Improving Fuel Distribution Effectiveness in Afghanistan

Balancing fuel consumption, capacity, and distribution velocity was essential to meeting the fuel needs of units in Regional Command Capital in Afghanistan.

By Maj. Jeremiah S. O'Connor

In November 2010, the 17th Combat Sustainment Support Battalion (CSSB), 101st Sustainment Brigade, from Fort Richardson, Alaska, assumed responsibility for providing sustainment support to the nine bases in Regional Command (RC) Capital in Kabul, Afghanistan. The battalion placed a forward logistics element (FLE) at Camp Phoenix to facilitate this mission. After assuming the mission, the battalion quickly discovered varaince in fuel consumption, capacity, and distribution velocity, which made class III management for Kabul difficult and inefficient.

Camp Phoenix, the logistics hub for the Kabul base cluster (KBC), had neither the capacity nor the throughput capabilities to serve as the fuel distribution hub for the cluster. This shortfall caused the CSSB to use Bagram Airfield as the KBC distribution hub. This delivery required the upload and download of hundreds of trucks per month at Bagram, adding stress to an already choked node.

The capacity of the bases in Kabul demanded just-in-time logistics, which is not the preferred solution for bulk commodity distribution. Additionally, unescorted host-nation trucks (HNTs) are not capable of meeting the distribution velocity required for just-in-time logistics. By contract, Afghan HNTs have seven days to deliver fuel, and it takes an average of three days from the contracting of the empty truck to get it onto Bagram Airfield and uploaded and ready for departure. These carriers also have a less than perfect record for successfully completing missions. (Mission success is defined as delivery of the fuel to the destination within seven days of upload with 90 percent of the fuel.) HNTs often arrived with less than 90 percent of the uploaded quantity, arrived late, or did not arrive at all.

The last challenge was maintaining visibility of fuel in the distribution pipeline. Although some trucks would deliver in less than seven days, it was impossible to predict when they would arrive.

Alternate Distribution Methods

The velocity of fuel distribution from Bagram Airfield coupled with uncertain delivery times and quantities required alternate distribution methods to achieve the necessary logistics effects.

Provide a military escort. The first method used to increase the distribution velocity was to provide military escort for HNTs. Although this method reduced fuel delivery time and eliminated pilferage, it used critical convoy security crews and other resources to deliver a bulk commodity. Providing unscheduled military escort affected deliveries to the logistics hubs in RC East by delaying planned movements or bumping scheduled cargo.

Divert unescorted HNTs. The second distribution method was to divert unescorted HNTs bound for one base to another base that was critically short of fuel. Unfortunately, the delivery timeline requirement for a fuel truck started over as soon as its destination was changed, reducing overall throughput. Fuel diversions also placed the losing base at risk of dropping into critical status because the replacement fuel truck was more than a week away. Few bases in Kabul had the capacity to donate fuel. Diverting an HNT also added to the days that a driver had to deliver the fuel, reducing the overall distribution volume.

Order excess fuel. The third method of distribution was to order more fuel than the installation needed. This forced trucks to wait at a base until the base had consumed enough fuel to allow the trucks to completely download their fuel. This method was expensive because of demurrage charges for not downloading a truck as soon as it arrived. It put significant pressure on the Bagram Airfield fuel distribution node. Having a backup of trucks waiting to download fuel significantly reduced flexibility in determining which trucks to bring onto the base. It also caused fuel priorities for RC Capital to come in frequent conflict with those of RC East.

Use military fuel tankers. The fourth distribution method was to use military fuel tankers to deliver fuel. This course of action eliminated delivery time and volume uncertainties but used a tremendous amount of military resources and exposed crews to unacceptable risk. This

course of action was only acceptable under extreme circumstances and only for short-haul missions.

Because of its expediency, having the capability to distribute fuel in this fashion also allowed leaders to delay using the other four nonstandard techniques. For example, if an HNT fuel truck was expected to arrive at a base the following day and the base would run out of fuel in 48 hours, an emergency military-escorted HNT fuel delivery from Bagram was not needed because military tankers could be sent from Camp Phoenix with no notice. If the HNT arrived on schedule, the nonstandard delivery method was not needed. However, if the HNT did not arrive, then the assets were readily available to conduct the emergency push.

Disruptive Risk

Although these methods addressed recurrent risk associated with delivery delays and pilferage, they could not mitigate disruptive risk. Disruptive risk is an extended period without deliveries, which could be caused by an HNT driver strike, closure of the Pakistan ground lines of communication, religious holidays, or hazards related to the environment or politics. Increasing capacity in close proximity to the supported bases is the only way to effectively mitigate the risk of a long-term disruption.

To improve the existing system, the FLE had to use the Defense Logistics Agency–Energy (DLA–E) strategic reserve in Kabul to increase capacity; the FLE also had to increase the throughput capabilities. To accomplish these changes, the FLE had to generate a sense of urgency in the stakeholders and make the initiative advantageous to each partner responsible for generating momentum.

DLA–E

DLA–E's policy was to deliver to sites that had a fuel capacity of more than 1 million gallons. This requirement is driven by customer service limitations and the long leadtimes for distribution from sources outside of the theater. DLA–E orders fuel for the next 30 to 60 days, unlike sites in Kabul that order fuel for the following week.

