TABLE OF CONTENTS

SAFETY BULLETINS

Bulletin No.	Description	Date Released
1	Recommendations for the Use of Firearms, Blanks, and Dummy Rounds	Revised 04/29/24
2	Prohibitions and Special Restrictions on the Use of Live Ammunition	Revised 12/19/23
3	Guidelines Regarding the Use of Helicopters in Motion Picture Productions	Issued 08/15/01
3A	"Addendum A" – Helicopter External Loads	Issued 08/15/01
4	Stunts	Revised 03/27/25
4A	"Addendum A" – Specialized Activities	Issued 03/27/25
5	Safety Awareness	Issued 06/19/02
6	Animal Handling Rules for the Motion Picture Industry	Revised 08/05/21
7	Recommendations for Diving Operations	Revised 08/29/07
8	Guidelines for Traditional Camera Cars	Revised 07/19/06
8A	"Addendum A" – Process Trailer/Towed Vehicle	Revised 08/28/12
8B	"Addendum B" – Camera Boom Vehicles	Revised 08/28/12
8C	"Addendum C" – Power Line Distance Requirements	Revised 07/10/25
9	Recommended Guidelines for Working In and Around Base Camps	Revised 07/01/22
9A	"Addendum A" – Base Camp Inspection Checklist	Issued 07/01/22
10	Guidelines Regarding The Use Of Artificially Created Atmospheric Fog & Haze	Revised 06/28/19
10A	"Addendum A" – Technical Awareness Sheet	Issued 06/28/19
11	Guidelines Regarding the Use of Fixed-Wing Aircraft in Motion Picture Productions	Issued 08/15/01
11A	"Addendum A" – External Load Guidelines	Issued 08/15/01
12	Guidelines for the Use of Venomous Reptiles	Revised 08/05/21
13	Recommended Guidelines When Using Combustible & Flammable Fuels and Associated Equipment	Revised 07/01/22
14	Parachuting and Skydiving	Revised 01/06/06
15	Guidelines for Boating/Watercraft Safety for Film Crews	Revised 08/20/13
16	Recommended Guidelines for Safety with Pyrotechnic Special Effects	Revised 05/22/09
17	Water Hazards	Revised 02/07/25
18	Guidelines for Safe Use of Stunt Air Bags, Boxes or Other Freefall Catch Systems	Revised 04/17/13
19	Recommended Guidelines for the Use of Open Flame on Production	Revised 09/18/09
20	Guidelines for the Safe Use of Motorcycles	Revised 08/14/24
21	Guidelines for Appropriate Clothing and Personal Protective Equipment	Revised 06/05/09
22	Guidelines for the Use of Scissor Lifts (Elevating Work Platforms) and Aerial Boom Lifts (Extensible Boom Platforms)	Revised 09/05/17
22A	"Addendum A" – Power Line Distance Requirements	Revised 07/10/25

TABLE OF CONTENTS

SAFETY BULLETINS

Bulletin No.	Description	Date Released
23	Guidelines for Working with Portable Power Distribution Systems and Other Electrical Equipment	Revised 08/20/13
23A	"Addendum A" – Power Line Distance Requirements	Revised 07/10/25
23B	"Addendum B" - Basic Electrical Safety Precautions for Motion Picture and Television Off Studio Lot Location Productions	Issued 08/01/00
23C	"Addendum C" – Working With 480 Volt Systems	Revised 08/20/13
23D	"Addendum D" – Common Motion-Picture and Television Tasks and Associated Personal Protective Equipment	Revised 02/07/20
23E	"Addendum E" – Guidelines for Meeting National Electrical Code (NEC) Grounding Requirements for Portable Generators Supplying Portable Equipment in the Motion Picture and Television Industry	Issued 04/04/13
24	California OSHA Safety Requirements for Handling of Blood and Other Potentially Infectious Materials	Revised 03/23/00
25	Camera Cranes	Revised 07/10/25
25A	"Addendum A" – Power Line Distance Requirements	Revised 07/10/25
26	Preparing Urban Exterior Locations for Filming	Issued 09/20/00
27	Poisonous Plants	Issued 02/21/01
28	Guidelines for Railroad Safety	Revised 04/16/19
29	Guidelines for Safe Use of Hot Air Balloons	Issued 08/15/01
29A	"Addendum A" – External Load Guidelines	Issued 08/15/01
30	Recommended Guidelines for Safely Working with Edged, Piercing, and Projectile Props	Revised 07/18/17
31	Safety Awareness When Working Around Indigenous Wildlife	Issued 08/05/21
32	Food Handling Guidelines for Production	Under Review
32A	"Addendum A" – Los Angeles County Approved Film Production Food Services	Revised 09/01/13
33	Special Safety Considerations when Employing Infant Actors (15 days to Six Months Old)	Revised 01/22/97
34	Guidelines for Working in Extreme Cold Temperature Conditions	Revised 01/05/16
34A	"Addendum A" – Wind Chill Chart	Revised 11/22/19
35	Safety Considerations for the Prevention of Outdoor Heat Illness	Revised 08/03/23
36	Recommended Guidelines for Safely Working Around Unmanned Aircraft Systems (UAS) a.k.a. Drones	Revised 05/29/25
36A	"Addendum A" – Federal Aviation Administration (FAA) Rules & Regulations	Issued 05/29/25
37	Vehicle Restraint Systems - Seat Belts & Harnesses	Revised 12/19/02
38	Guidelines for Inclement or Severe Weather	Revised 12/19/23
38A	"Addendum A" – Lightning Safety	Revised 12/16/25

TABLE OF CONTENTS

SAFETY BULLETINS

Bulletin No.	Description	Date Released
39	Safety Guidelines for Using Foam(ed) Plastics in Set and Prop Construction	Issued 01/18/06
40	Guidelines for Non-Camera Utility Vehicles	Issued 10/17/07
41	Recommended Guidelines for Safely Working On and Around Gimbals	Revised 12/16/25
42	Guidelines for Alternative Driving Systems	Issued 06/16/15
43	Recommended Guidelines for Free Driving	Issued 05/01/18
44	Guidelines for Working Safely with Radiofrequency (RF) Transmitters	Issued 07/31/19
45	Guidelines For Long or Successive Takes	Issued 03/10/22

PROCEDURAL GUIDELINES

Guideline No.	Description	Date Released
1	Special Procedures For Minors Performing Physical Activities	Issued 05/17/06

INFORMATIONAL FACT SHEETS

*	General Code of Safe Practices for Production	Revised 10/17/02
*	Safety & Health Awareness Sheet - Extended or Successive Takes	Issued 05/21/10
*	Safety & Health Awareness Sheet - Guidelines for Handling Freshly Painted or Printed Backdrops and Other Graphic Arts	Issued 01/06/06
*	Safety & Health Awareness Sheet - Photographic Dust Effects	Issued 05/25/05
*	Safety & Health Awareness Sheet - Guidelines for Reducing the Spread of Influenza-Like Illness	Issued 09/18/09
*	Safety & Health Awareness Sheet - Protection from Wildfire Smoke	Issued 03/03/21
*	Safety & Health Awareness Sheet – Lithium-Ion Battery Safety	Issued 08/14/24
*	Safety & Health Awareness Sheet – Indoor Heat Illness Prevention: California	Issued 02/07/25
*	Studio Safety Hotlines	

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #1

RECOMMENDATIONS FOR THE USE OF FIREARMS, BLANKS, AND DUMMY ROUNDS

Live ammunition ("ammunition") is never to be used on set nor brought onto any work location, including any studio lot, stage, or location unless it meets the specific exceptions as described in *Safety Bulletin #2 - Prohibitions And Special Restrictions On The Use Of Live Ammunition*. Refer to Safety Bulletin #2 for guidance on the handling of ammunition.

Please see the Glossary at the end of this document that defines certain key terms.

# # #

These guidelines are intended to give recommendations on the safe handling, use, and storage of firearms. Firearms include shotguns, pistols, machine guns, rifles, and muzzleloaders.

These guidelines also cover firearms loaded with blank rounds ("blanks") and dummy inert rounds ("dummy rounds"). Dummy rounds do not have an explosive component and are recommended to have an audible "BB." Dummy rounds are often used by performers to simulate the loading of a firearm.

All use, handling, storage, and transportation of firearms, blanks, and dummy rounds shall be in compliance with all applicable federal, state, and local laws and regulations.

The Property Master, Assistant Property Master, or the Armorer (**collectively, the "Property Master"**) will be the individuals acting in the interest of the Production for obtaining, maintaining, and handling all firearms. Firearms in the film industry are considered props and are the responsibility of the Property Master. The Property Master will work in conjunction with the Production to ensure adherence to these guidelines.

The Production, in consultation with the Property Master, should consider the use of rubber guns, non-guns, non-functioning replicas, and replicas with recoil simulators ("prop firearms"). Though these devices are not firearms, standard firearms safety practices should still be observed while using these devices. This Safety Bulletin should be distributed with the call sheet each day that firearms and prop firearms will be used.

Production Responsibilities

1. Check what specific licenses or permits are required by the Authority Having

Jurisdiction ("AHJ") at the applicable local, state, federal, and/or international level.

2. The Studio Safety and Security Departments may need to be notified prior to a production's use of firearms on studio property. Local law enforcement, or an applicable AHJ, may also need to be notified prior to any firearm use.

3. Ensure the Property Master's qualifications are adequate for working with the type of firearm(s) being used. Their qualifications include their knowledge of the handling, use, safekeeping, and familiarity with the type of blanks or dummy rounds to be utilized.

4. If the Property Master is not familiar with the firearm(s) to be used, they should consult an expert who is familiar with the firearm(s).

5. Ensure that the Property Master knows who the appropriate Production representative is to communicate any safety-related concerns.

6. Authorize the Property Master to safely perform all assigned duties and responsibilities. In order to accomplish this, the Property Master should be adequately staffed, taking into consideration, in part, the number of firearms required for a particular scene or sequence.

7. Ensure that a sufficient amount of time has been allotted for training, safety meetings, and rehearsal.

8. Establish safety protocols for all firearm-related production events, including those that may occur with less frequency, such as reenactments (e.g., historical battle sequences with reenactment groups), documentaries, and custom firing sequences.

Property Master Responsibilities

1. Being present whenever a firearm is being used or handled.

2. Knowing the standards, rules, and regulations for the firearms, blanks, and dummy rounds used in the production, and the practices for the safe handling, use, and storage of the firearms, blanks, and dummy rounds that are used in the motion picture industry.

3. Ensuring that all firearms remain in the possession of the Property Master until such time that they are transferred to and from the cast member(s). The Property Master and authorized cast members are the only individuals who should ever handle a firearm on set.

4. Ensuring the custody and control of all firearms at all times.

5. Designating and supervising additional qualified persons working under the Property Master to assist as necessary.

6. Confirming that the correct firearms permits have been obtained for the possession and use of production firearms, blanks, and dummy rounds.

7. Securely storing firearms separately from blanks or dummy rounds in accordance with federal, state, and local laws.

8. Knowing and adhering to manufacturer's warnings, expiration dates, storage instructions, and handling procedures for firearms, blanks, and dummy rounds.

9. Loading firearms with blanks or dummy rounds immediately before they are used in a scene.

10. Allowing cast and crew who are required to stand near the firing sequence to witness the loading of the firearm.

11. Using the appropriate load of blanks and a blank-fire adapter, if applicable, required for the scene.

Training

The Property Master shall be knowledgeable about the rules, regulations, and practices for the firearms, blanks, and dummy rounds used in the motion picture industry. This knowledge could come from many sources, for instance, it can come from industry-specific training and experience.

No one shall be issued a firearm unless they have been trained in the safe handling, use, proper firing procedures, and proper use of all mechanical safety devices for each type of firearm. If there is any uncertainty as to the qualifications of the person who will use the firearm, the Production, in consultation with the Property Master, shall determine if additional training is required and shall ensure adequate time is provided for such training.

All cast and crew who are in proximity to working firearms should be trained about safe zones and about the proper conduct of personnel who will be present near firearms. This training can be accomplished through the safety meeting or by other means as determined by Production Management.

Safety Meeting

Before any firearm is used, the Production will conduct a safety meeting with all involved personnel to review relevant safety issues. This safety meeting shall include an "on-site walk-through" and/or "dry run" with the Property Master, designated Production

representative, and anyone who will be using and/or handling a firearm.

If at any time a significant change occurs to a firearm sequence, the First Assistant Director will conduct an additional meeting so that everyone understands the change(s). The Property Master is to attend all safety meetings and rehearsals.

In the safety meeting, the following items should be discussed:

1. It is important to treat all firearms and prop firearms, whether they are real, rubber guns, non-guns, non-functioning replicas, or replicas with recoil simulators, as if they are working, loaded firearms.

2. The types of firearms that will be used, their safety features, and what to expect when they are used.

3. The type of blanks and dummy rounds that will be used and how these blanks and dummy rounds can be distinguished from each other.

4. The firearms sequence, including intended action, possible deviations, plans to abort, emergency procedures, and the chain of command.

5. Aiming points and muzzle positions relative to the cast and crew who may be in close proximity to the line of fire.

6. Additional safety measures that have been implemented (e.g., Personal Protective Equipment (“PPE”), camera lens protection, and lock-offs).

7. The firearms custody and control process.

8. Introduce the medic and other appropriate emergency personnel.

9. Instruct all cast and crew who are not required for the firearms sequence to clear the area after the safety meeting has concluded and to not return until an “all clear” signal has been given.

10. The establishment and use of effective communication channels and methods (e.g., voice commands, walkie-talkie communication, and hand signals).

11. Answer any cast or crew questions concerning the firearms sequence.

Rehearsal

A rehearsal is to be conducted before the use of a firearm so that the performer knows the intended range of action and appropriate minimum safe distance. The minimum safe distance is to be determined by the Property Master. This rehearsal also will establish the

proper filming angles and safe areas for the cast and crew.

Safety Protocols

1. No person is to be coaxed, coerced, or otherwise forced into handling a firearm.

2. Nonessential personnel will be excluded from the set when firearms are used to enhance the safety of the cast and crew.

3. Protective shields, eye and hearing protection, and other applicable PPE will be made available and should be utilized by all personnel involved in the firearm sequence.

4. The cast and crew, including the Sound Department, will be notified of the types and loads of blanks or dummy rounds that will be used.

5. All personnel should remain at a pre-determined safe distance whenever a firearm is loaded, handled, or fired.

6. The Property Master should inspect the firearm and barrel before every firing sequence.

7. Only a qualified person (either licensed or experienced) should load the firearm with blanks or dummy rounds. Follow the manufacturer's recommendations for the handling, storage, and disposal of blanks or dummy rounds.

8. Only the required number of blanks or dummy rounds for the take should be loaded into the firearm.

9. Whenever the Property Master gives a firearm to a performer, the Property Master shall advise the performer of the type of blank or dummy round being used and afford the performer, cast, and crew the supervised opportunity to verify the same.

10. Utilize all safety devices until the firearm is ready to be used.

11. Anyone handling the firearm will refrain from pointing a firearm at any person, including themselves. If it is necessary to aim a firearm at another person on camera, the Property Master will be consulted to determine available options. Remember: a firearm, including one loaded with blanks, can inflict severe damage to anything/anyone at which/at whom the firearm is pointed.

12. The performer is to never place their finger on the trigger until the performer is ready to fire.

13. There should be no horseplay with firearms or prop firearms.

14. The firearm is not to be discharged when the barrel is obstructed by anything other than a blank-fire adapter that a qualified individual has properly installed.

After Each Firearm Sequence

1. No one should be allowed to step onto the set until the Property Master clears all firearms and announces to the cast and crew that the firearms are clear, and it is now safe to move around the set. This typically occurs by announcing “all clear.”

2. Never leave a firearm or prop firearm unattended.

3. Blank-firing firearms will be immediately unloaded after the scene by a qualified person.

4. All malfunctions must be reported immediately to the Property Master. Malfunctioning or jammed firearms should be corrected by a qualified person or taken out of service until the problem is corrected.

5. The Property Master should inspect the firearm and barrel after every firing sequence.

Upon Completion of The Use of Firearms

1. All firearms must be returned to the Property Master, who shall ensure that they are cleaned, checked, and inventoried at the end of each day. Production must allow time in its filming schedule for this procedure.

2. There should be a sweep of the area for spent casings at the end of each day. The spent casings should be disposed of properly.

3. Ensure the safe storage of firearms, prop firearms, blanks, and dummy rounds. If these items are kept on location overnight, they must be secured.

Glossary

AMMUNITION a.k.a. LIVE AMMUNITION: One or more loaded cartridges or shotgun shells consisting of a primer cap, a shell case, a quantity of gunpowder, and a projectile.

For the purpose of this Safety Bulletin, ammunition does not include:

a) blank rounds and dummy rounds;

b) projectiles (regardless of the material or manufacturer) that are intended solely to create bullet-hit type special effects, such as projectiles fired from Air Rifles, Air Pistols, Air and/or Gas-operated Capsule Guns, Paintball Guns, Blow Guns, Squib-fired Trunnion Guns, Crossbows or Crossbow-type devices, Slingshots, or any other special-effects device designed to propel a projectile and create a bullet-hit type special effect; and

c) any propelled projectile required to be photographed in flight. See Safety Bulletin No. 30, *Recommended Guidelines for Safely Working with Edged, Piercing, and Projectile Props*.

All such non-ammunition projectiles are to be supervised and operated under the direction of the licensed Special Effects Technician in charge.

ARMORER: This is the professional, skilled, and properly licensed technician who is hired by the Production, works under the direction and supervision of the Property Master, and maintains control of the firearms on set.

BLANK-FIRE ADAPTER a.k.a. PLUG: A device installed into the barrel of the firearm by a qualified individual to facilitate functionality with blanks.

BLANK ROUND a.k.a. BLANK: A cartridge consisting of a primer cap, a shell case, and a quantity of gunpowder, but that does not have a projectile. Blank rounds are produced by a licensed manufacturer using specialized, automated, or manual loading equipment.

CUSTODY AND CONTROL: This is the process to establish dominion and control of the firearm. It specifies who removes the firearm from a secure lockup, who checks in with the First Assistant Director or their designee, who gives the firearm to the performer, and who places the firearm back into a secure lock-up. Once a chain of custody is established, any intended deviation from this should first be addressed at a safety meeting.

DUMMY INERT ROUNDS a.k.a. DUMMY ROUNDS: Inert cartridges consisting of a simulated primer (usually a machined, solid metal disk), a cartridge case, and a projectile. Ideally, dummy rounds will include a “BB” inside to give an audible indication that it is inert.

MUZZLELOADER: A firearm loaded through the barrel's front opening.

NON-GUN: A firearm replica designed to accept and discharge small explosive charges by an electric impulse to create a simulated muzzle flash and noise. Non-guns are to be treated with the same safety precautions as an actual firearm.

PROP FIREARMS: Including but not limited to rubber guns, non-guns, non-functioning replicas, and replicas with recoil simulators.

PROPERTY MASTER: This is the member of the cast and crew responsible for acquiring appropriate props, organizing them, and overseeing the usage of props on set. Firearms are considered props in the film industry and are the responsibility of the Property Master or someone designated by the Property Master (i.e., the Armorer). The Property Master must maintain all necessary, firearms/ammunition/blanks-related licenses, permits, and documentation for the jurisdiction in which work is being performed.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #2

PROHIBITIONS AND SPECIAL RESTRICTIONS ON THE USE OF LIVE AMMUNITION

This Safety Bulletin shall only be used when live ammunition will be utilized and, in that circumstance, shall be used in concert with Safety Bulletin #1, Recommendations For The Use Of Firearms, Blanks, And Dummy Rounds.

Live ammunition ("ammunition") is prohibited from use in nearly every aspect of the entertainment industry. Some limited exceptions that would allow the use of ammunition (for filming purposes) can include the following:

a) a controlled and supervised environment, such as a shooting range, when used for the purposes of actor training, postproduction gunfire sound recording, a documentary (except reenactments), and firearms education;

b) when ammunition is essential to the subject matter of the work, such as a competitive reality show involving firearms, a documentary (except dramatic reenactments), or a firearms-education and safety-training production; or

c) while filming trained military or police fire their weapons in a controlled military or police facility.

When using ammunition, the Production will be subject to the rules and regulations in the applicable location and may need to consult with the Authority Having Jurisdiction ("AHJ").

When ammunition is permitted to be used, it may be used only if the criteria and special conditions of this Safety Bulletin have been met; if the ammunition is used under the supervision of the Property Master, Assistant Property Master, or the Armorer (collectively, the "Property Master"); and if appropriate medical personnel is available.

The Property Master will be the individual acting in the interest of the Production for obtaining, maintaining, and handling all firearms and ammunition.

NOTE: Any prohibition or restriction on the presence of ammunition on a set does not apply in the following situations:

i. Security personnel employed to provide security who carry a firearm in compliance with applicable laws and, at all times in the scope and course of that employment, are in possession and control of the firearm;

ii. A peace officer (as defined under applicable laws) or a law enforcement officer who is authorized to carry a firearm in the course and scope of the officer's duties and, at all times in the scope and course of those duties, is in possession and control of the firearm; or

iii. Commercial locations where live ammunition is customarily found in the absence of production (e.g., a gun store or ammunition factory/warehouse), provided that adequate storage and control measures are in place to prevent cast and crew from accessing the ammunition.

Production Management and Property Master Responsibilities

Production Management, in conjunction with the Property Master, will ensure that the following standards are adhered to:

1. Key Production personnel (e.g., Director, Producer, Director of Photography, First Assistant Director, Special Effects Technician, Visual Effects Supervisor, and Property Master) have determined a situation exists in which there is no other, practical alternative but to use ammunition.

2. This special use of ammunition shall only be performed in a controlled and supervised environment (e.g., a military, police, or private gun range, or in an area deemed by the Property Master to be safe for this procedure).

3. Permission and/or a permit to use ammunition shall be obtained from the AHJ (e.g., sheriff, police, county, city, township, military base, or agency having authority to issue this type of permit) whenever it may be required.

4. The Production and/or Studio Safety Department, if applicable, shall be notified prior to the use of any ammunition. Additionally, the Production's insurance company should be notified of the intended use of ammunition.

5. Notification of the intended use of ammunition shall be made on that day's call sheet. If the call sheet is not available before the date the ammunition is to be used, advanced notice is to be given.

6. Before any use of a firearm and the loading of ammunition in a rehearsal and/or for an on-camera sequence, all persons involved shall be thoroughly briefed at an on-site safety meeting. See *Safety Bulletin No. 1, Recommendations For The Use Of Firearms, Blanks, and Dummy Rounds*.

Storage and Organization

1. When firearms are being utilized with ammunition, the firearms will be distinctly labeled as such.

2. Firearms using ammunition shall never be co-mingled with any other firearms.

3. All ammunition shall be kept in the custody and control of the Property Master. The ammunition shall be stored in a manner to keep it safe and secure and in compliance with all applicable local, state, and federal regulations.

4. Ammunition will not be kept at the work location any longer than is necessary.

5. Ammunition shall be secured in a locked box. That box shall be clearly marked as containing ammunition.

6. Ammunition will be transported in compliance with all applicable laws and regulations.

On-Site Safety Procedures

1. The safety meeting shall include an “on-site walk-through” and/or “dry-run” with the Property Master**,** Range Master (if applicable), and anyone who will be using and/or handling the firearms and/or ammunition. An understanding of the intended action, possible deviations, plans to abort, emergency procedures, and chain of command should be made clear. Any subsequent change to the foregoing will require an additional safety meeting.

2. Establish safe zones that protect cast and crew from any hazard associated with the discharge of a firearm, including possible ricochet and/or the ejection of hot shell casings. Particular attention shall be paid to the line of fire. Ensure all personnel are located in the safe zones, which typically are behind the firing line.

3. Prior to the firearm discharge, a rehearsal shall be held to ensure that all who will be present know their designated locations and the safe zones that have been identified. Upon completion of the rehearsal, a formal announcement shall be made to all those present that ammunition will be fired.

4. Cast and crew members shall be limited to those members required to capture the effect. No minor(s) may be present when the ammunition is being fired.

5. While at a shooting facility (e.g., gun range, military base), the Range Master shall have overall control and final authority over the shooting facility and every person present, including all members of the Production cast and crew.

6. All safety procedures and requirements shall be strictly followed. There shall be no deviation from the intended sequence without the permission of the Property Master or Range Master (depending on who is in charge at the specific location).

Training

In conjunction with the use of ammunition, all personnel must be familiar with, and trained in, the safe use of firearms. Follow the training requirements as outlined in *Safety Bulletin No. 1, Recommendations For The Use Of Firearms, Blanks, and Dummy Rounds*.

The use of ammunition for the purposes of cast training shall only be allowed with the approval of Production Management, which could consult with the Studio Safety Department, the Risk Management/Insurance Department, consultants, and the Production's insurance brokers and carriers. This training should only be conducted at a shooting facility approved by Production Management and under the direction and control of a qualified Property Master and/or Range Master.

GLOSSARY

AMMUNITION a.k.a. LIVE AMMUNITION: One or more loaded cartridges consisting of a primed case, propellant, and containing one or more projectiles.

For the purpose of this Safety Bulletin, ammunition does not include:

a) blank rounds and dummy rounds;

b) projectiles (regardless of the material or manufacturer) that are intended solely to create bullet-hit type special effects, such as projectiles fired from Air Rifles, Air Pistols, Air and/or Gas-operated Capsule Guns, Paintball Guns, Blow Guns, Squib-fired Trunnion Guns, Crossbows or Crossbow-type devices, Slingshots, or any other special-effects device designed to propel a projectile and create a bullet-hit type special effect; and

c) any propelled projectile required to be photographed in flight. See Safety Bulletin No. 30, *Recommended Guidelines for Safely Working with Edged, Piercing, and Projectile Props*.

All such non-ammunition projectiles are to be supervised and operated under the direction of the licensed Special Effects Technician in charge.

PROPERTY MASTER: This is the member of the cast and crew responsible for acquiring appropriate props, organizing them, and overseeing the usage of props on set. Firearms are considered props in the film industry and are the responsibility of the Property Master or someone designated by the Property Master (i.e., the Armorer). The Property Master must maintain all necessary, firearms/ammunition/blanks-related licenses, permits, and documentation for the jurisdiction in which work is being performed.

RANGE MASTER: A person who oversees the safe discharge of firearms at a shooting facility.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #3

GUIDELINES REGARDING THE USE OF HELICOPTERS IN MOTION PICTURE PRODUCTIONS

(External Load Guidelines are attached to this Bulletin as Addendum "A")

Helicopter flying accuracy may be adversely affected by changing natural conditions such as wind, air density, humidity, and time of day. Manmade conditions such as weight, weight distribution, center of gravity and/or the discharge of pyrotechnics in close proximity disturbing airflow around the tail rotor, can also affect the ability of the helicopter to fly. Special precautions should be taken to ensure safety when working in any extreme temperatures or terrain, *e.g.*, mountains and deserts.

1. **All Aerial Coordinators and/or Pilots in Command should possess a current FAA approved Motion Picture and Television Operations Manual and accompanying Waiver**. The Waiver is specific to those Federal Aviation Regulations specified in the approved manual. Additionally, a copy of the FAA required Plan of Activity and approved Motion Picture and Television Operations Manual will be available to the Production Company prior to all aerial operations.

2. The **Pilot in Command** is at all times the final authority over his/her helicopter and should be in command of his/her flight operations and/or related activities.

   The **Pilot in Command and/or Aerial Coordinator** should have the authority to abort any flight operation in the interest of safety. Abort signals should be specified ahead of time.

3. Communications: The **Aerial Coordinator and/or the Pilot in Command** will coordinate with the designated production representative and implement a plan for communications between the participants in the air and on the ground.

   The plan will incorporate the following:

   a. Designated ground contact personnel;
   b. Air to ground radios, VHF or FM;
   c. Assignment of discreet frequencies (channels);
   d. Visual signals (flags, specified hand signals, light or flare) should be used to halt filming in the event of lost communications or inability to utilize radios;
   e. Abort signals, audible and visual to halt filming in the event of unforeseen circumstances or safety hazards.

4. At the start of each day's filming the **Aerial Coordinator and/or Pilot in Command** and the designated production representative will conduct a

BRIEFING/SAFETY MEETING for the production staff and those persons necessary for filming, including emergency, safety and security personnel.

Note: A subsequent BRIEFING/SAFETY MEETING should be required as necessary for intended action sequences and/or scenes

All **BRIEFINGS/SAFETY** MEETINGS should include the following:

a. Pertinent items and the special provisions of the **Aerial Coordinator and/or Pilot(s) in Command,** Motion Picture and Television Operations Manual and accompanying Waiver, along with any additional provisions issued by the local FAA Flight Standards District Office
b. Possible risk to personnel who are involved
c. Safeguards to personnel and equipment
d. Communications
e. Emergency procedures
f. Location of boundaries
g. Local governmental limitations or restrictions, if any

5. A preplanned stunt and/or special effect sequence will not be changed in any way without the authorization of the **Aerial Coordinator and/or Pilot in Command**. No changes should be made once the helicopter(s) is/are airborne.

6. The **Aerial Coordinator and/or Pilot in Command** should designate one person as the Ground safety contact with no other responsibilities. The helicopter support truck Operator may be designated as the ground safety contact around the helicopter, if qualified.

7. If there is a question as to safety of any aerial filming sequence involving low, over-the-camera shots, a **briefing/Safety** Meeting should be held between the **Aerial Coordinator and/or Pilot in Command** and concerned persons as to whether the use of a locked-off camera is necessary.

8. No smoking within **100 feet** of the helicopter or support fuel truck.

9. Remain at least **50 feet** away from the helicopter unless directed by the **Aerial Coordinator and/or Pilot in Command or ground safety contact**. Under no circumstances should you approach the helicopter without permission from the ground safety contact or the **Pilot in Command.**

10. Whether the rotors are turning or not, ALWAYS approach and leave the helicopter from the front. **Prior to your approach of the helicopter you should:**

    a. Make acknowledged eye contact with the pilot;
    b. Proceed to the helicopter only after the pilot has acknowledged your presence and waves you forward;
    c. Never run;
    d. Walk, looking forward at all times;
    e. Never walk downhill towards a helicopter;
    f. Never walk uphill away from a helicopter.

11. **Never walk near or around the rear and tail sections of the helicopter, <u>whether it is running or not</u>.**

12. **Never walk under the tail section of the helicopter, <u>whether it is running or not</u>.**

13. Carry all equipment parallel to the ground when within **50** feet of a helicopter. Do not vertically extend any equipment, (*i.e.*, cameras, lights, or sound boom) into rotor blades, <u>whether it is running or not</u>.

14. **<u>Necessary Crew and Persons Authorized</u>**

    Flight operations closer than **500** feet of persons will include only those persons consenting to be in close proximity to the aircraft and who are directly involved and necessary for filming.

    The **<u>Aerial Coordinator and/or Pilot in Command</u>** and the designated production and security personnel will maintain an area perimeter to insure that no unauthorized persons are allowed within **500** feet of the flight operations.

15. Personal Protective Equipment should be utilized as required.

16. Never under any circumstance throw anything such as grip tape, clothing, paper, etc. around the helicopter, whether it is running or not.

17. The landing area should be cleared of debris and, where necessary, wet down. Ensure all equipment is tied down or stored away from the area.

18. Do not wear any loose clothing that may blow off, such as hats, when operating near a running helicopter. Protect your eyes, as well as your equipment, when helicopter is landing or taking off.

19. Rotor blades and fuselage can be easily damaged while on the ground. Never push, handle, sit on or in, or lay any objects of any kind on an aircraft without the pilot's permission.

20. If a foreign object falls into or against an aircraft, report it immediately to the pilot or aerial coordinator.

21. Never allow cast or crew to occupy an aircraft while engines are running or rotors are turning, unless authorized by the **Pilot in Command**.

22. When working on location or when utilizing Department of Defense aircraft, local agencies, regional police, fire, park department regulations, or military guidelines may vary from this bulletin. The more stringent guidelines will always be in effect. **Additional permits may be required for landing or refueling operations.**

23. The production company must notify all cast and crew members and the front of the studio call sheet should contain a statement to the effect that:

    "An aircraft is being used and will be flown in close proximity to crew and equipment. Anyone objecting will notify the production manager or 1st AD prior to any filming."

A COPY OF THIS BULLETIN SHOULD BE ATTACHED TO THE CALL SHEET ON DAYS THE AIRCRAFT IS BEING UTILIZED

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #3

GUIDELINES REGARDING THE USE OF HELICOPTERS IN MOTION PICTURE PRODUCTIONS

"ADDENDUM A" – HELICOPTER EXTERNAL LOADS

GUIDELINES FOR ESSENTIAL PERSONNEL OR EQUIPMENT TO FILM OR BE FILMED WHILE ON THE EXTERIOR OF, ENTERING, OR EXITING A HELICOPTER IN FLIGHT

1. Helicopter External Loads

Traditional helicopter motion picture activities include stunt persons transferring, air to air between helicopter and airplane, air to ground between surface vehicles or persons, Rappelling, Fast Roping and many other scenarios where essential personnel and equipment may be required outside the helicopter. Stunt persons and cameramen are often called upon to stand upon or hang from landing gear skids, cargo hooks, trapeze devices, bungee cords, cables, ladders, long-lines, etc.

Safe completion of these operations require the complete understanding and coordination of all parties involved, *i.e.* **the Aerial Coordinator and/or Pilot in Command the Designated Production Representative, Stunt Persons, Helicopter Riggers, Special Effects and Grip Riggers and essential ground** crew.

2. Pilot in Command

The **Pilot in Command** is at all times the **final authority over his/her airplane and should** be in command over his/hers **flight operations and/or related activities**. The **Pilot in Command and/or Aerial Coordinator** should have the authority to abort any flight operation **in the interest of safety**.

3. Personnel Involved

Aerial Coordinator and/or Pilot in Command, essential personnel to be flown, helicopter rigging, safety and production personnel.

4. Briefing

Briefings will be conducted by the Aerial Coordinator and/or Pilot in Command, specific to the scheduled helicopter external load operations and in compliance with the approved Motion Picture Operations Manual, briefing provisions.

5. Risk Management

Participants will conduct a thorough evaluation of the operations to be conducted and the

potential risk to all personnel, if any.

6. Communication

Communication must exist at all times between the pilot, the stunt person(s) and other essential personnel. This can be accomplished utilizing radios, intercoms, or pre-briefed visual signals.

Additionally, the pilot must be able to maintain visual contact with the stunt person(s) and other essential personnel in the event of lost communications. If visual contact cannot be maintained a third party, who can maintain visual contact, will be used. This person may be on board the helicopter, on the ground, or in another aircraft.

7. Attaching Methods and Devices

All personnel must be attached to the aircraft while in flight, unless those persons are performing an essential function outside the aircraft requiring them to depart the aircraft in flight, *e.g.* parachuting or transfers.

Seat belts, cables and safety lines will be attached to existing helicopter hard points, seat belt attach points, cargo tie down points, airframe bridles, or other suitable airframe locations.

Attaching devices, *i.e.* cables, carabineers, braided nylon climbing rope, nylon straps, steel clevises, body harnesses, etc., are normally provided by the special effects, grips and stunt personnel. All of the above attaching devices must have load ratings established by the manufacturer in compliance with various industry and government specifications and established Motion Picture safety guidelines.

NOTE: A person will never be attached to a load release device.

8. Parachutes

If parachutes are to be utilized, they must be of an FAA approved type, must have been packed and certified within the preceding 120 days.

While wearing a parachute, the parachutist must not be attached to the aircraft, except during takeoff and landing! An accidental parachute opening while attached to the Helicopter could have a serious negative effect on the aircraft and parachutist.

9. Rappelling

A. Rappelling Pilot Qualifications

1. Possess a letter of competency or an appropriate logbook entry indicating compliance with the pilot provisions of 14 CFR Part 133; or

2. Be qualified on the basis of previous experience and safety record; or

3. An actual flight, demonstrating the pilot's knowledge and skill regarding repelling operations.

B. Rappeller Qualifications

1. Rappellers (Stunt Persons) and Spotters, will be required to demonstrate their rappelling ability during required familiarization flights.

2. The Aerial Coordinator and/or Pilot in Command will have the authority to withhold approval of any rappeller (Stunt Person) or spotter.

10. Rappelling Special Provisions

The **Aerial Coordinator or the Pilot in Command** has the authority to cancel or delete any activity or event, if in their opinion, the safety of persons or property on the ground, or in the air, is at risk, or if there is a contravention of the provisions of their **Motion Picture Waiver**.

11. Weight and Balance

Due to the nature of helicopters, external loads involving essential persons or equipment, diligent review and compliance with the manufacturer's weight and balance data are required.

Prior to the initial flight of a new external load configuration, a hovering test should be conducted to verify the lateral and longitudinal centers of gravity and maximum allowable helicopter weight.

12. Rappelling Pilots Check List

A. Aircraft

1. Load bearing capacity and method of securing of all attaching devices related to the external load.

2. Verification of load bearing capacity and anticipated loads on the airframe, attach points to be utilized.

3. Accomplish Weight and Balance of the external load, including, if necessary, the possible release or departure of the external load.

4. Verify operation of load release device, if any.

Note: A person will never be attached to a load release device.

B. Personnel

1. Verify that only essential personnel are onboard the aircraft.

2. Confirm essential personnel specific duties and responsibilities.

3. Communications check, audio, and visual signals.

4. Review emergency procedures specific to the external load operation with all essential personnel.

5. Review potential risk, if any, with the essential personnel.

6. No essential personnel may participate in the helicopter external load operation unless they have read, understood, and agreed to comply with the conditions of the Waiver Holders, Certificate of Waiver and its special provisions, if any.

C. Rappel Equipment

1. Rope size, appropriate to the rappel (friction) device being used, will be required for all Rappel operations.

2. Rope strength, for each specific load, a safety factor of 10:1 between the strength of the weakest piece of attaching equipment and the load to be carried, will be utilized. The absolute minimum tensile strength of any Rappel rope will be 5000 lbs. tested to NFPA and/or other regulatory standards.

3. Ropes will have a rubber jacket or other appropriate edge protection to give protection on door sills and edges when using floor attach points.

4. Carabineers, steel, or aluminum must have a minimum tensile strength of 5000 lbs. be a locking type, and be tested to NFPA and/or other regulatory standards.

5. Cutting devices, knifes, cable cutters, etc. sufficient to cut any attaching device will be provided to the spotter or safety persons for use in an emergency.

6. Rappel ropes will have a minimum of two airframe attach points per rope, with test strengths equal to or greater than **5000 lbs.** per rappeller.

13. Fast Roping

A. Fast Roping Pilot Qualifications

1. Possess a letter of competency or an appropriate logbook entry indicating compliance with the pilot provisions of 14 CFR Part 133; or

2. be qualified, based on previous experience and safety record; or

3. an actual flight, demonstrating the pilot's knowledge and basic skills required to conduct Fast Rope vertical reference type operations.

B. Fast Rope Personnel Qualifications:

1. Fast Ropers (Stunt Persons) and Spotters, will be required to demonstrate their ability during required familiarization flights.

2. The **Aerial Coordinator and/or Pilot in Command** will have the authority to

withhold approval of any Fast Roper (Stunt Person) or spotter.

C. Fast Roping Special Provisions:

The **Aerial Coordinator or the Pilot in Command** has the authority to cancel or delete any activity or event, if in their opinion, the safety of persons or property on the ground or in the air is at risk, or if there is a contravention to the provisions of their **Motion Picture Waiver**.

D. Fast Rope Equipment:

1. Airframe attach points must be of an FAA approved type, providing sufficient lateral arm to extend beyond the outermost portion of the helicopter airframe and be certified for a **10:1** weight bearing capacity.

2. Rope size, appropriate to the rappel (friction) device being used, will be required for all fast rope operations.

3. Fast Rope strength, for each specific load, a safety factor of **10:1** between the strength of the weakest piece of attaching equipment and the load to be carried, will be utilized. The absolute minimum tensile strength of any Fast Rope will be **9000 lbs.** and have a high melting point as designed for fast rope/rappelling operations.

4. Cutting devices, knifes, cable cutters, etc. sufficient to cut any attaching device will be provided to the spotter or safety persons for use in an emergency.

5. Fast Ropes will have a minimum of two airframe attach points per rope and have the appropriate rated strength.

14. Weight and Balance: See Paragraph 11

15. Pilots Check List: See Paragraphs 12. A. B. C.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #4

STUNTS

The following recommendations and guidelines are intended to give general guidance on the preparation, set-up, and performance of stunt sequences. Hereafter, a stunt sequence refers to any instance of a stunt rehearsal and on-camera performance.

Stunts should involve appropriate production workers, including Department Head(s), to engage in the necessary planning and execution of the proposed activities. Refer to the appropriate safety bulletins and also refer to Addendum "A" – *Specialized Activities* for additional guidelines.

Production Management Responsibilities

It is the responsibility of Production Management, or a designated representative, to ensure the that the procedures set out in this guideline are completed to ensure the safety of all persons involved in the stunt.

Production Management should allow enough time for rehearsals, training, equipment preparations, and inspections.

Production Management should comply with requests and requirements for safety equipment that is generally accepted in the industry for safe and proper performance of stunts.

Whenever there is a stunt sequence, Production Management should require that an individual qualified (by knowledge, experience, and training in planning, setting up, and/or performing the type of stunt involved) be engaged and present on the set.

In conjunction with the Stunt Coordinator, hire qualified personnel to oversee respective elements of the stunt sequence.

Stunt Coordinator Responsibilities

A Stunt Coordinator, Assistant Stunt Coordinator, and/or qualified individual (collectively, the Stunt Coordinator) is in charge of all aspects of the proposed stunt activities, including script review, planning, site selection, preparation, testing, rehearsal, modification, and recommendation of the qualified personnel and equipment to be utilized to perform the stunt.

The Stunt Coordinator's responsibilities also include:

- Determine what cast & crew members should be excluded from the stunt area. Perimeter control should be established and maintained. The Stunt Coordinator should be involved in the safe placement of cameras, camera operators, and all essential cast & crew.

- Be present whenever a stunt is being planned or performed including the period leading up to the performance.

- Know the standards, rules, and regulations applicable to the stunt sequence.
- Inform Production Management if there is a need for additional emergency services not already present at the production for the stunt sequence.

Any concerns of the Stunt Coordinator should be brought to Production Management to make sure that said concerns are addressed before moving forward with the stunt sequence.

Performers

The Stunt Coordinator should make clear to the Performer(s) what the stunt sequence will entail before moving forward. A cast member who does not agree to perform the stunt sequence may always request a double.

Training

The Stunt Coordinator, in consultation with Production Management, should make sure that only those people who have the necessary competence, knowledge, experience, and training are involved in stunt work.

If a Performer requires training, it can be carried out on set. Production Management should ensure that there is enough time allotted for stunt training.

All aerial lifts, telehandlers, forklifts and cranes used to execute a stunt shall only be utilized by qualified, trained individuals.

Planning the Stunt Sequence

When planning a stunt sequence, the Stunt Coordinator will need to assess the risks and plan accordingly. The Stunt Coordinator should consider items such as location, cast & crew placement, camera placement, anticipated weather, any mitigating circumstances, etc.

When planning, also take into consideration factors including, but not be limited to, human error, mechanical failure, and outside interference.

Equipment

A qualified person shall ensure that equipment suitable for the performance has been chosen and inspected before performing the stunt and shall re-inspect this equipment after any impact or stress loads prior to performing the stunt again.

Equipment provided by Production Management (e.g., automobiles, cycles, wagons, airbags, rachets) shall be in suitable repair for the safe and proper performance of the stunt.

Persons involved in the planning and execution of a stunt should be entitled to inspect any vehicle, mechanical device, and/or equipment prior to its use, provided it is available. Stunt personnel should be allowed adequate time to inspect the set/location, the equipment, wardrobe, personal safety equipment, and props. Such persons should have a reasonable amount of time for such inspections.

Stunt Rigging

The rigging of stunts shall be done by qualified individuals. This qualification may come through training, industry experience, or a combination of items.

Equipment used (e.g., ropes, lines, cables, harnesses, hardware) should be designed to support the weight of the Performer comfortably and to bear live loads. The equipment should be manufactured for that purpose or be of an equivalent standard.

All equipment used for rigging must be inspected to check for wear, damage, and integrity prior to use. The Stunt Coordinator should approve the use of all rigging equipment. Any equipment found to be defective shall be removed from service.

Fall protection may be required when rigging at heights.

When rigging to structures, buildings, sound stages, and/or equipment, the use of a structural engineer may be necessary.

Personal Protective Equipment (PPE)

Appropriate personal protective equipment and/or other safety equipment must be provided to the cast & crew as needed. The Stunt Coordinator should consult with the Performer to decide what PPE is necessary for the planned activities. The Stunt Coordinator will have the authority to determine what PPE is worn. The Stunt Coordinator will review the PPE with Production Management and/or the designated representative to ensure studio requirements are followed. No one in Production Management should pressure the Performer or the Stunt Coordinator to scale back the use of protective equipment.

Wardrobe

Wardrobe, prosthetics, wigs, lenses, and/or other related equipment required to be worn by the stunt individuals should be presented in sufficient time for evaluation and to determine if such items will impact the execution of the stunt. Final safety approval rests with the Stunt Coordinator and should be confirmed by the Performer**.**

Safety Meetings

An on-site safety meeting should be held by the First Assistant Director and include the Stunt Coordinator and all Performers and crew in proximity to the sequence. This meeting is to precede the performance of all stunts and should include a “walk-through” or “dry-run” of the stunt sequence(s). Discussion should include the hazards involved, measures to reduce hazards, emergency procedures, and the location of emergency medical facilities.

The Stunt Coordinator should plan and explain acceptable avenues of escape/safety buffer(s) to personnel involved in the event, and an understanding of the intended action, possible deviations, and authority to abort should be made clear.

The Stunt Coordinator, Assistant Director, and/or Production Management should verify that the Performer is comfortable moving forward prior to the stunt being executed. Any doubts or concerns must be addressed and corrected to ensure that the Performer(s) safety concerns are mitigated prior to engaging.

This safety meeting should discuss the following topics:

- Shot sequence and planned stunt work.
- If possible, a slow-speed rehearsal should take place so that everyone can see the movement and path of the Performer(s).
- Environmental conditions (e.g., weather, track conditions for vehicle stunts, flammable foliage for special effects with explosives or open flame).
- Possible changes to the original plan due to hazards.
- Authority to abort, including signals, to be used.
- Production equipment (e.g., aerial lift, vehicles, pyrotechnics) selection, potential hazards, and placement.
- Communication system(s), including designated radio channel.
- Signaling system to alert personnel to the start of the stunt actions.
- Visibility and lighting.
- Scene action (e.g., stunts, performance, and special effects).
- Personal protective equipment (e.g., harnesses, body pads, fire gear).
- Designated safe areas
- Emergency plan (e.g., escape procedures and contingency plan).

Before rolling cameras, should any substantive change become necessary, the First Assistant Director will call all persons involved in the stunt to another safety meeting to discuss said change(s).

Rehearsal

Allow enough time for all necessary rehearsals prior to filming. Each Performer should be informed of the applicable filming activity so that they can be prepared for the respective stunt sequence. The Performer should be wearing the appropriate PPE for all rehearsals. The rehearsal should include any costuming (including long dresses or wigs) that may impact the safe performance of the stunt.

The Stunt Coordinator, Performer, and other directly involved departments may request rehearsal at half speed to ensure they have the timing and marks needed for the stunt sequence. Additional rehearsals may be necessary when adjustments have been made to the timing and marks.

Immediately Before and During the Stunt Sequence

Personnel qualified to administer emergency medical assistance shall be present or readily available at all rehearsals and all stunt performances. The production should consider engaging an ambulance if emergency transportation to the nearest hospital is required.

The risk of the stunt sequence should be evaluated, and appropriate arrangements should be made. Such considerations should include:

- Distance to a nearby hospital.
- Advanced medical personnel relative to the potential risk(s).
- Communications with medical personnel (e.g., radio, mobile, satellite (SAT) phone).
- Protocols for medical helicopter landing zone, if necessary.

Access to areas where stunt sequences are planned should be limited to authorized personnel only. All other personnel shall remain at a designated safe distance. If needed to prevent unintentional entry into the potentially hazardous areas, warning signs should be posted and/or other appropriate precautions taken.

After Stunt Sequence

Once the stunt sequence has been completed, unauthorized personnel should remain outside of the potentially hazardous area until an “all clear” announcement is heard. Some areas of the set may require proper cleanup before it is safe for the entire cast & crew. These areas should remain off-limits until the cleanup is completed.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #4

STUNTS

"ADDENDUM A" – SPECIALIZED ACTIVITIES

This Addendum is designed to help reduce the risk of specialized stunt activities through increased awareness and improved preparedness by Production Management, the Stunt Coordinator (including Assistant Stunt Coordinator, and/or qualified individual), and the applicable cast & crew. Production Management should be working closely with the Stunt Coordinator, and production workers overseeing specialized activities (armorers, animal handlers, etc.), leading up to the day of the stunt sequence. Communications to cast & crew, such as announcements in call sheets, should be done the day before and the day of the shoot.

In addition to referring to this addendum and Safety Bulletin #04 - *Stunts*, please refer to the safety bulletins listed under each subheading below (listed alphabetically).

For all activities mentioned below, check what specific licenses or permits are required by the Authority Having Jurisdiction ("AHJ") at the applicable local, state, federal, and/or international level. The use of firearms, pyrotechnics, aircraft, boats, trains or cars often require special permits and/or operator certifications. A notification to the applicable regulatory agency may be necessary for certain pyrotechnic stunts.

Animals

Follow safety guidelines in Safety Bulletin #06, *Animal Handling Rules for the Motion Picture Industry*, and Safety Bulletin #12, *Guidelines for the Use of Venomous Reptiles* when there are stunts involving animals.

No individual should be required to work with an animal in a stunt sequence that a reasonable person would regard as potentially dangerous unless a qualified animal handler or trainer is present to consult with and mitigate the risk(s).

Performers, and other cast & crew, expected to perform stunt work with or around animals should be able to address any concerns they might have prior to activity. In certain situations, it is recommended that anyone working with or in close proximity with animals is acclimated in rehearsals.

General guidelines when working with animals for the purpose of a stunt sequence:

- An animal should never be abused, endangered, injured, or deliberately killed for a production.
- Guard against animal stress, harm, or fatigue.

- Animals must only be trained, handled, and managed by qualified people such as an Animal Handler.

- Experienced Animal Handlers must be engaged for stunt scenes involving an animal performance.

- Map out and rehearse filmed sequences in pre-production.

- The welfare of animals always has priority over continuing production.

- Prior to filming, provide applicable Personal Protective Equipment (PPE), and check for allergies and phobias.

Driving Stunts

For driving stunts, as applicable, refer to Safety Bulletin #37 - *Vehicle Restraint Systems - Seat Belts & Harnesses*, Safety Bulletin #42 - *Guidelines for Alternative Driving Systems and Safety Bulletin* and Safety Bulletin #43 - *Recommended Guidelines for Free Driving*. When performing driving stunts with motorcycles, refer to Safety Bulletin #20 – *Guidelines for Use of Motorcycles.*

When required, traffic control procedures shall be reviewed, and special attention should be paid to driving sequences where unauthorized personnel could enter the area.

When any driving sequence requires special expertise to perform the driving stunt, the driver should be qualified to perform the stunt. Here are other conditions that require a qualified stunt driver:

- When any or all wheels will leave the driving surface.

- When tire traction will be broken, i.e., skids, slides, etc.

- When the driver's vision will be impaired by:
  - Dust.
  - Spray (when driving through water, mud, etc.).
  - Blinding lights.
  - Restrictive covering over the windshield.
  - Smoke.
  - Theatrical fog/haze.
  - Any other condition that may restrict the driver's vision.

- When the speed of the vehicle will be greater than normally safe for the conditions of the vehicle, driving surface.

- When there are road hazards--such as obstacles or rough terrain.

- When any aircraft, fixed wing, or helicopter is flown in close proximity to the vehicle creating a potentially hazardous driving condition.

- Whenever high speed or close proximity of two or more vehicles create conditions that may be dangerous to the drivers, passengers, film crew, or vehicles.

Vehicle Stunt Control Measures

- Procedures to ensure the vehicle(s) is/are fit for purpose, roadworthy, and suitably maintained.
- The Stunt Coordinator, Assistant Director, or person with delegated responsibility should ensure that adequate communications are established before any driving takes place.
- Ensure that vehicle occupants are properly restrained.
- Where possible, mitigate production-related distractions to other road users.
- Stunts from vehicles should be fully rehearsed and shot under controlled conditions. All traffic should be held, and the road closed for the duration of the action.
- Consider, in pre-production, whether padding should be inserted in the Performer's clothing in consultation with the Stunt Coordinator.
- Vehicles flips, including cannon rolls, should be thoroughly planned with engineering calculations, carefully reviewed track construction, plans to abort and designated safety area(s). Pneumatic, ratchet, and winch devices may be required for these vehicle stunts and should be installed and operated by personnel trained and qualified to do so. Requisite safety meetings, inspections and announcements must be performed ahead of the vehicle stunt sequence. The stunt driver must be vetted for qualifications and have the support of the Stunt Coordinator that they have the skills necessary to perform the stunt. Emergency personnel should be at the location on the day of the vehicle stunt sequence.

Falls

A freefall is a fall from one level to another without a tether or guided into an airbag or box. For guidance on the safe use of stunt-related systems into which Performers freefall, please see Safety Bulletin #18 – *Guidelines for the Safe Use of Stunt Air Bags or Other Freefall Catch Systems*.

Pratfalls/Footfalls

A pratfall, sometimes known as a footfall, is a stunt in which the Performer falls from at or near ground level without manipulation from a device.

Performers should be given the option of having stunt doubles to perform their footfalls/pratfalls. Here are some considerations for Performers doing stunt footfalls/pratfalls:

- Age and physical ability of the Performer including pre-existing medical conditions/prior injuries.
- Location of the action.
- Design of the shots.
- Number of takes.

Suitable mats when falling onto concrete or other hard surfaces should be provided during rehearsal and where possible, during filming. Consideration should be given to the wearing of padding, including elbow and knee pads, and, if necessary, incorporated into costumes.

High Falls

High falls are performed at elevated positions above standing height, using appropriate devices to control descent to a safe stop.

When performing a high fall, the Stunt Coordinator should ensure the equipment is appropriate for the circumstances, inspected, tested and maintained in a serviceable condition, and operated by qualified individuals.

Firearms

For all stunts involving firearms, follow safety guidelines in Safety Bulletin #01 *Recommendations For The Use Of Firearms, Blanks, And Dummy Rounds*. Live ammunition should never be on a production unless permitted under the rare circumstances articulated in Safety Bulletin #02, *Prohibitions And Special Restrictions On The Use Of Live Ammunition*.

Special Effects

For stunts involving Special Effects (a.k.a. SPFX), please refer to Safety Bulletin #16 - *Recommended Guidelines for Safety with Pyrotechnic Special Effects*.

All the activities involved in the designing, formulating, setting up, initiating, triggering, carrying out, and/or altering of a special effect should be supervised by a qualified and experienced Special Effects Coordinator in communication with the Stunt Coordinator. The Special Effects Coordinator must possess all applicable licenses.

Arrangements for appropriate medical personnel and equipment should be made before the stunt/special effect(s) is rehearsed and performed.

The Special Effects Coordinator, in conjunction with the Stunt Coordinator, will communicate to cast & crew about the special effects sequence, details of safe areas, and fail safes.

If a Performer is rigged with any type of explosive device (including squibs), the Performer must be permitted to consult with the Stunt Coordinator and a qualified, licensed special effects technician.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #5

SAFETY AWARENESS

Each studio, facility, and Production Company shall strive for the highest safety standards. Cast and crew must work diligently to maintain a safe and healthful work environment. Communication of information is one of the most effective measures to ensure a safe set. **Safety takes precedence over expediency.**

THE COMPANY SHALL:

1. Identify person(s) with authority and responsibility for implementing and maintaining a safety program.

2. Include a system for ensuring that cast and crew comply with safe and healthy work practices.

3. Maintain a system for communicating with cast and crew in a form readily understandable by all affected cast and crewmembers on matters relating to occupational safety and health. A safety hotline or other means shall be established to encourage anonymous reporting of hazards without fear of reprisal.

4. Establish procedures for identifying and evaluating hazards at all work sites, stages, and locations including scheduled periodic inspections to identify unsafe conditions and work practices. Inspections shall be conducted and documented.

5. Establish a mechanism and/or procedure for correcting unsafe or unhealthy conditions, work practices, and work procedures in a timely manner based on the severity of the hazard.

6. Establish a procedure to investigate occupational injuries or illnesses.

7. Provide training and instruction to all cast and crews as required by the Occupational Safety and Health Administration (OSHA).

