

# Black on Ammunition, Green on Forecasting:

## Ammunition Lessons learned from a DIVARTY in a Division Warfighter Exercise

By: MAJ Mikhail Jackson

### Introduction

In the Army, most people naturally think black on ammo is a bad thing. However, what if black on ammo actually means you are doing exactly what you need to do to accomplish the mission? There is consistent debate across the warfighting functions as to what a black status means with respect to ammunition. For the purpose of this white paper, I will define “black on ammo” as it is related to the DIVARTY’s Force Field Artillery Headquarters (FFA HQ) mission as the inability to support Field Artillery Tasks against the Division Commander’s High Payoff Target List (HPTL) without resupply. In the sustainment community, most sustainers naturally want to keep a stockpile of all supply commodities on hand for replenishment purposes before units go black and, if at all possible, keep commodities above levels of amber, preferably in the green at all times. Army Regulation (AR) 700-138 Army Logistics Readiness and Sustainability delineates a green status as unit quantity that is 90 percent or greater (combat capable); amber as 70-89 percent strength (combat capable with minor deficiencies); red as 60-69 percent (combat ineffective, unit has major losses of deficiencies); and black means a unit quantity is less than 50 percent (at grave risk, not supportable). As a sustainer in the 2nd Infantry Division Artillery (DIVARTY), I had the unique opportunity to enhance my understanding of the fires’ side of logistics, as well as multiple echelon levels of sustainment.

As the lead sustainer for the DIVARTY, in the FFA HQ role, I quickly came to the understanding that ammunition may not always be “green.” In fact, sometimes on-hand quantities might be in the

red or black, which is okay if you understand mission requirements and can appropriately forecast ammunition and make ammunition adjustments depending on range of the enemy’s location. In our recent Warfighter Exercise (WFX), my sustainment team and I used CLV ammunition Projected Volume of Fire (VOF) according to the phase of the operation, and accurate forecasting (up to 96 hours out and tied to the targeting cycle), to help drive the Course of Action (COA) in CLV ammunition expenditure success.

