

ASR SUPPLEMENT

INSTALLATION NAME: ASSATEAGUE ISLAND

FFID: MD9799F1439

FUDS PROPERTY NUMBER: C03MD0930

TOTAL PROPERTY ACREAGE: 17552

MSC: North Atlantic Division - 41503
ASSATEAGUE ISLAND, MD 00152

POC for this data:

Robert Hoffman, Rock Island District
Phone: 309-794-5504
Email: robert.e.hoffman@mvr02.usace.army.mil

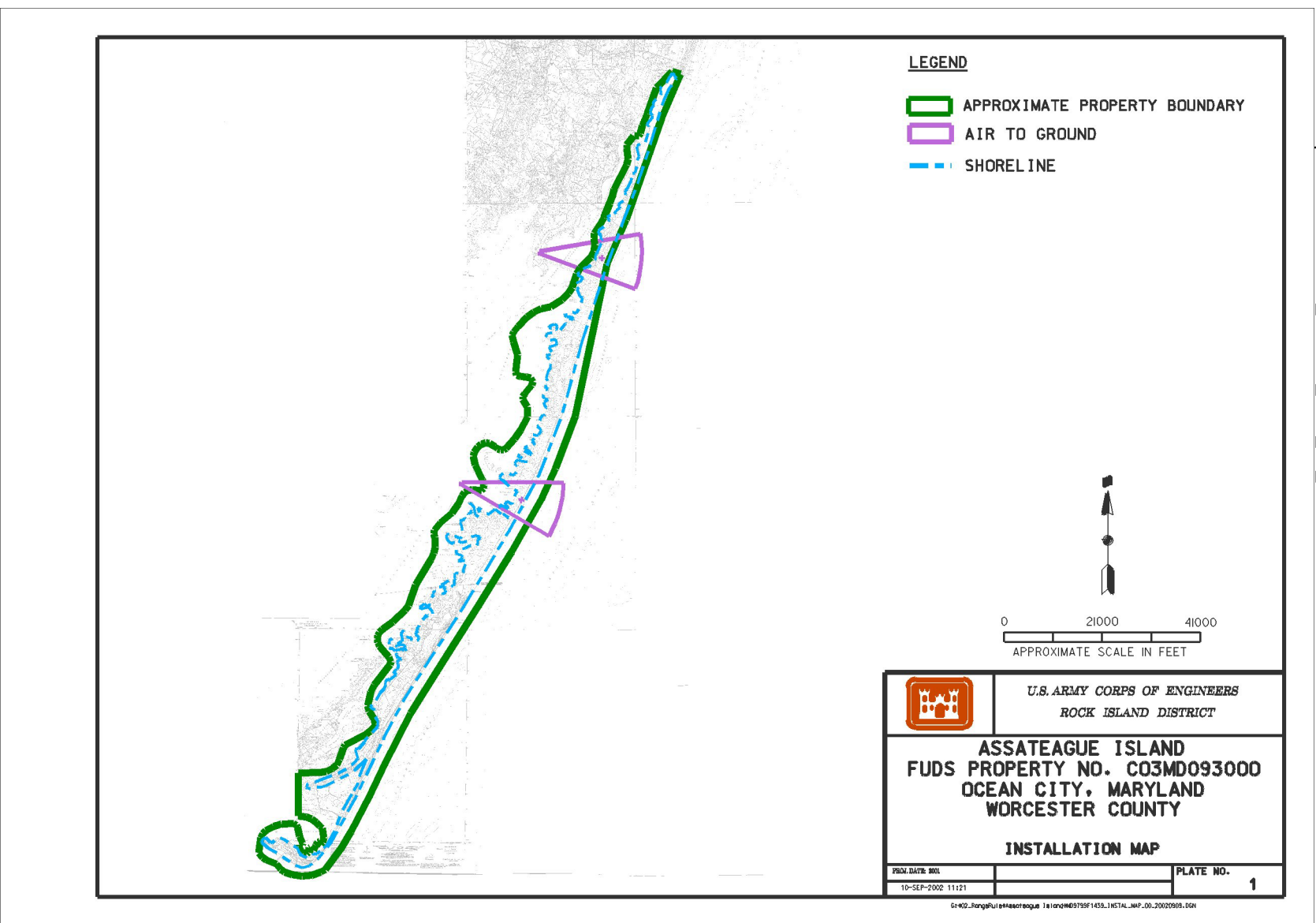
DOES THE INSTALLATION HAVE ANY A/I RANGES? NO

DOES THE INSTALLATION HAVE ANY CTT RANGES? YES

TYPES OF MUNITIONS USED ON THIS INSTALLATION: Conventional

INFORMATION IN THIS SUPPLEMENT WAS GATHERED FROM THE: ASR

| MMR AREA SUMMARY | | | | | | |
|------------------|-----------|--------------------|----------------|---------|----------|----------------|
| PROJECT No. | PLATE No. | RANGE NAME | SUB-RANGE NAME | ACREAGE | AARS AOC | RMIS RANGE ID |
| 01 | R01 | Rocket Range North | | 3108 | A | C03MD093001R01 |
| 01 | R02 | Rocket Range South | | 3108 | A | C03MD093001R02 |



INSTALLATION NAME
ASSATEAGUE ISLAND
ASSATEAGUE ISLAND, MD

FUDS PROJECT
C03MD093001 - MMRP - C03MD093001

PROJECT COMMENTS: The site had two separate rocket ranges which were used by the Navy during the WWII timeframe. Assateague Island is also home to a State Park and a National Wildlife Refuge. Except for the refuge and campsites, Assateague Island is virtually undeveloped today. These ranges are identified as Stinger-One and Stinger-Two ranges. No historical maps were found to indicate where these ranges were but a Navy veteran, assigned to the site when it was active, identified the location of these ranges. EOD teams recovered 7 rocket motors, 6 rockets and numerous ballistic tips in 1988. In 1992, a contractor performed a sweep for OE in one of the range areas.

MMR AREA NAME: Rocket Range North

RMIS Range ID: C03MD093001R01

HISTORIC USE:

| HISTORIC USE | START YEAR | END YEAR | COMMENTS |
|---------------------|-------------------|-----------------|-----------------|
| AIR-TO-GROUND | 1944 | 1947 | N/A |

CURRENT USE:

| CURRENT USE | START YEAR | COMMENTS |
|--------------------|-------------------|-----------------|
| Recreational | 1947 | N/A |

ACREAGE:

| | |
|--|------|
| Land: | 583 |
| Tidal Water: | 2525 |
| Inland Water: | 0 |
| Total: | 3108 |
| Tidal Water with Public Exposure Pathway: | No |

MMR ACREAGE:

| | |
|-----------------------|------|
| Identified: | 0 |
| Suspected: | 3108 |
| Not Suspected: | 0 |

RISK ASSESSMENT CODE:

| | |
|----------------------------|-----|
| Hazard Severity: | III |
| Hazard Probability: | D |
| RAC Score: | 4 |

CLASSIFICATION(S):

Training

RANGE / NON-RANGE: Range

LAND USE RESTRICTIONS: Unrestricted Public Access

CONSTRUCTION DATE: (YYYYMMDD) 19440101

THE FOLLOWING TYPES OF MUNITIONS WERE USED ON THIS RANGE:

Conventional

DESCRIPTION: This is a stand alone rocket range. The range was a standard WWII era practice rocket and gunnery range.

COMMENTS: The site had two separate rocket ranges which were used by the Navy during the WWII timeframe. Assateague Island is also home to a State Park and a National Wildlife Refuge. Except for the refuge and campsites, Assateague Island is virtually undeveloped today. These ranges are identified as Stinger-One and Stinger-Two ranges. No historical maps were found to indicate where these ranges were but a Navy veteran, assigned to the site when it was active, identified the location of these ranges. EOD teams recovered 7 rocket motors, 6 rockets and numerous ballistic tips in 1988. In 1992, a contractor performed a sweep for OE in one of the range areas.

HAVE THERE BEEN ANY DOCUMENTED INCIDENTS ON THIS RANGE? Yes - Private OE contractors performed an ordnance removal project in 1991. 2.25" and 5' rockets, MK43 practice bombs and 20MM casings were recovered. A second clearance was performed in 1992 with no OE being recovered.

RANGE MUNITIONS:

| MUNITIONS ID | MUNITIONS | USED START DATE | USED END DATE |
|--|-----------------------------------|-----------------|---------------|
| BOMBS, PRACTICE(CTT10) | AN-Mk 5, AN-Mk 23, AN-Mk 43, Prac | 194401 | 194701 |
| MEDIUM CALIBER (20MM, 25MM, 30MM), PRACTICE(CTT17) | 20mm, Ball, MK1 | 194401 | 194707 |
| AERIAL ROCKETS (PRACTICE)(CTT28) | 2.25-inch Practice Rocket, MK6 | 194401 | 194701 |
| AERIAL ROCKETS (PRACTICE)(CTT28) | 5-inch, Practice Rocket, Mk 8 | 194401 | 194701 |

RANGE LAND ACCESS AND RESTRICTIONS:

| RESTRICTION TYPE | RESTRICTION | DESCRIPTION |
|------------------|-----------------------|--------------------------------|
| A | NO CONTROLS | No known access controls |
| L | OTHER (Must Describe) | No known Land Use Restrictions |

RANGE OWNERS:

| OWNER TYPE | OWNER DESCRIPTION | LEASE | LEASE TERMINATION | REVOCATION OF LAND |
|------------|--------------------------------|-------|-------------------|--------------------|
| S | Maryland State Parks | | NO | NO |
| F | U.S. Fish and Wildlife Service | | NO | NO |

RANGE DEMOGRAPHICS:

| TYPE | NAME | STATE | COUNTRY |
|------|------|-------|---------|
|------|------|-------|---------|

CO Worcester MD UNITED STATES
CT Ocean City MD UNITED STATES

SOIL TYPE: GRAVEL/GRAVEL-SAND

TOPOGRAPHY: GENTLY ROLLING

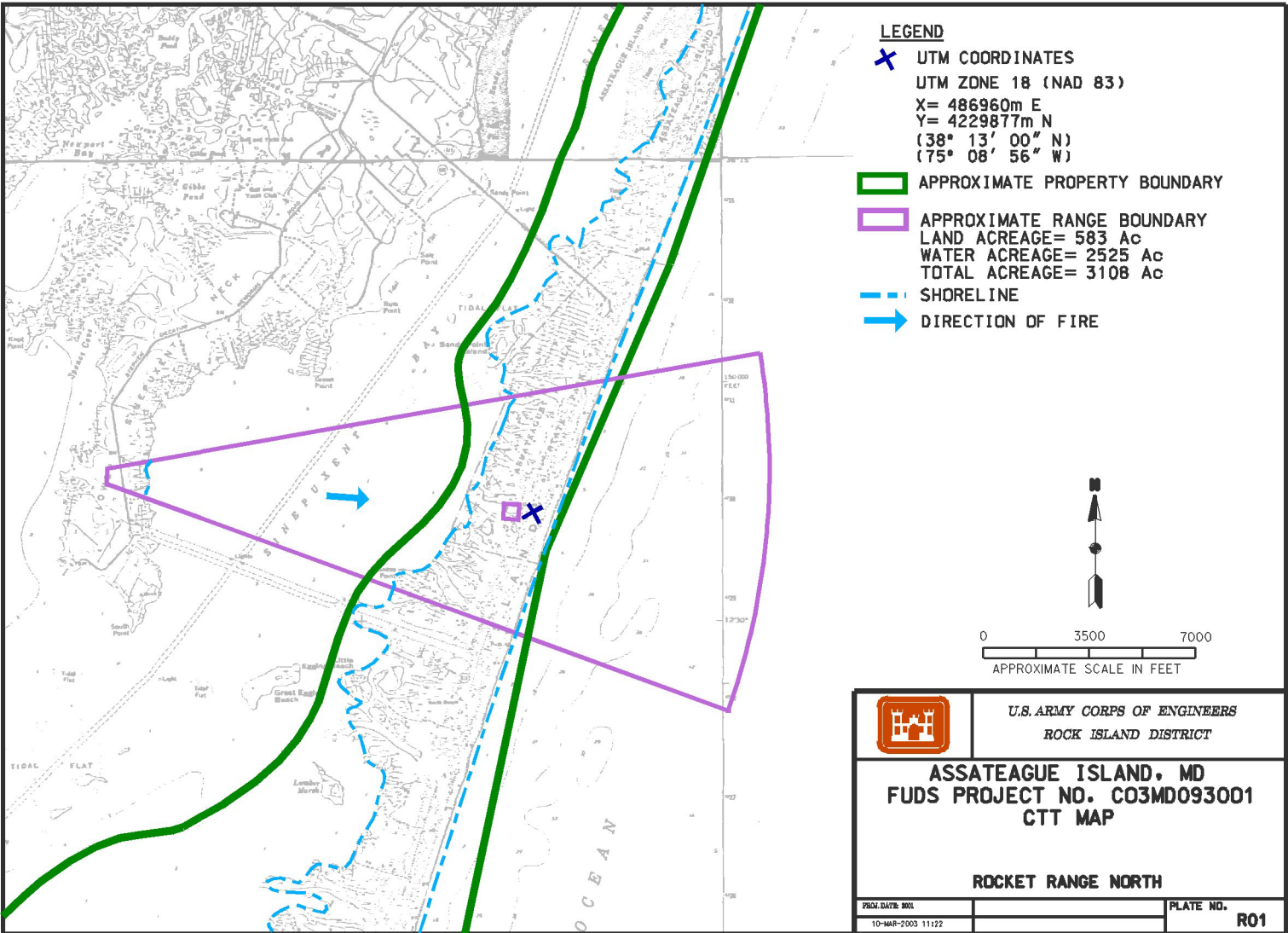
VEGETATION: SHRUBS WITH SOME TREES

GROUNDWATER

| | |
|--|---------------|
| AVG DEPTH (IN FEET) | NOT SPECIFIED |
| DRINKING WATER SUPPLY | UNKNOWN |
| RANGE CONTAMINATION FROM RESIDUE OF MUNITIONS | UNKNOWN |

COORDINATES:

DATUM: NAD83
UTM X: (meters) 486960.00
UTM Y: (meters) 4229877.00
UTM ZONE: 18
Latitude: 38° 13' 0" N
Longitude: 75° 8' 56" W



MMR AREA NAME: Rocket Range South

RMIS Range ID: C03MD093001R02

HISTORIC USE:

| HISTORIC USE | START YEAR | END YEAR | COMMENTS |
|---------------------|-------------------|-----------------|-----------------|
| AIR-TO-GROUND | 1944 | 1947 | N/A |

CURRENT USE:

| CURRENT USE | START YEAR | COMMENTS |
|--------------------|-------------------|-----------------|
| Recreational | 1947 | N/A |

ACREAGE:

| | |
|--|------|
| Land: | 563 |
| Tidal Water: | 2545 |
| Inland Water: | 0 |
| Total: | 3108 |
| Tidal Water with Public Exposure Pathway: | No |

MMR ACREAGE:

| | |
|-----------------------|------|
| Identified: | 0 |
| Suspected: | 3108 |
| Not Suspected: | 0 |

RISK ASSESSMENT CODE:

| | |
|----------------------------|-----|
| Hazard Severity: | III |
| Hazard Probability: | D |
| RAC Score: | 4 |

CLASSIFICATION(S):

Training

RANGE / NON-RANGE: Range

LAND USE RESTRICTIONS: Unrestricted Public Access

CONSTRUCTION DATE: (YYYYMMDD) 19440101

THE FOLLOWING TYPES OF MUNITIONS WERE USED ON THIS RANGE:

Conventional

DESCRIPTION: This is a stand alone rocket range. The range was a standard WWII era practice rocket and gunnery range.

