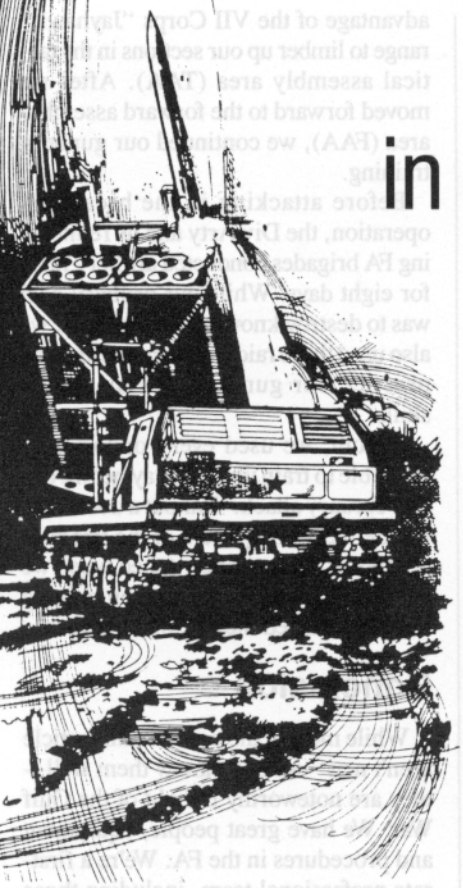


MLRS in Operation Desert Storm

by Major Mark S. Jensen

This article is a melding of three articles by Major Jensen on the multiple launch rocket system (MLRS) operations of the 1st Battalion, 27th Field Artillery (1-27 FA), 42d FA Brigade, in Operation Desert Storm.

Operation Desert Storm marked MLRS' trial by combat. The MLRS batteries and battalions from the Active and Reserve Components, adding their fires to those of cannon artillery, engaged and destroyed a wide variety of targets in support of diverse offensive operations.

One such unit, 1-27 FA, deployed from Babenhausen, Germany, to Saudi Arabia in support of Operation Desert Shield on 17 December 1990. The battalion fired in support of the 1st Cavalry, 1st Infantry and 3d Armored Divisions. This article recounts some of the battalion's experiences and cites a few of the many lessons learned.

MLRS Raids

The first rockets fired in anger on 13 February were part of a three-battery MLRS raid conducted under the control of the 1st Cav Division Artillery (Div Arty). The mission required a daylight road march by batteries and passage-of-lines to an assembly area forward of the main defensive line, movement to forward firing positions and delivery of fires against high-payoff targets. Then the battalion had a rearward passage-of-lines and a night road march to battery positions.

February 3 was the date ordered for the raid. Three firing batteries—A-21 FA (1st Cav MLRS battery, also called Rocket Battery) along with B and C/1-27 FA—conducted forward passage-of-lines and occupied Assembly Area Red. A raid command post (CP) was established with the battery fire direction centers (FDCs) and two high-mobility multipurpose wheeled vehicles (HMMWVs). Two hours later after final brief backs and precombat checks, launchers moved out for the update area.

C/1-27 and A-21 were designated as shooters to engage high-payoff targets (HPTs). These included D-30 artillery battalions and M1946 batteries, brigade CPs and maneuver force positions. Targets were input manually in the battery FDC. Most were irregularly shaped and required "hand jamming" at the battery fire direction system (FDS). Launcher section chiefs carried hard copies of the targets on 3x5 cards.

B/1-27's mission was counterfire. If Iraqi artillery fired, a Div Arty Q-37 radar passed target grids by voice to the raid CP. Battery B would engage each of the first three targets located with 36 rockets and exit the position. If no counterfire was required, the battery was to engage additional HPTs. Here's what the raid was like.

Raid I

Looking back to the south, the advance party saw the haze part as the vanguard of the battalion, moving in desert wedge formation, crested the horizon. Launchers moved easily at 25 miles per hour over the rutted terrain. M577s managed to keep pace, with an effort, while the occupants of the HMMWVs held on for dear life and cursed the tankers whose tracks had destroyed the smooth desert surface.

