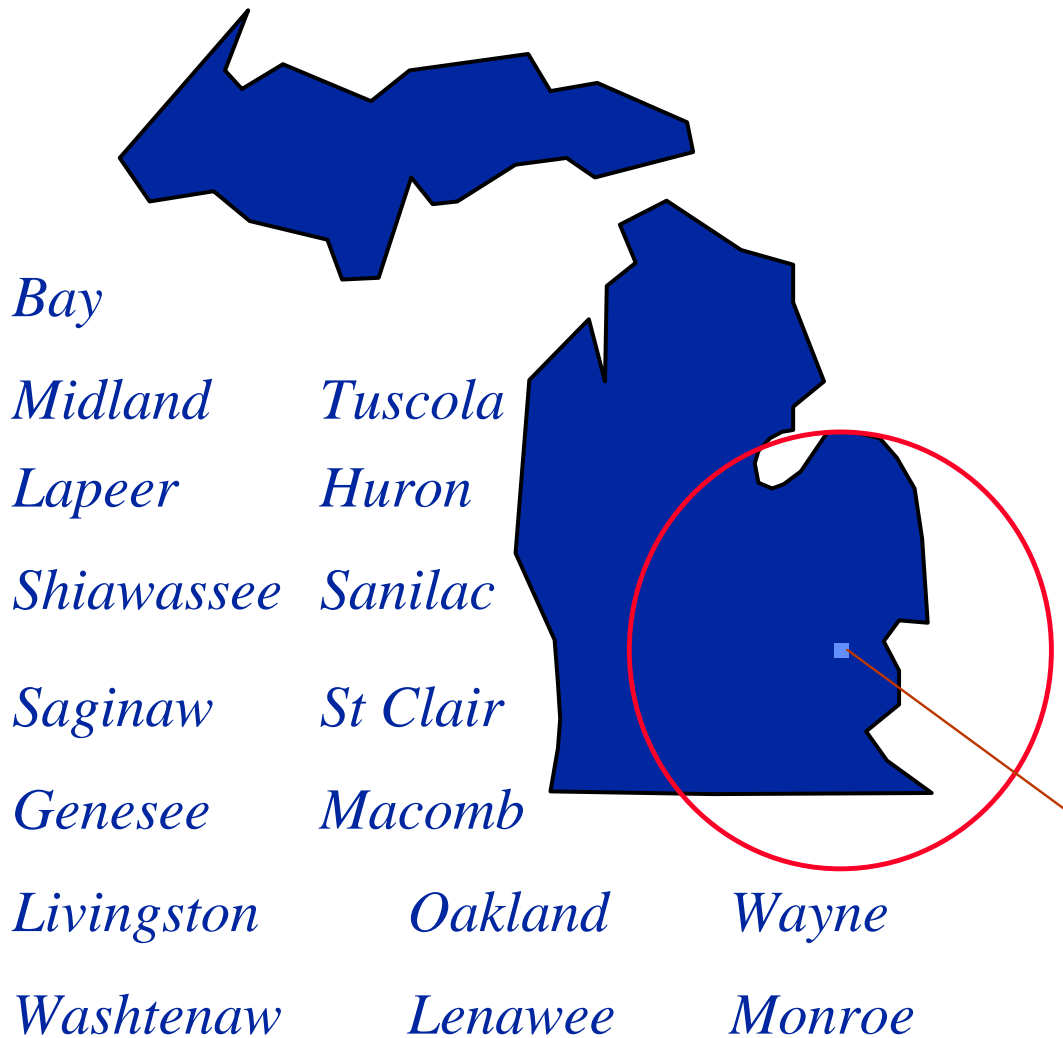




# Procedure Manual MICON - DTX

(Michigan Inter-County Operational Network)



# ARPSC

AMATEUR RADIO PUBLIC SERVICE CORPS

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Manual Updated 3/10/2006

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## **Foreword**

The following procedure is a document that provides concise and detailed information on the operation and procedures for implementing a 17 county Skywarn Communications Network. It will be revised and changed as needed.

Southeast Michigan has been active in SKYWARN and Emergency communications on the UHF/VHF bands for over 25 years. The Southeast Michigan Inter-county Operations (SEMICO), based at the Detroit Metro weather office, provided invaluable service to the southeast Michigan area for many of those years. The Genesee County Amateur Radio Emergency Service (GCARES), in cooperation with Amateur Radio groups from surrounding counties, provided the same service based at the Flint weather office.

