

Lake Andrea Lightning Emergency Action Plan

1. Weather watcher/ISO: Designate a person or persons to monitor lightning and severe weather each day. For an Open Water swim competition, may substitute the Independent Safety Officer (ISO) for the weather watcher/ISO.
 - 1.1. Weather watcher/ISO/ISO reviews available forecasts. NWS Advisories, Watches, and Warnings which can be monitored at the National Weather Service (<http://www.weather.gov/Milwaukee>. Thunderstorm and severe weather forecasts are also online at <http://www.spc.noaa.gov>.
 - 1.1.1. A “Watch” indicates that conditions are favorable for severe weather to develop.
 - 1.1.2. A “Warning” means that severe weather has been detected and may be imminent to the locale.
 - 1.2. If the weather watcher/ISO/ISO has questions about a storm, contact the National Weather Service in Milwaukee/Sullivan, WI at **262-965-2074**.
 - 1.3. Weather watcher/ISO/ISO notifies staff of predicted weather hazards.
 - 1.4. Staff notifies public of weather forecast (e.g., via information boards, PA announcements, multimedia notification)
 - 1.5. Weather watcher/ISO notifies staff when hazardous weather is imminent.
 - 1.6. Weather watcher/ISO and other staff use available tools to monitor weather.
 - 1.6.1 NOAA weather radio
 - 1.6.2 On-site lightning prediction/detector: Thor Guard
 - 1.6.3 Portable hand-held lightning detector
 - 1.6.4 Flash-to-bang rule: The observer begins counting once sighting a lightning flash. Counting is stopped at the sound of related thunder. The count is then divided by five (5) to determine the proximity in miles of the lightning strike. (5 seconds = 1 mile; 50 seconds = 10 miles, etc.).
2. Threat Level 1: Lightning detected within 20 miles.
 - 2.1. Weather watcher/ISO notifies management and staff.
 - 2.2. If it appears the thunderstorm is moving toward the site, or if a more organized thunderstorm or cluster of thunderstorms (supercells, squall lines, bow echoes) are headed for the site, a 30-minute lead time or more should be considered for protective actions. The weather watcher/ISO should attempt to estimate the speed and direction of the storm’s movement to determine when it will enter a 10-mile radius of the location (contact National Weather Service, Milwaukee at 262-965-2074).
 - 2.3 Protective actions
 - 2.3.1 Consider closing facilities that do not provide protection from lightning.
 - 2.3.2 The weather watcher/ISO should attempt to estimate the speed and direction of the storm’s movement to determine when it will enter a 10-mile radius of the location (contact National Weather Service, Milwaukee at 262-965-2074).
 - 2.3.3 Notify the public of the lightning threat and recommended actions:
 - 2.3.3.1. Return to shore if the NWS predicts the storm will arrive within 30 minutes or less.
 - 2.3.3.2 Prepare to leave and find shelter.
 - 2.3.3.3 Appropriate shelters during lightning/thunderstorms:

- 2.3.3.3.1.1 Fully enclosed, substantial buildings that have grounded wiring and plumbing.
- 2.3.3.3.1.2 Fully enclosed metal vehicles (no soft-top convertibles).
- 2.3.3.3.1.3 Lifeguard towers that are fully-enclosed and compliant with NFPA 780 lightning guidelines (NFPA – National Fire Protection Association).
- 2.2.2.4 Locations that do not offer protection from lightning:
 - 2.2.2.4.1.1 Beaches and water.
 - 2.2.2.4.1.2 Open-sided pavilions (such as picnic areas).
 - 2.2.2.4.1.3 Restrooms, changing facilities/locker rooms and showers.
 - 2.2.2.4.1.4 Tents or umbrellas.
 - 2.2.2.4.1.5 Small personal watercraft (such as jet skis, kayaks).
 - 2.2.2.4.1.6 Boats that are not designed or retrofitted to be compliant with NFPA 780 lightning guidelines.
 - 2.2.2.4.1.7 Lifeguard stands that are not fully enclosed and compliant with NFPA 780 lightning guidelines.
- 2.3.4 No place outside is safe if lightning is in the vicinity. Partially enclosed vending areas and picnic shelters are not safe. If a substantial building is not available, fully-enclosed motor vehicles provide good shelter as long as occupants do not touch the metal framework during the thunderstorm. If no protection from lightning is available, direct patrons to stay away from the tallest objects (lifeguard stands, light poles, flag poles), metal objects (fences or bleachers), standing pools of water, and open areas.
- 2.3.5 Consider initiating predetermined evacuation plans:
 - 2.3.5.1 Warn lifeguards of the potential need to evacuate the water.
 - 2.3.5.2 Warn beach public, coaches, athletes of the potential need to evacuate the beach area.
- 2.3.6 Ensure staff take action to protect themselves.

