

***MESSAGES – THE
RADIOGRAM***



A training course for REACT Teams and members

This is the first course of a two course sequence on how to compose and transmit the two standard formal messages used in major emergencies and disasters. This text teaches a message format that is compatible with those of the National Traffic System and Radio Relay International. The REACT Traffic System uses this format as standard for its message traffic.

Course Number: 109A

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INTRODUCTORY NOTE

This course focuses on the standard radiogram widely used for emergency communications in Amateur Radio. When originally designed, we intended to provide a single course that covered both the radiogram and the ICS Form 213 Message. However, we realized that some of our members are quite familiar with the radiogram and that the amount of material to cover both it and the ICS 213 message would result in a much longer course text. In addition, how we are using the ICS 213 internally in REACT communications is evolving. The decision to offer two training courses provides a shorter course for each form, allows you to pick based on your needs, and simplifies updating as changes occur. The end result is that we have split the material into *109A Messages – The Radiogram* and *109B Messages – The ICS Form 213* as two training packages. Sections I, II, and parts of III and IV are shared by both courses.

I. WHAT IS A FORMAL MESSAGE?

In emergency communications a formal message is a message composed in a standard written format that can be transmitted by one or more of a variety of media to provide information or taskings. The standard format provides interoperability between organizations and transmission media. The possible media include voice or digital radio transmission, e-mail, fax, pager, or telephone. Because the message is written, whether typed, handwritten, or composed electronically, it provides a record copy documenting not only the information or tasking, but also provides its routing and accountability for its transmission.

II. FORMAL MESSAGE REQUIREMENTS FOR EMERGENCY OPERATIONS

Given that the purpose of a formal message is to communicate something of importance to the recipient in an emergency, it must meet certain basic communications requirements.

(1) It should contribute to management of the emergency. Standard functions that messages perform include (note that this list does not address warnings and instructions for the general public, a specifically governmental function):

ALERTING – alerting messages notify resources of the existence of a situation which may require response. They may raise an alert level in an organization that uses a numbered or color coded alert and readiness system. [example – “a tsunami is projected to impact Molokai at 1538”]

WARNING – warning messages notify resources that the impacts of a disaster or major emergency may directly or indirectly effect the specific resource. [example – “expect impacts of major disaster at your location at 2200” ...]

AVAILABILITY REPORTING – messages which report the availability of a resource for operations. [“High Country REACT 2 Type IV Communications Teams available 25 mile radius of home station 12 hour deployment”]

BUILDING THE COMMON OPERATING PICTURE – these messages provide information about the event in progress to allow the incident command post or emergency operations center to maintain an accurate understanding of the overall situation. [example – “Blackwater River flooding blocking highway 460 at Waverly”]

ASSISTANCE or LOGISTICS REQUESTS – messages which either request resources to meet a specific operational need or supplies and support capabilities to support continued operations. [example – “Request two additional Type IV communications team operators to augment for 24 hour operations”]

TASKING – messages which provide an operational assignment to a resource (the who, what, where, when, and how). [example – “Team 2 establish relay station on peak of Mount Charleston at 0730 GMRS Channel 3”]

PROGRESS REPORTING – reports by resources assigned to tasks of how much of the task is completed, typically including progress en route, when arrive on scene, major portions of the task complete, when released from task, when returned to the base of operations or to home station. [example – “Team 7 on scene Shady Grove Assisted Living”]

ACCOUNTABILITY REPORTING – accountability messages are a safety tool to ensure that all resources are accounted for and no one is missing. These are usually scheduled at a specific time interval. [example – “Team 2, Mount Charleston, 4 operators, operations normal”]

SITUATION REPORTING – a situation report, commonly termed a SITREP, is a brief summary of the location and operational condition of a resource, the task or tasks assigned and their state of completion, the resource personnel and equipment strength, other ongoing actions, any changes in the operational control of the resource, and the extent of impacts in the immediate area. SITREPs are either submitted on a schedule, such as the end of the operational period, or on request.

(2) It must be written in clear and unambiguous language. You do not want the recipient to have difficulty understanding what you mean. Acronyms should be used only if both the author and the recipient will understand them.

(3) It must be short. Twitter introduced the general public to short in the form of 140 character tweets, and was promptly adopted by many emergency management agencies as an emergency communications tool. Other emergency messaging standards range from 90 to 160 characters. Alphanumeric pagers achieve similar counts by limiting their small screens to a set number of lines of text. Short forces a focus on the core information for the message. Short is faster to compose, faster to transmit, faster to copy, and faster to read. And not only is it faster, but it is also more likely to be read and acted on.

(4) It must be specific and focused. Receiving a message that says “the water is rising and we are all going to die – send everything you have,” is not terribly useful. If my organization has a fire engine, a fire truck, a basic life support ambulance, a paramedic ambulance, a brush truck, a water tanker, a chief’s buggy, a heavy crash truck, a light crash truck, and a motorized skateboard, do you really need the skateboard? Or for that matter, since it is a flood, do you really need the water tanker? How much water is rising how far and where? How many have died and how many are at direct risk? In general requests for assistance have better outcomes if the request identifies what capability is needed to what extent (such as “we have 6 RED, 12 YELLOW, and 3 GREEN patients that need to be transported”), rather than for “everything you have” or even for “send me twelve ambulances.”

(5) Information provided must be as accurate as possible. In the first 24 to 48 hours of a disaster, there is a high level of inaccuracy in reports. Some of this is due to the difficulty of gathering data. Some of it is the difficult in keeping data up to date. Some of it is due to the natural friction of the event. Do not guess or speculate. Do not make up details to fill in for missing information. If something is an estimate, your message should clearly say so and indicate whose estimate it is.

(6) It must be compatible with the method of transmission. If the system handling the message has a standard format, messages in that format are going to be handled first.

(7) It is preferable if the message can be transferred between systems easily. For example, a two-way alphanumeric pager message in radiogram format can be received by the REACT traffic system watch officer, transferred to the REACT traffic system bulletin board, sent by e-mail, transferred to the amateur radio traffic system, and delivered to you by telephone, all without any change in format. In a major disaster, outages may mean that multiple systems must be used to get out of and into the disaster impact area. Interoperable formats make that possible.

(8) It must identify the sender. This is imperative for three reasons. First, if a message requests specific equipment, supplies, or personnel, someone has to meet the costs involved. In the absence of any other agreements that someone is the person who signs the message. Second, if the message tasks a resource, the resource needs to know that the person who sends the tasking is someone authorized to do so. Third you need to know who sent a message that reports impacts, needs, etc. because who the sender is may impact the credibility of the message. Finally, the addressee needs to know who sent the message so that he or she can direct a reply to the right person.

