mini-SET 10.1

DEC Guide

A guide to the upcoming mini-SET for DECs and ECs

Michigan Section

Abstract

The Michigan Section plans to have a number of exercises each year. This guide is intended to provide planning guidance for DECs and ECs preparing for the first of those exercises in 2010.

1. Overview

1.1. Introduction

Over the past several EC meetings, ECs have asked for more exercises. This year the section hopes to have at least three, including the annual SET. The first of these is planned for April.

1.2. Driving Forces

The 2009 SET exposed several serious shortcomings in our level of readiness. The target of this exercise will be to help develop capabilities to fill those shortcomings.

- Lack of within-District communications plan
- Lack of understanding of/interface to NTS
- Overall lack of planning

1.3. Targets for the exercise

To address these needs, we hope to accomplish one basic target; communications from and to the State Emergency Operations Center using formalized, predefined circuits.

Communications for the exercise will be accomplished using point-to-point phone circuits, both VHF and HF. CW and packet circuits will be available for those counties who wish to test direct communications to the SEOC, but the primary exercise objectives will be carried out over phone circuits.

1.4. Capabilities to be developed

Each District will need to develop some specific capabilities prior to the exercise:

- A plan for communication among the individual counties in the District. This should include not only agreed upon frequencies and modes, but also protocols and possible meeting or listening schedules.
- An understanding of the National Traffic System as it exists in Michigan, including liaison with, and familiarity with, local VHF traffic nets.
- A good understanding of net and traffic handling procedures and discipline.

2. Exercise Objectives

2.1. Introduction

The point of any exercise should be to accomplish something. This section outlines some of the key objectives for the current exercise.

2.2. Structured Communications

The October 2009 SET had intended to demonstrate a structure flow of messages between the counties and the State EOC, along existing chain of command lines. (If you will recall, an earlier exercise along an incident-specific structure elicited some significant complaints.)

The results were not encouraging. Only one of the section nets organized as expected, and few counties or Districts attempted to exploit the NTS structure. The exercise structure did leave the Districts a lot of opportunity to apply their own creativity, but apparently the intent was insufficiently clear.

For this exercise, net schedules and message paths will be detailed ahead of time. Each section net has a schedule and specified liaisons. Each District has specified liaisons. There will still need to be some thought applied to the interface between the District and the appropriate VHF net, but both responsible parties are known well ahead of time.

2.3. District Communications Plan

During the 2009 SET it also became evident that not all Districts have thoroughly thought through within-District communications paths. This issue is discussed in more detail in a later section.

2.4. NTS Familiarity

Although most communications in any incident is local, and most of that is tactical, strategic communications, whether local or otherwise, requires a higher level of discipline. NTS procedures and structures provide that discipline within amateur radio.

Each program requires at least a few people that are familiar with the existing NTS network and how it works. There is a summary later in this document. All individuals operating in ARES/RACES should have at least some familiarity with NTS procedures. There is significant NTS training happening around the Section so at least a few individuals capable of passing NTS formatted messages should already be available within each program.

3. District Communications Plan

3.1. Introduction

One obvious failure that was exposed is the lack of adequate plans for communications among the counties in a District. Certainly there has been discussion, and also discussion about communications between Districts. But before we develop between District plans, we need to have the problem solved within a District.

3.2. Call Trees

Many counties, and even a few Districts, have call trees established, although these are rarely up to date. Certainly, we should use every technology at our disposal, and the telephone is a common, and reliable mode.

However, this mode will not work if the numbers are out of date, if we only have home numbers and people are away from their phones, or, of course, if the phones are out. These systems need to be tested frequently, but backup mechanisms must also be in place.

3.3. Pagers

Many programs have pagers, either provided by their counties, or developed by the programs themselves. Pagers tend to be more reliable than cellular systems, but few, if any, Districts have paging systems for all the counties in the District.

3.4. Email Notification

Most, if not all, Districts have email lists for notifying the various ECs of an event. However, email is not real time, and most ECs do not have mobile email devices, so email is not appropriate for notfication of an incident. In addition, many types of incidents can impact local Internet connections (although widespread Internet outages are virtually unheard of).

3.5. Text Messaging

In cases where all ECs have cellular telephones, notifications based on text messaging can be effective. However, keep in mind that in the event of an actual incident, or even a high profile exercise, cellular systems will fail almost immediately, so this method is of limited use in the event of an actual incident.

