

**TRANSMITTAL, ACTION AND CONTROL**

For use of this form see MCoE Memo 25-52; the proponent is SGS

1. SGS LOG: <i>ES13126747</i>	2. IN SGS: <i>13 Mar 13</i>	3. OUT SGS:	4. DATE PREPARED: 8 Mar 2013
----------------------------------	--------------------------------	-------------	---------------------------------

5. SUBJECT:  
MCoE Policy - Use of Steel Targets in Marksmanship Training

6. ACTION OFFICER/OFFICE SYMBOL/PHONE NUMBER: Bob Brown / IMBE-PL / 706-545-2918	7. DIRECTOR'S/COMMANDER'S SIGNATURE: <i>[Signature]</i> Robert W. Brown, GS-15, Dir DPTMS
---	---

<input checked="" type="checkbox"/> SIGNATURE	<input checked="" type="checkbox"/> APPROVAL	<input type="checkbox"/> INFORMATION
<input checked="" type="checkbox"/> SGS <input type="checkbox"/> Editor <input type="checkbox"/> Garrison CSM <input type="checkbox"/> USAIS CSM <input type="checkbox"/> USAARMS CSM <input type="checkbox"/> MCoE CSM <input type="checkbox"/> CDID <input type="checkbox"/> GC <input type="checkbox"/> CIG <input checked="" type="checkbox"/> SA <input checked="" type="checkbox"/> Comdt, IN School <input checked="" type="checkbox"/> Comdt, AR School <input type="checkbox"/> CG		

1. PURPOSE: To obtain approval for new MCoE policy on use of steel targets in marksmanship training

2. RECOMMENDATION: CoS approve and sign. Assign MCoE policy number (TAB A)

3. DISCUSSION:

a. Purpose: To prescribe the safety guidance and procedures to allow the use of steel targets in basic and advanced marksmanship training on ranges and training facilities of Fort Benning, Georgia for the following weapon systems: 9mm and .45 caliber pistols; 12-gauge shotguns; 5.56mm rifles; and 7.62mm sniper rifles. This policy does not include procedures for the .50 cal sniper rifle.

b. Basis: The guidance provided is based on empirical data collected from U.S. Army installations (Forts Bragg, Campbell, and Hood), the U.S. Army Asymmetric Warfare Group, U.S. Marine Corps, US Army Special Operations Command (USASOC), and various Federal agencies (FBI). The following procedures must be followed to ensure the safety of Soldiers in training when using steel targets.

c. Applicability: This memorandum provides guidance that applies to all ranges on Fort Benning, GA when using steel targets within the Fort Benning Range/Training Complex. Given that (1) ARDEC has not tested or validated the use of steel targets or the ballistics associated with its use and (2) current use is based on empirical evidence, the use of steel targets is classified as a deviation from established range standards and procedures; as such, only the installation Senior Commander/ CG MCoE may authorize deviations (enclosure 3). Training units desiring to use steel targets will submit request(s) for waiver in accordance with AR 385-63, DA Pam 385-63 and MCoE Regulation 350-19.

d. Challenges: TC 25-8 specifies standard range design with integrated placement of steel ("iron maidens") (enclosure 1). U.S. Army Armament Research, Development and Engineering Center (ARDEC) has not tested or validated the use of steel targets or the safety certification of accepted steel target types. TRADOC TCM-Live has not approved a Life Cycle Management Plan (LCMP) to procure, inspect, or replace steel targets within units; Commanders currently procure with available operational funds. TRADOC has not developed/published Army capabilities development documents (CDDs), Soldier training plans (STRAPs), or doctrine to support training support packages/lesson plans for use of steel targets. FY13-14 funding is insufficient to sustain steel targets in BRM/ARM training.

4. THIS DOCUMENT IS AUTHORED BY: Bob Brown, 706-545-2918, email: robert.w.brown64@mail.mil

**8. COORDINATION/APPROVAL**

S: 22 Mar 2013

OFFICE	ACTION	NAME AND DATE	OFFICE	ACTION	NAME AND DATE
Cdr 192nd	Concur	MAJ Milan / 7 Mar 13	Safety	Concur w/Cmt	Ms. Carlson / 7 Mar 13
Cdr 194th	Concur	LTC Lee / 7 Mar 13	SJA	NLO	Mr. Gordon / 7 Mar 13
Cdr 197th	Concur w/Cmt	MAJ Makaryk / 1 Mar 13	Range Opns	Concur w/Cmt	Mr. Greenway / 8 Mar 13
Cdr 198th	Concur w/Cmt	MAJ Kampf / 8 Mar 13	Cdr 316th	Concur	COL Davidson / 7 Mar 13
Cdr 199th	Concur	LTC Litz / 7 Mar 13	NCOA	Concur	Mr. Fair / 7 Mar 13