III. THE STANDARD TYPES

There are three standard message formats in general use:

Radiogram. The radiogram is an American Radio Relay League, International Amateur Radio Union, and Radio Relay International standard for formal messages

handled by amateur radio traffic systems. It is designed with a preamble that includes routing and accountability information, an address, the text, and a signature block. The radiogram requires some training in the correct formatting of its components, limits text to 25 words, and requires the use of telegraphic writing. It is an effective format for rapid transmission of messages on a variety of transmission mediums, and has stood the test of time, with literally millions of messages being passed nationally and internationally.

Incident Command System Form 213 Message. The ICS 213 message originated as a paper message form for internal use in an incident command post or an emergency operations center. It permits longer messages than appropriate for the Radiogram. However, it lacks some of the components that support handling by a radio communications system. As a component of the National Incident Management System, this is a national standard format, and it is commonly used by emergency management agencies..

Radio Relay International ICS Form 213 Message. Radio Relay International has grafted a standard preamble onto the ICS Form 213 to include the handling and accountability information normally found in a radiogram. Other amateur radio organizations have made similar modifications.

When we say standard, we mean that these message types are in routine use for emergency communications by civilian organizations. The Armed Services and their auxiliaries (Civil Air Patrol, the United States Coast Guard Auxiliary, and the State Defense Forces) generally use their own standard message formats. It is unlikely that our members will routinely encounter such messages.

IV. TELEGRAPHIC WRITING

In the early days of telecommunications, that standard way to get a message across the country was by telegraph. Telegraph communications were priced by the word – the longer the message, the more it cost. That put a premium on concise writing in which every word was chosen based on whether it contributed to meaning. From the telegraph company’s perspective a longer message took longer to transmit, which meant that it cost more to pass through the system. From the sender’s perspective,

especially for businesses that sent a lot of telegrams, each word added to the cost of doing business.

Although radio messages are not priced by the word, in a major emergency or disaster longer messages require more time to transmit and are significantly more susceptible to garbles. Even worse, they are less likely to be read, understood, and acted on. In normal business, governmental, or military letter writing a premium is placed on not exceeding one page in length – busy decision makers simply will not read longer letters. In a busy emergency operations center, the core information in a one page message may be overlooked in the midst of the words.

All radiogram messages should be written telegraphically, as concisely as possible, with a maximum length of 25 words, unless a longer text is absolutely necessary. In a disaster, longer messages may be received from a supported agency, and will be transmitted if possible. Operators are encouraged to work with the author in the supported agency to edit the text to eliminate any wording that does not directly contribute to the critical meaning of the message. For example:

The original narrative: This is a message for today’s exercise. A large monkeypod tree has fallen across the intersection of King and Queen Streets, blocking the intersection so that vehicles cannot pass. We need a work crew to be sent with the necessary equipment to clear the tree from the intersection. The falling tree caused downed power lines in the area of the intersection. This message is for exercise purposes only.
Total 73 words (including periods).

Still too long: This is an exercise message. Large monkeypod tree blocking intersection of King and Queen Streets. Send work crew to clear tree. Watch out for downed power lines in the area. End of exercise message.
Total 39 words (including periods).

Edited: EXERCISE X TREE BLOCKING
INTERSECTION KING AND QUEEN STREETS
X SEND WORK CREW X

DOWNED POWER LINES IN AREA
X EXERCISE
Total 23 words (including XRAYs).

Let's look at how we got to the 23 word telegraphic message:

(1) “This is a message for today's exercise.” “This is an Exercise Message.” The first version is not clear as to whether this is an administrative message about the exercise or an inject for the exercise. The second version is better, but “This is” contributes nothing to meaning. The word “message” belabors the obvious – it is sitting right there in front of you on a message form, so it probably is not a ham sandwich.

(2) “This message is for exercise purposes only.” “End of exercise message.” The first example does finally tell you that this is probably an exercise inject. The second is stating the obvious; you probably do not need the author to tell you that when the message stops, it is the end. For both the start and the end, “EXERCISE” conveys that this is an exercise.

(3) Now we look at what is critical in all this information. In any emergency incident you need to know

- WHAT has happened, what is the task to be performed
- WHERE the impact is
- WHO or what is needed to control the impact
- HAZARDS present
- WHEN did it happen, when do you need help

In this incident:

WHAT – a tree has fallen blocking the intersection. Unless there is something very unusual about the monkeypod tree, the public works or highway department work crews know what they need to bring to clear a downed tree. Similarly “blocking the intersection” means that vehicles can't pass. If only part of the intersection is blocked, the message should have stipulated degree of blockage or direction of travel impacted.

WHERE – you can save a word by eliminating the “of” in “intersection of King and Queen Streets” with no loss of meaning.

WHO – “We need a work crew to be sent with the necessary equipment to clear the tree from the intersection” is packed with useless words. We will assume a work crew is a standard term for the type of resource needed. That the scene is requesting a work crew means that they need it to be sent. Telling a work crew to come “with the necessary equipment to clear the tree from the intersection” is unnecessary. The crew is being assigned to a tree blocking an intersection; any highway or public works supervisor will know that they should show up with the appropriate tools. This is like telling a REACT communications team to show up to perform communications tasks “and bring your radios with you.”

HAZARDS – hazard statements need to be clear and unmistakable. “The falling tree caused downed power lines in the area of the intersection.” “Watch out for downed power lines in the area” is better, but you don’t need “watch out for ...” The area of the intersection is imprecise – is it bounded by the corners, does it extend up the streets, etc.? In an emergency response downed power lines are drilled into responders’ heads as a major hazard, detection of which is a life and death priority on scene. Better that the crew be watching for downed power lines throughout as the downed ones in the area of the intersection may not be the only ones.

WHEN – is not specified in the information provided, leaving the emergency management staff to prioritize the assignment of resources based on the importance of the road, the overall emphasis being placed on roadway clearance, and the priority of other taskings on highway or public works work crews.

V. OTHER STANDARDS

TIME. Most of our lives happen in 12 hour time. You wake up at 6:00 AM and go to bed at 11 PM. Omit the “AM” and “PM” and this statement could either mean that you wake up in the morning and go to bed at night or that you wake at in the early evening and go to bed before noon (for example after working an 8-to-8 twelve hour shift in the emergency operations center).

But that is not the only chance for confusion – is noon 12 AM or 12 PM? What about midnight? If you think you know, remember the unsettling fact that official United States government use of these two switched in 2008. Today noon is 12 PM and midnight is 12 AM.

To avoid confusion, and to allow international communications in the many countries that customarily do not use the 12 hour clock, we use the 24 hour clock for messages. Times are expressed in 4 digits, for example 0600 for 6:00 AM and 2300 for 11:00 PM. Times up to 1:00 PM are converted by omitting the : and the two letter designation, thus 5:23 AM becomes 0523. Times of 1:00 PM and later are converted by omitting the : and the letter designator and adding 1200 to the number. Thus 3:05 PM becomes 1505. Note that many public safety agencies and emergency operations centers as well as the Armed Forces and their auxiliaries operate on 24 hour time.