3.6. Repeater Systems

Many programs have some sort of scheme for notification by repeater, and in most cases, the various counties in a District are at least aware of the frequencies of

repeaters in adjacent counties, so when the repeater infrastructure is unaffected, repeaters are of course useful tools.

However, repeaters often have their vulnerabilities. Often, they are higher profile than home stations, so are more likely to be affected by some kinds of weather events. Repeaters are often isolated, and may not be in hardened sites, so can be affected by vandalism and other human caused incidents. Repeaters often have some backup power, but frequently that backup power is limited.

3.7. Simplex Systems

Most programs do not have reliable simplex systems thought out, but certainly, they offer the potential for greater robustness than most other systems. To be effective, however, all parties need to know what is expected.

Some things to consider:

- There must be a prearranged and well communicated plan for frequencies to be used
- There must be a prearranged schedule
- Each key station should be able to operate for an extended period of time removed from commercial mains
- Each key station should have a backup plan in the event of antenna damage or equipment malfunction

The plan must be communicated

No plan can be effective unless all affected parties are well aware of the content of the plan and are capable of implementing it

4. NTS

4.1. Introduction

Messages are carried across North America, and across the Section, by the National Traffic System. NTS operators practice constantly and as a result, are highly skilled at transmitting messges.

Practice makes perfect

In contrast to ARES operators who exercise only occasionally, many NTS operators practice their skill *every day*.

Of course, it is "common knowledge" that "NTS is dying", but here in the Michigan Section, at least, NTS traffic has *increased* every year since at least 2005 (the earliest year for which the section has data).

4.2. Why should ARES use NTS

Since NTS operators have the skill, it only makes sense to use the best possible service. Obviously, NTS has little to offer for the local, tactical communications that make up perhaps 99% of the communications needed for any incident. But when traffic needs to leave the county, then it only makes good sense to rely on those who do it every day. This also keeps resources free for urgent local needs.

4.3. The structure of NTS

NTS is structured into a series of layered nets. Each level sends a representative to the higher level. Net schedules are arranged to facilitate the rapid distribution of traffic across the system. The five layers of NTS nets are:

- Local nets
- Section nets
- Region nets
- Area nets
- The Transcontinental Corps

Local nets send a representative to the Section nets. A Michigan representative to the Eighth Region net (8RN) is designated for each meeting of 8RN to carry traffic from the Section nets to the Eighth Region. 8RN in turn sends a representative to the Eastern Area net (EAN). Transcontinental Corps (TCC) members then carry traffic between the areas, where it is then distributed downwards through the same structure until it can be delivered.

4.4. Michigan NTS Nets

Michigan has four affiliated VHF nets and seven HF nets. These nets, their net managers, frequencies and schedules are available at *http://www.mi-nts.org/netinfo.php*.

The VHF nets tend to be oriented toward training, although they handle substantial amounts of traffic. Some of the HF nets, notably QMN and MITN, are somewhat "hard core", focusing solely on traffic and generally having very short sessions. The others are more general nets where traffic is passed but that is not the sole purpose of the net.

Although there are significant month to month variations, Michigan nets report handling between 600 and 1000 messages each month, with approximately two-thirds of that handled by QMN, MITN and MVTN.

5. Traffic Flow

5.1. Introduction

In order to engage all the affiliated nets, and to also encourage the DECs to develop relationships with their local VHF net, traffic will be routed through all the nets.

At the beginning of the exercise, the SEOC will transmit queries to each District through HF nets. These messages will flow through NTS to each District. The nature of the query will require that the District query each of it's counties. The result will then be pushed back through NTS ultimately arrivng at the SEOC via an HF net.

5.2. Traffic Flow

Four HF nets will meet in sequence receiving traffic from the SEOC. Each of these nets will include representatives from a VHF net. These reps will then take the traffic to the VHF net for delivery to the District. After composing a response, the District will deliver it's answer to that same VHF net, who in turn will send a representative to one of two HF nets meeting with the SEOC later in the morning.