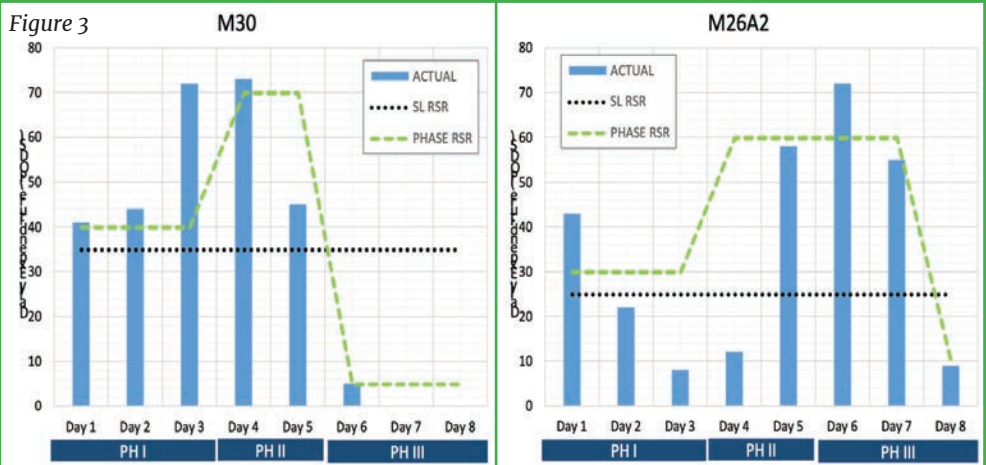
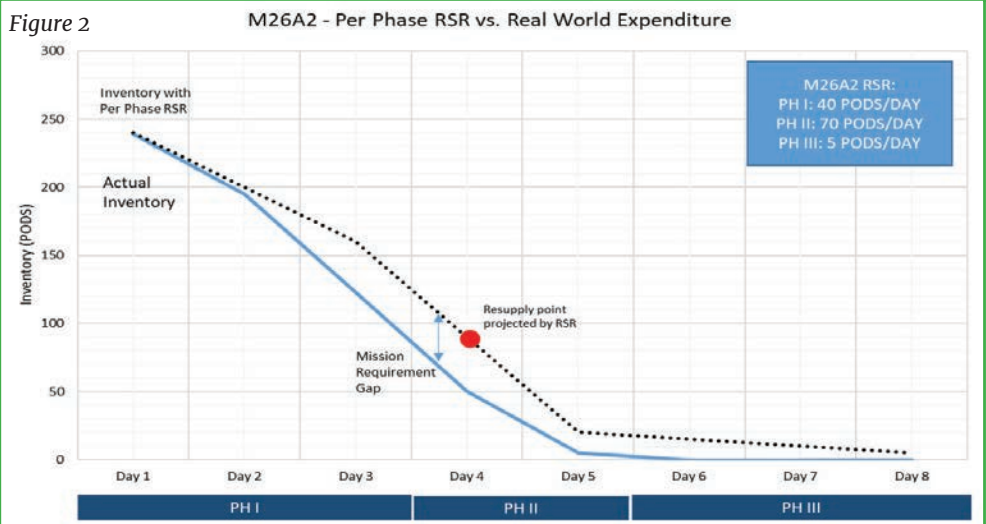
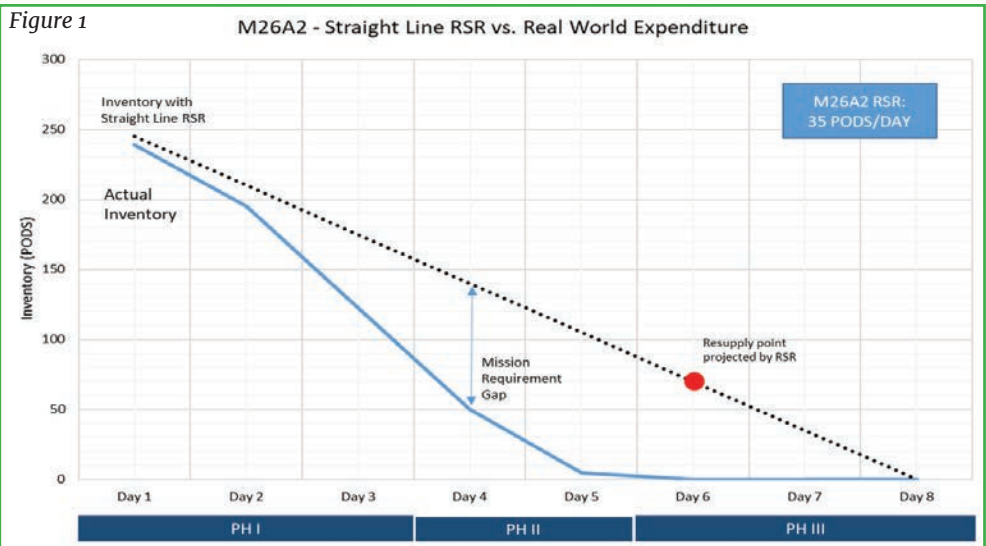
Most sustainers view ammunition replenishment and Required Supply Rate (RSR) as a straight-line process. One can define RSR simply as how much CLV ammunition is necessary for an operation. In order to sustain tactical operations for specific periods, units determine their munitions requirement and set an RSR. A straight-line ammunition process can work in some conditions; however, for artillery in large-scale combat operations (LSCO), it is more useful to anticipate requirements by phase and anticipated VOF.

### Understanding Ammunition by VOF and by Phase of the Operation

Expending rounds against the enemy based on the phase of the operation is an approach that will better describe requirements to ensure mission accomplishment. Figure 1 is visual representation of how logistics planners view RSR. RSR translates for the duration of an operation, a forecast of ammunition inventory based on a straight line RSR. Figure 2 portrays the recommended approach to view RSR, which is by forecasting inventory over time by phase of the operation. The DIVARTY benefited significantly from this approach during WFX 22-02.

