

2011
ARES Weather Spotter
Manual

146.640 Repeater
Dodge County, Wisconsin

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WHY...

The Weather Forecast Office Milwaukee / Sullivan (WFO MKX) has 20 counties in its County Warning Area (CWA) in Southern Wisconsin. That is a lot of territory -- about 138 miles by 105 miles (or 14,490 square miles); and a lot of weather events may occur at any given moment. Mother Nature rarely concentrates all the action in one small area, thus communication channels must be kept as clear as possible for efficient communication of Severe Weather information.

To achieve this level of efficiency, certain procedures and protocols have been developed. These procedures have been implemented on every active Severe Weather Net in the Milwaukee / Sullivan CWA.

146.640 REPEATER TAIL MESSAGE DEFINITIONS

“**Weather Alert**” is activated when the NWS has forecast the threat of Severe Weather in the area. This would include; severe storms, damaging winds and/or large hail. The repeater remains open for normal traffic and periodic updates on the weather will be provided by NCS.

“**Weather Watch**” is activated when the NWS has issued a Watch Box which includes our area, or our area is in the path of known Severe Weather. This would include such events as; Tornado and Severe Thunderstorm Watches as well as wind and hail events. The repeater remains open for normal use. *However, be sure to allow pauses in your transmissions to allow for updates or for stations needing to report a weather event.*

“**Weather Warning**” is activated when the NWS has issued a Severe Weather Warning for our coverage area, or reports meeting the criteria for Severe Weather have been received by NCS. *A full Net is activated at this time and the repeater is restricted to reports meeting Severe Criteria only, unless otherwise requested by NCS.*

SPOTTER SAFETY

Individual spotters are responsible for their own safety at all times. Weather spotting can be a very dangerous activity. As with any other activity, **you are ultimately responsible for your safety and actions. We do not endorse mobile spotting.** Being mobile during severe weather leaves spotters vulnerable to the weather conditions with little or no shelter available as well as limited visibility to other drivers. All spotters should have a Personal Safety Action Plan in place, which is reviewed regularly and easily implemented when necessary. *We don't need your statistic if it causes you to become one!*

GENERAL REPORTS

*General reports are **ONLY** to be given at the request of the NCS.* General reports should be kept brief and include a summary of weather conditions at the Reporting Station's location. When making your general report, speak slowly and provide your report in a concise, clear manor using the proper reporting procedure. The NCS will provide periodic updates and indications of when conditions are expected to reach our coverage area.

SEVERE CRITERIA AND REPORTING METHODS

Spotters are to report all of the conditions below using the guidance indicated.

The conditions and pro-words in **RED** text (numbered 1 through 7) normally trigger or verify a warning (also called "Severe Conditions.")

The conditions and pro-words in **BROWN** text (numbered 8 through 13), although important, are considered residual (also called "Non-Severe Conditions.")

Conditions numbered 1 - 7 are to be reported from the field team to Sullivan Weather immediately through their relay station using established SulCom Backbone communications channels and protocols.

Conditions numbered 8 - 13 should be reported from the field team to Sullivan Weather using established digital modes and protocols unless directed otherwise.

IMPORTANT NOTES!

The meteorologists may require reports for conditions that are not usually considered severe, or may not even be on this list. This need will be conveyed as required.

The conditions and thresholds provided below are defaults for all events unless directed otherwise during the course of the event.

REPORTABLE CRITERIA

1. Tornado or Waterspout

2. Funnel Cloud

3. Rotating Wall Cloud

- confirm that it is rotating (non-rotating wall clouds are no longer being used as warning triggers)

4. Severe Damage

- tree branches greater than 3" diameter snapped, trees uprooted
- any structural damage to buildings (includes roof damage)
- bent, snapped or collapsed light poles or traffic lights
- downed power lines
- crop damage
- cave-ins and mud slides
- sink holes

5. Severe Winds

- **58MPH OR HIGHER**

- indicate if speed is measured or estimated, but measured is always preferred

6. Severe Hail

- **1 INCH OR GREATER** (*in numeric values only*)

- indicate if hail size is measured or estimated, but measured is always preferred.

7. Severe Flooding

- water over river banks or dams
- roads, bridges, or railroads washed out
- impassable or closed roads
- water out of banks that causes property damage

8. Minor Hail

- **3/4 INCH TO 7/8 INCH** (*in numeric values only*)
- indicate if hail size is measured or estimated, but measured is always preferred.
- anything less than 3/4 inch should not be reported unless asked to do so by Sullivan Weather.

