



## CTC Notes

### National Training Center (NTC)

#### Subterranean Complex Operations

By Sergeant First Class Josue A. Pinos

Subterranean complex (or cave) operations are part of the contemporary operational environment at NTC. These operations provide covered and concealed routes of movement throughout urban or mountainous terrain and replicate terrain condition challenges where our forces will fight.

A detailed knowledge of the nature and location of underground facilities is potentially of great importance to both the attacker and the defender. Maximizing the use of a subterranean complex could prove to be a decisive factor during urban or mountain operations. Units planning to conduct such operations should consider the following:

#### Tips for Success

- Use night-vision goggles with infrared (IR) sources.
- Use IR-filtered flashlights/white lights.
- Use field telephones and messengers.
- Use tag lines to guide soldiers along the route.
- Use shotguns or scatter-type munitions.
- Include caves on the modified combined obstacle overlay.
- Calculate demolitions needed for cave destruction.
- Integrate explosive ordnance disposal assets for search/destruction of caches of weapons of mass effect.
- Review Field Manual 3-06.11, *Combined Arms Operations in Urban Terrain*.



Cave Complex Tunnel

#### Common Mistakes

- Lack of experience in neutralizing booby traps and obstacles
- Poor/inadequate communications
- Poor route marking
- Failure to consider chemical hazards

#### Highlights of Rules of Engagement

- No booby traps and pyrotechnics are authorized except the M117 simulator.
- Units are authorized to use meals, ready to eat (MRE) bag grenades as simulators in place of M84 stun grenades and M67 and M69 fragmentation grenades.
- No smoke grenades or CS (tear gas) canisters will be used within 10 meters of the cave entrance.
- No ammunition is authorized inside the cave except 5.56-millimeter blanks.
- Weapons may not be fired within 5 meters of another soldier.
- Stoves or open flames are prohibited inside the cave complex.
- Vehicles are not permitted to drive over or park on top of the cave complex.
- Units assaulting or occupying the cave complex must receive a safety briefing from their observer-controller (OC).
- No live demolitions (to include demolition-effects simulators) will be used in the cave complex without obtaining a waiver through the commander of the operations group.
- Eye and ear protection are required.

There are three cave complexes at NTC that challenge units and provide a more realistic training environment.

POC is SFC Josue A. Pinos (SW13B), (760) 380-7056 or DSN 470-7056, e-mail <sidewinder13b@irwin.army.mil>.

#### Antipersonnel Obstacle Breaching System (APOBS)

By Sergeant First Class Josue A. Pinos

The APOBS is now a system of choice of rotational engineer units at NTC. The APOBS, which is relatively new to conventional forces in the Army, was live-fired during NTC's Mine Awareness Training in March 2003. NTC continues to develop and improve mobility and countermobility tactics employed by combat engineers. This system provides commanders with another alternative to reduce antipersonnel obstacles. Opposing Force (OPFOR) TM-89 mines directly under the line charge will be destroyed also because of their seismically influenced fuse.



**APOBS Launch**

### **Characteristics, Capabilities, and Features**

- Two-person portable
- Total weight of 123.5 pounds
- Clears a 2-meter by 45-meter path through antipersonnel mines and wire obstacles
- Provides a 35-meter standoff
- Operates in delay or command mode
- Can be fired in under 2 minutes in the delay mode
- Simple and rapid operation

### **Highlights of Rules of Engagement**

- The APOBS team executes proper setup procedures.
- The APOBS team simulates pulling the pin and waits 15 seconds before firing the granel cartridge provided with the APOBS trainer.
- If a granel cartridge is not available, an OC fires a white star cluster to simulate the rocket launch.
- Eight seconds later the OC will detonate a grenade simulator to replicate the detonation of the line charge.
- The OC will administratively clear any antipersonnel mines, antitank mines, and wire, beginning 35 meters from the point of launch and providing a 2-meter by 45-meter footpath.
- The unit must clear any mines left in the path using appropriate proofing/reduction techniques.
- Unprotected personnel within the 75-meter surface danger zone of the line charge will be assessed as casualties.

