

Chapter 6

Demolition Safety

Section I. General Safety

6-1. Considerations.

- Do *not* attempt to conduct a demolitions mission if you are unsure of demolition procedures; review references or obtain assistance.
- Prevent inexperienced personnel from handling explosives.
- Avoid dividing responsibility for demolition operations.
- Use the minimum number of personnel necessary to accomplish the demolitions mission.
- Take your time when working with explosives; make your actions deliberate.
- Always post guards to prevent access inside the danger radius.
- Always maintain control of the blasting machine or initiation source.
- Use the minimum amount of explosives necessary to accomplish the mission while keeping sufficient explosives in reserve to handle any possible misfires.
- Maintain accurate accountability of all explosives and accessories. Always store blasting caps separately and at a safe distance from other explosives.
- Ensure all personnel and equipment are accounted for prior to detonating a charge.
- Ensure you give warnings before initiating demolitions; give the warning “Free in the hole!” three times.
- Always guard firing points.
- Assign a competent safety officer for every demolition mission.
- Dual initiate all demolitions, regardless of whether they are single-or dual-primed.
- Avoid using deteriorated or damaged explosives.
- Do not dismantle or alter the contents of any explosive material.
- Avoid mixing live and inert (dummy) explosives.

WARNING

**Do not use blasting caps underground.
Use detonating cord to prime underground charges.**

6-2. Explosive Materials.

a. *Blasting Caps.* Both military and commercial blasting caps are extremely sensitive and can explode unless handled carefully. Blasting caps can detonate if exposed to extreme heat (*cook off*). Military blasting caps are more powerful and often more sensitive than their commercial counterparts. When using commercial blasting caps to detonate military explosives, ensure they are powerful enough to detonate the explosives, thus, avoiding misfires. Because power

requirements for caps from different manufacturers vary, never mix caps from different manufacturers; mixing caps could result in misfires. When installing caps in explosives, never force them into an explosive or a cap well; use an appropriate tool for making or enlarging the cap well. Ensure 1/8 to 1/4 inch of the cap is clearly visible at both ends when taping onto detonation cord. Do not connect blasting-cap initiation sets to ring or line mains or charges when nonessential personnel are on site. Never leave blasting caps unattended before or after attaching them to the charges or firing system.

(1) Nonelectric.

- Use only authorized equipment and procedures when crimping nonelectric blasting caps to time fuse or detonating cord.
- Maintain blasting caps in the appropriate cap box until needed. Never store blasting caps with explosives.
- Never carry loose blasting caps in your pocket or place loose blasting caps in a container; secure them.
- Do not blow into a nonelectric cap or attempt to remove any obstructions from the blasting cap well. Remove obstructions that will dislodge by using the wrist-to-wrist tap method.
- Never insert anything but time fuse or detonation cord into a nonelectric blasting cap. Do not twist time fuse or detonating cord while attempting to insert into a blasting cap.
- Never attempt to crimp a blasting cap installed in an explosive. If the blasting cap has come loose from the time fuse or detonating cord, remove the blasting cap from the charge, recrimp the cap, and then reinstall the cap in the charge.
- Avoid striking, pinching, and mashing nonelectric caps during crimping activities. Use only the M2 crimpers for all crimping operations.
- When using nonelectric caps to dual prime demolitions, cut the fuse to allow an interval of not less than 10 seconds between firings.

(2) Electric.

- Do not remove the short-circuiting shunt unless testing or connecting the cap. The shunt prevents accidental initiation by static electricity. If the blasting cap has no shunt, twist the bare ends of the lead wires together at least three times (180-degree turns) to provide a proper shunt.
- Use proper grounding procedures when static electricity is present, see paragraph 6-5b (page 6-4).
- When transporting electric blasting caps near vehicles (including aircraft) equipped with a transmitter, protect the blasting caps by placing them in a metal can with a snug-fitting cover (1/2 inch or more of cover overlap). Do not remove blasting caps from their containers near an operating transmitter unless the hazard has been judged acceptable.
- Keep electric blasting caps at least 155 meters from energized power lines. If using electric blasting caps near power lines, temporarily cut the power to the lines during blasting operations.
- Always use at least the minimum current required to fire electric blasting caps.

