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# TACTICS, TECHNIQUES, AND PROCEDURES FOR FIRE SUPPORT FOR THE COMBINED ARMS COMMANDER

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# PREFACE

This publication is intended for you, the combined arms brigade or battalion commander, and your staffs to help you synchronize fires with your scheme of maneuver. You know from experience that combat forces must be employed as part of the combined arms team. Maneuver and fires must be synchronized and orchestrated by the combined arms commander to realize the full potential of each arm and maximize the combat power of the combined teams team. The same applies in principle to firepower. Mortars, artillery, naval gunfire (NGF), air support, and Army aviation (employed in a fire support [FS] role) are various means to deliver fires. Each has its own advantages and disadvantages. Each provides a measure of capability the others lack: responsiveness, flexibility, and accuracy from mortars and artillery; precision and destructiveness from close air support (CAS). Using all of these means in combination creates a synergistic effect–the whole system is far more lethal than its parts. However, the proper application of fires requires as much skill and orchestration from the fire support coordinator (FSCOORD) as does the synchronization of combined arms from the combined arms commander. This is what this publication is about, to clarify the art of applying fires at the right time and place on the battlefield.

The proponent of this publication is HQ TRADOC. Send comments , and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to–

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**ATTN : ATSF-TF**
**Fort Sill, OK 73503-5600**
**DSN 639-5819/4809**

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

# CHAPTER 1
# INTRODUCTION TO FIRE SUPPORT

*Fire support is the collective and coordinated use of indirect fire weapons, armed aircraft, and other lethal and nonlethal means in support of a battle plan. Fire support includes mortars, field,artillery (FA), NGF, and air-delivered weapons. Nonlethal means are electronic warfare (EW) capabilities of military intelligence organizations, illumination (illum), and smoke. The combined arms commander employs these means to support his scheme of maneuver; to mass firepower; and to delay, disrupt, or destroy enemy forces in depth. Fire support destroys, neutralizes, and suppresses enemy weapons, enemy formations, and enemy indirect fire systems.*

*This chapter reviews weapons systems and lethal and nonlethal FS means available to the combined arms commander.*

## MORTARS



The fire support officer (FSO) should plan and control your mortar fires to ensure they are integrated into the overall fire plan. The maneuver S3 should reposition them on the basis of the recommendations of the FSO, the execution matrix, and the tempo of the battle. Mortars are very effective against lightly protected personnel and for obscuration, illumination, and close-in defensive fires. (For additional information on US mortar capabilities, see Appendix A.)

Mortar considerations include the following:

- They are the most responsive FS assets of the battalion. Therefore, they are ideal for responding to immediate suppression and immediate smoke missions.
- They provide highly responsive white phosphorus (WP) and illumination to the task force (TF) commander. Planning and using mortars for WP and illumination at critical times on the battlefield allow more cannon artillery to shoot killing munitions.
- They are easily detected by counterbattery radars.

- The range differences between the various munition types (high explosive [HE], WP, illumination) necessitate different positioning considerations. For example, the difference in range between HE and illumination for the 107-mm mortar is approximately 1,800 meters. This can be a significant factor, depending on the tactical situation. (For additional information on US mortar illumination and smoke capabilities, see Appendix B.)
- They can carry only limited amounts of ammunition. The FSO must consider the required supply rate (RSR) and unit basic load (UBL) for the mortars for each mission.
- Clearance of fires, to include company (co) mortars, must be addressed in the commander's guidance and maneuver rehearsal process.

## FIELD ARTILLERY



The mission of the field artillery is to destroy, neutralize, or suppress the enemy by cannon, rocket, and missile fire and to assist in integrating all fire support into combined arms operations. Normally, one FA battalion is assigned a direct support (DS) mission to a committed maneuver brigade. However, additional FA units maybe assigned as reinforcing (R) or general support reinforcing (GSR) by the force FA commander. (For additional information on US artillery capabilities, see Appendix A, and for illumination and smoke capabilities, see Appendix B.)

Field artillery considerations include the following:

- It provides first round fire-for-effect (FFE) capability.
- It is an area fire weapon. However, point targets can be destroyed by using Copperhead (Cphd), a terminal guidance munition (TGM).
- It has a limited ability to survive enemy ground, air, and artillery attacks. Weapons can be detected because of their large communications and firing signature. Artillery survivability is enhanced by dispersion, hardening of positions, and various positioning and displacement techniques.
- It is best employed when massed on observed targets.
- It must be integrated with the maneuver plan and not be considered as an afterthought.
- Early in the decision-making process, the brigade staff must identify and coordinate position areas for firing units.

## Tactical Missions

The artillery normally is assigned one of four tactical missions to support your operation effectively. It can instantly shift support to a different maneuver organization in a particular battle scenario by using these missions. These tactical missions are listed from the most decentralized to most centralized. They do not complicate your operation order (OPORD). They are as follows:

- **Direct support** -an FA unit provides close and continuous tire support to your units. An FA unit usually is placed in direct support of a specific maneuver brigade.
- **Reinforcing** -an FA unit augments the fires of another FA unit and yet is almost as responsive to your units as DS artillery. An FA unit can reinforce only one other FA unit.
- **General support reinforcing** -a unit furnishes fires for the entire force within its range and reinforces the fires of another FA unit as a second priority.
- **General support (GS)** -a unit provides fires in support of the entire force within its range capability.

In the offense, FS assets provide continuous fire support for all phases of the attack. Control is more decentralized to be more responsive to forward units. Therefore, in addition to your DS artillery, other artillery with R and GSR missions maybe available. Your main attack will be weighted by extra fire support, and on-order missions will be assigned to facilitate future operations. During defensive operations, it is more desirable to keep fire support centralized and under the FA commander's control because of the uncertainty of the enemy's main thrust. This centralized control results in flexibility throughout your sector. Therefore, GS and GSR missions are used most often in the defense. Do not rely extensively on GS and GSR units because they may be given missions in support of other units at any time.

**REMEMBER**

Once the battle begins, FA missions can change, depending on your situation. You may start with four battalions supporting an attack and then change to one or two battalions supporting an exploitation or a pursuit. Also, you may have only one or two battalions in the main battle area (MBA); but as the battle matures and the thrust of the main attack is known, you may receive two to four battalions.

## Equipment: The Digital World

**Initial fire support automated system (IFSAS)** is the newest FS automation software. Running on a lightweight computer unit (LCU), this proven

software allows all artillery and FS cells to network with each other (brigade and battalion fire support elements [FSEs], battalion fire direction centers [FDCs], brigade and division artillery [divarty] counterfire cells, and division and corps FSEs). IFSAS permits your FSOs to actively plan, execute, and clear fires from their terminals, thus eliminating bottlenecks at the DS battalion. It also allows them to rapidly disseminate large amounts of information through message of interest (MOI) routing and artillery target intelligence (ATI) processing. IFSAS can communicate with the forward entry device (FED) and the fire support team (FIST) digital message device (DMD) at the company level, with future upgrades to allow FSOs to communicate with the mortar ballistic computer (MBC).

**Lightweight tactical fire direction system (LTACFIRE)** provides light forces the same capabilities that IFSAS provides mechanized forces. The brigade FSEs and battalion FDCs will continue to use briefcase terminals (BCTs), and the battalion FSEs will use LCUs with the IFSAS to complete the FS chain. LTACFIRE has the same functionality as IFSAS. Future equipment upgrades will involve replacing BCTs with LCUs.

**The advanced field artillery tactical data system (AFATDS)** is the automated FS system being developed as the replacement to IFSAS and LTACFIRE. AFATDS is fire support's piece of the Army tactical command and control system (ATCCS) and will fully interoperate with the maneuver control system (MCS), all source analysis system (ASAS), forward area air defense command and control ($FAADC^2$), and the combat service support control system (CSSCS). AFATDS provides joint FS capabilities to the maneuver commander through management of his allocated NGF and CAS in addition to the unit's FA and mortar assets.

All these FS systems are influenced by your guidance. You have to tell the systems **what** to attack, **who** you want to attack the target, **when** to attack the target, **where** to attack, and **why** to attack. If all this information is clearly articulated by you and correctly input into the computers, then the systems will automatically do the following:

- Analyze targets for method of attack and priority.
- Select optimal fire unit(s).
- Transmit fire orders.
- Request additional fire units (if necessary).
- Accept, store, process, and pass critical ATI information. Targeting information from artillery sources can help you gain a clearer picture of the battlefield. Therefore, a fluid exchange of information within your tactical operations center (TOC) is important. In many instances, the FSE will have a better picture of the battlefield than your operations and intelligence (O&I) section.

### Artillery Target Intelligence

Artillery target intelligence can come from many sources such as the following:

- Scouts (air and ground), combat observation/lasing teams (COLTs), OH-58Ds, and company FSOs, and forward observers (FOs).
- Electronic intelligence (ELINT) sources such as low-level voice intercept (LLVI) and remotely monitored battlefield sensor system (REMBASS).
- Human intelligence (HUMINT) sources such as enemy prisoners of war (EPWs) and local nationals.
- Weapons-locating radars (AN/TPQ -36 and AN/TPQ-37).
- Unmanned aerial vehicles (UAVs).
- Division and corps FSEs.
- Higher HQ sources (joint surveillance target attack radar system [J-STARS], area security information center).

The bottom line is that you must clearly explain to your FSO your guidance for fire support. Your FSO then can advise you on the best way to effectively use the automated FS systems at your disposal.

## AIR SUPPORT



Air support can be provided by the United States Air Force (USAF), Navy, Marine Corps, and allied forces. These agencies have specific command and control requirements that must be understood and rehearsed before their commitment. Requests can originate at all levels of command. A tactical air control party (TACP) is normally attached at the maneuver brigade and TF HQ. The TACP advises the Army commander, operates the Air Force air request net, keeps the air support operations center at corps HQ informed, and controls the final attack for CAS. The TACP consists of an air liaison officer (ALO) and two tactical air command and control specialists (TACCSs). The ALO helps plan the simultaneous employment of air-to-surface fires and provides direct liaison for local air defense artillery (ADA) and airspace management. Additionally, each FSO can request and control CAS. (For additional information on US CAS capabilities, see Appendix C.)

Close air support considerations include the following:

- It extends the maneuver commander's battle space.
- It delivers and helps guide smart laser munitions.

- It requires extensive coordination when employed close to friendly forces.
- It requires long lead time for missions.
- It requires suppression of enemy air defenses (SEAD) at the target area and may interrupt indirect fires because of risk to aircraft. (For additional information on USAF minimum safe distance requirements for surface target engagements, see Appendix D.)
- It requires planning for an alternate attack means for missions.

## NAVAL GUNFIRE



Naval gunfire provides large volumes of immediately available, responsible fire support to land combat forces operating near coastal waters. Naval gunfire considerations include the following:

- It has a flat trajectory that makes it effective against vertical-face targets but ineffective against rear-slope targets.
- It can deliver a high volume of fire in a short period of time.
- It may provide precision guided munitions.
- It has a large range error. Always try to avoid firing over or near friendly units. Fire parallel to the forward line of own troops (FLOT).
- It is less accurrate in rough seas.
- It has limited communications between ship and shore. Ship radios are high frequency (HF) amplitude modulated (AM) and are not compatible with the standard Army frequency modulated (FM) radios.
- The only US NGF weapon system available now is the 5-inch/54 found primarily on destroyers.
- It is generally coordinated and executed through the support of liaison personnel organic to the air and naval gunfire liaison company (ANGLICO). (For additional information on the characteristics on NGF, see Appendix E.)

## ATTACK HELICOPTERS

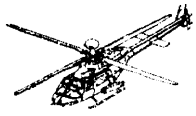


Attack helicopters are not FS assets. On the basis of the commander's risk-versus-payoff assessment, AH-1, AH-64, and OH-58D(I) helicopters maybe used to concentrate their organic firepower in with maneuver forces. Through operations such as joint air attack teams (JAATs), helicopters may support fires, break up enemy attacks or counterattacks, adjust indirect fires, and designate for precision guided munitions.

Attack helicopters considerations include the following:

- The brigade FSE must plan for localized SEAD.
- The brigade FSE must coordinate with the combat aviation brigade (CAB) FSO for fire support coordinating measures (FSCMs), routes into and out of your area of operations, and applicable battle positions.

## AERIAL OBSERVERS AND AERIAL FIRE SUPPORT OBSERVERS



An aerial observer (AO) is an enlisted observation helicopter repairman with an additional 9 weeks of OH-58A/C tactical training at Fort Rucker, Alabama, as a left seat aircrew member. He is trained to assist aeroscout pilots to conduct reconnaissance (recon) and security missions. An aerial observer is not a fire supporter.

An aerial fire support observer (AFSO) is a senior enlisted fire supporter. He is an experienced artilleryman with 9 weeks of training at Fort Rucker in OH-58A/C operations. When the AFSO is matched with an aeroscout pilot, they become a crew called an aerial fire support team (AFST). The most common employment of AFSTs is to reinforce the aeroscouts of cavalry and attack helicopter units. The AFST is rarely employed outside of aviation brigade operations. However, all aspects of reconnaissance, security, and special operations are consistent with indirect fire target acquisition (TA), target execution, FS planning, and FS coordination.

Division artillery and FA brigade guidance to the aviation brigade staff for employment of aerial fire support teams should include the following:

- Named areas of interest (NAI) and target areas of interest (TAI) identified in the intelligence preparation of the battlefield (IPB) for inclusion in the security missions of screen, guard, covering force, and rear area security.
- Aviation brigade quick fire nets (QFNs), both digital and voice.
- Allocation of FS assets (such as priority targets) when the aviation brigade is committed.
- Instruction for all FDCs to provide time of flight (TOF) in all messages to observers. This is critical for masking and unmasking times to observe rounds.
- The OH-58D is no longer an FA aerial observation platform. It can still perform this mission, but FS personnel are no longer organic to the system.

- The OH-58A/C is a capable FS platform. A cargo platform can be installed to transport a ground/vehicular laser locator designator (G/VLLD) for dismounted laser operations.
- The brigade or TF FSO is responsible for ensuring that the aviation brigade is aware of the target selection standards (TSSs), attack criteria, high-payoff targets (HPTs), and high-value targets (HVTs).