SAFETY MEETINGS

In **"On-Production"** situations, safety meetings are strongly recommended to make all involved aware of the apparent and potential hazards in the day's work. For example, safety meetings should be held: (1) when production moves to a new location; (2) when there is a significant change in cast and/or crew; (3) when stunts or special effects are scheduled or have changed; (4) when fatigue may be of concern; or (5) when there are significant changes to the original plan for the day.

Safety meetings should be conducted on the set by the First Assistant Director/Stage Manager and should be attended by all affected cast and crewmembers.

In **"Off-Production"** situations, the Construction Coordinator and/or Department Head should conduct safety meetings (toolbox talks, tailgate meetings, etc.) to address pertinent safety issues, use of specialized equipment, or unusual construction activities and/or rigging. The Construction Department is required to have a *Safety Meeting* at least once every ten (10) days, or when new equipment is introduced and/or when special situations require additional meetings.

The following procedures are recommended:

1. Schedule safety meetings at the earliest time in which the majority of cast and/or crew can be assembled. Convey pertinent information to all personnel unable to attend.

2. All safety meetings should be documented.

3. Identify potential hazards. Department Heads should discuss hazards and establish safe working zones.

4. Discuss emergency procedures, including identifying the location of fire alarms, fire extinguishers, emergency exits, first aid kits and telephones for 911 emergency calls. Additionally, explain studio/location safety program protocol, and identify medical or special emergency personnel (*e.g.*, paramedics, police, and fire personnel).

5. Present an evacuation plan in the event of an emergency. Remind all departments to keep fire lanes, electrical panels and exits clear at all times.

6. Advise the cast and/or crew to notify the First Assistant Director/Stage Manager, Construction Coordinator and/or Department Head of <u>any</u> safety concerns or hazards.

7. Inform cast and/or crew that, in the event of an injury, the set medic and the First Assistant Director/Stage Manager, Construction Coordinator and/or Department Head must be notified immediately. The First Assistant Director/Stage Manager, Construction Coordinator and/or Department Head will assess the situation and notify appropriate personnel, such as the UPM, Director, Producer, or Safety Representative, if applicable.

Note: Check with your Safety Representative (if applicable) regarding additional rules, policies and/or guidelines that may apply to your specific work situation. Attach pertinent Safety Bulletins to the call sheets to deal with specific hazardous work. A complete and up-to-date set of Safety Bulletins may be accessed on the CSATF web-site at www.CSATF.org.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #06

ANIMAL HANDLING RULES FOR THE MOTION PICTURE INDUSTRY

1. The safety of people and animals working on productions shall be of primary concern.

2. Only qualified professional animal handlers should supervise the use of all animals on productions.

3. Notice shall be given prior to arriving on set, on the call sheet, that animals are working. Depending on the animal, a "closed set" notice should be posted on all stages where animals are working, and every effort should be made to maintain a closed set where animals are working on location.

4. The Production must obtain any required permits for having an animal working on set at a studio or a location.

5. The person supplying the animal shall be responsible for obtaining all necessary inoculations, permits, applicable licenses, and medical safeguards that may be required by Federal, State, and Local agencies to own and/or supply the animal.

6. An easily accessible and secure area shall be available for loading and unloading animals.

7. Before using any animal, an on-site safety meeting with cast and crew shall take place where the animals will be working. This should include the animal handler(s), provider(s), designated production representative, and anyone who will be working with or near the animal.

   Safety meeting topics may include, but are not limited to:

   - When and where the animals will be utilized.
   - Proper behavior when near the animals.
   - Possible risk to personnel that are involved.
   - Safeguards for personnel.
   - Communications.

- Emergency procedures including transportation and medical treatment.

8. It is the responsibility of the animal handler to convey to the cast and crew specific safety concerns relative to the animals being used. The animal handler shall address the cast and crew (including the parent and/or guardian of any minors on the set) regarding safety precautions while animals are on the set (*e.g.*, maintain a safe distance from wild and exotic animals, no personal pets, no feeding, no running, escape routes, etc.).

9. The American Humane Association (AHA) guidelines on the treatment of animals used in film making state that a tranquilization and/or sedation on set for the sole purpose of filmmaking is prohibited.

10. As a safety backup and upon consultation with the animal handler, consideration should be given to the availability of tranquilizing equipment. Potentially dangerous or complicated animal action should warrant the presence of a qualified veterinarian.

11. Equipment operated in conjunction with animals should be in a safe operating condition as determined by the animal handler in conjunction with the property master. Basic animal safety equipment such as fire extinguishers, fire hoses, and nets should be readily available.

12. Under no circumstances should horse falls be accomplished by tripping or pitfalls.

13. All hitch rails shall be fastened in the ground in such a manner that the tugging of a frightened horse cannot pull them loose (*e.g.*, sleeve installation). On a stage, hitch rails will be bolted or fastened in a rigid manner. Scenery and props should be secured. Objects (*e.g.*, ladders, pedestals, etc.) that easily tip over can startle the animals.

14. Horses being used on a production shall be properly shod for the working surface (*e.g.*, borium, rubber shoes, etc.).

15. Extreme caution should be taken when using exotic venomous reptiles. Adhere to Safety Bulletin #12: *"Guidelines for the Use of Venomous Reptiles".*

16. The smell of alcohol has a disquieting effect on animals. All precautions shall be taken in that regard when animals are working. Other smells, such as perfumes, colognes, or food, may be distracting to the animals. In some cases, craft services and/or catering may need to be moved away from the animal action.

17. AHA guidelines require the producer to notify the AHA prior to the commencement of any work involving an animal or animals; script scenes shall be made available; representatives of the AHA may be present at any time during the filming.

18. There should be a sufficient number of adequately trained handlers for each large undomesticated animal such as a mountain lion, bear, or other large carnivore.

19. Depending on the types of animals being used, and the filming location, consideration should be given to providing onsite emergency medical transportation, with qualified medical personnel, up to and including advanced life support, as necessary.

20. Sick animals must be isolated from other animals on the set and will not be permitted to work. When possible, sick animals shall be removed from the set.

21. All working conditions, including special effects, shall be discussed in advance with the animal handler. All animals should be trained to work around any loud noises or pyrotechnic special effects that may be used at the filming location. Other special effects such as artificially created fog, haze, fire effects, etc., could potentially be unsafe for certain animals.

22. The procedures for dealing with firearms previously issued by the Industry Wide Labor-Management Safety Committee, Safety Bulletin #1: "*Recommendations for Safety with Firearms and Use of "Blank Ammunition",* and Safety Bulletin #2: *"Special Use of "Live Ammunition"* shall be observed. The level of ammunition loads should be determined in consultation with the animal handler and the firearms expert.

23. The animal handler must be notified when helicopters, unmanned aircraft systems (UAS), or any other equipment that may distract or affect the animal are used

24. The animal handler must be notified when any non-working and/or service animals are present. This includes any animals that may be

living at a location set. All non-working animals must always be contained and/or restrained and supervised. Bringing non-working animals, such as personal pets, to the filming location should be discouraged.

25. The animal handler must be notified when the production is considering using any privately owned animals from the cast or crew and has determined the animal is appropriate. Owners of these animals must:

    - Be responsible for the well-being and care of the animal.
    - Ensure their animals have adequate water and shelter.
    - Make sure their animals are well-trained and socialized with other animals and people.
    - Provide proof of required license and vaccinations for the animal.
    - Ensure the animals are always under their control.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #7

RECOMMENDATIONS FOR DIVING OPERATIONS

The following recommendations apply when diving operations are utilized in production. When applicable, refer to Safety Bulletin #15, "Boating," Safety Bulletin #17, "Water Hazards," and Safety Bulletin #23, "Guidelines for Working with Lighting Systems and Other Electrical Equipment" for additional guidance.

1. The employer or a person appointed by the employer will designate a person-in-charge of dive operations. For the purposes of this bulletin only, this person shall be known as Dive Operations Coordinator ("DOC"). This person shall be in charge of all aspects of the diving operation and shall be at the dive location or on deck at the dive site during diving operations. All diving operations shall conform to all applicable laws, rules and regulations, such as Title 8, Section 6050 *et. seq.* of the California Code of Regulations and Title 29, Section 1910.401 *et seq.* of the Federal Code of Regulations. In the event of a conflict between this bulletin and the applicable law, rule or regulation, such laws, rules or regulations must be followed.

2. The selection of an underwater location shall depend upon the safety and health conditions of the location as determined by the DOC, with input from one or more of the following individuals: the Director, First Assistant Director, Director of Photography, safety professional or stunt coordinator. When appropriate, the DOC and the Chief Lighting Technician shall meet and ensure that all electrical equipment in close proximity to diving operations pose no hazards.

3. The employer is responsible for verifying that dive team members are certified divers who have been trained in the type of diving, equipment used, and in the environment in which they will be working. For purposes of this bulletin, a certified diver is one who holds a current and valid certification card issued by a nationally or internationally recognized certification organization.

   There may be an exception where it is necessary to use a non-certified cast or crew member for a particular setup or scene. That cast or crew member must be under the direct underwater supervision of a dive team member with the appropriate experience and qualification (*e.g.*, certified scuba instructor), designated by the DOC. The cast or crew member must have received training sufficient in the opinion of the dive team member and DOC to perform the job required.

4. The DOC shall establish and make available an Emergency Action Plan, including the nearest location of a recompression chamber, proper methods of transportation to that chamber, and emergency contact information.

5. Prior to each day's diving operations, appropriate safeguards should be considered and communicated to all involved in the underwater activities.

6. The DOC shall brief dive team members of dive objectives, hazards, environmental conditions, any modifications to diving or emergency procedures likely to affect the safety of the diving operations, and the necessity of immediately reporting any physical problems or adverse physiological effects, including symptoms of pressure-related injuries.

7. Properly trained and equipped safety diver(s) shall be available as determined by the DOC. For purposes of this bulletin, a safety diver is a diver at the dive location, not in the dive rotation, who is capable of rendering immediate assistance to a diver in the water.

8. The employer shall ensure that adequate quantities of medical oxygen (100% O_2) with appropriate methods of administration, and personnel trained in the use of such oxygen are immediately available during the diving operations.

9. A diver shall be accompanied in the water by another diver throughout the diving operation (a "buddy" system).

10. To avoid decompression illness, divers shall wait the appropriate period of time, as determined by the DOC, between dive operations and travel at altitude (including travel by air and land).

11. The DOC shall maintain a master log, which includes diver name, entry time, dive depth, and exit time. Individual logs shall be kept on behalf of all divers. Individual and master logs shall be reconciled on a dive-by-dive basis.

12. A functional underwater diver recall system shall be made available, tested and demonstrated on site prior to dive operations.

13. All dive equipment shall be inspected prior to each dive.

14. The employer shall have standby breathing equipment and safety diver(s) immediately available underwater when the possibility of trapped divers exists.

15. Each diver shall have a functional depth gauge, an underwater time-keeping device, an alternate air supply, and a pressure gauge for monitoring SCUBA tank

pressure. Each diver shall also have the capability of achieving and maintaining positive buoyancy.

16. Diving tanks, when transported to and from location and when not in use, will be secured in such a manner as to prevent them from rolling or allowing the valves to be struck by other objects. When not in use, diving tanks shall be stored in the shade.

17. All dive team members shall be trained and current in cardiopulmonary resuscitation (CPR), diver rescue techniques, and diving-related first aid.

18. All dive team members must have passed a current (within the preceding twelve months) physical examination, have been declared medically fit to engage in diving operations, and be approved for the dive by the DOC.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #8

GUIDELINES FOR TRADITIONAL CAMERA CARS

Also see: Addendum A – Process Trailers/Towed Vehicles
Addendum B – Camera/Crane Boom Vehicles
Addendum C – Power Line Distance Requirements

A Traditional Camera Car ("camera car") includes any self propelled vehicle specifically engineered for the mounting and manning of cameras and other equipment for the primary purpose of filming from a stationary or moving vehicle. Excluded from these guidelines are specialty tracking vehicles, including but not limited to, motorized process vehicles, and powered camera vehicles (such as ATV, golf carts, snowmobiles, rally cars, camera bikes, side cars and other like vehicles). The addition of a process trailer/towed vehicle to a camera car shall make that vehicle also subject to the provisions of Addendum A of this safety bulletin. The addition of any manned or unmanned camera boom/crane or arm to a camera car shall make that vehicle also subject to the provisions of Addendum B of this safety bulletin. The addition of anything extending beyond the camera car shall make that vehicle also subject to the provisions of Addendum C of this safety bulletin.

NOTE (1): The driver/operator has the authority to suspend operation of the vehicle for any reason that he or she deems to be unsafe.

CONSIDERATIONS FOR USING A TRADITIONAL CAMERA CAR/PROCESS TRAILER (SEE ALSO ADDENDUM A):

1. When the action of the performer interferes with their ability to drive.

2. Impaired vision – when the driver's (performer's) vision will be substantially impaired by:

   (a) Dust
   (b) Spray (when driving through water, mud, etc.)
   (c) Blinding lights
   (d) Restrictive covering over the windshield
   (e) Smoke
   (f) Any other conditions which will substantially restrict the driver's normal vision.

3. The speed of the vehicle varies from what is normally safe for the conditions of the driving surface.

4. When other conditions such as obstacles or difficulty of terrain will exist or off-road driving will occur.

5. When any aircraft, fixed-wing or helicopter is flown in close proximity to the vehicle creating a hazardous driving condition for the performer(s).

6. Whenever speed or close proximity of two (2) or more vehicles create conditions dangerous to the drivers, performers, passengers, film crew or vehicles.

The foregoing shall not apply to an on-camera driver qualified as a stunt performer under the Screen Actors Guild Codified Basic Agreement or when a performer has the special expertise to perform the sequence in a safe manner. (See Safety Bulletin #4, "Stunts.")

GUIDELINES PRIOR TO OPERATION:

1. A copy of this bulletin should be kept with the camera car at all times.

2. A camera car must be inspected before and after use, or at a minimum, on a daily basis. Inspection items include, but are not limited to: brakes, tires, steering, engine, drive train, vehicle's electrical system, towing equipment, and all safety equipment. Any items not fully functioning must be repaired by a qualified person before use.

3. All rigging of equipment, including any changes, is to be performed by qualified personnel in an area secured for the purpose of rigging, which is free of known hazards, including other vehicular traffic. The rigging must be discussed with the camera car driver prior to the use of the vehicle. The driver must inspect the vehicle after any rigging changes are made to ensure that they will not adversely affect the safe operation of the vehicle.

4. All personnel riding on the camera car must be provided a safe and secure place to ride to avoid the possibility of a fall hazard. Such safety precautions include, but are not limited to: railings, harnesses, helmets, etc. This may be accomplished either by a safety railing placed at the appropriate height for the layout of the camera car or by a properly secured safety harness.

5. Malfunctioning or broken equipment must be reported immediately, taken out of service, and replaced or repaired prior to use.

6. Maximum passenger allowances -- Operation of Traditional Camera Cars Transporting Production Personnel:

   Section 1217 of Title 13 of the California Administrative Code mandates that no driver shall drive a vehicle transporting passengers in violation of the following provision:

   "No more passengers shall be transported than the number whose weight, in addition to the weight of any property transported, can be carried without exceeding the manufacturer's maximum gross vehicle weight rating or the combined maximum rating of the tires supporting each axle."

The total weight shall never exceed the manufacturer's Gross Vehicle Weight Rating (G.V.W.R.). Generally, the maximum number of personnel allowed on camera cars should not exceed nine (9), including the driver. However, as vehicles may differ, the manufacturer's guidelines must be followed at all times and in all cases.

Only those persons absolutely required to perform work during the rehearsals and the actual shot sequences shall be allowed on the camera car as determined by the driver/operator in consultation with the 1st A.D. and the Key Grip (if on set or location). To determine the number of on board personnel, the following factors must be considered:

(a) Weather at the time of the intended shot;

(b) Surface to be used (*e.g.*, concrete, asphalt, decomposed granite, compacted dirt, etc.);

(c) Surface condition (*e.g.,* wet, oily, broken, icy, loose debris, washboard, etc.);

(d) Route configuration (*e.g.,* straight, slightly curved, moderately curved, "S" curved; level or inclined, crown, etc.);

(e) Topography (*e.g.,* flat, hilly, urban, countryside, mountainous, etc.);

(f) Speed of the vehicle;

(g) Visibility (*e.g.,* trees, fog, smoke, lighting, structures, rigging, overhead obstruction, etc.);

(h) All overhead and side obstructions (*e.g.,* power lines, tree limbs, overpasses, traffic signals, etc.);

(i) Shot sequence (*e.g.,* following lone vehicle, stunt action with cross-overs/head-on or near misses, high speed chase, proximity of other vehicles, background performers and/or property, etc.);

(j) Equipment rigging (*e.g.,* multiple cameras, camera lights, etc.); and

(k) Escape routes and contingency plans.

NOTE (2): The performance, operation and capacity of the camera car will vary when all factors are taken into consideration. The camera car driver has the authority to make the final determination regarding the operation of the camera car.

GUIDELINES WHEN OPERATING THE CAMERA CAR:

1. All items placed on the camera car are to be properly secured. Extra equipment, which is not used for the shot in progress, should be placed in a follow vehicle.

2. A shot specific safety meeting should be held involving all personnel riding on the camera car or in close proximity (*e.g.,* stunt personnel or background performers, etc.). This meeting should include a "walk-through" or "dry-run." An understanding of the intended action, possible changes due to hazards, and authority to abort, including signals to be used, should be made clear. **If for any reason there is a change in the choreography of the camera car, other picture vehicle(s) in the shot, or personnel involved in the shot, a safety meeting must be held with all personnel involved to ensure everyone understands the changes and is in agreement with those changes.**

3. The driver of the camera car must alert personnel of the car's impending movement by making two (2) short "taps" of the car's horn or by using an on-board P.A. system.

4. Personnel are not allowed to walk between the camera car and any vehicle that it is towing while the camera car's engine is running.

5. No personnel are allowed on the tow bar while the camera car is in motion.

6. Personnel are not allowed to get on or off the camera car while it is in motion. If the engine of the camera car is running and the vehicle is stopped, personnel should not enter or exit the vehicle unless instructed to do so by the driver or 1st A.D.

7. Personnel riding on the camera car should protect themselves from changes in speed or direction by:

   (a) Remaining seated at all times while the car is moving.

   (b) Placing both feet on the floor, or on a foot rest.

   (c) Firmly gripping the grab rail (safety railing).

   (d) Riding only in a protected, safe and secure area on the camera car (refer to item # 4 on page 2 of this bulletin).

   (e) Staying alert, expecting the unexpected.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #8

GUIDELINES FOR TRADITIONAL CAMERA CARS

"ADDENDUM A" – PROCESS TRAILER/TOWED VEHICLE

These guidelines apply to any towed vehicle or trailer specifically designed to carry personnel, equipment, or other vehicles.

Process trailers are towed by a camera car or heavier equipment designed to carry or pull a load of the size required for the shot.

Any vehicle or camera platform towed by a camera car shall be considered to be part of the camera car and subject to all requirements outlined under "Guidelines for Traditional Camera Cars" of Bulletin #8.

Only essential persons required for the shot shall be on the towed vehicle; all other persons shall be on the camera car. Towing combinations do not increase the allowable persons outlined in item 6 and note (1) of the "Guidelines for Traditional Camera Cars" of Bulletin #8.

All equipment, including but not limited to specialized equipment such as camera dollies, boom arms, lighting fixtures, grip equipment, or special effects equipment, shall be secured to the vehicle or have a safety strap.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #8

GUIDELINES FOR TRADITIONAL CAMERA CARS

"ADDENDUM B" – CAMERA BOOM VEHICLES

All camera boom vehicles shall be subject to all requirements outlined in Safety Bulletin #8, "Guidelines for Traditional Camera Cars."

The speed of the camera boom vehicle shall never exceed the safe operating speed set forth by the individual manufacturer, or which may endanger the safe handling of the vehicle or safe operation of the boom arm as determined by the driver/operator.

Any person riding the boom arm shall wear an approved seat belt at all times.

Always rehearse shots under controlled conditions to ascertain safety in movement, not only of the vehicle but the boom arm as well.

Camera personnel shall only mount and dismount when given permission by the operator in control of the camera arm. Arm balance must always be maintained.

Always use wheel chocks to prevent crane movement on a sloped surface. Ratchet lock brakes for added temporary security. Never trust hydraulic brakes for permanent hold.

Maximum payload on the boom arm nose should never be more than can be balanced by the counterweight system supplied with the crane.

Payloads must be decreased in proportion to length of extensions.
On any extension configuration, check with the manufacturer or a qualified operator for allowable load.

The camera boom vehicle and boom arm shall be checked before and after use by a qualified experienced driver/operator, and that operator must be present during any use of the vehicle or boom arm. The driver/operator shall have the authority to make any adjustments that may affect the safe operation of the vehicle and/or boom arm.

When a boom arm is being used, special consideration must be given to Sections 6 (a) and (b) of **"Guidelines for Traditional Camera Cars of Bulletin #8."**

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #8

GUIDELINES FOR TRADITIONAL CAMERA CARS

"ADDENDUM C" – POWER LINE DISTANCE REQUIREMENTS

When working outdoors with camera cars with added equipment, such as a camera boom/crane that extends beyond the camera car, it is important to locate and identify hazards such as overhead electrical power lines. Utility companies often use the phrase "Look Up and Live" when reminding workers of the potential hazards associated with overhead electrical power lines. All overhead electrical power lines have a Minimum Required Clearance (MRC), depending on the phase-to-phase voltage. Voltages can be found by contacting the utility owner/operator or a professional electrical engineer who is a qualified person with respect to electrical power transmission and distribution.

AVOID POWER LINES. In the event that work must be done in proximity to, or under any overhead electrical power lines, including, but not limited to, the placement of equipment such as ladders, scaffold, booms, forklifts, aerial lifts, sets, cranes, or other rigging, cast and crew should be made aware of the MRC and safe work practices. The operation of any equipment OVER energized, high-voltage power lines shall be prohibited. There may be additional regulations and/or exceptions for any aerial lifts (Mobile Elevated Work Platforms a.k.a. MEWP) rigged with electrical lighting, special effects, or grip equipment; please refer to the Power Lines section in Safety Bulletin #22 - *Guidelines for the Use of Scissor Lifts (Elevating Work Platforms) and Aerial Boom Lifts (Extensible Boom Platforms)*.

Cal-OSHA and Fed-OSHA regulations include tables that specify the MRC for overhead electrical power lines according to different voltage levels. When working in California, follow Table 1 below. When working outside of California in the United States, follow the Fed-OSHA Table 2 below, unless the state in which you are working has separate standards, which can be accessed on the individual state's OSHA website.

Production should always consult the proper authority (federal, state, and/or local) to ensure compliance with applicable laws and regulations for the jurisdiction in which they are working.

Table 1 Cal-OSHA (California Code of Regulations, Title 8, Section 2946)

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600.....50,000	10
over 50,000.....75,000	11
over 75,000 125,000	13
over 125,000 175,000	15
over 175,000 250,000	17
over 250,000 370,000	21
over 370,000 550,000	27
over 550,000 1,000,000	42

Table 2 – Fed-OSHA (based on the formula given in Code of Federal Regulations, Part 1910.333(c)(3)(i)(A): For voltages over 50,000 - 10 feet plus 4 inches for every 10,000 volts over 50,000.

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
Up to 50,000	10
Over 50,000 to 200,000	15
Over 200,000 to 350,000	20
Over 350,000 to 500,000	25
Over 500,000 to 750,000	34
Over 750,000 to 1,000,000	42
Over 1,000,000	As established by the Utility Owner/Operator

Your employer may choose to set greater clearance requirements than listed above. If there are questions or concerns, consult with your production safety representative for more information.

Additional information on power line distance requirements can be found in Safety Bulletins:

- #22A - *Guidelines for the Use of Elevating Work Platforms (Scissor Lifts) and Aerial Extensible Boom Platforms* "Addendum A" – Power Line Distance Requirements
- #23A - *Guidelines for Working with Portable Power Distribution Systems and Other Electrical Equipment* "Addendum A" – Power Line Distance Requirements
- #25A – *Camera Cranes* "Addendum A" – Power Line Distance Requirements

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #09

RECOMMENDED GUIDELINES FOR WORKING IN AND AROUND BASE CAMPS

These safety guidelines apply to setting up and maintaining base camp locations on motion picture and television productions. This would include logistics, as well as the safe use of production equipment and support vehicles including tents, dressing room trailers, toilet facilities, production trucks, costume trailers, catering trucks, and other vehicles set up in and around base camps.

General Information

Base camps are the mobile production hubs that service a company on location. They are usually set up in areas away from the filming activity. It can also include cast and crew parking, areas for pre-rigging or other production-related activities, and holding areas for the background artists. A well-planned layout, general safety plan including the security of the camp, route to the set, and proper power distribution are all important considerations when setting up the base camp.

Productions may use Addendum A – "Base Camp Inspection Checklist" to assist in setting up a safe base camp.

Base Camp Layout for Vehicles and Equipment

The location and transportation departments play important roles in determining the layout of the base camp. Items to include are:

- Security to control access, which may include perimeter fencing.
- Cast and crew should only park in designated areas, pay attention to their surroundings, and drive slowly around pedestrians.
- Install signage to indicate pedestrian pathways and speed limits for drivers.
- Ensure lighting levels for safety and security are adequate for those arriving early and/or departing late, including designated employee parking areas and all pathways.
- Safe and well-defined pathways to trailers, vehicles, and equipment that require access by employees throughout the day.

- Include procedures for escorting employees to and from their vehicles upon request.

- Smoking is only allowed in designated areas and supplied with butt cans. Smoking is prohibited near combustible materials or dry brushes.

- Equipment and vehicles should be parked so they do not interfere with access to fire hydrants, ADA sidewalk ramps (if required), or the flow of pedestrian or vehicular traffic.

- Access stairs for trailers shall comply with all applicable regulations for minimum tread width, minimum tread depth, maximum riser height, and required railings. All steps shall be stable, securely constructed, and when possible, have non-skid material applied. Unsecured apple boxes should not be used as steps.

- Power distribution systems should be routed so they do not create a tripping hazard.

- Exhaust from generators, catering trucks, or other internal combustion engine equipment, should be ventilated away from air intakes, dressing rooms, and other enclosed areas where people are located.

- If the base camp is located near residences, general area lighting used at night should be oriented away from homes and noise should be kept at a minimum during the evening and early morning hours.

- Where vehicles and equipment are permitted to park on the public street:

    1. Follow all local ordinances regarding on-street parking.
    2. Should not block driveways, crosswalks, or other access ramps without proper approval.
    3. Should not block access to any business or location without the permission of the owner.
    4. Allow access for service vehicles, such as emergency vehicles, deliveries, mail, trash pickup, etc. unless alternative arrangements are made.
    5. Vehicle or trailer access stairs should be facing away from vehicular traffic, and not completely block pedestrian walkways.
    6. Warning signs and traffic cones should be placed in advance of any control points, parking areas, and/or reduced walkways.

Electrical Power Distribution

Potential hazards, such as electrical shock and fire, can occur at the base camp if using damaged or improperly wired equipment. Only qualified persons should install, operate,

and disassemble the portable power distribution for the base camp. The following steps can help to improve electrical safety:

- Inspect cables and distribution equipment for damage and remove them if found.

- Flexible cords or cables should be arranged to minimize the tripping hazard and covered with nonconductive matting if crossing any walking paths.

- Ensure equipment is protected from wet weather and will not come in contact with standing or running water. Ground Fault Circuit Interrupters (GFCIs) should be used where necessary to comply with NFPA 70—National Electrical Code (NEC).

- Ensure polarity is maintained for all phase conductors, neutrals, and grounds.

- Electrical panelboards and equipment installed in dressing room trailers, restroom trailers, catering trucks, or other vehicles shall comply with applicable sections of the NEC. The following are requirements for internal grounding and bonding:

    1. Grounded circuit conductor (neutral) shall be insulated from the equipment grounding conductors, equipment enclosures, and other grounded parts.
    2. Bonding screws, straps, or buses in the panelboard or appliances shall be removed and discarded.
    3. All exposed non-current-carrying-metal parts that are likely to become energized shall be effectively bonded to the grounding terminal or enclosure of the panelboard.
    4. A bonding conductor shall be connected between any panelboard and an accessible terminal on the trailer or vehicle chassis.

- Before plugging the vehicle in, use a continuity meter between the neutral blade and the ground pin of the male connector on the main supply cord to verify there is no continuity.

- Check for any electrical current on the equipment grounding conductor of the supply circuit while the equipment is operating. Locate and correct any improper wiring if there is an electrical current flowing on the grounding conductor.

- Where power is supplied by a generator that is isolated from earth-ground, ensure the equipment they are supplying is completely insulated from earth by means of rubber tires, rubber mats around metal stairways, and under any type of liftgate or jacking device. Metal supports for trailers should be insulated by means of wooden blocks.

- Fueling should be done in a safe manner consistent with all state and local laws. The following precautions must be taken when refueling a generator:

    1. The generator must be off unless approved by the authority having jurisdiction (AHJ).
    2. A listed fuel nozzle must be used to prevent static electricity buildup.
    3. Connect a ground bond from the frame of the re-fueler to the frame of the generator.
    4. A serviced, ready-for-use, 2A-10BC minimum rated fire extinguisher shall be available during refueling operations.

Refer to Safety Bulletin #23: *"Guidelines for Working with Portable Power Distribution Systems and Other Electrical Equipment"* for additional information.

Portable Dressing Room Trailers

Portable dressing room trailers are enclosed spaces that are used by cast and/or crew while waiting to work on the set. They may also contain kitchens and restrooms. Special precautions should be followed whenever occupied. These include:

- Each habitable room shall have a suitable carbon monoxide (CO) detector and smoke detector. Always test each detector for proper operation before people use the room. When a CO detector or smoke detector goes off, exit the area immediately. CO and smoke detectors should be checked, including expiration dates, on a regular basis.

- When using an on-board generator to supply power to the trailer:

    1. Inspect the exhaust system on the generator before using it and make sure it is in good working order.
    2. Dented, bent or severely rusted sections of the exhaust pipe should be replaced.
    3. Make sure the exhaust pipe extends at least one inch (1") beyond the perimeter of the trailer.
    4. Park the trailer so that the generator exhaust gases disperse away from the trailer, and away from any other nearby trailers or vehicles.
    5. The windows and doors on the same side as the generator should be closed when the generator is in use.
    6. Skirts or other downward projections encircling the trailer should not be closer than one foot (1') from the ground to prevent the accumulation of any dangerous fumes or gasses.
    7. Know the symptoms of CO poisoning which include headache, weakness, dizziness, nausea or vomiting, shortness of breath, confusion, blurred vision, flu-like symptoms, or loss of consciousness. If you suspect that

someone may be showing signs of CO poisoning, seek medical attention immediately.

- Follow manufacturer's guidelines for cleaning, sanitizing, and storage of any freshwater tanks if so equipped. Antifreeze should not be used to "winterize" the freshwater system.

- Permanently installed gas/propane-powered heaters should be inspected and tested before use. Required repairs should be made as soon as possible to reduce the use of portable electric space heaters.

- If productions plan to use portable electric space heaters, make sure to follow these recommendations:

    1. Purchase a heater with the seal of a qualified testing laboratory.
    2. Keep the heater away from anything that can burn, including people.
    3. Choose a heater with a thermostat and overheat protection.
    4. Make sure the heater has an auto shut-off that turns off the heater in case it tips over.
    5. Keep space heaters out of the way of foot traffic. Never block an exit.
    6. Keep children away from the space heater.
    7. Plug the heater directly into a wall outlet. Never use an extension cord.
    8. Whenever possible, productions should make every attempt to ensure space heaters are turned off and unplugged when rooms are unoccupied.

- Fire extinguishers should be accessible in each dressing room trailer.

Catering Vehicles

Mobile catering vehicles supply food to the cast and crew and are generally located at or near the base camp. Food serving areas can be located outside, inside buildings, or inside tents. The following are basic guidelines when setting up catering areas:

- Catering vehicles must be properly licensed and permitted by the local authorities.

- Catering vehicles are prohibited from cooking inside buildings, tents, or other enclosures. Liquefied petroleum gas (LPG) tanks shall be stored outside in an upright position and secured to prevent tipping over.

- Catering vehicles must be located at least ten feet (10') away from buildings, structures, vehicles, and any combustible material.

- Ensure clearance is provided for the fire department to access fire hydrants and fire department connections.

- Cooking appliances should be protected by an approved fire extinguishing system.

- Catering vehicles should have 2A-10BC minimum-rated fire extinguishers readily available.

- Cooking equipment should not be left unattended while it is still hot.

- Operate cooking equipment only when all windows, service hatches, and ventilation sources are fully opened.

- Close gas supply valves when equipment is not in use.

Tents

- All tents, pop-ups, and canopies should be properly secured and provided with the required life and safety equipment including “No Smoking” signs, fire extinguishers, and exit signs. If required by the AHJ, tents may need to be permitted and be treated with a flame retardant.

- All tents, pop-ups, and canopies should be sufficiently and safely anchored to the ground or to the required ballast to prevent uplift during windy conditions.

- LPG heaters should not be used inside tents.

- Cooking under pop-up tents may only be done when the area is well ventilated, the tents have open sides, and the tent material has a fire-resistance rating. Be sure to follow the manufacturer’s guidelines for cooking under the tent.

SAFETY BULLETIN #09
RECOMMENDED GUIDELINES FOR WORKING IN AND AROUND BASE CAMPS

"ADDENDUM A" – BASE CAMP INSPECTION CHECKLIST

Production Name:	Completed By:
Location Address:	Date(s) at Location:

THIS CHECKLIST CAN BE USED BY PRODUCTIONS AS THEY ARE SETTING UP A BASE CAMP TO ENSURE THE FOLLOWING SAFETY ITEMS ARE ADDRESSED. THE PRODUCTION SHOULD DESIGNATE AN INDIVIDUAL TO COMPLETE THIS CHECKLIST.

INSTRUCTIONS: ***Indicate "YES", "NO" or "N/A" (i.e. Not Applicable) for every numbered item below.***

	ACCESS / FIRE PROTECTION	**YES**	**NO**	**N/A**
1	**Clearance (Fire Equipment):** Fire hydrants, extinguishers, sprinklers & standpipe connections are readily accessible and clear of all equipment & vehicles (e.g., no parking in front of hydrants, nothing hung from sprinklers,etc.). Fire lane access must be maintained (***20 feet wide minimum***)			
2	**911 Reporting:** Methods of reporting an emergency are available (e.g., mobile phone, landline, etc.)			
	CORRECTIVE ACTION TO BE TAKEN:			

	SMOKING (DESIGNATED & NO SMOKING AREAS)	**YES**	**NO**	**N/A**
3	**DESIGNATED SMOKING (Location):** Where smoking areas are allowed, those areas are clearly marked and supplied with butt cans			
4	**NO SMOKING (Signage):** "NO SMOKING" signs prominently visible where smoking is prohibited and/or required (special effects, flammable fuel storage, etc.)			
	CORRECTIVE ACTION TO BE TAKEN:			

	POWER & LIGHTING	**YES**	**NO**	**N/A**
5	Power distribution installed and inspected by a qualified person(s)			
6	The electrical cables are protected from physical damage, and trip hazards mitigated			
7	Lighting levels are adequate for safety and security during dark hours			
8	Portable high-wattage luminaires are separated from flammable/combustible materials and surfaces			
	CORRECTIVE ACTION TO BE TAKEN:			

	SECURITY	**YES**	**NO**	**N/A**
9	Restricted public access to base camp is provided in the form of physical barriers or other access control measures			
10	Adequate security personnel are available as needed			
	CORRECTIVE ACTION TO BE TAKEN:			

GENERATORS		YES	NO	N/A
11	Generators have been inspected for proper operation.			
12	Where power is supplied by the generator that is isolated from earth-ground, ensure the equipment they are supplying is completely insulated from earth by means of rubber tires, rubber mats around metal stairways, and under any type of lift gate or jacking device.			
13	Generators have been placed in approved locations (e.g., so that the exhaust will not enter habitable spaces and/or heat from the exhaust will not cause a fire, etc.)			
14	Generators are placed in locations that do not block access to fire protection systems or exits			
CORRECTIVE ACTION TO BE TAKEN:				

CATERING		YES	NO	N/A
15	Catering is located in an approved and safe area to operate; catering vehicles are prohibited from cooking inside buildings, tents, or other enclosures.			
16	Liquefied petroleum gas (LPG) cooking is prohibited inside buildings.			
17	Are LPG portable containers and other pressure vessels secured and stored outside with “No Smoking” signs and protected from vehicular traffic?			
18	Do catering vehicles have fire extinguishers (2A-10BC minimum rating) readily available?			
19	Where provided, is the grease cooking exhaust hood system in proper working order, and has the hood extinguishing system and grease fire extinguisher been properly serviced and maintained?			
CORRECTIVE ACTION TO BE TAKEN:				

TENTS / HOLDING AREAS		YES	NO	N/A
20	Are all tents properly secured for high winds or other adverse weather conditions and provided with the required life and safety equipment, including “No Smoking” signs, fire extinguishers, and exit signs?			
21	Check with the AHJ to determine if a permit is required for tents and if they must be treated with a flame retardant.			
CORRECTIVE ACTION TO BE TAKEN:				

TRAILERS / PORTABLE DRESSING ROOMS		YES	NO	N/A
22	Smoke / Carbon Monoxide detectors function and required fire extinguishers present.			
23	Portable space heaters are of the auto shut-off type.			
CORRECTIVE ACTION TO BE TAKEN:				

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #10

GUIDELINES REGARDING THE USE OF ARTIFICIALLY CREATED ATMOSPHERIC FOG & HAZE

Artificial fog and haze are commonly generated using a machine or generator, which releases a chemical solution as an airborne aerosol to create various atmospheric effects during filming/performing. This bulletin does not address combustion-based smoke effects, such as free burning wood products, diesel fuels, etc.

There are no known long-term effects from exposure to artificial fog or haze. However, it is important to realize that every individual is different and temporary reactions to artificial fog or haze may range from having no effects to:

- Irritation to the eyes
- Dry throat
- Minor respiratory irritation

Control Measures

The Production should implement one or more of the following:

- Limit cast and crew exposure, in both amount and duration, to artificial fog or haze.
    - Keep the area clear of non-essential personnel.
    - Use additional control measures at worksites where workers are exposed to extended durations of artificial fog or haze.
- Ventilate or exhaust interior sets or stages at appropriate intervals.
- Provide breaks to all personnel and animals at appropriate intervals.
- Protection from the cold and asphyxiation risks in low-lying areas when cryogenic liquids or gases are used.
- The Production may monitor airborne levels to ensure they do not exceed Permissible Exposure Limits (PELs).
- Utilize qualified technicians to generate artificial fog or haze.
- Technicians will follow the manufacturer's guidelines in the use and cleaning of equipment and use only fluids and gasses specified by the manufacturer.

Communications

When fog or haze effects are scheduled to be used, the Production should notify all personnel in advance. Regular communications with cast and crew, including background, should also occur to discuss operations and precautions associated with the use of artificial fog or haze.

The following methods may be used to notify the cast and crew when artificial fog or haze will be used:

- Notification on the Call Sheet
- Safety Data Sheets (SDSs)
    - Should be available at the worksite
    - A supervisor or another member of department leadership will help to locate a copy of the SDS.
- Safety Meetings

A safety meeting should be held by the First Assistant Director, and may include the Special Effects Coordinator or qualified technicians, and should address, but not be limited to, the following topics:

- When and where atmospheric effects will be used.
- Ways to limit one's exposure to artificial fog or haze, and options to obtain adequate fresh air.
- Availability and use of respiratory protection if airborne levels are expected to exceed PELs.
- How to seek medical care
- Where to find the SDS

Individuals with Sensitivities

The elderly, children, and people with respiratory conditions or other ailments may have a higher sensitivity to artificial fog or haze. These persons should inform the Production of their sensitivity.

When there is an infant present at a Production using artificial fog or haze, steps should be taken to prevent the infant from being exposed. Please consult Safety Bulletin #33, "Special Safety Considerations When Employing Infant Actors (Fifteen Days to Six Months Old)".

****

For further information on how to protect workers from overexposure to airborne chemicals generated when using artificial fog or haze, please refer to "**Addendum A**" the "**Atmospheric Fog & Haze – Technical Awareness Sheet"**.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #10

GUIDELINES REGARDING THE USE OF ARTIFICIALLY CREATED ATMOSPHERIC FOG & HAZE

"ADDENDUM A" – TECHNICAL AWARENESS SHEET

Introduction

This document is intended to give recommendations to protect workers from overexposure to artificial fog and haze (e.g., theatrical haze, fogs, mists, etc.). Artificial fog and haze are commonly generated using a machine or generator, which releases a chemical solution as an airborne aerosol to create various atmospheric effects during filming/performing.

Definitions

- Permissible Exposure Limit (PEL) – The maximum amount or concentration of a chemical that a worker may be exposed to under OSHA regulations.
- Time-Weighted Average (TWA) – The average exposure to a contaminant over a given period of time, typically 8-hours.
- Short Term Exposure Limit (STEL) – The maximum exposure level averaged over a short- term, generally 15 minutes.
- Peak – The maximum amount of safe exposure to a substance.

Chemical Product Guidelines and Regulations

Various chemical solutions and mixtures are used to generate artificial fog and haze. Some artificial fog or haze components have PELs regulated by Fed/OSHA and/or Cal/OSHA, while others are regulated as simple asphyxiants.

Products containing the following chemicals/substances should **not** be used for atmospheric effects due to their possible health effects:

- Known human carcinogens, including tobacco smoke (except when required to film a scene where such smoke results from an actor smoking tobacco);
- Fumed and hydrolyzed chlorides;
- Ethylene glycol and diethylene glycol;
- Aliphatic and aromatic hydrocarbons including petroleum distillates;
- Hexachloroethane and cyclohexylamine; and

- Butylene glycol 1,4.

The following substances **may** be used:

- Propylene glycol, butylene glycol (1,2 & 1,3), polyethylene glycol, triethylene glycol, and dipropylene glycol;

- Glycerin products;

    - Caution: Glycerin and the listed glycol products should not be heated beyond the minimum temperature necessary to aerosolize the fluid. In no event should glycerin or glycol be heated above 700 degrees Fahrenheit.

- Mineral oils (highly refined only); and

- Cryogenic liquids and gases (*e.g.*, carbon dioxide [dry-ice], liquid nitrogen) may be used, but care must be exercised to avoid depleting oxygen levels, especially in confined or low- lying areas. When used, adequate fresh air should be supplied to avoid creating a hazardous atmosphere that may result in asphyxiation. Careless handling of liquid nitrogen may result in cold burns. Use caution to avoid the adverse effects of cryogenic materials on exposed persons.

    - When using asphyxiants, including cryogenic liquids and steam, in confined spaces, monitor the oxygen level. Oxygen levels should stay between **19.5% and 22%.*** *Occupational Safety and Health Administration – 19.12(a)(3)

Airborne Permissible Exposure Limits, as specified in the table below, should not be exceeded unless control measures are in place.

Ingredient	Fed OSHA 8-hour Time Weighted Average (mg/m^3)	Short Term Exposure Limit (STEL) (mg/m^3)	Peak (mg/m3)‡
Glycerin Mist (total dust)	15*	-	50
Glycerin Mist (respirable fraction)	5	-	50
Glycol	10**	40	40
Mineral Oil	5	10†	25

*Cal OSHA PEL at 10 mg/m^3
**Glycol PEL as set by OSHA Standards for particulates not otherwise regulated
† Mineral Oil STEL set by The National Institute for Occupational Safety and Health
‡ Peak Exposure Limits set by ANSI Standard E1.5

Refer to Fed/OSHA and Cal/OSHA Regulations for further information and/or requirements.

Control Measures

The following control measures should be performed or implemented when using artificial fog or

haze:

- Eliminate the need for artificial fog or haze whenever possible.
- Limit the cast and crew exposure to artificial fog or haze. Keep the area clear of non-essential personnel.
- Use the minimum concentration necessary to achieve the desired effect.
- Ventilate or exhaust interior sets or stages at appropriate intervals.
- Provide breaks away from the set or stage to personnel and animals at appropriate intervals.
- Attach Industry Wide Labor-Management Safety Committee Safety Bulletin #10 "Guidelines Regarding the Use of Artificially Created Atmospheric Fog & Haze" to the call sheet whenever artificial fog or haze is scheduled to be used that day.
- The Production may monitor airborne levels to ensure that they do not exceed Permissible Exposure Limits.
- If airborne levels are anticipated to exceed PELs, appropriate respiratory protection must be provided. Contact your studio safety representative for guidance.
- Ensure that Safety Data Sheets (SDSs) are made readily available.
- If an infant is present on a Production, take the appropriate steps to prevent that infant from being exposed to artificial fog or haze.
    - Consult Safety Bulletin #33, "Special Safety Considerations When Employing Infant Actors (Fifteen Days to Six Months Old)".
- Ensure that qualified technicians are utilized to generate artificial fog or haze.
- Technicians should follow manufacturer's guidelines for the use and cleaning of equipment and only use fluids and gasses specified by the manufacturer.

Measuring Airborne Concentrations

Airborne concentrations can be measured using a variety of instruments and by following recognized monitoring methods:

- Various direct-reading instruments that measure airborne aerosol are available for rent or purchase.
- Qualitative and quantitative testing should be conducted by or under the direction of an individual who is knowledgeable about the testing process. A correction factor, which varies with the reading instrument used, the type of fluid used, and the type of machine, must be applied. An industrial hygienist or qualified person can be contacted to discuss measuring airborne concentrations including correction factors and testing.
- If airborne monitoring has not been conducted, then ensure that exposure estimates (based on previous monitoring reports, available literature, or professional health and safety advice) are

available.

Extended Exposure

Consider extended work shifts and the consequences of working more than 8 hours per shift, as it relates to time-weighted average (TWA). As exposure time increases, the Permissible Exposure Limit decreases.

Adjust exposure limits for extended work shifts (longer than 8-hours), as follows. Decrease the noted 8- hour TWA PEL by a factor of (8/extended shift length):

- 10 hour adjusted TWA = (8/10) * 10 mg/m3 = 8.0 mg/m3
- 12 hour adjusted TWA = (8/12) * 10 mg/m3 = 6.7 mg/m3
- 14 hour adjusted TWA = (8/14) * 10 mg/m3 = 5.7 mg/m3

For questions on artificial fog or haze, please contact your studio safety representative. Please refer to the Studio Safety Hotlines document for guidance on how to contact the appropriate safety representative.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #11

GUIDELINES REGARDING THE USE OF FIXED-WING AIRCRAFT IN MOTION PICTURE PRODUCTIONS

(Also refer to Safety Bulletin #11, "Addendum A" - External Load Guidelines)

Fixed wing aircraft (*i.e.,* aircraft, gliders, ultra lights) flying may be adversely affected by changing natural conditions such as wind, temperature and time of day. Manmade conditions such as weight, externally mounted equipment and the discharge of pyrotechnics and/or smoke can also affect the pilots ability to fly safely. Special precautions should be taken to ensure safety when working around aircraft that are operating in close proximity to camera, cast and crew, including taxiing, take off and landing.

1. **All Aerial Coordinators and/or Pilots in Command shall possess a current FAA approved Motion Picture and Television Operations Manual and accompanying Waiver.**

   The **Waiver** is specific to those Federal Aviation Regulations specified in the approved manual. Additionally, a copy of the **FAA required Plan of Activity** and approved **Motion Picture and Television Operations Manual** will be available to the Production Company prior to all fixed-wing operations.

2. The **Pilot in Command** is at all times the final authority over **his/her airplane** and shall be in command over his/her flight operations and/or related activities.

3. Communications: The **Aerial Coordinator and/or Pilot in Command** will coordinate with the designated production representative and implement a plan for communications between the participants in the air and on the ground.

   The plan will incorporate the following:

   a) Designated ground contact personnel.
   b) Air to ground radios, VHF or FM.
   c) Assignment of discreet frequencies (channels).
   d) Visual signals (flags, specified hand signals, light or flare) shall be used to halt filming in the event of lost communications or inability to utilize radios.
   e) Abort signals, audible and visual to halt filming in the event of unforeseen circumstances or safety hazards.

4. Necessary Crew and Persons Authorized

Flight operations closer than **500** feet to persons will include only those persons consenting to be in close proximity to the aircraft and who are directly involved and necessary for the filming.

The **Aerial Coordinator and/or Pilot in Command** and the designated production and security personnel will maintain an area perimeter to insure that no authorized persons are allowed within 500 feet of the flight operations.

5. A preplanned stunt or special effect sequence will not be changed in any way without the authorization of the **Aerial Coordinator and/or Pilot in Command**.

6. At the start of each day's filming the **Aerial Coordinator and/or Pilot in Command** and the designated production representative will conduct a briefing/ **SAFETY MEETING** for the production staff of those persons necessary for filming, including emergency, safety and security personnel.

Note: A subsequent briefing/SAFETY MEETING may also be required as necessary for an intended action.

Both meetings shall include the following:

a) Pertinent items and the special provisions of the Aerial Coordinator and/or Pilot in Command(s) Motion Picture and Television Operations Manual and accompanying Waiver along with any additional provisions issued by the local FAA Flight Standards District Office.
b) Possible risk to personnel that are involved.
c) Safeguards to personnel and equipment.
d) Communications.
e) Emergency procedures.
f) Location of boundaries.
g) Local governmental limitations or restrictions, if any.

7. The **Aerial Coordinator and/or Pilot in Command** shall designate one person as the Ground safety contact with no other responsibilities.

8. If there is a question as to safety of any aerial filming sequence involving low, over-the-camera shots, a briefing/Safety Meeting shall be held between the **Aerial Coordinator and/or Pilot in Command** and concerned persons as to whether the use of a locked-off camera is necessary.

9. Aircraft engines shall not be started and the aircraft shall not be taxied in spectator, cast or crew areas unless appropriate measures are taken to preclude creating a hazard to spectators, cast or crew.

10. Cast, crew and equipment shall be protected from debris thrown back by airplanes taxiing out or taking off.

11. If an aircraft is being filmed with the engine running, adequate safety precautions shall be taken in connection with activity in front of the propeller, which includes designated ground personnel.

12. No smoking is permitted within one hundred feet (100') of the aircraft or fuel support truck.

13. Aircraft structures can be damaged easily while on the ground. Never push, handle, sit on or in, or lay any objects of any kind on an aircraft without the pilot's permission.

14. If a foreign object falls into or against an aircraft, report it immediately to the **Aerial Coordinator and/or Pilot in Command**.

15. Each end of an operational runway or landing area should be cleared during take-off and landing and appropriate safety precautions should be taken as to the placement of camera equipment when filming the take-off or landing.

16. **Low level acrobatic maneuvers** shall be conducted in a direction, which will most nearly parallel the boundaries of the designated crew and equipment area or in a direction away from such areas.

17. When working on location or utilizing Department of Defense aircraft, local agencies, regional police, fire, or park department regulations or military guidelines may vary from this bulletin. The more stringent guidelines will always be in effect. Additionally permits may be required for landing or refueling operations.

18. The production company must notify all cast and crew members and the front of the studio call sheet shall contain a statement to the effect that:

    "An aircraft is being used and will be flown in close proximity to crew and equipment. Anyone objecting will notify the production manager or 1st AD prior to any filming."

19. Except where necessary for takeoff or landing, the FAA prohibits the operation of an aircraft below the following altitudes:

    a) Over Congested Areas

    Over any congested area of a city, town or settlement, or over any open-air assembly of persons, an altitude of **1,000** feet above the highest obstacle within a horizontal radius of **2,000** feet of the aircraft.

    b) Over other than Congested Areas

    An altitude of **500** feet above the surface, except over open water or sparsely populated areas. In that case, the aircraft may not be operated closer than **500** feet to any person, vessel, vehicle or structure.

A COPY OF THIS BULLETIN SHALL BE ATTACHED TO THE CALL SHEET ON DAYS THE AIRCRAFT IS BEING UTILIZED

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #11

GUIDELINES REGARDING THE USE OF FIXED-WING AIRCRAFT IN MOTION PICTURE PRODUCTIONS

"ADDENDUM A" – EXTERNAL LOAD GUIDELINES

(FOR ESSENTIAL PERSONNEL OR EQUIPMENT TO FILM OR BE FILMED WHILE ON THE EXTERIOR OF, ENTERING, OR EXITING AN AIRPLANE IN FLIGHT)

An Airplane External Load is equipment or essential personnel that may be required outside the airplane in flight, including wing walkers, parachutists, cameramen, stunt persons, etc.

Stunt persons are often suspended from landing gear struts, wing struts, trapeze devices, bungee cords or cables and perform various types of air to air transfers, air to ground transfers and air to surface vehicles transfers.

Safe completion of these traditional motion picture activities require the complete understanding and coordination of all parties involved, *i.e.,* the Aerial Coordinator and/or Pilot in Command, the Designated Production Representative, Stunt Persons, Stunt Riggers, Airplane Riggers, Special Effects and Grip Riggers and essential ground crew.

The Pilot in Command is at all times the final authority over his/her airplane and shall be in command over his/hers flight operations and/or related activities.

The Pilot in Command and/or Aerial Coordinator shall have the authority to abort any flight operation in the interest of safety.

Risk Management

Participants will conduct a thorough evaluation of the operations to be conducted and the potential risk to essential personnel, if any.

Personnel Involved

Aerial Coordinator and /or Pilot in Command, essential personnel to be flown, airplane rigging, safety and production personnel.

Briefing

Briefings will be conducted by the Aerial Coordinator and /or Pilot in Command, specific to the scheduled airplane external load operations and in compliance with the approved Motion Picture Operations Manual, briefing provisions.

Communication

Communication must exist at all times between the Pilot in Command and the essential personnel being flown. This can be accomplished through the use of radios, intercoms or pre-briefed hand signals.

Additionally, in the event of lost communications, the pilot must be able to maintain visual contact with the stunt person or cameraman. If visual contact cannot be maintained, then a third party, who can maintain visual contact, will be used. This person may be onboard the aircraft, on the ground, or in a chase aircraft.

Attaching Methods and Devices

All personnel must be attached to the aircraft while in flight, unless those persons are performing an essential function outside the aircraft requiring them to depart the aircraft in flight, *e.g.* parachuting or transfers.

Seat belts, cables and safety lines will be attached to existing aircraft hard points, seat belt attach points, cargo tie down points, or other suitable airframe locations.

Attaching devices, cables, carabineers, braided nylon climbing rope, nylon straps, steel clevises, body harnesses, etc. are normally provided by the motion picture special effects and stunt personnel.

All of the above attaching devices have load ratings established by the manufacturer in compliance with various industry and government specifications and established Motion Picture Safety Guidelines.

NOTE: A person will never be attached to a load release device.

Parachutes

If parachutes are to be utilized, they must be of an FAA approved type, must have been packed and certified within the preceding 120 days.

While wearing a parachute the stunt person must not be attached to the aircraft except during takeoff and landing.

An accidental parachute opening while attached to the airplane could have serious negative effect on the aircraft and parachutist.

Weight and Balance

Due to the nature of airplane external loads involving persons or equipment, the longitudinal C.G. (center of gravity) considerations are nominal and can be easily calculated using the manufacturers' weight and balance data.

Conversely, the majority of airplane external loads involving persons and/or equipment are more likely to affect the lateral weight and balance.

Airplane manufacturers normally do not provide lateral C.G. charts or limits.

Therefore, it is essential to determine what effect a wing walker or other essential personnel exterior to the airplane will have on the lateral C.G., prior to attaching them to a specific location.

This can be accomplished through consultation with pilots having previous experience with similar aircraft and configuration or through a flight evaluation.

Pilots Check List

- Aircraft
  - Load-bearing capacity and method of securing of all attaching devices related to the external load.
  - Verification of load bearing capacity and anticipated loads on the airframe attachment points to be utilized.
  - Accomplish Weight and Balance of the external load, including if necessary, the possible release or departure of the external load.
- Personnel
  - Verify that only essential personnel are onboard the aircraft.
  - Confirm essential personnel specific duties and responsibilities.
  - Communications check, audio and hand.
  - Review emergency procedures specific to the external load operation with all essential personnel.
  - Review potential risk, if any, with the essential personnel.
  - No essential personnel may participate in airplane external load operations unless they have read, understood and agreed to comply with the conditions of the Waiver Holders, Certificate of Waiver and its special provisions, if any.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #12

GUIDELINES FOR THE USE OF VENOMOUS REPTILES

1. Extreme caution should be taken when using venomous reptiles. Only qualified professional reptile handlers should supervise the use of all venomous reptiles on productions.

2. The Producer and venomous-reptile handler shall have a safety plan in place. This plan should include how to prevent the escape of the reptile, and how to safely recapture the reptile.

3. The safety plan shall also include the name and address of a nearby medical facility that is equipped to handle venomous-reptile emergencies. The location of the medical facility and the antidote shall be made known to the cast and crew.

