Iron Rain:

MLRS Storms onto the Battlefield

by Captain Gary D. Langford

The huge metal monster roared to a sudden halt amidst a billowing cloud of sandy dust. Slowly she pivoted sideways to the left and then slightly back to the right in a strange, macabre dance as if vying for some kind of positional advantage over an unseen foe. As she came to rest and the last of the dust settled around her, the shrill whine of her turbine engine rang out across the vast expanse of open desert. The large square box on her back rose slowly, menacingly, and then slewed off to the right side where it finally stopped and settled into position.

Inside her metal hull, her brains, the three crew members of the multiple launch rocket system (MLRS), rapidly yet meticulously went through their battle drill. Staff Sergeant Hollingsworth, the section chief, smiled with pride as the crew he had trained reacted instinctively. The gunner, Sergeant Norby, hovered over the fire control panel (FCP). He concentrated fully on the small computer interface that allowed him to bring to bear the awesome firepower of one of the Field Artillery's newest and most lethal weapon systems. Simultaneously Specialist Ontiveros, the driver, continued to ready the launcher for firing operations. Within a matter of minutes, the battle drill was over. "GhostWarrior," the crew's affectionate nickname for its launcher, was laid and ready.

Outside, the desert morning calm disintegrated into a swirling, violent maelstrom of sand and fire as GhostWarrior erupted in a dazzling blast of light and billowing smoke, shrouding her from sight. The first of 12 long, sleek rockets sped down range, chased by a glowing ball of light — a thin, smoky finger of death stretching across the cloudless sky. Again and again, she hurled rockets at her enemies until, finally, she had fired the 12th down range to do its deadly damage.

Her still-smoking tubes fell silent, and the large box on her back turned and sank back to its original position on her frame. Then the first of the low rumbles, much like thunder, were heard on the horizon. With that distant thunder came the rain—the ***Iron Rain***.

An MLRS rocket roars down range to ruin Iraqi soldiers' day.

The Persian Gulf War, if nothing else, will live in our memories as a world-class live-fire exercise and test bed for America's latest generation of weapons. Despite the Iraqi Army's best attempt at armed conflict, the US forces' overwhelming superiority in technology, doctrine and training and the individual excellence of our soldiers reduced the fight to little more than a rout and headlong pursuit.

The MLRS represents the technological superiority we enjoyed and played a decisive role in the conflict. It's ability to bring massive firepower rapidly to a point on the battlefield is the living essence of the Field Artillery's mission in combat.

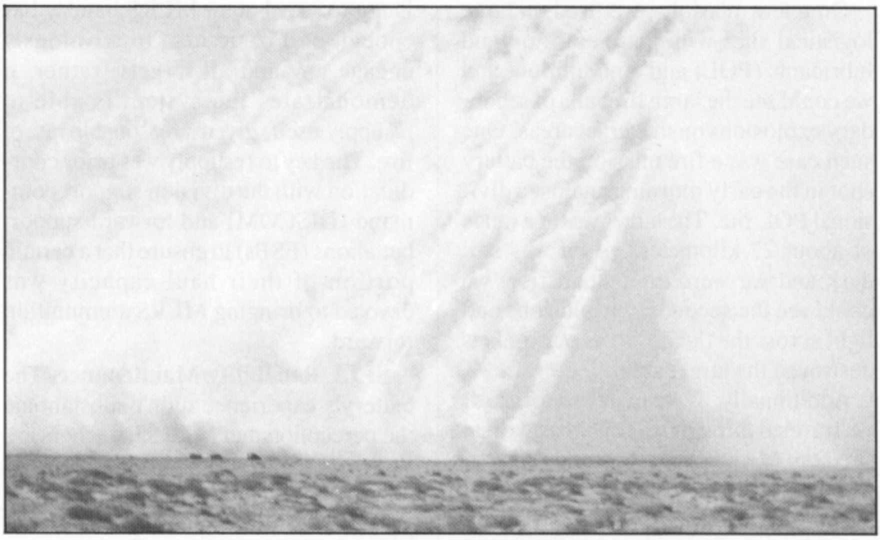
Before Operation Desert Storm, critics claimed the system wasn't accurate at extended ranges, was unreliable and would be unable to haul its own ammunition. The most severe critics cautioned the system might fail in combat.

