Introduction to the National Traffic System (NTS) (A)

PART ONE ARECC

Objectives:

The training sessions I will be presenting over the next several weeks are designed to offer a basic understanding of NTS and its function during an emergency. When completed, you should understand how messages are passed from one location to another, and which nets are involved. You should also know how the NTS system is designed to facilitate the timely and orderly flow of messages.

Information:

What is the NTS?

The National Traffic System (NTS) is a unique system for handling messages that was designed over 50 years ago. Its goal is to enable a message to be passed across the continent within 24 hours. The NTS does this with a group of specialized nets operating in a "cycle" that allows messages to move smoothly from a local net, to a regional net, to various transcontinental nets, and then back down to regional and local nets at the destination. Ultimately, someone in a local net near the addressee should be able to deliver the message by phone, in person, by mail, or email.

One of the most important features of the NTS is the "system concept." No NTS net is an independent entity that functions without interacting with other NTS nets. Each net performs a specific function in the overall organization. To the extent a net fails to perform any of its functions, it can affect the performance of the overall system. (A net whose exclusive purpose is to pass messages between its own stations would not be considered part of NTS.)

In the days before inexpensive long distance telephone, and well before the Internet and e-mail, the NTS was used heavily for routine daily communication between hams, family, and friends. This daily traffic kept NTS members in practice for handling large volumes of traffic during emergencies and disasters, the ultimate reason for the NTS's existence. Today, routine daily traffic on the NTS is light, and large-scale emergency operations are generally during major disasters with widespread infrastructure damage. However, this does not lessen the importance of the NTS in assisting our served agencies.

The NTS is not a part of ARES, but is a separate and distinct ARRL program. The NTS and ARES work together. Think of the NTS as a "long distance carrier", and of ARES as the "local exchange carrier". This analogy is not perfect, but it is close.

The NTS is not intended as competition for the many independently organized traffic networks. When necessitated by overload or lack of outlet for traffic, the facilities of such networks can function as alternate traffic routings where this is indicated in the best interest of efficient message relay and/or delivery.

Nets may sometimes find it necessary and expedient to adopt temporary measures to ensure the movement of traffic. This is considered improper operation only when no attempt is made to return to the normal schedule. Nevertheless, improper operation of any NTS net is the concern of all NTS nets, and every effort should be made to assist in returning any non-functioning or improperly functioning net to its normal operation.

How The NTS Works

The National Traffic System consists of four different levels of nets. These operate in an orderly time sequence to move messages in a definite pattern from origin to destination. A message flows through the NTS in a manner similar to a businessman who travels between two small rural towns at opposite ends of the country. He has to change carriers many times in the process, starting with a drive to the local airport, then a feeder airline to a major airport, to a transcontinental airline, to another feeder airline, and finally by ground again to his destination. In a very similar manner, the transcontinental message starts with the originating station in a local net, is carried up to the "Section" net, then up to the "Region" net, then up to the "Area" net, across to another "Area" net, and then back down the line to the point of delivery.

NTS nets may use FM, SSB, or CW, and messages may also be passed through NTS-affiliated local and Section traffic nodes that employ digital modes such as WINLINK and packet, with store-and-forward capabilities and bulletin-board operations. Long hauls can be made by the NTS digital stations on HF that interface with Section traffic nodes and the traditional nets of the system.

Local Nets
"Local" NTS nets are those that cover small areas such as a town, city, county or metropolitan area, but not a complete ARRL Section. These nets generally become active only for training and during emergencies.

END PART ONE

PART TWO, ARECC

Section Nets
The purpose of the “Section” net is to handle messages within the Section, and to handle messages moving to and from “Region” nets.

Region Nets
”Region” nets cover a wider area, such as a call area. At this level, the object is representation of each ARRL Section within the Region. Participants normally include:

1. A net control station, designated by the Region net manager.
2. Representatives from each of the various Sections in the Region.
3. One or more stations designated by the Region net manager to handle traffic going to points outside the Region.
4. One or more stations bringing traffic down from higher NTS nets.
5. Any other station with traffic.