9. Minor Damage

- any cosmetic damage to buildings & vehicles
- tree branches less than 3" diameter snapped causing power line damage or cosmetic damage to buildings & vehicles

10. Minor Flooding

- non-life-threatening / non-damaging water over curb
- water out of banks but confined to low lands and bottom lands (not impacting buildings)
- water on the roads

11. Visibility

- **less than 1/2 mile**
- Indicate if due to precipitation, fog, blowing dirt or smoke

12. Rainfall

- **measured amounts equal to or exceeding the rate of 1/4" per 15 minutes measured over at least 15 minutes (i. e., a rate greater than 1" per hour)**
- If possible, indicate the start time and the end time of the measurement period (i. e., "measured between 11:05am and 11:25am")

13. Minor Winds

- **40 mph to 57 mph**
- indicate if speed is measured or estimated, but measured is always preferred
- anything less than 40 mph should not be reported unless asked to do so by Sullivan Weather

The Difference Between Flash Floods and Floods

Flash Floods

A **FLASH FLOOD** is an event that occurs **WITHIN 6 hours following the END of the causative event** (such as rains, ice jams, or dam breaks) which result in fatalities, injuries, and/or significant damage to property. Examples of Flash Floods include damage to buildings, roads, gravel shoulders, bridges, railways or other landscape features including soil erosion.

Generally, flash flooding events develop rapidly and can occur anywhere water collects, especially areas of steep terrain, and water runoffs. Flash Floods rarely last more than 12 hours.

Floods

A **FLOOD** is an event that occurs **AFTER 6 hours following the END of the causative event** (rains, ice jam, dam breaks) which result in fatalities, injuries, and/or significant damage to property. Examples of Floods include damage to buildings, roads, gravel shoulders, bridges, railways or other landscape features including soil erosion.

Generally, flooding events usually take longer to develop and they usually occur along or near larger rivers. The duration of flooding events may extend longer than 24 hours, perhaps several days.

ALOFT EVENTS

Tornadoes, Rotating Wall Clouds and **Funnel Clouds** are considered ALOFT EVENTS. When making reports on these items the spotter should give their location in relation to the local reference point and the direction they are looking based on the 16 point compass. You do not need to estimate the distance of the event from your location.

Example: 6:30pm, 0.1 miles west Burnett-Dodge, funnel cloud looking SSW, KC9ICA.
(This is a complete and thorough report of the event.)

REMEMBER, non-rotating wall clouds are no longer being considered for issuing warnings. Only **ROTATING WALL CLOUDS** are reportable criteria.

Time, Location, Condition, Source

...Using the T-L-C-S Format

All reports of severe weather should be made using the T-L-C-S format. What is T-L-C-S you may ask? It is simply **Time, Location, Condition, Source**. This is the official reporting format for the Sullivan WFO CWA. When reports are made in the proper format it greatly improves the efficiency of the passing of information at all levels of the reporting system. Uniformity also simplifies the duties of all parties involved.

Therefore, please familiarize yourself with the proper location of your reporting point(s) ahead of time and learn to use the T-L-C-S reporting format to your advantage.

TIME

To the nearest time in 12 hour format that you observed the event. Not the time it was relayed!

LOCATION

Within your county determine how far you are from your city reporting point.

Do this for home, work and frequented mobile locations. Refer to Dodge County Reporting points listed in this document.

(IE if you are 1.2 miles SSW of the Juneau RP or 3 miles W of the Waupun RP)
GPS Coordinates are also accepted for this purpose, however, they must be to the third decimal point (example 89.123).

CONDITION

Describe what you saw/experienced.

Example: Measured winds of 68 mph, 3 feet of water flooding Hwy 151, Rotating wall cloud, large groves of mature trees leveled, 1.5 inch hail measured, etc.

SOURCE

For our purposes this **must** be your ham radio call.

SEVERE WEATHER REPORTING PROCEDURE

The following procedure is to be followed when making a Weather Report during any weather event on any frequency in South Eastern and South Central Wisconsin, including the 146.640 repeater for the Dodge County SkyWarn Program.

1. Station calling: {"Call sign + Event"}
2. Net Control: {"(Call sign), go ahead"}
3. Station calling: {"Time, location, condition" (TLC)}
4. Net Control: {"Roger, all locations"}

Example:

1. Calling Station: ***"WB9 Alpha Bravo Echo -- HAIL"***
2. NCS: "WB9ABE, Go ahead"
or "Alpha Bravo Echo, Go ahead"
3. Calling Station: ***"At 4:30 PM, 1.1 mile North Randolph Dodge County, (Hwys 33 & 73), Measured 1" hail"***
4. NCS: "ABE, I have your report of 1" measured hail 1.1 mile North of Randolph, Thank you"

Your Transmission is now completed, but be available for follow up information, as requested by the Net Control.