TIME ZONES. Times in the preambles and texts of messages may be the local time for messages that will be handled in the same time zone. For messages that have to transit long distances and that require action by a specific time Coordinated Universal Time is often used. The situation is further confused during the period of daylight savings time.

Daylight savings time is not universal use in the United States (with Hawaii and parts of Arizona not participating). In other nations daylight savings time (also called daylight time or summer time) may be applied in part of the country and typically does not start and end at the same dates as in the United States.

This means that any message may have three possible times depending on the time and place. Therefore, best practice is to identify which time you are using:

- UTC for Coordinated Universal Time. Coordinated Universal Time is essentially the same time as military ZULU or Z time or Greenwich Mean Time (GMT).
- Standard time for the time zone. Identified by an S in the time zone acronym.
- Daylight Savings Time for the time zone. Identified by a D in the time zone acronym.

Time Zone	Standard Time	UTC offset in hours	Daylight Savings Time	UTC offset in hours
Atlantic	AST or AT	4	ADT	3
Eastern	EST or ET	5	EDT	4
Central	CST or CT	6	CDT	5
Mountain	MST or MT	7	MDT	6
Pacific	PST or PT	8	PDT	7
Alaskan	AKST or AKT	9	AKDT	8
Hawaiian	HST or HT	10	HDT	9

To convert from time zone time to UTC add the offset to the current local time zone time. Thus 1600 Eastern Standard Time is 2100 UTC.
 To convert from UTC to time zone time subtract the offset from UTC. Thus 2300 UTC is 1500 Alaska Daylight Time.

When you use UTC you will encounter situations where the UTC time when converted goes past the 24 hour format limit of 0001 to 2400. You have either gone forward or backward into a different UTC day. This means that you have to convert the date. If you are converting from your time zone to UTC this will be a step forward to the next day. If you are converting from UTC to your local time zone this will be a step backwards to the previous day. For example:

- You are in the Central time zone. Your local time is 2145 on 14 November (standard time). Add 6 hours to 2145 to get 2745. Convert 2745 to a 24 hour day by subtracting 2400. The result is 0345 on the next day. So in the Time filed block of the preamble you enter 0345UTC, in the Month block NOVEMBER (or NOV), in the day block 15.
- You are in the Atlantic time zone on 3 July (assuming that you use daylight savings time). You receive a message with at time and date of 0245 UTC on 3 July. Subtract 3 hours from 0245 to get -0015, and then subtract that number from 2400. The result is that the message was filed at 2345 Atlantic Daylight Savings Time on 2 July.

CAPITALIZATION. Messages are traditionally printed in all capitals. This originated with railroad and Western Union telegraph services as a way to reduce errors in reading handwritten message copies because of the difficulty of reading

individual variants of cursive script. In addition the Morse and other codes for continuous wave transmission did not distinguish between upper and lower case. It was possible to identify upper case by inserting added words in the message, but experience showed that there was no real added value in doing so.

PUNCTUATION. Punctuation in radiograms follows old telegraphy practices; in other words, it is strictly limited, although recent changes have slightly expanded the list of punctuation that may be used. The following punctuation marks are in current use:

Voice Transmission	Written	Meaning
XRAY	X	Period or separator at the end of a sentence, phrase, etc. Not used at the end of the text as the end serves as the end. Counts as a word.
ROMEO	R	Decimal point in figure groups.
DOT	DOT	Period used in e-mail addresses. Counts as a word. Parts of the address before and after the DOT are separate words.
QUERRY	QUERRY	Question mark. Counts as a word.
ATSIGN (1)	ATSIGN	Symbol @ in e-mail addresses. Counts as a word – the address before and after the @ are separate words.
SLANT BAR (1) or SLASH (2)	/	The slash / used in URLs and to separate mixed groups.
DASH (2)	DASH	Dash to separate special number or mixed groups. Counts as a word.
Notes: (1) indicates used by Radio Relay International, (2) indicates used by National Traffic System		

Other words can be used for punctuation marks, but in general their use should be avoided unless absolutely necessary.

GENERALLY NOT USED: Radiograms in the Amateur Radio service have two added communications features that we do not use, in large measure because of the desire to adhere to the Incident Command System standard of plain language and because they may not be applicable to the full range of our messages. These include:

- **HANDLING INSTRUCTIONS** – found in the preamble, these three letter groups start with the letter H and indicate how a message should be serviced. For example, HXG means “Delivery by mail or landline toll call not required. If toll or other expense involved, cancel message and service originating station.” Our standard practice is to attempt delivery if at all possible, and to report results of that delivery including the name or position of the person who accepted the message.
- **AMERICAN RADIO RELAY LEAGUE NUMBERED RADIOGRAMS** – designed as space and time savers, these consist of ARRL plus a number written as a word. There may be blanks in the message which are filled in by words following the message number. For example, ARRL SEVENTEEN means “REACT communications services also available. Establish REACT communication with _____ on channel _____.”

If you are in a situation where you expect to have messages which include either handling instructions or numbered radiograms, obtain and include a list of these with your station equipment.

VI. THE RADIOGRAM FORMAT

Radiograms consist of four parts, all of which are important to the message:

- **PREAMBLE** – identifies the message, where it comes from, when it was sent, and the priority that should be attached to its transmission and delivery. The preamble also provides information needed to maintain accountability for the message.
- **ADDRESS** – provides the receiving station the information needed to be able to locate the addressee and deliver the message.
- **TEXT** – the actual contents of the message – the report, request, etc. that the message is transmitting from the author to the addressee.
- **SIGNATURE GROUP** – identifies who wrote or is responsible for the text, and their position. Never accept a message without a signature. In a disaster messages are used to request resources, and the cost of those resources is often

borne by the person or organization making the request. Without a signature, you may become liable for the costs.

Every formal radiogram message has these four parts. The radiogram message form is designed to organize the parts and to make it easier to write, transmit, and receive messages. There are many versions of this form, all of which organize the message in the same basic way.

The radiogram must be transmitted in exactly the same format as it was received with no changes by the originating operator (the individual who received the message from its author or actually authored the message if also a traffic handler) and all intermediate operators until it is delivered. If the message does not make sense to you, it does not matter. If there appear to be misspellings or grammatical errors, it does not matter. Do not tamper with, fix, or otherwise alter a message.



