AMMUNITION MANAGEMENT – IS EVERBODY'S BUSINESS

Field Artillery units arrive at the National Training Center with the feeling they have a grasp on ammunition management. Often units depart wondering where the glass ball was lost. Ammunition management appears to be a simple process, issue the ammunition, fire the ammunition, count the ammunition, and request more ammunition to replace the fired ammunition. The process is that simple with a however, only if everyone is involved, responsibilities are known, plans are developed/disseminated and systems are in place to report, recommend, adjust, and execute. The cornerstone of ammunition management is the base count. How much ammo do we have on hand at any given time? If this task of ammunition management troubles your unit this is the article for you.

Most units report we have a Unit Basic Load (UBL) established for Class V. We understand the terminology Unit Basic Load (UBL), Required Supply Rate (RSR), Controlled Supply Rate (CSR), and Combat Configured Load (CCL). Our ammunition is broken down to support howitzer, ammunition carrier, and ammunition platoon complete loads. All of this information is in our unit SOP. Despite having all of this information units continue to have difficulty in ammunition management. WHY? – We do not train ammunition management at home station.

The start point is an understanding of roles and responsibilities, pre-deployment home station training, and a common understanding of ammunition management. Who is Responsible for what? This is an all to common question that appears to have straightforward answers. We define responsibility by duty position and title for instance Battalion Ammunition Officer (BAO) is responsible for Ammunition Management, or is it the S3 Operations Officer or what about the S4 Supply Officer? Not clearly understanding what it is each of us does to manage ammunition is a common problem that can quickly be fixed. Doctrinal manual FM 6-20-1 *Tactics, Techniques and Procedures for the Field Artillery Battalion* and FM 6-70 *Tactics, Techniques and Procedures for M109A6 Howitzer (Paladin) Operations* defines and addresses responsibilities for ammunition management. We must know who is responsible for what in order to get the ammunition management wheel rolling. The following list of key individuals is a way of looking at responsibility in relation to ammunition management. The surprise will be the length of this list of those

individuals considered KEY. *Italicized entries are doctrine*. Non-italicized entries are recommended Techniques, Tactics, and Procedures (TTPs).

- *BN XO – Supervise and direct all CSS efforts within the battalion, to include development of the battalion's trains concept and CSS Plan*
- BN XO – Executive ammunition oversight, provides the force to ensure reports are made timely and accurate. Provides experience to planning process and monitors execution to rapidly assist in directing actions to potential problems. Validates plans by applying current maintenance status, an understanding of TIME required to load CCLs, deliver, and re-supply battalion assets.
- *S3 - In coordination with the S4 and BAO, plan and manage ammunition consumption, distribution, and re-supply. Calculate ammunition requirements, basic loads, and required/controlled supply rates.*
- S3 – **Ammunition Manager** who provides guidance and is the final decision-maker for plans, recommendations, and adjustments to all ammunition related actions. Validates plans by having an understanding of haul capability, prioritizing load and issue requirements to units to resource EFATs.
- *BN FDO – Analyze requested targets for attack by FA. Consider desired effects, method of fire, and types of ammunition needed.*
- BN FDO – Quantifies ammunition requirements to support Essential Fire Support Tasks (EFATs)/ Essential Field Artillery Tasks (EFATs) by determining quantities by shell/fuze type, and powder type/lot. Develops lot management plan to be incorporated in Ammunition Distribution Plan. Tracks and consolidates firing units ammunition counts and provides data to the S3 and S4. Recommends changes to battery ammo based on routine ammo and post battle ammunition counts.

- *S4 – Ammunition estimates, distribution and resupply operations. Supervise, manage, and coordinate battalion supply and sustainment operations, to include ammunition and refueling. Reviews the battalion's EFATs for critical logistical requirements – e.g. combat configured loads (CCLs) of ammunition, hot refuel.*
- S4 – **Ammunition Planner** who develops the distribution plan, Ammunition Transfer Points (ATPs) and re-supply triggers based on S3/FDO guidance. Requisitions ammunition in conjunction with the Battalion Ammunition Officer (BAO). **Battalion Ammunition Tracker** maintains a total battalion ammunition count at all times, at all locations through periodic reporting updates. He must maintain quantities of ammunition by shell/powder/fuze to include counts of Combat Configured Loads (CCLs) on Palletized Loading Systems (PLSs) or cargo trucks at all locations on the battlefield. Recommends an adjustment to ammunition re-supply and provides total battalion ammunition count at any given time to S3.
- *BAO – Manage the use of battalion's ammunition-carrying assets. Manage ammunition movement from the (ATP) to the combat trains area and then forward to the batteries. Maintain accountability of ammunition. Perform mission analysis to verify ammunition-handling capabilities can support current operation. Manage turn-in of residue and unexpended ammunition.*
- BAO – Executor of the battalion ammunition distribution plan, develops CCL load plans for ammunition platoon, executes ammunition requests to higher, and positions ammunition on the battlefield for distribution and re-supply plan. Track ammunition on PLSs/Cargo trucks or ammunition caches by shell/powder/fuze and is able to provide data to S3/S4 and BSOC at any given time. Validates battalion distribution plan with an understanding of haul capacity, maintenance status of PLSs/cargo trucks, and time required to complete plans. Maintains centralized control of PLS/cargo trucks to complete unit ammunition distribution plan.

