



# NAVAL SAFETY COMMAND

## SAFETY AWARENESS DISPATCH



SA 23-09

### *Hawthorne Mortar Mishap*

One of the most important things we must do as military leaders is learn from our mistakes and the mistakes of others. However, human nature can lead us to focus on current issues and put the past behind us leading us to become complacent about the same problems we had in the past. In a 2018 study, the Naval Safety Command found that it takes approximately six months to forget the lessons gleaned from a mishap, and stop being vigilant against making the same mistakes. The summary of the study (LL 19-13 The Half-life of Scared), stresses the importance of quarterly safety training that includes a review of historical examples of mishaps and the underlying causal factors.



With this reality in mind, we are long overdue in revisiting one of the most catastrophic ground mishaps in Marine Corps history, the 2013 Hawthorne Mortar Mishap. A 60mm mortar detonated in the tube, killing seven Marines and injuring seven other Marines and one Sailor during a night Live Fire and Maneuver (LFAM) event on Range 500 (R500), Hawthorne Army Depot (HWAD), in conjunction with a Mountain Warfare Training Exercise (MTX).

*The information in this safety awareness product was assembled from publicly-available, open-source documents, including the official command investigation (CI). It does not contain information from any safety investigation report.*

#### Training Background Before MTX

The battalion was slated to participate in an MTX in March of 2013. The unit was also tasked to support Request for Forces (RFF 1200), which required a company of Marines to deploy for security force operations in Kuwait from Sept 2012 to Jan 2013. As such, Company A was assigned this task and reorganized in June 2012. They conducted training independently from the battalion until their deployment. Therefore, Company A did not participate in various pre-deployment training with the rest of the battalion from June until January. The missed training included train-the-trainer refresher events and crew-served weapons live-fire shoots to sustain individual, team, and squad/section weapons proficiency. They also did not conduct the live-fire, company-supported attacks, and the crew-served weapons shoots that the rest of the battalion executed in December. Instead, Company A's training focused primarily on security force training. Specifically, they did not conduct any live-fire mortar training before deploying and did not deploy with their mortars. They conducted a limited call for fire and Fire Direction Center (FDC) while in Kuwait, but this was the extent of the mortar section's ability to train to their military occupational specialty training until January.

Upon returning from their deployment in Jan 2013, Company A conducted fire team, squad, and platoon-level fire and movement training. The mortar section completed conventional mortar training, but none of it was live-fire. Subsequently, the day and night live-fire attacks on March 18 (the day of the mishap), were the first times the mortar section had fired their weapons systems since June 2012.

In addition to the deviated training and deployment schedule, Company A faced the friction of a heavy leadership turnover in the months before attending MTX. Upon returning from Kuwait, the company commander, executive officer, weapons platoon commander, and weapons platoon sergeant rotated out of the company. The mortar section leader, a sergeant, was moved into the vacant weapons platoon sergeant billet. A corporal from the assault section was being cross-trained for the mortar section leader role but had no substantial experience with mortars.

There were personnel rotations at the junior Marine levels as well. Before the assignment to RFF1200, half of Company A's 60mm mortar section was filled by Marines transferred from the 81mm mortar platoon.

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They were also assigned four Marines directly from the School of Infantry (SOI) just after returning from Kuwait.



When they attended MTX, five of the mortar men in the section had participated in the SOI Advanced Infantry Training Battalion Mortar Leaders Course the previous summer, but the rest of the section had little experience as a unit with the 60mm mortar system. Additionally, the section did not have a training cycle to gain experience before attending MTX. Despite this factor, battalion leadership shared a view that the Company A mortar section was “highly trained” because their mortar section leader, who had been elevated to platoon sergeant, was regarded as the best mortar man in the battalion. With this mindset, the battalion leadership was confident Company A could safely execute Range 500 (R500).

### Planning and Preparation for the LFAM

The battalion infantry weapons officer (Gunner) was tasked to plan, coordinate, and oversee the R500 training evolution. The battalion operations officer checked into the battalion after the planning conference was complete and did not involve himself with this oversight.