The purpose of the Region net is to exchange traffic between the Sections in the Region, put out-of-Region traffic in the hands of liaison stations, and distribute traffic coming into the Region among the Section net representatives. Region nets are administered by managers appointed by the Field and Educational Services Manager at ARRL Headquarters.

Area Nets
At the top level of NTS nets is the “Area” net. Participation at the area level includes:

1. A net control station, designated by the Area net manager.
2. One or more representatives from each Region net in the Area, designated by the Region net managers.
3. Transcontinental Corps (TCC) stations designated to handle traffic going to other Area nets.
4. TCC stations designated to bring traffic from other Area nets.

5. Any station with traffic.

There are three Areas, designated “Eastern”, “Central” and “Pacific”, the names roughly indicating their coverage of the US and Canada.

Transcontinental Corps
The handling of higher priority messages between “Area Nets” is accomplished through the facilities of the TCC. TCC members handle “routine” messages only in times of extreme overload.

“Hot-Line” Circuits
In certain situations, a large volume of traffic may be moving between two locations, such as from a large refugee center to a Red Cross office. Rather than attempting to move these messages through the normal system, a “hot-line” circuit is established between two or more stations at or near these locations. This avoids overloading normal nets, and speeds delivery of critical messages.

Increased Operations during Disasters
In day-to-day operation, the National Traffic System passes routine messages around the country. In its emergency role, the NTS is dedicated to disaster communication on behalf of ARES. The NTS is capable of expanding its cyclic operation partially or fully depending on the level of need. The normal cycles can be expanded to handle an increasing volume of messages with greater speed. In extreme cases, the cycles can operate continuously. This requires all nets to be on the air full time, with stations designated for liaison operation replacing each other as stations are dispatched to the higher or lower nets with which they make liaison.

Activation for Disasters
Emergency Coordinators in disaster areas consult with served agencies to determine which communication resources will need to be activated.

The Section Emergency Coordinator consults with affected DECs and ECs, and makes an activation recommendation to the Section Traffic Manager, and Section or Regional NTS managers as appropriate. The decision to alert the NTS Region management may be made by any combination of these officials, depending upon the urgency of the situation.

The scope of the activation will depend on the scope of the disaster. If messages need to be passed only within the Section, then only those nets will be activated. However, if the disaster is widespread and communications are disrupted over a large area, Region or Area nets may be needed.

General Policy for all NTS Operators
NTS operators should be "self-alerting" to disaster conditions that might require their services, and should check into their regular net or perform assigned functions without being specifically called upon. Assignments should be worked out with the net manager in advance. If the operator cannot answer the question, "If I hear of a disaster, what should I do?" they should seek an answer through their Net Manager. It may be as simple as "report into the X Net on X frequency."

Most NTS operators participate for one or two periods a week, and some are active daily. Although every net member should have a specific assignment, they must also remain flexible enough to change assignments when the need arises.

END PART TWO

Learning Unit 8

Basic Message Handling Part I

PART THREE ARECC

This lesson is intended to provide basic knowledge for both formal and informal message handling, but is not intended to make you an "expert". Further study and practice on your own will be necessary.

Information:

Consider the following scenario: There are 330 hurricane evacuees in a Red Cross shelter. ARES is providing communications, working in 12-hour shifts. An elderly diabetic woman is brought in at 1400 hours. She will

require her next dose of insulin by 2300 hours. The manager goes to the radio room. There is an operator wearing a red baseball hat with funny numbers and letters on it. He asks the operator to inform the county EOC of the medication need. The operator calls the Red Cross EOC and says, "Hey, we have a diabetic lady here who will need insulin by 2300 hours," but doesn't write the message down or log the request.

At 2030 hours the medication has still not been delivered. The shelter manager goes to the radio room to inquire about its status. There is now a different person with a blue baseball cap with a new set of funny letters and numbers. He knows nothing of the earlier request, but promises to "check on it." In the meantime, EOC personnel have discarded the message because it was written on a scrap of paper and had no signature authorizing the order for medication. No one sent a return message requesting authorization.