3 Threat Level 2: Lightning detected within 15 miles.

- 3.1 Weather watcher/ISO notifies management and staff.
- 3.2 Protective actions
 - 3.2.1 Consider closing facilities that do not provide protection from lightning.
 - 3.2.2 Notify the public of threat and recommended actions:
 - 3.2.2.1 Exit the water and initiate evacuation plans:
 - 3.2.2.2 Lifeguards to blow long whistle.
 - 3.2.2.3 For Open Water events: Lifeguards and Officials on the water to direct athletes to the nearest shoreline.
 - 3.2.2.3.1 Athletes directed to return to the beach or to the RecPlex Aqua Arena, whichever is closer.
 - 3.2.2.3.2 Officials and Coaches to assist in verification of athlete count from the water and verify with Officials on the beach and with Administrative Referee.
 - 3.2.2.4 Prepare to leave and find shelter, as described in 2.3.3.3 and 2.3.3.4.

3.2.2.5 No place outside is safe if lightning is in the vicinity. Partially enclosed vending areas and picnic shelters are not safe. If a substantial building is not available, fully enclosed motor vehicles provide good shelter as long as occupants do not touch the metal framework during the thunderstorm. If no protection from lightning is available, direct patrons to stay away from the tallest objects (lifeguard stands, light poles, flag poles), metal objects (fences or bleachers), standing pools of water, and open areas.

3.3 When all clear is sounded:

3.3.1 The beach remains closed and no one may return to the sand until 30 minutes after the LAST strike of lightning is spotted or thunder is heard and Thor Guard indicates the all clear.

3.3.2 Public, athletes and coaches may return to the beach.

3.3.3 For Open Water meets, the Meet Referee, Meet Director and ISO will determine how and when the meet will continue.

3.4 Ensure staff take action to protect themselves.

4 Threat Level 3: Lightning detected within 10 miles.

4.1 Weather watcher/ISO notifies management and staff. Thor Guard lightning prediction and detection alarm whistle will sound.

4.2 Protective actions

4.2.1 **Close facilities** that do not provide protection from lightning.

4.2.2 Notify the public of imminent threat and to take recommended action:

4.2.2.1 Exit the water and implement all evacuation plans:

4.2.2.1.1 Lifeguards to blow long whistle.

4.2.2.1.2 For Open Water events: Lifeguards and Officials on the water to direct athletes to the nearest shoreline.

4.2.2.1.3 Athletes directed to return to the beach or to the RecPlex Aqua Arena, whichever is closer.

4.2.2.1.4 Officials and Coaches to assist in verification of athlete count from the water and verify with Officials on the beach and with Administrative Referee.

4.2.2.2 Find shelter as described in 2.3.3.3 and 2.3.3.4.

4.2.2.3 No place outside is safe if lightning is in the vicinity. Partially enclosed vending areas and picnic shelters are not safe. If a substantial building is not available, fully enclosed motor vehicles provide good shelter as long as occupants do not touch the metal framework during the thunderstorm. If no protection from lightning is available, direct patrons to stay away from the tallest objects (lifeguard stands, light poles, flag poles), metal objects (fences or bleachers), standing pools of water, and open areas.

4.2.2.3.1 place outside is safe if lightning is in the vicinity. Partially enclosed vending areas and picnic shelters are not safe. If a substantial building is not available, fully-enclosed motor vehicles can provide shelter as long as occupants do not touch the metal framework during the thunderstorm. If no protection from lightning is available, direct patrons to stay away from the tallest objects (lifeguard stands, light poles, flag poles), metal objects (fences or bleachers), standing pools of water, and open areas.

4.3 When all clear is sounded:

4.3.1 The beach remains closed and no one may return to the sand until 30 minutes after the LAST strike of lightning is spotted or thunder is heard and Thor Guard indicates the all clear.

4.3.2 Public, athletes and coaches may return to the beach.

4.3.3 For Open Water meets, the Meet Referee, Meet Director and ISO will determine how and when the meet will continue.

4.4 Ensure staff takes action to protect themselves.

5 Lightning Injury Response

5.1 Ensure scene safety (victims do not carry an electrical charge and can be touched)

5.2 Follow local protocols for trauma injury and triage. If necessary, safe, and appropriate, move the victim to a safe place away from the threat of another lightning strike

5.3 Summon an ambulance as needed according to local protocols

5.4 CPR and/or AED may be necessary

5.5 Heart irregularities, shock, or sudden loss of consciousness are possible. Keep the conscious victim calm and monitor closely

6 All Clear: The weather watcher/ISO will continue to monitor the proximity of thunderstorms and utilize local observations to make an informed decision, determining the appropriate time to recommend reopening outdoor facilities. Management may then allow for normal activities to resume after 30 minutes of no detected lightning strikes within a 10 mile radius of the site. Notify the public that outdoor activities can resume.

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George Geanon, Independent Safety Officer, Central Zone Open Water Championship