HazCollect Principles and Non-weather Emergency Message (NWEM) Best Practices

Welcome! The purpose of this course is to ensure that appropriate, complete, and accurate warnings and alerts are issued to the public through the HazCollect system by authorized warning officials. By mastering this training material, you will gain a general understanding of the HazCollect system, the underlying Common Alerting Protocol (CAP) elements, and either an introduction or refresher for warning best practices. Equally important, this course provides resources for your jurisdiction to plan, implement, and continually improve an effective warning program.

This training is designed for employees of state or local governments who intend to use the HazCollect system to issue public warnings on behalf of their jurisdiction or area of responsibility. The completion of this training is a pre-requisite for HazCollect authorization.

The training material is organized into five chapters. You may work at your own pace and stop or resume the training at any time; however, it is recommended that you complete the material in the sequence presented. Although self-assessment quizzes are optional throughout the course, you are encouraged to complete them to assist you in retaining the material.

We hope you find the content and resources provided to be valuable, and we appreciate your comments and feedback.

Notes on the print version:

1. The Net Links and links to other Internet resources are active and may be accessed when this PDF file is opened in Adobe Reader.

2. At this time, the Self Assessment quizzes are not functional from within this PDF file.

3. For more functional and editable versions of the Job Aids included here as Appendices, please return to the course access page on the MetEd Website at: http://courses.comet.ucar.edu/course/view.php?id=26

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Chapter 1. HazCollect Overview

This chapter presents an overview of the HazCollect system, user eligibility, and applying for access. Once you have completed this chapter, you should be able to answer the following questions:

- Does HazCollect meet your warning needs?
- Is your organization eligible to use HazCollect?
- Do you know how to proceed with requesting access?

Even if you or your agency choose not to utilize HazCollect, the remaining course material may prove helpful in the implementation of a successful all-hazards warning program. No matter which method you use to transmit public non-weather emergency alerts, understanding the underlying principles and best practices will enhance effectiveness.

This chapter should take approximately 15 - 25 minutes to complete. The topics presented are:

1.1 Background

NWS Dissemination Systems

The National Weather Service (NWS) is the only organization authorized by the federal government to issue weather warnings. Over the years, the NWS has developed a sophisticated dissemination system, including NOAA Weather Radio and other Internet and satellite-based systems. In addition, weather warnings activate the Emergency Alert System (EAS) and are broadcast** over radio and television.

It was recognized some time ago that the NWS system could be utilized to build an 'All-Hazards' warning system, to provide authorized officials the capability to alert the public to emergency situations arising from hazards other than those related to weather. The term 'Non-weather Emergency Message' (NWEM) collectively refers to these types of public warning messages.

Before HazCollect

Prior to the HazCollect system, state or local jurisdictions that needed to quickly alert the public to non-weather emergencies had three options, ***which will remain in effect for the foreseeable future*** --

- Compose and send an NWEM directly to a local Weather Forecast Office (WFO) via fax, email, telephone, or other direct means of contact. The disadvantage of this method is:

- the message must be re-keyed into the NWS system, introducing the potential for transcription errors and delay.

- Compose and send a warning message in a similar manner to the EAS Local Primary station designated in a state or local EAS plan, for relay and broadcast over radio and television. The disadvantage of this method is:

  - the message must be re-keyed into the EAS system, introducing the potential for transcription errors and delay;

  - broadcast of locally originated warnings are currently optional and at the discretion of the broadcaster; and

  - messages transmitted directly to the EAS system do not enter the NWS system. Therefore, these messages will not be broadcast over NOAA Weather Radio.

- Compose an EAS message via EAS encoder and transmit via radio or telephone. The disadvantage of this method is:

  - although the need to re-key the message is eliminated, many jurisdictions do not have access to endec equipment; and,

  - messages generated in this manner do not enter the NWS dissemination system.

Using the HazCollect system overcomes these disadvantages, as described in the next lesson.

**Throughout this course, wherever the term 'broadcast' or 'broadcaster' is used in relation to the Emergency Alert System, other EAS participants are also implied, including cable television systems, wireless cable systems, satellite digital audio radio service (SDARS) providers and, direct broadcast satellite (DBS) service providers.

Please see the following links for further information on NOAA Weather Radio and the Emergency Alert System. Then check your knowledge via the self-assessment quiz on the next page.

NWS NOAA Weather Radio (NWR)
FCC Emergency Alert System (EAS)

1.1 Background Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Which of the following methods inserts the message into the NWS dissemination system?

- ☐ **A.** Fax message to NWS Weather Forecast Office
- ☐ **B.** Fax message to EAS Local Primary station
- ☐ **C.** Transmit EAS encoder message to Local Primary station

Q 2. Which of the following methods does NOT require manual re-keying?

- ☐ **A.** Fax message to NWS Weather Forecast Office
- ☐ **B.** Fax message to EAS Local Primary station
- ☐ **C.** Transmit EAS encoder message to Local Primary station

Q 3. Which of the following methods remain in effect after the deployment of the HazCollect system?

- ☐ **A.** Fax message to NWS Weather Forecast Office
- ☐ **B.** Fax message to EAS Local Primary station
- ☐ **C.** Transmit EAS encoder message to Local Primary station

Q 4. The National Weather Service is the only organization authorized by the federal government to issue weather warnings.

☐ True ☐ False

Q 5. EAS participants are required by FCC rules to broadcast locally-originated EAS messages.

☐ True ☐ False

1.2 System Description

System Purpose

The purpose of the HazCollect system is to eliminate potential communications delays or errors due to manual re-keying. Valid NWEMs transmitted via HazCollect are entered directly into the NWS dissemination systems. (For further information, see Net Links below to access *National Weather Service Instruction 10-1708: All-hazards Emergency Message Collection System*.)

At the same time, EAS broadcast is requested. It is important to note that **all NWEMs transmitted via HazCollect are intended for EAS broadcast**. If you do not intend for your message to activate the EAS system, do not use HazCollect to send it. Instead, contact your local NWS office for alternate methods.

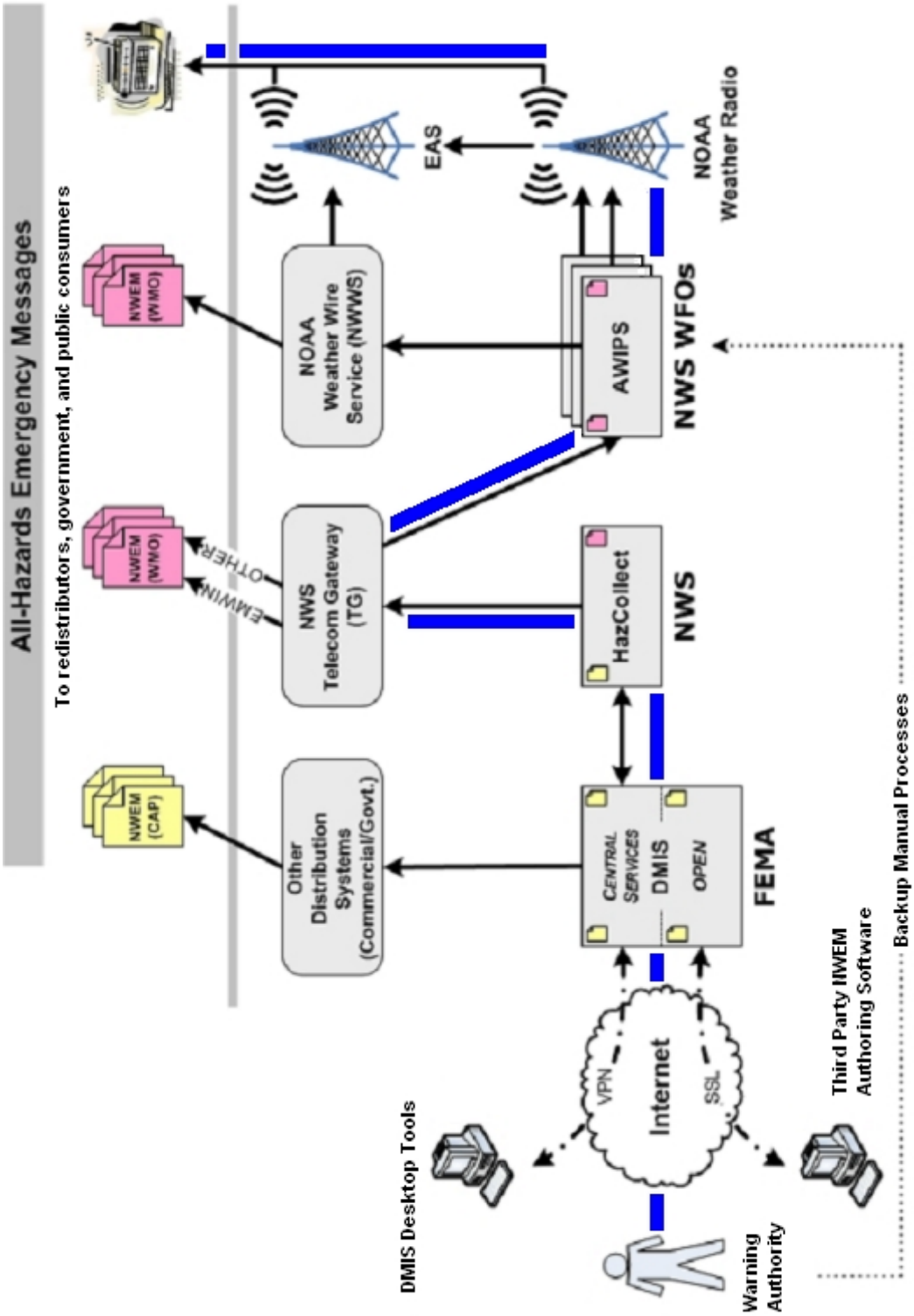
NWEM Pathway

The following describes the path of an NWEM transmitted via the HazCollect system:

- The message is composed at the sender's computer using NWEM authoring software.
  - NWEM authoring software is provided free of charge within DMIS Desktop Tools to qualifying organizations (see Lesson 1.4).
  - Other third party authoring software may also be used.
- The NWEM is transmitted over the Internet through the DM-OPEN Web services system to the HazCollect server. (Access to DM-OPEN Web services is described later in this chapter.)
- The HazCollect server:
  - Validates the sender and the geographical area (county FIPS code) for which the sender has been authorized. (Access to HazCollect is described later in this chapter.)
  - Reformats the message to conform to NWS technical requirements.
  - Does NOT evaluate the appropriateness of the warning or the actual message content. That remains the responsibility of the sender.
  - Transmits the message to the NWS dissemination systems, including NOAA Weather Wire Service (NWWS), EMWIN , NOAAPORT, and NOAA Weather Radio All Hazards (NWR), and for relay to the Emergency Alert System (EAS).
- The NWEM is received by the NWS Advanced Weather Interactive Processing System (AWIPS), where the text message is converted to voice for broadcast over NWR and EAS.
- EAS participants broadcast the NWEM over radio and television, in accordance with locally-defined policies.

NWEM Flow Diagram

The following diagram illustrates the path of the NWEM. The route to final NOAA Weather Radio and EAS broadcast is traced by the heavy blue line.



See the links below for further information about the HazCollect system. Then check your knowledge via the self-assessment quiz on the next page.

Since HazCollect relies on the Internet for communication, revert to direct contact with your WFO for backup if your Internet connection is disrupted.

NWS HazCollect Web site
NWSI 10-1708, All-hazards Emergency Collection System
HazCollect Fact Sheet

1.2 System Description Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Put the following steps in order by numbering the boxes in the correct sequence:

☐ **A.** Message is transmitted through the DM-OPEN Web Services system

☐ **B.** Text message is converted to voice

☐ **C.** Message is composed

☐ **D.** Message sender is validated at the HazCollect server

☐ **E.** Message is broadcast over NOAA Weather Radio

Q 2. The HazCollect server evaluates whether an NWEM issued by a local official is appropriate or not.

☐ True ☐ False

Q 3. An NWEM message is composed on a computer using NWEM authoring

_____

Q 4. A weather "watch" may be issued using HazCollect.

☐ True ☐ False

1.3 User Eligibility

Emergency Alert System Criteria

Since NWEMs transmitted via HazCollect are intended for Emergency Alert System (EAS) broadcast, the primary criteria for HazCollect user eligibility is based on Federal Communication Commission (FCC) rules, as implemented through state and local EAS plans. State and local government officials authorized to issue EAS warnings are specified in these plans.

If you represent a local jurisdiction that does NOT have a Local EAS Plan, you are encouraged to form a Local Emergency Communications Committee (LECC) and develop a local plan in coordination with your NWS Warning Coordination Meteorologist (WCM) and area broadcasters.

Other Criteria

- Beyond EAS plans, state statutes or local ordinances may confer warning authority. In addition, there are a number of other government programs with written plans that may also be relied upon for eligibility, including:
  - State/Tribal/Local Emergency Management Program (Warning Annex)
  - State/Regional/Local Amber Alert Program
  - Radiological Emergency Preparedness Program
  - Chemical Stockpile Emergency Preparedness Program
  - Other hazard specific emergency plans or interjurisdictional agreements

HazCollect Review Group

- User eligibility is evaluated by the HazCollect Review Group (HRG), as described in National Weather Service Instruction 10-1708. The HRG is the official NWS team that manages the HazCollect Participant Approval Process, in accordance with written guidelines.
  - Not only is the general eligibility of a user identified, but also the geographical extent of the user's warning authority.
  - The lowest level of geography available to the HazCollect system for most parts of the country is the county/parish level; however, government organizations with a jurisdiction smaller than a county or parish, (e.g. cities), are also eligible. These smaller jurisdictions should coordinate participation with county and state officials.
  - For organizations with statewide or regional scope, multiple counties/parishes may be authorized.

- The HazCollect server validates the geographic scope of an NWEM to the issuing organization. If the NWEM is issued out of scope, the message is rejected.

- At this time, the HazCollect system cannot validate a user to the NWEM message type level of detail. For example, if an applicant is authorized to issue Amber Alerts only (a Child Abduction Emergency, CAE) and is granted access to HazCollect, there is no technical mechanism to prevent that user from issuing ANY type of NWEM.

➤ If an NWEM is issued that is beyond the scope of a user's authority, or does not meet EAS alerting criteria or conform to warning best practices (see Chapter 4), the HRG may review and revoke a user's HazCollect authorization.

See the references below for further information related to eligibility. Then check your knowledge via the self-assessment quiz on the next page.

Still not sure if you are eligible? Consult your state Emergency Management Agency to determine whether any state-specific restrictions apply. Consult your area NWS Warning Coordination Meteorologist.

FCC EAS Rules, 47 CFR 11
State EAS Plans Directory
NWS WCM Roster
FEMA Comprehensive Preparedness Guide (CPG) 101
USDOJ Amber Alert Website

1.3 User Eligibility Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. HazCollect user eligibility is evaluated by the:

- ☐ **A.** Federal Communications Commission (FCC)
- ☐ **B.** Warning Coordination Meteorologist (WCM)
- ☐ **C.** HazCollect Review Group (HRG)

Q 2. The lowest level of geography available to HazCollect for most parts of the country is:

- ☐ **A.** State/Tribe
- ☐ **B.** County/Parish
- ☐ **C.** City

Q 3. The primary criteria for HazCollect eligibility is based on Emergency Alert System rules, promulgated by the (enter agency acronym)

_____

Q 4. The HazCollect server can validate the NWEM sender's geographic scope of authority.

☐ True ☐ False

Q 5. The HazCollect server can validate the sender's authority by NWEM message type.

