

Engineers in the R&S Effort

by Captain Alexander J. Verret

Throughout history, military leaders have understood the necessity and importance of accurate and timely intelligence. The ability to gain and maintain contact with the enemy and identify his strengths and weaknesses has more often than not been the deciding factor between success and failure on the battlefield. The reconnaissance and surveillance (R&S) plan, derived from the commander's priority intelligence requirements (PIR), targets gaps in the unit's understanding of the current battlefield situation.

The role of R&S has become even more important on the modern battlefield because of the increased lethality of current weapon systems. Tables 1 and 2 show the outcome of battles fought at the Combat Training Centers (CTCs) in relation to the quality of R&S preparation and execution, for both the BLUFOR and OPFOR, before attacking. The data depicts an obvious correlation between the quality of the R&S effort and the outcome of an attack. The BLUFOR were successful in 70 percent of their attacks following a good quality R&S effort and were defeated in 76 percent of their attacks when the R&S effort was poor or non-existent.

The Problem

The primary battlefield information-gathering asset of a task force is its scout platoon. Data gathered from the CTCs, though, indicate maneuver battalions typically overtask their scouts and do not take advantage of other R&S assets available to them. Often, the scout platoon is the only R&S asset actively collecting battlefield information. Task force scouts are often too busy trying to gain and maintain contact with the enemy to stop and gather critical information about the terrain and enemy defenses necessary to ensure success of the upcoming mission. Furthermore, scouts are often not adequately trained in gathering engineer-specific information; consequently, when it comes time to conduct a breaching operation, critical obstacle intelligence (OBSINTEL) is unknown. The solution to ensuring that this critical information is gathered and disseminated is to incorporate engineers into the R&S effort. By creating and employing engineer reconnaissance teams, the task force (TF) S2 and S3 can focus the scout platoon on the location, composition, and disposition of the enemy, while the "engineer scouts" concentrate on analyzing the terrain and gathering OBSINTEL.

Engineers are the TF's obstacle and terrain experts. As the TF's principal breaching experts, they have a firm grasp of what they must learn about the obstacles to properly prepare for a breach. Necessary OBSINTEL includes:

- Obstacle locations
- Obstacle orientation/intent
- Obstacle depth
- Obstacle composition (wire, mines, tank ditch, etc.)
- Type of mines (AT/AP, buried/surface-laid, blast/SFF, fuze type, pressure-activated or tilt rod actuated, etc.)
- Presence of anti-handling devices
- Gaps/bypasses
- Potential breach sites
- Key terrain and approaches for breach

With accurate OBSINTEL, the S2 and TF engineer can determine the overall defensive posture of the enemy. Refer to Table 3, which outlines the tactical significance of threat obstacle activities.

With this information, along with intelligence about the enemy's composition and disposition, the TF commander can make an informed decision on whether to breach or bypass enemy obstacles. If he decides to breach, the TF engineer can now ensure that the breach force is properly task organized and has the necessary information to conduct the breaching operation.

Methodology

The TF engineer works closely with the S2 in the intelligence preparation of the battlefield (IPB) process, assisting in the terrain and threat analysis. The S2 threat evaluation consists of a study of the enemy's order of battle or, when such detailed data is not available, a generic doctrinal template. The TF engineer assists in the threat analysis by using his knowledge of the enemy's order of battle, obstacle tactics, and time available to the enemy for defensive preparation in order to evaluate the enemy's obstacle capabilities. The S2 then relates the threat evaluation to the

Quality of R&S Effort	No. of Battles	Battle Outcome		
		Success	Failure	Standoff
Good	13	9	1	3
Poor	50	4	38	8

Table 1. Battle outcome according to quality of reconnaissance effort (BLUFOR)*

Quality of R&S Effort	No. of Battles	Battle Outcome		
		Success	Failure	Standoff
Good	28	26	1	1
Poor	5	0	5	0

Table 2. Battle outcome according to quality of reconnaissance effort (OPFOR)*

*From Rand Study, "Applying the National Training Experience: Tactical Reconnaissance," Rand Corporation, October 1987.

