APPENDIX B
URBAN OPERATIONS UNDER CONDITIONS OF LIMITED VISIBILITY

With the rapid development of night vision devices throughout the world and doctrine that mandates continuous operations, US forces will continue to fight in built-up areas regardless of the weather or visibility conditions. To be successful, leaders must anticipate the effects of limited visibility conditions on operations and soldiers.

B-1. ADVANTAGES

When fighting in built-up areas during periods of limited visibility, attacking or defending forces have several advantages.

a. **Technological Advantages.** In most cases, US forces have a technological advantage in thermal imagery and light intensification over their opponents. This enables US forces to identify, engage, and destroy enemy targets before detection by the enemy.

b. **Continuous Operations.** Doctrine stresses continuous operations, day and night. This allows the attacking forces to conclude the battle decisively in a shorter period of time. It also allows the attacker to retain the initiative. Defending forces have the ability to see during conditions of limited visibility and also conduct continuous operations.

c. **Shorter Ranges.** Direct-fire target ranges in urban terrain are greatly reduced. During periods of limited visibility, effective target acquisition ranges are even further reduced. This enables attacking forces to close to shorter ranges, thus increasing the lethality and accuracy of weapons. Attacking forces can also take advantage of the enemy's reduced visibility and can engage before being detected with thermal imagery or light intensification devices. The defender also has the ability to take advantage of periods of limited visibility and effectively employ his weapons at shorter ranges and deliver lethal, accurate fire.

d. **Surprise.** Attacking during periods of limited visibility gives the attacker a greater chance of surprise.

e. **Speed.** Decreased visibility can facilitate speed for well-trained units accustomed to fighting under these conditions.

B-2. DISADVANTAGES

When fighting in built-up areas during limited visibility, attacking and defending forces also face some disadvantages.

a. **Command and Control.** Command and control is difficult in any operation in a built-up area, and periods of limited visibility increase this difficulty. This can be overcome by all leaders maintaining situational awareness.

b. **Dispersion.** Soldiers have an instinctive tendency to form groups during limited visibility. Leaders must ensure that soldiers do not "bunch-up."

c. **Confusion.** Due to the low visibility and the characteristics of built-up areas, soldiers become disoriented easily.

d. **Target Identification.** Target identification becomes difficult in limited visibility conditions. Depending on the individual, the soldier may fire at anything he sees, or he

may hesitate too long before firing. This is one of the leading causes of fratricide, so leaders must pay close attention to target identification and engagement.

B-3. FRATRICIDE AVOIDANCE

The risk of fratricide is much greater during periods of limited visibility. The key to avoiding fratricide is situational awareness by leaders and individuals coupled with training. Other considerations include:

a. **Clear Graphic Control Measures.** Graphic control measures should be clearly defined and obvious. Examples include distinct buildings, large boulevards, streets, and so forth.

b. **Leader Control.** Leaders must exercise firm control when engaging targets. Movements should also be tightly controlled. Examples include code words for movement, use of pyrotechnic signals for shifting fire, and so forth.

c. **Marking Cleared Rooms.** Cleared rooms and buildings should be distinctly marked to identify cleared areas and the progress of clearing teams to any base of fire supporting the maneuver. Other examples include marking passage lanes, obstacles, booby traps, and so forth.

d. **Marking Soldiers.** Visible markers (for example, glint tape or thermal strips) should be attached to individual soldiers. Specific markings should be developed for distinguishing casualties.

e. **Recognition Symbols.** Far and near recognition symbols should be used properly. Examples include challenges and passwords, running passwords, building markings, other visual signals, and so forth.

f. **CAS.** Units using close air support (CAS) must exercise firm control and direct their firing. Failure to do so may lead to the pilot becoming disoriented and engaging friend and foe alike.