STAFF REMARKS: (Command Group Use Only) RANGE OPS L → File copy AH 3/29/13	APPROVAL AUTHORITY
	APPROVED: <i>[Signature]</i> 29 MAR 13
	DISAPPROVED:
	NOTED:



### 3. DISCUSSION (Continued)

#### e. Comments:

(1) 199th & NCOA do not use steel targets in their marksmanship training. ✓

(2) Cdr 198th: Engagements do not mention the mandatory distance between targets laterally. The previous waivers from the 198th had to capture the distance between each target for each shooting lane based on the splatter. There is no mention of the distance between targets varying from lane to lane. Based on the ricochet, the minimum distance vertically needs to be addressed. [Concur -- policy memo corrected, para 4.j.]

(3) Cdr AMU: (1) Applicability says 9mm and .45 cal pistol, 5.56mm rifle and 7.62mm Sniper Rifle. We obviously shoot many different calibers such as .38 Super, 40 S&W and a few different rifle cartridges in 5.56mm diameter and 7.62 diameter. Does every caliber have to be specifically addressed in this or is it generally accepted that we shoot different calibers that are authorized to fall into this category [Considered -- all will operate within policy intent; Range Opns will work with AMU for competition-related events]; (2) You mention that "Steel core, steel jacket, and armor piercing ammunition will never be used to engage steel targets at any distance". M855 "Green Tip" does have a steel core, however I am assuming that units will be able to engage targets with M855 at distances of 100yds and farther [Considered -- all will operate within policy intent; Range Opns will work with AMU for competition-related events]; and (3) on the competitive side of the house it is generally accepted that you can engage steel targets with a 5.56mm rifle at a distance of 50yds or greater, however this must be done with bullets that do not have a steel core. I do not know that this must be specifically addressed in the memo but for USAMU purposes I think this is important for our training. We specifically shoot thin jacket varmin hunting type bullets to ensure the bullets dissipate on the target to minimize any splash back [Considered -- all will operate within policy intent; Range Opns will work with AMU for competition-related events].

(4) MCoE Safety: Bragg, Campbell and Hood units who are using steel are experienced warfighters, not Basic Trainees. The pros and cons are laid out for the Commanders and CG to understand the hazards and mitigate them. The established range standards and procedures are not outlined in the DA Pam or AR but by AWG. The CG cannot waiver criteria that is not in an AR or DA Pam. However, the CG can accept the risk for the training of the Soldiers and the level of acceptance is TRADOC CG level. The TRADOC CG has delegated the risk acceptance authority to Senior Commanders for unit implementation of all safety control measures outlined in the Policy Memorandum. Specific comments: (1) Para 2. Replace "7.62mm" with ".30 cal" which would include all calibers (.300 Win Mag and .338 Lapua) munitions found in paragraph 4g plus, the 7.62mm (which is a .30 caliber round) [Concur -- policy memo corrected]; (2) Para 4a. Delete "MCoE Safety" off the requirement to keep duplicate documentation on reactive steel targets shot on a range. We can inspect the records kept by the unit and Range Division but not maintain a data base that will ever coincide with any other agency [Concur -- policy memo corrected]; (3) Para 4h. Reword the last sentence to read: "Once a target is damaged it must be discarded in a manner that it could never be used for any shooting purpose" [Concur -- policy memo corrected]; (4) Para 4k. The use of paint on RSTs masks flaws (potting, cracks, etc.) in the target making visual inspections incomplete [Concur -- policy memo corrected]; (5) Para 5 and Enclosure 3. How can you request a waiver/devotion from the DA Pam or AR when it has not been set by the proponent? [CG MCoE can accept the risk for the training]

(5) Range Opns: Recommend only designated approved ranges allow steel due to the ricochet factor and the closeness of our ranges and SDZs [Concur -- Range Opns will update RFMSS to reflect those ranges suitable for use of steel targets].