NTC offers a great opportunity for employing the APOBS.

POC is SFC Josue A. Pinos (SW13B), (760) 380-7056 or DSN 470-7056, e-mail <sidewinder13b@irwin.army.mil>.

## **Mine Effects Simulator (MES)**

*By Sergeant First Class William Sutton*

Battlefield fidelity is a critical aspect of every training environment. However, mines and mine replication during training historically challenge trainers. Fortunately, a coordinated effort by NTC, several TRADOC schools, and the Program Executive Office for Simulation, Training, and Instrumentation is improving the situation for Army units. These efforts resulted in the acquisition of 4,750 Multiple Integrated Laser Engagement System (MILES)-compatible MES mines for use at NTC beginning in late summer 2003. The purpose of this new equipment is to increase battlefield realism and better simulate the real-world effects of popular foreign antitank mines. The TM-89 antitank mine is the primary one used at NTC and replicates typical training issues. Before the implementation of the MES mines, the only way to adjudicate a minefield was for an OC to overwatch the event. The verification and validation of this important system will be complete by spring and will likely lead to additional future procurements of the MES.

### **Description**

The MES has a tan body with a blue ring on top. Designed with the dimensions of a Volcano mine, the MES contains the components necessary to electronically inflict simulated battle damage to combat vehicles. The mine can be used in a mine shell to simulate a conventional mine, or it can be used alone to simulate a scatterable mine. The MES simulates the effects of antitank mines by emitting a signal to vehicles equipped with a MILES II and an MES receiver antenna. The MES receiver antenna is already part of the current MILES II and uses a radio frequency signal from the mine to the antenna. This training mine operates using two common AA batteries that should last up to 6 months. Soldiers simply depress the TEST/ARM switch on the side of the MES to test and arm the "mine." The MES becomes active 2 minutes after the switch is depressed. To manually disarm the mine, simply execute the same action.



**Mine Effects Simulator**

## Usage

The MES will be employed by the OPFOR to replicate the TM-89 antitank minefields. When used with the mine shell, it will replicate both the standard OPFOR conventional minefields and minefields emplaced by the mobile obstacle detachment.

## Highlights of Rules of Engagement

The effects of the MES will be automatic and will minimize the need for OC adjudication. However, rules of engagement will—

- Assess the vehicle if it straddles or strikes the mine.
- Assess casualties for troops in the open within a radius of 25 meters of the detonating mine.
- Require a 1-pound block of explosive placed next to, but not touching, the mine to reduce it when conducting a manual reduction.

All other reduction technique rules of engagement remain unchanged.

Mine effects simulators will provide NTC with increased training realism and improved battlefield effects and will allow a more productive training environment.

POC is SFC William Sutton (SW04T), (760) 380-5058 or DSN 470-5058, or e-mail <*sidewinder04t@irwin.army.mil*>.

## Joint Readiness Training Center (JRTC)

### Engineer Equipment Platoon Leadership: Operating in Support of a Light Brigade Combat Team

*By Sergeant First Class Steven J. SanPedro and Staff Sergeant Joey W. Dunn*

A trend in recent rotations at the Joint Readiness Training Center is that the platoon leader (PL) and platoon sergeant (PSG) perform duties as the blade team leader (BTL). This trend has developed as the BTL consistently takes a back seat to either the PL or the PSG during the linkup, control, and execution of blade teams in support of maneuver units. A direct result is that there are shortcomings in preparing and executing the brigades' survivability effort. Either the PL or the PSG is becoming the main point of contact for the supported unit when previously it was the BTL. To the supported unit, the PL or PSG appears to be the BTL rather than the brigade-level survivability command and control element. Each of the platoon's key leaders has a very important role in the platoon's survivability mission in the planning, preparation, and execution phases of the platoon's operation.