4. The Producer shall, with assistance from the venomous-reptile handler, notify the medical facility that venomous reptiles are to be used in close proximity to personnel. Allow enough time for the notification to ensure that proper anti-venom will be available, depending on the type(s) of reptile(s) scheduled to be used. Anti-venom for some exotic snakes may not be FDA approved and it could be difficult to find a medical facility to administer it. Other sources, such as a zoo, may need to be contacted if the medical facility does not have the correct anti-venom.

5. Emergency transportation to this medical facility must be readily available in the event of an incident when working with venomous reptiles (e.g. bites; venom coming into contact with eyes or open wounds).

6. Only personnel essential to the scene will be allowed within a fifty-foot (50') radius of the reptile.

7. A representative of the American Humane Association shall be notified of the use of the venomous reptile.

8. The Production must obtain any required permits for having a venomous and/or exotic reptile working on set at a studio or a location.

9. Verify the venomous reptile handler or provider has all required permits or licenses for the reptile. For instance, when filming in California, the handler must have a "Restricted Species Permit" if the reptile is not native to California and is venomous and/or exotic. When filming in other jurisdictions, confirm that the required permits or other documents are obtained.

10. Proper protection (*i.e.*, barriers, gloves, adequate leg guards) for cast and crew who must work closely with the reptile shall be provided.

11. Before using any venomous reptile, an on-site safety meeting shall take place where these reptiles will be used. This should include the venomous reptile handler/provider, designated production representative, and anyone who will be working with or near the venomous reptile.

    Safety meeting topics may include, but are not limited to:

    - When and where the venomous reptile(s) will be utilized.
    - Possible risks to personnel who are involved.
    - Communication plan.
    - Emergency procedures.
    - Location of the medical facility.

12. Persons must wash their hands with warm water and anti-bacterial soap before and after handling reptiles.

13. Snakes may only be milked on-screen or off-screen by an experienced professional snake handler familiar with the technique.

14. In the event of a venomous reptile bite:

    - Call 911 right away.
    - Stay calm.
    - Immobilize the limb at approximately heart level.
    - Remove watches, jewelry, or constricting clothing items from the bite area.
    - Obtain proper medical treatment.

15. Milking a venomous snake's fangs in an attempt to lower the amount of available venom is not allowed because it does not entirely remove the venom and will continue to pose a threat to cast and crew.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #13

RECOMMENDED GUIDELINES WHEN USING COMBUSTIBLE & FLAMMABLE FUELS AND ASSOCIATED EQUIPMENT

This Safety Bulletin applies to the storing, transporting, use, handling, and refueling of combustible and flammable fuels (herein referred to as fuels), such as gasoline, diesel, butane, propane, and equipment that may contain fuels, such as generators, heaters, power washers, and saws. All required licenses and/or permits should be obtained from the Authority Having Jurisdiction (AHJ).

Smoking or vaping is prohibited near fuel storage, dispensing, and transfer areas.

Storage

- Refer to the Safety Data Sheet (SDS), your supervisor, and the AHJ for proper use and storage.
- Store liquid fuels in an approved container of not more than five gallons capacity.
- Flammable liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people.
- Containers must be labeled properly, including the type of fuel.
- Conspicuous and legible signs prohibiting smoking shall be posted at storage areas.
- Do not use damaged or leaking containers.
- All fuels are to be placed at a minimum of twenty-five feet (25') away from heat sources.
- Keep containers closed when not in use.
- Fuels may be stored indoors if placed in appropriate flammable liquid safety cabinets. Cabinets should be provided with a conspicuous label in red letters on a contrasting background that reads: **FLAMMABLE—KEEP FIRE AWAY.** The combined total quantity of liquids in a cabinet shall not exceed 120 gallons of Category 1, 2, 3, and 4 flammable liquids. Of this total, not more than 60 gallons shall be of Category 1, 2, and 3 flammable liquids. No more than three storage cabinets may be present in a single storage area.

- Propane tanks and other pressure vessels are to be secured and stored outdoors away from vehicle traffic.

Transporting Fuels and/or Refueling Equipment

Refueling trucks should have all locally required permits and be in compliance with all applicable federal, state, and local laws and regulations. Refueling equipment should be operated only by authorized personnel.

- While in transport, all refueling equipment must be shut off and properly secured.
- Ensure portable fuel containers are upright and secure.
- Know the location of vehicle fire extinguishers and ensure they are properly maintained and in a fully charged and operable condition.

Use, Handling, and Refueling

- Use applicable Personal Protective Equipment (refer to the label on the container).
- The appropriate fire extinguishers shall be available (2A-10BC minimum rating).
- Refuel in approved areas only.
- Bonding/grounding cable should be used during refueling to prevent static buildup.
- Do not refuel generators or other equipment while in operation unless approved by the AHJ.
- Do not fill gas cans in a vehicle/truck bed. When filling a metal or plastic safety gasoline container, place it on the ground. Touch the container lid with the metal nozzle to discharge any static electricity before removing the lid. Keep the metal nozzle of the fuel hose in constant contact with the side of the gas can or filler neck while pumping. Do not overfill the container. Leave enough space to allow for fume expansion.
- If dispensing gas from a gas can, do so on a hard surface like concrete or asphalt to prevent possible absorption into the soil from drips or spills. Use a funnel or spout to avoid splashing and spilling.

Working Indoors with Fueled Equipment

- When working indoors, be aware of all the designated fire, emergency, and regular exits. If exits are not clearly marked and/or clear of hazards, notify your supervisor.

- Appropriate class and size fire extinguishers shall be available.

- When indoors, batteries for "Picture Vehicles" (except newer vehicles with computerized systems), including boats and other motor crafts, shall be disconnected. The fuel level shall not exceed one-quarter of the tank or five gallons of fuel (whichever is less) and fuel tank openings should be closed and/or sealed.

- Follow manufacturer's instructions when using propane heaters indoors or outdoors. Keep heaters away from flammable sources. For indoor use, propane heaters must be specifically built to be used indoors and approved and authorized by the employer.

- No indoor fueling of vehicles, boats, or other motor craft.

- Catering trucks are not allowed indoors.

Preventing Carbon Monoxide Poisoning

Carbon Monoxide (CO) is a by-product of equipment that uses fuels. CO is colorless, odorless, and non-irritating but potentially fatal if it accumulates. CO can rapidly accumulate when using gasoline-powered tools indoors such as high-pressure washers, concrete cutting saws, power trowels, mobile elevated work platforms, floor buffers, welders, pumps, compressors, and generators.

- Indoor use of fueled equipment, including vehicles, must be approved by your employer and/or the AHJ.

- Do not use fuels and/or fueled equipment indoors unless the work area is well ventilated, and the equipment is kept away from flammable sources.

- CO monitors may be used to measure levels to ensure they do not exceed Permissible Exposure Limits (PELs).

- Approved exhaust purifier devices shall be used if required to maintain the concentrations of dangerous gases or fumes below the maximum acceptable concentrations.

- Substitute gas-powered equipment with electric tools or tools with engines that are separate from the tool and can be located outside and away from air intakes.

- If you are experiencing, or observe others experiencing any of the following symptoms, you should immediately turn off the equipment, evacuate to an area with fresh air, notify your supervisor, and seek first aid care:

    - Nausea and vomiting
    - Headache
    - Weakness
    - Dizziness
    - Blurred vision
    - Changes in personality
    - Confusion
    - Loss of consciousness

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #14

PARACHUTING AND SKYDIVING

The following information pertains ONLY to Federal Aviation Administration (FAA) regulated activities.

It DOES NOT pertain to non-FAA activities such as "Base Jumping" or "Parasailing."

This bulletin identifies safety guidelines that should be considered when filming parachuting or skydiving sequences. In all parachuting and skydiving jumps, personnel must follow all federal, state, and local rules, laws, and regulations pertaining to parachuting and skydiving. Should any of the following guidelines conflict with federal, state, or local rules, laws, or regulations, personnel must follow the rules, laws, or regulations.

All productions that require a parachutist or skydiver must include the participation of a Parachuting Coordinator, who possesses a United States Parachute Association (USPA) Professional Exhibition Rating. Otherwise, the Parachuting Coordinator must provide evidence of the necessary experience, knowledge, and skill required to attain a USPA Professional Exhibition Rating before rendering services on a production.

1. The Parachuting Coordinator is responsible for all parachuting and skydiving activities. The Parachuting Coordinator should be consulted if there are any "unusual" activities or hazards related to the filming of the parachuting or skydiving sequence. Unusual jumps include those involving non-standard landing areas, wardrobe, prosthetics, wigs, lenses, props, helmet cameras, or other equipment which is not typically worn by a parachutist or skydiver. The circumstances surrounding any unusual jump should be presented to the Parachuting Coordinator in sufficient time before any jump so that he or she may evaluate the effects, if any, on the execution of the jump.

2. The Parachuting Coordinator and the parachutist performing the jump should agree that in planning the jump they are satisfied that they have addressed all possible safety issues. They should articulate to the productions designated representative how they have reached that conclusion.

3. The jumper should have sufficient experience with the type of canopy that he or she will use.

4. The Parachuting Coordinator and/or each individual parachutist must have authority over his or her jump, including the authority to abort a jump. Abort signals should be specified before starting the jump.

5. The Parachuting Coordinator should designate a qualified person as a Ground Safety Contact, who should not have other responsibilities during the filming of the sequence that could interfere with his or her duties as the Ground Safety Contact.

6. The Parachuting Coordinator, together with the Ground Safety Contact and any other designated production representative, should implement a plan for communications between the participants in the air and on the ground. This plan should incorporate the following equipment and actions to the fullest extent possible:

    a. Air to ground radios (VHF or FM) and any other effective means of communication.

    b. Assignment of discreet radio frequencies (channels).

    c. Visual signals (e.g., flags, specified hand signals, panels, lights or flares) to be used to, among other things, halt filming in the event of lost communications or inability to utilize radios.

    d. Abort signals (audible or visual) to be used to halt filming in the event of unforeseen circumstances or safety hazards.

7. A pre-planned stunt sequence involving parachuting or skydiving should not be changed without the authorization of the Parachuting Coordinator. If the parachuting sequence involves special effects, the Special Effects Coordinator should also be consulted and both should agree on the proposed change(s). No changes should be made to a pre-planned stunt sequence once the stunt performers have departed the briefing area.

8. Landings in public places must be restricted from the public. The Parachuting Coordinator should determine whether security personnel are necessary to exclude non-essential crew and non-participating spectators from the landing area.

9. All flights and jumps must be conducted in accordance with Federal Aviation Regulations, Part 105, except variances that are outlined in a current FAA approved Motion Picture & Television Operations Manual and accompanying Waiver.

10. The Parachuting Coordinator should determine whether the visibility, cloud ceiling height, and velocity of wind (as they apply to the particular situation) are safe for a jump and should take into consideration the landing area size, canopy type, number of jumpers and the planned stunt. In all circumstances, FAA rules regarding visibility and cloud clearance must be followed.

11. Before each jump is performed, the Parachuting Coordinator should brief all persons involved with the on-site production and filming of the jump. He or she may include a "walk-thru," simulation or "dry run" on the ground.

12. The Parachuting Coordinator and jumpers should have the opportunity to inspect all landing sites before the jump during daylight hours, and again at night if a night landing is required. Jumps near or into potentially hazardous landing areas, (water, power lines, etc.) as determined by the Parachuting Coordinator, should be considered carefully.

13. Before jump sequences, the Parachuting Coordinator or the designated production representative will conduct a SAFETY MEETING for the production staff and those persons necessary for filming, including emergency, safety and security personnel. Additional SAFETY MEETINGS may be required as necessary for intended action sequences or scenes.

    SAFETY MEETINGS may include discussion of the following:

    a. Pertinent jumping sequence, timing, landing zone, special considerations of the Parachuting Coordinator, or aerial coordinator, such as review of the Motion Picture and Television Operations Manual and accompanying Waiver, or any mandates by the local FAA Flight Standards District Office.

    b. Possible risk to personnel who are involved.

    c. Safeguards to personnel and equipment.

    d. Communication plan, including agreed upon visual and abort signals.

    e. Emergency procedures.

    f. Location of boundaries.

    g. Local governmental limitations or restrictions, if any.

14. All equipment, props, wardrobe, etc., must be made available to the Parachuting Coordinator and the parachutist involved in the jump for evaluation before the jump. The Parachuting Coordinator should be consulted prior to establishing placement of any equipment, props, wardrobe, etc., that will be used in the jump. When necessary, this equipment, props, wardrobe, must be made available for test jumping or other practice.

15. The Parachuting Coordinator may postpone or cancel the jump if at any time the safety of persons or property on the ground or in the air is in jeopardy, or if there is a contravention of the terms or conditions of any FAA Letter of Authorization, or any other applicable law, rule or regulation.

16. A jumper may jump only with a main parachute packed by a "certificated parachute rigger," or the jumper.

17. All operations involving aircraft must conform to FAA regulations. All operations involving aircraft should also consider the Industry Wide Labor-Management Safety Committee Safety Bulletins #3 (Helicopters), #11 (Fixed-Wing Aircraft), and #29 (Hot Air Balloons).

18. All pilots involved in parachuting or skydiving sequences must be familiar and have experience with the dropping of jumpers. They should also be familiar with flights with the flight door removed, Federal Aviation Regulations, Part 105, and other applicable federal, state, and local laws, rules, and regulations. Before any jump, the pilot should know all ground signals and the agreed upon abort signal. He or she should be involved with rehearsals of aircraft exits, and should be familiar with any Letters of Authorization or waivers applicable to the jump. He or she should analyze the weight and balance of the aircraft with jumpers in exit position.

19. Adequate watercraft and flotation gear must be available when the possibility of a water landing exists. Jumpers should consider wearing an approved self-inflating personal flotation device when a jump involves the possibility of a water landing.

20. If the jump includes an intentional water landing, there should be one (1) boat per jumper with each containing an operator and safety personnel familiar with parachutes and water retrievals. The boat should be in the water with the engine running in sufficient time before jumpers exit the aircraft. Personal watercrafts are not recommended for retrieving jumpers with wet parachutes. All jumpers must wear an approved self-inflating personal flotation device when a jump involves a water landing.

21. If the parachuting sequence involves a freefall cinematographer, he or she should consult with the Parachuting Coordinator and both should agree on the "Plan of Activities". Any freefall cinematographer should be experienced with the type of camera equipment which will be used in the filming of the jump.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #15

GUIDELINES FOR BOATING/WATERCRAFT SAFETY FOR FILM CREWS

These guidelines are intended to provide recommendations for safety on and around boats and other watercraft. Watercrafts may include, but are not limited to: ships, boats, personal watercraft and other floating vessels.

PRE-PRODUCTION

1. The production should designate a responsible person to be in charge of all production watercraft. The production also should determine whether the scope, action, or complexity of any boating sequence requires a Marine Coordinator.

2. The Marine Coordinator or responsible person shall pre-inspect the proposed water routes or paths of travel for underwater obstructions, i.e. cables, reefs rocks, trees and pilings.

3. Each boat operator should have an effective means of communication.

4. To the extent practicable, cast and crew should be informed in advance that they will be working on or around watercraft. Cast and crew who cannot work in this environment should advise production management and/or their Department Head.

5. Cast or crew members susceptible to sea sickness should consult their physician in advance and should advise the set medic.

6. The responsible person or Marine Coordinator will establish a means by which to monitor and communicate weather and water conditions.

7. The production should be aware that bodies of water can have multiple authorities having jurisdiction with specific regulations related to watercraft activities. The production should identify these laws and regulations.

8. The production will establish work procedures to be followed while working on or around watercraft, including procedures for abandoning the watercraft; responding to fire, collision, and general alarms; and rescuing personnel. In establishing these procedures, the production should consider the manufacturer's operating and safety guidelines, and the scope, action, and complexity of the planned boating sequences.

9. The responsible person or Marine Coordinator will determine who will be assigned the responsibility for conducting a head count. A head count should be conducted when the amount of cast and crew, the size and design of the vessel, the intended operations aboard the vessel, or the environmental conditions make an immediate visual assessment of cast and crew impractical.

10. Each watercraft shall be equipped with all United States Coast Guard required safety equipment for the vessel type and size, including approved Personal Floatation Devices (PFD) for each person aboard the watercraft.

11. The responsible person or Marine Coordinator shall check the number, rating, and condition of all PFDs and, if required, rescue devices and safety equipment needed on board and dockside.

12. The responsible person or Marine Coordinator should determine the occupancy and weight limits for each watercraft. Only essential personnel and equipment should be on board.

13. The responsible person or Marine Coordinator will approve how equipment will be rigged and secured to the watercraft.

14. All shore power and portably supplied AC power shall be protected by Ground Fault Circuit Interrupters (“GFCI”).

15. The watercraft owner/operator should pre-approve generator use. Generators need to be secured, and exhaust properly vented. Generators also must be equipped with a charged and readily accessible fire extinguisher.

16. The responsible person or Marine Coordinator needs to approve all areas where fuel is stored and used.

PRIOR TO BOARDING

1. Safety Meetings – The First Assistant Director (1st A.D.), along with the responsible person or Marine Coordinator, shall conduct a safety meeting with all cast and crew. Safety meeting topics may include, but are not limited to: work procedures; emergency procedures; and known or potential hazards.

2. All persons should wear closed-toe, non-skid, rubber-soled shoes when working on watercraft.

3. Avoid clothing, jewelry or loose items that can get caught in machinery or rigging, or impede watercraft transfers.

4. Wear clothing appropriate to the anticipated environmental conditions, such as a brimmed hat, sunglasses, and long-sleeved shirt. Apply and reapply sunblock as needed.

5. A head count shall be taken when applicable, the Marine Coordinator or his/her designee shall conduct a head count as cast and crew board the vessel. A similar head count shall be conducted upon disembarking.

BOARDING

1. Stand clear of the watercraft and away from the dock edge during docking procedures. Do not attempt to board until the watercraft is secured to the dock and a member of the watercraft crew gives instructions and permission to board.

2. Never place arms, legs or any other part of the body between the watercraft and dock, between two watercrafts, or between the lines used to secure watercrafts.

3. When boarding, only the designated boarding area or device shall be used. Do not step over rails, gunwales (side of boat), or lifelines without permission.

4. Do not block access to the watercraft's rigging, ladders, or emergency-access hatches. Stow gear and equipment in pre-approved areas only.

ONCE ON BOARD

1. When underway or anchored or docked in choppy water, keep one hand free at all times to hold onto the watercraft or railing.

2. PFDs and other floatation devices must be available for all cast/crew members. If you are instructed to put on a PFD, do so and be sure it is properly secured.

3. Only personnel designated by the responsible person or Marine Coordinator should operate the watercraft’s machinery, valves, switches, and other equipment.

4. No one should straddle the gunwale or sit with their legs dangling over the side of the watercraft, unless it is required for production or vehicle operation and the necessary safety precautions are in place.

5. Always ensure an emergency escape route is available, including while positioning and securing gear and equipment.

6. Do not throw any waste overboard.

7. The private quarters, engine room, and the wheelhouse/bridge are off limits to the cast and crew, unless approved.

8. Smoking and open flames are not allowed, unless specifically required for a scene and necessary safety precautions are in place.

9. Marine toilets may not be as efficient as those on land. Do not flush objects other than approved toilet tissue.

10. Cast and crew should be aware of sudden and drastic movement from moving parts, i.e. overhead booms, winches, additional rigging lines, etc., which may hit and injure an unsuspecting person.

11. Performers requested to operate watercraft on-camera should be provided appropriate training. When a performer is operating the watercraft, emergency procedures to reestablish operational control of the on-camera watercraft should be in place.

SEA SICKNESS

1. If you feel nauseous, do not go below the deck. Instead, stay on deck in the fresh air, look at the horizon line, and contact the set medic immediately.

2. Eat soda crackers or plain bread and drink soda water when sea-sickness symptoms are present.

3. Cast and crew who have taken sea sickness medicine should promptly advise the set medic.

BOAT-TO-BOAT TRANSFERS

1. Do not attempt to transfer until watercraft personnel have designated the transfer points and have given the command to transfer.

2. Stand clear of the transfer-craft, tie-up area until the transfer craft is secured to the watercraft.

3. Prior to transferring to another watercraft, allow watercraft personnel to assist in the transfer of gear and equipment. Use two hands to steady yourself when transferring to the other watercraft.

BOAT-TO-BEACH TRANSFERS

1. Because proper timing is essential for the watercraft operator to safely enter and exit from a beach, the watercraft operator will advise the cast and crew on boat-to-beach transfer procedures.

WHEN AT ANCHOR OR AT SEA

1. If you see someone fall into the water, yell, "MAN OVERBOARD," as loudly as possible and point in the direction of that person. DO NOT take your eyes off that person. Continue pointing until watercraft personnel take over.

2. Stay out of the water, unless you are part of a planned scene.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #16

RECOMMENDED GUIDELINES FOR SAFETY WITH PYROTECHNIC SPECIAL EFFECTS

This Safety Bulletin applies to pyrotechnic materials such as explosives and flammable or combustible liquids, gases and solids when used to create pyrotechnic special effects.

ALL USE, HANDLING, STORAGE AND TRANSPORTATION OF PYROTECHNIC MATERIALS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

Pre-Production/Planning

- When pyrotechnic materials are used on set, such use shall be under controlled conditions with due regard for the safety of all involved.

- The Production Company or Studio shall make sufficient advanced notification of the use of pyrotechnic materials to the appropriate departments (such as Special Effects, Stunts, Camera, Art, Construction, Hair, Make-up and Wardrobe), in order to safely plan pyrotechnic special effects. Any performer who may be involved in a pyrotechnic special effect shall be notified.

- Any required licenses and/or permits shall be obtained from proper Authorities Having Jurisdiction (AHJ) over pyrotechnic materials prior to using pyrotechnic special effects. Pyrotechnic Special Effects Operator(s) must hold valid State and Federal license(s), as applicable.

- Consideration of using remote control detonation devices should be discussed with Safety, Fire, Production, Stunts, and Special Effects prior to use.

- Prior to pyrotechnic special effects work, productions must develop emergency procedures and contingency plans, including identifying emergency fire suppression equipment and personnel needs. All equipment shall be checked to verify that it is in good operating condition. Individuals using this equipment must have proper training in its use and limitations.

- The need for personal protective equipment (PPE) should be identified during the planning stage.

- Special effects personnel must inform the Transportation Coordinator of what pyrotechnic materials will be transported. Vehicles must be properly placarded when

required by Federal or State law. All vehicles transporting pyrotechnic materials shall have an inventory of the materials being transported or stored readily available. Drivers must be qualified to transport pyrotechnic materials.

- Sets, equipment, props, wardrobe, make-up, wigs, hair supplies, etc. that will be in close proximity to planned pyrotechnic special effects must be prepared accordingly and/or should be made of flame retardant material. All sets, equipment, props, wardrobe, wigs, etc., must be made available in advance to the Pyrotechnic Special Effects Operator in charge for evaluation, to establish placement, and if necessary, for testing.

Clothing and Personal Protective Equipment

- Cast and crew in close proximity to planned effects should wear appropriate protective clothing. Depending on the hazards involved, this clothing should include appropriate closed-toe footwear, long pants, and a long-sleeved shirt made of 100% cotton or material which provides equal or greater protection.

- Cast and crew must be notified by the Pyrotechnic Special Effects Operator in charge when there is potential for exposures to pyrotechnics, such as fireball, debris, and shock wave. PPE must be provided as appropriate for the hazard(s) involved and considerations must be made for head, hand, eye, ear and respiratory protection. Depending on the hazards involved, the AHJ may require full fire turnout gear and Self Contained Breathing Apparatus (SCBA). These guidelines will also apply to performers when appropriate. All users must have proper training in the use and limitations of such PPE.

Fire Protection

- Pyrotechnic materials shall be kept a safe distance from open flames and other sources of ignition. Where required, such materials shall also be stored in approved, properly labeled containers.

- Smoking is prohibited in all pyrotechnic areas and "No Smoking" signs shall be posted in all appropriate areas of the premises or locations where pyrotechnic materials are stored and handled.

- Sufficient fire suppression equipment (such as charged extinguishers and fire hoses) must be manned, ready for use and placed at an appropriate safe distance from the effect, during testing, rehearsal and filming.

- Designated personnel performing fire suppression activities during testing, rehearsal and filming must be properly clothed and wear appropriate PPE.

Personnel Using and Handling Pyrotechnic Materials

- Special effects personnel working with pyrotechnic materials (pyrotechnicians) should be dressed in appropriate clothing to protect them from potential hazards. At a minimum, clothing should consist of appropriate closed-toe footwear, long pants, and a long-sleeved shirt made of 100% cotton or material which provides equal or greater protection. PPE considerations must be made for head, hand, eye, ear and respiratory protection. Depending on the hazards involved, the AHJ may require full fire turnout gear.

- Intoxicating liquids, drugs and other controlled substances (except for prescription drugs not impairing the user's judgment and motor functions) shall not be used by any person handling pyrotechnic special effects at any time during transportation, set-up, firing or removal.

- Pyrotechnicians must be given sufficient time to safely perform the work (including the transporting, storing, creating, rigging, firing, striking and extinguishing of all pyrotechnic special effects materials). While conducting such duties, pyrotechnicians should not be rushed, interrupted or distracted from focusing on their work.

- The rigging of any type of pyrotechnic device to a performer shall be done by a qualified special effects operator.

- Pyrotechnic special effects shall not be fired unless the area involved with the firing is in the continuously unobstructed full view of the Pyrotechnic Special Effects Operator in charge or his or her designated representative at the time of firing, unless equal means of observation are used.

Awareness

- When using pyrotechnic special effects on any set, notification shall be given to personnel by way of the call sheet, or other suitable means. The call sheet should also state the type of pyrotechnic special effects work that is planned.

- Before any pyrotechnic special effects or potentially hazardous sequence is to be performed, all persons involved shall be thoroughly briefed at a safety orientation meeting on the site.

- The safety orientation meeting shall include an "on site walk-through" and/or "dry run" with the Pyrotechnic Special Effects Operator in charge and all other persons involved in the event, including Stunt Coordinator if applicable. PPE should be in place at that time.

- No performer shall be rigged with a pyrotechnic device without his or her prior consent and consultation with the qualified Pyrotechnic Special Effects Operator in charge and, if applicable, Stunt Coordinator.

- If practical and upon a reasonable and timely request, the Pyrotechnic Special Effects Operator in charge may conduct a test firing of pyrotechnics when such are to be discharged in the vicinity of cast and crew.

- If at any time a significant change becomes necessary, the First Assistant Director will again call all persons involved in the event to another meeting to confirm everyone understands the proposed change(s).

Emergency Procedures

- Emergency procedures and contingency plans, including appropriate signs and signals and the authority to abort the shot, shall be specified prior to engaging in any pyrotechnic special effects work.

- Before the performance of a pyrotechnic special effect, the First Assistant Director, or designee, shall clearly announce to all persons the location of exits, the primary escape route and alternate escape routes. Escape routes must provide a clear and unobstructed passage to a designated safe area.

- Each person should ensure their designated escape routes are clear and remain accessible. Any person who is unsure of their designated escape routes should check with the First Assistant Director and learn of the escape routes upon entering the work area.

- In the event of an emergency, only those designated with emergency response roles should enter the pyrotechnic special effects area.

Authorized Personnel in the Pyrotechnics Area

- Access to areas where pyrotechnic materials are stored or handled shall be limited to authorized personnel only. All other personnel shall remain at a designated safe distance. If needed to prevent unintentional entry into hazardous areas, warning signs should be posted and/or other appropriate precautions taken.

- Prior to using pyrotechnic special effects with minors present, key production personnel, such as the Director, First Assistant Director, Pyrotechnic Special Effects Operator in charge, Stunt Coordinator and safety professional, should confer with the minor, minor's parent/legal guardian and Studio Teacher to review and discuss the planned activity. Only those minors under the age of 16 whose performance requires them to be on the set when pyrotechnic special effects are being handled are allowed on the set, and in some states may be prohibited altogether. Production should

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #17

WATER HAZARDS

This safety bulletin outlines the recommended practices used to identify both physical as well as biological hazards when working in water, including, but not limited to, ponds, rivers, lakes, swamps, bogs, oceans, pools, and tanks.

Production Management, in conjunction with the Location Manager, will review or inquire about any special precautions concerning the body(ies) of water where work will take place, obtain any necessary permits with the applicable Authority Having Jurisdiction (AHJ), acquire necessary permissions, and identify and possibly engage a laboratory or environmental consulting company.

All personnel scheduled for water work shall be notified in advance.

Production workers who are uncomfortable working in or around water should notify their supervisor prior to that day's call. All cast and crew maintain the right to refuse work reasonably and in good faith deemed to be unsafe and to consult with production safety personnel.

Environmental Concerns

Whenever there is underwater work in a natural environment, extreme care should be taken around marine flora and fauna, as well as protected underwater ecosystems such as coral reefs.

All personnel should be advised to keep all potential contaminants away from the water, including paints, thinners, gasoline, oils, etc. Contaminants can also come from specific production activities and runoff from nearby production base camps.

Physical Hazards

When work in a body of water is contemplated, Production Management should identify, and be familiar with, the natural and man-made hazards in the area, including but not limited to:

- Depth
- Water clarity
- Sub-surface objects (e.g., rocks, debris)
- Underwater life (e.g., sharks, jellyfish, alligators)
- Water beds (bottom of lakes/ponds)
- Upstream activities (e.g., dams, waste disposal sites, agriculture, chemical plant discharge sites, flash flood dangers, floating objects)

Water Temperature

The temperature should be monitored when cast and crew are expected to be working in water. Prolonged exposure to water can become hazardous. Cast and crew should be monitored for signs and symptoms of both hyperthermia and hypothermia.

Production Management should take steps to prevent hyperthermia (elevated body temperature) and hypothermia (reduced body temperature). While hyperthermia can occur, hypothermia is a more likely hazard.

When the temperature starts to drop, the body can start to shiver. Shivering is the body's attempt to warm itself. Once the body starts to shiver, it can take a long time to recover. It is an automatic

defense against cold temperatures.

Symptoms of hypothermia include:

- Shivering
- Slurred speech or mumbling
- Slow, shallow breathing
- Weak pulse
- Clumsiness or lack of coordination
- Drowsiness or very low energy
- Confusion or memory loss
- Loss of consciousness
- In infants--bright red, cold skin

There are multiple methods to mitigate the hazards of hypothermia. Wetsuits and dry suits may be necessary for those working in water. Cast and crew may be required to take periodic breaks from the water to regulate their body temperature. Heated showers, dry towels, and areas with heated air (such as vehicles) are options to raise body temperature for workers when they come out of cold water.

Symptoms of hyperthermia:

- High body temperature
- Altered mental state or behavior
- Sweating
- Nausea and vomiting
- Flushed skin
- Rapid breathing
- Elevated heart rate
- Headache

Methods for preventing or treating hyperthermia include stopping physical activity, drinking plenty of fluid, using cool compresses/ice packs/immersion in cool water, and avoiding certain medications such as aspirin and acetaminophen.

Seek medical assistance if someone is exhibiting signs of hypothermia or hyperthermia.

Water Flow (tide/current)

When it is necessary for personnel to work in fast-moving water, production safety personnel and equipment should be available/on-site for emergency rescue.

Boating Traffic

Where boating traffic is anticipated, all applicable safety regulations should be complied with, including those mandated by the appropriate AHJ. (See Safety Bulletin #15 - *Guidelines for Boating/Watercraft Safety for Film Crews*)

Electrical Hazards

All electrical connections should be made by, or under the supervision of, a qualified person. (See Safety Bulletin #23 - *Guidelines for Working With Portable Power Distribution Systems and Other Electrical Equipment* for additional electrical safety information).

Special care must be used whenever alternating current (AC), or direct current (DC) supplied equipment is used in or around water. Consider the use of electrical equipment that operates at less than 50 volts, such as battery-powered, or remote power-supplied LED lighting fixtures. All

electrical cables and lights in close proximity to water should be properly secured to prevent tipping and falling. All wiring and all electrical equipment and devices that will or may be subject to a submerged condition should be approved for underwater use, be watertight, have no exposed live connections, and be constructed such that there is no shock hazard under any likely conditions of use. All applicable provisions of the National Electric Code should be followed. If applicable, local regulations may be more restrictive and should be followed.

Ground Fault Circuit Interrupters (GFCIs)

When lighting, electrical distribution, or any electrically powered equipment is used in close proximity to water or can make contact with water, the use of a GFCI should be determined by a qualified person. This includes all areas where water hazards exist. When persons, wardrobe, props, or equipment are wet, the need for GFCI protection should be determined.

GFCIs will not operate on DC and are usually not compatible with circuits supplied by dimmer systems. GFCIs should not be used on circuits where removal of power may create a greater hazard, such as airbags, decelerators, emergency egress lighting, etc.

Emergency Procedures

A person qualified to administer emergency medical assistance shall be present or readily available when production workers enter bodies of water described at the top of this document. Production Management should consider engaging an ambulance in case emergency transportation to the nearest hospital is needed.

If a potential safety hazard is found, Production Management should take appropriate steps to mitigate it. Appropriate water safety devices (e.g., life vests, life preservers, safety rings, safety hooks, buoys) should be available for all personnel working in or around water. When necessary, the Production Management should implement a plan to account for personnel in the water, such as a “buddy” or a check in/check out system.

Biological Hazards

Prior to personnel entering a body of water, all efforts should be made to determine whether the water quality meets the regulatory standards for “recreational full body contact.”

This determination may be made by one or more of the following: direct water sampling, contact local health authorities, and/or detailed knowledge of the other uses and water sources supplying the body of water.

The US Environmental Protection Agency has a standard for water quality called the Recreational Water Quality Criteria (RWQC). Guidance on water quality may be found here: https://www.epa.gov/wqc/recreational-water-quality-criteria-and-methods.

Additionally, local and/or state authorities may have more restrictive requirements that must be followed.

Testing

To ensure the safety of cast and crew, it is recommended that water quality testing be conducted by a certified water testing laboratory prior to accessing any body of water.

- Consult with the laboratory or environmental consulting company, as early as possible, about the body of water intended for use to determine the appropriate testing to be done.
- The laboratory will inform the production of testing standards and protocols.

- Samples should be taken as near as feasible to the point of entry as the production personnel entering the water.

- Consultation with the testing laboratory should inform the production about the testing timeline. Testing should be conducted as close to the time of entry as possible, typically at least 48-hours prior to the commencement of production activities in the body of water, but always with enough time for the results to be reported back. To this end, laboratory availability, capabilities and speed should be considered.

- At a minimum, to determine bacterial levels in fresh water, Escherichia coli (E. coli) and enterococci testing should be completed.

- Additional testing may be required as necessary.

- An alternative to independent testing is utilizing pre-existing testing from a government or Non-Governmental Organization (e.g., Heal the Bay, Surfrider Foundation) that provides current and timely water quality testing.

- A well-maintained body of water, such as a swimming pool or hot tub, should not require bacterial testing to be conducted. However, pH and/or chlorine levels should be tested with a conventional pool testing kit and adjusted as necessary.

- Purpose-built water tanks for filming should be tested and maintained to ensure appropriate water quality standards are met. If not already being done, chlorine and pH levels should be tested in these bodies of water.

Limitations of Testing

There are many factors that can lead to contamination thereby making water quality test results unreliable. The test is a “snapshot” of the water quality. Some of these factors include:

- Heavy rains
- Fast-moving bodies of water
- Potential hazards from the surrounding environment
  - Examples can include nearby farms, factories, or bird nests
  - Pre-existing environmental impacts (e.g. lead)
- Proximity to marinas

If elements in the environment near the body of water could lead to contamination (manmade or natural), include these in the sampling plan and request that these parameters are included in the analysis and test results.

The rationale for the lack of testing must be articulated to the cast/crew prior to use and in advance of physical production occurring (e.g., failed test, pre-existing conditions).

Interpreting Water Quality Test Results

Understanding what qualifies as water suitable for occupational use can be confusing. Water sampling results and acceptable water quality criteria shall be made available upon request.

When necessary, Production Management should consult a Safety Professional (e.g., a Certified Industrial Hygienist, Certified Safety Professional, laboratory, environmental consulting company, or Studio Safety Representative) to determine whether a body of water is safe relative to lab test results. The production should follow the guidance of the EPA, state, and local environmental agencies.

Poor Water Quality

When water quality results are poor or unknown, Production Management should implement the following guidelines:

- Provide full body protection, in the form of dry suits and body orifice closures (e.g., wax earplugs, nose plugs) to anyone who will be, or could be, **fully submerged**.
- Provide appropriate Personal Protective Equipment (PPE) (e.g., dry suits, waterproof clothing such as waders, gloves, and footwear) for those who may be **partially submerged**.
- Provide a readily accessible method of post-submersion cleaning (e.g., freshwater portable showers, hoses with or without sprayers and/or other portable/fixed freshwater supply with soap and water).
- Any open sores or wounds should be fully protected from water intrusion.
- All equipment that makes contact with the water shall be properly cleaned after use.
- Do not allow any worker to eat, drink, or smoke, etc. until they have completely decontaminated post-water exposure.
- Request that cast and crew monitor their health and report any signs or symptoms of waterborne illness to set medic or Production Management.

check applicable state laws with respect to the employment of minors in these situations. The production shall consider any reasonable request from the minor, minor's parent/legal guardian, and/or Studio Teacher regarding the minor's proximity to any pyrotechnic special effect.

Use of Power Sources in Firing Pyrotechnic Materials

- To protect against accidental firing, all electrically fired pyrotechnic devices shall be shunted at all times prior to firing.

- Power sources for firing pyrotechnic special effects devices shall be restricted to isolated ungrounded batteries or individually designated ungrounded generators (below 5 kilowatts to comply with non-grounding requirements) used exclusively for firing purposes only.

- Commercial or house power shall not be used directly for firing purposes.

- There should be no wireless transmissions in the area where electrically fired pyrotechnic devices are being used without prior consultation with the Pyrotechnic Special Effects Operator in charge. In addition, caution should be taken to avoid extraneous or induced electrical currents from sources such as power lines, radar/microwave transmitters, electrical cable, lightning, static electricity, etc. Note that static electricity is especially a problem during periods of low humidity.

- Whenever practical, pyrotechnic special effects should be hard wired from the effect to the firing system. When remote control firing is planned, special precautions must be taken to prevent accidents, including but not limited to the following:
  - Having familiarity with the system being used and its limitations;
  - Performing a risk analysis in the event of premature firing or firing failure; and
  - Testing the firing system under the anticipated conditions of use.

Safety on the Set After Use of Pyrotechnic Material

- After each pyrotechnic event, no one shall enter the pyrotechnic area other than the Pyrotechnic Special Effects Operator in charge, or his or her designated representative(s), until it is declared safe. This includes testing, rehearsals, and filming.

- Appropriate fire watch, as determined by the AHJ, should be maintained after each pyrotechnic event.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #18

GUIDELINES FOR SAFE USE OF STUNT AIR BAGS, BOXES OR OTHER FREEFALL CATCH SYSTEMS

These guidelines are intended to provide recommendations on the safe use of stunt-related systems into which performers or objects fall.

1. The following shall be taken into consideration when choosing a system:

   a) The type of stunt to be performed.

   b) The height of the jump/fall.

   c) The weight that will impact the device or system.

   d) The number and sequence of falling performers or objects.

   e) The area where the device or system will be placed.

   f) Special effects, wardrobe, props or any other item that may affect the stunt.

   g) Any other unusual conditions.

2. If the stunt is planned to take place at night, suitable lighting must be provided. Care must be taken to ensure that the performer(s) can adequately see the intended target and to ensure the set or safety lighting does not obscure the performers' vision.

3. The Stunt Coordinator should assess the fall area for cables, wiring, or building infrastructure, (i.e., fire escapes, landings, access ladders) that could impede the fall path.

   The Stunt Coordinator should inspect the condition and structural integrity of the device or system. All devices and systems should be of good quality and appropriate for the task.

4. The Stunt Coordinator should inspect the fall area prior to and during the stunt.

5. The Performer and Stunt Coordinator will inspect the device or system prior to each use.

6. Inspections should include:

a. Air Bags
   - Stitching, seams and vents
   - Fans
   - Power Source: Adequate power supply from an independent source, appropriate cable size and secured connections.

b. Boxes
   - Condition – dry, structural integrity for the application, empty
   - Assembled and oriented per the Stunt Coordinator's instructions.

c. Other Devices or Systems
   - Condition of integral components of any device or system used.

7. Qualified personnel should set up each device or system.

8. Use a sufficient number of spotters, designated by the Stunt Coordinator, around each device or system to ensure safety.

9. The duties for ground-based spotters should include, but are not limited to the following:

   a) Protecting performers, through the use of individual crash pads, peripheral devices or other equipment, in case the performers become misaligned during the fall.

   b) Observing any unusual changes in atmospheric conditions, particularly wind and effects-related debris, which may affect the performer's fall.

   c) Lifting and moving the device or system should the performer become misaligned during the fall.

   d) Continuously inspecting all power operated equipment.

   e) Ensuring no unnecessary personnel or equipment are within the fall area.

   f) Being aware of location peculiarities that may affect the performer's fall.

10. Implement additional pre-planning if two performers are to use the same device or system at the same time. For example, it may be problematic when the two performers' weights are significantly different when using an air bag.

11. Prior to the stunt and after any change or modifications to the stunt sequence, the First Assistant Director shall conduct a safety meeting at the site with all

personnel involved.

12. Conduct a walk-through or dry run of the stunt sequence with all appropriate personnel on the day of the stunt. Assure that all have a clear understanding of the intended action and their duties.

13. Communicate to all appropriate personnel the method and meaning of abort signals. Discuss primary and/or back-up signals (e.g., radios and hand signals).

14. Allow only safety personnel and personnel necessary for assisting, directing, filming or performing the stunt in the stunt area

15. The performer(s) should have the necessary experience and knowledge to perform the particular stunt sequence.

16. Fall protection for all other personnel working at height is required.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #19

RECOMMENDED GUIDELINES FOR THE USE OF OPEN FLAME ON PRODUCTION

These guidelines are intended to give recommendations on the use of open flame on production. This Safety Bulletin does not apply to full or partial body burns, fire breathing, or other fire performance work (See Safety Bulletin #4 "Stunts").

ALL USE, HANDLING, STORAGE AND TRANSPORTATION OF BULK FUEL, COMPRESSED GAS CYLINDERS AND OTHER MATERIALS USED TO CREATE OPEN FLAME SHALL BE IN COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

Pre-Production/Planning

- When torches, candles, fireplaces or other open flames are used on set, such use shall be under controlled conditions with due regard for the safety of all involved.

- A responsible person (such as a Special Effects Operator in charge or other qualified individual) shall be designated for the daily handling, placement, safe use and securing of any open flame devices.

- The Production Company or Studio shall make sufficient advanced notification of the use of open flame to all appropriate departments in order to safely plan the sequences. Any performer who may be working around an open flame shall be notified.

- Prior to use, any required licenses and/or permits for open flame shall be obtained from the appropriate Authorities Having Jurisdiction (AHJ).

- Prior to work with open flame, productions must develop emergency procedures and contingency plans, including identifying emergency fire suppression equipment, venting of low lying areas and personnel needs. All equipment shall be checked to verify that it is in good operating condition. Individuals using this equipment must have proper training in its use and limitations.

- The need for personal protective equipment (PPE) should be identified during the planning stage.

- Special effects personnel must inform the Transportation Coordinator as to the types of bulk fuel and/or compressed gas cylinders that will be transported.

Vehicles must be properly placarded when required by Federal or State law. All vehicles transporting bulk fuel or compressed gas cylinders shall have an inventory of the materials being transported or stored readily available. Drivers must be qualified to transport these materials.

- Sets, equipment, props, wardrobe, make-up, wigs, hair supplies, etc., that will be in close proximity to open flame must be prepared accordingly and/or should be made of flame retardant material. All sets, equipment, props, wardrobe, wigs, etc., must be made available in advance to the designated responsible person for evaluation, to establish placement, and if necessary, for testing.

Clothing and Personal Protective Equipment

- Cast and crew in close proximity to open flame should wear appropriate protective clothing. Depending on the hazards involved, this clothing should include appropriate closed-toe footwear, long pants, and a long-sleeved shirt made of 100% cotton or material which provides equal or greater protection.

- Cast and crew must be notified by the designated responsible person when there is potential for exposures to open flame. PPE must be provided as appropriate for the hazard(s) involved and considerations must be made for head, hand, eye, ear and respiratory protection. Depending on the hazards involved, the AHJ may require full fire turnout gear and Self-Contained Breathing Apparatus (SCBA). These guidelines will also apply to performers when appropriate. All users must have proper training in the use and limitations of such PPE.

Fire Protection

- All stationary open flame devices should be firmly secured.

- Flammables and combustibles, including bulk fuel, compressed gas cylinders and highly concentrated dust effects, shall be kept a safe distance from open flame and other sources of ignition. Where required, such materials shall also be stored in approved, properly labeled containers.

- All lines and fittings used in the delivery of fuel gas to open flame devices shall be appropriate for the fuels being used, (i.e., natural gas usage requires different hoses and fittings than liquid petroleum gas).

- “No Smoking” signs shall be posted in all areas where fuel and compressed gas cylinders are stored and handled.

- Sufficient fire suppression equipment (such as charged extinguishers and fire

hoses) must be manned, ready for use and placed at an appropriate safe distance from the open flame during testing, rehearsal and filming.

- Designated personnel performing fire suppression activities during testing, rehearsal and filming must be properly clothed and wear appropriate PPE.

Personnel Using and Handling Open Flame

- Personnel working with open flame should be dressed in appropriate clothing to protect them from potential hazards. Depending on the hazards involved, clothing should consist of appropriate closed-toe footwear, long pants, and a long-sleeved shirt made of 100% cotton or material which provides equal or greater protection. PPE considerations must be made for head, hand, eye, ear and respiratory protection. Depending on the hazards involved, the AHJ may require full fire turnout gear.

- Intoxicating liquids, drugs and other controlled substances (except for prescription drugs not impairing the user's judgment and motor functions) shall not be used by any person involved in open flame effects at any time during transportation, set-up, use or removal.

- Personnel working with or around open flame must be given sufficient time to safely perform the work (including the transporting, storing, creating, rigging, igniting, striking and extinguishing of all open flame devices and materials). While conducting such duties, personnel should not be rushed, interrupted or distracted from focusing on their work.

- The rigging of any type of open flame device to a performer shall be done by a qualified special effects operator, with the consultation of the stunt coordinator if applicable.

- When igniting and maintaining an open flame, it must be continuously observed and controlled by the designated responsible person, unless equal means of observation are used.

Awareness

- When using open flame on any set, notification shall be given to personnel by way of the call sheet, or other suitable means. The call sheet should also state the type of open flame work that is planned.

- Before any open flame effects or potentially hazardous sequence is to be performed, all persons involved shall be thoroughly briefed at a safety orientation

meeting on the site.

- The safety orientation meeting shall include an “on-site walk-through” and/or “dry run” with the designated responsible person and all other persons involved in the event, including Stunt Coordinator if applicable. PPE should be in place at that time.

- If practical and upon a reasonable and timely request, the designated responsible person may conduct a test of the open flame when it is in the vicinity of cast and crew.

- If at any time a significant change in open flame use becomes necessary, the First Assistant Director will again call all persons involved in the event to another meeting to confirm everyone understands the proposed change(s).

Emergency Procedures

- Emergency procedures and contingency plans, including appropriate signs and signals and authority to abort the shot, shall be specified prior to engaging in any open flame work.

- Before the use of open flame on set, the First Assistant Director, or designee, shall clearly announce to all persons the location of exits, the primary escape route and alternate escape routes. Escape routes must provide a clear and unobstructed passage to a designated safe area.

- Each person should ensure their designated escape routes are clear and remain accessible. Any person who is unsure of their designated escape routes should check with the First Assistant Director and learn of the escape routes upon entering the work area.

- In the event of an emergency, only those designated with emergency response roles should enter the open flame area.

Authorized Personnel in the Open Flame Area

- Access to areas where open flame is rigged or present should be limited to authorized personnel only. All other personnel shall remain at a designated safe distance. If needed to prevent unintentional entry into hazardous areas, warning signs should be posted and/or other appropriate precautions taken.

- Prior to using open flame with minors present, key production personnel, such as the Director, First Assistant Director, designated responsible person, Stunt

Coordinator and safety professional, should confer with the minor, minor's parent/legal guardian and Studio Teacher to review and discuss the planned activity. The production shall consider any reasonable request from the minor, minor's parent/legal guardian, and/or Studio Teacher regarding the minor's proximity to any open flame.

Safety on the Set After Use of Open Flame

- After each use of open flame, no one shall enter the area other than the designated responsible person(s), until it is declared safe. This includes testing, rehearsals and filming.

- Appropriate fire watch, as determined by the AHJ, should be maintained after each open flame event.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #20

GUIDELINES FOR THE SAFE USE OF MOTORCYCLES

This Safety Bulletin applies to motorcycles used in motion picture productions. When motorcycles are used for stunts, this Safety Bulletin should be read in conjunction with *Safety Bulletin #04 - Stunts*. And, when using a motorcycle as a camera bike, please see "Use of a Motorcycle as a Camera Bike," below.

Considerations for the Advanced Preparation of a Motorcycle Sequence

Safety is the first priority; acting and/or getting the shot is second. When safe operation of the motorcycle is not possible, the motorcycle should not be used, and an alternate means should be considered (e.g., process trailer, tow vehicle).

The motorcycle operator should hold a current, valid motorcycle operator's license and/or be qualified to operate the motorcycle. The operator should be familiar with the techniques for safely performing the requirements of the sequence to be photographed, taking into consideration the terrain, driving surface, and other conditions. The motorcycle operator may require additional training depending on their familiarity with the route or motorcycle. The Stunt Coordinator or qualified person (collectively the "Stunt Coordinator") should assess the capabilities of the motorcycle operator. Only authorized personnel should be allowed on the motorcycle.

Personal Protective Equipment (PPE)

Safety should always take precedence when considering what Personal Protective Equipment the motorcycle operator should use during filming or rehearsal. Costumes and wardrobes can be altered with padding and other inserts to provide protection in lieu of conventional protective equipment. Protective clothing and equipment (e.g., helmet, gloves, body armor, synthetic textiles, Kevlar) should be worn whenever possible. When traditional PPE cannot be worn because of the requirements of the scene, alternative means of protection should be considered (e.g., skull cap, padding).

The Stunt Coordinator should consult with the motorcycle operator to decide what PPE is necessary for the planned activities. The Stunt Coordinator has the authority to determine what PPE is worn. The Stunt Coordinator will review the PPE with Production Management and/or the designated safety representative to ensure that studio requirements are followed. No one in Production Management should pressure the motorcycle operator, or the Stunt Coordinator, to reduce the use of protective equipment.

The head of the motorcycle operator should be protected, whenever possible, with a helmet or other type of device, such as a skull cap under a wig. Motorcycle helmets are always preferred over skull caps as they are more protective. Motorcycle helmets used on productions should be certified or rated under an acceptable standard such as helmets certified by the U.S. Department of Transportation (DOT). The DOT symbol found on helmets indicates that it meets the Federal Motor Vehicle Safety Standard (FMVSS). Other acceptable standards include, but

are not limited to, the Economic Community of Europe (ECE), Snell Foundation, Fédération Internationale de Motocyclisme (FIM), or the Safety Helmet Assessment and Rating Programme (SHARP).

Motorcycle Modification

When motorcycle modification is necessary for creative purposes, it is important to not compromise its safe operation or the safety of the cast and crew. Custom-built motorcycles can impact the operator's ability to maneuver while riding including “dressed” motorcycles with large fairings and ample bodywork. A restrictive covering over the windshield can impact the operator's visibility and should be kept at a minimum whenever possible.

A cut-off switch (a.k.a. dead man switch or kill switch) may be considered for all picture motorcycles based on the activity. When utilized, this cut-off switch is attached to the operator in such a manner that the engine shuts off if the motorcycle operator were to separate from the motorcycle. Evolving electronic technology may provide similar protections. Such equipment should be installed by a qualified person.

Planning A Motorcycle Sequence

When planning a motorcycle sequence, consider:

- Location permitting requirements, such as for road closures, Intermittent Traffic Control (ITC), or driving grids.
- Ensuring adequate personnel are available for location lock-ups.
- Type, size, and condition of the motorcycle to be used.
- Intended speed and maneuvers.
- Operating the motorcycle in close proximity to other vehicles, equipment, people, or animals.
- Camera placement.
- Route conditions (e.g., curved, incline, crown, obstacles, clearances, length, width, paved, gravel, dirt, flat, hilly, wet, slippery).
- Planned special effects such as rain or wet downs.
- Bike dressing and other customization of the motorcycle.
- Anticipated weather.
- Lighting options, including placement and power.
- Visibility conditions and restrictions for the motorcycle operator (e.g., cameras, dust, spray, lights, set dressing, theatrical hazes or fogs).
- For stunt and action sequences, consider the following:
    - Use dry cell batteries in place of wet cell batteries due to their small size, reduced weight, and lower risk of chemical leakage if there is damage to the bike.
    - Use a race-designed fuel tank cap to reduce spillage upon tip-over.

Pre-Ride Inspection

Motorcycles, ramps, and other equipment shall be examined prior to use to determine if they are in proper operating condition.

While performing the motorcycle inspection, the items to check include, but are not limited to, brakes, steering, tires, battery, fuel system, and engine. Any item that is not functioning properly must be repaired by a qualified person before use. In particular, the fuel line switch (aka "petcock") for older bikes should be checked and in good working order prior to use.

When using emerging technologies such as electric motorcycles, ensure the speed setting is at the intended level.

The motorcycle operator, Stunt Coordinator, and/or designated qualified person(s) should perform all necessary inspections and agree that all equipment is in good working order and is properly adjusted to suit the motorcycle operator.

Safety Meetings

The planned motorcycle sequence, including ramps, jumps, lay-downs, and other potential high-hazard activities, should be discussed at a safety meeting by all persons who are immediately involved.

In addition, a shot-specific safety meeting should be held by the First Assistant Director for the motorcycle operator, all performers and crew in proximity to the sequence. This safety meeting should discuss the following topics:

- Shot sequence and route (e.g., stunt action including crossovers/planned head-on or near misses, motorcycle speed, safety buffer(s), number and proximity of other vehicles, crew and camera placement, all background vehicles, and pedestrians involved).
- An "on-site walk-through" or a "dry run" with the Stunt Coordinator and all personnel involved in the event.
    - If possible, a slow-speed rehearsal should take place so that everyone can see the movement and path of the motorcycle.
- Environmental conditions (e.g., weather; surface conditions such as cement, special effects rain, wet downs, gravel, or dirt; and topography such as flat or hilly).
- Any changes to the original plan.
- Authority to abort, including signals to be used:
    - The Stunt Coordinator should determine and explain acceptable routes of escape/safety buffer(s) to personnel involved in the event; and
    - An understanding of the intended action, possible deviations, and authority to abort should be made clear.
- Production equipment (e.g., aerial lifts, vehicles, and lighting stands) selection, obstacles, and placement.
- Communication system(s) including designated channel.
- Signaling system to alert personnel to the motorcycle's impending movement.
- Any issues with the motorcycle operator's visibility.
- Scene action (e.g., stunts, performance, special effects).
- Personal protective equipment (e.g., harnesses, helmets, eye protection).
- Controlled or uncontrolled environment (closed course versus open roads with ITC) and the use of lock-ups to control pedestrian traffic.
- Emergency plan (e.g., escape routes and contingency plan).

If at any time a significant change to the sequence and equipment occurs, the First Assistant Director will conduct an additional meeting so that everyone understands the change(s).

Rehearsal

Rehearsals should be performed in advance of the motorcycle sequence. The motorcycle used in rehearsals should be the same as the one to be used for the sequence or as similar to the picture motorcycle as possible. The motorcycle should be customized and "dressed" in the same manner for both the rehearsal(s) and filmed sequence. The motorcycle operator should be equipped with PPE and any possibly compromising dressing or equipment (e.g., loose clothing, props, costumes, make-up, wigs) during the rehearsal(s).

Allow enough time for necessary rehearsals prior to filming. The motorcycle operator should do a test ride to become more familiar with the filming plans and where to ride during the scene. The test ride should then be followed by a slow-speed rehearsal with all involved.

Immediately Prior to Operation

- Verify communications between drivers and support vehicles (e.g., walkie-talkies).
- Perform an additional check regarding weather, road conditions, and route to ensure that all is clear.
- Ensure that the motorcycle operator is familiar with all plans, is confident with the route, all equipment, and is aware of where the camera(s) will be positioned for each take.

Operation

Motorcycle sequences should be planned and choreographed to minimize risk.

No person should be in the vicinity of motorcycle operations unless their assignment requires them to be there, and the motorcycle operator and Stunt Coordinator know of their position. Persons in the vicinity of the motorcycle operation should conduct themselves with caution.

