Rules of Engagement for Exercise Players

Department of Energy
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MEMORANDUM FOR DISTRIBUTION

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SUBJECT: Performance Test Working Group Results – Force on Force Protocols and Rules of Engagement

The Department's vital interest in achieving timely Design Basis Threat (DBT) implementation and in promoting the "elite" protective force concept prompted senior security managers to initiate a process to enhance the effectiveness and efficiency of Force-on-Force (FoF) performance testing. To that end, the Performance Test Working Group (PTWG) was chartered to review best practices throughout the complex and develop a set of common FoF Protocols and Rules of Engagement (ROE) for Departmental use. An interim set of protocol/ROE documents was developed last year. Those interim documents have since been completed, distributed, implemented, and successfully tested in performance test exercises throughout the Department.

Lessons learned from those performance test exercises have now been incorporated by the PTWG into a comprehensive set of formal Protocols and ROE and are distributed as an attachment to this memorandum that serves as an umbrella agreement between Office of Health, Safety and Security (HSS), National Nuclear Security Administration (NNSA), and Energy, Science and Environment (ESE). Respective site organizations are encouraged to carefully examine this document and to implement, to the fullest extent possible, the approaches described. Correspondingly, the Office of Independent Oversight will employ this document as a basis for planning upcoming inspection-related FoF tests. We believe that this will enhance both Department-wide consistency and the overall effectiveness of FoF performance testing, regardless of context. In particular, the Protocols describe innovations, such as the "aspect of battle" test concept and expanded use of surrogate facilities, which are designed to assist a cost-effective, yet rigorous test program. We further expect that these innovative concepts will harmonize the performance testing process with newly-emergent, more technologically-oriented protection strategies.

The PTWG charter also establishes an orderly process for the annual update and revision of these Protocols and ROEs. We encourage all Departmental elements to provide continuing feedback through their designated representatives in the PTWG or directly to the PTWG co-chairs, Dr. James McGee of HSS and Mr. Robert Brese of NNSA.

Rules of Engagement for Exercise Players

Rules of engagement (ROE) provide for control of an exercise while allowing maximum free play in a tactical setting and enable evaluators to objectively monitor a participant's performance. Use of engagement simulation systems (ESSs) promotes realistic simulation of real-world response actions, which is vital to performance testing and evaluation. ROE govern the activities of all players (participants, controllers, and evaluators) throughout the exercise period, regardless of the organization, the identified training or evaluation objectives, or the particular scenario. ROE also apply to all personnel who participate in, support, observe, or control exercises. Only the Test Director or his/her designated representatives may grant exceptions to the ROE. In the case of Independent Oversight activities, such exceptions will be jointly agreed upon by both Test Directors. Disagreements and differences of opinion during the conduct of the exercise are expressed during the After Action Review following the exercise.

Intentional violation of the ROE results in removal of the violator from the exercise and referral of the violator to the appropriate level of management.

Documents that were used in developing these ROE are listed under the "Reference" tab.

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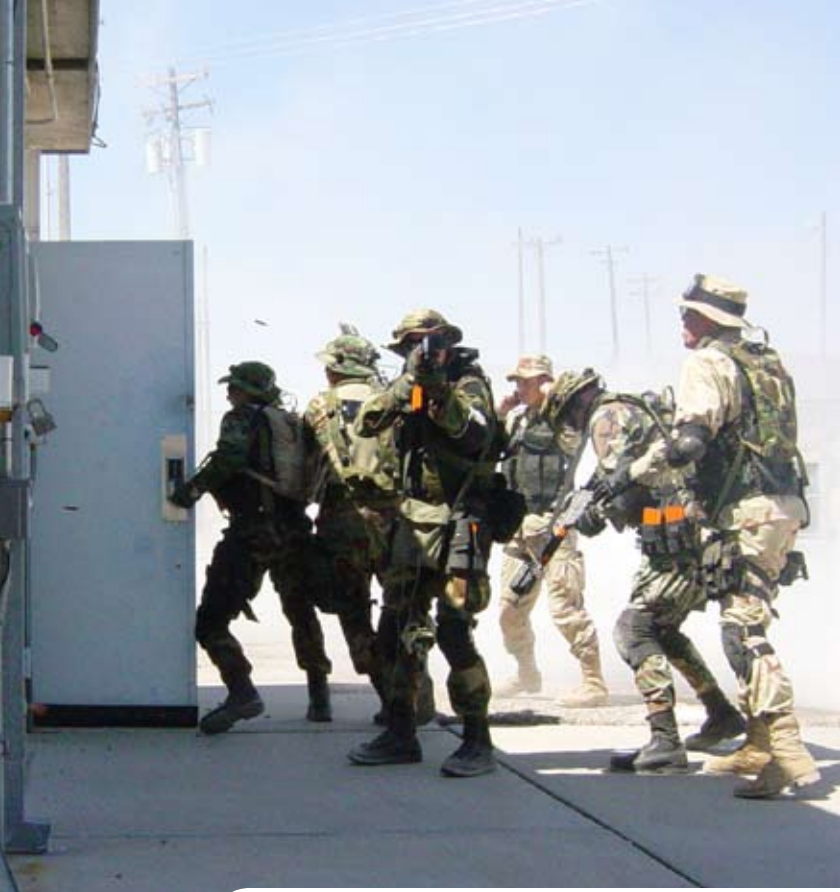

1. Code of Conduct

Participant Code of Conduct

- Participants will follow all safety rules.
- Participants will follow controllers' directions; there will be no arguments.
- Participants will NOT engage controllers (or evaluators) in general conversation.
- Participants will NOT ask controllers (or evaluators) for guidance but may ask for clarification on simulated events.
- Participants may communicate anticipated actions to the controller to facilitate activity comprehension.

Controller Code of Conduct

This code of conduct applies to evaluators (when employed) as well as controllers.

