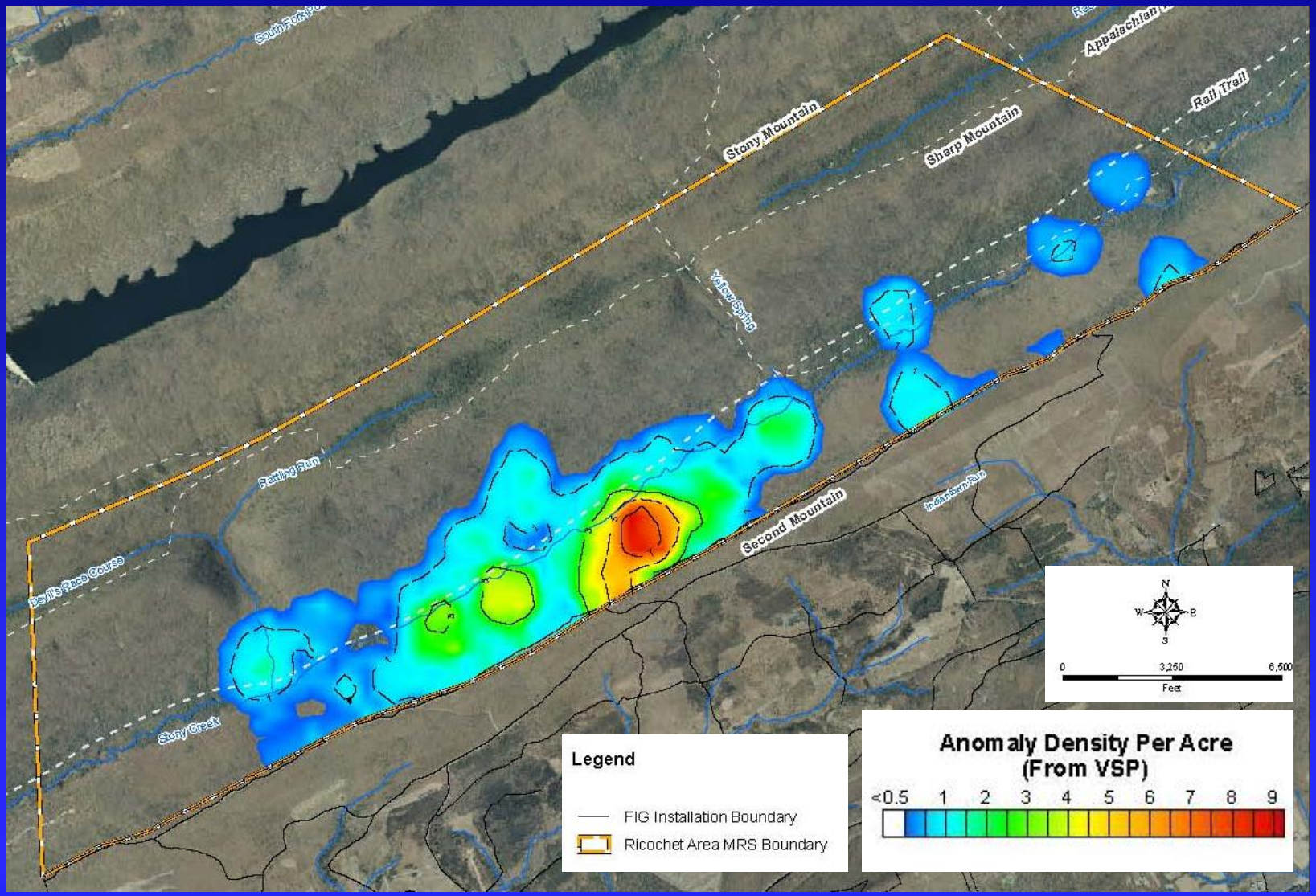
Conceptual Site Model

- Distribution and Density of MEC:
  - Highest density of MEC/MD → Second Mountain and Stony Creek
  - Munitions Response Site (MRS) subdivided to reflect density areas
    - Ricochet Area MRS – Boundary drawn on approximate 0.5 anomalies/acre contour line
      - Includes Cold Spring firing point – Based on DMM and range related debris
    - Sharp Mountain MRS – No munitions found

