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Safety

**HANDLING OF SMOKE AND
GROUND BURST SIMULATORS**

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This instruction implements AFD 91-2, *Safety Programs*, providing guidance for safe explosives operations in the transportation, handling, operation, and disposition of smoke grenades and ground burst simulators during 419th Fighter Wing local exercises. It also references AFMAN 91-201, *Explosives Safety Standards*, T.O. 11A-1-42, *General Instructions for Disposal of Conventional Munitions*, T.O. 11A-1-46, *Fire Fighting Guidance, Transportation, and Storage*, T.O. 11A10-27-7, *Storage and Maintenance Procedures for Simulators, Battlefield Effects*, *AFI 24-301, *Vehicle Operations*. This instruction applies to all 419th Fighter Wing personnel involved in explosive operations of any kind.

SUMMARY OF REVISIONS

AFI 24-301, *Vehicle Operations*, replaces AFM 24-309, *Vehicle Operations*. Added in the parking lot north of building 513 and parking lot pit will be located 200 feet north of building 513 and 200 feet east of Foulis Road to (paragraph 5.). Added paragraph 14. for procedures for set-up and use of the M-4 bird scare cannon. A bar (|) indicates revisions from previous edition.

1. Responsibilities. It is the responsibility of the team chief and each exercise evaluator to ensure compliance with this instruction.

2. Actions to be accomplished Prior to the Start of Explosives Operations:

- 2.1. Team chief must conduct a pre-task briefing for all personnel involved in explosives operations. Ensure all workers are qualified on tasks to be performed. A copy of this instruction must be available at each site where these devices are to be used.
- 2.2. Evacuate non-essential personnel to a distance of 125 feet and ensure explosive limits and personnel limits are not exceeded.

- 2.3. Verify serviceability of fire extinguishers and equipment.
- 2.4. Remove rings, watches, and jewelry.
- 2.5. Brief actions to be taken and team member responsibilities in an emergency.
- 2.6. Ensure all explosives operations are conducted in approved site locations.

3. Explosive Limits. The maximum amount of explosives carried in any vehicle will not exceed a one-day supply for the exercise. Excess explosives will remain stored within the munitions storage area (MSA) or in any area outside the MSA licensed as prescribed by AFMAN 91-201, *Explosives Safety Standards*. The exercise team chief will make arrangements with 419 MXS/LGMW for pickup and delivery of munitions items on a daily basis.

4. Personnel Limits. Personnel limits will not exceed those established by the crew chief of the explosives operation. Personnel will be kept to the absolute minimum, and non-essential personnel will be evacuated to a distance of 125 feet from explosives. Personnel who initiate these munitions may be closer, but should be as close to 125 feet as possible, with their back to the munitions.

- 4.1. **Maximum Number of Personnel.** One Supervisor, one operator, one fireguard, and one casual observer.
- 4.2. **Minimum Number of Personnel.** One operator and one fireguard.

5. Exact Locations where Explosives Operations are to be Conducted. A list of the times and exact locations where the explosive simulators will be used will be included in the risk assessment of the master exercise plan to be approved by the 419th Fighter Wing Commander prior to any simulators being used at the 419th Fighter Wing. The only areas designated for initiation of these devices at the 419th Fighter Wing are the north and south ends of the aircraft-parking ramp, and in the parking lot north of building 513. The north pit will be located at the edge of the blacktop, 100 feet east of the eastern corner of the Cal Barn (Bldg. 578). The south pit has two available options; if the munitions holding area south of R-Row is not used, the simulator pit may be placed on the southern portion of the blacktop drive surrounding the holding area. If the munitions holding area is being used, the pit must be positioned 200 feet south of the holding area, in the grassy field. Combustible materials and vegetation must be cleared within 10 feet of ground burst simulator (GBS) pits. The parking lot pit will be located 200 feet north of building 513 and 200 feet east of Foulis Road.