☐ True ☐ False

1.4 User Access

In addition to completing this training course, further steps are required to obtain access to the HazCollect system:

Apply for a Collaborative Operating Group (COG)

- Apply for a Disaster Management (DM) Collaborative Operating Group (COG) that represents your jurisdiction's emergency management organization, (e.g. region, county, city).
  - A DM COG is required whether or not you plan to use the DMIS Tools software. The COG ID serves as an addressing mechanism that enables your messages to be routed to the HazCollect server, and enables the HazCollect server to validate the sender as an authorized user.
  - A COG may have already been established for your jurisdiction in the past. Your system administrator may know. If not, you may wish to apply for a COG now, if you have not already done so. This will allow time to process your application while you complete this training course.
  - If a COG does not already exist for your jurisdiction, apply for a new DM COG using the online DM COG Registration Form (see link below). If you do not plan to use DMIS software, please so indicate in the remarks section of the form.
  - You will receive notification via email when your COG has been established. If you are using third party software, you may need to notify your software provider of your COG ID. If you are using DMIS Tools, you will receive additional instructions to access and install the software.

Apply for HazCollect Authorization

- Once you have successfully completed this training, you may apply for HazCollect access using the online registration form (see link below). You must have a valid COG ID per above to apply.
  - Receive confirmation via email when your application has been processed and your COG is registered on the HazCollect server.

Install and Configure Your NWEM Authoring Software

- At a minimum, you will need one workstation with Internet access. Follow your NWEM authoring software provider's instructions for installation.
- For multiple users, you or your system administrator will need to provide access for those individuals within your organization who will be internally authorized to transmit NWEMs.

- Refer your internal users to this training course, provide them with any internal policies and job aids, and provide training on using your NWEM authoring software. (Chapter 5 will provides further information and tools for effective implementation of HazCollect.)

You may wish to bookmark the links below for future use, when you are ready to continue the application process. Then check your knowledge via the self-assessment quiz on the next page.

Application for Disaster Management COG
Application for HazCollect Access

1.4 User Access Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. DM COG registration is only required if you plan to use DMIS Desktop Tools for NWEM authoring software.

☐ True ☐ False

Q 2. Any organization that is approved for a COG will be approved for HazCollect.

☐ True ☐ False

Q 3. Which of the following must be completed prior to applying for HazCollect access?

☐ **A.** NWEM authoring software installation

☐ **B.** COG registration

☐ **C.** HazCollect training

1.5 Chapter Summary

Now that you have completed this chapter, you should be able to answer the following questions:

- *Does HazCollect meet your warning needs?*
  - If you are satisfied with the previously existing warning systems described in Lesson 1: Background, then you may decide that implementing HazCollect is not necessary. That is your choice, but you may find completing the rest of this course valuable to you regardless of the warning system used.
  - If you do not have the necessary workstation, Internet connection, and NWEM authoring software, described in Lesson 2: System Description, then HazCollect may not be the right solution for you.
  - If you think HazCollect will meet your needs and you have the resources available to implement, proceed to the next question.
- *Is your organization eligible to use HazCollect?*
  - Lesson 3: User Eligibility discussed the criteria used to determine whether your organization is authorized to issue warnings. The primary criteria for determining eligibility is whether your organization is authorized to issue Emergency Alert System warnings, in accordance with FCC rules. Additional criteria, such as other hazard-specific plans, may confer warning authority.
  - Warning authority is limited in geographic scope; the lowest level of scope is the county/parish level.
- *Do you know how to proceed with requesting access*?
  - Lesson 4: User Access provided the steps and URLs required to complete the application process:
    - Apply online for a Disaster Management Collaborative Operating Group (DM COG).
    - Apply online for HazCollect access.
    - Install and configure NWEM authoring software.

Quiz Answers

1.1 Background Self-Assessment Quiz
Q1 Correct Answer: {A}
Q2 Correct Answer: {C}
Q3 Correct Answers: {A, B, C}
Q4 Correct Answer: True
Q5 Correct Answer: False

1.2 System Description Self-Assessment Quiz
Q1 Correct Sequence: CADBE
Q 2 Correct Answer: False
Q 3 Correct Answer: software
Q 4 Correct Answer: False

1.3 User Eligibility Self-Assessment Quiz
Q 1 Correct Answer: C
Q 2 Correct Answer: B
Q 3 Correct Answer: FCC
Q 4 Correct Answer: True
Q 5 Correct Answer: False

1.4 User Access Self-Assessment Quiz
Q 1 Correct Answer: False
Q 2 Correct Answer: False
Q 3 Correct Answers: {B, C}

Chapter 2. NWEM Message Types

The Emergency Alert System refers to different types of warning messages as "events" with corresponding "event codes." The National Weather Service refers to warning messages as "products," and uses corresponding NOAA Weather Radio Specific Area Message Encoding (SAME) event codes. Whichever NWEM authoring tool you decide to use, it will allow you to designate the type of event for which you need to issue a warning.

This chapter presents descriptions of the more generally used NWEM products, and considerations for the selection of the product most appropriate for the situation. Once you have completed this chapter, you should be able to:

- select the appropriate NWEM product for specific hazards, specific instructions, or other emergency situations;
- understand when to correct or update previously issued warnings; and
- use Job Aid #1 to address local considerations for selecting and using NWEM products.

The contents of this chapter are recommended best practices, and if followed generally, can bring consistency to warning practice within a jurisdiction and across jurisdictions. The advantage of nationally consistent use of NWEM products can facilitate public comprehension and voluntary compliance with protective instructions, especially given today's mobile society. Consult your state and local EAS plans for further guidance.

This chapter should take approximately 25 - 35 minutes to complete. The topics presented are:

2.1 Background

FCC Rule Making

The Administrative Message (ADR), the Civil Emergency Message (CEM), and the Evacuation Immediate (EVI) were the only EAS event codes and NWEM products available prior 2002 . In 2002, the Federal Communications Commission adopted a Report and Order giving local and state Emergency Alert System committees the option of utilizing additional event codes for non-weather events, bringing the total number of available codes to seventeen.

The National Weather Service adopted EAS event codes to align broadcast codes and text message identifiers within the AWIPS system to improve message dissemination. The new codes were incorporated into *National Weather Service Instruction 10-518: National Non-Weather Related Emergency Products Specification* (see Net Links below).

- It is important to note that the Report and Order did NOT mandate that state and local broadcasters immediately upgrade their EAS equipment to implement the new codes.
  - EAS equipment manufactured before August 1, 2003 may not be capable of receiving and transmitting messages over the Emergency Alert System that are identified with the new non-weather event codes.
  - Furthermore, EAS equipment manufactured and installed after 2003 may require that the new codes be manually programmed by the broadcaster.

Local Implication

The implication of this FCC ruling for the local warning official is that area broadcasters may not be capable of transmitting an EAS alert message that uses one of the new event codes.

- The warning official should verify that the EAS equipment used by local broadcasters is capable of recognizing the new codes. (Job Aid #1 at Lesson 2.7 provides a checklist incorporating this purpose.)
  - This information may be available in the Local EAS Plan; if not, direct contact with the cognizant Broadcast Engineers is recommended.
  - If the new codes are not locally implemented, and you wish your message to be broadcast via the Emergency Alert System, the only codes that can be used are the three original non-weather event codes, ADR, CEM, and EVI.
- If you do use the new event codes, your message will be distributed by the National Weather Service dissemination system, including NOAA Weather Radio, regardless of whether it is accessible to EAS participants.

Please see the following links for further information on NWS products and EAS Event Codes. Then check your knowledge via the self-assessment quiz on the next page.

NWSI 10-518, Non-Weather Related Emergency Products
FCC EAS Rules 47 CFR 11.31, EAS Protocol

2.1 Background Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. The FCC Report and Order required all EAS participants to be immediately capable of receiving and transmitting the new non-weather event codes.

☐ True ☐ False

Q 2. Which of the following event codes can be received and transmitted by equipment manuractured prior to 2003:

- ☐ **A.** Hazardous Material Warning (HMW)
- ☐ **B.** Shelter in Place Warning (SPW)
- ☐ **C.** Evacuation Immediate (EVI)
- ☐ **D.** Civil Emergency Message (CEM)

Q 3. To verify that EAS equipment used in your area can receive and transmit the new event codes, contact your area Broadcast

Q 4. Nationally consistent use of NWEM message types (event codes) facilitates public compliance with:

- ☐ **A.** federal laws
- ☐ **B.** protective instructions
- ☐ **C.** FCC rules

2.2 NWEM Categories

For the purposes of this course, we have classified the available NWEMs into categories as a convenient approach for discussion. Before describing the categories, it will be helpful to review their basis.

NWR All Hazards Specific Area Message Encoding (SAME)

NOAA Weather Radio (NWR) uses SAME event codes that correspond to the Emergency Alert System event codes. With some pre-existing exceptions, the third character in the three letter codes correspond to:

W for Warning
A for Watch
E for Emergency
S for Statement

NWS Instruction 10-1712, NOAA Weather Radio (NWR) All Hazards Specific Area Message Encoding (SAME), (see Net Links below) provides the following definitions:

- **Warning**
  Warning messages are issued for those events that alone pose a significant threat to public safety and/or property, probability of occurrence and location is high, and the onset time is relatively short.

- **Watch**
  Watch messages are issued for those events that meet the classification of a warning, but either the onset time, probability of occurrence, or location is uncertain.

- **Emergency**
  Emergency messages are issued for those events that by themselves would not kill or injure or do property damage but indirectly may cause other things to happen that result in a hazard. For example, a major power or telephone loss in a large city alone is not a direct hazard but disruption to other critical services could create a variety of conditions that could directly threaten public safety.

- **Statement**
  Statements messages contain follow up information for warning, watch, or emergency messages.

NWEM Categories

Warnings and Other Alerts form our two major categories. The Warnings category is further subdivided into Hazard Specific and Instruction Specific. The Other Alerts is subdivided into Emergency/Watch and Statement. In table form:

WARNINGS		OTHER ALERTS	
HAZARD SPECIFIC	*INSTRUCTION SPECIFIC*	*EMERGENCY/WATCH*	*STATEMENT*
Avalanche Warning, AVW	Evacuation Immediate, EVI	Avalanche Watch, AVA	Administrative Message/Follow Up Statement, ADR
Civil Danger, CDW	Shelter in Place, SPW	Child Abduction, CAE	
Earthquake, EQW	---	Civil Emergency, CEM	---
Fire, FRW	---	Local Area Emergency, LAE	---
Hazardous Materials, HMW	---	Tel. Outage Emergency, TOE	---
Law Enforcement, LEW	---	---	---
Nuclear Plant, NUW	---	---	---
Radiological Hazard, RHW	---	---	---
Volcano, VOW	---	---	---

In the lists below, only the NWEM types indicated with an asterisk (*) are specifically covered in this course, since we have focused on the more generally used NWEM types. The principles and considerations will be similar for those types not specifically described in this training.

- Warnings, Hazard Specific include:
  - Avalanche Warning (AVW)
  - Civil Danger Warning (CDW)*
  - Earthquake Warning (EQW)
  - Fire Warning (FRW)*
  - Hazardous Materials Warning (HMW)*
  - Law Enforcement Warning (LEW)*
  - Nuclear Power Plant Warning (NUW)
  - Radiological Hazard Warning (RHW)
  - Volcano Warning (VOW)

- Warnings, Instruction Specific include:
  - Evacuation Immediate (EVI)*
  - Shelter in Place Warning (SPW)*

- Other Alerts, Emergency/Watch:
  - Avalanche Watch (AVA)
  - Child Abduction Emergency (CAE)*
  - Civil Emergency Message (CEM)*
  - Local Area Emergency (LAE)*
  - 911 Telephone Outage Emergency (TOE)*

- Other Alerts, Statement:
  - Administrative Message/Follow Up Statement (ADR)*

Please see the following link if you would like further details on Specific Area Message Encoding. Then check your knowledge via the self-assessment quiz on the next page.

Net Links

NWSI 10-1712, NWR All Hazards SAME Encoding

2.2 NWEM Categories Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Which of the following hazards do NOT have their own specific NWS non-weather product?

- **A.** Terrorist attack
- **B.** Fire
- **C.** Public health emergency
- **D.** Earthquake

Q 2. Which one of the following is an appropriate use of an emergency message?

- **A.** School closing information
- **B.** Local scam artist alert
- **C.** Loss of 9-1-1 emergency services

Q 3. Which one of the following products is categorized as an instruction specific warning?

- **A.** Shelter in Place Warning
- **B.** Hazardous Materials Warning
- **C.** Flood Warning

Q 4. The message type that contains follow up information is the _____

2.3 Hazard Specific Warnings

This lesson describes the NWS non-weather products in the Hazard Specific Warnings category. At times, the selection of product will be straightforward; at other times with a complex event, the selection may be more difficult. Finally, where both a specific hazard AND specific instruction are important, which one will you choose?

General Guidance

- A best practice in communications is to highlight the most important information first. Using this precept as a guide:

  - Do not issue multiple, simultaneous warnings with essentially the same information. This may be confusing to the public and may also present difficulties for EAS broadcasters.

  - Decide which is the most important information you are trying to convey, and what your public will understand and respond to based on their previous experience with similar events.

  - It may also be appropriate under certain circumstances to use a Hazard Specific Warning as an initial alert for a broader geographic area, and subsequently issue an Instruction Specific Warning for a targeted location when the area threatened becomes more well defined.

  - Finally, it will be a matter of local judgement as to which NWEM type is most appropriate to use, depending on the situation at hand.

Hazard Specific Warnings

Many of the non-weather hazard specific warning products are fairly apparent in meaning, such as Fire Warning, Volcano Warning, etc. Others are less well defined, such as the Civil Danger Warning and Law Enforcement Warning.

The precise meanings and application of the EAS event codes are not defined in the FCC's Part 11 EAS rules. They may be defined in your State or Local EAS Plan, and if so, should be used for guidance. All warnings should include an appropriate instruction to the public, discussed more fully in Chapter 4.

The following are general descriptions:

- **Civil Danger Warning (CDW)**

Description: A warning of an event that presents a danger to a large portion of the community, where the hazard is one not covered by the other warning products and normally not associated with a natural hazard.

  - A terrorist or military attack, either imminent or in progress, would be an example of an appropriate use of CDW.

- A public health emergency, if it rises to the level of an imminent threat, would be be an example of an appropriate use of CDW. (However, precautionary boil water notices may be more appropriately handled with an Emegency Notification.)

- Imminent collapse of transportation infrastructure would be be an example of an appropriate use of CDW.

Fire Warning (FRW)
Description: A warning of a spreading wildfire or structural fire that threatens a populated area.

- Notification of the implementation of a countywide burn ban does not rise to the level of a Fire Warning, and may be handled more appropriately through other methods.

- The National Weather Service issues fire weather forecasts and related statements, and those products are considered weather-related.

Hazardous Material Warning (HMW)
Description: A warning of the release of a non-radioactive hazardous material.

- Examples of non-radioactive hazardous materials are toxic chemicals, flammable gases, or biological agents.

- The Radiological Hazard Warning (RHW) is used for the release of radioactive hazardous material.

Law Enforcement Warning (LEW)
Description: A warning of an event involving criminal activity that is an imminent threat to public safety.

- Examples may include bombing, riot, escaped prisoners, active shooter, etc.

- Kidnapping, although criminal, is handled through the Child Abduction Emergency (CAE) product.