Observed Enemy Obstacle Activity	Tactical Significance
Protective obstacle activity.	The enemy has shifted to a hasty defense.
Protective obstacle effort on unit's flanks and on the seams between adjacent units.	The enemy is working on its first priority; defense preparations have just begun.
Protective obstacle effort along the forward edge of dismantled and vehicle fighting positions.	This is the last phase of protective obstacle effort; priority of work will soon shift to emplacing tactical obstacles.
Troops emplacing protective mines in strips perpendicular to their positions or trench line.	The minefield is being emplaced by maneuver troops; presence of trip wires and antihandling devices is unlikely. AP mines will be blast type and pressure detonated. The enemy commander has determined his defense is currently unthreatened and has decreased security to allow maneuver soldiers to emplace protective mines.
Troops emplacing protective mines in strips parallel to their positions or trench line.	The minefield is being emplaced by engineers and the presence of trip wires and antihandling devices is more likely. AP mines may be fragmentary or blast type and either pressure or trip wire detonated.
Protective and tactical obstacle emplacement conducted concurrently.	The enemy is preparing a deliberate defense and is unable to resume the offense for an extended period. Protective obstacles are being emplaced by maneuver troops while engineers are emplacing the tactical effort.
Tactical obstacle effort.	This helps confirm the location, orientation, and type of weapons used by the combat forces in the enemy's main defensive belt. Tactical obstacles are emplaced at approximately one-half the range of weapons in the main defensive belt.
Tactical obstacle effort activities located well beyond one-half the range of weapons in the main defensive belt (assume the main defensive belt has been identified and confirmed).	Observed obstacles may be specifically covered by the ATGM reserve, whose location will be approximately 3000m from the obstacle. The observed obstacle may support a combat outpost (COP), who will emplace obstacles at two-thirds of their weapons range, trying to deceive the attacker on the location of the main defensive belt.
Obstacle activity observed beyond the expected engineer capability.	The enemy force may have received extensive engineer reinforcement from its higher headquarters, indicating the enemy's main effort. The enemy force is making extensive use of decoy minefields and may be using decoy positions.
Employment of minefield marking systems.	This indicates the enemy's side of the minefield (friendly side from the defender's perspective).

Table 3. Tactical significance of threat obstacle activities*

*FM 90-13-1, "Combined Arms Breaching Operations," Appendix A.

terrain and weather and develops the situation and event templates (Figure 1). The TF engineer parallels the S2's effort by fitting enemy obstacle information to the terrain. With the templated threat forces and obstacles related to the terrain, the S2 and TF engineer identify NAIs on the event template where significant enemy events and activities may occur, to include emplacement of obstacles. The entire staff then participates in the wargaming process to create and refine the decision support template. The staff identifies areas where the commander can influence the battle with fires (to include electronic) or maneuver as target areas of interest (TAIs). The staff then identifies corresponding decision points (DPs) to queue the commander as to when he must act on the respective TAI.

As a result of the IPB process, the TF staff identifies gaps and holes in its knowledge of the battle, and develops information requirements (IRs) to com-

plete the picture of the upcoming action. The commander then designates what he determines are the IRs critical