- AMMO PLATOON SERGEANT – Directs execution of the battalion ammunition distribution plan, ensures CCL load plans for ammunition platoon are executed to standard, assists BAO in execution of ammunition requests to higher, and assists in positioning ammunition on the battlefield for distribution and re-supply plan. Tracks ammunition on PLSs/Cargo trucks or ammunition cache by shell/powder/fuze and is able to provide data to S3/S4 and BSOC at any given time.
- HHSB/HHB/SVC COMMANDER – Ensures execution of ammunition distribution plan by providing oversight to S4 and BAO. Tracks ammunition in position and develops save plan to ensure security of ammunition.
- FIRING BATTERY COMMANDER - Ensures execution of ammunition distribution plan by providing oversight to battery XO and FDO. Tracks ammunition in position and develops save plan to ensure security of ammunition. Provides turret/ammunition carrier load guidance to support EFATs. Develops inter battery re-supply plan taking into account method of re-supply positioning (Mated, Separate, or Overwatch) to maximize use of haul capability, rapid re-supply, and rapidly free up ammunition carriers or PLSs for upload of additional ammunition.
- *BATTERY XO/PL- Plans, coordinates, supervises, and directs Paladin platoon operations to include: Manages for the platoon and tracks ammunition.*
- BATTERY XO/PL or PSG - **Battery Ammunition Tracker** maintains a total battery counts at all times, at all locations through periodic reporting updates. He must maintain quantities of ammunition by shell/powder/fuze to include counts of Combat Configured Loads (CCLs) on Palletized Loading Systems (PLSs) or cargo trucks within the battery. Recommends an adjustment to and triggers ammunition re-supply and provides total battery ammunition count at any given time to battery commander or battalion through command channels. Cross talks/updates battery FDC on total ammunition available in position by round/powder/lot type. Triggers resupply from battalion to battery/platoon based on volley counts and powder expenditure.

- *BATTERY/PLT FDO - Tracks ammunition count and usage; recommends ammunition distribution plan to the platoon leader.*
- BATTERY/PLT FDO – **LOT Manager**. Tracks and consolidates current ammunition available on gun line and provides data to (XO/PL or PSG) on scheduled periodic ammunition updates. Cross talks with battery XO/PL or PSG to give and receive ammunition counts to assist in maintaining total ammunition count. He is the lot manager. Recommends to XO/PL distribution changes based on mission requirements, and section reliability.
- *SECTION CHIEF – Maintains ammunition accountability for both his howitzer and FAASV.*
- SECTION CHIEF – Verifies DA 4513 for section. Tracks total ammunition manually (stubby pencil) available to section includes both gun and ammunition re-supply vehicle when in a mated configuration. When in a separate or overwatch position reports only gun section ammunition. Manually updates AFCS during designated reporting periods based on driver's manual expenditure report (DA 4513) or physical ammo count.
- AMMUNTION SECTION TEAM CHIEF –. Tracks total ammunition on re-supply vehicle and gun by shell/powder/lot/fuze and quantity on DA Form 4513. Reports total ammunition available to section chief during mated operations or to battery XO/PL in other than mated operations. Maintains current ammunition on vehicle at all times. Consistently adjusts and verifies gun section ammunition count changes during re-supply operations.
- PLS/5 TON CHIEF – Tracks complete rounds (DA 4513 or DA 581) on vehicle and provides data to battery or battalion leadership at any time. Maintains complete rounds on PLS/Cargo vehicle by ensuring a one for one exchange of powder or rounds if incomplete rounds are being drawn from the PLS. Alternate trigger for ammunition re-supply based on volume of ammunition distributed to unit.