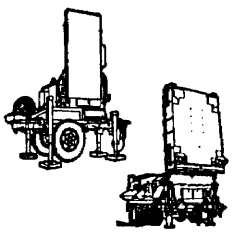
## TARGET ACQUISITION



The maneuver brigade and battalion FSOs have access to several TA assets that may be available in sector or could be attached for use. The FA battalion supporting a light brigade will have an organic AN/TPQ-36 Firefinder weapons-locating radar. Heavy brigades may have an AN/TPQ-36 attached, but none are organic. Aerial fire support teams may be placed under the operational control (OPCON) of your brigade or FA battalion. A UAV may be available to the brigade for target acquisition. Additionally, the FSO will have access to information provided by the AN/TPQ-37 that is normally retained under div arty or FA brigade control to fight the counterfire battle.

The DS FA battalion S2 is the TA manager for assets attached to the battalion. He is responsible for developing and issuing the radar deployment order (RDO). When developing an RDO, the DS FA battalion S2 must coordinate with the maneuver brigade targeting officer to integrate the radar into the maneuver scheme. The radar can provide important, timely, and otherwise unavailable combat information to the S2s. Radar employment must be integrated into the intelligence collection plan developed by the S2.

### AN/TPQ-36 and AN/TPQ-37 Firefinder Radars



The AN/TPQ-36 radar has a maximum detection range of 12 kilometers for artillery and mortars and 24 kilometers for rockets. It was designed primarily for the detection of mortar fire with high trajectory. The AN/TPQ -37 radar has a maximum detection range of 50 kilometers for artillery and rockets. Each radar provides first round FFE accuracy. It will be necessary to provide security since Firefinder sections have a very limited self-defense capability. Firefinder radars are normally considered HVTs by the enemy.

The term *cuing* is the process designed to prompt the radar operator to radiate. Radars can be scheduled to cue when units anticipate a vulnerability to enemy indirect fires such as a river crossing, a breaching operation, or an expected enemy preparation. This is considered situational cuing and is a product of the war-gaming process. Radars can also be cued by authorized cuing agents. Cuing agents are personnel or elements that have access to real-time information and are able to cue the radar. Some agencies that could be considered as cuing agents are the radar controlling HQ (the artillery battalion, FA brigade, or div arty), FSOs, AFSOs, COLTs, and the higher artillery HQ. Communications nets must be coordinated and rehearsed with the radar and cuing agents to be effective. Consider establishing a quick-cuing channel, similar to a quick fire channel, to facilitate timely cuing.

Firefinder zones are a method to prioritize the battlefield into areas of lesser and greater importance. They allow the radar to orient on the maneuver commander's priorities. Each Firefinder radar can have up to nine zones entered into its computer. The zones can be any combination of the four types of zones discussed below.

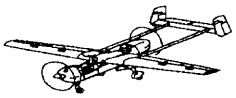
**Critical friendly zone (CFZ)** is an area, usually in friendly territory, which the combined arms commander deems critical to achieving his mission. When the radar predicts that a round is going to impact inside a CFZ, the location of the weapon firing into the CFZ is immediately generated as a Priority I call for fire (CFF). Some examples of when to use CFZs are around maneuver concentrations during a breaching operation, around critical maneuver units or assembly areas, and along passage points.

**CM-for-fire zone (CFFZ)** is an area in enemy territory that the maneuver commander wants suppressed, neutralized, or destroyed. The target will automatically generate a Priority II CFF. An example of when to use a CFFZ is around known or suspected enemy artillery, mortar, and rocket positions derived from the IPB process and updated during the battle.

**Artillery target intelligence zone (ATIZ)** is an area in enemy territory that the combined arms commander wishes to monitor closely. Any weapon located in this area will only generate a target report and not a CFF. These targets can be stored in a file for future fire planning. An example of when to use an ATIZ is around known or suspected enemy artillery locations beyond the range capabilities of your artillery.

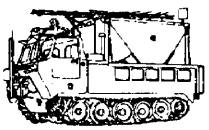
**Censor zone (CZ)** is an area in which the combined arms commander wants to ignore all target detections. A CZ may be placed around a friendly artillery unit that is deployed in such a position that it may fire towards the radar and hence be classified as hostile by the radar. An example of when to use a CZ is around a friendly artillery unit located close to an irregularly shaped FLOT or forward edge of the battle area (FEBA).

### Unmanned Aerial Vehicles



Unmanned aerial vehicles, when available, provide a relatively survivable means of maintaining surveillance over the battlefield. The UAVs may be available from joint, combined, or coalition forces through crops or division. They have day and night capability and provide real-time surveillance. Follow-on systems may provide laser designation of targets for attack by FS means. Normally controlled by division or corps, UAVs can be allocated to subordinate units to satisfy the commander's desire to detect HPTs or priority intelligence requirements (PIR).

## ELECTRONIC WARFARE



Electronic warfare is designed to exploit, disrupt, and deceive enemy command and control systems while protecting friendly use of communication and noncommunication systems. The EW assets must be closely coordinated and synchronized with your FS plan to assist in the nonlethal attack of targets. The three major components of electronic warfare are as follows:

- **Electronic warfare support measures (EWSM)** -provides the capability to intercept, search, identify, and locate enemy emitters. They represent a source of information required for jamming, deception, electronic protection (EP), targeting, and other tactical employment of combat forces.
- **Electronic attack (EA)** -includes those offensive actions or measures taken by hostile forces to prevent or reduce the effective use of electronic spectrum. EA includes electronic jamming and deception.
- **Electronic protection** -are defensive EW measures taken to retain effective friendly use of electromagnetic spectrum. It protects friendly emitters from enemy detection, location, and identification.

## BATTLEFIELD OBSCURATION



Battlefield obscuration can be provided by artillery, mortars, smoke pots, rockets, hexachloroethane (HC) (smoke) grenades, and large area smoke generators. It is an aid in deceiving the enemy, concealing maneuver, and increasing your potential force ratios. Employment considerations include the following:

- Mortars are the weapons system of choice to provide smoke quickly on the battlefield. They carry limited amounts of WP, which dissipates quickly.

- The need for artillery smoke must be identified early in the planning process so that the FA battalion can make the needed adjustments if the demands for smoke munitions exceed the on-hand quantity.
- The brigade FSO must allocate smoke, which is a limited asset, on the basis of your guidance.
- Bottom line, all of the other smoke assets available must be exhausted before using your FA assets. When artillery is firing smoke, their ability to deliver killing munitions is degraded.

# CHAPTER 2
# FIRE SUPPORT DUTIES AND RESPONSIBILITIES

*You have a FSCOORD at each echelon of command from company through brigade. He is called the company, battalion, or brigade FSO. At brigade level, the DS battalion commander is the FSCOORD; his full-time assistant is the brigade FSO. The FSO's first obligation is to provide you with fire support that accomplishes your mission and keeps our soldiers alive in combat. His place of duty is where he best meets your needs or objectives. The FSO is in charge of the FSE. The size of your FSE depends on its tactical mission. It should be near, or collocated with, your TOC so that the FSO can easily coordinate with your staff elements. Each time you sit down with your S3 to discuss current or future plans, concepts, or courses of action (COA), your FSO should be there. At each echelon from company to corps level, your FSO or FSCOORD uses principles and guidelines to synchronize fire support with the TOC.*

*Other duties and responsibilities associated with your battle staff are discussed below.*

## COMBINED ARMS COMMANDER

The combined arms commander's duties include–

- Ensuring your guidance for fire support is clear. What do you want fires to accomplish, where do you want the fires, and when do you want the fires.
- Synchronizing fire support with the scheme of maneuver.
- Ensuring your staff comes together to integrate obstacles, reconnaissance and surveillance (R&S), fires, and maneuver.
- Approving the fires paragraph, high-payoff target list (HPTL), and the attack guidance matrix (AGM).
- Training your company or team (tm) commanders to know, understand, and execute targets in their zones.
- Clearing indirect fires (usually charged to the FSO). (For additional information on the clearance of fires in the close battle, see Appendix F.)

## MANEUVER BRIGADE EXECUTIVE OFFICER

The maneuver brigade executive officer (XO) conducts the brigade targeting meeting.

## MANEUVER BRIGADE S2

The maneuver brigade S2's duties are to–

- Identify HVTs.
- Participate in the brigade targeting meeting.
- Develop an R&S plan that synchronizes targeting requirements with available collection assets.
- Target known and suspected enemy positions.
- Coordinate with electronic warfare for the nonlethal attack of targets.
- Assist in identifying HPTs.

## MANEUVER BRIGADE S3

The maneuver brigade S3's duties are to–

- Select combined arms engagement areas to kill the enemy.
- Develop the synchronization matrix that includes FS.
- Develop a decision support template (DST) with input from the FSO.
- Conduct combined arms rehearsals that fully synchronize the fire plan with the scheme of maneuver.
- Approve positioning of artillery assets in the brigade zone.
- Conduct the brigade targeting meeting in the absence of the brigade XO.
- Help identify HPTs.

## DIRECT SUPPORT ARTILLERY COMMANDER

The DS FA battalion commander is the FSCOORD for the supported brigade. His duties and responsibilities are to–

- Ensure accurate, timely, and effective delivery of FA fires.
- Participate with the brigade orders group.

- Approve the DS battalion field artillery support plan (FASP).
- Collocate with the brigade commander during execution of a plan.
- Participate in the brigade targeting meeting.

## BRIGADE FIRE SUPPORT OFFICER

The brigade FSO's duties and responsibilities are as follows:

- With the brigade S3's help, integrates fire support into the commander's scheme of maneuver.
- Advises the brigade commander and the brigade staff on the status of FS assets, their capabilities and limitations, and mission.
- Participates in the tactical decision-making process as a member of the battle staff.
- Recommends FSCMs to support the scheme of maneuver.
- Plans fires to support, augment, and enhance critical obstacles and breaching operations.
- During war gaming, puts the *targets to acetate.* Develops HPTL, with the S2 and S3, for the commander's approval.
- Determines FS assets available. From this assessment, the FSO recommends and helps coordinate priorities and allocations of fire support.
- Studies the enemy situation. With the help of the S2, he recommends what targets to attack (HPTs), when to attack them, and with what munitions.
- Integrates all FS agencies supporting the overall FS plan.
- Anticipates changes dictated by the developing battle. Recommends and coordinates revisions to the FS plan.
- Directs the attack of targets in the priority established by you.
- Coordinates the FS assets in your brigade zone.
- Keeps his higher and lower FSEs or FSOs informed of the situation.
- Establishes, operates, and displaces the FSE.

- Supervises the TA effort of the FSE. Reports information to you and your staff, especially on enemy and friendly FS matters.
- Helps you determine your priorities for TA employment.
- Prepares, synchronizes, and executes your FS plan.
- Prepares the tire support execution matrix (FSEM).
- Coordinates with the brigade engineer for the employment of FA delivered family of scatterable mines (FASCAM).
- Plans for and monitors the employment of COLT teams in support of brigade operations.
- Monitors and processes requests for fire support and analyzes targets for attack by fire support.
- Coordinates and clears fires across boundaries.
- With the ADA officer's help, plans for the SEAD coincident with the employment of CAS and Army aviation.
- Assists the maneuver commander in the clearance of fires.
- Participates in the brigade targeting meeting.
- Participates in the brigade's combined arms rehearsal and the FS rehearsal.
- Consolidates refined TF target lists from FSOs, resolves target duplications, and produces the final target list.

## PLANS/TARGETING OFFICER

The plans/targeting officer is responsible for–

- Assisting the brigade FSO in his duties.
- Providing staff coordination of TA assets attached, assigned, or placed under OPCON to brigade. He also develops the AGM for the brigade commander's approval.
- With the brigade S2's help, producing the TSS matrix for TA assets supporting the brigade.
- Participating in the brigade targeting meeting.

## BATTALION OR TASK FORCE FIRE SUPPORT OFFICER

The FSO performs the same duties as the brigade FSO with the following additions and exceptions:

- Coordinates with the TF S2 and S3 for the development of HVTs and HPTs.
- Recommends FSCMs to support the battalion's mission.
- Participates in the TF tactical decision-making process.
- Modifies the HPTL and the commander's attack guidance to meet the commander's overall intent.
- Plans targets that facilitate rapid engagement by both trained and untrained observers.
- Participates in the brigade and TF combined arms rehearsals.
- Participates in the FS rehearsal.
- Ensures company or team FSOs and all other applicable FSOs, assigned or attached, participate in combined arms rehearsals.
- Plans mortar fires and recommends mortar positions to support the scheme of maneuver.
- Coordinates fires across boundaries.
- Keeps the commander informed on mortar and artillery ammunition and tube status during the battle.
- Coordinates requests for additional fire support.

## FIRE SUPPORT ELEMENT

Your FSO may have several technical advisors collocated in the FSE to plan and coordinate your fire support. Representatives may include the following

- The **S3 air** receives, coordinates, and processes all close air requests. He advises the Air Force TACP of the ground tactical situation and other important Army information. At brigade level, the S3 air prioritizes close air requests.
- The **ALO** provides expertise on and monitors requests for CAS and air interdiction. He keeps the FSO informed of the current status of available air support. He coordinates the employment

of Army aviation resources when placed under OPCON of other maneuver HQ.

- The **ADA** representative provides information on the status of air defense artillery and coordinates airspace control with the FSO.
- The **naval gunfire liaison officer (NGLO)** is the liaison officer with the naval task force. He advises, monitors, and approves requests for NGF. At maneuver battalion level, the liaison officer is called the supporting arms liaison team (SALT) officer. Two firepower control teams (FCTs) are available to maneuver companies to request, observe, and adjust NGF.
- The engineer officer is responsible for planning FA delivered FASCAM and coordinating with the FSO for emplacement. Additionally, he is responsible for coordinating FS coverage of key mine fields and obstacles. When the FASCAM is emplaced, the engineer officer determines the FASCAM safety box and disseminates the scatterable mine report. As planned locations become emplaced obstacles, he must ensure target locations are adjusted.
- The **mortar platoon leader** provides technical and tactical information to the FSO.
- The **foreign liaison officer** bridges the communication gap between your force and his.
- The **EW officer** (brigade level only) coordinates EW activities to obtain maximum benefits.
- A **chemical officer** synchronizes smoke and other chemical with the FS plan.

Your FSO should be the chief coordinator and spokesman for the FSE. Coordinating duties for FSE members include the following:

- Provide safeguards to friendly troops, vessels, aircraft, and installations.
- Use all appropriate fire support available.
- Furnish the necessary type of fire support requested.
- Avoid unnecessary duplication of targets.
- Coordinate required airspace for the FS systems.
- Rapidly coordinate targets at all echelons and adjacent units.