- Controllers will not provide assistance, coaching, or guidance to participants for other than safety matters or scenario injects (except for training exercises).
- Controllers will retrieve valuable equipment if dropped and left by participants. The equipment will not be returned to the participant unless the participant recognizes and identifies the dropped piece of equipment and then performs the physical activity to retrieve the equipment at the identified location.
- Controllers will make every effort to avoid diminishing the realism of exercise play. Controllers will not congregate around the "action" and will not obstruct or interfere with ESS engagements.
- Controllers will position themselves so as not to compromise participants' positions. Controllers will stay close enough to interrupt participants who close with each other and pose a safety issue.
- Controllers will wear radio earpieces and/or minimize radio volume to avoid passing information to participants.
- Controllers with a maneuvering element will move tactically, emulating the players' actions, until contact with that element is made, or as dictated by the scenario. The controller will don identified markings after contact, after a location is compromised, or as directed by the Test Director.
- Zone controllers will be distinctly identified and will control a specific zone or location.

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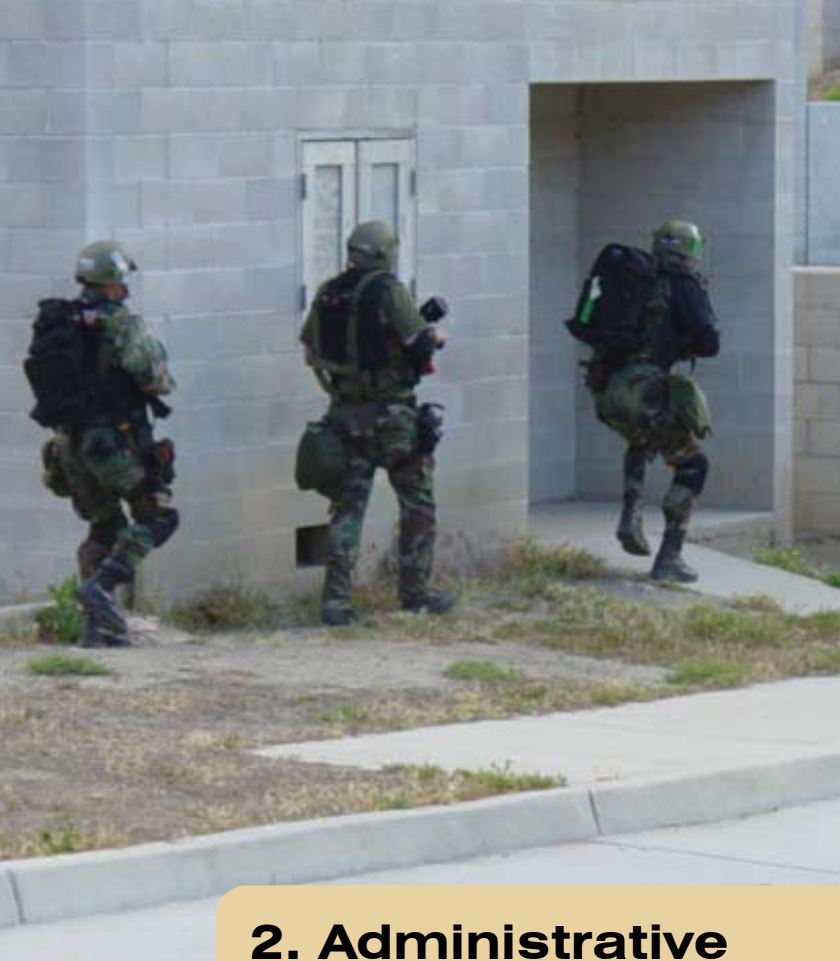

2. Administrative Actions

Exercise Freeze

- Any person observing a potentially serious or life-threatening safety or security problem will announce "EXERCISE FREEZE." The announcement should be made both verbally to the players in the immediate area of the safety problem and on the radio. The Test Director/Senior Controller monitors all radio traffic and will relay the message to all radio nets (e.g., adversary, protective force, controllers).
- When an exercise freeze is communicated, every player will immediately freeze in place (e.g., stop at their locations, assume non-threatening positions, cease fire, ground weapons, and cease movement, communication, or any other action) until the command "RESUME EXERCISE" is given over all radio nets by the Test Director or his/her designated representative.

Administrative (Admin) Hold

- An admin hold may be used to stop exercise activities in order to correct exercise problems or to introduce additional activities into play that cannot be appropriately simulated.
- Only a controller can initiate an admin hold.
- During an admin hold, all activity temporarily stops and the players stand fast.
- Temporary stoppage of exercise play may involve only a specific limited area/activity, or it may involve the entire exercise area.
- During an admin hold, participants will refrain from tactical discussions, radio communications, and undue observation of the test area (i.e., no “gaming”).
- There will be no engagements during an admin hold. If a participant is engaged during an admin hold, triggering the ESS harness, a controller will reset the ESS harness and allow the participant to continue in the exercise when play resumes.
- The exercise is continued by the command “RESUME EXERCISE.”

"Dead" Players

- Once "killed," participants will immediately cease fire, movement, communication, and all other activities. Participants will place their weapon on the ground/floor and assume a prone or supine position if the area is deemed safe by a controller. Participants may move to a safe location or assume a non-threatening position in the immediate area if the area where they were neutralized is not deemed safe by a controller. Participants will remain in place until the exercise is terminated or the controller administratively removes them.
- "Dead" participants will not render assistance, such as pointing or indicating opponent locations, and will not engage in any form of communications with other "dead" participants, adversaries, controllers, evaluators, or observers.
- "Dead" participants will not be administratively marked or identified.

Loss of Communications

Administrative or actual controls may be placed on radios to simulate radio jamming. If administrative controls are the only available means of "jamming" the radio, participants will be required to turn the radios to the off position under the controller's guidance. If the radios cannot be turned off (e.g., due to site/safety constraints), the participants will follow the controller's direction.

Insufficient ESS Equipment

In such cases where exercises are conducted with an insufficient amount of ESS equipment, situational controller calls will be used to carry the action forward, based on the tactical situation, the shooter's line of sight and firing position, and the weapon's capability and effects.