If each operator had generated and properly logged a formal message, with an authorized signature, it would be a relatively simple matter to track. The informal message has no tracks to follow. Also, by sending a formal message, you are nearly guaranteeing that the receiving station will write it down properly (with a signature) and log it, greatly enhancing it chances of being delivered intact.

Formal vs. Informal Messages

Both formal (written in a specific format, i.e. ARRL) and informal (verbal or written but not in a specific format) messages have their place in emergency communication. In general, informal messages are best used for non-critical and simple messages, or messages that require immediate action, those are delivered directly from the author to the recipient. Formal messages are more appropriate when two or more people will handle them before reaching the recipient, or where the contents are critical or contain important details. The most common formal message format is that used by ARRL's NTS, which we will go over a little later.

Informal Verbal Messages: Some emergency messages are best sent informally in the interest of saving precious seconds. If you need an ambulance for a severely bleeding victim, you do not have time to compose and send a formal message. The resulting delay could cause the patient's death.

Other messages do not require a formal written message because they have little value beyond the moment. Letting the net control station know where you are or when you will arrive need not be formal. The message is going directly to its recipient, is simple and clear, and has little detail. Many of the messages handled on a tactical net fit this description.

Formal Written Message Formats: A standard written message format is used so that everyone knows what to expect. This increases the speed and accuracy with which you can handle messages.

The ARRL message form, or "Radiogram," is a standard format used for passing messages on various nets, and is required for all messages sent through the National Traffic System. While this format may not be perfect for all applications, it serves as a baseline that can be readily adapted for use within a specific served agency. Regular practice with creating and sending messages in any standard format is recommended.

Components of a Standard ARRL Radiogram:

The standard Radiogram format is familiar to most hams from the pads of yellow-green forms available from ARRL Headquarters. The form has places for the following information:

1. The "Preamble," sometimes referred to as "the header," consists of administrative data such as the message number, originating station, message precedence (importance) and date and time of origination. The combination of the message number and the originating station serves as a unique message identifier, which can be traced if necessary. We will discuss the Preamble in greater detail below.

2. The "Address" includes the name, street address or post office box, city, state, and zip code of the recipient. The address should also include the telephone number with area code since many long distance Radiograms are ultimately delivered with a local phone call.

3. The "Text" of the message should be brief and to the point, limited to 25 words or less when possible. The text should be written in lines of five words (ten if using a keyboard) to make it easier and faster to count them for the "check." Care should be taken to avoid word contractions, as the apostrophe is not used in CW. If a word is sent without the apostrophe, its meaning could be lost or changed. The contraction for "I will" (I'll) has a

very different meaning when sent without the apostrophe! Contractions are also more difficult to understand when sent by phone, especially in poor conditions. Commas and other punctuation are also not used in formal messages. Where needed, the "period" can be sent as an "X" in CW and digital modes, and spoken as "X-RAY." The "X" may be used to separate phrases or sentences but never at the end of the text. Question marks can be used as needed, and are usually spoken as "question mark," and sometimes as "query". Both the X and question mark should be used only when the meaning of the message would not be clear without them.

END PART THREE

PART FOUR ARECC

- **The "Signature"** can be a single name, a name and call sign, a full name and a title, "Mom and Dad," and occasionally a return address and phone number – whatever is needed to ensure that the recipient can identify the sender and that a reply message can be sent if necessary.

Pro-Words and Pro-Signs:

When sending formal traffic, standard "pro-words" or pro-signs" (CW) are used to begin or end parts of the message, and to ask for portions of the message to be repeated. In addition to adding clarity, the use of standard pro-words and pro-signs saves considerable time.

Some pro-words and pro-signs tell the receiving station what to expect next in the address, text, and signature portions of the message – they are *not* used while reading the header, since the header follows a pre-determined format. Examples of commonly used pro-words are, "figures" sent before a group consisting of all numerals, "initial" to indicate that a single letter will follow, or "break" to signal the transition between the address and the text, and the text and the signature.