B-4. URBAN ENVIRONMENTAL EFFECTS ON NIGHT VISION DEVICES

The characteristics of urban areas affect standard US NVDs and sights differently than other areas. There are more lighted areas and not enough light inside of many structures, even in daytime. This may cause some confusion for soldiers operating during limited visibility, since the images they receive through their NVDs are unusual. They are subject to “washout” as well as insufficient ambient light.

a. **Aiming Lights.** Aiming lights include the AN/PEQ-2 family, AN/PAQ-4 family, AN/PAQ-4C, and GCP-1A.

(1) ***AN/PEQ-2 Family.*** The AN/PEQ-2 is a dual laser system developed to allow a combination of both pinpoint aiming and broad beam target illumination. It can be handheld or mounted to a weapon for operation. The AN/PEQ-2 is available in three models allowing for the selection of laser, infrared, or infrared/visible light illumination sources. Once mounted on a weapon, the lasers on the AN/PEQ-2 can be easily and individually boresighted using the independent azimuth and elevation adjustments. The unit is waterproof to 20 meters. Under ideal conditions, the range of the laser pointer exceeds ten miles (Figure B-1). Two AA batteries power the aiming light.

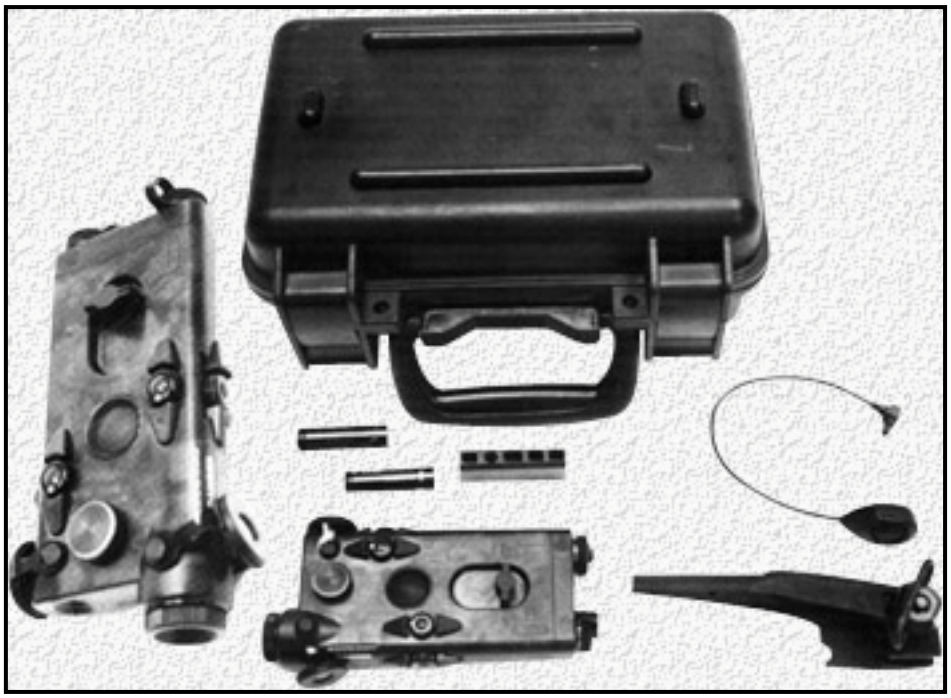

Figure B-1. AN/PEQ-2.

(2) ***AN/PAQ-4 Family.*** These devices project an invisible IR light along the weapon's line of sight, which can be seen with night vision devices, thus increasing the accuracy of night fire. These devices have a range of 600 meters. Depending on the model used, the IR beam can either be pulsating (AN/PAQ-4B) or steady beam (AN/PAQ-4C). Leaders and soldiers should ensure that the device is properly installed and zeroed to the weapon to enhance accuracy. These devices can be used in all night direct fire engagements or as a marking or signaling device during reduced visibility. Gunners with weapons equipped with the AN/PAQ-4 aiming light simply place the projected spot on the target and fire (Figure B-2). Two AA batteries power the aiming light.

Figure B-2. AN/PAQ-4B.