- Always check circuit continuity of electric blasting caps before use.
- Cover connections between blasting cap leads and firing wires with insulating tape, not the cardboard spool.
- Remove firing wire loops and, if practical, bury blasting wires.

b. *Time Fuse and Detonating Cord.*

(1) Time Fuse.

- Always conduct a test burn of at least three feet for each roll of time fuse. If you do not use the fuse within 24 hours of the test burn, perform another test burn before using the fuse.
- Use M2 crimpers to cut time fuse. If serviceable M2 crimpers are not available, use a sharp knife to cut fuse. Be sure to cut the fuse end squarely. Make the cut on a nonsparking surface, such as wood. A rough or jagged-cut fuse can cause a misfire.
- Avoid cutting the fuse until you are ready to insert it into the igniter and blasting cap.
- To avoid problems from moisture infiltration, never use the first or last 6 inches of time fuse from a new or partial roll.
- Avoid sharp bends, loops, and kinks in time fuse. Avoid stepping on the fuse. Any of these conditions or actions can break the powder train and result in a misfire.

(2) Detonating Cord.

- Do not carry or hold detonating cord by placing it around your neck.
- To avoid problems from moisture infiltration, never use the first or last 6 inches of detonating cord from a new or partial roll.
- Avoid sharp bends, loops, and kinks in detonating cord. Avoid stepping on the cord. Any of these conditions or actions can change the path of detonation or cause the cord to cut itself.

c. *Plastic and Sheet Explosives.*

- Always cut plastic and sheet explosives with a sharp knife on a nonsparking surface. Never use shears.
- Avoid handling explosives with your bare skin as much as possible.

d. *Picric Acid.* Picric acid degrades with time. Do not use picric acid if its container is rusted or corroded. A rusty or corroded container indicates the explosive is unstable.

WARNING
Do not handle picric acid. Notify EOD for disposition.

e. *Commercial Explosives.* Commercial dynamite is sensitive to shock and friction and is not recommended for use in combat areas. Do not use old, commercial dynamite because it is extremely sensitive and very unstable. Follow the procedures in TM 9-1300-206 or the manufacturer's recommendations to destroy aged commercial dynamite. When commercial dynamite freezes, it becomes covered with crystals and is very unstable. Do not use frozen dynamite. Commercial

dynamite containing nitroglycerin requires special handling and storage. Rotate commercial dynamite in storage to prevent the nitroglycerin from settling to the bottom of the explosive.

6-3. Boreholes. Do not leave any void spaces in boreholes, especially in quarrying operations. A secondary explosion can result from a borehole with voids between loaded explosives. After the first blast, it may take up to 15 minutes for such an explosion to occur. Tamp all voids with appropriate material. When using springing charges to dig boreholes, allow at least 2 hours for boreholes to cool between placing and firing successive springing charges, or cool the boreholes with water or compressed air to save time.

6-4. Toxicity. Most military explosives are poisonous if ingested and will produce lethal gases if detonated in confined areas such as tunnels, caves, bunkers, and buildings. Allow sufficient time for blast fumes, dust, and mists to clear before inspecting or occupying a blasting area. TNT is extremely poisonous; avoid using TNT to blast in enclosed areas. Avoid touching sensitive areas of your body, such as around the face and groin, when working with explosives. Wash your hands after working with explosives, especially before consuming food.

6-5. Natural and Physical Properties.

a. *Lightning.* Lightning is a hazard to both electric and nonelectric blasting charges. A lightning strike or nearby miss is almost certain to initiate either type of system. If lightning strikes occur, even far away from the blasting site, electrical firing circuits could be initiated by high, local earth currents and shock waves resulting from the strikes. These effects are increased when lightning strikes occur near conducting elements, such as fences, railroads, bridges, streams, underground cables or conduits, and in or near buildings. The only safe procedure is to suspend all blasting activities during electrical storms or when an electrical storm is imminent.

b. *Static Electricity.* Though rare, electric blasting caps can possibly be initiated by static electricity. If possible, avoid using electric blasting caps if static electricity is a problem. Exercise extreme caution when working with explosives in cold, dry climates or when wearing clothing and equipment that produce static electricity, such as clothing made of nylon or wool. Before handling an electric blasting cap, always remove the static electricity from your body by touching the earth or a grounded object. It may be necessary to perform this grounding procedure often in an area where static electricity is a constant problem.