Depending on the road conditions, speed, weather, controlled/uncontrolled environments, etc., the following should be considered during rehearsals and filming:

- Establish an area where only required personnel are permitted and establish a safety zone(s) for other production workers.
    - If feasible, a separate area can be established where non-essential personnel can safely watch the motorcycle performance.
- Only essential personnel should be allowed on the motorcycle.
- Equipment and personnel should not distract the motorcycle operator nor compromise the safety of the motorcycle or its operator.

A person qualified to administer emergency medical assistance shall be present or readily available at all rehearsals and performances during which motorcycles will be used. The production should consider engaging an ambulance in case emergency transportation to the nearest hospital is needed.

The use of a motorcycle with an internal combustion engine indoors should be done in a well-ventilated environment. It may be necessary to conduct air monitoring and periodic venting of the area.

Use of a Motorcycle as a Camera Bike

A camera bike is a motorcycle with a camera attached. For these motorcycles, in addition to the safety procedures mentioned above, the following safety procedures should be followed:

- Motorcycle operators must be licensed unless the motorcycle is being used off-road or at a track in a non-licensed situation (e.g., Motocross track, desert chase).
- The motorcycle operator should not hold or manually operate the camera while the motorcycle is in motion.
- All items placed on the camera bike or operator are to be properly secured. Extra equipment that is not used for the shot should be placed in a follow vehicle.
- All rigging of equipment is to be performed by qualified personnel in an area secured for the purpose of rigging, which is free of known hazards, including other vehicular traffic. The rigging must be discussed with the camera bike operator prior to the use of the motorcycle.
- The camera bike operator should be allowed sufficient time to familiarize and rehearse with the rigged motorcycle.
- The camera bike operator must inspect and be familiar with the motorcycle after any rigging/equipment changes are made to ensure that the safe operation of the motorcycle is maintained.
- When additional passenger(s) are on the camera bike, allow time for them to become familiar with the equipment and planned sequence (e.g., stability, load balance, route, speed). Ensure all passengers are securely positioned before the motorcycle operation.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #21

GUIDELINES FOR APPROPRIATE CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT

The purpose of this Safety Bulletin is to provide guidance in the selection of appropriate clothing and certain types of Personal Protective Equipment (PPE).

This bulletin does not include or apply to clothing or PPE for persons subject to the bloodborne pathogens standard (Safety Bulletin #24, "Cal-OSHA Safety Requirements for Handling of Blood and Other Potentially Infectious Materials"). Additionally, personnel working with or around pyrotechnics and/or open flame on production should refer to Safety Bulletin #16, “Recommended Guidelines for Safety with Pyrotechnic Special Effects” and/or Safety Bulletin #19, “Recommended Guidelines for the Use of Open Flames on Production” for guidance.

Suitable and effective PPE shall be provided and used where an activity presents a significant risk to health and safety and the risk cannot be reduced by any other means.

In particular, employers shall inform employees engaged in any of the following activities of specific PPE requirements by OSHA and/or other authorities:

- Working with electricity (see Safety Bulletins 23, 23A, 23B and 23C)
- Working with hazardous materials
- Welding or cutting
- Working around boats and water (see Safety Bulletin 15)
- Working with special effects, pyrotechnics, open flames, or hazardous objects (see Safety Bulletins 1, 2, 12, 16, 19, 27, 30, and 31)
- Construction, including alteration, painting, repairing, maintenance, renovation, removal or wrecking (see Safety Bulletin 39)
- Working around traffic (see Safety Bulletins 8, 8A, 8B, 8C, 20, 28, and 40)
- Working at heights

PPE must not significantly increase other risks by reducing visibility or interfere with other safety measures. Employees must be given appropriate instruction and training

on how to use any PPE issued. Once issued, PPE must be worn as required and any defects must be reported to the employer.

CLOTHING

- Clothing determined by the employer to be appropriate for the work being done shall be worn.

- Jewelry, loose sleeves, exposed shirt tails, neckties, lapels, loose cuffs or other loose clothing shall not be worn around machinery in which it might become entangled.

- Long hair shall be tied back when working around machinery and/or equipment with moving parts.

- Costumes should be selected and prepared in anticipation of the potential risks and hazards.

FOOT PROTECTION

- Appropriate foot protection shall be worn by employees who may be exposed to foot injuries from hot surfaces, corrosive materials, hazardous substances, falling objects, crushing or penetrating actions which may cause injuries, or who are required to work in abnormally wet or cold locations.

- Personnel working around open flame and pyrotechnic material must always wear appropriate closed-toe footwear.

HAND PROTECTION

- Hand protection (gloves) shall be worn by employees whose work exposes them to potential injuries, such as exposure to cuts, burns, harmful physical hazards, chemical agents or electrical hazards which are encountered and capable of causing injury or impairments.

- Hand protection should not be worn if there is a danger of it becoming entangled in moving machinery.

- Hand protection should be appropriate for the type of exposure.

- Gloves should be properly discarded when they become worn, contaminated, saturated or otherwise no longer usable.

EYE AND FACE PROTECTION

- Employees working where there is a risk of receiving eye injuries shall wear appropriate eye or face protection.

- Side shield protection shall also be utilized when employees are exposed to the risk of flying objects/particles/materials entering the eyes from the side.

- Suitable screens or shields isolating the hazardous exposure may be used if they provide adequate safeguarding for nearby employees.

- Specialized forms of eye protection are required for certain types of work, such as welding.

- The use of sunglasses or prescription eye glasses may not provide appropriate eye protection.

HEARING PROTECTION

- When operating or near loud equipment, amplified sound, pyrotechnics or gun fire, consideration should be given to wearing appropriate hearing protection suitable for the hazards encountered.

HEAD PROTECTION

- Employees exposed to flying or falling objects and/or electric shock and burns shall be safeguarded by means of approved head protection.

- Operation of vehicles, such as motorcycles, all terrain vehicles, bicycles, etc., may require the use of a helmet. (see Safety Bulletins 20 and 40)

SAFETY VESTS

Federal, State and local laws require safety vests to be worn and visible when working on active public roadways.

Safety vests shall always be properly worn by employees under the following circumstances:

- During set-up, rigging, filming or striking activities performed in or near an active public roadway, unless production has obtained full closure and control of the

roadway. **NOTE:** Alternative safety considerations should be made when wardrobe requirements would prevent cast from wearing safety vests while working in or near an active public roadway without full closure and control.

- When directing traffic or responsible for lockup during partial lane closures where intermittent traffic control is used to control traffic.

Other conditions and locations may require the use of safety vests, such as railroads, subways, construction sites, airports, docks, etc.

The color of the safety vests must be either fluorescent orange-red or fluorescent yellow-green. The retro-reflective material shall be orange, yellow, white, silver, yellow-green or a fluorescent version of these colors.

RESPIRATORY PROTECTION

The need for respiratory protection is unique to the hazards of the workplace. Consult your employer regarding their specific respiratory protection policy.

SANITATION OF PPE

- PPE shall be kept clean and in good repair.
- PPE not capable of being easily cleaned or disinfected shall be disposed of after use.
- PPE must be properly stored when not in use.

INDUSTRY-WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #22

GUIDELINES FOR THE USE OF SCISSOR LIFTS (ELEVATING WORK PLATFORMS) AND AERIAL BOOM LIFTS (EXTENSIBLE BOOM PLATFORMS)

(Also see "Addendum A" – Power Line Distance Requirements)

GENERAL STATEMENT OF USE

These guidelines are applicable to scissor lifts (elevating work platforms, including manlifts) and aerial boom lifts (telescoping, rotating, towable, and self-propelled extensible boom platforms), commonly referred to as “condors.”

Scissor and aerial boom lifts are designed to position employees and equipment at the worksite. Only trained and authorized personnel shall operate scissor or aerial boom lifts.

PRIOR TO OPERATION

1. **ALWAYS READ AND FOLLOW THE DIRECTIONS OF THE MANUFACTURER’S OPERATOR’S MANUAL FOR THE LIFT YOU ARE USING.**

2. Before operation, the user must be familiar with the machine’s capabilities and the operating characteristics of all control functions.

3. Lifts shall be inspected, following the manufacturer’s guidelines, prior to operation. This shall include a function check of all operational controls.

4. No modifications to a lift are allowed without permission from the manufacturer.

5. Do not use a damaged or malfunctioning lift. Take it out of service and report all problems to a supervisor, per employer procedures.

6. Do not operate the scissor or aerial boom lift if it is past its inspection dates as specified in the operator’s manual.

ENVIRONMENTAL FACTORS

Operators shall consider the job to be performed and shall evaluate the job site location, whether interior or exterior, and the route to be traveled for potential hazards, such as:

- Drop-offs or holes.
- Bumps, floor obstructions or debris.
- Sloped surfaces.

- Unstable or slippery surfaces.
- Overhead obstructions and high voltage conductors.
- Hazardous environments.
- Inadequate support of the surface bearing the load imposed by the machine, such as the capacity of the ground, decks, floors, pit covers, and stages.
- Wind and weather conditions.
- The presence of unauthorized personnel.
- Other possible unsafe conditions.

GUIDELINES FOR OPERATION

1. Enter and exit only through the gate entry area. Make sure the scissor arm assembly or aerial lift boom arm is fully lowered in the stowed position. Use extreme caution when entering or leaving the platform; always face the machine or ladder. Always maintain “three points of contact” (two hands and a foot or two feet and a hand) at all times when climbing or entering/exiting the lift.

2. Guardrails are the only fall protection required by OSHA in a **scissor lift**, but some manufacturers recommend and some employers require the additional use of personal fall protection attached to an approved anchor point by all occupants in the platform. Always check manufacturer and employer guidelines.

3. In addition to guardrails, personal fall protection is required in an **aerial boom lift** for all occupants in the platform. Everyone in an aerial boom lift must wear a full body harness with a fall restraint or fall arrest lanyard of the appropriate length attached to a designated anchor point in the platform. Always check manufacturer and employer guidelines.

4. Do not operate a scissor or aerial boom lift unless the guardrails are properly installed and the entry is secured. Attach the platform entry chain, lower the platform mid-rail, or close the entry gate before operating.

5. Attaching personal fall protection equipment to an adjacent pole, structure or equipment while working in a scissor or aerial boom lift is **NOT PERMITTED.**

6. Do not sit, stand or climb on the platform guardrails nor use planks, boxes, ladders or other devices to gain greater working height or reach. Never climb up or down the boom arm or scissor arm assembly. Maintain a firm footing on the platform floor at all times. Keep the platform floor clear of debris, oil, and mud. Keep slippery substances off of footwear.

7. Operate all controls slowly to ensure smooth platform movement. Make sure there is sufficient clearance around the scissor or boom lift before moving the chassis, boom, or platform.

8. Scissor and aerial boom lifts are designed to be used on "firm level surfaces only." No lift shall be used on an inclined surface unless designed and allowed for such use by the manufacturer. Operation of lifts on inclined surfaces shall NOT exceed manufacturer's ratings.

9. Provided they can safely be installed, wheel chocks shall be used on inclined surfaces. The braking system shall be set when elevating employees and when wheel chocks are used. Never leave the lift unattended if you have stopped it on a ramp, grade or incline until you have chocked at least one tire.

NOTE: Lifts may creep on an incline even if the brakes are set. Avoid stopping or turning on a grade if possible.

10. The platform shall NOT be loaded beyond its rated capacity.

11. Tools or equipment, which could fall from the aerial platform, must be secured.

12. Aerial boom lift baskets or platforms shall NOT be supported by adjacent structures when anyone is in the basket or platform in an elevated position.

13. When used, outriggers must be placed on a firm surface.

14. When there are moving vehicles or pedestrian traffic, secure the work area around the lift with flags, traffic cones, caution tape, or other means of traffic control.

15. Unauthorized personnel should not work, stand, or walk under a raised boom or platform.

16. DO NOT use a lift as a welding ground unless the unit has a welding grounding connection. Refer to the manufacturer's manual for grounding information.

17. DO NOT use a scissor or aerial boom lift as a crane.

18. DO NOT attempt to raise the platform/basket beyond its rated maximum height or reach.

19. Lifts should be driven with the platform in the lowest drivable position as recommended by the manufacturer. Driving with an operator in an elevated position is allowed (with employer approval) if the operator has a clear view of travel or spotters are used; the driving surface is level, firm, and smooth; and the lift is operated at no more than the speed allowed by the manufacturer based on the elevation of the boom arm.

20. When moving a scissor or aerial boom lift, position yourself on board the platform, and then conduct all moving operations from that position. Lifts, when in operation, are to remain solely under the control of the operator in the platform. Switching controls and moving the equipment in any manner without the consent of the operator while the operator is in the platform is prohibited except in case of an emergency.

Exception: On certain models of smaller scissor lifts, the platform control panel can be disconnected and relocated at the base of the lift in order to move the lift through an area of limited clearance such as a doorway. If doing so, make sure to follow the manufacturer guidelines, including:

- Clearing the path of travel of people and equipment.
- Positioning yourself behind the platform.
- Announcing that the lift will be moving.
- Driving at as low a speed as practical.
- Using a spotter to guide movement (ensuring the spotter remains at a safe distance).

21. When moving a lift forward, do not engage REVERSE until the vehicle has come to a complete stop. Changing direction is not the proper means of braking a lift.

    - Use REVERSE only as an emergency measure if the lift continues to crawl forward after releasing the drive-control joystick to the neutral passive-stop position.
    - Use FORWARD only as an emergency measure should the equipment continue to crawl in reverse after releasing the drive-control joystick to the neutral passive-stop position.

POWER LINES

1. Scissor and aerial boom lifts shall not encroach within the minimum safe approach distance (MSAD) as listed in Safety Bulletin #22 "Addendum A" Power Line Distance Requirements of any energized overhead power line unless danger from accidental contact with that energized line has been effectively guarded against.

   Note: Your employer may choose to set greater clearance requirements than those listed in Safety Bulletin #22 "Addendum A."

2. Use caution when working near lines of lower voltage.

   - Aerial lifts rigged with electrical lighting, special effects, or grip equipment should not be operated over low voltage electrical utility lines (600 volts or less), including supply lines for residences.

3. The operation of scissor or aerial boom lifts OVER energized, high-voltage lines of any sort is prohibited at all times.

4. Some employers may also prohibit working under power lines. Consult with your employer or studio safety representative for more information if there are questions or concerns regarding working around power lines.

ADDITIONAL CONSIDERATIONS

No scissor or aerial boom lift shall be raised, nor shall personnel be in the work lift platform or basket when any of the following conditions exist:

- Extreme weather conditions exist (lightning, heavy rain, hail); or
- Accumulation of ice or snow on the platform; or
- Winds exceed 25 miles per hour.

Note: There may be lower wind speed limits when performing additional activities such as those covered in the rigging and cribbing supplemental manuals.

RIGGING AND CRIBBING FOR AERIAL BOOM LIFTS ONLY

1. Within manufacturers' defined limits for specific models of aerial boom lifts; lighting, camera, and diffusion equipment may be rigged onto guardrails or beyond the platform of an aerial boom lift; in such case additional training is required.

    - Consult the manufacturer's operator's supplemental manual for authorized and trained set lighting technicians and studio grips, for instruction and list of approved models. If the manufacturer does not provide a supplemental manual or manufacturer approval, do not rig equipment onto guardrails or beyond the platform of an aerial boom lift.

2. Within manufacturers' defined limits for specific models of aerial boom lifts, cribbing can be used to create a level surface. Specific drive/steer disable lockout switches and cribbing platforms are required for this procedure. Training is required for the construction and use of such cribbing.

    - Consult the manufacturer's supplemental cribbing manual for instruction and list of approved models. If the manufacturer does not provide a supplemental cribbing manual or manufacturer approval, do not use cribbing with the aerial boom lift.

RIGGING FOR SCISSOR LIFTS ONLY

All equipment must be rigged and secured on the platform inside of the guardrails.

- If the manufacturer does not provide written guidelines, do not rig equipment onto guardrails or beyond the platform, nor use cribbing.

The information contained in this bulletin is intended for use only as guidelines. Refer to the manufacturer's operating manual for each specific make and model of lift you operate. Operational differences, location of controls, safety devices, and load capacity may vary for each model or equipment manufacturer.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #23

GUIDELINES FOR WORKING WITH PORTABLE POWER DISTRIBUTION SYSTEMS AND OTHER ELECTRICAL EQUIPMENT

Also refer to Safety Bulletin #23: Addendum A – "Power Line Distance Requirements"
Addendum B – "Basic Electrical Safety Precautions for Motion Picture and Television Off Studio Lot Location Productions"
Addendum C – "Working With 480 Volt Systems"
Addendum D – "Common Motion-Picture/Television Tasks and Associated Personal Protective Equipment"
Addendum E – "Guidelines for Meeting National Electrical Code (NEC) Grounding Requirements for Portable Generators Supplying Portable Equipment in the Motion Picture and Television Industry"

All electrical systems and electrically energized equipment are potentially hazardous, whether Alternating Current (AC) or Direct Current (DC), whether 50 volts, 120 volts or higher.

Only employees authorized by the employer to do so shall connect, disconnect, or operate electrical distribution systems. Prior to energizing any systems, ensure that all personnel are clear of all electrical equipment connected to the system.

This Safety Bulletin is intended to identify potential hazards and to recommend some specific safe practices for trained personnel. This Safety Bulletin is not intended as a design specification or as an instruction manual for untrained persons.

The City of Los Angeles Department of Building and Safety has published **BASIC ELECTRICAL SAFETY PRECAUTIONS FOR MOTION PICTURE AND TELEVISION OFF STUDIO LOT LOCATION PRODUCTIONS**. Those guidelines are included as Addendum B to this Safety Bulletin.

The County of Los Angeles Fire Department has published **GUIDELINES FOR MEETING NATIONAL ELECTRICAL CODE (NEC) GROUNDING REQUIREMENTS FOR PORTABLE GENERATORS SUPPLYING PORTABLE EQUIPMENT IN THE MOTION PICTURE AND TELEVISION INDUSTRY**. Those guidelines are included as Addendum E to this Safety Bulletin.

This document serves as minimum guidelines to the use of Portable Power Distribution Systems and other electrical equipment. Local Authorities Having Jurisdiction ("AHJ") may have requirements that are more restrictive. Always adhere to the National Electrical Code ("NEC"), all applicable Federal, State, and Local laws and regulations, and the determinations of the AHJ.

GENERAL SAFETY MEASURES

1. Plugging and Unplugging Electrical Equipment

Visually inspect the condition of the plug, cable, and equipment for any signs of excess wear, frayed cables or exposed current-carrying parts. **DO NOT USE** any equipment that is damaged.

All grounded equipment should be tested for continuity between the ground pin on the plug and the metal parts of the equipment before it is put into service. In addition, all cables should be tested for continuity of the ground, neutral and phase conductor.

Verify all equipment is in the OFF position prior to plugging or unplugging to avoid creating an arc at the receptacle. Wear protective gloves to avoid injury from a possible flash created by a short-circuit in the equipment.

Do not pull on the cord when unplugging equipment. This can cause one or more of the wires to pull out of its termination in the plug. Always grasp the plug firmly to unplug.

When using both AC and DC systems in the same location, each system must be clearly identified as AC or DC. Always verify that you are not plugging AC equipment into DC systems or DC equipment into AC systems.

2. Replacing Fuses and Circuit Breakers

Over-current protection is one of the most vital parts of the electrical circuit since improper over-current protection leads to fire and/or damage to equipment.

Before attempting to replace a fuse, turn off and verify the circuit is de-energized.

Fuses should only be replaced by qualified personnel. Fuses come in a wide variety (*e.g.*, one-time, time-delay, slow-blow, dual-element, etc.). When replacing a blown fuse, be sure to select a fuse of proper voltage, interrupting capacity, and amperage for the application.

Over-current protection must be sized according to the ampacity of the conductors and equipment served as per the NEC Table 400.5A or B for flexible cords and cables.

Disconnect switches still contain energized parts within the switch even in the OFF position. Because these disconnect switches may contain more than 400A and up to 480V, the use of properly-rated Personal Protective Equipment (PPE), including gloves and eye protection, is required. Pliers and other tools not

designed for fuse replacement shall not be used. The use of insulated, specialized fuse-replacement tools is required when replacing fuses in disconnect switches.

An overloaded circuit or equipment failure will cause circuit tripping or blown fuses. NEVER use oversized fuses, circuit breakers, copper slugs or tubing to replace fuses.

Follow proper over-current protection per the NEC.

3. Power Tools

When using power tools that are not double-insulated or battery powered on construction sites, Ground Fault Circuit-Interrupter (GFCI) protection is required. Test the GFCI device before use to verify it is functioning properly.

Insulating platforms, rubber gloves, and rubber mats provide an additional safety factor when working with electrically powered tools in damp locations.

ELECTRICAL SYSTEMS SAFETY MEASURES

1. Rigging a System

Use proper lifting techniques when lifting or moving heavy objects, such as cable or lighting equipment. Do not step directly on equipment such as cable. Cables can roll underfoot causing a slip or fall hazard.

The electrical system should be de-energized while it is being rigged. Before energizing the system, verify that the system is free from short circuits and/or crossed wires and verify all connections are properly mated.

2. Connecting Order of Single Conductors

All single conductor connections shall be made in the following order:

1st - Grounds (all AC, and on DC where used)
2nd - Neutrals
3rd - Phase Conductors (Hots)

Disconnect in the reverse order:

1st - Phase Conductors (Hots)
2nd - Neutrals
3rd - Grounds (all AC, and on DC where used)

All multi-pole connectors used on AC shall provide for "first make, last break" of the ground pole.

3. Color Coding

Portable cables and conductors shall be color coded in accordance with the NEC.

Neutral conductors shall be identified by marking at least the first 6 inches of both ends of each length of cable with white or gray.

Grounding conductors shall be identified by marking at least the first 6 inches of both ends of each length of cable with green or green with yellow stripes.

Phase conductors (hots) shall be identified by marking at least the first 6 inches of both ends of each length of cable with any color other than green, green with yellow stripes, white, or gray.

Commonly used colors for phase conductors (hots) on 120V systems are red, black and blue. Commonly used colors for phase conductors (hots) on 480V systems are brown, orange and yellow.

Where more than one voltage system exists within the same premises, each system conductor shall be identified by the system to which it is connected. This can be done by separate color coding, marking tape, tagging, or other equally effective means.

Where color coding is used to distinguish between different lengths or owners of cable, it must be done in a way that will not create confusion.

Caution should be used when using the color yellow as it may appear white under sodium lighting.

4. Devices and Cables

Cables and devices should be protected from foot and vehicle traffic damage.

Electrical distribution systems should be elevated in such a manner that they will not come in contact with running or standing water.

When it is necessary to have electrical distribution systems and devices which come into contact with water, such systems shall be designed and listed for use in water.

When lighting, electrical distribution, or any electrically powered equipment is used in close proximity to water or can make contact with water, the use of GFCI should be evaluated by a qualified person. This includes all areas where water hazards exist. When persons, wardrobe, props, or equipment are wet, the need for GFCI protection should be evaluated.

GFCIs should not be used on circuits where removal of power may create a greater hazard, such as airbags, decelerators, emergency egress lighting, etc.

Alligator clips or clamps shall not be used in conjunction with any electrical system or equipment.

Two-wire, non-polarized, DC-plugging boxes, paddle plugs, and porcelain boxes are not permitted on AC systems. This applies even with the use of an external ground.

All gang boxes supplied by a connector plug with an ampere rating higher than the receptacles in the gang box shall contain fuses or circuit breakers sized according to the ampere rating of those receptacles.

All AC multi-pole connectors shall be grounded and polarized.

All cable shall be listed by an approved testing laboratory. Only types "G," "W," or Flexible Stage and Lighting Power Cable (EISL, SC, SCE, SCT) are acceptable for single-conductor feeder cables.

Single-conductor connectors used on phase conductors and neutrals shall be connected to the conductors by means of solder, set-screw, or crimping. Flexible cords and cables shall be connected to devices and to fittings so that tension is not transmitted to joints or terminals.

Equipment Grounding Conductor connection devices or fittings that depend solely on solder shall not be used.

5. Guarding of Energized Parts

Any exposed or non-insulated part of the distribution system must be considered as energized until verified otherwise. and protected from accidental contact. Any point of danger, including the arc flash boundary, should be protected, shielded or barricaded to prevent any possible entry by unauthorized persons or objects.

6. Portable and Vehicle Mounted Generators

Approach to exposed connections on portable and vehicle mounted generators should be physically restricted or barricaded to non-qualified persons. Any

generator with exposed busbars or other energized parts should be guarded as described in Section 5 of this document.

Read thoroughly any operational manuals and complete appropriate forms and logs provided with the generator. Only a qualified operator designated by the employer shall operate a generator.

A fire extinguisher specific for the generator unit must be present and readily accessible outside the generator enclosure. Refer to studio policy on employee use of fire extinguishing equipment.

The generator should have as much open space as possible on all sides to allow maximum ventilation and minimum interference. It is important that all generating sets be protected from the elements and from unauthorized access.

The following precautions must be taken when re-fueling the generator:

- The generator must be off.
- A listed fuel nozzle must be used to prevent static electricity build-up.
- Connect a ground bond from the frame of the re-fueler to the frame of the generator.

Make sure exhaust fumes are ventilated away from enclosed areas, personnel, and air intake ducts, such as trailers and buildings. Be aware of hot surfaces when working around a generator.

Portable AC generators shall comply with the NEC, Section 250.34.

Vehicle mounted generators mounted on the same frame as the equipment they are supplying shall be completely insulated from earth by means of rubber tires, rubber mats around metal stairways and rubber mats under any type of lift gate or jacking device. Metal supports for trailers shall be insulated by means of wooden blocks. Safety tow chains shall be secured so as to not touch the ground. If complete insulation is not possible, a grounding electrode system shall be installed per the NEC, Section 250.52.

Earth grounding of portable generators shall comply with applicable sections of Article 250 of the NEC as determined by the AHJ.

Portable generators that produce both AC and DC are not producing pure direct current, and must not be used in DC mode around water. GFCIs will not function when supplied by DC.

7. Generator Grounding Connections

Generators shall be grounded in accordance with Article 250 of the NEC.

Fire hydrants, interior metal pipes, fixtures, standpipes or metal frames of buildings SHALL NOT BE USED as a grounding connection for mobile generators, unless approved by the AHJ.

8. **Portable Transformers**

Portable transformers shall be used, grounded, and bonded in accordance with the NEC, all applicable Federal, State and Local laws and regulations, and the determinations of the AHJ.

The ground of all transformers shall be connected to the ground of the supplying power source.

Proper clearance and ventilation shall be maintained around the transformer.

Verify the ground is bonded to the neutral inside the transformer.

9. **Bonding of Separately Derived Power Sources**

The grounds of separately derived power sources must be bonded together when located within 20 feet of each other or when one power source supplies equipment that may come within 20 feet of equipment supplied by another power source. When filming on interior sets this distance may be reduced to 12 feet.

When supplemental power is provided to a building (where allowed) and/or is supplying additional power inside the building, the ground of the supplemental power source must be bonded to the building's grounding electrode system.

The size of the bonding conductor(s) shall not be less than that given in NEC Table 250.66.

10. Grounding Direct-Current Equipment

DC-supplied equipment operating over 150 volts shall be grounded. Care should be taken to provide a barrier, either of material or space, between grounded and non-grounded devices.

When using 2-wire, ungrounded equipment on DC, verify there are no grounded metal surfaces, such as green beds, pipe grids or scaffolding, within 12 feet of the DC equipment.

11. Grounding Alternating-Current Systems and Equipment

All AC-supplied systems and equipment used by the motion picture and television industry shall be grounded.

All AC-supplied equipment shall have all non-current-carrying metal parts grounded by a continuously connected, equipment-grounding conductor back to the source of power. This conductor shall be sized according to NEC Table 250.122 .

12. Connecting to Premises/House Electrical Power Source (tie-in)

Connecting to a premises/house electrical power source (tie-in), such as a panel board or switchboard, can create the risk of a serious or fatal accident. Such connections shall only be made by a qualified person. Before performing this work, check with the NEC, all applicable Federal, State and Local laws and regulations, and the determination of the AHJ.

At a minimum, the AHJ will require that a qualified person possess:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electrical equipment.
- The skills and techniques necessary to determine the nominal voltage of exposed live parts.
- The knowledge of working clearance distances specified for various voltages to which personnel will be exposed, including arc-flash and shock-protection boundaries.
- The knowledge of lockout/tagout procedures and access to lockout/tagout equipment.
- The knowledge of proper use of personal protective equipment, insulating and shielding materials, and insulated tools.
- The knowledge to not wear jewelry, conductive clothing, and other unsuitable synthetic apparel when working on or around electrical equipment.
- The knowledge to select, inspect and use appropriate electrical test equipment.
- The necessary credentials and/or the ability to obtain required permits.
- The knowledge to perform proper emergency procedures.

Unless the electrical system of a building has been properly de-energized, locked out/tagged out, and verified to be de-energized, assume the electrical panel is energized.

Energized parts with which a person could make contact must always be de-energized, unless:

1. The de-energization of the system is not possible, due to the design of the equipment.
2. The de-energization of the system will cause an additional hazard, such as deactivation of emergency systems.
3. The electrical system supplies circuits that form an integral part of a continuous process that would need to be completely de-energized in order to work on the panel or circuit.

When unable to de-energize the circuit, and where the possibility exists of personnel coming in contact with energized equipment, equipment shall be properly insulated as described in Section 5 of this bulletin.

The use of an in-house "Energized Electrical Work Permit" system as described in NFPA 70E is recommended to determine the necessity of the energized work and to ensure that all parties involved are aware of the hazards associated with connecting to an energized power source, including potential hazards to other systems that are connected to the power source.

Connecting to an energized system is strongly discouraged. If work on energized electrical equipment is necessary, at a minimum, you must follow the arc-flash hazard-analysis label (if present) to determine the hazard/risk category and associated PPE required to prevent injury or death. In lieu of a label, consult and follow NFPA 70E Table 130.7(C)(9) requirements. **Remember, always consider exposed electrical parts to be "energized" until you have verified they have been de-energized and locked out/tagged out.**

Obtain an electrical permit from the appropriate AHJ before such work is done. Any connection to a premises/house electrical power system shall be performed by a qualified in-house electrician. If a qualified in-house electrician is not available, the work shall be performed by a qualified electrical contractor or other qualified person.

Prior to a qualified person connecting to a premises/house electrical power system, the following requirements, among others, must be adhered to:

- Determine if the electrical system voltage is compatible with the equipment to which it will be connected.

- Calculate the electrical panel's existing maximum ampere load to determine if the remaining capacity is sufficient for the additional equipment being connected.

- Use a properly sized circuit breaker or fusible disconnect switch to connect a distribution system to the premises/house electrical power system.

  – The rated interrupting capacity of the circuit breaker or fuses must meet the available interrupting capacity at the point of connection to the premises/house electrical power system.

- Use only approved lugs or devices to connect to the panel bus.

- Never use "Alligator" type clamps.

- Never connect ahead of the main circuit breaker, fuse box, or meter.

- If required, obtain a permit to remove a panel cover.

- Use suitable barriers, partitions, or other means to limit access to the connection to protect against accidental contact with energized parts and unauthorized entry into the arc-flash boundary by unauthorized persons or objects.

- Replacement of all panels, covers and screws must be done by a qualified person immediately after disconnecting from the premises/house electrical power system.

13. Personal Protective Equipment (PPE)

All persons working on or near energized electrical equipment shall wear PPE appropriate for the level of electrical hazard to which they are exposed. This PPE may include non-melting, long-sleeved shirts and long pants, or other Arc Rated (AR) clothing, and closed-toed, nonconductive-soled shoes and Safety Glasses. Garments made from synthetic materials not manufactured specifically for electrical work, such as polyester and nylon, are not suitable to protect from electrical hazards.

For an extended list of common motion-picture/television tasks and associated PPE refer to Addendum D. This addendum is based on NFPA 70 E and will be updated as warranted.

Refer to NFPA 70E Tables 130.7(C) (9) and (10) for a full list of tasks performed

on energized equipment, the associated hazards/risk categories, and required PPE.

14. Emergency Response

If an electrical accident occurs, notify emergency medical personnel and activate the Emergency Action Plan.

An Emergency Action Plan should include the following items:

- Location, method and any necessary tools required for emergency power disconnection
- Emergency Medical Services on hand or readily available with working means of contact
- Exact location of where the work is being performed
- Identification of CPR Trained Personnel
- Location of available AEDs

DO NOT APPROACH ANY ELECTRICAL ACCIDENT UNTIL YOU HAVE BEEN NOTIFIED BY QUALIFIED PERSONNEL THAT IT IS SAFE TO APPROACH.

Properly secure the accident area while maintaining a safe distance to prevent the possibility of additional victims.

DO NOT touch or approach a victim of electric shock while he or she is being shocked. If safe to do so, turn off the power.

Trained personnel should follow proper procedures for Cardiopulmonary Resuscitation ("CPR") and Automated External Defibrillator ("AED") use.

Since the possible effects of electrical shock can manifest hours after the event, **ANY** VICTIM OF ELECTRIC SHOCK **MUST** BE EVALUATED BY A QUALIFIED MEDICAL PROFESSIONAL.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #23

GUIDELINES FOR WORKING WITH PORTABLE POWER DISTRIBUTION AND OTHER ELECTRICAL EQUIPMENT

"ADDENDUM A" – POWER LINE DISTANCE REQUIREMENTS

When working outdoors with portable power distribution and other electrical equipment, it is important to locate and identify hazards such as overhead electrical power lines. Utility companies often use the phrase "Look Up and Live" when reminding workers of the potential hazards associated with overhead electrical power lines. All overhead electrical power lines have a Minimum Required Clearance (MRC), depending on the phase-to-phase voltage. Voltages can be found by contacting the utility owner/operator or a professional electrical engineer who is a qualified person with respect to electrical power transmission and distribution.

AVOID POWER LINES. In the event that work must be done in proximity to, or under any overhead electrical power lines, including, but not limited to, the placement of equipment such as ladders, scaffold, booms, forklifts, aerial lifts, sets, cranes, or other rigging, cast and crew should be made aware of the MRC and safe work practices. The operation of any equipment OVER energized, high-voltage power lines shall be prohibited. There may be additional regulations and/or exceptions for any aerial lifts (Mobile Elevated Work Platforms a.k.a. MEWP) rigged with electrical lighting, special effects, or grip equipment; please refer to the Power Lines section in Safety Bulletin #22 - *Guidelines for the Use of Scissor Lifts (Elevating Work Platforms) and Aerial Boom Lifts (Extensible Boom Platforms)*.

Cal-OSHA and Fed-OSHA regulations include tables that specify the MRC for overhead electrical power lines according to different voltage levels. When working in California, follow Table 1 below. When working outside of California in the United States, follow the Fed-OSHA Table 2 below, unless the state in which you are working has separate standards, which can be accessed on the individual state's OSHA website.

Production should always consult the proper authority (federal, state, and/or local) to ensure compliance with applicable laws and regulations for the jurisdiction in which they are working.

Table 1 Cal-OSHA (California Code of Regulations, Title 8, Section 2946)

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600.....50,000	10
over 50,000.....75,000	11
over 75,000 125,000	13
over 125,000 175,000	15
over 175,000 250,000	17
over 250,000 370,000	21
over 370,000 550,000	27
over 550,000 1,000,000	42

Table 2 – Fed-OSHA (based on the formula given in Code of Federal Regulations, Part 1910.333(c)(3)(i)(A): For voltages over 50,000 - 10 feet plus 4 inches for every 10,000 volts over 50,000.

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
Up to 50,000	10
Over 50,000 to 200,000	15
Over 200,000 to 350,000	20
Over 350,000 to 500,000	25
Over 500,000 to 750,000	34
Over 750,000 to 1,000,000	42
Over 1,000,000	As established by the Utility Owner/Operator

Your employer may choose to set greater clearance requirements than listed above. If there are questions or concerns, consult with your production safety representative for more information.

Additional information on power line distance requirements can be found in Safety Bulletins:

- #8C - *Guidelines for Traditional Camera Cars* "Addendum C" – Power Line Distance Requirements
- #22A - *Guidelines for the Use of Elevating Work Platforms (Scissor Lifts) and Aerial Extensible Boom Platforms* "Addendum A" – Power Line Distance Requirements
- #25A – *Camera Cranes* "Addendum A" – Power Line Distance Requirements

"ADDENDUM 23B"TO SAFETY BULLETIN #23, "GUIDELINES FOR WORKING WITH LIGHTING SYSTEMS AND OTHER ELECTRICAL EQUIPMENT"

August 01, 2000

BASIC ELECTRICAL SAFETY PRECAUTIONS FOR MOTION PICTURE AND TELEVISION OFF STUDIO LOT LOCATION PRODUCTIONS

PART A
GROUNDING

GENERAL

All electrical equipment (required to be grounded) is to be grounded back to the point where the electrical system receives its source of power. Even though Direct Current equipment operating at less than 150 volts to ground is not required to be grounded, it is highly recommended for safety purposes.

METHODS

Electrical equipment grounding conductors are to be continuous from the load being served back to the source of power. Approved cable connectors and devices will be considered as part of the continuous conductor. The grounding conductors are to be sized according to the rating of the overcurrent device protecting the circuit supplying the individual piece, or group, of equipment. (20 Amp - #12, 30/60 Amp - #10, 100 Amp - #8, 200 Amp - #6, 300 Amp - #4, 400 Amp - #3, 500 Amp - #2, and 600 Amp - #1 AWG)

CONNECTORS

Flexible cord or multiple conductor cable (enclosed in an overall jacket) supplying circuits or equipment are to be connected by use of a polarized plug and receptacle. Larger single conductor cables may be connected with listed single pin plugs or connectors. So called alligator clamp connectors should never be used for grounding connections. The basic design of these alligator types of connectors does not provide a suitable grounding connection. Unless designed for the purpose, connectors or splices shall be suitably isolated from contact with live vegetation, damp or wet locations.

GENERATORS, TRUCK OR TRAILER MOUNTED

Generators mounted on trucks or trailers shall be completely insulated from earth by means of rubber tires, rubber mats around metal stairways and rubber mats under any type of lift-gate or jacking device. Metal supports for trailers shall be insulated by means of wooden blocks. Safety tow chains shall be secured so as to not touch the ground. If complete insulation is not possible, a grounding electrode system shall be installed per the California Electrical Code, Article 250-83 (c) or (d).

GENERATOR GROUNDING CONNECTIONS (WHEN REQUIRED)

Interior water pipes, interior metal fixtures, metal frames of buildings, and the building grounding electrode system shall not be used as a grounding connection for mobile generators supplying power exclusively to location production systems.

When mobile generators supply power to location production systems in addition to the building's electrical system, the generator's grounding connection shall be bonded to the main building grounding electrode system at the service.

Multiple generators shall have their grounding connections bonded to each other when located within 20 feet of each other or when one supplies equipment which might possibly come within 20 feet of equipment supplied by the other(s).

Bonding conductors shall be sized per the California Electrical Code, Article 250-95.

PART B
OVERCURRENT PROTECTION

GENERAL

Conductors and cables should never be loaded in excess of 100% of their actual ampacity. The rating of the overcurrent device (i.e., fuse or circuit breaker) should never be confused with the rating of the conductors or cables.

RATING FOR CONDUCTORS AND CABLES

The California Electrical Code assigns ampacity ratings for conductors and cables used in motion picture production which are higher than the commonly used ratings. These ratings are found in table 400-5(B), apply only to cable types SC, SCE, SCT, PPE, G and W, and requires that the cable be installed per the footnotes. Ampacities for the commonly used distribution cables are AWG 4/0-360 amps, AWG 2/0-265 amps, AWG #2-170 amps. Note that ampacities listed in column D in the 75 degree C (167 degree F) section are used because 75 degrees C is the maximum rating of termination points.

RATING OF OVERCURRENT DEVICES

The California Electrical Code requires conductors and cables to be protected by overcurrent devices rated at not more than 400% of the ampacity given in table 400-5(B). Some generators have overcurrent devices rated as high as 1200 amps. Suitable overcurrent devices must be installed to protect the smallest size conductor or cable between the generator and the distribution box (typically AWG #2 "banded" cable).
The 400% rating of the overcurrent device does **NOT** mean that the cable or conductor may be loaded beyond the ampacity rating given in the table!

EQUIPMENT

The California Electrical Code requires equipment to be protected at its ampacity. A branch circuit of any size supplying one or more receptacles shall be permitted to supply stage set lighting loads. A branch circuit is defined as the circuit conductors between the final overcurrent device protecting the circuit and the outlet(s). Twenty amp circuits supply equipment rated up to 2000 watts (16 amps), fifty amp circuits supply 5K's, hundred amp circuits supply 10K's. Some equipment is marked with the maximum overcurrent protection permitted.

PART C
GENERAL EQUIPMENT REQUIREMENTS

EQUIPMENT

All equipment, new and existing, shall comply with the minimum requirements for safety of the Los Angeles Municipal Code. All existing equipment shall be maintained in an electrically safe condition with NO exposed live parts that in any way will present a potential shock or fire hazard.

All equipment shall be provided with overcurrent protection as required by the California Electrical Code. All cables and flexible cords shall be of the types permitted by Articles 400, 520 and 530 of the California Electrical Code and those specifically approved by City of Los Angeles. Welding cable **shall not be used.**.

All Alternating Current (AC) supplied HMI fixtures and ballasts shall be grounded by a continuously connected equipment grounding conductor back to the source of power. These shall not be grounded to the nearest available water pipe connection. This also applies to Direct Current supplied units where grounded. All electrical equipment required to be grounded shall be grounded only by the California Electrical Code required methods and devices.

All electrically powered equipment (except cameras, radios, audio equipment and the like that have self-contained power sources) **shall be** listed by a laboratory approved by this department. Equipment that does not bear the listing mark of an approved laboratory shall not be used.

PART D
GENERAL SAFETY PRECAUTIONS

INSTALLATION CONNECTIONS AND DISCONNECTIONS

Connections shall be made in the following order: a. Equipment grounding conductor. b. Grounded conductor (i.e., neutral). c. Ungrounded conductors (i.e., hot conductors). Disconnection shall be in the reverse order.
All connections shall be made from the farthest load connection first, and then progressively toward the source of supply. All disconnections shall be made in the reverse order.

GUARDING OF LIVE PARTS

In any part of a location distribution system that may potentially have exposed live parts, precautions shall be taken to assure they are covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of any contact by objects or persons.

These guidelines are based upon the 1998 California Electrical Code.
OTHER ELECTRICAL SAFETY AND RELATED ITEMS MAY BE ADDED AS NEEDED DEPENDING ON THE REQUIREMENTS AND ADVANCEMENTS WITHING THE FILMING INDUSTRY

Robert England.

Chief Electrical Inspector,
City of Los Angeles

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #23

GUIDELINES FOR WORKING WITH PORTABLE POWER DISTRIBUTION SYSTEMS AND OTHER ELECTRICAL EQUIPMENT

"ADDENDUM C" – WORKING WITH 480 VOLT SYSTEMS

As 480-volt systems become more common on production, employees working with them should be aware of the potential hazards which are greater than 120 volt systems. Such hazards include, but are not limited to, greater arc flash potential, arc blast explosions, significantly greater shock hazard, and a greater ability to arc between conductive surfaces.

Only qualified employees who have been properly trained and authorized by the employer should connect, disconnect, or operate 480-volt systems or equipment.

This Safety Bulletin is intended to identify potential hazards and to recommend safe practices for trained personnel. This Safety Bulletin is not intended as a design specification, nor is it intended as an instruction manual for untrained persons.

For additional information, please refer to the following:

- Safety Bulletin #23, **GUIDELINES FOR WORKING WITH PORTABLE POWER DISTRIBUTION SYSTEMS AND OTHER ELECTRICAL EQUIPMENT**
- Safety Bulletin #23, Addendum A – **POWER LINE DISTANCE REQUIREMENTS**
- Safety Bulletin #23, Addendum B – The City of Los Angeles Department of Building and Safety, **BASIC ELECTRICAL SAFETY PRECAUTIONS FOR MOTION PICTURE AND TELEVISION OFF STUDIO LOT LOCATION PRODUCTIONS**
- Safety Bulletin #23, Addendum D - **COMMON MOTION-PICTURE /TELEVISION TASKS AND ASSOCIATED PERSONAL PROTECTIVE EQUIPMENT**
- Safety Bulletin #23, Addendum E - The County of Los Angeles Fire Department, **GUIDELINES FOR MEETING NATIONAL ELECTRICAL CODE (NEC) GROUNDING REQUIREMENT FOR PORTABLE GENERATORS SUPPLYING PORTABLE EQUIPMENT IN THE MOTION PICTURE AND TELEVSION INDUSTRY**
- National Fire Protection Association ("NFPA") 70 (aka National Electrical Code ("NEC"))
- NFPA 70E: Standard for Electrical Safety in the Workplace

GENERAL SAFETY MEASURES

IDENTIFYING SOURCE VOLTAGE FOR CORD AND PLUG CONNECTED DEVICES

Distribution board, panel board and disconnect switch enclosures can only be opened by qualified

and designated person(s). Prior to connecting onto or energizing any 480 volt system, the source voltage must be identified and verified. Proper and safe meter techniques must be observed to prevent arcing. An appropriately rated voltage meter must be used. Employees using test equipment on 480 volt systems shall receive proper training prior to metering the source power.

COLOR CODING FOR VOLTAGE AND PHASE IDENTIFICATION

Portable cables and conductors MUST be color coded to ensure that 120 volt equipment is not mistakenly connected to a 480 volt system.

Neutral conductors shall be identified by marking at least the first 6 inches from both ends of each length of conductor with GRAY (white is to be used for 120 volt neutral conductors).

Grounding conductors shall be identified by marking at least the first 6 inches from both ends of each length of conductor with GREEN or GREEN WITH YELLOW STRIPES.

Phase conductors (hots) shall be identified by marking at least the first 6 inches from both ends of each length of conductor with BROWN, ORANGE or BRIGHT YELLOW tape.

Where more than one voltage system exists within the same location, each system shall be identified by voltage and system. This can be done by additional color coding, marking tape, tagging, or other equally effective means.

Where color coding is used to distinguish between different lengths or owners of cable, it must be done so that there is no confusion created.

To avoid confusion between different nominal voltage systems, YELLOW SHOULD NOT BE USED IN PORTABLE 120 VOLT SYSTEMS.

GROUNDING PROCEDURES

All 480 volt systems shall be grounded in accordance with NEC Article 250 and additional requirements, if any, of the Authority Having Jurisdiction ("AHJ").

Special attention should be taken when using multiple power sources whose energized systems may come into contact with each other. Ensure systems are bonded together with the appropriately sized bonding jumper and connected to a common grounding electrode to ensure that no potential exists between the system grounds.
If grounding rods are required, use proper sized grounding rods and connectors as per the NEC.

Before driving grounding rods into the earth, an underground service company should be contacted to make sure the area is clear of hidden hazards such as water pipes, gas lines, buried cable, and other obstructions.

Grounding conductors from portable 480 volt sources used in buildings should be connected to the grounding connection at the service entrance or main power source.

DEVICES AND CABLES

All cable shall be listed for its intended use by an approved testing laboratory.

Dual jacketed type "W" or equivalent cable is recommended for single conductor feeder cables on 480 volt power systems since small punctures and fractures in the insulation may not be seen during visual inspection.

Single conductor connectors used on "hots" and "neutrals" shall be connected to the conductors by means of solder, set-screw, or crimping. Equipment grounding conductor connection devices or fittings that depend solely on solder shall not be used. Single conductor connectors shall be of the single pole and locking type.

Spider boxes, splicing blocks, and other distribution equipment shall be rated and identified for use on 480-volt systems in conformity with the provisions of the NEC. When more than one voltage system is used on the same premises, the equipment shall be marked in a suitable manner to identify the system to which they are connected.

Cables and devices must be protected from foot and automobile traffic. When using elevated truss crossovers, the metal structure must be grounded to the source ground.

When 480-volt equipment is mounted, suspended, or otherwise attached to any structure which uses metal in its construction (*e.g.*, scaffold, truss, greenbeds, or pipe grids), the metal components of the structure must be grounded to the source ground.

480-volt systems should be elevated and/or protected in such a manner to avoid contact with water.

When 480-volt systems may be used in or around water, such systems shall be designed and listed for use in water or wet conditions (*e.g.*, NEMA 3R enclosures, GFCI devices).

PLUGGING AND UNPLUGGING ELECTRICAL EQUIPMENT

Visually inspect the condition of the plug, cable, and equipment for any signs of excess wear, loose parts, frayed cables, cracked/punctured insulation, pinched/crushed outer

jacket, exposed current-carrying parts or any other signs of damage. **DO NOT USE** equipment in any of these conditions. Label and return this equipment for repair.
All grounded equipment should be tested for continuity between the ground pin on the plug and the metal parts of the lighting equipment before it is placed into service.

Turn off the power when connecting to, or disconnecting from, 480-volt systems. When branching off an energized system, shut off the power and lock-out/tag-out all switches that may energize the circuit being worked on. All equipment that is being plugged and unplugged shall be in the off position to avoid creating an arc at the receptacle. Verify with the appropriate meter that the power is turned off. Proper Personal Protection Equipment (PPE), including protective gloves and clothing, shall be worn to avoid getting burned from a flash created by a short-circuit in the equipment.

CONNECTING ORDER OF SINGLE CONDUCTORS

All single conductor connections shall be made in the following order:

1st – Grounds
2nd – Neutrals
3rd – Hots

Disconnect in the reverse:

1st – Hots
2nd – Neutrals
3rd – Grounds

All multi-pole connectors shall provide for "first make, last break" of the ground pole.

GUARDING OF LIVE OR NON-INSULATED PARTS
Any part that is live or non-insulated must be covered with appropriate insulation material or protected or barricaded to prevent accidental contact by persons or objects.

EMERGENCY RESPONSE
Electrical accidents are very serious and care must be taken to ensure that potential rescuers do not become victims. If an electrical accident occurs, follow proper emergency procedures and have Emergency Medical Services ("EMS") contacted immediately. DO NOT APPROACH ANY ELECTRICAL ACCIDENT UNTIL YOU HAVE BEEN NOTIFIED BY QUALIFIED PERSONNEL THAT IT IS SAFE TO APPROACH.
Properly secure the accident area to prevent the possibility of additional victims.

DO NOT touch a victim of electrical shock while he or she is connected to the circuit. If safe to do so, turn off the power.

While waiting for EMS to arrive, and if trained, follow proper procedures for Cardiopulmonary Resuscitation ("CPR"), including the use of an Automated External Defibrillator ("AED"), if available.

Since the possible effects of electrical shock can manifest hours after the event, ANY VICTIM OF ELECTRICAL SHOCK **MUST** BE EVALUATED BY A QUALIFIED MEDICAL PROFESSIONAL.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #23

GUIDELINES FOR WORKING WITH PORTABLE POWER DISTRIBUTION SYSTEMS AND OTHER ELECTRICAL EQUIPMENT

"ADDENDUM D" – COMMON MOTION-PICTURE/TELEVISION TASKS AND ASSOCIATED PERSONAL PROTECTIVE EQUIPMENT

The information in this safety bulletin does not qualify a person to perform work involving potential electrical hazards.

Table 1. Voltage-Rated PPE Requirements by Task
Work performed by a qualified person on energized AC Systems supplied by utility or generator.

Task	Voltage-Rated Gloves w/ Leather Protectors
Plugging/unplugging flexible cord with dry hands, dry cord, and connectors	No
Metering receptacles and connectors (conductors enclosed) using a properly rated meter (0-250 V)	
Metering test jacks using a properly rated meter (0-480 V)	
Metering single-conductor connectors using a properly rated meter (480/277 V)	Yes
Working on exposed, energized electrical conductors and circuit parts, including voltage testing and performing a tie-in	
For circuits 150 V or less, tasks for which it may not be possible to avoid contact by hands or tools	
For circuits 151-750 V, tasks for which body parts or conductive objects being held could come within one foot of energized parts	
Inserting or removing a dimmer module from a rack where there may be a risk of accidental contact with energized parts	

No = voltage-rated PPE not required, Yes = voltage-rated PPE required.

Table 2. Arc Rated PPE Requirements by Task
Work performed by a qualified person on energized AC Systems supplied by utility or generator.

Task	Arc Flash Protection
Normal operation of a circuit breaker, switch, contactor or starter (Must be properly maintained and installed. See note 3.)	No
Metering receptacles, test jacks, or connectors using a properly rated meter (conductors enclosed)	

Inserting or removing a dimmer module from a rack (0 – 240V)	No
Working on exposed, energized electrical conductors and circuit parts, including voltage testing	Yes (See Table 3 and note 2a)
Performing a tie-in of a portable distribution system to utility-fed service or exposing energized conductors by opening or removing covers	
Connecting/disconnecting single-conductor cable while energized (0-250 V) (listed, insulated type connectors)	
Connecting/disconnecting single-conductor cable while energized (480/277 V) (listed, insulated type connectors)	Prohibited
No = arc flash PPE not required, Yes = arc flash PPE required. Prohibited = prohibited practice.	

Where arc flash protection is required, follow the PPE requirements marked on the equipment's electrical hazard warning label. If the information is not provided on an equipment label, PPE may be determined using Table 3. Equipment must fall within the parameters shown in note 2 below. Verify this with the employer.

Table 3. Arc Flash Categories and Required Personal Protective Equipment
Requirements for working on exposed, energized conductors or circuit parts, including circuit testing.

	Category 1 Arc-rated 4 cal/cm^2	**Category 2** Arc-rated 8 cal/cm^2
Arc-Rated PPE	**Systems up to 240 V**	**480/277 V Systems**
Arc-rated long sleeve shirt with arc-rated long pants, or arc-rated coveralls	●	●
Arc-rated face shield or arc-rated flash suit hood	●	●
Arc-rated balaclava or arc-rated flash suit hood		●
Arc-rated gloves or heavy-duty leather gloves (or VR gloves with leather protectors when shock protection is required)	●	●
Other Required PPE		
Non-conductive, hard hat (Class G or E)	●	●
Eye protection (safety glasses or safety goggles under the face shield or hood)	●	●
Hearing protection (ear canal inserts)	●	●
Heavy-duty leather footwear or dielectric footwear or both	As needed	●

● = required equipment.
This table should only be used by an authorized person who is qualified to identify the short-circuit current available and the fault clearing time needed to choose the proper PPE. These values must be within the parameters shown in note 2 below.

Table 1 is based on NFPA 70E® 2018 Section 130.4 and Table 130.4(D)(a). Table 2 is based on Table 130.5(C). Table 3 is based on 130.7(C)(15)(a).

Notes:

1. The requirements of Tables 1 and 2 apply to circuits that are energized or could become energized. They do not apply when tasks are performed in an *electrically safe work condition* (such as when a portable power distribution system is not connected to a power source or when the employer's lockout/tagout procedure is followed).
2. The arc flash protection given in Table 3 is valid only for equipment within the following parameters:
   a. Systems up to 240 V: maximum of 25kA short-circuit current available, maximum of 0.03 sec (2 cycles) fault clearing time, working distance 18 in.
   b. 480/277 V systems: maximum of 65kA short-circuit current available, maximum of 0.03 sec (2 cycles) fault clearing time, working distance 18 in.

   If the specifications of the equipment exceed the short-circuit current or fault clearing time, or the working distance is closer than 18 in. do not use this table to determine arc flash PPE. In such cases, PPE must be determined by an incident energy analysis.
3. The operation of switches and circuit breakers is not considered an arc flash hazard if all of the following conditions are met:
   a. The equipment is properly installed.
   b. The equipment is properly maintained.
   c. The equipment is used in accordance with the manufacturer's instructions and instructions on the labeling.
   d. The equipment doors are closed and secured.
   e. All equipment covers are in place and secured.
   f. There is no evidence of impending failure.

   Best practice is to stand to the side (not in front of) when operating switching devices such as circuit breakers and safety switches.

   Consult with the employer to verify the condition of maintenance. If the equipment does not meet one or more of these requirements, an arc flash risk assessment should be performed to determine if additional protective measures are required. If the maintenance condition of the equipment is unknown, check with the employer regarding use of additional arc flash PPE.
4. Employees performing metering must be trained and qualified to select and use the meter safely.
5. Connections and disconnections should **not** be made with wet hands. Connections shall be handled only with insulating protective equipment if the condition of the connection could provide a conductive path to the employee's hand (e.g. if the cord connector is wet from being immersed in water).
6. Energized work is only permitted if the employer can show justification for performing such work in an energized state; meaning performing the work de-energized is infeasible or would create a *greater* hazard. The person performing the work must be qualified with regard to the equipment, the method, and the energized condition of the circuit. An energized electrical work permit may be required for energized work other than inspection and diagnostic metering.

COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

DARYL L. OSBY
FIRE CHIEF
FORESTER & FIRE WARDEN

April 11, 2013

COUNTY OF LOS ANGELES FIRE DEPARTMENT PUBLIC SAFETY FILM UNIT PORTABLE GENERATOR GUIDELINES

The attached guidelines shall be used by County of Los Angeles Fire Department's Fire Safety Officers and Fire Safety Advisors with regard to electrical safety and the motion picture and television industry.