		Recd From:		How:		Date-Time:	
		Sent To:					
Number	Precedence	Origin Station	Check	Origin Place	Time Filed	Month	Day
To (person/position):		Organization:	Address:		Phone:		
					E-Mail:		
1		2	3	4	5		
6		7	8	9	10		
11		12	13	14	15		
16		17	18	19	20		
21		22	23	24	25		
Signed			Organization			Date/Time	

Do not transmit shaded blocks – for operator and record purpose only

TRACKING DATA. At the top of the form is a shaded block that is used to record from whom you received a message and to whom you sent it. Enter how you transmitted the message (amateur net and frequency, digital radio (packet, Winlink,

etc.), Zello net, e-mail) in the “How” column. And enter the date and time of the transmission. Because the message format itself does not identify the year, it is very important that you do so in the “Date-Time” so that the message can be correctly associated with the event in case of disputes or litigation.

At the bottom of the form is a shaded block for the date and time when the author signed or authorized the message. This is important in tracking the speed of the message from it being written through being filed with an originating operator to delivery.

THE PREAMBLE. The preamble consists of 8 elements:

- **NUMBER** – The message number is a sequential number assigned by the originating station, and represents the order in which the message was received for transmission. The sequence may be annual, monthly, or for the specific event. Our general practice is to run message numbers from 1 January through 31 December, starting a new sequence in the new year.
- **PRECEDENCE** - Precedences are handling instructions based on the immediacy or importance of the information in a formal written message. They establish the order in which messages should be transmitted. There are four standard civilian precedences, in order of priority (note that the priority given to welfare messages varies based on the situation):

Precedence	Operational Meaning
<i>EMERGENCY always spelled out in written message preambles</i>	Message requiring the highest priority regarding immediate threats to life or life-saving operations. This precedence has been broadened to include the operations of relief organization such as ordering supplies or distributing relief aid. The intent is that these messages should be delivered in minutes after their origination.
<i>Priority letter P in written message preambles</i>	All other official messages related to emergency response. The intent is that these messages should be delivered in hours after their origination.
<i>Welfare letter W in written message preambles</i>	Request for or report of an inquiry into the welfare of an individual with whom the message originator cannot otherwise establish contact. Welfare messages into a disaster area typically are held until

	disaster victim registration systems are in place in the impact area, sometimes up to a week or more after impact. Outgoing messages from the impact area are generally given precedence over incoming requests.
Routine <i>letter R in written message preambles</i>	All other messages. Routine messages should be delivered within one to two days of origination.

- **ORIGIN STATION** – The origin station is the station with which the message is first filed by the author. The station is identified by call sign. Because REACT Teams use a wide variety of radio services, the call sign may include:

Originating Station Service	Call sign
Amateur Radio	Licensed Amateur Radio Call Sign
General Mobile Radio Service	Licensed General Mobile Radio Service call sign + Unit number if a Team license
REACT Traffic System on Zello	REACT Traffic + 3 numbers representing REACT Region, state within Region in alphabetical order, and specific operator
Citizens Band	REACT Team name + operator Unit number
Family Radio Service	REACT Team name + operator Unit number
Multi-Use Radio Service	REACT Team name + operator Unit number
Business Radio Service	Licensed Amateur Radio Call Sign + Unit number if a Team license
General Zello Use	REACT Team name + operator Unit number

- **CHECK** – The check is an important protection against lost words or garbles. It is the number of words in the text of the message. In making this count it is important to understand what a word is. Some things that you might not think count as a word, do. Some things that you think should be one word, are more than one. Some things that seem like they should be two words, are actually one. If you put part of it in one box on the form and part in another box, it is two words. If it all logically fits in one box, it is one word. So here are some typical uses:

... acronyms or abbreviations are typically one word – REACT, FRS, ARES, RACES, TTY, etc.

... initials in a name are typically one word – W GREEN is two words, WALTER GREEN is two words, WALTER G GREEN is three words.

... mixed time groups are one word – 1405EST.

... figure groups with a decimal place are one word – 303R3.

... a period as a separator at the end of a sentence or phrase is one word – X.

... an e-mail address is multiple words – W DOT GREEN ATSIGN REACTINTL DOT ORG

... a group with a dash is multiple words – 307 DASH A

The one exception to the rule that you must transmit messages exactly as received is in the check. If the check does not agree with the word count received by the receiving station, an effort should be made to resolve this between the sending and receiving stations. It may be as simple as an error in copying whether a word is one or two words. However, if the message is correct, but the check is wrong, add a / after the check followed by the correct word count.

- **ORIGIN PLACE** - The origin place is the location at which the message was written (not the location of the origin station). As a practical matter states or provinces or countries may be abbreviated using standard abbreviations in the written text of the preamble. However, they should be spoken as the full name. This Virginia might be written VA but spoken VIRGINIA. VIRGINIA is faster to transmit than LETTER GROUP VICTOR ALPHA.
- **TIME FILED** – The Time Filed is the actual time that the message was delivered to the origin station operator for transmission. It is a mixed group of the time in 24 hour clock plus the designator for the time zone.
- **MONTH** – As a practical matter months may be abbreviated using standard abbreviations in the written text of the preamble. However, they should be spoken as the full name. This November might be written NOV but spoken NOVEMBER. NOVEMBER is faster to transmit than LETTER GROUP NOVEMBER OSCAR VICTOR.

- DAY – The Day is the standard one or two digits for the calendar date. Note that for messages with a Coordinated Universal Time time filed, the time may change the date by a day or even by a month.

Note that older message forms may have a single block for Month and Day.

THE ADDRESS. The address consists of up to 5 elements on our message form.

- TO (PERSON/POSITION) – Messages may be sent to an individual or to a duty position (Plans Section Chief). If a message is sent to a named individual, it may be held for delivery or dropped in an in-box until that person is available, delaying the arrival of the information the message represents. We suggest that messages to response organizations, emergency operations centers, or incident command posts be directed to the duty position that needs the information.
- ORGANIZATION – The organization block can be used to further identify the addressee. For example, in the case of our Plans Section Chief, if we include “Smallwood EOC,” we know that the message is intended for the emergency operations center, not an incident command post for one of several events the emergency operations center is coordinating.
- ADDRESS – The address is the physical address of the information in as much detail as necessary. An accurate street and city address is vital if delivery may be in person, other than at an event where the communications center is collocated with the command post. It is unusual that we would commit a message to regular mail for delivery, but if that is possible, then the address should be complete to the postal code.
- TELEPHONE NUMBER – Delivery by telephone is a common method of passing a message. To do so the message should include a telephone number of known. Telephone numbers are written without dashes. For example, a telephone number in the United States would be: 804 798 7744.
- E-MAIL – For REACT delivery by e-mail is a standard method of passing a message. The e-mail address can be written in the same form as it would

appear online, remembering that it will be transmitted with DOT and ATSIGN as appropriate.

