

Leading the Radar Section in Battle— What “Right” Looks Like

by Chief Warrant Officer Three
Harold A. Thacker, Jr.



Few soldiers will spend a day at the National Training Center (NTC) at Fort Irwin, California, as a radar section leader (Field Artillery Targeting Technician Warrant Officer 131A). Yet, understanding the role and responsibilities of the radar section leader is key to the success of every brigade combat team (BCT). The AN/TPQ-36 radar section provides the brigade unique force protection as well as valuable intelligence on enemy mortars and artillery and the locations of high-volume indirect fire.

This article examines the duties and responsibilities of a radar section leader as he prepares his radar section for and leads his soldiers in the NTC battle. If he trains to his duties and responsibilities *right*, he and his section will be prepared to conduct operations in combat.

D-2, 1600. The brigade briefs subordinate units on an operations order (OPORD) for a movement-to-contact. The direct support (DS) FA battalion assistant S3 takes a copy of the brigade OPORD to the DS battalion tactical operations center (TOC) to begin mission analysis.

At the TOC, battle staffs from the DS battalion and the reinforcing battalion gather to jointly conduct mission analysis as part of the military decision-making process (MDMP). The radar section leader and the general support (GS) FA battalion targeting officer begin reading the OPORD. The radar section leader focuses on the information listed in Step 1 “Analyzes the mission...” of the figure.

The radar section leader notices the OPORD contains no information on an

electronic warfare (EW) threat. He coordinates with the S2 and submits a request for information (RFI) to the brigade S2: “What is the ground-based EW threat in theater?”

The section leader reads through the OPOD concept of the operation and subordinate unit tasks for the scheme of maneuver. He focuses on what force protection assets are dedicated to the radar section—Bradley team, military police (MP) squad, infantry squad or engineer survivability assets. If no protection assets are identified in the OPOD, the radar section leader discusses the protection assets with the S3, who adds them to the RFIs for the brigade S3.

Finally, the radar section leader looks through Annex D of the fire support plan to find the radar position areas and radar zone list. He determines the information developed by the brigade targeting officer (another 131A) during the MDMP, as listed in Step 1 of the figure.

As he completes the mission analysis, the radar section leader considers the implied and specified tasks he must accomplish for the mission. For this mission, his specified tasks are to acquire the enemy regimental artillery group (RAG) and opposing force (OPFOR) mortars. His implied tasks are to coordinate the link-up time and location for force protection and engineer assets and coordinate with adjacent units for force protection and support once the radar section occupies its position.

The radar section leader attends the mission analysis briefing to the commander and copies down any guidance

specifically for the radar. He then issues a warning order (WARNO) to his section, covering the information listed in Step 2 “Issues a WARNO...” of the figure.

Next, he participates in course-of-action (COA) development, confirming the information listed in Step 3 of the figure. For each action/counteraction of the COA during wargaming, the radar section leader states the information listed in Step 4 of the figure.

The radar section leader then returns to his section and issues a second WARNO to update the section on the outcome of the wargame.

D-1, 0600. After a few hours of sleep and a quick breakfast, the radar section leader attends the FA support plan (FASP) briefing with the battery commanders. The GS FA battalion targeting officer briefs the radar deployment order (RDO). The section leader confirms his understanding of the plan and the integration of his radar section into the schemes of maneuver and fires. He then back-briefs the DS or reinforcing battalion S3 on the key tasks and movement of his section.

D-1, 0800. The radar section leader attends the battalion after-action review (AAR) for the previous battle. He notes key issues with radar zone refinement and fixes call-for-fire zone (CFFZ) refinement for the next battle.

After the AAR, the radar section chief briefs his soldiers on the upcoming mission using the five paragraph OPOD format, including the information listed in Step 8 of the figure. He and the radar section chief begin inspecting the critical pre-combat checks (PCCs) to be accomplished before the brigade crosses the line-of-departure (LD).