COMMENTS: The site had two separate rocket ranges which were used by the Navy during the WWII timeframe. Assateague Island is also home to a State Park and a National Wildlife Refuge. Except for the refuge and campsites, Assateague Island is virtually undeveloped today. These ranges are identified as Stinger-One and Stinger-Two ranges. No historical maps were found to indicate where these ranges were but a Navy veteran, assigned to the site when it was active, identified the location of these ranges. EOD teams recovered 7 rocket motors, 6 rockets and numerous ballistic tips in 1988. In 1992, a contractor performed a sweep for OE in one of the range areas.

HAVE THERE BEEN ANY DOCUMENTED INCIDENTS ON THIS RANGE? Yes - Private OE contractors performed an ordnance removal project in 1991. 2.25" and 5' rockets, MK43 practice bombs and 20MM casings were recovered. A second clearance was performed in 1992 with no OE being recovered.

RANGE MUNITIONS:

| MUNITIONS ID | MUNITIONS | USED START DATE | USED END DATE |
|---|---|-----------------|---------------|
| SMALL ARMS(CTT01) BOMBS, PRACTICE(CTT10) | Small Arms, General AN-Mk 5, AN-Mk 23, AN-Mk 43, Prac | 194401 | 194701 |
| MEDIUM CALIBER (20MM, 25MM, 30MM), PRACTICE(CTT17) | 20mm, Ball, MK1 | 194401 | 194701 |
| AERIAL ROCKETS (PRACTICE)(CTT28) | 2.25-inch, Practice Rocket | 194401 | 194701 |
| AERIAL ROCKETS (PRACTICE)(CTT28) | 5-inch, Practice Rocket, Mk 8 | 194401 | 194701 |

RANGE LAND ACCESS AND RESTRICTIONS:

| RESTRICTION TYPE | RESTRICTION | DESCRIPTION |
|------------------|-----------------------|--------------------------------|
| A | NO CONTROLS | No known access controls |
| L | OTHER (Must Describe) | No known Land Use Restrictions |

RANGE OWNERS:

| OWNER TYPE | OWNER DESCRIPTION | LEASE | LEASE TERMINATION | REVOCATION OF LAND |
|------------|--------------------------------|-------|-------------------|--------------------|
| F | Maryland State Parks | | NO | NO |
| F | U.S. Fish and Wildlife Service | | NO | NO |

RANGE DEMOGRAPHICS:

| TYPE | NAME | STATE | COUNTRY |
|-------------|-------------|--------------|----------------|
| CO | Worcester | MD | UNITED STATES |
| CT | Ocean City | MD | UNITED STATES |

SOIL TYPE: GRAVEL/GRAVEL-SAND

TOPOGRAPHY: GENTLY ROLLING

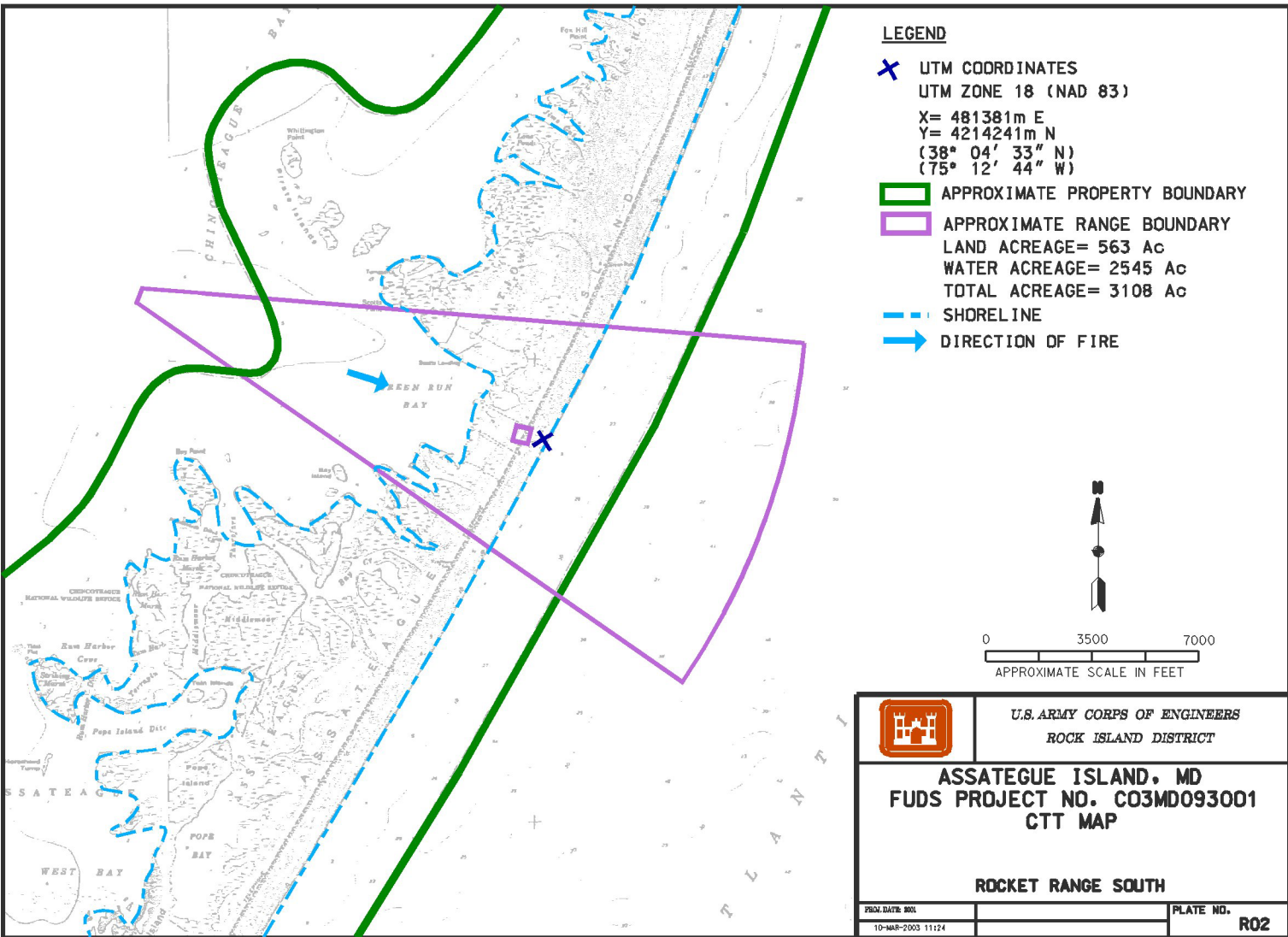
VEGETATION: SHRUBS WITH SOME TREES

GROUNDWATER

| | |
|--|---------------|
| AVG DEPTH (IN FEET) | NOT SPECIFIED |
| DRINKING WATER SUPPLY | UNKNOWN |
| RANGE CONTAMINATION FROM RESIDUE OF MUNITIONS | UNKNOWN |

COORDINATES:

| | |
|------------------------|---------------|
| DATUM: | NAD83 |
| UTM X: (meters) | 481381.00 |
| UTM Y: (meters) | 4214241.00 |
| UTM ZONE: | 18 |
| Latitude: | 38° 4' 32" N |
| Longitude: | 75° 12' 44" W |



APPENDIX A
MUNITIONS DATASHEETS

MUNITIONS LIST:

| ID | NAME | DATA SHEET |
|-----------|-----------------------------------|-------------------|
| CTT01 | SMALL ARMS, GENERAL | YES |
| CTT10 | AN-Mk 5, AN-Mk 23, AN-Mk 43, PRAC | YES |
| CTT17 | 20MM, BALL, MK1 | YES |
| CTT28 | 2.25-INCH PRACTICE ROCKET, MK6 | YES |
| CTT28 | 2.25-INCH, PRACTICE ROCKET | YES |
| CTT28 | 5-INCH, PRACTICE ROCKET, Mk 8 | YES |

CTT01

SMALL ARMS

SMALL-ARMS AMMUNITION

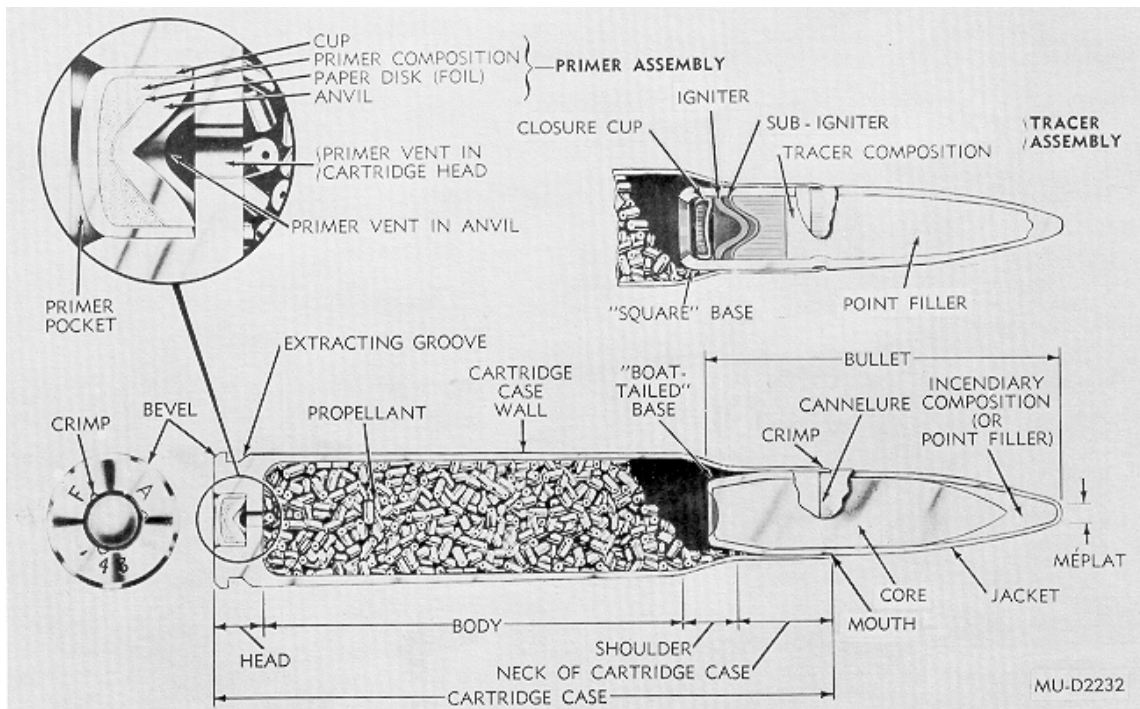
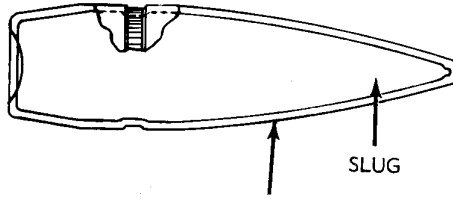


Figure 1. Typical cartridge (sectional)

General. Small-arms ammunition, as used herein, describes a cartridge or families of cartridges intended for use in various types of hand-held or mounted weapons through 30 millimeter. Within a caliber designation, these weapons may include one or more of the following: rifles (except recoilless), carbines, pistols, revolvers, machineguns and shotguns. For purposes of this publication, small-arms ammunition may be grouped as cartridges intended primarily for combat or training purposes (API, HEI, tracer or ball); for training purposes only (blank or dummy); or for special purposes (rifle grenade or spotter-tracer). Refer to TM 9-1306-200 for more detailed information on small-arms ammunition.

Cartridges. In general, a small-arms cartridge is identified as an assembly of a cartridge case, primer, a quantity of propellant within the cartridge case, and a bullet or projectile. Blank and rifle grenade cartridges are sealed with paper closure disks in lieu of bullets. Dummy cartridges are composed of a cartridge case and a bullet. Some dummy cartridges contain inert granular materials to simulate the weight and balance of live cartridges. A typical cartridge and the terminology of its components are shown in figure 1.

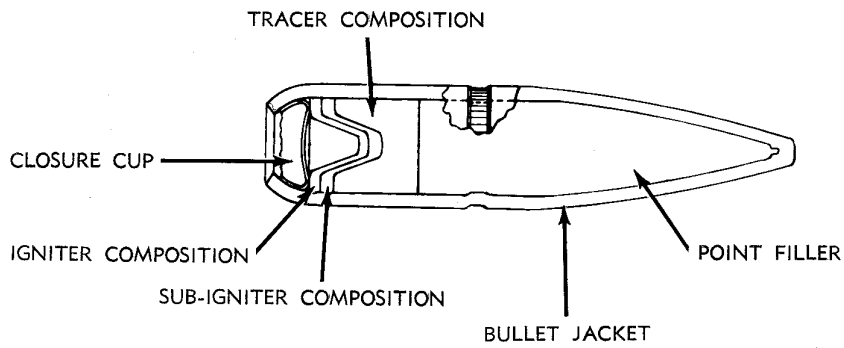
Case. Although steel, aluminum, zinc and plastic materials have been used experimentally, brass, a composition of 70 percent copper and 30 percent zinc, is the most commonly used material for cartridge cases. Steel, as well as brass, is an approved material for caliber .45 cartridge cases. Brass, paper and plastic are used for 12 gage shotshell bodies. Aluminum is used for military-type .410 gage shotshell bodies. Configurations of cartridges and bullets are illustrated in figures 2 through 9.



