

Recommended Best Practices for the Activation of Outdoor Warning Sirens

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Best Practices

Siren Testing

- Warning Siren testing shall be done on a regular schedule (but not more than once a month) using the standard "ALERT" (steady) sound.
- Testing of Sirens should *not* be done if conditions are in the area (non-severe storms, etc.) could confuse the public, and should *not* be rescheduled.
 - Notify the public of the cancellation as soon as possible.

Siren Alerting

- ONLY the “ALERT” (steady) Sound is to be used, lasting for at least 3 minutes.
- Only sirens in the path of the storm (within the National Weather Service warning polygon) should be activated, if the siren system is capable.
- An “all clear” tone WILL NOT be used.

Siren Activation

- When the National Weather Service issues or re-issues a Tornado Warning.
If a tornado is confirmed in the area, continue to sound the sirens at regular intervals. Use local guidance and siren manufacturer’s suggestions to avoid damaging the equipment, with the goal of sounding as continuous as possible while the tornado is still in the area.

...Or...

- During a Severe Thunderstorm Warning ONLY IF:
 - Destructive winds of 80mph or greater are observed by a trained spotter or indicated in the National Weather Service warning statements.

...Or...

- Without a warning, when reliable reports from TRAINED weather spotters indicate a tornado or extreme winds are occurring or imminent in the area.
 - Immediately notify the National Weather Service and local media!
 - Preferably use NWSChat to let all know why sirens were activated.

Purpose

The purpose of this document is to establish common guidelines for activation of outdoor warning sirens throughout the United States. The intent of this best practices list is to enhance decision making by citizens when outdoor warning sirens are activated. It is NOT intended to remove a jurisdiction's obligation or responsibility to alert or warn its community if a situation falls outside of the parameters of these recommendations.

Outdoor warning sirens represent only one part of a broader public emergency notification system. Other components include: NOAA All-Hazards Weather Radio, Wireless Emergency Alerts (WEA), mass notification systems, emergency management, private sector meteorologists and the media. Sirens are used to alert citizens of an imminent hazard, which should prompt them to find shelter and seek further information.

Background

Research shows that confusion hinders public response during emergencies. Using common guidelines for outdoor warning sirens throughout the United States will minimize confusion in emergency situations. Establishing a standard will also enable communities to partner in area-wide public education campaigns regarding sirens.

Addendum

This project began as concerns over siren usage mounted in the meteorological community at large, due to extremely varying policies from county to county or even city to city. A call was made to the Weather & Society * Integrated Studies (WAS*IS) discussion list for volunteers to form a best practices committee, and it moved forward over the summer of 2011 with representatives from emergency management, the National Weather Service, and private sector / broadcast meteorologists. A draft policy was disseminated through wider channels for review, and input was received from various professions from all across the country. Review comments were taken into consideration as the final version was developed. Some areas that were removed from the main document or that we felt needed clarification are included below.

In 2015 this project was incorporated into the International Association of Emergency Managers (IAEM) Caucus on Climate, Weather, and Water, as well as the American Meteorological Society (AMS) Committee on Emergency Management.

One of the primary goals is to get communities to use the "polygon" outline in the warning as the determination for which sirens to sound and which can remain silent. We understand that not all locations have that ability, but some do and simply don't utilize that feature. With the number of warnings being issued on a steady rise over the past

decade, reducing the coverage of siren alerts to areas truly threatened by the storm is crucial. Additional information on the storm-based polygon warnings is available at <http://tinyurl.com/nws-polygon>

Other Siren Uses

We realize that some communities have other uses for siren systems. This document was not intended to deal with those situations, such as alerts around nuclear plants, dam break flood sirens, and the like. Those are best handled locally, where the emergency manager can educate the community regarding these alternate uses.

Some communities use a different type of tone (usually an alternating high / low combination) for flash flood warnings in their area. Since that threat is not a widespread national issue, we did not want to try to incorporate it into these best practices. Do not let the absence here interfere with your alerting and educating regarding flash floods.

We originally considered using very large hail (2" or more) as a trigger point, but those hail sizes are often very isolated and short-lived, so by the time the report comes in and the decision is made to activate the siren the threat has passed. In areas where hail swaths are more common, using that criteria may be of use.

Bad Practices

Many “bad practices” exist in the alerting policies nationwide, and the intent of this document was just as much geared towards removing those as it was towards adding anything new.

Do not use an “all-clear” alert. This does nothing but add confusion to the public. Outdoor warning sirens are simply used to notify citizens that something hazardous could be approaching, so they need to go to a place of safety and find out more information. Using the sirens to signify that there is no threat diminishes the value of the siren system. There are many other methods for the public to find out that the storm has passed, so there is no reason for sounding an all-clear.

Some communities sound their sirens for warnings in neighboring counties (that do not include them directly) as an added level of protection. However that adds no value and only causes confusion when people tune in for more information and find they are not really under any weather warning. Other jurisdictions alert for any severe thunderstorm warning issued during a tornado watch, because “xx years ago a tornado touched down with no warning.” While that may be true, a very large majority of severe thunderstorm warnings do not contain tornadoes, and lowering the criteria means the sirens are sounded much more often than needed which desensitizes people to the siren tone. Many post-event surveys of the public conclude that they feel the sirens are used too frequently in those cases.

We understand that these are “your” sirens and you can activate them at any time you deem there is a threat to the public. However when activation is done outside of a NWS warning, and the reason for the alert is not communicated to the public, different messages will be delivered. A local spotter may see a funnel cloud approaching town, but if it’s not evident on radar and there is no warning, it is likely that the television stations will simply tell viewers that they don’t know why the sirens are sounding. It’s a true statement unless they are informed otherwise, and it leads to the public not responding. Using NWSChat lets you to notify the NWS, media outlets and neighboring jurisdictions immediately, which allows one unified message to be disseminated and provides the confirmation that the public needs to hear in order to respond.

Best Practices

In the NWS Service Assessment of the 2011 Joplin, Missouri tornado, many people commented that the first siren activation did not prompt them to shelter, but the second alert caught their attention and made them more likely to react. We suggest that if a tornado is actively causing damage in the community or approaching based on spotter reports, then the sirens be activated as often as possible until the threat passes. Older mechanical sirens have limitations that newer digital systems do not, so use the manufacturer’s recommendations regarding the amount of time your system is activated, with the goal being simply as much as possible during an active threat.

A low end tornado can only have winds of 50-60mph causing minor damage with minimal life threat. We felt that it didn’t make sense to sound a siren for that event, yet not for extremely damaging straight-line winds. Therefore we deemed receiving reports of confirmed 80mph winds and/or extreme damage from downburst winds as activation criteria. There is a proposal to automatically alert cellphones through the Wireless Emergency Alert (WEA) system when a severe thunderstorm warning indicates winds of 80mph or higher are included, so this would match the two systems. We understand that spotter estimated winds are usually notably higher than actual wind speeds, so the concentration should be more on the damage reported versus actual wind speed numbers.

Feel free to contact us for any additional clarifications, or with suggestions for future revisions.