The first battery to arrive in the assembly area moved into position, and using north as 12:00, occupied an arc stretching from 10:00 to 2:00. The FDCs moved to the center of the position. As ramps dropped, the crew scrambled to erect the OE-254 antennas that allowed them to communicate over the distance to the firing points. The other two batteries, arriving at 10-minute intervals, duplicated the drill, circling the wagons in the same fashion as their cavalry forebears of 100 years ago. Operations tracks grouped together forming a "T" with the battalion commander's and S3's HMMWVs backing up to the base.

Platoon leaders and sergeants moved quickly to launchers, supervising prefire checks and going over, for the hundredth time, the details of the operation. Battery commanders' (BCs') vehicles pulled to the center, the BCs gathering around the hood of the "Old Man's" vehicle. A quick check yielded good news: none of the launchers had broken down on the march. Good natured bantering broke out among the BCs, the volume of the laughter giving a hint of the adrenalin flowing.

This was the first mission—long

awaited. It marked the first time MLRS would be fired in anger—the first movement into harm's way.

"Okay fellas—cut the BS. We've got a lot to do before moving out. We'll have time to screw around after this is done," said the battalion commander.

"We've got two things to accomplish here today. Our mission is to destroy the high-payoff targets the Div Arty [1st Cav] has given us. We're part of the deception plan that will show the other side our main effort will come along the Wadi Al Batin. Our guys will get their first taste of action, and the rest of the Army will see what the system is capable of for the first time. This is important. Don't screw it up." Removing his helmet and placing it on his HMMWV's hood, the battalion commander ordered the S3 to review the operation.

"Sir, the plan is unchanged. We'll do this just like we rehearsed it. The Div Arty says the HPTs they got from Corps [VII Corps] are solid. We're going to engage a couple of artillery battalions and at least two brigade CPs. The Div Arty's controlling headquarters and handles the interface with VII Corps. We control all MLRS fires and report to them.

"The armored cavalry screens have already moved forward and secured the area around the firing positions. Our passage forward of the brigade positions went smoothly. The brigade S3 was just in here—he tasked one of his mine plows to plow a road for us to use on the way out. We have a good link up with them here, and they'll provide guides out of position tonight to avoid our straying through the task force positions to our rear. Coordination with the Cav FSO [fire support officer] was done yesterday. Nobody wants any surprises on this one.

"Battery advance parties move out at 1630 to set up the update areas. At 1700 and 1705, A-21 and C/1-27 move to the update area. The two Bradleys [fighting vehicles] accompany you. You guys are the shooters. Make sure you have a good Met [meteorology data] and that all your launchers have hard copy of the targets with them. The Div Arty says no changes to targets will be made after you move downrange. Distance to the update area is about 13 kilometers—should take 25 minutes to close.

"Make sure you have a good spread at the update points. If a launcher goes down there, leave it behind and pick it up on the way back. If there's any slack in the schedule, leave the launcher behind at the update area. Report your arrival at the update area and SP [start point] to the firing positions. It'll take you 15 minutes to cover the six kilometers to the firing positions. We want you in position 15 minutes before time to fire. Report your arrival in firing positions. At H-minus 10 minutes, we'll give you the command to lay LLMs [launcher loader modules]. Report laid and ready.

"When you get the command to fire, get your rockets off, stow the LLMs and move off the point ASAP. Cymbelline radars have been active, and we don't know their reaction time. They may have planned targets in the area and rounds sitting 'on the trays.' We don't want to be the victims of a lucky shot. Remember, the Marines lost folks to counterfire a couple of days ago.

27th FA Regimental Crest

"Bravo, you're the counterfire battery. You SP five minutes after Charlie and move to your firing position. Make sure you have solid communications with us. The Div Arty Q-37 will start to radiate at H-plus five minutes. If the Iraqis respond, the Div Arty will get a location and pass it to us on the Div Arty command net. We'll pass it to you. You put 36 rockets on top of the grid—It's overkill, but what the hell. After firing three missions, you get out of there. If the Iraqis are asleep at the switch and doesn't reply, you engage your HPTs at H-plus 25 minutes and exit the firing positions.

"Account for all your launchers and personnel at your rally point and move back along the same route. Confirm your status at the update area and report passing through there. If something breaks down between the firing position and the update area, you're responsible for getting it back with your own assets. Make sure you've double-checked your tow bars and cables and have what you need. We have the M88 and M578 here to recover anything beyond your capabilities.