This article provides information and facts that demonstrate the worth of the MLRS system. The information presented comes directly from the combat actions and experiences of A Battery, 94th Field Artillery (A/94 FA), the divisional separate MLRS battery of the 1st Armored Division Artillery (Div Arty).

The Fight

During the span of the conflict with Iraq, A/94 FA was attached to 4-27 FA (MLRS). The battalion was minus one of its organic firing batteries (Charlie Battery), which was supporting the 2d Armored Cavalry Regiment (ACR).

In the war, A/94 FA fired just over 600 rockets on 59 missions and traveled more than 250 miles. We had two launchers that developed not-mission-capable (NMC) faults, both repaired in under 30 minutes. These malfunctions occurred with the launcher-loader module (LLM). We encountered no significant mechanical or carrier problems during the war. The experiences of the other two firing batteries in 4-27 FA were similar to that of A/94 FA in terms of number of rockets and missions fired, miles traveled and self-propelled loader launcher (SPLL) NMC failures (predominantly LLM failures).



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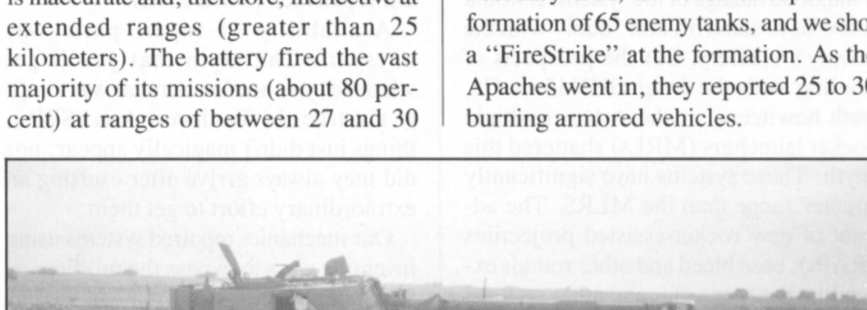
All nine A/94 FA launchers fire 12 rounds on a time-on-target against enemy command posts and logistical bases in the 1st Cav Division sector. The battery put 108 rockets down range in 60 seconds.

Lessons Learned

Accuracy. Critics claimed the MLRS is inaccurate and, therefore, ineffective at extended ranges (greater than 25 kilometers). The battery fired the vast majority of its missions (about 80 percent) at ranges of between 27 and 30 kilometers. Despite the lack of a complete battle damage assessment (BDA) of every mission, we had many indicators testifying to the accuracy and effectiveness of the MLRS.

Hard BDA, of course, is always the best indicator. On several missions the MLRS fired on targets more than 25 kilometers away preceding an attack by AH-64 Apaches or A-10 Warthogs. The air assets verified the burning vehicles and secondary explosions caused by the MLRS fires. For example, on 27 February 1991, an observer reported a formation of 65 enemy tanks, and we shot a "FireStrike" at the formation. As the Apaches went in, they reported 25 to 30 burning armored vehicles.



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Iron Rain Results. An Iraqi 2S3 152-mm howitzer damaged by MLRS bomblets.

On a few missions, we fired on large logistical sites with petroleum, oil and lubricants (POL) and ammunition, and we could see the large fireballs of secondary explosions on the target areas. One such case was a fire mission the battery shot in the early morning against a divisional POL site. The target was at a range of about 27 kilometers. As it was still dark and we were on a small rise, we could see the secondary explosions and light across the flat desert as our rockets destroyed the target area.

Additionally, as we marched forward, we traveled through several areas we had fired on. Many of the command and control sites, artillery positions and logistical sites we drove through were littered with MLRS rocket motors and some dud bomblets. After climbing up on a few of the 2S1, 2S3 and D-30 artillery pieces, it was easy to tell they had been hit by MLRS dual-purpose improved conventional munitions (DPICM). Again, the MLRS fired most of these targets at near maximum ranges.

The last, and probably the greatest, indicator of the system's effectiveness were the stories of "Iron Rain" told by Iraqi prisoners of war—their nickname for MLRS. Even the British Broadcasting Company (BBC) reported that "MLRS firepower was so intense that those Iraqi soldiers who survived surrendered en masse."