c. *Induced Currents.* Radio signals can induce a current in electric blasting caps and prematurely detonate them. Table 6-1 lists the minimum safe distances from transmitters for safe electrical blasting. This table applies to operating radio, radar, microwave, and television transmitting equipment. Keep mobile transmitters and portable transmitters at least 50 meters from any electric blasting cap or electrical firing system. Do not use electric blasting caps within 155 meters of energized power transmission lines.

d. *Blast Effects.* Personnel in close proximity to explosions may experience permanent hearing loss or other injury from the pressure wave caused by an explosion. Hearing protection should be worn during all blasting operations. Personnel observing minimum safe distances for bare charges (see Table 6-1 and Army Regulation (AR) 385-63) generally will not be affected by blast effects. Refer to AR 385-63, Chapter 18, for additional information on blast effect.

Table 6-1. Safe distances for blasting near radio frequency energy

Average or Peak Transmitter Power (Watts*)	Minimum Safe Distance (Meters)
0 to 29	30
30 to 49	50
50 to 99	110
100 to 249	160
250 to 499	230
500 to 999	305
1,000 to 2,999	480
3,000 to 4,999	610
5,000 to 19,999	915
20,000 to 49,999	1,530
50,000 to 100,000	3,050
*When the transmission is a pulsed- or pulsed, continuous-wave type and its pulse width are less than 10 microseconds, the left-hand column indicates average power. For all other transmitters, including those with pulse widths greater than 10 microseconds, the left-hand column indicates peak power.	

e. *Missile Hazards.* Explosives can propel lethal missiles great distances. The distances these missiles will travel in air depend primarily on the relationship between the missiles' weight, shape, density, initial angle of projection, and initial speed. Under normal conditions, the missile-hazard area of steel-cutting charges is greater than that of cratering, quarrying, and surface charges.

6-6. Underwater Operations.

a. *Explosives.* Explosives are subject to erosion by water. Unprotected explosives will deteriorate rapidly, reducing their effectiveness. Ensure all exposed explosives are adequately protected when used in water, especially running water.

b. *Nonelectric Caps.* Nonelectric caps depend on combustion to work properly. Any moisture inside a nonelectric cap may cause a misfire. Because nonelectric blasting caps are difficult to waterproof, avoid using them to prime underwater charges or charges placed in wet boreholes.

c. *Time Fuse.* Time fuse depends on combustion to burn properly. Time fuse burns significantly faster underwater due to water pressure. Waterproof sealing compounds will not make a permanent waterproof seal between the fuse and a nonelectric blasting cap. Place the fuse underwater at the last possible moment before firing.

NOTE: If the mission requires using time fuse underwater, then do the test burn underwater.

d. *Detonating Cord.* Seal the ends of detonating cord with a waterproof sealing compound when using detonating cord for initiating underwater charges or charges that will remain in place

several hours before firing. Leaving a 6-inch overhang in detonating cord normally will protect the remaining line from moisture for 24 hours.

e. *M60 Fuze Igniter*. The M60 depends on combustion to work properly. Water can penetrate the fuze igniter through the vent hole located in the pull rod. Therefore, if the igniter fails to fire on the initial attempt, it probably will fail on any subsequent attempt after reset. Always use a backup initiation set for underwater demolitions.

6-7. Safe Distances. The following criteria give distances at which personnel in the open are relatively safe from missiles created by bare charges placed on the ground, regardless of the type or condition of the soil (AR 385-63). Table 6-2 lists safe distances for selected charge weights. The following general rules apply:

- Charges of Less Than 27 Pounds. The minimum missile hazard distance is 300 meters.
- Charges of More Than 27 Pounds But Less Than 500 Pounds. Use the distances in Table 6-2.
- Charges More Than 500 Pounds. Use the following formulas:

$$\text{Safe Distance (meters)} = 100 \sqrt[3]{\text{Pounds of Explosive}} \tag{6-1}$$

$$\text{Safe Distance (feet)} = 300 \sqrt[3]{\text{Pounds of Explosive}} \tag{6-2}$$

- **Missile-Proof Shelters.** A missile-proof shelter can be as close as 100 meters from the detonation site provided it is strong enough to withstand the heaviest possible missile resulting from the demolition.
- **Charges Fixed to Targets.** When charges are fixed to targets and not simply placed on the ground, use the safe distances specified in Tables 6-2 or 6-3, whichever is farthest. Note that these distances depend on the target configuration, not quantity of explosive.