He then reconnoiters future radar positions to evaluate their technical and tactical suitability for the mission and confirm routes. The radar section chief returns to the DS TOC and updates the S2 and GS battalion targeting officer on the friendly and enemy situations.

D-1, 1600. During the battalion rock drill, the radar section leader indicates the information listed in Step 11 of the figure.

D-1, 1800. The radar section leader briefs his crew on any changes from the rock drill. He then prepares his battle board, including the updated information listed in Step 12 of the figure. The battery first sergeant (1SG) arrives, and the section leader coordinates for logistics, including the areas in Step 13 of the figure. The radar section leader eats,

rests and prepares his section to move to collocate with C Battery short of the LD.

While he's eating, the force protection arrives at the radar location—two MP teams. The radar section leader briefs them on the overall situation and gets information from the teams, as indicated in Step 14 of the figure.

D-1, 1900. The radar section moves out and collocates with C Battery. During the movement, the TOC informs the radar section leader the route has changed. The changes are plotted on the

map and the appropriate waypoints are entered into the global positioning system (GPS).

While moving through a wire obstacle from a previous battle, the senior radar operator calls to tell the section leader the cargo trailer has gotten wire wrapped around the wheel and axle. The convoy stops, and the MPs provide area security. The radar section leader goes to the disabled vehicle, assesses the situation and notifies the TOC the section will be late in closing on C Battery's location.

While the section leader contacts the TOC, the radar section chief directs the removal of the concertina wire from the disabled vehicle.

An hour later, the radar section leader briefs his soldiers on the dangers of night movement and battlefield obstacles. The soldiers mount-up and resume movement, finally arriving at C Battery and emplacing the radar.

The section then conducts a counterfire battle drill rehearsal with the reinforcing battalion in preparation for the up-

1. Analyzes the mission, by...

—Examining the Brigade Operations Order (OPORD) for the:

- Enemy Electronic Warfare (EW)
- Enemy Indirect Fire Systems
- Enemy's Most Likely Avenue of Approach (Ground and Air)
- Force Protection Assets for the Radar Section
- Radar Position Areas
- Radar Zone Numbers, Types and Grids (Annex D)
- Zone Activation/Deactivation Triggers (Annex D)
- Determining the implied and specified radar section tasks.
- Attending the Commander's Mission Analysis Briefing, looking for specific guidance for his section.

2. Issues a warning order (WARNO) to the section, including the...

- Proposed Primary and Alternate Radar Positions
- Search Azimuths
- Pre-Combat Checks (PCCs)
- Pre-Combat Inspections (PCIs)
- Time Line for Key Events

3. Participates in Course-of-Action (COA) Development, confirming...

- Primary and Alternate Radar Positions
- Search Azimuth
- Cueing Schedule
- Radar Zones
- Use of Force Protection Assets

4. Participates in Wargaming and, during each action/counteraction, states his section's...

- Position
- Search Azimuth
- Cueing Schedule
- Active Zones
- Need for Casualty Evacuation (CASEVAC) Assistance and Other Support

5. Issues second WARNO to the section, updating the information in the first WARNO, COA development and the wargame.

6. Attends the FA support plan (FASP) briefing and confirms his understanding of the radar deployment order (RDO).

7. Back-briefs the direct support (DS) battalion S3 on key tasks and section movement.

8. Briefs his section using the OPORD format, including...

- Map with Current Graphics
- FASP
- RDO
- Operations Overlay

9. Conducts inspections on mission PCCs with the section chief.

10. Reconnoiters radar positions and routes; back-briefs the S2 and general support (GS) targeting officer on the friendly and enemy situations.