## COMPANY OR TEAM COMMANDER

The company or team commander is the actual executor of the plan. He is normally tasked, either in the fires paragraph, FSEM, or paragraph 3b of the OPORD, responsibility for specific targets. The company or team commander's responsibilities include the following:

- Ensures assigned targets are refined, observed, rehearsed, and fired according to the commander's scheme of fires.
- Is responsible for positioning FS personnel, to include associated equipment, where they can best initiate and execute the fire plan.
- Ensures his FSO attends all combined arms rehearsals and participates in FS rehearsals.

**NOTE.** Remember, normally the company or team FSO is a 2LT. It is to your advantage to include him in all company- or team-level training. This includes platoon FOs as well, He may be assigned to the DS battalion in garrison; but in war, he will be responsible for fire support for your entire company or team.

## COMPANY FIRE SUPPORT OFFICER

The company FSO has the same duties and responsibilities as the TF FSO with the following exceptions:

- Refines brigade and TF targets assigned to the company or team by adjusting the grid on the basis of ground truth and the commander's guidance.

**NOTE.** If you begin a battle and no refinements have been made to the original target list, then you are in for a long day. Remember the brigade and TF FSOs normally originate their targets from a map, not the actual terrain.

- Plans fires in support of the company or team mission.
- Briefs the fires portion of the company or team OPORD.

- Recommends to the company or team commander the positioning of the fire support team vehicle (FISTV).
- Recommends the positioning of observers to ensure the execution of assigned targets.
- Participates in the brigade, TF, or company combined arms rehearsals.

**REMEMBER**

Your FSCOORD and FSO's effectiveness increases when they know your intent and guidance for fire support. Be specific, and tell them everything as soon as you learn it. Tell them to keep the artillery jargon to a minimum-get your information in language all your officers understand.

Do not let him plan in a vacuum. Make him part of your planning process. Make him coordinate with your staff for the following:

- Moving artillery units within the brigade.
- Positioning artillery units within the brigade.
- Sharing administrative, logistical, and medical support between his units and yours.

**NOTE.** Be cautious of complex fire plans. If you cannot remember the details, the fire plan is probably too complicated. Every leader should know the fire plan. It should be simple enough for all of your platoon leaders and scouts to memorize. It should have simple control measures and targets on easily identifiable terrain. A target planned on each grid square is worthless. To check targeting, ensure it is on the FSEM, has a purpose, and has an observer assigned. Remember, have the FSO constantly update and delete targets.

# CHAPTER 3
# FIRE SUPPORT PLANNING, PREPARATION, AND EXECUTION

*Fire support planning ensures that all available FS assets are employed in concert with your scheme of maneuver. During the planning process, you and your FSCOORD or FSO determine how fire support can support your battle plan. The DS battalion commander (FSCOORD) cannot be at the brigade HQ continuously. His assistant, the brigade FSO, serves as a full-time liaison between the DS artillery battalion and the maneuver brigade. A dialogue between you and your FSO must take place. Each time you sit down with your S3 to discuss current or future plans, concepts, or COA, your FSO should be present. The FSO's effectiveness is predicated on you including him in your staff planning process. This chapter focuses on the key aspects of planning, preparing, and executing your fire plan.*

## PLANNING

Top-down fire planning gives the maneuver brigade an FA plan that focuses the FS effort exactly where the combined arms commander intends to fight the battle. It provides guidance, allocates resources, assigns target execution responsibility, and fully supports the combined arms commander's scheme of maneuver.

Fire support planning is the continuing process of analyzing, allocating, and scheduling fire support. It determines how fire support will be used, what types of targets will be attacked **(decide),** what collection assets are available to acquire and track the targets **(detect/track),** what assets will be used to attack the target **(deliver),** and what assets are available to verify **(assess)** effects on the target. The goal is to effectively integrate fire support into battle plans to optimize combat power. Planning must be flexible to accommodate unexpected and rapid changes. It anticipates the massing of FS assets, changes in the force's mission, realistic movement times, resupply, target acquisition, technical support, and unit replacement.

Formal fire planning is conducted through a deliberate top-down process, with bottom-up refinement. An advantage of top-down fire planning is that the concept for fire support is developed early, which allows the artillery and brigade staffs to plan concurrently. Additionally, the most experienced field artillerymen in the force, the FSCOORD and the brigade

FSO, develop the initial fire plan. In high-tempo operations, the top-down fire planning process provides a workable plan in a relatively short time. Finally, top-down fire planning allows the artillery battalion the planning and preparation time needed to support the fire plan.

The concept of top-down fire planning is simple. Planning originates at the higher levels and is refined at the lower levels. The plan, in its completed form, has a limited number of FA targets.

The brigade fire plan contains only those targets the FSCOORD thinks are essential to support the commander's intent. The remaining targets are allocated to the task forces, according to priorities for FA support. The TF commander plans targets to support his plan on the basis of the targets he was allocated by brigade. Any remaining artillery targets may be further allocated down to the companies. Mortar targets are allocated by the TF commander and FSO in the same manner in which the brigade allocated their artillery targets.

By limiting the number of targets in the total plan, we focus our fires on meaningful targets, increase the level of detail, and provide the FA battalion's FDC with a manageable number of targets. The brigade assigns target execution responsibility down to specific task forces. The TF commander must then assign responsibility within his command. Primary and backup observers must be identified.

**REMEMBER**

If it is important enough to target, it is important enough to have *eyes on target.* At the company or team level, the commander is responsible for ensuring assigned targets are observed, have a trigger, and are rehearsed. This does not mean that a maneuver commander cannot request additional targets; just be sure they are justified.

Critical to the success of your top-down fire planning is the concept of bottom-up refinement. During the decision-making process, targets are planned on the basis of map spots and situational templates. Targets must be refined on the basis of such things as the reconnaissance effort, actual occupation of the terrain, and updated intelligence.

In a mechanized environment, most battles are decided in the first 90 minutes. The number of "killer" fire missions your artillery can shoot during this period is limited as shown below (in a perfect world). When the factors normally affecting artillery units are considered, the number of "killer" fire missions is further reduced as shown below (in reality).

Looking at the fire plan from this perspective, your targeting effort must focus on critical events to accomplish your intent.

## KILLER MISSIONS

| ...IN A PERFECT WORLD |
|---|
| BN FFE MISSION STANDARDS (BN 3)<br>• 1ST VOLLEY, 3.40 MINUTES<br>• 2D VOLLEY, 1.0 MINUTE (SUSTAINED RATE)<br>• 3D VOLLEY, 1.0 MINUTE (SUSTAINED RATE)<br>TOTAL MISSIONS TIME: 5.4 MINUTES (APPROX 6.0 MINUTES)<br>TOTAL BN 3s AVAILABLE IN 1 HOUR: 10 MISSIONS |
| **...IN REALITY** |
| COUNTERFIRE, GROUND, AND AIR THREAT<br>COMM PROBLEMS...EW THREAT<br>OPERATIONAL READINESS<br>1 MINUTE SHIFT TIME FOR 155-MM HOWITZER<br>OTHER MURPHIES<br>TOTAL BN 3s AVAILABLE IN 1 HOUR: 5 TO 7 MISSIONS |

**LEGEND:**

**approx = approximately** **comm = communication**
**bn = battalion** **mm = millimeter**

## TACTICAL DECISION-MAKING PROCESS

Top-down fire planning is conducted throughout the tactical decision-making process. The considerations listed below illustrate how to integrate fire support into the tactical decision-making process.

### Intelligence Preparation of the Battlefield

Intelligence preparation of the battlefield, while not a separate step in the tactical decision-making process, warrants special consideration. The IPB affects FS planning in the following ways:

- Situational templates are the start point for the targeting effort. **Poor templates used in the war-gaming process result in poor targeting.**
- High-value targets are developed initially from doctrinal templates and refined by the situation templates. HVTs are those assets that the enemy commander requires to successfully complete his mission. During the war-gaming process, discussed later in this chapter, HPTs are identified. HPTs are those HVTs that must be acquired and successfully attacked for the success of your mission.

- Targets generated during the IPB process are included in the initial stages of the top-down fire planning process.

### Mission Analysis

During the mission analysis phase, your FSO must accomplish several tasks. He should call the DS battalion and give them a warning order. He should provide an FS estimate.

In addition to the normal information in the warning order sent to the DS battalion, the brigade FSO should provide the brigade staff's planning time line. This allows the DS battalion S3 to get in early on the staff planning process. This will facilitate concurrent planning by the DS battalion.

When developing the FS estimate, the FSO must consider the following areas :

- Availability of firing units. How many tubes of what type are available for the upcoming operation?
- Maintenance or combat losses. What is the likelihood of getting any tubes back in time for H-hour?
- Allocation of FS assets. What FS assets were allocated by the higher HQ for the upcoming operation?
- Ammunition considerations. Field artillery ammunition requirements place the most demands on transportation assets in the brigade. Providing the right types and quantities of ammunition to the artillery on time requires extraordinary planning. Early in the planning process, determine–
  - ° Ammunition shortfalls.
  - ° Availability of ammunition.
  - ° Availability of transportation support.

The status of the COLT and FISTS must be determined. This applies to both personnel and equipment, especially the FISTV. Determine the following:

- Can shortages be organized and placed in the most critical areas?
- Is the FISTV a high-maintenance priority?

The OH-58D helicopter is an important consideration in mission analysis. The need for this asset must be identified early and requested to the division. Again, this helicopter is no longer an FS asset and must be coordinated externally with the aviation brigade.

### Commander's Guidance for Fire Support

Having completed the estimate process, the brigade staff comes together with you and briefs their estimates. After the mission analysis briefing, you issue your guidance to initiate the development of COAs. Your guidance at this stage is critical to develop a viable FS plan that supports your overall intent. It should include the following:

- Attack criteria.
- Engagement criteria. This is the size and type of units you want engaged at different points in the battle.
- Priorities for target engagement. This is when the high-payoff targets are prioritized.
- Guidance for special munitions (illumination, smoke, Copperhead, FASCAM).
- Specify how, when, and where fire support should be employed in the development of COAs.

Consider having your FSO give you a backbrief to ensure your guidance was clearly understood. (For additional information on backbriefs, see Appendix G.)

### Attack Guidance

As the combined arms commander, you must decide what effect fire support must have on a particular target. Most important is the interpretation of terminology. The maneuver definition of destruction is much different than the definition of the field artillery. As stated in Chapter 2, articulate your desired effects in exact numbers by vehicle type or unit size. The three types of artillery effects are as follows:

- **Destruction** -to artillerymen, destruction equates to 30 percent casualties. This may not guarantee achievement of the maneuver commander's intent. The surviving 70 percent may still influence the battle. Destroy should mean the target is rendered permanently combat ineffective. Destruction missions are expensive in time and ammunition. The FSCOORD and commander must have a mutual understanding of the desired effects. Key questions should address the size and type of unit the commander desires destroyed. Consider whether neutralization or suppression may be more efficient. With Copperhead, however, destruction of HPTs is feasible attack guidance.

- **Neutralization** -FM 101-5-1 definition of neutralization leads the commander to understand the target will not be able to interfere with a particular operation. Neutralization renders the target ineffective or unusable for a temporary period, pending repair or reconstitution. The element of timing requires mutual understanding between the FSCOORD and commander. Damage of 10 percent or more to a target that is repairable within 12 to 24 hours may meet a brigade commander's guidance but may not establish the conditions for division success. Key questions the FSCOORD or FSO must ask are *when* and *how long* does the commander want the target rendered incapable of interfering.
- **Suppression** -suppression is used to prevent effective fire on friendly forces. It is typically used to support a specified movement of forces. Exercise observations reveal a tendency to use one round volleys to suppress a target. This is normally insufficient to provide suppression for an action or move that lasts more than a few minutes. The FSCOORD or FSO must ask the commander when and how long he desires the target to be suppressed.

Another solution is for you to describe what you want fire support to accomplish in order of priority. Usually, this will be a menu of choices that eventually exceeds the capabilities of the assets available. The FSCOORD or FSO then has the responsibility to draw the cut line and tell you what you cannot have. Through a process of give and take, the list will be refined, and the fire supporters can put the artillery, mortars, NGF, and CAS where you want them. Additionally, effectiveness cannot be measured in number of tanks or BMPs (amphibious infantry combat vehicles) destroyed. If your guidance was to suppress, then success should be measured in effective missions not battle damage assessment (BDA).

**REMEMBER**

When possible, request that the DS FA battalion S3 come to the brigade TOC when your guidance is issued. The DS FA battalion S3 then gains firsthand knowledge of the upcoming operation and can return to his TOC to begin the FA support plan. If the DS FA battalion S3 cannot be present, ensure your FSO passes your guidance to the DS FA battalion TOC to allow their planning process to begin.

### Course of Action Development

Course of action development should not be limited to field artillery but should consider all FS systems. The FSO must develop the COAs with the maneuver S3 if the synchronization of maneuver and fire support is to be maximized. The repositioning of artillery and other FS assets must be determined so that the operating tempo (OPTEMPO) is maintained without a degradation of fire support.

### Field Artillery Positioning

Early on, the DS battalion needs to have cleared land so they can start reconnaissance and movement. Terrain management considerations must include the following:

- Locations of delivery units, radars, TOCs, and trains.
- Movement routes and times.
- Supply routes.

A technique to reduce coordination for position areas is to develop an overlay which identifies the following:

- Areas that require no coordination to occupy.
- Areas that require coordination before they are occupied.
- Areas not available for occupation.

The enemy counterfire and air threat will increase terrain requirements for field artillery and mortars so that survivability moves can be conducted. (For information on the Confederation of Independent States [CIS] artillery and mortar capabilities, see Appendix H.) Priorities of positioning are as follows :

- Direct support artillery battalion.
- Reinforcing battalions.
- General support reinforcing and GS units.

**REMEMBER**

The primary enemy threats to your artillery are counterfire, air attack, and ground attack. The presence of any or all of these threats will dictate appropriate positioning and movement techniques. The DS FA battalion S3 ultimately has two key positioning considerations: position the artillery to support your FS plan and survive to provide uninterrupted support for current and future operations.

### Course of Action Analysis and Comparison (War-Gaming)

War-gaming is arguably the most critical step in the decision-making process. As the staff conducts the action-reaction-counteraction drill, the FSO is actually developing the fire plan by placing targets on the map to support your scheme of maneuver. An effective war-gaming process will–

- Determine the high-payoff targets to allow development of the high-payoff target list.
- Synchronize fire support with other battlefield operating systems (BOSs) and allow initial development of the FSEM. (For an example of an FSEM, see Appendix I.)
- Define critical events for brigade and TF FSOs.
- Provide an 80 percent solution. For the process to work, you must have given the FSO guidance for fire support with which to begin. Without this, he will be planning on the basis of his vision of the battlefield, not yours.
- Position the artillery. Consider having the DS battalion S3 present during war gaming.