BULLET JACKET

SLUG

BALL (NATO)



TRACER COMPOSITION

CLOSURE CUP

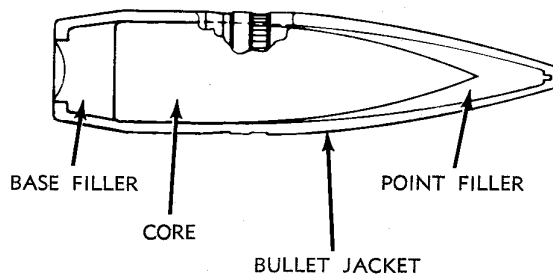
IGNITER COMPOSITION

SUB-IGNITER COMPOSITION

BULLET JACKET

POINT FILLER

TRACER (NATO)



BASE FILLER

CORE

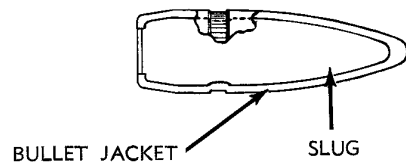
BULLET JACKET

POINT FILLER

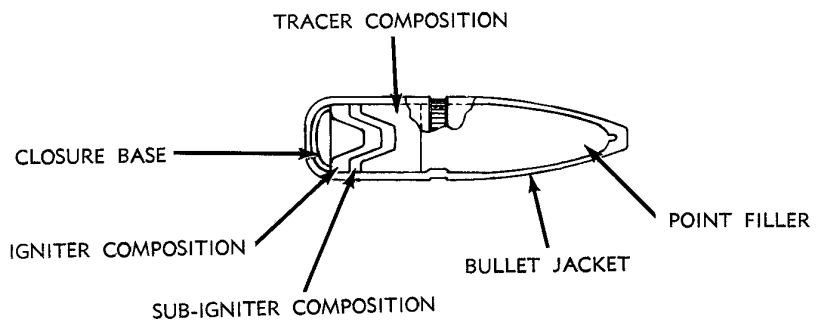
ARMOR-PIERCING (NATO)

MU-D 2233

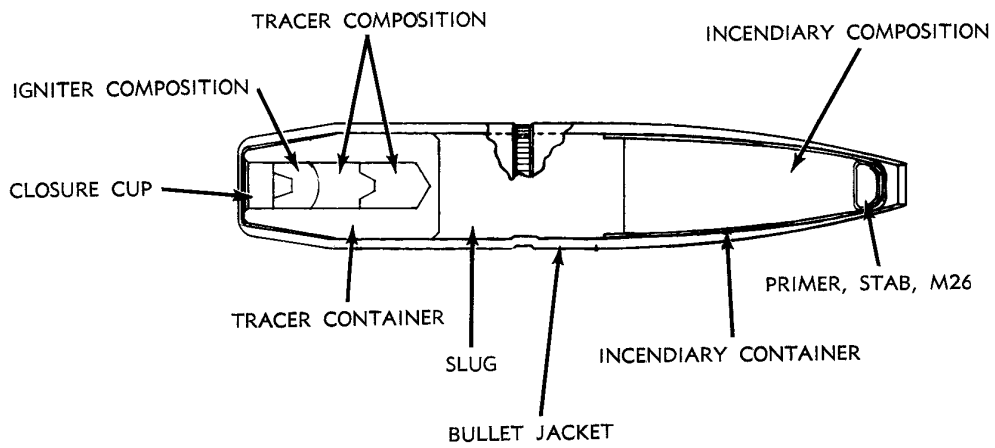
Figure 2. 7.62 mm bullets (sectional)



5.56 MM BALL



5.56 MM TRACER



CALIBER .50, SPOTTER TRACER

MU-D 2234

Figure 3. 5.56mm and caliber .50 spotter tracer bullets (sectioned)

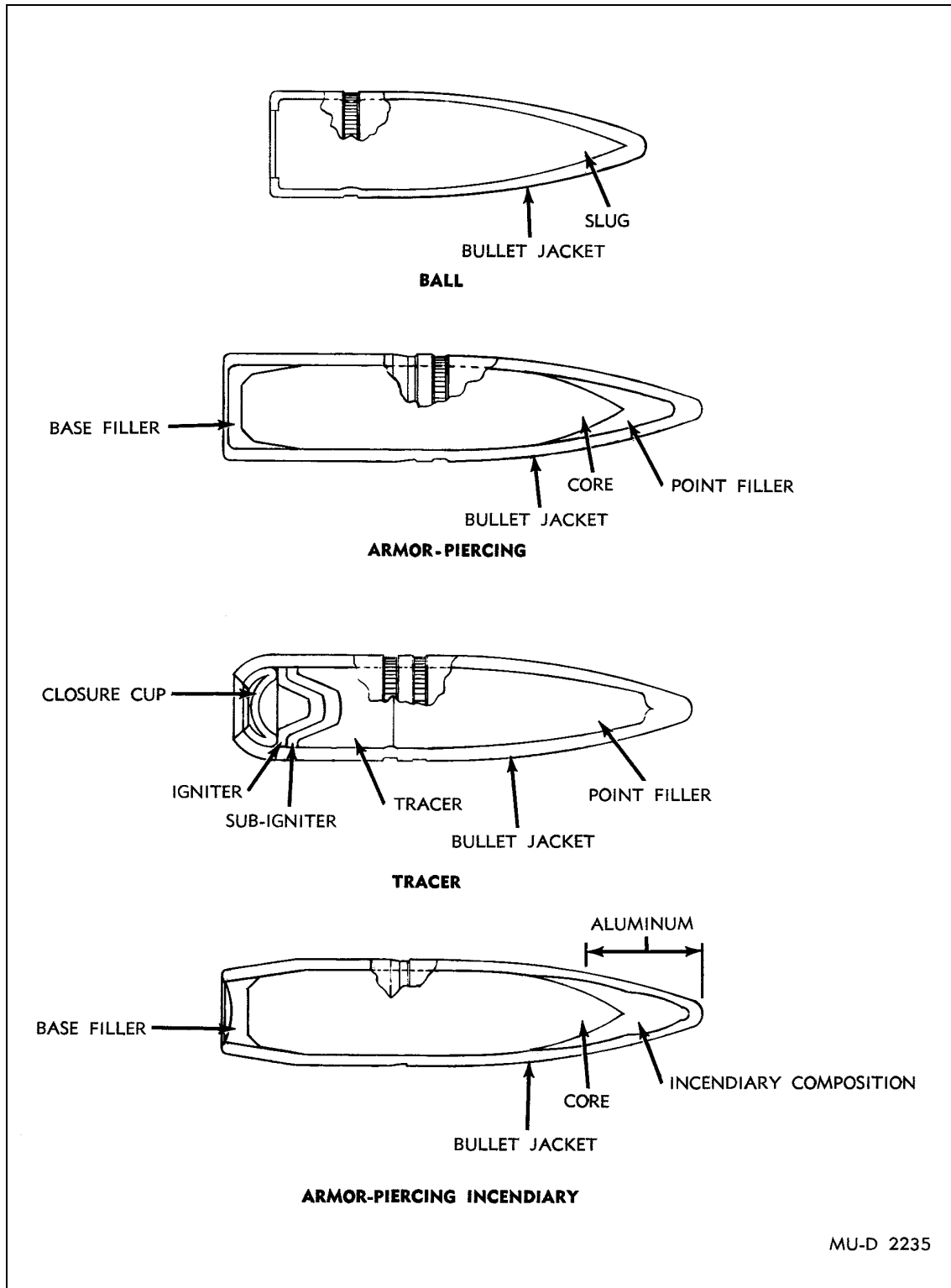


Figure 4. Caliber .30 bullets (sectional)

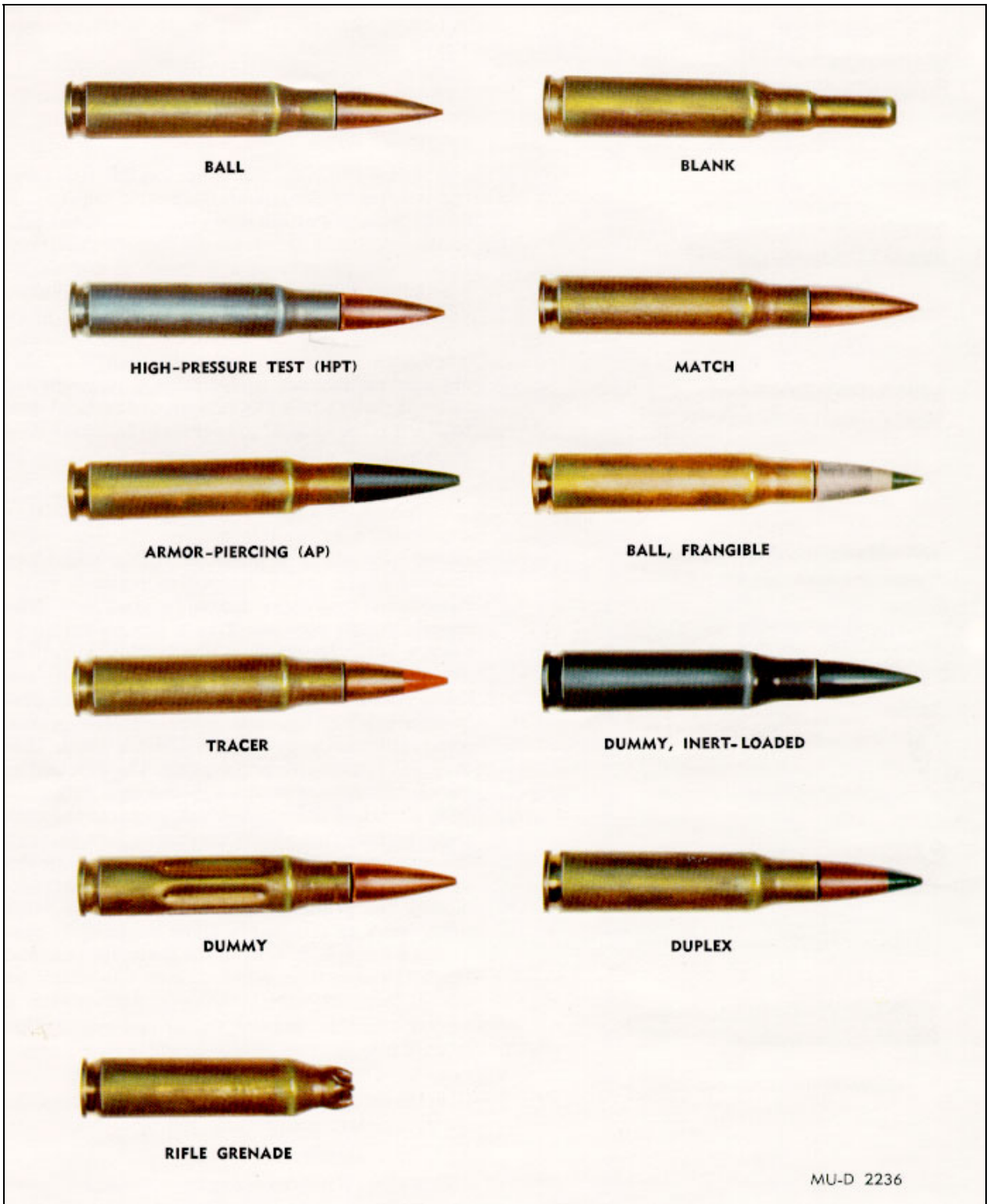


Figure 5. 7.62mm cartridges

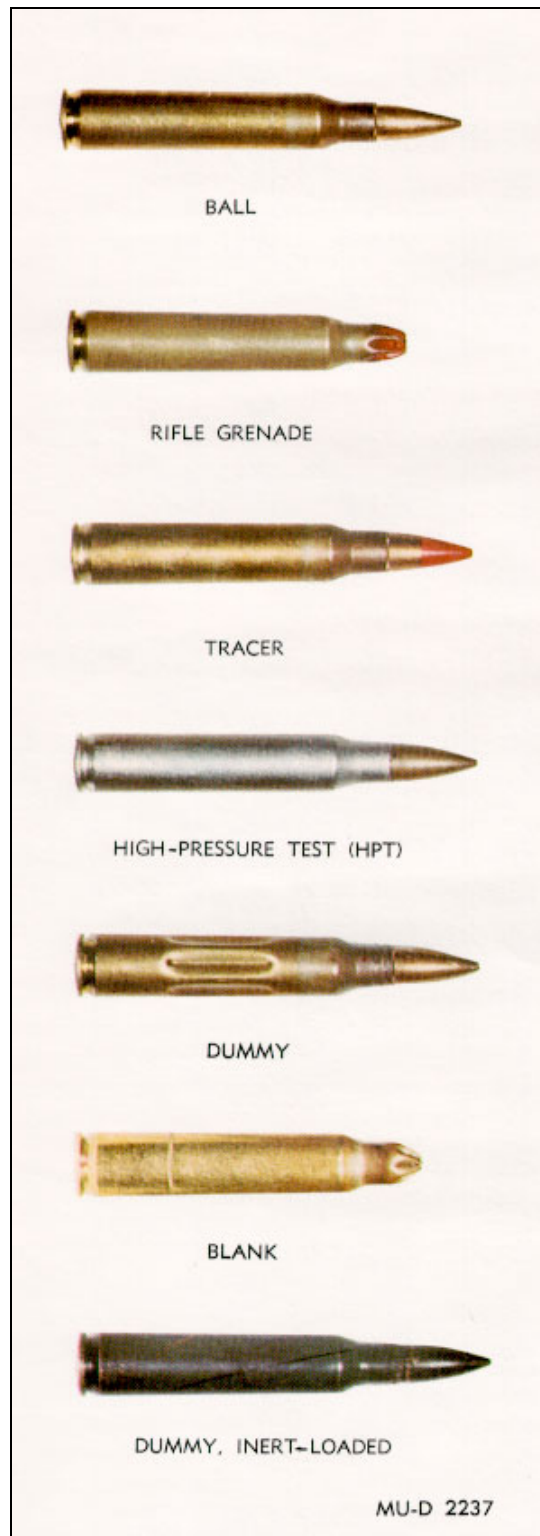


Figure 6. 5.56mm cartridges

Propellant. Cartridges are loaded with varying weights of propellant. This is to impart sufficient velocity (within safe pressures) to the projectile to obtain the required ballistic performance. These propellants are either of the single-base (nitrocellulose) or double-base (nitrocellulose and nitroglycerine) type. The propellant grain configuration may be cylindrical with a single, lengthwise perforation, spheroid (ball) or flake. Most propellants are coated with a deterrent (to assist in controlling the rate of combustion) and with a final coating of graphite (to facilitate flow of propellant and eliminate static electricity in loading cartridges).

Primer. Small-arms cartridges contain either a percussion or electric primer. The percussion primer consists of a brass or gilding metal cup that contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil. The electric primer consists of an electrode button in contact with the priming composition, a primer cup assembly and insulator. A blow from the firing pin of the weapon on the center of the percussion primer cup base compresses the primer composition between the cup and the anvil. This causes the composition to explode. The function of the electric primer is accomplished by a firing pin with electrical potential, which contacts the electrode button. This allows current to flow through the energy-sensitive priming composition to the grounded primer cup and cartridge case, exploding the priming composition. Holes or vents in the anvil or closure cup allow the flame to pass through the primer vent in the cartridge case and ignite the propellant. Rimfire ammunition, such as the caliber .22 cartridge, does not contain a primer assembly. Instead, the primer composition is spun into the rim of the cartridge case and the propellant is in intimate contact with the composition. On firing, the firing pin strikes the rim of the cartridge case, compressing the primer composition and initiating its explosion.

Bullet. With few exceptions, bullets through caliber .50 are assemblies of a jacket and a lead or steel core. They may contain other components or chemicals which provide the terminal ballistic characteristics of the bullet type. The bullet jacket may be either gliding metal, gliding-metal clad steel, or copper plated steel. Caliber .30 and 7.62mm frangible bullets are molded of powdered lead and a friable plastic which pulverizes into dust upon impact with the target. The pellets used in the shotgun shells are spheres of lead alloys varying from 0.08 inch to 0.33 inch in diameter.

