CLEARANCE OF FIRES Part II: Air Clearance of Fires

by LTC Pat Proctor, PhD

"Fires leaders have the responsibility to integrate air and space control measures to ensure all commanders have the maximum freedom to achieve their objectives and have maximum flexibility to use assets (organic, supporting and joint) within that airspace."

--ADRP 3-09
Fires in Support of Unified Land Operations

While the Field Artillery has made great strides over the past two years at the Section and Platoon level in improving its proficiency in gun line procedures and technical fire direction, Fire Supporters continue to struggle to integrate fires into the combined arms fight. Among the biggest challenges the fires community faces is in executing the basic clearance of fires battle drill—both ground and air clearance.

Admittedly, this is a combined arms problem; the ground tactical commander owns the ground and airspace and the aviation commander owns the airframes traveling through the airspace. However, Fire Supporters are entrusted by maneuver commanders with the clearance of fires process. Fire Support officers, NCOs, and Soldiers are embedded in maneuver formations at every level from the Platoon through the Brigade specifically to integrate fires into combined arms maneuver and clearance of fires is a key part of that integration.

The previous article in this series ("Clearance of Fires Part I: Ground Clearance of Fires," Redleg Update, January-February 2016) addressed the first part of the clearance of fires equation: ground clearance of fires. This article, Part II, will address airspace clearance of fires.

The State of the Field Artillery

Infantry Brigade Combat Teams (IBCTs) executing combined arms maneuver at the Joint Readiness Training Center (JRTC) struggle to deliver timely Field Artillery fires in support of their operations. Tables 1 and 2 show average fire mission processing times, from receipt at the Brigade Fires Cell (FC) to firing of the first round of a fire mission. These two tables provide times for counterfire and other fire missions (pre-planned and targets of opportunity), respectively. The data in these tables has been updated since the previous article, Part I of this series on clearance of fires, to reflect the latest data available.

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Table 1: Counterfire Average Mission Processing Times

Echelon	Average	TC 3-09.8 Standard (Digital)	Delta
Brigade FC	08:55	N/A	
Battalion FDC	2:39	00:35	+02:04
Platoon FDC	02:34	00:35	+01:59
M119A3 section	01:53	00:30	+01:23
M777A2 section	2:41	01:00	+01:41
Average Total Time	**12:47**		

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Table 2: Pre-Planned and Target of Opportunity Average Mission Processing Times

Echelon	Average	TC 3-09.8 Standard (Digital)	Delta
Brigade FC	08:04	N/A	
Battalion FDC	02:28	00:35	+ 01:53
Platoon FDC	03:33	00:35	+ 02:58
M119A3 section	01:59	00:30	+ 01:29
M777A2 section	02:40	01:00	+ 01:40
Average Total Time	13:28		

This data is taken from the last four Decisive Action rotations executed by active component Army IBCTs at the JRTC. However, BCTs vary widely in their ability to deliver timely Field Artillery fires; some BCTs take an average of 19 minutes or longer to process fire missions while others process fire missions at an average of 10 minutes or less. Moreover, the trend over the past four Decisive Action rotations is toward shorter fire mission processing times. Still, there is much room for improvement.

What immediately stands out from this data is that a great deal of the total fire mission processing time is consumed at the Brigade FC. This time directly correlates to the amount of time required to obtain air and ground clearance of fires. In the nearly three years since the JRTC resumed habitually training combined arms maneuver, two issues have consistently slowed the process of air clearance of fires. First, BCTs have struggled to effectively synchronize airspace coordination measures (ACMs) and the unit airspace plan with surface-to-surface fires. And second, BCTs have struggled to integrate airspace management into their clearance of fires battle drills. But the root cause of all of these issues is that Air Defense Airspace Management/Brigade Aviation Elements (ADAM/BAEs) are not effectively integrated into BCT staffs.

The ADAM/BAE Is a Fires Asset

"Fires must be synchronized with the supported commander's concept of operation based on his intent and guidance for fires…. At corps and below, the maneuver commander normally delegates to his COF/FSCOORD/FSO/ air defense airspace management/brigade aviation element (ADAM/BAE) the requisite authority to direct and coordinate all joint and Army fires on his behalf."