6. Safety Requirements. In addition to the following requirements, the safety requirements of AFMAN 91-201, *Explosive Safety Standards* and this instruction will be strictly adhered to while handling, transporting, storing and actuating exercise simulators:

- 6.1. A leather glove on the throwing hand and a long sleeved shirt will be worn when actuating exercise simulators. Hearing protection is also required when actuating munitions.
- 6.2. Two each 2A: 10BC fire extinguishers are required for transportation, and one extinguisher on each functioning site.
- 6.3. Smoking will not be allowed within 50 feet of explosives.
- 6.4. Vehicles carrying explosives will not be refueled. Refuel vehicles before loading explosives.

- 6.5. Personnel will not take explosives loaded vehicles into highly populated areas or areas of public gathering.
- 6.6. Personnel will set the parking brake on the vehicle while loading/unloading explosives.
- 6.7. Explosives loaded vehicles will not be left unattended.
- 6.8. Explosives will be properly secured in the vehicle, by sandbags or straps, ensuring stability during transportation. Items must be in containers that prevent item-to-item contact.
- 6.9. Explosives loaded vehicles will be properly placarded as prescribed by AFMAN 91-201.
- 6.10. Explosives will never be carried in the passenger compartment of vehicles.
- 6.11. Whenever an explosives-loaded vehicle is parked on an incline, one of the non-steering wheels must be chocked.
- 6.12. Higher headquarters evaluation teams which use rental vehicles to transport munitions must meet the above safety requirements. In addition:
 - 6.12.1. Do not transport more than 10 munitions items at any time.
 - 6.12.2. Notify the fire department of make, model, and license number of all rental vehicles transporting munitions items.
 - 6.12.3. All remaining explosive items will be returned to a licensed location or the munitions storage area upon completion of each day's explosives operations.

7. Training. Only personnel properly trained by Explosive Ordinance Disposal (EOD), the Chief of Munitions Safety or other qualified personnel are authorized to prepare and activate simulators and smoke producing devices. EOD is the preferred agency authorized to administer this training, which consists of initial qualification training followed by yearly re-currency training.

- 7.1. Personnel requiring training will submit an AF Form 2426, **Training Request and Completion**, to EOD, which will be used as proof of training upon completion of the course. Once a person is trained, they will take proof of training to the 419th Fighter Wing Safety Office, where they will be issued an AF Form 483, **Certificate of Competency**, listing the items they are trained to function.
- 7.2. Any outside organization arriving at the 419th Fighter Wing will show proof of simulator training to the 419th Fighter Wing Safety Office prior to handling or transporting explosives.

8. Use of Devices:

- 8.1. Only United States Air Force stock listed items are authorized for use.
- 8.2. Ground Burst Simulators present a blast/fire hazard and smoke producing munitions present a possible toxic gas and fire hazard. Exercise caution around people, facilities, and equipment. Free the area of combustible material within a ten-foot radius. Ensure the immediate area downwind is free of personnel. **Maintain the following minimum distances:**
 - 8.2.1. **50 feet.** Above ground magazines of block, brick, or concrete and from earth covered igloos. Hardened facilities, including hardened aircraft shelters.
 - 8.2.2. **100 feet.** Facilities without a facing window, and non-explosives loaded aircraft in the open.

8.2.3. **125 feet.** Personnel or vehicles.

8.2.4. **200 feet.** Buildings with facing windows, explosives-loaded aircraft, explosive operating locations, holding areas, or open storage butler-type facilities.

9. Notification of the Intended use of Simulators will be made to the Following Agencies:

9.1. 419th Fighter Wing Safety Office.

9.2. OO-ALC/SEW, through letter detailing intended operation, with coordination through 75 ABW/CC.

9.3. Fire Department.

9.4. Base Operations.

9.5. 419th Fighter Wing Command Post.

9.6. EOD.

9.7. Security Forces.

10. Emergency Procedures:

10.1. In the event of a fire or malfunction, take the following actions:

10.1.1. Sound the alarm and notify the fire department and EOD by the quickest means possible.

10.1.2. Provide the fire department with the following information: location, type munitions involved, and extent of damage.

10.1.3. Evacuate non-essential personnel from the area a minimum of 300 feet.

10.2. Fire fighting procedures:

10.2.1. If the fire has not involved the explosives, remove the explosives from the area if possible, then fight the fire.

