Wildland Firefighting

3Rs Explosives Safety Guide

ORecognize
ORetreat
OReport

Woodland Firefighting.indd 1 7/10/09 11:47:08 AM

Firefighting is hazardous enough without the complication of munitions present in some wildland areas. As a result of munitions-related activities (e.g., training and testing) by the Armed Forces and defense industries, munitions (i.e., unexploded ordnance (UXO), discarded military munitions (DMM)) may be present on millions of acres of land in the United States. Lands where munitions may be present include, but are not limited to operational ranges on active military installations, former ranges on installations affected by Base Realignment and Closure (BRAC) decisions, Formerly Used Defense Sites (FUDS), and other lands released by the Department of Defense (DoD) for public uses.

The potential presence of munitions can have a major impact on acceptable fire management activities. To reduce the potential explosive hazards posed to firefighters from any munitions present, it is essential that protocols for firefighting operations within or near areas known or suspected to contain munitions be planned and coordinated in advance. This need also includes current and former military munitions operating facilities (e.g., munitions plants and depots).

Camp Hale, now a public recreation area, was used for live-fire training and testing during World War II. A lightning strike caused a small fire in a portion of the Camp that contained munitions. Extensive coordination between state and federal agencies was required to extinguish the fire while protecting the firefighters from explosive hazards. As a result of this particular incident, the agencies worked to create a protocol that distinguishes areas where munitions are present from other areas, and allows the incident commander to immediately identify the appropriate response based on the potential explosives safety risks in a particular area. This protocol clarifies the roles and responsibilities of the parties involved making efforts more effective and improving firefighter safety.

MOST MUNITIONS ARE DESIGNED TO HAVE LETHAL EFFECTS

Knowing the history of an area's use, particularly any military uses, is vital to determining the potential for munitions to be present. Departments that are responsible for firefighting at either active military installations or on property that was once used by the military should become familiar with any areas known or suspected to contain munitions. This information can be obtained:

- For active installations - from the commander, fire department, director of safety, or facilities engineer.
- For FUDS – from the US Army Corps of Engineers' District Commander.

Woodland Firefighting.indd 1 7/10/09 11:47:10 AM

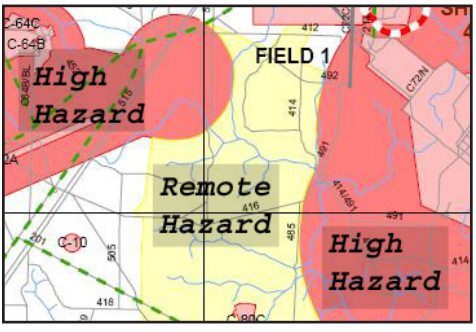
- For BRAC installations – from the installation commander, BRAC Environmental Coordinator, or local reuse authority, if established.

PREPLANNING

The potential for encountering munitions varies by location. Preplanning allows firefighters to:

- Become familiar with areas where munitions may be present.
- Determine, based on historic usage, the likelihood (e.g., high, low, remote) that they may encounter such explosive hazards while firefighting.
- Establish firefighting restrictions where needed.

Using maps developed during preplanning, an incident commander can readily evaluate the potential risk and determine appropriate firefighting response protocols across the entire property.



Local explosives safety specialists (e.g., UXO-qualified personnel), bomb squads, or the nearest military explosives ordnance disposal (EOD) unit may be contacted and used as a resource during development of firefighting protocols, including assesing the risk of using radios or cell phones within areas known to contain munitions.

Because heat may cause a detonation, fires that involve areas where munitions are known to be present are normally:

- Left to burn, with only indirect firefighting procedures used
- Fought using indirect firefighting techniques, such as aerial attacks and setting backfires or back burns from established munitions free areas
- Monitored rather than fought during periods of low fire danger, if the fire is small

Fires near areas known to contain munitions should be fought to prevent them from engulfing areas that contain munitions; however, once such areas are engulfed, firefighters should move a safe distance (1/2 mile plus) away.