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3. General Information

Exercise Hazards

- Exercise hazards will be identified in accordance with site- and exercise-specific needs and requirements and the hazard/risk analysis (as addressed in the safety plan).
- There will be no hand-to-hand combat between active participants.
- Knives will not be used as weapons.
- No attempt will be made to disarm an adversary who is still in play by grabbing his or her weapon.
- Ascents to or descents from elevated positions will be by ladder, stairs, or other safe method.
- Impassible roadblocks will be clearly identified in briefings and indicated by yellow caution tape, orange cones, or other readily recognizable items placed on or across the roadway.
- Structures and areas that are to remain out of play will be similarly marked and/or identified in briefings.

Exercise Personnel

- Protective force participants will be prepositioned in a normal posture (as identified by the “snapshot in time” review) until exercise events cause them to initiate emergency response actions.
- Except for the actions identified during the pre-exercise briefing, or as otherwise directed by controllers, participants will respond to exercise events as if the emergency were real.
- Participants may approach a “killed” participant to obtain their vehicle, weapon, ammunition, radio, or simulated target material if the item is addressed in the site safety plan and if the individual is familiar with proper handling/operation.
- Participants attempting to circumvent rules or gain an advantage by unfair tactics, such as intentionally covering laser sensors, hiding behind false cover, or removing headbands, will be taken out of action by the controllers.
- Between iterations and upon termination of the final scenario, all personnel will conduct an accountability check of all equipment and any injuries and report the status to the controller.

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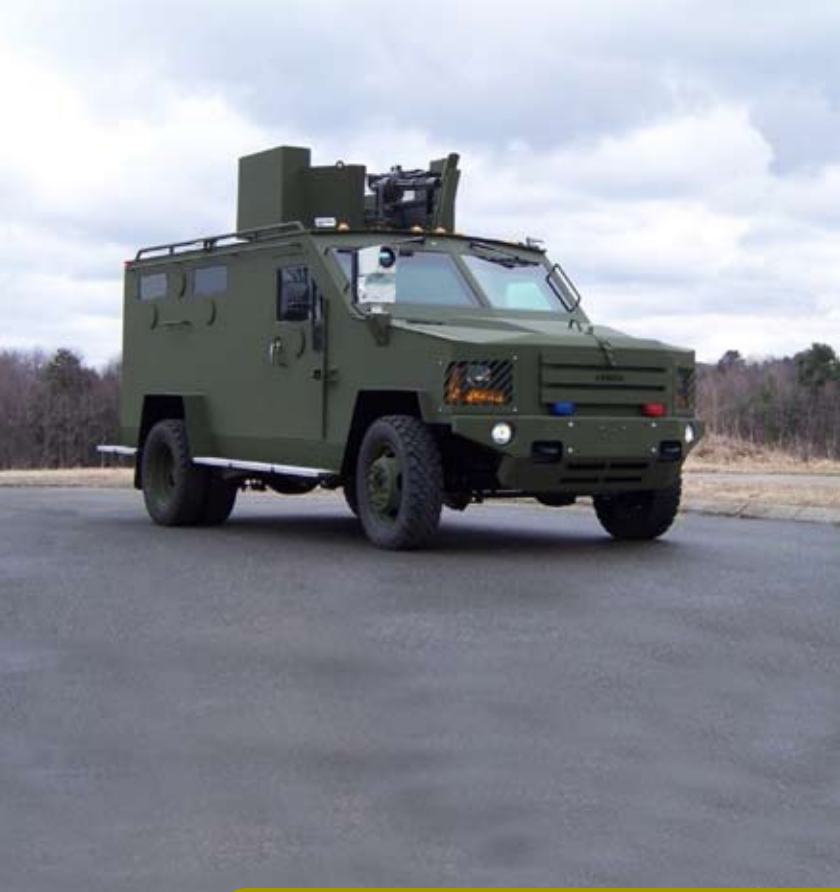


4. Vehicles

Non-Exercise Vehicles

It may be necessary (upon review of the scenario) to physically identify specific non-exercise vehicles:

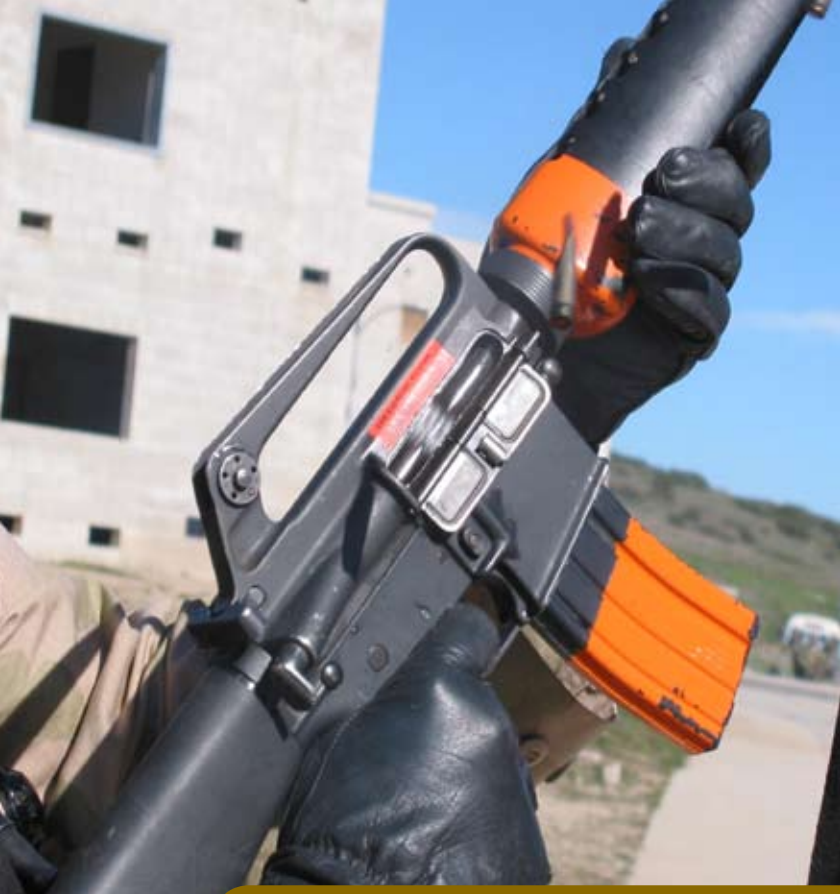
- During low-light/nighttime, the preferred method of identification is tying an activated chemical light to the antenna. If the vehicle does not have an antenna, chemical lights can be tied to any other areas of the vehicle so that they can be seen from all sides.
- During daylight, the preferred method of identification is yellow tape tied to the radio antenna. If the vehicle does not have an antenna, yellow tape can be secured anywhere on the vehicle so that the tape is visible from all sides.