**REMEMBER**

The effectiveness of your fire plan can usually be determined by analyzing your war-gaming procedures. The war-gaming process is a critical event that must include the FSO. Failure to include him in this process will result in a fire plan developed in a vacuum. Make him part of your planning process.

### Decision on the Course of Action and Scheme of Fires

After the proposed COAs are briefed, you announce your decision and state your concept of the operation. The fires paragraph should clearly articulate the scheme of fires. Specificity is the key. (For additional information on developing the fires paragraph, see Appendix I.)

### Orders Brief

The following should be considered for the FS portion of the orders brief:

- Scheme of fires.
- Targets planned and their purpose.
- Availability of FS assets, their status and allocation.
- Priority of fires (POFs).

- Clearance of fires procedures (if different from standing operating procedures [SOPs]).
- Attack guidance matrix and HPTL. (See Appendix J for an example of an AGM, and see Appendix K for an example of an HPTL.)
- Fire support coordinating measures. (For additional information on FSCM, see Appendix L.)
- Cutoff times for target refinement.
- Rehearsal instructions.
- Any requirements a higher FS team will place on subordinate FS teams.
- Retransmission requirements for communications, depending on terrain.

### Targeting Meeting

The targeting meeting is a technique used to update and revalidate targets. These meetings should be scheduled daily or should be mission dependent. Target acquisition assets are coordinated and synchronized, and the HPTL and AGM are updated. Key personnel involved are the-

- **Brigade XO** -he is responsible for conducting the targeting meeting.
- **Brigade FSO or targeting officer** -he assists with or runs the targeting meeting. He ensures required FS assets are planned and allocated. He ensures the validity of the HPTL and makes changes on the basis of the respective commander's guidance. He also makes any changes to the HVTs on the basis of updated intelligence.
- **Brigade S2** -he ensures the brigade collection assets are retasked after each targeting meeting to ensure the commander's guidance is met.
- **Other participants** -they may include the ALO, ANGLICO or SALT, EW officer, DS battalion S3 and S2, brigade engineer, ADA representative, brigade chemical officer, and the DS battalion FDO.

Each participant reviews his taskings, assets available, and allocation of assets to meet the commander's guidance. The meeting verifies and/or updates the HPTL (decide); verifies, updates, and retasks available collection assets (detect); allocates delivery systems to engage the target (deliver); and confirms the assets tasked to verify the effects on target (assess). At brigade level, high tempo and austere staffs make this a very informal process.

## PREPARATION

The preparation phase is characterized by conducting rehearsals and refinement. The paragraphs below discuss these key concepts.

### Combined Arms Rehearsal

The combined arms rehearsal is required to synchronize all the BOSs before combat operations. Any last-minute changes to the operation made after the rehearsal may cause a reduction in the effectiveness of your fire support.

Key FS points that should be highlighted during the rehearsal include-

- Synchronization of the FS plan with the scheme of maneuver.
- Target execution responsibilities, to include primary and backup observers and-their engagement criteria.
- Artillery and mortar positioning and movement plans.
- Verification of the TA plan.
- Fire support coordinating measures.
- Close air support and JAAT employment.
- Verification of windows to mass battalion fires.

**REMEMBER**

The effectiveness of your maneuver rehearsal is increased if the fire supporters are present and actively participating. Do not allow your subordinate commanders to leave them back at the track doing "more important" duties. Make sure FS events are depicted on the terrain model. Check to see if your FSE has a supply of rehearsal props, such as string, 3 x 5 cards, and cotton balls (to replicate smoke), to augment your TOCs supply of props.

An FS rehearsal will also be conducted shortly after the maneuver rehearsal. Key participants will include the artillery battalion, mortars, all FSEs, observers, and other FS agencies such as the ALO. The focus of this rehearsal is on the FS system from shooter to executor. It should address areas such as–

- Communications to observers, FSEs, radars, TOC, trains, and alternate nets.
- Positioning elements such as mutes, order of march, and movement times.
- Observer locations such as FIST, COLT, and OH-58D.
- Fire support coordinating measures.
- Target lists and schedules.

- Fire direction such as fire unit availability, ammunition management, firing data and on-hand ammunition verified, timings for special munitions, site-to-crest, air corridors, and restrictive FSCMs.

### Refinement

Refinement of targets is an essential part of the preparation phase. Initial targeting is usually based on map spots, which requires the need to establish actual target locations on the basis of the terrain. Refinement considerations include–

- Changing the target locations, but not the purpose of the target. The purpose of the target was established during the war-gaming process; changing it dilutes synchronization.
- Adhering to the target cutoff times. Massive changes to the plan close to H-hour are detrimental to the artillery's ability to successfully support the mission.

**REMEMBER**

A key to refinement is to ensure your FSE has a system to check that the purpose of the refined targets is still the same. Failure to check the refined targets may result in fires that no longer meet your original guidance.

When establishing the target cutoff time, consult with the DS FA battalion S3. He and his staff have the greatest challenge reacting to last-minute changes. The DS FA battalion S3 knows best the capabilities of his staff and firing units to react to last-minute changes in the fire plan.

## EXECUTION

During the battle, the positioning of the FSCOORD and FSOs is dependent on mission, enemy, terrain, troops, and time available (METT-T). Some considerations include–

- Command and control requirements to execute the fire plan.
- Communications assets available to the TF FSO and FSCOORD. These assets must be addressed and rehearsed before execution.. At a minimum, they will need to communicate on their respective maneuver command and FS nets. The FSCOORD will also have the need to communicate on the FA battalion command net. When not collocated with his supported maneuver commander, the most critical net for the FSCOORD is the maneuver command net to ensure that FS needs are being met. On the basis of the

availability of radios in the vehicle in which the TF FSO or FSCOORD is riding, a plan must be developed to serve his communication needs. The brigade and TF FSEs provide a critical communication function by monitoring nets not available to the TF FSO and FSCOORD and keeping them apprised of the situation.

- The payoff in traveling with the commander versus being in FM contact.
- The FSOs ability to control fires from your position. His ability to communicate and see the battlefield will determine this.

# CHAPTER 4
# FIRE SUPPORT EMPLOYMENT

*Applying the appropriate tactics, techniques, and procedures for employing fire support in combat operations is vital. Gaining an appreciation of how to apply fire support in offensive and defensive operations will help you develop your guidance for fire support. This chapter provides considerations for you to plan and execute offensive and defensive operations.*

## OFFENSIVE OPERATIONS

In offensive operations, fire support is characterized by decentralized execution with most of the firepower toward the main effort. Normally, one DS battalion is supporting each attacking maneuver brigade-sized force. Additional fires may be available from a reinforcing artillery battalion. Your control of the rate of movement is paramount for effective synchronization of fire support and maneuver.

### Movement to Contact

A movement to contact is characterized by vague intelligence, limited reconnaissance, and the potential for rapidly changing situations. The following issues need to be addressed in the overall plan:

- Plan targets on the basis of the S2's IPB. Potential targets include known or suspected enemy locations, likely engagement areas (EAs) where you expect contact, and targets in support of future missions. In the absence of known, suspected, and likely enemy locations, targets are planned along the route of march. This keeps supporting artillery within range as the unit moves to contact.
- Ensure immediately responsive fires are provided initially to the lead element and then to the lead company as contact develops. This is done by assigning POF initially to the security force, then the advanced guard.
- Make your mortar platoon direct support to the advance guard company or team to provide immediately available fire support upon contact. This provides the advanced guard commander with responsive fire support when contact is made. Ammunition will be critical for the use of mortars in subsequent engagements.

- Ensure effective positioning of FOS and COLTs, if attached. Consider using the platoon FOs (mechanized and light forces only) to augment your scouts. Your scouts at times will have the best view of the enemy; therefore, ensure they have the ability to call for fire.
- Use your reserve company or team FISTs to augment flank security elements to get additional *eyes forward.* Care must be taken to leave the losing unit with some means of calling for fire.
- Ensure that artillery movements are synchronized with the OPTEMPO of the maneuver force and the FS requirements of the FS plan. In a mechanized environment, this might require a portion of the supporting artillery to move right behind the lead elements.
- Plan fires and smoke to support possible breaching operations. Incorporate these fires into battle drills and rehearsals for breaching operations. Remember fire support plays a key role in the *S* and *O* phases of SOSR (suppress, obscure, secure, reduce).
- Maximize the use of priority targets along the axis of advance. Ensure these targets are put into effect and canceled on the basis of the movement of the forward element. This is a key responsibility of the FSO and FSE. (For additional information on priority targets, see Appendix M.)
- Ensure the coordinated fire line (CFL) is kept forward of the lead element to protect the force but close enough to allow responsive engagement of targets. Phase lines work well for CFLs. The FSE, in concert with the maneuver battle staff, must assist you in this task.

### Hasty Attack

A hasty attack, by its very nature, is constrained by the amount of time to prepare. To overcome this challenge, consider the following:

- A simple and rapidly produced FS plan is essential to effectively integrate all FS assets. This is done by using quick fire planning techniques and having a good SOP.
- You should position your artillery as far forward in the march column as the fire plan dictates. Treat the artillery as one of your maneuver elements, and articulate their task and purpose to support the attack.

- Once the maneuver force transitions to the hasty attack, the tactical mission of the mortars may change if they were in direct support to the advance guard during a movement to contact (MTC). As always, ammunition resupply is critical.
- The primary mission of fire support is suppressing direct fire systems affecting maneuver.

### Deliberate Attack

In contrast to hasty attacks, deliberate attacks are fully synchronized operations that employ the effects of every available asset against the enemy defense. When your FSO plans fires to support a deliberate attack, consider the foliowing:

- Synchronize the FS plan with the S2's R&S plan. It is imperative that targets are either confirmed or denied before execution. Failure to confirm target locations before line of departure (LD) could significantly reduce the effectiveness of the entire FS system.
- Weigh the benefits versus the drawbacks of shooting preparatory fires. Loss of surprise, ammunition expenditures, counterfire threat, and the number of significant targets are all factored into the decision to shoot a preparation. Strive for eyes on target to confirm the effects on target and provide adjustments if needed.

**REMEMBER**

The key to a preparation is to time the arrival of your maneuver forces just as the preparation is shifted or curtailed. Synchronizing your arrival with the end of the preparation allows you to take advantage of the shock effect and confusion created by the preparation.

- Pre-position ammunition in firing positions to reduce Class V resupply problems.
- Plan fires to support breaching operations. Consider making your mortars direct support to the support force during this operation.
- Ensure that a specific company, team, or observer is designated to control fires on the objective. One technique is to assign this responsibility to a unit in a support-by-fire position. They are not as actively engaged in staying alive as the company or team FSO in the assault force.

- Plan FM (voice) and visual (backup) signals for the lifting or shifting of indirect fires on the objective, and rehearse them in detail. The potential for fratricide is high if this is not accomplished.
- Enforce target refinement cutoff times. This allows time for computation of data, dissemination, and rehearsal of the plan. This does not restrict changes on the basis of reconnaissance. Failure to refine targets will result in a fire plan based on the situational template, not on actual terrain.
- Articulate the number of elements or size of elements you want engaged during each phase of the operation (engagement criteria). Specify the effects of attack (suppress, neutralize, or destroy) in terms of the enemy target types (attack criteria). This guidance is necessary for observers to discriminate targets for engagement and FDCs to determine firing data.
- When determining FSCMs, consider the minimum safe distance (danger close) for each weapon system. Ideally, you will shift fires from an objective at the last possible moment. This is particularly true when dealing with light forces and their diverse array of company and battalion mortars.
- Plan fires to augment your deception plan. Indirect fires are ideal for interrupting the enemy's time line and decision-making process. Although harassment and interdiction fires have been deleted from artillery terminology, the thought process behind them has not. An occasional HE round will make enemy engineers stop digging and seek cover. An illumination round along likely avenues for division or regimental reconnaissance will make them stop and seek concealment. The bottom line is to interrupt the enemy commander's decision-making process early and deep.

### Exploitation and/or Pursuit

Use your indirect fires to sustain your momentum. It is critical that the possibilities for exploitation be addressed early in the planning process. The DS battalion movement plan should include exploitation and pursuit. Missions may have to be fired hip-shoot style. Never let your artillery fall behind. Use the artillery's OPTEMPO to gauge your rate of advance. Other considerations include the following:

- Use artillery to neutralize and fix bypassed pockets of resistance until follow-on friendly forces can deal with them. However, this may disrupt OPTEMPO by preventing the artillery from moving forward.

- Plan fires to support hasty attacks.
- Consider using CAS and attack helicopters, which are well suited for exploitation.
- Coordinate with your FSO to establish FSCM between exploiting and converging forces.

**REMEMBER**

A bypassed enemy platoon may not pose a real threat to an M1 or M2 platoon but is an artilleryman's nightmare.

- Keep the FSO advised of locations of lead elements to facilitate positive clearance of fires.
- Use FASCAM to delay or fix the enemy. Ensure that your FSO considers the loss of maneuver space.

## DEFENSIVE OPERATIONS

In defensive operations, fire support is generally used against the enemy at maximum range to disrupt, delay, and attrit his forces before coming into range of your direct fire systems. Fire support assets extend the commander's battle space. Some primary uses of fire support are to limit the enemy's options, disrupt his coordination, and affect the closure times for follow-on elements. The maneuver commander must designate where his priorities are for obstacles, engagement areas, counterreconnaissance, and special munitions.

### Mobile Defense

Commanders conducting a mobile defense take advantage of terrain and depth, obstacles, and mines while employing firepower and maneuver to wrest the initiative from the attacker. Fire support considerations include the following:

- If your brigade is designated as a striking force, consider retaining your habitual DS battalion. This does not put artillery in the reserve. The striking force is a committed force and may require its DS battalion. This simplifies command and control, ammunition management, and positioning.
- Ensure that FSCMs are planned for each phase of the defense. Particular attention should be given to FSCMs when a striking force, CAS, or Army aviation are employed.

- Position FS assets to support commitment of a striking force. This may require additional security to enhance firing unit survivability.

