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Safety



USE OF PYROTECHNICS

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OPR: 442 FW/SE
Supersedes 442 FWI 91-203, 20 June 2005

Certified by: 442 FW/SE (Lt Col Patrick Murphy)
Pages: 8

This instruction implements Air Force Policy Directive (AFPD) 91-2, *Safety Program*. This instruction establishes the minimum requirements for the use of pyrotechnics devices, as directed by Air Force Manual (AFMAN) 91-201, *Explosive Safety Standard*, paragraph 2.14 and 2.15. It applies to all personnel assigned to the 442d Security Forces Squadron (442 SFS) and 442d Civil Engineer Squadron (442 CES) that are required to use these munitions. It will be used to ensure personnel are trained in explosive safety training by 442d Fighter Wing Weapons Safety (442 FW/SEW) and hands on use of pyrotechnics by 509th Civil Engineer Squadron (509 CES/CED) prior to use. Supervisors and superintendents are responsible for ensuring compliance with this instruction. This is an annual requirement. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force Information Management Tool (AF IMT) 847, Recommendation for Change of Publication. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air force Records Disposition Schedule (RDS) located at <https://afrims.amc.af.mil/>.

SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. This revision changes (adds) the use of the M-4 Bird Scare Cannon (paragraphs **3.1.**, **3.6.**, **3.7.**) and adds the correct use and operation of the M-4 Bird Scare Cannon (paragraphs **12.**).

1. Responsibilities. Responsibilities for implementing, monitoring, and enforcing this instruction are assigned as follows:

2. Unit Commanders:

2.1. Ensure this procedure is complied fully within the unit.

- 2.2. Ensure supervisors schedule annual training and certification in the use of pyrotechnics, (i.e., ground burst simulators, trip flares, smoke grenades, blanks) for personnel authorized in the use of and handling pyrotechnics.
- 2.3. Provide 442 FW/SEW with a detailed exercise plan for use of pyrotechnics a minimum of 30 days prior to use for approval.

3. 442 FW/SEW:

- 3.1. Be the single point of contact for training and use of M-4 Bird Scare Cannon within the 442 FW.
- 3.2. Review and conduct explosives safety training, "classroom portion" annually upon request from units.
- 3.3. Coordinate and schedule "hands-on training" with 509 CES/CED, explosive ordinance disposal (EOD).
- 3.4. Assist unit commanders and supervisors in facilitating implementation of this instruction.
- 3.5. Review and coordinate use of pyrotechnics plan with the host base weapons safety office.
- 3.6. Provide surveillance periodically during exercises when pyrotechnics and M-4 Bird Scare Cannons are used.
- 3.7. Maintain current roster of authorized users and issue initial AF IMT 483, *Certificate of Competency*. Upon completion of annual training for the M-4 Bird Scare Cannon or pyrotechnics, recertify AF IMT 483. This will be used to identify authorized personnel trained to employ these devices.

4. Munitions Storage Area (MSA):

- 4.1. Provide storage for pyrotechnics listed on an approved courtesy storage agreement.
- 4.2. Receive munitions residue from user upon completion of exercise, with proper documentation.
- 4.3. Ensure pyrotechnics are only issued to authorized personnel identified on AF IMT 68, *Munitions Authorization Record*.

5. Supervisors:

- 5.1. Be familiar with this instruction, AFMAN 91-201, and enforce safety compliance at all times.
- 5.2. Notify all affected agencies one hour prior to setting off the pyrotechnics, Command Post, Fire Department, Base Weapons Safety, Base Operations, EOD, and Command Security.
- 5.3. Conduct pyrotechnics safety briefing to users and affected employees prior to start of exercise.
- 5.4. Ensure personal protective equipment to include hearing protection, and leather gloves are available as required. In addition, two fire extinguishers and a handheld radio must be readily available during use of pyrotechnics.

6. Authorized Pyrotechnics Users:

- 6.1. Have a thorough understanding and carry a current AF IMT 483, prior to use of pyrotechnics.
- 6.2. Comply with all safety provisions as trained.

- 6.3. Advise supervisor immediately of any problems encountered when implementing this procedure.
- 6.4. Halt all questionable operations concerning the use of pyrotechnics.
- 6.5. If a misfire occurs, these procedures must be followed:
 - 6.5.1. Notice initiating time; dampness or deterioration may delay firing.
 - 6.5.2. Approach item only to mark item as Unexploded Ordinance (UXO) and cordon off to a radius of 25 feet (ft.). Do not touch and keep personnel away.
 - 6.5.3. Call Command Post or SFs and advise them of incident and to call EOD.
 - 6.5.4. Stay in the area until EOD arrives and direct them to UXO.