- Note: The warning type does not relate to the *source* of the warning, but to the type of threat. For example, in a small county, a local sheriff may be the source for all warnings. Even though a sheriff is a member of law enforcement, he should use the appropriate NWEM based on the hazard involved in the event, not the LEW. Conversely, an emergency manager may be authorized to issue all warnings for a jurisdiction, and may use the Law Enforcement Warning if warranted by the situation.

Check your knowledge via the self-assessment quiz on the next page.

2.3 Hazard Specific Warnings Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did

Q 1. Active shooter on campus. The appropriate NWEM is:

- **A.** Civil Danger Warning
- **B.** Fire Warning
- **C.** Hazardous Materials Warning
- **D.** Law Enforcement Warning
- **E.** No Warning

Q 2. Wildfire in a remote, uninhabited area. The appropriate NWEM is:

- **A.** Civil Danger Warning
- **B.** Fire Warning
- **C.** Hazardous Materials Warning
- **D.** Law Enforcement Warning
- **E.** No Warning

Q 3. Train derailment releasing chlorine. The appropriate NWEM is:

- **A.** Civil Danger Warning
- **B.** Fire Warning
- **C.** Hazardous Materials Warning
- **D.** Law Enforcement Warning
- **E.** No Warning

Q 4. Major bridge collapse imminent. The appropriate NWEM is:

- **A.** Civil Danger Warning
- **B.** Fire Warning
- **C.** Hazardous Materials Warning
- **D.** Law Enforcement Warning
- **E.** No Warning

2.4 Instruction Specific Warnings

If there is a high level of urgency associated with the protective action instruction, you may consider using one of the non-weather emergency message products in the Instruction Specific Warnings category. This focuses more attention on the desired public action than on the specific hazard, although the reason for the action should be given.

General Guidance

- Use an Instruction Specific Warning when you wish to provide more extensively detailed public protective action instructions.
  - For example, consider a scenario where you need to combine evacuation instructions for part of the public within a given radius of an event, and shelter in place instructions for other portions of the public outside the evacuation perimeter. Instead of issuing two separate warnings, which could lead to confusion, use the Evacuation Immediate message as representing the higher level of urgency, but include additional shelter in place instructions in the same warning.
- You may use the Evacuation Immediate warning in relation to a weather event.
  - Although you may issue an Evacuation Immediate warning in connection with a weather event such as a flood or hurricane, consider coordinating with your local Warning Coordination Meteorologist to have your instructions incorporated within the weather warnings or local statements being issued by the NWS as an alternative.
- You may use the Shelter in Place Warning for purposes beyond hazardous materials events.
  - Shelter in place as a public protective strategy is usually thought of in the context of a hazardous materials event. It is also suitable for a radiological event. However, with modifications, it may also be suitable for a law enforcement type event. Instructions regarding ventilation systems would be omitted, and additional lockdown type instructions provided.
  - The Shelter in Place Warning is more effective when the public has been educated in advance as to the meaning of the warning.

Instruction Specific Warnings

The following are general descriptions of the two NWEMs available in the Instruction Specific Warning category:

- **Evacuation Immediate (EVI)**

Description: A warning where immediate evacuation is recommended or ordered according to state law or local ordinance.

  - This product is more appropriately used for shorter-fused events, i.e., those likely to occur within hours. For longer lead times, (such as tropical cyclones anticipated to impact a coastal area within days vs. hours), other methods may be more

appropriate for communicating longer term evacuation instructions. Saving the Evacuation Immediate warning for near the end of an available evacuation window may preserve its impact, thereby enhancing compliance among those remaining behind.

- This product would be appropriate for weather related events such as imminent dam or levee failure.

Shelter in Place Warning (SPW)

Description: A warning where the public is advised to take action by seeking cover in protected areas of their homes, schools, or workplaces.

- When using the Shelter in Place Warning, consider the needs of the public who may receive the warning while in transit.

Check your knowledge via the self-assessment quiz on the next page.

2.4 Instruction Specific Warnings Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Dam failure imminent. The appropriate NWEM is:

- ☐ **A.** Evacuation Immediate
- ☐ **B.** Shelter in Place Warning
- ☐ **C.** No Warning

Q 2. Hurricane landfall in 3 days. The appropriate NWEM is:

- ☐ **A.** Evacuation Immediate
- ☐ **B.** Shelter in Place Warning
- ☐ **C.** No Warning

Q 3. Wildfire approaching populated area. The appropriate NWEM is:

- ☐ **A.** Evacuation Immediate
- ☐ **B.** Shelter in Place Warning
- ☐ **C.** No Warning

Q 4. Anhydrous ammonia release. The appropriate NWEM is:

- ☐ **A.** Evacuation Immediate
- ☐ **B.** Shelter in Place Warning
- ☐ **C.** No Warning

2.5 Other Emergency Messages

As noted earlier, emergency messages in the Other Emergency Messages category are used for events that by themselves do not pose an imminent, significant threat. However, the event could escalate, contribute to other more serious events, or disrupt critical public safety services.

General Guidance

- Within emergency management practice, emergency operations plans usually devote an Annex to "Warnings and Alerts." The previous lessons discussed warnings; NWEMs in the Other Emergency Messages category may be thought of as corresponding to alerts.
  - An alert puts the public on notice of a potentially hazardous situation, and may provide specific or general instructions.
  - Should the situation escalate and become a more well defined hazard to a geographic area, a subsequent warning may be warranted.
  - Although the Civil Emergency Message (CEM) has been classified in the Other Emergency Messages category for the purposes of this course, it is somewhat unique. As previously pointed out, if the new codes are not implemented in your local area yet, the CEM (along with EVI) remains your primary warning option, and retains its priority status within the NWS AWIPS system.

Other Emergency Messages

Since all NWEMs sent via HazCollect are intended for EAS broadcast (in addition to NOAA Weather Radio), consider carefully whether the emergency situation warrants interruption of television and radio programming. Evaluate other available tools for distributing the alert.

The following are general descriptions of four of the NWEMs available in the Other Emergency Messages category:

- **Child Abduction Emergency (CAE)**

Description: An emergency message, based on established criteria, about a missing child believed to be abducted, (more commonly known as an Amber Alert).

  - Authorities and procedures for issuing the Child Abduction Emergency notifications are defined in state or regional Amber Alert Plans.

- **Civil Emergency Message (CEM)**

Description: An emergency message relating to a potential hazard to public safety and/or property, generally corresponding to the criteria for the Civil Danger Warning, but the threat may be less well defined.

  - An example of an appropriate use of the Civil Emergency Message may be to alert the public to high watchfulness for terrorist activity, if based on specific, credible intelligence.

- An incident involving a known theft or loss of a radiological source may also be an example of an appropriate use.

Local Area Emergency (LAE)
Description: An emergency message relating to any other type of emergency situation with potential public safety impact for a community.

- Examples may include disruptions in essential utilities or infrastructure, public health emergencies, or other potentially hazardous conditions.

- A Local Area Emergency may be issued as a result of weather related conditions that has had cascading effects impacting essential services.

911 Telephone Outage Emergency (TOE)
Description: An emergency message that provides notice of a state or local 911 network outage, defined by geographic area or telephone exchange.

- Alternative phone numbers through which to reach 911, dispatch, or emergency services personnel may be included in the accompanying instruction.

The selection of the Child Abduction Emergency or 911 Telephone Outage Emergency is relatively straightforward. The distinction between Civil Emergency Message and Local Area Emergency is less well defined. The selection is a primarily a matter of judgment based on the circumstances at hand.

You may wish to consider whether the Civil Emergency Message or Civil Danger Warning could create excessive concern among that part of the public old enough to associate the term 'civil' with the Cold War Era, 'Civil Defense' purpose of the original Emergency Broadcast System. Local Area Emergency may represent a more emotionally neutral option.

Check your knowledge via the self-assessment quiz on the next page.

2.5 Other Emergency Messages Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Convey information and instructions to the public relating to a severe heat wave by using a/an:

☐ **A.** Warning ☐ **B.** Other Emergency Message

Q 2. Convey information and instructions to the public relating to a toxic chemical release by using a/an:

☐ **A.** Warning ☐ **B.** Other Emergency Message

Q 3. Convey information and instructions to the public relating to a kidnapping of a child by using a/an:

☐ **A.** Warning ☐ **B.** Other Emergency Message

Q 4. Convey information and instructions to the public relating to an interruption of 911 service by using a/an:

☐ **A.** Warning ☐ **B.** Other Emergency Message

2.6 Updates and Corrections

The Administrative Message (ADR) is used by the NWS for a variety of routine purposes. In the context of the HazCollect system, the Administrative Message/Follow Up Statement is used to update an unexpired, previously issued warning.

Since updates must refer precisely to the previously issued alert, it is likely that your authoring software will provide a specific function to perform this tasks. You may not have an option to select the Administrative Message product per se; however, when ultimately disseminated through the NWS system, this is the product that will be used.

Your authoring software will also provide a method to correct a previously issued alert. The correction will be issued using the same NWEM message type as the originally issued alert.

General Guidance

- Corrections or updates to previously issued warnings are intended for Emergency Alert System broadcast, therefore they should be used only when warranted by significant changes from the previously issued message.

- If an NWEM is issued unintentionally, the inadvertent message should be canceled/ retracted immediately using either a correction or update, for the same geographic area. The follow-up product should state that the original message was issued in error, and that no hazardous event is expected.

Updates

- Update when the situation has materially changed, and the original alert has not expired (maximum duration of an NWEM is 6 hours).

    - An appropriate use of an update would be to cancel an existing NWEM because the threat or situation no longer exists. Examples may include providing an "All Clear" message for a previously issued Shelter in Place Warning, or cancelling an Evacuation Immediate warning.

    - Another example of an appropriate use of an update may be to provide new protective instructions, required by an evolving situation.

Corrections

- Correct when previously included information was erroneous, and when the error is non-trivial.

    - An example of an appropriate correction may be if a previously provided, alternate emergency telephone number were erroneous.

Check your knowledge via the self-assessment quiz on the next page.

2.6 Updates and Corrections Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Active shooter in custody. Previously issued warning should be:

- **A.** Corrected
- **B.** Updated
- **C.** No Message

Q 2. Precise time of chemical release has been determined. Previously issued warning should be:

- **A.** Corrected
- **B.** Updated
- **C.** No Message

Q 3. Street number of evacuation shelter was incorrect by several blocks. Previously issued Evacuation Immediate warning should be:

- **A.** Corrected
- **B.** Updated
- **C.** No Message

2.7 Local Considerations

Local considerations for implementing an effective warning program are explored more fully in Chapter 5; however, in the context of NWEM types, an additional topic is appropriate for introduction at this point.

- As mentioned in Chapter 1, the HazCollect server cannot validate authorization by specific NWEM type at this time. This raises two questions for consideration that can only be decided at the state or local level:
  - Although your jurisdiction may be authorized for warning in general, do statutes, plans or agreements assign responsibility to another competent agency for a specific NWEM type?
  - If your jurisdiction is small, one or two individuals may be responsible for all warning activities. However, if your jurisdiction is large, should specific agencies or individuals be identified for at least approving specific NWEM types in their area of expertise, prior to issue?

Job Aid #1, NWEM Worksheet

- This is a worksheet to help you start planning your HazCollect implementation by identifying the NWEMs relevant to your geographic area, verifying EAS availability, and answering the two questions posed above. All the available NWEMs are listed in a left hand column. Additional fill in columns are provided to:
  - select the NWEMs you are likely to use based on an evaluation of the hazards in your jurisdiction;
  - verify whether the desired EAS event codes are implemented by broadcasters in your EAS region;
  - review the scope of your authority in relation to specific NWEM types; and
  - identify the most appropriate agency, department or individual authorized to approve warnings.

We hope this is useful to you, and your results will be applied later in this course. See Appendix A.

2.8 Chapter Summary

Now that you have completed this chapter, you should be able to:

- *Select the appropriate NWEM product for specific hazards, specific instructions, or other emergency notifications.*
  - Hazard Specific Warnings can be used for a variety of non-weather events that are an imminent and significant threat to life and property.
  - Instruction Specific Warnings, (Evacuation Immediate and Shelter In Place) can be used to emphasize public protective actions. They are more effective when the public has been previously educated as to their meaning.
  - Emergency Notifications are used to alert the public to events that by themselves do not pose an imminent, significant threat, but could escalate or disrupt critical public safety services.
- *Understand when to correct or update previously issued warnings via Administrative Message.*
  - Corrections are issued when previously issued warnings contained erroneous information that could have an impact on the public response.
  - Updates are issued when a situation has materially changed, and may be used to provide an "All Clear" message.
- *Use Job Aid #1 to address local considerations for selecting and using NWEM products.*
  - The worksheet provided will help you to start planning your use of the available NWEM types. You can return to this Job Aid later if you have not completed it at this time. However, once you have completed the worksheet, the results will lay the foundation for effective implementation of the HazCollect system.

Quiz Answers

2.1 Background Self-Assessment Quiz
Q1 Correct Answer: False
Q 2 Correct Answer: {C, D}
Q 3 Correct Answer: Engineer*
Q 4 Correct Answer: A

2.2 NWEM Categories Self-Assessment Quiz
Q 1 Correct Answer: {A, C}
Q 2 Correct Answer: C
Q 3 Correct Answer: A
Q 4 Correct Answer: *statement*

2.3 Hazard Specific Warnings Self-Assessment Quiz
Q 1 Correct Answer: D
Q 2 Correct Answer: E
Q 3 Correct Answer: C
Q 4 Correct Answer: A
Q 5 Correct Answer: B

2.4 Instruction Specific Warnings Self-Assessment Quiz
Q 1 Correct Answer: A
Q 2 Correct Answer: C
Q 3 Correct Answer: A
Q 4 Correct Answer: B

2.5 Other Emergency Messages Self-Assessment Quiz
Q 1 Correct Answer: B
Q 2 Correct Answer: A
Q 3 Correct Answer: B
Q 4 Correct Answer: B

2.6 Updates and Corrections Self-Assessment Quiz
Q 1 Correct Answer: B
Q 2 Correct Answer: C
Q 3 Correct Answer: A

Chapter 3. NWEM Data Elements

Since all NWEM authoring software must comply with a technical standard, the Common Alerting Protocol (CAP), and additional NWS requirements, different authoring tools will work in essentially the same way. This allows us to discuss how to use NWEM authoring software to compose an NWEM in a generic way. Gaining a basic understanding of CAP will serve the warning authority well, not only for immediate use with HazCollect, but also in the longer term, as new systems and technologies based on the CAP standard are implemented nationwide.

The goal of this chapter is to explain the purpose and function of NWEM data elements so that you may apply them appropriately, regardless of which NWEM authoring software you use, and describes those elements essential to the composition of an NWEM. Once you have completed this chapter, you will:

- have a general understanding of essential NWEM data elements, including those whose values are:
    - typically derived by the authoring software
    - typically selected by the user
    - composed by the user
    - added at the HazCollect server;
- be able to apply knowledge of formatting requirements and text-to-voice considerations; and
- be able to identify the source of each part of the final NWEM that is issued through the HazCollect sytem.

This chapter should take approximately 20 - 30 minutes to complete. The topics presented are:

3.1 Background

The Common Alerting Protocol (CAP) is a technical standard adopted by a consensus standards development body, the Organization for the Advancement of Structured Information Standards (OASIS). A CAP *element* may be thought of as corresponding to the name of a field on a form; a CAP *value* may be thought of as the information that is entered into the field. The CAP standard defines which elements must or may be included, and for some elements, defines a range of permitted values. For certain elements, it defines the format of the value.