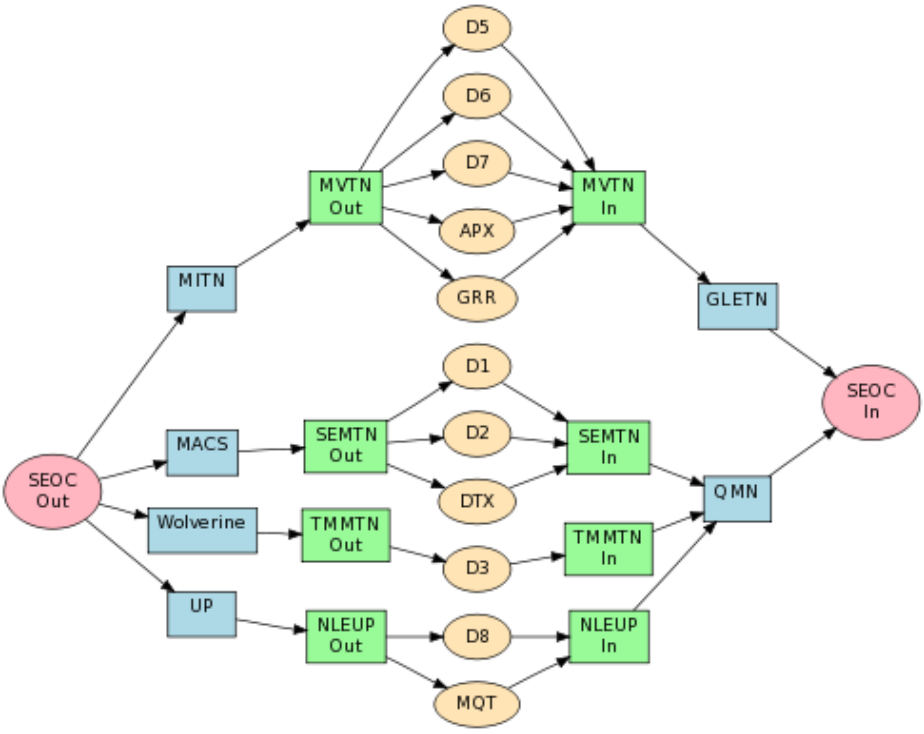

Figure 1. Traffic Flow Diagram

5.3. Net Schedule

Each HF net has a specific time slot with the SEOC. It is presumed that the VHF net will meet following the HF meeting at the beginning of the exercise, and before the HF net at the end of the exercise.

	MITN	MACS	Wolverine	UP	GLETN	QMN	MVTN	SEMTN	TMMTN	NLEUP
08:00	SEOC									
08:30		SEOC					D5, D6, D7			
09:00			SEOC					D1, D2		
09:30				SEOC					D3	
10:00										D8
10:30										
11:00							D5, D6, D7			
11:30					SEOC			D1, D2	D3	D8
12:00						SEOC				

Figure 2. Net Schedule

6. NTS Net Interfaces

6.1. Introduction

At each level, representatives will need to interface with other nets or Districts. Interfaces between HF and VHF nets are common, and in many cases, well established. However, DECs will need to identify the appropriate nets and make plans to receive traffic from the net and return a response later.

Planning is required

DECs should arrange well in advance for interfaces with the appropriate VHF net. DECs will also need to know how they will get a response from each county.

6.2. District Interfaces

Each District will interface with one VHF net. There will be an inbound and an outbound "session". However, this will not be a traditional net session. Since this is a simplex exercise, and the VHF nets typically meet on a repeater or linked system, the Net Manager and DEC will need to establish a simplex path or relay from the net to the District.

District	Contact Net	Inbound Time	Outbound Time
1	SEMTN	0900	1130
2	SEMTN	0900	1130
3	TMMTN	0930	1130
5	MVTN	0830	1100
6	MVTN	0830	1100
7	MVTN	0830	1100
8	NLEUP	1000	1130
APX	MVTN	0830	1100
DTX	SEMTN	0900	1130
GRR	MVTN	0830	1100
MQT	NLEUP	1000	1130

Table 1. District Interfaces

Net Managers Note

Since we will not be using repeaters, you will need to establish a relay between your net and the appropriate District(s).

Each DEC will need to work with the appropriate net manager well ahead of time to determine stations and schedules that will allow the traffic picked up by the net to be delivered to the District, and allow responses from the District to be routed back through the net.

6.3. Scheduled Nets

Since the SEOC must meet with seven HF nets over the course of the morning, the HF nets require a prearranged schedule. VHF net meetings may vary, but they will need to be close to the times below, given their interfaces with the HF nets.