These highly skilled organizations have provided timely, and critical weather information during all weather watches and warnings. It is hoped that the blending of these Amateur Radio Services, and it's expansion to the remainder of the 17 county warning/forecast area, will result in effectiveness and efficiency equal to or greater than that of these older organizations.

Through the tireless efforts of past and present Amateurs such as yourself we hope to continue this fine tradition of service to the public.

John W. Moore, K1DE  
NWS Assistant District Emergency Coordinator (ADEC)  
Detroit/Pontiac Region

## **Acknowledgment**

Much of the format, and some of the detailed information outlined in this document is a direct result of the information found in the SEMICO procedures manual written by Wayne Wiltse, K8BTH. I am not one to re-invent the wheel if there is already "tried and true" information available to me. I found the SEMICO manual to be an invaluable source of information as I attempted to outline the 17 county SKYWARN program. My thanks to the SEMICO organization for allowing me to "borrow" many of the ideas from that manual.

## **17 County Organizational Structure**

### **Purpose**

To achieve a working relationship with the National Weather Service (NWS) that serves the needs of each county.

To achieve a working relationship within these counties so that the Amateur community can present a united front on items that affect us all, and to be a support group between counties.

To put together a communications package that allows all counties to have two way access to the Detroit/Pontiac Weather Service Forecast Office (WSFO).

### **Committees**

#### Governing Committee

This committee shall be made up of the District Emergency Coordinators for each of the districts within the MICON-DTX CWA and the NWS DEC plus a representative of the NWS and shall meet annually. The committee shall determine the county needs as regards communications with the NWS and work to see that those needs are met.

#### Oversight Committee

The Committee shall be composed of the State Emergency Coordinator, the Amateur Radio Emergency Coordinator for each county, the District Emergency Coordinators in the reporting area and a representative of the NWS. Each Committee member shall have one vote. This Committee shall meet twice a year to review operations and make suggestions for improving operations. Each County EC shall be responsible for operations in their own county, although suggestions might be made to smooth net operations.

### **NWS District Emergency Coordinator (DEC)**

The NWS District Emergency Coordinator is appointed by the Warning and Coordination Meteorologist in consultation with the ARRL Section Emergency Coordinator (SEC). S/he is the point of contact with NWS personnel concerning day-to-day Amateur Radio related matters.

The NWS DEC reports to:

Administrative - ARRL Section Emergency Coordinator

Operational - Warning and Coordination Meteorologist

The DEC shall recruit and train a core group of highly professional Amateur Radio operators to support NWS net operations during severe weather events and if needed for inter-county operations. The NWS DEC schedules and publishes a roster of net control operators. S/he specifies or recommends any additional radio, antenna and computer equipment, and provides for maintenance of this equipment. The DEC shall submit a monthly operational report to the SEC.

# National Weather Service Communications Plan

## Purpose

The purpose of this plan is to describe the procedures that will be followed during impending or actual severe weather conditions, and to provide the tools by which Amateur Radio public service minded operators and organizations can function in a coordinated effort at maximum efficiency during times of need

## MICON-DTX Mission and Responsibilities

MICON is the acronym for the Michigan Inter County Organizational Network. DTX is the designator for the Detroit/Pontiac Weather office located at White Lake. There are three other MICON networks set up to serve the State of Michigan. They include MICON-GRR , MICON-APX, and MICON-MQT. These networks are setup to provide communications between the NWS offices and the counties under their warning responsibility. MICON-DTX has the responsibility to provide two way communications for Bay, Midland, Saginaw, Huron, Tuscola, Sanilac, Shiawassee, Genesee, Lapeer, St. Clair, Livingston, Oakland, Macomb, Washtenaw, Wayne, Monroe, and Lenewee counties. Each of these districts has a District Emergency Coordinator (DEC) appointed by the state Section Emergency Coordinator (SEC). The DEC for MICON-DTX is Ed Galipeau WA1LRL. The Official Emergency Station (OES) Is Ted Davis, N8ZSA

The primary mission of MICON-DTX is to provide communications with any or all of the 17 counties during a severe weather event. The network is activated during all severe thunderstorm and tornado watches and warnings. Each of the counties operate, and are responsible for, their own 2 meter/70 cm Skywarn nets. The MICON network operates under the “Key Station” concept. That is, the operator at the NWS only communicates with one key station from each of the counties and a key station from an adjacent NWS Office. This is achieved by utilizing a common frequency on 440 Mhz. The current primary frequency for the MICON DTX network is 442.15 Mhz PL 100 hz. This is the K1DE repeater located at the General Motors Proving Ground in Milford, MI. This repeater can not cover the total 17 county area, and links to the northern and southern counties are activated as required. Alternate frequency is 442.350 Mhz PL 100 hz, W8FSM Repeater in Fenton, MI which is linked into the C-MAN Network.