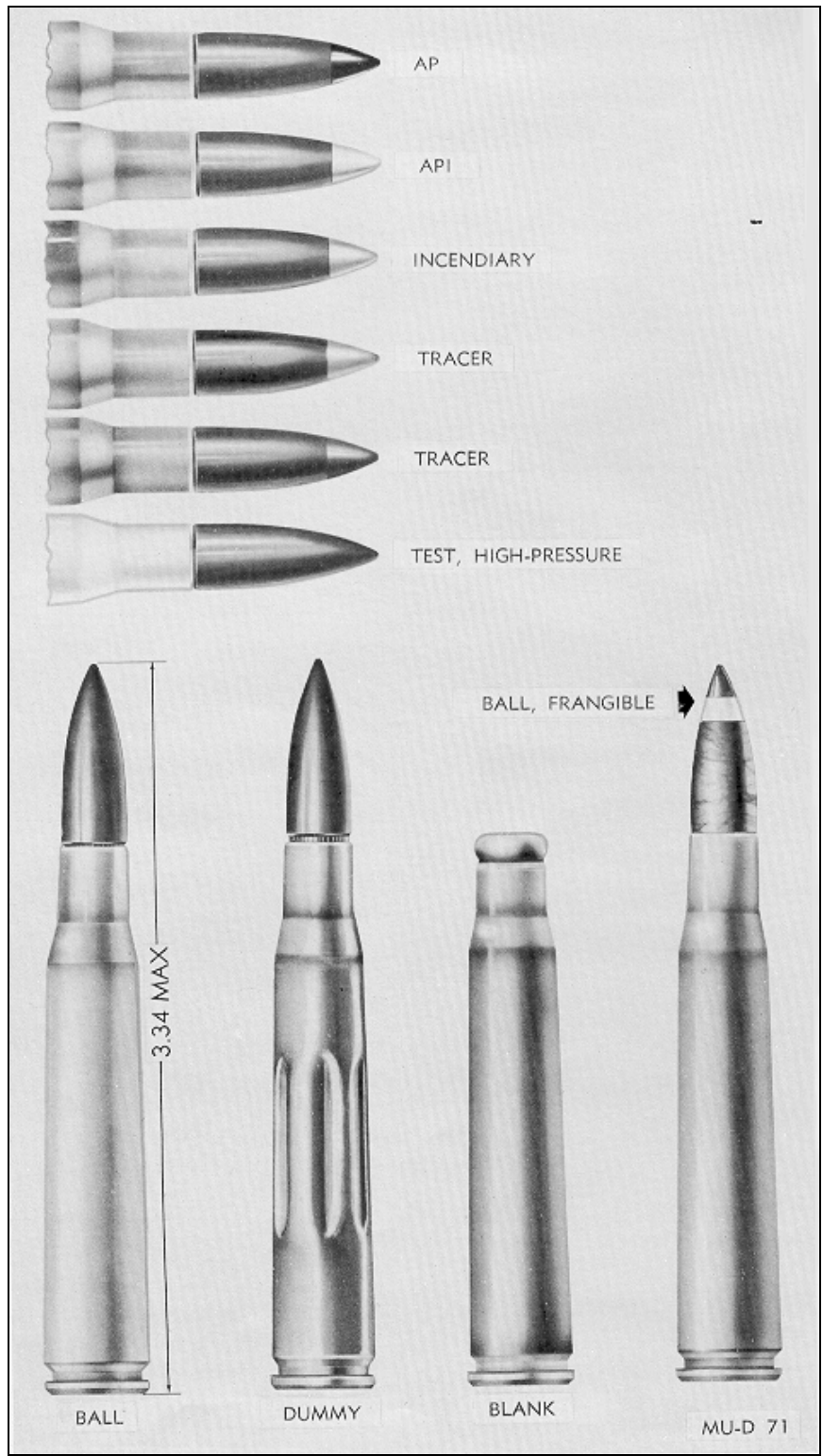


Figure 7. Caliber .30 cartridges

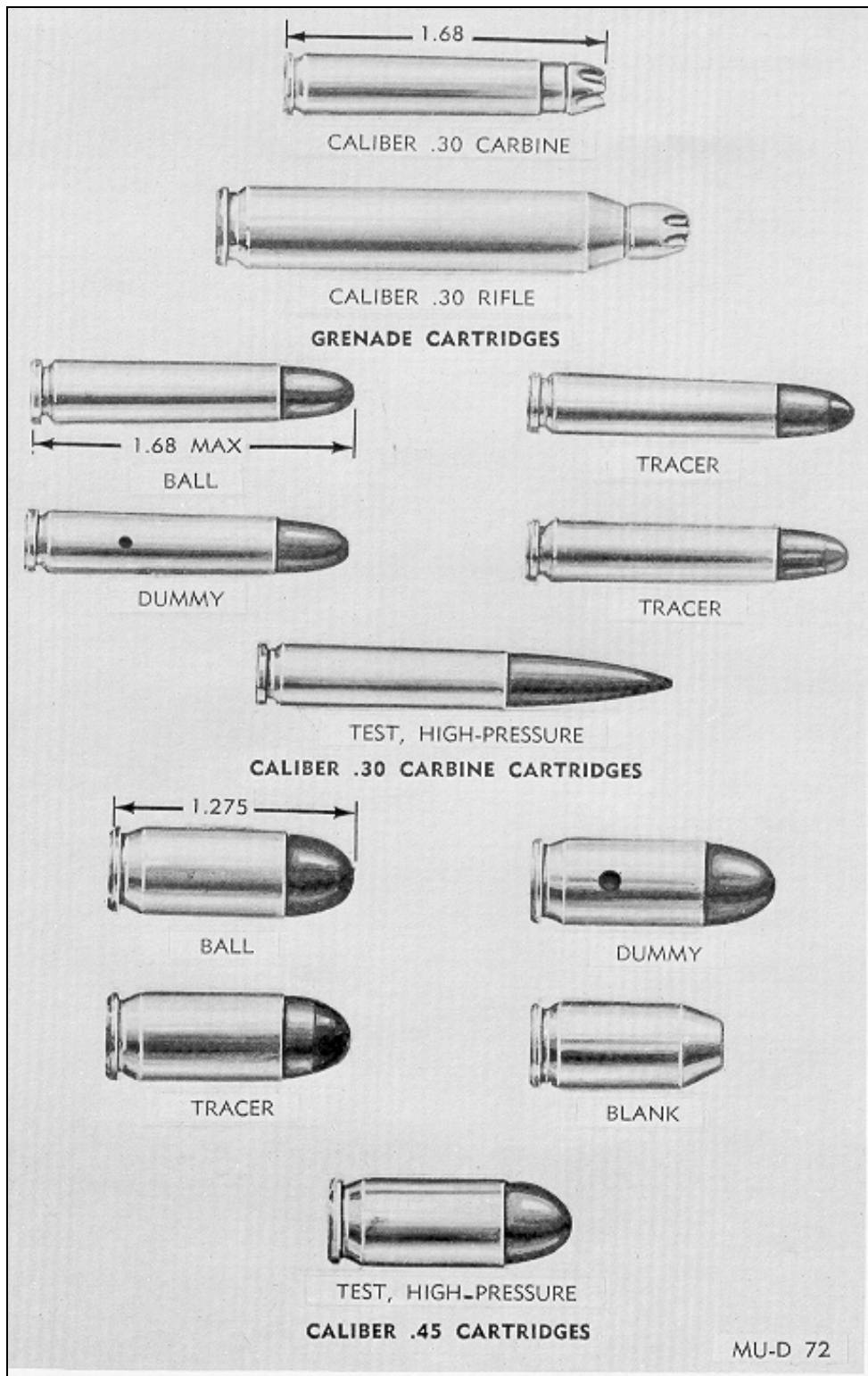


Figure 8. Caliber .30 carbine and caliber .45 cartridges



Figure 9. Caliber .50 cartridges

Ball Cartridge. The ball cartridge is intended for use in rifles, carbines, pistols, revolvers and/or machineguns against personnel and unarmored targets. The bullet, as designed for general purpose combat and training requirements, normally consists of a metal jacket and a lead slug. Caliber .50 ball bullet and 7.62-mm, Ball M59 bullet contain soft steel cores.

Tracer Cartridge. By means of a trail of flame and smoke, the tracer cartridge is intended to permit visible observation of the bullet's in-flight path or trajectory and the point of impact. It is used primarily to observe the line of fire. It may also be used to pinpoint enemy targets to ignite flammable materials and for signaling purposes. The tracer element consists of a compressed, flammable, pyrotechnic composition in the base of the bullet. This composition is ignited by the propellant when the cartridge is fired. In flight, the bullet emits a bright flame which is visible to the gunner. Trace burnout occurs at a range between 400 and 1,600 yards, depending upon the caliber of ammunition.

Match Cartridge. The match cartridge is used in National and International Match Shooting competitions. The bullet consists of a gliding-metal jacket over a lead slug. The cartridges are identified on the head face with the designation NM (National Match) or Match.

Armor-Piercing Cartridges. The armor-piercing cartridge is intended for use in machineguns or rifles against personnel and light armored and unarmored targets, concrete shelters, and similar bullet-resisting targets. The bullet consists of a metal jacket and a hardened steel-alloy core. In addition, it may have a base filler and/or a point filler of lead.

Armor-Piercing-Incendiary Cartridge. The armor-piercing-incendiary cartridge is used in rifles or machineguns as a single combination cartridge in lieu of separate armor-piercing and incendiary cartridges. The bullet is similar to the armor-piercing bullet, except that the point filler is incendiary mixture instead of lead. Upon impact with the target, the incendiary mixture burst into flame and ignites flammable material.

Armor-Piercing-Incendiary Tracer Cartridge. The bullet of the armor-piercing-incendiary-tracer cartridge combines the features of the armor-piercing, incendiary, and tracer bullets and may be used to replace those cartridges. The bullet consists of a hard steel core with compressed pyrotechnic mixture in the cavity in the base of the core. The core is covered by a gliding-metal jacket with incendiary mixture between the core point and jacket. This cartridge is for use in caliber .50 weapons only.

Duplex Cartridge. The duplex cartridge contains two special ball type bullets in tandem. The front bullet is positioned partially in the case neck, similarly to a standard ball bullet. The rear bullet, positioned completely within the case, is held in position by a compressed propellant charge. The base of the rear bullet is angled so that in flight, it follows a path slightly dispersed from that of the front bullet.

Spotter-Tracer Cartridge. The spotter-tracer cartridge is intended for use in coaxially mounted caliber .50 spotting rifles. The bullet trajectory closely approximates that of

106mm projectiles. Thus, this cartridge serves as a fire control device to verify weapon sight settings before firing 106mm weapons. The bullet contains an impact detonator and incendiary composition which identify the point of impact by flash and smoke.

Blank Cartridge. The blank cartridge is distinguished by absence of a bullet. It is used for simulated fire, in training maneuvers, and for saluting purposes. It is fired in rifles and machineguns equipped with blank firing attachments.

Grenade Cartridge. The grenade cartridge is used to propel rifle grenades and ground signals from launchers attached to rifles or carbines. All rifle grenade cartridges are distinguished by the rose petal (rosette crimp) closure of the case mouth.

Frangible Cartridge. The caliber .30 frangible cartridge, designed for aerial target training purposes, is also used in rifles and machineguns for target shooting. Caliber .30 and 7.62mm frangible cartridges are used in tank machineguns, firing single shot, for training in tank gunnery. At its normal velocity, the bullet, which is composed of powdered lead and friable plastic, will completely disintegrate upon striking a 3/16-inch aluminum alloy plate at 100 yards from the muzzle of the gun. These cartridges are not to be used on any but well ventilated indoor ranges to preclude buildup of toxic bullet dust. Inhalation of bullet dust may be injurious to health.

Incendiary Cartridge. The incendiary cartridge was designed for aircraft and ground weapon use to ignite combustible targets (e.g., vehicular and aircraft fuel tanks). The bullet contains a compressed incendiary mixture which ignites upon impact with the target. The incendiary cartridge has been superseded by the API and APIT cartridges because of their improved terminal ballistic effects.

Special Purpose Cartridge

Cartridges of various calibers. (figures. 10 through 12), which consist of different types of projectiles and bullets, are used for training and special purposes. They include the following:

- (1) Caliber .22 long rifle and caliber .38 and .45 wad-cutter cartridge for target shooting.
- (2) Caliber .45 blank cartridges fired in exercises to condition dogs to gun fire.
- (3) Caliber .22 hornet and .410 shotgun cartridges for firing in Air Force combination (survival) weapons for hunting purposes.
- (4) Caliber .45 line-throwing cartridges for firing in caliber .45 line-throwing rifles. The Navy uses these for throwing lines from ship-to-ship. The Army Signal Corps uses these for projecting signal wires over elevated terrain.