MESSAGE HANDLING PRO-WORDS, PROSIGNS AND ABBREVIATIONS

Pro-Word	Pro-Sign (CW)	Meaning or Example
BREAK	BT *	Separates address from text and text from signature.
CORRECTION	HH *	“I am going to correct an error.”
END	AR *	End of message.
MORE	B	Additional messages to follow.
NO MORE	N	No additional messages. In CW can also mean “negative” or “no”
FIGURES	Not needed	Used before a word group consisting of all numerals.
INITIAL	Not needed	Used to indicate a single letter will follow.
I SAY AGAIN	IMI *	Used to indicate a repeat of a word or phrase will follow.
I SPELL	Not needed	“I am going to spell a word phonetically.”
LETTER GROUP	Not needed	Several letters together in a group will follow. Example: ARES, SCTN.
MIXED GROUP	Not needed	Letters and numbers combined in a group will follow. Example: 12BA6
X-RAY	X	Used to indicate end of sentence, as with a “period.”
BREAK	BK *	Break; break-in; interrupt current transmission on CW
CORRECT	C	Correct, yes
CONFIRM	CFM	Confirm (please check me on this)
THIS IS	DE	Used preceding identification of your station
HX	HX	Handling instructions, single letter to follow – optional part of preamble
GO AHEAD	K	Invitation for specific station to transmit
ROGER	R	Message understood. In CW, may be used for decimal point in context
When receiving formal traffic, the following pro-words, always preceded by “Say Again”, are used to ask for clarification or repeats of missing words.		

WORD AFTER	WA	"Say again word after…"
WORD BEFORE	WB	"Say again word before…"
BETWEEN	-	"Say again between…and …."
ALL AFTER	AA *	"Say again all after…"
ALL BEFORE	AB	"Say again all before…"
**** Two letters are** sent as one character.* Additional CW abbreviations are covered in a later Learning Unit.		

Sending a Message with Voice:

When the receiving station is ready to copy, read the message at a pace that will allow the receiving station to write it down. Once you are done, if the receiving station has missed any portion of the message, they will say, "say again all after____," "say all before," or "say again all between____ and ____." In some nets, the practice is to say "break" and then unkey between sections of the message so that a station can ask for missing words to be repeated before going on (these repeated words are also known as "fills"). In many nets the entire message is read first before any fills are requested to save time. All numbers in groups are spoken individually, as in "three two one five", not "thirty-two fifteen", or "three thousand two hundred and five".

Here is the entire message as it would be spoken:

"Number two zero seven Priority HX Echo Whiskey One Foxtrot November
One Zero Lebanon NH one two zero zero EST January four.
Mark Doe
Red Cross Disaster Office
Figures one two three Main Street
Rutland VT figures zero five seven zero one
Figures eight zero two five five five one two one two
Break
Need more cots and sanitation kits at all five shelters
Break
Joan Smith Shelter Manager
End No more"

Time Savers

What NOT to say:

When passing formal traffic, do not add unnecessary words. Since the parts of the header are always sent in the same order, there is no need to identify each of them. The only exception is the word “number” at the beginning of the header. Here is an example of how *not* to read the header of a message on the air:

“Number two zero seven Priority handling instructions, HX Echo station of origin W1FN
check one zero place of origin, Lebanon NH time one two zero zero EST date, January 4
Going to Mark Doe Red Cross Disaster Office
Address figures one two three Main Street Rutland VT
ZIP figures zero five seven zero one
Telephone Figures eight zero two five five five one two one two”

This example added many unneeded words to the message, including “station of origin,” “check”, “time”, “going to”, “address”, “ZIP”, and “telephone” and other block titles. If there is something about the message that deviates from the standard format, or if an inexperienced operator is copying the message without a pre-printed form, then some additional description may be necessary, but in most cases it just wastes time. (The pro-word “figures” is used correctly, and “number” is always spoken before the message number.)

END PART FOUR

Learning Unit 9

Basic Message Handling Part II

PART FIVE ARECC

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Message Handling Rules

Do not speculate on anything relating to an emergency! There may be hundreds of people listening to what you say (other Amateurs, the media and the general public using scanners) and any incorrect information could cause serious problems for the served agency or others. You do not want to be the source of any rumor.

If your served agency requests an estimate, you can provide that information as long as you make it very clear that it is only an estimate when you send it. For example, saying "The estimated number of homes damaged is twelve" would be acceptable.