Range. For some time now, the 30-kilometer MLRS range was touted as a major advantage of the system. It would allow us to stand off and "duel" with the enemy's artillery. But the prospects of dueling with the Iraqi GHN45 or G5, both howitzers, or the Astros multiple rocket launchers (MRLs) shattered this myth. These systems have significantly greater range than the MLRS. The advent of new rocket-assisted projectiles (RAPs), base bleed and other rounds extending the range of many other systems has rapidly eroded the MLRS' advantage. If MLRS is to continue to be the Army's main counterfire and deep-target killer, we need to increase its range to 50 or 60 kilometers.

Ammunition Haul Capacity. Bottom line—the MLRS organic ammunition haul assets can carry a lot of ammunition. Despite the fact we shot a relatively high volume of missions and densely saturated the target areas, we only shot about two-thirds of our basic load. This is not to say that an MLRS battery has enough of a basic load to frivolously engage any and all targets; rather, it demonstrates the system is able to resupply itself, given a reasonable rate of fire. The key to resupply was prior coordination with the division support command (DISCOM) and forward support battalions (FSBs) to ensure that a certain portion of their haul capacity was devoted to bringing MLRS ammunition forward.

SPLL Reliability/Maintenance. The battery's experience didn't substantiate the perception that MLRS launchers are "too hard to maintain" and "break at the drop of a dime." The unit initially did experience severe difficulties with the launchers. Several factors, however, contributed significantly to the problems: the equipment sat on ships for more than a month; repair parts were not available; direct support (DS) maintenance activities weren't fully operational; and the desert environment required modifications to preventive maintenance checks and services (PMCS). After a two-week desert hardening, however, the equipment ran extremely well, and we experienced very few maintenance problems. Our worst maintenance problems centered around three areas: availability of repair parts and unit prescribed load list (PLL) items, the stabilization reference package/position-determining system (SRP/PDS) and the short/no-voltage tester (SNVT) system and MLRS DS repairmen (MOS 27M).

Availability of repair parts was *abysmal*. The myth that you'll get whatever you need in combat was simply not true. In Southwest Asia (SWA), things just didn't magically appear; nor did they always arrive after exerting an extraordinary effort to get them.

Our mechanics repaired systems using inventive ways to bypass the problem or fabricated items. An example of the latter is when one section chief used launcher ablative putty to repair a huge hole (the size of a bowling ball) in a fuel tank. In another example, section chiefs and mechanics used Super glue and tape to hold fragile parts together, such as elevation resolver couplings.

These examples aren't to point out the difficulties or shortcomings of establishing a divisional support base; rather, they emphasize the importance of preparing in peacetime to sustain combat operations with limited logistical support for an extended period. Our success in this area is due to two things: unit PLL and inventiveness.

The unit PLL is absolutely critical to survival and goes far beyond maintenance management review (MMR) statistics, such as zero-balance percentages. A unit PLL should be consciously tailored to support its major weapon systems for extended periods.

Inventiveness also was essential to our success. The collective inventiveness and "quick repairs" made by crews throughout the theater need to be collected and formatted into a new "Battle Damage" manual for the MLRS system. As time passes, we'll forget several of the hasty techniques that worked. Unit leaders should document these techniques now and submit them to the Tank Automotive Command (TACOM) and Missile Command (MICOM) for future use. Units also should capture these techniques in maintenance standing operating procedures (SOPs).

The only two components we experienced severe problems with were the SRP/PDS and SNVT. The SRP problem stemmed solely from the inability of the line-replaceable unit (LRU) to be repaired by anyone short of *God*. The SRPs had to be evacuated to Europe or the US for repairs. Poor repair turnaround times and the low availability of SRPs could have created severe problems had it not been for our high PLL stockage of this item.

The SNVT system, on the other hand, has major design problems. The SNVT continually failed and required replacement, along with the cables (W17 and W19) that run along the bottom of the LLM to the launcher pod containers (LPCs). The whole system is too exposed to the heat and blast of the rockets to function properly. The SNVT system and the cables need to be insulated better from the effects of the rocket blasts. Fortunately, the 27Ms and our section chiefs found ways around the SNVT problem.

Ablative Panels. The ablative panels don't melt in your mouth, nor in your hands—nor in 10 minutes on the back of the launcher. The new titanium panels are fantastic and a clear move in the right direction. We had six launchers equipped with titanium plates (2d and 3d Platoons) and three launchers equipped with the old neoprene panels (1st Platoon).

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A/94 FA fires a mission in Iraq while on the move (27 February).