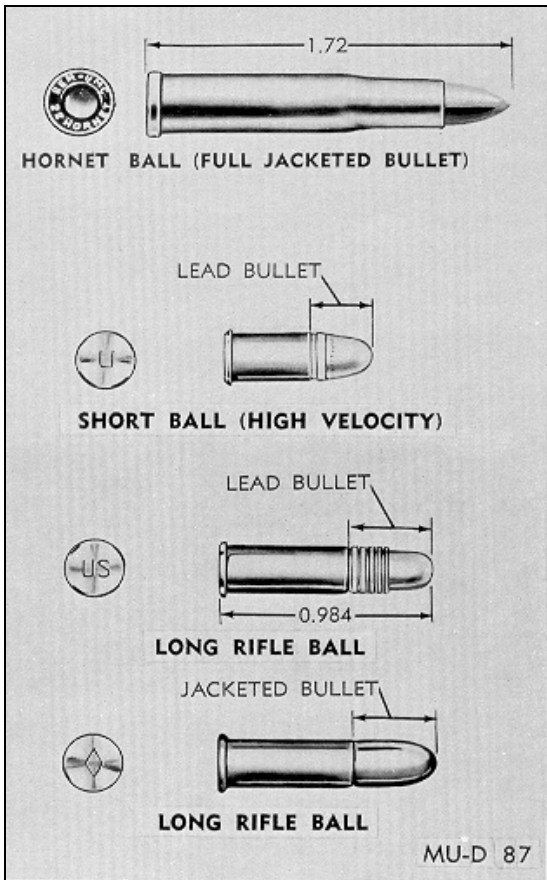


Figure 10. Caliber .22 cartridges

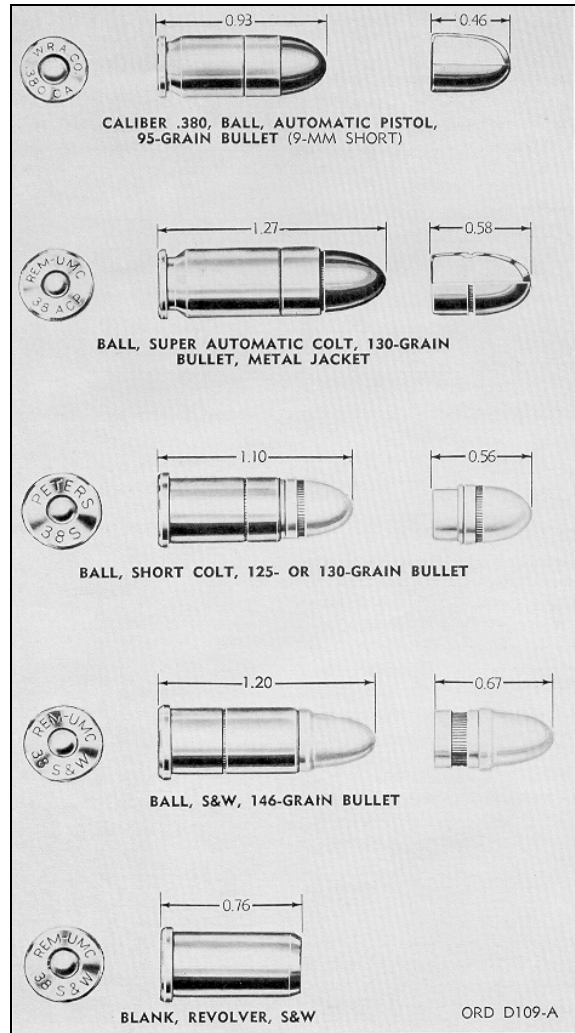


Figure 11. Caliber .38 cartridges

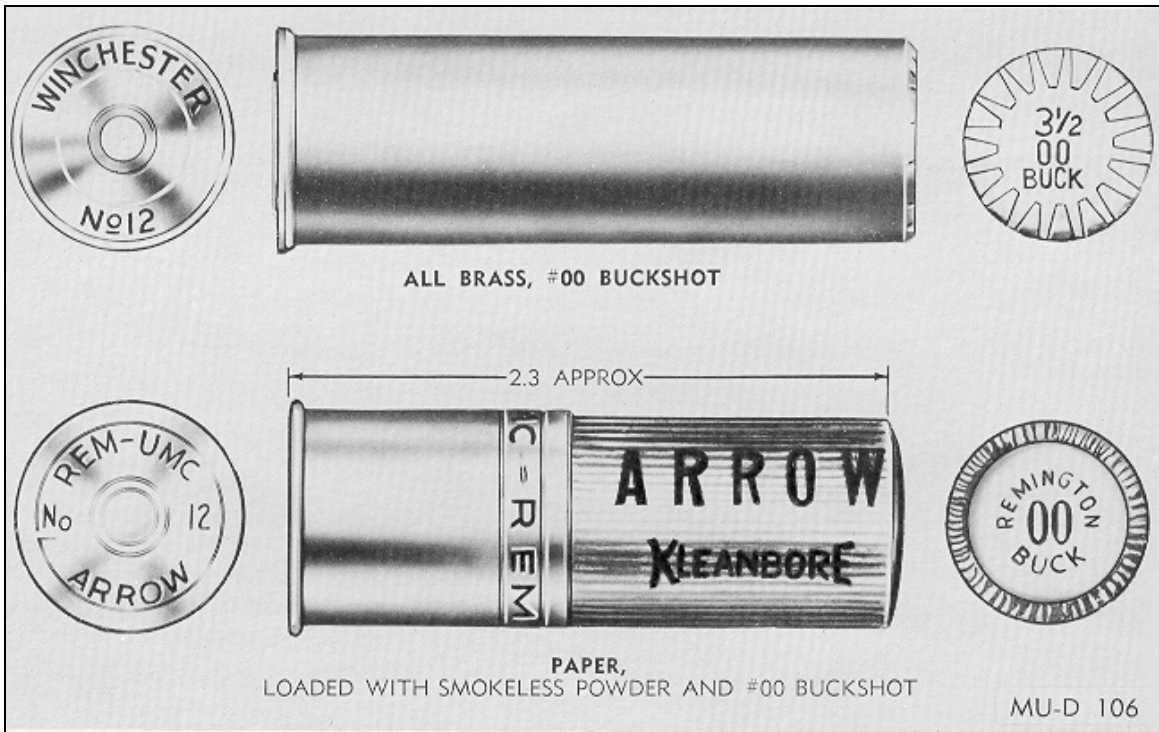


Figure 12. 12 gage shotgun shells

(5) Shotshells containing the designated shot sizes as required for the following:

- 12 gage #00 Buck for guard duty
- 12 gage #4 Buck for guerrilla purposes.
- 12 gage #6, 7½ and 8 shot for clay target shooting for training purposes.
- .410 gage #7 shot for caliber .22/.410 survival weapons maintained by aircraft

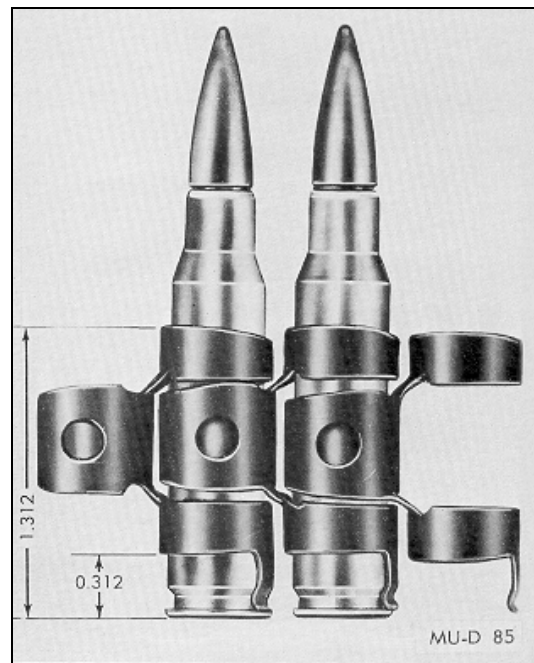


Figure 13. Linked 7.62-mm cartridges

Special purpose cartridges also include the following types of military cartridges:

(1) Dummy. The dummy cartridge is used for practice in loading weapons and simulated firing to detect flinching of personnel when firing weapons. It consists of a cartridge case and a ball bullet. Cartridge identification is by means of holes through the side of the case or longitudinal corrugations in the case and by the empty primer pocket.

(2) Dummy inert-loaded. This cartridge consists of a cartridge case, a ball bullet and inert granular material in the case simulating the weight and balance of a live cartridge. The exterior of the cartridge is identified by a black chemical finish and by the absence of a primer. This cartridge is used by installations for testing weapon function, linkage and feed chutes.

(3) High-pressure test. High-pressure test ammunition is specially loaded to produce pressures substantially in excess of the maximum average or individual pressures of the corresponding service cartridge. This cartridge is not for field issue. It is used only by armorers and weapons mechanics for proof firing of weapons (rifles, pistols, machine guns) at place of manufacture, test and repair. Because of excessive pressures developed by this type of ammunition, and the potential danger involved in firing, proofing of weapons is conducted only by authorized personnel from fixed and shielded rests by means of a lanyard or other remote control methods.

Metallic Links and Clip

Metallic links. (figures. 13 and 14) are used with caliber .30, caliber .50, 5.56mm, 7.62mm and 20mm cartridges in machine guns. The links are made of steel, surface treated for rust prevention. They are used to assemble cartridges into linked belts of 100 to 750 cartridges per belt. The links must meet specific test and dimension requirements to assure satisfactory ammunition feed and functioning in the machine gun under all training and combat service conditions.

Different configurations of cartridge clips. These permit unitized packages of ammunition. This facilitates transfer of cartridges to appropriate magazines for caliber .30, 7.62mm and 5.56mm rifles. The caliber .30 eight-round clip feeds eight cartridges as a unit into the receiver of the rifle. The caliber .45 clip feeds three cartridges as a unit into the revolver cylinder. Five-round and eight-round clips are used with caliber .30 cartridges; five-round clips with 7.62mm cartridges; ten-round clips with caliber .30 carbine and 5.56-mm cartridges; and three-round clips with caliber .45 cartridges.

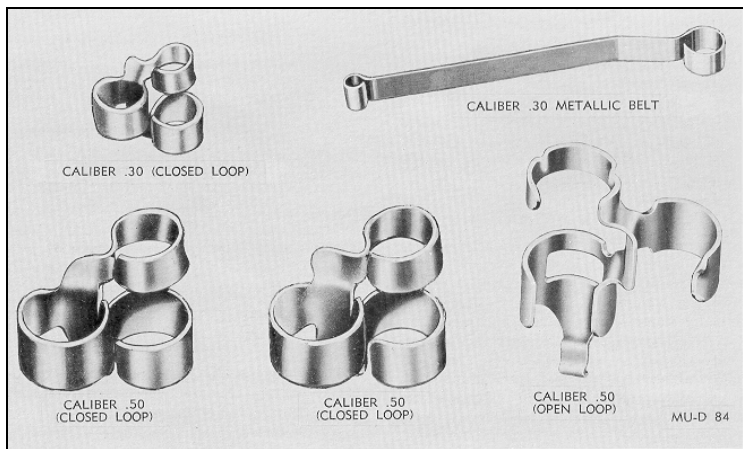


Figure 14. Links for caliber .30 and caliber .50 ammunition

Identification Markings. Each outer shipping container and all inner containers are fully marked to identify the ammunition. Wire- bound boxes are marked in black and ammunition boxes are painted olive drab, with markings in yellow. When linked ammunition is functionally packed, component lot numbers are replaced by a functional lot number. Typical packing and identification markings are illustrated in figures 15 through 17.

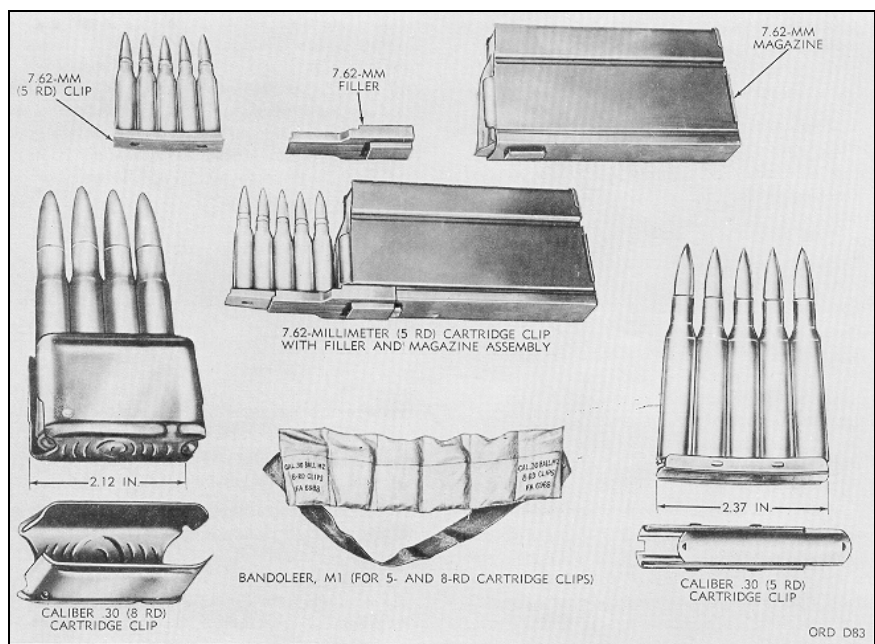


Figure 15. Cartridges, links, belt, cartons, bandoleers and ammunition box

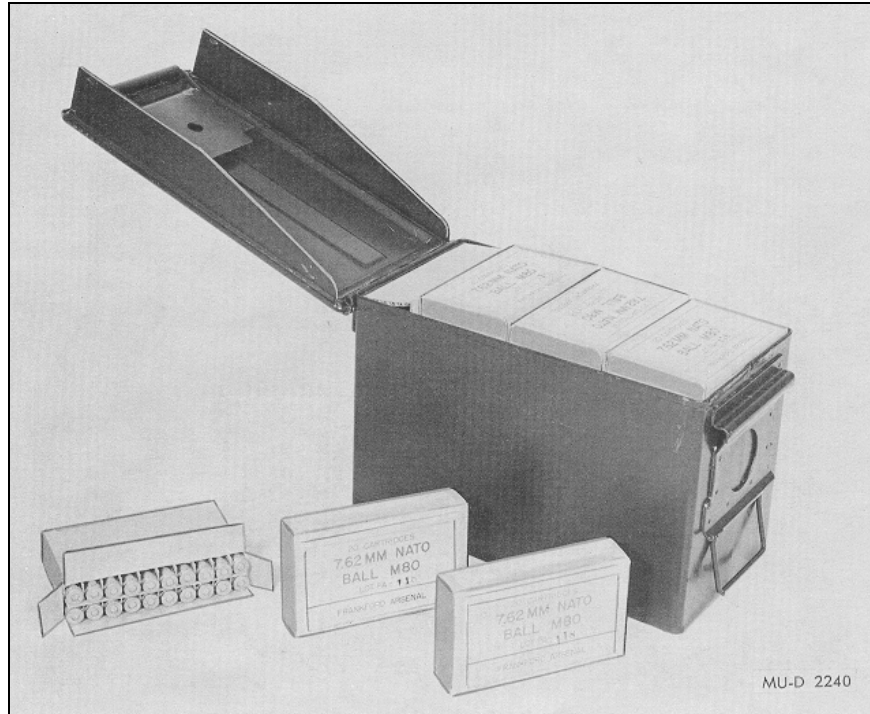


Figure 16. Cartridges, link belt, cartons, bandoleers and ammunition box

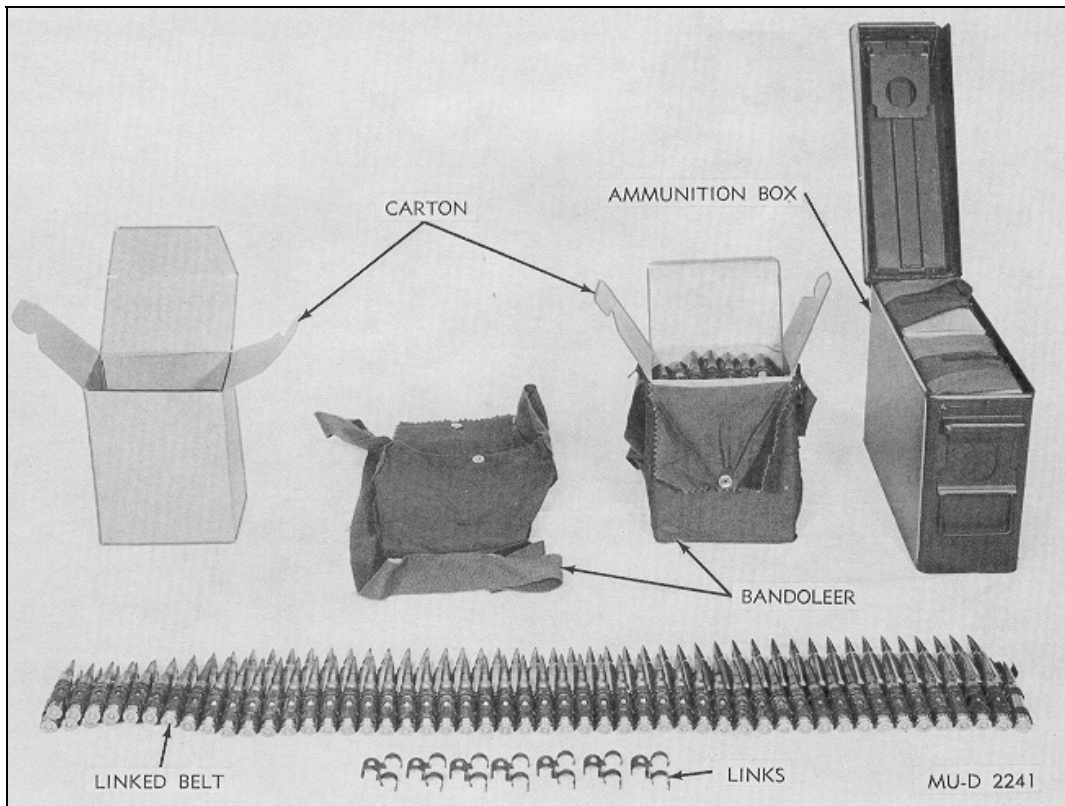


Figure 17. Cartridges, link belt, cartons, bandoleers and ammunition box

Care, Handling and Preservation

Small-arms ammunition is comparatively safe to handle. It is packed to withstand transportation, handling and storage conditions normally encountered in the field. However, consideration should be given to general handling precautions pertaining to ammunition and explosives.

