1-41 FA in Desert Storm:

A Test Bed for Doctrine and Equipment

by Lieutenant Colonel John P. Floris

The 1st Battalion, 41st Field Artillery (1-41 FA), part of the 24th Infantry Division (Mechanized) Artillery, was deployed in Operations Desert Shield and Desert Storm from August 1990 until March 1991. An M109A2 howitzer, 3x8 battalion, the 1-41 FA was in direct support (DS) of the division's 1st Brigade. We entered the ground phase of combat in Desert Storm on 24 February as part of the 24th Division's attack to secure the Euphrates River valley lines of communication (LOCs).

The 1-41 FA traveled 275 miles during a 96-hour period, controlled the fires of a reinforcing FA battalion (2-17 FA, 155-mm, self-propelled) and coordinated the positioning and fires of the 212th FA Brigade (2-18 FA, 203-mm, self-propelled and 3-27 FA, multiple launch rocket system, or MLRS). The 212th FA Bde was the Force Artillery Headquarters for the 1st Brigade for much of the ground war.

The FA fired 2,104 rounds of mixed munitions in support of 1st Brigade operations during the conflict. FA fires were executed in a timely and accurate manner with effective results. We fought hard over great distances, under adverse weather conditions and under fire.

The combat facts and lessons learned outlined in this article are based on the 1-41 FA's seven-month deployment in support of Desert Shield and Storm. Our operations provided excellent opportunities to examine equipment and doctrine in a desert environment during combat operations. However, it must be noted that the circumstances of both Desert Storm and the 24th Division are indeed unique. Any lesson's impact on doctrine must be weighed within the context of its unique circumstances.

10 Days Before the Attack

The 1-41 FA occupied Tactical Assembly Area (TAA) Victory, approximately 10 kilometers south of the Iraqi border in the north central portion of Saudi Arabia, 10 days before the ground war. (See Figure 1.) We continuously rotated the forward positioning of batteries to support the 1st Brigade's cross-border reconnaissance operations.

On 22 February, Task Force (TF) 4-64 Armor (AR) scouts located an enemy air defense artillery (ADA) site. Battery A/1-41 FA was positioned well forward along the Iraqi border and adjusted suppressive fires to support the seizure and destruction of the ADA site with fires ad-

justed by the TF scouts. Battery B/1-41 FA quickly repositioned along the Iraqi border to support the mission but wasn't required to engage enemy targets as elements of TF 4-64 AR quickly overran the site. On 23 February, Battery C/1-41 crossed the Iraqi border with a company team from TF 4-64 and penetrated approximately 20 kilometers to support the scouts' limit of advance. Battery C was the first division artillery unit to cross the border into Iraq.

G-Day—Initiation of the Attack

The 1-41 FA (-) crossed the border into Iraq at 1245 on 24 February following TF 4-64 AR. We moved 15 kilometers into Iraqi territory, occupied a position area and supported the 1st Brigade seizure of its initial objectives. No missions were fired as there was no enemy contact; 100 percent of our vehicles and equipment successfully occupied the initial position.

The battalion was in position approximately two hours, conducted refueling operations and continued movement north over rocky terrain following TF 4-64 AR in a brigade box formation. We traveled in a battalion wedge with batteries in column formation, moving north to secure the next 1st Brigade objective, Objective Red.