7. All Affected Personnel:

- 7.1. All affected personnel shall remain clear of pyrotechnics. Upon observing an unsafe act, personnel shall report the act to their immediate supervisor.
- 7.2. Smoke from grenades and pots are sometimes toxic in high concentrations. Contact Environmental Management and the Fire Department prior to use. These items, along with generators and flares, present a fire hazard. Remove combustible materials before functioning. Consider winds and fire hazards such as dry grass or fire bans. Consider using a barrier to control spread of heat during functioning of grenades and smoke pots.
- 7.3. Ground burst or hand grenade simulators present a blast hazard. Exercise caution around people, facilities and equipment. Free the area of combustible material within a 10 feet radius. Monitor for proper functioning and disposal of residue. Notify EOD or other qualified personnel when a munition malfunctions.

8. Procedure:

- 8.1. Prepare for use of pyrotechnics by submitting a detailed written exercise plan for use of pyrotechnics to 442 FW/SEW, a minimum of 30 days prior to the exercise for approval, ([Attachment 2](#), Use of Pyrotechnic Plan, is provided as an example).
- 8.2. Annual training must be completed and documented. The 442 FW/SEW will issue AF IMT 483, in order to certify personnel who are authorized to handle and expend any pyrotechnics. This training is conducted in two phases:
 - 8.2.1. Phase 1: Explosive safety training "Classroom Portion": 442 FW/SEW will cover United States Air Force guidance and procedures for safe and proper use of pyrotechnics to include transportation of munitions on base. After successful completion of a written test for phase 1, the student will continue on to phase 2.
 - 8.2.2. Phase 2: Pyrotechnics "Hands-On" training: 509 CED/EOD will provide an orientation on pyrotechnic items and hands-on training. Each student will activate a minimum one Ground Burst Simulator (GBS) and one smoke grenade. After safely and successfully activating pyrotechnics personnel will be issued AF IMT 483 and allowed to initiate pyrotechnics for one year. Due procedures will be followed in accordance with (IAW) AFMAN 91-201.

9. Approved Training Munitions:

- 9.1. Grenade, Hand, M18 Smoke, 1330-00-289-6851
- 9.2. Grenade, Hand, M18 Smoke, 1330-00-289-6852
- 9.3. Grenade, Hand, M18 Smoke, 1330-00-289-6853
- 9.4. Grenade, Hand, M18 Smoke, 1330-00-289-6854
- 9.5. Grenade, Hand, M18 Smoke, 1330-00-309-5028
- 9.6. Signal, Kit, A/P-25S-5A, (E), 1370-00-490-7362
- 9.7. Signal, Smoke, I11, MK13, Mod O, 1370-00-309-5028
- 9.8. Signal, Smoke, I11, MK13, Mod O, 1370-01-030-8330
- 9.9. Signal, White Star M127A, 1370-01-341-5159
- 9.10. Simulator, Booby Trap, M119 (E), 1370-00-028-5255
- 9.11. Simulator, Hand Grenade, M116A1, (E) 1370-00-752-8124
- 9.12. Munitions residue will be picked up after cool down of residue and put back in original containers if available and returned to MSA for disposal. Area will be visually inspected to ensure all residue and dunnage is removed from area.

10. Safety Clear Zone is Identified:

- 10.1. Personnel or vehicle: maintain a minimum of 125 ft separation (safety zone).
- 10.2. Facilities with facing window: Maintain a minimum separation of 200 ft.
- 10.3. Facilities without facing window: Maintain a minimum separation of 100 ft.
- 10.4. Hardened facilities, including hardened aircraft shelters: Maintain a minimum separation of 50 ft.
- 10.5. Bulk petroleum, oil and lubricants storage (Petroleum Oil and Liquid Storage): Maintain a minimum separation of 200 ft.
- 10.6. Aircraft in the open: Maintain a minimum separation of 100 ft or 200 ft if aircraft are explosives loaded.
- 10.7. Explosives operating locations, holding areas, open storage areas or butler-type storage facilities: Maintain a minimum separation of 200 ft.
- 10.8. Above ground magazines of block, brick, or concrete construction and from earth covered magazines: Maintain a minimum separation of 50 ft.
- 10.9. Exception: No specific distance is required for non-toxic colored smoke grenades.
- 10.10. EOD will be notified when a munition malfunctions.
- 10.11. Upon completion of the training exercises, all unspent munitions will be turned back into the munitions storage area by the squadron designated representative. All unused munitions will be accounted for by the squadron representative and Munitions Accountable Supply Office (MASO).

11. Use of M-4 Bird Scare Cannon. Warning: The M-4 Bird Scare Cannon should be operated outdoors and under no circumstances in an enclosed place. Always wear ear protection when within 50 ft of the M-4 Bird Scare Cannon.