Table 6-2. Safe distances for personnel (near bare charges)

Explosive Weight (Pounds)	Safe Distance		Explosive Weight (Pounds)	Safe Distance	
	Feet	Meters		Feet	Meters
27 or less	985	300	175	1,838	560
30	1,021	311	200	1,920	585
35	1,073	327	225	1,999	609
40	1,123	342	250	2,067	630
45	1,168	356	275	2,136	651
50	1,211	369	300	2,199	670
60	1,287	392	325	2,258	688
70	1,355	413	350	2,313	705
80	1,415	431	375	2,369	722
90	1,474	449	400	2,418	737
100	1,526	465	425	2,461	750
125	1,641	500	500	2,625	800
150	1,752	534			

Table 6-3. Safe distances for personnel (charges on target)

Serial	Charge Type	Target	Charge Size	Radius of Danger Area (m)	Remarks
a	b	c	d	e	f
1	Blasting caps Primers Detonating cord (in the open)	—	—	20	For service personnel under supervision. Applicable to all serials.
2	Cutting	a. Trees	Any	300	—
		b. Concrete columns and beams	Any	500	
		c. Metal girders and plates, guns, and so forth	Any	1,000	
3	Concussion	Buildings and AFV	Any	1,000	If personnel are wearing helmets, you may reduce the safe distance to 500 meters. Consider the strong blast effect when considering buildings as potential blast shelters.
4	Cratering	Roads and airfields	a. Up to 2 kg	100	
			b. Up to 30 kg	300	
			c. Over 30 kg	500	
5	Mines	Piers Abutments Retaining walls	Any	500	
6	Borehole	Rock Masonry Concrete Brick	Any	300	
7	Breaching	Reinforced-concrete beams and slabs Mass-concrete walls and obstacles	Any	1,000	If personnel are wearing helmets, you may reduce the safe distance to 500 meters. Consider the strong blast effect when considering buildings as potential blast shelters.
8	Shaped	Concrete Steel	Any	1,000	When these charges are fired into the ground vertically, you may reduce the safe distance to 300 meters.
9	Bangalore Torpedo	Wire obstacles	—	a. All right angles to axis, 1,000 meters	
			—	b. In the line of the axis, 200 meters for standing personnel and 100 meters for prone personnel	
10	M180	Roads and airfields	1-15 kits	1,200	Fragments may fly up to 1,000 meters in all directions.

NOTES:

1. The air clearance required is the ground safety distance plus 500 meters above the explosive area.
2. The ship clearance required is the same distance as for the ground safety distance.

Section II. Misfire Procedures

6-8. Nonelectric Misfires.

a. Causes.

- Moisture in the time fuse, detonating cord, or explosives.
- Time fuse not seated completely in blasting cap or in fuse igniter.
- Breaks in time fuse or detonating cord.
- Jagged or uneven ends on time fuse.
- Blasting caps not seated securely in cap well or explosive.
- Loose or improper detonating-cord installation.
- Debris in the blasting cap.
- Commercial blasting caps were not strong enough to detonate military explosives.

b. Prevention. You can minimize nonelectric misfires by taking the following precautions:

- Prepare and place all primers properly.
- Load all charges carefully.
- Detonate charges with the proper techniques.
- Use dual-initiation systems and, if possible, dual firing systems.
- Use detonating cord for underground demolitions. *Do not bury caps!*
- Perform tamping operations with care to avoid damaging prepared charges.
- Avoid crimping blasting caps onto time fuse in the rain; seek a covered area out of the rain.
- Ensure you completely seat time fuse when installing it into a blasting cap or fuse igniter.

c. Clearing Procedure.