The NWS has adopted CAP for a variety of uses, including HazCollect. However, since the NWS products are also designed to comply with international standards developed through the World Meteorological Organization (WMO), an NWEM is a specialized version of a CAP alert.

Process

In Chapter 1, the path of an NWEM through the HazCollect system was described. The corresponding steps in the process, with respect to message format, are described below.

- The message is composed in CAP compliant format using NWEM authoring software, and submitted by the user for relay to the HazCollect server.

- The NWEM authoring software validates the content of each field for compliance with CAP and NWS requirements.

    - If the message is not valid, (e.g., required fields were left incomplete), the NWEM authoring software returns an error message to the user and prompts for correction.

- If valid, the message is routed to the HazCollect server through the DM-OPEN Web service.

- The HazCollect server validates:

    - that the author's COG has been pre-authorized to access the HazCollect system, and if authorized, validates the geographic scope of the message against the geographic scope of the user's authority, (as previously described in Chapter 1); and,

    - that all NWS required fields have been completed.

- If valid, the HazCollect server reformats the message for WMO compliance, and incorporates additional NWS supplied values.

- The NWS/WMO compliant message is distributed through the NWS dissemination systems, and EAS broadcast is requested.

- The user verifies that the NWEM was disseminated.

    - The only way to verify whether the NWEM was actually issued is to monitor the NWS dissemination channels (e.g. NOAA Weather Radio or text products.) The only way to verify whether the message was broadcast via the EAS system is to monitor radio and television.

Please see the following information on other CAP related initiatives. Then check your knowledge via the self-assessment quiz on the next page.

The Common Alerting Protocol is becoming a widely adopted international standard. In addition to implementation by the National Weather Service, CAP will become the standard for the next generation Emergency Alert System, the Integrated Public Alert and Warning System (IPAWS), and the Commercial Mobile Alert System (CMAS). For further information on the current status of these initiatives, see Net Links below.

Computer software can never evaluate whether the information contained in an NWEM is true, merits warning the public, or contains sufficiently complete and accurate information and instructions. This can only be ensured by human beings. The best practices described in Chapter 4, and the internal review process described in Chapter 5, and accompanying Job Aids, should help ensure your message *content* is valid.

OASIS Emegency Management Technical Committee (EM TC)
OASIS EM TC CAP Profile Subcommittee
FCC Next Generation EAS System
FEMA Integrated Public Alert & Warning System (IPAWS)
FCC Commercial Mobile Alert System (CMAS)

3.1 Background Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Put the following steps in order by numbering the boxes in the correct sequence:

- ☐ **A.** Message composed and submitted by user
- ☐ **B.** User verifies message dissemination
- ☐ **C.** HazCollect server reformats the message
- ☐ **D.** Message relayed to HazCollect server
- ☐ **E.** Message is disseminated by the NWS

Q 2. Computer software can validate whether NWEM instructions are understood by the public.

○ True ○ False

Q 3. The initial format of a HazCollect NWEM is compliant with the OASIS standard known as the Common Alerting

_____

Q 4. In the HazCollect system, initial validation of user entries is performed by the

- ○ **A.** Weather Forecast Office
- ○ **B.** HazCollect server
- ○ **C.** NWEM authoring software

3.2 Data Element Categories

Not all available CAP elements are used by HazCollect. Only the essential elements used for composing an NWEM are described in this course, including additional data elements provided at the HazCollect server.

Authoring software may vary in the specific labels that are used for the NWEM data elements, as well as value sources. Ultimately, you will need to consult your software documentation for specific implementation. For purposes of this training, a classification system based on the *typical* source of the values is used to categorize NWEM data elements.

NWEM Data Element Categories

The four categories are:

- **Software Derived Values**
  Elements whose values are usually automatically calculated and supplied by the software are classified in this category.
  - A comparable example from general usage would be the date and time stamp on an email message, derived from the user's computer system clock.
- **User Selected Values**
  Elements whose values are usually selected by the user from limited range of options are classified in this category.
  - A comparable example from general usage would be the selection of a U.S. state code from a pick list on an order form.
- **User Composed Values**
  Elements whose values are entered by the user in free text form are classified in this category.
  - A comparable example from general usage would be entering a street address on an order form.
- **NWS Supplied Values**
  Elements whose values are added at the HazCollect server during reformatting are classified in this category.
  - An example is the addition of the phrase "BULLETIN - EAS ACTIVATION REQUESTED."

In table form:

Software Derived	User Selected	User Composed	NWS Supplied
senderName	status	headline	WMO Heading
identifier	msgType	description	AWIPS ID
source	language	instruction	Universal Geo Code (UGC)
sent/effective	event	---	Broadcast Instruction
scope	areaDesc	---	NWS Relaying Office
eventCode	expires	---	Relay Text
reference	---	---	

The purpose of each of these elements, as well as applicable restrictions, will be described in the next four lessons.

Check your knowledge via the self-assessment quiz on the next page.

3.2 NWEM Element Categories Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Please choose your credit card company [ ] is an example of a data element with a value that is:

- **A.** Software Derived
- **B.** User Selected
- **C.** User Composed
- **D.** NWS Supplied

Q 2. "Please enter your last name: [ ]" is an example of a data element with a value that is:

- **A.** Software Derived
- **B.** User Selected
- **C.** User Composed
- **D.** NWS Supplied

Q 3. "BULLETIN - EAS ACTIVATION REQUESTED" is an example of an NWEM element with a value that is :

- **A.** Software Derived
- **B.** User Selected
- **C.** User Composed
- **D.** NWS Supplied

Q 4. When visiting a new website, the page displays, "Welcome, you are visitor number 865." The number 865 is an example of a data element with a value that is:

- **A.** Software Derived
- **B.** User Selected
- **C.** User Composed
- **D.** NWS Supplied

3.3 Software Derived Values

In order to minimize data entry errors, well designed software will automatically provide values derived from other values already stored in the system. This frees the user to focus on those elements that can only be provided by a human being.

The descriptions of the derived values below are provided primarily for an understanding of the source for the different items displayed in the final NWEM.

Software Derived Values

The following CAP element values are typically derived, but not always.

- **senderName**
The *senderName* element is required and is specifically formatted field for HazCollect as Collaborating Operating Group (COG) Name, City, State.

    - The *senderName* value is displayed in the final NWEM, and can be derived from a COG profile record.

- **identifier**
The *identifier* element is a unique ID number for a specific message.

    - The message *identifier* value is displayed in the signature line of the final NWEM, in combination with the *source* value.

    - The *identifier* value is also used for the *reference* element (see below) when subsequently updating or correcting a previously issued NWEM.

    - This value is typically generated by the software, derived from other values such as date, time, sequence number, random number, or other scheme.

- **source**
The *source* element represents the specific individual transmitting the message. A typical format might be Last Name+First Intitial.

    - The source value is displayed in the signature line of the final NWEM, added to the end of the message *identifier* value.

    - This value can be derived from values stored with the operator/user profile record, associated with the login ID used during message submission.

- **sent, effective**
The *sent* element refers to the date and time the message was issued, and for HazCollect, the value of the *effective* element must be the same as the value of the *sent* element.

    - The format of the *sent* value is defined in the CAP standard, and is displayed in the final NWEM.

- This value is typically derived from the user's system clock at the moment a final "Submit" or "Send" button is selected. **It can be important, therefore, that the user's system time is accurate.**

scope

The *scope* element refers to the intended distribution of the message. For HazCollect, this value is required to be set to "Public."

- The *scope* value is not displayed in the final NWEM, but is used for pre-processing, i.e., a message with any *scope* value other than "Public" is not disseminated.

eventCode

The *eventCode* element refers to the NWR SAME event codes described in the previous lesson, (e.g., CDW, EVI, LAE, etc.)

- The value is used at the HazCollect server as the first three characters of the AWIPS ID (see Lesson 3. 6).

- The user typically selects the event name from a pick list (next lesson), and the software derives the associated *eventCode* value.

reference

The *reference* element is used only to relate a subsequent correction of, or update to a previously issued NWEM.

- The user typically selects the NWEM he/she wishes to correct or update from an NWEM archive, and the software derives the associated *identifier* value of the original message.

Sample NWEM with Software Derived Values

WOUS43 KPAH 291706
TOEPAH — *AWIPS ID, eventCode*

KYC059-291806-

BULLETIN - EAS ACTIVATION REQUESTED
911 TELEPHONE OUTAGE EMERGENCY
KY DAVIESS COUNTY EMA OWENSBORO KY — *senderName*
RELAYED BY NATIONAL WEATHER SERVICE PADUCAH KY
1106 AM CST WED OCT 29 2008 — *sent/effective*

...WIDESPREAD TELEPHONE OUTAGE IN THE AREA...

THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE KY DAVIESS COUNTY EMA.

THERE ARE CURRENTLY WIDESPREAD TELEPHONE OUTAGES IN THE AREA RESULTING FROM A CUT CABLE.

IF YOU HAVE AN EMERGENCY AND CANNOT REACH 9 1 1 ... GO TO YOUR NEAREST FIRE STATION FOR HELP.

$$
DM41901119548879165 44ATHERTONW — *identifier+source*

Check your knowledge via the self-assessment quiz on the next page.

3.3 Software Derived Values Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Your computer did not automatically update for Daylight Savings Time. This could create a false value for:

- **A.** userName
- **B.** sent/effective
- **C.** identifier

Q 2. Which of the following is NOT a valid NWEM eventCode:

- **A.** TOR
- **B.** TOE
- **C.** CEM

(This is a trick question. All three are valid SAME codes, but one is not a non-weather emergency message.)

Q 3. Which of the following is NOT part of the senderName value:

- **A.** COG Name
- **B.** User's Login ID
- **3. C.** City Name

Q 4. The reference element is used for:

- **A.** providing an emergency number
- **B.** linking to a Web address
- **C.** linking to a previously issued NWEM

3.4 User Selected Values

When a limited range of available values are pre-defined, well designed software will provide the user with a means of selecting the appropriate value, typically from a pick list. This eliminates the potential for entering disallowed values.

The descriptions of the user selected values below are provided to explain the available options for selected elements, and any associated restrictions.

User Selected Values

The following CAP element values are typically selected from a pick list by the user, but not always.

- **status**

The values available for the *status* element are: Actual, Exercise, System, or Test.

  - The *status* value is not displayed in the final NWEM, but is used for processing at the HazCollect server. The HazCollect server will relay messages with a status of Actual or Exercise for broadcast. Test or System are not relayed for broadcast.
  - If the user selects Exercise, additional NWEM text is inserted at the HazCollect server in the form: ...THIS IS A TEST EXERCISE MESSAGE. DO NOT TAKE ACTION BASED ON THIS MESSAGE...
  - For real emergencies, the user should select Actual.

- **msgType**

The values available for the *msgType* element are: Alert, Error, Update, or Cancel.

  - The *msgType* value is not displayed in the final NWEM, but is used for processing at the HazCollect server. For real emergencies, the user should select Alert, if provided a choice.
  - Error, Update, or Cancel may be used by the authoring software in combination with procedures for correcting or updating an NWEM.

- **language**

The values available for the *language* element are: English or Spanish. Currently, Spanish is only valid for Puerto Rico.

  - The *language* value is not displayed in the final NWEM. Unless located in Puerto Rico, the user should select English, if provided a choice.

- **event**

The values available for the *event* element are the full names corresponding to the event codes as listed in Chapter 2, NWEM types, e.g., Civil Emergency Message.

  - The value is displayed in the final NWEM.

- The user should select the value for the *event* element most appropriate to the situation, as discussed in Chapter 2.

areaDesc

The values available for the *areaDesc* element are the names of U.S. counties or states.

- The software should present a pick list of only those areas within the scope of the user's warning authority. For example, a state authority may have a pick list consisting of all the counties within the state, whereas a local authority may only have the option of selecting his own county.

- For state or regional warning authorities, the software should allow the selection of more than one county at a time, when required by the hazardous situation. However, only those areas for whom the warning is effective should be included.

- The *areaDesc* value is not displayed in the final NWEM, but is used for processing at the HazCollect server.

expires

The *expires* element represents the time the NWEM is to expire in EAS, on NWR, and in NWS dissemination systems. The values available are relative to the *sent/effective* time described in the previous lesson, and must meet specific EAS criteria:

- The difference between the purge time and sent time cannot exceed 6 hours.

- For purge times longer than 2 hours from the time sent, the only allowable values are exact 30 minutes intervals.

- For purge times shorter than 2 hours from the time sent, the only allowable values are exact 15 minutes intervals.

- The value that is displayed in the final NWEM is derived at the HazCollect server based on the user selection, and forms the second part of the Universal Geographic Code (UGC). The corresponding Coordinated Universal Time (UTC) is displayed in the format ddhhmm, i.e., day, hour, minute .

- The user should select the purge time appropriate to the hazardous situation. This time may also be based on an anticipated situation update.

Sample NWEM with User Selected Values

WOUS43 KPAH 291706
TOEPAH
KYC059-**291806**- *expires (UGC)*

BULLETIN - EAS ACTIVATION REQUESTED
911 TELEPHONE OUTAGE EMERGENCY *event*
KY DAVIESS COUNTY EMA OWENSBORO KY
RELAYED BY NATIONAL WEATHER SERVICE PADUCAH KY
1106 AM CST WED OCT 29 2008

...WIDESPREAD TELEPHONE OUTAGE IN THE AREA...

THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE KY DAVIESS COUNTY EMA.

THERE ARE CURRENTLY WIDESPREAD TELEPHONE OUTAGES IN THE AREA RESULTING FROM A CUT CABLE.

IF YOU HAVE AN EMERGENCY AND CANNOT REACH 9 1 1 ... GO TO YOUR NEAREST FIRE STATION FOR HELP.

$$
DM41901119548879165 44ATHERTONW

Please see the following link if you would like more detailed information about how the NWS handles event times. Then check your knowledge via the self-assessment quiz on the next page.

NWS Instruction 10-1703, Valid Time Event Code

3.4 User Selected Values Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. In a real emergency, the status value that should be selected is:

- ☐ **A.** Actual
- ☐ **B.** Exercise
- ☐ **C.** Test

Q 2. Selecting Spanish for the language element will cause your English message to be translated into Spanish.

☐ True ☐ False

Q 3. In a real emergency, the msgType valued that should be selected for the initial warning is:

- ☐ **A.** Alert
- ☐ **B.** Update
- ☐ **C.** Cancel

Q 4. You are about to issue a Shelter in Place Warning for a toxic release that has occurred. Plume modelling indicates that indoor concentrations will exceed outdoor concentration in 1 hour and 45 minutes. You may set expiration in:

- ☐ **A.** 15 minute increments
- ☐ **B.** 30 minute increments
- ☐ **C.** 1 hour increments

3.5 User Composed Values

0The next three elements described are those whose values must be provided by the user as free text, and contain the most significant part of the NWEM, the actual message. The values are typed in by the user, but must comply with specific requirements.

NWEM authoring software may differ as to whether these fields are required or not. General guidance is to always include all three.

User Composed Values

- **headline**

The *headline* is a brief description of the message content.

  - The maximum length of a *headline* is 160 characters, including blank spaces.
  - The *headline* should be as direct and actionable as possible, while remaining short.
  - The *headline* is displayed in NWS text roducts, preceded and followed by ellipses (...). The headline is included in the audio message broadcast over NOAA Weather Radio.

- **description**

The *description* is the information about the hazardous situation.

  - The combined length of *description* and *instruction* should not exceed 160 words, to fit within the two minute maximum audio length imposed by the Emergency Alert System.
  - The *description* is displayed in NWS text products, and is included in the audio message broadcast over NOAA Weather Radio.