The R500 portion of MTX was planned to occur after the approximately month-long mountain training evolution. During the event, each company would conduct a full company attack supported by their 60mm mortars and medium machine guns. They each prepared separate plans approved by battalion leadership and HWAD Range Operations. Company A’s scheme of maneuver called for a sequence of platoon attacks versus simultaneous attacks. They planned to place their mortar section directly in line with the assault section on their left and the machine gun support by fire position to their right to alleviate the geometry of fire concerns.

Each company had 48 hours to finalize and rehearse its plans before the live-fire evolution. Company A was deliberately placed last in the company rotation to maximize their time to plan and prepare while on the range since they only recently returned from Kuwait. While waiting for their turn in the rotation, Company A’s leadership conducted range walks and identified the specific position for their mortars. The day before the live fire, Company A’s leadership finalized and briefed the operations order. The company conducted a Rehearsal of Concept walk on a Terrain Model Rehearsal, followed by a company range walk without combat equipment, so that everyone could see the maneuvering ground. Then, they conducted a full daytime and nighttime dry run with complete combat equipment.

During planning and rehearsals, the mortar sections recognized the position was a “little tight” because the position was smaller than what was needed to provide the conventional 20 to 30 meters between gun positions. The section thus decided to set up in a “lazy V,” with each gun approximately five feet apart. They also planned to use their mortars in the handheld method to support the attack.

### Live-fire Attacks and Mishaps

Company A’s plan for the day and night attacks was identical, except for using the mortar section to fire illumination rounds and the high explosion (HE) rounds for suppression at night. The day attack went according to plan, but the firing mechanism on mortar 3 malfunctioned and was deemed inoperable. After the attack was completed, the mortar section determined they would not take mortar 3 on the night attack. They would use one of the two remaining mortars to fire the illumination rounds and the other to fire the HE rounds during the night attack.

To accommodate this setup and maximize section participation, the mortar section leader and weapons platoon sergeant (the previous mortar section leader) decided to reorganize the assigned positions. This reorganization placed some Marines in positions not previously held during the R500 planning or execution and with the personnel they had not previously worked with on a gun team. Specifically, the Marine assigned to the mishap mortar as the gunner previously worked as part of the section FDC. The Marine assigned as the assistant gunner (loader) came from the 81mm weapons platoon and had limited experience on a 60mm mortar gun line. Leadership above the weapons platoon level was not made aware

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of the malfunction with mortar 3 or the decision to reorganize the assigned positions and only use two mortar systems in the night attacks.

In preparation for the night attack, the mortar section improvised a method for coordinating firing illumination with HE by using a stopwatch and firing tables to determine when to fire rounds. Coordinated illumination missions doctrinally require an FDC giving commands. Illumination is also doctrinally fired in conventional mode, not handheld.

The mortar firing position was in the same place for the night attack as the day, with the only difference being they had once less mortar. Due to the terrain, the tubes were still placed approximately five feet apart. When the night attack began, the mortar section occupied their position and began their fire missions. Each gun controlled its fires, with mortar 1 firing HE in a fire for effect mission and mortar 2 firing the illumination mission. Once on target, the section began to fire for effect, during which company standard operating procedures (SOP) dictated the half-load step was eliminated. Instead, the mortar squads loaded rounds as safely but as quickly as possible. After either two or three rounds were observed down range, a Marine in the assault section, closest to the mortar position, heard someone in the mortar section shout, "misfire." Immediately afterward, an explosion occurred in the mortar firing position.

Following the mishap, an Explosive Ordnance Disposal (EOD) team conducted a post-blast analysis of the mishap site, the debris from the mortar system and the mortar rounds' components. From the damage to the mortar tube and the locations of the various components of the rounds, the team determined that a round detonated inside the mortar tube was the direct result of a dual-feed explosion. They assessed the assistant gunner began loading a round before the gunner fired the previous round. The second round was in the half-load position when the first was fired. The force of the first round striking the second at the top of the mortar system compromised the integrity of the fuse enough to cause a premature detonation in the tube.

### REPORT CAUSAL FACTORS

1. Inadequate training and preparation for the complexity of the exercise. The mortar section's tasking and training over the nine months before the mishap did not allow them to gain the necessary experience with their weapon system. They were also denied the ability to maintain section and individual proficiency as defined by the Infantry Training and Readiness Manual, which requires sustainment interval training at least every six months to support company operations.