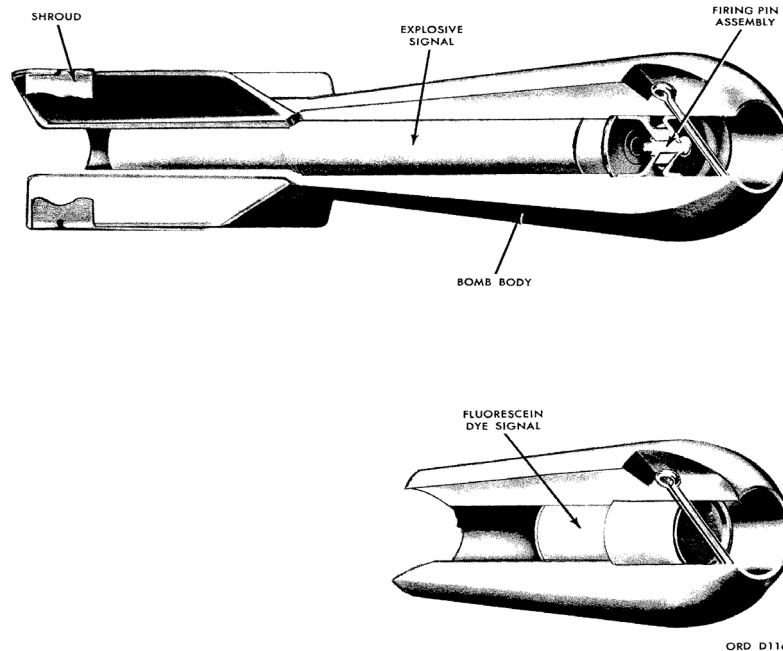
Reference: This data is a reprint of Chapter 3, TM 9-1300-200, *Ammunition General*, October 1969

CTT10

BOMBS, PRACTICE

MINIATURE PRACTICE BOMBS

AN-Mk 5 Mod 1, AN-Mk 23, AN-Mk 43



Description. These bombs are used for low-altitude horizontal, or dive-bombing practice. The three bombs are similar in physical appearance, but differ basically in the metal used to cast the body. Bombs are used with the AN-Mk 4 practice bomb signal that is a blank 10-gauge shotgun shell (extended length). Signals contain a black powder expelling charge and a red phosphorous pyrotechnic mixture. These bombs also are used with the MK5 signal that contains a fluorescein dye and is actuated by impact on water. When the Mk5 signal is installed, the firing pin assembly is not used.

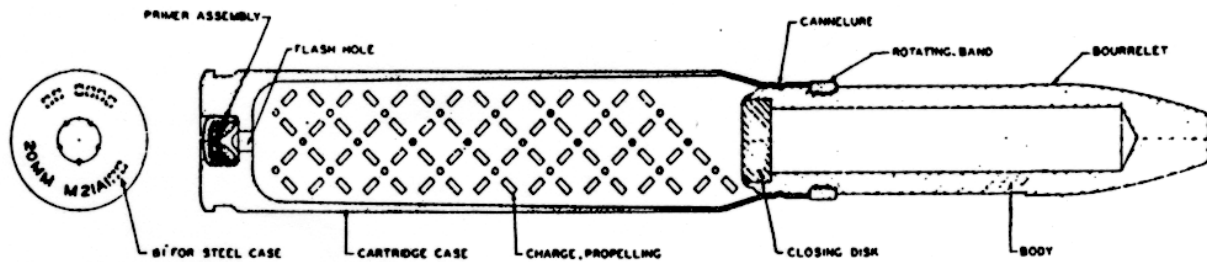
| | |
|------------------------------|--|
| Over-all length | 8.25 inches |
| Body Diameter | 2.18 inches |
| Fin Dimension | 2.5 inches |
| Weight | AN-Mk 5 Mod 1 - 2 lb. 11 oz. \pm 1 oz |
| | AN-Mk 23 - 3 lb. \pm 2 oz |
| | AN-Mk 43 - 4 lb. 7 oz. \pm 2 oz. |
| Signal | AN-Mk 4, Black powder/pyro- Technic charge Mk 5, Fluorescein dye |

Reference: OP 1280, *Aircraft Bombs*, February 1945; TM 9-1325-200, *Bombs and Bomb Components*, April 1966

CTT17

MEDIUM CALIBER (20MM, 25MM, 30MM), PRACTICE

CARTRIDGE, 20mm, BALL, MK I



Use. This cartridge was fired in the M1, AN-M2 and British Hispano guns that were mounted in WW II aircraft. Originally designed as a training practice round to simulate the high explosive incendiary round, it proved successful in combat and was redesignated as a ball cartridge.

Description. The cartridge is a fixed type with an overall length of 7.23 inches (unfired). The projectile is machined from bar steel and has a hollow cavity through most of its length. There is a steel closing disc at the base and the nose has a template that makes it appear as though it was cut off about one quarter inch from the tip. The round uses the M21-series cartridge case, which may be of brass or steel. No tracer element is fitted.

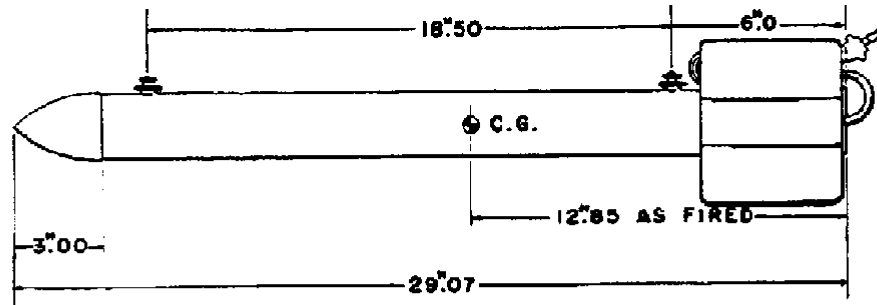
| | |
|---------------------------------------|------------|
| Overall Length | 7.23 inch |
| Projectile Length | 3.31 inch |
| Diameter | 0.784 inch |
| Weight of complete round | 0.56 pound |
| Filler | None |
| Fuze | None |

Reference: TM 9-1904, *Ammunition Inspection Guide*, 2 March 1944; NAVSEA OP 1664, *U.S. Explosive Ordnance*, 28 May 1947

CTT28

AERIAL ROCKETS (PRACTICE)

ROCKET, 2.25 INCH, MK 6, MOD 0 (AIRCRAFT, PRACTICE, SUBCALIBER)



PURPOSE Forward-fired from aircraft, for practice firing against surface targets. This round simulates trajectories of rockets assembled with 5.0 motors Mk 10 and Mods (HYAR).

PERFORMANCE - W/ZERO LAUNCHER VELOCITY, AND PROPELLANT AT 70° F

| | | |
|----------------------------|-------|-----|
| TIME TO 1000 YDS | 3.2 | SEC |
| BURNT VELOCITY | 1110 | F/S |
| BURNING TIME | .54 | SEC |
| THRUST (AV) | 710 | LBS |
| WT (AS FIRED) | 12.46 | LBS |
| WT (BURNT) | 10.46 | LBS |

REFERENCES

ORDNANCE PAMPHLETS

- ROCKETS - OP 1187
- ADAPTER (LAUNCHER) - OP 1304, OP 1855, (MK 6), AERO 1A
- LAUNCHERS - OP 1304, OP 1855, (MK 5, MK 9), AERO 14A
- TRAJECTORY TABLES - OP 1829

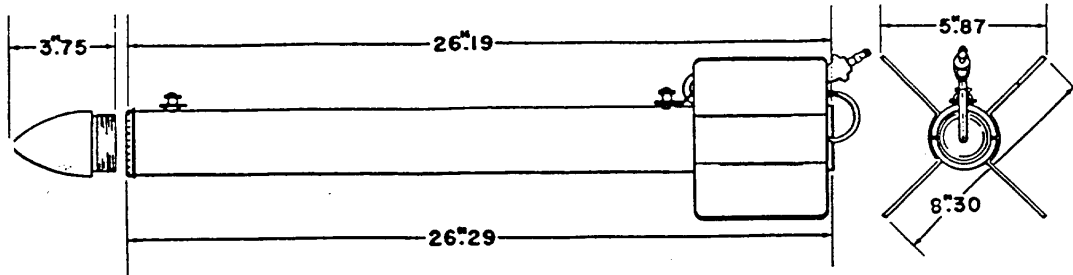
BUORD DRAWINGS (OUTLINE DWG - - -)

| COMPLETE ROUND | HEAD | | | | MOTOR | | | |
|----------------|----------|--------|--------|--------|--------|--------|--------|------|
| | MK & MOD | 6-0 | 3-0 | 3-2 | 3-3 | 16-4 | 16-5 | 16-6 |
| LOADED | | | | | | | | |
| LIST OF DWGS | --- | --- | --- | --- | --- | --- | --- | --- |
| GEN ARRGT | --- | 424977 | 439208 | 439490 | --- | --- | --- | --- |
| EMPTY | | | | | (11-1) | (11-0) | (11-2) | |
| LIST OF DWGS | --- | --- | --- | --- | 133171 | 133160 | 288504 | |
| INERT PARTS | | 424977 | 439208 | 439490 | 467017 | 424967 | 982422 | |
| CONTAINER | * 2-0 | | | | | | | |

*FOR SERVICE ISSUE

Reference: NAVSEA OP 1415, *Rocket Assemblies*, 11 May 1955

ROCKET, 2.25-INCH PRACTICE



Use. These rockets were used for practice firing against surface targets. The rocket is forward fired from aircraft and simulated the trajectories of the 5 inch rockets.

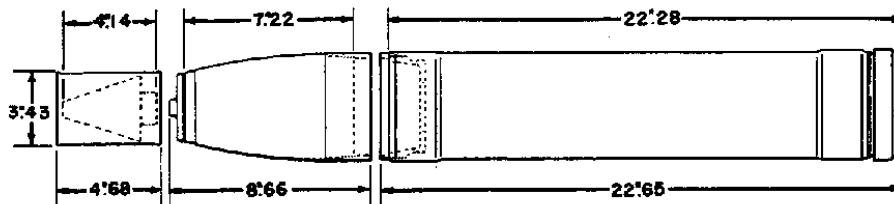
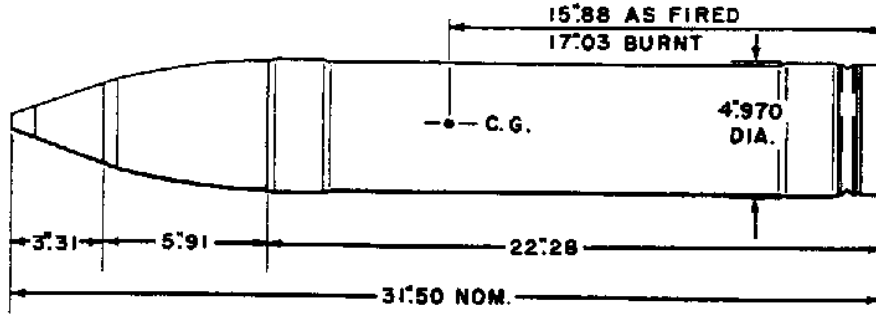
Description. The 2.25 inch practice rockets originally came in two different Marks (Mk) or models, the Mk II and Mk III. The acronym associated with them was SCAR, or sub-caliber aerial rocket. Other models followed. They consisted of a head, rocket motor, fins, igniter, and an electrical cable. The heads are solid steel, zinc die cast, or cast iron and contain no fuzes,

Motor. Mk 15 Mod 0,2, is 26.18 inches long and weighs to 10.90 pounds (max). The item's explosive hazard is the propellant (Mk 16 Mod 0,1) in the rocket motor and the igniter (Mk 112 Mod 0,1,2).

Weight.....12.47 pounds
Diameter of Body2.25 inches
Length29.07 inches

Reference: NAVSEA OP 1415, *Rocket Assemblies*, May 1955

ROCKET, 5 INCH, Mk 8 Mod 0, PRACTICE, (SURFACE)



Purpose. The Mk 8 Mod 0 is the practice round for the 5.0-inch Rocket Mk 7 all Mods. It consists of an inert, plaster-filled 5.0" rocket head Mk 7 all Mods, and a live-loaded 5.0-inch Rocket Motor Mk 3 Mod 1. The rocket is fired from Surface Craft, PT. LSMR, and IFS ships, from trainable and automatic launchers.

- Total Weight**.....49.61 pounds (nominal)
- Diameter of Body**4.97 inches
- Filler**Plaster
- Fuze**None
- Length**31.50 inches
- Propellant**.....Mk 21 Mod 0,2 10.32 lbs
- Propellant Weight**.....10.32 pounds

Reference: NAVSEA OP 1415, *Rocket Assemblies*, May 1955

APPENDIX B

RANGE INFORMATION/DESCRIPTIONS/CELLS

APPENDIX B

RANGE INFORMATION / DESCRIPTIONS / CELLS

Range cells included in this appendix were created, which included *historical* regulations, manuals, photos, drawings, and documents. They represent typical (general) layouts, which include firing lines, target areas, target berms, and danger areas (aka SDZ). Each cell is a two-dimensional model, which does not take into account (during time of use) terrain, boundaries, or local requirements and/or restrictions.

As stated in an obsolete Army Regulation, AR 750-10, *Range Regulations for Firing Ammunition in Time of Peace*, dated May 22, 1939, "It is obviously impossible for any general range regulation to cover each local situation completely. Such additional regulations as may be necessary to meet local condition will therefore, be prepared and enforced by the post, camp, or station commander."

When the ranges were established, regulations such as AR 750-10 (now obsolete), along with others, such as TM 9-855, *Targets, Target Material, and Training Course Lay-Outs*, dated August 17, 1944 (now obsolete) would have been referenced. These guidelines would have been applied to the local environment at the time of construction.