Camp Phoenix's fuel capacity was considerably less than 1 million gallons. Although the delivery time of the DLA–E distribution network was reduced by the presence of the strategic reserve in Kabul, DLA–E still had significant concerns about the supportability of including a low volume site in its network and becoming involved in tactical fuel distribution.

When the 101st Sustainment Brigade approached DLA–E about direct delivery, it mitigated the agency's concerns by seeking direct delivery to only one site in Kabul and providing a legitimate capacity expansion plan. These two critical elements facilitated rapid approval of this request, and the brigade immediately realized improvements. Half of all fuel consumption in Kabul occurs at Camp Phoenix, so direct delivery reduced the throughput requirement at Bagram Airfield by 100 trucks

Host-nation trucks (HNTs) carrying fuel are escorted to forward operating bases in Afghanistan during a resupply mission. Unescorted HNTs often arrive with less fuel than they were given, arrive late, or do not arrive at all. One solution to this problem is to provide military escorts for the trucks. This, however, uses critical convoy assets.

Wood framing holds the 210,000-gallon fuel storage area foundation in place while the cement sets.

per month, just in time for the winter season.

While the direct delivery request was being staffed, the FLE received a number of phone calls and site visits during which DLA communicated its two biggest concerns: Did Camp Phoenix have a legitimate expansion plan in place, and would the camp have the throughput capacity to receive all of the trucks sent there? This introduced the second key stakeholder, Task Force (TF) Rushmore, RC Capital's Installation Management Command equivalent.

Task Force Rushmore

TF Rushmore operated the garrison facilities utilization board (GFUB) where projects for KBC were approved and forwarded to the joint facilities utilization board for ultimate approval and funding. The GFUB included key stakeholders and enablers from the garrison staff, including the engineers, the force protection officer, Camp Phoenix's garrison commander, and the contracting officer. In preparation for the GFUB, the FLE conducted a series of meetings with these stakeholders to identify and mitigate their concerns.

Convincing the Camp Phoenix garrison commander to allocate more space (the most valuable resource in Kabul) to logistics functions was a significant challenge. The shortage of space was one of the root causes of storage problems throughout the KBC.

Initially, a course of action was explored to transition the existing fuel storage footprint from a space-inefficient system using 20,000-gallon bags to a less modular system using 210,000-gallon bags. Unfortunately this type of project would reduce the near-term capacity at the very time a capacity increase was needed for the winter season.

The only other option was to reduce the overall footprint of the FLE, making the expansion require no additional space at Camp Phoenix. The previous unit

had left approximately half a football field's worth of retrograde materiel in the proposed expansion location. By rapidly moving this materiel off the base, the 17th CSSB convinced the Camp Phoenix garrison commander that the CSSB was sincere about the project. The brigade also reevaluated its tactical vehicle needs and rightsized its fleet to reduce the overall space requirement and, with 101st Sustainment Brigade approval, provided a few of those vehicles to TF Rushmore.

Another concern the garrison commander had about expanding the fuel storage footprint was the impact on force protection and force protection manning requirements. These concerns, along with the throughput requirement, drove the redesign of the fuel upload/download facility.

The new facility needed to reduce Soldier exposure, improve the protection of the base perimeter, increase throughput, and not use significant space. As TF Rushmore transitioned to TF Yankee, the construction of the new facility became one of the highest priorities because of the force protection enhancements within it. The new facility gave Camp Phoenix the throughput capability and fuel capacity to easily support the entire KBC.

Benefits of DLA–E Distribution

One of the unexpected efficiencies that came from working with DLA–E was that it used superior trucks. These trucks were better equipped than HNTs ordered from Bagram and had two download nozzles. This reduced download time by half, resulting in an immediate reduction in force protection requirements and an increase in throughput capacity.

Another unexpected benefit of direct delivery was the significant reduction of delivery time in the city. When distributing fuel from Camp Phoenix to one of the KBC sites, we found that the order-to-delivery time was cut in half compared to delivery times from Bagram. This significantly reduced recurrent risk and the time needed to increase the stockage level at any site.

These enhancements set the conditions needed for the key stakeholders in Kabul to dedicate staff and other resources to push the project through the local and regional boards that dedicate space and funding to projects quickly. This significantly mitigated DLA–E's reservations about delivering fuel to such a small site.

With increased fuel storage in place, it was possible to restructure the original fuel bag footprint and replace it with a more space efficient footprint. This transition would double the overall capacity using a very limited amount of additional space.

This project reduced distribution times from 10 days to four days, the throughput requirement at Bagram by hundreds of trucks per month, and the number of force protection personnel required for downloads at Camp Phoenix. The project also doubled Camp Phoenix's fuel capacity, decreased delivery costs by approximately one-third by reducing double handling, and nearly eliminated the need for the nonstandard delivery techniques that consumed so many resources. This project minimized Kabul's exposure to recurrent and disruptive fuel risks and facilitated more responsive support by TF Lifeliner (the 101st Sustainment Brigade) to other RCs through increased asset availability.

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