11. Participates in the FA battalion rock drill, indicating for each phase of the plan the...

- Radar Location
- Search Azimuth
- Active Zones
- Cueing Schedule
- Acquisition Flow
- Support Requirements at Critical Events

12. Briefs his section on changes and prepares his battle board, including updated...

- Zones Plotted
- Graphics
- Routes
- Ambulance Exchange Points
- Radar Sites

13. Coordinates with the first sergeant for...

- Logistics, Personnel and Administration Center (LOGPAC) Requirements
- Rations and Fuel
- Preventive Maintenance Checks and Services (PMCS)

14. Briefs the force protection assets on the...

- Primary and Alternate Positions and Routes
- Friendly Scheme of Maneuver
- Enemy Situation
- Need to provide roving security from the front to the rear of the radar convoy and radar sites.
- Requirement for a list of the protection asset's personnel, support requirements and sensitive items.

15. Convoys to the battery short of the line-of-departure (LD) and...

- Establishes communications and conducts digital comms checks from sensor to shooter.
- Conducts a counterfire battle drill rehearsal with the reinforcing battalion.
- Conducts section stand-to, checks sensitive items and performs final PCIs and PCCs.
- March orders to the LD and conducts the final safety briefing.

Radar Section Leader's Steps in Planning and Preparing to Execute His Mission



Sergeant Delgado, senior radar operator for 3d Battalion, 29th Field Artillery, 4th Infantry Division (Mechanized), inputs a critical friendly zone.

coming battle. The rehearsal ensures there are no technical errors and digital communications work from sensor to shooter. The radar section leader then can be confident that his communications work and that everyone understands the radar zone and refinement plan.

Next, the section follows its sleep plan for 24-hour operations, sleeping in shifts. The radar section leader and chief monitor the fire support FM rehearsal at D-1, 2100.

D-Day, 0400. The radar section leader and crew conduct stand-to, check sensitive items and perform final PCCs and pre-combat inspections (PCIs) and march order the radar system to the LD. The radar section leader then conducts a safety briefing. The soldiers mount their vehicles and are ready to roll.

D-Day, 0600. The radar section moves to the first radar position in the vicinity of the Matterhorn. The key task is to locate the RAG and OPFOR mortars. The GS battalion targeting officer, with the S3's approval, has coordinated with the division artillery (Div Arty) for AN/TPQ-37 radar coverage during the move, including one critical friendly zone (CFZ) over Brown Pass.

D-Day, 0635. The section leader directs the emplacement of the generator truck and radar trailer on the reverse slope of an intervisibility line to give some cover and concealment from direct fire and observation. He directs the shelter truck, cargo trailer, recon truck and generator trailer to emplace to the rear of the site using a waddi system for cover.

He then checks the radios in the reconnaissance truck to be sure he can monitor the Div Arty counterfire, FA battalion

command and brigade operations and intelligence (O&I) nets to track the battle. He checks the initialization data, cueing schedule and zones to ensure the radar system is ready to observe, and he begins battletracking friendly and OPFOR movements, current zones and acquisitions.

Maneuver forces move past his location, and B Battery occupies a position close to the radar site as the lead task force approaches Brown Pass. As B Battery fires its missions and begins a survivability move, OPFOR artillery from the RAG fires. Rounds land 800 meters from the radar site. As 54 rounds impact, the radar section goes into mission-oriented protective posture (MOPP) Level 4 following its indirect fire drill. Unfortunately, the RAG fires destroy three MP vehicles and wound four of the nine MPs. The radar section leader begins coordinating for casualty evacuation (CASEVAC) for the wounded soldiers while the section members administer buddy aid.

Unknown to the radar section leader, an OPFOR division reconnaissance team initiated the mission, hoping to destroy the radar, a high-payoff target (HTP). The section leader calls the TOC with a SALUTE (size, activity, location, unit, time and equipment) report and nuclear, biological, chemical (NBC) 1 report.

Suspecting the section is under enemy observation, the section leader requests the section be allowed to make a survivability move. Minutes later, he receives guidance from the TOC to move to the alternate location. Ten minutes later, the radar section pulls into the alternate location 1,000 meters away.

As the section chief scans the hilltop for division and regimental reconnaissance teams, he spots five OPFOR soldiers overlooking the radar site. The section chief notifies the radar section leader of the OPFOR soldiers and sends a SALUTE report to the TOC.