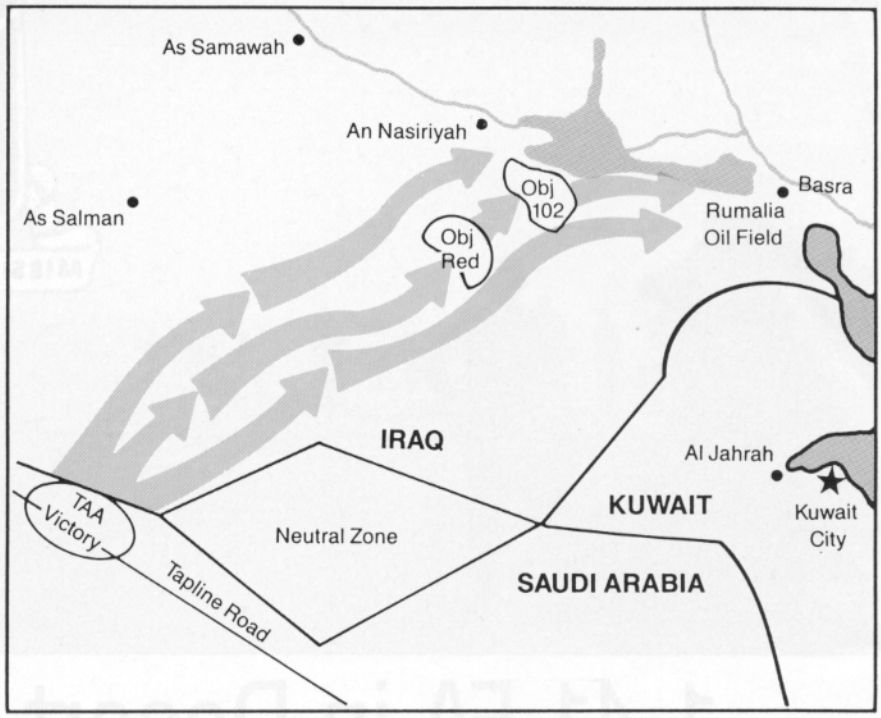


Figure 1: The progress of 1-41 FA during Operation Desert Storm with the 24th Infantry Division from the battalion's TAA through two objectives to the Rumalia Oil Field, its cease-fire position.

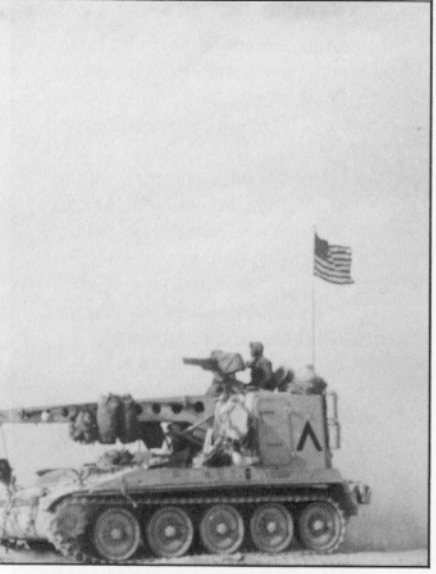
Attack to Seize Objective Red

The 1-41 FA moved rapidly as part of the 1st Brigade box formation. On 25 February, the brigade halted to refuel; we had moved an estimated 175 kilometers at that point. In the vicinity of Objective Red, the 1-41 FA received a mission to fire on dismounted Iraqi infantry. We fired coordinated illumination, observed and adjusted by a TF 2-7 Infantry (IN) scout. Fire-for-effect (FFE) rounds resulted in the suppression and ultimate surrender of a dismounted reinforced Iraqi infantry company. We then displaced forward to occupy a position for preparation fires on likely enemy avenues of approach. At that time, the 212th FA Brigade assumed the force FA headquarters responsibility with the 2-17 FA reinforcing the 1-41 FA.

The "Glory Battalion"—1-41 FA's guns ready for action in Desert Storm.

Attack to Seize Battle Position 102

On 26 February, the battalion attacked from Objective Red to Battle Position 102 in a brigade box formation. The attack was initiated by a 30-minute preparation on enemy positions by 155-mm, 203-mm and MLRS fires. We continued to travel in a wedge formation by battery columns, but sandstorms limited our visibility and resulted in slow and deliberate movement. Numerous wheeled vehicles and trailers bogged down, which later had to be recovered under the direction of the battalion executive officer.



A recovery vehicle supporting the 1-41 FA moves into the Euphrates River valley.

The battalion attacked to seize Battle Position 102 with 23 of 24 howitzers. Incoming mortar and artillery rounds were encountered short of the battle position, so we conducted a hasty occupation and initialized and aligned our attached Q36 Firefinder radar to acquire enemy indirect fire systems. The Q36, supporting the 2-17 FA, was positioned forward to provide additional support. After occupying the positions, the battalion and supporting FA fired numerous counterfire missions to silence enemy indirect fire systems.

The 1-41 FA, 2-17 FA and 212th FA Brigade then executed preparation fires in support of the brigade attack to seize the battle position. The 1-41 FA massed fires on numerous other targets as acquired by the attached Q36 radar and OH58D observation helicopters from the 24th Aviation Brigade. These fires destroyed at least two Iraqi artillery battalions, ADA sites and numerous wheeled vehicles and dismounted infantry. Our combat power remained 23 of 24 howitzers as the recovery efforts to retrieve wheeled vehicles continued at a rapid pace.