(3) ***AN/PAQ-4C.*** The AN/PAQ-4C (NSN 5855-01-361-1362) is an easy to mount, quick to zero aiming light with unmatched beam quality and range in an eye-safe device. It provides a rapid, accurate point for night engagements. This device, combined with the M16 mounting assembly, enables it to be easily zeroed when mounted on the M16A2 rifle. Windage and elevation adjustments enable fine zero adjustments to be made. Two AA batteries power the aiming light.

(4) ***GCP-1A.*** The ground commander's pointer (NSN 5855-01-420-0849) is an IR pointer and illuminator. Leaders use the GCP to designate targets, define sectors of fire, control fires, and illuminate targets. The light is invisible to the naked eye, but fully visible to NVGs and other NVDs. It is designed to provide clandestine target designation and illumination for night vision equipment users. The GCP IR light may be adjusted from a pencil beam, capable of pointing out targets up to 4,000 meters away, to a wide beam or flood light mode to illuminate large areas. The GCP has built in eye safe features. Two AA batteries power the GCP.

b. **Night Observation Devices.** Night observation devices (NODs) include:

(1) ***AN/PVS-4.*** The AN/PVS-4 night vision sight, for individual served weapons, is a self-contained night vision device that enables improved night vision using available ambient light. Leaders need to consider that the sight's effectiveness is impaired by rain, fog, sleet, snow, smoke, and other reflective matter. Leaders also must consider the effects that city lights, fires, and background illumination have on night vision devices. These elements could "white out" some NODs.

(2) ***AN/PVS-5 Night Vision Goggles.*** The AN/PVS-5 night vision goggles (NVG) are a lightweight, battery-powered binocular, passive night vision device worn on the head. The goggles have a 40-degree field of view. The system is normally operated in the passive mode but a built-in IR light source may be used to provide added illumination for close-up viewing. The AN/PVS-7 goggles are currently replacing this system. Leaders must consider the effects that city lights, fires, and background illumination have on night vision devices. These elements could "white out" some NVG.

(3) ***AN/PVS-7 Night Vision Goggles***. The AN/PVS-7 NVG are lightweight, battery-powered passive devices worn on the head (Figure B-3). They have an IR-emitting light source for close-up illumination. The AN/PVS-7 has a much better night vision capability in lower light levels than the AN/PVS-5 goggles. Leaders must consider the effects that city lights, fires, and background illumination have on night vision devices. These elements could "white out" some NVG.

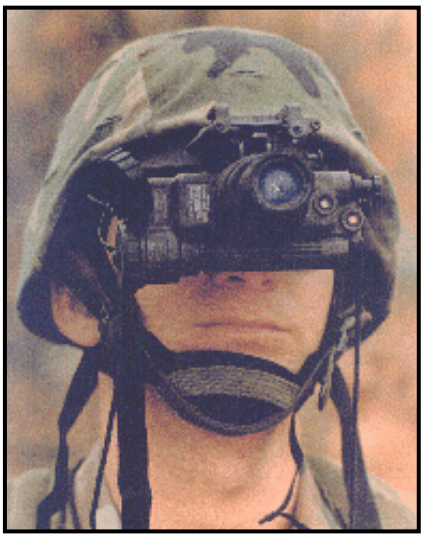

Figure B-3. AN/PVS-7 night vision goggles.

(4) ***AN/PVS-14 Monocular Night Vision Device.*** The AN/PVS-14 monocular night vision device is a hand-held, helmet-mounted, head-mounted, or weapon-mounted night vision device (Figure B-4) that enables walking, driving, weapon firing, short-range surveillance, map reading, vehicle maintenance, and administering first aid in moonlight and starlight. It has an IR light that provides illumination at close ranges (up to 3 meters in low ambient light conditions) and can also be used for signaling. The variable gain control is used to balance the illumination input to each eye. There is a "high light level" shut off if the device is exposed to damaging levels of bright light.