✓ (6) Cdr 197th: (1) Numerous minor grammar corrections [Concur -- policy memo corrected]; (2) Should say (targets that do not move), Non reactive targets are stationary [Concur -- policy memo corrected]; (3) Recommend adding to policy --- from a discussion with the DCO, we wanted to clearly articulate that Sniper School will continue to submit their waiver or if they are not currently doing so --- submit a packet that included Steel Targets [Concur -- policy memo corrected]; (4) Add to para 4 -- When adding steel targets on a range with existing targetry (runners or pop ups), RSO must ensure that all steel target being used are behind any existing target location at a distance not closer than 10 meters. By ensuring steel targets being used are behind current targetry prevents damage from splash back to both the target box and any electrical systems being used on the range [Concur -- policy memo corrected].



DEPARTMENT OF THE ARMY  
HEADQUARTERS UNITED STATES ARMY MANEUVER CENTER OF EXCELLENCE  
1 KARKER STREET  
FORT BENNING, GEORGIA 31905-5000

REPLY TO  
ATTENTION OF

Policy Memorandum 385-63-7

IMBE-PLT-R

27 MAR 2013

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Use of Steel Targets in Marksmanship Training

1. REFERENCES:

- a. AR 385-63 MCO 3570.1C, Range Safety, 30 January 2012.
- b. DA Pam 385-63, Range Safety, 30 January 2012.
- c. DA Training Circular (TC) 25-8, Training Ranges, 20 May 2010.
- d. TRADOC Regulation 385-2, TRADOC Safety Program, 6 December 2011.
- e. USASOC Regulation 385-1, USASOC Safety Program, 23 April 2010.
- f. USMC Training and Education Command Safety of Use Memorandum 2-02, 3 December 2002.
- g. MCoE Regulation 350-19, Installation Range and Terrain Regulation, 23 July 2010.

2. PURPOSE: To prescribe the safety guidance and procedures to allow the use of steel targets in basic and advanced marksmanship training on ranges and training facilities of Fort Benning, Georgia, for the following weapon systems: 9mm and .45 caliber pistols; 12-gauge shotguns; 5.56mm rifles; and 7.62mm/.30 caliber sniper rifles. This policy does not include procedures for use of the .50 caliber sniper rifle and steel targets.

3. BACKGROUND: The use of steel targets was introduced on Fort Benning by the U.S. Army Asymmetric Warfare Group in 2007, and has been fully integrated into marksmanship training. Non-reactive (targets that do not move) steel targets (legacy term was "iron maidens") provide the shooter with instant feedback on target engagement. However, steel targets increase the chance of injury to the shooter from bullet fragmentation (splash back) if the shooter engages too close to the steel target or if the steel target is not maintained or replaced when pitted or damaged. Targets made of poor quality steel also increase the chance of splash back or spalling. When using approved abrasion resistant steel that is properly positioned, steel targets provide effective feedback in both basic and advanced marksmanship training, provide a sense of realism, and enhance overall marksmanship learning outcomes. Training Circular 25-8 specifies standard range design with integrated placement of steel (iron maidens) (enclosure 1). U.S. Army Armament Research, Development, and Engineering Center (ARDEC) has not

## IMBE-PLT-R

Subject: Use of Steel Targets in Marksmanship Training

tested or validated the use of steel targets or the safety certification of accepted steel target types. The TRADOC TCM-Live has not approved a Life Cycle Management Plan (LCMP) to procure, inspect, or replace steel targets within units; commanders currently procure with available operational funds. The TRADOC has not developed/published Army capabilities development documents, Soldier training plans, or doctrine to support training support packages/lesson plans for use of steel targets. Steel targets, as used today across the Army, simply offer another means to obtain that feedback and increase the training level of Soldiers as they prepare for combat.

4. POLICY: The guidance provided is based on empirical data collected from U.S. Army installations (Forts Bragg, Campbell, and Hood), the U.S. Army Asymmetric Warfare Group, U.S. Marine Corps, U.S. Army Special Operations Command (USASOC), and various Federal agencies (FBI). The following procedures must be followed to ensure the safety of Soldiers in training when using steel targets.

a. Steel targets will be constructed of abrasion resistant AR 500 steel (also known as High-Hardness Armor plate that is approved for use within the Department of the Army). The "AR 500" is a steel mill designation that is equal to a Brinell hardness scale of ~500 (actual scale can range from 477 to 534). All targets will be a minimum 3/8 inch thick (recommended 1/2 inch thick). The AR 500 steel is tempered through hardened wear resistant grades of abrasion resistant steel plate and used for severe impact. This is the industry standard for metal targets. Homemade or unit constructed targets are not authorized due to inconsistency in design, functioning, and most importantly the uncertainty in steel quality or hardness. Commercial vendors for steel targets must provide a certificate of hardness to ensure the steel targets meet the minimum hardness rating of AR 500. The certificate must remain on file with the using unit and the Garrison's Range Operations as long as the targets are being utilized on the installation. The MCoE Safety office will conduct periodic inspections of steel target serviceability and procedures.

