

APPENDIX A

NUCLEAR, BIOLOGICAL, AND CHEMICAL CONSIDERATIONS

Current US policy regarding lethal or incapacitating agents is that their use against an armed enemy requires approval at the national command authority level. Potential enemies may not operate under the same restrictions. Field commanders must be prepared to assume an adequate NBC defensive posture when engaged in urban fighting. Leaders must be aware of how the built-up environment affects the protection, detection, and decontamination process. Buildings are usually not strong enough to provide shelter from a nuclear explosion but do provide some protection against fallout. They also have unique characteristics concerning the use of biological and chemical agents. Personnel who must move through a contaminated built-up area should employ the procedures outlined in FM 3-3, FM 3-4, FM 3-5, and FM 3-100.

A-1. PROTECTION FROM NBC

The lowest floor or basement of a reinforced concrete or steel-formed building offers good protection from nuclear hazards and liquid chemical contamination. Tunnels, storm drains, subway tubes, and sewers provide better protection than buildings. Tanks, BFVs, and APCs also provide protection.

a. Biological attacks are difficult to detect or recognize. Biological agents can be disseminated by using aerosols, vectors, and covert methods (see FM 3-3 for more detailed information.) Since biological agents can be sprayed or dropped in bomblets, personnel who observe such indicators should promptly report them. Prompt reporting and treatment of the sick speeds the employment of medical countermeasures. Although buildings and shelters provide some protection against spraying, they provide little protection against biological agents.

b. Chemical agents cause casualties by being inhaled or by being absorbed through the skin. They may afford soldiers a few seconds to mask. Buildings have a channeling effect and tend to contain the effects of an agent, causing great variation in chemical concentration from room to room or from budding to building. Chemical agents usually settle in low places, making sewers and subways hazardous hiding places. A prepared defender should include some collective protective measures in the defensive network. Personnel using fans may be able to put enough overpressure into tunnels to keep some chemical agents from entering. The individual protective mask and battle dress overgarment provide the best protection against chemical agents.

c. Personal hygiene is a critical defensive measure against infection and disease. Unfortunately, built-up areas are characterized by sophisticated sanitation systems. When those systems are destroyed, the resulting sanitary conditions become much worse than those in areas where sanitary facilities do not exist. Commanders must ensure that personnel employ sanitation measures and that their immunizations are current.

d. Commanders should plan their MOPP realizing that built-up area logistics also apply to NBC equipment. Protective clothing, detection and decontamination equipment, and sealed containers of food and water must be stockpiled the same as other supplies. When operating in protective clothing, commanders must make allowances for the strenuous activities normally associated with combat in built-up areas.

(1) **Detection.** After an NBC attack, battalions should dispatch their detection and survey teams. Detection in built-up areas is complicated by the containing nature of buildings. Teams should conduct tests and surveys of major streets, intersections, and buildings in their area for inclusion in initial NBC reports. A systematic survey of all buildings, rooms, and underground facilities must be accomplished before occupation by unmasked personnel. All data should be forwarded using the appropriate NBC report.

(2) **Decontamination.** Personnel must begin decontamination operations as soon after an NBC attack as the mission allows. Personnel should conduct individual decontamination of themselves and their personal equipment. Unit commanders must determine the need for MOPP gear exchange and the requirements for a hasty or deliberate decontamination operation.

(a) **Radiological.** Personnel should wear wet-weather gear for certain decontamination operations (hosing down buildings) to prevent radioactive material from touching the skin.

(b) **Chemical and biological.** Roads, sidewalks, and other hard surfaces are best decontaminated by weathering, if time permits. Agents can also be covered with several inches of dirt or sand to provide protection. Fragment testing should be conducted periodically to ensure that the agent has not seeped through the covering. For critical sections of roads a truck-mounted M12A1 (power-driven decontaminating apparatus [PDDA]) can be used to spray STB slurry; this aids rapid decontamination. Buildings are difficult to decontaminate, especially wooden ones. Some techniques for their decontamination are scrubbing with STB slurry washing with hot, soapy water; washing or spraying with a soda solution; and airing.

A-2. SMOKE OPERATIONS

To stay combat effective when faced with many complications caused by NBC operations, commanders must plan before combat. The use of smoke as an integral part of either offensive or defensive operations can complement missions in built-up areas. Chemical support could be needed from smoke generator units for both offensive and defensive operations. In the offense, smoke can support the maneuver of combat elements and deception operations. Smoke employed in the defense obscures enemy air and ground observation, limiting the accuracy of enemy fires and target intelligence.

a. Smoke should not be used when it degrades the effectiveness of friendly forces. Likewise, an extremely dense concentration of smoke in a closed room displaces the oxygen in the room, smothering soldiers even when they are wearing protective masks.

b. Smoke pots, generators, or artillery smoke munitions should be used to cover the withdrawal of defending forces or the movement of attacking forces. Artillery-delivered white phosphorus can also be effective on enemy forces by causing casualties and fires. The incendiary effects of both white

phosphorus and base ejection munitions on the litter and debris of built-up areas must be considered.

c. Smoke grenades can be massed to provide a hasty screen for concealing personnel movement across streets and alleys. Smoke grenades can also be used for signaling; those launched by an M203 can be used to mark targets for attack helicopters or tactical air.

d. The use of smoke in built-up areas is affected by complex wind patterns caused from buildings. When covering a built-up area with a smoke haze or blanket, personnel must include all buildings. Failure to obscure tall buildings, towers, and steeples provides enemy observers with reference points for fire placement within the built-up area.

A-3. RIOT CONTROL AGENTS

Riot control agents, such as CS and CN, can be used to drive enemy troops from proposed positions or to deny them areas for occupation. Riot control agents are incapacitating but have no lasting effects. They are appropriate when preventing civilian casualties is a planning consideration. However, riot control agents are not effective against an enemy well trained in chemical defense.