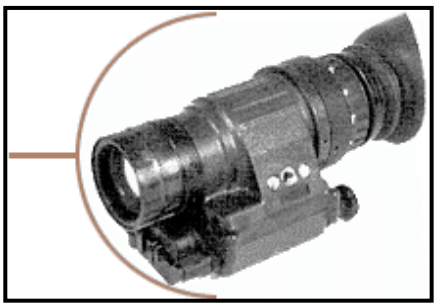

Figure B-4. AN/PVS-14 monocular night vision device.

(5) ***Three-Power Magnifier for the AN/PVS-7.*** This device is a three-power magnification lens (NSN 5855-01-391-7026) for the AN/PVS-7. The lens was developed to quickly convert the AN/PVS-7 NVG into a medium-range vision binocular surveillance system. The lightweight unit easily attaches to the NVG by screwing the threaded end of the lens assembly into the mating threads in the NVG's objective lens. The lens is also adaptable to the AN/PVS-14 monocular night vision device.

c. **White Lights.** These devices are small, lightweight, battery-powered white lights that can be attached to weapons. Either a pressure switch or an on/off switch activates the light. An IR filter can be attached to most white lights to provide IR and night vision

device capability. These lights are sold commercially and are easily available. They can be attached to weapons using hose clamps or heavy tape. Another commonly used commercial light comes with rail adapters for the rail system and can be mounted with optional pressure switches for rapid ON/OFF capability. These lights must be checked periodically because they can loosen and shift.

d. **Red Dot Sights.** These devices are lightweight, battery-powered optical sights attached to the top of the weapon. A red dot in the sight aligns the weapon and the target. These sights are for use in low light levels, not in total darkness. They do not assist in identifying targets. The sights contain elevation and windage screws for zeroing the sight, and a rotary switch that contains several settings to increase the intensity of the red dot for use in various light conditions. These sights work well in precision clearing for quick target engagements.

e. **Active Laser Devices.** These devices are lightweight, battery-powered, visible light-emitting sights. These devices, when zeroed, project a red dot onto the target that corresponds to the point of bullet impact. These devices are not effective in sunlight.

f. **Thermal Weapons Sight**. The AN/PAS-13 thermal weapons sight (TWS) is used for detecting targets in total darkness. The TWS is also effective in detecting targets through smoke, obscurants, camouflage, and targets hidden in shadows, both day and night. There are three variants of the TWS—light, medium, and heavy. Leaders should consider the capabilities of thermal imaging to properly employ this system. The TWS's weight and bulk can be a disadvantage when performing reflexive firing techniques. With the sight in the "on" position, the TWS has a power saving feature that turns off the viewer after a period of inactivity. The soldier reactivates the sight by placing the eye against the rubber eye cup. When reactivated, it takes a few seconds for the sight to cool itself enough to gain an image. This delay is a disadvantage for soldiers trying to conduct precision clearing using the TWS. The TWS cannot detect targets through window glass.

g. **Tritium Sights.** These sights contain a light-emitting radioactive element that allows a firer to align the sights in total darkness. As long as the firer has a target in sight, he can effectively engage it as he would during daylight hours. These sights will not assist the firer in identifying the target.

h. **Hand-Held IR Flare/Smoke.** This is a hand-held tube with an IR flare on one end and smoke on the other end. This device can be used to illuminate LZs, friendly positions, or provide a smoke screen. It emits IR light and burns hot at the core. Burn time for the smoke is approximately 16 seconds, and burn time for the flare is approximately 20 seconds.

i. **Hand-Held IR Parachute Signal (M127A1).** This parachute signal is a rocket-propelled, fin-stabilized item that is hand fired from an expendable type launcher. It is used for ground-to-ground, as well as ground-to-air signaling. The M127A1 produces an average of 600 IR candlepower illumination with an average of 60 seconds burn time, and has a range of 300 meters. This is an excellent device for illuminating close-in target areas and can be used as a replacement for conventional visible light illuminators.