Questions regarding the guidelines should be directed to Captain Cesar Cano, Public Safety Film Unit, at (818) 364-8240.

BATTALION CHIEF KEN DOUGLASS
NORTH REGION FIRE PREVENTION DIVISION

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS	CALABASAS	DIAMOND BAR	HIDDEN HILLS	LA MIRADA	MALIBU	POMONA	SIGNAL HILL
ARTESIA	CARSON	DUARTE	HUNTINGTON PARK	LA PUENTE	MAYWOOD	RANCHO PALOS VERDES	SOUTH EL MONTE
AZUSA	CERRITOS	EL MONTE	INDUSTRY	LAKEWOOD	NORWALK	ROLLING HILLS	SOUTH GATE
BALDWIN PARK	CLAREMONT	GARDENA	INGLEWOOD	LANCASTER	PALMDALE	ROLLING HILLS ESTATES	TEMPLE CITY
BELL	COMMERCE	GLENDORA	IRWINDALE	LAWNDALE	PALOS VERDES ESTATES	ROSEMEAD	WALNUT
BELL GARDENS	COVINA	HAWAIIAN GARDENS	LA CANADA FLINTRIDGE	LOMITA	PARAMOUNT	SAN DIMAS	WEST HOLLYWOOD
BELLFLOWER	CUDAHY	HAWTHORNE	LA HABRA	LYNWOOD	PICO RIVERA	SANTA CLARITA	WESTLAKE VILLAGE
BRADBURY							WHITTIER

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

Guidelines for Meeting National Electrical Code (NEC) Grounding Requirements for Portable Generators Supplying Portable Equipment in the Motion Picture and Television Industry

Single Generator (NEC 250.34)

The frame of the generator mounted to a truck or trailer may serve as the grounding electrode (in place of the earth) for the portable power distribution system. A ground rod is not required if the generator units and vehicles they are mounted to are insulated from the earth.

Two or More Generators (NEC 250.30)

- Where two or more portable generators are located within 20 feet or less of each other they shall be bonded together by a dedicated bonding conductor from generator to generator. The bonding conductor shall be copper and sized in accordance with NEC Table 250.122. A ground rod is not required if the generator units and vehicles they are mounted to are insulated from the earth.

- Generators shall be bonded together when two or more generators supply power to a common set where the portable equipment is in close proximity to each other (within 12 feet for interior sets, 20 feet for exterior sets).

Portable Generator Supplying Power to Portable Equipment in a Structure (NEC 250.34)

- In a de-energized building the grounding requirements are the same as an exterior location.

- When a portable distribution system is brought into an energized structure, where structure power is not used for production power, bonding to the structure's grounding electrode is not required.

Generator Supplying Portable Power in Combination with Structure Power (NEC 250.30)

Using a portable power distribution system inside a structure in combination with the structure's power supply, or where large metal equipment supplied by the structure's power may come in contact with the portable power distribution system or equipment, requires the generator grounding conductor to be bonded to the structure's grounding electrode, and the conductor shall be sized

according to NEC 250.66. The grounding electrode is usually found at the structures electrical meter.

Generator Supplying Portable Power to Portable Equipment Attached to a Structure (NEC 250.30)

Motion Picture and Television productions do not energize permanently installed systems that are no longer connected to utility power, unless supervised by a licensed electrician.

Connecting to Structures Utility Power (NEC 590)

Only a qualified person shall perform tie-ins to premises wiring. Tie-ins need to be protected from contact, barricaded and have proper overcurrent protection.

Ground Fault Circuit Interrupter (GFCI)

NEC Section 530.6 allows short-term outdoor use of standard non-GFCI protected indoor portable stage and studio lighting equipment and portable power distribution equipment.

NEC Section 530.21 does not require GFCI protection for plugs and receptacles used in Motion Picture and Television Studios and on Locations.

GFCIs are devices intended for the protection of personnel only. The code requires GFCI protection for certain permanently installed receptacles on premises or permanent structure wiring (NEC Article 210) and on construction sites (NEC Article 590). Motion Picture and Television productions typically use GFCIs in wet conditions or when systems or energized devices come within 10 feet of water.

Portable Generators 5 Kilowatts or less (Putt-Putt)

These generators shall meet the same isolation and bonding requirements of larger portable generators.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #24

CALIFORNIA OSHA SAFETY REQUIREMENTS FOR HANDLING OF BLOOD AND OTHER POTENTIALLY INFECTIOUS MATERIALS

The California Department of Industrial Relations ("Cal OSHA") Bloodborne Pathogen Standard is a series of regulations to protect workers from contracting disease through direct contact with contaminated blood and other potentially infectious materials[1] ("OPIM"). This Safety Bulletin highlights certain provisions or requirements from the regulations. (See Title 8, California Code of Regulations Section 5193 for the complete text of the regulations.) See applicable Federal and other state and local regulations for other requirements when outside California. The Bloodborne Pathogens standard requires employers to protect those employees reasonably at risk (employer designated medical care providers and other employees who are assigned responsibility for responding to incidents involving blood or OPIM) from exposure to bloodborne pathogens[2]. Your employer is required to have a written exposure control plan which is required to be accessible to employees. (Title 8, CCR § 5193 (c)(1))

Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, "all human blood and certain human body fluids are treated as if known to be infectious for Hepatitis B virus (HBV), Hepatitis C (HCV) Human Immunodeficiency Virus (HIV), and other bloodborne pathogens." (Title 8, California Code of Regulations § 5193.) "Universal Precautions shall be observed to prevent contact with blood or OPIM. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials." (Title 8, CCR § 5193 (d)(1).)

The following methods of compliance shall be observed under the Cal OSHA regulations:

1. Treat all blood and body fluids as if they are known to be infectious with HBV, HCV or HIV (Title 8, CCR § 5193(b)).

2. Use appropriate personal protective equipment (PPE) as required including gloves, face masks, eye shields, protective gowns, disposable resuscitation devices, etc. (Title 8, CCR § 5193(J)(4)(a).)

---

[1] "Other Potentially Infectious Materials" include the following human body fluids: Semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, and any other body fluid that is visibly contaminated with blood such as saliva or vomitus, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids such as emergency response. (Title 8, CCR § 5193(b))

[2] "Bloodborne Pathogens" means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B virus (HBV), Hepatitis C virus (HCV) and Human Immunodeficiency Virus (HIV). (Title 8, CCR § 5193(b))

3. Efficient hand washing is the single most effective practice to prevent the spread of infection. Wash your hands immediately or as soon as feasible, after removal of gloves or other personal protective equipment (PPE). When provision of hand washing facilities is not feasible, the employer shall provide either an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes. When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as feasible. (Title 8, CCR § 5193(I)(2))

4. Treat all needles and other sharp implements as if they are known to be contaminated with infectious material. (Title 8, CCR § 5193(b))

5. Be sure that ALL biohazard waste including contaminated PPE and sharps are disposed of properly and safely (dispose of sharps in puncture-proof containers). Refer to your employer's written exposure control plan for details. (Title 8, CCR § 5193 (g))

6. If you have an "Occupational Exposure"[3] or if you have an "Exposure Incident"[4] and are accidentally exposed to blood or other potentially infectious materials, a

[3] "Occupational Exposure" means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties (Title 8, CCR § 5193(b)).

The employer shall make available the Hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up for bloodborne pathogens exposure to all employees who have had an exposure incident. When an employer is also acting as the evaluating health care professional, the employer shall advise an employee following an exposure incident that the employee may refuse to consent to post-exposure evaluation and follow-up from the employer-healthcare professional. When consent is refused, the employer shall make immediately available to exposed employees a confidential medical evaluation and follow-up from a healthcare professional other than the exposed employee's employer.

EXCEPTION: Designated first aid providers who have occupational exposure are not required to be offered pre-exposure Hepatitis B vaccine if the following conditions exist:

1. The primary job assignment of such designated first aid providers is not the rendering of first aid.

   a. Any first aid rendered by such persons is rendered only as a collateral duty responding solely to injuries resulting from workplace incidents, generally at the location where the incident occurred.

   b. This exception does not apply to designated first aid providers who render assistance on a regular basis, for example, at a first aid station, clinic, dispensary, or other location where injured employees routinely go for such assistance, and emergency or public safety personnel who are expected to render first aid in the course of their work.

2. The employer's Exposure Control Plan, subsection (c)(1), shall specifically address the provision of Hepatitis B vaccine to all unvaccinated first aid providers who have rendered assistance in any situation involving the presence of blood OPIM (regardless of whether an actual exposure incident, as defined by subsection (b), occurred) and the provision of appropriate post-exposure evaluation, prophylaxis and follow-ups for those employees who experience an exposure incident as defined in subs (Title 8, CCR § 5193(f)(1)).

[4] "Exposure Incident" means a specific eye, mouth, or mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious material that results from the performance of an employee's duties. (Title 8, CCR § 5193(B))

series of Hepatitis B vaccinations and post-exposure evaluation and follow-up will be offered to you at that time, free of charge. The cost of these vaccinations is the responsibility of your employer. If you have an exposure, report the incident immediately to your supervisor and to first-aid personnel. (Title 8, CCR § 5193 (f))

The key to protection and prevention is compliance with regulations and universal precautions. Your health and safety may depend on it!

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #25

CAMERA CRANES

This Safety Bulletin pertains to the safe assembly and usage of powered and manually operated, counterbalanced camera cranes (including telescopic cranes such as Technocranes) for motion picture production. This Safety Bulletin may also be applicable to jib arms and similar types of units.

In addition to reviewing this Safety Bulletin, the construction, striking, inspection, and operation of camera cranes should be done by properly trained personnel after consulting the manufacturer's/vendor's operating manual.

Also, consult Safety Bulletin #8 - *Guidelines for Insert Camera Cars* when camera cranes are used in conjunction with insert cars, tow dollies, or process trailers.

Exclusion Zones

- Designate an exclusion zone where only personnel necessary to construct/strike the camera crane are allowed.

- Movement of the camera and/or the crane can create a hazard to the cast and crew. A designated exclusion zone should be created to ensure that only personnel necessary to film the sequence are near the crane.

Construction/Strike

- Allow sufficient time to construct, inspect, test, and strike equipment.

- The manufacturer/vendor operation manual should show assembly instructions, maximum payload, and maximum gross weight in all configurations, safety precautions, and maintenance procedures. The manufacturer's/vendor's instructions shall supersede this Safety Bulletin when different. Read and follow all manufacturers'/vendors' placards on the equipment.

- Camera cranes have heavy parts and may require considerable force and precision to construct/strike. Have an adequate number of people available to lift, lower, or position parts. Use hoists, lifts, tailgates, or other material handling equipment to assemble or move the unassembled camera crane, where feasible.

- During construction/striking, keep the arm in balance as much as possible. Build out the front and back of the arm evenly, adding counterweights as necessary. Use a manufacturer/vendor-supplied support or a support that is adequately stable and rated for the load while constructing/striking the camera crane.

- Cranes may have many pinch and nip points. Care must be taken during operation, construction, and strike.

Camera Crane Base

- The camera crane base should be on a flat and level surface, platform, or track system capable of supporting the intended load. The weight of all personnel, equipment, and the camera crane should be taken into consideration.

- Using the largest base that is practical increases the stability of the unit. The appropriate base for a crane is determined by the shot, surroundings, necessary height & length, and total load.

Weight & Balance

- The payload on the boom arm should not exceed that which can be balanced by the counterweight system supplied with the equipment. Additional counterbalance weights that are greater than the manufacturer's/vendor's specifications should not be used. The manufacturer/vendor should be consulted regarding all extension configurations that are not explicitly specified in the operating manual.

- The stability of the crane must be maintained by controlling the weight and balance. Using brakes or securing the arm to the base can cause instability and create a tip-over hazard.

- When handling uncoated lead weights, appropriate protective gloves should be worn, and hands should be washed after use.

- Only remove or add equipment, step on or off a camera crane, or modify the camera crane after obtaining approval from the operator.

    - Stepping off a balanced camera crane without providing a counterbalance (e.g., another person to replace the weight) can cause the arm to move rapidly and possibly cause serious injury.

Outriggers/Stabilizers

If the camera crane is equipped with outriggers/stabilizers, follow the manufacturer's/vendor's instructions regarding their proper use. Adequate means of distributing the outrigger/stabilizer load should be used when appropriate. Ensure that the feet of the outriggers/stabilizers will not sink into soft soil or asphalt.

Spot Plan

- Review the location where the camera crane will be operated. Identify potential hazards in the location and plan appropriately.

    - Consideration should be given to wind, rain, extreme heat, cold, and other atmospheric conditions, whether natural or manmade, which can affect the safe use of camera cranes.

Inspection

Camera cranes should be inspected prior to use by a "Competent Person" (someone who is capable of identifying hazards in the work area, and who has authorization to take prompt corrective measures to mitigate them) following an inspection protocol supplied by the manufacturer/vendor. If components are missing, damaged, or improperly fitted, the equipment should be removed from service. Missing or damaged components are to be replaced or repaired in accordance with the manufacturer's/vendor's procedures prior to the equipment being returned to service.

Operation

- Cast and crew working near a camera crane should wear appropriate Personal Protective Equipment (PPE), as determined by a Competent Person.
- Passengers must be secured with seatbelts or fall restraint systems that are in good working condition and used whenever the crane is in operation.
    - For more information on seat belts, please see Safety Bulletin #37 - *Vehicle Restraint Systems - Seat Belts and Harnesses*
- During camera crane operation, there must be adequate clearance from potential obstructions or hazards (e.g., power lines, helicopter rotors, fire sprinkler heads, cast and crew).

High Voltage Clearances

- Special attention must be given to working around high-voltage power lines. If the voltage is unknown, check with the local utility provider.
- Please refer to Safety Bulletin #25 - *Camera Cranes, "Addendum A" – Power Line Distance Requirements* for minimum clearance distances and further guidance.

Moving the Camera Crane

- Tip-over hazards may occur when pushing camera cranes on slopes or over uneven surfaces such as cables, speed bumps, or curbs.
- Special care is to be used when operating camera cranes on a curved track. A top-heavy load and excessive speed could cause a tip-over.
- When moving a camera crane on or off the track, the arm weight should be considered to reduce the chances of the unit tipping over.

After Camera Crane Operation

Unattended camera cranes should be secured to prevent movement of the unit (e.g., by adding or removing manufacturer/vendor-supplied weights from the weight bucket).

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #25

CAMERA CRANES

"ADDENDUM A" – POWER LINE DISTANCE REQUIREMENTS

When working outdoors with camera cranes, it is important to locate and identify hazards such as overhead electrical power lines. Utility companies often use the phrase "Look Up and Live" when reminding workers of the potential hazards associated with overhead electrical power lines. All overhead electrical power lines have a Minimum Required Clearance (MRC), depending on the phase-to-phase voltage. Voltages can be found by contacting the utility owner/operator or a professional electrical engineer who is a qualified person with respect to electrical power transmission and distribution.

AVOID POWER LINES. In the event that work must be done in proximity to, or under any overhead electrical power lines, including, but not limited to, the placement of equipment such as ladders, scaffold, booms, forklifts, aerial lifts, sets, cranes, or other rigging, cast and crew should be made aware of the MRC and safe work practices. The operation of any equipment OVER energized, high-voltage power lines shall be prohibited. There may be additional regulations and/or exceptions for any aerial lifts (Mobile Elevated Work Platforms a.k.a. MEWP) rigged with electrical lighting, special effects, or grip equipment; please refer to the Power Lines section in Safety Bulletin #22 - *Guidelines for the Use of Scissor Lifts (Elevating Work Platforms) and Aerial Boom Lifts (Extensible Boom Platforms)*.

Cal-OSHA and Fed-OSHA regulations include tables that specify the MRC for overhead electrical power lines according to different voltage levels. When working in California, follow Table 1 below. When working outside of California in the United States, follow the Fed-OSHA Table 2 below, unless the state in which you are working has separate standards, which can be accessed on the individual state's OSHA website.

Production should always consult the proper authority (federal, state, and/or local) to ensure compliance with applicable laws and regulations for the jurisdiction in which they are working.

Table 1 Cal-OSHA (California Code of Regulations, Title 8, Section 2946)

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600.....50,000	10
over 50,000.....75,000	11
over 75,000 125,000	13
over 125,000 175,000	15
over 175,000 250,000	17
over 250,000 370,000	21
over 370,000 550,000	27
over 550,000 1,000,000	42

Table 2 – Fed-OSHA (based on the formula given in Code of Federal Regulations, Part 1910.333(c)(3)(i)(A): For voltages over 50,000 - 10 feet plus 4 inches for every 10,000 volts over 50,000.

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
Up to 50,000	10
Over 50,000 to 200,000	15
Over 200,000 to 350,000	20
Over 350,000 to 500,000	25
Over 500,000 to 750,000	34
Over 750,000 to 1,000,000	42
Over 1,000,000	As established by the Utility Owner/Operator

Your employer may choose to set greater clearance requirements than listed above. If there are questions or concerns, consult with your production safety representative for more information.

Additional information on power line distance requirements can be found in Safety Bulletins:

- #8C - *Guidelines for Traditional Camera Cars* "Addendum C" – Power Line Distance Requirements
- #22A - *Guidelines for the Use of Elevating Work Platforms (Scissor Lifts) and Aerial Extensible Boom Platforms* "Addendum A" – Power Line Distance Requirements
- #23A - *Guidelines for Working with Portable Power Distribution Systems and Other Electrical Equipment* "Addendum A" – Power Line Distance Requirements

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #26

PREPARING URBAN EXTERIOR LOCATIONS FOR FILMING

Urban locations such as alleyways, beneath bridges, tunnels, abandoned structures, storm channels and other locations may present health risks and other hazards, which can be mitigated prior to the Production Company prepping and/or shooting at the location. These guidelines are intended to provide recommendations to prepare urban locations for filming. Safety bulletins are recommended guidelines only; consult all applicable rules and regulations including Title 8, California Code of Regulations.

Hazard Identification

The Production Company should conduct an assessment of the urban location to identify possible hazards to the health and safety of cast and crew. Potential hazards may include:

1. Biohazards

   Human or animal waste, mold, fungus, bacteria, body fluids, vermin, insects, and other potential biohazards.

2. Chemical Hazards

   Asbestos, lead paint, solvents, insecticides, herbicides, and other potentially harmful chemicals.

3. Physical Hazards

   Rubbish, refuse, abandoned materials, broken glass, scrap metals, discarded needles, other waste or ***utility/electrical lines*** that can create a potential physical hazard.

The Production Company should evaluate the type and scope of hazards and, if necessary, create a plan to mitigate the hazards prior to the crew's arrival at the location.

Production should secure, if necessary, the services of an industrial hygienist or other appropriate professional capable of conducting necessary analysis to determine the type and scope of hazards present at the location.

Physical Mitigation

The Production Company should take necessary steps to minimize exposure of cast and crew to the aforementioned hazards. Such steps may include, but are not limited to, power washing, steam cleaning, removal of refuse and rubbish, fumigation, and use of chemical disinfectant(s). Because of the nature of such locations, production should consider securing the location during and after mitigation procedures.

In some cases, the type and/or scope of hazards present at the urban location may necessitate the use of a licensed contractor certified in the proper handling and removal of the offending substances and materials.

Electrical cables, props, and other equipment used at the location should be protected where practical. Cables should be supported off the ground whenever possible. Protective ground cover, such as layout board or other material, should be positioned in work areas to minimize contact with potentially affected areas. Props and equipment that come in contact with the ground should be disinfected. Washing facilities should be available for the cast and crew - who should be reminded to wash periodically and before meals. Long pants, long sleeved shirts, and hard-soled shoes are recommended to minimize contact. Proper personal protective equipment should be provided and used.

Location Maintenance

If possible, the urban location should be locked-off and secured to maintain the cleanliness of the set. If that is not practical, Production should conduct daily cleaning activities before crew call to remove any sources of exposure or hazards that accumulated during the Production Company's absence.

Additional Concerns

Some mitigation procedures may cause objections from local authorities or the community. The Production Company should first check with local agencies to insure that their preparation activities do not violate local ordinances.

NOTE: ***Refer to a location "Safety Checklist."*** **Contact the projects' Production Safety Coordinators for a copy of their companies' "Safety Checklist." If not available, a generic "Safety Checklist" can be obtained from the AMPTP.**

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #27

POISONOUS PLANTS

This bulletin addresses special safety considerations when working outdoors and exposed to nasty plants. Although the types of nasty plants may vary from region to region, basic safeguards should be taken to prevent serious injury or illness to crew members working at locations where these plants grow.

GENERAL INFORMATION

These plants (*e.g.*, Poison Oak, Poison Ivy and Poison Sumac) cause an allergic reaction in about 90% of all adults. The oleoresin in the juice of these plants causes dermatitis in allergic people from contact from their clothes, tools, equipment, pet fur, or smoke of burning plants. The fluid from the resulting blisters **does not** contain oleoresin, and **cannot** cause dermatitis.

These irritating plants normally grow along fence rows, waste areas, open and cut over forest lands, stream banks, swamps, ponds and rocky canyons. In the fall, their leaves turn to brilliant red.

NOTE: People who have allergic reaction to these types of plants should notify production company and/or set medic prior to entering an area that is known to have these types of plants.

PROTECT YOURSELF

Clothing Guidelines - in areas where nasty plants are likely:

1. Wear long pants with your pant legs tucked into your socks or boots. A good boot above your ankle can help protect you better.
2. Wear long sleeves and a loose fitting shirt, and a ventilated hat.
3. Cover as much skin as you can. The less skin exposed, the less likely you may be affected.
4. All contaminated clothing should be washed separately with detergent.
5. Wear protective gloves when handling.
6. Wear practical change clothes and shoes before leaving the location. Work clothes should be placed in a bag and taken home for laundering.

GENERAL SAFETY PRECAUTIONS

1. Wash often. Wash hands before eating, smoking or applying cosmetics.
2. Identify the areas that may contain the plants and use the proper safeguards to avoid them.

IDENTIFICATION

1. Both Poison Oak and Poison Ivy are readily identified by their trademarked three-leaf pattern.
2. Poison Ivy has its three leaflets with pointed tips, while Poison Oak has its three leaflets with rounded tips.
3. Leaflets range from a half-inch (1/2”) to two (2”) inches long.
4. Flowers are greenish white, about one-quarter (1/4”) inch across and are borne in clusters on a slender stem.
5. The fruits are white, berry-like, glossy and dry when ripe; about one-sixth (1/6”) of an inch in diameter in Poison Ivy and slightly larger in Poison Oak.
6. All parts of Poison Oak and Ivy are poisonous year round, except the pollen.
7. Burning is not recommended; as inhaling dust and ash from the smoke can result in poisoning of the lungs that can require hospitalization.

POISONING

1. The poisonous sap is carried in the roots, stem, leaves and fruit.
2. The plant is bruised, the sap is released.
3. It is easier to contract the dermatitis in the spring and summer due to the tender nature of the leaves.
4. Sap may be deposited on the skin by direct contact with the plant or by contact with contaminated objects such as shoes, clothing, tools, equipment and animals.

SYMPTOMS

1. The interval between contact and the appearance of dermatitis will vary considerably.
2. Most people will develop dermatitis 24 to 48 hours after contact.
3. Blistering will follow moderate itching or burning sensation.
4. Blisters usually rupture and are followed by oozing of serum and subsequent crusting.
5. Healed areas often remain hypersensitive to further contact for several months.
6. Although extremely irritating, most cases disappear in a week to 10 days.

TREATMENT

1. Thoroughly wash the skin with soap and water (brown soap is best)
2. Apply anti-itch lotion, such as Calamine or Caladryl.
3. In severe dermatitis, cool wet dressings or compresses will be required. Heat releases histamines, which cause the intense itching.
4. A physician should examine severe rashes, especially those covering large areas or accompanied by abnormal body temperatures.
5. Medical treatment is most effective if applied before the oozing sores appear.
6. All exposures should be reported to the set medic.

OTHER POISONOUS PLANTS

Other plants that can cause mild to severe dermatitis include:

1. Stinging nettle
2. Crown of thorns
3. Buttercup
4. May apple
5. Marsh marigold
6. Candelabra cactus
7. Brown-eyed Susan
8. Shasta daisy
9. Chrysanthemum

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #28

GUIDELINES FOR RAILROAD SAFETY

These guidelines are recommendations for safely engaging in rail work, i.e., working onboard trains, in railroad yards, subways and elevated systems, or in the vicinity of railroad equipment.

Railroads are private property requiring the railroad's authorization to enter. Once authorization is given, everyone on scene must follow the railroad's safety procedures to reduce hazards.

There are strict rules governing rail work. These rules must be communicated to and followed by all cast and crew. Check with the Authority Having Jurisdiction (AHJ) and with the owner/operator for local regulations, specific guidelines, and required training. Additionally, each railroad property or transportation agency may have its own rules and training requirements. In many cases, everyone must receive training.

PRIOR TO THE START OF RAIL WORK

Prior to starting rail work, the Production, in conjunction with the railroad representative, will conduct a safety meeting with all involved personnel to acquaint cast and crew members with possible workplace risks.

Consult with the appropriate Department Heads to determine if equipment, such as lighting, grip equipment, props, set dressing, electric generators or other equipment will be used. When using these items, ensure that they are properly secured and their use has been authorized by the railroad representative.

Plan proper ventilation and exhaust when using electric generators. Electrical bonding may be necessary.

Ensure conditions and weight loads of the work area and adjacent roads used for camera cars, camera cranes, horses, etc. are adequate for the intended work.

WORKING IN A RAIL YARD

1. Always follow the instructions of the designated railroad representative, and any written work or safety rules distributed by production.

2. Remain alert and aware of your surroundings at all times. Locomotives, railroad cars and other equipment may move without warning on any track in either direction. Never assume a train will be traveling in a particular or “normal” direction on any track.

3. If working around electrified train equipment, be aware of any “third rails” or overhead lines present in the area. A third rail is an electrified line that presents an immediate life threatening hazard. Never approach, step on or touch an energized third rail. For more detailed information see “Working on or Around Electrified Trains or Systems” below.

4. ANSI compliant high visibility vests are to be worn at all times. For specific information on vests please refer to AMPTP Safety Bulletin #21, Guidelines for Appropriate Clothing and Personal Protective Equipment.

5. Ankle-supported, reinforced-toe, work boots/shoes are recommended. Sandals, sneakers, and running shoes should not be worn.

6. Ask the designated railroad representative where to store production equipment. Extra care should be taken when storing hazardous or flammable materials.

7. **DO NOT RELY ON OTHERS TO WARN YOU** of approaching locomotives, rail cars or other equipment. Even if personnel have been assigned to provide warning, stay alert. You may not hear or see the warning.

8. When whistle or flag signals are to be used to communicate, everyone must be familiar with their meaning. The railroad representative or 1st AD shall educate cast and crew as to the meaning of these signals prior to commencement of work.

9. Listen for the sound of approaching locomotives or rail cars, as well as audible signals, such as bells or whistles. Trains typically use such signaling devices before moving, but do not assume that such warnings will be sounded.

10. Be aware that the train is significantly wider than the track’s width. 15 feet from either side of the tracks is considered a safe distance. Closer distances need to be approved by the designated railroad representative.

11. Always face moving trains as they pass.

12. Never sit, walk or stand on the rails, ties, switch gear, guardrails or other parts of the track or structure. Be aware that tracks can move.

13. Before crossing tracks look backwards and at parallel tracks. Once determined to be clear, cross immediately.

14. Do not place any objects on the rails, switches, guardrails or other parts of the track structure. If the performance of any of these activities is required for production purposes, specific permission must be obtained from the designated railroad representative and additional safety precautions may be required.

15. Whenever you are walking, always face in the direction in which you are proceeding. Be aware of possible trip hazards and debris. If it is necessary to turn your head or look backward, stop and look before proceeding.

16. When using radios/cell phones or referring to paperwork, step away from the tracks, stop walking, and stand still until you are finished.

17. Do not operate switches or other railroad equipment.

18. Take extra precautions if rain, snow or ice is present. Snow may conceal trip hazards. Avoid walking or working under icicles. Walkways, platforms, steps, etc., should be clear of ice and snow.

RIDING RAILROAD EQUIPMENT

1. Riding on equipment should be restricted to essential personnel.

2. Never attempt to get on or off moving equipment, unless authorized by the designated railroad representative.

3. Only authorized personnel may ride on the side of a locomotive or rail car.

4. Remain alert for conditions that can cause abrupt changes in speed, e.g., train braking, changes in grade, wet or icy tracks, and entering or leaving a rail yard or train station.

5. Be alert for conditions that can cause slack action (e.g. train brake, change in grade or change in speed). Protect yourself by remaining seated and with both feet on the ground. If duties require you to stand, keep your feet shoulder width apart, one foot slightly ahead of the other, with hands braced on the wall or grab bar.

WORKING ON, INSIDE OR UNDER RAILROAD EQUIPMENT

1. Remain alert for the unexpected movement of equipment.

2. Observe the condition of equipment before using it. Look for sharp edges or other potential hazards including loose, bent or missing stirrups, ladder rungs and brake platforms.

3. Face equipment as you ascend or descend equipment. Look for obstructions before ascending or descending.

4. Dismount or mount equipment only when it is stopped, unless authorized by the designated railroad representative.

5. When moving from one side to the other of a stopped train, you may safely cross in front of the first locomotive or behind the final car. Crossing mid-train may only be done on locomotives or rail cars that are equipped with handrails and end platforms. Never cross the tracks between or under cars, unless authorized.

6. Do not move from one rail car to another rail car while the train is in motion, unless authorized by the designated railroad representative.

7. Cross between passenger cars by holding on to railings and grab bars. Remain aware of walking surface conditions.

8. Blue Flag Rules are special rules to inhibit train movement. These rules protect personnel working on a car, train or track. Anyone can request a “Blue Flag” to be set by the designated railroad representative. Once the blue flag is set, the train cannot move for any reason until the blue flag is removed.

WORKING ON OR AROUND ELECTRIFIED TRAINS OR SYSTEMS

1. Transit systems and trains are commonly powered by electricity. The most common methods of electric power come in the form of electrified “third rails” or overhead catenary lines.

2. Voltages can range from 600-V or 750-V for electric third rail systems to over 14,000-V for overhead catenary systems.

3. Never touch an electric third rail or any supporting electrical equipment. Always be aware of electric third rails and always assume they are energized until verified otherwise.

4. A safe clearance distance as determined by the rail system operator and approved by the designated railroad representative must be maintained when working in the vicinity of an electric third rail. If it is absolutely necessary to work

within the established safe distance to the third rail and the possibility exists that personnel or equipment may contact the rail, appropriate measures as determined by the designated railroad representative must be implemented to eliminate the electrical hazard. Appropriate measures may include methods such as, de-energizing, locking-out, and grounding the third rail; covering the third rail with rubber mats approved by the rail system operator; etc. All third rail protective measures should be performed by approved railroad personnel.

5. Always assume that an overhead catenary line is energized until verified otherwise. ONLY RAILROAD OR ELECTRIC COMPANY PERSONNEL MAY DE-ENERGIZE AND VERIFY CATENARY LINES.

6. When overhead catenary lines cannot be de-energized, a clearance distance minimum of 10-feet must be maintained at all times, unless approved by the designated railroad representative. Be mindful of any booms, ladders, sticks, or production equipment that could inadvertently make contact with the overhead lines.

7. Never touch any train equipment that is attached to the overhead catenary line. The “pantograph” extends from the train to the overhead line. This piece of equipment should always be considered live as it carries current. Never touch the pantograph, even if it is in the retracted position.

SUBWAYS AND ELEVATED TRAIN SYSTEMS

1. Subways and elevated trains present unique hazards and caution must be taken at all times when working within tunnels and on elevated tracks.

2. Never enter a subway tunnel, elevated track, or other prohibited area, without authorization and clearance from the designated railroad representatives. Do not touch any equipment within the tunnels or elevated tracks as they may present numerous hazards, such as electricity.

3. Be aware of exit and escape routes as well as your surroundings. Listen for the sounds of approaching trains. Always face and watch approaching trains on adjacent tracks.

4. Know the location of the electric third rail and/or overhead catenary lines. Be aware that catenary lines in tunnels may be much lower than on above-ground systems. In this case, use caution when carrying equipment.

5. Be mindful of insects and animals, including rodents, which are commonly present in subway tunnels.

6. When working on elevated structures, determine if guardrails or other appropriate fall protection systems are needed.

SPECIAL NOTE ON AUTOMATED TRAIN SYSTEMS

Some transit systems, (e.g., airport and amusement park people movers) are automated, meaning that they do not rely on onboard operators or engineers. Automated systems present unique hazards as there is usually no person on board to warn or stop the train if someone or something is on the track.

NEVER enter into an automated system when it is operational. If the production requires the filming of an automated system, a safety plan must be developed with the system owner/operator to ensure safety of all parties.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #29

GUIDELINES FOR SAFE USE OF HOT AIR BALLOONS

(Also refer to Safety Bulletin #29, Addendum A – "External Load Guidelines")

The flying accuracy of a Hot Air Balloon may be adversely affected by changing natural conditions such as wind, air density, humidity and time of day. Special precautions should be taken to ensure safety when working in any extreme temperatures or terrain, *e.g.*, mountains and deserts. Manmade conditions such as weight, weight distribution and/or the discharge of pyrotechnics in close proximity can also affect the balloon=s ability to fly.

1. **NOTE: Any Balloon that is inflated and standing must have a FAA certified pilot, with a commercial rating for lighter than air aircraft.** A qualified Pilot shall be utilized to pilot the balloon or dirigible.

2. There are three (3) certified pilot ratings:

   c. Free Balloon with airborne heaters (usually propane fueled)

   d. Gas filled Balloon (usually helium filled)

   e. Dirigible (usually helium filled)

3. All **Aerial Coordinators and/or Pilots in Command** shall possess a current FAA approved **Motion Picture and Television Operations Manual** and accompanying **Waiver**.

   The **Waiver** is specific to those Federal Aviation Regulations specified in the approved manual.

4. The **Pilot in Command** is at all times the final authority over his/her balloon and shall be in command over all **flight operations and/or related activities.** The **Pilot in Command** shall have the authority to abort any operation. Abort signals should be specified ahead of time.

5. Communications: The **Aerial Coordinator and/or Pilot in Command** will coordinate with the designated production representative and implement a plan for communications between the participants in the air and on the ground.

   The plan will incorporate the following:

   a. Designated ground contact personnel
   b. Air to ground radios (VHF or FM)
   c. Assignment of discreet frequencies (channels)
   d. Visual signals (flags, specified hand signals, or light) shall be used to halt filming in the event of lost communications or inability to utilize radios **(note: flares are not to be used in or around a balloon)**
   e. Abort signals, audible and visual to halt filming in the event of unforeseen circumstances or safety hazards

6. Prepare plot plans and graphics to locate the intended landing area, intended flight paths, and designated emergency landing sites. Indicate the location and types of special effects.

7. MEETING for the production staff for those persons necessary for filming, including emergency, safety and security personnel.

   NOTE: A subsequent briefing/**SAFETY MEETING** may also be required as necessary for an intended action.

   Both meetings shall include the following:

   a. Pertinent items and the special provisions of the Aerial Coordinator and/or Pilot in Command along with any additional provisions issued by the local FAA Flight Standards District Office
   b. Possible risk to personnel that are involved
   c. Safeguards to personnel and equipment
   d. Communications
   e. Emergency procedures
   f. Location of boundaries
   g. Local governmental limitations or restrictions (if any)

8. The **Aerial Coordinator and/or Pilot in Command** shall designate one person as the Ground safety contact with no other responsibilities. The Balloon Crew Chief may be designated as the ground safety contact around the balloon, if qualified.

9. A preplanned stunt and/or special effect sequence, if any, will not be changed in any way once the Balloon has been launched. If there is a question as to safety of any aerial filming sequence involving low, over-the-camera shots, a briefing/**Safety Meeting** shall be held between the **Aerial Coordinator and/or Pilot in Command** and concerned persons as to whether the use of a locked-off camera is necessary.

10. Allow only personnel essential to the filming of the balloon to be in the area. All other personnel shall remain at least **50** feet away from the balloon.

11. No smoking is allowed within **100** feet of the balloon or any of its components, which includes the propane storage area.

12. There shall be a designated and approved area for the storage of propane fuel tanks (usually with or at the support vehicle location).

13. Check on predicted weather conditions in the areas of the launch site, flight paths, and landing site. Provide as much advance notice as possible to the **Aerial Coordinator and/or Pilot in Command** regarding any weather problems such as high winds, rain or lightning. Sudden changes in any of the above may require that the flight be delayed or canceled.

14. **Balloon support equipment is very important as parts are easily damaged while on the ground. Do not step on any part of the balloon or tether ropes.**

15. Keep all sharp objects, heat sources or open flames and non-essential equipment at least **100** feet from the balloon.

16. If a foreign object(s) falls into, on or against any part of the Balloon or rigging, report it immediately to the **Pilot in Command and/or Aerial Coordinator.**

17. A chase vehicle shall be assigned with no other duty than to support the balloon crew.

18. Before any stunt or special effects sequence is to be performed, all persons involved shall be thoroughly briefed as to any potential hazards and safety questions prior to the filming.

19. If an emergency occurs, **DO NOT TOUCH** any part of the balloon. A designated balloon ground crew member will take charge and coordinate rescue operations. Immediately call 911 or the designated emergency number for the area.

20. If you are unsure about any part of the balloon operation, ask the **Pilot in Command and/or Aerial Coordinator**.

21. The production company must notify all cast and crew members and the front of the studio call sheet shall contain a statement to the effect that:

    "An aircraft is being used and will be flown in close proximity to crew and equipment. Anyone objecting will notify the production manager or 1st AD prior to any filming."

A COPY OF THIS BULLETIN SHALL BE ATTACHED TO THE CALL SHEET ON DAYS THE AIRCRAFT IS BEING UTILIZED

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #29

GUIDELINES FOR SAFE USE OF HOT AIR BALLOONS

"ADDENDUM A" – EXTERNAL LOAD GUIDELINES

GUIDELINES FOR ESSENTIAL PERSONNEL OR EQUIPMENT TO FILM OR BE FILMED WHILE ON THE EXTERIOR OF, ENTERING, OR EXITING A BALLOON BASKET OR GONDOLA IN FLIGHT

Traditional ballooning motion picture activities include air to ground transfers, air to surface vehicles or persons, rappelling, parachuting, long line and many other scenarios where essential personnel may be required outside of the balloon basket or gondola.

Stunt persons and camera operators are often called upon to stand outside of or hang from the basket or gondola, cargo hooks, trapeze devices, bungee cords, cables, ladders, long lines, etc.

Safe completion of these operations require the complete understanding and coordination of all parties involved, *i.e.* the **Aerial Coordinator and/or Pilot in Command, Designated Production Representative, Stunt Persons, Stunt Riggers, Balloon Riggers, Special Effects and Grip Riggers, and essential ground crew**. In performing these types of operations the following guidelines should be used:

1. The **Pilot in Command** is at all times the final authority over his/her balloon and shall be in command over his/hers **flight operations and/or related activities**.

   The **Pilot in Command and/or Aerial Coordinator** shall have the authority to abort any flight operation **in the interest of safety**.

2. **Risk Management**

   Participants will conduct a thorough evaluation of the operations to be conducted and the potential risks to essential personnel, **if any**.

3. **Personnel Involved**

   Aerial Coordinators and/or Pilot in Command (Waiver Holder), essential personnel to be flown, stunt persons, balloon rigging, safety and production personnel.

4. **Briefing**

   Briefings will be conducted by the **Aerial Coordinator and/or Pilot in Command (Waiver Holder)** specific to the scheduled balloon external load operations and in compliance with the approved **Motion Picture Operations Manual**, briefing provisions.

5. Communication

Communication must exist at all times between the **Pilot in Command**, stunt person(s), camera operator and the essential personnel being flown. This can be accomplished through the use of radios, intercoms or pre-briefed hand signals.

Additionally, in the event of lost communications the pilot must be able to maintain visual contact with the stunt person or camera operator. If visual contact cannot be maintained, then a third party who can maintain visual contact will be used.

This person may be onboard the balloon, on the ground, or in a chase aircraft.

6. Attaching Methods and Devices

Belts, harnesses, cables and safety lines will be attached to existing balloon basket or gondola hard points, cargo tie down points, basket or gondola bridles, or other suitable basket or gondola locations.

Attaching devices, cables, carabineers, braided nylon, climbing rope, nylon straps, steel clevises, body harnesses, etc. are normally provided by the motion picture special effects and stunt personnel.

All of the above devices have load ratings established by the manufacturer in compliance with various industry and government specifications and established Motion Picture Safety Guidelines.

Note: A person will never be attached to a load release device.

7. Weight and Balance

Due to the nature of balloon external loads involving essential persons or equipment, diligent review and compliance with the manufacturer's maximum weight data is required.
This can also be accomplished through consultation with pilots having previous experience with similar balloon configuration or through a flight evaluation.

8. Pilot Check List

A. Balloon

1. Load bearing capacity and method of securing of all attaching devices related to the external load.

2. Verification of load bearing capacity and anticipated loads on the basket or gondola attach points to be utilized.

3. Accomplish Weight and Balance of the external load, including, if necessary, the possible release or departure of the external load.

B. Personnel

1. Verify that only essential personnel are onboard the balloon.

2. Confirm with essential personnel specific duties and responsibilities.

3. Verify all communications and check audio and/or hand signals.

4. Review emergency procedures specific to the external load operation with all essential personnel.

5. Review any potential risk factor, if any, with the essential personnel.

6. **No essential personnel may participate in airplane external load operations unless they have read, understood, and agreed to comply with the conditions of the Waiver Holders, Certificate of Waiver and its special provisions, if any.**

9. Parachutes

If parachutes are to be used, they must be of an FAA approved type and must have been packed and certified within the preceding **120** days.
While wearing a parachute the stunt person must not be attached to the balloon.

An accidental parachute opening while attached to the balloon could have serious negative effect on the aircraft and parachutist.

10. Rappelling

A. Pilot Qualifications:

Qualifications on the basis of previous experience and safety record, or an actual light, demonstrating the pilot's knowledge and skill regarding rappelling, and operations.

B. Rappellers Qualifications:

1. Rappellers and Spotters (Stunt Persons) will be required to demonstrate their ability during required familiarization flights.

2. The Waiver Holder and/or Pilot will have the authority to withhold approval of any rappeller or spotter (stunt person).

C. Rappelling Special Provisions:

The **Pilot in Command (Waiver Holder)** has the authority to cancel or delete any activity or event, if in their opinion, the safety of persons, or property on the ground or in the air is at risk, or if there is a contravention to the provisions of the **Motion Picture Waiver**.

D. Rappelling Equipment:

1. Rope size appropriate to the rappel (friction) device being used, will be required for all rappel operations.

2. Rope strength for each specific load, a safety factor of **10:1** between the strength of the weakest piece of attaching equipment and the load to be carried will be utilized.
3. The absolute minimum tensile strength of any rappel rope will be **5000 lbs.** Tested to NFPA and/or other regulatory standards.

4. Ropes will have a rubber jacket or other appropriate edge protection to give protection on basket or gondola edges when using basket or gondola attach points.

5. Carabineers, steel or aluminum must have a minimum tensile strength of **5000 lbs.**, be of a locking type and be tested to NFPA and/or other regulatory standards.

6. Cutting devices, knifes, cable cutters, etc. shall be sufficient to cut any attaching device will be provided to the spotter or safety person(s) for use in an emergency.

7. Rappel ropes will have a minimum of two (2) attach points per rope with test strengths greater than or equal to **5000 lbs.** per rappeller.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #30

RECOMMENDED GUIDELINES FOR SAFELY WORKING WITH EDGED, PIERCING AND PROJECTILE PROPS

These guidelines are intended to provide recommendations on the safe handling, use and storage of edged, piercing, and projectile props (hereinafter referred to as Props). These Props include, but are not limited to: knives, swords, razors, darts, bows and arrows, hatchets, saws, spears, martial arts throwing stars, cross bows and other objects launched mechanically, or by hand, including paintballs and pellets.

Responsible Person

A "Responsible Person" is someone who through experience or training is able to recognize and resolve problems relating to the safe operation and handling of Props.

Depending on the type and use of Props required for the production, and after consultation with one or more of the following personnel: Property Master, Stunt Coordinator, Special Effects Coordinator, Producer, First Assistant Director, Production Safety Representative, and/or any other necessary parties, a Responsible Person (or Persons) shall be assigned to oversee the safe use and operation of Props.

Authority

The Responsible Person will have the authority over the following operations, including, but not limited to:

- Designating individuals under the Responsible Person's supervision to assist as necessary;
- Removing a malfunctioning Prop from service;
- Determining whether an actor, or other, has experience in the safe handling of the Prop;
- Ensuring performers are educated or comfortable in the functionality or operation and potential hazards associated with the Prop; and
- Exercising the authority to abort the use of a Prop.

Responsibilities

The Responsible Person or designated individual should do the following:

1. Ensure proper storage, possession, control and distribution of all Props on the set, whether company owned, rented, or privately owned. Be qualified to work with the types of Props being used, and be knowledgeable in their handling, use and safekeeping. If unfamiliar with a Prop, expert advice should be sought.
2. Use simulated or dummy Props whenever possible.
3. Adhere to all manufacturers and Authority Having Jurisdiction requirements regarding transportation, storage and use of Props.
4. Ensure performers are instructed in the functionality operation, and potential hazards associated with the Prop.
5. Inspect each Prop before and after each use, as necessary.
6. Retain possession of all props except during actual filming or rehearsal. Account for each prop before personnel are allowed to leave the area. The production company should allow time in its schedule for this procedure.
7. Clean, check and inventory each Prop before the close of each day's shooting.

Prior to Rehearsal and Filming

- Maintain all safety devices and guards (such as sheathes) in place, until the Prop is about to be used
- Inspect the area in which the action is to be rehearsed or filmed, with special attention to the surfaces on which the performers will be standing, to identify and mitigate potential hazards
- Prior to rehearsing the action, inform the cast and crew of the safety precautions to be observed, including their positions during rehearsing and filming.

Safety Meeting

The First Assistant Director should, along with the Responsible Person and other necessary personnel, conduct a safety meeting with cast and crew prior to working around Props.

Make cast and crew aware of the Responsible Person (or designee) authorized to handle the Props.

Safety meeting topics may include, but are not limited to:

- Communicating to all involved personnel, including performers, the intended action, need for increased awareness, possible changes, any visual or audio signals to be used;
- After each use, no one shall approach or enter the area in which edged, piercing or projectile Props are in use other than the Responsible Person(s), until it is declared safe. This includes testing, rehearsals and filming.
- Identify cast, including Background Performers, that are authorized to use a Prop.

The Responsible Person should be notified of any changes or concerns in the use of the Props, action of the cast or crew, or placement of equipment in order to determine whether an additional safety meeting is necessary.

Safe Use and Handling of Props

- Real or fake Props shall be strong enough that they will not accidentally break into dangerous pieces when being used for their intended purpose. It is best to use dulled or blunted Props made to order for use as Props, as dulling a sharp Prop can lessen its tensile strength. Sharpened Props should only be used when the appearance of cutting or piercing cannot be otherwise simulated. Sharpened Props should only be used by those trained, qualified, or experienced in the use of the Prop.
- Props used to strike other weapons or other hard surfaces should be made of steel or high-tensile aluminum. The use of fiberglass Props in such situations should be avoided.
- The use of a rubber “double” should be considered, depending on the action, and after consultation with the Responsible Person.
- The use of Props should be limited to filming and rehearsals supervised by qualified personnel. Use these Props only for their intended purpose. Do not engage in, or permit, horseplay or target practice on or off the set.
- Never allow the dry fire of archery equipment.
- No person is to be coaxed, coerced or forced into handling these Props.

- Consult the Responsible Person or designee, First Assistant Director, Production Safety Representative or Stunt Coordinator, if you have any doubts or questions about the proper handling of these Props. Actors and others who will handle an edged, piercing or projectile Prop, and claim prior knowledge, will be required to demonstrate their experience in the safe handling of the Prop to one of the persons listed in the preceding sentence.
- Know where and what your target is at all times. Do not release the Prop unless you have a clear view of your target.
- Identify the individual designated to cue the use of a Prop. Use a cue that can be recognized even during photography. Never propel a Prop until you receive the designated cue. Always have an agreed upon abort signal, in case it is necessary to abort the use of a Prop.
- Report any malfunctions of equipment to the Responsible Person or designee immediately. Do not attempt to adjust, modify or repair equipment yourself. It is best to have a duplicate immediately available. Malfunctioning equipment should be taken out of service until properly repaired by a person qualified to do so.
- Never lay down or leave these Props unattended. Unless actively filming or rehearsing, all Props should be secured by the Responsible Person.
- Cast and crew should use appropriate personal protective equipment (PPE) when exposed to these Props.

All state and federal safety regulations are applicable and override these guidelines if they are more stringent.

Additional Considerations

Allow sufficient time to train performers and to rehearse the action so that everyone involved knows what their part in the action will be.

- Keep all non-essential personnel out of the rehearsal area.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #31

SAFETY AWARENESS WHEN WORKING AROUND INDIGENOUS WILDLIFE

When working with animals and/or venomous reptiles refer to Safety Bulletins #6: *"Animal Handling Rules for the Motion Picture Industry"* and #12: "Guidelines for the Use of Venomous Reptiles."

This bulletin addresses special safety considerations when working on locations where various indigenous wildlife species may be present. Although the types of wildlife may vary from region to region, basic safeguards should be taken to prevent serious injury or illness to cast and crew members. Never touch or handle wildlife. Wild animals are not trained animal actors and are not familiar with humans.

PRE-PLANNING

"Wildlife" awareness starts during the initial search for locations. The location manager, his or her department representative, 1st AD, production management, studio safety department representative, and/or any medical personnel assigned to the project should consider safety precautions when pre-planning and preparing to use a location that may contain some type of indigenous wildlife. They should identify the type(s) of wildlife present, the location of nearby hospitals or medical facilities, and the availability of any anti-venom that may be required.

Pre-planning may also include contacting the local zoo to see if they have the appropriate anti-venom and alerting them that you will be working in the area, especially if the production will be working with animal actors that could escape. Contact should be made with local wildlife authorities such as State Fish and Game to determine the protected status of indigenous wildlife in the area, and any special safety concerns.

It is production's responsibility to assure the safety of the indigenous wildlife in the filming area and to consult the agency or persons responsible for the removal of wildlife from location sets. Any such indigenous wildlife that remains on the set are subject to American Humane Association (AHA) Guidelines and Procedures, including but not limited to:

Section 8-280 states, if native animals are not to remain on the set, they must be carefully removed, relocated, or properly housed and cared for, then safely returned to their habitat after filming is complete. Only qualified and trained personnel should attempt the removal of nests or hives.

Section 8-284 states, a production may not intentionally harm and must take precautionary measures to protect nests, dens, caves, caverns, etc.

Section 8-290 states, care must be taken to ensure that non-indigenous animals are removed from the area after the production has completed filming.

Animal actors brought to a location can be affected by other indigenous wildlife. This could range from distraction to life-threatening situations or the transmittal of diseases. Notification should be provided to the professional trainer/supplier of the animal actors.

If you have additional questions regarding the AHA's Guidelines for the Safe Use of Animals in Filmed Media, contact the Film and Television Unit at (818) 501-0123.

GENERAL SAFETY PRECAUTIONS

Once the various types of indigenous wildlife that could be at the location and other work zones are identified, a safety meeting to review safety precautions, including those contained in this Safety Bulletin, should take place. Any cast and crew members that may come in contact with the indigenous wildlife should attend.

Safety meeting topics may include, but are not limited to:

- Types of wildlife that may be present at the location including all work zones.
- Possible risks to cast and crew.
- Communication plan.
- Emergency procedures.
- Local government wildlife rules and restrictions.

While working around wildlife, it is advisable to wear long pants with the pant legs tucked into socks or boots. A good boot above the ankle will provide better protection than sandals or sneakers. It is also advisable to wear a long-sleeved shirt, dress in layers, and wear light colors. Generally, insects are dark in color; they are spotted easily against a light background. Avoid heavy perfumes or after-shaves as they attract some pests.

If a pesticide is being used to control pests, follow manufacturers' instructions including the proper use of personal protective equipment (PPE) as noted on the product label and/or Safety Data Sheet (SDS) for persons applying the product or entering the treated area. Allow time for dissipation prior to using a treated location.

If using a repellent, apply according to the label instructions on the product. Applying the repellent directly to clothing appears to be most effective. The SDS for any pesticide or repellent must be available to all cast and crew upon request.

In the case of bites or stings, serious allergic reactions are possible. If you have any known allergies, notify the set medic and/or safety representative prior to or when you first arrive at the location.

If you are bitten or stung by any indigenous wildlife, immediately contact the set medic. If the encounter with the indigenous wildlife involves a life-threatening situation, **call 911.**

For additional precautions or questions, contact the studio safety representative, production management, local health department, set medic, or local experts in the area.

INDIGENOUS WILDLIFE

Since there are many types of wildlife throughout the world, this Safety Bulletin cannot cover all the possibilities. However, the following are some of the more commonly encountered wildlife on locations:

1. Ants:

- Are red, brown, or black in color and have a three-segment body with six legs.
- Are found everywhere, and their bites are mild to painful.
- Special precautions should be taken when working around red fire ants to keep from being bitten.

2. Ticks:

- Are red, brown, or black in color and have a hard-shelled body with eight legs.
- Some types are very small in size and difficult to detect.

- Are found in open fields, overgrown vegetation, wooded areas, and on or near animals.
- Live on deer, mice, and birds.
- Do not attempt to remove ticks by using any of the following:
    - Lighted cigarettes
    - Matches
    - Nail polish
    - Vaseline
- **If bitten,** seek medical attention immediately. Ticks are known to carry many types of diseases such as tick paralysis, Lyme disease, and Rocky Mountain spotted fever.

3. Scorpions:

- Are tan, brown, or black in color and have a hard-shelled body with eight legs, claws, and a barbed tail.
- When a scorpion stings, it whips its tail forward over its head.
- Can be found under rocks or fallen wood and are most common in the desert and southwest.
- All stings are painful, however, very few are fatal.

4. Stinging, Flying Insects (Bees, Hornets and Wasps):

- Are black, yellow, or red in color and have a three-segment body with wings, and a tail stinger.
- Can be found everywhere and can produce a mild to painful sting which can cause allergic reactions in some.
- **If stung,** seek medical attention and notify the set medic. People who are allergic should carry reaction medication.
- Are generally dormant at night with the exception of mosquitoes.
- Identification of Africanized bees (AKA "killer bees") is very difficult. Remember this type of bee is very aggressive and will attack in swarms. Extreme care should be taken if a hive is located.

5. Biting Insects

a. Mosquitoes and Flies

There are many different species of mosquitoes and flies in the United States. They can be found in wooded areas, near or on animals, refuse areas, or water, particularly standing water.

NOTE: These insects can carry various types of diseases. Malaria and dengue fever are not found just in tropical locations, it has been found in the United States. Asian "tiger mosquitoes" have been found in the Southern California area and are known to carry dengue fever.

b. Chiggers

- Are red, tiny, and smear red when crushed.
- Are prevalent throughout the southern part of the United States.
- Live on the ground, around shrubs and plants, or anywhere vegetation will protect them.
- Prefer shade and moist areas, but will forage for food at great distances.
- Can also detect a food source from a great distance.
- Bites produce blisters by irritating the skin.
- Use chigger bite ointment to remove the itch and promote healing.

6. Poisonous Spiders

a. Black Widow Spider

- Are black in color and have a two-segment body with eight legs and a red hourglass design on the abdomen.
- Are prominent in warm climates and prefer cool, dry, and dark places.
- Can produce painful to fatal bites.

b. Brown Widow Spider

- Are tan and brown with black accent markings, have a two-segment body with eight legs, and an orange hourglass on the abdomen.
- Are an invasive species that have become well established throughout the southern United States, including Southern California.
- Builds its web in secluded, protected sites around homes and woody vegetation.
- Can produce painful bites but rarely cause severe symptoms in humans.

c. Brown Recluse Spider

- Are brown in color, have a two-segment body with eight legs and a violin-shaped design on the abdomen.
- Can produce painful to fatal bites.

7. Snakes

Consider obtaining a professional snake handler when working locations known to contain indigenous poisonous snakes.

a. Pit Vipers (Rattlesnakes, Copperheads, Cottonmouths, etc.)