Exercise Vehicles

- All dedicated exercise vehicles will be inspected and identified to controllers.
- The hit indicators of ESS-harnessed vehicles will be visible to the occupants.
- Participants who come upon an unoccupied exercise vehicle that is still in play (not destroyed) may either commandeer the vehicle, disable it, or destroy it to preclude further use by other participants.
- If a participant intends to disable an exercise vehicle, the participant will perform the actions (if possible) and tell the controller how they would disable the vehicle. The controller will determine whether the disabling, as described and performed, would be effective. Based on the controller's evaluation of effectiveness, the controller may or may not identify the vehicle as disabled. (Methods for identifying a disabled vehicle will be addressed in controller training.)
- If a vehicle is disabled surreptitiously, the controller will attach a colored streamer to its steering wheel. If a vehicle is disabled with an explosive action that would cause an overt and persistent signature, the controller will provide that signature (via agreed-upon means).

Vehicle Safety Rules

- Only licensed drivers will operate vehicles.
- Safety belts will be worn by all vehicle occupants unless waived by proper authority.
- No vehicles will be operated off-road without prior approval.
- No vehicles will be driven with headlights off without prior approval.
- No one will ride on the outside of a vehicle without prior approval.
- No shooting out of vehicles without prior approval.
- Vehicles will not be mounted or dismounted until they come to a complete stop.
- There will be absolutely no attempt to use a vehicle to crash, block, or in any way endanger another vehicle or person.
- All acceleration, deceleration, cruising, turns, etc., will be accomplished in a safe manner.
- All vehicles will obey established site/facility speed limits.
- Participants will inform the controller if they intend to use their vehicle as a roadblock. The controller will determine whether the roadblock, as described, would be effective. Based on the controller's evaluation of effectiveness, the blocked vehicle may be stopped or allowed to pass. The controller will communicate this to the intended blocked vehicle controller via controller radio, hand signals, or voice commands.



5. Weapons and Pyrotechnics

Weapons and Pyrotechnics Safety

- No live-fire weapons or live ammunition of any type or caliber will be allowed in the possession of any exercise player.
- All exercise weapons will be identified, dedicated, clearly marked, controlled, and segregated from regular duty weapons.
- All ESS weapons used in the exercise will be configured in accordance with the standards set forth in DOE Manual 470.4-3 and DOE-STD-109 1-96 to prevent the accidental introduction of live rounds.
- In accordance with DOE Manual 470.4-3, only blank ammunition magazines, clips, and belts (first link) that have been distinctly color-coded orange and modified for use with an ESS firearm will be used.
- Players and their vehicles/posts will be inspected by their controllers to assure that no live ammunition is present before the exercise window opens.
- Duds will be reported to and handled only by trained personnel.
- No ESS weapons will be fired when the muzzle is within 10 feet of another person.
- No ESS rocket launchers will be fired unless the area 30 feet behind and 5 feet to each side is clear.
- Controllers will be required to understand the capabilities and effects of both adversary and protective force weapons, ordnance, ESS detection signals, and pyrotechnics.
- Use of flares will be in accordance with site plans and site approval.

General ESS

- Whenever possible, controllers will let the ESS equipment make the call on kills. Weapons rigged with visible and/or infrared lasers or target pointers are not exempt from this requirement.
- ESS detector systems will be fully functional at all times during the exercise. Controllers will check ESS detectors/kill indicators to ensure that they are functioning properly.
- Participants will inform their controllers immediately if they have an ESS problem.
- Controllers may make subjective assessments of an ESS kill if the kill is clearly the result of an ESS malfunction. Controllers will "resurrect" the player only if he/she has overwhelming evidence that the engagement causing the kill was invalid (including the possibility of long-range shots).
- Firearm and equipment malfunctions that are identified before the exercise window opens will be reset and tested by a controller. If a controller determines that any weapon or harness is inoperable, the defective component will be replaced by the controller before the window is opened.

ESS Rocket Launchers

- ESS rocket launchers simulate a variety of shoulder-fired, rocket-type weapons—e.g., rocket-propelled grenade (RPG), lightweight anti-armor weapon (LAW), anti-tank (AT4).
- Because of the limited availability of ESS rocket launchers, weapon simulators can be pre-designated to represent any shoulder-fired, rocket-type weapon. The user will declare, during the attack planning phase, which weapon type will be employed.
- The ESS rocket launcher can be used by the adversary or by the protective force.
- The ESS rocket launcher will be considered a heavy weapon that can destroy any ESS-equipped vehicle.
- The ESS rocket launcher will be de-cocked before advancing.
- The details of using these simulated weapons will be agreed upon before the exercise.

For example:

The LAW is a single-shot weapon. However, due to limited availability, each ESS rocket launcher will be assumed to fire four times, with the shooter unloading and reloading a cartridge before each firing. The shooter who uses a simulated LAW will be required to carry a prepared plastic tube (or similar mockup) equal to the size and weight of the LAW.

The RPG is a multiple-use weapon with a single-round chamber, requiring the user to go through the motions of loading, firing, unloading, and reloading before he/she can fire again. The shooter who uses a simulated RPG will be required to carry prepared plastic tubes (or similar mockup) equivalent to the size and weight of the RPG warheads.