Density Map of MEC



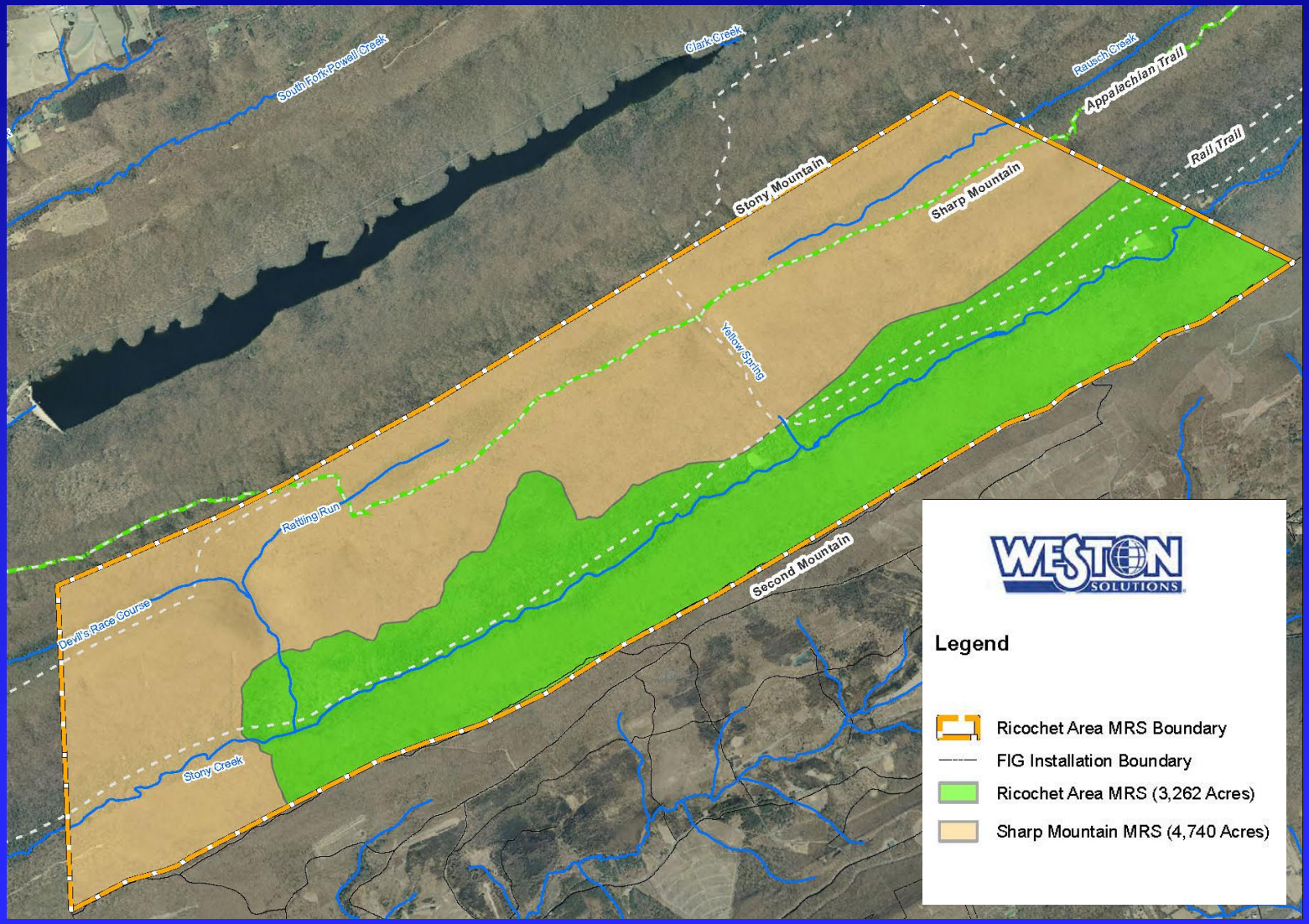
Density Map of MEC and All Munitions Debris



Depths of Munitions

- Munitions recovered surface or shallow subsurface
  - 66% of items were recovered on the surface
  - 25% at 0.25 ft below ground surface (bgs)
  - 9% located at 0.5 ft bgs or deeper
  - Depths and orientation consistent with ricochet and overshot/undershot deflecting off of rocks
  - DMM found at a depth of 1 ft in Cold Spring firing point
    - Consistent with burial/discard of DMM at firing point