THE TEXT. The text is the information, instructions, or request that the message is actually trying to convey to the addressee. As previously discussed, be concise, write telegraphically, and make sure that every word is chosen to convey meaning. Our standard maximum length for messages that REACT members originate for the REACT Traffic System is 25 words, remembering that words include symbols, letter groups, number groups, mixed groups, and punctuation. You may receive radiograms from sources other than REACT stations that run longer than 25 words. Handle these messages as written.

THE SIGNATURE. Each message should have the name and position or organization of the individual who authored the text and approved it for submission for transmission, in sufficient detail to allow their identification.

VII. HELPING THE AUTHOR WRITE THE MESSAGE

Three groups of people may author messages originated within the REACT Traffic System.

- REACT Typed Resource leaders in a major emergency or disaster response, REACT Team officers, REACT Regional Directors, and REACT International officers and Headquarters staff.
- Qualified REACT traffic handlers and radio operators for administrative and operational messages about communications operations.
- Staff of supported agencies and organizations using REACT communications to supplement existing, or to replace damaged, communications networks.

As a qualified traffic handler or radio operator you may be in a position where you assist one of the other two groups in composing or editing the text of a message. This can occur in several ways:

- You receive a message for transmission that appears to have errors in spelling, that is too long but appears to have unnecessary wording, or that appears to have some other problem. As a communicator there will be decisions, situation information, etc. that you will not know. However, as a communicator you will hear a significant amount of information about ongoing operations that will give you some degree of situation awareness. If you cannot understand the message or believe there is an error, immediately take the message back to the author and politely ask for a clarification. If there need to be corrections or changes, make them, and get the message on its way.
- A perplexed member of the incident staff sticks his head into the communications center and says words to the effect of “I have never written one of these before – does this look even vaguely correct?” The people who work on major emergencies and disasters in some cases are regulars who have multiple incidents and exercises worth of experience. However, it is not unusual for emergency operations center staffs to have this event as the only experience for as much as 80% of the people in the room. In this case your job is to edit, preferably with the individual with you, to make sure the text meets standards and says what the staff member needs it to.
- If you are a known and trusted member of the communications team, it may be that someone will ask you “this is what I want to say, can you write it and send it for me?” This may be flattering, but it is also dangerous. The staff member wants you to do their job, and you are not trained to do what they do. If you do write the message based on what she says she wants to say, make certain that you take the message back to the staff member and have them read it to confirm that what you have said is the desired message. Do not put their signature on the message until they have seen it.

VIII. TRANSMITTING AND RECEIVING MESSAGES

A message is not terribly valuable if it is not transmitted by the originating station, through intermediate stations, to reception by the addressee. That means that selecting the appropriate method of transmission is important. Options include:

(1) Voice Radio – voice transmission is conducted on the full range of Amateur frequencies in accordance with the band plan which allocates groups of frequencies to specific transmission modes. Voice transmission also occurs as the method of communication in the General Mobile Radio, Citizens Band, Family Radio, Multi-Use Radio, and Business Radio Services. Voice radio coverage extends for long distances in the High Frequencies in the Amateur Radio service and for line of sight in the high frequencies in Citizens Band, and the very high frequencies and above in Amateur Radio, GMRS, FRS, MURS, and Business Radio. In Amateur Radio and the General Mobile Radio Service range is extended by the use of repeaters and linked repeater systems.

(2) Digital Radio – there are a wide variety of ways that messages can be transmitted in a digital format, including by Morse Code, radio teletype, packet radio, Winlink, etc. Each mode of transmission has specific advantages and disadvantages. Advantages include:

- Higher speed throughput.
- Ability to transmit large volumes of data.
- An increased, but not truly secure, level of security given that anyone attempting to listen to the message must have compatible hardware and software and the training to use it.
- Long range communications are possible, in packet radio system through the interconnection of digipeaters.

However, there are limitations to digital communications:

- Increased equipment costs, especially for long distance communications.
- More complex suites of equipment requiring a higher level of expertise for their operation and introducing more points of potential failure.

- Increased requirements for operator training and technical expertise. An Amateur Radio license is a requirement, with system specific training beyond that.
- More complicated transmission paths, with in some cases higher potential for failure.
- The variety of different methods means that you must have compatible systems with the one in use for the event.

(3) Zello Nets – a Zello net, such as the REACT/Traffic System Net, is conducted in the same manner as a voice radio net. The Zello software used by each participant mimics the functions of a radio transceiver. However, because it is Internet based, users of any radio service can participate with users of any other radio service, making it a particularly useful interoperable system.

(4) E-Mail – the advantage of e-mail is reasonably secure transmission of information in a number of formats direct to the addressee at high speeds. No intermediate stations are required to relay information. The disadvantage is that e-mail depends on access to the Internet, sustained availability of electric power, and knowing the addressee’s e-mail address. Transition from an e-mail environment to radio messages requires a substantial change in operating practices, and constant practice if it is to be done smoothly.

(5) Alphanumeric two-way pager – in major cities alphanumeric two-way pager service is still available. It has significant advantages including increased range of coverage over cellular telephones, a separate transmission system that is not dependent on telephone circuits, and better penetration of buildings. Alphanumeric pagers have their own e-mail address, and messages can be directed to them from any location with Internet service. The disadvantage is that coverage in the United States is primarily limited to cities.

VOICE TRANSMISSION

In this course we will be focused on the modes used in the REACT Traffic System. These include voice radio, use of the Zello REACT nets, and use of e-mail to pass formal radiogram messages. The two modes to transmit a message by voice, radio

and Zello, are used in the same manner. This is because we use operations on Zello as training for radio communications.

Transmission in a net environment is controlled by the Net Control Station based on the precedence of the messages listed, with Emergency first, Priority second, and Routine third. Welfare inquiry messages into a disaster area are commonly held for some time after the event to allow authorities to set up shelter reporting systems. On the other hand outbound welfare messages reporting the status of individuals in the disaster area are typically pushed ahead of Routine traffic.

If you plan to transmit a message, have the message ready in the correct format at your operating position. Before the net starts, review the message form to make certain that you can easily read the complete message. When you check in to the net, check in with the traffic and the destination:

Traffic 241 one Routine for Glendale California, over.

For organizational messages to REACT International Headquarters or a Regional Director:

Traffic 241 one Routine for REACT International Headquarters, over.

Traffic 241 one Routine for Region 9 Director, over.

For organizational messages to Teams it may be necessary to specify both Team and location:

Traffic 241 one Routine for High Country REACT, Colorado Springs, Colorado, over.

If the message is for all stations on the net:

Traffic 241 one Routine all stations on the Net, over.