False Cover

- False cover is anything that a participant is positioned behind while receiving fire that will keep the ESS laser from penetrating but would not stop a bullet.
- Any participant using false cover while being engaged will be instructed by the controller that they are under fire. (It is possible that the participant is unaware of the engagement and is simply using the false cover as concealment.)
- When instructed, the participant will immediately move away from the false cover. If the participant does not move, the controller will call him/her killed.

Danger Close

When participants are within 10 feet of each other they will not discharge their weapons and will follow this procedure:

1. At least one of the participants will announce “DANGER CLOSE” and will repeat “DANGER CLOSE” in a loud voice until a controller acknowledges the situation.

2. The controller will make the call as to who is killed (one or both), based on the situation.

Smoke Generators/Grenades

The following are recommended as a common-sense approach to utilizing smoke:

- Participants who engage while operating in light smoke will remain active unless one or both of their ESS harnesses are activated.
- A participant caught in heavy or light smoke for a prolonged period may be administratively removed from the breathing hazard area until the smoke has cleared. During this time, the participant may not shoot, or be shot at, until a controller moves him/her back to the original position.
- Any use of smoke generators and/or grenade-type devices will be approved by the site office.

Simulating CS/CN Gas

- When either CS/CN gas or smoke is simulated/used, participants will follow their standard site operating procedures regarding the appropriate time to don their masks.
- Gas may be simulated with or without the use of smoke by verbally alerting participants in the area that gas has been deployed.
- Gas may be simulated within confined spaces or indoors by controllers verbally alerting all participants in the area that gas has been deployed.
- In any gas simulation, participants in the plume will break contact with the plume or don their protective masks within the site's required time.
- If a participant does not don a gas mask within the required time after making contact with the plume, he/she will be administratively incapacitated for three minutes.
    - During this time, the participant can continue all activities except fire a weapon. (Vision degradation would hamper engagement of a target.)
    - If the participant fails to break contact with the plume and/or fails to don the mask, he/she will be administratively incapacitated (as defined above) indefinitely.

Fragmentation Grenades

- Grenade simulators will consist of either a soft weighted device with chemical lights attached or an actual ESS grenade simulator. ESS grenades are deployed like a conventional grenade. For the chemical light grenade, during lighted conditions, the participants can simply deploy the grenade. During low-light conditions, the participant must activate the chemical light before deployment to aid in ESS weapon identification. Participants deploying either type of grenade simulator will simulate pulling the safety clip and pin using two hands.
- A grenade simulator will have a kill radius of five meters and will not be re-used.
- The grenade will be deployed by throwing it a maximum of 40 meters.
  - The participant notifies the controller of deployment of the grenade. The controller will silently count four seconds from the time the grenade leaves the participant's hand. At the end of the four seconds, the controller will shout "GRENADE DETONATION" (or use an air horn) loud enough that the controller and participant(s) at the location that the grenade was targeting can clearly hear.
  - The controller at the location receiving the grenade will enforce the kill radius for all participants within five meters.
  - Participants who are within five meters of the detonation but are behind adequate cover (as deemed by the controller) will be administratively incapacitated for three seconds.

Stun Grenades

- Participants deploying a simulated stun grenade will simulate the actions of removing the pull ring using two hands.
- When the device leaves the thrower's hand, the controller counts three seconds and shouts "STUN-STUN" (or uses an air horn). Players in the immediate vicinity will be administratively incapacitated for three seconds. Players behind adequate cover (as deemed by the controller) will be unaffected.
- Stun grenades will not be re-used.

40mm "Single Shot" Grenade Launchers

- 40mm high-explosive, dual-purpose (HEDP) rounds will be used only on stationary (not moving) vehicles. The maximum effective range is 350 meters. The arming distance for the projectile is 20 meters.
- When the target is at 150 meters or less, the weapon is utilized as a point weapon and is shoulder-fired.
- At more than 150 meters, the player will determine the range and adjust sights prior to firing.
- The player will demonstrate the required actions of loading, aiming, and firing.

40mm "Single Shot" Grenade Launchers, *continued*

- The player will specifically identify the target to the controller.
- The player's controller will notify a target area controller that the area is under attack by 40mm.
- The controller at the target area will immediately alert participants in the target area that they are under attack by 40mm and may also throw a diversionary device or use an air horn for simulation. Participants at the target area will have the opportunity to quickly move from the targeted area before the required number of engagements is accomplished.
- 40mm HEDP effects are as follows:
  - Three rounds for all soft and hardened vehicle targets out to 350 meters.

    The vehicle (stationary) is called disabled on the third round.

    Occupants must relocate the vehicle or dismount after the third round. If not, one occupant is called neutralized on each successive round thereafter.

  - The 40mm round has a kill radius of five meters for personnel in the open.
- For HEDP rounds against a vehicle, the shooter must fire from an effective firing position at right angle to flat surface target.

Stay-Behinds (Booby Traps)