The radar section leader again requests permission to move farther northeast. Approval is granted, and the radar section moves again. The TOC advises the Div Arty of the contact reports from the Q-36, and the battalion receives Q-37 coverage for the move.

D-Day, 0735. The radar system emplaces and is ready to observe OPFOR indirect fires impacting in the BCT's area of operations (AO). The radar receives and processes its first zone violation from a CFFZ and sends it digitally to the TOC. During the next hour, the section processes a steady series of acquisitions and sends them to the TOC. The radar section leader and section chief plot the acquisitions and refine the CFFZ locations, reporting the RAG position to the battalion S2.

Attached to the OPFOR at the NTC, a battery of California Army National Guard M109 howitzers replicates a battery of 2S1s during the battle. The 2S1 battery fires a mission and makes a survivability move. The 2S1 battery commander then notices that firemarkers are in his last position, replicating 12 rockets from the friendly force's reinforcing battalion. With an acquire-to-fire time of six minutes, the friendly counterfire mission is ineffective, and the OPFOR artillery continues to fire into the brigade sector with no loss of combat power.

Using his stopwatch, the radar section leader checks the acquisition processing time in the shelter. With a processing time of 45 seconds, he looks for ways to decrease the time. He directs a change in the radar shelter crew drill, allowing each acquisition to be processed digitally without waiting for acknowledgement from the S2's digital device. The operator follows up on the voice FM net to ensure the S2 section receives the acquisitions.

Again using his stopwatch, the radar section leader finds his battle drill is averaging 15 seconds. He's confident the radar operators understand the new procedure and returns to the recon truck to track the battle.

D-Day, 0800. C Battery occupies a position near the radar site and shoots smoke missions to screen the lead task force's movement. Meeting the surviv-

ability criteria, the guns move to a new location, leaving the radar vulnerable to OPFOR counterfire. The radar section leader expresses concern to the DS TOC and is told to stay in place while the task force moves through Brown and Debnam Passes. This is a critical time, and the radar section needs to provide force protection.

D-Day, 0815. The OPFOR fires a non-persistent (NP) nerve agent with the radar in the downwind hazard. The M8 chemical alarm sounds, and the radar section again goes into MOPP Level 4. The section continues to process a steady flow of acquisitions from the RAG and OPFOR mortars to the reinforcing TOC. The radar section leader submits the NBC 1 report to the DS TOC and waits for the section chief to report the results from the M256 chemical detection kit.

Fifteen minutes later, the section chief notifies the radar section leader that the area is all clear. The NBC 2 report is given to the TOC, and the TOC grants the section permission to begin unmasking procedures.

Meanwhile, the 2S1 battery from the RAG fires a smoke mission to support movement of its AT-5 battery into an ambush position. Before the battery can make a survivability move, 12 rockets from the reinforcing battalion impact on its position, destroying four 2S1s. With an acquire-to-fire time of two minutes and 30 seconds, the friendly force counterfire team begins the systematic destruction of the RAG.

D-Day, 0840. While monitoring the brigade command net, the radar section leader learns the task force has secured Brown Pass. This is the trigger to move the radar section through the pass and emplace to support the BCT as it makes contact with the enemy. The Div Arty authorizes Q-37 radar coverage for the Q-36 radar's movement, and the battalion targeting officer directs the radar section leader to move.

As the radar section closes to Brown Pass, the section leader encounters an OPFOR family of scatterable mines (FASCAM) minefield. He reports its location to the DS TOC and directs the section chief to move the other two vehicles to a rally point. The radar section leader conducts an area reconnaissance and coordinates with engineers in the pass to use a passage lane; the rest of the radar section then is brought forward. The section elements link up and continue tactical movement to the new position.