Projecting RSR by phase of the operation helped us forecast our requirements two (2) days earlier than if we used a straight-line RSR. The difference of two (2) days in LSCO can be the difference between winning and losing. In our case, it meant when we would need a resupply sooner than expected. Our forecasting helped determine the need for resupply in Phase II of the operation versus Phase III. As shown in Figure 2, our forecasting also helped us to shorten our mission requirement gap, illustrating our projected ammunition aligned with our projected ammunition requirements. As a DIVARTY, we could forecast how much ammunition we had at all times and we knew when we would run low and by how much.

Over time, the pattern of ammunition expenditure and VOF more closely represents a bell curve than a straight-line pattern. A straight-line pattern is deceiving across phases of an operation because it gives the impression that ammunition requirements will remain steady throughout. In our WFX, that was clearly not the case. Based on projected VOF, the DIVARTY could tell the critical ammunition like M30 Guided Multiple Launch Rocket System (GMLRS) and M26A2 would fluctuate throughout the entire operation. We anticipated we would expend more M30 up front, then transition to M26A2 in following phases as shown in Figure 3. Army Techniques Publication (ATP) 3-09.30 Observed Fires specifies that unlike the traditional free flight M26 series rockets, whose accuracy degrades as the range to the target increases, the GMLRS provides consistent improved accuracy from a 15 kilometer minimum range to a maximum range of 70+ kilometers.



Thus, the preferred ammunition to shoot is M30 if within range for accuracy and reduction of collateral damage. What we did not anticipate in the WFX was a Controlled Supply Rate (CSR) imposed on critical ammunition at the sustainment stock level, the source of our ammunition replenishment. This imposed CSR imposed was at an insufficient level

to meet our daily requirements. This CSR meant we would go red and black on critical ammunition requirements we needed to support long-range artillery missions. Based on guidance from the commander on how we planned to fight, we had a reliable estimate for when we would run out of ammunition for each critical ammunition. Further, we had a branch plan to allow

us to fight using long-range munitions if required. The CSR would increase the risk at a critical portion of the battle that was unacceptable to multiple commanders. The staff's ability to communicate these concerns allowed the risk to remain at an acceptable level.

A FFA HQ requires efficient communication to get the appropriate information needed between different organizational networks. The DIVARTY gathered information at multiple levels in order to accurately gain a holistic view and communicate shared understanding of the process. As a DIVARTY in the role of a FFA HQ, we are in a unique position. We are able to view sustainment stock and on-hand quantities across multiple units, including the attached or reinforcing Field Artillery Brigade (FAB). The FAB primarily focuses on what they have on-hand at the gunline and at their Sustainment Battalion. The Sustainment Brigade primarily focuses on higher echelon sustainment stock. The DIVARTY occupies the space between. Therefore, we are able to synthesize the two perspectives to get a more holistic assessment.

As a FFA HQ, one could use VOF and the phase of the operation to drive what forecasted ammunition requirements. The DIVARTY's targeting mission allows a level of predictability to inform the amount of ammunition needed to sustain the battle. This is further informed by integrating ammunition requirements into our planning efforts and branch plans to account for changes to conditions and the type of operation. We determine what type of long-range artillery we will need to use based on targeting requirements for each phase of the operation.

**Forecasting Ammunition**

For the firing units to meet their maneuver commanders targeting guidance, the FFA HQ must forecast accurately. Accurate forecasting is a critical component of describing ammunition requirements, in addition to the quantity of ammunition requested and consumed by the unit. The Department of Defense Identification Code (DODIC),

quantity, and location usually determine ammunition forecasts. As a DIVARTY, we consistently communicate requirements tied to the targeting cycle. We therefore, reduce the need for unforecasted requirements in order to prevent additional and unnecessary risk for sustainment units.

For the initial first two phases of WFX, planned to rely heavily on M30 ammunition. We knew our forecasted replenishment for M30 for Phase I and II would be high. The high consumption of M30 would allow us to remove the HPTs that posed the highest risk to these phases. With this risk reduced for Phase III and IV, we could transition our expenditures to another type of ammunition. We based consumption rates on defense, offense, and stability operations. Informed by our anticipated targeting success we forecasted high for offense and relatively lower expenditures for defense.