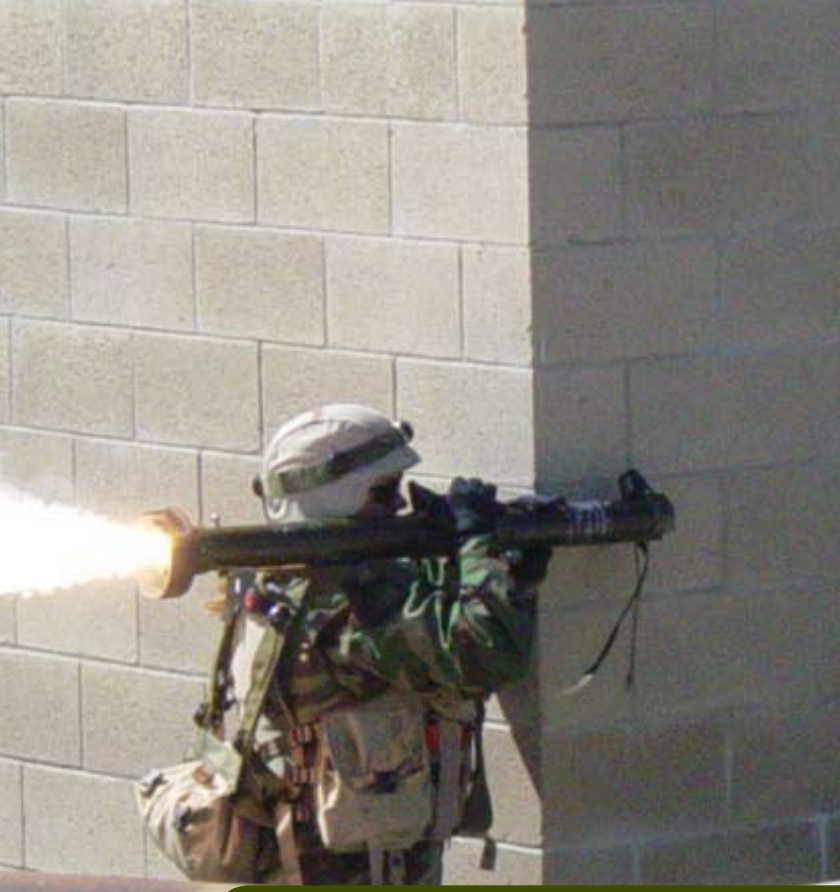
- Because these devices do not have ESS laser transmitters, the controller will make the kill call for personnel caught by these traps. A stay-behind kills the participant who activated the explosion and any other participants in the immediate kill area (three meters).
- These devices may be motion-activated, time-delayed, trip-wired, or command-detonated. However, the kill radius is three meters, which is the range of motion-detection capabilities. Accurate small-arms fire or stun grenades can detonate motion-activated devices.

Claymores

- Because these devices do not have ESS laser transmitters, the controller will make the kill call for personnel caught by a claymore detonation. A claymore kills the participant who activated the explosion and any other participants in the immediate kill area.
- The claymore has a fan-shaped fragmentation pattern with a kill distance out to 50 meters in a 60-degree arc at a height of 2 meters.
- Personnel to the sides or rear of the claymore need to be in a protected position out to 16 meters.
- The claymore may be time-delayed, trip-wired, or command-detonated.

Explosive Breaching Charges

- Explosive breaching charges will consist of a mockup in the size, configuration, and weight of the proposed charge. Noise signatures will be provided by controllers using diversionary devices, air horns, or similar items.
- Personnel setting these charges will retreat to a location that provides protection against lethal blast fragmentation and overpressure of 3.5 psi or greater.



6. Weapons Effects

Weapons Effects on Soft Vehicles

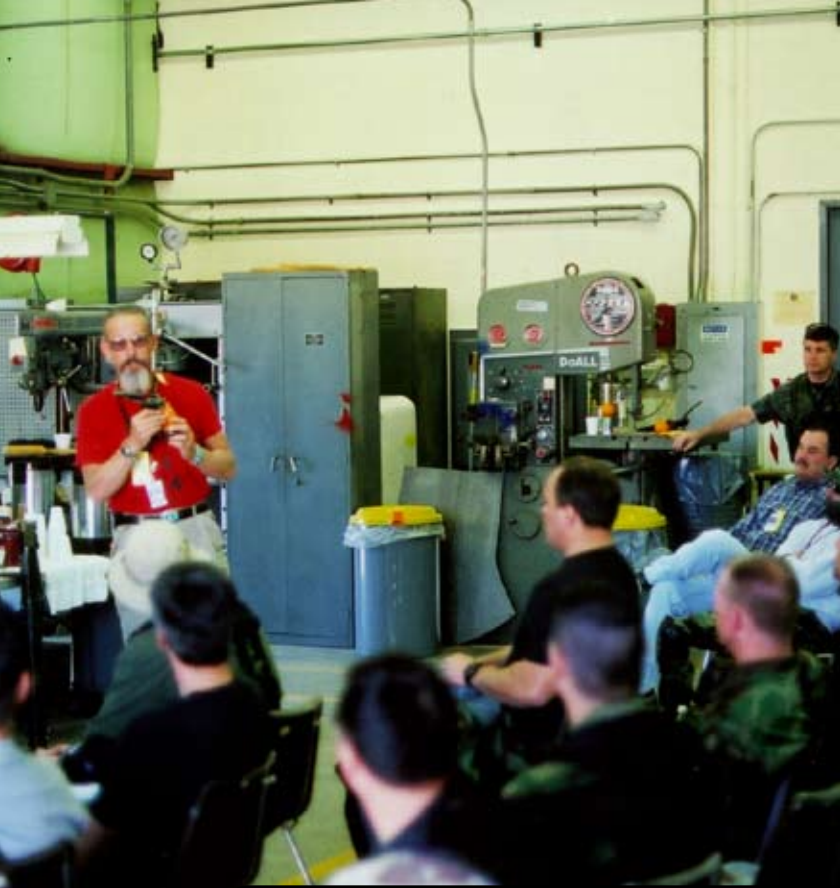
Weapon Utilized	Effects on Soft Vehicles
ESS Rocket Launcher	• Vehicle destroyed (as indicated by the activation of the ESS vehicle harness, applies for all small arms and heavy weapons effects) • Occupants killed
5.56, 7.62	• Vehicle disabled (15 rounds) • Occupants killed if harnesses activate • Surviving occupants must exit vehicle immediately but may retrieve equipment and weapons (applies for all small arms and heavy weapons effects)
50 Cal.	• Vehicle disabled (one round to engine block, verified by ESS indicator) • Occupants killed if harnesses activate
Claymore	• Vehicle destroyed • No effect on occupants
Vehicle mine	• Vehicle destroyed • Occupants killed
40mm Grenade Launcher (single shot)	• Three rounds for all targets out to 350 meters - Vehicle disabled on third round (only stationary) - Occupants must relocate vehicle or dismount after third round; if not, one occupant is killed on successive round