Time	Net
0800	MITN picks up traffic from SEOC sends reps to MVTN
0830	MACS picks up traffic from SEOC sends reps to SEMTN
0830	MVTN delivers traffic to D5, 6, 7
0900	Wolverine picks up traffic from SEOC sends reps to TMMTN
0900	SEMTN delivers traffic to D1, 2
0930	UP Net picks up traffic from SEOC sends reps to NLEUP
0930	TMMTN delivers traffic to D3
1000	NLEUP delivers traffic to D8
1100	MVTN picks up traffic from D5, 6, 7, sends reps to GLETN
1130	GLETN meets delivers traffic to SEOC
1130	SEMTN picks up traffic from D1, 2 sends reps to QMN
1130	TMMTN picks up traffic from D3 sends reps to QMN
1130	NLEUP picks up traffic from D8 sends reps to QMN
1200	QMN meets delivers traffic to SEOC

Table 2. District Interfaces

6.4. VHF Net Interfaces

VHF Net Managers willl need to arrange liaisons with two HF nets, one for traffic flowing into the net and one for traffic leaving the net.

VHF Net	Inbound Net	Outbound Net
MVTN	MITN	GLETN

VHF Net	Inbound Net	Outbound Net
NLEUP	UP	QMN
SEMTN	MACS	QMN
TMMTN	Wolverine	QMN

Table 3. VHF Net Interfaces

6.5. Contact List

The following contacts must be made during March to arrange liaisons, VHF relays, etc:

Davis, Ted N8ZSA	• WB8WKQ
Duggan, Red WA8RLI	• AC8AR
Fleming, John K8UP	• WB8WKQ
Flickinger, Carl KB8FQJ	• AC8AR
Gage, Michael N8VLN	• AC8AR
Gagnon, Aileen WA8DHB	• KG8NK
Gebolis, Lou KG8NK	• WA8DHB • K8AE • KI8AF
Hanson, Greg KI8AF	• KG8NK
Miller, Jeff WB8WKQ	• AC8AR • WB9JSR • K8AE • N8ZSA • K8YZA • K8UP
Pullen, Joseph K8YZA	• WB8WKQ
Stinson, Chris KC8YTK	• AC8AR
Travis, Anne K8AE	• KG8NK • K8MFK • WB8WKQ
Tuscher, Joe N8OSL	• K8MFK
van der Mel, Tom KB8VEE	• AC8AR
Warczynski, Ron K9RON	• K8MFK
Warsalla, Frank K8MFK	• K9RON • N8OSL • K8AE
Wehmer, John WB9JSR	• WB8WKQ
Wiswasser, Jack WA8IAL	• AC8AR
Young, Jean AC8AR	• WB8WKQ

	• KB8FQJ • KB8VEE • WA8RLI • N8VLN • KC8YTK • WA8IAL

Table 4. Contact Pairs

7. Other SEOC Communications

7.1. Introduction

During any statewide exercise, each program often wants to test circuits from their local EOC to the State EOC. Limited opportunities will be available during this exercise.

7.2. HF Phone

Because we wish to engage all the HF nets, the HF phone capability of the SEOC will be exhausted during this exercise. Direct contact over HF phone from the individual counties is unwelcome for this exercise.

7.3. HF CW

To accomodate direct communications with individual counties, the SEOC will monitor 3.563 MHz CW from 9:00 AM to 11:00 AM during the exercise.

7.4. HF Digital

The SEOC will not be using HF digital modes during the exercise.

7.5. VHF/UHF Phone

This is a simplex exercise. As such, VHF phone connections will not be appropriate from most programs. To accomodate nearby programs or VHF/UHF relays, the SEOC will monitor 147.54 MHz and 446.00 MHz from 10:00 AM to 11:00 AM.

7.6. VHF Packet

The SEOC will be available to receive formal traffic on *seoc@seoc.ampr.org* . Replies may or may not be timely. The station will also monitor CONV channel 911.

A. Revision History

Revision 3	Tue Feb 23 2010	John McDonough *wb8rcr@arrl.net*
	Use tables instead of segmentedlist to make pdf work better	
Revision 2	Mon Feb 22 2010	John McDonough *wb8rcr@arrl.net*
	Add Objectives Add Other Rearrange sections	
Revision 1	Wed Feb 10 2010	John McDonough *wb8rcr@arrl.net*
	Additional content Test admonitions	
Revision 0	Tue Feb 9 2010	John McDonough *wb8rcr@arrl.net*
	Initial creation of book by publican	

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