Pass messages exactly as written or spoken:

In addition to speed, your job as a communicator is to deliver each message as accurately as possible. Therefore, you must not change any message as you handle it. If it is longer than you would like, you must send it anyway. Apparently misspelled words or confusing text must be sent exactly as received. Only the original author may make changes. If you note an inaccurate word count in a NTS format message, you must maintain the original count and follow it with the actual count received at your station, i.e.: "12/11."

Should you return a message to the author before first sending it if it seems incorrect or confusing? This is a judgment call. If the apparent error will affect the meaning of the message and the author is easily contacted, it is probably a good idea. Whenever possible, it is a good practice to read each message carefully in the presence of the author before accepting it. This way, potential errors or misunderstandings can be corrected before the message is sent.

Non-Standard Format Messages:

Much of the tactical information being passed during a major emergency will not be in ARRL format. It may have much of the same information, but will be in a non-standard format or no format at all. These messages should also be passed exactly as received. If necessary, use the ARRL format and place the entire non-standard message in the text section.

The Importance Of The Signature

During an emergency, the messages you handle can easily contain requests for expensive supplies that have a very limited "shelf life" (such as blood for a field hospital), or for agencies that will only respond to properly authorized requests (i.e.: for medevac helicopters). For this reason, it is critical that you include the signature and title of the sender in every message.

ARRL Numbered Radiograms

ARRL Numbered Radiograms are a standardized list of often-used phrases. Each phrase on the list is assigned a number. There are two groups: Group One is for emergency relief and consists of 26 phrases numbered consecutively from "ONE" to "TWENTY SIX," and preceded by the letters "ARL." For example, "ARL SIX" means "will contact you as soon as possible."

Group Two contains 21 routine messages, including number "FORTY SIX" and from "FIFTY" through "SIXTY NINE." Earlier printed versions of this list do not contain the latest additions. For the complete list, see http://www.arrl.org/FandES/field/forms/fsd3.pdf. In the text of the message, the numbered radiogram is inserted by using the letters "ARL" as one word, followed by the number written out in text, not numerals. For example: "ARL FIFTY SIX."

When using numbered radiograms, the letters "ARL" are placed in the "check" block of the preamble, just prior to the number indicating the word count, as in "ARL7." "ARL FIFTY SIX" is counted as three words for the "check" block. Two common receiving errors are to write "ARL-56" and count it as one word, or "ARL 56" and count it as two words.

It is important to spell out the numbers letter by letter when sending using voice. This allows the receiving station to correctly copy what is being sent, and not inadvertently write the figures out as "FIVE SIX" instead of "FIFTY SIX."

Some numbered messages require a “fill in the blank” word in order to make sense. Here are two examples:

ARL SIXTY TWO: Greetings and best wishes to you for a pleasant _____ holiday season.
ARL SIXTY FOUR: Arrived safely at _____.

Here’s an example of a message to convey a Christmas greeting, indicate safe arrival and send regards from family members.

57 R W1AW ARL 16 PUEBLO CO DECEMBER 10
RICHARD RYAN
3820 S SUNNYRIDGE LANE
NEW BERLIN WISCONSIN 53151
414 555 1234
BREAK
ARL FIFTY ARL SIXTY TWO CHRISTMAS ARL SIXTY FOUR HOME
MOM AND DAD SEND THEIR LOVE
BREAK
BOB AND ALICE

Note that no “XRAY” is used between parts of this message. The numbered radiogram assumes a period at the end of the phrase.

Important: Be sure to decode a message containing an ARL text into plain language before delivering it. Chances are good that the recipient will not know the meaning of the ARL code number. In one real situation, a recipient thought that an un-decoded ARL radiogram delivered by telephone was actually a spy message, and contacted the FBI.

Copying Hints

When copying the text of a message by hand, receiving stations should write five words on each line, (or ten words per line if using a keyboard). The standard ARRL Radiogram form is set up for hand copying with spaces for each word, but even if you are writing on whatever happens to be handy, grouping the words five to a line allows for a very quick count after the message is received. Once complete, the receiving operator compares the word count with the check. If okay, the message is “rogered” – if not, the

message is repeated at a faster reading speed to locate the missing or extra words.