Weapons Effects on Hardened Vehicles

Weapon Utilized	Effects on Hardened Vehicles
ESS Rocket Launcher	• Vehicle destroyed (as indicated by the activation of the ESS vehicle harness, applies for all small arms and heavy weapons effects) • Driver killed
5.56, 7.62	• Vehicle disabled (75 rounds) • Occupants killed if harnesses activate • Surviving occupants must exit vehicle immediately but may retrieve equipment and weapons (applies for all small arms and heavy weapons effects)
5.56, 7.62 AP	• Vehicle disabled (15 rounds) • Occupants killed if harnesses activate
50 Cal.	• Vehicle disabled (one round to engine block, verified by ESS indicator) • Occupants killed if harnesses activate
Claymore	• No effect on vehicle or occupants
Vehicle mine	• Vehicle destroyed • Occupants killed
40mm Grenade Launcher (single shot)	• Three rounds for all targets out to 350 meters - Vehicle disabled on third round (only stationary) - Occupants must relocate vehicle or dismount after third round; if not, one occupant is killed on successive round

Weapons Effects on Personnel in Open

Weapon Utilized	Effects on Personnel in Open
Frag grenade	• Five-meter kill radius/three-second incapacitation
Stun grenade	• Three-second incapacitation
Stay-Behinds	• Kill radius (3 meters) equals distance required to activate motion sensor
40mm Grenade Launcher (single shot)	• Five-meter kill radius • Three rounds for all targets out to max effective range • Personnel must relocate after second round or be killed on successive rounds
Claymore	• 50-meter kill distance in a 60-degree arc



