

# Construction Industry

3Rs EXPLOSIVES SAFETY GUIDE



The United States has always maintained a highly trained and ready force to protect its national interests. After both world wars and recently with force realignment and modernization efforts, the Department of Defense (DoD) closed a number of military installations and training areas, and returned other lands to citizens who had previously



allowed the land's use for military activities. Because of the training and testing required to maintain this force, millions of acres in the United States are known or suspected to contain military munitions in the form of unexploded ordnance (UXO), or discarded military munitions (DMM). In some cases, explosives residues may also exist in high enough concentrations to present an explosive (detonation) hazard. Although DoD routinely made an effort to remove the explosive hazards present

before releasing the land from its control, some may remain. These explosive hazards may be found on the surface or in the subsurface.

Munitions are designed to injure, maim or kill people, or to destroy equipment or structures. Any known or suspect munition encountered should be considered extremely dangerous.

During construction work such as clearing, grubbing, grading, and excavation, munitions are occasionally found. This is particularly true for areas known to have once been used by the military for munitions-related activities (e.g., live-fire training and testing munitions demilitarization). Military munitions operating buildings (e.g., munitions production demilitarization facilities) and any installed equipment may contain explosives residue in high enough concentrations to present an explosive hazard.

Of particular concern are building features (e.g., floors, walls, drains, internal and external piping, and ventilation systems) in which explosives residues could accumulate and present an explosive hazard.

Industrial equipment, particularly equipment with internal cavities, from facilities used in munitions production or demilitarization operations (e.g., cast loading or milling, steam-out) that generated explosive residues (e.g., dust, vapors, liquids) is a concern.

### **WILL YOU KNOW WHAT TO DO IF YOU ENCOUNTER A MUNITION?**



Areas at which DoD conducted munitions-related activities include operational and former ranges; and areas used for munitions demilitarization. The types of explosive hazards present may differ between areas. As an example, a former impact area may contain UXO, while a former maneuver area may only contain DMM.

Munitions can also be found in areas where combat operations once occurred. Even cannon balls found on Civil War battlefields present an explosive

hazard. However, for a variety of reasons (unauthorized disposals, discarded souvenirs) munitions may be encountered almost anywhere.



Prior to working in areas with a history of military use, even areas where DoD has completed an environmental response to remove any hazards detected, it is important to familiarize yourself with the site history and potential hazards. This is provided through site-specific safety training. In some cases, safety officials may determine that on-site or on-call construction support by UXO-qualified personnel is necessary to help ensure the safety of construction workers during intrusive activities.



## MUNITIONS ARE DESIGNED TO BE DANGEROUS

Remember that munitions:

- Come in many shapes/sizes.
  - They could look like a:
    - + Pointed pipe
    - + Soda can
    - + Baseball
    - + Car muffler
  - They may:
    - + Look new or old
    - + Be found singly, as well as in clusters or massive caches
- Should be considered dangerous regardless of size or age



Munitions may be:

- Found almost anywhere
- Clearly visible on the surface
- Buried at depths of inches to many feet
- Partially or completely hidden by dirt or vegetation
- Underwater, in lakes, streams, or the ocean
- Exposed by natural phenomena (e.g., tides)
- Easy or difficult to recognize



Munitions do not become safer with age, they often become more dangerous.

While munitions are most likely to be encountered during construction in areas where DoD conducted munitions-related activities, they may be encountered anywhere.



To protect yourself and your co-workers, know whether munitions-related activities ever occurred at your work site, and learn to follow the 3Rs: Recognize, Retreat, Report.



# Recognize

Recognizing that you may have encountered a munition is one of the most important steps in reducing the risk of injury or death. Because munitions present a potential explosive hazard, they should never be touched, moved or disturbed (handled).

## WILL YOU DO THE RIGHT THING WHEN THE TIME COMES?



In 1993, a construction worker digging a trench unearthed what looked like large bullets. He recognized the potential danger, stopped digging and notified his supervisor. Local authorities were called. As a result of this worker's actions, nearly 150 high explosive tank shells were recovered from a former WWI training area.