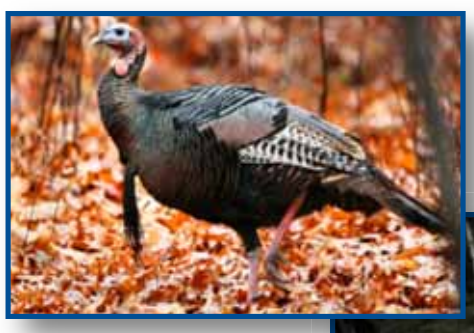
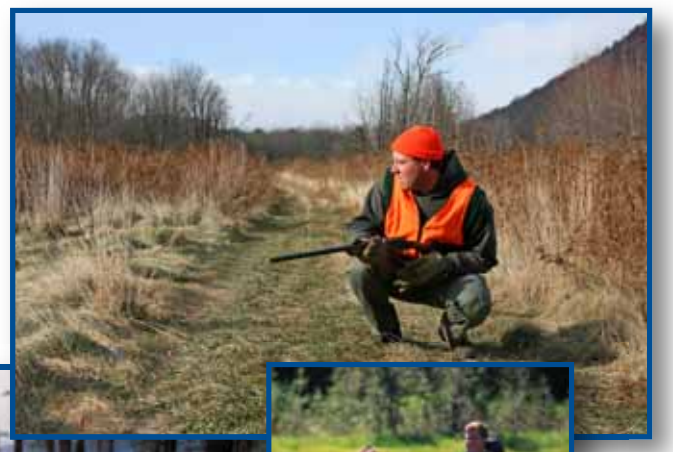
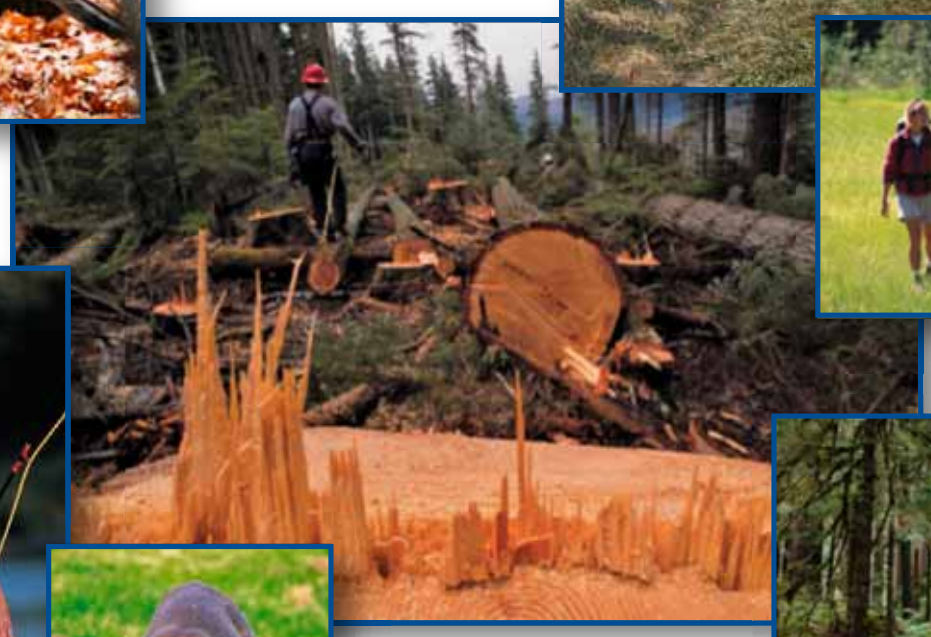
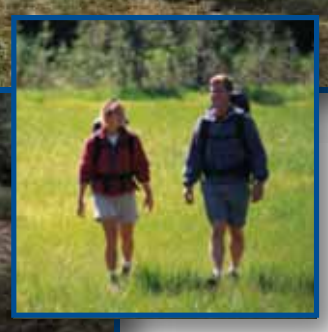
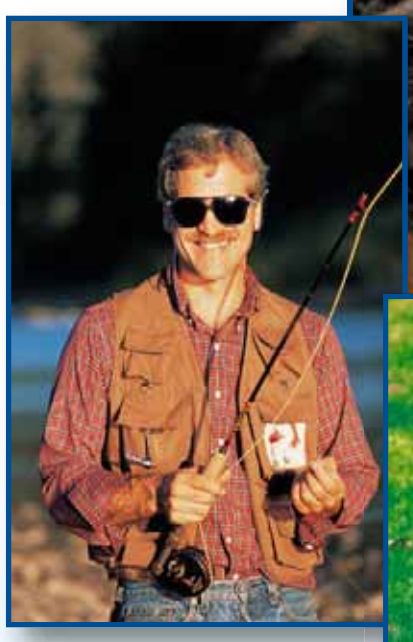
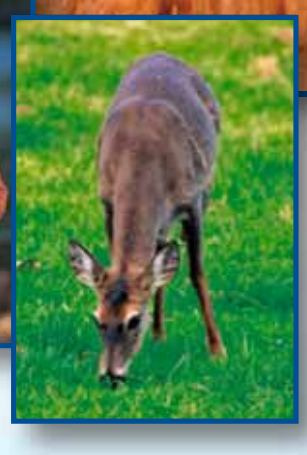
MRS Subdivision



Feasibility Study for the Ricochet Area
Munitions Response Site in State Game Lands 211, Pennsylvania
Military Munitions Response Program