### Area Defense

In an area defense, the bulk of forces are deployed to retain ground and are organized around a static framework provided by defensive positions with interlocking fires. The area defense is also characterized by a security area or covering force. Fire support considerations include the following:

- Consider HPTs for each phase of the defense. Targets during the counterreconnaissance phase will differ significantly from those in the MBA.
- Designate engagement criteria for each phase of the defense. The enemy formations, size and type, will differ between counterreconnaissance and the MBA.
- Plan fires to support the counterreconnaissance fight. Consider this as a separate phase for planning fires.
- Consider allocating engineer assets to dig in your DS battalion and mortars for survivability.
- Plan the coordinated fire line close to your forward elements to allow rapid engagement of enemy units.
- Consider no-fire areas (NFAs) around scout, COLT, and FO positions in forward areas.
- When emplacing FSCMs, consider the minimum safe distances (danger close) of each weapon system.
- Allocate assets to provide security for radars; they are normally an HPT for the enemy.

**Security Zone.** Some specific FS considerations include the following:

- Augment your security zone with additional observers. These additional observers may be COLTs, FISTs from reserve units, or platoon FOs.
- Ensure the FSO coordinates which communications nets he will use to receive fire missions. The FSE may be required to monitor a brigade or TF O&I net to fire for scout platoons. The FSO should consider using a quick fire or dedicated net.

- Plan fires to neutralize or destroy the enemy's reconnaissance effort. Copperhead is ideal for this situation; it surgically removes the enemy reconnaissance vehicles while limiting the exposure of your direct fire systems.
- Ensure that your FS assets are positioned to support the security zone fight.

**Main Battle Area.** Some specific FS considerations include the following:

- Keep in mind that ammunition on hand and weapons capability drive the number of targets you can expect to engage. Your DS battalion is limited in the amount of battalion mass missions it can provide.
- Designate where you want your artillery to mass their fires on the enemy. This should be specific. ("I want artillery to neutralize the enemy in EA RED, with Team D controlling fires.")
- Be specific in designating which key obstacles will be covered with indirect fire. A DS battalion cannot mass fires on every obstacle in a brigade sector.
- Ensure your FSO develops a fire plan, which as a minimum addresses the following:
  - ° Ensures your fire supporters are positioned where they can best execute the fire plan. This may require the TF or company FSO to be away from the commander.
  - ° Ensures all targets have redundant observers.
  - ° Ensures each target has a trigger point, and the trigger point can be observed by the primary and alternate observer.
  - ° Ensures the allocation of FPFs. (For additional information on FPFs, see Appendix M.)
  - ° Ensures your observers have a plan that supports operations during limited visibility.
  - ° Coordinates with the S2 to ensure collection assets are assigned observation responsibility for applicable NAIs and TAIs.

° The maneuver commander, not the FSO, is responsible for executing targets in the OPORD. Therefore, the commander is responsible to ensure the target is refined, observed, rehearsed, and executed according to the fire plan. You can ensure that your subordinate maneuver commanders understand this by including target responsibility in paragraph 3 of the OPORD (tasks to subordinate units).

° Remember, refinement of targets is critical. On the basis of the actual terrain, the company or team commanders and FSOs must ensure target locations satisfy the intended purpose of the targets.

- Ensure airspace coordination areas (ACAs) and air corridors do not overfly artillery or mortar positions.
- During rehearsals, have your commanders articulate their FS responsibilities. This will help synchronize fires with maneuver.
- Assist the engineer officer with evaluating the advantages and disadvantages of firing FASCAM during different phases of the operation. Firing FASCAM during the MBA fight will affect your ability to fire other, possibly more critical, missions.

## RETROGRADE OPERATIONS

Fire support considerations for various types of retrograde operations are discussed below.

### Delay

To trade space for time while inflicting maximum damage on the enemy, you must deliver fires on enemy forces at maximum ranges and as early as possible. Artillery and CAS are ideal for this mission.

When planning fires to support the delay, ensure your FSO considers the following:

- May require the forward positioning of observers to facilitate deep fires. The FSO must have a plan for observer's security and withdrawal to prevent them from being cut off and destroyed.
- Use Copperhead to destroy command and control and engineer vehicles to disrupt and delay the enemy's movement.
- Position your mortars and artillery in depth, and ensure they are displaced by echelon or battery to ensure continuous fire support.

- Ensure your FSO has planned and rehearsed for fires to support possible counterattacks.
- Plan smoke to cover the movement of your maneuver forces.

### Withdrawal

Although normally free from enemy pressure, the FSO must plan for a withdrawal under pressure first, then develop a plan for a withdrawal without pressure. Fire support considerations include the following:

- Mass fires to allow disengagement of friendly forces. This means that all available FS assets should be used to support the withdrawal. If necessary, request fires from adjacent units or higher HQ.
- Augment the withdrawing force with additional observers. This helps get eyes forward to assist in calling for fire.
- Leave the maximum feasible number of firing units forward. Establish disengagement criteria for them and rehearse this plan.
- Use CAS to counter enemy attempts to disrupt the withdrawal.
- Use smoke to support the withdrawal.

### Passage of Lines

The FS planning required for a passage of lines is time consuming and emphasizes positive control of fires and continuous fire support during the passage. Fire support considerations include an exchange of information between the stationary and passing FSEs, such as–

- Unit SOPs to resolve differences in operating procedures. Primary examples are recognition signals and unit organic code words that apply to fire support.
- Existing target lists and fire plans.
- High-payoff target lists, attack guidance, and engagement criteria.
- Fire support coordinating measures.
- Position areas for supporting FS assets.

- **A** clear FS battle handover, or transfer of control, identified and approved by the maneuver commander. As a minimum, consider-
  - ° The event or time for the transfer of control. It may not coincide with the maneuver battle handover in order to provide continuous or uninterrupted fires for the stationary and moving forces.
  - ° The frequencies on which fire missions will be passed. Observers from the passing force monitor and transmit on the stationary force's frequencies.

**Forward Passage of Lines.** Fire support considerations should include the following:

- Smoke is used to obscure enemy positions or screen friendly movement. Inherent to this is identifying additional ammunition requirements for both artillery and mortars.
- The stationary force supports the close battle while the passing force's artillery moves through.
- The FSE of the passing force sends a liaison officer to the FSE of the stationary force.
- The CFL is positioned forward of the lead elements and continually updated. The FSOs must know the position of the lead elements.
- Fire support assets should be positioned near the passage point but not so they interfere with the stationary force. Priority of positioning should go to the passing force but must be coordinated by the liaison officer sent to the stationary force.
- Fire support requirements should be identified after completion of the passage of lines.

**Rearward Passage of Lines.** Fire support considerations include the following:

- Use smoke to conceal movement through passage points.
- Plan fires to disengage forces.
- Plan fires to support the deception plan.
- Ensure counterfire is planned and controlled by the stationary force.

- Position the stationary force's FS assets to provide continuous support until the passage is complete.
- Ensure positions are away from the passage points.
- Ensure the stationary force has positioning priority.
- Ensure the FSE of the stationary force sends a liaison officer to the FSE of the passing force.

## OPERATIONS OTHER THAN WAR

The application of fire support in operations other than war frequently stresses protection of the force. It is characterized by using the minimum essential force to neutralize an aggressor while keeping collateral damage to a minimum. Fire support considerations include the following:

- The rules of engagement (ROE) must clearly specify when the use of fire support is appropriate and justified. For example, collateral damage caused by FS assets may warrant their use only on a case-by-case basis.
- Clearance of fires is infinitely more complicated when operating in urban areas and foreign countries. Normal fire support coordinating measures (such as coordinated fire lines and fire support coordination lines [FSCLs]) may not apply during operations such as peace enforcement and peacekeeping operations.
- Firefinder radars are key components to detecting and neutralizing belligerent indirect fire assets. Protection of these radars and associated equipment becomes paramount.

# APPENDIX A
# US ARTILLERY AND MORTAR CAPABILITIES

*This appendix provides a reference chart depicting the capabilities of US artillery and mortar systems.*

## US ARTILLERY CAPABILITIES

| TYPE WEAPON | RANGE (METERS) | | MAXIMUM RANGE RAP (METERS) | MAXIMUM FPF WIDTH (METERS) | WEIGHT (POUNDS) | RATE OF FIRE (ROUNDS/MINUTE) | |
|---|---|---|---|---|---|---|---|
| | MINIMUM | MAXIMUM | | | | MINIMUM | MAXIMUM |
| 105-mm (M119A1) | | 14,000 | 19,000 | 210 | 4,520 | 3 | 6 |
| 105-mm (M102) | | 11,500 | 15,000 | 210 | 3,338 | 3 | 10 |
| 105-mm (M101A1) | | 11,270 | 15,000 | 210 | 4,960 | 3 | 10 |
| 155-mm (M114A1/A2) | | 14,600 | 19,400 | 300 | 12,700 | 1 | 4 |
| 155-mm (M109A3/A4) | | 18,100<br>M864<br>(ERDPICM)<br>22,200 | 23,500 | 400 | 55,000 | 1 | 4 |
| 155-mm (M109A5/A6) | | 22,200<br>M864<br>(ERDPICM)<br>28,400 | 30,000 | 400 | 55,000<br>(A5)<br>63,000<br>(A6) | 1 | 4 |
| 155-mm (M198) | | 18,100<br>M864<br>(ERDPICM)<br>28,400 | 30,000 | 400 | 15,800 | Varies | 4 |
| MLRS (M270)<br>ATACMS | 8,000<br>Classified | 32,000+<br>100,000+ | NA<br>NA | NA<br>NA | 54,600<br>54,000 | NA | 12<br>1 or 2 <<br>10 Sec |

**LEGEND:**

**ATACMS** = Army tactical missile system
**ERDPICM** = extended range dual-purpose improved conventional munitions
**MLRS** = multiple launch rocket system
**NA** = not applicable
**RAP** = rocket-assisted projectile
**sec** = second

## US MORTAR CAPABILITIES

| TYPE WEAPON | RANGE (METERS) | | MAXIMUM FPF WIDTH (METERS) | WEIGHT (POUNDS) | RATE OF FIRE (ROUNDS/MINUTE) | |
|---|---|---|---|---|---|---|
| | MINIMUM | MAXIMUM | | | SUSTAINED | MAXIMUM |
| 60-mm mortar<br>HE M720/M889<br>HE M49A4 | 70<br>45 | 3,500<br>1,830 | 60 | 18-45 | 20 | 30 |
| 81-mm mortar (M29A1)<br>HE M374A2<br>HE M374A3 | 70<br>73 | 4,600<br>4,790 | 140/4 Tubes | 98 | 8 | 25 |
| 81-mm mortar (252)<br>HE M821/M889<br>HE M374A3 | 80<br>73 | 5,800<br>4,790 | 40/4 Tubes | 93 | 15 | 30 |
| 107-mm mortar<br>HE M329A1<br>HE M329A2 | 920<br>770 | 5,650<br>6,840 | 240/6 Tubes<br>120/3 Tubes | 675 | 3 | 18 |
| 120-mm mortar | 200 | 7,200 | 360/6 Tubes<br>180/3 Tubes | 320 | 4 | 15 |

# APPENDIX B
# ILLUMINATION AND SMOKE CAPABILITIES

*This appendix provides reference charts depicting the characteristics of the following artillery and mortar special munitions: illumination and smoke.*

## ILLUMINATION

| TYPE | RANGE (METERS) MINIMUM | RANGE (METERS) MAXIMUM | BURN TIME (SECONDS) | RATE OF CONTINUOUS ILLUMINATION (ROUNDS/MINUTE) | DIAMETER OF AREA ILLUMINATED (METERS) |
|---|---|---|---|---|---|
| 107-mm/ M335A2 | 440 | 5,490 | 90 | 1 | 800 |
| 105-mm/ M314A3 | – | 11,500 | 60 | 2 | 800 |
| 155-mm/ M485A2 | – | 17,500 | 120 | 1 | 1,000 |
| 120-mm/ M91 | 200 | 7,100 | 60 | 2 | 1,500 |
| M930 | 200 | 7,200 | 60 | 2 | 1,500 |
| 81-mm/ M853 | 300 | 5,060 | 60 | 2 | 650 |
| M301A3 | 100 | 950 | 60 | 2 | 360 |
| 60-mm/ M721 | 200 | 3,500 | 25 | 4 | 500 |
| M83A3 | 725 | 950 | 25 | 4 | 300 |

## SMOKE

| DELIVERY SYSTEM | TYPE ROUND | TIME TO BUILD EFFECTIVE SMOKE (MINUTES) | AVERAGE BURNING TIME (MINUTES) |
|---|---|---|---|
| 155-mm | WP (M110A1) | 1/2 | 1 to 1 1/2 |
| | smk (M825) | 1/2 | 5 to 10 |
| 105-mm | WP | 1/2 | 1 to 1 1/2 |
| | HC | 1 to 1 1/2 | 3 |
| 107-mm/120-mm | WP | 1/2 | 1 |
| 81-mm | WP | 1/2 | 1 |
| 60-mm | WP | 1/2 | 1 |

# APPENDIX C
# US CLOSE AIR SUPPORT AIRCRAFT

*This appendix provides a reference chart depicting the characteristics of US close air support aircraft.*

## US CLOSE AIR SUPPORT AIRCRAFT

| AIRCRAFT | SERVICE | CHARACTERISTICS |
|---|---|---|
| F-111 | USAF | Tactical bomber; good all-weather and night capability; supersonic; typical load 12,000 lbs, maximum load 25,000 lbs. |
| A-6M | USMC | All-weather tactical bomber; subsonic; typical load 4,000 lbs, maximum load 9,000 lbs. |
| AV-8B | USMC, USN | VTOL CAS aircraft; subsonic; typical load 4,000 lbs, maximum load 9,200 lbs; 5,000-lb ordnance load; 25-mm Gatling gun. |
| A-10 OR O/A-10* | USAF, AFRES, ANG | Specialized CAS aircraft; subsonic; typical load 6,000 lbs, maximum load 16,000 lbs; 30-mm gun. |
| F-15E | USAF | Multirole aircraft; priority to air to ground; also has an excellent platform for computed air-to-ground delivery; supersonic; maximum load 24,000 lbs. |
| F-16* | USAF, AFRES, ANG | Multirole aircraft; complements the F-15 in an air-to-air role; most accurate ground delivery system in the inventory; supersonic; typical load 6,000 lbs, maximum load 10,500 lbs. |
| F-18* | USN, USMC | Multirole fighter; wide variety of air-to-surface weapons; typical load 7,000 lbs, maximum load 17,000 lbs; 20-mm gun and air-to-air missiles. |
| AC-130* | USAF, AFRES | Specialized CAS and/or RACO aircraft, propeller driven, two models. The A model is equipped with two 7.62-mm miniguns. The H model is similar, except it has no 7.62 miniguns and one of the 40-mm guns is replaced with a 105-mm howitzer. Both models have advanced sensors and target acquisition system including forward-looking infrared and low-light TV. Weapons employment accuracy is outstanding. This aircraft is vulnerable to enemy air defense systems and must operate in a low ADA threat environment. |

*Aircraft with FM communications

**NOTE .** Typical load is average load for typical support mission; maximum load is the amount the aircraft can carry in an ideal situation.