10.2.2. If the fire envelops munitions, evacuate the area and do not attempt to fight the fire.

10.3. Ground accidents:

10.3.1. Render first aid.

10.3.2. Call ambulance if needed or transport victim(s).

10.3.3. Notify supervisors and wing safety.

10.3.4. Call EOD, if needed.

11. Procedures for Actuating Smoke Grenades:

WARNING: Disassembly of explosive components without specific authorization is strictly prohibited. Ensure the safety pin is in place before removing the grenade from containers. Do not use the pull ring for lifting or handling the grenade. If the safety pin is not held properly in place, do not attempt to remove the grenade from the container.

NOTE: M-18 grenades are the only smoke grenades approved for use until current guidance is updated or changed.

- 11.1. Ensure the grenade safety pin is installed. Remove grenades from containers.
- 11.2. Hold the grenade in the throwing hand with the safety lever pressed against the palm.
- 11.3. When ready to throw, pull the safety pin while continuing to hold safety lever down. Once the pin is removed the grenade is armed and must be thrown.
- 11.4. Throw grenade into the retaining pit, then clear the area approximately 30 feet upwind.
- 11.5. The fuse begins to function upon release of the lever. After a delay of 1.2 to 2 seconds, the grenade filler ignites and begins to emit a colored smoke.

12. Procedures for actuating Ground Burst Simulators:

WARNING: Simulators contain photoflash powder. These munitions will not be handled roughly, thrown, or dropped. Unpacked simulators dropped in excess of three feet shall be considered unserviceable and not used.

- 12.1. Inspect simulator prior to use. Ensure safety clip is installed prior to handling munitions.
- 12.2. Hold simulator in throwing hand and remove metal safety clip from the cap.
- 12.3. Remove the cap from the safety clip igniter.
- 12.4. Grasp the cap and pull-cord as a unit and firmly pull the cord through the igniter.
- 12.5. Toss the simulator into the retaining pit and evacuate to as close to 125 feet as possible, with back to munitions. After a 6-10 second delay, the powder charges and whistle assembly are ignited.

13. Disposal and Handling:

- 13.1. Only trained EOD personnel will handle any dud smoke grenades or ground burst simulators. A dud is described as a munitions item that fails to perform all of its functions. If there is no whistle or report, the simulator must be considered a dud. In the event of a dud, notify EOD immediately. Note the time of the malfunction and evacuate personnel 300 feet from the simulator. Brief EOD personnel of the time of malfunction and after the appropriate wait period, EOD personnel will safe and remove the munitions.
- 13.2. Unused explosive devices will be turned in to the supply point custodian.
- 13.3. Residue from the expended grenades and simulators will be cleaned up. These items will be placed in metal containers and turned in to the supply point custodian, who will turn the residue over to the 649th Munitions Flight for proper certification and disposal.

14. Use of M-4 Bird Scare Cannon:

- 14.1. Always operate the M-4 bird scare cannon outdoors and in an open area away from open flames. The M-4 bird scare cannon can be operated in any location that meets the above criteria and is not limited to established GBS pits.
- 14.2. All 419th Fighter Wing personnel must remain clear of the hazard area in front of the bird scare cannon barrel out to a distance of 10 feet.

14.3. All 419th Fighter Wing personnel within 50 feet of an operating bird scare cannon must wear hearing protection.

14.4. Setup the cannon on a firm, level surface and mark a 10 foot safety arc on the ground or pavement in front of the cannon barrel with chalk or similar type of non-permanent marking material to warn personnel of the hazard area.

14.5. Connect the pressure-reducing valve to the liquefied petroleum (L.P.) gas tank.

14.6. The frequency of firing can be adjusted from approximately 30 seconds to approximately 30 minutes by use of the needle valve on the left side of the cannon frame. To increase the frequency turn the handle counterclockwise to decrease the frequency turn the handle clockwise.

14.7. To start the bird scare cannon slowly open the valve on the L.P. tank. The cannon will fire at the same frequency as previously set.

14.8. To stop the bird scare cannon close the valve on the L.P. tank.

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