- Come in sixteen (16) distinctive varieties.
- Most have triangular-shaped heads.
- There are numerous subspecies and color variations of rattlesnakes, but the jointed rattles on the tail can positively identify all.
- While most are concentrated in the southwest United States, they have extended north, east, and south in increasing numbers and varieties so that every contiguous state has one or more varieties.
- Pit Vipers produce painful to fatal bites and do not have to be coiled to strike. For example, a rattlesnake can strike out for one-half of its body length.

b. Other Exotic Snakes

- Another type of poisonous snake indigenous to the United States is the **coral snake**. Its body is entirely covered in bright bands of black, red, and yellow. Narrow bright yellow rings separate wider red and black rings.
- Other international locations may have various other exotic snakes indigenous to the area (cobra, black mamba, etc.). These snakes produce fatal bites; therefore, the location of anti-venom is extremely important.
- Different anti-venom will be required for each species.
- Consult with local experts and governmental authorities.

If bitten:

- Seek immediate medical attention.
- Attempt to note the time and area of the body bitten.
- Immediately immobilize the body part affected.
- Do not apply a tourniquet, incise the wound, or attempt to suck out the venom.
- Do not allow the victim to engage in physical activity.

Tips for Snake Avoidance:

- Always look where you are putting your feet and hands.
- Never reach into a hole, into a crevice in rock piles, under rocks, or into dark places where a snake may be hiding. If you need to turn over rocks, use a stick.
- Attempt to stay out of tall grass, if you can. Walk in cleared spots as much as possible. Step on logs, not over them so that you can first see whether there is a rattlesnake concealed below on the far side.
- Be cautious when picking up equipment, coiled cables, and bags left on the ground.
- Never pick up a snake or make quick moves if you see or hear a rattle. If bitten by a snake, remember what it looked like. Various snakes require different anti-venoms.
- Remember that most snakes are protectively colored (camouflaged)

- On hot summer days, snakes can become nocturnal and come out at night when you do not expect it. Care should be taken when working at night after a hot summer day

8. Alligator and Crocodiles

- Can be found in various waterways around the world.
- Have been known to attack large animals and humans and will exit the water to attack prey on the shoreline.
- Can be found in both fresh and saltwater.
- Both have been known to ambush their victims.

9. Sharks, Sea Urchins, Rays, Scorpion Fish, Jellyfish and Other Exotic Marine Life

When working around water environments, you should contact and consult with local experts, studio safety representatives, or medical staff to become familiar with the wildlife in or around the water environment in question.

10. Rodents

- Locations that may involve the use of alleyways, beneath bridges, tunnels, abandoned buildings, or other structures, may involve potential contact with rats, squirrels, and other rodents.
- Can carry various types of diseases, which can be contracted if bitten by one of these rodents or by a flea, tick, or mite that has fed on an infected rodent. Diseases, such as hantavirus pulmonary syndrome, can also be transmitted by coming in contact with an infected rodent's urine, droppings, or saliva.
- Refer to Safety Bulletin #26: *"Preparing Urban Exterior Locations for Filming"*, for precautions and cleaning of locations that may have these types of rodents present.

11. Coyotes

Coyotes are found throughout North America and roam the plains, forests, mountains, and deserts of Canada, United States, Mexico, and Central America. Many coyotes have adapted to urban areas because of easy access to food. They are seen in residential areas, vacant lots, hillsides, parks, city streets, freeways, landscaped areas, abandoned properties, horse trails, fire roads, flood channels, storm drains, and

aqueducts. Since many of these areas are used for filming locations, productions should follow these safety guidelines:

- Do not feed coyotes. It is illegal to feed predatory mammals in many jurisdictions.
- Do not leave small children or animals unattended at an outdoor location.
- Be aware that coyotes are more active in the spring.
- Remove all food at the end of the day and store securely.
- Put garbage in tightly closed containers if left overnight.
- If approached by a coyote:
    - Maintain eye contact and lift and wave your arms.
    - Shout in a low, loud tone.
    - Make yourself look as big as possible.
    - If you are wearing a jacket, take it off and swing around over your head.
    - Throw objects at the coyote while maintaining eye contact.
    - Do not turn your back and run from the coyote as that could trigger a chase.

12. Mountain Lions

Mountain lions, also called cougars, panthers, or pumas, generally inhabit areas wherever deer are found. Mountain lions are quiet, solitary, and typically avoid people. When filming in locations where mountain lions may be present, follow these safety guidelines:

- Always be aware of your surroundings.
- Always try and work in groups. Do not work alone.
- Do not leave small children or animals unattended.
- Provide sturdy shelters for any animal actors when not working.
- Do not approach a mountain lion.
- If you encounter a mountain lion:
    - Do not run as this may trigger a predatory response.

- Face the animal, make noise, and try to appear larger and more aggressive.
- Open your jacket, raise your arms, and throw stones or other objects without turning away.
- Never bend over or crouch down. Try to remain standing to protect your head and neck.
- Pick up small children without turning away or bending over.
- If attacked, fight back with whatever is at hand.

13. Black Bears

Black bears are the only species of bear found in California, and range in color from blonde to black. Black bears generally live in areas with thick vegetation and rough terrain and away from human populations. When their food sources become scarce, they can roam into more urban areas to forage. Black bears will normally seek to avoid confrontation with humans. If encountered on location, always leave them an escape route and follow these safety guidelines:

- Never approach a bear or pick up a bear cub.
- Do not make eye contact and slowly back away. Do not run. Give the bear a way out.
- If you cannot back away, face the animal, make loud noises and try to appear as large as possible by lifting and waving your arms.
- Bear spray can be an effective deterrent but make sure you know how to use it properly.
- If attacked, fight back. **Do not "play dead."**

Bears are attracted to anything that is edible or has strong odors. Bears have also learned to recognize ice chests and coolers in locations such as campgrounds, where bears and humans are in frequent contact. They have been known to break into vehicles if the ice chests or coolers are left out in plain sight. The following tips can help reduce the likelihood of bears being drawn to a location:

- Maintain a clean location site.
- Clean dishes and store food immediately after meals.

- Ensure all food is stored in airtight containers and out of sight and out of reach of bears.
- Remove garbage regularly.
- Advise the cast and crew not to use heavily scented cosmetics and deodorants.

14. Grizzly Bears

Grizzly bears, also known as brown bears, are one of the largest North American land mammals. The grizzly is larger than the black bear and is distinguished by a concaved-shaped face, high-humped shoulders, and long, curved claws. Their fur can vary from light brown to nearly black. They can be found in the States of Washington, Idaho, Wyoming, Montana, with the largest population of grizzlies in Alaska. The second-largest population of grizzlies is located mostly in the Province of British Columbia, the Yukon, and the Northwest Territories of Canada.

Always try to remain in groups when in locations that are in bear areas. Most bear encounters end without injury. Like the black bear, grizzly bears will avoid humans if they hear them coming. Most bears are only interested in protecting food, cubs, or their space. Your safety can depend on your ability to stay calm and to calm the bear. If encountered on location and the bear has noticed you and is paying attention to you, the following guidelines can help to lessen the threat of danger:

- Pick up small children and animals immediately.
- Remain calm, do not run. Speak in a low monotone voice and slowly wave your arms. Make yourself look as large as possible.
- The bear may come closer or stand on its hind legs to get a better look or smell.
- A bear may charge in an attempt to intimidate you and then stopping well short of contact.
- Use bear spray if it comes within 25 feet of you or others.

If you are attacked, although rare, grizzly attacks differ from black bear attacks. The following are the most common guidelines in the event of a grizzly bear attack:

- **"Play dead".**

- Lay flat on your stomach with your hands clasped behind your neck and your legs spread to make it harder for the bear to turn you over. If the bear rolls you over, continue to roll back onto your stomach.
- Remain still until the bear leaves the area.
- If the attack persists, fight back vigorously. Use whatever you have at hand to hit the bear in the face.

Keep In Mind – wherever you may be filming, consider the necessary precautions for any potential indigenous wildlife that may be present.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #32

FOOD HANDLING GUIDELINES FOR PRODUCTION

Under Revision

Refer to Safety Bulletin #32 Addendum A-"Approved Film Production Food Services" for Los Angeles County Department of Public Health regulations.

ENVIRONMENTAL HEALTH

Bureau of Specialized Surveillance and Enforcement
5050 Commerce Drive, Baldwin Park, CA 91706
Telephone: (626) 430-5150 • Website: *http://www.publichealth.lacounty.gov/eh*

County of Los Angeles Public Health
Environmental Health

Approved Film Production Food Services

Several types of food services may be provided to the staff at a film site. Depending on the food service, a Public Health Permit may be required.

PERMIT REQUIRED

The following types of food services have been established to conform to the requirements of the California Health and Safety Code (CAL HSC) and Los Angeles County Code.

Mobile Food Facility Permit (CAL HSC §§ 114294, 114295, 114297, 114305, & 114315)
This type of food service utilizes a permitted commercial food truck or cart to provide food service at the film site. Outdoor food preparation and service areas are not approved under this permit.

Catering to the Film Site by a non-Motion Picture Catering Vehicle (CAL HSC §§113789, 113790, 114294, 114295, 114297, 114305, & 114315)
A permitted restaurant or caterer may be contracted to provide food service at the film location.

Motion Picture Catering Operation Permit (Permit Business Code 3010) (LA County Code § 8.04.316)
A Motion Picture Catering Operation (MPCO) Permit was recently developed by the Department. This permit covers a mobile food facility, no more than two mobile storage vehicles, and outdoor food preparation and service areas, where the operator is under contract to operate at a licensed film studio or at a site with a permit for filming on location issued by the appropriate city or county.

NO PERMIT REQUIRED

The following food services are restricted and must meet the requirements below.

Commercially Prepackaged Food
This type of food service is limited to single-serving size, commercially pre-packaged foods, displayed on a table for self service, and may include limited coffee service. This type of service does not allow food to be served from or stored on a vehicle.

Requirements:

- Only commercially prepackaged, single-serving, non-potentially hazardous foods and beverages from a permitted facility may be served. Approved foods include:
  - Commercially prepackaged, single-portioned cereal
  - Commercially prepackaged, single-portioned, non-potentially hazardous pastries

Approved Film Production Food Services

- Commercially prepackaged, single-portioned snacks and beverages (e.g., chips, candy, cookies, trail mix, sodas, bottled water, etc.)
- Whole, uncut and prewashed fruits
- Individual serving-sized commercially prepackaged condiments such as sugar and creamer

- The only potentially hazardous food (PHF) that may be served is commercially prepackaged individually sized milk that must be maintained at 45°F or below.
- Coffee service from a professional vending service is recommended. Coffee may be served using a commercial coffee maker. However, coffee pots and filter holders must be properly cleaned and sanitized using, at a minimum, a 2-compartment sink with hot and cold running water that is not used for janitorial purposes.
- Only single-use plates, cups and utensils may be used.
- The food may not be served from or stored on a vehicle.

Food Delivery
This type of food service involves daily purchasing of individually packaged meals from permitted food facilities (e.g., sandwiches, salads, burritos, etc.).

Requirements:

- All meals must be purchased daily from a permitted food facility.
- All food must be individually packaged by the permitted food facility (e.g., individually bagged combo meals, prepackaged sandwiches, individually portioned salad, potato salad or other side dishes, individually sized pre-packaged condiments, and single serving beverages).
- All individually packaged food that is potentially hazardous must be served immediately after delivery, or discarded if not served.
- Unpackaged food may not be handled or served.
- If transporting from a retail food facility for more than 30 minutes, an insulated cooler should be used to maintain the proper temperature of PHF: cold food, at or below 41°F; hot food, at or above 135°F. (CAL HSC § 113996).

For more information regarding these food services, please contact the Food and Milk Program at (626) 430-5400.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #33

SPECIAL SAFETY CONSIDERATIONS WHEN EMPLOYING INFANT ACTORS (FIFTEEN DAYS TO SIX MONTHS OLD)

This bulletin addresses special safety considerations regarding the employment of infant actors in motion picture and television production.

1. Hands should be washed before and after handling infants and after changing diapers.

2. Applicable laws and regulations pertaining to tobacco smoke must be followed.

3. When using special effects smokes the producer should take steps to prevent exposure of the infant to the smoke. You should also consult **Safety Bulletin #10, "Guidelines Regarding the Use of Artificially Created Smokes, Fogs, and Lighting Effects."**

4. With regard to an infant, whose employment is governed by California Laws, the responsibility for caring and attending to the infant's health and safety is as follows:

   Studio Teacher:

   "In the discharge of these responsibilities, the studio teacher shall take cognizance of such factors as working conditions, physical surroundings, signs of the minor's mental and physical fatigue, and the demands placed upon the minor..... The studio teacher may refuse to allow the engagement of a minor on a set or location and may remove the minor therefrom, if in the judgement of the studio teacher, conditions are such as to present a danger to the health, safety or morals of the minor."

   (8 CCR § 11755.2)

   Nurse:

   "Direct and indirect patient care services that insure the safety, comfort, personal hygiene, and protection of patients; and the performance of disease prevention".

   (2 BPC § 2725 (a))

For infants subject to laws other than California's, an appropriate person should be designated responsible for that infant's health and safety. That person should make the determination as to whether or not a hazard exists and take appropriate action as described in this paragraph.

If unsafe conditions are suspected by the Studio Teacher or nurse, a studio safety professional, if available, should be called for consultation, as required by the production's *Injury and Illness Prevention Program*.

5. Trailer holding tanks should not be pumped while the infant is present or immediately prior to the infant's arrival. The trailer should be well ventilated prior to the arrival of the infant.

6. When substances are used for altering an infant's appearance, provisions should be made for bathing the infant.

7. Foods which commonly cause allergic reactions should not be used to alter the appearance of the infant's skin, unless their use is specifically approved by a medical doctor. These foods include, but are not limited to: raspberry and strawberry jams, jellies and preserves.

8. Consumer products including glycerin, lubricating jellies, and cosmetics, should not be used to alter an infant's appearance. Permission should be obtained from the parent or guardian prior to applying any substance to the infant's skin.

9. Once wardrobe and props have been issued by the production for use on/with an infant, the wardrobe and props should not be reissued for another infant without laundering wardrobe and disinfecting props.

10. Infant accessories provided by the production, such as bassinets, cribs and changing tables, should be sanitized at the time of delivery to the set, and on a regular basis. Infant accessories should not be exchanged from one infant to another without first having been sanitized, (bottles, nipples and pacifiers should not be exchanged between infants).

Note: All production personnel working with infants are urged to review the "Blue Book," entitled "The Employment of Minors in the Entertainment Industry," published by the Studio Teachers, Local 884, IATSE. Reference should also be made to the extensive federal and state labor laws and to any applicable collective bargaining agreements which govern the employment of child actors.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #34

GUIDELINES FOR WORKING IN EXTREME COLD TEMPERATURE CONDITIONS

INTRODUCTION

When working in cold conditions, the two most common hazards are hypothermia and frostbite. With proper awareness and pre-planning, these hazards can be eliminated.

HYPOTHERMIA

Hypothermia is a potentially deadly condition, which results in an abnormally low body temperature. This drop in temperature occurs when the body loses heat faster than it is produced. Anyone exposed to near freezing temperatures for prolonged periods of time should be familiar in the prevention and treatment of hypothermia. A combination of cold, wet and windy conditions will result in hypothermia for anyone who is inadequately prepared and protected.

Certain conditions will increase your risk:

- Improper dress for the conditions
- Poor physical condition
- Fatigue
- Illness
- Poor diet
- Alcohol, tobacco or drug use

An individual's physiology may affect the body's ability to acclimate, possibly increasing the risk of hypothermia.

Early symptoms of hypothermia are often overlooked, they include:

- Intense shivering
- Muscle tension
- Fatigue
- Intense feeling of cold or numbness

To some people, these may just seem like normal consequences of exposure to winter conditions. Ignoring these early signs can be very dangerous. If you or a co-worker experience early symptoms of hypothermia, take action.

Also watch for additional behavioral signs including:

- Slurred speech
- Difficulty performing tasks
- Loss of coordination
- Lethargy
- Erratic behavior, poor decisions
- Irritability
- Slow breathing and heart rate

At the first sign of any of these conditions, notify your supervisor and seek medical attention (*i.e.,* set medic, studio hospital or medical provider). Go inside and get warm before you attempt to complete the job or project you are working on.

HYPOTHERMIA PREVENTION

Preventing hypothermia is not difficult. In fact, it is much easier to avoid hypothermia than to treat it after the fact. You can prevent hypothermia if you pre-plan, know what the conditions are expected to be and plan your clothing accordingly.

Some clothing tips to remember:

- Clothing does not warm you, it provides insulation to preserve your warmth; layer your clothing.
- As much as half of your body heat is lost through your head and neck, so keep them covered.
- Keep rain and wind out of your clothing.
- Avoid overheating and sweating by ventilating as needed.
- Wool clothing is best, followed by synthetics; down is okay, if kept dry, but cotton is a bad choice.

Food and behavior:

- Watch what you eat, minor changes to your normal behavior are an important step in preventing hypothermia.
- This is not the time for a starvation diet, it is important to maintain your optimal metabolism.
- Take extra steps to stay warm and dry by preventing exposure to wind and water.

If you are working in cold weather, remember these tips:

- Do not diet; give your body the appropriate nutrients.

- This will increase your metabolism and help keep you warm.
- Continue to drink fluids; water is best, do not drink alcohol.

Consider the following:

- If you do not need to be outside, go inside, even if it is only for a few minutes.
- If you cannot go inside, exercise, jog in place, shake your arms; these activities will increase your circulation and increase heat.

If someone is showing signs of hypothermia:

- Hypothermia symptoms should receive medical treatment as soon as possible.
- Prevent further heat loss by sheltering from exposure to wind and water.
- Bring the crew member inside to a warm area, if possible.
- Treat the crew member gently.
- Seek medical attention (i.e., set medic, studio hospital or medical provider).
- Remove any wet clothing and replace with dry clothing.
- Wrap the crew member in blankets and cover their head.
- Caffeine, alcohol, drugs or tobacco should not be used.

FROSTBITE

Frostbite is more common than hypothermia. It is the result of the freezing of the extracellular fluid in the skin, which can permanently damage the tissue. This condition usually affects the extremities, such as the tips of fingers, the ears and nose, but other exposed areas can also be affected. Like hypothermia, a combination of elements usually leads to frostbite, not cold air alone. In fact, most frostbite is the result of conduction, the rapid transfer of heat, for example, touching cold metal surfaces with bare hands. Exposure to cold temperatures and wind can quickly result in frostbite.

Factors that can increase your risk of frostbite are:

- Improper dress for the conditions
- Poor physical condition
- Fatigue
- Illness
- Poor diet
- Alcohol, tobacco or drug use

Signs and Symptoms of Frostbite

Mild frostbite affects the outer skin layers and appears as a blanching or whitening of the

skin. This usually disappears as warming occurs, but the skin may appear red for several hours.

In severe cases, the skin will appear waxy-looking with a white, gray-yellow or gray-blue color. The affected parts will have no feeling and blisters may be present. The tissue will feel frozen or “wooden".

Other indicators are: swelling, itching, burning and deep pain as the area is warmed.

Frostbite Prevention

Just as with hypothermia, frostbite is much easier to prevent than it is to treat. All of the items listed above for hypothermia would also apply for frostbite.

Summary

- Wear proper clothing which insulates from the cold and provides protection from wind, rain and snow.
- Cover your neck and head.
- Protect your hands and feet (mittens are warmer than gloves but may limit activity).
- Keep clothing and shoes loose to ensure good circulation.
- Drink plenty of fluids.
- Do not diet; give your body the appropriate nutrients.
- Alcohol, tobacco or drugs should not be used.
- Keep moving, do not stand still.
- Take breaks to go inside and warm up.
- Never touch a cold metal object with your bare hands.

Frostbite Treatment

If you think you may have frostbite, even a mild case, immediately seek medical attention. The following list will provide some guidelines for treating frostbite:

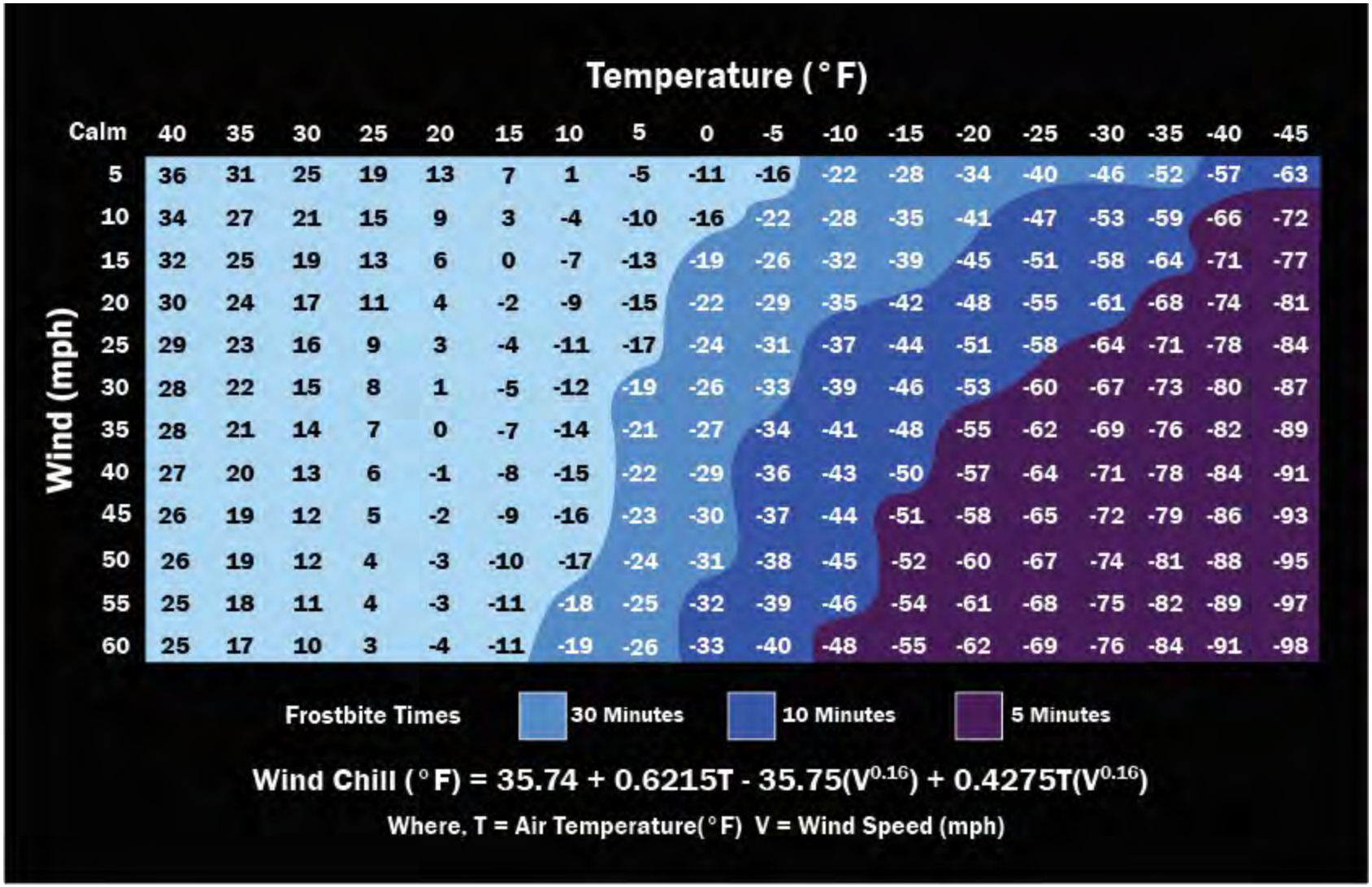
- Get to a place where you can stay warm after thawing, do not allow the affected body area to refreeze.
- Seek medical attention (i.e., set medic, studio hospital or medical provider); re-warming should be conducted under medical supervision.
- Warm water is best for re-warming; do not rub or massage the area, or use dry heat (such as a sunlamp, radiator or heating pad).
- If blisters are present, leave them intact.

- Alcohol, tobacco or drugs should not be used.

GENERAL PRECAUTIONS

The following are some additional steps the production can take to minimize the risks:

- Monitor local weather forecast information daily and conduct cold stress assessments for all areas.
- Provide adequate heated shelters for cast and crew.
- Maintain a suitable thermometer and anemometer (wind measuring device) at the site; these will be used to determine the equivalent wind chill temperature.
- Charts for establishing acceptable working conditions based on temperature and wind speed are in Addendum 34A, attached.
- Establish safe areas and paths, no wandering or sightseeing, this will reduce the risk of getting lost.



$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T = Air Temperature(°F) V = Wind Speed (mph)

SAFETY BULLETIN #35

SAFETY CONSIDERATIONS FOR THE PREVENTION OF OUTDOOR HEAT ILLNESS

This bulletin addresses safety considerations when exposed to heat outdoors. Safeguards should be taken to prevent heat illness.

All efforts to prevent heat illness shall conform to all applicable laws, rules, and regulations, such as Title 8, Section 3395 of the California Code of Regulations (CCR). Moreover, in compliance with Section 3395 of the CCR, every employer/production in California shall have a Heat Illness Prevention Plan, provide site-specific training to all employees and supervisors, and implement emergency response procedures when necessary. Be sure to follow all applicable laws, rules, and regulations in the jurisdiction where the production takes place.

INTRODUCTION

Heat illness can be fatal. Because of the health risks, the symptoms of heat-related illness must be recognized. Excess heat buildup in the body can arise through physical exertion, as well as from hot and humid weather. This can place abnormal stress on the body that can result in one or more serious medical conditions, resulting from the body's inability to cope with a particular heat load.

WHAT IS HEAT ILLNESS?

The following are the commonly found forms of heat illness:

Heat Cramps affect people who sweat excessively during strenuous work activities. The sweating depletes the body's salt and fluids. The low salt level in the muscles can cause painful cramps.

Heat Syncope (Fainting) is caused by a lack of adequate blood supply to the brain, usually as the result of dehydration and lack of acclimatization to work in warm/humid weather.

Heat Exhaustion is caused by a loss of fluids from sweating and/or a lack of drinking proper fluids. Symptoms include but are not limited to sweating, cool or clammy skin, weakness, fatigue, nausea, vomiting, dizziness, headache, fast or weak pulse, and/or fast or slow breathing.

Heat Stroke is a life-threatening emergency that occurs when the body overheats to a point where its temperature control system shuts down and heat builds up internally.

The signs of impending heat stroke are altered behavior, convulsions, unconsciousness, and usually, lack of sweating. ***Should these symptoms occur, seek medical assistance immediately.***

Scan to watch videos, or visit csatf.org/production-affairs-safety/safety-bulletins/

General Awareness | Supervisor Responsibilities

SYMPTOMS OF HEAT ILLNESS

Early heat illness signs and symptoms may not always follow a progressive pattern from a mild condition such as heat rash up to the life-threatening condition of heatstroke. Thirst alone is a poor indicator of how the body is reacting to heat. Here are the symptoms of heat illness to watch for:

- Discomfort
- Headache
- Fatigue
- Loss of coordination
- Vomiting
- Seizures
- Fainting
- Blurry vision
- Confusion
- Dizziness
- Irritability
- Poor concentration
- Muscle pain/cramps
- Lack of sweating or excessive sweating
- Altered behavior

It is important that employees immediately report to the employer, directly or through the employee's Supervisor, signs or symptoms of heat illness that they are experiencing or observing in others.

HEAT ILLNESS RISK FACTORS

There are many environmental and personal risk factors that increase susceptibility to heat illness.

Environmental risk factors for heat illness mean working in conditions that create the possibility that heat illness could occur, including the following:

- Air temperature
- Relative humidity
- Radiant heat from the sun and other sources
- Conductive heat sources such as the ground
- Air movement
- Workload severity and duration
- Protective clothing and personal protective equipment are worn by employees

Personal risk factors for heat illness mean factors such as the following:

- An individual's age
- Degree of acclimatization
- Health
- Water consumption
- Alcohol and/or caffeine consumption
- Use of prescription medications that affect the body's water retention or other physiological responses to heat

Employees should consult with a doctor if they are known to have risk factors for outdoor heat illness. **HOW TO PREVENT HEAT ILLNESS**

Acclimatization

Acclimatization is a temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within 4 to 14 days of regular work for at least 2 hours per day in the heat. During this acclimatization period:

- Supervisors and employees should be aware that acclimatization to heat can take several days, and work/rest cycles should be scheduled accordingly.
- Report to a supervisor if returning to work after an absence or illness, or when changing from a cool to a hot and/or humid climate.

Start work slowly and increase the pace gradually. During a heatwave, there is still a risk of heat illness even if previously acclimatized.

Water

Dehydration occurs quickly no matter how well one is acclimatized to the heat. The average person loses between 1 to 2 quarts of fluid an hour in perspiration during heavy exertion in hot weather. The only way to replace the loss (and help the body continue to cool itself) is to drink non-caffeinated, non- alcoholic fluids; water is best.

- Workers should frequently drink small quantities of water throughout the entire work shift. A minimum of 1 quart (four 8-oz cups) per hour is recommended.
- **Workers should not wait until thirsty to drink water.** Being thirsty is not a good signal for the need to hydrate.
- Workers should drink water before and after work, and while on breaks.
- Prior to the start of the work shift, consider arranging for water to be provided to the worksite location and then to each water station.
- Drinking water needs to be available for all employees at all work locations and located as close as practicable to the areas where employees are working.
- When employees are working across large areas, water should be placed in multiple stations.
- Employees are to be notified of the location(s) of the closest drinking water supplies and whom to contact for additional water (e.g. Craft Services).
- Water should be replenished for all outdoor work regardless of temperature.
- Choose the location of each water station, assign a responsible person(s) (e.g. Craft Services) to replenish the water at each station, and train the assigned person(s) to comply with these procedures.
- The initial supply of water should be replenished so that each employee has 1 quart (32 ounces) per hour of the work shift, by at least one of the methods indicated below:

i. Fresh, pure, suitably cool water is continuously supplied at the work site.

ii. Sufficient quantities of water have been brought to the work site at the beginning of the work shift.

iii. If the required amount of water for the whole shift is not on-hand at the start of the shift, water will be brought to the location to meet the minimum hourly amount required.

iv. The name(s) and contact information of the person(s) responsible for replenishing the water at each station should be recorded.

Shade

When the outdoor temperature in the work area exceeds 80 degrees Fahrenheit (26.67°C), there should be one or more areas with shade at all times while employees are present. This shaded area should have the following features:

- Be either open to the air or provided with ventilation or cooling.
- Have enough shade present to at least accommodate the number of employees for rest periods, or on recovery, so that they can sit in a normal posture fully in the shade without having to be in physical contact with each other.
- Be located as close as practicable to the areas where employees are working.
- Have enough shade present during meal periods to at least accommodate the number of employees on the meal period who remain on-site.
- By way of examples, shade could include tents, canopies, large umbrellas, or the interior of air-conditioned buildings, lunch trucks, production vehicles, and similar cooled spaces.

Preventative Cool-Down Rest Requirement

All employees are allowed and encouraged to take a preventative cool-down rest in the shade whenever they feel the need to do so to protect themselves from overheating. The Production shall permit such a preventative cool-down rest to be taken at all times.

Recommended Precautions

Workers should adhere to the following safeguards:

- Know the nearest cool resting place(s). Get out of the sun or away from the source of heat and find a cool, preferably well-ventilated, resting place when you are starting to overheat or need to cool down.
- Wear a light-colored loose-fitting long-sleeved shirt and pants, and UV sunglasses, or, if appropriate, other protective equipment.
- Wear a wide-brim hat (baseball caps do not cover the ears and neck).
- Use sunscreen or sunblock and reapply as needed.

- Eat light meals. Hot, heavy meals add heat to the body.

HIGH HEAT PROCEDURES

When temperatures reach or exceed 95 degrees Fahrenheit, the employer should follow all precautions in this bulletin and should also:

- Ensure there is an effective means of observing employees for signs and symptoms of heat illness.
- Conduct pre-shift safety meeting(s) to review heat illness prevention procedures.
- Remind employees throughout the work shift to drink plenty of water.

EMERGENCY RESPONSE PROCEDURES

Supervisors should be aware of what to do if an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures, **as outlined below:**

- Making sure that effective communication by voice, observation, or electronic means is maintained so that employees at the worksite can contact a Supervisor or emergency medical services when necessary.
- Responding to signs and symptoms of possible heat illness, including but not limited to first aid measures and how emergency medical services will be provided.
- Contacting emergency medical services and, if necessary, transporting employees to a place where they can be reached by an emergency medical provider.
- Making sure that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.
- Designating a person to ensure that emergency procedures are utilized when needed.
- The Production should document the Emergency Response Procedures (including location address, nearest hospital information, method(s) of communication, etc.).

In the event of a heat-related illness emergency, contact the Medic (if available) or call 911 immediately.

WEATHER MONITORING

The Supervisor should monitor weather reports (using a reputable website such as www.weather.gov or by other means, such as an onsite thermometer, weather apps, etc.) and respond to hot weather advisories.

The Production should document the daily weather forecast and monitoring source.

DOCUMENTATION

It is recommended that the Production record all heat illness training, using a sign-in sheet and/or notes

on the production report.

To serve as an additional reminder to all employees and supervisors, it is also recommended that the Production note on the call sheet whenever the Heat Illness Prevention Plan is currently in effect.

If available, it is recommended to use a checklist to document items such as the nearest hospital, communication with emergency responders, weather, shaded areas, water locations, and cool-down methods.

Productions are encouraged to post checklists, and applicable training documents, in workplace locations that are frequently visited by employees, such as near craft services, break rooms, etc.

SUMMARY

Heat illness is preventable. Encourage employees to take time to adjust to the heat. Above all, employees should drink plenty of water and immediately report any signs of heat illness to themselves or others.

INDUSTRY-WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #36

RECOMMENDED GUIDELINES FOR SAFELY WORKING AROUND UNMANNED AIRCRAFT SYSTEMS (UAS) a.k.a. DRONES

One of the primary uses of Unmanned Aircraft Systems (UAS) in production is for aerial cinematography. UAS can be used to capture scenic shots, complicated shots, and shots that may be potentially hazardous for humans to film. UAS are also used as props, to scout locations, or may even be a part of the story. These guidelines cover the rules and regulations for the safe use of UAS during motion picture and television operations, including, but not limited to, camera platforms, image and data capture, light special effects, location scouts, and when the UAS is flown as a prop.

UAS combines the use of aeronautics, electronics, and wireless transmission technologies through the use of remote-controlled or programmable units. UAS types include, but are not limited to, unmanned single and multi-rotor helicopters, fixed-wing aircraft, small UAS, or micro UAS.

Rules and Regulations

While this safety bulletin details the Federal Aviation Administration (FAA) regulations, other rules may apply outside of the United States, and your company's policies may be more restrictive. Outdoor use of UAS must follow federal, state, and local regulatory limitations or restrictions, including FAA Small UAS Rule 14 Code of Federal Regulations (CFR) Part 107 (Part 107), and 49 U.S.C. §44807, as well as any Authority Having Jurisdiction (AHJ) regulations, as applicable. Part 107 establishes four (4) new categories of small UAS that weigh less than 55 pounds at takeoff and, under certain conditions for each category, allow for UAS operations over people, moving vehicles, flying at night, and sustained flight over open-air assemblies without the need to obtain a waiver from the FAA.

Details of these categories and required conditions will be covered in *Safety Bulletin #36 - Addendum "A" - Federal Aviation Administration (FAA) Rules & Regulations.*

Guidelines for Operation

1. The Pilot in Command (PIC) is the final authority over the UAS, shall be in command over all flight operations and/or related activities, and shall be certified and trained, as appropriate. The PIC shall have the final authority to abort any flight operation. Abort signals shall be specified ahead of time.

2. The PIC and/or UAS Operator may designate a person knowledgeable of the flight operations to perform the duties or requirements listed in these guidelines, other than operating the UAS.

3. The PIC or UAS Operator, in consultation with the designated production representative, must ensure that any UAS operations will not pose any undue hazards to other people, other aircraft, or other property in the event of a loss of control of the aircraft.

4. Prior to each flight, the boundaries and intended flight path shall be cleared for UAS operations.

5. Equipment and/or aftermarket modifications shall not be attached to, nor altered on, the UAS without authorization from the PIC.

6. Prior to each flight, the UAS should be inspected by the PIC* to determine that the UAS is safe for flight.

7. The PIC* will establish communication protocols with the designated production representative to implement a plan for communications.

8. The PIC* is responsible for determining whether there are any potential radio frequencies or electrical transmissions (devices such as cameras, Wi-Fi routers, and mobile phone boosters or repeaters) that could interfere with the safe operation of the UAS. Production and cast & crew members with electronic or transmission equipment should contact the PIC* to see if it may affect the operation of the UAS.

9. An exclusion zone must be established for the setup, testing, takeoff, and landing of the UAS. This zone shall be cleared of all debris, including trash or anything else that may adversely impact the operation of the UAS. All equipment (e.g., cameras, lights, sound booms) shall be placed at a safe distance away from the zone.

10. Unless authorized by the PIC*, no personnel shall approach the UAS, or enter the exclusion zone, whether the UAS is running or not.

11. Access to areas where UAS are in operation shall be limited only to persons authorized by the PIC. All other personnel shall remain at a designated safe distance. If needed to prevent unintentional entry into potentially hazardous areas, warning signs should be posted and/or other appropriate precautions taken.

12. Never throw anything at or near the UAS.

13. Personal Protective Equipment (PPE), such as earplugs, shall be provided and worn, as appropriate.

14. Appropriate precautions (i.e., fire extinguishers, no smoking) shall be implemented for flammable fuel sources.

15. The flying accuracy of the UAS may be adversely affected by natural conditions such as wind, air density, temperature, gross weight, humidity, and time of day. Conditions such as center of gravity of the UAS, wind (fans), water, explosives, and disturbed airflow can also affect the flight dynamics of the UAS.

16. There may be times when the UAS is used as an airborne prop. Safety precautions for this type of use shall correspond to the risk it presents. Even when used as a prop, the use of the UAS must comply with all applicable rules and regulations.

17. Once the UAS is airborne, no change will be made to the flight plan without authorization from the PIC.

18. The storage and transportation of batteries shall be in compliance with all applicable federal, state, and local laws and regulations and any shipping company restrictions. For

transportation of batteries by air, refer to airline policy and International Air Transport Association (IATA) regulations. Refer to the production company's battery safety policy, and the Industry-Wide Labor-Management Safety Committee Safety & Health Awareness Sheet – *Lithium-Ion Battery Safety,* for additional information.

Briefing/Safety Meetings

Prior to flight operation, the PIC, or a designated person knowledgeable of the flight operation, and the designated production representative, will conduct a briefing/safety meeting for all cast & crew who are expected to work in proximity to the flight operation. Subsequent briefings/safety meetings may be necessary to address cast and crew members' concerns regarding other sequences, changes, and/or additional scenes.

Briefings/Safety Meetings shall include a discussion of the following:

- Possible risks to personnel involved
- Safeguards to personnel, animals, and equipment
- Communications, including chain of command
- Electronic devices and/or other equipment that may interfere with UAS operations
- Emergency procedures
- Abort signals, audible and/or visual, used to halt filming in the event of unforeseen circumstances or safety hazards
- Boundaries and intended flight paths, including designated exclusion zone(s)
- Additional safety precautions unique to the UAS operation that need to be taken, including operations at night, over people, indoors, or in close proximity to cast or crew
- Any intended stunts or special effects during UAS operations
- Obstacles, equipment, and/or locations that may present a hazard
- Federal, state, and local regulatory limitations or restrictions, if applicable

Indoor UAS Use

The indoor use of UAS is not regulated by federal regulations; however, AHJ regulations and employer policies may apply.

1. As a general matter of safe work practices, the "Guidelines for Operation" and "Notification" procedures listed in this document should be followed during indoor UAS operations.

2. Indoor conditions, such as increased heat resulting in reduced air density and ventilation systems, could adversely affect flying characteristics.

3. The PIC* and the designated production representative should evaluate the indoor location for

items such as interior sets, walls, perms/greenbeds, lighting equipment, rigging, cables, Heating, Ventilation and Air Conditioning (HVAC) equipment, etc. These potential hazards should be considered prior to operation of the UAS.

4. Be aware of the proximity of the UAS to cast & crew, and/or a live audience, if applicable.

Notification

The Production Company shall notify all production personnel of the planned use of UAS so that any objection can be communicated prior to UAS operation. Notification can be accomplished by including a statement like the following on the call sheet:

"An Unmanned Aircraft System (UAS) will be used in close proximity to production personnel and equipment. Any personnel who do not consent to work within the UAS area must notify [*please insert the assigned production designee(s)*] prior to use of the UAS."

Note: California Code of Regulations (CCR), Title 8, § 11707 restricts minors under the age of 16 from working in close proximity to the functioning parts of unguarded and dangerous moving equipment, aircraft, or vessels, or functioning blades or propellers. Your studio or AHJ may have additional restrictions for minors.

A COPY OF THIS BULLETIN SHOULD ACCOMPANY THE CALL SHEET ON DAYS THAT THE UAS IS BEING UTILIZED.

* Or a person knowledgeable of the flight operation that has been designated by the UAS Operator.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #36

RECOMMENDED GUIDELINES FOR SAFELY WORKING AROUND UNMANNED AIRCRAFT SYSTEMS (UAS) a.k.a. DRONES

"ADDENDUM A" – FEDERAL AVIATION ADMINISTRATION (FAA) RULES & REGULATIONS

When working outdoors in the United States and its territories, the production and UAS Operators are subject to all applicable FAA rules and regulations.

Productions should review this Addendum in addition to the guidelines outlined in Safety Bulletin #36.

Note: California Code of Regulations (CCR), Title 8, § 11707 restricts minors under the age of 16 from working in close proximity to the functioning parts of unguarded and dangerous moving equipment, aircraft, or vessel, or functioning blades or propellers. Your studio or Authority Having Jurisdiction (AHJ) may have additional restrictions for minors.

If the production wishes to use a UAS that weighs 55 pounds or more on takeoff, including everything that is on board or otherwise attached to the aircraft, or if your operation includes a non-waivable Part 107 rule, then the UAS Operator must apply for an exemption in accordance with 49 United States Code (U.S.C.) §44807 (formerly referred to as Section 333 exemption). 49 U.S.C. § 44807 grants the Secretary of Transportation the authority to use a risk-based approach to determine if certain unmanned aircraft systems may operate safely in the National Airspace System (NAS) on a case-by-case basis. A list of approved UAS weighing 55 pounds or more can be found here: https://www.regulations.gov/document/FAA-2023-1271-0011. The production should confirm that the operator is using an approved UAS or has obtained this exemption prior to operation.

FAA 14 Code of Federal Regulations (CFR) 107.200 Waiver Policy and Requirements

There are specific UAS operations where the production would require a waiver from Part 107 rules, such as operating the UAS from a moving vehicle or flying over 400 feet above ground level. The FAA may issue a certificate of waiver authorizing a deviation from any regulation specified in § 107.205 if the FAA finds that the proposed small UAS operation can safely be conducted under the terms of that certificate of waiver. A request for a certificate of waiver must contain a complete description of the proposed operation and justification that establishes that the operation can safely be conducted under the terms of a certificate of waiver. Operations requiring a waiver are listed at the end of this addendum.

Pilot Certification

To operate the controls of a drone under Part 107, the Pilot in Command (PIC) must have a remote pilot certificate with a small UAS rating and have completed all recurrent training requirements or be under the direct supervision of a person who holds such a certificate. The requirements to become a certified remote pilot can be found on the FAA website at:

https://www.faa.gov/uas/commercial_operators/become_a_drone_pilot.

The UAS Operator or PIC must have available onsite their authorization documentation or waivers from the proper regulatory authority prior to any flight operations, as necessary. The documentation must be provided to the regulatory authority upon request.

All UAS shall have an FAA registration number and be labeled as applicable. In addition, the PIC shall verify that the aircraft is Remote ID compliant by one of the following two methods:

1. **Standard Remote ID Drone,** which broadcasts identification and location information about the drone and control station. A Standard Remote ID drone is one that is produced with built-in FAA Remote ID broadcast capabilities.

2. **Remote ID Broadcast Module** attached, which broadcasts identification and location information about the drone and its take-off location. The broadcast module can be added to a drone to retrofit it with FAA Remote ID broadcast capabilities.

Operation Over People

Federal regulations allow operations over people under certain circumstances without the need for those operations to receive individual Part 107 waivers from the FAA. An operational waiver would still be required when a PIC deviates from certain rules under Part 107, as long as it can be demonstrated that they can still fly safely using alternative methods.

Waivers are not necessary for operations over people where:

1. They are participating personnel in the flight operations of the UAS; or

2. Persons authorized by the PIC are located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling UAS; or

3. The operation meets the requirements of at least one of the four operational categories specified below.

For the purposes of outdoor filming, Federal regulations define flying “over” people as the UAS flight path being directly over any part of a person. For example, a UAS that hovers or transits directly over a person’s head, shoulders, extended arms, or legs would be an operation over people.

For the purposes of outdoor filming, Federal regulations define “participating personnel” as ONLY those who are directly participating in the safe operation of the UAS, such as the PIC and/or Visual Observer.

UAS Categories 1, 2, 3, and 4

- **Category 1** operations over people are permitted using a small, unmanned aircraft that:

  a) Weighs 0.55 pounds or less, including everything that is attached to the aircraft throughout the duration of each operation; and

  b) Does not contain any exposed rotating parts that would lacerate human skin on impact; and

c) The PIC does not operate the UAS in sustained flight over open-air assemblies unless the operation meets the applicable remote broadcast identification requirements.

- **Category 2** operations over people are permitted using unmanned aircraft that weigh more than 0.55 pounds but do not have an airworthiness certificate and comply with the following requirements:

  a) Must display a label on the aircraft indicating eligibility to conduct Category 2 operations, have current remote pilot operating instructions to operate the UAS, and be subject to a product support and notification process; and

  b) Must be designed, produced, or modified such that it will not cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of 11 foot-pounds (ft-lbs.) of kinetic energy upon impact from a rigid object; and

  c) Does not contain any exposed rotating parts that would lacerate human skin on impact; and

  d) The unmanned aircraft does not contain any safety defects; and

  e) The PIC does not operate the UAS in sustained flight over open-air assemblies unless the operation meets the applicable remote broadcast identification requirements.

- **Category 3** operations are prohibited over open-air assemblies. Operations over people may only take place if:

  a) The operation is within or over a closed or restricted-access site, and everyone within that site has been notified that a small UAS may fly over them; or

  b) If not in a closed or restricted access site, the UAS does not maintain sustained flight over any person unless that person is authorized directly in the operation of the UAS, or located under a covered structure, or inside a stationary vehicle that can provide reasonable protection from a falling UAS.

  c) The Category 3 UAS must also comply with the following requirements:

    - Must display a label on the aircraft indicating eligibility to conduct Category 3 operations, have current remote pilot operating instructions to operate the UAS, and be subject to a product support and notification process.

    - Must be designed, produced, or modified such that it will not cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of 25 ft-lbs. of kinetic energy upon impact from a rigid object.

    - Does not contain any exposed rotating parts that would lacerate human skin on impact.

- The unmanned aircraft does not contain any safety defects.

- **Category 4** operations allow a UAS-issued airworthiness certificate under Part 21 to operate over people, so long as the operating limitations specified in the approved Flight Manual, or as otherwise specified by the FAA Administrator, do not prohibit operations over people. The UAS airworthiness certificate must be continued and maintained as required by the FAA. Additionally:

  a) Sustained flight over open-air assemblies is allowed if the Category 4 UAS meets applicable remote identification operation and broadcast requirements.

  b) The operator must maintain records of maintenance performed on the aircraft as well as records documenting the status of life-limited parts.

Note: Sustained flight over an open-air assembly includes hovering above the heads of persons gathered in an open-air assembly, flying back and forth over an open-air assembly, or circling above the assembly in such a way that the UAS remains above some part of the assembly. Sustained flight over an open-air assembly of people in a Category 1, 3, or 4 operation does not include brief, one-time transiting over a portion of the assembled gathering, where the transit is merely incidental to a point-to-point operation unrelated to the assembly.

Examples of "Open Air Assemblies" may include sporting events, concerts, parades, protests, political rallies, community festivals, or parks and beaches during certain events.

Operations Over Moving Vehicles

No person may operate a UAS over a human being located inside a moving vehicle unless the following conditions are met:

- For an operation under Category 1, Category 2, or Category 3, the UAS aircraft, throughout the operation:

  a) Must remain within or over a closed- or restricted-access site, and all people located inside a moving vehicle within the closed- or restricted-access site must be on notice that a UAS may fly over them; or

  b) If the operation is not within or over a closed- or restricted-access site, the UAS aircraft must not maintain sustained flight over moving vehicles.

- For a Category 4 operation, the UAS must:

  a) Have an airworthiness certificate issued under Part 21 of FAA regulations; and

  b) The applicable operating limitations in the approved Flight Manual, or as otherwise specified by the FAA Administrator, do not prohibit such operation.

Operations At Night (*30 minutes after official sunset to 30 minutes before official sunrise*)

- No person may operate a UAS at night unless:

a) The PIC of the UAS has completed an initial knowledge test or training, as applicable.

b) The UAS has anti-collision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. The PIC may reduce the intensity of, but may not extinguish, the anti-collision lighting if they determine that, because of operating conditions, it would be in the interest of safety to do so.

Note: Notwithstanding the above, your company's policies may be more restrictive. Verify policies and obtain proper approvals before performing flights over people or moving vehicles, and/or at night.

Certificates of Waivers

The following is a list of Part 107 rules that require a waiver. The FAA may prescribe additional limitations that the FAA considers necessary. A person who receives a certificate of waiver issued under this section: (1) may deviate from the regulations to the extent specified in the certificate of waiver; and (2) must comply with any conditions or limitations that are specified in the certificate of waiver.

- **§ 107.25 Operation from a Moving Vehicle or Aircraft** – Fly a small UAS from a moving aircraft or a vehicle in populated areas.
- **§ 107.29 Operation at Night** – Fly a small UAS at night or during periods of civil twilight and nighttime without anti-collision lighting.
- **§ 107.31 Visual Line of Sight Aircraft Operation** – Fly a small UAS beyond your ability to clearly determine the position, altitude, attitude, and movement of the small UAS, with unaided vision.
- **§ 107.33 Visual Observer** – Use a visual observer without following all visual observer requirements.
- **§ 107.35 Operation of Multiple Small Unmanned Aircraft** – Fly multiple small UAS with only one remote pilot.
- **§ 107.37 Operation Near Aircraft; Right-of-Way Rules** – Fly small UAS over, under or ahead of an aircraft.
- **§ 107.39 Operation over Human Beings** – Fly over a person with a small UAS which does not meet conditions of operational categories 1, 2, 3, or 4.
- **§ 107.51 Operating Limitations for Small Unmanned Aircraft** – Fly a small UAS over 100 miles per hour groundspeed, over 400 feet above ground level, with less than 3 statute miles of visibility, or within 500 feet vertically or 2000 feet horizontally from clouds.
- **§ 107.145 Operation over Moving Vehicles** – Fly over moving vehicles with a small UAS which does not meet conditions of operational categories 1, 2, 3, or 4.

FAA News

Federal Aviation Administration, Washington, DC 20591

June 21, 2016

SUMMARY OF SMALL UNMANNED AIRCRAFT RULE (PART 107)

Operational Limitations	• Unmanned aircraft must weigh less than 55 lbs. (25 kg). • Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot in command and the person manipulating the flight controls of the small UAS. Alternatively, the unmanned aircraft must remain within VLOS of the visual observer. • At all times the small unmanned aircraft must remain close enough to the remote pilot in command and the person manipulating the flight controls of the small UAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses. • Small unmanned aircraft may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle. • Daylight-only operations, or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting. • Must yield right of way to other aircraft. • May use visual observer (VO) but not required. • First-person view camera cannot satisfy “see-and-avoid” requirement but can be used as long as requirement is satisfied in other ways. • Maximum groundspeed of 100 mph (87 knots). • Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure. • Minimum weather visibility of 3 miles from control station. • Operations in Class B, C, D and E airspace are allowed with the required ATC permission. • Operations in Class G airspace are allowed without ATC permission. • No person may act as a remote pilot in command or VO for more than one unmanned aircraft operation at one time. • No operations from a moving aircraft. • No operations from a moving vehicle unless the operation is over a sparsely populated area. • No careless or reckless operations. • No carriage of hazardous materials.

	• Requires preflight inspection by the remote pilot in command. • A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS. • Foreign-registered small unmanned aircraft are allowed to operate under part 107 if they satisfy the requirements of part 375. • External load operations are allowed if the object being carried by the unmanned aircraft is securely attached and does not adversely affect the flight characteristics or controllability of the aircraft. • Transportation of property for compensation or hire allowed provided that- o The aircraft, including its attached systems, payload and cargo weigh less than 55 pounds total; o The flight is conducted within visual line of sight and not from a moving vehicle or aircraft; and o The flight occurs wholly within the bounds of a State and does not involve transport between (1) Hawaii and another place in Hawaii through airspace outside Hawaii; (2) the District of Columbia and another place in the District of Columbia; or (3) a territory or possession of the United States and another place in the same territory or possession. • Most of the restrictions discussed above are waivable if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.
Remote Pilot in Command Certification and Responsibilities	• Establishes a remote pilot in command position. • A person operating a small UAS must either hold a remote pilot airman certificate with a small UAS rating or be under the direct supervision of a person who does hold a remote pilot certificate (remote pilot in command). • To qualify for a remote pilot certificate, a person must: o Demonstrate aeronautical knowledge by either: ▪ Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center; or ▪ Hold a part 61 pilot certificate other than student pilot, complete a flight review within the previous 24 months, and complete a small UAS online training course provided by the FAA. o Be vetted by the Transportation Security Administration. o Be at least 16 years old. • Part 61 pilot certificate holders may obtain a temporary remote pilot certificate immediately upon submission of their application for a permanent certificate. Other applicants will obtain a temporary remote pilot certificate upon successful completion of TSA security vetting. The FAA anticipates that it will be able to issue a temporary remote pilot certificate within 10 business days after receiving a completed remote pilot certificate application. • Until international standards are developed, foreign-

	certificated UAS pilots will be required to obtain an FAA-issued remote pilot certificate with a small UAS rating. A remote pilot in command must: • Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the rule. • Report to the FAA within 10 days of any operation that results in at least serious injury, loss of consciousness, or property damage of at least $500. • Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is in a condition for safe operation. • Ensure that the small unmanned aircraft complies with the existing registration requirements specified in § 91.203(a)(2). A remote pilot in command may deviate from the requirements of this rule in response to an in-flight emergency.
Aircraft Requirements	• FAA airworthiness certification is not required. However, the remote pilot in command must conduct a preflight check of the small UAS to ensure that it is in a condition for safe operation.
Model Aircraft	• Part 107 does not apply to model aircraft that satisfy all of the criteria specified in section 336 of Public Law 112-95. • The rule codifies the FAA's enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #37

VEHICLE RESTRAINT SYSTEMS - SEAT BELTS AND HARNESSES

This Safety Bulletin is intended to give recommendations in the safe use of Restraint Systems (*e.g.,* Seat Belts, Harnesses, Head and Neck Restraint Systems, etc.) to persons who are either in or on Picture Vehicles/Stunt Vehicles.

For recommendations regarding Seat Belts, Harnesses, or Personal Protective Equipment (PPE) for Construction Vehicles (*e.g.,* Forklifts, Lifting Platforms, Aerial Lifts, Scissor Lifts, etc.), Production Support Vehicles, Camera Platforms *(e.g.,* Insert Cars, Camera Cranes, etc.) or Aircraft, refer to Safety Bulletins #3, #8, #8A, #8B, #11, #11A, and #22.

- When any Vehicle is to be used in a filmed sequence, either off-camera or on camera, such Vehicle will be equipped with the appropriate Restraint System. These Restraint Systems must be used at all times by all Vehicle operators and passengers.

- Every effort should be made to install the appropriate safety Restraint System for all Vehicles. It is recognized that in exceptional circumstances, such as the case of Vintage or Antique Vehicles, installation of Restraint Systems may pose additional concerns. These concerns should be addressed as far in advance to filming as is practical.

- A thorough evaluation of the stunt or driving sequence will be performed and safety concerns should be discussed with all personnel involved. The level of protection should be appropriate to the intended result or other reasonably anticipated consequence of the action.

- All Vehicles, including their additional Safety Equipment (*e.g.,* Harnesses, Belts, Roll Cages, etc.), must undergo thorough Safety Inspection and Testing on a daily basis by qualified experienced personnel. Restraint Systems that show signs of damage or fraying shall be immediately removed from service and replaced.

- Prior to filming, consideration should be given to issues that concern Air Bags (such as unintentional deployment) and/or other Dynamic Safety Devices.

- **It may be unlawful for any driver or passenger to operate or ride on a vehicle without wearing the proper seat belt while it is being operated on a public highway or road as specified in the applicable vehicle Code.**

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #38

GUIDELINES FOR INCLEMENT OR SEVERE WEATHER

This bulletin identifies the safety considerations that should be addressed when working outdoors in areas where there is a potential for thunderstorms, flash flooding, extreme winds, large hail, tornados, and hurricanes.