- **instruction**

The *instruction* is the information about the protective actions the public should take.

  - The *instruction* is displayed in NWS text products, and is included in the audio message broadcast over NOAA Weather Radio.

Allowable Characters

- Your software may automatically validate the use of allowable characters, and/or it may convert or substitute allowable characters for invalid ones. Characters allowed by the NWS dissemination system at this time are:

  - Uppercase letters
  - Numerals
  - Plus (+) sign

- Minus or dash (-) sign
- Period (.)
- Ellipsis (...)
- Forward slash (/)
- Asterisk (*) may be used for bullet points

Text to Voice

Text is converted to a voiced audio message for NOAA Weather Radio broadcast by computer.

- Each local Weather Forecast Office (WFO) has an associated dictionary of commonly used local names, for the purpose of improving pronunciation, and a word substitution list for the purpose of expanding acronyms or abbreviations. It is highly recommended that you consult with your local WFO, to ensure that your COG name, and place names not commonly used in weather forecasts can be accommodated, and/or address any abbreviations you anticipate using on a regular basis.

- Normal telephone numbers in the format nnn-nnn-nnnn are handled correctly by the system. However, if 9-1-1 were entered using dashes, it would be rendered "nine TO one TO one." 911 would be rendered "nine hundred eleven." To avoid this difficulty, use spaces instead of dashes, i.e., 9_1_1, where underscores represent blank spaces.

- License plate numbers, which may be used in Child Abduction Emergencies or Law Enforcement Warnings, vary in format from state to state, and can present difficulties for text to voice conversion. For example, WES 460 would be rendered "wess four hundred sixty." Confer with your WFO for guidance on this topic.

Sample NWEM with User Composed Values

WOUS43 KPAH 291706
TOEPAH
KYC059-291806-

BULLETIN - EAS ACTIVATION REQUESTED
911 TELEPHONE OUTAGE EMERGENCY
KY DAVIESS COUNTY EMA OWENSBORO KY
RELAYED BY NATIONAL WEATHER SERVICE PADUCAH KY
1106 AM CST WED OCT 29 2008

...**WIDESPREAD TELEPHONE OUTAGE IN THE AREA**... *headline*

THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE
KY DAVIESS COUNTY EMA.

THERE ARE CURRENTLY WIDESPREAD TELEPHONE OUTAGES IN THE AREA RESULTING FROM A CUT CABLE. *description*

IF YOU HAVE AN EMERGENCY AND CANNOT REACH 9 1 1 ... GO TO YOUR NEAREST FIRE STATION FOR HELP. *instruction*

$$
DM41901119548879165 44ATHERTONW

Please see the following link if you would like more detailed information about NWS text product formats. Then check your knowledge via the self-assessment quiz on the next page.

NWS Instruction 10-1701, Text Product Format and Codes

3.5 User Composed Values Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. "Tune to local radio and television for further information" could be included as a value for:

- ☐ **A.** headline
- ☐ **B.** description
- ☐ **C.** instruction

Q 2. Which of the following contains invalid characters?

- ☐ **A.** RESIDENTS ARE URGED TO "SHELTER-IN-PLACE"
- ☐ **B.** IF YOU HAVE AN EMERGENCY, CALL 1-800-555-1212.
- ☐ **C.** TAKE ACTION IMMEDIATELY!

Q 3. Text is converted to voiced audio by _____

Q 4. The maximum combined length of description and instruction cannot exceed 160 characters.

☐ True ☐ False

3.6 NWS Supplied Values

NWEM data elements are added during the reformatting that occurs at the HazCollect server. Although these elements are also derived, we have classified them in a category of their own.

The descriptions of the NWS supplied values are provided primarily for an understanding of the source and meaning of the remaining items, all of which are displayed in the final NWEM.

NWS Supplied Values

- **WMO Heading**
  The WMO Heading is included for routing purposes. (For further details), see the Net Links below.

- **AWIPS ID**
  The first three characters of the AWIPS ID are derived from the NWEM type, previously mentioned in Lesson 3.3. The second three characters identify the cognizant Weather Field Office.

- **Universal Geographic Code (UGC)**
  The first six characters of the UGC include a two letter state code, the letter C designating the county form of UGC, and a three number county code derived from a Federal Information Processing Standards (FIPS) code, passed to the HazCollect server by the authoring software. The "$$" symbol delimits the portion of the message to which the UGC applies.

- **Broadcast Instruction**
  The identical broadcast instruction is added for all NWEMs transmitted through HazCollect:

  BULLETIN - EAS ACTIVATION REQUESTED

- **NWS Relaying Office**
  The NWS Relaying Office is derived based on county location and identified in an added statement:

  RELAYED BY NATIONAL WEATHER SERVICE [CityName StateCode]

- **Relay Text**
  The requesting COG is derived from a HazCollect record created during the authorization process and identified in an added statement:

  THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE [COGName]

  - The Relay Text is included in the audio message broadcast over NOAA Weather Radio.

Sample NWEM with NWS Supplied Values

WOUS43 KPAH 291706	*WMO Heading*
TOE**PAH**	*AWIPS ID, WFO Code*
KYC059-291806-	*UGC (county form)*
BULLETIN - EAS ACTIVATION REQUESTED	*Broadcast Instruction*
911 TELEPHONE OUTAGE EMERGENCY KY DAVIESS COUNTY EMA OWENSBORO KY	
RELAYED BY NATIONAL WEATHER SERVICE PADUCAH KY	*NWS Relay Office*
1106 AM CST WED OCT 29 2008	
...WIDESPREAD TELEPHONE OUTAGE IN THE AREA...	
THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE KY DAVIESS COUNTY EMA.	*Relay Text*
THERE ARE CURRENTLY WIDESPREAD TELEPHONE OUTAGES IN THE AREA RESULTING FROM A CUT CABLE.	
IF YOU HAVE AN EMERGENCY AND CANNOT REACH 9 1 1 ... GO TO YOUR NEAREST FIRE STATION FOR HELP.	
$$	*UGC, Delimiter*
DM41901119548879165 44ATHERTONW	

Please see the following links if you would like more detailed information about NWS UGC codes and WMO headers.

NWS 10-1702, Universal Geographic Code
NWS WMO Communication Header Description

3.7 Chapter Summary

Now that you have completed this chapter, you should be able to:

- *Generally understand the essential data elements of an NWEM, presented in Lessons 3.3-3.6.*
  - NWEM authoring software should automatically derive values and present pick lists, to ensure the formation of a technically valid message, and to free you to focus on those elements for which you are responsible.
- *Understand the primary elements for which you are responsible -- headline, description, and instruction. With respect to these elements you should be able to:*
  - apply knowledge of length limitations;
  - apply knowledge of character limitations; and
  - follow up with your local WFO to identify any potential text-to-voice issues.
- *Identify the source of each part of the final NWEM*:

WOUS43 KPAH 291706	*WMO Heading*
TOEPAH	*eventCode, WFO Code*
KYC059-291806-	*UGC + expires*
BULLETIN - EAS ACTIVATION REQUESTED	*Broadcast Instruction*
911 TELEPHONE OUTAGE EMERGENCY	*event*
KY DAVIESS COUNTY EMA OWENSBORO KY	*senderName*
RELAYED BY NATIONAL WEATHER SERVICE PADUCAH KY	*NWS Relay Office*
1106 AM CST WED OCT 29 2008	*sent*
...WIDESPREAD TELEPHONE OUTAGE IN THE AREA...	*headline*
THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE KY DAVIESS COUNTY EMA.	*Relay Text*
THERE ARE CURRENTLY WIDESPREAD TELEPHONE OUTAGES IN THE AREA RESULTING FROM A CUT CABLE.	*description*
IF YOU HAVE AN EMERGENCY AND CANNOT REACH 9 1 1 ... GO TO YOUR NEAREST FIRE STATION FOR HELP.	*instruction*
$$	*UGC, Delimiter*
DM41901119548879165 44ATHERTONW	*identifier + source*

Quiz Answers

3.1 Background Self-Assessment Quiz
Q1 Correct Answer: ADCEB
Q 2 Correct Answer: False
Q 3 Correct Answer: Protocol
Q 4 Correct Answer: A

3.2 NWEM Element Categories Self-Assessment Quiz
Q 1 Correct Answer: B
Q 2 Correct Answer: C
Q 3 Correct Answer: D
Q 4 Correct Answer: A

3.3 Software Derived Values Self-Assessment Quiz
Q 1 Correct Answer: B
Q 2 Correct Answer: A
Q 3 Correct Answer: B
Q 4 Correct Answer: A

3.4 User Selected Values Self-Assessment Quiz
Q 1 Correct Answer: A
Q 2 Correct Answer: False
Q 3 Correct Answer: A
Q4 Correct Answer: A

3.5 User Composed Values Self-Assessment Quiz
Q 1 Correct Answer: C
Q 2 Correct Answer: {A, B, C}
Q 3 Correct Answer: *computer*
Q 4 Correct Answer: False

Chapter 4. Warning Best Practices

A considerable body of literature exists regarding what is generally termed "public risk communication." This chapter focuses on best practices with respect to the warning or alerting decision, message content, and message style elements. These elements are described in the context of the steps individuals follow in response to receiving an emergency message. The purpose is to ensure that your emergency messages will be as effective as possible.

The goal of this chapter is to assist you in making the decision to warn, and in composing well written warnings and alerts. Once you have completed this chapter, you will be able to:

- apply understanding of the social context for effective warnings and alerts;
- use Job Aid #2, Warning Decision Tree, to assist you in deciding when warnings and alerts are appropriate;
- write NWEM hazard descriptions to include essential information (who, what, when, and where);
- write NWEM public protective instructions to include essential information (why and how);
- consider elements of style when composing an NWEM;
- use Job Aid #3, Generic Warning Template, as a basis for customizing your own NWEM templates; and,
- plan for monitoring public response.

This chapter should take approximately 25 - 35 minutes to complete. The topics presented are:

4.1 Social Context

The history of unheeded disaster warnings may very possibly date to the earliest days of civilization, if not before. Social science research on the public response to warnings began in earnest during the 1950's, and continues to this day. (See Net Links below to access *Annotated Bibliography for Public Risk Communication: On Warnings for Public Protective Actions Response and Public Education*, Revision 4 dated September 2006, which summarizes nearly 350 studies.)

During 1990, a definitive study by Dennis Mileti and John Sorensen was published, *Communication of Emergency Public Warnings: A Social Science Perspective and State-of-the-Art Assessment*, that summarized and synthesized the research findings to that point. The content of this chapter is based on these research findings, however by necessity, must be limited in scope and depth. The full document may be accessed (see Net Links below), and is recommended for future reference.

This lesson provides a summary of the social context within which your warning must achieve the desired result -- getting the public to act!

The Warning Response Process

Individuals usually follow the same general process, from the time they receive a warning until the time they decide how to respond. Attributes of both the message sender and the message receiver affect the outcome. Subsequent lessons in this chapter relate implications of this process to effective warning practices.

Hearing

Hearing, in this case, goes beyond the physical act; rather, it refers to whether the message receiver actually pays attention to what is heard.

- Research suggests that the more channels that are used for the warning message, the more likely it is to be received and attended to. A virtue of the HazCollect system is that it already provides the opportunity to use multiple channels, including NOAA Weather Radio, EAS broadcast, and NWS text products.

- Other tools that may be available to you may include sirens, local media, automated telephone ring down system, emergency hotline number, 211 referral service, or government Website.

- A consideration in this category is the special needs of the hearing impaired. SAME enabled NOAA Weather Radios typically provide connections to assistive alerting devices. (See Net Links below for more information.)

Understanding

Understanding also goes beyond mere correct interpretation to comprehension of meaning and significance.

- The receiver's understanding is enhanced by previous similar experience with the hazard and protective action instructions.

- Although the results from research are mixed, pre-disaster public awareness efforts should increase the likelihood of comprehension in response to an actual event. Mileti and Sorensen state:

  > ... we do know that knowledge regarding a hazard, appropriate protective actions in response to hazard warnings, and the character of existing warnings systems are the major topics which should be covered by public education.

- Attributes of the message content, with respect to specific information about the characterization of the hazard (what), risk location (where), time available to respond (when), and protective instructions (why, how) affect comprehension.

Believing

Believing refers to whether the receiver finds the message credible.

- Three significant factors relating to the source of the message (who), have been found to be important to enhancing credibility of the message:
  - how well known (i.e. familiar) the source is;
  - whether the source is perceived to be an official source; and
  - the personal or professional credibility of the source.

Personalizing

Personalizing refers to the degree to which the receiver identifies whether or not he or she will be personally affected by the hazard.

- An obstacle to be overcome is the tendency for people to be overly optimistic, i.e., "It won't happen to me."

Deciding and Responding

The message receiver decides what, if any, action to take in response.

- The response decision may be determined to a large degree by whether the recommended protective action is realistically feasible for the individual.

Confirming

A response action that many people take is to seek additional information from other sources, typically friends and relatives, to help better understand the event and confirm decisions.

- By necessity, initial warnings are limited in nature, which increases confirmation seeking activity. Whenever possible, alternative sources of additional, more detailed information should be referenced.

Please see the following links for further information on warning research and NWR for the hearing impaired. Then check your knowledge via the self-assessment quiz on the next page.

Annotated Bibliography for Public Risk Communication
Communication of Emergency Public Warnings
Effective Disaster Warnings
NWR for Deaf and Hard of Hearing

4.1 Social Context Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Which of the following is not a step in the response process?

- ☐ **A.** Understanding
- ☐ **B.** Personalizing
- ☐ **C.** Projecting
- ☐ **D.** Hearing

Q 2. Which of the following is usually a positive factor for credibility?

- ☐ **A.** Anonymity
- ☐ **B.** Remoteness
- ☐ **C.** Official source

Q 3. A step in the response process that seeks additional sources of information is called _____

Q 4. Specific information as to the location of the hazard is important for which of the following?

- ☐ **A.** Personalizing
- ☐ **B.** Hearing
- ☐ **C.** Believing

4.2 Alerting Criteria

Deciding whether to issue a warning or other emergency alert can be a difficult decision. Ultimately it will be a matter of local judgement; however, it will be helpful to have an outline of decision criteria to assist you with the process. Your State or Local EAS Plan may provide criteria for activating the Emergency Alert System, and if so, should be incorporated into your local planning.

The following criteria are derived from National Weather Service definitions and practice. The decision points below are illustrated in Job Aid #2, Warning Decision Tree flow diagram. See Appendix B.

- **Warning or Other Emergency Alert?**

Assuming you are starting from an occurring or impending potentially hazardous event, the first question is whether or not the event meets the definitions for warning or emergency first described in Chapter 2.

- "Warning messages are issued for those events that alone pose a significant threat to public safety and/or property, probability of occurrence and location is high, and the onset time is relatively short." From this definition, the following criteria may be derived:
  - Does this event pose a **significant threat** to public safety and/or property?
  - Is the probability of occurrence high?
  - Is the location well defined?
  - Is the onset time relatively short (within the maximum 6 hour duration of an NWEM)?
  - If the event fails to meet the criteria for issuing a warning, then consider whether the event meets the criteria for another type of emergency alert.
- "Emergency messages are issued for those events that by themselves would not kill or injure or do property damage but indirectly may cause other things to happen that result in a hazard."
  - Does the event meet the description of specific purpose NWEM emergency alert types such as Telephone Outage Emergency, Child Abduction Emergency, Avalanche Watch?
  - If not, does the event constitute a Local Area Emergency or qualify for a Civil Emergency Message?
  - If the event fails to meet the criteria for either a warning or other emergency alert message, consider other means of dissemination.