Where applicable, right and left firing limits and down-range limits were required and set based on the local conditions. Taking in-to account the scores of ranges and the lack of first-hand knowledge, many ranges were estimated using the best available resources. Topographic maps were analyzed to determine if terrain features could be used to limit the extent of the range.

For most sites it's likely to locate numerous historical maps displaying firing ranges drawn in a various configurations, but not necessarily with a true representation. For instance, they may show the range as nothing more than a dot, a box, circles, or a V-shaped fan. However, in rare cases, a range map displays what appears to be a true fan with a calculated danger area. In these cases, the range fans may be a true representation of the actual range boundaries, and therefore be considered for use instead of the general *Range Cells*. An example where this applies is shown below:

A historical range map found for Fort Custer, Michigan identified numerous ranges, all having range fans drawn. The fans displayed on this map appear to be proportioned, and closely represent correct angles and distances according to regulations. It is believed this map was done with a high degree of accuracy; therefore the range fans were used instead of the general *Range Cells*. Also recovered, was a document referring to the artillery range. It explained the necessity to discontinue firing of artillery on this facility because of the inconvenience of reducing the propelling charges

on 155mm Artillery Shells. The rationale behind this reduced charge was to minimize the down-range distance the projectile would travel. At charge 7 (max), a 155mm projectile had a maximum range of approximately 17,400 yards. In addition to this distance, regulations required a mandatory 1,000-yard buffer zone beyond the max range. If the max charge had been used to calculate the danger area, the downrange distance for this artillery range would have extended more than 6-miles beyond the installation boundary. Maximum distance on artillery munitions can be calculated using appropriate Ammunition Firing Tables.

Unfortunately, this detailed information is seldom available. Other options to consider are included in the following example where the use of topographic maps and site inspections were used to determine the boundaries of Spencer Mountain Rifle Range in North Carolina.

The only available map displayed the range as a small rectangular box. Documents recovered stated that the range was positioned at the base of the mountain in order to reduce the danger area. The *range cell* for a rifle range was designed to include 50 firing positions, which calculates to a width of 400 yards. However, during the site inspection, the actual width of the range was determined to be no more than 150 feet. By reducing the width of the *range cell*, and using contour lines on a topographic map the delineated boundaries was realistically reduced from the standard 1259 acres down to 72 acres.

As indicated, there are many variables to account for when developing range boundaries, and it is unlikely that all of the data used when the range was originally laid out will be available. Therefore, the historical data found during research (maps, aerial photos, documentation, etc.) was utilized to represent the range as accurately as possible. In most cases, the only option was to use the general *Range Cell*.

Each range description contains a list of Ammunition Data sheets. The intention of this list is to provide a general idea of the ordnance that could have been used on the range. It is not intended to be all-inclusive and by no-means is an indication that these munitions are actually present.

A significant number of manuals, drawings, letters, instructions, reports, and miscellaneous documents were referenced in order to calculate the *Range Cells*. The following non-inclusive list are published Range Manuals that were referenced to create the range cells.

- TR 140-5, *Range Regulations for Firing Ammunition in Time of Peace*, dated November 1931
- AR 750-10, *Range Regulations for Firing Ammunition in Time of Peace*, dated May 1939

- AAF Manual 85-0.1, *Army Air Forces Gunnery and Bombardment Ranges*, dated June 1945
- AD-A954 905, *Training in the Ground Army 1942-1945, Study No. 11*, dated May 1948
- *Second Air Force Ground Gunnery Range*, dated July 24, 1943
- TM 9-855, *Targets, Target Material, and Training Course Lay-Outs*, dated August 1944
- TM 9-855, *Targets, Target Material, and Training Course Lay-Outs*, dated November 1951
- AFM No. 66, *Poorman Flexible Gunnery Trainer*, dated March 1945
- TC 25-1, *Training Land*, dated August 1978
- TC 25-8, *Training Ranges*, dated February 1992
- AFI 13-212, Vols 1,2,3, *Space, Missile, Command, and Control, Weapons Ranges*, dated July 1994
- AR 210-21, *Army Ranges and Training Land Programs*, dated May 1997
- AR 385-62, *Regulation for Firing Guided Missiles and Heavy Rockets for Training, Target Practice, and Combat*, dated June 1983
- AR 385-63, *Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat*, dated November 1983

HISTORIC USE: AIR-TO-GROUND

AIR to GROUND GUNNERY

Range Type: Air-to-Ground

Cell Name(s): A2GGUN

The location and size of the air-to-ground gunnery installation will vary considerably with local conditions.

An area of approximately five miles behind the targets, subject to fire and ricocheting bullets, will be designated a danger zone. A safety area in front of the targets will be marked off. A foul line should be clearly marked 600' in front of and parallel to the target line, and a range line should be marked 600' in front of and parallel to the foul line. These two lines should be the length as the target lines or, where only one or two targets are installed on a range, should be of sufficient length to be visible to the pilot from a position directly over them.

Targets should have been of sufficient size to provide a 6' x 6' scoring area. Targets must be placed a minimum of 100' apart. The number of targets on the range will vary, according to space provided.

Extract from the *History of the Army Air Forces Proving Ground Command* – "In ground gunnery, the 6 X 10 targets . . . are attacked from an altitude of 800 feet, at an angle of 30° and an air speed of 150 mph. The attack begins at 1,200 feet, and ends at 600 feet, when an abrupt 90° turn is made, with a shallow climb for recovery. Four planes may fire simultaneously on a range of four targets . . ."

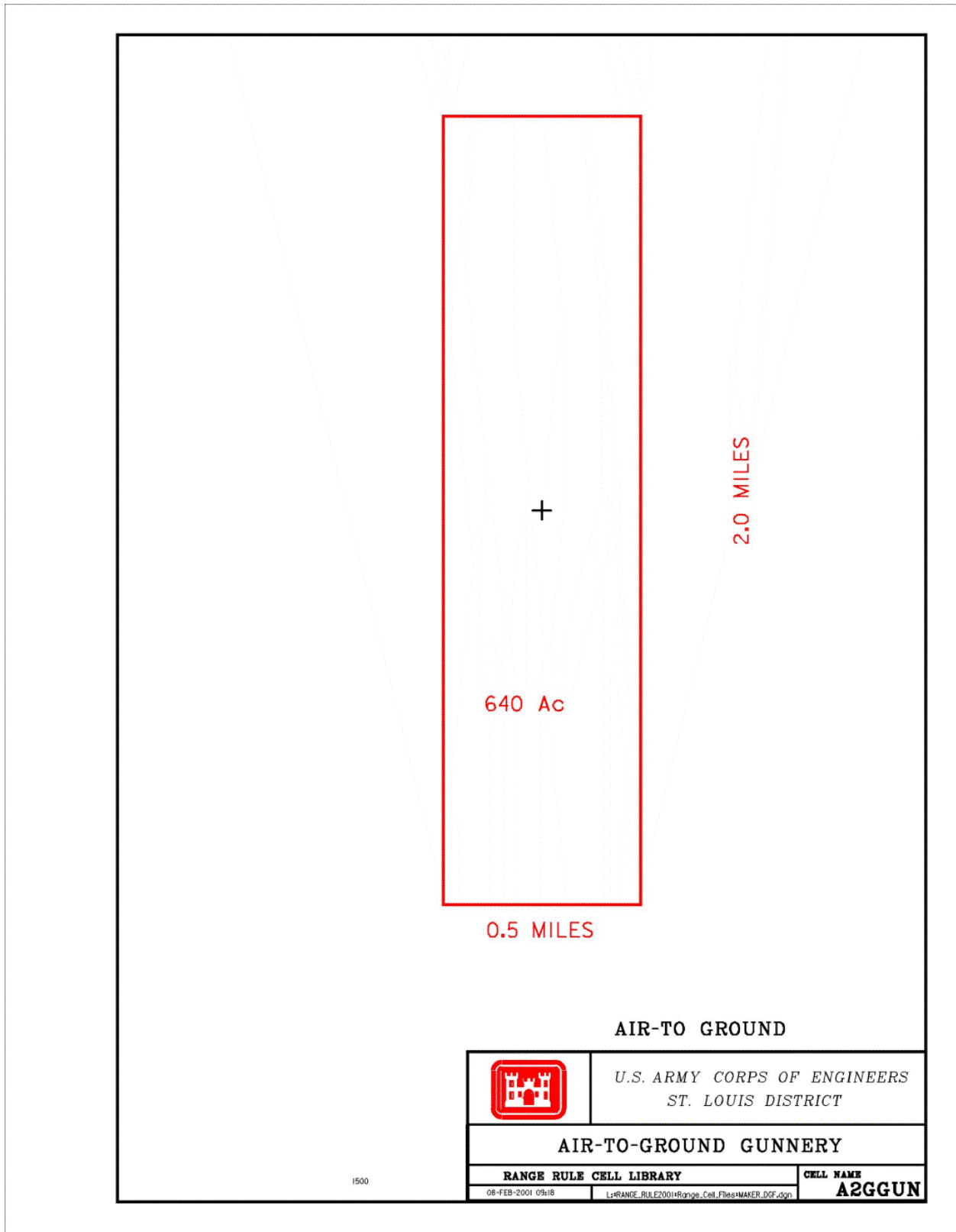
The range cell, which was taken from the referenced letter, was derived using the following assumptions: .30 caliber single gun from P-36 aircraft and At-6 flying at 210 mph and 150 mph, respectively; gun fires at least 600 rounds per minute, uses 50-yard belts, and can fire 50 rounds in a maximum of 5 seconds; a single row of targets located 4,060 feet into the range; and the worst accident that can happen. This worst accident is a runaway gun firing 50 rounds beginning 700 feet from the targets and stopping 800 feet beyond the targets. The range boundary, which is 2.0 miles by 0.5 miles, accounts for this worst accident.

| <u>Ammunition (probable)</u> | <u>Max Range (yards)</u> |
|------------------------------|--------------------------|
| Small arms | N/A |

Data sheet(s):

CTT01 Small arms, General

Reference(s): AAF Manual 85-0-1, *Army Air Forces Gunnery and Bombardment Ranges*, June 1945; Letter from the War Department, Office of the Chief of the Air Corps, addressed to Maj. Partridge, Southeast Air Corps Training Center, dated July 18, 1940; Extract from *History of the Army Air Forces Proving Ground Command, Gunnery Training 1935-1944*



ROCKET, AIR TO GROUND

Range Type: Air-to-Ground

Cell Name(s): RKTA2G

The range cell was derived using a target area approximately 500 feet by 500 feet. A safety fan of 15° originates from the ends of the 500-foot firing line, which is a minimum of 4,375 yards in front of the target area, and extends 2,734 yards beyond the target area.

It was common for air-to-ground rocket ranges to be co-located within a practice bombing target. Targets may have consisted of derelict vehicles, wooden structures, or merely outlines on the ground.

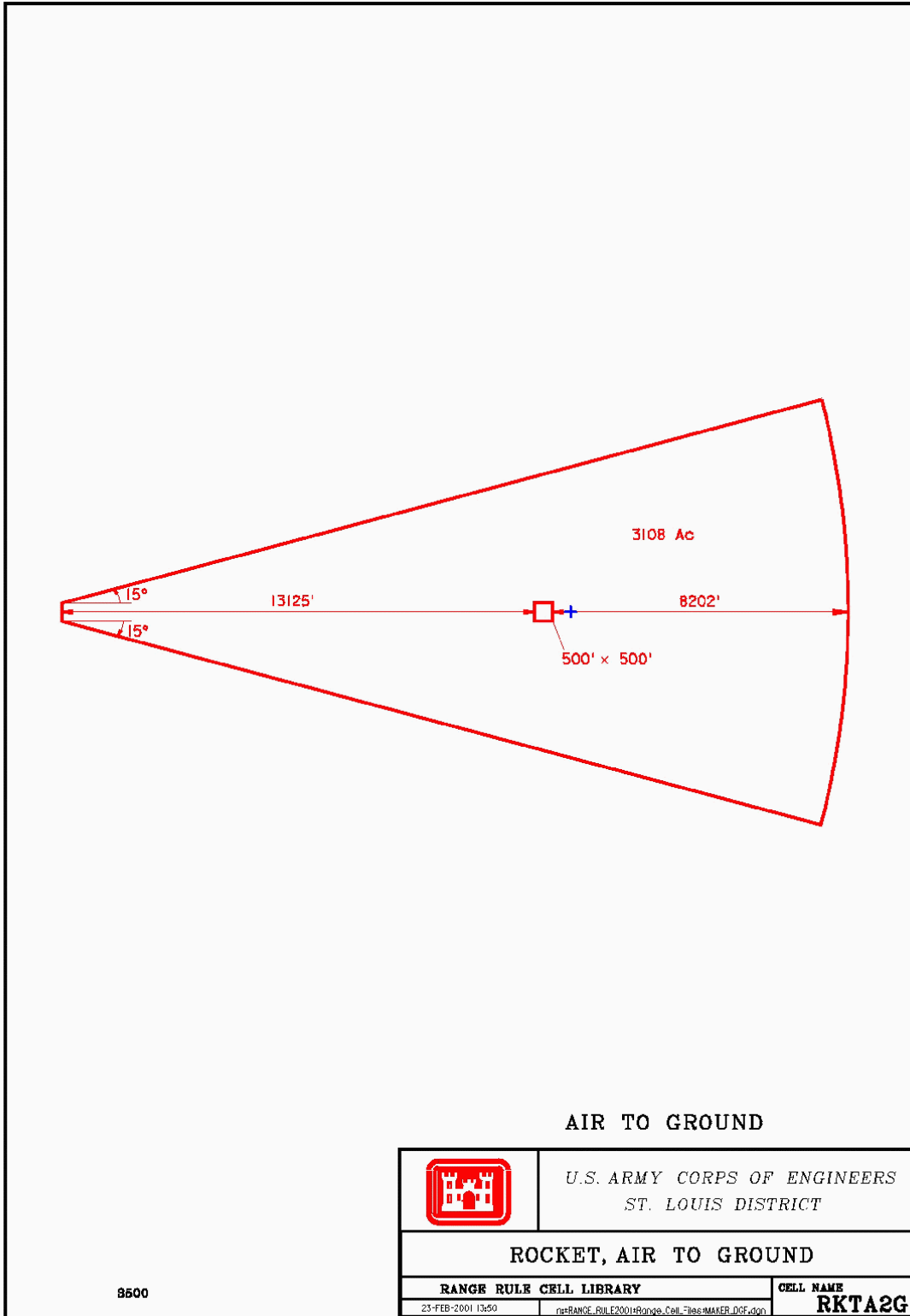
Information may not be available in which to determine the approach line; therefore, best judgment is necessary when laying out this range cell.

| <u>Ammunition (probable)</u> | <u>Max Range (yards)</u> |
|------------------------------|--------------------------|
| Aircraft Rockets, Practice | 2,000 yards |
| Aircraft Rockets, Live | 2,000 yards |

Data sheet(s):

| | |
|-------|--|
| CTT19 | 3.5-inch, Rocket, Aircraft, Mk4 5-inch, Rocket, HVAR |
| CTT21 | 2.25-inch Practice Rocket, Mk6 2.25-inch Practice Rocket, Mk4 2.25-inch Practice Rocket 2.75-inch Practice Rocket, FFAR |

Reference(s): AR 385-63, *Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat*, November 1983



AIR TO GROUND



U.S. ARMY CORPS OF ENGINEERS
 ST. LOUIS DISTRICT

ROCKET, AIR TO GROUND

RANGE RULE CELL LIBRARY

CELL NAME

23-FEB-2001 13:50

rsRANGE_RULE2001Range_Cell_FilesMAKER.DGF.dgn

RKTA2G

8600

RISK ASSESSMENT PROCEDURES FOR
MILITARY MUNITIONS RESPONSE PROJECTS

Property Name: ASSATEAGUE ISLAND Raters Name: CEMVS-ED-DO
Range Name: Rocket Range North
Property Location: ASSATEAGUE ISLAND, MD Phone: 309-794-5504
DERP Project #: C03MD093001 Organization: CEMVR-ED-DO
Property Type: FUDS Date Completed: May 01, 2003
Score: 4

RISK ASSESSMENT

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL STD 882C and AR 385 10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

PART I. Hazard Severity. Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of unexploded ordnance.