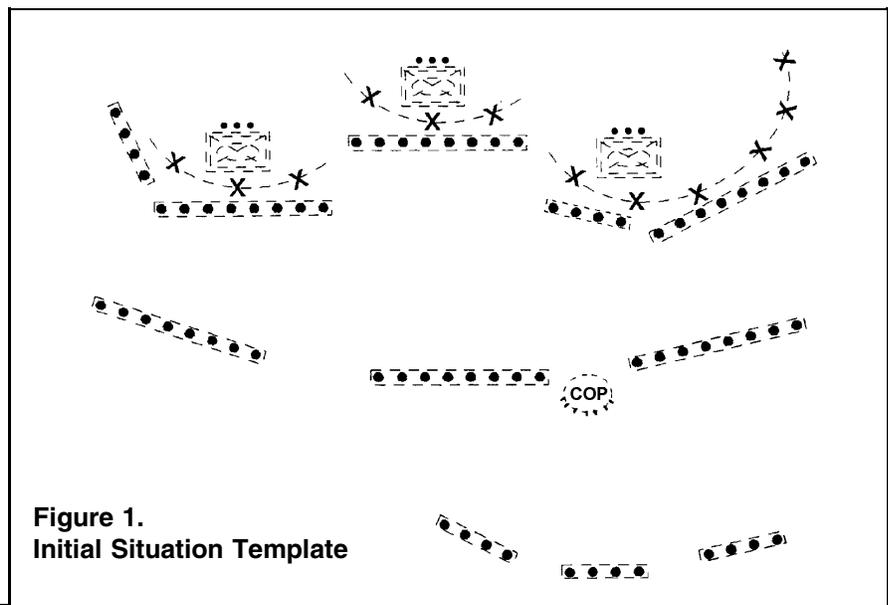


Figure 1.
Initial Situation Template

to the success of the operation as priority intelligence requirements (PIRs). Common PIRs include items such as:

- Where is the enemy's main defensive belt?
- Where are the locations of enemy tanks, antitank (AT) weapons, and infantry positions?
- Is the enemy defensive effort oriented toward a temporary halt or is it developing into a prepared defensive position?
- In what strength will the enemy counterattack, and where are his counterattack forces located?
- Which avenue will the enemy counterattack take?
- Where is the enemy's artillery?
- Where are the enemy's observation posts (OPs)?
- Where are the enemy's obstacles and fire sacks?

The S2, S3, and TF engineer develop the R&S plan and assign the task force's R&S assets to execute it. The S3 may task engineers to augment the R&S effort by assigning NAIs oriented on tactical obstacles (Figure 2), thus reducing the reconnaissance burden of the TF scouts and allowing them to focus better on the enemy.

Integration

The key to incorporating engineer assets into the R&S effort is to balance the necessity of the information to the

risk of losing a valuable breaching asset like an engineer squad. While reconnaissance is a difficult task in itself, it is particularly difficult to get the detailed OBSINTEL needed to conduct a successful breaching operation. For example, the reconnaissance asset must approach the obstacle to determine the type of mines, if they are buried. The enemy, as we do, covers its obstacles with fire and observation so the need for stealth is paramount to ensure success. Combat engineers have the expertise to gather the OBSINTEL, but without prior training with the TF scouts,

the inclusion of engineers into the reconnaissance effort will be awkward, as any ad hoc organization is. Effective cross-training must occur between the TF scouts and their supporting engineers. There are several ways to foster the integration of scouts and engineers:

Create an exchange program. TF scouts can train engineers in reconnaissance techniques and the engineers can train the TF scouts in demolitions and other engineer-specific tasks. Engineers and scouts have many similar tasks, and by using effective cross-training techniques, an overall increase in com-

petence and versatility in both units is inevitable.

Develop a habitual relationship between an engineer platoon and the scout platoon. A habitual relationship between an engineer platoon and the scout platoon would create that familiarity and mutual trust necessary to ensure a well-integrated R&S effort. The TF engineer and S3 should consider this when task organizing engineer assets during the operations order pro-