Heavy equipment (e.g., bulldozer) should not be used to create fire breaks, unless the operator is protected from fragmentation, or UXO-qualified personnel pre-clear the footprint of any effort.

Where the potential risk of a detonation is considered low or remote:

- Ground resources may be allowed on existing roads and fire breaks that have been cleared of munitions
- Direct attack of small fires near cleared roads may be allowed, but the risk should be assessed
- The use of hand tools should be limited

Woodland Firefighting.indd 2 7/10/09 11:47:10 AM

When determining the potential hazards associated with munitions consult explosives safety resources (e.g., the DoD Explosives Safety Board, bomb squad or EOD personnel).

PRESCRIBED BURNS

Prescribed burns in areas known or suspected to contain munitions should be conducted in same manner as firefighting activities. Aerial ignition should be used in areas known to contain munitions, with holding crews confined to roads and established firebreaks. Once roads and firebreaks are established in areas known to contain munitions; care must be taken to ensure that erosion or other natural phenomena have not caused munitions to surface or migrate onto them. Regular maintenance, including the periodic surface sweeps for and removal of munitions from access roads and firebreaks should be conducted.

Recognize

Recognize that munitions may be encountered on lands currently or once used by the military for live-fire training or testing. Doing so will allow the incident commander and firefighters to plan for and take appropriate action to mitigate the explosives safety risks. Mitigation measures can help reduce the potential for serious injury or death of firefighters, and loss of critical firefighting resources.

Those who use, manage or make decisions concerning firefighting in areas known or suspected to contain munitions need to recognize the explosive hazards associated with munitions, options for eliminating or reducing the potential risks to people and resources, and matters for consideration in the decision-making process.

Prior to initiating a response, the first step is reviewing documents (e.g., maps and plans) developed during the preplanning.

The ability to recognize munitions is also important in reducing risks. Although the potential

Woodland Firefighting.indd 3 7/10/09 11:47:12 AM

explosives hazards vary based on the type of munitions, the presence and armed status of fuzing, and the condition of the munition, all munitions should be considered extremely dangerous. Some of the most common munitions encountered are:

- bombs
- mortars
- grenades
- artillery shells or projectiles
- pyrotechnics, including simulators
- warheads from rockets and guided missiles

Munitions can be located on the surface or partially or fully buried in soil or submerged in water. They may be:

- Complete or in parts
- Deteriorated or look like new
- Rusty or encrusted with dirt

The location and condition of the munitions will depend on the munitions-related activities that occurred (e.g., live-fire testing, demilitarization); the weapon systems employed; the type of munitions used; the geology and environmental conditions of the area; and any activities (e.g., development) that occurred since DoD last used the area.

Recognize the potential explosive hazards associated with all munitions regardless of whether they are intact or in fragments, new or old (e.g., civil war cannon balls), or deteriorated. Recognition is the critical first step in protecting people and equipment.

Retreat

Avoid death or injury by recognizing when you may have encountered a munition or when a fire may involve an area where munitions are present and carefully retreat from the area.

- Immediately stop all activities in the area.
- Do not approach a munition or suspected munition.
- Do not touch, disturb, or move a munition. (Munitions can become very unstable over time.)
- If possible, determine the coordinates or mark the general area so the munition can be investigated after the fire has been controlled or, if encountered at another time, once reported.
- Retreat from the area following the path used to get there
- Keep others away from the area!

Woodland Firefighting.indd 4 7/10/09 11:47:13 AM

Report

Protect yourself, your crew, firefighting assets and others by immediately reporting munitions or suspect munitions to your supervisor, chief, or the incident commander. Refrain from making reports by radio or cell phone when within 100 feet of the suspect item.