TYPE OF ORDNANCE: (Check all that apply)

A. InvestiConventional Ordnance and Ammunition

| | |
|--|----------|
| Other explosive item not previously stated | 10 |
| Bombs, explosive | 10 |
| Landmine, explosive | 10 |
| Rockets, guided missile, explosive | 10 |
| Grenades, hand or rifle, explosive | 10 |
| Explosive Projectiles (20 millimeter and larger) | 10 |
| Detonators, blasting caps, fuzes, boosters, bursters | 6 |
| Bombs, practice (w/spotting charges) | 6 |
| Practice ordnance (w/spotting charges) | 4 |
| Small arms (ball only or blank), complete round (.50 cal or less) | 1 |
| Small arms (ball only or blank), expended (.50 cal or less) | 0 |
| Practice ordnance (w/o spotting charges) | 0 |
| InvestiConventional Ordnance and Ammunition (Largest single value) | 6 |

What evidence do you have regarding conventional unexploded ordnance?

No evidence

B. Pyrotechnics

| | |
|--|----|
| Munition containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable) | 10 |
| Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries) | 10 |
| Containers containing WP or other pyrophoric material or flame or incendiary material | 6 |
| Flares, signals, simulators, screening/burning smokes (other than WP) | 4 |
| Pyrotechnics (Largest single value) | 0 |

What evidence do you have regarding pyrotechnics?

No evidence

C. Bulk High Explosives

| | |
|---|----|
| Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.) | 10 |
| Secondary Explosives (Demolition Charges, PETN, Compositions A, B, C, Teteryl, TNT, RDX, HMX, HBX, Black Powder, etc.) | 8 |
| Insensitive explosive substances (explosive contaminated soils, ammonium nitrate, | 3 |
| Bulk High Explosives (Largest single value) | 0 |

What evidence do you have regarding bulk explosives?

No evidence

D. Bulk Propellants

| | |
|---|---|
| Solid or Liquid Propellants | 6 |
| Bulk Propellants (Largest single value) | 0 |

What evidence do you have regarding bulk propellants?

No evidence

E. Chemical Warfare Material (CWM) and Radiological Weapons

| | |
|---|----|
| Toxic Chemical Agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite) | 25 |
| Chemical Agent Identification Sets | 20 |
| Radiological Materiel (If rad waste is identified, please call the HTRW-CX at (402) 697-2555) | 15 |
| Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG) | 10 |
| Riot Control Agents (vomiting, tear) | 5 |

Chemical Warfare Material (CWM) and Radiological Weapons (Largest single value) 0

What evidence do you have regarding chemical/radiological OEW?

No evidence

Total Hazard Severity value: 6

Hazard Severity

| Description | Category | Hazard Severity Value |
|--------------|----------|-----------------------|
| CATASTROPHIC | I | 21 OR GREATER |
| CRITICAL | II | 10 TO 20 |
| MARGINAL | III | 5 TO 9 |
| NEGLIGIBLE | IV | 1 TO 4 |
| *** NONE | V | 0 |
| | | |

* IF HAZARD SEVERITY IS 0, YOU DO NOT NEED TO COMPLETE PART II OF THIS FORM.

Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

PART II. Hazard Probability. The probability that a hazard has been, or will be, created due to the presence and other rated factors of unexploded ordnance, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD

(Check all that apply)

A. Location of OEW Hazards

| | |
|--|----------|
| On the surface | 5 |
| Within tanks, pipes, vessels or other confined areas | 4 |
| Inside walls, ceilings, or other building/structure | 3 |
| Subsurface | 2 |
| Location of OEW Hazards (Largest single value) | 5 |

What evidence do you have regarding location of OE?

No evidence

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard

| | |
|---|----------|
| Less than 1,250 feet | 5 |
| 1,250 feet to 0.5 mile | 4 |
| 0.5 mile to 1.0 mile | 3 |
| 1.0 mile to 2.0 Miles | 2 |
| Over 2 miles | 1 |
| Distance to nearest inhabited location/structure likely to be at risk from OE hazard (Largest single value) | 1 |

What are the nearest inhabited structures/buildings?

None

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary

| | |
|---|----------|
| 26 and over | 5 |
| 16 to 25 | 4 |
| 11 to 15 | 3 |
| 6 to 10 | 2 |
| 1 to 5 | 1 |
| 0 | 0 |
| Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary (Largest single value) | 0 |

Narrative

No narrative

D. Types of Buildings

| | |
|---|----------|
| Educational, child care, residential, hospitals, hotels, commercial, shopping centers | 5 |
| Industrial, warehouse, etc. | 4 |
| Agricultural, forestry, etc. | 3 |
| Detention, correctional | 2 |
| No buildings | 0 |
| Types of Buildings (Largest single value) | 0 |

Describe the types of buildings

No description

None

E. Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance

| | |
|---|----------|
| No barrier nor security system | 5 |
| Barrier is incomplete (e.g., in disrepair or does not completely surround the site). | 4 |
| Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing. | |
| A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site. | 3 |
| Security Guard, but no barrier | 2 |
| Discontinued Question (Isolated Site) | 0 |
| A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the ar | 0 |
| Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance (Largest single value) | 5 |

Describe the site accessibility

No description

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility

| | |
|-------------------------|----------|
| Expected | 5 |
| None Anticipated | 0 |

Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility (Largest single value) 0

Describe the site dynamics

No description

Total Hazard Probability value: 11

| TABLE 2 | | |
|--|-------|--------------------------|
| HAZARD PROBABILITY | | |
| Description | Level | Hazard Probability Value |
| FREQUENT | A | 27 or greater |
| PROBABLE | B | 21 to 26 |
| OCCASSIONAL | C | 15 TO 20 |
| REMOTE | D | 8 to 14 |
| IMPROBABLE | E | Less than 8 |
| * Apply Hazard Probability Level to Table 3. | | |

| Part III - Risk Assessment. The risk assessment value for this site is determined using the following table. | | | | | |
|--|------------|------------|---------------|----------|--------------|
| Table 3 | | | | | |
| PROBABILITY LEVEL | FREQUENT A | PROBABLE B | OCCASSIONAL C | REMOTE D | IMPROBABLE E |
| SEVERITY CATEGORY: | | | | | |
| CATASTROPHIC I | 1 | 1 | 2 | 3 | 4 |
| CRITICAL II | 1 | 2 | 3 | 4 | 4 |
| MARGINABLE III | 2 | 3 | 4 | 4 | 4 |
| NEGLIGIBLE IV | 3 | 4 | 4 | 4 | 4 |
| NONE (V) = RAC 5 | | | | | |

RISK ASSESSMENT CODE (RAC)

RAC 1-4 Recommend and approve further action as appropriate. Refer to EP 1110-1-18 for discussion of MMR Projects and the process to be followed for project execution.

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RISK ASSESSMENT PROCEDURES FOR
MILITARY MUNITIONS RESPONSE PROJECTS

Property Name: ASSATEAGUE ISLAND Raters Name: CEMVS-ED-DO
Range Name: Rocket Range South
Property Location: ASSATEAGUE ISLAND, MD Phone: 309-794-5504
DERP Project #: C03MD093001 Organization: CEMVR-ED-DO
Property Type: FUDS Date Completed: May 01, 2003
Score: 4

RISK ASSESSMENT

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL STD 882C and AR 385 10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

PART I. Hazard Severity. Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of unexploded ordnance.

TYPE OF ORDNANCE: (Check all that apply)

A. InvestiConventional Ordnance and Ammunition

| | |
|--|----------|
| Other explosive item not previously stated | 10 |
| Bombs, explosive | 10 |
| Landmine, explosive | 10 |
| Rockets, guided missile, explosive | 10 |
| Grenades, hand or rifle, explosive | 10 |
| Explosive Projectiles (20 millimeter and larger) | 10 |
| Detonators, blasting caps, fuzes, boosters, bursters | 6 |
| Bombs, practice (w/spotting charges) | 6 |
| Practice ordnance (w/spotting charges) | 4 |
| Small arms (ball only or blank), complete round (.50 cal or less) | 1 |
| Small arms (ball only or blank), expended (.50 cal or less) | 0 |
| Practice ordnance (w/o spotting charges) | 0 |
| InvestiConventional Ordnance and Ammunition (Largest single value) | 6 |

What evidence do you have regarding conventional unexploded ordnance?

No evidence

B. Pyrotechnics

| | |
|--|----|
| Munition containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable) | 10 |
| Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries) | 10 |
| Containers containing WP or other pyrophoric material or flame or incendiary material | 6 |
| Flares, signals, simulators, screening/burning smokes (other than WP) | 4 |
| Pyrotechnics (Largest single value) | 0 |

What evidence do you have regarding pyrotechnics?

No evidence

C. Bulk High Explosives

| | |
|---|----|
| Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.) | 10 |
| Secondary Explosives (Demolition Charges, PETN, Compositions A, B, C, Teteryl, TNT, RDX, HMX, HBX, Black Powder, etc.) | 8 |
| Insensitive explosive substances (explosive contaminated soils, ammonium nitrate, | 3 |
| Bulk High Explosives (Largest single value) | 0 |

What evidence do you have regarding bulk explosives?

No evidence

D. Bulk Propellants

| | |
|---|---|
| Solid or Liquid Propellants | 6 |
| Bulk Propellants (Largest single value) | 0 |

What evidence do you have regarding bulk propellants?

No evidence

E. Chemical Warfare Material (CWM) and Radiological Weapons

| | |
|---|----|
| Toxic Chemical Agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite) | 25 |
| Chemical Agent Identification Sets | 20 |
| Radiological Materiel (If rad waste is identified, please call the HTRW-CX at (402) 697-2555) | 15 |
| Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG) | 10 |
| Riot Control Agents (vomiting, tear) | 5 |

Chemical Warfare Material (CWM) and Radiological Weapons (Largest single value)

0

What evidence do you have regarding chemical/radiological OEW?

No evidence

Total Hazard Severity value: 6

Hazard Severity

| Description | Category | Hazard Severity Value |
|--------------|----------|-----------------------|
| CATASTROPHIC | I | 21 OR GREATER |
| CRITICAL | II | 10 TO 20 |
| MARGINAL | III | 5 TO 9 |
| NEGLIGIBLE | IV | 1 TO 4 |
| *** NONE | V | 0 |
| | | |

* IF HAZARD SEVERITY IS 0, YOU DO NOT NEED TO COMPLETE PART II OF THIS FORM.

Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

PART II. Hazard Probability. The probability that a hazard has been, or will be, created due to the presence and other rated factors of unexploded ordnance, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD

(Check all that apply)

A. Location of OEW Hazards

| | |
|--|----------|
| On the surface | 5 |
| Within tanks, pipes, vessels or other confined areas | 4 |
| Inside walls, ceilings, or other building/structure | 3 |
| Subsurface | 2 |
| Location of OEW Hazards (Largest single value) | 5 |

What evidence do you have regarding location of OE?

No evidence

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard

| | |
|---|----------|
| Less than 1,250 feet | 5 |
| 1,250 feet to 0.5 mile | 4 |
| 0.5 mile to 1.0 mile | 3 |
| 1.0 mile to 2.0 Miles | 2 |
| Over 2 miles | 1 |
| Distance to nearest inhabited location/structure likely to be at risk from OE hazard (Largest single value) | 1 |

What are the nearest inhabited structures/buildings?

None

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary

| | |
|---|----------|
| 26 and over | 5 |
| 16 to 25 | 4 |
| 11 to 15 | 3 |
| 6 to 10 | 2 |
| 1 to 5 | 1 |
| 0 | 0 |
| Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary (Largest single value) | 0 |

Narrative

No narrative

D. Types of Buildings

| | |
|---|----------|
| Educational, child care, residential, hospitals, hotels, commercial, shopping centers | 5 |
| Industrial, warehouse, etc. | 4 |
| Agricultural, forestry, etc. | 3 |
| Detention, correctional | 2 |
| No buildings | 0 |
| Types of Buildings (Largest single value) | 0 |

Describe the types of buildings

No description

None

E. Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance

| | |
|---|----------|
| No barrier nor security system | 5 |
| Barrier is incomplete (e.g., in disrepair or does not completely surround the site). | 4 |
| Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing. | |
| A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site. | 3 |
| Security Guard, but no barrier | 2 |
| Discontinued Question (Isolated Site) | 0 |
| A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the ar | 0 |
| Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance (Largest single value) | 5 |

Describe the site accessibility

No description

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility

| | |
|-------------------------|----------|
| Expected | 5 |
| None Anticipated | 0 |

Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility (Largest single value) 0

Describe the site dynamics

No description

Total Hazard Probability value: 11

| TABLE 2 | | |
|--|-------|--------------------------|
| HAZARD PROBABILITY | | |
| Description | Level | Hazard Probability Value |
| FREQUENT | A | 27 or greater |
| PROBABLE | B | 21 to 26 |
| OCCASSIONAL | C | 15 TO 20 |
| REMOTE | D | 8 to 14 |
| IMPROBABLE | E | Less than 8 |
| * Apply Hazard Probability Level to Table 3. | | |

| Part III - Risk Assessment. The risk assessment value for this site is determined using the following table. | | | | | |
|--|------------|------------|---------------|----------|--------------|
| Table 3 | | | | | |
| PROBABILITY LEVEL | FREQUENT A | PROBABLE B | OCCASSIONAL C | REMOTE D | IMPROBABLE E |
| SEVERITY CATEGORY: | | | | | |
| CATASTROPHIC I | 1 | 1 | 2 | 3 | 4 |
| CRITICAL II | 1 | 2 | 3 | 4 | 4 |
| MARGINABLE III | 2 | 3 | 4 | 4 | 4 |
| NEGLIGIBLE IV | 3 | 4 | 4 | 4 | 4 |
| NONE (V) = RAC 5 | | | | | |

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