2. Improper mortar gunnery commands/firing procedures combined with a perceived sense of urgency. Firing in the handheld mode combined with the complex scheme of maneuver significantly increased the potential for a double feed. Delegation of fire control to the squad level further increased the potential for a double feed. The gunner and assistant gunner did not follow proper loading and firing procedures as they attempted to fire as rapidly as possible while firing for effect. Doctrinally, load and fire commands must be utilized throughout the execution of fire for effect missions. Had verbal commands been used, the assistant gunner would not have loaded the second round until the gunner had fired the previously loaded one and was explicitly given the order to load. Proper firing procedures also dictate that the gunner looks over the top of the mortar tube while squeezing the trigger while firing in handheld mode. If the gunner had done this effectively, he would have observed the assistant gunner beginning to load a second round.

3. Ineffective supervision of the mortar section during the R500 evolution and in the months prior. Battalion leadership overestimated the capabilities of the Company A mortar section because of the proficiency of the previous mortar section leader as a mortar man and the number of advanced mortar leader's course graduates. This assumption led to relaxed supervision and oversight that resulted in an inadequate assessment of their experience concerning their training in the months before MTX and a failure to recognize their lapse in proficiency mandated by the Infantry T&R Manual.





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4. Ineffective analysis of risk on the mortar firing position. The reorganization of the section between the day and night evolutions disrupted gun team cohesion, reduced the value of the rehearsals, and increased the potential for gun line error. The close positioning of mortars 1 and 2 and the crowding of personnel on the mortar firing position increased friction on the gun line and contributed to the number of casualties in the mishap. It is possible that the confusion caused by two mortars firing so closely together resulted in the assistant gunner of mortar 1 mistaking the firing of mortar 2 for his mortar, resulting in his decision to begin loading another round.

### **REPORT RECOMMENDATIONS**

1. Include in the DA PAM 385-63 Range Safety / Marine Corps Order 3570.1c guidelines for a minimum safe distance between weapon systems for the 81mm and 60mm mortar during live-fire training.
2. Provide additional guidance on the purpose of employing mortars in the handheld mode, methods of engagement, and firing commands doctrinal publication.
3. Units implement procedures to prevent individuals from being placed in positions they have not previously rehearsed during live-fire training exercises.
4. Units implement a training and certification process for position safety officers to ensure currency and qualification on weapons and units they will supervise during live-fire maneuver training.

### **Key Takeaways**

The Marine Corps prides itself on doing more with less; less equipment, fewer people, and less time. It is not our nature to say something can't be accomplished, but this mindset can get us into trouble. There were numerous points where this unit should have more thoroughly scrutinized Company A's mortar section's ability to conduct this range exercise safely. They knew they were going to participate in an MTX. When the company returned from its deployment, the battalion should have gauged its training with the rest of the battalion. When almost all of the company and weapons platoon leadership changed over, their replacements should have made a realistic judgment of the capability of the unit they were taking over. When performing the risk assessment on the high-risk event planned for R500, battalion leadership should have identified the lapse in the proficiency of the mortar men. Our default belief that our Marines could get the job done clouded the leadership's judgment and led to catastrophe.

We must always find ways to do more with less to figure out how to accomplish the mission. However, we must also be wary of overconfidence, of just saying we'll complete a task without considering if it can be done correctly—and safely. Consider the following points as you lead and plan with your teams.

1. **Make an honest assessment of your unit's capabilities.** This assessment should be done when new leadership first checks in, after a significant change, before a major evolution, and especially if these events coincide.
2. **Each level of supervision should provide checks and balances.** From junior Marines to senior leadership, these checks go up the chain as well as down. The leadership chain should assess its subordinate units, but the subordinate units should also speak up if they haven't been given the tools to do the job.
3. **Don't just press the "I believe" button.** Don't be afraid to say your unit isn't prepared or you haven't been given the time or resources needed to accomplish the mission. Speaking up takes courage, but it is the right thing to do. It is the only way to adequately and safely train. You and your fellow Marines' life could depend on it.

*And remember, "Let's be careful out there"*