Remedial Action Objectives

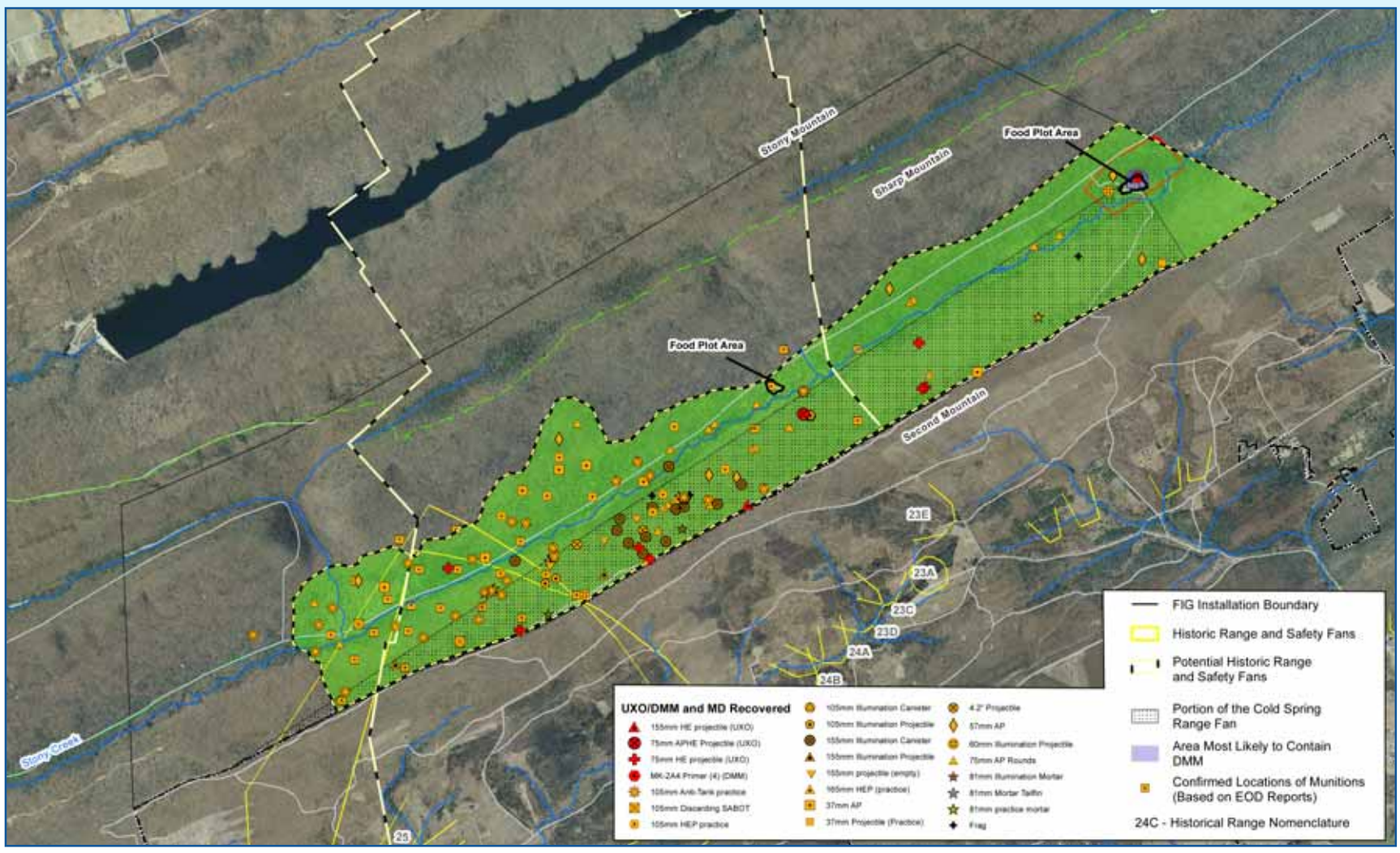
- Public safety is our top priority!
- Minimize public's exposure to munitions and maintain intended future land use of public access for recreational activities.
- Minimize Pennsylvania Game Commission personnel and contractor exposure to munitions at timber management areas.
- Minimize state game personnel exposure to munitions at wild game food plots maintained for turkey and deer.

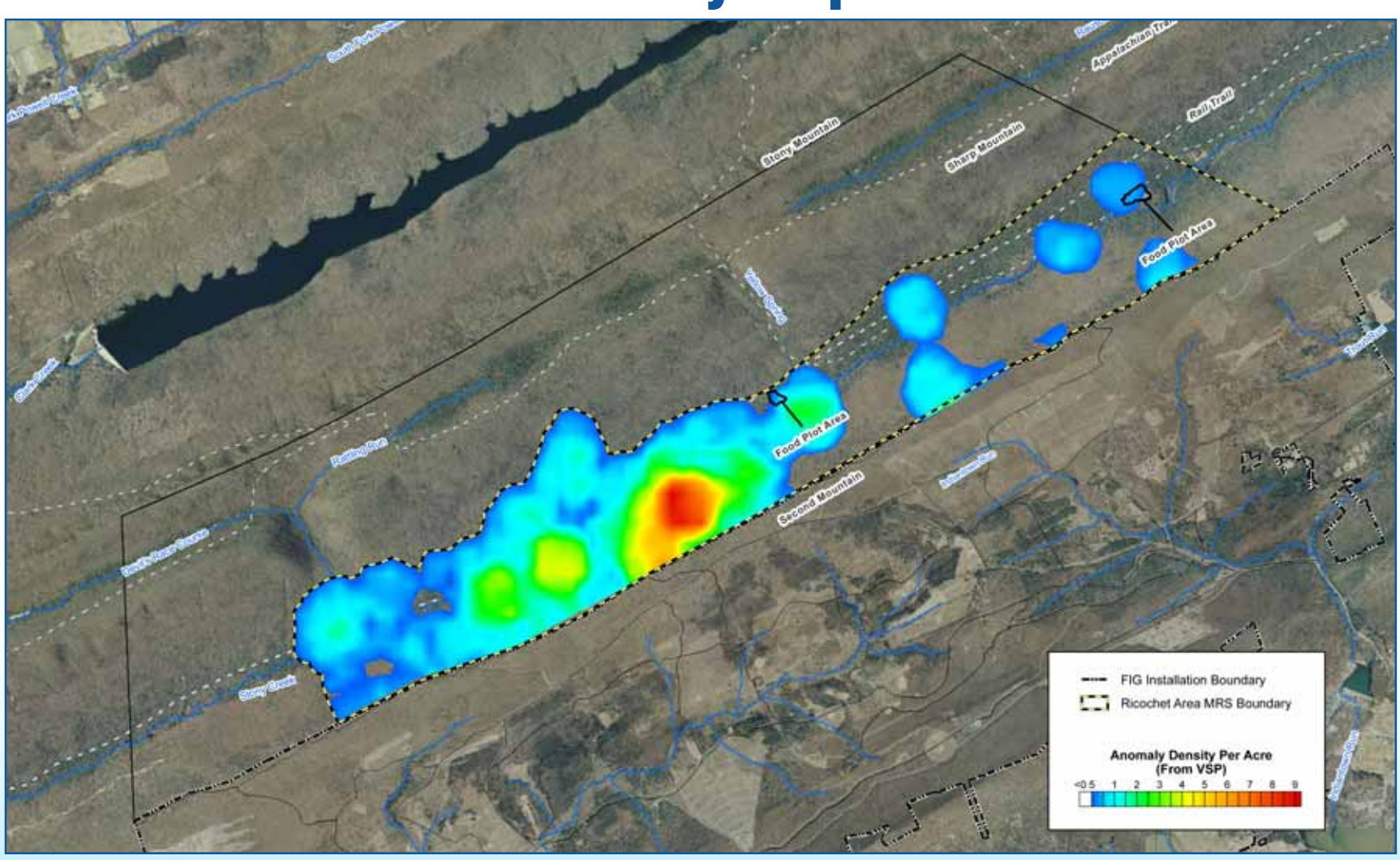
Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Conceptual Site Map