Is it Night?

Assuming that the event does meet NWEM criteria, the next criteria to consider is time of day.

- NWEMs are not only broadcast over NOAA Weather Radio, they will also cause the NWR alarm to sound. Therefore, **only the most imminent and hazardous events should be issued during nighttime hours**, generally after 10:00 PM and before 7:00 AM local time. (Consult your Weather Field Office for guidance as to local practice.)

- Generally speaking, only those events meeting the criteria for warnings should be considered for nighttime broadcast. Other emergency alerts should be reserved for daytime broadcast.

- Finally, assuming that the event meets the general criteria for a warning, the final criteria should be whether the threat is severe enough, over a large enough geographic area, and the protective instructions useful enough, to warrant waking a sleeping public.

Refer to Job Aid #2 for a Warning Decision Tree diagram. Then check your knowledge via the self-assessment quiz on the next page.

4.2 Alerting Criteria Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. Apply the warning criteria outline to the following scenario: midnight train derailment with chlorine gas release has occurred near a populated area.
Significant threat to public safety?

☐ True ☐ False

Q 2. Probability of occurrence high?

☐ True ☐ False

Hint: The probability of an event that has already occurred or is occurring is 100%.

Q 3. Location well defined?

☐ True ☐ False

Q 4. Onset time relatively short?

☐ True ☐ False

Q 5. Since it is nighttime, is the threat severe enough to justify issuing a nighttime warning?

☐ True ☐ False

4.3 Description Content

Now that the decision has been made to issue a warning, the work of composing begins. This lesson presents some considerations for composition of the *description* element of the NWEM. The approach taken follows the journalism model -- Who? What? When? Where?

- **Who?** relates to both the source of the message and the intended receivers of the message.
  - The NWEM should contain an opening statement as to the source of the message.
    - Consider whether identifying a specific official or department would have more impact on the credibility of the warning than just the name of the jurisdiction. The purpose would be to facilitate the believing step in the response process described earlier in this chapter.
    - Refer to your Job Aid 1, for the identity of a cognizant individual based on the type of NWEM being issued. For example, a Chief of Police might serve as a credible source for a Law Enforcement Warning. A Public Health Official may have more credibility for a Radiological Hazard Warning.
    - Consider the personal characteristics of the individual -- familiarity, official source, personal and professional credibility.
  - The NWEM should have a statement indicating who the warning is for.
    - The purpose of this statement is to assist in the personalizing step of the response process.
    - This may be a general statement such as "PERSONS LIVING ... WORKING ... OR TRAVELING IN THE VICINITY OF..."
- **What?** refers to the description of the hazardous event.
  - The NWEM should have a statement that briefly describes the hazardous event.
    - Given the EAS constraints on message length, the description cannot be too detailed, yet must be specific enough to enhance the understanding step and minimize confirming activity in the response process.
    - More detail may be required to explain an unfamiliar event vs. a familiar one. For example, in an area where there is a yearly wildfire hazard, less detail may be needed about the nature of the threat. Conversely, in most communities, there is little experience with a Radiological Hazard Warning, and more detail may be needed.
    - Characterize the level of certainty and potential severity as accurately and comprehensibly as possible.

- **When?** relates to both the effective time of the warning as well as the actual or expected time of the onset of the hazard. Including this information enhances understanding.

    - The NWEM should include a statement as to the beginning and ending effective times of the warning. (This may or may not coincide with the NWS valid times.) An example might be, "EFFECTIVE IMMEDIATELY AND EXTENDING UNTIL 6 PM THIS EVENING..."

    - The NWEM should include a statement that the hazard event either has occurred, or the time when it is expected to occur.

- **Where?** relates to the location of the hazard event and the geographic area impacted. Including this information enhances the personalizing step in the response process, as well as understanding.

    - The NWEM should have a statement that describes the geographical area that is expected to be at risk from the hazardous event.

        - In describing location, consider the needs of visitors unfamiliar with local street names or pre-designated zones, especially in communities with a high level of tourism.

Check your knowledge via the self-assessment quiz on the next page.

4.3 Description Content Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. "THE PUBLIC INFORMATION OFFICER FOR DISASTER COUNTY HAS ISSUED ..." potentially lacks credibilty due to insufficient:

- **A.** Location
- **B.** Familiarity
- **C.** Timeliness

Q 2. "THE NATIONAL HOMELAND SECURITY ADVISORY SYSTEM THREAT LEVEL HAS BEEN RAISED TO ORANGE" potentially lacks sufficient :

- **A.** Specificity
- **B.** Timeliness
- **C.** Official source

Q 3. "A CHLORINE GAS RELEASE HAS OCCURRED IN PRECINCT 5" potentially lacks specificity with respect to:

- **A.** Who
- **B.** When
- **C.** Where

Q 4. "CRACKS IN THE OLD LAKE DAM HAVE BEEN OBSERVED AND FAILURE MAY OCCUR" potentially lacks specificity with respect to:

- **A.** Who
- **B.** When
- **C.** Where

4.4 Instruction Content

This lesson presents some considerations for composition of the *instruction* element of the NWEM. Although the Who? When? Where? and What? may also apply to protective instructions to some extent, for simplification the focus is on the Why? and How? questions.

- **Why?** refers to providing a brief explanation as to the reason for complying with the protective instructions, and encompasses both the harmful effects to be avoided and a characterization of the urgency. The purpose of these statements is to assist in the personalizing step of the response process.
  - The NWEM should contain a statement of the reason for complying with protective instructions.
    - If necessary, this may be a general statement such as, "TO PROTECT YOURSELF FROM POTENTIALLY HARMFUL EFFECTS..."
  - The NWEM should contain a statement characterizing the urgency of complying with protective instructions.
    - This statement is used to identify where the protective instruction falls on a scale ranging from "advised" to "ordered." Variants may include: advised, recommended, strongly recommended, urged, strongly urged, etc., depending on the situation.
- **How?** relates to the specific instructions, including what to do, what not to do, and where to get further information. The purpose of these statements is to assist in the understanding step of the response process. The NWEM should have statements describing:
  - What TO Do
    - A bulleted or numbered list of actions aids in comprehension.
    - Order the list with the most important instructions first, or where applicable, in a logical sequence of steps.
  - What NOT to Do
    - Do not overlook instructions about actions to avoid.
    - Common examples include:
      "DO NOT CALL 9 1 1 UNLESS YOU HAVE AN ACTUAL PERSONAL EMERGENCY"
      "DO NOT PICK UP YOUR CHILDREN FROM SCHOOL"
      "DO NOT CALL THE WEATHER SERVICE"
  - Where to Get Further Information

- A statement as to where to get further information is important to the confirming step of the response process.

- If necessary, this may be a general statement such as, "FOR FURTHER INFORMATION .... TUNE TO LOCAL RADIO AND TELEVISION," assuming you plan to provide the media with updates.

- Provide a source of information about any direct assistance that may be available. Consider coordinating with 2 1 1 Information and Referral Services for this purpose, if you are unable to staff a phone bank yourself.

Check your knowledge via the self-assessment quiz on the next page.

4.4 Instruction Content Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, check the answers at the end of this chapter and find out how you did.

Q 1. "THE FOLLOWING ACTIONS ARE SUGGESTED ..." does not convey a sense of _____

Q 2. Providing an explanation of the reason for compliance will:

- ☐ **A.** Unnecessarily alarm the public
- ☐ **B.** Enhance personalizing
- ☐ **C.** Reinforce complacency

Q 3. For a terrorist chemical attack, where individuals have left the scene before responders arrived, place the following instructions in order by numbering the boxes in the correct sequence.

- ☐ **A.** Call the Police Department for further instructions
- ☐ **B.** Do not go to the Emergency Room
- ☐ **C.** Shower with soap and warm water
- ☐ **D.** Remove clothing and seal in a plastic bag

Q 4. To minimize the amount of time spent in confirming activity, it is important to:

- ☐ **A.** Make instructions clear
- ☐ **B.** Provide a source for further information
- ☐ **C.** Include actions to avoid

4.5 Style Considerations

How you write an NWEM is nearly as important as what you write. Poorly written warnings can undermine both understanding and believing.

Writing an NWEM presents special challenges in that a) the message must be very concise, b) preparation time may be very short, and c) the NWEM is intended to be both read (text products) and heard (audio products, i.e., NOAA Weather Radio and EAS Broadcast).

"Style" refers to how you write. This lesson describes style elements that research has identified as being significant for warnings, and concludes with some general considerations.

Style Elements

- **Be Specific**
  - If the message is not specific enough about the Who? What? When? Where? Why? and How?, the public will spend more time seeking specific information in the confirming step of the response process.
  - If necessary, be specific about what is or is not known about the hazard.
- **Be Consistent**
  - An NWEM should be internally consistent, that is, one part of the message should not contradict another part.
  - An NWEM should be consistent with messages that are distributed via other channels.
  - To the extent possible, NWEMs should be consistent from event to event, to the degree that the hazard is similar.
- **Be Certain**
  - Avoid conveying a sense of uncertainty, either in content or in tone.
  - Confine the message to what is known, or if necessary, describe what is unknown in certain terms. Do not guess or speculate.
- **Be Clear**
  - Use common words that can easily be understood. Do not use technical terminology or jargon.
  - If protective instructions are precautionary, state so clearly.
  - Make it clear if protective instructions pertain to particular at risk populations, (e.g., elderly).

- If the probability of occurrence of the hazard event is less than 100%, try to convey in simple terms what the likelihood of occurrence is.

Be Accurate

- Do not overstate or understate the facts.
- Do not omit important information.
- Show respect for the intelligence and judgement of your public. Research belies the commonly accepted notion that the general public will react with panic in a hazard situation.

General Considerations

Check Your Work

- Your NWEM authoring software most likely will provide a spell checking tool; however, a spell checker will not catch when you have erroneously included a word that is spelled correctly, but is the wrong word!
- Once composed, read the message aloud, preferably to another individual, to evaluate whether the message is understandable in audio form.

Use Templates

The use of NWEM templates, tailored to those hazards likely in your warning area, can help prevent errors or omissions that can occur in moments of urgency. By using pre-designed templates, you also have the opportunity to review for suitable style in advance.

Using templates is addressed in the next lesson; however, if you do utilize templates, make sure they are customized for NWEM/EAS messages. Using a template that was designed for a media release would be inappropriate, for example.

Check your knowledge via the self-assessment quiz on the next page.

4.5 Style Considerations Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, click the button to submit your answers, and find out how you did.

Q 1. "CHEMICAL CONCENTRATIONS IN EXCESS OF THE 35 PPM PEL HAVE BEEN RECORDED IN THE AREA" lacks.

- **A.** Specificity
- **B.** Consistency
- **C.** Certainty
- **D.** Clarity
- **E.** Accuracy

Q 2. "DO NOT RETURN TO YOUR HOME UNLESS YOU NEED TO" lacks:

- **A.** Specificity
- **B.** Consistency
- **C.** Certainty
- **D.** Clarity
- **E.** Accuracy

Q 3. "THE LEVEL OF RADIATION DETECTED WILL NOT HAVE ANY LONG TERM HEALTH EFFECTS" lacks:

- **A.** Specificity
- **B.** Consistency
- **C.** Certainty
- **D.** Clarity
- **E.** Accuracy

Q 4. "THEY THINK THE POWER WILL BE RESTORED TO THE 9 1 1 CALL CENTER BY TONIGHT" lacks:

- **A.** Specificity
- **B.** Consistency
- **C.** Certainty
- **D.** Clarity
- **E.** Accuracy

4.6 NWEM Templates

Pre-planned, pre-designed templates can assist you in the task of composing an effective NWEM by providing a framework for your message . When a hazard event occurs, the framework is completed with the particulars.

- With Job Aid #1, you decided which types of NWEMs you were most likely to use in your warning area. For each type, inventory whether you already have an existing template.
  - For those templates you already have (if any), review and update in light of the best practices described in this chapter.
  - For those templates that may be missing, research whether your state Emergency Operations Plan's Warning Annex, or other state guidance may provide a template source. Job Aid #3, below, may also assist you in getting started.
  - If you have designated specific, individual approval authorities by NWEM type (see Job Aid #1), involve them in the template development and review process.
  - Once you are satisfied with your templates, your NWEM authoring software should provide you with the capability to enter and store them for future use.
- Incorporate your templates in an Appendix to your HazCollect Standard Operating Procedure (discussed in Chapter 5).
  - During an After Action Review for any exercise or actual event, include a review of your templates. If any deficiencies are found, update to incorporate lessons learned.

Job Aid #3, Generic NWEM Template

See Appendix C for Job Aid #3.

- This Job Aid is provided to illustrate the template concept, and incorporates best practices described in the previous lessons. It is not intended to be your actual template, but may be further customized based on NWEM type and local practice.
  - The Job Aid is a non-functional, online form. That is, the form does not actually produce a cleanly formatted text NWEM. However, once you have opened the Job Aid in your browser, you can save a copy to your local drive. You should then be able to open with your word processing software and customize as needed.

4.7 Monitoring Response

Once the NWEM has been issued via HazCollect, the only way to verify that it has been disseminated is to monitor NOAA Weather Radio, NWS text products, and the Emergency Alert System broadcast over local television and radio. This type of monitoring also provides the first opportunity to check whether the audio message has been rendered accurately from your text.

However, beyond verifying delivery of the NWEM to the public, a monitoring system to gather feedback as to how the public is responding to the emergency message is important to evaluating the effectiveness of the message. According to Mileti and Sorensen:

A public monitoring system is an important part of a comprehensive warning plan even though it may not seem relevant before a disaster. A number of postdisaster audits show that if officials had known what was happening, a revised message or a different warning strategy could have produced a more effective response or, in some cases, saved lives. Yet, few emergency plans have adopted the concept of a monitoring system.
Analysis of the data collected from monitoring efforts can identify trends in the public response, and if the response is inadequate, can indicate what further warning or alerting efforts may be required.

Methods of Monitoring

- The methods used for monitoring will vary depending on the hazard and the type of protective instructions issued. Monitoring methods may include:

    1. ▪ reviewing news media reports;

    ▪ reviewing comments from the public published through social media (Facebook, Twitter, etc.) ;

    ▪ reviewing reports of observations from first responders in the field;

    ▪ reviewing activity at any phone bank, Information and Referral Service (211), or 911 call center;

    ▪ reviewing reports of misdirected calls from the public;

    ▪ reviewing data from any available traffic counters or cameras; and/or,

    ▪ reviewing activity reports from shelters, if opened.

- Another type of evaluation activity that may prove useful over a longer term is a post-event survey, whereby a representative sampling of the public is asked whether they received the warning, believed the warning, and took action in response.

    ▪ The National Weather Service conducts service assessments for major weather events that review NWS issued warnings. (See Net Links below to access NWS Service Assessment reports.)

    ▪ If this type of research activity is beyond the capacity of your organization, consider partnering with a college emergency management program that may have students willing and able to do survey design and data collection. (See Net Links below to access the FEMA Higher Éducation Program lists of colleges with emergency management related degree programs.)

Planning Considerations

- Review the suggested monitoring methods, and any others you may have available, and where feasible, incorporate the method into your Warning Annex and/or Standard Operating Procedures (SOP).
  - For each method selected, identify the source of the monitoring data by responsible official.
  - Consider developing job aids such as reporting forms, or adding sections to existing reporting forms, for summarizing monitoring data.
  - Determine to whom monitoring reports will be routed for analysis and with what frequency (e.g., once per day, etc.).
  - Consider adding a section to daily, summary level incident report forms for an assessment of the public response.