b. Steel targets will be engaged with the shooter squared and facing the target. When conducting military training, all shooters and all personnel on the range within 10 meters of the firing line will wear the Army-standard issue safety standard (MIL-PRF-31013) impact resistant eyeglasses, body armor, ballistic helmet, ear protection, and gloves. When participating in marksmanship competitions under the supervision of the Army Marksmanship Unit, all shooters and all personnel on the range within 10 meters of the firing line will wear Occupational Safety and Health Administration and American National Standards Institute (ANSI) certified safety standard (ANSI Z87.1+) impact resistant eyeglasses and ear protection.

c. No engagements will be fired at oblique angles or parallel to the target. Angle of deflection is defined as the perpendicular exit of bullet fragments from target surface to the shooter. When a shooter is shooting directly at a target, the bullet splatter will angle off the target up to 20 degrees in all directions from the point of impact and travel up to 50 meters. Empirical evidence suggests 95 percent of all bullet fragments will exit the target within the 20 degree dispersion area (enclosure 2).

## IMBE-PLT-R

### Subject: Use of Steel Targets in Marksmanship Training

d. Non-reactive targets will be placed at a slight downward angle to direct the round's fragments towards the ground. A stationary target with a 20-degree forward cant (head forward of the body) produces the best angle of deflection with most consistency.

e. Actual engagements will be single rounds only for TRADOC Program of Instruction training. Fort Benning's tenant units will be considered for single round, controlled pairs, or double-tap engagements. If more than one steel target is to be used, the target will be set in a fashion so that the splatter from one target will not ricochet off the next. Each target must be placed with the direction of fire and the angle of deflection taken into consideration. The number of shooters on the firing line will be limited to keep all personnel out of the 20-degree dispersion area and minimum meters radius exclusion zone.

f. Automatic fire engagements are not authorized for any steel target engagements.

g. Steel target engagements will not be closer than 10 meters with pistol and shot gun ammunition; 100 meters with 5.56mm ammunition; and 150 meters with 7.62mm ammunition. Shotgun 12-gauge slug ammunition will not be fired at steel targets at distances of 50 meters or closer. Only U.S. Army procured ammunition with a Department of Defense Identification Code will be used to engage steel targets; the exception is 300 Win. Mag (minimum of 400 meters) and 338 Lapua (minimum of 200 meters) for sniper training. Units will not use steel targets for .50 caliber sniper marksmanship training due to high probability for target damage and/or penetration.

h. Steel core, steel jacket, and armor piercing ammunition will never be used to engage steel targets at any distance. As the new 5.56mm M855A1 Enhanced Performance Round is fielded, this type ammunition will not be used to engage steel targets. These types of ammunition will penetrate AR 500 steel targets and render the target unserviceable. Once a target is damaged, it will be classified as unserviceable and disposed/discarded in a manner that renders the steel target unusable for live marksmanship training.

i. Steel targets that have excessive surface pitting (slight surface depressions that are 1/32 inch or 0.8 mm deep into the steel), have round penetrations, or are warped, dented, or cracked will be classified as unserviceable and will not be used.

j. When integrating steel targets on a range with existing targetry (movers and/or stationary), the Range Safety Officer (RSO) must ensure that all steel targets being used are behind any existing target location at a distance not closer than a 10 meter radius exclusion zone in relation to other mechanical targets and/or range infrastructure. By ensuring steel targets are behind current targetry, this prevents damage from splash back to both the target box and any electrical systems being used on the range.

k. The RSO will inspect all steel targets for serviceability and placement of all steel targets prior to use by the training unit. The RSO will ensure targets are refaced with flat-based spray

IMBE-PLT-R

Subject: Use of Steel Targets in Marksmanship Training

paint only *[Note: The use of excessive paint masks target flaws and renders target inspections incomplete].* "Target slicking" is prohibited (applying grease or oil to the target face). The RSO will ensure that minimum safe engagement distance(s) from the muzzle to the steel target is established and maintained for each weapon system used. Empirical evidence suggests that impact velocity less than 2,600 feet per second will minimize target damage.

I. The Commander is ultimately responsible for the safety of all training. The RSO will be certified by the Commander when using steel targets. Commanders will establish Standard Operating Procedures and Composite Risk Assessment to address the inherent hazards associated with shooting steel targets.