**LEGEND:**

**AFRES** = Air Force Reserve
**ANG** = Air National Guard
**lb** = pound
**RACO** = rear area combat operations
**USMC** = United States Marine Corp
**USN** = United States Navy
**VTOL** = vertical takeoff and landing

# APPENDIX D
# USAF MINIMUM SAFE DISTANCES FOR SURFACE TARGETS

*This appendix provides a reference chart depicting the minimum safe distances for various US Air Force used to engage surface targets.*

## USAF MINIMUM SAFE DISTANCES FOR SURFACE TARGETS (COMBAT)

| WEAPON | PROTECTED TROOPS (METERS)[1] | UNPROTECTED TROOPS (METERS)[2] |
|---|---|---|
| Bomb: 1,000 pounds and larger | 240 | 1,000 |
| Bomb: 750 pounds low drag | 195 | 750 |
| Bomb: 750 pounds high drag | 150 | 750 |
| Bomb: 500 pounds low drag | 220 | 500 |
| Bomb: 500 pounds high drag | 145 | 500 |
| Bomb: less than 500 pounds | 145 | 500 |
| CBU: clamshell only | 1,000 | 1,000 |
| CBU: aft and downward, dispenser only | 105 | 105 |
| Rockets: all pods | 220 | 220 |
| Cannon and guns: | | |
| 20-mm, .50 caliber, 7.62-mm | 25 | 25 |
| 30-mm | 50 | 50 |
| Napalm: | | |
| parallel to friendly forces | 75 | 75 |
| overhead of friendly forces | 115 | 115 |

[1]Protection refers to bunkers, trenches, fighting positions, or armed vehicles.
[2]Entries are based on figures extracted from USAF ammunition tables and consider delivery system errors. Also they are based on USAF SOP and may be altered by the FAC concerned.

**NOTE.**
Consideration must be given to type ordnance used, delivery system attack procedures used, and local weather conditions. Any of these can greatly alter the MSD for a given target.

**LEGEND:**
CBU = cluster bomb unit
FAC = forward air controller
MSD = minimum safe distance

# APPENDIX E
# NAVAL GUNFIRE CHARACTERISTICS

*This appendix provides a reference chart depicting the characteristics of naval gunfire systems.*

## NAVAL GUNFIRE CHARACTERISTICS

| SHIP | GUN SIZE | CALIBER | RANGE (METERS) | | RATE OF FIRE (ROUNDS/ MINUTE) | | AMMUNITION AVAILABLE |
|---|---|---|---|---|---|---|---|
| | | | MAXIMUM | MINIMUM | MAXIMUM | SUSTAINED | |
| Battleship | 16-inch | 50 | 35,909 | 910 | 2 | 1 | HE, AP, ICM |
| | 5-inch | 38 | 15,700 | 910 | 22 | 15 | HE, WP, illum |
| Guided missile cruiser | | | | | | | |
| (CGN and | 5-inch | 38 | 15,700 | 910 | 22 | 15 | HE, WP, illum |
| CG) | 5-inch | 54 | 22,999 | 910 | 40 | 20 | HE, WP, illum |
| Guided missile destroyer (DDG) | 5-inch | 54 | 22,999 | 910 | 40 | 20 | HE, WP, illum |
| Destroyer (DD) | 5-inch | 54 | 22,999 | 910 | 40 | 20 | HE, WP, illum |
| Guided missile frigate (FFG) | 5-inch | 38 | 15,700 | 910 | 22 | 15 | HE, WP, illum |
| Frigate | 5-inch | 38 | 15,700 | 910 | 22 | 15 | HE, WP, illum |
| (FF) | 5-inch | 54 | 22,999 | 910 | 40 | 20 | HE, WP, illum |
| Amphibious assault ship (LHA) | 5-inch | 54 | 22,999 | 910 | 40 | 20 | HE, WP, illum |

**LEGEND:**

**AP** = armor-piercing
**CG** = guided missile cruiser
**CGN** = guided missile cruiser, nuclear
**DD** = destroyer
**DDG** = guided missile destroyer
**FF** = frigate
**FFG** = guided missile frigate
**LHA** = amphibious assault ship general purpose (GP)

# APPENDIX F
# DOCTRINE, TACTICS TECHNIQUES, AND PROCEDURES FOR CLEARANCE OF INDIRECT FIRES IN THE CLOSE BATTLE

*This appendix provides a discussion of clearance of fires in the close battle.*

## INTRODUCTION AND PURPOSE

Firing units do a good job of focusing fires and preventing fratricide on targets planned and rehearsed before the battle begins. These fires meet the prerequisites for positive clearance of fires. They are developed through careful planning, thorough rehearsal, and intensive management of the FSCMs. These procedures maintain an acceptable level of responsiveness and force protection and are based on the scheme of fires supporting the scheme of maneuver.

## DEFINING CLEARANCE OF FIRES IN THE CLOSE FIGHT

Experience gained from the combat training centers has identified problems in the clearance and prioritization of fires on targets of opportunity. Fires on these targets must provide the same level of force protection as on planned targets, without undue delay in responsiveness. Field artillerymen cannot allow the definition of positive clearance of fires to mean only fires that are safe and do not violate FSCMs. Clearance of fires must also mean that we attack the right targets (focus) with the appropriate FS assets (synchronize) to support the maneuver forces.

## OBSERVERS AND INITIAL CLEARANCE PROCEDURES

All observers, maneuver or fire support, must meet several requirements to accomplish positive clearance of fires on unplanned targets. The forward observer must–

- Use the best available method of target location.
- Positively identify the target as the enemy.
- Be the initiator of the mission.
- Maintain eyes on the target.
- Coordinate the clearance of any targets outside his boundary.

By applying these rules, observers begin the positive clearance of the fires process.

## SYNCHRONIZED CLEARANCE

To provide safe focused fires on unplanned targets, FSOs must use both the maneuver and FS nets that they monitor. For example, Team A FSO is on an avenue of approach that the enemy is unexpectedly attacking. The TF does not have POFs. On the heavy mortar net, the team FSO requests clearance from the TF FSO to use artillery on targets of opportunity that meet the commander's established attack guidance. The team FSO inputs the target data into his FIST DMD or FED and awaits TF approval before transmitting the mission. When the mission has been approved, the team FSO sends the mission to the firing unit. This clears the target to be engaged with the appropriate asset and meets the requirement for friendly troop safety. The TF FSO has the brigade FSO clear the mission on the brigade fire support coordination (FSC) net. In conjunction with the FSCOORD, prioritize the firing of the mission on the basis of the attack guidance and tactical information. The brigade FSO or FSCOORD relays the clearance and priority of the mission to the firing unit S3 and fire direction officer on the brigade FSC net to achieve massed fires on the target.

## CONCLUSION

In summary, fire supporters must provide focused and safe fires on unplanned targets. Observers apply basic rules to begin the clearance process, and FSOs determine target priority on the basis of their maneuver commander's guidance. This synchronization of timely and accurate fires is a complex problem. There is no recipe for success. The factors of METT-T and the habitual relationship between the maneuver unit and its supporting artillery will determine success in the next battle.

# APPENDIX G
# BACKBRIEFS

*This appendix identifies and discusses the use of backbriefs. Backbriefs identify problems and disconnects in execution but to a lesser degree than a hands-on type of rehearsal. Unfortunately, many task forces use backbriefs as their* **only** *form of rehearsal. The backbrief should be used frequently and with other rehearsals.*

*As the combined arms commander, you should use the backbrief to ensure the FSO understands your guidance for fire support. The backbrief should be combined with a rehearsal technique that involves the physical act of replicating the fire plan in conjunction with the maneuver plan (combined arms rehearsal). Do not assume the FSO understand the mission and concept.*

*Regardless of the name used, the idea is to increase understanding of commander's scheme of fires and synchronization through the verbal passing of information. The term used here is simply backbrief. A backbrief is an event that can occur as frequently as necessary. It is often confused with coordination.*

*Coordination could and should involve the participation of all personnel regardless of rank or position. A backbrief is primarily a commander's tool and is used at a minimum, on at least two occasions as shown in the two examples below.*

## BACKBRIEF, FIRST USE

This backbrief occurs after the OPORD. Subordinates repeat to the commander what he wants them to do and why. The FSO must identify all specified, implied, and critical FS tasks. Company or team commanders should include their FS responsibilities in their backbrief. Subsequently, each company or team commander should require his FSO to backbrief him before issuing the company or team OPORD.

The backbrief can be done at any time during or after the commander has issued his guidance for fire support.

The backbrief should occur at the orders group location before subordinates depart.

## BACKBRIEF, SECOND USE

The second backbrief is when the FSO tells the commander he how is going to accomplish his scheme of fires.

The backbrief can be done after the FSO has received refinements to the original target list and finalized the FS plan. Additionally, the brigade and TF commander should require their subordinate commanders to include execution of the fire plan in their backbriefs.

Ideally, the second backbrief should occur at a location overlooking the area of operations.

Other backbrief uses are–

- Anytime instruction or planning guidance is given.
- When new commanders or FSOs are assigned.
- When personnel are tired or fatigued.

# APPENDIX H
# CONFEDERATION OF INDEPENDENT STATES TYPE ARTILLERY AND MORTAR CAPABILITIES

*This appendix provides a reference chart depicting the capabilities of the Confederate of Independent States artillery and mortar system.*

## CIS TYPE ARTILLERY AND MORTAR CAPABILITIES

| TYPE WEAPON | RANGE (METERS) | | MAXIMUM RANGE WITH RAP (METERS) | RATE OF FIRE | | AMMUNITION TYPE |
|---|---|---|---|---|---|---|
| | MINIMUM | MAXIMUM | | ROUND/ HOUR SUSTAINED | ROUND/ MINUTE MAXIMUM | |
| 120-mm SP gun (2S9) | | 11,500 | | 100 | | HE, heat |
| 122-mm (D-30) | | 15,300 | | 75 | 7 to 8 | HE, cml, smk, illum, PGM |
| 122-mm SP gun (2S1) | | 15,300 | | 70 | 5 to 8 | HE, cml, smk, illum, PGM |
| 152-mm (D-20) | | 17,230 | 24,000 | 65 | 5 | HE, cml, smk, illum, PGM, ICM, FASCAM |
| 152-mm SP (2S3) | | 17,230 | 24,000 | 60 | 4 | HE, cml, smk, illum, PGM, ICM, FASCAM |
| 152-mm SP (2S5) | | 28,000 | 33,000 | 60 | 4 to 5 | HE, nuc, ICM, PGM, FASCAM |
| 152-mm SP G/S (2S19) | | 30,000 | 40,000 | INA | 8 to 10 | HE, cml, smk, illum, PGM, ICM, FASCAM |
| 152-mm (2A36) | | 28,000 | 33,000 | 60 | 4 to 5 | HE, nuc, PGM, cml, ICM, FASCAM |
| 152-mm G/H (2A65) | | 30,000 | 40,000 | INA | 5 to 6 | HE, cml, smk, illum, PGM, ICM, FASCAM |
| 203-mm SP (2S7) | | 37,500 | 50,000 | 60 | 2 | HE, CP, nuc |
| 120-mm mort (2B11) | 460 | 7,200 | | INA | 10 | HE, cml, smk, illum |
| 160-mm mort (M160) | 750 | 8,040 | | 48 | 3 | HE |
| 240-mm mort (M240) | 500 | 9,700 | | 38 | 1 | HE, cml, nuc, PGM |

## CIS TYPE ARTILLERY AND MORTAR CAPABILITIES (Continued)

| TYPE WEAPON | RANGE (METERS) | | MAXIMUM RANGE WITH RAP (METERS) | RATE OF FIRE | | AMMUNITION TYPE |
|---|---|---|---|---|---|---|
| | MINIMUM | MAXIMUM | | ROUND/ HOUR SUSTAINED | ROUNDS/ MINUTE MAXIMUM | |
| 122-mm rocket launcher (BM-21) | 500 | 20,380 | | Reload 10 min | 40 | HE, incd, cml, smk |
| 220-mm rocket launcher (BM-22) | | 40,000 | | Reload 15 to 20 min | 16 | HE, cml, FASCAM |
| 300-mm rocket launcher (9A52) | | 70,000 | | | 12 or 14 | HE, cml, FASCAM, ICM |

LEGEND:
cml = chemical
CP = concrete-piercing
G/H = gun/howitzer
ICM = improved conventional munitions
INA = information not available
incd = incendiary
nuc = nuclear
PGM = precision guided munition
min = minute

# APPENDIX I
# FIRES PARAGRAPH AND FIRE SUPPORT EXECUTION MATRIX

*This appendix addresses considerations for the development of the fires paragraph and the fires support execution matrix. Examples of both are shown.*

The fires paragraph and/or the FSEM should address four specific areas to best convey your scheme of fires. These areas are as follows:

- **Scheme and/or purpose** –should address exactly what you want fire support to accomplish during each phase of the battle. It should be specific in addressing attack guidance and engagement criteria. This is the most important part of the fires paragraph. The FSCOORD must articulate how fire support as a battlefield operating system will be synchronized with the other BOSs.
- **Priority** –designates POF and when or if it shifts for each phase. Include all systems when assigning POFs.
- **Allocations** –designates the allocation of FS assets to include the following:
  - ° Targets allocated to brigade and task forces for planning.
  - ° Close air support sorties.
  - ° Smoke, expressed in minutes and size.
  - ° Priority targets, FPFs, and Copperhead priority targets.
  - ° Combat observation/lasing teams.
- **Restrictions** –addresses FSCMs and the use of specific munitions. Some examples are critical FSCMs and specific munition restrictions such as those placed on the employment of illumination, smoke, dual-purpose improved conventional munitions (DPICM), and FASCAM.

These four areas must be addressed in the fires paragraph and/or FSEM. The most important document is the FSEM. It is normally the document used by fire supporters to execute the fire plan. It must be a stand-alone document. More importantly, specific target responsibility must be included in the brigade and TF maneuver matrix. One of the most important lessons learned is many company or team maneuver commanders will not have the FSEM posted to their situation map during execution. Normally, the only individual who posts the FSEM is the FSO, and when he becomes a casualty, fire support tends to become a nonplayer in their fight. It is this

lesson that requires the FS portion of the maneuver matrix to be filled in with responsibilities and not "see fires paragraph. "

Two examples of scheme of fires paragraphs and an FSEM are shown below. A figure that precedes the FSEM lists the abbreviations and acronyms used in it.

