

**Pyrotechnics Protocol**Date of  
Publication: 6-3-22Page  
Number: 1 of 7

EMUDPS-EHS-P042

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**I. PURPOSE**

This protocol is designed to provide for the safe use of pyrotechnics at campus events, including but not limited to Athletic events, concerts and theatrical productions. This protocol ensures safety is the highest priority and is intended to mitigate the risks associated with pyrotechnics while reinforcing the safety of event participants and protection of property.

**II. SCOPE**

This protocol applies to any event, performance, program or other activity including the use of pyrotechnics where the sponsor or co-sponsor is either an EMU college, department, office, organization, school or other University unit or is a third party who is hosting or conducting an event that includes pyrotechnics on University-owned or leased property. There are no exceptions or exemptions from this protocol.

**III. DEFINITIONS**

**Bureau of Alcohol, Tobacco, and Firearms** (ATF) - Federal agency which regulates the licensing and storage of display fireworks. This agency monitors the importation, manufacture, distribution, and storage of display fireworks.

**Discharge Site** - The area immediately surrounding the fireworks mortars used for an outdoor fireworks display.

**Display Fireworks** - (formerly known as special fireworks) Large fireworks articles designed to produce visible or audible effects for entertainment purposes by combustion, deflagration, or detonation.

**Display Site** - The immediate area where a fireworks display is conducted, including the discharge site, the fallout area, and the required separation distance from mortars to spectator viewing areas, but not spectator viewing areas or vehicle parking areas.

**Electrical Firing Unit** - A device that provides and controls the electric current used to ignite fireworks during a display.

**Electrical Firing Unit, Automatic** - A panel or box that operates automatically to provide the source of electric current used to ignite electric matches.

<b>Subject: Pyrotechnics Protocol</b>	<b>EMUDPS-EHS-P042</b>	
<b>Date of Publication:</b> 6-3-22	<b>Revision:</b> 0	<b>Page:</b> 2 of 7

**Fallout Area** - The designated area in which hazardous debris is intended to fall after a pyrotechnic device is fired.

**Firing Technician** - Individual who actually ignites fireworks devices at a show.

**Ground Display Piece** - A pyrotechnic device that functions on the ground (as opposed to an aerial shell that functions in the air) and that includes fountains, wheels, and set pieces.

**Hazardous Debris** - Any debris produced or expelled by the functioning of a pyrotechnic device that is capable of causing personal injury or unpredicted property damage.

**High Level Fireworks** - Devices propelled into the air, usually aerial shells.

**Monitor** - The individual at a fireworks display responsible for observing the perimeter of the firing site and insuring that security personnel or barriers keep spectators at a safe distance. Usually provided by the organization sponsoring the event.

**National Fire Protection Association (NFPA)** - Organization which provides several standards that outline recommendations for the manufacture, storage, transportation, and execution of fireworks.

**NFPA Standard 1123** - Code for Fireworks Display

**NFPA Standard 1126** - Standard for the Use of Pyrotechnics Before a Proximate Audience

**Operator** - The person with overall responsibility for the operation and safety of a fireworks display. The operator is also responsible for storing, setting up, and removing pyrotechnic materials or devices after a performance.

**Pyrotechnic Device** - Any device containing pyrotechnic materials and capable of producing a special effect.

**Pyrotechnic Material** - A chemical mixture used in the entertainment industry to produce visible or audible effects by combustion, deflagration, or detonation.

**Pyrotechnic Special Effect** - A special effect created through the use of pyrotechnic materials and devices.

**Pyrotechnics** - Controlled exothermic chemical reactions that are timed to create the effects of heat, gas, sound, dispersion of aerosols, emission of visible electromagnetic radiation, or a combination of these effects to provide the maximum effect from the least volume.

<b>Subject: Pyrotechnics Protocol</b>	<b>EMUDPS-EHS-P042</b>	
<b>Date of Publication:</b> 6-3-22	<b>Revision:</b> 0	<b>Page:</b> 3 of 7

**Safety Data Sheets (SDS)** - Detailed information documents prepared by the manufacturer or importer of a chemical that describes the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first-aid procedures and control measures. SDS were formerly named Material Safety Data Sheets (MSDS).

**Sponsor** - The organization (person, group, or government agency) that arranges with a duly authorized fireworks supplier for its services in presenting a fireworks display or in providing fireworks for use in a display.

**Spotter** - A member of the fireworks display crew (either the operator or an assistant) who observes the firing and bursting of aerial shells and other display fireworks for the purpose of detecting proper mortar angling, noting the occurrence of duds, and observing for other potentially hazardous situations.

**Theatrical Pyrotechnics** - Pyrotechnic devices for professional use in the entertainment industry. Similar to consumer fireworks in chemical composition and construction but not intended for consumer use.