Modified Message Form for Disasters

While ARRL format messages can handle many different types of information flow, there can be requirements for formats that are unique to an individual agency or type of emergency. Your emergency communications group should work with each served agency before the emergency to see which format will best fulfill their needs. A good example is the popular Incident Command System (ICS) form ICS-213 used by most government agencies.

Service Messages

A “service message” is one that lets the originating station know the status of a message they have sent. A service message may be requested by a handling instruction (HX), or may be sent by any operator who has a problem delivering an important message. During emergencies, service messages should only be sent for Priority and Emergency messages.

Logging and Record Keeping

An accurate record of formal messages handled and various aspects of your station’s operation can be very useful, and is required by law in some cases. Lost or misdirected messages can be tracked down later on, and a critique of the operation afterward can be more accurate. All logs should include enough detail to be meaningful later on, especially the date and an accurate time. With some agencies, your log becomes a legal document and may be needed at some later time should an investigation occur. In this case, logs should be completed and turned in to the appropriate person for safekeeping and review.

END PART FIVE

PART SIX ARECC

What to Log:

Log all incoming and outgoing messages. Record the name of the sender, addressee, the station that passed the message to you, the station to whom the message was sent, the message number, and the times in and out. Keep the written copy of each message in numerical order for future reference.

Also, log which operators are on duty for any given period, and record any significant events at your station. These might include changes in conditions, power failures, meals, new arrivals and departures, equipment failures, and so on.

In addition to the log, copies of all messages should be kept and catalogued for easy retrieval if needed later for clarification or message tracking. Many operators make notes about when the message was received and sent, and to and from whom, directly on the message form itself. This helps speed up tracking later on. Never rely on your memory.

Should informal messages be logged? This is usually up to the stations involved, and depends on the circumstances. Even informal messages can contain important details that may be need to be recalled later. Emergency or Priority messages of any kind, even unwritten messages, should always be

logged. Some net control operators like to log every message or exchange, no matter how inconsequential. Others like to log only those with potentially important details.

Log Formats:

At a station with little traffic, all information can be included in one chronological log. However, if a large number of messages are being handled and you have a second person to handle logging, separate logs can make it faster and easier to locate information if it is needed later. You might keep one log for incoming messages, one for outgoing messages, and a third for station activities. The NCS will also need to keep a log of which operators are assigned to each station, and the times they go on and off duty.

Who should log:

At the net level, logging can be handled in several ways. If activity is low, the net control operator can handle logging. In busy nets, a second person can keep the log as the net's "secretary" and act as a "second set of ears" for the NCS. The logger can be at the NCS, or they might be listening from a different location.

If an "alternate NCS" station has been appointed, they should keep a duplicate log. If they need to "take over" the net at any point, all the information will be at hand, preserving the continuity of the net.

In addition to logs kept at the net level, each individual operator should keep their own log. This will allow faster message tracking and provides duplicate information should one station's logs become lost or damaged.

In a fast moving tactical net, keeping a log while on the move may be impossible for individual stations. In this case, the net control station may decide to keep one log detailing the various informal messages passed on the network.

Logging is a good position for a trainee with limited experience, or an unlicensed volunteer. Two experienced and licensed operators can also alternate between on-air and logging duties to help combat fatigue.

Writing Techniques for Message Copying and Logging

Your logs should be clear and legible to be of any use. If only you can read your handwriting, the log will be of little value to the operator who takes the next shift or to the served agency as a legal document. Print in neat block letters on lined paper or a pre-printed log form. A firm writing surface with support for your forearm will reduce fatigue and improve legibility.

Keep both pens and pencils on hand since each works better under different conditions. Logs that will become legal documents should always be written in permanent ink. Some operators prefer special "diver's" pens that will write on wet surfaces at any angle.

Logs should be kept in notebooks to prevent pages from becoming lost. In the case of pre-printed log sheets, use a three-ring binder works well. If more than one log is kept, each should be in its own notebook to prevent confusion and accidental entries. Logs that will become legal documents should be kept in hard-bound books with pre-numbered pages so that missing pages will be obvious.