j. **BUDD Light.** The BUDD light is a compact near-IR source using a standard 9-volt battery (BA-3090) as its power source. Both the BUDD light and its power source fit in the palm of the hand. The average life span of the battery power for a BUDD light is eight hours of continuous use. The BUDD light comes in two configurations: a

continuous beam of IR light and a pulsating light (every two seconds). It is invisible to the naked eye and thermal imagers. The light is clearly visible out to 4 kilometers under optimal conditions when pointing the beam directly at the viewer. The directional characteristics of the beam make it possible to limit observation by an enemy. It also limits the BUDD light's reliability for target identification unless multiple lights are visible to provide all-aspect coverage. This device is most effective for C2 purposes. The BUDD light is also very useful for operations at night (Figure B-5). It can be used to mark cleared areas, mark a path for other elements to follow, and so on.

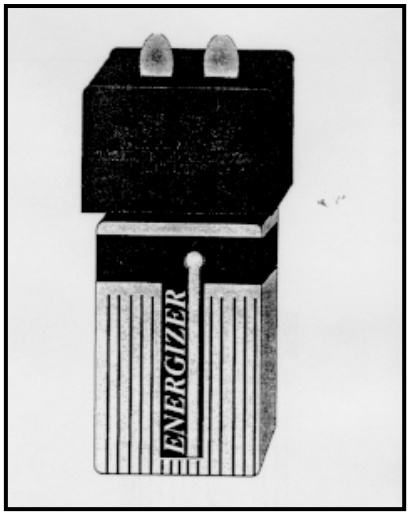

Figure B-5. BUDD light.

k. **Phoenix IR Beacon**. The Phoenix IR beacon (NSN 5855-01-396-8732) is designed to be used with NVG and other NODs (Figure B-6, page B-8). A standard 9-volt battery (BA-3090) powers the light. The Phoenix light is ideal for use when positive identification at night must be made out to 4 kilometers under optimal conditions. It is a device that emits a codeable IR signal, which can be programmed. It flashes any code or sequence up to four seconds long. It is capable of instant code changes done by the individual soldier. The programming of a code can assist in distinguishing one individual, unit, and so on, from another. It can be used as an IR torch in the continuous mode. The light is weatherproof and sturdy in design. Other possible uses are to mark LZs, PZs, and main supply routes or to assist in marking passages of lines.

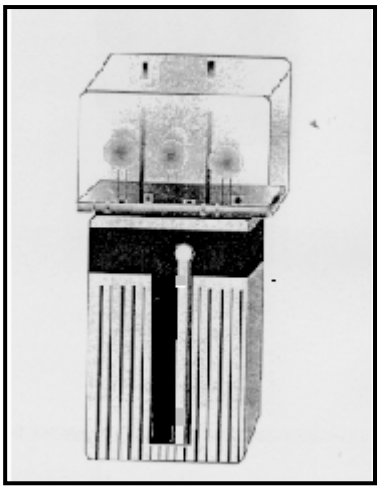

Figure B-6. Phoenix IR beacon.

D-5. CONSIDERATIONS

The urban environment presents special challenges and considerations during periods of limited visibility.

a. **Considerations for Use of Infrared Lights and NVG.** With its extensive night vision capability, the U. S. Army owns the night against most opposing forces. As with many other technical advances, when used in urban terrain, NODs may not give the same advantage as they do in open terrain. Leaders must consider all the factors and make a decision on how to use NODs.

(1) ***Advantages.*** The advantages of using IR and NVG in urban terrain are:

- Gives an assault team the ability to assault a structure in darkness, which could enhance the surprise (a fundamental of precision clearing) needed during the assault.
- No active light source is visible to the naked eye that could compromise the assault team's position. This could allow the assault element to move undetected up to and, depending on the situation, through the breach (entry) point.
- A cover could remain on the IR light until the operation is underway, limiting the chance of visually alerting the enemy to the assault teams' locations or intentions.