Now that we have looked at responsibilities and TTPs, the next step is the home station development of a Unit Basic Load (UBL). "The unit basic load (UBL) is that quantity of ammunition authorized and required to be on hand in a unit to meet combat needs until **resupply** can be accomplished." FM 6-20-1 The UBL ammunition cannot exceed the units haul capability. The problem many units have is the misunderstanding that UBL is only required to enter theatre and prepare for missions until a **resupply**

capability is available. The common quote from BN S3s, "Is BAO order enough ammunition to bring us back to our unit basic load or go and order our complete CSR." These statements are the types that show we do not understand the ammunition planning or management process.

The process of UBL development is understanding and applying our unit's haul capacity, and developing standard gun, ammunition carrier loads, and development of Combat Configured Loads (CCLs) for our ammunition platoon to maximize haul capacity and maintain flexibility of ammunition types to support a large variation of missions until **resupply**. A TTP for UBL development is historical unit information. Find a similar TOE unit and request to see what they use as a UBL and tailor it to fit your unit. Ensure haul capacity is utilized to verify lift and carrying capability. Below are a few planning factors to keep in mind. Complete round/fuze compatibility must be maintained. Utilizing the following planning factors we can develop haul capacity:

PLS 176 complete 155mm, or 288 crated (105mm)

M109A6 37 conventional rounds and 2 copperhead

M992 90 conventional rounds and 3 copperhead

M900 Series Truck 288 Crated (105mm)

M332 trailer 32 crated (105mm)

M1097 Prime mover 23 uncrated

M1097 Ammo Carrier 60 uncrated

An example utilizing the above numbers would be 702 rounds on an M109A6 gun line, 1674 rounds on M992 ammunition carriers, and 3168 rounds on M1074 PLSs. This gives us a total haul capability of 5544 complete rounds. We can now develop our UBL, maximizing our haul capacity and ensuring an even distribution of ammunition across our units to support a variety of missions until our next resupply.

During mission analysis we will begin to determine resupply requirements based on our next mission. Key personnel (S3, S4, BN FDO) must come to mission analysis with certain critical pieces of information. They must have current on hand ammunition count that accounts for all ammunition available to the battalion. FM 6-20-1 states "The staff must now the status of the battalion and supporting units and brief relevant information as it applies to the situation. The staff should develop standardized

charts to monitor and consolidate this type of data to assist the commander. The FDO and/or S3 must have the EFSTs for the next mission and the S3 should have a rough idea of where the firing batteries will be located in relation to the targets.

With this information on hand the staff may begin the analysis process. First, the FDO must analyze the directed EFSTs to determine rough amounts of ammunition required. Next, the staff will compare the ammunition required with ammunition on hand to determine what ammunition must be requested. Then, the S4 must determine if the ammunition to be requested is above the CSR to determine if the EFST is unsupportable or if alternate methods of ordering ammunition must be used (such as ammunition for immediate consumption). Additionally the S4 must estimate ammunition haul requirements, evaluate cross-leveling actions, and determine capabilities, limitations and constraints (e.g maintenance deficiencies that may impact haul capability) to begin the process of developing an ammunition distribution plan. Utilize warning orders to direct ammunition actions that can be completed concurrently (battalion to battery resupply) during the planning process. The end state of mission analysis will be a quantity of ammunition, above what is already available, to be ordered to support the EFATs.

The next phase of the Military Decision-Making Process is Course Of Action (COA) Development and wargaming. During this phase, the staff will determine and develop their plan to fight the battle. As we develop our COA, we will determine which batteries will execute each EFAT. Again, we must look at ammunition counts in the firing batteries to determine if the ammunition on hand at each battery is enough to service their individual EFAT. At this point the S4 should look at cross leveling between batteries (if necessary) in particular for special munitions such as smoke or FASCAM. The S4, in conjunction with the S3 and FDO, also needs to begin to develop his resupply triggers. Resupply triggers are based on many factors: how much ammunition is available in the battery including prepositioned ammunition and ammunition on trucks (the less ammo in position the lower the volley trigger to resupply); how far from the resupply is the battery and how long will resupply take (the longer the time for resupply the lower the trigger); what is my method of resupply (e.g. a unit using flatrack exchanges will want to empty or almost empty a flatrack before conducting the exchange); when do I plan to fire a high volume over a short time. Remember resupply triggers need to be developed for propellants as well as projectiles,

the majority of units that go black on ammunition, at the NTC, actually do not go black for projectiles but propellant models.