--ADRP 3-09
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Its personnel may not wear Field Artillery insignia, but the ADAM/BAE is as much a fires asset as the Brigade FC or the Field Artillery Battalion Tactical Operations Center (TOC). During every phase of an operation, from planning and preparation through execution, their function is to manage the Brigade's airspace to insure that all means of Fire Support—from attack aviation and close air support to Field Artillery and mortar fires—can be employed in the combined arms maneuver fight. Without this critical element of the Brigade staff, the BCT cannot mass fires from all means of Fire Support at the decisive point on the battlefield.

Yet the ADAM/BAE is frequently an "orphan" in the Brigade staff. The ADAM/BAE is not part of the Field Artillery Battalion, so Brigade Fire Support Coordinators (FSCOORDs, the Field Artillery Battalion Commander) and Fire Support Officers (FSOs) do not commonly exercise oversight of their training and operations. The ADAM and BAE are led by the senior-most Air Defense and Aviation officers, respectively, in the Brigade so they receive no oversight or guidance from higher commanders within their respective branches. And they're Army Battle Command Systems (ABCS) and skillsets are unique within the BCT so Brigade Operations Officers (S3s) and Executive Officers (XOs) are reluctant to oversee their training or operations.

Brigade FSCOORDs and FSOs must take ownership of the ADAM/BAE and make sure they know how to "plug into" the Brigade's mission command systems and processes. And this is primarily a FSCOORD function; the FSCOORD, as a Battalion commander, is the only Field Artilleryman in the Brigade with sufficient authority to drive the Brigade staff to

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integrate the ADAM/BAE. The FSCOORD must ensure that the ADAM/BAE participates in every MDMP that the Brigade staff executes—at home station and at the JRTC—so that the Air Defense Officer (ADO) and Brigade Aviation Officer (BAO) learn what they need to bring to and what they must produce as an output of each step of the MDMP. And during home station CPXs and field training, the FSCOOD must ensure that the BCT staff coordinates with the BCT's parent Division or a home station simulation center to ensure that the ADAM/BAE receives an air picture to allow it to fully participate in the clearance of fires battle drill.

Airspace Coordination Measure (ACM) Synchronization

"Fires enable all users of airspace to synchronize, plan, and execute a cohesive air deconfliction resolution. Fires personnel coordinate airspace integration to ensure that conflicts between ground fires and air operations are minimized using FSCMs [(fire support coordination measures)] and ACMs [(airspace coordination measures)]."
--ADRP 3-09
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In planning and preparation of combined arms maneuver operations, the ADAM/BAE's role is to help the Brigade FSCOORD and FSO synchronize the unit airspace plan with surface-to-surface fires. And the tool the ADAM/BAE uses to do this is airspace coordination measures (ACMs). Air corridors and airspace coordination areas restrict the movement of aircraft and restricted operating zones can be used either to restrict the movement of aircraft or to "pre-clear" airspace for surface-to-surface fires. Used together and properly synchronized, these measures can dramatically speed the clearance of airspace during the execution of fires.

The key, however, is proper synchronization. ADAM/BAEs training at the JRTC clearly understand that it is their role to plan ACMs. Very seldom does a BCT fail to develop a unit airspace plan. But ADAM/BAEs frequently fall short in synchronizing their ACMs with the movement and maneuver and fires warfighting functions. As a result, during the execution of fires, ACMs fail in their primary function: to deconflict the airspace between all airspace users (aircraft and surface-to-surface fires). Once ACMs fail, fires must be deconflicted during execution, dramatically slowing the clearance of fires battle drill.

This is why the Brigade FSCOORD and FSO must take ownership of the ADAM/BAE to insure it is integrated into the BCT staff's mission command processes. And the first, most important process in which the ADAM/BAE must be integrated is the MDMP. During mission analysis, ADAM/BAEs identify all of the airspace users and their capabilities and limitations. This includes lift aviation, attack aviation, close air support, and intel collection aircraft. But it also includes surface-to-surface fires assets; in coordination with the Brigade FSO, the ADAM/BAE must also identify the BCTs Field Artillery and mortar assets. And the ADAM/BAE and FC must work together to identify other assets, including general support (GS) Field Artillery and Division-level intelligence collection (IC) assets that might also operate within the Brigade's airspace.