(2) ***Disadvantages.*** The disadvantages of using IR and NVG in urban terrain are:

- The use of an IR designator/illuminator requires a lot of familiarization and additional training.
- The use of IR and NVG may slow movement inside buildings due to the obstacles present and the lack of depth perception.
- IR illumination is an active light source that can be detected by an enemy with NODs. An active light source can compromise a clearing team's position inside a building or room, making them vulnerable to attack by an undetected assailant outside the building or room.

- NVG and mechanical IR sources are devices that can become inoperable due to mechanical failures, damage, or power failure. Firers must have both of these devices operational to be an effective fighter.
- Firers cannot use their iron sights while wearing NVG. Soldiers would be dependent upon both an aiming/illumination device and the NVG to be effective.
- NVG do not provide a wide field of view and there is a loss of depth perception associated with NVG.
- Early models of the NVG tend to "white out" from muzzle flash or flash bangs.
- If for some reason an assault team member has to remove his NVG, he is very vulnerable during the removal of the equipment and adjustment of his eyesight.
- In the absence of an IR source, NVG require some ambient light, which might not be available inside a building.
- Soldiers may move from a darkened area inside a structure into a white-lighted room, requiring the soldiers to remove their NVG, losing their night vision.
- Although target acquisition is possible, target identification is very difficult with IR and NVG inside a building/room.

b. **Considerations for Use of White Light or an Active Filtered Lens.** Use of white light can be effective during precision clearing and while searching an objective. As with all active light sources during limited visibility operations, the light must be used tactically to be effective. This means that individuals must control their light source and be aware of its effects at all times. Soldiers cannot be allowed to leave the light on constantly and wave it around. Tactical use of the light must be adhered to. Although not covert, white light has several advantages and disadvantages.

(1) ***Advantages.*** The advantages of using white light or an active filtered lens are:

- When attached to the weapon, the light can be used as a target designator. Where the light is oriented, the muzzle of the weapon is also.
- The equipment is readily available, inexpensive, reliable, and easily maintained.
- Little additional training is required to use the equipment.
- It offers the fastest means of identifying targets and searching a room, enhancing the speed and surprise of the assault element.
- It allows color vision.
- The firer uses his iron sights just as he does in daylight operations.
- After the structure has been dominated and if power is available, the building's light can be turned on so that the assault team(s) can make a thorough search if this does not compromise the unit or make the unit vulnerable to fire from outside the building.
- If white light is used, the assault team(s) will not have to remove their NVG and they won't be vulnerable to NVG whiteout.
- There is less possibility of equipment being inoperable with just one piece of equipment (the tactical light).

- A cover could remain on the tactical light until the operation is under way, limiting the chance of visually alerting the enemy to the assault teams locations or intentions.
- It may temporarily blind an opponent, causing disorientation.

(2) ***Disadvantages.*** The disadvantages of using white light or an active filtered lens are:

- An active light source can compromise an assault element's position inside a room or building making them vulnerable to attack by an undetected assailant from outside of the building or room.
- There will be a period of time for the eyes to adjust from the use of white light to NODs when the soldier turns off the light. The soldier will be ineffective for a short period of time due to this inability to see properly. This can be overcome with the soldier transitioning to NVG immediately after using his white light.
- A light may be activated too soon and alert the enemy to the clearing team's presence. If this occurs prior to the assault, the entire operation could be compromised.

c. **Techniques.** Techniques for using white light or an active filtered lens are:

(1) Soldiers should only activate the light when illumination of their line of sight/line of fire is desired. Care must be taken by all soldiers to understand the tactical situation. An example might be when a soldier is responsible for long security of a hallway. He turns his light on and off, as he deems necessary, to acquire movement at the far end of the hallway. A fire team is preparing to breach, enter, and clear a room off of the hallway. When the breach is initiated, the soldier on long security should extinguish his light so that he does not silhouette any member of the assault element moving through the breach into the room. Once the room is entered and the assault elements are in their points of domination, then the soldier can turn his light on for security of the hallway again.