During all warnings and watches, the network has the primary responsibility to collect severe weather reports from the affective counties. This information, along with other reports and radar correlation, enable NWS personnel to make informed decisions when issuing severe weather statements. It is also MICON’s responsibility to inform counties of potential severe weather observations or trends. These reports are issued by NWS personnel, and are NOT observations and commentary by MICON net control operators.

In the case of damage resulting from a severe weather event, the NWS may request that Amateur Radio Operators in, or near, the region provide damage assessment reports. These requests should be coordinated by the County EC or AEC, and in all cases safety considerations for the observer should be of prime importance.

The secondary mission of MICON-DTX is to provide “Four Season” weather reports and observations. These reports may include rainfall amounts, snow depths, flooding, fog and icing observations. There is a very active “Four Season” weather reporting network in Michigan. This

network utilizes HF (CW & Phone), VHF and Packet radio to send WX reports directly to NWS of to a forwarding BBS that will deliver messages to the NWS Office. Contact the NWS DEC for information on this network.

MICON-DTX maintains a 24 hour on-line packet bulletin board system that logs weather observation reports and sends them to a hard copy printer. Connect to K8DTX on 145.76 Mhz. to log your report. Enter ST K8DTX or ST NWSDTX as the start of your text message and follow the prompts. This is a Full Service BBS mailbox with forwarding throughout Michigan. Messages may be entered on any other Full Service BBS's for forwarding to the Detroit NWS Office. i.e. ST K8DTX or ST NWSDTX

Another method of providing weather information to the counties is by the Automatic Packet Reporting System (APRS). MICON-DTX incorporates a 24 hour APRS station operating on 144.39 Mhz. The callsign is K8DTX. This computer mapping system monitors automated, and manual Weather reports and displays them in real time. There are currently up to 12 (depending on band openings) automated Weather stations on the network. These remote Weather stations are monitored during severe weather events to spot trends in wind speeds and directions, as well as temperatures and rainfall. This type of display is also very useful in displaying 4-season reports throughout the year. During severe weather activation the MICON NCS will (time permitting) place tornado and funnel reports on the network. These tornado symbols will be seen by APRS stations throughout the region.

And finally, MICON-DTX can be activated for ARES/RACES declared emergencies.

### **Activation Responsibility**

The National Weather Service is responsible for the notification of need for activation for severe weather by contacting the primary operator on call. The NWS DEC will provide the NWS with a list of authorized and trained operators to staff the facility. The on-call operator will, on arrival at the NWS office report to the NWS event coordinator, and then call those counties affected by any watch or warning so that they will be aware that the net is open.

<u>Condition</u>	<u>Activation</u>
Severe Thunderstorm Watch	Notification by NWS
Severe Thunderstorm Warning	Notification by NWS
Tornado Watch or Warning	Notification by NWS
Communications Emergency	Request by a District County Emergency Coordinator

**The MICON Net is a closed net! Only key stations will be accepted as check-ins.** Any other station are respectfully asked to refrain from transmitting on the net frequency. These stations are asked to check into their local county Skywarn Net. Normally the MICON net will remain operational until all severe weather watches or warnings have expired or have been canceled. On occasions NWS personnel will dismiss the operators early if they deem it appropriate. The MICON Net Controls will notify the counties if this occurs.

## General Operational Philosophy

Each County maintains it's own Skywarn operations using any methods or frequencies they so choose. Condition codes are often used as an automatic response to a County alert. The alert criteria may differ for each county. It is however very strongly encouraged that all counties use the same system for reporting to the MICON Net as NWS Personnel are very keyed into these county conditions codes. Counties should not be in a Yellow or Red condition just because of a watch or warning type but rather these condition codes should reflect the actual severity of the weather conditions *currently within the county*.