5. APPLICABILITY. This memorandum provides guidance that applies to all ranges on Fort Benning, Georgia when using steel targets within the Fort Benning Range/Training Complex. Given that (1) ARDEC has not tested or validated the use of steel targets or the ballistics associated with its use, and (2) current use is based on empirical evidence, the use of steel targets is classified as a deviation from established range standards and procedures; as such, only the installation Senior Commander/CG, MCoE, may authorize deviations (enclosure 3). Training units desiring to use steel targets will submit request(s) for waiver(s) in accordance with AR 385-63, DA Pam 385-63, and MCoE Regulation 350-19.

6. PROPONENT: Mr. Douglas M. Greenway, Installation Range Management Officer, (706) 545-4619/3542 or e-mail [douglas.m.greenway.civ@mail.mil](mailto:douglas.m.greenway.civ@mail.mil).

FOR THE COMMANDER:



ROBERT E. CHOPPA  
Colonel, Infantry  
Chief of Staff

3 Encls

1. TC 25-8 Standard Range Design with Integrated "Iron Maidens" (Steel Targets)
2. Steel Target Placement and Dispersion Area
3. AR 385-63 Deviation Limitations (Waiver Requirements)

DISTRIBUTION:

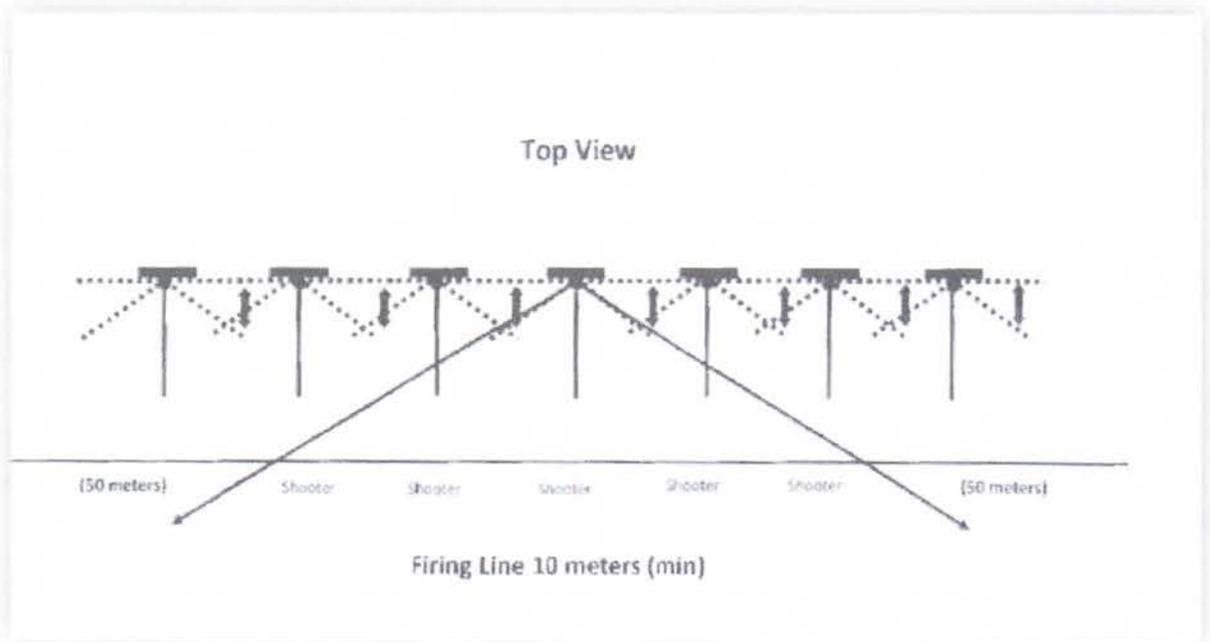
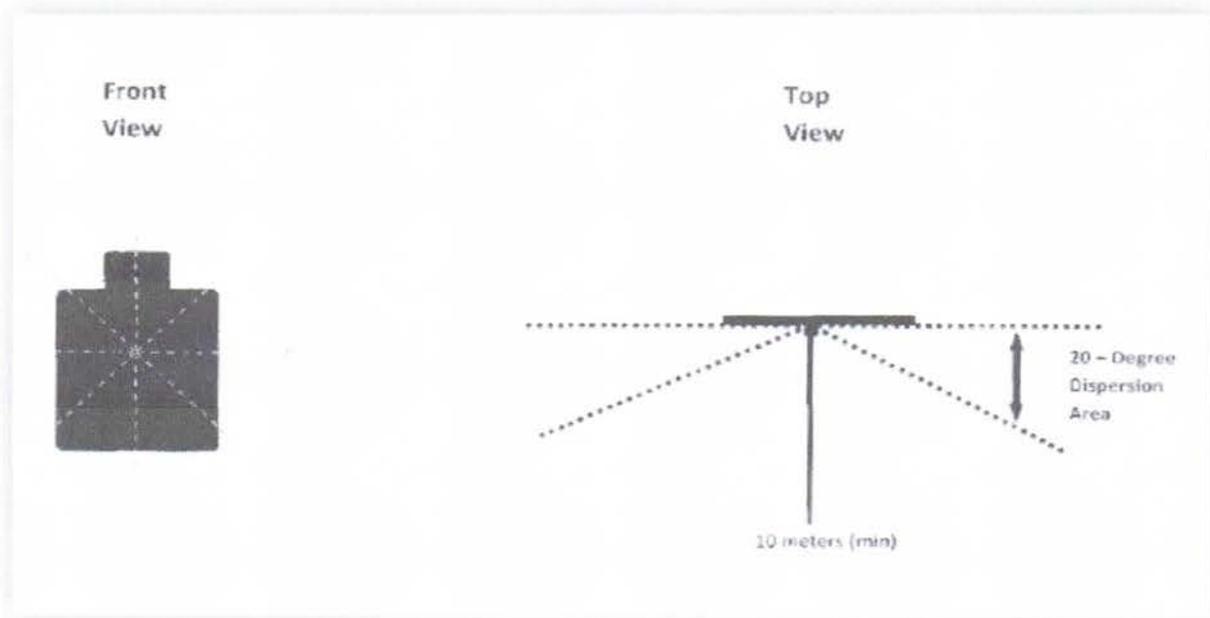
ADMIN L, CSM/SGM, MSC DCO, and MCoE BN CDRs Lists