Our S2/ S3 High Value Target (HVT) analysis drove out forecast analysis based on the required VOF needed to achieve mission success. We also used Counterfire analysis and anticipation to determine how much we would need to defend our division and ourselves. We even further involved ourselves as a S4 section through our attendance in the DIVARTY targeting meeting, which allowed us to anticipate requirements out to 96 hours. Based on forecasted VOF, close coordination with the Fire Control Officer, ammunition expenditure and the imposed CSR for sustainment stock, we forecasted that we would be in a red or black status on both M30 and M26A2 ammunition by end of Phase III/ beginning of Phase IV.

We knew we did not have many options so we quickly made the operational determination that we would not conserve ammunition, but rather use what we had of the M30 first for longer-range artillery then move closer to the enemy for shorter range M26A2 ammunition to achieve similar effects. Tactically, this meant we had to plan to move closer to the forward line of troops (FLOT) to change ammunition type. We also had another COA to

shift to High Explosive (HE) M31 instead of M30 in the interim when we ran out of both M30 and M26A2, which required a more accurate target location to achieve the same effect. This meant we would be moving from needing a 6-8 digit grid to having to have a 10-digit grid coordinate, hence a lot more accuracy involved within the divisions detection efforts.

However, perception from a sustainment metrics perspective stated that we were black on ammunition (less than 50 percent). In the eyes of FFA HQ, we ultimately would not be black on ammunition until we absolutely had no ammunition left. This meant sustainment black was our 100 percent, amber was 75 percent of that, red was less than 50 percent of that and black for us was no ammo at all. Using this simple metric, helped us accurately estimate when the division had positioning and risk decisions to make. The FFA HQ communicated these opportunities through multiple working groups and decision boards at the division and Field Army level. These decisions would be made based off the targeting success and the ammunition that remained by phases of the operation. The Division needed to win the battle based on ammunition type we had left.

An additional challenge we quickly resolved in the initial phase of calculating ammunition requirements, was the way in which we received ammunition reporting requirements. The standardized logistics status (LOGSTAT) document in which units sent up CLV ammunition requirements had ammunition consolidated into one full rollup versus breaking down how much ammunition consumption each unit expended day by day. As a FFA HQ, our ammunition expenditure strategy calculated ammunition expenditure day by day for an end-of-day individual rocket count. The day-by-day ammunition expenditure count allowed us to communicate accurately how much ammunition the division expended. Additionally, it allowed us to see how much we could anticipate expending. Finally, it allowed us to know how much ammunition remained based

on what artillery type we wanted to use. Planning and accurate forecasting was the essential foundation for our ability to use ammunition effectively.

### Summary

The success we had during our WFX with ammunition was dependent on clear guidance and staff synchronization. While most organizations tend to find it challenging to fully incorporate sustainment and logistics into combat planning efforts, DIVARTY fully embraced sustainment as an integral effort to successfully complete the mission. Accurate forecasting (up to 96 hours out and tied to the targeting cycle), and CLV ammunition Projected Volume of Fire (VOF) according to the phase of the operation helped drive the Course of Action (COA) in CLV ammunition expenditure success. Though doctrinally, sustainment may classify our category of ammunition metrics as black on ammunition, as a FFA HQ the DIVARTY prevailed with unconventional forecasting techniques and thorough ammunition analysis to achieve mission success. Furthermore, we believe our approach to ammunition management and articulation of requirements will assist units throughout the Army in LSCO.

### About the Author:

MAJ Mikhail Jackson received a Bachelor of Arts degree in Political Science from The University of Texas at Arlington and was commissioned through the ROTC as a 2LT in the Quarter Master Corps. Additionally, MAJ Jackson has also received a Masters of Science graduate degree from Texas Christian University (TCU). MAJ Jackson currently serves as the 2ID, DIVARTY Brigade S-4 at Camp Humphreys, Korea. MAJ Jackson is married with a daughter, son and a dog.

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