Density Map



Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Detailed Analysis of Alternatives

Screening Criterion	Alternative 1: No Action	Alternative 2: Containment and Controls	Alternative 3: Surface Removal of Munitions with Containment and Controls	*Preferred* Alternative 4: Focused Surface and Subsurface Removal of Munitions with Containment and Controls	Alternative 5: Surface and Subsurface Removal with Containment and Controls
Overall Protection of Human Health and Environment	●	◑	●	●	●
Compliance with applicable or relevant and appropriate requirements	●	●	●	●	●
Long-Term Effectiveness	●	●	◑	◑	●
Reduction of Toxicity, Mobility and Volume through Treatment	●	●	◑	◑	●
Short-Term Effectiveness	●	●	◑	◑	◑
Implementability	●	●	◑	●	◑
Cost	$0	$181,998	$16,182,335	$6,757,826	$24,315,156
Regulator Acceptance	The criteria for regulatory agency acceptance cannot be fully evaluated and assessed until comments of the feasibility study are received.				
Community Acceptance	The criteria for community acceptance cannot be fully evaluated and assessed until comments of the proposed plan are received.				

Favorable ● Moderately Favorable ◑ Not Favorable ●

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 1 – No Action

- Continuation of current site uses. No changes for recreational users and Pennsylvania Game Commission personnel and contractors.
- Army's Explosive and Ordnance Disposal Units responds to future munitions discoveries on a case-by-case basis.
- No actions taken to locate, remove, or dispose of munitions items.
- No implementation of programs to inform public of potential for explosive hazards.

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 1 – No Action

Evaluation Criteria Rating

Evaluation Criteria	Rating	
Overall protectiveness of human health and the environment	●	Not protective of human health because "no action" allows exposure to munitions.
Compliance with applicable or relevant and appropriate requirements	●	No regulations or criteria are associated.
Long-term effectiveness and permanence	●	Not effective or permanent.
Reduction of toxicity, mobility, or volume of contaminants through treatment	●	Does not reduce the toxicity, mobility, or volume of munitions.
Short-term effectiveness	●	Does not present significant additional risk to the community or to workers at the site. Does not cause damage to the environment because no clearing, grubbing, or excavation would be required.
Implementability	●	Easily implemented.
Cost	$0	
Regulatory agency acceptance	Cannot be fully evaluated and assessed until comments on the feasibility study are received.	
Community acceptance	Cannot be fully evaluated and assessed until comments on the proposed plan are received.	

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Alternative 2 – Containment and Controls

- Explosive risk is managed through public outreach and awareness programs.
- A public awareness campaign may incorporate the following:
  - Brochures and fact sheets distributed to recreational users.
  - Signs placed on game lands to notify public of risk in encountering munitions.
  - Notifications included with permits and contracts.
  - Information provided on appropriate websites.
  - Awareness video provided to groups or organizations using the game lands.
  - Information added to existing resources, such as the Appalachian Trail Guidebook.
  - Information packages provided to public officials and emergency management agencies.
  - Educational materials targeting youth for classroom or groups (e.g., Boy/Girl Scouts) use.

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 2 – Containment and Controls

Evaluation Criteria Rating

Evaluation Criteria	Rating	
Overall protectiveness of human health and the environment	◑	More protective than Alternative 1 because containment and controls reduce unacceptable exposure to munitions.
Compliance with applicable or relevant and appropriate requirements	●	Implemented to comply.
Long-term effectiveness and permanence	●	More effective and permanent than Alternative 1.
Reduction of toxicity, mobility, or volume of contaminants through treatment	●	Does not reduce the toxicity, mobility, or volume of munitions.
Short-term effectiveness	●	Does not present significant additional risk to the community or to workers at the site. Does not cause damage to the environment because no clearing, grubbing, or excavation would be required.
Implementability	●	Easily implemented.
Cost	$181,998	
Regulatory agency acceptance	Cannot be fully evaluated and assessed until comments on the feasibility study are received.	
Community acceptance	Cannot be fully evaluated and assessed until comments on the proposed plan are received.	