The platoon without the titanium panels shot the most rockets. It had very few problems with the neoprene panels, which only required small patchwork repair with ablative putty. Multiple firings didn't even scratch the titanium panels. The moral of the story: if you have titanium panels, that's great; if not, you should not "pull your hair out" worrying that the launchers are going to melt into puddles of molten aluminum before you can apply more putty.

Basic Loads. If, as a commander, you haven't given much time to analyzing your basic loads, you have committed a grave error. This, in part, goes back to preparing for sustained operations without support— basic loads of food, fuel, POL, water, etc., become extremely important.

Don't trust that the last commander reviewed it all and "did it right." Chances are, things have changed enough to merit your thorough review. Take water, for example. How many commanders have inventoried their unit's water-haul capacity, SOPs and load plans (where are you carrying all that water) and computed their unit's basic load of water? In our preparation for deployment to SWA, our water-haul capacity was a major deficiency.

Even if your unit is designated to fight in Europe, water isn't guaranteed. Enemy actions or nuclear, biological, chemical (NBC) agents can easily destroy or contaminate water sources. Additionally, water is bulky and heavy. Commanders should take a good look at their water supply status and other basic loads.

MLRS DS Repairmen. There has been a long-standing debate over the ideal location for the 27M DS repairmen. We've repeatedly argued in favor of attaching the 27Ms to the unit, and the DISCOM has repeatedly rebuffed that concept. Our experience in SWA indisputably argues for attaching 27Ms to the MLRS units.

When we first arrived in theater, we had two 27Ms with the unit. It took nearly a month to get the entire nine-man team assembled and under unit control. During this month, we had our most serious maintenance problems. Had the entire team been attached to the battery, they would have been available with all their equipment to help repair the systems.

On the other hand, 4-27 FA's 27Ms had been attached to the battalion for a long time. Overall, they were more skilled and better integrated, and they understood the unit and its SOPs better than our battery's 27Ms. The individual quality of any one 27M isn't the issue. The 27Ms in 4-27 FA had the time with the unit to identify system problems across the battalion; they knew particular quirks that specific systems seemed to have; and they were much more intimately involved in teaching and inspecting LLM PMCS than in our separate battery. All these factors equated to better service by the battalion's 27Ms and less down-time for their SPLLs.

As time progressed, the entire maintenance team was attached to the battery, and the level of proficiency and integration of the our 27Ms dramatically improved. This only can be attributed to the increased amount of time they spent with the crews on the systems. The support battalions that own the 27Ms must realize that attaching these personnel to MLRS units is absolutely vital to their success.

Training Issues

Our experience in the deserts of SWA demonstrated the overriding importance of realistic training. I think back on my home-station live-fire exercises in a heavy division and as a commander in the Grafenwoehr Training Area (GTA) in Germany and realize how woefully inadequate those exercises were for training us for our war missions.

In Europe, there are severe limitations on MLRS training. The most significant problem is at GTA. The extremely small size of the training area, coupled with unrealistic safety constraints, preclude even minimal training of the system (i.e., employment, maneuver, etc.). A maneuver rights area (MRA) exercise was much more effective for MLRS training.

Live-Fire Massing. The current one-launcher-at-a-time method of live fire for MLRS launchers doesn't replicate combat reality. MLRS must practice massing during live-fire situations. In the continental US (CONUS), there are few excuses for not exercising mass missions. Most large installations have the resources to fire platoons of MLRS and practice live-fire massing the system.

Unfortunately in Europe, I had to use GTA for live-fire exercises. Firing Point 274, a postage-stamp-sized firing point, is the only firing point on GTA where MLRS is allowed to fire. This made massing the system under live-fire conditions impossible. Europe must find a training area that will allow MLRS units to fire as massed elements.

During the missions fired in the desert, the battery and platoon fire direction centers (FDCs) quickly learned to use back-up launchers, if they were available, during "At my command" (AMC) and "Time on target" (TOT) missions. Often one platoon would be firing a FireStrike while the other two were sitting idle. The battery FDC would select another platoon to compute the mission and prepare to fire. In the event that one of the primary launchers in the original platoon was unable to fire due to a malfunction or a crew error, a secondary launcher in the reserve platoon was ordered to engage the target.

Obviously, we couldn't use this technique for every mission; however, it proved extremely effective on the missions for which we did use it. We had to order launchers in the reserve platoon to shoot on four occasions. Most involved synchronization with air assets that were on station. Without a back-up launcher already sitting on the firing point with a computed solution and ready to lay, it would have been impossible to fire on time.