Important points to remember when making a report;

- 1. Be sure of your observation (use measured reports when available).**
- 2. Take a moment to formulate your report before keying the mic. (Be sure you have all the required information).**
- 3. Be sure to include the type of event you are reporting during your initial contact. This helps NCS prioritize reports that may come in at the same time. (Example "WB9 Alpha Bravo Echo -- Hail")**
- 4. If mobile, know your location at all times. This is as much for your own safety as it is for reporting accuracy.**

5. Speak slowly and clearly. Remember the NCS and Relay Stations need to copy the information. Accuracy first, speed second.

6. We need and want your reports! Don't be shy if you observe weather meeting the criteria; report it! Without the spotter, the Net is non-existent.

**** It is important that your reports follow the event criteria as requested by the NCS. General situation reports are "normally" allowed during an Alert or Watch, but not allowed during a Warning unless requested by the NCS. Secondary sources, i.e. scanners, TV, broadcast radio, are not allowed at any time; only reports you witness personally or reports that are being relayed from another Amateur Radio Operator to the Net. ****

REPORTING LOCATION

All Severe Weather reports relayed to the NWS meteorologists at the Milwaukee / Sullivan Weather Forecast Office by Amateur Radio Operators will utilize the following standards to describe the location of the weather event.

This format is used because radar information in NWS warnings and associated follow-up statements is based on distance from the center of cities / villages. In addition, post-storm information written in the Local Storm Reports sent to all media outlets and 'StormData' publications use this notation.

DISTANCE (in tenths of a mile) from the recognized **center** of a city / village (not the edge or limits of the city / village). This may be an intersection of major roads considered the center, or a cluster of administrative buildings.

Cities that can be used are found on the State of Wisconsin road map, and are given below. The report shall also be referenced with one of 16 compass points (N, NNE, NE, ENE... E, ESE, SE, SSE... S, SSW, SW, WSW... W, WNW, NW, NNW). Additionally, the county from which the report is originating from is required, as some cities overlap two county lines.

Examples:

2.2 E Jefferson, Jefferson Co.

2.4 NE Waupun, Fond Du Lac Co.

0.5 E Cobb, Iowa Co.

5.5 WSW Madison, Dane Co. (still in the city limits)

Reference Points for Dodge County

Reference Name	Reference Location	Lat. (N)	Long. (W)
Ashippun	STH 67 & CTY O	43.2118	88.5163
Astico	CTY T & Alto Dr.	43.3325	88.9404
Atwater	CTY C & railroad tracks	43.5607	88.7346
Beaver Dam	S. Center St. & Front St.	43.4563	88.8396
Brownsville	STH 49 & Clark St.	43.6157	88.4913
Burnett	STH 26 & Main St.	43.5047	88.7084
Clyman	Main St. & CTY J	43.3121	88.7193
Danville	CTY T & CTY TT	43.3197	88.9563
Fox Lake	STH 33 & STH 68	43.5662	88.9067
Horicon	STH 33 & Hubbard St.	43.4516	88.6299
Hustisford	CTY E & Highland St.	43.3455	88.6036
Iron Ridge	Main St & E. Pleasant St.	43.3976	88.5321
Juneau Dodge Airport (UNU)	Intersection of two runways or as an alternative the intersection of STH 26 & Saint Ann Rd.	43.4274	88.6994
Juneau	STH 26 & STH DJ	43.4063	88.7033
Knowles	CTY Y & CTY AY	43.5731	88.5001
Le Roy	CTY Y & CTY YY	43.5735	88.5610
Lebanon	CTY R & CTY MM	43.2554	88.6267
Leipsig	CTY G & CTY S	43.4007	88.8638
Lomira	Sterr Park & Pleasant Hill St.	43.5889	88.4447
Lowell	CTY G/GI & Dodge St.	43.3378	88.8209
Mayville	STH 28 & CTY Y	43.4982	88.5462
Minnesota Jct.	Center St. & North St.	43.4523	88.6961
Neosho	STH 67 & CTY NN	43.3097	88.5178
Randolph	Stark St. & Columbus St.	43.5378	89.0022
Reeseville	CTY G/GI & Suncrest Dr.	43.3059	88.8451
Richwood	CTY Q & Link St.	43.2412	88.7847
Rubicon	Rome Rd. & CTY P	43.3399	88.4584
South Beaver Dam	CTY DE & CTY D	43.4408	88.8898
Theresa	STH 175 & Henni St.	43.5178	88.4527
Watertown-Dodge Co	S. 1st St. & Dodge St.	43.1916	88.7249
Waupun	STH 49 & Drummound St.	43.6333	88.7335
Woodland	CTY WS & Woodland Rd.	43.3705	88.5194

HAIL REPORTS

ALL HAIL REPORTS MUST BE REFERENCED IN INCHES, regardless of the fact that it was an estimate or measurement of size. Sending a report with a specific numerical size leaves no room for confusion. Consider the following example;

“ We have marble sized hail at...”