Once all of these airspace users are identified, they must be integrated into the Brigade's unit airspace plan. The ADAM/BAE develops the unit airspace plan during course of action (COA) development. The Brigade S3 will provide the base maneuver course of action, complete with operational phasing, initial maneuver graphics, and tasks and purposes for each element of the brigade. The Brigade FSO will—the FSCOORD, with the help of the Brigade Intelligence Officer (S2), the Brigade Targeting Officer, the Brigade Air Liaison Officer (ALO), and the Field Artillery Battalion S3—develop initial position areas for artillery (PAAs) and Field Artillery, attack aviation, and close air support targets to support the maneuver COA. The ADO and BAO must be a part of this process as well, developing initial ACMs to allow attack aviation and close air support aircraft to attack their targets, allow IC aircraft to observe their named areas of interest (NAIs), and allow aircraft to move within the Brigade's AO without hindering suface-to-surface fires.

But the most important—and most frequently

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neglected—step in this process is COA analysis (wargaming). This is the step where the ADAM/BAE synchronizes the Brigade's ACMs with the other warfighting functions. The Brigade staff must gather around a map and walk through each step of the combined arms maneuver operation, reviewing enemy and friendly actions and the activities of each warfighting function to support the maneuver. During this process the FSO, ALO, ADO, and BAO must work closely together, ensuring that ACMs are properly positioned to maximize the capabilities of both aircraft and surface-to-surface fires assets. Triggers must be established and recorded on both the Brigade's synchronization matrix and the Fire Support execution matrix (FSEM) to synchronize the activation/deactivation of ACMs, the firing of targets, and the movement of surface-to-surface fires assets.

During the wargame, the FSO must also plan for mortar positioning and employment. While the Brigade FSO will probably not dictate the location of mortar firing points or mortar targets, Brigade staffs should wargame two levels down. As FM 6-0, Change 1 (dated 11 May 2015) puts it, during wargaming a staff "identifies tasks that the force one echelon below it must accomplish, using assets two echelons below the staff." The FSO must make a "best guess" at how Battalions and Companies will employ their mortars to accomplish their tasks and purposes, and ensure that the ACMs planned by the ADO and BAO will not unduly restrict mortar employment.

Synchronization of the Brigade's fires plan (including targets, FSCMs, and ACMs) is verified during the Brigade fires rehearsal. Frequently, the ADO and the BAO are asked to "play" airspace users during the Fires rehearsal. This is not the best method to ensure synchronization. The best way to ensure synchronization of the airspace is to make sure that all of the users of the airspace are present at the rehearsal. The leaders who actually control aircraft should be present: the Military Intelligence Company (MICO) Commander or even the Shadow Platoon Leader, attack and lift aviation Company Commanders or Platoon Leaders, Mortar Platoon Leaders, and Field Artillery Battery Commanders or Platoon Fire Direction Officers and Platoon Leaders should be at the fires rehearsal. And these attendees can't just be spectators; they should be on the map board, representing their units and talking through each action they will take as part of the Fire Support plan. Rehearsing with this level of participation will immediately reveal problems with the synchronization of unit airspace plan that can be resolved during the rehearsal rather than during execution of the operation.

The ADAM/BAE and the Clearance of Fires Battle Drill

Fires in unified land operations from air-to-surface, surface-to-air and surface-to-surface assets must be coordinated and cleared on the ground and through the airspace to enable the rapid and timely delivery of fires and to prevent fratricide.

--ADRP 3-09
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If the unit airspace plan is not synchronized with the Fire Support plan during planning and preparation, as detailed in the section above, then the airspace will have to be deconflicted "on the fly," during execution of fires. But even if the unit airspace plan is well synchronized with the Fire Support plan, the enemy does not always cooperate by doing what the S2 predicted. There will always be some level of airspace deconfliction that must occur during the execution of fires. This deconfliction occurs during airspace clearance of fires as part of the Brigade's clearance of fires battle drill.