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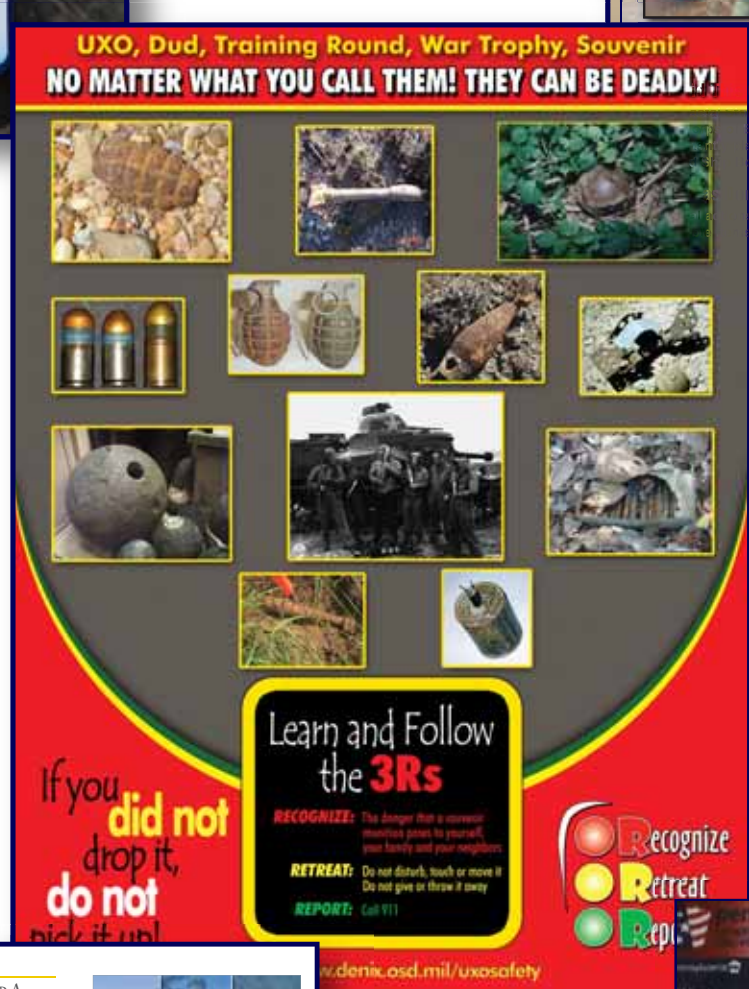
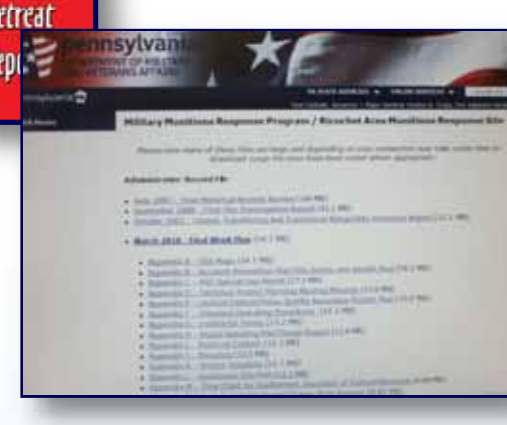
Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania
Military Munitions Response Program

Alternative 2 – Containment and Controls





BACKGROUND

Fort Miles Military Reservation Formerly Used Defense Site (FMMR FUDS) is approximately 492 acres and part of Cape Henlopen State Park in Lewes, Delaware, which is owned and operated by the State of Delaware Division of Parks and Recreation. FMMR FUDS is bounded by the Atlantic Ocean to the east, by the Delaware Bay to the north, and by the rest of Cape Henlopen State Park to the south and west.

Originally known as Cape Henlopen Military Reservation, Fort Miles was part of the Harbor Defenses of the Delaware Bay during both World War I and World War II. The mission was to ensure freedom of movement of U.S. naval vessels in and out of the bay and to deny enemy access to the Delaware Bay and River. In addition to mining defenses, 90-mm, 155-mm, 6-inch, 8-inch, 12-inch, and 16-inch gun batteries existed on the shore of the FMMR. During WWII, the FMMR functioned as a prisoner of war camp and a storage facility for ammunition. After WWII, the FMMR continued to serve as a standby military post. During the 1950s, several range facilities were used, including small arms ranges, a skeet range, and two overlapping 3.5-inch inert rocket ranges.

WHAT DO I DO IF I FIND A MUNITION OR SUSPICIOUS ITEM?

FOLLOW THE 3 RS:

RECOGNIZE:

When you discover a suspicious item or a possible munition, remember that these items can be very dangerous. Do not touch, kick, throw, or do anything else to disturb the item. Also, remember that munitions found in the ground are sometimes not readily identifiable, and may appear to be any other metallic or rusty item. Use caution, leave it alone, and do not touch it.

RETREAT:

If you know or suspect that you have found a munition, mark the area with a small object such as a hat or pen, and immediately walk away on the same path you came in on. Do not run.

REPORT:

If you encounter a munition, or suspect you have encountered such an item, do not attempt to disturb, remove, or destroy it. Immediately notify the Cape Henlopen State Park Manager at **302-645-8983**.

US Army Corps of Engineers®

08D-0533

MUNITIONS CONCERNS

SAFETY INFORMATION YOU SHOULD KNOW

Alternative 3 – Surface Removal of Munitions with Containment and Controls

- Explosive risk is mitigated primarily by removing munitions on the surface.
  - Search entire site – 3,262 acres
  - Conduct search with analog instrumentation – metal detectors.
  - Clear brush as needed to access area.
  - Removal and disposal of all munitions and other metal debris.
- Munitions in the subsurface are not investigated or removed.
- Public awareness training consistent with Alternative 2 provided.