- The soldier who placed the charges should investigate and correct any problems with the demolition.
- After attempting to fire the demolition, delay investigating any detonation problem for at least 30 minutes plus the time remaining on the secondary. Tactical conditions may require investigation prior to the 30-minute limit.
- For above-ground misfires of charges primed with blasting caps, place a primed, 1-pound charge next to the misfired charge and detonate the new charge. Each misfired charge or charge separated from the firing circuit that contains a blasting cap requires a 1-pound charge for detonation. Do not touch scattered charges that contain blasting caps; destroy therein place. For charges primed with detonating cord, use the procedures in paragraph 6-10 (page 6-10).
- For a nonelectric cap that has detonated but failed to initiate a detonating-cord branch line, line main, or ring main, attach a new cap to the detonating cord, and then move to a safe place.

- For buried charges, remove the tamping to within one foot of the misfired charge. Constantly check depth while digging to avoid striking the charge. When within 1 foot of the misfired charge, place a primed, 2-pound charge on top of the original charge and detonate the new charge. If digging over the original charge is impractical, dig a new borehole of the same depth beside the original hole, 1-foot away. Place a primed, 2-pound charge in the new hole and detonate the new charge.

6-9. Electric Misfires.

a. Causes.

- Inoperable or weak blasting machine or power source.
- Improper operation of blasting machine or power source.
- Defective or damaged connections. (Short circuits, breaks in the circuit, or too much resistance in the electrical wiring are common conditions resulting in misfires.)
- Faulty blasting caps.
- Blasting caps made by different manufacturers in the same circuit.
- Power source inadequate for the number of blasting caps in the circuit (too many caps, too small a blasting machine).

b. *Prevention.* Assign one individual the responsibility for all the electrical wiring in a demolition circuit. This individual should do the following:

- Perform all splicing.
- Install all blasting caps in the firing circuit. *Do not bury caps!*
- Make all of the connections between blasting cap wires, connecting wires, and firing wires.
- Inspect system for short circuits.
- Avoid grounding out the system.
- Ensure the number of blasting caps in any circuit does not exceed the rated capacity of the power source.

c. *Clearing Procedure.* Use the following procedures to clear electric misfires:

- Make another attempt to fire.
- Use the secondary firing system, when present.
- Check the wire connections, blasting machine, or power-source terminals.
- Disconnect the blasting machine or power source and test the blasting circuit. Check the continuity of the firing wire with a circuit tester.
- Use another blasting machine or power source and attempt to fire the demolition again, or change operators.
- When employing *only one* electrical initiation system, disconnect the blasting machine, shunt the wires, and investigate immediately. When employing *more than one* electrical initiation system, wait 30 minutes before inspecting. Tactical conditions may require investigation prior to the 30-minute limit.

- Inspect the entire circuit for wire breaks or short circuits.
- If you suspect an electric blasting cap is the problem, do not attempt to remove or handle it. Place a primed, 1-pound charge next to the misfired charge and detonate the new charge.

6-10. Detonating-Cord Misfires.

a. *Detonating Cord.* If detonating cord fails to function properly, take the following action:

- Attach a new blasting cap to the remaining detonating cord, taking care to fasten it properly, and detonate the new blasting cap.
- Treat branch lines in the same manner as noted above.

b. *Detonating-Cord Priming.* If the detonating cord leading to the charge detonates but fails to explode the charge, take the following action:

- Do not investigate until the charges have stopped burning. Wait 30 minutes if the charge is underground.
- Reprime and attempt to detonate the charge.
- Scattered charges that do not contain blasting caps may be collected and detonated together.
- For underground charges, dig to within one foot of the charge; place a primed, 2-pound charge on top or to the side of the charge; and detonate the new charge.

Section III. Transportation and Storage Safety

6-11. Transportation.

a. *Regulations.* Both military and commercial carriers are subject to regulations when transporting military explosives and other dangerous military materials within the United States. AR 55-355 covers the transportation of explosives. When transporting explosives outside the United States, follow the regulations from the host countries as well. TM 9-1300-206 contains minimum safety requirements for handling and transporting military explosives and ammunition. All explosives transport personnel must learn the local procedures and safety requirements.

b. *Safety Procedures.* The commander should assign a primary and assistant operator to each vehicle transporting explosives on public highways, roads, or streets. Whenever transporting explosives locally, operators must observe the following safety rules:

(1) Vehicles.