## PL Duties and Responsibilities

The PL has the primary responsibility for planning and executing the brigade's force protection efforts and ensuring that his survivability plan is integrated with the maneuver plan. This great responsibility requires the PL to be very proactive. During recent rotations, the PL has been leading a single blade team throughout the operation. The PL can—and sometimes should—provide command and control for the blade teams during execution. However, the PL must collocate with the brigade tactical operations center (TOC) during critical times in the planning process and return to the battlefield during the preparation and execution phases. The required product from the planning process is the survivability timeline. The PL should assist with and provide expert feedback on the platoon's capabilities and its ability to support the brigade commander's priorities of work, including the maintenance and rest plans. The PL works closely and maintains constant communications with the brigade engineer, assistant brigade engineer, and PSG to coordinate details for execution of missions such as providing fuel, maintenance, and security escorts.

During execution, the PL should battle track the survivability efforts and the overall common operational picture of the battlefield. He must ensure that every member of the platoon knows the status of the routes, obstacles, and friendly and enemy minefields and forces. A method that works well for tracking the survivability effort is for the BTL to send updated survivability status reports on the company net to the PL. Reporting on the company net allows the company command post in the brigade rear engineer cell (BREC) to receive the updates at the same time the PL is receiving them from the BTL. This gives the BREC the current status and reduces the amount of times the information is handled from the point of origin. The BREC can then forward the updates to the brigade main engineer cell (BMEC) at the brigade TOC.

As the PL observes the current tactical situation, he may need to reassess and update the survivability timeline in order to give the brigade engineer the most current estimate and updated timeline. Additionally, the PL is responsible for the overall standard of the survivability positions provided for the brigade task force. The PL should coordinate logistics with the PSG for important sustainment items such as vehicle parts, food, fuel, water, and ammunition. The PL ensures the quick identification, evacuation, and repair of all critical engineer equipment assets and should coordinate with supported units for security and movement escorts to and from jobsites. There are many similarities in duties between the equipment PL and the task force engineer. (The duties and responsibilities of the task force engineer are in FM 5-7-30, *Brigade Engineer and Engineer Company Combat Operations [Airborne, Air Assault, Light]*.)

## PSG Duties and Responsibilities

The PSG plays a unique role in the survivability process. Not only does he have the numerous responsibilities of his own position, but he also must know and understand the PL's

job and be able to step in without notice to execute those duties. The PSG should maintain the current tactical and logistical battlefield situation. He is the primary technical adviser to the PL and should provide expert advice on the platoon's capabilities during survivability planning. The PSG is the technical expert on operator proficiency and noncommissioned officer skills. In addition to focusing on the overall platoon effort, he should be available for technical advice to the BTLs when needed. Most importantly, the PSG must track the platoon logistically and supervise the requisitioning of its supplies. This involves a great deal of coordination and constant follow-up with the company and forward support battalion in order to be successful.

The PSG should control the collection of casualties and ensure that casualties are evacuated to the appropriate level. An easily overlooked part of this process is following up on the requisition for personnel to replace those that are lost and then focusing on the integration of the new personnel as replacements are received. The PSG must take the lead in enforcing the platoon's maintenance program, ensuring that parts are getting ordered, and tracking the document numbers until the parts arrive. Once the parts are on hand, the PSG must either get the parts to the vehicles or get the vehicles evacuated back to the maintenance area for repair. The PSG should receive and distribute the platoon's load of food, water, ammunition, and fuel. Most of these items will be provided by the supported units through daily logistics packages. However, if the supported unit does not adequately provide the items, the PSG must step in and make sure the platoon gets the supplies it needs to function.

#### **BTL Duties and Responsibilities**

The BTL is the direct link between the platoon and the supported unit and must conduct linkups with the "CINC" dozer or other designated unit representative. For initial linkup procedures, the BTL must have a battle drill that is easily understood and executed by the blade team once it arrives on site. Much of the idle time on the battlefield can be attributed to the time waiting at a unit while the BTL is conducting linkup. Once on site, the blade operators must know what they are digging in and know that no matter what happens, they can get started on high-priority survivability efforts for that unit. During the linkup process, the BTL must coordinate for fuel, food, water, or any other support needed from the supported unit. After the linkup, the BTL should know the unit representative, the survivability requirements for the unit, when and where refueling will take place, and the location of all logistical support. Additionally, the BTL should confirm the unit's mission, the current enemy threat, the number of assets, and the terrain within the unit's area of operations in order to provide survivability recommendations based on the ability of the blade team to provide a sound survivability position. The BTL must adhere to the survivability timeline, to include the implementation and management of the maintenance and rest plans.