Please see the following links for further information on NWS service assessments and potential resources for post-event research. Then check your knowledge via the self-assessment quiz on the next page.

NWS Service Assessment Reports
FEMA Higher Education Program College List

4.7 Monitoring Response Self-Assessment Quiz

Select the appropriate answer(s) for each question or enter the answer in the blank provided. When you are done, click the button to submit your answers, and find out how you did.

Q 1. To ensure effective warning, a monitoring system should be incorporated into emergency operations _____

Q 2. NWEM authoring software will notify you that your NWEM has been disseminated through the NWS system and EAS.

- ☐ True
- ☐ False

Q 3. Which of the following is not a public response monitoring method?

- ☐ **A.** Reviewing data from traffic counters or cameras
- ☐ **B.** Reviewing shelter activity reports
- ☐ **3. C.** Reviewing data from chemical detectors
- ☐ **4. D.** Reviewing call center activity reports

Q 4. A method of response evaluation that may be useful in the longer term is the post-event _____

4.8 Chapter Summary

Now that you have completed this chapter, you should be able to:

- *Understand the warning response process , and how message content and style can impact each step.*
  - The six steps discussed were:
    - Hearing
    - Understanding
    - Believing
    - Personalizing
    - Deciding/responding
    - Confirming
- *Understand and apply alerting criteria in making the decision whether and/or when to issue an NWEM.*
  - Use Job Aid #2, Warning Decision Tree, to assist you in the decision process.
- *Use the journalistic approach to message content elements, to ensure that essential information is included in your message.*
  - Who? What? When? Where? were discussed in the context of the NWEM *description* element.
  - Why? and How? were discussed in the context of the NWEM *instruction* element.
- *Apply principles of style in the composition of NWEMs.*
  - The five style elements discussed were:
    - Specificity
    - Consistency
    - Certainty
    - Clarity
    - Accuracy

- *Develop or adapt templates to pre-plan and pre-design NWEM specific messages.*
  - Use Job Aid #3, Generic NWEM Template, to assist you with design.
- *Identify methods for monitoring public response, and incorporate a monitoring system into plans or procedures.*

Quiz Answers

4.1 Social Context Self-Assessment Quiz
Q1 Correct Answer: C
Q2 Correct Answer: C
Q3 Correct Answer: confirming
Q4 Correct Answer: A

4.2 Alerting Criteria Self-Assessment Quiz
Q1 Correct Answer: True
Q2 Correct Answer: True
Q3 Correct Answer: True
Q4 Correct Answer: True
Q5 Correct Answer: True

4.3 Description Content Self-Assessment Quiz
Q1 Correct Answer: B
Q2 Correct Answer: A
Q3 Correct Answer: C
Q4 Correct Answer: B

4.4 Instruction Content Self-Assessment Quiz
Q1 Correct Answer: urgency
Q2 Correct Answer: B
Q3 Correct Sequence: DCBA
Q4 Correct Answer: B

4.5 Style Considerations Self-Assessment Quiz
Q1 Correct Answer: D
Q2 Correct Answer: B
Q3 Correct Answer: E
Q4 Correct Answer: C

4.7 Monitoring Response Self-Assessment Quiz
Q1 Correct Answer: plan
Q2 Correct Answer: False
Q3 Correct Answer: C
Q4 Correct Answer: survey

Chapter 5. Implementing HazCollect

The final step is to apply what you have learned toward effective implementation of HazCollect, the goal of this chapter. Once you have completed this chapter, you will be able to:

- develop a HazCollect implementation strategy;
- use Job Aid #4, HazCollect Standard Operating Procedure (SOP) Template, as a guide to assist you in developing local policies and procedures; and
- use Job Aid #5, , HazCollect After Action Review Checklist, as a guide to assist you in the continuous improvement of your warning program.

This chapter should take approximately 15 - 25 minutes to complete. The topics presented are:

5.1 Implementation Strategy
5.2 HazCollect SOP Template
5.3 After Action Review
5.4 Chapter Summary

5.1 Implementation Strategy

Having a clear strategy for implementing HazCollect from this point forward will help ensure the success of your efforts. The following outline of steps may assist you in developing your own strategy. (These steps are provided in a general sequence, but some steps may overlap. For example, while you are waiting for your application for HazCollect access to be reviewed and approved, you can begin the preparation phase. NWEM authoring software deployment may take place simultaneously with SOP development, and so on.)

The HazCollect Standard Operating Procedure (SOP) and After Action Review, referred to below, are discussed later in this chapter.

- *Complete the Authorization Process*

  - If you have not already done so, apply for a Disaster Management COG on behalf of your jurisdiction. (See Net Links below.)

  - Verify completion of this training by following the instructions provided in the Final Test section of this course.

  - If you have not already done so, apply for HazCollect access on behalf of your jurisdiction. (See Net Links below.)

- *Prepare for Planning*

  - Research State and Local EAS plans, and other warning related plans as applicable, as an aid to completing Job Aid #1 (Lesson 2.7), and as references to include in your HazCollect SOP.

- If you have not already done so, complete Job Aid #1, in preparation for defining NWEM types and approval authorities to include in your HazCollect SOP.

- Research the availability of any state or local NWEM templates, in preparation for updating or designing new templates.

- Research available NWEM authoring software options. (If your software is available at no cost, such as the DMIS Desktop Tools, you may wish to proceed with procuring; otherwise, you may want to wait until your application for HazCollect access is approved.)

- Contact your local National Weather Service Weather Forecast Office for any specific local considerations, including text-to-voice issues, nighttime hours, etc.

Develop Plan Documents

- Draft a HazCollect Standard Operating Procedure for your jurisdiction. (See Lesson 5.2)

- Draft SOP appendices such as NWEM templates, After Action Review checklist, and any job aids you develop.

- Circulate your draft SOP for review and comment, both internally among participants, and externally to other relevant organizations (e.g. NWS and local broadcasters.)

- Develop a final draft, obtain approval, and issue (distribute) for use or information.

- Follow up for any necessary revisions to your Local EAS Plan, Emergency Operations Plan (Warning Annex), or other warning related plans.

Deploy NWEM Authoring Software

- Obtain technical support as needed for software installation.

- Create accounts with user permissions reflecting the roles and responsibilities of participating individuals.

Provide Training and Exercise

- Provide all participating individuals with training on their roles and responsibilities as defined by your HazCollect SOP.

- Provide training on your NWEM authoring software to those who will be responsible for data entry. **Note: Assume any test or practice messages will be read and/or heard by the public.** Test and practice messages may be modeled after real event messages, but content should not be alarmist in nature or suggest actual emergency conditions exist.

- In addition, individuals who are assigned NWEM posting authority, (i.e., have a permission level that enables them to actually transmit a message), should complete this *HazCollect Principles* training course. The COG Administrator agrees at the time of HazCollect registration to require this training for all such COG members.

- Conduct a functional exercise for participants, up to, but not including actual HazCollect NWEM transmission. You may opt to simulate HazCollect transmission via manual methods such as facsimile or email transmission.

- Incorporate HazCollect procedures into any emergency response exercises planned by your jurisdiction.

- *Review and Improve*

  - Include review of HazCollect activation as part of your exercise or actual incident After Action Review, and implement any Corrective Actions identified. (See Lesson 5.3)

Application for Disaster Management COG
Application for HazCollect Access

5.2 HazCollect SOP Template

A HazCollect Standard Operating Procedure or Guide (SOP or SOG) is highly recommended for ensuring the appropriate and effective use of the HazCollect system by your jurisdiction. Job Aid #4, HazCollect SOP Template, should assist you as a guide in developing your own, customized SOP, and ensure that essential elements are addressed. See Appendix D.

If you do the "homework" described as planning preparation in the previous lesson, and adapt the SOP template, this step in implementation should be neither lengthy nor cumbersome. As a key stage in your implementation strategy, the development of a HazCollect SOP can serve you well for years to come.

SOP Benefits

- The potential benefits of a HazCollect SOP are many, including:

  - Policies with respect to when and by whom an NWEM may be issued are developed and clearly stated.

  - Roles and responsibilities of participating individuals are clearly defined.

  - Typically, SOPs can include more detail than a plan level document, and specific instructions can serve as the basis for training, or as a job aid in itself.

  - Typically, SOPs can be updated, revised, and reissued much more easily than a plan level document.

- The SOP can provide the basis for an After Action review and evaluation.

- The SOP can provide a mechanism for communication with other organizations involved in the process, both during development and after issue.

- Finally, having the HazCollect process written down and formalized ensures a measure of continuity over time, as personnel assignments change.

HazCollect SOP Template Sections

1. Background
This introductory section provides the legal basis for the Emergency Alert System, the jurisdiction's warning authority, and a brief description of HazCollect.

2. Purpose
A brief statement of the purpose of the SOP is provided.

3. Scope
A brief statement of the scope of the SOP is provided, in terms of the jurisdiction covered, the appropriate use of EAS, and the specific NWEM types to be used.

4. Policy
The policy section describes the use of NWEM templates, approval authority, coordination with the Public Information Officer, incorporating into emergency response exercises and After Action Reviews.

5. Responsibilities
The responsibilities section names participating individuals by position (title), and lists the functions or activities for which they are responsible. The template includes "typical" assignments, but these should be adapted to suit local practice.

6. Procedure
The procedure section lists the steps to be followed for issuing an NWEM through HazCollect. The template references the "best practices" described in the previous chapter of this training, and is necessarily somewhat general. Include as much detail as needed to adequately describe the process.

References
This section lists external documents relating to the SOP, and the template suggests some likely candidates.

Appendices (or Attachments)
This section lists any appendices or attachments, such as NWEM templates, After Action Review checklist, any further instructions or additional job aids.

5.3 After Action Review

The purpose of an After Action Review, whether for an exercise or actual event, is to improve response in the future by correcting any identified deficiencies. This requires follow up activities after the "hot wash" has been concluded. Your Standard Operating Procedure should assign responsibility for ensuring completion of corrective actions to an individual by title. Job Aid #5, HazCollect After Action Review Checklist, is provided to assist that individual in accomplishing this objective. See Appendix E.

CAUTION: The FCC interprets EAS rules to mean that actually broadcasting an exercise or test message requires an advance waiver; that is, without such a waiver, your EAS broadcaster may be subject to a fine. See Net Links below to access the March 27, 2009 FCC guidance regarding the recommended contents of any such request for an FCC waiver.

After Action Review (AAR) Process

The following are the general steps involved in an After Action Review:

- **Identify Problem Areas**

The first step in the AAR process, whether for an exercise or actual event, is to identify the problem areas. By developing an AAR checklist in advance, the identification process is facilitated.

  - Involve external participants, such as the National Weather Service WFO, local EAS broadcasters, or other Local Emergency Communications Committee members in the review process for an end-to-end review.

  - For exercises, assign an Exercise Evaluator for HazCollect. A more detailed, function-specific evaluation form may be developed from the AAR Checklist outline level.

  - If possible, involve one or more representatives of the public in the AAR. For actual events, this may be accomplished through review of monitoring data. For an exercise, consider assigning role players.

- **Identify Corrective Actions Required**

It may be helpful to categorize the type of corrective action needed by identifying what part of the system failed, as below.

  - The system may have failed at the planning stage, that is, essential elements were not adequately addressed in the HazCollect SOP, or attachments such as NWEM templates, other instructions or job aids. Corrective action would include revision to these planning documents.

  - The system may have failed in the execution stage, that is, adequately written procedures were not followed. Corrective action would include additional training and/or practice.

- The system may have failed due to technical issues with the HazCollect NWEM authoring software, Internet connectivity, or other technology-related issues. Corrective action would include addressing and correcting technology issues, and/or ensuring alternate, redundant methods are in place.

- **Implement Corrective Actions**

It is not sufficient to identify deficiencies and corrective actions. Unless corrective actions are implemented, the errors are doomed to be repeated.

- The corrective action should be assigned to an individual for implementation, and a target completion date scheduled.

- The individual assigned overall responsibility for monitoring implementation should note pending completion dates, and follow up as necessary for incomplete tasks.

- Finally, if substantial changes in the system have been implemented, consider holding a follow up table top or functional exercise to validate the process.

Job Aid #5, HazCollect After Action Review Checklist

- Job Aid #5 includes sample questions for an actual HazCollect activation. You are encouraged to adapt and tailor this form to your own procedures, and add the level of detail you find useful. You may wish to number the criteria based on relevant SOP sections and paragraphs.

- The checklist is designed to provide summary level information; therefore, you may wish to design supplementary, corresponding pages with which to record more detailed description of the identified deficiencies.

FCC Guidance for Live Code Testing of EAS

5.4 Chapter Summary

Now that you have completed this chapter, you should be able to:

- *Develop an implementation strategy based on:*

  - completing the authorization process;

  - researching planning resources;

  - developing plan documents;

  - deploying NWEM authoring software;

- providing training and excercise practice; and,
- reviewing performance.

➤ *Understand the benefits of developing a HazCollect Standard Operating Procedure, and use Job Aid #4, HazCollect SOP Template, as a guide to develop your own SOP, including sections for:*

- Background
- Purpose
- Scope
- Policy
- Responsibilities
- Procedure
- References
- Appendices or Attachments

➤ *Understand the After Action Review process, and use Job Aid #5, HazCollect AAR Checklist, as a guide for developing your own checklist to ensure continuous improvement of your program.*

The Next Step

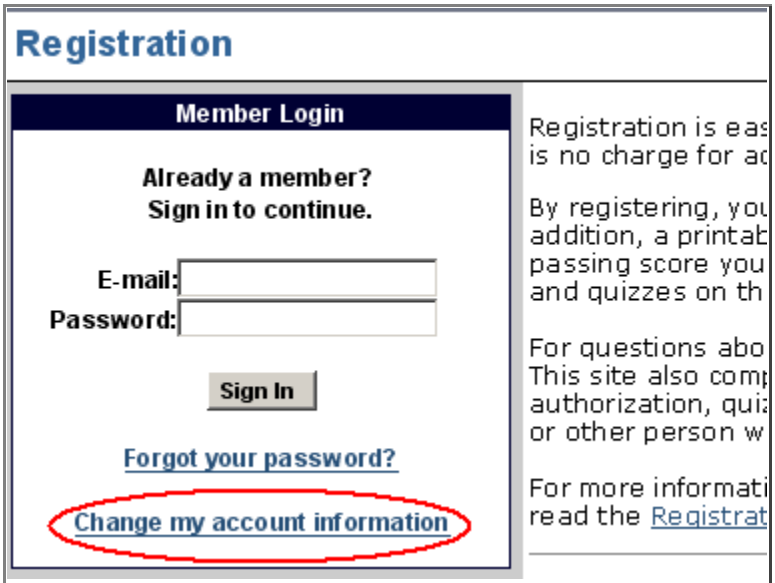
Congratulations on completing this course! The last step is to take a brief final test. Complete instructions for registration are provided on the following pages. Please follow the instructions carefully to ensure you receive credit for completing the training. The test should take you approximately 10 - 20 minutes to complete.