In fast-moving situations, it can be difficult or impossible to keep a log of any kind. If a message, exchange, or event should be logged, try to do it as soon as possible afterwards, or ask the NCS to add it as a notation in his log. If there are enough operators to do so, one may be assigned the sole task of logging the nets operations, thus freeing up other net participants to handle messages more quickly.

Message Authoring -- Them or Us?

One of the oldest arguments in emergency communications is the question of whether or not emcomm personnel should author (create) agency-related official messages. If your job is strictly communication, and the message is not about the communication function you are providing, the best answer is "no." "Pure" communicators are not generally in a position to create messages on behalf of the served agency. They have no direct authority and usually lack necessary knowledge.

However, you should always work with a message's author to create text that is short, to the point, and uses the minimum number of words necessary. Once you do this with most agency personnel, they will be happy to send you appropriate messages, since it saves them time, too. If the author tells you to "just take care of the wording for me," it is still a good idea to get their final approval and signature before sending the message.

If you have additional training for an agency-specific job that involves message origination, this is quite different from the situation of a "pure" communicator. In this case, you may be able to generate an official message if you have been given the authority to do so.

Other messages that can and should be generated by all emergency communications operators are those that deal solely with communication. Examples would be messages about net operations and frequencies, and requests for relief operators, radio equipment, supplies, food, and water for emcomm personnel.

Message Security & Privacy

Information transmitted over Amateur Radio can never be totally secure, since FCC rules strictly prohibit us from using any code designed to obscure a message's actual meaning. Anyone listening in with a scanner can hear all that is said on voice nets. The federal Communications Privacy Act does not protect Amateur Radio communications, and anything overheard may be legally revealed or discussed. Reporters in disaster-prone areas have been known to purchase digital-mode decoding software for laptops in order to intercept ham radio communications during disasters.

However, this does not mean that you can discuss any message you send with others. Messages sent via Amateur Radio should be treated as privileged information, and revealed only to those directly involved with sending, handling, or receiving the message. This must be done to offer at least a minimum level of message security. You cannot prevent anyone from listening on a scanner, but you can be sure they do not get the information directly from you.

Your served agency should be made of aware of this issue, and must decide which types of messages can be sent via Amateur Radio, and using which modes. The American Red Cross has strict rules already in place. In general, any message with personally identifiable information about clients of the served agency should be avoided -- this is a good policy to follow with any agency if you are in doubt. Messages relating to the death of any specific person should never be sent via Amateur Radio. Sensitive messages should be sent using telephone, landline fax, courier, or a secure served-agency radio or data circuit.

While we can never guarantee a message will not be overheard, there are ways to reduce the likelihood of casual listeners picking up your transmissions. Here are some ideas:

- Use a digital mode: Winlink, packet, PSK31, fax, RTTY, AMTOR, digital phone, etc.
- Pick an uncommon frequency -- stay off regular packet nodes or simplex channels.
- Do not discuss frequencies or modes to be used openly on voice channels.
- Avoid publishing certain ARES or RACES net frequencies on web sites or in any public document.

Some agencies use a system of "fill in the blank" data gathering forms with numbered lines. To save time on the radio all that is sent is the line number and its contents. A casual listener might hear, "Line 1, 23; line 5, 20%; line 7, zero." The receiving station is just filling in the numbered lines on an identical form. Without the form, a casual listener will not have any real information. As long as encryption is not the primary intent, this practice should not violate FCC rules.

Informal Messages

When we send a written ARRL-format message, we do it to preserve accuracy no matter how many people pass the message along. Informal or tactical messages are not written out in ARRL format, or not written at all. However, this does not mean that accuracy is any less important. If someone gives you a short message to relay to someone else, you should repeat it as closely to the original as possible. Messages that will be relayed more than once should always be sent in ARRL format to prevent multiple modifications.

Here is an example of what might happen if you are not careful to maintain the precise meaning of the original message:

The original message: The shelter manager says she needs fifty cots and blankets at Hartley Hill School by tonight.