Enclosure 1: TC 25-8 Standard Range Design with Integrated "Iron Maidens" (Steel Targets)

Type Range	Code	Distance - Firer to Steel Target	Total Steel Targets
Qualification Training Range (QTR)	FCC 17809	-- 350m to 575m -- 900m to 1000m	20
Automated Sniper Field Fire (SFF) Range	FCC 17812	-- 325m to 575m -- 900m to 1000m	20
Heavy Sniper Range	FCC 17829	-- 300m to 600m -- 845m to 1775m	10
Multipurpose Machinegun (MPMG) Range	FCC 17833	-- 375m to 600m	20

Note: TC 25-8 specifies a standard range design for all new and renovated ranges. The ranges above integrate the use of steel targets for various weapons systems and represent distances from the shooter to the target to be integrated in all future ranges. None of Fort Benning's current ranges are designed for the integration of steel targets.

Enclosure 2: Steel Target Placement and Dispersion Area



ENCL 2

### Enclosure 3: AR 385-63 Deviation Limitations (Waiver Requirements)

- Deviation from range standards and procedures
  - A deviation, as discussed in this regulation/order, is the temporary departure from established range standards and procedures. An example would be reducing SDZ dimensions when terrain, artificial barriers, or other compensating factors which mitigate risks to make smaller SDZs safe. Guidelines for preparing a range safety deviation are contained in DA Pam 385-63.
  - Army Senior Commanders in the grade of O-7 and above may authorize deviations.
- Deviation limitations. Deviations are limited to:
  - Reducing SDZ dimensions when terrain, artificial barriers, or other compensating factors make smaller SDZs safe.
  - Modifying prescribed firing procedures to increase training realism (such as accepting increased risk when the risks have been incorporated into an approved SDZ) as appropriate for the proficiency of participants.
  - Allowing personnel not authorized within the SDZ (per DA Pam 385-63), unless prohibited.
  - Approved deviations will be effective for one year or less. Expired deviations may be renewed by the respective approval authority provided conditions cited in the original deviation have not changed.
  - Any accident or incident occurring under an approved deviation will cause automatic termination of the deviation until an investigation is completed and the deviation revalidated by the respective approving authority.
  - Conflicts regarding level of risk determination will be resolved by the commander holding the deviation authority for the highest level of risk deemed in conflict.
  - For live-fire training operations conducted under an approved deviation by nonresident units, the host installation commander/senior commander must approve training at a host installation.

ENC 3