Listen to the flow of traffic and be ready to transmit your message when you are called. Generally messages are called in the order they are listed within their precedence group. The exchange with Net Control, you, and the receiving station will be similar to this:

Net Control: Traffic 241 clear your message with Traffic 821, out

You: Traffic 821 this is Traffic 241 one Routine, over

Traffic 821: Traffic 241 pass your message, over

The same basic procedure works when passing a message outside of a net environment or in a free net:

You: Traffic 821, this is Traffic 241, with one Routine, over

Traffic 821: Traffic 241, this is Traffic 821, pass your message, over

Note that in the above exchanges, the Over and Out words are implied by the standard wording used. In a busy traffic net with stations that are used to working together, they may be omitted by consensus of the operators. Similarly “this is” may be omitted.

The following is an example of a message with all elements and with a large number of words spelled out phonetically (on the left) with an explanation of the contents (on the right). In practice in an active net with regularly participating stations and traffic from the same places of origin or same destinations some of these spelled out words would not require spelling. However, if in doubt any word that is a name or uncommon should be spelled phonetically.

NUMBER 1

Open the message with the word NUMBER and the sequential number of the message.

TEST PRIORITY

Test is inserted here because this is an exercise message, and the precedence is for the purposes of the exercise only. The next word is the precedence of the message.

TRAFFIC TWO FOUR ONE

The station that originates the message.

FIGURES ONE SIX

The check, number of words in the text portion of the message

GLEN I SPELL GOLF LIMA ECHO NOVEMBER ALLEN I SPELL ALPHA LIMA LIMA ECHO NOVEMBER VIRGINIA	The place of origin of the message. Because Glen Allen could conceivably be spelled in a number of different ways, it is spelled out phonetically.
MIXED GROUP ZERO NINE ZERO ZERO ECHO SIERRA TANGO	The time the message was filed with the transmitting station – 0900 Eastern Standard Time.
JANUARY	The month.
FIGURES TWO SEVEN	The day.
BREAK	Break is used in this case to signal the end of the preamble and a short pause in case any station needs to list higher precedence traffic or needs to ask for a fill.
JOHN CAPODDANO I SPELL CHARLIE ALPHA OSCAR DELTA DELTA ALPHA NOVEMBER OSCAR	The addressee.
REACT INTERNATIONAL HEADQUARTERS	The addressee's organization.
GLENDALE I SPELL GOLF LIMA ECHO NOVEMBER DELATA ALPHA LIMA ECHO CALIFORNIA	The address
PHONE FIGURES EIGHT SIX SIX SEVEN THREE TWO TWO EIGHT NINE NINE	The term PHONE FIGURES tells operators copying the message to arrange the numbers in standard groups for the country – in the US case 3 area code 3 exchange 4 individual telephone, without any dashes or parentheses – 866 732 2899 .

MIXED GROUP ROMEO INDIA
DOT HOTEL QUEBEC AT SIGN
ROMEO ECHO ALPHA CHARLIE
TANGO INDIA TANGO
NOVEMBER LIMA DOT OSCAR
ROMEO GOLF

The e-mail
RI.HQ@REACTINTL.ORG.

BREAK

Break is used in this case to signal the end of the address and a short pause in case any station needs to list higher precedence traffic or needs to ask for a fill.

EXERCISE OPERATION TSUNAMI
I SPELL TANGO SIERRA
UNIFORM NOVEMBER ALPHA
MIKE INDIA XRAY ADVISE
LETTER GROUP ECHO TANGO
ALPHA LOS ANGELES COUNTY
REACT TYPE LETTER GROUP
INDIA VICTOR TEAMS
RICHMOND XRAY EXERCISE

The message text: Exercise Operation Tsunami X advise ETA Los Angeles County REACT Type IV Teams Richmond X exercise. This text has exercise at the start and finish because it is an exercise, not an actual event. X is used as a period, but X is never used at the end of the text. ETA is a common acronym for Estimated Time of Arrival, in this case for Type IV communications teams deploying from California.

BREAK

Break is used in this case to signal the end of the text and a short pause in case any station needs to list higher precedence traffic or needs to ask for a fill.

GREEN I SPELL GOLF ROMEO
ECHO ECHO NOVEMBER

Last name as signature, in this case because the author is well known to the addressee.

TEAM FIGURES SIX TWO FOUR
SEVEN

The author's affiliation.

END AND NO MORE

END indicates the end of this message, and the phrase AND NO MORE indicates that this is the last message this station currently has for transmission. AND NO MORE serves as OUT. If the transmitter has additional messages for the same station the end is written END AND (insert number) MORE.

Messages are transmitted at two possible speeds, copying speed and reading speed. Copying speed is typically 10 (slow) to 15 words per minute (medium speed) to allow the receiving operator to copy the message onto a message form, Reading speed can be used for a read back to confirm that the receiving operator has received a good copy, or if the receiving operator is recording messages with a voice recorder, but should never be used for passing traffic for recording with pen and ink or typewriter. To give you an idea of speed relationships we normally talk in conversation at about 200 words a minute. In the days of telegraphy as long-haul railroad and commercial communications, experienced telegraphers could send at 40 to 60 words per minute. Average typing speed on a typewriter or computer key board is approximately 30 words a minute. Traffic nets actually work best with the 15 word per minute speed because it reduces errors and requests for fills.

How can you transmit at a speed at which the receiver can easily copy your message? One way is to write the message on a pad or in the air with your finger at a speed that you can write each word.

We all make errors from time to time in transmitting a message. The word CORRECTION followed by the corrected text is transmitted immediately after the error.

RECEIVING MESSAGES

In a net you should always be ready to receive a formal message. Before the net starts, review the message form to make certain that you know the flow of information, particularly in the preamble. Have a supply of forms available, along

with a pencil or pen and a spare. Make sure background noises are controlled and that you are focused on the net and ready to copy.

As messages are listed make a note of any that are in an area to which you can deliver messages. Net control may call for any station that can handle a specific message. If you can answer and be prepared to copy.

Net Control: Is there a station that can take traffic for Colorado Springs? Over.
You: Traffic 811.

Net Control: Traffic 241 call Traffic 811 with your Routine for Colorado Springs. Out.

Copy the message exactly as transmitted, one word or group per block on the message form. The goal is 100% accurate transmission, reception, and delivery of the message through the REACT Traffic System.

At BREAKs and after the END there is a short break before either the next message or the net control station calls the next traffic. During this short period any station requiring a fill (a retransmission of all text before or after a specific word) should transmit its call sign and SAY AGAIN. The following are types of fills:

Say Again ALL AFTER (the word).
Say Again ALL BEFORE (the word).
Say Again FROM (the word) TO (the word).
Say Again WORD BEFORE (the word)..
Say Again WORD AFTER (the word)

When you have what you believe is a correct copy of the message, quickly count the number of words and groups and compare that number to the check. The REACT message form has numbers on each block to allow a rapid check. If the count does not agree ask:

Is the word count (insert the number of words/groups that you counted) over.