The last major training issue is firing procedures while on the move. This is an absolutely vital task, and we should add it to every MLRS battery mission-essential task list (METL). It's especially important during offensive operations on the modern armored battlefield.

The 1st Armored Division moved an average of 54 miles a day during the four-day war. This more than doubled the movement rates of other historic "blitzkrieg" campaigns, such as Rommel's North African Campaign. This type of movement requires mobile, agile artillery support, which the MLRS is well-suited to provide. The technique we used to fire these missions was sometimes different from the typical hipshoot you envision whenever one mentions shooting on the move.

For example, on the second day of the ground war, the division G2 received targeting information on an Iraqi MRL battery sitting along the flank of the division's axis of advance. None of the division's assets were in a position to attack the target, and critical air assets were already employed elsewhere. The Div Arty received the mission and assigned it to 4-27 FA, which subsequently assigned it to A/94 FA. Because the target was approximately 15 kilometers beyond our maximum range, we engaged it using a hybrid of an MLRS raid and hipshoot. We selected a firing area within range of the target, assigned the mission to a platoon (not a launcher) and directed the platoon to move to the firing area. (We selected the platoon on the same flank of the division as the target.) The platoon assigned the mission to a primary and secondary launcher. The launchers then performed the first computation of the mission. All this happened digitally while they were moving. When the platoon closed on the firing area, it stopped, performed the final computation and engaged the target.

I called this "hybrid" because it contains critical elements of both the MLRS hipshoot and raid. Much like a hipshoot, the time to plan and execute the mission is extremely compressed and occurs while on the move; the general concept employed is "pull off the road and shoot." However, identical to an MLRS raid, you select a unit (platoon) to engage the target, select a firing area (versus a single point) and a safe route, determine where and when the unit will rejoin the main body and send survey support with the platoon.

In my experience, this mission was unique to SWA. Yet in a fluid, mobile situation such as offensive operations, it's essential to be able to fire on deep targets located along your route with minimum planning time and while on the move.

At Al Busayyah, A/94 FA fires a mission against Iraqi commando battalions.

Separate Battery vs. Battalion

Combat experience in Iraq has made me favor the Army's employing MLRS as battalions, not separate batteries. Aside from the obvious difference in firepower, employing MLRS by battalions is more effective.

If you put three—even four—MLRS separate batteries under the control of a Div Arty, they would be less effective than one MLRS battalion. Why? You gain a synergistic effect in a battalion for several reasons. First, and probably foremost, is the staff support. The battalion staff can lift a tremendous amount of the logistical burden off the battery commander's shoulders. The staff's ability to draw assets from less-committed elements, the increased degree of expertise it has and the number of its people with rank to "make things happen" allow the staff to solve logistical problems. This often leaves the battery commander free to lead and fight his firing elements. Conversely, the separate battery, to a large extent, must rely on junior officers and enlisted soldiers to accomplish the same missions.

The theory that the Div Arty staff will act as the separate battery's "battalion staff" isn't realistic. The Div Arty staff, despite heroic efforts, simply can't run an entire Div Arty and play staff to a separate MLRS battery. While they're often forced to help with major survival issues, anything less usually doesn't warrant Div Arty involvement.

Mentorship is also an important aspect of employing MLRS as a battalion versus as a separate battery. By level of responsibility, a battalion commander has a better view of a battery commander and more time to devote to his development than a Div Arty commander has. Fortunately, I was blessed with two excellent Div Arty commanders, Colonels John A. Dubia and Vollney B. Corn, Jr., who took the time to teach me. But this isn't always the case.

Another extremely important benefit of being in a battalion is "idea sharing." Inevitably, you learn a tremendous amount from other batteries. You also have several other battery commanders to give you a "reality check" when contemplating implementing a new concept or system. This idea sharing occurs at all levels—from the battery commander to the youngest soldier.

For these reasons, battalions, not separate batteries, are the more effective and efficient organization for MLRS units. It would have been significantly more difficult to operate alone in SWA than it was as part of a battalion.

Summary

MLRS has come of age. She has proven herself in combat, demonstrating her fires are effective and accurate at short and long ranges. Her launchers are reliable, and she can support herself in sustained operations.

Her value in combat can now be measured by the number of smoking carcasses of enemy vehicles on the desert plains of Iraq and the low number of casualties our forces had while assaulting "MLRS prepped" objectives.

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