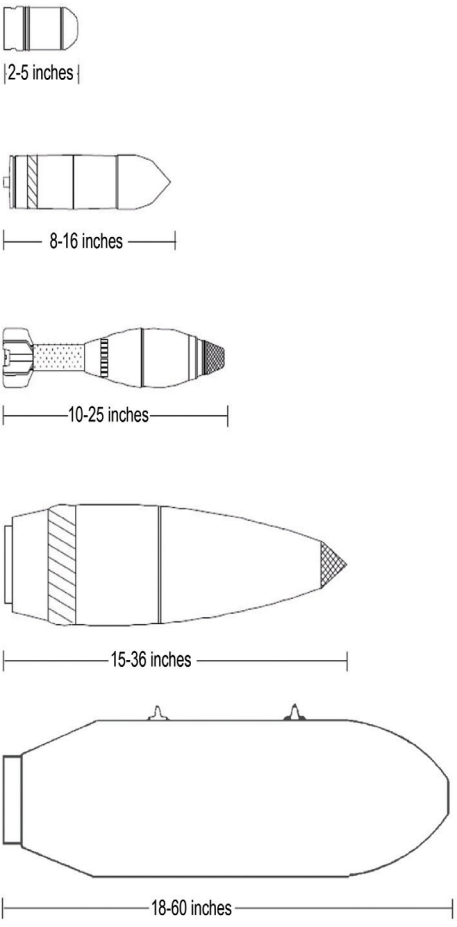
Report as much information as possible about what you saw and where you saw it. This will help the police and EOD personnel find, evaluate and address the munitions once firefighting activities have concluded.

If you believe you have encountered munitions, report the following:

- The area where you encountered munitions
- A general description of any munitions observed including their:
  - Size
  - Shape
  - Visible markings and color

  Do not approach or move a munition to obtain this information!

MUNITIONS COMMON SIZE AND SHAPE PROFILES



Recognize Retreat Report

Woodland Firefighting.indd 5 7/10/09 11:47:17 AM

EXPLOSIVES SAFETY MEASURES

- Whether intentionally or inadvertently in an area where munitions are present, remember the following: If you didn't drop it, don't pick it up or disturb it!
- Do not enter an area known or suspected to contain munitions.
- All munitions, whether intact or in fragments, present a potential explosive hazard.
- If you encounter or suspect you may have encountered a munition, stop, scan the area for additional munitions. Do not move closer.
- Never touch, move, or disturb a munition or suspect munition.
- If time permits, clearly mark the area where munitions were encountered. Do not mark the munition.
- Do not attempt to fight fires in areas known or suspected to contain munitions.
- If the types of munitions present are:
    - Unknown, larger than a 155mm artillery projectile or a heavy accumulation of munitions are known or suspected to be present, evacuate everyone within 1 mile.
    - Known to only contain isolated 155mm munitions or smaller, the evacuation distance may be reduced to 1/2 mile.
- Report the discovery of munitions to your immediate supervisor or the incident commander as soon as possible!
- Do not use radios or cell phones within 100 feet of areas known to contain munitions, unless specifically authorized or in an emergency.

Woodland Firefighting.indd 6 7/10/09 11:47:18 AM

DON'T FORGET

Preplanning, coordination and training are the best ways to protect firefighters when lands known or suspected to contain munitions may be involved in a fire.

Munitions are dangerous, and may not be easily recognizable!

Munitions may be encountered anywhere!

REMEMBER THE 3Rs

RECOGNIZE:

- Recognize when you may have encountered or may enter an area containing munitions.
- Know when you may be fighting fires on lands where munitions are or may be present.

RETREAT:

- Immediately stop activities, scan the area for munitions, and carefully leave the area.
- Do not touch or disturb munitions.

REPORT:

- Immediately notify your supervisor who will notify the incident command staff.
- Provide a description of the munition and the location.

For additional information call
U.S. Army Technical Center for Explosives Safety at (918) 420-8919
or see
the US Army's UXO Safety Education website

https://www.denix.osd.mil/uxosafety

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