<u>Type of Alert</u>	<u>County Condition Code</u>
Severe Thunderstorm or Tornado Watch Net is activated Check-ins accepted General weather reports	<b>Green or Standby</b>
Severe Thunderstorm Watch or Warning Net is active Types of reports to be accepted a) Tornadoes (on the ground where, movement, direction, speed, and damage visible) b) Funnel clouds (direction, rotation, speed, location) c) Wall clouds (direction, rotation, speed, location) d) Hail (give diameter) e) Flooding (water over the curbs) f) Heavy or torrential rains (near zero visibility) g) Damaging winds (speed, direction, damage) h) Intense, frequent lighting	<b>Yellow</b>
Tornado Warning a) Tornadoes (on the ground where, movement, direction, speed, and damage visible) b) Funnel clouds (direction, rotation, speed, location) c) Wall clouds (direction, rotation, speed, location)	<b>Red</b>

The County NCS responses are keyed by changes in alert status or by reported condition. NOTE: The NCS may put his/her net into an appropriate status based on non-amateur field reports such as fire and other public service spotters.

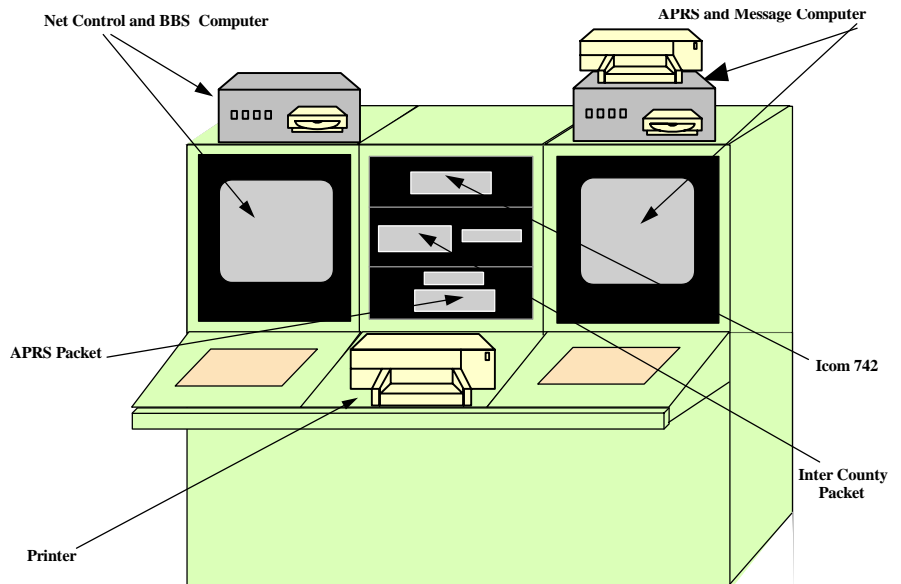
There is a need to set some priorities for the kinds of reports that Skywarn spotters make as a storm passes through the area. The types of information needed decreases as the storm increases in intensity and reaches maximum size. You don't want a report of "light rain" when a tornado is active in the county. These "Blue Sky" reports are generally reported by the newer, inexperienced amateurs who are eager to participate and should never be relayed by the key station to the Micon Net NCS. County Net Control Operators are very firm in discouraging these types of reports. The Standby or Green-Yellow-Red Condition Code system was developed to help resolve the problem of what to report. These three colors determine what the net should be doing and what type of information it should be reporting.



The MICON Net also uses condition codes. It uses a Standby-Green-Yellow-Red system of designating the net condition depending on the severity of the events. The MICON Net will not necessarily follow the condition codes of a particular county, except when a county is under condition red. Any county under condition red will place the MICON Net under Condition Red and limit non-essential reports from other counties. The MICON Net will only accept information on the net per the Type of Alerts listed Above.

## Console Operation and Layout

When you first arrive at the station you will find that all of the radio equipment is turned off with the exception of the BBS and APRS packet systems. The KPC-3 TNC controller, the IC-25H, the computer located on the left side of the console and the serial printer middle front of the console remain on 24 hours a day. So does the APRS system which consists of the Alinck DVR 2/2 radio, KPC-3 TNC and the computer located on the right side of the console.



The other equipment will need to be powered up and shutdown individually. i.e. HF Radio & NWS Printer and the Icom 742 in the console.

The computer on the left hand side of the console runs under windows NT and has the MSYS Bulletin Board running in a DOS window. Operators will need to switch to the desktop view and select the MICON NCS program. This program will enable the NCS to log check-ins, enter the county NCS and net status, and display warning and watch messages. All entries are time stamped and logged to the printer and/or a disk file, providing a history of net activity. If you are not comfortable with this electronic entry system, you may use the check-in log sheets located at the console. Please file this information after the net.