NOTE: PLEASE SEE ADDENDUM "A" FOR LIGHTNING SAFETY

PRE-PLANNING

Pre-planning can reduce many of the potential dangers posed by inclement weather. The Location Manager, their department representative, or production should develop an "**action plan**" when preparing to use locations that may present an inclement or severe weather hazard.

- The **action plan** should designate a person who is responsible for monitoring potential inclement weather by commercial weather services, television and radio station newscasts, National Oceanic and Atmospheric Administration (NOAA) weather radio, smartphone applications, or other available means. Production should have a reliable means of receiving weather forecasts, watches, advisories, and warnings such as NOAA weather radio or app.

The **action plan** should include a method for communication with cast and crew members in the event of inclement or severe weather. Cast and crew members must follow all instructions given. The communication methods should reflect the conditions and circumstances at the scene. Other elements to include should be site-specific procedures which include methods and routes of evacuation, meeting areas, a means of establishing a head count for cast and crew members, and procedures for equipment shut-down, stowage, and/or removal when necessary.

If there is the possibility of inclement or severe weather, a "**safety meeting**" shall be held to review and communicate the elements of the **action plan.**

Safety meeting topics may include, but are not limited to:

- The weather forecast for the entire production day.
- Designated persons responsible for monitoring potential inclement weather.
- Communication Plan.
- Possible risks associated with the potential inclement weather.
- Location of designated shelters.
- Emergency procedures.
- When and how to strike equipment and sets, if required.
- Resumption of activities after the inclement weather threat is over.

1. Flash Flooding

Causes: Flash flooding is usually caused by slow-moving thunderstorms and can occur within a few minutes or hours of excessive rainfall. High-risk locations include areas designated by FEMA as a flood zone, low water crossings, dry riverbeds, recent burn areas in mountains, and urban areas with pavement and roofs that concentrate rainfall runoff.

Flash flooding may be worsened by topography, soil conditions, and groundcover. Flood zones are areas of low-lying ground usually adjacent to a river. You can check to see if the location is within a FEMA-designated flood zone on their website https://www.fema.gov/flood-maps. Also, productions should have a reliable means of receiving weather forecasts including watches advisories and warnings such as NOAA weather radio or app. Be especially cautious at night when it is harder to recognize flood dangers.

Please be aware that it does not have to rain at your location for a flood to occur.

Potential Hazards:

- Crew and equipment could become trapped or stranded as escape routes may be damaged and/or blocked.
- Equipment and personnel could be swept away or covered by water, mud, or debris.
- Drowning
- Electrocution
- Mudslides
- Flood waters may contain hazardous chemicals, biohazards such as animal/human waste, or wildlife, including reptiles.

Possible Actions:

- Activate the **action plan**.
- Secure equipment and all electrical power.
- Remove all cast and crew from elevated equipment, scaffolds, booms, and sets.
- Stay clear of potential slide areas next to hillsides or on the edges of cliff areas.
- Follow directions for evacuation procedures as outlined in the **action plan**.
- Gather at a pre-determined evacuation point and ensure everyone is accounted for.
- If you come upon a flowing stream where water is above ankles, STOP! Turn around and go another way.
- Do not drive through moving water or a flooded roadway.
- Do not attempt to return to the area until an "all clear" signal has been given by a regulatory authority or Production Management.

2. High Winds

Causes: High winds can be associated with extreme weather phenomena including thunderstorms, tornados, hurricanes, and high- and low-pressure systems. During the summer months in the Western States, storms often produce little rain but very strong wind gusts (some up to 100 mph) and dust storms.

Potential Hazards:

- Flying debris
- Dust
- Possibility of persons being swept off their feet.
- Equipment can be blown over and carried for a distance.
- Set destruction.
- Eye injuries

Possible Actions:

- Activate the **action plan**.
- Remove all cast and crew from elevated areas, sets, scaffolding, and other high objects.
- Lower all aerial, lighting, diffusion, camera boom equipment, and tents not designed to withstand high winds.
- Tie down and secure all loose equipment.
- When instructed, seek refuge from the winds at your pre-determined safe area.
- Be aware and protect your eyes from potential injury.
- Do not attempt to return to the area until an "all clear" signal has been givenby a regulatory authority or Production Management.

NOTE: OSHA mandates that aerial lifts and other like equipment are not to be operated when winds exceed the manufacturer's instructions for safe operation. The industry standard is a maximum of 25 mph unless a lower wind speed is set by the manufacturer. The use of attachments or cribbing may lower these maximums as well.

Be aware that many of the same precautions (*e.g.,* eye protection and securing equipment), can also apply to man-made wind effects such as rotor wash from airplanes or helicopters and wind machines (e.g., ritter fans and special effects fans).

3. Large Hail

Causes: Hail is usually associated with thunderstorms and is caused by freezing rain that can become very large.

Potential Hazards: May cause injuries to the crew and damage to equipment.

Possible Actions:

- If a watch or warning has been issued, the action plan should be activated, and the crew should follow all instructions.
- Secure and protect all equipment.
- Get down from elevated areas, aerial lifts, booms, scaffolds, and other high areas.
- When instructed, seek shelter at your pre-determined safe area.
- Do not attempt to return to the area until an "all clear" signal has been given by a regulatory authority or Production Management.

4. Blizzard or Severe Snowstorms

Causes: A storm accompanied by strong winds creates blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chill.

Potential Hazards:

- Blinding conditions.
- Creation of snow drifts.
- Dangerous wind chill factor *(refer to Safety Bulletin #34 Working in Extreme Cold Temperature Conditions)*.
- Subsequent avalanche danger; being caught and/or buried.
  - Usually triggered by the victim or members of the victim's party.
  - Generally, occurs with clear skies, little or no snowfall, and light or calm winds.
  - Contains a weak layer of snow beneath the surface referred to as surface hoar, facets, or depth hoar.
  - On 30–40-degree slopes, often at a convex part of the slope.

Possible Actions:

- If a watch or warning has been issued, the action plan should be activated, and the crew should follow all instructions.
- Secure and protect all equipment.
- Get down from elevated areas, aerial lifts, booms, scaffolds, and other high areas.
- Stay clear from potential avalanche areas.
- When instructed, seek shelter at your pre-determined safe area.
- Do not attempt to return to the area until an "all clear" signal has been given by a regulatory authority or Production Management.

5. Tornados

Causes: A tornado is a violent windstorm characterized by a twisting, funnel-shaped wind. Tornados tend to occur in the afternoon and evening hours.

Potential Hazards:

- Tornados are unpredictable and may form without warning.
- Winds can exceed 200 to 300 mph.
- Tornados may appear nearly transparent until dust and debris are picked up or a cloud forms within the funnel.
- Severe damage can occur to structures.
- The precise location of a touch-down point cannot be determined.

Possible Actions:

- If a watch or warning has been issued, the **action plan** should be activated.
- The crew should be regularly updated regarding any changes to potential weather conditions.
- Production should have a reliable means of receiving weather forecasts, tornado watches, and warnings such as NOAA weather radio or app.
- Production should review weather forecasts to determine if there is a significant risk of

tornado development.
- When there is a significant risk of tornado development, outdoor activity is not recommended.
- Identify suitable tornado shelters in advance.
- If a tornado shelter is not available on-site, plan for adequate transportation resources to provide prompt transportation of personnel to the shelter before the arrival of tornado conditions.
- Lower all aerial lifts, camera booms, and other equipment. Remove to a safe area as time permits.
- Evacuate the area immediately if instructed by a regulatory authority or production.
- Only secure equipment if there is time and it can be done safely.
- Do not attempt to return to the area until an "all clear" signal has been given by a regulatory authority or production.

<u>If you are unable to evacuate during a tornado, go to a wind-safe area. If you do not have one, follow these guidelines:</u>

- Stay indoors during the tornado and away from windows and glass doors.
- Close all interior doors – secure and brace external doors.
- Keep any window coverings closed.
- Take refuge in a small interior room or hallway on the lowest level.
- Lay on the floor under a table or another sturdy object.
- If the winds die down, it could be due to being in the "eye of the storm", and winds could pick up again.

6. <u>Hurricanes</u>

Causes: A slow developing tropical weather phenomenon that forms over water. Its greatest impacts are felt near or on shorelines of land. You will not be surprised by a hurricane, as they are usually tracked by a weather service for many days. They are also known as cyclones or typhoons.

Potential Hazards:

- Crew and equipment could become trapped or stranded as escape routes may be damaged and/or blocked.
- Severe winds and rainfall, which may cause extreme flooding.
- Storm surges.
- High waves possibility of persons being swept off their feet.
- Drowning.
- Localized tornados.
- Extreme damage to structures, roads, utilities, vehicles, and boats.
- Severe injury due to flying debris.

Possible Actions:

- In most cases, you will have several days warning to activate your **action plan.**
- Monitor tropical weather forecasts and predicted storm tracks.
- Develop an evacuation plan in advance that identifies inland evacuation destinations,

routes, and accommodations.
- If a hurricane track includes the area, review the forecast storm track, projected intensity, and potential impact with a competent authority such as a weather service or emergency management agency. That discussion should inform cancellation/evacuation decisions.
- Do not stay by the shoreline.
- Pack and secure all equipment and remove it to a safe area.
- Lower all aerial lifts, camera booms, and other equipment. Remove to a safe area as time permits.
- If ordered to evacuate, leave the area early—do not hesitate.
- Do not attempt to return to the area until an "all clear" signal has been given by a regulatory authority or Production Management.

<u>If you are unable to evacuate during a hurricane, go to a wind-safe area. If you do not have one, follow these guidelines:</u>

- Stay indoors during the hurricane and away from windows and glass doors.
- Close all interior doors – secure and brace external doors.
- Keep any window coverings closed.
- Take refuge in a small interior room or hallway on the lowest level.
- Lay on the floor under a table or another sturdy object.
- If the winds die down, it could be due to being in the “eye of the storm”, and winds could pick up again.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #39

SAFETY GUIDELINES FOR USING FOAM(ED) PLASTICS IN SET AND PROP CONSTRUCTION

The following recommendations are intended to give general guidance on the safe handling, use, storage and disposal of foam(ed) plastics when used to construct stage sets and props. Foam(ed) plastics are products made of petroleum distillates which can ignite when used in connection with heat from a hot wire or welding/cutting operation (hot work), or when used in close proximity to a fire effect or special effect/pyrotechnic device. Accordingly, it is recommended that only approved fire resistant foam(ed) plastics be used. *Prior to purchasing any foam(ed) plastics, check with the local fire Authority Having Jurisdiction (AHJ) in which the production is taking place, or appropriate studio or production safety representatives for guidance.*

TYPES OF FOAM(ED) PLASTICS

The following types of foam are most commonly used in set and prop construction:

- Sprayable polyurethane foam
- HSF 110 Pour Foam, Class 1
- Two-part rigid foam (AB foam)
- Expanded Polystyrene (EPS) or polyurethane or polystyrene foam blocks

NOTE: Caution must be taken at all times when working with or near foam(ed) plastics. The foams listed above are available in different classes, fire resistant and non-fire resistant. Under the right conditions even fire resistant foams will burn.

- Foam(ed) plastics must meet the requirements and guidelines of all applicable federal, state, and local laws, rules, regulations, and approved standards. In California, all foam(ed) plastics must meet the requirements of the California Fire Code, Article 40. In many other jurisdictions, foam(ed) plastics material used for decorative purposes, scenery, sets, or props, must comply with the requirements of National Fire Protection Association (NFPA), Article 140.

- When ordering foam(ed) plastics, request that your supplier include both "Manufacturer's Technical Data Sheet(s)", if available, and "Material Safety Data Sheets(s)" (MSDS) with each order**.** *Foam(ed) plastics should not be allowed in any work area without these documents.*

POTENTIAL HEALTH HAZARDS FROM WORKING WITH OR AROUND FOAM(ED) PLASTICS

NOTE: When foam products burn they will generate dense clouds of black smoke and a variety of toxic gases, including carbon dioxide, carbon monoxide, oxides of nitrogen, and traces of hydrogen cyanide. All precautions must be taken to avoid ignition of foam(ed) plastics to prevent inhalation of potentially hazardous smoke and other injuries, such as burns.

If inhalation of potentially hazardous smoke occurs, immediately seek medical attention.

The primary hazards in working with or around foam(ed) plastics are adverse health effects from direct exposure to foam(ed) plastics and injuries caused from ignition of foam(ed) plastics. Although foam(ed) plastics can be used safely, they must be handled in accordance with the procedures designed to minimize exposure and ignition.

EXPOSURE TO FOAM(ED) PLASTICS

Typically, there are three primary routes of possible exposure to foam(ed) plastics and the vapors released from such products: inhalation, skin contact, and eye contact.

NOTE: Foam(ed) products may contain chemicals known to produce chemical sensitivities. Individuals who know they have, or are prone to, chemical sensitivities must avoid any and all exposure to these products.

Inhalation

Airborne vapors, aerosol mists, and particulates are irritating to the respiratory tract. Symptoms of overexposure may include tightness of the chest and difficult or labored breathing. Headache, nausea, or vomiting may also occur. Exposure to higher concentrations may result in chemical bronchitis, pneumonitis, and pulmonary edema. Some individuals may become sensitized and experience severe asthma-like attacks whenever they are subsequently exposed to even minute amounts of vapor. Once sensitized, these individuals must avoid any further exposure.

Skin Contact

Although a single prolonged exposure is not likely to result in the foam material being absorbed through the skin in acutely toxic amounts, skin contact may discolor the skin and cause irritation. Skin contact may produce contact dermatitis and skin sensitization. Therefore, contact with the skin should be avoided.

Eye Contact

Direct or indirect contact with foam material may cause eye irritation, temporary blurred vision or corneal damage. Be aware that ordinary safety goggles or facemasks will not prevent eye irritation from high concentrations of vapor.

GENERAL PRECAUTIONS WHILE CUTTING, CARVING, SCULPTING, GLUING AND/OR SPRAYING

1. Skin and eye protection should be used during all normal working operations. Personal protective equipment includes, but is not limited to, safety glasses, chemical worker's goggles, chemical gloves, face shield, long-sleeve coveralls, safety shoes, or boots.

2. Mechanical ventilation adequate enough to draw vapors, aerosol mists, or smoke away from an operator's breathing zone should be provided at all work stations.

3. When adequate local exhaust ventilation is not feasible, proper personal respiratory equipment must be used.

4. Monitoring for airborne contaminants may be necessary.

GENERAL PRECAUTIONS FOR WORKSITE, STORAGE AND DISPOSAL

1. Due to potential fire hazard, consideration should be given during the design and pre-production of the set to ensure appropriate egress for cast and crew.

2. During construction the Construction Coordinator, or other designated person, shall identify the location of exits and maintain escape routes. All escape routes must be clear and unobstructed. The First Assistant Director, or his or her designee, is responsible to ensure that cast and crew members are made aware of the designated escape routes.

3. Foam(ed) plastics are combustible. Care should be taken to avoid contact with sources of ignition before, during, and after installation of all foam(ed) plastics. *Smoking while working with or around foam(ed) plastics is strictly prohibited.*

4. Foam(ed) products and associated adhesives must be dry and cured prior to sculpting and/or shaping.

5. When setting up welding/cutting operations, do not locate them in close proximity to foam(ed) plastics operations (see Hot Work on Foam(ed) Plastics).

6. Working with foam(ed) plastics produces combustible dust. Keep the work area clean.

7. Fire suppression devices and materials should be readily available when working with foam(ed) plastics. Only qualified individuals may use these devices.

8. Do not expose foam(ed) plastics to reactive chemicals (such as solvents, petroleum products, etc.). Consult the product MSDS and Manufacturer's Technical Data Sheet for further information.

9. Since uncured AB foam can generate heat and cause fires, use care in disposal.

APPLICATION OF TWO PART (AB) FOAM

In addition to the “General Precautions”, the following safety guidelines should be used when working with two part (AB) foam:

1. Only qualified personnel should spray AB foam.

2. Application of AB foam should be scheduled when other cast and crew members are not on the stage or set.

3. When using AB foam, either hand mixed or with froth packs, workers should refer to the MSDS and wear the proper personal protective equipment (PPE).

4. Be aware the application process of AB foam generates heat and may increase the likelihood of fire.

5. Minimize spaces between foam blocks that will be filled with AB foam. Large spaces that have been filled with AB foam have a greater likelihood of igniting when using the “hot wire” technique.

6. Allow all joints time to dry and cure before cutting or shaping. A non-cured joint is a fire hazard.

7. All equipment used in spraying foam should be kept clean, properly calibrated, and in good working order. Special attention should be paid to nozzles, pick-ups, and tubing.

8. The drums and/or containers of AB foam components require bonding and/or grounding to prevent the build up of static electricity.

9. Precaution should be taken to avoid spills when storing and using AB foam. When storing 55-gallon drums of AB foam use appropriate secondary containment. Consult the Studio Safety Representative, local Fire Authority or local Authority Having Jurisdiction (AHJ) when storing large amounts (55 gallon drums) of AB foam.

SCULPTING FOAM

In addition to the “General Precautions”, the following safety guidelines should be used when sculpting foam:

1. Sculpting foam(ed) plastics may involve many different types of tools. Care must be taken when using sharp tools or those with moving parts to avoid injury. Be aware of others working in close proximity.

2. Abrading, sawing, cutting, sanding, or other methods of sculpting foam(ed) plastics will cause dust and debris to form, which increases the potential for flammability.

3. Wear appropriate PPE when necessary. Keep the work area clean by regular sweeping and disposal of dust and debris.

HOT WORK ON FOAM(ED) PLASTICS

In addition to the "General Precautions", the following safety guidelines should be used when performing hot work on foam(ed) plastics:

1. Only qualified personnel should use hot wire devices.

2. Hot work, which includes hot wire sculpting and welding/cutting, may require a fire department permit.

3. Hot wire sculpting uses various types of electrical and heated devices. AB foam must be fully cured before sculpting with a hot wire.

4. Exposed hot wire devices are heated to high temperatures. The hot wire heated elements must not be left connected and unattended.

5. All equipment used in a hot wire operation must be inspected and kept in good working order at all times.

6. Any handheld hot wire device should be able to be disconnected from the electrical supply at the device.

7. The hot wire should be adjusted such that the wire is not visibly red.

8. Hot work must not be performed within ten (10) feet of any flammable and/or combustible materials, unless approved by the AHJ.

9. A fire watch should be provided during a hot work operation. Individuals assigned to fire watch duty must have fire-extinguishing equipment readily available and must be trained in the use of such equipment. If possible and safe to do so, individuals assigned to fire watch duty should extinguish spot fires and communicate an alarm in the event of a fire.

10. Fire watch assignments should continue for a minimum of thirty (30) minutes after the interruption or conclusion of hot work operations.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #40

GUIDELINES FOR NON-CAMERA UTILITY VEHICLES

These guidelines address non-camera utility vehicles used for production support, such as ATVs, golf carts, snowmobiles and utility vehicles with small engines and/or electric powered. (For camera vehicles, see bulletins #8, 8A and 8B.) Vehicle operators must observe all applicable rules and regulations. In order to provide a safe workplace, the following vehicle guidelines have been established regardless of the type of vehicle used:

1. **Horseplay or careless operation is not allowed and will not be tolerated.**
2. Inspect the vehicle before use.
3. Understand the vehicle controls. If you do not know how to operate the vehicle, ask for instruction. Employers/production have the obligation to ensure that employees are instructed in the safe use and operation of the vehicle.
4. Operators have the responsibility for the safe transportation of passengers and equipment.
5. Operators should hold a valid driver's license and if not held, notify production.
6. Each passenger must have a seat. No sitting on laps, standing on bumpers or riding on tailgates. Multiple people sitting in a seat designated for one and riding on parts of the vehicle that are not designed for that purpose are strictly prohibited.
7. Wear a seat belt, if provided.
8. Keep arms and legs in the vehicle at all times.
9. If the vehicle is not equipped with a windshield, eye protection is recommended.
10. A helmet may be necessary in certain situations.
11. If the vehicle is equipped to carry loads, secure or place them in a manner that will not allow them to shift or fall from the vehicle.
12. Do not exceed the manufacturers' load recommendations as overloading can affect braking and control of the vehicle. Loads should be appropriately balanced.
13. Do not operate the vehicle in a manner that is dangerous to you or to others.

14. Always use caution around people and animals. Pedestrians always have the right of way.
15. Exercise caution going around corners. Look for hazards, such as other vehicles and people.
16. Be familiar with the terrain.
17. To reduce the risk of rollovers, avoid driving off curbs, from one level to another, and/or turning on inclines.
18. Drive at speeds appropriate to the surface, road and weather conditions (*e.g.*, driving in dirt or gravel, on a steep incline, on ice, in rain, etc.).
19. In poor visibility, vehicles should not be operated unless equipped with headlights or sufficient lighting is provided.
20. Towing should only be performed in a manner specified by the manufacturer.

Using and working safely around non-camera utility vehicles requires the full attention and care of the entire crew. Horseplay and excessive speed are the primary causes of accidents and injuries. Extreme caution should be used when operating these vehicles.

Operators are responsible to follow these safety guidelines, employer guidelines and manufacturer operating manuals for the safe operation of these types of vehicles.

INDUSTRY-WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #41

RECOMMENDED GUIDELINES FOR SAFELY WORKING ON AND AROUND GIMBALS

These guidelines are intended as recommendations for safely working on and around gimbals.

Gimbals are generally one-of-a-kind, purpose-built devices designed to simulate and control movement, such as airplanes in flight, a ship in a storm, and many other situations. Gimbals are typically used to move cast, crew, and sets through a number of programmed or choreographed motions. Gimbals can range in complexity from small-scale, seesaw-type devices moved by simple leverage to complex, multi-axis powered motion bases controlled via computer. Gimbals should only operate to the level for which they are designed. Design and assembly of gimbals are not covered in this Safety Bulletin.

Responsible Person

The production shall assign a responsible person for the safe configuration and operation of the gimbal. A responsible person is someone who is capable of identifying existing and predictable hazards in their surroundings or working conditions, and who has the authority to take prompt corrective measures to eliminate them.

The responsible person will have oversight of all gimbal operations, including, but not limited to, the authority to:

- Determine the maximum weight capacity that the gimbal can support and consider when a structural engineer may be needed.
- Identify potential hazards in the gimbal's work area.
- Determine control measures: develop strategies to eliminate or reduce the risks associated with each identified potential hazard.
- Implement control measures, monitor their effectiveness, and adjust as needed.
- Determine the exclusion zone around the gimbal and control areas.
- Determine (in conjunction with the lighting and/or electrical department) if the gimbal structure or its controls, including any electrical equipment used in association with the gimbal, will require a safety device such as a Ground Fault Circuit Interrupter (GFCI). This determination should consider the hazards associated with a loss of power, causing an unexpected shutdown of the gimbal.
- Abort operations.
- Designate an operator(s) as needed.

- Coordinate with other departments to identify fall hazards for cast and crew and appropriate means of protection (e.g., barriers, guard rails, pads, fall restraint equipment, appropriate anchor points).

Potential Risks

Production Management and the responsible person should be aware of these potential risks and address them in conjunction with the appropriate personnel:

- Environmental and human factors.
- Hydraulic leaks.
- Inclement weather, such as windy conditions.
- Access to the gimbal by cast and crew.
- Placement of electrical equipment and power supply system.

Exclusion Zone

A clearly defined exclusion zone is the immediate area surrounding a gimbal and should be determined by a responsible person. Authorized cast and crew are allowed to enter the exclusion zone when it is determined to be safe by the responsible person. Some ways to designate the exclusion zones may include caution tape, barricades, signage, light signals, and notification on call sheets.

Pre-Rig and Construction

The production must ensure that the working surface for the gimbal can sufficiently support the intended load, including camera, personnel, and any other items that may be on the gimbal. Stage floor construction, pits, tanks, and other substructures may impact the load capacity of the gimbal's working surface. Evaluation by a structural engineer may be necessary to determine the load capacity of the gimbal's working surface.

Other considerations during pre-rig and construction include:

- Limitations of the gimbal should be communicated to all applicable departments by the responsible person.
- Re-examine exclusion zone: The exclusion zone may change during construction and pre-rigging. Always communicate these changes to the cast and crew.
- Establish work procedures (e.g., lockout/tagout/blockout, fall protection, safety communications) and other protocols for working on or around the gimbal.
- Establish emergency shutdown procedures: The dynamic action of the gimbal may create an additional hazard to personnel working on or around the gimbal if an immediate shutdown is required. Personnel on or around the gimbal may have to take specific action to protect themselves in the case of an emergency shutdown.
    - Consider safety sensors and emergency stop buttons as they can serve as

immediate measures to quickly terminate the gimbal operation.

    - All safety sensors may need to be calibrated and tested before initial use of the gimbal.

- The responsible person should be consulted before operating heavy equipment (e.g., aerial lifts, camera cranes, forklifts) around the gimbal, hydraulic lines, and/or control lines.

- When necessary, crib or block to prevent parts from moving inadvertently when the gimbal is not in operation.

- Ensure crossovers and/or protective covers are used to protect hoses, electrical cables, and control lines, and to prevent possible tripping hazards.

Operation and testing of the gimbal shall be within its structural and engineering limitations.

All items included in this section should be reevaluated throughout the production as conditions change.

Inspection and Testing

Representatives from all applicable departments should be included in conducting inspections of their equipment on or around the gimbal, prior to operation.

Inspections and testing by a responsible person should include:

- Evaluate the limitations of the gimbal, such as, but not limited to, load capacity, how it may be affected by water, weather, additional equipment, structures, dust effects, etc.

- Check all electrical distribution system components exposed to water. These components should be designed to work when wet or submerged.

- Inspect gimbal, base, hoses, structure, and service connections to equipment on the gimbal (e.g., electrical special effects).

- Gimbal controls and movements should be tested prior to any rehearsals or filming with personnel on the gimbal.

- Evaluate potential impact on cast and crew within the intended load and range of movement.

- Prior to operation, verify that the exclusion zone is free of any unauthorized persons or items.

- Where applicable, check for electrical and/or radio and wireless interference and maintain the proper perimeter around the gimbal and computer controls.

- Check attachments to the gimbal to ensure that they are properly secured.

Safety Meetings

The First Assistant Director should, along with the responsible person, conduct a safety meeting

with the applicable cast and crew, including, when necessary, a Stunt Coordinator, prior to working on or around the gimbal.

At the safety meeting, the First Assistant Director should identify the designated responsible person, who may discuss topics, including:

- Exclusion zone parameters, including cast and crew members authorized to enter the exclusion zone.
- Gimbal limitations.
- Work procedures around the gimbal.
- Emergency procedures, including emergency shutdown procedures.
- The full range of movement, need for increased awareness, possible changes, authority to abort, and audio and visual signals.
- The possible effects of electrical, radio, and wireless devices on radio-sensitive equipment.

The responsible person should be notified of any changes or concerns regarding gimbal operations, actions of the cast or crew, or placement of equipment to determine if adjustments are necessary. Additional safety meetings may be necessary.

During Operation

- Follow established procedures when entering the exclusion zone.
- With the permission of the responsible person, secure set pieces, production equipment, and props on the gimbal.
- The gimbal operator should be at the controls at all times when the gimbal is operational, with a clear line of sight, using additional spotters to assist, as needed.
- Keep unauthorized personnel away from controls at all times.
- Watch for loose materials, sharp edges, pinch points, etc.
- Authorized cast and crew should be reminded of the anticipated movement of the gimbal.
- Ensure clear, safe access and egress.
- Maintain reliable communication during operation.
- Always wait for the responsible person's permission before approaching the gimbal.

Additional information may be found in Safety Bulletin #4, *Stunts*; Safety Bulletin #7, *Recommendations for Diving Operations*; Safety Bulletin #15, *Guidelines for Boating Safety for Film Crews*; Safety Bulletin #17, *Water Hazards*; and Safety Bulletin #23, *Guidelines for Working with Portable Power Distribution Systems and Other Electrical Equipment*.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #42

GUIDELINES FOR ALTERNATIVE DRIVING SYSTEMS

These guidelines are intended to give recommendations for safely working on and around Alternative Driving Systems (ADS) e.g., Pods. An ADS is typically a custom-built device that is connected to the vehicle so that the vehicle can be driven safely without the person sitting in the normal driving position controlling the steering, accelerator, brakes, or other components. This Safety Bulletin does not address the use of wireless-controlled vehicle systems.

ADS should only be operated to the levels for which they are designed based upon the requirements and conditions discussed between the Production and the ADS manufacturer or fabricator. The design, fabrication, and assembly of ADS are not covered in this Safety Bulletin.

Responsible Person

Production shall assign a Responsible Person or Persons. A Responsible Person is someone with both the experience and training to recognize and resolve problems relating to the configuration and operation of the ADS. The Responsible Person will have authority over all ADS operations.

Considerations for Using an ADS

- Type of vehicle to which the ADS will be installed
- Intended speed and maneuvers
- ADS rigged vehicle operating in close proximity to other vehicles
- Aircraft flown in close proximity
- Scene action (e.g., stunts, performance, and special effects)
- Route conditions (e.g., curved, incline, crown, obstacles, clearances, length, width, paved, gravel, dirt, flat, hilly, wet, or slippery)
- Anticipated weather
- Evaluation of the vehicle's original systems and whether they should be disengaged (e.g., brakes, ignition, airbags, steering, and accelerator)
- A secure area for cast and crew riding in or on the ADS vehicle
- Load capacity, center of gravity, and counter-balance
- Equipment weight, placement and use (e.g., camera, lighting, and props)
- Visibility conditions of ADS operator such as dust, spray, blinding lights, restrictive covering over the windshield, smoke
- Emergency stop system
- Communication system
- Allowing time for proving/testing the system

Pre-Rig

The capabilities and limitations of the ADS should be communicated to all applicable departments. All rigging of the ADS and equipment, including cameras and lights, is to be performed by qualified personnel in an area secured for the purpose of rigging, which is free of known hazards, including other vehicular traffic. The rigging must be discussed with the Responsible Person and the ADS operator prior to the use of the vehicle. The Responsible Person and ADS operator must inspect the vehicle after any rigging change is made to ensure that the change will not adversely affect the safe operation of the vehicle. Only authorized persons should be in the secured area. When the ADS vehicle is not in operation, steps should be taken to ensure the vehicle cannot inadvertently move.

Inspection

The connected vehicle must be inspected before and after each run. Inspection items include, but are not limited to, the ADS, brakes, steering, tires, engine, drive train, vehicle's electrical system, connection points, towing equipment, and all safety equipment. Any items not fully functioning must be repaired by a qualified person before use.

Prior to Operation

A walk through with the performer(s) should be conducted regarding which of the vehicle's original systems are operational and which have been disengaged.

A rehearsal should be considered to familiarize the performer with the operational characteristics of the vehicle and controls.

Safety Meetings

A shot-specific safety meeting should be held by the First Assistant Director, Responsible Person, and Stunt Coordinator, as needed, involving all personnel riding in, on, or in close proximity (e.g., stunt personnel or background performers) to the ADS vehicle. This meeting should discuss the following topics below:

- Shot sequence and route (e.g., stunt action including crossovers/head-on or near misses, vehicle speed, number and proximity of other vehicles, crew and camera placement, background performers, and property)
- Walk-through or dry-run
- Environmental conditions (e.g., weather, surface conditions, such as cement, gravel or dirt, topography, such as flat or hilly)
- Possible changes due to hazards
- Authority to abort including signals to be used
- Route conditions (e.g., slope, curved, incline, crown, obstacles, clearances, length and width)

- Equipment considerations (e.g., rigging, exposed controls, drive systems, air bags, automatic roll bar, and fuel-cell position)
- Communication systems (e.g., intercom and designated channel)
- Signaling system to alert personnel to the ADS impending movement
- Visibility
- Special effects
- Personal protective equipment (e.g., harnesses, seat belts, helmets, and eye protection)
- Traffic and pedestrian control (e.g., street closures and Intermittent Traffic Control [ITC])
- Emergency plan (e.g., escape routes and contingency plan)

If for any reason there is a change in the choreography or personnel involved in the shot, a safety meeting must be held with all personnel involved to ensure everyone understands the changes.

Operation

During rehearsals and takes:

- The Responsible Person and/or the ADS Operator has the authority to suspend operation of the ADS vehicle, including the ability to abort
- Changes should be approved by the Responsible Person and/or ADS Operator
- The ADS vehicle and equipment should be inspected after each run
- Do not approach, enter, or exit the ADS without permission from the Responsible Person, First Assistant Director, or ADS Operator
- Only essential personnel required for the shot should be allowed on or in the ADS vehicle
- Cast and crew riding on or in the ADS vehicle must be provided a safe and secure place to ride

INDUSTRY-WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN #43

RECOMMENDED GUIDELINES FOR FREE DRIVING

The term "Free Driving" applies to situations where the driver or a passenger of a vehicle is being photographed by cameras attached to the outside and/or inside the vehicle, or being handheld by a camera operator inside the vehicle. The term free driving also applies in situations when the camera is used to film external shots from in or on the vehicle. For example, during Free Driving the camera can be attached to the exterior of a vehicle with a door mount (hostess tray), a hood mount, or on a mechanical track system. As a result of unique vehicle configurations, equipment placement, personnel location and operations, potential risk factors may exist and should be addressed, as discussed below.

These guidelines do not cover insert car and/or process trailer operations. For those situations, refer to Industry-Wide Labor-Management Safety Committee Safety Bulletin #8 "Guidelines for Traditional Camera Cars" and/or #8, Addendum A "Process Trailer/Towed Vehicle" for guidance. Also refer to Safety Bulletin #37 "Vehicle Restraint Systems – Seat Belts & Harnesses" and #42 "Guidelines for Alternative Driving Systems".

Considerations Before Engaging in Free Driving

Production shall consider all available options (including camera car, process trailer, alternative driving systems, etc.) and assess and make the determination that Free Driving is an appropriate method.

Driving safely is the first priority; acting and/or getting the shot is second. When safe operation of the vehicle is not possible, alternate means should be used, such as a process trailer or a tow vehicle.

Unsecured equipment poses a particular challenge. Hand-held cameras, equipment, and crew and actor placement should be considered to ensure the equipment will not become a projectile that could cause injury.

Other considerations for safe Free Driving include:

- Scene action (e.g. stunts, performance, and special effects)
- The ability of the driver to simultaneously perform, drive, and remain aware of any clearance required for rigging or equipment that extends beyond the vehicle body
- Controlled or uncontrolled environment (closed course versus open roads with Intermittent Traffic Control [ITC])
- Location permitting requirements, such as for road closures, ITC or driving grids.

- Type and condition of vehicle to be used
- Intended speed and maneuvers
- Operating the vehicle in close proximity to other vehicles
- Route conditions (e.g. curved, incline, crown, obstacles, clearances, length, width, paved, gravel, dirt, flat, hilly, wet, or slippery)
- Anticipated weather
- Airbags and other automatic devices may need to be deactivated for safety, depending on the placement of personnel and equipment (e.g. cameras, lights). **NOTE: Only a person who is trained, qualified, and authorized to disengage an airbag shall do so.**
- If airbags must be disabled, alternative safety measures will need to be implemented (e.g. restraint harnesses).
- The production should consider road closures, reduced speeds, etc. prior to disengaging airbags.
- Equipment weight, load capacity, center of gravity, counter balance, placement and use (e.g. camera, lighting, and props)
- Limited lighting options, including placement and power
- Limited visibility conditions for the driver (e.g. cameras, mounts, dust, spray, lights, restrictive covering over the windshield, smoke)
- Communication system (e.g. walkie-talkies)

Prior to Operation

- When vehicles are used for filming, all rigged equipment must be securely mounted. If cameras are mounted to any part of the vehicle (either inside or out), these must be securely installed with the appropriate mounts / restraints and by a member of the crew who is qualified to perform the procedure.
- Mounted equipment inside or outside the vehicle should not obstruct the driver's view or distract attention while the vehicle is in motion.
- No lighting should be used within the vehicle that could impair the driver's clarity of vision or provide distraction.
- The consideration of foreseeable emergencies (e.g. deployment of vehicle airbags) must be taken into account when positioning the camera operator.
- The driver must be qualified to operate the vehicle and should have an appropriate license. NOTE: A license may not be required by law. However, drivers may need special training to be qualified to drive an unfamiliar vehicle or course.
- All rigging of the vehicle and equipment, including cameras and lights, is to be performed by qualified personnel in a secure area which is free of known hazards, including other vehicular traffic.
- A walk-through with the driver should be conducted to familiarize them with the operational characteristics of the vehicle and controls. Always check that the driver can operate the vehicle safely while filming is taking place.
- Establish communication between drivers and support vehicles (e.g. walkie-talkies).

- Check the weather and road conditions; establish the route, ensure that it is clear, and allow enough time for rehearsals prior to filming.
- Brief the driver regarding the proposed filming plans. Ensure that the driver is confident with the route and is aware of where the cameras will be positioned.
- The driver should do a test drive of the vehicle to familiarize her/himself with the filming plans and where s/he needs to drive during the scene.
- After rigging cameras and other equipment, carry out a test drive in a secluded spot or private road to test that the clamps have not come loose through vibrations. This process should be carried out each time you stop as a secondary check.

Inspection

Ensure the vehicle has been inspected, is roadworthy, and has been suitably maintained. Inspection items include, but are not limited to, brakes, steering, tires, engine, drive train, vehicle's electrical system, connection points, equipment placement, and all safety equipment. Any items not functioning properly must be repaired by a qualified person before use.

Safety Meetings

A shot-specific safety meeting should be held by the First Assistant Director for all personnel riding in or on the vehicle, including those in close proximity (e.g. stunt personnel or background performers). This meeting should discuss the following topics:

- Shot sequence and route (e.g. stunt action including crossovers/head-on or near misses, vehicle speed, number and proximity of other vehicles, crew and camera placement, background performers, and property)
- The potential use of a convoy of safety buffer vehicles for a cushion zone, plus slower travel speeds
- Walk-through or dry-run
- Environmental conditions (e.g. weather, surface conditions such as cement, gravel or dirt, topography such as flat or hilly)
- Possible changes due to hazards
- Authority to abort, including signals to be used
- Route conditions (e.g. slope, curved, incline, crown, obstacles, clearances, length and width)
- Equipment considerations (e.g. rigging, cameras, lights, microphones, airbags)
- Communication systems (e.g. intercom and designated channel)
- Signaling system to alert personnel to the vehicle’s impending movement
- Visibility
- Special effects
- Personal protective equipment (e.g. harnesses, seat belts, helmets, eye protection)

- Traffic and pedestrian control (e.g. street closures, ITC)
- Emergency plan (e.g. escape routes and contingency plan)

If there is a substantive change in the choreography, equipment, or personnel involved in the shot, the individuals involved should discuss and decide if a subsequent safety meeting and rehearsal should be held.

Operation

Depending on the road conditions, speed, weather, controlled/uncontrolled environments, etc., the following should be considered during rehearsals and filming:

- Only essential personnel required for the shot should be allowed on or in the vehicle.
- Equipment and personnel should not disrupt, distract the driver, or compromise the safety of the vehicle operation.
- Cast and crew riding in the vehicle must be provided a safe and secure place to ride.
- While filming from inside the vehicle, personnel should be restrained with suitable straps/harnesses. The camera and gear should be properly secured.
- A generator, when needed, should not be positioned where the cast and crew may be exposed to the exhaust.
- If using batteries with or without an inverter, the batteries must sit flat and be secured in an upright position. Batteries can get hot and should not be placed against anything combustible.
- When possible, a remote ON/OFF control switch should be used to run and stop the camera when it is door or hood mounted; a camera assistant rushing to the car to turn off the camera can create a hazard.
- The performer should not be tasked with "slating" if the vehicle is already in motion.
- Use comms/walkies to communicate between all parties.
- Driver should keep within legal speed limits and drive within the law, safely and responsibly to ensure that driving actions do not cause any hazards to oncoming traffic/drivers (if applicable).
- After each run, a general inspection should be conducted to ensure all equipment is secure. If at any time a camera or other equipment is deemed to be "unsteady," filming should cease and adjustments made accordingly.

INDUSTRY-WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN # 44

GUIDELINES FOR WORKING SAFELY WITH RADIOFREQUENCY (RF) TRANSMITTERS

These guidelines are intended to help cast and crew understand radiofrequency exposure for equipment that is commonly used by production. RF radiation can be harmful due to the ability of RF energy to heat biological tissue faster than the body can cope with or dissipate the excessive heat. It is not presently known whether there are non-heat related effects of RF exposure.

COMMON SOURCES OF RADIOFREQUENCY

RF is continuously emitted from certain types of wireless transmitting equipment that is commonly used on cameras, audio equipment, wireless lighting controllers, and Wi-Fi hotspots. Equipment that only receives RF is not a source of RF emissions.

This bulletin is not meant to address radio transmitting facilities, satellite antenna farms, microwave installations, cellular telephone towers, and other industrial equipment that may emit radio waves. Individuals working in these areas should follow all warning signage and comply with the facility's safety protocols and procedures.

The FCC recognizes two tiers of Maximum Permissible Exposure (MPE) limits. This bulletin follows the stricter limits of the General Population/Uncontrolled Exposure (GP/UE) guidelines.

CONSIDERATIONS FOR USE

1. Follow the manufacturer's guidelines. Camera-back transmitters commonly used in the film and television industry are authorized for license-free use by the Federal Communications Committee (FCC) under Part 15 and require that all Part 15 devices be subject to FCC RF exposure guidelines.

2. Unless it is permissible by the manufacturer, the RF equipment should not be modified in any way. Equipment exceeding FCC unlicensed power limits or otherwise requiring a Special Temporary Authorization (STA) from the FCC should be used only by trained technicians in accordance with the FCC license. If equipment that exceeds FCC unlicensed power limits must be used, production personnel should be made aware so that the required additional safety protocols and precautions can be implemented.

3. Be aware of the RF output power and minimum safe operating distances from the transmitting source, i.e. antenna. Antennas may be supported by a mast that provides distance from the transmitter. These masts are not an active RF source.

4. Establish operating procedures that enable personnel using RF Equipment to remain at safe operating distances or provide other means of protection from excessive RF exposure.

GUIDELINES FOR SAFE OPERATION

Methods for mitigating the health effects of RF exposure include:

a. Hardwiring the equipment
b. Increasing one's distance from the RF emitting device
c. Employing RF shielding or protective clothing

INDUSTRY-WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SAFETY BULLETIN # 45

GUIDELINES FOR LONG OR SUCCESSIVE TAKES

INTRODUCTION

This Bulletin has been developed to provide guidance for safety concerns caused by long and/ or successive takes. The objective is to increase awareness to enable the producer, director, cast, and crew to communicate about and address these concerns before they become problems.

Among other factors, advances in technology have enabled filmmakers to extend the length of individual takes (including continual resets) and the number of successive takes. In these circumstances, cast and crew members may be required to support a weighted load (e.g., handheld sound boom, handheld camera, props, lights, dollys, etc.) or maintain an awkward or still position for longer durations. Therefore, a proactive production management approach is recommended that takes into consideration the length of a take, the number of successive takes, the equipment involved, and personnel.

POTENTIAL HEALTH EFFECTS AND SAFETY CONCERNS

Maintaining an awkward position or supporting a weighted load for extended lengths of time with inadequate recovery can lead to:

- Permanent nerve and musculoskeletal disorders
- Microtrauma injuries
- Repetitive strain and overuse injuries
- Pain, numbness, tingling, burning and swelling

Resulting from safety concerns, such as dropping equipment, and trips and falls may also occur, potentially causing injury to the individual and to others.

PRE-PLANNING

Production must consider the technical and creative requirement of the setups and to the extent possible fit the physical capabilities of the cast and crew members to the given tasks. Each production is unique and requires different technical and creative set-ups and each person's physical capabilities are different. These factors call for specific planning and communication, including being mindful that injury can occur even if a person doesn't experience unusual pain or discomfort. During pre-production, a plan should be discussed with production staff, department heads, and cast and crew to address concerns and limit the impact of long or successive takes. The employer, at the earliest stage of production, should:

- Conduct discussions with all affected department heads to evaluate these concerns (and reassess throughout the production) and consider all options to address these concerns.
- Consult with cast and crew to create a specific plan where equipment and/or personnel options must be provided to be able to perform their job safely.
- Regularly check in on affected cast and crew.

Cast and crew should be made aware of this Safety Bulletin as early as practicable to ensure proper planning (e.g., include in start paperwork, attach to call sheet, post at the worksite).

CONTROL MEASURES

In order to avoid muscle fatigue or injury consider the following control measures:

EQUIPMENT

A wide variety of equipment options are available for consideration during pre-production and can include, but are not limited to:

- Dolly-mounted microphone boom
- Wireless microphone
- Camera dolly
- Tripod/Monopod
- Stand
- Handheld support systems/rigs
- Powered assist device
- Intelligent Exoskeleton Systems
- Using media that record fewer data (to incorporate natural breaks for reloads)
- Ergonomically designed cameras and lenses for hand holding
- Bungee rigs
- Lighter equipment
- Remote operated cameras

ADMINISTRATIVE CONTROLS

- Rotation of crew members
- Adequate rest intervals
- Shorter takes
- Spotters assigned to operators
- Warm-up and stretching

NOTE: Prior to filming, production management and affected personnel should be encouraged to discuss appropriate rest intervals for those required to maintain an awkward position and/or support a heavy load for an extended duration.

Personnel, when performing continuous handheld work, should be rotated or provided with an appropriate break to reduce strain and fatigue. This requirement should be among the subjects covered at the safety meeting prior to shooting.

SUMMARY

Long or successive takes may cause workers to experience musculoskeletal discomfort. Production management is encouraged to consider all options to reduce strain, including the above-outlined equipment and personnel options to prevent injuries. Employees who are experiencing muscle fatigue or discomfort should be encouraged to communicate their situation to appropriate safety personnel and/or production management in a timely manner so that concerns can be addressed.

INDUSTRY WIDE LABOR-MANAGEMENT SAFETY COMMITTEE

SPECIAL PROCEDURES FOR MINORS PERFORMING PHYSICAL ACTIVITIES

This document addresses special procedures for minors performing physical activities in motion picture and television production. Under California law, a minor is an individual who is under eighteen (18) years of age who is required to attend school under the applicable provisions of the California Education Code (Cal. Fam. Code §6500).

Procedures:

1. Prior to rehearsal or filming, the production company should perform an initial review of the physical activity, including but not limited to:

   a. the age, height, weight and maturity of the minor,
   b. the physical fitness, coordination, expertise in the planned activity, and film experience of the minor,
   c. the amount of additional information and movement the minor will be asked to consider (e.g., camera positions, acting, looking over shoulder, waving arms, etc.),
   d. how wardrobe or props will affect the actions and/or vision of the minor,
   e. the amount of rehearsal and preparation time which has been provided,
   f. the appropriate amount of protective gear or equipment necessary to safely perform the activity,
   g. the area around the minor during the activity, and
   h. any other factors affecting the minor.

2. Prior to rehearsal or filming the physical activity, key production personnel, such as the Director, First Assistant Director, Stunt Coordinator and safety professional, should confer with the minor, minor's parent/legal guardian and Studio Teacher to review and discuss the activity.

3. Rehearsals and filming of the physical activity should take place with the Assistant Director, Stunt Coordinator, Studio Teacher, and parent/legal guardian present. If the situation warrants, a person qualified to administer medical assistance on an emergency basis must be present or readily available at the rehearsal and filming of the activity.

4. If any aspect of the activity changes, a new discussion and/or meeting should be held and a new rehearsal should be considered.

5. The production shall consider any reasonable request for additional equipment from the minor, parent/legal guardian, or Studio Teacher.

6. If a consensus regarding the physical activity is not established, the minor, the minor's parent or guardian, the Studio Teacher, the Stunt Coordinator, the First Assistant Director, or the safety professional may request a re-evaluation of the activity in its entirety. If, after the Studio Teacher, parent, Stunt Coordinator, First Assistant Director and/or the safety professional agree on the planned activity, but the minor expresses apprehension about performing the planned activity, he/she may refuse to do it.

7. The Studio Safety Hotline is available to all persons to anonymously report any concerns they have regarding the activity.

Note: All production personnel working with minors are urged to review the "Blue Book," entitled "The Employment of Minors in the Entertainment Industry," published by the Studio Teachers, Local 884, IATSE. Reference should also be made to the extensive federal and state labor laws and to any applicable collective bargaining agreements which govern the employment of child actors.

GENERAL CODE OF SAFE PRACTICES FOR PRODUCTION

This ***"General Code of Safe Practices"*** incorporates information from safety bulletins that have been developed and issued by the Industry-Wide Labor Management Safety Committee over the past 20 years. Many of these guidelines are simply common sense; others have evolved from Federal, State and/or Local laws and regulations.

These laws require every employer to have and post a general set of *Code of Safe Practices* at each job site.

This document is not intended to take the place of the Safety Bulletins. You should also refer to the Safety Bulletins *(index attached)*, which address concerns specific to your work environment.

By following these guidelines, Safety Bulletins, laws, regulations and company policy and procedures, serious accidents and injuries can be prevented.

Working conditions may change from day to day, particularly on location. To prevent accidents, you need to be aware of your work environment and the equipment being used. Pay special attention to call sheets as they may contain important safety information for the next day's shoot. ***Safety Meetings*** will be conducted as necessary to brief you on potentially hazardous set conditions. (Additional information on ***"Safety Awareness"*** and ***"Safety Meetings"*** may be found in **Bulletin #5**)

If you have any questions or concerns, or notice anything you believe could be hazardous and/or unsafe to the cast and crew, please talk to your supervisor, unit production manager, producer, union representative or studio safety representative and/or call the studio safety hotline anonymously. You will not be disciplined or discharged for bringing attention to safety concerns.

Each company is required to name the person responsible for safety on the production as outlined in their Injury and Illness Prevention Program (IIPP).

A production company or studio may have additional or specific guidelines as part of their IIPP. You should refer to the IIPP and Safety Manual of the employer for whom you are employed.

1. GENERAL RULES

Familiarize yourself with emergency procedures for each location. You are responsible for knowing how to react in an emergency situation. Contact your supervisor if you do not know emergency procedures.

At a minimum, a four-foot perimeter should be kept clear around the interior of the stage walls. Make sure all exit doors are unobstructed, unlocked and capable of being opened from the inside.

Good housekeeping should be maintained at all times. Walkways and work areas are to be kept clear of materials, trash, equipment and debris.

All decorative set materials should be flame retardant or made of non-combustible materials if such materials will be exposed to hot lamps, fire effects or other ignition sources.

Obey all "No Smoking" signs. Observe designated smoking areas and *always* extinguish cigarettes in the appropriate containers (butt cans).

Fire equipment (hydrants, extinguishers, sprinklers, hoses, etc.) must be accessible at all times.

Always be aware of personnel working above and below you. All overhead equipment fixtures and props should be properly secured.

All cables should be neatly routed. Cables in walkways and traffic areas should be covered with mats and/or cable crossovers.

Pranks and other types of horseplay are unacceptable. Distracting crewmembers could result in accidents and injuries.

Report accidents immediately to your leadman, foreman, supervisor, and/or medical personnel. Follow instructions given to you when referred for medical treatment for any injury and retain documentation. **All injuries must be reported on the date of occurrence.**

Wear appropriate clothing and any required personal protective equipment (PPE). A shirt and proper footwear should be worn at all times. Safety glasses or hearing protection must be worn when operating equipment or performing work where eye or ear damage could potentially occur.

Medication which might interfere with your alertness or ability to perform your work should be used only under a doctor's direction. If you feel that any medication is impairing your work, please discuss this with your supervisor. Do not work while under the influence of illegal drugs or alcoholic beverages. Don't put yourself or your fellow workers at risk.

Attend all on-production, off-production and/or individual department ***Safety Meetings*.**

If involved in any stunt, special effect, aviation sequence, water sequence or other potentially hazardous or unusual activities, attend any additional ***Safety Meetings*** held for that activity.

Be aware of general location safety concerns, including extreme temperature conditions, physical surroundings, indigenous critters and nasty plants.

Additional information can be found in Industry Safety Bulletins #17, #21, #26, #27, #31, #34, #34A and #35.

2. LIFTING AND MOVING OBJECTS

Lifting loads improperly can cause back injuries.

Make sure you get the appropriate assistance when lifting or moving heavy or awkward objects. Avoid lifting such objects whenever possible by using carts, dollies and other mechanical devices or **GET ADEQUATE HELP**.

Before lifting any load, check for slivers, jagged edges, burrs, rough or slippery surfaces and protruding nails.

Check your intended path for obstructions.

3. COMMON FALL RISKS

Fall Protection:

Use appropriate fall protection equipment whenever you are working greater than 30 inches (general use/California) or 6 feet (during construction) above the floor, ground or other working area, when standard guardrails or other equivalent protection is not available.

Unprotected work areas such as platforms, sets, walkways, cliffs, floor openings, shafts and rooftops (when approaching within 6 feet of the roof's edge) require the use of approved fall protection measures. These measures include but are not limited to guardrails, barriers, safety net systems, a written fall protection plan, and/or the use of personal fall arrest, fall restraint, or work positioning systems.

Fall arrest equipment is always required when working in the permanent grid and truss system (perms) outside the catwalks and handrails.

DO NOT use fall protection equipment without proper training and instruction. Only use appropriate anchorage points.

Temporary stair railings and guardrails are required around elevated surfaces, pits, holes or other unprotected openings.

Ensure proper lighting in such areas and post signs as necessary.

Scaffolds:

Only use scaffolds with the appropriate guardrails, mid rails and toe boards. **DO NOT** remove guardrails; contact the scaffold **"competent person"** if they need to be removed to perform special work. **REPORT** any missing guardrails at once.

DO NOT climb across braces.

Ladders:

Inspect all ladders before each use for broken or missing rungs, steps, split side rails or other defects.

NEVER place ladders in doorways unless protected by barricades or guards.

NEVER stand on the top two rungs of a ladder.

USE only approved ladders or steps. Check the labels for compliance.

ALWAYS USE both hands while climbing.

4. CHEMICALS AND FLAMMABLE MATERIALS

Store all flammable liquids in approved safety containers or cabinets. Paint, chemicals, and other materials should not accumulate on stage floors, under platforms or in other work areas.

You should know and follow proper handling and storage procedures for all combustible or flammable materials.

Ensure that there is proper ventilation and wear appropriate personal protective equipment (PPE).

A **Material Safety Data Sheet** (MSDS) shall be obtained from the manufacturer or distributor and a copy of the MSDS must be kept on file for all chemicals and substances being used and/or stored.

5. HAND TOOLS AND RELATED EQUIPMENT

Use the right tool for the job. **Do Not** use tools or equipment for which you have not been properly trained and qualified. See your supervisor if you are unfamiliar with the equipment, have any questions or feel that you need additional training.

Ensure that all equipment is in proper working order and that all protective guards are in place and used.

Do Not attempt to alter, modify, displace, or remove any existing safety equipment. Saw guards, safety switches and other safety mechanisms are installed for your protection. Tag **("Do Not Use")** and report any damaged or malfunctioning equipment.

Wear appropriate personal protective equipment (PPE) and be aware of flying debris.

Additional information can be found in Industry Safety Bulletin #21.

6. FILMING EQUIPMENT & VEHICLES

(Including Booms, Camera & Insert Cars, Cranes, Process Trailers, Tow Dollies, Camera Dollies, Elevated Platforms, Fixed Wing Aircraft, Boats, Cars, Helicopters, Motorcycles, Trains)

Ratchet straps and/or ropes are the preferred method of securing loads and/or equipment. If using “bungees,” “rubber snubbers” or other elastic-type devices, ensure they are not frayed, worn, damaged, cracked or have damaged or bent hooking devices. Uncontrolled release can cause severe injuries to unprotected body parts, particularly to the face or eyes.

Use the proper equipment for the job; be aware of load and rider capacities. **Never allow more than 9 people (including the driver) on an insert car.**

Operators and passengers of all vehicles should always use personal protective equipment (PPE).

Obtain training from a qualified instructor prior to operating aerial lift platforms, scissor lifts, forklifts or rough terrain variable-reach forklifts. OSHA requires the operators of such equipment to wear approved personal protective equipment (PPE).

Be particularly cautious when driving, walking or traveling; proceed slowly and watch for sudden movements of objects or individuals.

Be especially careful when working around helicopters or on runways. Remain at least 50 feet away from helicopters or other aircraft unless directed by the Aerial Coordinator and/or Pilot in Command or ground safety contact.

Under no circumstances should you approach the helicopter or aircraft without permission from the ground safety contact or the Pilot in Command.

Whether the rotors are turning or not, always approach and leave the helicopter from the front. **NEVER WALK NEAR OR AROUND THE TAIL ROTOR OF A HELICOPTER.**

The use of aircraft, boats, trains or cars may require special permits and/or operator certifications. All vehicles, including their peripheral safety equipment (*i.e.*, harnesses, belts, roll-cage, fuel cells, etc.), must undergo thorough safety inspection and testing on a daily basis by qualified experienced personnel.