The transmitting station should then count the number of words/groups and either confirm or indicate that the text is different:

Confirming: Affirmative word count (insert number), over.

If there is a difference:

Transmitting station: Negative words, (insert number)

Transmitting station: transmits the first letter or figure of each word or group phonetically

Receiving station: either transmits “Roger” or requests a fill for the missing word by “say again word after” for the last word before the missing word.

When the message is received correctly (whether on the first try or after fills) the receiving station transmits:

Roger number (insert message number) (the receivers call sign) out.

IX. MESSAGE DELIVERY

One of the most demanding tasks in the use of the radiogram in Amateur traffic systems is delivery. You have to find the addressee who may have moved, is not answering the phone, is away on vacation, etc. Once you find him or her, you may be delivering a message from someone they actively dislike or that bears news that they regard as bad or any one of a number of other scenarios in which your message is not a ray of sunshine in their lives. Thankfully, because we normally handle messages related to REACT administration or operations, this is generally not the case for us.

However, we do face challenges. Finding and reaching our Teams should be simple – we know where they are, we know what their e-mails are, we have phone numbers. However, a large percentage of e-mail messages we send, even in ongoing disaster events, are not opened by the Team. A significant percentage of Teams do not have current e-mail addresses. The Team e-mail address may be a personal address that is only accessed by a single individual. Low levels of training mean that some teams are unable to read and follow the instructions in the message. And some Teams do not actually exist as functional emergency communications organizations.

There are some things that we can do about this as communicators.

(1) Educate Teams to respond to e-mail messages. Although we would like a service message back acknowledging receipt, a simple e-mail with a text of “Message number ____ received” will work.

(2) Encourage Teams to provide at least two contacts for messages.

(3) Follow-up on messages that are not acknowledged. The following schedule is a reasonable one:

- Emergency Precedence – 6 hours
- Priority Precedence – 24 hours
- Routine Precedence – 48 hours

If follow-up can be done by telephone without excessive cost, then do so. If you find teams that routinely do not acknowledge e-mails, please advise the Chair of the Training Committee so that we can work through the Regional Director to address the problem.

E-mail is not the only delivery mechanism. It has the advantage that most people use smart phones that can access e-mail, increasing the opportunity for rapid contact. However, we can communicate messages by:

(1) Voice delivery by telephone – this is the traditional way Amateur Radio radiograms have been delivered. However, there are some differences. Our protocol for delivery is:

- Identify yourself as a REACT Traffic System station.
- I have a (insert the precedence) message from (insert the author’s name and position) sent at (insert the day and time).
- Are you ready to copy?

- The message text is (read the (1) the location filed and the day and time filed, (2) the text block, and (3) signature slowly as written so that the recipient can copy down the text – do not read the full preamble).
- I will acknowledge to the sender that you have received the message. Do you want to send a reply?
- If the recipient wishes to send a reply, copy down the message, edit it, and read it back to the individual to confirm what you have written captures their intent and meaning.

(2) Fax – if you have access to a fax machine or a printer with fax capability, on making contact ask if the recipient has a fax number. If so, compose a cover sheet to the message that identifies you, that you are a REACT Traffic System operator, your telephone and fax number, and asks if the recipient wishes to send a reply.

(3) Mail – delivery by mail is the slowest option and should only be used for Routine messages with no time sensitivity. It may be the only way if you have been unable to establish contact by e-mail or telephone. Include your contact information, ask the recipient to please confirm with you that he or she has received the message, and ask if they want to send a reply separate from the message itself. Our experience with follow-ups by mail has been that there is no reply and no indication that the message has even been read.

Note that delivery of messages to REACT stations by e-mail, fax, alphanumeric pager, or mail should be the full message. Voice delivery may follow the example above.

X. SERVICE MESSAGES

Service messages are used to establish that a message has been serviced, in other words that it has been (1) delivered to the addressee, (2) that delivery has been attempted but the addressee has not been available or has not responded, (3) that conditions make delivery impossible, or (4) that further instructions or information are required. These messages have a short, standard text format:

- Messages delivered to the addressee – MESSAGE (insert number) (insert date and time filed) DELIVERED (insert date and time delivered) X (either NO REPLY or REPLYING BY MESSAGE). For example:

... MESSAGE 109 MARCH 5 2234CST DELIVERED MARCH 6 0100MST
X NO REPLY

- Message delivery attempted – MESSAGE (insert number) (insert date and time filed) NOT DELIVERED X (short statement of why delivery not accomplished) X (short statement of whether delivery will be tried again and when). For example:

... MESSAGE 27 DECEMBER 3 0905PST X NOT DELIVERED X NO
ANSWER TO PHONE CALL X WILL ATTEMPT IN 4 HOURS

- Impossible conditions - MESSAGE (insert number) (insert date and time filed) DELIVERY IMPOSSIBLE X (short statement of why it is impossible). For example:

... MESSAGE 14 AUGUST 19 1033EDT DELIVERY IMPOSSIBLE X
PHONE POWER OUT ROADS BLOCKED ESTIMATED 48 HOURS

- Further instructions - MESSAGE (insert number) (insert date and time filed) NEED (short statement of what is needed, such as street address, telephone number, full name, whether to make further delivery attempts, etc.)

... MESSAGE 27 DECEMBER 23 0915 AST NEED FULL SPELLING OF
FIRST NAME FOR ADDRESS

In general, these service messages in actual disaster operations should carry the same precedence as the original message. In case you wonder about this, consider the scenario of two people in a tree surrounded by rising flood waters. The rescuers on scene request a helicopter rescue. They probably want to know that the Emergency Operations Center has received the message – if no helicopter is available the resources on scene are going to have to attempt a more risky rescue technique. In the actual case of this scenario the original request was not received, and the two people were still clinging to the tree when a follow-up phone call was made 6 hours later asking about when help was going to arrive.

XI. SPECIFIC E-MAIL PROCEDURES

We use e-mail transmission routinely for handling REACT Traffic System messages. Doing so sharpens our members' message writing skills and familiarizes our Teams with receiving information by radio format messages. This improves our overall ability to communicate in major emergencies and disasters. It specifically develops our ability to connect with long-haul backbone amateur radio communications systems to work around Internet, telephone, and power outages.

When sending a message by e-mail:

- (1) Complete the normal e-mail From, To, CC, BCC, and Subject lines as you would for any e-mail.
- (2) In the text box of the e-mail type, or cut and paste from a word processing program, the message in the same sequence of elements as you would transmit the message by voice.
- (3) Separate each element by a space, slash, and space for ease of reading.
- (4) Although not a standard practice, we suggest that it may be helpful to type the preamble, address, and signature blocks in upper and lower case and the text all in upper case. This highlights the information the addressee needs for action.
- (5) The address, phone, and e-mail can be shortened or omitted entirely if the addressee of the message is the same person to whom the e-mail is sent.