The monitor on the right side of the console boots up to the APRS program and display a Michigan map with the 17 counties highlighted. Each automated weather station will appear in blue and display the wind direction, speed, as well as temperatures. Some stations will also show the barometer reading in millibars.

Also, there is a slave serial printer located to the right of the console that can be turned on to monitor all severe weather statements that are being sent out by the NWS. Also located at this operating position is the Icom 706 HF Radio which is on 3932 Khz. Review each radio manual to become familiar with how to change frequencies. When shutting down the equipment remember to return all radios to their default frequencies.

# MICON OPERATIONAL PROCEDURES

## General Guidelines

1. All primary net control operators should be RACES certified, Advanced Skywarn trained, and had prior net control experience. Other net control operators who are in training should be RACES certified and must be Skywarn trained. These operators may operate the net during non critical weather activities.
2. No more than 3 people are to staff the station at any one time, except for occasional training purposes.
3. No persons are allowed to visit or operate the station until they have been trained and listed on the NWS authorized access list (Page 14). Visits by other amateurs and non-amateurs need to be arranged through the White Lake NWS office. Amateurs desiring to help staff this facility should contact the NWS DEC for the White Lake NWS office, or their county Emergency Coordinator (EC) who will contact the NWS DEC. Amateurs from all counties within driving distance are welcome.
4. Amateur Radio personnel staffing this station need to be "professional" in their appearance. This does not mean you must wear a suit and tie, or formal dress clothes; you will find NWS personnel are neatly and casually dressed during work. One reason is that there will be times when, a television crew may be taping the "action" for the news. A neat appearance lends itself to the serious nature of the public service we perform. ID Badges MUST be worn at all times while inside the NWS Office.

Amateur Radio operators need to be "professional" in their interaction with NWS personnel. When nothing is happening and all weather products have been created/sent, NWS people can be quite open, friendly, talkative; in the heat of a severe weather event, or when behind schedule during routine weather, NWS personnel can be very quiet, focused on their job, tense at interruptions.

5. MICON Net Control Operators need to be very disciplined and able to work smoothly under emergency conditions. NCO's must control the nets in a firm, but courteous manner. Reports, especially those regarding watches and warnings, must be accurate and double checked before being transmitted.

## Operational Guidelines

### Arrival at the NWS

1. Sign in on the amateur station log located under the guest sign-in book located in the main lobby. Wear your NWS badge or other amateur radio identification (Guest) while in the facility. Only persons listed on the NWS authorized access list with a NWS Badge will be permitted in the facility, unless prior approval has been obtained.
2. Check in with the NWS Event Coordinator.
3. Power up the radios and other equipment. The radios should be set as follows:

Packet (K8DTX)	IC-25H	145.76 Mhz	Inter-county RACES packet freq.
Packet (K8DTX)	DVR 2/2	144.39 Mhz	Regional APRS frequency
440 Mhz (CH 0)	TM-742A	442.15 Mhz	PL 100hz K1DE 440 Repeater Milford

### Net Operations

4. Activate the MICON 70 cm meter net, read the preamble (Example page 12), and take check ins from the county key stations. Use the MICON-DTX Computer Status Program or the Check In Roster Sheet (Example page 13). Give the status of the net along with any other pertinent weather statements at 15 and 45 minutes past the hour. Conduct a roll call of the counties on the hour and the half hour, depending on net status.
5. Monitor the frequency and record pertinent Time-Effect-Location (TEL) reports from the counties on the MICON-DTX Severe Weather Report Computer program or the report form (see page 15) located in the vertical in-basket to the right of the console on the wall. Hand this report to the NWS coordinator as soon as possible, depending on it's urgency.
6. Transmit to the counties any special announcements and/or observations given to you by NWS personnel. Respond to urgent queries from the counties as soon as possible, but remember, the net objective is to **receive reports** from the field and pass them on to the NWS in a timely manner. Discourage county key stations from requesting routine or non-valued added information during times of severe weather.