- Ensure vehicles are in good condition. Inspect all vehicles intended for hauling explosives before loading any explosives. Pay particular attention to protecting against any short circuits in the electrical system.
- When using vehicles with steel or partial-steel bodies, install fire-resistant and nonsparking cushioning to separate the explosives from the metal truck components.
- Do not load vehicles beyond their rated capacities when transporting explosives.

- Cover open-body vehicles hauling explosives with a fire-resistant tarpaulin.
- Mark all vehicles transporting explosives with reflective placards indicating the type of explosives carried (TM 9-1300-206, Chapter 6).
- Use demolition transports for explosives only. Do not carry metal tools, carbides, oils, matches, firearms, electric storage batteries, flammable substances, acids, or oxidizing or corrosive compounds in the bed or body of any vehicle transporting explosives.
- Equip vehicles transporting explosives with not less than two Class 1-BC fire extinguishers for on-post shipments. Place the extinguishers at strategic points, ready for immediate use.
- Keep vehicles away from congested areas. Consider congestion when parking.
- Operate vehicles transporting explosives with extreme care. Do not drive at a speed greater than 35 miles per hour. Make full stops at approaches to all railroad crossings and main highways. This does not apply to convoys or crossings protected by guards or highway workers (flaggers).
- Keep flames at least 50 feet from vehicles or storage points containing explosives.

(2) Cargo (Explosives).

- Never leave explosives unattended.
- Never mix live and inert (dummy) explosives.
- Secure the load of explosives in the transport to prevent shifting during transport.
- Transport blasting caps separately from other explosives. Do not transport blasting caps or other initiators in the same vehicles carrying explosives. If both blasting caps and explosives must be carried in the same vehicle, separate blasting caps from the other explosives by carrying the caps in a closed metal container in the cab of the transport.
- No persons other than the primary and the assistant operators will ride on or in a truck transporting explosives. Do not refuel a vehicle while carrying explosives except in an emergency.

(3) Fire. If fire breaks out in a vehicle transporting explosives, take the following actions:

- Try to stop the vehicle away from any populated areas.
- Stop traffic from both directions. Warn vehicle drivers and passengers and occupants of nearby buildings to keep at least 2,000 feet away from the fire.
- Inform police, fire fighters, and other emergency-response personnel that the cargo is explosives.
- If the fire involves only the engine, cab, chassis, or tires, make an effort to extinguish the fire with fire extinguishers, sand, dirt, or water. If the fire spreads to the body of the transport or the cargo, stop fighting the fire and evacuate to a distance of at least 2,000 feet.
- Do not attempt to extinguish burning explosives without expert advice and assistance.

6-12. Storage Safety.

a. *Magazines.* There are two types of magazines: permanent and temporary. Although permanent magazines are preferred, temporary or emergency magazines are frequently required when permanent construction is not possible. Field Manual (FM) 9-6 and TM 9-1300-206 give details on magazine storage of explosives. Consider the following when constructing magazines:

(1) Permanent.

(a) Placement. Consider acceptability of magazine locations based on safety requirements, accessibility, dryness, and drainage. Safety and accessibility are the most important. An ideal location is a hilly area where the height of the ground above the magazine provides a natural wall or barrier to buildings, centers of communication, and other magazines in the area. Hillside bunkers are not desirable because adequate ventilation and drainage are often difficult to achieve. Clear brush and tall grass from the site to lessen the danger of fire.

(b) Lightning protection. All magazines must have a grounded, overhead lightning-rod system. Connect all metal parts (doors, ventilator, window sashes, reinforcing steel, and so forth) to buried conduits of copperplate or graphite rods in several places.

(c) Barricades. Install barricades around magazines; that is, there must be a substantial obstacle between magazines and inhabited buildings. For certain explosives, effective natural or artificial barricades reduce the required safe distance between magazines and railways and highways by one half. The use of barricades permits the storage of larger quantities of explosives in any given area. Although barricades help protect magazines against explosives and bomb or shell fragments, they do not safeguard against pressure damage. TM 9-1300-206 gives more specific guidance on barricades.

(d) Security. Place guards at all magazines to prevent unauthorized personnel from gaining access to magazine facilities.

(2) Temporary.