Continued on Page 45

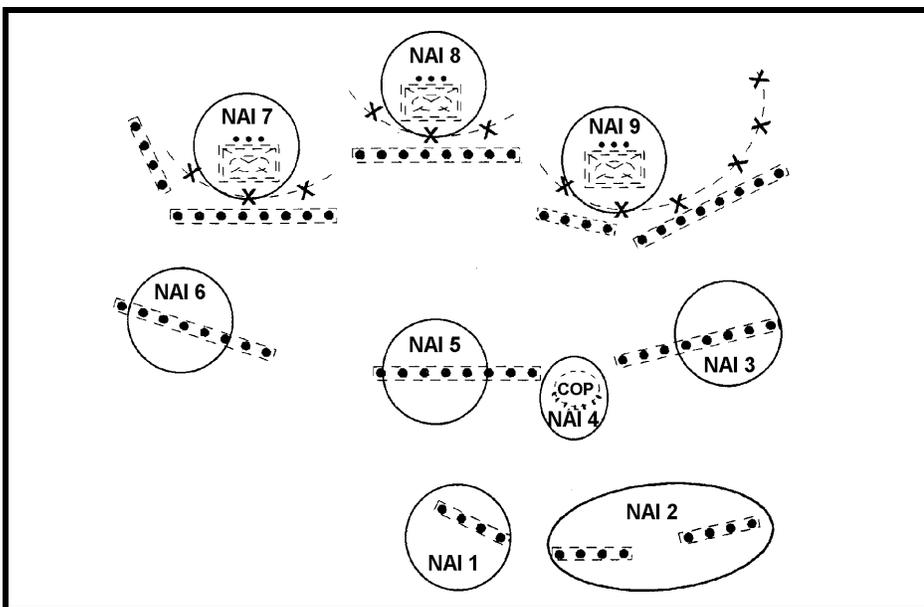


Figure 2.
Extract of the TF R&S Plan

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
PRIORITY	NAI	START STOP	SIR/INSTRUCTIONS	A	B	C	D	SCOUTS	MORTARS	GSR	REMBASS	ENGR PLT			COORDINATION	REPORTS
1	7 8 9	0400	What type of equipment does the enemy have and how is it positioned? Do not engage.					X							Coordinate with CO A for POL	Per TF R&S SOP
1	3 4 5 6	0600 1400	Has the enemy emplaced tactical obstacles, if so, size, composition, type, bypasses? Is there a COP observing the obstacles? Do not engage.									X			Coordinate route with scout platoon. Coordinate with CO B for POL	Per TF R&S SOP
2	4		Has the enemy deployed a COP? If so, where and what is its composition? Do not engage.					X								Per TF R&S SOP
2	1 2	1400 1630	Has the enemy begun to emplace a second belt of tactical obstacles? Identify potential bypasses and gaps.									X				Per TF R&S SOP

Engineers in the R&S Effort

(Continued from Page 42)

duction. During training, incorporate the engineer and scout platoon in common training events. Have each platoon provide instructor/evaluator support for training events pertaining to each others' expertise. Ensure they are task organized together in training events. Developing this habitual relationship will ensure that everyone involved will understand each others' SOPs and styles.

Conclusion

Engineers and scouts have many similar missions with unique methods and capabilities to accomplish them. By integrating these talents into the reconnaissance effort, the R&S plan will be executed with greater precision, thus increasing the amount and quality of battlefield information gathered. TF scouts can focus on the enemy, while engineer reconnaissance teams focus on the collection of OBSINTEL.

It is essential, though, that task force reconnaissance training includes their supporting engineers, and that the TF scout platoon and their engineer reconnaissance counterparts constantly train together to ensure their seamless integration into the R&S effort. By ensuring this integration occurs, the TF commander will be rewarded with a more effective R&S effort and better odds for success in the upcoming operation.

Sources

- FM 20-32, Mine/Countermining Operations, 30 September 1992.
- FM 34-2-1, Tactics, Techniques, and Procedures for Reconnaissance and Surveillance and Intelligence Support to Counterreconnaissance, 19 June 1991.
- FM 34-130, Intelligence Preparation of the Battlefield, 23 May 1989.
- FM 90-13-1, Combined Arms Breaching Operations, 28 February 1991.
- Rand Study. "Applying the National Training Experience: Tactical Reconnaissance," Rand Corporation, October 1987.

Captain Alexander J. Verret was commissioned in 1989 from the University of Vermont with a bachelor of science degree in geological engineering. A graduate of the Engineer Officer Basic and Armor Officer Advanced Courses, he served as a platoon leader and executive officer with 58th Combat Engineer Company, 11th ACR, and as regimental engineer, 11th ACR. He is currently the S1, 91st Engineer Battalion, 1st Cavalry Division at Ft. Hood, Texas.