Furthermore, the BTL should forward an updated status of the survivability effort at the position and coordinate early for the linkup, movement, and preparation of the next unit he will be supporting.

#### **Summary**

Each of the key leaders—the PL, the PSG, and the BTL—has an important role in planning, preparing, and executing the survivability plan. Proper understanding and implementation of these roles will provide the best opportunity for a successful plan. A good survivability timeline—with emphasis on the survivability standards—will leave every brigade asset on the battlefield with a doctrinally proven survivability position.

*Sergeant First Class SanPedro is an Engineer Equipment Platoon observer-controller at JRTC. Previous assignments include Assault and Barrier Platoon sergeant, 562d Engineer Company (SEP), Fort Wainright, Alaska; and squad leader, Light Equipment Platoon, 27th Engineer Battalion, Fort Bragg, North Carolina.*

*Staff Sergeant Dunn is an Engineer Equipment Platoon observer-controller at JRTC. Previous assignments include instructor/writer Dozer Phase, 62E Course, 577th Engineer Battalion, Fort Leonard Wood, Missouri; and construction equipment supervisor and squad leader, Light Equipment Platoon, 27th Engineer Battalion, Fort Bragg, North Carolina.*

### **Combat Maneuver Training Center (CMTC)**

#### **NCO Roles and Responsibilities in C2 Nodes**

*By Sergeant First Class Danny Petersen*

The overarching role of staff noncommissioned officers (NCOs) is to free up staff officers and enable them to make critical decisions in a timely manner. Given that, people often assume that the primary function of NCOs in command and control (C2) nodes is to ensure that the generator is fueled and that the shift change occurs on time. Nothing could be farther from the truth or more harmful for efficient operations.

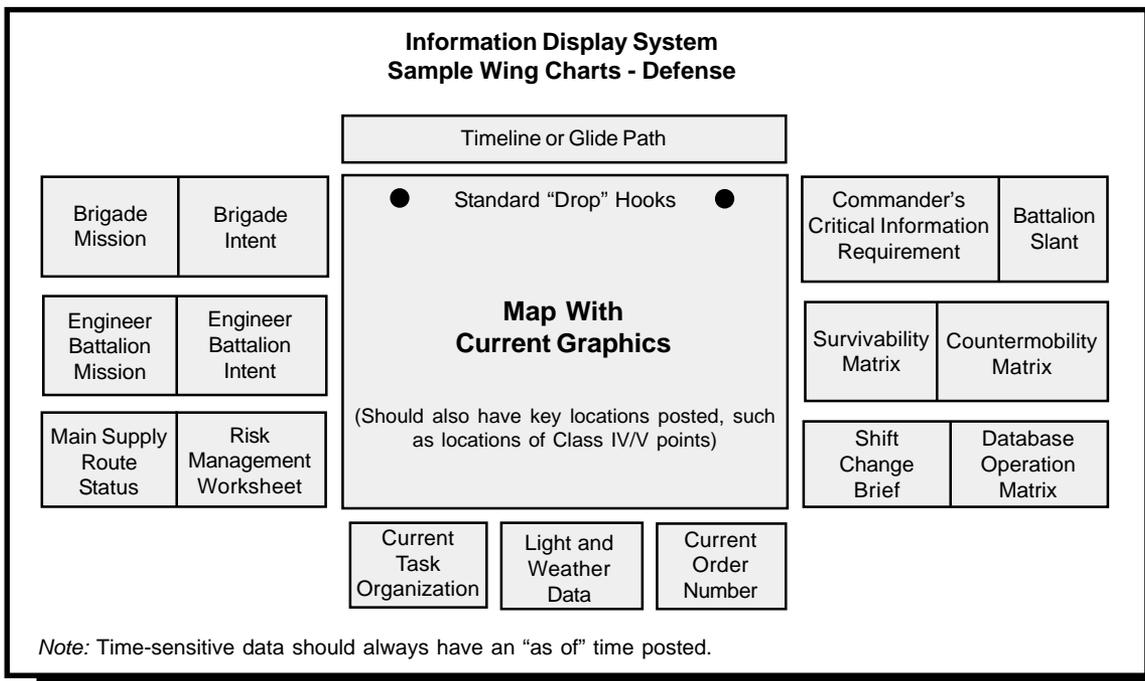
To help NCOs better understand their roles and responsibilities, they can refer to many doctrinal references; tactics, techniques, and procedures; and combat training center lessons learned. The most common doctrinal publication used to establish individual roles and responsibilities in the heavy engineer battalion tactical operations center (TOC) is Field Manual (FM) 5-71-3, *Brigade Engineer Combat Operations (Armored)*. Although Chapter 2, "Command and Control," does not spell out the specific responsibilities for the operations sergeant and battle staff NCOs, there are numerous implied tasks. Additional publications, such as the Center for Army Lessons Learned (CALL) Newsletter titled "Tactical