7. References

References

FM 23-23

FM 23-30

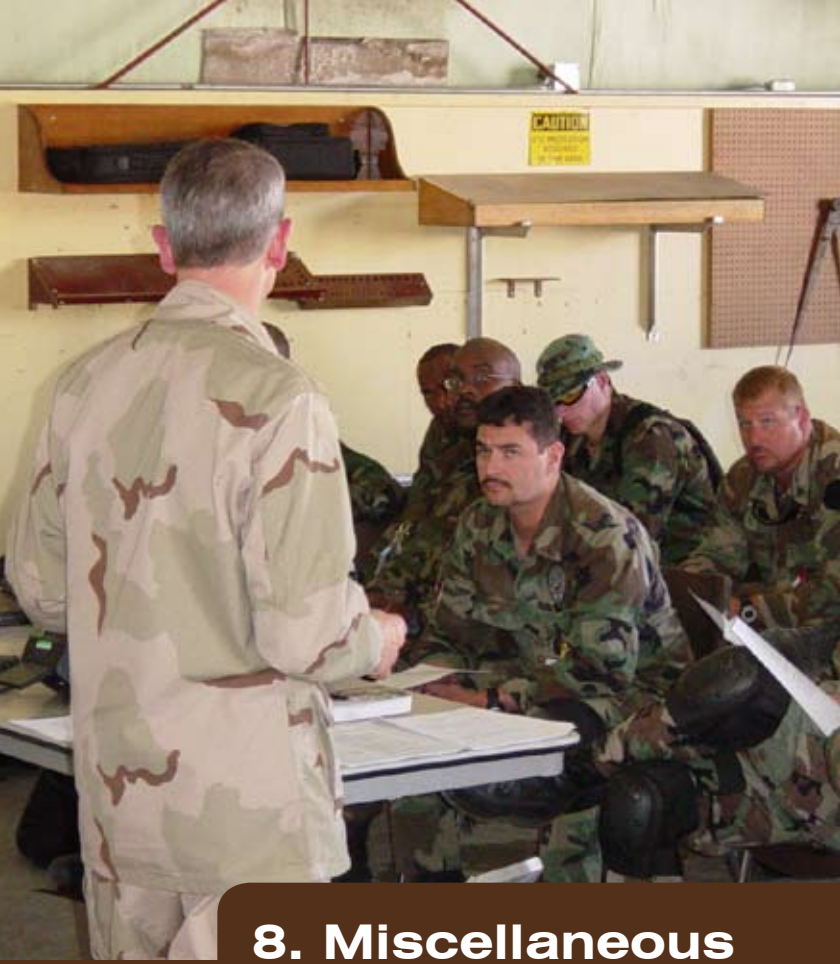
FM 90-10-1

FM 5-250

JMEMS

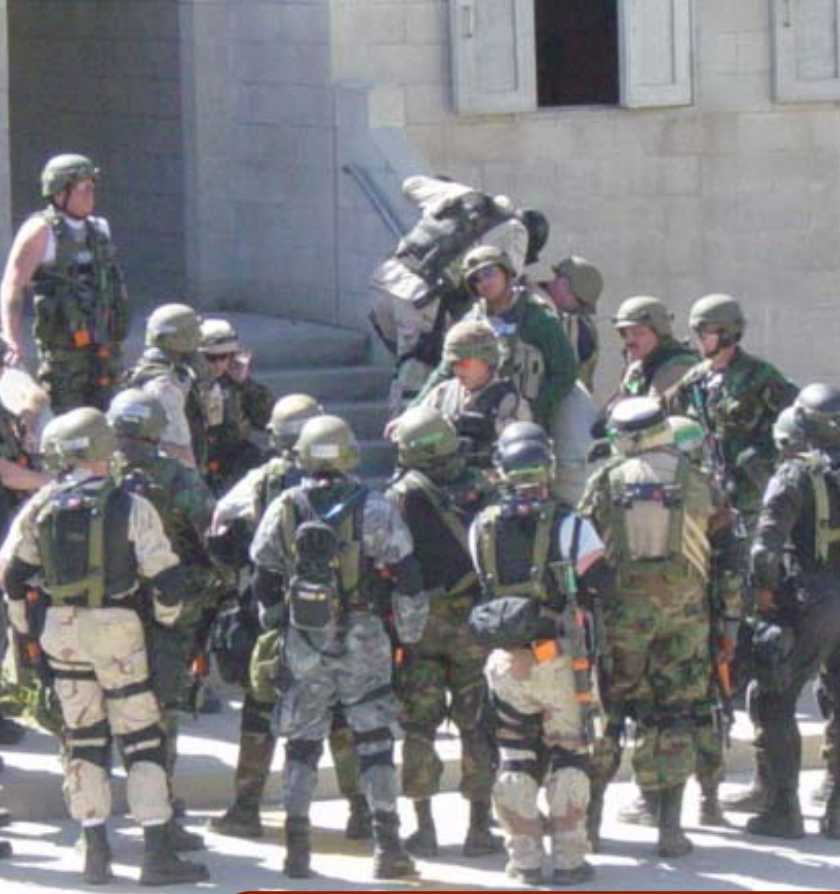
DOE M 470.4-3

DOE-STD-109 1-96

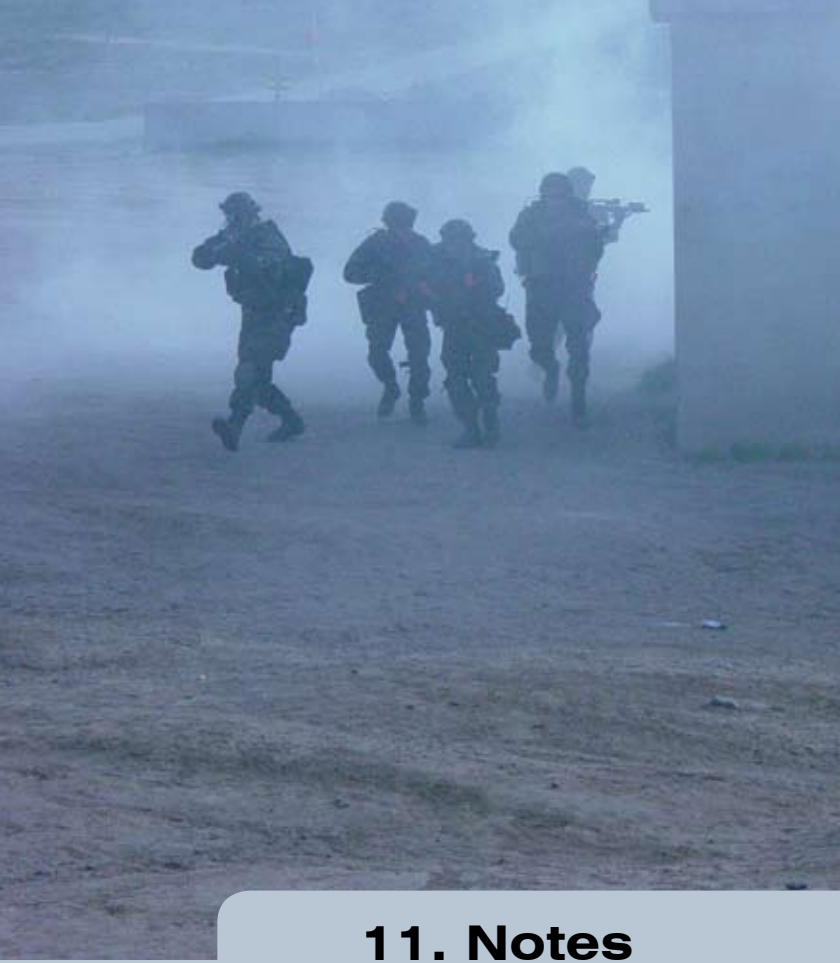


8. Miscellaneous

9. Site Information

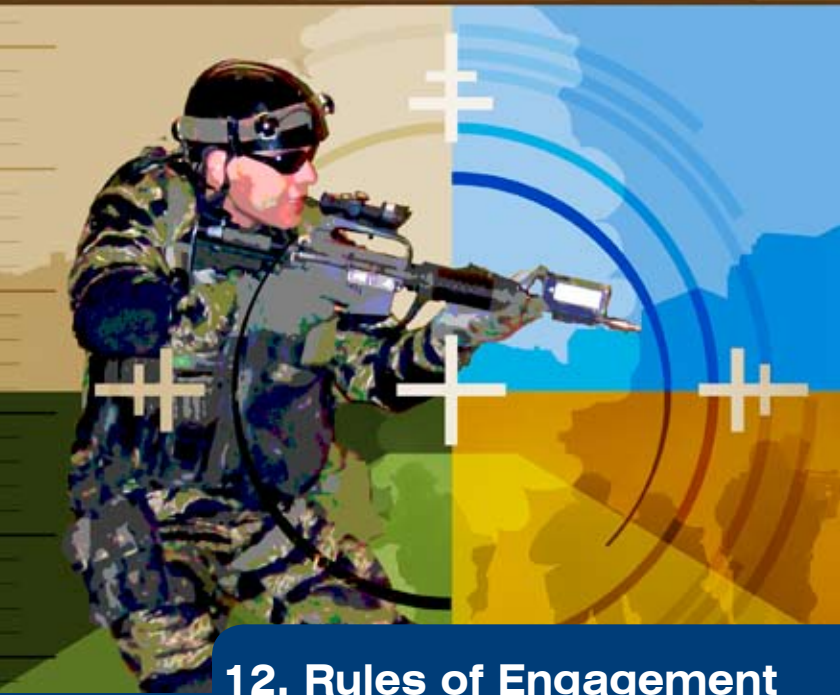


10. Safety



11. Notes

Notes



12. Rules of Engagement Change Log

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Rules of Engagement
Record of Changes

Change Number	Date of Change	Date Entered	Signature of Person Incorporating Change

When a change to the ROE book is approved, the new page(s) will be provided by the PTAC. This book is designed for the rings to be opened, the old page(s) removed, and the new page(s) inserted into the correct location. When the new page(s) are inserted, this chart should be annotated. For a comprehensive list of changes, contact the PTAC.

Rules of Engagement
Record of Changes, continued

Change Number	Date of Change	Date Entered	Signature of Person Incorporating Change

For additional copies or to submit comments and/or questions, contact PTAC@battelle.org