The resulting message looks like:

```
47 / R / Traffic 241 / 16 / Glen Allen Virginia / 1500EST / December / 20 / all  
Traffic Stations / EXERCISE DATES FOR PLANNING PURPOSES 27  
JANUARY OPERATION TSUNAMI X 22 AND 23 FEBRUARY ALERTEX  
2018A / Green / Net Control Station
```

If you have reason to believe the receiving individual will have difficulty understanding what you have sent, insert after the radio message the following text:

This is a standard amateur radio radiogram format message. The format is as follows:

Message number / precedence / station where the message originated / check (number of words) / place where the message originated / time the message was filed / the month the message was filed / the day the message was filed / to (person or position to whom the message is sent) / organization / address / telephone number / e-mail / the message text / the signature of the person who wrote the message / the person's organization

One of the advantages of e-mail transmission is that it makes book messages (messages that share common content, but have some differing elements) to a group of same addressees simple for messages that will stay within the REACT Traffic System. For example, a message intended to go to all Regional Directors can be written as a single e-mail with an address of “all Regional Directors.” The actual addressing occurs in the To line of the e-mail. However, if the message will leave the REACT Traffic System and enter Amateur traffic systems, each addressee must have a full address line, and a separate e-mail.

PRACTICAL EXERCISES

The following exercises provide training in completing the standard radiogram format. Make several copies of the REACT version of the radiogram in this text or use a standard radiogram message form from your national amateur radio organization. Read the exercise description, and then compose a radiogram format message. When you complete each numbered task, check your work against the examples provided on the ANSWERS page (but don't read the answers to the next example).

Number 1 - AN ALERTING MESSAGE

Compose the text only:

A moment magnitude 6.5 earthquake has hit with its epicenter approximately 25 miles north of the town of Smith Mountain. It occurred at 0715 this morning, Saturday, 11 July. Smith Mountain is in the Central US time zone (and this is daylight savings time) There was prolonged shaking. Current damage in Smith Mountain is unknown as are the number of injuries, but in an event like this there always are injuries and even deaths.

Number 2 – PREAMBLE TO AN ADMINISTRATIVE REPORT

Compose the preamble only:

You are composing a 17 word message to your regional director reporting the results of a Team tabletop exercise your Team held at last night's meeting. The date is May 26, 2017. Your call sign is High Country REACT Unit 4. The time when you complete the message and file it with yourself for transmission on the net is 1650 Mountain Daylight Time. This is the fifth message you have sent this year.

Number 3 – DURING A DISASTER

Compose the complete message:

Your name is Roger Perry and you are the President of your REACT Team You are reporting that your team has 2 Type IV Communications Teams and 1 Type IV Base Radio Station Team available for response to Hurricane Barbara. One of the two Communications Teams can deploy anywhere in the state, the other is local area

only. This message was filed at 0900 Eastern Daylight Time on 4 August. It is your 23rd message. Hurricane impacts are expected to start the afternoon of the 28th, and your Teams will be ready by 5:00pm tomorrow. Your call sign is KAE7730. Your Team is Tidewater REACT, and the team location is Newport News VA, although you live in Portsmouth. Your report will be directed to REACT International Headquarters and passed over the REACT/Traffic System Net on Zello tonight at 2115.

ANSWERS TO EXERCISES

There can be reasonable variations in how you compose the messages in the Practical Exercises. The following are our suggested solutions, along with short explanations of how we came to the solution.

Number 1 – Alerting Message – text only:

0715CST MOMENT MAGNITUDE 6.5 EARTHQUAKE EPICENTER
APPROXIMATELY 25 MILES NORTH OF SMITH MOUNTAIN X INJURIES
DAMAGE IN TOWN UNKNOWN

Check is 19. Omitted items are prolonged shaking (prolonged is an uncertain measure, and depends very much on the experience of the person reporting) and the discussion of injuries and deaths (which contributes nothing and is pure speculation). Moment magnitude is specified because this is a specific type of earthquake magnitude measurement.

Number 2 – An Administrative Report – preamble only:

5 / R / HIGH COUNTRY REACT UNIT 4 / 17 / COLORADO SPRINGS CO /
1650MDT / MAY / 26

This is pretty straight forward, and is only a matter of getting the right information in the right sequence. Note that Routine is always written as R, and this is a routine message because it is normal administrative communications after the exercise. If it had been part of the exercise the R would have been preceded by TEST. Remember that the year does not appear in the message preamble. Shown above is how this would look in the e-mail format. When written on a message form it would be:

Number	Precedence	Origin Station	Check	Origin Place	Time Filed	Month	Day
5	R	HIGH COUNTRY REACT UNIT 4	17	COLORADO SPRINGS CO	1650MDT	MAY	26

Number 3 – During a Disaster – complete message:

In e-mail format for pickup by a Traffic operator for the Traffic net:

23 / P / KAE7730 / 23 / Newport News VA / 0900EDT / AUGUST / 4 / REACT INTERNATIONAL HEADQUARTERS / TIDEWATER REACT 1 TYPE 4 COMMUNICATIONS TEAM LOCAL 1 STATEWIDE X 1 TYPE 4 BASE RADIO TEAM X ALL AVAILABLE 1700EDT AUGUST 26 / ROGER PERRY / PRESIDENT

In message form format if you will be present on the net yourself:



Recd From:		How:		Date-Time:			
Sent To:							
Number	Precedence	Origin Station	Check	Origin Place	Time Filed	Month	Day
23	P	KAE7730	23	NEWPORT NEWS VA	0900EDT	AUG	4
To (person/position): REACT INTERNATIONAL HEADQUARTERS		Organization:	Address:		Phone:		
					E-Mail:		
1 TIDEWATER	2 REACT	3 1	4 TYPE	5 4			
6 COMMUNICATIONS	7 TEAM	8 LOCAL	9 1	10 STATEWIDE			
11 X	12 1	13 TYPE	14 4	15 BASE			
16 RADIO	17 TEAM	18 X	19 ALL	20 AVAILABLE			
21 1700EDT	22 AUGUST	23 26	24	25			
Signed ROGER PERRY		Organization PRESIDENT			Date/Time		

Do not transmit shaded blocks – for operator and record purpose only

Remember that precedences other than Emergency are written as a single letter, in this case P for Priority. The origin station uses a GMRS call sign, which is appropriate on the Zello nets. The scenario told you that the originating station was in Portsmouth, but the correct origin place was the Team’s location in Newport News. Because this is on a Zello net, REACT International Headquarters is well known to the participants, and a California traffic station can be expected to pass this without any further need for address. If this message was going to be transferred to an Amateur traffic system it would have required an Amateur station as the origin station and a full description of the address.