### Securing the operation

7. After all watches or warnings have been terminated, thank the counties for their cooperation and secure the net.
8. File the hard copy printer report of net activity. If you hand logged the activity, file these reports. The NWS coordinator should run you a copy of all of the reports you submitted if needed. Reports should be left on the console for filing. These reports will be filed in the 3 ring binder located in the vertical file next to the console by the Micon Administrative OES.
9. Return all radios to the frequencies listed in step 3 above, and power down the Radio's and the slave weather statement printer.
10. Check out with the NWS Event Coordinator.
11. Sign out on the station log sheet located under the guest sign in book in the lobby.

## Net Preamble

This is (your name), (your call) , your net control station for this activation of the MICON Skywarn net. This net is being activated at (local time) from the National Weather Service Forecast Office in White Lake Michigan. This net covers all 17 counties under White Lake's warning responsibility.

The MICON net is a controlled net utilizing the key station concept. The net control station for this network communicates with one authorized key station from each of the 17 counties.

The county key stations monitor and compile weather observations from their local nets, and communicate pertinent information to MICON using a Time, Effect, Location reporting system.

The status of the MICON net, along with any other pertinent weather statements will be communicated 15 and 45 minutes past the hour. A roll call will be taken each hour, on the hour and half hour depending on the net status.

The National Weather Service has issued the following weather statement:  
*(Read Statement if available)*

When checking into the MICON net individually or using an EOC or Club Callsign, please indicate the EOC or Club callsign in addition to stating your operators callsign *(phonetically)*, your name, and your local net status. If at any time the initial Key Station changes, the Micon NCS needs to be informed of the new station for the net log.

I will now standby for check ins. *(use the net control software or county check in sheet).*

The net recognizes the following check ins *(verify check ins)*.

Did I miss any stations? Do we have additional check ins?

Thank you, this is (your call) net control for the MICON Net.

At this time this net is operating under condition (standby, green, yellow, red).

*(your call)* standing by.

# Check In Roster

**Date:** \_\_\_\_\_

**Time:** \_\_\_\_\_

**NCS:** \_\_\_\_\_

County	Callsign	Name	Net Status <small>(circle one or more)</small>	Check In <small>(time)</small>	Check Out <small>(time)</small>
Bay			Stb Grn Yel Red Yel Grn Sec		
Genesee			Stb Grn Yel Red Yel Grn Sec		
Huron			Stb Grn Yel Red Yel Grn Sec		
Lapeer			Stb Grn Yel Red Yel Grn Sec		
Lenawee			Stb Grn Yel Red Yel Grn Sec		
Livingston			Stb Grn Yel Red Yel Grn Sec		
Macomb			Stb Grn Yel Red Yel Grn Sec		
Midland			Stb Grn Yel Red Yel Grn Sec		
Monroe			Stb Grn Yel Red Yel Grn Sec		
Oakland			Stb Grn Yel Red Yel Grn Sec		
Saginaw			Stb Grn Yel Red Yel Grn Sec		
Sanilac			Stb Grn Yel Red Yel Grn Sec		
Shiawassee			Stb Grn Yel Red Yel Grn Sec		
St. Clair			Stb Grn Yel Red Yel Grn Sec		
Tuscola			Stb Grn Yel Red Yel Grn Sec		
Washtenaw			Stb Grn Yel Red Yel Grn Sec		
Wayne			Stb Grn Yel Red Yel Grn Sec		