The key piece of information that the ADAM/BAE needs in order to clear airspace for surface-to-surface fires is the gun-target line and the maximum ordinate (max ord) for the fire mission. That is, the ADAM/BAE must receive the location of the gun and the target and the maximum altitude (above ground level, AGL) of the trajectory between the two. Airspace clearance of fires cannot begin until this information is received, so speed is essential in determining and communicating this information. The least preferred method for determining this information is for the Brigade FC to send the fire mission to the Bat-

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talion Fire Direction Center (FDC), the Battalion FDC to send the mission to the firing Platoon FDC, the Platoon FDC to compute the fire mission and obtain the gun-target line and max ord, and the Platoon FDC to transmit that information back up through the chain to the Brigade FC for transmission to the ADAM/BAE to begin the airspace clearance of fires.

A much better method is for the Field Artillery Battalion to figure out the gun-target line and max ord itself as soon as it receives the fire mission. The Battalion FDC is the right element to determine this information because it is the element that does tactical fire direction, determining which platoon or platoons will fire each fire mission. The Battalion FDC can easily create a tool to rapidly determine max ord by plotting range rings around each firing Platoon on an analog map and consulting tabular firing tables (TFTs) and the lowest charge that can reach each range ring to determine and annotate the "worst case" max ord for each range. Then, when the Battalion FDC receives a fire mission, it simply consults this map, finds the gun-target line and max ord, and transmits that information back to the Brigade FC, which forwards the information on to the ADAM/BAE for airspace clearance of fires. This process can be sped even further if the Battalion FDC, Brigade FC, and ADAM/BAE are all communicating on a common net, such as a clearance of fires FM channel or in a common Transverse chat room.

A similar technique can be used for mortars. Each Battalion FC should maintain an analog map with max ord range rings drawn around each mortar firing point, both Battalion and Company mortars. When the Battalion wishes to fire its mortars, the Battalion FC simply consults this map, determines the gun-target line and max ord, and transmits that information to the Brigade FC, which forwards the information to the ADAM/BAE for airspace clearance of fires. Again, this process can be sped up if the Battalion and Brigade FCs are on a common net with the ADAM/BAE, a clearance of fires net or Transverse chat room.

One final note is in order before closing this discussion on airspace clearance of fires. The biggest problem that Brigade FCs and ADAM/BAEs are experiencing at the JRTC in clearing airspace is the discipline of U.S. Air Force, aviation, and IC elements in adhering to the unit airspace plan. If Shadow operators, Army Aviators, and Air Force pilots do not keep their aircraft within the ACMs planned as part of the unit airspace plan, the Brigade's airspace management falls apart. When the ADAM/BAE can no longer trust that aircraft are adhering to the unit airspace plan, then every aircraft must be individually cleared before fire missions can be shot. This quickly slows the clearance of fires battle drill at the BCT TOC to a crawl, crippling the ability of Field Artillery and mortars to deliver fires in support of maneuver.

Army aviation, frankly, is the worst offender; the most common complaint from aviators is that adhering to air corridors and attack by fire positions limits their ability to employ their full range of capabilities. This may well be true, but accepting some limitation on freedom of action—whether it is attack aviation accepting the restrictiveness of ACMs or Field Artillery accepting some degradation in its responsiveness to clear air and ground before shooting—is the cost that each warfighting function must pay to contribute to the combined arms fight.

No matter how much the Field Artillery improves its proficiency in its core competencies on the gun line and in FDCs, it will not be able to provide timely fires in support of maneuver if Fire Supporters and airspace managers in the ADAM/BAE cannot rapidly clear these fires. None of the tactics, techniques, or procedures (TTPs) described in this article are new. In fact, when BCTs habitually executed combined arms maneuver at our combat training centers (CTCs) in preparation for war, these TTPs were SOPs. These skills have simply atrophied over the nearly 15 years of the Global War on Terrorism. Nor are any of these TTPs complicated or hard to learn. The Fire Support and airspace management communities simply need to reinstate these practices as SOPs and integrate them into their training at home station and at the CTCs. With training and repetition in these simple techniques, the Field Artillery can reclaim its title as the King of Battle in the combined arms fight.