#### **IV. RESPONSIBILITIES**

##### **A. Sponsor and/or Co-sponsor**

1. At least 45 days prior to the event, the contract between the sponsor and the pyrotechnics company shall be submitted to EMU Legal Affairs for review, including review of the indemnification language.
2. Ensure the completion and submission to EHS of the Application for Use of Pyrotechnics at EMU at least 30 working days in advance of the event using pyrotechnics and after review of the contract.
3. Prior to the event, coordination of an on-site visit by DPS, EHS, REM, EMU AHJ (Physical Plant), Pyrotechnic Operator and Ypsilanti Fire Department.
4. For indoor events, coordination of the deactivation and reactivation of the smoke detection system with the EMU Electric Shop.
5. Coordination, training and implementation of fire watch requirements for events requiring the smoke detection system to be deactivated.

##### **B. Pyrotechnic Vendor**

1. Assist the sponsor/co-sponsor in completing the EMU Application for Use of Pyrotechnics by providing specific information regarding the display plan including running order and detailed product descriptions.
2. Complete and submit the paperwork for the [City of Ypsilanti Special Events Permit](#).
3. Provide the operator and spotters for the event.
4. Ensure all operators and assistants have the required training and certifications for compliance with NFPA 1123 or NFPA 1126.

<b>Subject: Pyrotechnics Protocol</b>	<b>EMUDPS-EHS-P042</b>	
<b>Date of Publication:</b> 6-3-22	<b>Revision:</b> 0	<b>Page:</b> 4 of 7

5. Ensure pyrotechnics assistants handle, assemble or manipulate pyrotechnic devices only under the direct supervision of the Pyrotechnic Operator.
6. Ensure the transportation, handling, storage and use of pyrotechnic devices and related materials are compliant with applicable DOT, OSHA, NFPA standards and in accordance with applicable state and local laws.
7. Must be licensed in the State of Michigan.
8. Ensure the cleanup of the fireworks or other pyrotechnic special effects is acceptable to the EMU sponsor and/or other EMU representatives.

**C. Department of Public Safety (DPS), Environmental Health and Safety (EHS) and Risk and Emergency Management (REM)**

1. REM in conjunction with EMU Legal Affairs will ensure the Pyrotechnics Vendor has the proper insurance coverage and indemnification for the University and an appropriate contract exists between EMU and the Vendor.
2. EHS shall review the submitted Application for Use of Pyrotechnics at EMU and either approve or deny the application in a timely manner.
3. DPS reserves the right to cancel any scheduled outdoor pyrotechnics if there are drought conditions.
4. EHS shall conduct site visits for the review of safety protocols and procedures for the event.
5. During the event DPS provides support for fire watch and safety assurance during and after the event.

**D. Ypsilanti Fire Department**

1. Review Pyrotechnic Vendor applications for the use of pyrotechnics and provide guidance on compliance with all NFPA and local fire safety regulations.
2. Issue the Pyrotechnic Vendor the permit for use of fireworks.
3. Conduct EMU site visit for review and approval of the on-site safety requirements.

**V. PROCEDURES**

**A. Application for the Use of Pyrotechnics**

1. Contract review and indemnification requirements for Pyrotechnic Operators
  - a. Contracts with Pyrotechnic Operators must include indemnification of EMU and shall be submitted to EMU Legal Affairs at least 45 days prior to the event.
  - b. The indemnification must include language equivalent to the following:

Vendor agrees to indemnify EMU and its Board of Regents, officers, agents, servants, attorneys, employees, successors or assigns

<b>Subject: Pyrotechnics Protocol</b>		<b>EMUDPS-EHS-P042</b>	
<b>Date of Publication:</b>	6-3-22	<b>Revision:</b>	0
		<b>Page:</b>	5 of 7

(“Indemnified Parties”) and hold the Indemnified Parties harmless from and against all liability, losses, damages, claims, liens, and expenses (including reasonable attorneys’ fees) arising out of or connected with the work or services performed. Vendor’s breach of this Agreement, or resulting from claims for bodily injury, wrongful death, personal injury or property damage (collectively “Indemnifiable Losses”). Vendor shall at the request of EMU undertake to defend any and all suits and to investigate and to defend any and all claims or suits, investigate and defend any and all claims whether justified or not, if such claim or suit be against EMU, the Board of Regents, or their respective officers, agents, servants, attorneys, employees, successors or assigns, provided however, that Vendor may not settle any claims against the Indemnified Parties without the Indemnified Parties’ prior written consent.