11.1. Always operate the M-4 Bird Scare Cannon in an open area away from open flames.

11.2. All 442d Fighter Wing personnel must remain clear of the hazardous area in front of the Bird Scare Cannon barrel out to a distance of 10 ft.

11.3. All 442d Fighter Wing personnel within 50 ft of an operating Bird Scare Cannon must wear hearing protection.

11.4. Set the cannon on a firm, level surface and mark a 10 ft 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 hazardous area.

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

11.6. 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 counter clockwise. To decrease the frequency, turn the handle clockwise.

11.7. 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.

11.8. To stop the Bird Scare Cannon close the valve on the L.P. tank.

11.9. Transportation, handling and storage of the L.P. tank. L.P. tanks will be transported on a flat surface or in racks, and in an upright position in such a way as to minimize movement to each other or the vehicle.

11.10. Cylinders shall be determined to be leak free before loading into vehicle.

12. Adopted Forms:

AF IMT 68, *Munitions Authorization Record*

AF IMT 483, *Certificate of Competency*

AF IMT 847, *Recommendation for Change of Publication*

ROBERT S. ARTHUR, Colonel, USAFR
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 91-2, *Safety Programs*, 28 September 1993
AFMAN 91-201, *Explosives Safety Standard*, 18 October 2001
AFMAN 33-363, *Management of Records*, 1 March 2008

Abbreviations and Acronyms

AF—Air Force
AFPD—Air Force policy directive
AFMAN—Air Force manual
CES—Civil Engineer Squadron
EOD—explosive ordinance disposal
ft.—feet
FW—Fighter Wing
GBS—ground burst simulator
IAW—in accordance with
IMT—information management tool
L.P.—liquefied petroleum
MASO—Munitions Accountable Supply Office
MSA—Munitions Storage Area
OPR—Office of Primary Responsibility
RDS—Records Disposition Schedule
SEW—Weapons Safety
SFS—Security Forces Squadron
UXO—unexploded ordinance

Attachment 2**USE OF PYROTECHNICS PLAN SAMPLE**

MEMORANDUM FOR 442 FW/SEW

FROM: 442 SFS/CC

SUBJECT: Plan for Use of Pyrotechnics

REFERENCES: AFMAN91-201, Explosive Safety Standard, PYROTECHNIC USER GUIDE,
509 CED/EOD

1. On Wednesday, XXXXXX, members of the 442 SFS will deploy to the designated play area on the east side of WAFB at approximately 1200. This exercise will run from approximately 1200 hours, 16 April to approximately 1200 hours, 19 April 2001. Members will be posted in ten defensive fighting positions and on patrols. Each defensive fighting position will be given four early warning devices (trip flares) to be placed no less than 30 feet in front of their position. Approximately six booby traps (whistlers) will be placed at a minimum of 50 feet in front of their positions. Members will be issued simulated hand grenade bodies with fuses to be used during the exercise to simulate eliminating hostile threats. Members are required to yell grenade prior to throwing the simulated grenades forward of their positions. No pyrotechnic will be thrown within 125 ft of personnel.

2. Evaluators will be using Signal White Star after dark as needed and upon request from members for illumination. All notifications prior to use of pyrotechnics will be made. Evaluators will use green, red, violet, and yellow smoke during day and night operations for concealment and upon request from patrol leaders as signaling devices. Evaluators will also be using ground burst simulators to simulate attacks from aggressors.

3. All members handling, transporting, and using these pyrotechnics were trained as required by 442 FW/SEW and 509 CED/EOD on 7 September 2000.

4. Pyrotechnics will be transported in metal ammo cans and wooden boxes which will clearly identify its contents. All munitions will be stored in their original container at the supply point and secured at all times. Munitions will be placed on pallets with a minimum of 2A: 10 BC fire extinguishers at designated locations within the play area to guard against grass fires. Safety briefings will be given to every member prior to deploying into the play area emphasizing munitions and fire safety.

5. The following pyrotechnics will be used for this exercise:

ITEM QUANTITY

Ground Burst Simulators 16

Smoke Grenades 33

Booby Traps (Whistlers) 15

Trip Flares 44

Signal White Star 12

Grenade Fuses 100

6. Any questions concerning the use of the pyrotechnics for this exercise should be directed to (ADD OPR'S NAME AND PHONE NUMBER).

MEMORANDUM FOR 442 SFS/CC

CONCUR/NONCONCUR

509 BW/SEW

Weapons Safety Manager

NAME, Rank, USAFR

Commander, 442d Security Forces

cc:

442 FW/CC

442 MSG/CC