"If there are casualties, your combat lifesavers must stabilize them during the trip back here. The PA [physician's assistant] and the ambulance will take them from you here and complete evacuation to treatment facilities, if necessary. Sir, that's about it," the S3 concluded.

"Any questions of the S3?" asked the battalion commander. "If not, here are some things to remember. Your guys are going to be pumped up with adrenalin like nothing they've ever experienced. You have to maintain control out there. The march back to the assembly area here is going to be a dangerous time. Make sure you're on top of the formation. When you get back here, take a couple of minutes to cool your folks down before starting the road march back to your battery positions.

"You've rehearsed this and know what to do. Good luck. Go back-brief your leaders one last time and report when you're 100 percent ready to go. S3, what's the status of the Met?"

The next hour passed slowly. Digital communications were checked and rechecked. At the launchers, chiefs looked over gunners' shoulders as the targets were input and initial computations performed. Solutions were achieved on all targets. Tracks were inspected. . . flak vests adjusted. . . and crews started the "grab assing" and "BS'ing" that accompanies the excitement of "doing it for real" the first time.

At 1700, A-21 moved out to the northeast. Battery C, 1-27 FA, followed and the shooters were on the way. Battery C reported A-21 had come too far west and would have to cross its front to get to the update position. Battery C halts to let them pass.

At the battalion CP, the commanding officer reached for a fresh dip as the clock moved ahead.

Battery B started on time and the last of the launchers disappeared over the horizon in the fading light.

Tension increased as batteries reported arrival at the update area. Watches were checked repeatedly.

"How many launchers are updated? Any problems? Have they moved out yet?

Div Arty wants to know now!" Reports came over the battalion command net and were immediately passed to Div Arty.

At the CP, all personnel assumed the same position: ears glued to speakers or handsets, left hands in front of faces to see the watch dial. They waited anxiously for the commanders' reports.

"Sir, Rocket Battery reports arrival at the firing position."

"C Battery is at the RP [rally point].

"B Battery is closed."

"S3, confirm H-Hour."

"No change, Sir—1815."

"Time now?"

"1805, Sir. H-minus 10 minutes."

"Lay LLMs." BCs "Rogered" the command to lay LLMs. Silence on the nets.

"What's the status?"

"No report yet."

Then the radio came to life—"Rocket reports six laid; the others are moving."

"Charlies has eight laid, no report on the other one. The BC's checking it out now."

"We're running out of time."

More silence on the net.

"Rocket has all LLMs laid."

"C Battery is laid and ready."

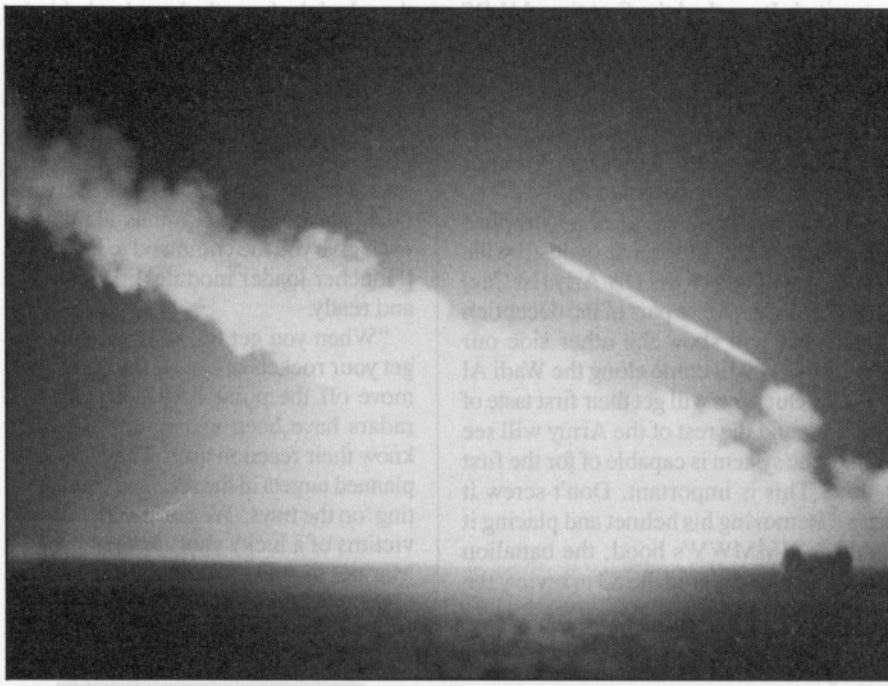
"About time—tell them to fire."