2. At least 30 working days prior to the event using pyrotechnics the following information must be submitted to Environmental Health and Safety (EHS):
  - a. The completed [EMU Application for Use of Pyrotechnics](#), see form emudps-ehs-f087
  - b. Insurance Requirements for Pyrotechnic Operators
    - i. Pyrotechnic Operators must maintain the following types of insurances with companies holding a Best’s rating of not less than “A”, and in amounts no less than as follows:
      - a) Commercial general liability with a minimum limit of \$1,000,000 per occurrence and \$3,000,000 aggregate for bodily injury, property damage and personal injury arising out of pyrotechnic displays;
      - b) Automobile liability with a minimum limit of \$ 1,000,000 per occurrence.
    - ii. A Certificate of Insurance (COI) must be provided at least 30 days prior to the event including evidence of the above listed insurance coverages.
  - c. A detailed site diagram including the following:
    - i. Site and/or stage layout with seating areas designated
    - ii. Staging area
    - iii. Number and location of all pyrotechnics
    - iv. Scale and clearances to performers and audience
    - v. Fall out zones
    - vi. Extinguisher type(s) and locations
    - vii. Controls, tank locations, elevations, etc.
    - viii. Provide as much detail as possible to avoid denial of the application.
  - d. Provide the [running order, description of the product, an inventory of fireworks](#) and SDSs. Weblinks to SDSs are acceptable.

<b>Subject: Pyrotechnics Protocol</b>	<b>EMUDPS-EHS-P042</b>	
<b>Date of Publication:</b> 6-3-22	<b>Revision:</b> 0	<b>Page:</b> 6 of 7

3. City of Ypsilanti Permit
  - a. Pyrotechnic vendors must be licensed in the state of Michigan.
  - b. Pyrotechnic vendors must complete and submit an [application from the Ypsilanti City Clerk's office](#) in order to use pyrotechnics in the city.
  - c. Upon approval of the City's application, the Ypsilanti City Council will approve the use of pyrotechnics and a permit will be issued for that day.
4. Pre-Event Safety Inspection
  - a. Prior to any pyrotechnic event, the Ypsilanti Fire Marshal will conduct an inspection of the event site to ensure the area is protected and the correct pyrotechnic procedures are in place and will be followed.
  - b. The Fire Marshal's inspection will be in conjunction with personnel from DPS, EHS, REM and the EMU AHJ.
  - c. The sponsoring department is responsible for communicating with EMU personnel regarding the pre-event safety inspection by the Fire Marshal.
  - d. For events using pyrotechnics and/or fog, haze or smoke, promotional signs, tickets, programs and/or informational signs must include information on the use of pyrotechnics and/or fog, haze or smoke.

## **B. Fire Watch Requirements**

1. The sponsoring department is responsible for coordinating and implementing the fire watch requirements.
2. A detailed fire watch plan must be submitted with the application.
3. For indoor pyrotechnic events, the smoke detection system must be deactivated. This is coordinated with the EMU Electrical Shop. Arrangements must also be made to reactivate the system at the end of the event.
4. The Ypsilanti Fire Marshal must be notified of the smoke detection system deactivation and reactivation.
5. During the entire time the smoke detection system is deactivated, a fire watch must be in place.
6. Personnel working the fire watch must be properly trained in fire watch procedures, including fire extinguisher training, fire watch observation requirements, emergency notification procedures, evacuation procedures, the location of the nearest pull station and their observation area.
7. Fire watch personnel must be dedicated to only fire watch activities and have no other responsibilities.
8. Fire watch activities must continue until the smoke detection system has been fully reactivated.

## **C. Post Pyrotechnics Usage**

1. The fire watch must remain in effect until the smoke detection system has been reactivated.
2. The Operator is responsible for removal of all unused pyrotechnics.

<b>Subject: Pyrotechnics Protocol</b>		<b>EMUDPS-EHS-P042</b>	
<b>Date of Publication:</b>	6-3-22	<b>Revision: 0</b>	<b>Page: 7 of 7</b>

3. The Operator is responsible for cleaning and properly disposing of any debris from the pyrotechnics used. The EMU sponsor and/or other EMU representatives must approve the clean-up.

**VI. REFERENCES**

- A. American Pyrotechnics Association (APA)
- B. Alliance of Special Effects & Pyrotechnic Operations 2019 Safety Bulletin 10/10A
- C. Purdue University Operating Procedures for Including Pyrotechnic Devices at an Event
- D. University of North Carolina at Chapel Hill, Environment, Health and Safety Manual - Chapter 04.11: Fire Safety – Obtaining Approval of the Use of Pyrotechnics
- E. University of Central Florida Permit Application for the Use of Pyrotechnic Displays on University Property.

**VII. APPENDICIES**

- A. [EMUDPS-EHS-f087- EMU Application for Use of Pyrotechnics](#)

**VIII. HISTORY**

<b>Revision</b>	<b>Date</b>	<b>Changes</b>
0	6/3/22	Original Protocol