Additional information can be found in Industry Safety Bulletins #3, #3A, #8, #8A, #8B, #8C, #11, #11A, #15, #20, #22, #28, #29, #29A, #36 and #37.

7. ELECTRICAL SAFETY

POWER LINES: California Code of Regulation, Title 8, Section 2946, **Overhead Clearances**, ***must*** be observed and maintained at all times (applicable regulations are set forth in Addendum #8C, #22A and #25A of the Industry Safety Bulletins). This applies to ladders, scaffolds, booms, forklifts, aerial lifts, scissor lifts, cranes, rigging, sets, truss work, backdrops and other equipment that could come in contact with power lines.

To prevent electrocutions and injury resulting from contact between overhead power lines and conductive tools, materials, or scaffolds, OSHA recommends that employees be informed that most overhead, high voltage power lines are not insulated and, when in doubt, employees should assume that power lines are not insulated.

Employers should notify the utility company when work must be performed under and/or near overhead power lines where clearances cannot be maintained. In such situations, utility companies should de-energize the power lines or temporarily move or cover them with insulating hoses or blankets before any work is initiated.

Properly maintain all electrical equipment and wiring; no live parts should be exposed. Use equipment only for its intended purpose. Be particularly careful around water, especially when filming in rain scenes.

All A.C. (alternating current) electrical systems shall be grounded.

Keep electric panels accessible at all times. There should be no obstructions or storage within three feet (3') of a panel.

Remember that lights placed too closely to props, sets and other materials may pose a fire risk and, therefore, make sure that lights are placed far enough away to alleviate risk.

Only qualified persons with the appropriate technical knowledge should perform electrical work.

Additional information can be found in Industry Safety Bulletins #8, #8A, #22, #22A, #23, #23A and 25.

8. WATER HAZARDS

If working on or near water, an employee should make the Production Company aware if he or she has a fear of working around water or cannot swim.

All cast and crewmembers working on or near water should wear life vests or other water safety gear when appropriate.

When using watercraft, be aware of load and rider capacity limits. Only required personnel should be on watercraft; all others should remain on land.

Safety lines, nets, watch safety personnel and/or divers should be used when filming in rivers or other bodies of water where potentially hazardous conditions could exist (*e.g.,* swift currents, thick underwater plant life, or rocks).

Know as much as you can about the body of water you're working on or in, including its natural hazards and animal life. The Production Company, Location Manager or the Safety Coordinator should have all relevant information.

If personnel are going to enter the water, when appropriate, samples of the water should be taken and analyzed for any potential environmental concerns and/or health hazards.

Additional information can be found in Industry Safety Bulletins #7, #15 and #17.

9. STUNTS & SPECIAL EFFECTS

All stunts and special effects should be reviewed by all participants prior to execution to help ensure that they are performed in the safest manner possible.

Before filming a stunt or special effect, the involved parties should all perform an on-site dry run or walk-through. A safety meeting should be held and documented.

Special effects involving pyrotechnics, explosives and/or fire must be noted in advance on the call sheet. Properly licensed individuals must perform all such effects. The necessary permits must be obtained and the appropriate regulatory agencies notified. Explosives must be stored and disposed of properly.

Appropriate personal protection equipment (PPE) and/or other safety equipment must be provided to the cast and crew as needed. There must be a planned escape route and each person involved should personally check all escape routes. Only persons authorized by the special effects and/or stunt coordinator shall be allowed in the area.

Radios, cell phones, pagers, personal data assistants (PDAs), transmitting equipment or remote control equipment should not be used around pyrotechnic or other explosive devices.

Additional information can be found in Industry Safety Bulletins #1, #2, #3A, #4, #11A, #14, #16, #18, #20, #29A, #30 and #37.

10. ARTIFICIALLY CREATED SMOKES, FOGS & DUST EFFECTS

Be aware that the use of atmosphere smoke has become highly regulated and limited by a variety of regulatory agencies. Contact the Safety Coordinator or Studio Safety Representative for guidelines and regulations.

Additional information can be found in Industry Safety Bulletin #10 and the Photographic Dust Awareness Sheet.

11. FIREARMS & OTHER WEAPONS

Treat all weapons as though they are loaded and/or ready to use. Do not play with weapons and ***never*** point one at anyone, including yourself. Follow the directions of the Property Master and/or Weapons Handler regarding all weapons.

The use of firearms and other weapons may require special permits and/or operator certifications. Anyone that will be using a weapon shall know all the operating features and safety devices. All weapons must undergo thorough safety inspection, testing and cleaning on a daily basis by qualified personnel.

Anyone handling a weapon shall receive the proper training and know all operating features and safety devices.

If firearms and other weapons are used in filming, the Property Master and/or Weapons Handler must meet with cast and crew and inform them of the safety precautions in effect and answer any questions.

Additional information can be found in Industry Safety Bulletins #1, #2, #16 and #30.

12. ANIMALS

Animals are unpredictable. If animals are used in filming, the Animal Handler should meet with cast and crew and inform them of the safety procedures in effect and answer any questions. Safety meetings should be held when appropriate.

Do not feed, pet or play with any animal without the permission and direct supervision of its trainer. **Defer to the animal trainers at all times.**

When working with exotic animals, the set should be closed and notices posted to that effect, including a note on the call sheet.

Additional information can be found in Industry Safety Bulletins #6, #12 and #31.

13. ENVIRONMENTAL CONCERNS

All hazardous waste generated by the company, including paint, must be disposed of properly. Proper documentation and permits for the transportation and disposal of such waste is required by law.

Be aware of hazards associated with lead paint and asbestos. If encountered, **do not disturb** and immediately report to your supervisor or safety representative.

Be aware of biological hazards such as human or animal waste, mold, fungus, bacteria, body fluids, blood borne pathogens, used needles (sharps), vermin, insects and other potentially infectious materials.

Employees shall not enter confined spaces (manholes, underground vaults, chambers, silos, etc.) until the oxygen and gas levels have been checked and confirmed to be within acceptable levels.

Certain situations may require permits and/or licenses, for example, when the production will be using artificial smoke, large dust effects, creating excessive noise or when working around endangered plant or animal life. Please be sure to comply with all applicable statutes and/or regulations.

Additional information can be found in Industry Safety Bulletins #17, #24 and #26.

NOTE:

Additional information regarding "job specific" safe practices and guidelines relating to special equipment should be reviewed as necessary. Contact the production company Safety Coordinator, Studio Safety Representative, supervisor or your union representative for additional information.

SAFETY & HEALTH AWARENESS SHEET

EXTENDED OR SUCCESSIVE TAKES

INTRODUCTION

Advances in technology have enabled filmmakers to extend the length of individual takes (including continual resets) and the number of successive takes. In these circumstances, cast and crew may be required to support a weighted load (e.g., hand held sound boom, hand held camera, props, etc.) or maintain an awkward or still position for longer durations. Therefore, consideration should be given to the length of a take and the number of successive takes.

This Awareness Sheet has been developed to provide guidance for safety concerns caused by extended and successive takes. The objective is to increase awareness to enable the producer, director, cast and crew to communicate about and address these concerns before they become problems.

POTENTIAL HEALTH EFFECTS AND SAFETY CONCERNS

Maintaining an awkward position or supporting a weighted load for extended lengths of time can lead to various ailments ranging from body discomfort to muscle fatigue. Resulting safety concerns, such as dropping equipment, and trips and falls may also occur, potentially causing injury to the individual and to others.

Each production is unique and requires different technical and creative set-ups for shooting takes. In addition, each person's physical capabilities are different. These factors call for specific planning and communication in pre-production and throughout the duration of the production.

RECOMMENDED ACTIONS

- At the earliest stages of pre-production, conduct discussions with all affected department heads regarding the possibility of extended and/or successive takes.
- Evaluate when and where equipment and/or personnel options can be utilized to provide relief during the production.
- Special consideration should be given when equipment and/or personnel options are limited or unavailable.
- Throughout production, keep the lines of communication open and free-flowing between all cast, crew and production management.

In addition to the actions suggested, a review of available equipment options that provide support for weighted loads and relief to affected personnel should be included in pre-production meetings.

EQUIPMENT OPTIONS

A wide variety of equipment options are available for consideration during production and can include, but are not limited to:

- Dolly-mounted microphone boom
- Wireless microphone
- Camera dolly
- Tripod
- Stand
- Powered assist device

PERSONNEL OPTIONS

Some personnel options to consider:

- Rotation of operators
- Provide adequate rest intervals
- Spotters assigned to operators
- Encourage warm-up and stretching exercises

SUMMARY

Employees experiencing muscle fatigue or discomfort due to extended or successive takes are encouraged to communicate their situation to appropriate safety personnel and/or production management in a timely manner. Production management is encouraged to consider all options, including the above-outlined equipment and personnel options, to address these concerns.

SAFETY & HEALTH AWARENESS SHEET

GUIDELINES FOR HANDLING FRESHLY PAINTED OR PRINTED BACKDROPS AND OTHER GRAPHIC ARTS

INTRODUCTION

A wide variety of products are used to create backings and graphic arts in motion picture and television production.

The following safety guidelines should be considered when handling, hanging, and installing freshly hand-painted or digitally printed backdrops and other graphic arts such as posters, carpets, wallpaper, and vehicle graphics, or when working around these products.

PRODUCT INFORMATION

The creation of backings and other graphic arts involves a wide variety of technologies which use dyes, inks, paints, and sub-strates.

Off-gassing, the process in which the chemicals from the paint or the products in the inks are released from the completed product, is a normal part of the drying/curing process and may result in the presence of odors. Off-gassing is more prevalent in printed backdrops which use a wet solvent process.

The presence of odors may be the result of the product not having adequate time to dry and cure before being shipped. It is recommended that you allow at least 24 hours for the product to fully cure after drying before it is rolled and shipped. Remember that some products and sub-strates may require additional time.

Workers should refer to the current Material Safety Data Sheet(s) (MSDS) and, if available, the Manufacturer's Technical Specification Sheet(s) for precautions, personal protection recommendations, and fire and health hazards associated with the materials used to create the product(s).

POTENTIAL HEALTH EFFECTS

It is important that workers fully understand the potential health effects which may occur from exposure to the chemicals present in the various solvents, inks, paints and sub-strates used to create painted or printed backdrops and other graphic arts. These health effects can include headaches, dizziness, nausea, and respiratory problems. Exposure to high concentrations of these products also may affect the central nervous system or cause unconsciousness.

The routes of exposure that can cause these health effects include inhalation, ingestion, and direct or indirect absorption through the skin and eyes. Refer to the MSDS for an explanation of the potential health effects associated with the materials used to create painted or printed backdrops and other graphic arts. Anyone with chemical sensitivites, allergies, asthma or other respiratory illnesses or limitations should take appropriate precautions.

ACTIONS

The following are some actions you can take to minimize potentially harmful or dangerous exposures:

- Remove unnecessary personnel from the area(s) in which the products will be used.
- **Open or unpack the product in a well ventilated area(s), or provide ventilation by placing fans in the work area.**
- **Additional ventilation can be provided by opening stage doors, using roof vents or turning on general exhaust fans to ventilate the work area(s).**

- Know the products that you are using as well as the location and conditions under which they will be used.

- Obtain and review current Manufacturer's Material Safety Data Sheet(s) (MSDS) and, if available, Manufacturer's Technical Specification Sheet(s).

- Appropriate personal protective equipment (PPE) may be necessary while unpacking, unrolling and installing the product.

- Allow sufficient time for the product to fully cure after drying before working with or around it.

OTHER SAFETY CONSIDERATIONS

- Be aware that some solvents are flammable and are especially dangerous when in a gaseous form. **Do not** use freshly painted or printed backdrops or other graphics arts around open flames, set lighting, or other potential sources of ignition, especially if strong odors are still present.

- Temperature increases (from activities such as set lighting) may increase the rate of off-gassing resulting in the reappearance of odors.

- Be aware that vapors may be more concentrated above the product because vapors have a tendency to rise. Therefore, employees working in elevated areas should be made aware of the work that is going to be performed before unpacking the product. Such employees also should take appropriate safety precautions.

REGULATIONS

Refer to federal, state, and local laws and regulations for further requirements and information.

SUMMARY

There are many different product(s) available to create backings and graphic arts in motion picture and television production. You need to understand the specific product being used. Each has its own unique properties and potentially adverse effects. Refer to the current Material Safety Data Sheet(s) (MSDS) and, if available, the Manufacturer's Technical Specification Sheet(s) for physical properties, safe handling, and emergency procedures associated with the materials used to create the product(s).

If a backdrop is new or freshly painted, these are items to remember:

- Increase the **ventilation** by opening doors or roof vents, utilizing house air, or using additional portable fans.

- Allow the product sufficient time to fully cure after drying before working with or around it.

- Use appropriate PPE as necessary while unpacking, unrolling, or installing the product.

- Inform other employees working in the area of the potential vapors caused by off-gassing, especially above the product and when set lighting the product. These employees should take appropriate safety precautions.

FURTHER ASSISTANCE

- Studio or Production Safety

- Manufacturer/Distributor

- AMPTP/CSATF

- Supervisor

- Business Agent/Union Office

SAFETY & HEALTH AWARENESS SHEET

PHOTOGRAPHIC DUST EFFECTS

INTRODUCTION

A wide variety of products are used to create photographic dust effects in motion picture and television production. This awareness sheet has been developed to inform and assist productions when using these products. It is important that productions fully understand the possible effects of exposure, especially if potentially harmful ingredients are present.

PRODUCT INFORMATION

The following information is based on information obtained from product manufacturers, U.S. Geological Surveys and the U.S. Bureau of Mines.

MINERAL PRODUCTS

"Fuller's Earth" is the most common "product" used for photographic dust effects in the film industry. Unfortunately, the contents can vary widely from different suppliers. The term "Fuller's Earth" has neither a compositional nor a mineralogical connotation but is usually understood to be a non-plastic variety of kaolin (clay) containing aluminum magnesium silicate. It is sometimes synonymous with montmorillonite, kaolin, kaolinite, floridin, bentonite, wilkonite and halloysite. These products and others (*e.g.,* pyrophyllite, pyrolite and diatomaceous earth) are all used to create photographic dust effects.

ORGANIC PRODUCTS

Photographic dust effects are also created by the use of organic products. Some of the more common organic products include wheat flour, rice flour, corn starch, coffee creamers and crushed nutshells.

Individuals with allergies to these products should use caution and avoid exposure.

POTENTIAL HEALTH EFFECTS

- Common effects of exposure are eye irritation, respiratory irritation, and skin irritation (*i.e.,* contact dermatitis).
- Anyone with allergies, asthma or other respiratory illnesses or limitations should take appropriate precautions.
- Burns as a result of ignition and flashing.

ACTIONS

The following are some actions you can take to minimize potentially harmful or dangerous exposures:

1. Prior to using any materials for photographic dust effects:
    - Know the products that you are using as well as the location and conditions under which they will be used.
    - Obtain a current Manufacturer's Material Safety Data Sheet (MSDS) for the specific product you are using.
    - Avoid products that contain known carcinogens.
    - Inform all cast and crew about the products being used, the necessary precautions that should be taken, and the products' potential effects.

2. To minimize potential exposures:

   - Remove unnecessary personnel.
   - Use only enough products to create the effect needed.
   - If indoors, periodically ventilate the area.
   - Use proper Personal Protective Equipment (PPE) as necessary.

3. Other Safety Considerations:

   - Any combustible material which, in a finely powdered form, is suspended in the air in sufficient quantity has the potential to flash or explode. Therefore, be aware of static electricity, which can cause dust products to flash, when transferring dust products from containers.
   - Be aware of elevated airborne concentrations during clean-up procedures. Elevated airborne concentrations increase the potential for exposure and flashing.
   - If the product is combustible, do not use around open flames or other potential sources of ignition (*e.g.,* set lighting devices).
   - Industrial hygiene monitoring may be necessary to determine the airborne concentration, lower explosion levels, and/or particulate size during use.

REGULATIONS

Refer to Federal and Cal OSHA Regulations for further information and/or requirements. (Many products have Permissible Exposure Limits (PEL) established by Federal and Cal OSHA.)

SUMMARY

There are many different products available to create photographic dust effects. You need to understand the specific product being used. Each has its own unique properties and potentially adverse effects.

When choosing a dust product, you should refer to the MSDS and ask yourself the following questions:

1. Are you or any member of the cast or crew asthmatic, allergic or have other medical conditions that would be affected by exposure to the product?
2. Is the product combustible; and will it be used on an interior set or location?
3. Does the concentration of the product that will be used have a “Permissible Exposure Limit” that will require an Industrial Hygienist to monitor exposure?

When using products to create photographic dust effects, you must take all appropriate safety precautions.

FURTHER ASSISTANCE

If you have further questions, contact:

- Studio or Production Safety
- Manufacturer / distributor
- AMPTP/CSATF
- Supervisor
- Business Agent/Union Office

SAFETY & HEALTH AWARENESS SHEET

GUIDELINES FOR REDUCING THE SPREAD OF INFLUENZA-LIKE ILLNESS

INTRODUCTION

There are a wide variety of seasonal influenza and flu-like illnesses that can impact the workplace. Seasonal and novel influenza H1N1, previously referred to as "swine flu," are among the most widely known. This Safety & Health Awareness Sheet has been developed to educate personnel on signs, symptoms and preventative measures to avoid catching or spreading the flu.

SYMPTOMS

In general, symptoms of seasonal influenza or novel influenza H1N1 can include the following:

Fever > than 100°F	Chills
Cough	Headache
Sore throat	Fatigue
Runny or stuffy nose	Body aches
Decreased appetite	Diarrhea
Nausea/vomiting	

Symptoms of novel influenza H1N1 may disproportionately affect young people age 25 and below, whereas the seasonal flu affects those age 65 years and older

Like seasonal flu, novel influenza H1N1 may worsen underlying chronic medical conditions. People at higher risk of serious complications from seasonal or novel influenza H1N1 include:

- Children younger than 5 years old
- Pregnant women
- People of any age with chronic medical conditions, such as asthma, diabetes, or heart disease
- People with weakened immune systems

If you are at higher risk contact your healthcare provider regarding possible preventative measures (e.g., antivirals, vaccines, etc.).

ACTIONS

How is influenza spread?

Flu viruses are spread mainly from person to person through coughing, sneezing or touching. You may infect yourself by touching contaminated surfaces and then touching your eyes, nose or mouth.

People infected with influenza may infect others before symptoms develop and after becoming sick.

Take these steps to protect yourself and others:

- Wash your hands often with soap and water or an alcohol-based hand cleaner. This is especially important after you cough, sneeze or use the bathroom. Always wash your hands prior to entering the crafts service/catering areas!

Additionally:

- Avoid touching your eyes, nose or mouth.
- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after use.
- Cough or sneeze into your upper sleeve if you do not have a tissue.
- Avoid close contact with people exhibiting signs of influenza.
- If you are sick with a flu-like illness, the Centers for Disease Control (CDC) recommends that you stay home for at least 24 hours after your fever is gone (without the use of fever-reducing medicine).
- Sanitize your hands before touching crafts service equipment, including inside ice chests, the handles of serving utensils or other commonly shared surface.
- Regularly sanitize commonly touched surfaces (i.e., door handles, phones, tools, handrails, etc.) with alcohol or bleach solutions.

WHEN TO GET MEDICAL HELP

If you are at risk of serious complications and you become ill with any of the symptoms below, you should contact your health-care provider immediately.

See emergency medical care if you experience any of the following symptoms:

- Difficulty breathing or shortness of breath
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- Flu-like symptoms improve, but then return with fever and worsening cough
- Decreased urination

ADDITIONAL INFORMATION

http://www.flu.gov
http://www.cdc.gov/flu/
http://www.who.int/en/
http://www.hhs.gov

PROTECT YOURSELF BY WASHING YOUR HANDS FREQUENTLY!

PROTECT YOUR CO-WORKERS BY COVERING YOUR COUGH!

SAFETY & HEALTH AWARENESS SHEET

PROTECTION FROM WILDFIRE SMOKE

INTRODUCTION

Wildfires can occur without warning. When wildfire smoke is present, it can be unhealthy for people who work outside, or inside of buildings and vehicles where the air is not filtered. Wildfire smoke is a mixture of air pollutants of which particulate matter, known as PM2.5, is the principal health threat. PM2.5 is made up of solid particles and liquid droplets suspended in air with an aerodynamic diameter of 2.5 micrometers or smaller.

The harmful health effects from breathing the fine particles of PM2.5 can range from eye and respiratory tract irritation to more serious effects, including reduced lung function; pulmonary inflammation; bronchitis; exacerbation of asthma and other lung diseases; exacerbation of cardiovascular diseases, such as heart failure; and even premature death.

The Air Quality Index is used to determine the level of PM2.5 to which employees could be exposed at a workplace location. The current Air Quality Index for PM2.5 (hereinafter "AQI") is divided into six health-related categories that can be found below, and as stated in Table 2 of Title 40 Code of Federal Regulations, Part 58, Appendix G.

These are:

1. 0 to 50 – Good
2. 51 to 100 – Moderate
3. 101 to 150 – Unhealthy for Sensitive Groups
4. 151 to 200 – Unhealthy
5. 201 to 300 – Very Unhealthy
6. 301 to 500 – Hazardous

Although a large population can be exposed to smoke during a wildfire event, most healthy adults will recover quickly from temporary wildfire smoke exposure. Certain populations may, however, be at greater risk of experiencing health effects, including people with respiratory or cardiovascular diseases, children and older adults, and outdoor workers.

Employers are required to provide a workplace free of recognized hazards under OSHA's General Duty Clause. The U.S. Environmental Protection Agency has published a document titled "Wildfire Smoke, A Guide for Public Health Officials" located at: https://www.airnow.gov/sites/default/files/2019-10/wildfire-smoke-guide-revised-2019.pdf. It can provide guidance for protecting employees from wildfire smoke wherever your productions are located.

In California, the California Code of Regulations (CCR), Title 8, Section 5141.1 requires that employers should reasonably anticipate when employees may be exposed to wildfire smoke and take steps to protect workers from harmful exposure if the air quality is unhealthy due to the wildfire smoke.

Based on this regulation, this Safety & Health Awareness Sheet will address the following:

- Identification of harmful exposures
- Communication and training
- Control of harmful exposures
- Personal protective equipment

CALIFORNIA'S REGULATION INFORMATION

California's Protection from Wildfire Smoke Regulation (https://www.dir.ca.gov/title8/5141_1.html) applies to workplaces where the AQI is 151 or greater and where workers may be exposed to wildfire smoke for more than one hour.

When wildfire smoke could affect a worksite, employers must monitor the AQI. An employer may use a direct-reading particulate monitor, following the guidelines in CCR 5141.1 Appendix A to determine PM2.5 levels, or employers can monitor the AQI using any of the following websites:

- U.S. EPA AirNow (https://airnow.gov/)
- U.S. Forest Service (https://wildlandfiresmoke.net)
- California Air Resources Board (https://www.arb.ca.gov/aqmis2/ARBaqmap.php)
- South Coast AQMD (http://www.aqmd.gov/home/air-quality/current-air-quality-data)
- PurpleAir (https://www.purpleair.com/map?opt=1/mAQI/a10/cC0#1/15.1/-30)

Both Cal/OSHA and the US EPA recommend using www.AirNow.gov or the AirNow app for mobile phones to determine the AQI for PM2.5 in your area. On the site or mobile app, enter the zip code for the location where you will be working, and the site or app will list the current and forecasted AQI for PM2.5.

ACTIONS

Where the AQI is equal to or greater than 151 due to wildfire smoke, or if it is reasonably anticipated that employees will be exposed to wildfire smoke, the employer must take the following steps to protect employees:

- **Communication and Training** – Inform employees of the current or forecasted AQI and the protective measures available to them. Train all employees on the information contained in Section 5141.1 Appendix B (attached to this Awareness Sheet).

- **Engineering Controls** – Provide enclosed buildings, structures, or vehicles with filtered air whenever feasible; if insufficient, reduce employee exposures as much as feasible.

- **Administrative Controls** – Whenever engineering controls are insufficient, employers should implement administrative controls, if practicable, such as relocating work to a location with an acceptable AQI level; changing work schedules; reducing work intensity; or providing additional rest periods.

- **Respiratory Protective Equipment ("PPE")** – Where the AQI is between 151 and 500, employers shall provide N95 filtering facepiece respirators, or equivalent, to all employees for voluntary use and encourage employees to use respirators.
    - If the AQI is greater than 500, contact your employer for the required safety procedures, as respirator use is required in accordance with CCR Title 8 Section 5144. This regulation requires a written respiratory protection program, as well as fit testing and medical evaluations of each employee.

POTENTIAL HEALTH EFFECTS

Breathing fine particles in the air (PM2.5), as stated before, can reduce lung function, worsen asthma and other existing heart and lung conditions, and cause coughing, wheezing and difficulty breathing. If you experience any of these symptoms, seek medical attention.

INFORMATION AND RESOURCES

Guidance for employers and employees on working safely in conditions with smoke caused by wildfires is available on the following websites:

- Cal/OSHA's web page (https://www.dir.ca.gov/dosh/dosh1.html)
- Protecting outdoor workers (https://www.dir.ca.gov/dosh/wildfire/Worker-Protection-from-Wildfire-Smoke.html)
- Protecting indoor workers from outdoor air pollution (https://www.dir.ca.gov/dosh/wildfire/Indoor-Protection-from-Wildfire-Smoke.html)
- Information on the proper use of N95 filtering facepiece respirators (https://www.dir.ca.gov/dosh/dosh_publications/N95-mask-questions.pdf#_blank)

FURTHER ASSISTANCE

If you have further questions, please contact your supervisor or the Safety Department.

Appendix B to Section 5141.1. Protection from Wildfire Smoke Information to Be Provided to Employees (Mandatory). Employers are required to fill in (e) and (f)(5) below.

(a) The health effects of wildfire smoke.

Although there are many hazardous chemicals in wildfire smoke, the main harmful pollutant for people who are not very close to the fire is “particulate matter,” the tiny particles suspended in the air.

Particulate matter can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. Particulate matter can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.
People over 65 and people who already have heart and lung problems are the most likely to suffer from serious health effects.

The smallest -and usually the most harmful -particulate matter is called PM2.5 because it has a diameter of 2.5 micrometers or smaller.

(b) The right to obtain medical treatment without fear of reprisal.

Employers shall allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment, and may not punish affected employees for seeking such treatment. Employers shall also have effective provisions made in advance for prompt medical treatment of employees in the event of serious injury or illness caused by wildfire smoke exposure.

(c) How employees can obtain the current Air Quality Index (AQI) for PM2.5.

Various government agencies monitor the air at locations throughout California and report the current AQI for those places. The AQI is a measurement of how polluted the air is. An AQI over 100 is unhealthy for sensitive people and an AQI over 150 is unhealthy for everyone.
Although there are AQIs for several pollutants, Title 8, section 5141.1 about wildfire smoke only uses the AQI for PM2.5.

The easiest way to find the current and forecasted AQI for PM2.5 is to go to www.AirNow.gov and enter the zip code of the location where you will be working. The current AQI is also available from the U.S. Forest Service at https://tools.airfire.org/ or a local air district, which can be located at www.arb.ca.gov/capcoa/dismap.htm. Employees who do not have access to the internet can contact their employer for the current AQI. The EPA website www.enviroflash.info can transmit daily and forecasted AQIs by text or email for particular cities or zip codes.

(d) The requirements in Title 8, section 5141.1 about wildfire smoke.

If employees may be exposed to wildfire smoke, then the employer is required to find out the current AQI applicable to the worksite. If the current AQI for PM2.5 is 151 or more, the employer is required to:

(1) Check the current AQI before and periodically during each shift.
(2) Provide training to employees.
(3) Lower employee exposures.
(4) Provide respirators and encourage their use.

(e) The employer's two-way communication system.

Employers shall alert employees when the air quality is harmful and what protective measures are available to employees.

Employers shall encourage employees to inform their employers if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal.

The employer's communication system is: _____
_____
_____

(f) The employer's methods to protect employees from wildfire smoke.

Employers shall take action to protect employees from PM2.5 when the current AQI for PM2.5 is 151 or greater. Examples of protective methods include:

(1) Locating work in enclosed structures or vehicles where the air is filtered.
(2) Changing procedures such as moving workers to a place with a lower current AQI for PM2.5.
(3) Reducing work time in areas with unfiltered air.
(4) Increasing rest time and frequency, and providing a rest area with filtered air.
(5) Reducing the physical intensity of the work to help lower the breathing and heart rates.
The employer's control system at this worksite is: _____
_____
_____

(g) The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke.

Respirators can be an effective way to protect employee health by reducing exposure to wildfire smoke, when they are properly selected and worn. Respirator use can be beneficial even when the AQI for PM2.5 is less than 151, to provide additional protection.

When the current AQI for PM2.5 is 151 or greater, employers shall provide their workers with proper respirators for voluntary use. If the current AQI is greater than 500, respirator use is required.

A respirator should be used properly and kept clean.

The following precautions shall be taken:

(1) Employers shall select respirators certified for protection against the specific air contaminants at the workplace. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Center for Disease Control and Prevention certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will list what the respirator is designed for (particulates, for example).
Surgical masks or items worn over the nose and mouth such as scarves, T-shirts, and bandannas will not provide protection against wildfire smoke. An N95 filtering facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.

(2) Read and follow the manufacturer's instructions on the respirator's use, maintenance, cleaning and care, along with any warnings regarding the respirator's limitations. The manufacturer's instructions for medical evaluations, fit testing, and shaving should also be followed, although doing so is not required by Title 8, section 5141.1 for voluntary use of filtering facepiece respirators.

(3) Do not wear respirators in areas where the air contains contaminants for which the respirator is not designed. A respirator designed to filter particles will not protect employees against gases or vapors, and it will not supply oxygen.

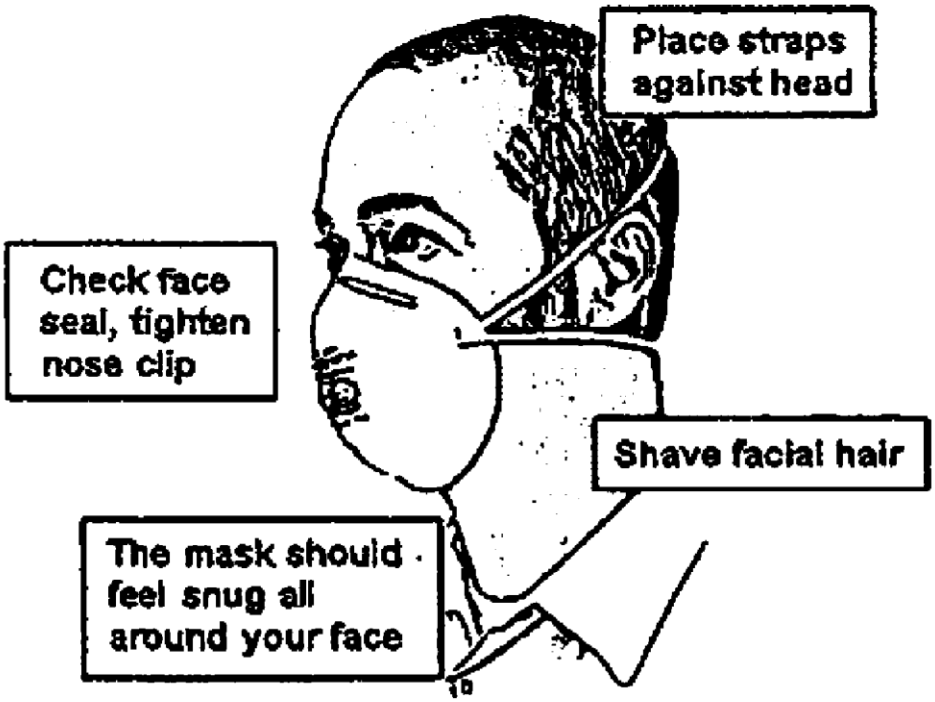
(4) Employees should keep track of their respirator so that they do not mistakenly use someone else's respirator.

(5) Employees who have a heart or lung problem should ask their doctor before using a respirator.

(h) How to properly put on, use, and maintain the respirators provided by the employer.
To get the most protection from a respirator, there must be a tight seal around the face. A respirator will provide much less protection if facial hair interferes with the seal. Loose-fitting powered air purifying respirators may be worn by people with facial hair since they do not have seals that are affected by facial hair.

The proper way to put on a respirator depends on the type and model of the respirator.
For those who use an N95 or other filtering facepiece respirator mask that is made of filter material:

(1) Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.
(2) Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely.



Drawing Showing Proper Fitting of a Filtering Facepiece Respirator (shaving is not required for voluntary respirator use)

For a respirator that relies on a tight seal to the face, check how well it seals to the face by following the manufacturer's instructions for user seal checks. Adjust the respirator if air leaks between the seal and the face. The more air leaks under the seal, the less protection the user receives.

Respirator filters should be replaced if they get damaged, deformed, dirty, or difficult to breathe through. Filtering facepiece respirators are disposable respirators that cannot be cleaned or disinfected. A best practice is to replace filtering facepiece respirators at the beginning of each shift.

If you have symptoms such as difficulty breathing, dizziness, or nausea, go to an area with cleaner air, take off the respirator, and get medical help.

Note: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 144.6, Labor Code.

SAFETY & HEALTH AWARENESS SHEET

LITHIUM-ION BATTERY SAFETY

This Safety & Health Awareness Sheet addresses the potential hazards of using rechargeable lithium-ion batteries and the steps on how to mitigate those risks. Always consult with Production Management for additional guidance, requirements, and safety policies for the charging, use, and storage of lithium-ion batteries at the worksite.

The use of lithium-ion batteries in motion picture industry workplaces has increased significantly over the past decade. They provide power for wireless phones, laptop computers, power tools, production lighting equipment, microphones, e-bikes, e-scooters, electric vehicles (EVs), and many other battery-powered devices. When designed, manufactured, and used properly, lithium-ion batteries are a safe, high-energy-density power source for devices in the workplace.

While lithium-ion batteries are normally safe, they may cause injury or property damage if they have design defects, are made of low-quality materials, are assembled incorrectly, are used or recharged improperly, recharged using mismatched chargers, or are damaged. When lithium-ion batteries fail to operate safely or are damaged, they may present a fire and/or explosion hazard.

Heat released during cell failure can damage nearby cells, releasing more heat in a chain reaction known as a thermal runaway. The high energy density in lithium-ion batteries makes them more susceptible to these reactions. Depending on the battery chemistry, size, design, component types, and amount of energy stored in the cell, cell failures can result in chemical and/or combustion reactions, which can also result in heat releases and/or over-pressurization.

There are many types of lithium-ion batteries utilizing different chemistries. You may not be able to choose the type of lithium-ion batteries that are supplied with equipment. Each battery chemistry has its own characteristics that can help in determining the level of safety required. Always check with your supervisor, Production Management, or the manufacturer's operating manual for any additional safety precautions or individual company requirements.

Lithium-Ion battery safety and injury prevention tips:

- Ensure lithium-ion batteries, chargers, and associated equipment are tested in accordance with an appropriate test standard (e.g., Underwriters Laboratories [UL] 2054) and, where applicable, are certified by a Nationally Recognized Testing Laboratory (NRTL) and are rated for their intended uses.

- Follow manufacturer's instructions for storage, use, charging, and maintenance.

- Be aware that charging lithium-ion batteries unattended or overnight is not recommended unless allowed by the manufacturer's instructions, or steps are taken to prevent potential damage or fire, such as charging on a fire-resistant surface located at a safe distance from flammable and/or combustible materials or using a fire-resistant battery charging cabinet. Additional safety precautions may be required by the stage/operations management, building owner/property manager, or the Authority Having Jurisdiction (AHJ).

- If required by the manufacturer's instructions, remove lithium-ion powered devices and batteries from the charger once they are fully charged.

- Only charge e-bikes and e-scooters, if allowed onsite at the workplace, outdoors and away from anything flammable and/or combustible.

- When replacing batteries and chargers for an electronic device, ensure they are specifically designed and approved for use with the device, and they are purchased from the device's manufacturer or a reputable manufacturer-authorized reseller.

- Never use aftermarket batteries or chargers or mix different manufacturer's batteries, or use batteries with different charge levels, within one device.

- Be aware that counterfeit lithium-ion batteries continue to increase in the marketplace because of their lower prices. These types of batteries are usually not listed or certified by a NRTL and are more prone to failure. Some counterfeit lithium-ion batteries can be difficult to distinguish from the Original Equipment Manufacturer (OEM) batteries. To avoid these batteries, only purchase from authorized dealers and distributors. UL provides the following information on how to identify counterfeit batteries:
    1. Price is well below the cost of OEM replacement batteries
    2. Misspellings on the packaging or labeling
    3. Missing numbers
    4. Serial numbers on printed labeling, instead of being etched into the casing
    5. Inconsistent battery performance
    6. False claims such as "high performance and safety approved"

- Store lithium-ion batteries and devices in dry, cool locations and away from flammable and\or combustible materials. Check the manufacturer's instructions for optimal storage, charging, and operating temperatures that will help prevent overheating and extend the life of the lithium-ion battery.

- Do not store the battery in a container with loose metal objects, such as coins, keys, or nails, which may contact and short out the battery terminals.

- Never modify, disassemble, or tamper with a lithium-ion battery.

- Avoid damaging lithium-ion batteries and devices. Inspect them before use for signs of damage, such as bulging/cracking, hissing, leaking, rising temperature, or smoking, especially if they are wearable. Only if safe to do so, immediately remove a device or battery from service and place it in an area away from flammable and/or combustible materials if any of these signs are present.

- If batteries are damaged, remove them from service, place them in fire-resistant containers (e.g., metal drum) with sand or other extinguishing agent, and dispose in accordance with local, state, and federal regulations. Contact Production Management, or your designated safety representative, or refer to your studio's hazardous waste protocols for disposal instructions.

- It may be necessary to evacuate the area and contact emergency response services in the event of a battery fire and/or thermal runaway. Depending on the battery chemistry, a fire may generate hydrogen fluoride gases, methane, carbon monoxide, and other hazardous airborne contaminants.

- If you are qualified and authorized by your employer, follow manufacturer's guidance on how to extinguish small battery fires, which could include submerging the battery in a sturdy container filled with water, sand, or both; using ABC dry chemical extinguishers; or using Class D fire extinguishers (for lithium metal). Avoid direct contact with the battery by using a tool such as a long-handled shovel, and use appropriate PPE to protect your face, hands, and body.

Perform battery inspections regularly

Regularly inspect lithium-ion batteries before use. Stop using the battery if you notice any odor, change in color, too much heat, change in shape, leaking, or strange noises. If it is safe to do so, move the faulty device away from anything that can catch fire. Also look for loose or damaged wires, conditions of misuse, and swelling relative to its original shape.

Regulations for shipping

There may be instances when productions need to ship lithium-ion batteries or equipment that contain lithium-ion batteries. Lithium-ion batteries are regulated as hazardous material under the U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (HMR) 49 C.F.R. Parts 171-180. Lithium-ion batteries must conform to all applicable HMR requirements when offered for transportation or transported by air, highway, rail, or water.

The production company should know the applicable regulations for the proper packaging, restrictions on passenger aircraft, requirements for cargo-only aircraft, or shipping by land or sea. The penalties for improper shipping of these lithium-ion batteries can be severe. Always check with Production Management before shipping any lithium-ion batteries or equipment containing lithium-ion batteries.

Regulations for use and safety

The majority of lithium-ion battery fires involve micromobility devices such as e-bikes, e-scooters, and hoverboards. As a result, some local jurisdictions are beginning to regulate lithium-ion battery-powered equipment. Laws in some jurisdictions, such as New York, prohibit the use, sale, lease, or rental of powered mobility devices and the batteries for these devices that do not meet UL 2849, UL 2272, and UL 2271 standards. Comply with all applicable laws and regulations for the area in which the production is located.

Additional resources

- The NFPA has an e-bike and e-scooter safety sheet that can be downloaded here: https://go.nfpa.org/e-bike-e-scooter-safety.
- Other NFPA resources: Lithium-Ion Battery Safety | NFPA
- OSHA: Preventing Fire and/or Explosion Injury from Small and Wearable Lithium, Battery Powered Devices (osha.gov)
- UL: Enhance Workplace Lithium-Ion Battery Safety | UL Solutions

SAFETY & HEALTH AWARENESS SHEET

Indoor Heat Illness Prevention: California

This document addresses safety considerations when employees in California may be exposed to indoor heat levels that rise above the temperature thresholds defined below. Safeguards should be taken to prevent heat illness.

In California, productions must comply with Title 8, Section 3396 of the California Code of Regulations, "Heat Illness Prevention in Indoor Places of Employment," whenever the indoor temperature equals or exceeds 82°F when employees are present. This regulation applies to most indoor workplaces which are spaces that are under a ceiling or overhead covering that restricts airflow and that are enclosed along the entire perimeter by walls, doors, windows, dividers, or other physical barriers that restrict airflow, whether open or closed.

Scope and Application
Different requirements apply, depending upon two main temperature thresholds under the California regulation: 82°F and 87°F.

Indoor Workplaces That Are Between 82°F and 87°F
In all cases in which the workplace's indoor temperature equals or exceeds 82°F, Production Management must comply with the following:

- Provide access to potable drinking water;
- Maintain one or more cool-down areas as needed;
- Implement effective emergency response procedures;
- Provide acclimatization processes;
- Provide employee-level and supervisory-level training; and
- Implement their written Indoor Heat Illness Prevention Plan (IHIPP).

Indoor Workplaces That Are 87°F or Higher and Certain Workplaces That Are 82°F or Higher
In addition to the above, when: a) the indoor temperature or heat index equals or exceeds 87°F, or b) where the temperature or heat index is 82°F and employees are either wearing clothing that restricts heat removal or working in high radiant heat areas, then Production Management also must enact various assessment and control measures that are described below.

The **heat index** is a measure indicating the level of discomfort the average person is thought to experience as a result of the combined effects of the temperature and humidity of the air.

The California standard defines "**clothing that restricts heat removal**" as full-body clothing covering the arms, legs, and torso that is any of the following:

- Waterproof; or
- Designed to protect the wearer from a chemical, biological, physical, radiological, or fire hazard; or
- Designed to protect the wearer or the work process from contamination.

Radiant heat is heat transmitted by electromagnetic waves and not transmitted by conduction or convection. Sources of radiant heat include the sun, hot objects, hot liquids, hot surfaces, set lights, and fire. A "high radiant heat area" means a work area where the temperature is at least five degrees greater than the ambient temperature.

Provision of Water
Production Management must give employees free access to clean, cool drinking water as close as practicable to their work area and in the employees' cool-down area. If a continuous or plumbed water supply

is not possible, Production Management must provide enough water (i.e., one quart of drinking water per hour) for each employee for the entire shift. Employees should be encouraged to frequently drink water.

Access to Cool-Down Areas
Production Management should maintain a cool-down area whenever employees are present. A cool-down area is an area that could be indoors or outdoors, is blocked from direct sunlight and shielded from other high-radiant-heat sources to the extent feasible and is either open to the air or provided with ventilation or cooling.

The cool-down area shall be located as close as possible to the areas where workers are working and should be large enough to allow employees to sit normally without having to touch one another. The cool-down area should be maintained at less than 82°F, unless it is not feasible to do so.

Production Management should allow and encourage employees to take preventative, cool-down rest periods in the cool-down area if the employee feels the need to do so to avoid overheating. When an employee takes such a preventative cool-down rest, Production Management should monitor the employee, ask the employee if they are experiencing symptoms of heat illness, encourage the employee to remain in the cool-down area until they are no longer overheated, and should not order the employee back to work until the signs and symptoms of possible heat illness have abated (and never earlier than 5 minutes after the employee entered the cool-down area).

Appropriate first aid or emergency response should be provided to any employee who exhibits signs or reports symptoms of heat illness while taking a preventative cool-down rest period.

Emergency Response Procedures
Production Management must ensure an effective communication system is in place so workers can alert a supervisor or emergency medical services if needed.

Whenever an employee exhibits or reports signs and symptoms of heat illness, Production Management shall take immediate action commensurate with the severity of the employee's illness, which could include notifying the set medic, monitoring the employee, and/or implementing emergency response procedures.

The emergency response procedures must include a process to contact emergency medical services, transport the employee to where the employee can be reached by an emergency responder, and provide clear and precise directions to the worksite to any emergency responder.

Acclimatization
For the first 14 days of employment, a supervisor should monitor an employee who has been newly assigned to work in an indoor area in which: a) the temperature or heat index equals or exceeds 87°F; b) the temperature equals or exceeds 82°F and the employee wears clothing that restricts heat removal; and/or c) the employee is working in a **high radiant heat area** in which the temperature equals or exceeds 82°F.

During a heat wave, all employees must be closely monitored by a supervisor for possible signs and symptoms of heat illness. A "heat wave" means any day when the predicted outdoor temperature will be at or above 80°F and at least ten degrees Fahrenheit greater than the average daily outdoor temperature over the previous 5 days.

Employee and Supervisor Training
Production Management must provide comprehensive training on the Indoor Heat Illness Prevention Plan ("IHIPP") and heat illness risk factors to supervisory and non-supervisory employees before the employee engages in work that should reasonably be anticipated to result in exposure to the risk of heat illness. The specific requirements for these training sessions can be found in Production Management's IHIPP.

The Production should document all indoor heat illness training using a sign-in sheet and/or notes on the production report or other suitable means.

Signs and Symptoms of Heat Illness
Early heat illness signs and symptoms may not always follow a progressive pattern from a mild condition such as heat rash up to the life-threatening condition of heatstroke. Thirst alone is a poor indicator of how the body is reacting to heat. Here are the symptoms of heat illness to watch for:

- Discomfort
- Headache
- Fatigue
- Loss of coordination
- Vomiting
- Seizures
- Fainting
- Blurry vision
- Confusion
- Dizziness
- Irritability
- Poor concentration
- Muscle pain/cramps
- Lack of sweating or excessive sweating
- Altered behavior

Heat Illness Risk Factors
There are many environmental and personal risk factors that increase susceptibility to heat illness. Environmental risk factors for heat illness mean working in conditions that create the possibility that heat illness could occur, including the following:

- Air temperature
- Relative humidity
- Radiant heat from the sun, lights, and other sources
- Conductive heat sources such as the ground
- Air movement
- Workload severity and duration
- Protective clothing and personal protective equipment worn by employees

Personal risk factors for heat illness mean factors such as:

- An individual's age
- Degree of acclimatization
- Health
- Water consumption
- Alcohol and/or caffeine consumption
- Use of prescription medications that affect the body's water retention or other physiological responses to heat

Employees should consult with a doctor if they are known to have risk factors for heat illness.

Written Indoor Heat Illness Prevention Plan Requirement
When working in California on a production covered by the Indoor Heat Illness Standard, Production Management shall establish, implement, and maintain an effective IHIPP with specific, required elements and procedures, including all of the above-described heat-illness requirements. This written plan can be combined with the employer's Outdoor Heat Illness Prevention Plan and/or can be incorporated into the employer's Injury and Illness Prevention Plan ("IIPP"). The IHIPP shall be in English and, if needed, in another language understood by the majority of employees. The IHIPP also shall be available at the worksite to employees and to representatives of Cal/OSHA upon request.

Indoor Workplaces That Are 87°F or Higher and Certain Workplaces That Are 82°F or Higher
When these special conditions are in effect, Production Management also must provide various assessment and control measures, as described below.

Assessment
Production Management must measure the temperature and heat index, and record the greater, whenever it is reasonably suspected that either might reach 87°F (for all workers) and/or 82°F for workers wearing restrictive clothing or working in high radiant heat areas. Measurements again must be taken if a 10°F increase over the previous measurement is expected. Temperature can be measured with a thermometer that is freely exposed to the air but shielded from high radiant heat sources such as the sun, hot objects, hot surfaces, hot liquids, and fire.

Control Measures
When indoor workspaces temperatures rise to or above 82°F, Production Management must use control measures to minimize the risk of heat illness. Control measures start with **engineering controls**, such as air conditioning, swamp coolers, and ventilation, to reduce the air temperature and heat index below 87°F when employees are present, or below 82°F when employees are wearing heat-restrictive clothing or working in radiant heat areas.

Production Management must also apply **administrative controls** to minimize the risk of heat illness where engineering controls are not feasible or cannot sufficiently reduce the temperature or heat index. Administrative controls can include rest breaks, rotating workers, adjustments to worker clothing, a "buddy system" (working in pairs or groups), or changing worker schedules to minimize exposure to heat.

Finally, if feasible engineering controls do not decrease the temperature enough and if administrative controls do not minimize the risk of heat illness, then **Personal Heat-Protective Equipment (PHPE)** (e.g., water-cooled garments, air-cooled garments, cooling vests, wetted over-garments, heat-reflective clothing, and supplied-air personal cooling systems) shall be used to minimize the risk of heat illness.

Additional Considerations for Productions
Additional considerations should be provided to employees who may be required to wear heavy, custom wardrobe, special effects make-up, heavy protective gear for welding, or work in elevated areas without good ventilation or HVAC systems etc., to ensure that they are protected from heat illness.

Additional Information and Resources
Guidance for employers and employees on preventing heat illness while working indoors is available on the following websites:

- Cal/OSHA Heat Illness Prevention Guidance and Resources (https://www.dir.ca.gov/dosh/heatillnessinfo.html)
- Cal/OSHA Frequently Asked Questions Related to Indoor Heat Illness Prevention (https://www.dir.ca.gov/dosh/heat-illness/indoor-faq.html)
- Cal/OSHA Indoor Heat Illness Prevention Educational Materials and Other Resources (https://www.dir.ca.gov/dosh/heat-illness/Indoor-HIP-Resources.html)

Further Assistance

If you have further questions, please contact your supervisor, the Studio Safety Representative or Production Management.

STUDIO	CONTACT PERSON	HOTLINE NUMBER
Sony	**William Smith** Vice President Production Safety and Security 10202 West Washington Blvd. Jimmy Stewart Building #1077, 103F Culver City, CA 90232-3195 Phone: 310.244.6419 Cell: 310.925.9973 William_Smith@spe.sony.com	**Studio Safety: 310.244.4544** **888.883.SAFE (7233)** **(Anonymous)**
Warner Bros. Discovery (Facilities, Features, and Television)	**John Clements** Vice President of Safety & Environmental Affairs Building #44 4000 Warner Blvd. Burbank, CA 91522 Cell: 310.628.7364 john.clements@warnerbros.com **AND** **Eddie Tang** Director, Production & Facility Safety & Environmental Affairs Building #44 4000 Warner Blvd. Burbank, CA 91522 Cell: 818.281.4328 eddie.tang@warnerbros.com	**Anonymous: 877.566.8001 Studio Safety Dept: 818.954.2890** **(Monday-Friday 6a-6p and after-hours cell)**

STUDIO SAFETY HOTLINES

As part of an Injury and Illness Prevention Program

Every employee has the right to report unsafe conditions or unsafe practices to their employer without fear of reprisal.

On the following pages are listed the Safety Hotlines for studios participating in our program.

STUDIO	CONTACT PERSON	HOTLINE NUMBER
Amazon MGM Studios	**Manny Rodriguez** Head of Production Health & Safety 9336 W Washington Blvd, Culver City, CA 90232 Phone: 657.255.1423 mannyrod@amazonstudios.com	**(833) 626-1542**
Amblin Partners	**Michelle Brattson** Production Safety 100 Universal City Plaza, #4115 Universal City, CA 91608 Office: 818.733.9910 mbrattson@amblinpartners.com	**818-733-9910 (24 hours)** **safetyhotline@amblinpartners.com**
Apple Studios	**Claude Kaloustian** West Coast EHS Lead, Content Production Environment Health Safety 8600 Hayden Place, MS 3101-DEF Culver City, CA 90232, USA iPhone: 424.239.8723 ckaloustian@apple.com **AND** **Sarah Robinson** West Coast EHS Lead, Content Production Environment Health Safety 8600 Hayden Place, MS 3101-DEF Culver City, CA 90232, USA iPhone: 424.255.0984 sarah_robinson3@apple.com **AND** **Katherine Ray** East Coast EHS Lead, Content Production Environmental Health and Safety 11 Penn Plaza, 3048-DEF New York, NY, 10001, USA iPhone: 917.514.4715 kat.ray@apple.com	**Production Safety Hotline, Toll-free 24 hours: (United States) 1-855-635-7378** **(Canada) 1-855-635-7708**
CBS Studios	**David McElwain** VP EHS/Production Safety Cell: 323.204.1585 david.mcelwain@paramount.com	**Anonymous: 818.655.6078 (voicemail)**

STUDIO	CONTACT PERSON	HOTLINE NUMBER
CBS Studios	**Manny Mendoza** Director, Production Safety Western North America Cell: 818.691.6559 manny.mendoza@paramount.com **AND** **Erik Avila** Director, Production Safety Eastern North America Cell: 703.994.2654 erik.avila@cbs.com	**Anonymous: 818.655.6078 (voicemail)**
Disney, ABC, Fox 21, FX Productions, 20th Television, Marvel, LucasFilm, and National Geographic (Feature and Television Production)	**Jeff Manion** Sr. Manager, Production Safety 500 S. Buena Vista St. Burbank, CA 91521 5657 Phone: 818.561.8568 Fax: 818.557.0356 jeff.manion@disney.com **AND** **Corina Zurcher** Vice President, Production Safety 500 S. Buena Vista St. Burbank, CA 91521 5657 Phone: 818-239-0652 Corina.zurcher@disney.com **AND** **Ari Demirjian** Director, Production Safety / Studio Operations 500 S. Buena Vista St. Burbank, CA 91521 5657 Phone: 818-455-5440 ari.c.demirjian@disney.com	**Safety Dept.: 818.560.1726** **Production Safety Hotline: 818.560.7391**
Fox	**Shakila Balkhi** Executive Director, Environmental Health & Safety | Entertainment Production 10201 W. Pico Blvd. Los Angeles, CA 90064 Phone: 805-501-9014 shakila.balkhi@fox.com	**310-369-3000**

STUDIO	CONTACT PERSON	HOTLINE NUMBER
Fox	**Linda Morales** Senior Manager, Environmental Health & Safety | Studio Lot Production 10201 W. Pico Blvd. Los Angeles, CA 90064 Phone: 310-369-4490 linda.morales@fox.com	**310-369-3000**
HBO / HBO Max	**German Gutierrez** Vice President of Production Safety 8900 Venice Blvd Culver City, CA 90232 (Permanently Remote – East Coast) Cell: 213.361.8579 german.gutierrez@warnermedia.com **AND** **Rick Larson** Director, Production Safety 8900 Venice Blvd Culver City, CA 90232 Cell: (747) 291.3516 rick.larson@wbd.com	**877.742.3044 (24 hours)**
Legendary Entertainment	**Jonathan Osland** Vice President, Production Safety 2900 West Alameda Ave. Suite 1500 Burbank, CA 91505 Office: 818.961.1910 josland-c@legendary.com **AND** **Cate Cundiff** Manager, Production Safety 2900 West Alameda Ave. Suite 1500 Burbank, CA 91505 Office: 818-861-1905 ccundiff@legendary.com	**818.940.2220 (24 hours)**
NBCUniversal	**Laura Tankenson** Senior Vice President, Production Safety NBCUniversal Universal Studio Group Cell: 818.307.8036 laura.tankenson@nbcuni.com	**Anonymous: 818.777.2153 (24 hours)**

STUDIO	CONTACT PERSON	HOTLINE NUMBER
NBCUniversal	**Jeff Egan** Senior Vice President NBC Universal Feature Productions 100 Universal City Plaza, Bldg. 1440/2150-11 Cell: 310.994.4248 jeff.egan@nbcuni.com	**Anonymous: 818.777.2153 (24 hours)**
Netflix	**Alycia Garcia** Director, Production Health and Safety 5808 W. Sunset Blvd. Los Angeles, CA 90028 213.872.6863 alyciag@netflix.com **AND** **Wendy Zindars** Senior Production Health & Safety Executive - CRM Assurance 5808 W Sunset Blvd. Los Angeles, CA 90028 404.444.3739 wzindars@netflix.com	**Production Safety Hotline: 844-222-1739**
Paramount Production	**Nicole A-J. Lang** Executive Vice President Industrial Relations and Production Safety Paramount Pictures 5555 Melrose Avenue Zukor Bldg Room # 1102 Los Angeles, CA 90038-3197 Office: 323.956.4415 nicole_lang@paramount.com **AND** **Jonas Matz** SVP, Production Safety Paramount Pictures 5555 Melrose Avenue Zukor Bldg Room # 1107 Los Angeles, CA 90038-3197 Office: 323.956.8239 Cell: 310.901.4648 jonas_matz@paramount.com	**Studio Safety: 323.956.8955 (24 hours & Anonymous) Production Safety: 323.956.SAFE (7233) (24 hours & Anonymous)**