Since marbles come in different sizes this report would require a clarification. A better approach would be to have a hail size conversion chart, or a ruler or calipers with the Spotter and at the Relaying Station(s).

When measuring hailstones, do so only when it is safe to gather them. Measure the stone along its longest axis; i.e., if a stone measures 2 x 3 inches, report it as 3 inch hail. If the hail covers the ground in sufficient quantities and depth, report that as well. If you observe real time large hail damage, report it immediately, along with injuries or other significant damage.

ALL reports should be qualified as either “MEASURED” or “ESTIMATED”, in inches. Most people tend to over estimate hailstone sizes, and this condition is worse during night spotting. The following hail size conversion chart will assist you in estimating the actual size of hailstones.

HAIL SIZE CONVERSION CHART

What You See	Estimated Report Size
Pea	1/4”
Marble	1/2”
Penny/Dime	3/4”
Mothball/Nickel	7/8”
Quarter	1”
Half Dollar	1.25”
Ping Pong Ball	1.5”
Golf ball	1.75”
Hen Egg	2.0”
Tennis Ball	2.5”
Baseball	2.75”
Tea Cup	3.0”
Grapefruit	4.0”
Softball	4.5”

Anything in **red** will trigger a Warning. Remember to consider your observations carefully and objectively, **and then make your report in inches**, NOT IN REFERENCE TO ANY OBJECT.

WIND SPEED REPORTS

Without a fixed or portable wind speed indicator (anemometer) it is sometimes difficult to accurately judge wind speed. In a worst case event when the storm spotter has little or no training on wind estimates, he should describe/report the winds effects on man-made or natural objects:

“A 12 inch tree trunk has been broken, 8 inch tree limbs are across the road, numerous electric poles have been snapped, a 4 foot brick chimney has been toppled, metal garbage cans are airborne, the 10 X 16 foot highway billboard has been toppled”, etc.

All wind speed reports should be qualified, that is they are either an **ESTIMATE** of speed, or an actual **MEASUREMENT** of speed. If wind direction is requested, remember the direction is **FROM** which way the winds are blowing.

Storm Spotters must also keep in mind that during a Severe Weather Event, Stress, Excitement, and Tension levels are running high. This is called the SET effect, and it can alter your logic and reasoning abilities. Because of it's presence it is often very easy to over estimate wind speed reports...

A wind gust of 40 MPH on a fair weather day will not cause any great concern, and may in fact feel rather pleasant. However, this same wind gust, when experienced during severe weather may seem like 55-65 MPH because of the SET effect.

When in doubt about your estimate, re-think it and try to remain calm and objective. Our goal is to pass real time observation in an organized procedure, with accuracy, speed and professionalism.

SECONDARY COMMUNICATIONS

In the event of repeater failure during a weather net it has been decided that voice communications may continue on the output frequency of 146.640 Mhz with the PL tone of 123.0. Remember to turn off your offset feature to do this.

It is understood that communications may be limited due to simplex communications, therefore spotters may have to resort to other methods (phone, internet, packet, etc) and may choose to contact Dodge County Communications or NWS Sullivan directly by phone to relay their report.

To contact NWS Sullivan by phone: 262-965-2074

To contact Dodge County Communications by phone: 920-386-3726

*Be sure to request your report be forwarded to NWS Sullivan

Trained Weather Spotters with internet access are also invited to sign up for a free eSpotter account available through the NWS. For more information on this program visit: <http://espotter.weather.gov/>

*Reports meeting severe criteria must be relayed by voice methods!

Spotters are also reminded to attend an official NWS Weather Spotter class every other year minimum (although it is recommended to attend annually).

*** Remember whatever method you are using to properly format it in T-L-C-S.**

As always we welcome operators interested in volunteering as Net Control Station or Relay Operators to become involved. If you are interested in one of these positions please contact Brian Krotzman, Assistant Emergency Coordinator, at:

k9bjk@yahoo.com

Thank you for being a valuable asset to our Team!