The command was passed to the FDCs for relay to the launchers. Seconds later a flash. The first launcher fired, and then the width of the horizon was lit as 19 launchers brightened the night. Blazing rocket motors marked the ascending trajectory with a trail of smoke that was lit and relit by succeeding rockets.

The assembly area was in complete silence as the first rockets were fired. Then whoops of elation erupted as the second volleys thundered into the darkness. Cameras flashed to cries of "Get some!" "Kick ass!" and "Look at those mothers!" A roar washed over the position. As the firing drew to a close, observers saw the copper-colored flash of the warhead event as the electronic fuzes functioned and thousands of bomblets were released on to the targets below.

Then the wait. Were the Iraqis on the ball? Were their radars up? Would they answer back? These guys were supposed to be good!

All the nets were silent as the LLMs were stowed. Then Rocket and C Batteries sent initial status reports. One launcher in Rocket had fired once and then shut down—couldn't be stowed.



The first MLRS launcher fired, and then the width of the horizon lit as 19 launchers brightened the sky.

"Drive it out of there now. Clear the firing point ASAP."

Battery C seemed okay.

"Q-37 is radiating. Nothing observed—yet."

"Roger. Pass the word to Battery B. Be ready."

Battery C was at the rally point. It was H-plus 15 minutes and still no counterfire.

"You got any targets for me yet?"

"Relax Bravo, you'll be the first guys we call."

"Roger."

H-plus 25 minutes. "Sir, it looks like they're not going to fire back."

"Tell Bravo to fire his targets."

Seconds later, the sky again was lit as another 100 rockets thundered down range. There were more whoops and hollers as the soldiers in the CP cheered the show.

"Bravo reports all fired. Can't stow one of his launchers."

"Put the jury struts in and tell them to move."

"He's doing it now."

Battery C almost drove past the assembly area in the dark.

"Can you see the red flashing light?"

Battery C moved into position at last with everything okay. The BC quickly reported to the commander and got permission to return to his original battery position.

The glow of blackout markers receded as the battery moved off, following a Cav Bradley acting as a guide.

A-21 returned to the firing area. Twenty minutes later, B Battery pulled in. A quick look at the B Battery LLM and the determination was made to move it back to the battery before attempting repairs. Then the Bradley guide vehicle returned.

The units moved to the SP at the same time, and for a couple of moments, it looks as if they might intermingle. The BCs acted quickly to get the situation unsnarled, and the convoys moved off in the dark.

Veterans at last. For the first combat MLRS raid, a more dramatic sight would be hard to imagine. Darkness accentuated the system's capability to deliver massive fires. First, the flash of 18 launchers firing simultaneously lit the width of the horizon, followed by the glow of hundreds of rocket motors climbing into the sky. In the distance, a bright copper-colored flash marked warheads opening to dispense thousands of bomblets. Seconds later, the first storm of what Iraqi prisoners called "Steel Rain" broke over the targets.

A total of 24 targets were engaged at ranges between 21 and 30 kilometers. The first ripple engaged 15 targets with 181 rockets; the second fired 106 rockets at nine targets. Total firing time was less than five minutes, delivering the

equivalent of 71 volleys from a 24-gun cannon battalion.

Witnesses to the firing—from the Bradley drivers in the screen to the general officers of the 1st Cav Division and VII Corps Artillery—were amazed by the volume and violence of the fires loosed that night. There was no doubt in anyone's mind (especially the Iraqis in the impact area) that the latest addition to the Field Artillery was "up to the task."

Raid II

Three days later, the battalion again joined the 1st Cav in a much larger operation. The deception plan called for a large feint operation to deceive the Iraqis into thinking that the main US effort was directed along the Wadi Al Batin. Four cannon battalions of the Div Arty and 42d FA Brigade, one MLRS battalion and the Div Arty MLRS battery massed their fires to destroy HPTs and suppress or destroy enemy air defense systems.