When the wargame begins the S4 must validate his ammunition distribution plan. Using the Action, Reaction, Counteraction method of wargaming, the S4 tracks each mission fired during the wargame. Missions fired account for EFATs, re-attack of targets, and targets of opportunity. He decrements the ammunition from the planned start point for each battery. If the battery drops below his resupply trigger then he must work out resupply methods and locations as a part of the wargame. At the end of the wargame, the S3, S4, and FDO should have a clear understanding of the minimum ammunition requirements for at least the EFATs. If a battery falls below its minimum requirements prior to executing its EFAT some action must be taken so, this information should be tracked for the remainder of the operation

After the staff completes the wargame they will begin FASP production. The S4 should include the ammunition distribution plan in his portion. The distribution plan should include: when, in what quantities, and where the ammunition platoon is to deliver the battery's ammunition, ammunition re-supply triggers, resupply methods, locations of any re-supply points and ammunition CCIRs. Typically FASPs contain no ammunition distribution plan or an incomplete plan. For example, a battery will be told it will receive three flatracks containing DPICM, SMK, RAP, WB, and RB but there will be no information about when the ammunition should arrive or where it will be delivered to. As a result, the BAO has no guidance for when to deliver the ammunition to the batteries. By publishing a complete ammunition distribution plan the unit has a common scheme and a method to verify that required ammunition is delivered. Remember when developing the plan it is better to get some ammunition to the batteries early rather than all the ammunition late.

Now that the plan is in place it is up to the BAO to ensure that the battalion's ammunition preparations are executed. His platoon's responsibilities include: receiving the ammunition from the CSR at an ATP, cross leveling ammunition to build complete CCLs, and distributing ammunition to the firing batteries based on guidance from the S3 and S4. The BAO must have someone he can count on in the vicinity to the BSA to properly requisition ammunition and receive the ammunition from the Corps or Division assets that deliver it. Additionally, this individual must understand the distribution plan so that

adjustments can be made to CCLs that are delivered or so that CCLs can be cross-leveled in the field trains to facilitate ammunition distribution. Either the ammunition platoon sergeant or a sergeant who has been trained to complete this task should remain in the field trains to accomplish these missions. Most importantly this individual must be familiar with the distribution plan.

Another critical portion of the distribution plan is the integration of the ammunition platoon sections into the firing battery operations. Most MTO&Es have ammunition sections as an organic part of a firing battery, however, typically battalions consolidate all sections at the battalion level. While this is beneficial for garrison operations it can hinder operations in the field. Ammunition sections are not integrated into battery defenses or even into battery operations because they are an afterthought for the battery leadership if they are thought of at all. A method to alleviate this problem is to develop habitual relationships between firing batteries and their ammunition sections. When the same ammunition section works with the same battery every time they deploy (home station or otherwise) then the section gains a better understanding of how the battery operates and who they need to see when problems arise. Additionally, the battery is able to integrate the ammunition sections into their operations and has better command and control of the section.

A common pitfall during the preparation phase of ammunition operations is a battalion's use of CCLs. Most artillery battalions have well defined and flexible CCLs developed for managing ammunition, however, after one or two battles they no longer use their CCLs for requesting or distributing ammunition. Instead the S4 or S3 gives the BAO guidance to order specific numbers of ammunition that do not fit into their own CCLs. As a result the ammunition platoon creates its own CCLs that do not match the battalion standards. As the campaign progresses, cross leveling to rebuild CCLs becomes increasingly difficult and valuable haul capacity is tied up carrying mixed loads that have no purpose but are the excess from the non-standard loads. Units should not be afraid to turn in ammunition that is no longer required in order to sustain their CCLs. Although we cannot become a slave to our CCLs, the staff must make every effort to request and distribute ammunition in standard CCLs to facilitate the cross leveling and management of ammunition.

Many times execution is where the glass ball of ammunition management shatters because ammunition management is everybody's business. During mission execution the key players in

ammunition management quickly become overwhelmed and lose ammunition accountability due to poor tracking methods, management skills which our never tested by high volumes of fire, and increased reporting requirements. How do we combat the problem? Training - Training, Training. Did I say Training? Understand your responsibility for ammunition management, hold others accountable for their responsibility. Develop a tracking and reporting methodology (stubby pencil) that keeps accountability by what is on hand at that location only (gun/cat/pls). Do not expect one person to maintain accountability of ammunition not under his direct control at the battery. Do expect our battery FDCs to have a periodic update of current ammunition on the gun line, and expect our PL/PSG to have a periodic updated total battery ammunition count, by round/powder/lot. Based on the consolidation of reports from those who do have direct control over the amount on hand. Once we lose accountability it is difficult though not impossible to regain. Yet, it is better to never lose that accountability.