Whether complete or in pieces, consider any munition or suspect munition encountered dangerous; immediately stop operations and do not touch, move or disturb it.

# Retreat

If you think you may have encountered a munition, do not touch, move or disturb it, but carefully retreat from the area.

- Immediately stop all construction activities in the area.
- Never approach a suspected munition. (Some fuzes are sensitive to changes in temperature, movement or pressure.)
- Move away from the area and keep others away from it!

Unfortunately, munitions are often popular, but potentially deadly souvenirs. Taking a munition for a keepsake presents an immediate and real danger to you. Bringing it home endangers your family and friends. Don't be tempted.

If you encounter what you believe to be a munition, do not touch, move or disturb it. Instead, immediately stop construction activities and move away from the area.



Protect yourself, your co-workers, your friends, family, and others by immediately reporting munitions or suspect munitions to your foreman or site supervisor, or call 911.

Provide as much information as possible about what you saw and where you saw it. This will help the police and explosive ordnance disposal personnel (usually referred to as EOD personnel) find, evaluate and address the situation.

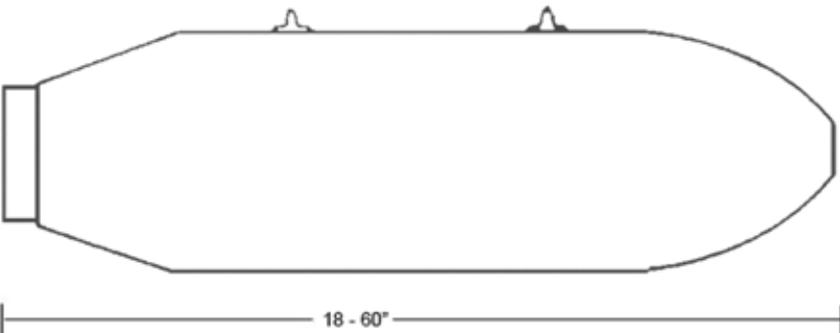
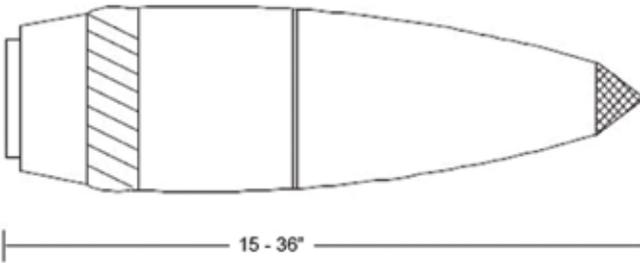
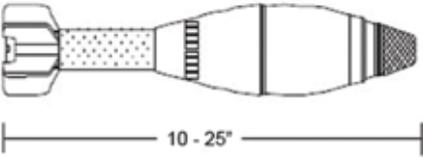
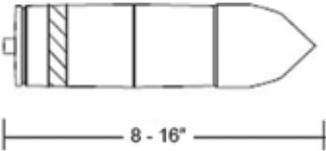
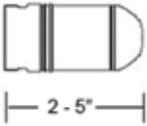


If you believe you have encountered a munition, report the following:

- The area where you encountered it.
- A general description of the munition, to include:
  - Its size
  - Its shape
  - Any visible markings



# MUNITIONS COMMON SIZE AND SHAPE PROFILES



## ***DON'T FORGET***

Munitions are dangerous, and may not be easily recognizable!

Avoid military and former military ranges and disposal areas!

Never touch, move or disturb a munition!

## **REMEMBER THE 3Rs**

**RECOGNIZE:** Recognize when you may have encountered a munition.

**RETREAT:** Do not touch, move or disturb it, but carefully leave the area.

**REPORT:** Immediately notify the police if on land, or the U.S. Coast Guard, if at sea. Emergency contacts:

- ◆ On land: Call 911
- ◆ At sea: Use Channel 16 (156.800 MHz)



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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