Operations Center” (No. 95-7, May 1995) and an engineer-specific CALL Newsletter addressing TOC operations (No. 99-12, October 1999), are helpful as well. Although these two references are an average of six years old, they provide a basic framework for TOC NCOs that is still applicable today. The following discussion applies mostly to units operating in an analog manner, although the main principles apply even when a unit becomes digital.

Typically, the operations sergeant and his shift NCOs have the background and experience to understand the six TOC functions—receive information, analyze information, submit recommendations, distribute information, integrate resources, and synchronize resources—from FM 3-90.3, *The Mounted Brigade Combat Team*, Chapter 3. TOC NCOs who know what information is important and how that information affects the mission become a real combat multiplier in the TOC. These NCOs are usually former platoon sergeants or squad leaders who understand how decisions made at the TOC affect the “guy on the ground.” In contrast, the battle captains assigned to the TOC may be young lieutenants awaiting platoon leader

duties, more experienced lieutenants awaiting the Captain’s Career Course, or more experienced captains either awaiting company command or having recently completed command and pending a permanent change of station (PCS). The differing levels of experience may be vast. By providing both experience and continuity, TOC NCOs bring significant value to the fight—experience that manifests itself as a smoothly operating and functional TOC. At times, NCOs may feel that TOC operations are officer business, given the extensive use of computer programs such as TerraBase and Command and Control for Personal Computers (C2PC). However, the bottom line is that the operations staff will succeed or fail as a *team* of officers and NCOs and, in the process, will either enable the commander or relegate him to insignificance, based on the level of situational awareness the TOC maintains. The table below depicts actions NCOs can execute to facilitate the six command post functions. Although not all-inclusive, the table provides useful examples that can serve as a foundation for developing a unit TOC standard operating procedure (TOCSOP).