Take a close look at battery level ammunition management. The battery commander is required to be a staff of one. He must determine, turret loads to support EFATs, battery internal resupply methods and triggers (e.g. Method is separate or mated and resupply is every 10 volleys of DPICM, 5 volleys of Red Bag or 10 volleys of White Bag) not to mention PLS to ammunition carrier triggers. He must ensure the flow of ammunition to the battery by having a current on hand count to be able to trigger resupply from battalion to the battery. His decisions at battery level have a huge impact on the start of the overall battalion process of resupply.

Who determines what will be drawn from the PLS and in what quantities and when? This is an area that is underestimated. Many battalions direct a resupply trigger of 20 volleys which is equivalent to the number of rounds on PLS (6 guns X 20 volleys = 120 rounds) and this will allow another truck to begin movement forward and arrive before the rack is depleted by another 9 battery volleys. A pretty good overall trigger? Yes, if the PLS was a pure CCL of white bag and DPICM. Many times powder charge is the long pole in the tent. We underestimate or due to mission adjustments we are unable to move into a charge range to service an EFAT. This causes the battery to pull only powders from a PLS which causes a PLSs to have incomplete rounds, our ammunition trigger to be lost, and a loss of ammunition accountability. We must deal in complete rounds. If a powder charge is taken from a PLS or ammo carrier a powder charge must go back on to maintain complete round accountability.

Another pitfall of not keeping current on hand ammunition accountability is the loss equipment due to counter-fire, or air attack. This loss of an ammunition carrier or gun becomes critical in the amount of ammunition lost to rapidly adjust triggers to keep ammunition on hand to service EFATs.

A TTP for maintaining accountability is to utilize the responsibilities listed above in this article. The battery XO/PL/PSG is the consolidation point for all ammunition in the battery position. The battery FDC can only provide ammunition counts available to the gun line not the entire position. In addition DA Form 4513 or a developed document to account for ammunition (see inset) must be maintained at each element to track current ammunition. We must report ammunition expenditure on an established trigger at battery level every three mission, 10 volleys, 5 volleys of special munitions (red bag, rap, smoke) or every 30 minutes and report the consolidated information to not only the battalion TOC but BN ALOC as well. We must utilize complete round tracking and clear PLSs as quickly as possible to allow the BN to begin double loop resupply. We must have a system to ensure accountability and rapid resupply.

The BN FDC should receive the consolidated report from the battery XO/PL based on directed reporting triggers to enable the BN FDO to effectively attack targets by knowing on hand ammunition counts or base recommendations to the S3 on unit movement due to powder availability. The BN FDC section must maintain an expenditure report between established reporting times by utilizing a crewmember to decrement on hand ammunition as missions are fired. He will only be able to provide the S3 with ammunition information currently available to the firing batteries, not the amount of ammunition available in the entire battalion.

During execution this is where the BN S4/ALOC becomes the central management element of battalion ammunition. The battalion S4 also receives the consolidated report from the battery XO/PL/PSGs and maintains the total amount of battalion ammunition by consolidating battery, combat trains, and field trains ammunition counts. The ALOC must maintain a tracking chart or battle tracks on the map the location of PLS/ammunition carriers at all times. This consolidated report must be sent on a required periodic basis to the S3 with recommendations for ammunition movement, cross leveling and adjustments to resupply triggers. Once S3 guidance is issued to the S4, the S4 directs the movement of ammunition along specified route, where to establish ATPs or cross-leveling directives through the BAO for execution. The ALOC must update the BSOC with current status after consolidation of reports.

This process is maintained until a tactical pause allows us time to conduct additional actions. Internal unit ammunition cross leveling, PLSs consolidation and cross leveling, and rapid resupply of ammunition to critical units. Verified ammunition counts must be consolidated and forwarded from bottom up as soon as possible to allow the planning process to start over with mission analysis.

Home station training is the key to preparing units for ammunition planning and management in combat. We must stress ammunition planning, management and reporting during any level training event. Use OPD/NCOPDs to discuss roles and responsibilities, diagram reports flow and standardize reporting requirements and tracking methods to ease reporting and accountability. Ensure training scenarios utilize notional ammunition tracked and reported on placards. Utilize primers to track rounds fired, maintain dunnage or use cardboard boxes to replicate ammunition load on PLSs. Develop standard CCLs, load plans and tie down procedures to handle large quantities of ammunition. Use simulation exercises and orders process to test battlefield calculus, ammunition load and travel times, and running estimate adjustments to ammunition resupply. Use scenario driven training that produces actions, reactions and counteractions to allow key ammunition management players the opportunity to plan, test, and execute realistic ammunition management processes. Remember ammunition management is everybody's business.