**Net Status, Stb=Standby, Grn=Green, Yel=Yellow, Red=Red, Sec=Secured**



## Amateur Radio Access List White Lake WSFO

<u>Name:</u>	<u>Callsign:</u>	<u>Address:</u>	Telephone (Home)	Telephone (Work) (Pager)
<b>PRIMARY NCO'S</b>	3/10/2006			
(Bolded)				
<b>ED Galipeau</b>	<b>WA1LRL</b>	<b>12480 Alcoy Dr., Fenton MI. 48430-9420</b>	<b>810-459-2563</b>	<b>313-477-2733 (Cell)</b>
<b>Ray DeVlieg</b>	<b>KB8VNI</b>	<b>Linden., MI</b>	<b>734-891-0402</b>	<b>248-576-7056</b>
<b>Ted Davis</b>	<b>N8ZSA</b>	<b>4300 Wildwood Loop, Clarkston, MI 48348</b>	<b>248-628-2747</b>	<b>248-908-0155(Pager)</b>
<b>John W. Moore</b>	<b>K1DE</b>	<b>1520 S. Tipsico Lake Rd., Milford MI. 48380</b>	<b>248-887-2130</b>	<b>248-770-4120 (Cell)</b>
Marilyn A. Moore	N8GTZ	1520 S. Tipsico Lake Rd., Milford MI. 48380	248-887-2130	
Kay Galipeau	N5XHT	12480 Alcoy Dr., Fenton MI. 48430-9420	810-459-2563 (Cell)	248-684-3792 810-459-2563(Pager)
Fred Moses	W8FSM	1002 Georgetown Pkwy, Fenton MI 48430	810-750-2066	810-433-6767 586-529-9205(Pager)
Dale Schnepf	N8IIC	7554 Woodside Place, Waterford MI. 48327	248-738-0383	248-960-2419
Tom Miller	K8PNW	7043 Eckerman Lane, Clarkston, MI 48348	248-620-8988	
Piper Vierik	KC8TEZ	1082 Village Drive, White Lake, MI 48383	248-889-5963	
<b>NWS ACCESS</b>				
Neil Sablatzky	WA2WIM	2365 Pineview Trl, Howell, MI 48843-9471	517-552-2940	313-240-5154 810-923-0659(Pager)
<b>In Training</b>				
Randy Bond	N8VDS	1121 Huron Street, Flint, MI 48507	810-232-3542	810-691-2070 (Cell)
Matt McCreese	KC8HFD	47927 Thornwood, Apt 11108, Wixom, MI 48393	248-683-4738	

**Call Primary Net Control Operators listed in Bold first**

# Severe Weather Log Sheet

## MICON - DTX

REPORTED BY (Callsign): \_\_\_\_\_

COUNTY: \_\_\_\_\_ CITY/TOWN: \_\_\_\_\_

MAJOR CROSS STREET INTERSECTION: \_\_\_\_\_

<u>REPORTS</u>	<u>CLOUDS</u>	<u>HAIL SIZE</u>	<u>WINDS</u>
NON-SEVERE:	( ) WALL ( ) FUNNEL	( ) ¼ Inch ( ) ½ Inch	( ) 40 to 50 MPH ( ) 50 to 57 MPH
SEVERE:	( ) TORNADO	( ) ¾ Inch ( ) 1 Inch ( ) 1 ¾ Inch	( ) 58 to 65 MPH ( ) 65 to 80 MPH ( ) > 80 MPH
		( ) Measured ( ) Estimated	( ) Measured ( ) Estimated

Comments:

### Additional Information:

Description of Damage or Flooding:

Time Event Occurred: \_\_\_\_:\_\_\_\_

Time Event was Reported: \_\_\_\_:\_\_\_\_

Date:

Initials:

---

(Space below line for NWS use Only)

( ) County Warning ( ) Confirmation

Latitude: \_\_\_\_\_

Longitude: \_\_\_\_\_

Updated: 3/10/2006

## County Skywarn Frequencies

County	IC-742 CH #	Primary Freq. PL	Secondary Freq. PL	Comments 3/10/2006
Bay	16	145.31 - 131.8	147.36 + None	BARC Rptr's
Genessee	2	147.26 + 100.0	147.100 + 100.0	G.C.A.R.E.S.
Huron	15	147.30 +		
Lapeer	14	146.62 - 100.0		LCARA Rptr
Lenawee	13	145.37 - 85.4	444.675 + 123.0	Adrian ARC
Livingston	3	146.68 - 100.0	144.32 Smplx	LARC Rptr
Macomb	6	147.20 + 100.0	147.18 + 100.0	County/USECA Rptr's
Midland	7	147.00 + 103.5		MARC Rptr
Monroe	8	146.72 - None	442.825 + 100.0	RRRA Rptr's
Oakland	1	145.25 + 100.0	146.84 - 100.0	Oakland/Clarkston Rptr's
Saginaw	9	147.24 + 103.5		SAVARA Rptr
Sanilac	10	146.86 -	146.75	Thumb ARC
Shiawassee	17	147.02 + 100.0		
St. Clair	11	147.30 +		PHART Rptr
Tuscola	12	146.82 - None	147.32 + 110.9	TCARA/AREA Rptr's
Washtenaw	5	145.15 - 100.0	146.92 - 100.0	/I94 ARC Rptr's
Wayne	4	145.33 - 100.0	147.16 + 100.0	RADAR Rptr
NOAA Weather	Call Channel	162.55		
Packet (K8DTX)	IC-229H CH# 1	145.76		Inter-county packet frequency
Packet (K8DTX)	DVR 2/2	144.39		National APRS frequency