After being passed through several people: He says they need a bunch more cots and blankets at that school on the hill.

END PART SIX

Learning Unit 8

Health and Welfare Traffic Management

PART SEVEN ARECC

Information:

One of the greatest challenges during a disaster is efficiently moving large volumes of formal "health and welfare" messages. The ARRL-recommended precedence for this type of message, "Welfare" (W), refers to either an advisory message from the disaster area that indicates a person's status, or an inquiry as to the health and welfare of an individual in the disaster area.

Red Cross Is the Lead Agency
Under US federal law, the American Red Cross has primary responsibility for disaster relief services in the United States and its possessions. The Salvation Army, and state and local agencies may also handle welfare messages, but usually do so in concert with the Red Cross.

When working with the Red Cross on its disaster welfare inquiry program, you must submit to their authority on the subject. Respect any moratorium on DWI messages they impose -- usually up to the first 72 hours, depending on the scale of the disaster. The moratorium gives Red Cross staff time to move in and set up in the affected area, and to establish offices and networks to handle the inquiries.

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Monitoring the Situation
NTS net managers and members should listen to bulletins from ARRL HQ and appropriate nets on the status of health and welfare traffic handling, especially with respect to any special nets/frequencies that may be dedicated to welfare traffic handling. News of any Red Cross moratoriums will usually be included in ARRL bulletins. Maintain close contact with the Red Cross or the Salvation Army as appropriate, since most inquiries are handled through these organizations.

Dealing with Large Volumes of Traffic
The NTS policy is to handle as many DWI messages as possible, but higher-precedence messages must be handled first. NCS operators for nets handling welfare traffic must pause frequently to ask if any stations have emergency or priority messages.

In a widespread disaster, it is seldom possible to handle all the welfare traffic quickly and efficiently. At times, DWI messages pile up alarmingly, even to the extent that much of it is never delivered.

In these cases, high volume digital modes should be used rather than slower phone and CW. In the past, special Winlink, RTTY, AMTOR, fax, and packet circuits have been established with great success, and hold great promise for high volume, high accuracy traffic handling.

One or more "hotline circuits" may be established between specific points, such as a Red Cross office outside the affected area, and one inside. This

speeds traffic to its destination and frees up nets for other duties, bypassing the normal NTS net structure.

Outgoing Advisories Have Precedence
Place a priority on handling "welfare status report messages" (advisories) coming *out* of the disaster area. One out-bound message can prevent many in-bound inquiries from clogging the system.

Never try to force inquiries into a disaster area. Welfare inquiries should only be passed when higher precedence traffic and outgoing advisories have been cleared. In-bound messages have a poor chance of being delivered for several reasons. In many cases, there is no mechanism for the delivery of welfare inquires. The addressee may be in any number of shelters or have left the area completely. Local phone lines may be out and travel difficult or impossible. Local mail delivery will have been suspended. Be sure that stations in the affected areas are truly able to receive and process inquiries before sending them. The Red Cross will usually provide guidance on this issue, and it should be distributed via ARRL bulletins.

Accepting "Local" Inquiries
Sometimes a friend or neighbor will ask you to send an inquiry to someone in an affected area. Unless means for handling DWI messages are established, it is usually wise not to accept them from the public, or do so only with an explicit understanding that chances of delivery are not very good. If the system is up and running, the message may be passed into the NTS at any appropriate point.

Prohibited Message Content:
If you are accepting a message from its author, certain information should be refused or strongly discouraged. Outgoing advisories or responses to DWI messages from the disaster area should never include a person's home address. Enterprising thieves have been known to listen to scanners and then loot evacuees' homes.

NEVER handle or deliver a fatality report in any Amateur Radio message. That function is strictly reserved for disaster officials through their own channels.

Other items that should never be sent include financial information, bank or credit card numbers, driver license or Social Security numbers, or any personal details that could lead to identity theft.

In some instances, the served agency may allow you to send certain "sensitive" information over more "discrete" modes, such as Winlink, but be sure they fully understand that no Amateur mode can be considered truly "secure." The served agency is the ultimate authority on which information can or cannot be sent, and by which modes.

END PART SEVEN