| Command Post Functions and NCO Actions |   |
|--|---|
| Function                               | Actions   |
| Receive Information                    | <ul style="list-style-type: none"> <li>■ Monitor reports as received by the radio/telephone operator (RTO).</li> <li>■ Ensure that the RTO records reports and maintains log.</li> <li>■ Update unit/key leader locations on map when received.</li> <li>■ Update combat power slants according to the unit tactical SOP (TACSOP), when required.</li> </ul>  |
| Analyze Information                    | <ul style="list-style-type: none"> <li>■ Monitor key equipment losses (which may lead to a task-organization change).</li> <li>■ Monitor information pertaining to the commander’s critical information requirement (CCIR).</li> <li>■ Update overlays and charts, as necessary, to maintain situational awareness.</li> <li>■ Compare engineer TOC overlays with those of the brigade; if discrepancies exist, determine the cause and remedy.</li> <li>■ Monitor proposed timelines and glide paths; compare these to subordinate-unit activity reports, and look for discrepancies.</li> </ul> |
| Submit Recommendations                 | <ul style="list-style-type: none"> <li>■ Provide insight on NCO issues and how proposed plans affect subordinate units.</li> <li>■ Provide recommendations based on experience for time requirements (such as movement and execution of mine-clearing line charge [MCLIC] reloads and armored combat earthmover [ACE] dig rates).</li> </ul>  |
| Distribute Information                 | <ul style="list-style-type: none"> <li>■ Inform the brigade of any changes to the combat power slant.</li> <li>■ Brief all key personnel according to shift-change brief and schedule.</li> <li>■ Use the system to file and maintain orders and reports.</li> <li>■ Assist in orders production and publication.</li> <li>■ Use the system to display information for key leaders (example provided in the chart on page 51).</li> </ul>   |
| Integrate Resources                    | <ul style="list-style-type: none"> <li>■ Compare engineer overlays with other Battlefield Operating System overlays (such as combat service support and fire support [FS]) to ensure cursory integration; look for disconnects.</li> <li>■ Monitor unit linkups for all task-organization changes; post when complete.</li> </ul>   |
| Synchronize Resources                  | <ul style="list-style-type: none"> <li>■ Compare engineer timeline with brigade and subordinate-unit timelines; look for disconnects.</li> </ul>  |



The chart above depicts an information display system that a battalion operations sergeant can easily establish. Staff officers, more often than not, fall in on existing systems and use what is available until they can make their own assessments about what information is needed. If a comprehensive and user-friendly system is in place and used by the NCOs, staff officers will experience a seamless transition and will develop more efficient TOC operations.

Further, how TOC NCOs execute and improve the information management and display system may be as crucial as the system itself. The attitude of "this is how we've always done it" may quickly turn people off in their attempts to improve the system. TOC systems must constantly be analyzed, and improved when and where necessary, while being integrated into the unit's TACSOP and TOCSOP. The TOC NCO should listen to other staff members and use their ideas to help improve products and mechanisms. Remember that people making suggestions are on the same staff and use these same systems, so they also have a vested interest in efficient operations. However, the engineer battalion operations sergeant should not just look internally to his staff. He must be familiar with the supported maneuver brigade TACSOP and ensure that the engineer battalion and maneuver brigade TACSOP complement each other. This is most critical in terms of reports and combat power tracking. Having complementary TACSOPs will generally yield more accurate information and improve information flow. When information tracking and management systems are not synchronized with the supported maneuver brigade, they generally will not work well for the engineer battalion and will likely cause redundant information management systems to satisfy brigade- and higher-level information requirements.

NCOs must also understand the roles of the staff officers they work with in the TOC. By understanding staff officer roles and relying on their own experience, TOC NCOs are more readily available to help with planning operations, providing intervention before problems escalate, gathering required information, and assisting an officer's transition to battle captain.

NCOs who are charged with TOC responsibilities, and who are proactive and research the previously referenced publications, communicate a positive intent to the chain of command that they want to be combat multipliers in the staff. For such NCOs, the chain of command should immediately begin the process of getting them to the Battle Staff NCO Course (BSNCOC), which is the only course that strictly places NCOs in all staff positions from division to task force level. This shows NCOs how all the pieces fit together and how they can directly affect every facet of the operation. Further, the BSNCOC teaches NCOs the skills that are necessary to develop and maintain efficient TOC systems. Educated and enthusiastic staff NCOs who understand their role in the TOC provide significant value to the team. Instead of just "doing their time," staff NCOs will likely find working in the TOC a very rewarding and eye-opening experience.

*Sergeant First Class Petersen is the engineer battle staff NCO observer-controller at the CMTC. His previous assignments include assault section sergeant/combat engineer vehicle commander, 82d Engineer Battalion, Germany, and Assault and Obstacle Platoon sergeant/operations sergeant in the 58th Engineer Company, 11th Armored Cavalry Regiment (OPFOR), Fort Irwin, California.*