Appendix D – Lightning Guidelines

GUIDELINES FOR GAME OFFICIALS AND GAME MANAGEMENT TO USE REGARDING LIGHTNING

The purpose of this appendix is to provide information to those responsible for making decisions about suspending and restarting games based on the presence of lightning.

The current recommendation of the National Severe Storms Laboratory (NSSL) is to consider terminating play when the lightning is six miles away (flash-to-bang time of 30 seconds or less). This recommendation was developed as a practical way to make a judgment in situations where other resources such as technology and instrumentation are not available.

As a minimum, NSSL staff strongly recommends that by the time the flash-to-bang count is 30 seconds, all individuals should have left the game site and reached a safe structure or location. In addition, a smaller, but still real, risk exists with the presence of lightning at greater distances. Unfortunately, current science cannot predict where within the radius the next strike will occur.

The existence of blue sky and the absence of rain are not protection from lightning. Lightning can, and does, strike as far as 10 miles away from the rain shaft. It does not have to be raining for lightning to strike.

The flash-to-bang method is the easiest and most convenient way to estimate how far away lightning is occurring. Thunder always accompanies lightning, even though its audible range can be diminished because of background noise in the immediate environment and its distance to the observer. To use the flash-to-bang method, count the seconds from the time the lightning is sighted to when the clap of thunder is heard. Divide this number by five to obtain how many miles away the lightning is occurring.

When considering resumption of a game, NSSL staff recommends that everyone ideally should wait at least 30 minutes after the last flash of lightning or sound of thunder before returning to the field of activity.

If available, electronic detection devices should be used as additional tools to determine the severity of the weather. However, such devices should not be used as the sole source when considering terminating play. — Information taken from NCAA Championships Severe Weather Policy.

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports acknowledges the significant input of Brian L. Bennett, formerly an athletic trainer with the College of William and Mary Division of Sports Medicine, Ronald L. Holle, a meteorologist, formerly of the National Severe Storms Laboratory (NSSL), and Mary Ann Cooper, MD, Professor of Emergency Medicine of the University of Illinois at Chicago, in the development of this guideline.

Lightning is the most consistent and significant weather hazard that may affect intercollegiate athletics. Within the United States, National Oceanographic and Atmospheric Administration (NOAA) estimates that 60-70 fatalities and about 10 times as many injuries occur from lightning strikes every year. While the probability of being struck by lightning is low, the odds are significantly greater when a storm is in the area and proper safety precautions are not followed.

Education and prevention are the keys to lightning safety. The references associated with this guideline are an excellent educational resource. Prevention should begin long before any intercollegiate athletics event or practice by being proactive and having a lightning safety plan in place. The following steps are recommended by the NCAA and NOAA to mitigate the lightning hazard:

1. Designate a person to monitor threatening weather and to make the decision to remove a team or individuals from an athletics site or event. A lightning safety plan should include planned instructions for participants and spectators, designation of warning and all clear signals, proper signage, and designation of safer places for shelter from the lightning.

2. Monitor local weather reports each day before any practice or event. Be diligently aware of potential thunderstorms that may form during scheduled intercollegiate athletics events or practices. Weather information can be found through various means via local television news coverage, the Internet, cable and satellite weather programming, or the National Weather Service (NWS) home-page at http://www.weather.gov.

3. Be informed of National Weather Service (NWS) issued thunderstorm "watches" or "warnings," as well as the warning signs of developing thunderstorms in the area, such as high winds or darkening skies. A "watch" means conditions are favorable for severe weather to develop in an area; a "warning" means that severe weather has been reported in an area and for everyone to take the proper precautions. A NOAA weather radio is particularly helpful in providing this information.

4. Know where the closest "safer structure or location" is to the field or playing area, and know how long it takes to get to that location. A safer structure or location is defined as:

a. Any building normally occupied or frequently used by people, i.e., a building with plumbing and/or electrical wiring that acts to electrically ground the structure. Avoid using the shower or plumbing facilities and contact with electrical appliances during a thunderstorm.

b. Small covered shelters are not safe from lightning. Dugouts, rain shelters, golf shelters, and picnic shelters, even if they are properly grounded for structural safety, are usually not properly grounded from the effects of lightning and side flashes to people. They are usually very unsafe and may actually increase the risk of lightning injury. Other dangerous locations include areas connected to, or near light poles, towers and fences that can carry a nearby strike to people. Also dangerous is any location that makes the person the highest point in the area.

c. In the absence of a sturdy, frequently inhabited building, any vehicle with a hard metal roof (neither a convertible, nor a golf cart) with the windows shut provides a measure of safety. The hard metal frame and roof, not the rubber tires is what protects occupants by dissipating lightning current around the vehicle and not through the occupants. It is important not to touch the metal framework of the vehicle. Some athletics events rent school buses as safer shelters to place around open courses or fields.

5. Lightning awareness should be heightened at the first flash of lightning, clap of thunder, and/or other criteria such as increasing winds or darkening skies, no matter how far away. These types of activities must be treated as a warning or "wake-up call" to intercollegiate athletics personnel. Specific lightning safety guidelines have been developed with the assistance of lightning safety experts:

a. As a minimum, lightning safety experts strongly recommend that by the time the monitor observes 30 seconds between seeing the lightning flash and hearing its associated thunder, all individuals should have left the athletics site and reached a safer structure or location.

b. Please note that thunder may be hard to hear if there is an athletics event going on, particularly in stadia with large crowds. Implement your lightning safety plan accordingly.

c. The existence of blue sky and the absence of rain are not guarantees that lightning will not strike. At least 10 percent of lightning occurs when there is no rainfall and when blue sky is often visible somewhere in the sky, especially with summer thunderstorms. Lightning can, and does, strike as far as 10 (or more) miles away from the rain shaft.

d. Avoid using landline telephones, except in emergency situations. People have been killed while using a landline telephone during a thunderstorm. Cellular or cordless phones are safe alternatives to a landline phone, particularly if the person and the antenna are located within a safer structure or location, and if all other precautions are followed.

e. To resume athletics activities, lightning safety experts recommend waiting 30 minutes after both the last sound of thunder and last flash of lightning. If lightning is seen without hearing thunder, lightning may be out of range and therefore less likely to be a significant threat. At night, be aware that lightning can be visible at a much greater distance than during the day as clouds are being lit from the inside by lightning. This greater distance may mean that the lightning is no longer a significant threat. At night, use both the sound of thunder and seeing the lightning channel itself to decide on resetting the 30-minute "return-to-play" clock before resuming outdoor athletics activities.

f. People who have been struck by lightning do not carry an electrical charge. Therefore, cardiopulmonary resuscitation (CPR) is safe for the responder. If possible, an injured person should be moved to a safer location before starting CPR. Lightning-strike victims who show signs of cardiac or respiratory arrest need prompt emergency help. If you are in a 911 community, call for help. Prompt, aggressive CPR has been highly effective for the survival of victims of lightning strikes. Automatic external defibrillators (AED's) have become a common, safe and effective means of reviving persons in cardiac arrest. An AED should be considered as part of your sideline equipment. However, CPR should never be delayed while searching for an AED.

Note: Weather watchers, real-time weather forecasts and commercial weather-warning devices are all tools that can be used to aid in decision-making regarding stoppage of play, evacuation and return to play.

(Information taken from the the NCAA Sports Medicine Handbook revised June 2006)