Shortly before 0100 on 16 February, the night again was shattered as Redlegs unleashed the fury of their cannons and rockets on all Iraqi targets in range. Of particular concern to our battalion was an SA-9 radar battery located by a joint surveillance and target attack radar system (JSTARS) only hours before the raid. Twelve rockets on the target put the radar "out like a light."

After several minutes of intense fire, the roar of artillery yielded to the growl of Apache gun ships moving across the border. A scan of the horizon with night-vision goggles showed numerous secondary explosions and fires reflecting off the clouds, testimony to the destructive power of the combined-arms team. We began the road march home exceptionally confident of our weapons system and training.

The Prep

The next day, we marched 40 miles west to the 1st Infantry Division area to prepare for the deliberate attack against the Iraqi defenses. The 1st Division had an aggressive raid schedule, and the battalion also participated in raids under the control of the 42d and 75th FA Brigades.

Operations Plan (OPLAN) "Scorpion Danger" called for a two-and-one-half-hour prep to be fired, starting at H-2:30 on the day of the attack scheduled for Ground Day+1.

On 24 February (G-Day), the division started moving forward. Lead elements encountered light resistance, and the decision was made to attack a day early, starting with the prep. The battalion had been told to prepare for a one-hour prep. As firing batteries pulled into position at 1100, new instructions came down. H-Hour was moved up, and the prep was shortened to one-half hour; new targets were coming in from the 75th FA Brigade.

"Murphy's Law" went into effect as the jump tactical operations center (TOC) lost digital communications with the 75th FA and one of the firing batteries. The 75th passed the targets by voice, and after a quick plot to verify range, the targets were assigned by voice to firing batteries. All launchers were ready to fire at 1330. H-Hour was rescheduled, and at 1430, the battalion added its fires to those of the other battalions and separate batteries supporting the breach.

The MLRS' ability to throw a boxcar load of ammunition 30 kilometers over the horizon in less than a minute make it an ideal weapon to deliver prep fires. In addition, the system's multiple aim-point capability gives it great flexibility in engaging targets.

Student Body Left

After firing in the prep for the 1st Infantry Division attack, the battalion slid to the west and linked up with the 3d Armored Division as it began the "Student Body Left" around the Iraqi lines. Moving in battalion formation, the launchers easily kept pace. But the heavy expanded-mobility tactical trucks (HEMTTs) pulling combat-loaded heavy expanded-mobility ammunition trailers (HEMATs) carrying 4 pods per trailer experienced extreme difficulty in traversing the soft sand, and five drive shafts snapped in a matter of hours.

As the division turned east on 26 February, the batteries dispersed across the two-brigade front, navigating by global positioning system (GPS) and keeping the direct support (DS) and reinforcing (R) battalions in sight. Late in the afternoon, a call from the 2-3 FA (Gunners), the DS battalion for the 1st Brigade of the 3d Armored Division, notified us the brigade was in contact, and the DS battalions were occupying firing positions.

Moving out of the desert wedge formation, the MLRS batteries halted and prepared to deliver fire. Located just behind the DS and R battalions, the MLRS firing positions were about four to seven kilometers from the line of contact. The first missions were received at 1800 from the 42d FA Brigade. The initial missions were transmitted from the brigade digitally, but communications problems required switching to voice.

The 1-27 FA answered calls for fire throughout the night, engaging 15 targets with 172 rockets. Early the next morning, the division exploited the previous evening's success and began pursuing the shattered Iraqi forces; the battalion fired an additional 44 rockets.

On several occasions, firing elements were laid and ready to fire on Iraqi targets, only to have the mission ended because of problems coordinating airspace with the Air Force. Unique to this operation was the use of the fire support coordination line (FSCL) as a *restrictive* fire control measure, which was particularly vexing. Placing the FSCL close to the forward-line-of-own troops (FLOT) necessitated clearing all fires with the Air Force. The time consumed in this process severely impeded the battalion's ability to respond.

In one instance, the battalion was passed 10 targets while moving and told to fire when within range. Closing into position, 1-27 FA reported ready to fire with eight of the 10 targets in range and received instructions to stand by for airspace coordination. After waiting more than an hour, clearance was granted to fire on only two of the targets.