(a) Placement. When permanent magazine construction is not possible, create temporary magazines by placing explosives on pallets to accommodate ventilation. Store the pallets in a well-drained bunker. Excavate the bunker in a dry area and revet the bunker with timber to prevent collapse. Alternatives are an isolated building or a light, wooden-frame house with a wedge-type roof covered with corrugated iron or tent canvas.

(b) Identification. Mark field-expedient storage facilities on all four sides with signs (TM 9-1300-206).

b. *Temporary Storage.* When necessary, store limited supplies of explosives in covered ammunition shelters. Ensure the temporary facilities are separated adequately to prevent fire or explosion from being transmitted between shelters. Piles of temporarily stored explosives should contain no more than 500 pounds each and be spaced no closer than 140 feet. Pile explosive components separately. Keep explosives, caps, and other demolition materials stored in training areas in covered ammunition shelters and under guard at all times. Local safety standing operating procedures (SOPS) and TM 9-1300-206, Chapter 4, are guides for temporary storage operations.

Section IV. Destruction of Military Explosives

6-13. Concept. Destruction of demolition materials is a unit commander's decision. The purpose of this intentional destruction is to prevent the enemy from capturing stockpiles of explosives. Whenever the commander orders destruction, two primary considerations are site selection and safety precautions. EOD units are responsible for destroying damaged or unserviceable explosives and demolition materials (AR 75-14, TM 43-0001-38, and FM 9-16). Completely destroy explosive and nonexplosive demolition materials in a combat zone. Damage essential components of sets and kits to prevent complete assembly by cannibalizing from undamaged components. Such destruction is a command decision based on the tactical situation, security classification of the demolition materials, their quantity and location, facilities for accomplishing destruction, and time available. In general, burning and detonating or a combination of both are the most effective means of destruction.

6-14. Site Selection. Select the site for its ability to provide the greatest obstruction to enemy movement but prevent hazards to friendly troops. Even in the fastest-paced operations, safety is important, and you should adhere to appropriate safety precautions, if possible.

6-15. Methods. Burning and detonating, in that order, are considered the most satisfactory methods for destroying demolition materials to prevent enemy use. TM 9-1300-206 (Chapter 9) and TM 9-1300-214 (Chapter 15) cover procedures for explosives and ammunition destruction in greater detail.

a. *Burning.* Destroy packed and unpacked high-explosive items by burning. These explosives include linear demolition charges, shaped demolition charges, block demolition charges, stick dynamite, detonating cord, firing devices, timed blasting fuse, and similar items. Do not attempt to destroy blasting caps by burning them since they will detonate from extreme heat. Separate them from other explosives and destroy them by detonation. Personnel should not attempt to extinguish burning explosives without expert advice and assistance. Use the following procedure for burning explosives:

- Place blasting caps in piles separate from explosives and destroy by detonation. Ensure blasting caps are stored far enough away from the other explosives being burned to prevent the burning explosives from detonating the blasting caps or vice versa.
- Stack explosives in a pile over a layer of combustible material. Piles should not exceed 2,000 pounds or be more than 3 inches thick.
- Ignite the pile with a combustible train (excelsior or slow-burning propellant) of suitable length, and take cover immediately. Calculate the safe distance from the pile using Table 6-1 (page 6-5). This distance is never less than 300 meters.
- Do not try to extinguish burning explosives. Burning explosives cannot be extinguished by smothering them or drenching them. In fact, smothering will probably cause an explosion. Personnel should not attempt to extinguish burning explosives without expert advice and assistance.

b. *Detonation.* The tactical situation, the commander's intent, the lack of time, the type of explosive, or the safety considerations may require an explosive to be detonated instead of burned. Use the following procedures for detonating explosives:

- Establish a safety zone for missile and blast effect by computing the safe distance required for the amount of explosives to be detonated (Table 6-1, page 6-5).
- Do not exceed the limitations of the disposal site, Instead of detonating one large pile of explosives, it may be necessary to make several smaller piles of explosives and stagger their detonating times.
- Use a minimum of two initiation systems to detonate a pile of explosives.
- Prime explosives every 4 to 5 feet when placing explosives in long rows or lines.
- Ensure positive contact between primed charges and other explosives in the pile or row.