After seizing Battle Position 102, the battalion conducted refueling operations and initial ammunition resupply, primarily rocket-assisted projectiles (RAP). During the early morning of 27 February, OH58D pilots under the cover of darkness and with limited illumination

Mounted on a HEMTT, the battalion's TACFIRE shelter crosses the Saudi border into Iraq.

targeted and executed the fires of 1-41 FA to destroy enemy dismounted soldiers and a wheeled vehicle convoy north of the brigade objective.

Additionally, we captured and processed several hundred Iraqi enemy prisoners of war (EPWs) and treated many enemy wounded who had been caught in US artillery fires.

Attack East to the Rumalia Oil Field

On 28 February, the battalion displaced across Highway 8 following TF 2-7 IN to destroy enemy forces west of the Rumalia Oil Field, executing preparation fires on the enemy. We also fired numerous counterfire targets in an intense artillery battle lasting nearly two hours. The 1-41 FA was credited with neutralizing two Iraqi D-30 FA battalions during the exchange.

The battalion then repositioned and executed preparation fires on two Iraqi Republican Guards Forces Command (RGFC) infantry brigades as supporting 212th FA Brigade assets engaged numerous deep targets. Refined enemy targets were refired throughout the early morning hours by the battalion and the 212th Brigade, employing the destructive fires of its MLRS battalion and 2-18 FA.

A Presidential cease fire was declared at 0500 hours on 1 March 1991 following a one-hour artillery preparation by the entire artillery force. Intermittent incoming artillery fires continued on 1 March, which we responded to with massed fires that quickly silenced the Iraqi guns.

Rumalia Oil Field Causeway Attack

On 2 March, scouts from TF 2-7 IN identified a division-sized enemy column attempting to cross the Rumalia Oil Field Causeway. Elements of the column fired rocket-propelled grenades (RPGs) on our forces, and a battle ensued. The 1-41 FA and 3-27 FA (MLRS) massed fires on

An Iraqi field gun that "doesn't make it" during Operation Desert Storm.

the leading edge and flanks of the enemy column in an attempt to halt its movement. Our 155-mm and MLRS dual-purpose improved conventional munition (DPICM) fires were accurate in blocking the enemy's movement, and neutralizing fires resulted in enemy forces' abandoning much of their equipment along the causeway. FA fires were instrumental in halting the enemy for complete destruction by the brigade direct-fire assets and AH-64 Apache helicopters of the aviation brigade.

Division battle damage assessment (BDA) as a result of this effort included 24 T-72 Soviet-made tanks, 7 T-55 Soviet-made tanks, 43 Soviet-made infantry fighting vehicles (BMPs), 15 Soviet-made reconnaissance vehicles (BRDMs), 34 artillery pieces, 5 Soviet-made armored personnel carriers (MTLBs), 377 trucks, 40 utility vehicles, an air defense weapon (ZSU-23-4), 9 Soviet-made multiple rocket launchers (BM-21s) and one French-made armored personnel carrier (AMX-10). A permanent cease fire was declared 3 March at 1530 hours.

Lessons Learned

The 1-41 FA learned a great deal in Operation Desert Storm. Training during National Training Center (NTC) rotations at Fort Irwin, California, and Operation Desert Shield were extremely helpful in preparing us for combat.

Based on several combat observations (see Figure 2), we drew lessons for equipment and doctrine considerations.

In an offensive battle of this nature, the brigade FSE must collocate with the brigade TACs rather than the TOCs. This places the brigade FSO and his variable format message entry device (VFMED) forward to clear and control fires. For the very same reason, battalion FSOs must fight out of their maneuver battalion TAC or TOC rather than collocating with TF commanders. Such configurations ensure quick, timely and accurate fires initiated at the FIST level.