Suspension of combat on the morning of 28 February found the battalion in eastern Iraq, ready to cross into Kuwait.

In the coming days, 1-27 FA had the chance to sort out experiences and analyze the way the system had been employed.

Lessons Learned

The 1-27 FA learned a lot. The most comforting lesson was the confirmation of the effectiveness of training. The battalion executed a number of different missions, but not one was a surprise in terms of preparation. The battalion's Army training and evaluation programs (ARTEPs) administered in Europe were excellent preparation for combat. The desert terrain required some modifications to the standing operating procedures (SOPs), but these were minor.

- MLRS movement formations were tight. The battalion operated across much smaller frontages than those in *FM 6-60 MLRS Operations*. Batteries marched in desert wedge formations and split off platoons to firing areas. They didn't use hide positions as the terrain had little relief and no areas for concealment. A battery frontage rarely exceeded three kilometers.

Launcher movement after firing was less than specified in FM 6-60. This was a function of the crowded battlefield and a lack of an effective counterfire threat from the Iraqis.

Tight formations were particularly helpful on raids where they allowed commanders to see each self-propelled launcher loader (SPLL) in operation, greatly facilitating control. This level of control sometimes aggravated platoon leaders and section chiefs trained in accordance with FM 6-60, but control is the name of the game.

- The MLRS system needs more range. It needs to reach 45 to 50 kilometers to engage the long-range cannon and rocket systems now on the battlefield. A trade-off of weapons payload for increased propellant or a larger rocket is necessary to guarantee success in the counterfire fight.
- Coordinating fires is tough. Long delays required to clear fires negatively affected the system's effectiveness. The battalion and the rest of the FA need to clarify just what targets MLRS will fire on and where and cut the time necessary to coordinate fires.
- Information flow breaks down in fast-moving situations. Deep targets are no longer deep by the time they make their way through the system. In these situations, it's prudent to assign MLRS the tactical mission of GS/R with "a string on" ammunition consumption to protect the force artillery commander's interests. This shortens the targeting information chain and increases responsiveness. A tie-in with the DS units is extremely beneficial in terms of getting tactical information relevant to the artillery.
- MLRS *can shoot*. Three soldiers can deliver an incredible volume of fire at extreme range. The ability to engage large, irregularly shaped targets enhances the system's effectiveness.

- MLRS can move. Launchers have no trouble keeping up with the supported maneuver force and can "ride to the sound of the guns" with ease. The same can't be said of the battalion's command and control vehicles and ammunition transports, particularly if they are pulling combat-loaded HEMAT trailers. In fast-moving situations, the launchers may have to pull the HEMATs or they'll have to be left behind in a battalion ammunition handling area where the HEMTTs return to reload.
- MLRS usually can communicate. All units must be able to direct fires using voice and digital communications. The 1-27's most successful technique was to use digital communications for fire planning and switch to voice once the fight was joined. But shooting using voice communications is fraught with perils as it strips out some of the redundant checks that ensure firing safety.

Until commanders have a user-friendly digital device capable of accessing all data bases and files, they'll rightfully insist on commanding and directing fires by voice. Whenever possible, the battalion used digital communications to direct a battery's fires because it made the task of tracking fire mission status easier.

- MLRS is a maintenance-intensive system. It's absolutely critical that repair facilities and replacement assemblies be close by and plentiful. Commanders must make supporting MLRS and transporting its critical assemblies a priority if they want fires available when needed most. The optimum solution for Desert Storm was to use UH-1 helicopters to transport line replacement units and other critical electronics spares to repair locations.

The area support concept as applied during Desert Storm, wasn't up to the challenge of providing critical assemblies in a timely manner. Cannibalization and extreme "hustle" on the part of the battalion logistics and maintenance personnel kept the system operational.

In Operation Desert Storm, MLRS proved to be a worthy addition to the Redleg team. Delivering large volumes of fire to extreme ranges, MLRS gave the ground-gaining arms a renewed appreciation of the fire support system. The 1-27 FA helped prove the artillery can devastate a defending force before maneuver forces close to direct-fire range, saving lives and speeding the accomplishment of the mission.

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