(2) One technique to illuminate a room is to reflect the light from a source off of the ceiling. The reflected light provides enough illumination to allow a search of the room. The amount of light reflected depends upon the color of the ceiling and the amount of dust and smoke present in the room. This technique should not usually be considered in the conduct of precision clearing because it may silhouette soldiers in windows and doors and identify the location of the unit.

(3) Another technique to illuminate a room is to reflect the light from a source off of the center part of the floor. The reflected light will provide enough illumination to allow a search of the room. As in the ceiling technique, this technique can silhouette soldiers in the windows and doors and allow the enemy to acquire them.

B-6. COMBAT SUPPORT

Loss of synchronization is one of the major concerns to company commanders and leaders during limited visibility urban combat operations. The coordination of forces and fires at the point of decision can be facilitated by the technological advantage of US forces and by clear orders from leaders at all levels.

a. **Techniques.** Any degradation of artillery fire will be due to the limited target acquisition assets. While the field artillery FOs and combat observation and lasing teams (COLTS) have thermal sights and laser range finders, most soldiers on the battlefield do

not have devices that will enable them to accurately call for fire. The following are some techniques to acquire targets for indirect fires.

(1) ***Preregistered TRPs.*** Preplanned and preregistered TRPs are effective only if the TRPs can be observed and the observer has clear communications to the firing unit.

(2) ***Reflective Surfaces.*** Reflective surfaces found in built-up areas may affect laser designators.

(3) ***Counterfire Radar***. Counterfire radar should be employed to cover likely areas of enemy mortar, cannon, and rocket use. Because of the masking effect of built-up areas, counterfire radars are not normally emplaced within the built-up area.

b. **Fixed-Wing Aviation Assets.** Fixed-wing aviation assets face a lower ADA threat during periods of limited visibility. However, the need for command and control is greater to prevent fratricide. The best fixed-wing aircraft available for fire support is the AC-130 because of its target acquisition capabilities, deadly and accurate fire, and long loiter time.

c. **Army Aviation.** Army aviation operates on similar limitations and considerations as fixed-wing aircraft. Most US Army attack helicopters have a forward-looking infrared (FLIR) night sight. Because of their slower speed and hover capability, helicopters can deliver highly accurate and responsive fire on enemy targets. However, helicopters are more susceptible to enemy ADA assets and, therefore, should only be employed where the enemy air defense threat is light. Commanders must identify clear landmarks for the pilots to navigate to and from the objective.

d. **Air Defense Artillery**. ADA is significantly degraded during periods of limited visibility. Visual detection, identification, and range estimation are all very difficult. Radar guidance systems have difficulty distinguishing the target from ground clutter.

e. **Engineer Units.** The lack of thermal imaging devices may hamper engineer units. Locating and clearing mines and booby traps also become more dangerous and difficult. The method of marking cleared lanes should be determined and coordinated in advance to avoid confusion with other limited visibility markers (glint tape, infrared strobe lights [BUDD lights], chemlites, and so forth).

f. **Military Intelligence.** Military intelligence relies primarily on human intelligence assets to gain information about the enemy in urban environments.

(1) GSR and remotely monitored battlefield sensor systems (REMBASS) have limited use in the center of built-up areas. They are best employed on the outskirts to monitor traffic into and out of the built-up area. If necessary, GSR can be used to cover large open areas such as parks and public squares. REMs can be used in subterranean areas such as sewers and utility tunnels.

(2) Based on the time available before the operation or the urgency of need, satellite photographs of the built-up area may be available.

B-7. SERVICE SUPPORT

Soldiers in maneuver platoons are not the only individuals that must adjust to combat under limited visibility conditions during urban combat. Company XOs, first sergeants, and supply sergeants must anticipate requirements for this unique environment.

a. **Resupply.** Units conducting resupply operations during periods of limited visibility should remember the following:

(1) Drivers and vehicle commanders should be issued NVDs so the vehicles going to and from logistic release points do not need any illumination. This also prevents the enemy from acquiring resupply locations by following vehicles with blackout lights on.