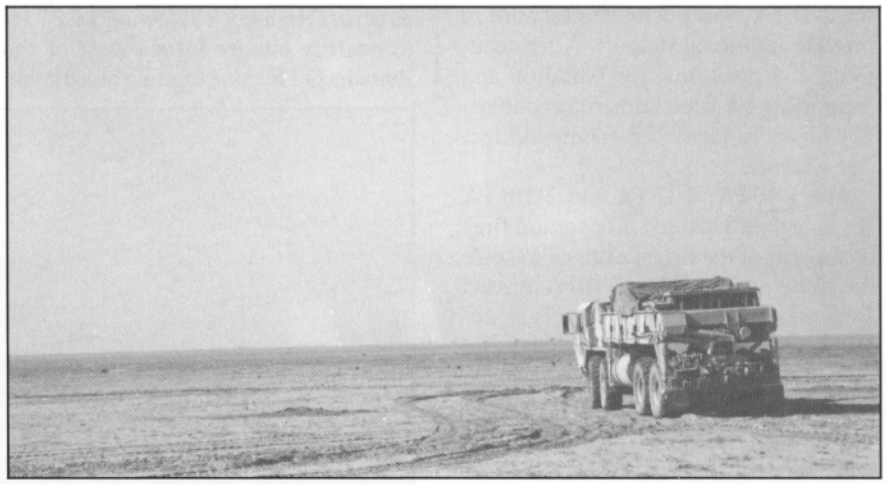
TACFIRE must be mounted on a HEMTT. We did, and had no mobility problems over rough terrain, maintaining digital communications even on the move. But a 100-amp generator kit must be installed as part of this configuration for continuous operations.

The M548 and FIST-V must be replaced by modern systems designed to keep pace with the M1 tanks and M2 Bradleys. Although the M548 and FIST-V were effective during the war, they simply were unable to sustain the pace required of this operation. The M548 should be replaced by the combat ammunition transport vehicle (CATV) or HEMTT and the FIST-V replaced by either the M113A3 armored personnel carrier or M2 type chassis configured with a ground/vehicular laser locator designator (G/VLLD) and targeting station. Another option that should be considered is to fit the high-mobility multipurpose wheeled vehicle (HMMWV) with kevlar armor protection.

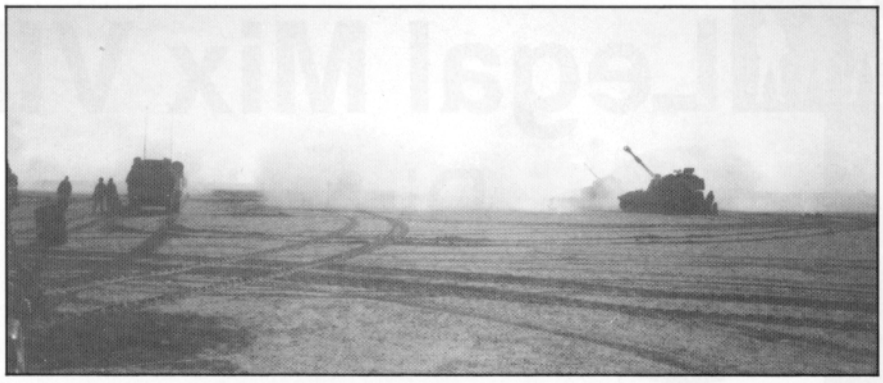
By contrast, the M109A2 howitzer per-

- Our FA never was outrun by the M1 tanks and M2 Bradley fighting vehicles, which often moved 25 to 30 miles per hour across open terrain.
- The 1-41 FA completed combat operations with 23 of 24 howitzers operational.
- The battalion operated as batteries rather than by platoons.
- The Q36 Firefinder radar was one of the most critical assets on the battlefield. The Q37 radars were unavailable because of maintenance and mobility problems.
- Fires were planned digitally by the tactical fire direction system (TACFIRE) and executed by voice communications, the latter because of the distances involved. Because of the pace, fire support teams (FISTs) weren't consistently in position to observe fires.
- The fire support team vehicle (FIST-V) couldn't keep up with the M1s and M2s. It maintained a high operational readiness rate because the division commander gave it maintenance priority.
- TACFIRE kept up because the 1-41 FA mounted the shelter and one 15-kilowatt generator on a heavy expanded-mobility tactical truck (HEMTT) that towed the second 15-kilowatt generator.
- Ammunition management and resupply weren't problems. The battalion carried more than 5,000 rounds in 24 howitzers, 24 M548 cargo carriers and 20 HEMTTs.
- The M548 couldn't carry its full ammunition payload without severe maintenance and mobility problems.
- The global positioning system (GPS) and long-range aid to navigation (LORAN) devices worked well and had limited maintenance problems.
- DPICM and RAP were the 1-41 FA's combat munitions of choice.
- For much of the operation, the brigade tactical operations center (TOC) couldn't stay up with the lead maneuver forces, thus, removing the brigade fire support officer (FSO) from the fight. The DS battalion commander had to serve as fire support coordinator (FSCOORD) and FSO. The brigade fire support element (FSE) collocated with the brigade tactical command post (TAC) to solve this problem.
- Fire missions were preparations, counterfire or observed fires directed by maneuver scouts, OH58Ds or FA observers and voice cleared by the FSCOORD linked with the battalion FSO in contact with observers.