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 3 – Surface Removal of Munitions with Containment and Controls

Evaulation Criteria Rating

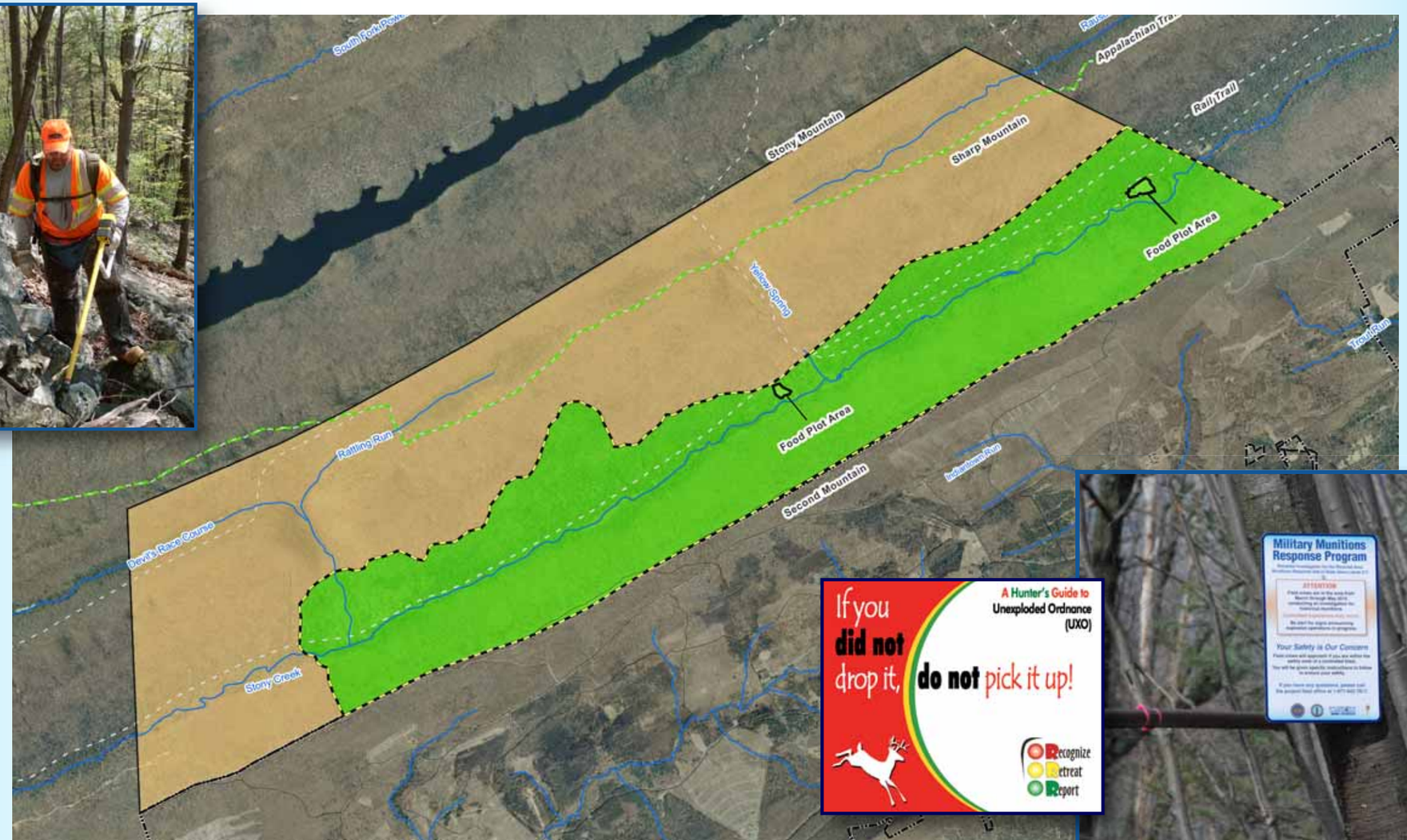
Evaluation Criteria	Rating	
Overall protectiveness of human health and the environment	●	A surface removal provides some protection for human health, but does not completely address the moderate hazard potential and human exposure to unexploded ordnance (UXO) and discarded munitions in the subsurface.
Compliance with applicable or relevant and appropriate requirements	●	Implemented to comply.
Long-term effectiveness and permanence	◑	Removes approximately 66% of the remaining UXO items; however, UXO and discarded military munitions below the surface would remain and could move to the surface because of erosion, frost heave, or human interaction.
Reduction of toxicity, mobility, or volume of contaminants through treatment	◑	Would reduce the toxicity, mobility, or volume of munitions in the surface but not in the subsurface.
Short-term effectiveness	◑	During the removal of munitions there is an increased risk to the community and workers that would need to be mitigated through engineering controls and/or blocking off munitions work zones.
Implementability	◑	Surface removals of UXO and discarded munitions were implemented effectively during the remedial investigation. Specific procedures are required to protect natural and cultural resources. Detonations in place are more complicated to conduct than consolidated detonations because it is difficult to control the area and transport engineering controls to the item.
Cost	$16,182,335	
Regulatory agency acceptance	The criteria for regulatory agency acceptance cannot be fully evaluated and assessed until comments of the feasibility study are received.	
Community acceptance	The criteria for community acceptance cannot be fully evaluated and assessed until comments of the proposed plan are received.	