## EXAMPLE 1

**Fires (3a(2)).** The purpose of fires is to initially support the counterreconnaissance battle and then provide fires in support of the brigade's deliberate defense along the FEBA to defeat the lead regiment. On order, provide fires in support of the brigade counterattack.

**Phase I (counterreconnaissance).** Use Copperhead to destroy reconnaissance vehicles (HVTs). Priority of fires to TF 3-35. COLT 1 and COLT 2 are attached to TF 3-35. Use of illumination requires brigade approval during this phase.

**Phase II (rearward passage of** lines). A 20-minute counterpreparation will be fired in support of TF 3-35 passage of lines. Priority of fires remains with TF 3-35. Twenty minutes of artillery smoke is allocated to TF 3-35.

**Phase III (MBA defense).** Indirect fires will initially disrupt the lead regiment between PL WALT and PL BOB and then suppress the lead elements as they enter EA KILL. Priority of fires is to TF 2-6, on order to TF 2-8. Copperhead will destroy breaching assets (HVT). COLT 3 is attached to TF 2-6 and allocated one Copperhead priority target. FASCAM will be fired when the second echelon is committed to isolate the lead regiment in EA KILL. On order, TF 2-8 will execute four CAS sorties to attrit the second echelon regiment. TF 2-6 and TF 2-8 are both allocated one battery FPF each. ACA Blue will be implemented by the brigade FSE.

**Phase IV (counterattack).** Brigade FSE will plan and control a 15-minute preparation to support the brigade counterattack on OBJ EAGLE. Priority of fires to TF 2-9. The corps FSCL is PL DICK; the division CFL is PL SABER; on order, PL JAY.

## EXAMPLE 2

The purpose of fires is to support the movement of the brigade to OBJ HAMMER, to provide close fires in support of 1st brigade's seizure of OBJ HAMMER, and to delay and neutralize the second echelon regiment beyond PL Yellow. Once OBJ HAMMER is seized and the defense is reestablished along PL Blue, fires will neutralize remaining elements of the 2d echelon regiments. Priority of fires to TF 3-7 during the movement to and seizure of OBJ HAMMER. On order, priority shifts to TF 1-64 in the defense. COLT 1 and priority of Copperhead is allocated to TF 3-7, on order to TF 1-64 in the defense. FASCAM is retained at division level. No DPICM will be fired on OBJ HAMMER. No smoke or illumination will be fired without the brigade commander's approval.

## ABBREVIATIONS AND ACRONYMS

| | | |
|---|---|---|
| **bde** | = | brigade |
| **cbt** | = | combat |
| **cdr** | = | commander |
| **div** | = | division |
| **fwd** | = | forward |
| **loc** | = | location |
| **mech** | = | mechanized |
| **mort** | = | mortar |
| **MRB** | = | motorized rifle battalion |
| **MRC** | = | motorized rifle company |
| **MRR** | = | motorized rifle regiment |
| **org** | = | organization |
| **PADS** | = | position and azimuth determining system |
| **PL** | = | phase line |
| **rd** | = | round |
| **regt** | = | regiment |
| **sec** | = | section |
| **smk** | = | smoke |
| **SP** | = | self-propelled |
| **spt** | = | support |
| **vic** | = | vicinity |
| **w** | = | with |

## FIRE SUPPORT EXECUTION MATRIX

ANNEX F: (FIRE SPT) TO OPORD_____. SCHEME OF FIRES: (SEE FIRES PARAGRAPH)

| PHASE OR EVENT | COUNTERRECON | MRR FWD OF PARIS | 2 MRBs IN EA COLD | EA HOT | TM A COMMITTED | TM C BACK TO PL DUBLIN |
|---|---|---|---|---|---|---|
| TF CONTROL | | | | 2 CAS → | | |
| TM ALPHA | FA POF AB1001 | | | | MORT POF → | |
| TM CHARLIE | FA POF2 → | A1B | FA POF AB1002 | 2 CAS FA POF2 → | | FA POF A4B |
| TM DELTA | | | MORT POF | FA POF A3B FA FPF | FA POF A2B | |
| TM MECH | | MORT POF | FA POF2 | MORT POF FA FPF | FA POF2 → | |
| SCOUTS | OPCON TM A | FA POF AB2018 | | | | |
| MORTARS | SEC 1 DS TM A SEC 2 PA1 AB1003 | SEC 1 PA2 AB1005 → SMK SEC 2 PA3 AB1005 → | | SEC 1 PA4 AB3001 → SEC 2 PA5 AB3001 → | | |
| COLT 45 | OPCON TM A | POSITION VIC BP10 AB1004 | CPHD AB1005 IN EA COLD | | | |
| FSCMs | PL BLUE CFL ON ORDER | PL WHITE ON ORDER | PL GREY → | ACA BLUE ON ORDER | | |

| | | | |
|---|---|---|---|
| FA ORG FOR CBT<br>2-35 FA (155, SP) DS 2 BDE<br>3-3 FA (155, SP) R 2-35 FA | MORTARS<br>PA1: NB543657 AoF1800<br>PA2: NB564678 AoF2000<br>PA3: NB506629 AoF1800<br>PA4: NB499602 AoF2200<br>PA5: NB486599 AoF2000 | AMMO AVAILABLE<br>15 BN 3 RDS DPICM<br>30 MIN (400 X 50) FA SMK<br>30 MIN MORT SMK<br>12 CPHD ENGAGEMENTS | FSO LOC: WITH TF CDR<br>SUCCESS OF CMD:C-D-A-MECH |
| CAS<br>4 A-10 W/MAVERICK ACA BLUE ON ORDER WHEN CAS EMPLOYED (SEE OVERLAY) | HIGH-PAYOFF TARGETS<br>CEN RECON: DIV/REGT RECON<br>MBA: ENG BREACHING, MRC, ADA ASSETS | ATTACK GUIDANCE<br>DESTROY: ADA, C2, RECON<br>NEUTRALIZE: >MRC, FS | REFINEMENT CUTOFF: XX0200 SEP XX<br>FS REHEARSAL TIME: XX0400 SEP XX |

**Coordinating Instructions:**
1. Coordinate with TF FSO for PADS time. 2. Rehearsals will include backup observers 3. Scout and COLT will provide grids for stay-behinds for NFAs.

# Appendix J
# ATTACK GUIDANCE MATRIX

*This appendix provides an example of an attack guidance matrix.*

## EXAMPLE OF AN ATTACK GUIDANCE MATRIX

| TARGET CATEGORY | SHEET NUMBER OF HIGH PAYS | WHEN[1] | HOW[2] | CONSTRAINT DESCRIPTIONS |
|---|---|---|---|---|
| $C^3$ 1 | 25 and 30 | I | N/EW | Coordinate attack with EW |
| FS 2 | 1, 2, 5, and 18 | I | N | DNE MTLR older than 10 min |
| Mvr 3 | 46, 48, 50, and 51 | I | 25% | Last volley RAAMS or ADAM |
| ADA 4 | 58 | P | S2 or G2 | SEAD program |
| Engr 5 | | P | N | Countermobility program |
| RSTA 6 | 85 | P | EW | |
| REC 7 | 103 and 105 | P | N | |
| N/CH 8 | 76 to 82 | I | D | Accuracy of 0 to 200 m/TDA required |
| POL 9 | | A | D | |
| Ammo 10 | 120 and 121 | I | D | |
| Maint 11 | | P | N | Not high payoff |
| LIFT 12 | | P | N | Not high payoff |
| LOC 13 | | P | N/G3 | Not high payoff |

[1]Describes when to attack the target:
- **A** = as acquired
- **I** = immediately (Interrupt nonimmediate missions to process.)
- **P** = plan (Include in a program for later attack when the situation changes.)

[2]How the target is to be engaged:
- **N** = neutralize
- **S** = suppress
- **D** = destroy
- **EW** = electronic warfare
- **X%** = percent of casualties

LEGEND:

| | | | |
|---|---|---|---|
| **ADAM** | = area denial artillery munitions | **mvr** | = maneuver |
| $C^3$ | = command, control, and communications | **maint** | = maintenance |
| | | **MTLR** | = moving-target-locating radar |
| **DNE** | = do not engage | **N/CH** | = nuclear and chemical |
| **engr** | = engineer | **POL** | = petroleum, oils and lubricants |
| **LIFT** | = refers to general transports in the opposing force | **RAAMS** | = remote antiarmor mine sytem |
| | | **REC** | = radio-electronic combat |
| **LOC** | = lines of communication for which no special target types are designated | **RSTA** | = reconnaissance, surveillance, and target acquisition |
| | | **TDA** | = target damage assessment |
| **m** | = meter | | |

# APPENDIX K
# HIGH-PAYOFF TARGET LIST

*This appendix provides an example of a high-payoff target list.*

**EXAMPLE OF A HIGH-PAYOFF TARGET LIST**

| PRIORITY | CATEGORY NUMBER | SHEET NUMBER | TARGET DESCRIPTION |
|---|---|---|---|
| 1 | 2 | 5 | Div arty comd btry |
| 2 | 2 | 1, 2, and 18 | Arty bn, FDC, CP, FA btry |
| 3 | 1 | 25 and 30 | Regt main CP, div fwd CP |
| 4 | 3 | 46, 48, 50, and 51 | Bn assy area, march column, MR or tk co |
| 5 | 10 | 120 and 121 | Div arty ammo depots |
| 6 | 8 | 76 to 82 | Nuclear weapons storage and firing positions |

**NOTE.** The sheet numbers (1 to 128) are from the source book, which describes the target.

**LEGEND:**

| | | | |
|---|---|---|---|
| **assy** | = assembly | **CP** | = command post |
| **btry** | = battery | **MR** | = motorized rifle |
| **comd** | = command | **tk** | = tank |

# APPENDIX L
# FIRE SUPPORT COORDINATING MEASURES

*This appendix provides information concerning FSCM. The FSCMs are designed to assist the rapid engagement of targets and at the same time, provide safeguards for friendly forces.*

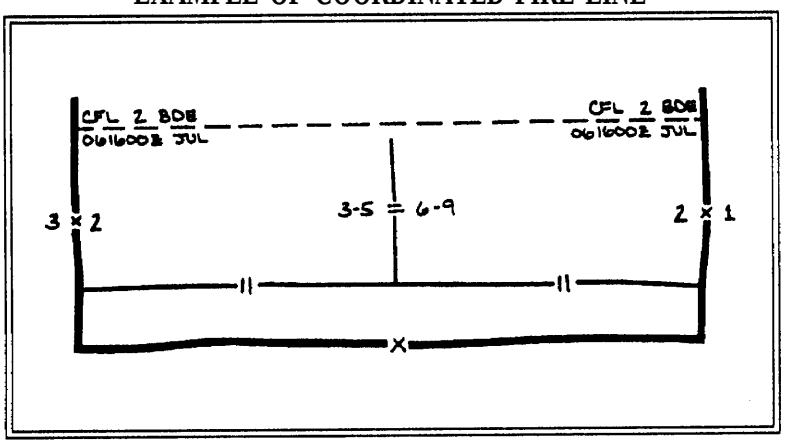
## PERMISSIVE MEASURES

Permissive measures are those that expedite the attack of targets.

### Coordinated Fire Line

The CFL is a line beyond which conventional surface-to-surface fires may be delivered within the zone of the establishing HQ without additional coordination. Normally, it is established by brigade or higher HQ; however, it may be established by a battalion operating independently. A depiction of a CFL is shown below.

EXAMPLE OF COORDINATED FIRE LINE

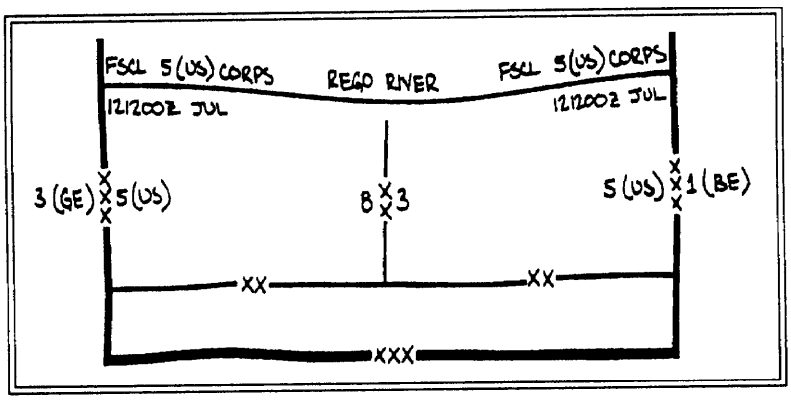



### Fire Support Coordination Line

The FSCL may be established by corps within its area of operations to coordinate fires of air, ground, or sea weapon systems by using any type of ammunition against surface targets. The purpose of the FSCL is to allow the corps and its subordinate and supporting units (such as the Air Force) to expeditiously attack targets of opportunity beyond the FSCL. The attack

of targets beyond the FSCL by Army assets should be coordinated with the supporting tactical air. This coordination is defined as informing and/or consulting the supporting tactical air. However, the inability to affect this coordination will not preclude the attack of targets beyond the FSCL. A depiction of an FSCL is shown below.

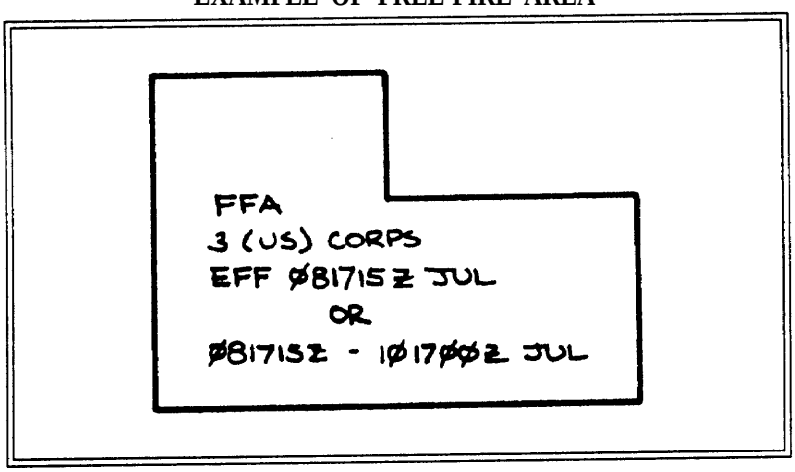
EXAMPLE OF FIRE SUPPORT COORDINATION LINE




**Free-Fire Area**

A free-fire area (FFA) is an area into which any weapon system may fire without additional coordination with the establishing HQ. Normally, it is established on identifiable terrain by division or higher HQ. A depiction of an FFA is shown below.