(2) Strict noise and light discipline should be maintained.

(3) Vehicles should follow a clearly marked route to avoid any obstacles and prevent the resupply vehicle(s) from becoming disoriented.

(4) Radios should be redistributed to resupply vehicles whenever possible, in order to maintain control.

(5) Each vehicle should have a map of the area of operations (preferably a city map with the street names).

(6) Prepackaged supplies going to forward units must be marked for quick ID of contents.

b. **Batteries.** Companies operating for extended periods during limited visibility should have enough batteries to keep the NVDs functioning at optimum power and sensitivity.

c. **Casualty Collection.** Casualty collection during periods of limited visibility is much more difficult. Clear methods for marking any casualties and casualty collection points must be established before the operation begins.

d. **Light Discipline.** Resupply operations in existing structures at night must not be visible from a long distance. This includes limiting vehicle traffic to an absolute minimum, sealing doors and windows to prevent light leakage, and dispersing assets as much as possible.

B-8. OFFENSIVE CONSIDERATIONS

Attacks are conducted during periods of limited visibility to achieve surprise and to gain or maintain the momentum of the attack. Before conducting a limited visibility attack, the commander must balance the risks and ensure that every soldier understands the intent and control measures. Rehearsals and strict command and control reduce casualties and greatly enhance the chances for mission accomplishment.

a. **Clearing Buildings and Rooms.** Soldiers should clear buildings and rooms using the same techniques as used during periods of unlimited visibility to reduce confusion. The only major difference is in equipment used. (See the paragraph on special equipment in this appendix.)

b. **Slower Movement.** Movement rates are slower. Each soldier must be alert for mines, booby traps, and enemy positions. Although thermal imaging devices can detect the difference in the temperature of the soil, light intensification devices are usually better for detecting recently disturbed dirt. Thermal imaging devices are better for identifying personnel; however, light intensifiers can identify friendly soldiers, noncombatants, and enemy troops better than the thermals in areas that have sufficient ambient light.

c. **Equipping Squads and Fire Teams.** Squads and fire teams should be equipped with a mixture of both thermal imaging and light intensifying devices whenever possible. This enables the squads and fire teams to obtain a better picture of the night environment and enables the soldiers to balance the strengths and weaknesses of each type of night vision device. Consideration must also be given to white lights and IR filters for them.

d. **Marking Cleared Rooms.** When moving through buildings, the assault teams must mark cleared rooms and buildings, and communicate with the support team(s). This

communication is critical if more than one assault team is in the same building. (See Appendix I for more information on marking.)

e. **Communications with Supporting Units.** The assault team must have clear communications with all supporting elements, whether they are organic, in DS, under OPCON, or attached. Supporting units should not fire unless they have good communications with the assaulting elements and are sure the targets they are engaging or suppressing are the enemy.

f. **Situational Awareness.** Units must know where everyone is during offensive operations. Not only does this reduce the risk of fratricide, but it also increases the time of identifying, locating, and treating casualties. Also, it greatly reduces the chance of soldiers becoming disoriented and separated from the unit. This is even more critical during periods of limited visibility.

g. **Weapons Flashes and Flares.** Assault teams should be aware of adjacent fires that diminish the effectiveness of night vision devices. Weapons flashes within small rooms cause soldiers to lose their night vision and wash out light intensification devices. Also, enemy soldiers may use flares inside and outside of buildings to render some night vision devices ineffective.

B-9. DEFENSIVE CONSIDERATIONS

Threat forces can be expected to use periods of limited visibility for the same reasons US forces do (see paragraph B-1). Threat forces may have access to sophisticated NVDs manufactured in Europe, the United States, Japan, Korea, and the former Soviet Union. If this is the case, soldiers must be as disciplined with IR light as they are with white light. (See Chapter 5 for detailed information on defensive operations.)