The radar section leader tracks the movement-to-contact and hears a spot

report that contact has been made five kilometers to the west. As he plots the information on his map and studies the situation, the section chief tells him the radar has been receiving a steady flow of acquisitions, but most had been plotted outside the active CFFZ. After plotting the hostile weapons locations, he directs the section chief to have the radar operator delete the ineffective CFFZ, input a new CFFZ and report the changes to the battalion targeting officer and S2.

D-Day, 1000. From his radar operator at the section's observation post (OP), the radar section leader receives a spot report of suspected OPFOR smoke one to two kilometers east of the section's location. While monitoring the FA battalion command net, the section leader learns that OPFOR elements continue to move westward along the path of the smoke.

He notifies the TOC of the smoke and OPFOR vehicles movement. He does not request to move because adjacent units are providing adequate force protection. The radar section continues to process OPFOR acquisitions from the RAG until the battle culminates at 1145.

D-Day, 1145. The section leader's day continues at the NTC, even though the battle culminates; the radar section receives continue-the-mission (CTM) instructions. At CTM plus one hour, the radar section conducts an AAR with the NTC's radar/targeting trainer at the radar site to assess what happened, why it happened and how to improve for the next fight. During the AAR, the radar section leader brings up radar positioning versus firing battery positioning and the counterfire risk of being too close to firing elements. He agrees to fix radar positioning during the next MDMP.

The radar section chief discusses the hazards of battlefield obstacles and determines wire cutters need to be readily accessible and the section needs battle drills for self-recovery and obstacle bypassing. He will develop the battle drills and rehearse them in preparation for the next battle.

The senior radar operator notes the crew drill was inconsistent and wants to integrate the section leader's changes into the standing operating procedures (SOP). He will write the new SOP and rehearse the new battle drill at the next counterfire rehearsal.

NTC battlefield statistics for the radar section are 40 acquisitions, 21 zone violations and the destruction of 16 2S1s and six mortars. After the AAR, the radar section leader moves the sec-

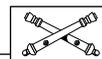
tion back to the TOC until it's time to rollout for the next fight.

Conclusion. The battle responsibilities of a radar section leader stretch from the receipt of the brigade OPORD through the end of the battle. The pace of his activities is rapid and relentless. Yet radar section leader is one of the most rewarding positions an FA targeting technician will ever fill.

Battle at the NTC for the radar section leader illustrates the complexity of the section leader's duties and responsibilities. He must be an integral part of the planning process, coordinate with various elements of the combined arms team, make key tactical and technical decisions during the battle and provide candid post-battle assessments.

Like battle at the NTC, home-station training must integrate the radar section leader into the MDMP and rehearsals. The training must exercise the counterfire system, with the section striving to meet a two-minute acquire-to-fire time. Force protection assets and challenging battlefield movement and effects also must be integrated into the training. Finally, no training is complete without an AAR.

If home-station training offers these challenges to radar sections, then units will be well on their way to destroying RAGs at the NTC—as well as on any future battlefields.



Chief Warrant Officer Three Harold A. Thacker, Jr., until recently, was a Combat Radar/Targeting Trainer with the Fire Support Division of the Operations Group at the National Training Center, Fort Irwin, California. He is now a Target Acquisition Instructor in the Targeting Division of the Fire Support and Combined Arms Operations Department of the FA School, Fort Sill, Oklahoma, his second tour in the division. In previous assignments, he served as an FA Intelligence Officer for the 1st Infantry Division (Mechanized) and Brigade Targeting Officer with the 1st Battalion, 6th Field Artillery, 3d Brigade Combat Team, also in the 1st Division in Germany. During Operation Joint Endeavor in Bosnia, he was a Radar Section Leader for B Battery of the 25th Field Artillery (TA), part of the 3d Infantry Division (Mechanized) Artillery in Germany. Among other courses, CW3 Thacker is a graduate of the Targeting Process Course at Fort Sill; the Joint Firepower Control Course at Nellis AFB, Nevada; and the Joint Aerospace Command and Control Course at Hurlburt Field, Florida.