EXAMPLE OF FREE-FIRE AREA



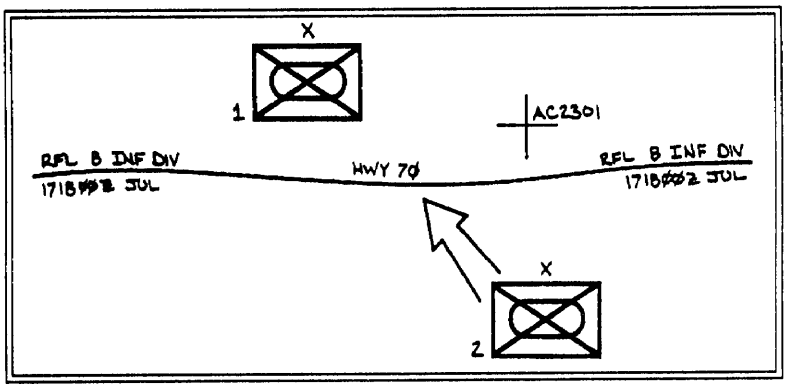
# RESTRICTIVE MEASURES

Restrictive measures are those that provide safeguards for friendly forces, facilities, or terrain.

## Restrictive Fire Line

A restrictive fire line (RFL) is a line between converging friendly forces that prohibits fires, or their effects, across the line without coordination with the affected force. It is established on identifiable terrain by the common commander of the converging forces. A depiction of an RFL is shown below.

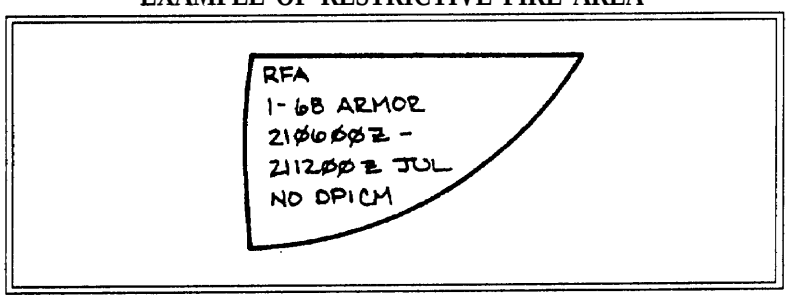
EXAMPLE OF RESTRICTIVE FIRE LINE




## Restrictive Fire Area

A restrictive fire area (RFA) is an area with specific restrictions and in which fires that exceed those restrictions will not be delivered without coordination with the establishing HQ. It is established by battalion or higher HQ. On occasion, it may be established by a company operating independently. A depiction of an RFA is shown below.

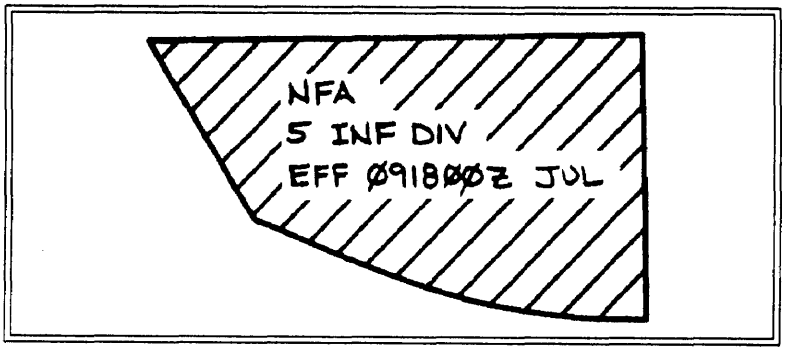
EXAMPLE OF RESTRICTIVE FIRE AREA



### No-Fire Area

An NFA is an area into which no fires or their effects are allowed. An NFA maybe used to protect a national asset, population center, or shrine. Tactical uses of NFA may be to protect forward elements such as COLTs and scouts. Two exceptions to the no-fire rule exist: when the establishing HQ allows fires on a mission-by-mission basis or when a friendly force is engaged by an enemy located within the NFA and the commander returns fire to defend his forces. A depiction of an NFA is shown below.

**EXAMPLE OF NO-FIRE AREA**




### Informal Airspace Coordination Area

The informal ACA is normally used for immediate air strikes. Informal ACAs can be established at battalion or higher level. Informal ACAs can be established by using lateral, altitude, timed, or lateral and altitude separation. They are normally in effect for a very short period of time. Usually, the time period is only long enough to get the mission into and out of the target area. For a detailed discussion of informal ACAs and graphic depictions, see FM 6-20-40, Appendix A.

# APPENDIX M
# PRIORITY TARGET ENGAGEMENT TECHNIQUES

*This appendix addresses the use of priority targets, Copperhead priority targets, and final protective fires.*

Your FSO may use different fire planning techniques to better support maneuver. For example, he can task-organize his available assets to mass fires on predetermined targets at a specified time. Other options are as follows :

- **Priotity targets** –a priority target is a target which, when requested, takes priority over all other requests. Priority targets are designated by the maneuver commander. He also gives specific guidance as to when the targets will become priority, what munitions will be used, what accuracy will be required, and what will be the desired effects. When not engaged in fire missions, firing units lay on priority targets. The brigade FSO can allocate as many as three priority targets from a six-gun battery or four priority targets from an eight-gun battery. Two priority targets may be assigned to a 107-mm mortar platoon, one target per section.
- **Copperhead priority targets** –a Copperhead priority target is normally allocated by platoon-sized firing units. The number of tubes actually laid on the target is determined by the target size and type. It should be treated as a priority target with the purpose to destroy a specific HPT. Ensure that an observer equipped with a laser designator is in position. Ensure that artillery units are instructed to preassemble Copperhead rounds before execution. There is no such thing as an **immediate** Copperhead mission. It is a time-intensive munition. Have your FSO make you Copperhead smart, to include limitations based on weather, smoke, angle of the observer in relation to the target, and the posture of the target.

**Final protective fires (FPFs)** –by definition, FM 6-20-40 states FPFs are designed to create a final barrier of steel that keeps the enemy from moving across defensive lines. They are desperation fires. The FPFs take priority over all fires, to include priority targets. The firing unit will only stop firing when told to do so by the initiator or when the unit runs out of ammunition. The FPFs may create a barrier of steel against dismounts, but armor vehicles may simply button-up, speed-up, and drive through. FPFs are planned targets with a purpose. Adjust FPFs as time, mission, and ammunition allow.

# GLOSSARY

## A

| | |
|---|---|
| ACA | airspace coordination area |
| ADA | air defense artillery |
| ADAM | area denial artillery munitions |
| AFATDS | advanced field artillery tactical data system |
| AFRES | Air Force Reserve |
| AFSO | aerial fire support observer |
| AFST | aerial fire support team |
| AGM | attack guidance matrix |
| ALO | air liaison officer |
| AM | amplitude modulated |
| ammo | ammunition |
| ANG | Air National Guard |
| ANGLICO | air and naval gunfire liaison company |
| AO | aerial observer |
| AP | armor-piercing |
| approx | approximately |
| ASAS | all source analysis system |
| assy | assembly |
| ATACMS | Army tactical missile system |
| ATCCS | Army tactical command and control system |
| ATI | artillery target intelligence |
| ATIZ | artillery target intelligence zone |

## B

| | |
|---|---|
| BCT | briefcase terminal |
| BDA | battle damage assessment |
| bde | brigade |
| BMP | amphibious infantry combat vehicle (Soviet) |
| bn | battalion |
| BOS | battlefield operating system |
| btry | battery |

## C

| | |
|---|---|
| $C^3$ | command, control, and communications |
| CAB | combat aviation brigade |
| CAS | close air support |
| cbt | combat |
| CBU | cluster bomb unit |
| cdr | commander |
| CFF | call for fire |
| CFFZ | call-for-fire zone |
| CFL | coordinated fire line |
| CFZ | critical friendly zone |
| CG | guided missile cruiser |
| CGN | guided missile cruiser, nuclear |
| CIS | Confederation of Independent States |
| cml | chemical |
| co | company |
| COA | course of action |

| | |
|---|---|
| COLT | combat observation/ lasing team |
| comd | command |
| comm | communication |
| CP | command post, concrete-piercing (fuze) |
| Cphd | Copperhead |
| CSSCS | combat service support control system |
| CZ | censor zone |

**D**

| | |
|---|---|
| DD | destroyer (Navy) |
| DDG | guided missile destroyer (Navy) |
| div | division |
| div arty | division artillery |
| DMD | digital message device |
| DNE | do not engage |
| DPICM | dual-purpose improved conventional munitions |
| DS | direct support |
| DST | decision support template |

**E**

| | |
|---|---|
| EA | engagement area, electronic attack |
| ELINT | electronic intelligence |
| engr | engineer |
| EP | electronic protection |
| EPW | enemy prisoner of war |
| ERDPICM | extended range dual-purpose improved conventional munitions |
| EW | electronic warfare |
| EWSM | electronic warfare support measures |

**F**

| | |
|---|---|
| FA | field artillery |
| FAADC$^2$ | forward area air defense command and control |
| FAC | forward air controller |
| FASCAM | family of scatterable mines |
| FASP | field artillery support plan |
| FCT | firepower control team |
| FDC | fire direction center |
| FEBA | forward edge of the battle area |
| FED | forward entry device |
| FF | frigate |
| FFA | free-fire area |
| FFE | fire for effect |
| FFG | guided missile frigate |
| FIST | fire support team |
| FISTV | fire support team vehicle |
| FLOT | forward line of own troops |
| FM | field manual, frequency modulated |
| FO | forward observer |
| FPF | final protective fire |
| FS | fire support |
| FSC | fire support coordination |
| FSCL | fire support coordination line |
| FSCM | fire support coordinating measure |
| FSCOORD | fire support coordinator |
| FSE | fire support element |

| | |
|---|---|
| FSEM | fire support execution matrix |
| FSO | fire support officer |
| fwd | forward |

**G**

| | |
|---|---|
| G/H | gun/howitzer |
| GP | general purpose |
| GS | general support |
| GSR | general support reinforcing |
| G/VLLD | ground/vehicular laser locator designator |

**H**

| | |
|---|---|
| HC | hexachloroethane (smoke) |
| HE | high explosive |
| HF | high frequency |
| HPT | high-payoff target |
| HPTL | high-payoff target list |
| HQ | headquarters |
| HUMINT | human intelligence |
| HVT | high-value target |

**I**

| | |
|---|---|
| ICM | improved conventional munitions |
| IFSAS | initial fire support automated system |
| illum | illumination |
| INA | information not available |
| incd | incendiary |
| IPB | intelligence preparation of the battlefield |

**J**

| | |
|---|---|
| JAAT | joint air attack team |
| J-STARS | joint surveillance target attack radar system |

**L**

| | |
|---|---|
| lb | pound |
| LCU | lightweight computer unit |
| LD | line of departure |
| LHA | amphibious assault ship, general purpose |
| LIFT | refers to general transports in the opposing force |
| LLVI | low-level voice intercept |
| loc | location |
| LOC | lines of communication |
| LTACFIRE | lightweight tactical fire direction system |

**M**

| | |
|---|---|
| m | meter |
| maint | maintenance |
| MBA | main battle area |
| MBC | mortar ballistic computer |
| MCS | maneuver control system |
| mech | mechanized |
| METT-T | mission, enemy, terrain, troops, and time available |
| min | minimum, minute |
| MLRS | multiple launch rocket system |
| mm | millimeter |
| MOI | message of interest |
| mort | mortar |

| | |
|---|---|
| MR | motorized rifle (Soviet) |
| MRB | motorized rifle battalion (Soviet) |
| MRC | motorized rifle company |
| MRR | motorized rifle regiment (Soviet) |
| MSD | minimum safe distance |
| MTC | movement to contact |
| MTLR | moving-target-locating radar |
| mvr | maneuver |
| | **N** |
| N/CH | nuclear and chemical |
| NA | not applicable |
| NAI | named area of interest |
| NFA | no-fire area |
| NGF | naval gunfire |
| NGLO | naval gunfire liaison officer |
| nuc | nuclear |
| | **O** |
| O&I | operations and intelligence |
| OPCON | operational control |
| OPORD | operation order |
| OPTEMPO | operating tempo |
| org | organization |
| | **P** |
| PADS | position and azimuth determining system |
| PGM | precision guided munition |
| PIR | priority intelligence requirements |
| PL | phase line |
| POF | priority of fire |
| POL | petroleum, oils and lubricants |
| | **Q** |
| QFN | quick fire net |
| | **R** |
| R | reinforcing |
| R&S | reconnaissance and surveillance |
| RAAMS | remote antiarmor mine system |
| RACO | rear area combat operations |
| RAP | rocket-assisted projectile |
| rd | round |
| RDO | radar deployment order |
| REC | radio-electronic combat |
| recon | reconnaissance |
| regt | regiment |
| REMBASS | remotely monitored battlefield sensor system |
| RFA | restrictive fire area |
| RFL | restrictive fire line |
| ROE | rules of engagement |
| RSR | required supply rate |
| RSTA | reconnaissance, surveillance, and target acquisition |
| | **S** |
| SALT | supporting arms liaison team |
| SEAD | suppression of enemy air defenses |
| sec | second, section |
| smk | smoke |

| | |
|---|---|
| SOP | standing operating procedure |
| SOSR | suppress, obscure, secure, reduce |
| SP | self-propelled |
| spt | support |
| | **T** |
| TA | target acquisition |
| TACCS | tactical air command and control specialist |
| TACP | tactical air control party |
| TAI | target area of interest |
| TDA | target damage assessment |
| TF | task force |
| TGM | terminal guidance munition |
| tk | tank |
| tm | team |
| TOC | tactical operations center |
| TOF | time of flight |
| TSS | target selection standard |
| | **U** |
| UAV | unmanned aerial vehicle |
| UBL | unit basic load |
| US | United States |
| USAF | United States Air Force |
| USMC | United States Marine Corps |
| USN | United States Navy |
| | **V** |
| vic | vicinity |
| VTOL | vertical takeoff and landing |
| | **W** |
| w | with |
| WP | white phosphorus |
| | **X** |
| XO | executive officer |

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