Favorable ● Moderately Favorable ◑ Not Favorable ●

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 3 – Surface Removal of Munitions with Containment and Controls



Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 4 – Focused Surface and Subsurface Removal of Munitions with Containment and Controls

Evaluation Criteria Rating

Evaluation Criteria	Rating	
Overall protectiveness of human health and the environment	●	Surface removals focused in high density areas, trails, and subsurface removals at wild game food areas provide some protection for human health. However, surface and subsurface removals are not protective of the environment because of clearing, grubbing, and excavation/detonation activities at the site.
Compliance with applicable or relevant and appropriate requirements	●	Implemented to comply.
Long-term effectiveness and permanence	◑	Permanently removing unexploded ordnance (UXO) provides long-term effectiveness; however, UXO and discarded military munitions below the surface would remain outside of the high density areas and could potentially move to the surface because of erosion, frost heave, or human interaction.
Reduction of toxicity, mobility, or volume of contaminants through treatment	◑	Reduces the toxicity, mobility, or volume of munitions in the high density areas and wild game food areas. It does not reduce in other areas.
Short-term effectiveness	◑	During the removal of munitions there is an increased risk to the community and workers that would need to be mitigated through engineering controls and/or blocking off munitions work zones.
Implementability	●	Surface and subsurface removals of UXO and discarded munitions were implemented effectively during the remedial investigation. Specific procedures are required to protect natural and cultural resources. Detonations in place are complicated to conduct than consolidated detonations because it is difficult to control the area and transport engineering controls to the item.
Cost	$6,757,826	
Regulatory agency acceptance	The criteria for regulatory agency acceptance cannot be fully evaluated and assessed until comments of the feasibility study are received.	
Community acceptance	The criteria for community acceptance cannot be fully evaluated and assessed until comments of the proposed plan are received.	

Favorable ● Moderately Favorable ◑ Not Favorable ●

Alternative 4 – Focused Surface and Subsurface Removal of Munitions with Containment and Controls

- Explosive risk is mitigated by focused removal of munitions in both surface and subsurface.
- Surface removal focused in specific area where munitions density is greater than 1 item per acre.
  - Search entire area – 1,334 acres.
  - Conduct search with analog instrumentation – metal detectors.
  - Clear brush as needed to access area.
  - Removal and disposal of all munitions and other metal debris.
- Subsurface removal focused in areas where subsurface activities are planned.
  - Clear 100% of wild game food plots.
  - Provide support to on-site construction during road building for timber harvesting.
- Public awareness outreach and training consistent with Alternative 2 provided.

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania
Military Munitions Response Program

Alternative 4 –
Focused Surface and Subsurface Removal of Munitions with Containment and Controls

Alternative 5 – Surface and Subsurface Removal of Munitions with Containment and Controls

- Explosive risk is mitigated by removal of munitions in both surface and subsurface throughout the site.
  - Search entire area – 3,262 acres.
  - Conduct search with analog instrumentation – metal detectors.
  - Conduct search at wild game food plots with digital geophysical mapping instrumentation.
  - Clear brush as needed to access site.
- Remove and dispose of all munitions and other metal debris.
- Public awareness outreach and training consistent with Alternative 2 provided.

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 5 – Surface and Subsurface Removal of Munitions with Containment and Controls

Evaluation Criteria Rating

Evaluation Criteria	Rating	
Overall protectiveness of human health and the environment	●	Would be most protective because it would remove all detectable munitions. However, Alternatives 3 and 4 would be similarly effective in that the immediate exposure risks of surface munitions would be reduced relative to the current land use and low contact hours by the public and maintenance personnel.
Compliance with applicable or relevant and appropriate requirement	●	Alternative 5 would be implemented to comply with all requirements.
Long-term effectiveness and permanence	●	Would be most effective and permanent because all detectable munitions on the surface and in the subsurface would be removed permanently.
Reduction of toxicity, mobility, or volume of contaminants through treatment	●	Would most reduce the toxicity, mobility, or volume of munitions because all detectable munitions would be removed.
Short-term effectiveness	◑	Would increase risk to the community and to workers at the site during removal of munitions compared to Alternatives 3 and 4. Risk to the community during removal of munitions would be reduced by the use of engineering controls and/or evacuations to maintain required minimum safe distances. Alternative 5 would cause more damage to environmental and cultural resources because more clearing, grubbing, and excavation during removal activities would be required than in Alternatives 3 and 4.
Implementability	◑	Removal of munitions on the surface and to various depths, similar to the activities proposed in Alternatives 3, 4, and 5, was implemented effectively at the Ricochet Area during the remedial investigation. Specific activities including plant survey, awareness training and mitigation activities will be required to protect natural resources and cultural resources, and it would be easier to meet the requirements with Alternatives 3 and 4 than with Alternative 5.
Cost	$24,315,156	
Regulatory agency acceptance	The criteria for regulatory agency acceptance cannot be fully evaluated and assessed until comments of the feasibility study are received.	
Community acceptance	The criteria for community acceptance cannot be fully evaluated and assessed until comments of the proposed plan are received.	

Favorable ● Moderately Favorable ◑ Not Favorable ●

Feasibility Study for the Ricochet Area Munitions Response Site in State Game Lands 211, Pennsylvania

Military Munitions Response Program

Alternative 5 –
Surface and Subsurface Removal of Munitions with Containment and Controls