Figure 2: The 1-41 FA Combat Observations During Desert Storm.



Launchers of 3-27 FA (MLRS) fire in the distance while a HEMTT carrying ammo moves toward the front lines.



1-41 FA executes fires in Iraq during Desert Storm.

Ammo Dogs "Making It Happen" in Desert Storm.

formed superbly and kept pace with the M1/M2-equipped brigade.

The GPS and LORAN proved invaluable for desert navigation. We need one GPS for each FIST, combat observation lasing team (COLT) and firing battery platoon leader.

The GPS-9 also was excellent for survey section operations. Seldom did a satellite window close with the system tracking. The GPS-9 provided the battalion a common source for location, and we rotated two different master stations forward in sector for common direction. The position and azimuth determining system (PADS) was effective and dependable during battle.

The Q36 radar was an overwhelming success, yet it had some difficulties with desert mobility. The Q37 radar was never involved in the fight due to mobility and maintenance problems. Both radar systems should be mounted on 900 series 5-ton trucks to improve their mobility. In addition, the same series 5-ton truck should serve as the secondary mover to tow the 15-kilowatt generator trailer assembly.

DS FA battalions need two M-88 recovery vehicles for their battalion maintenance sections. The M578s aren't powerful enough for track recovery, particularly for the M109A2 howitzer in the desert environment. This also would permit the flexibility of placing one M578 with each battery while maintaining a battalion-level heavy recovery capability.

We didn't conduct independent platoon operations in Iraq. Consolidation of platoons into battery operations maximized command and control, security, movement and execution of timely fires. Platoons never traveled more than 500 meters apart during the conflict and operated with one platoon fire direction center (FDC) hot and one cold. Thus, 24-hour operations were sustained with great effectiveness.

The battalion traveled well in the desert employing non-standard FA movement formations. Rather than moving in a column conducting deliberate occupations, we moved much like the Armor and Infantry in a tactical battalion diamond with batteries in a platoon wedge. Movement was fast, survivability increased and the battalion easily conducted hasty occupations. The 1-41 FA routinely occupied and was safe to fire in less than eight minutes while still meeting the criteria for accurate, predicted fire.

DPICM and RAP, the combat munitions of choice, proved to be highly effective. EPWs pleaded with US forces to halt the "Artillery Rain" (DPICM and RAP). The accuracy of both munitions was excellent.

Charge 7 Red Bag (RB) propellant was very effective. We derived Charge 7 RB muzzle velocities in training before the war, and this paid huge dividends in accuracy during battle.

The maintenance readiness rate of the M109A2 howitzer was excellent (23 of 24 at the end of the war). We learned early in Desert Shield that preventive maintenance checks and services (PMCS) alone weren't enough. The system requires long periods of operation in the desert to learn how to maximize the capabilities of the diesel engine and major end items and educate drivers in desert operations.

Early in the deployment, we conducted weekly long-distance road marches over rough terrain to exercise the systems. This stress-tested the system and identified problems that could have affected operations during the combat.

In conclusion, the soldiers of 1-41 FA performed their mission in the greatest spirit of the FA. Their commitment to excellence and sense of professionalism made the difference. Our equipment worked well—some of it much better than advertised. This success largely can be attributed to an aggressive training and maintenance program refined at the NTC and perfected in the Saudi desert during the months leading up to the war.

Lieutenant Colonel John P. Floris is a student at the Army War College, Carlisle Barracks, Pennsylvania. Until recently, he commanded the 1st Battalion, 41st Field Artillery, 24th Infantry Division (Mechanized), Fort Stewart, Georgia. He returned from Saudi Arabia with the battalion after participating in Operations Desert Shield and Storm. Lieutenant Colonel Floris has served with the Joint Chiefs of Staff in Washington, D.C. as a Strategic Policy Planner and in the Office of the Deputy Chief of Staff for Operations and Plans (DCSOPs) at the Pentagon as a Force Integration Action Officers. He also was a Battery Commander and Assistant G3 with the 56th Field Artillery Brigade (Pershing) in Germany and a Battery Commander in the 2d Battalion, 37th Field Artillery, III Corps Artillery, Fort Sill, Oklahoma.