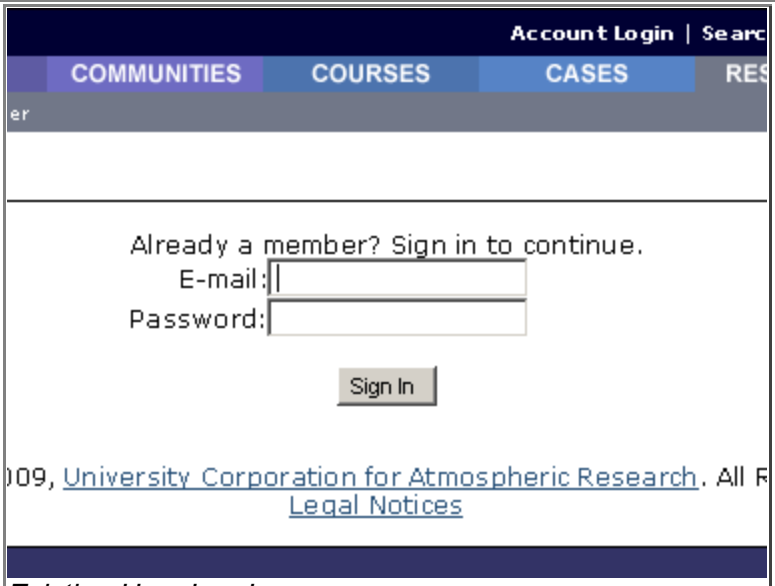
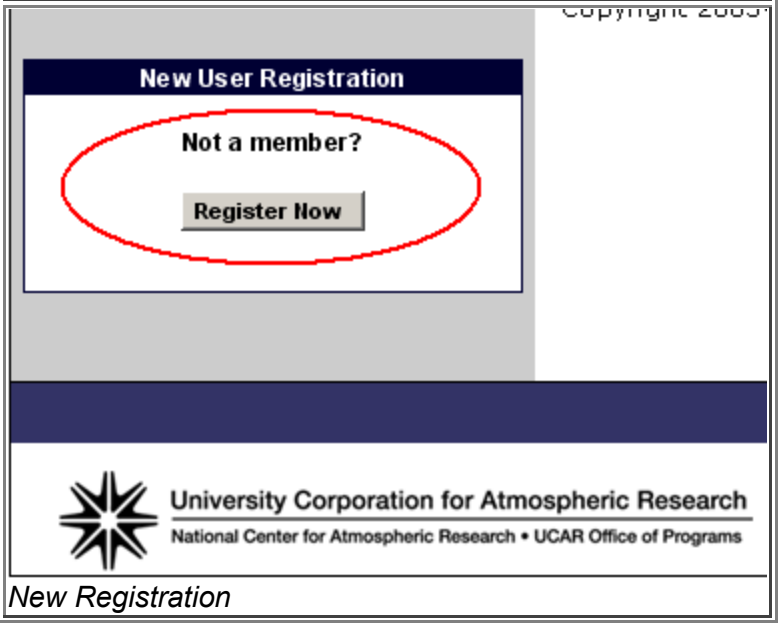
Please note: If you are responsible for ensuring others in your organization are trained, you may instruct them to enter your email address at Step 6, in place of the NWS.HRGAdmin@noaa.gov address.

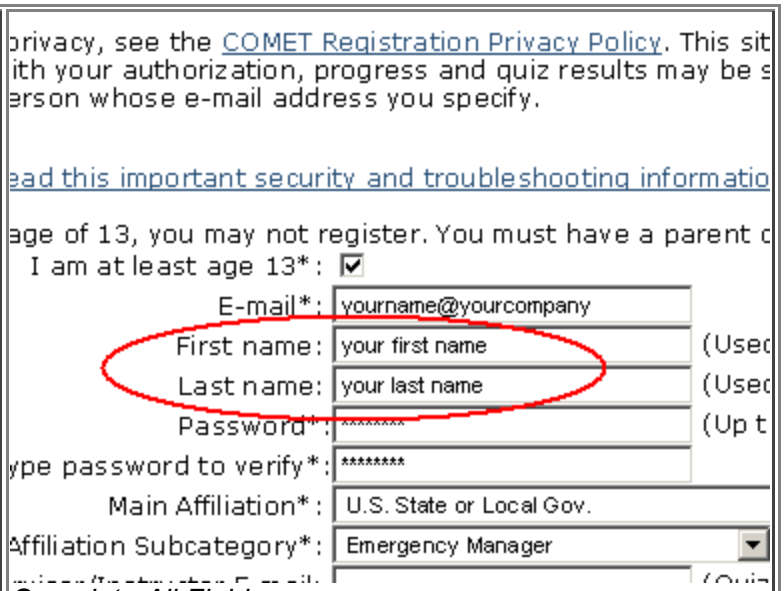
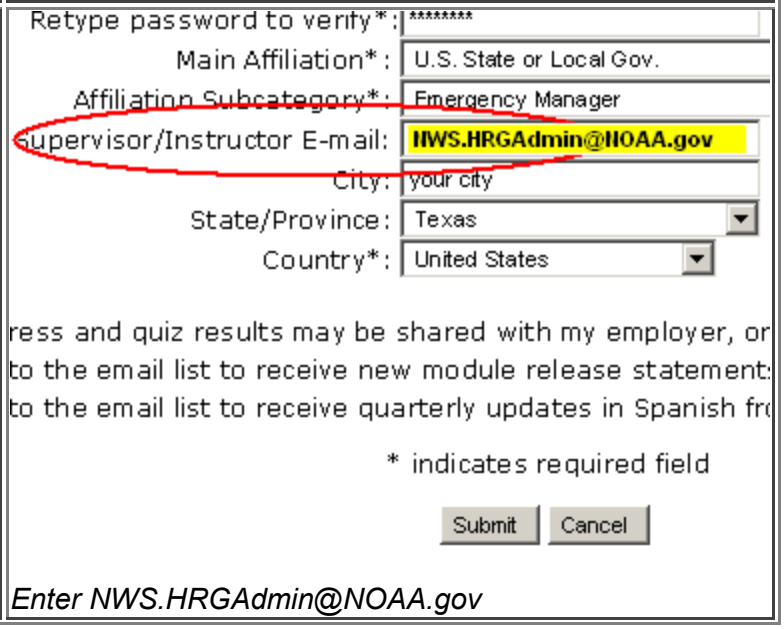
After you have completed the course, you will also have an opportunity to provide feedback on your experience, and offer any comments or suggestions. We welcome and encourage your feedback, and we hope the information and resources provided throughout this course will assist you in your future efforts.

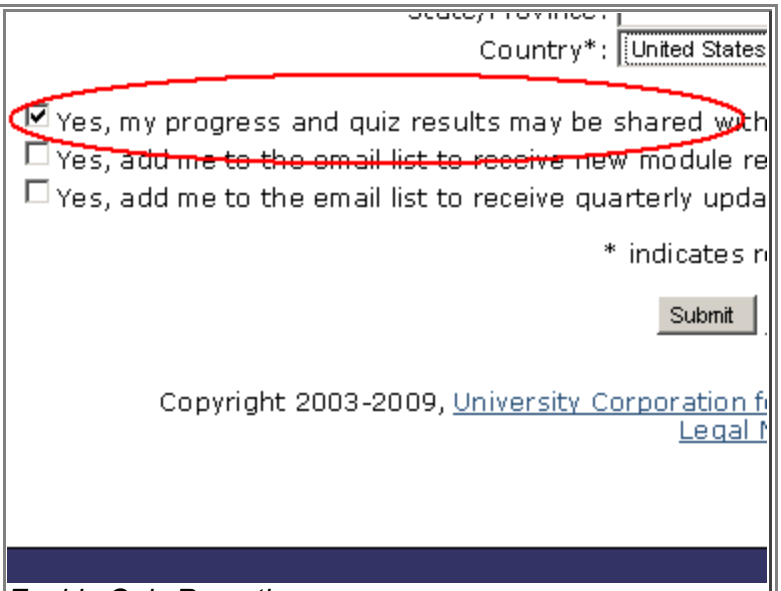
The following instructions are intended for those individuals applying for HazCollect access through the National Weather Service. If you are taking this course for any other purpose, **please do NOT set up results reporting per Steps 6 and 7 below.**

Please note that cookies must be allowed by your browser in order to use the MetEd system.

Step	Instruction	What it looks like
1	Disable any pop up blocker and click on the following link: Access Test Log In Arrange your windows so you can see both these instructions and the Log In page, or print out these instructions so you can refer to them as you complete the remaining steps.	 *MetEd Log In Page*
2	If you have not previously registered, skip to Step 4. **If you have previously registered**, verify that you have correctly entered the information required in Steps 5-7 below by clicking on "Change My Account Information"...	 *Verify Account Set Up*

3	...then log in on the next screen.	 *Existing User Log In*
4	**If you have not previously registered**, click on "Register Now."	 *New Registration*

5	**All fields should be completed on this registration form.** Once you have successfully passed the final test, you will be presented with an online certificate for your records. The first and last names filled in on the registration form are used on your certificate. Select the most appropriate Main Affiliation and Affiliation Subcategory	 *Complete All Fields*
6	Complete the Supervisor/Instructor E-mail field with "**NWS.HRGAdmin@NOAA.gov**."	 *Enter NWS.HRGAdmin@NOAA.gov*

7	**Check the box** next to "Yes, my progress and quiz results may be shared with my employer, organization, or institution." A copy of your test results will be sent to the email address you provided in step 6 above, enabling the HazCollect Review Group to begin processing your application for HazCollect access.	 *Enable Quiz Reporting*
8	**NOTE: After you have completed the HazCollect application process through final disposition, please change your account to remove the NWS.HRGAdmin@NOAA.gov email address, so that any other courses you may take on MetEd will not be forwarded.**	
9	Click on Submit. You will then be directed to the final test page for the course. Once you have completed the test successfully, you will have an opportunity to access your course certificate, and you will also receive confirmation via email. MetEd recommends saving both to verify completion.	
10	Good luck!	

Appendix A: Job Aid #1, NWEM Worksheet

Instructions

Column 1. For each NWEM type, complete column 1 as to the likelihood of the hazardous event occurring in your area of responsibility.

Column 2. For those NWEMs marked "Yes" in column 1, consult Local EAS plans or contact local Broadcast Engineers to verify whether the EAS event code has been implemented.

Column 3. For those NWEMs both applicable (column 1) and available (column 2), place a check mark in the box of the NWEM types you plan to use.

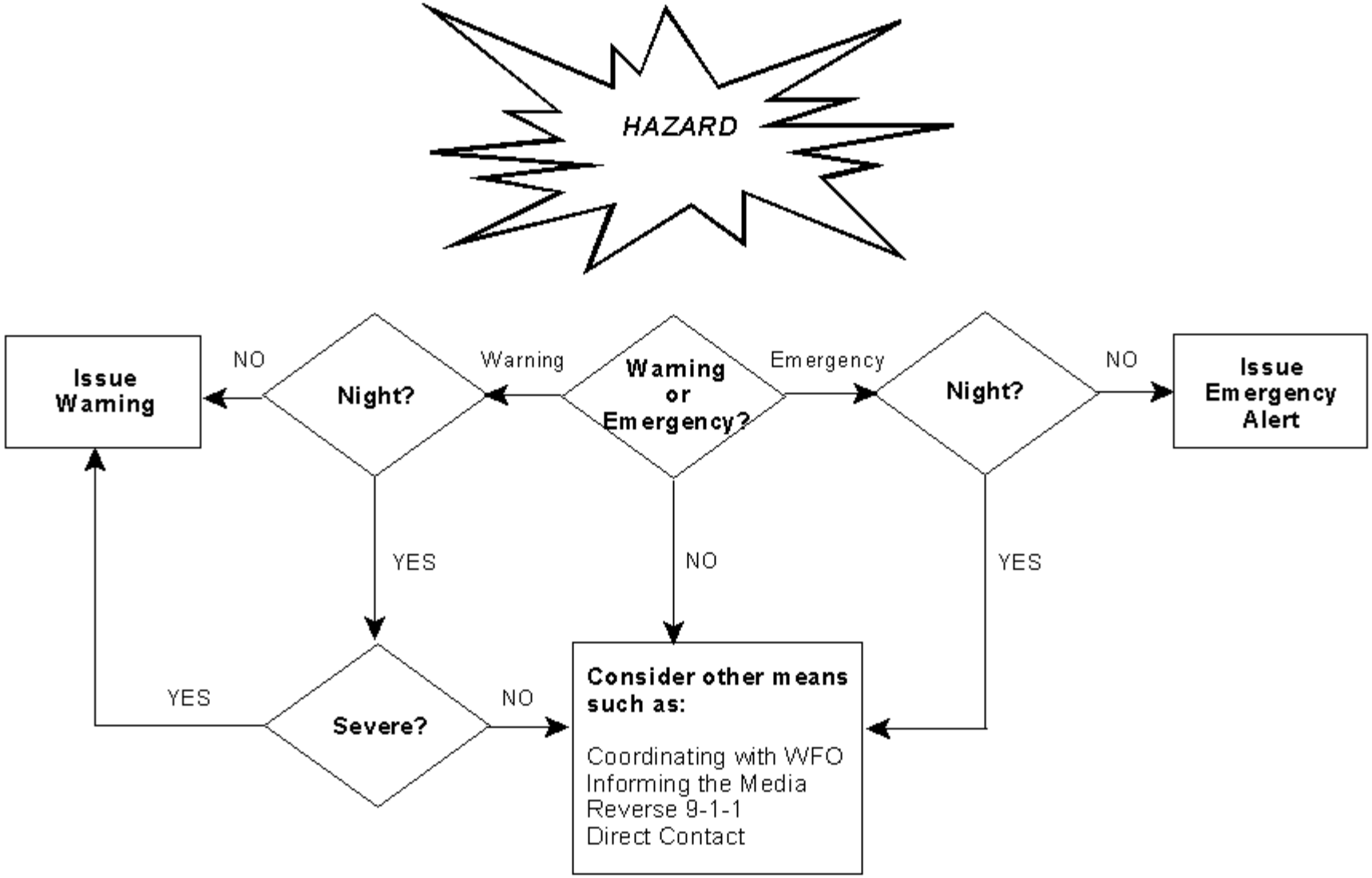
Column 4. For those NWEMs checked in column 3, identify either your own organization, or another organization with authority to issue, whether by regulation or agreement.

Column 5. For those NWEMs identified in column 4 as within the scope of your organization, identify the department or individual most appropriate to approve the type of NWEM.

Job Aid #1, NWEM Worksheet

NWEM Type	Likely?	EAS Available?	Use?	Authority?	Approval?
Warning, Hazard Specific	Is this hazard likely here?	Have broadcasters implemented?	(Check)	What organization or agency has authority to issue?	Which department or official must approve?
Civil Danger (CDW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Earthquake (EQW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Fire (FRW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Hazardous Materials (HMW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Law Enforcement (LEW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Nuclear Power Plant (NUW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Radiological Hazard (RHW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Volcano (VOW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Warning, Instruction Specific					
Evacuation Immediate (EVI)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Shelter in Place (SPW)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Emergency/Watch					
Avalanche Watch (AVA)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Child Abduction (CAE)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Civil Emergency (CEM)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
Local Area Emergency (LAE)	☐ Yes ☐ No	☐ Yes ☐ No	☐		
911 Telephone Outage (TOE)	☐ Yes ☐ No	☐ Yes ☐ No	☐		

Appendix B: Job Aid #2, Warning Decision Tree



Appendix C: Job Aid #3, Generic NWEM Template

(headline block)

w arning type ISSUED FOR area w arned

(description block)

EFFECTIVE immediately / specified time AND EXTENDING UNTIL further notice/ specific time ... THE title of official or depa OF issuing jurisdiction HAS ISSUED A w arning type FOR PERSONS LIVING... WORKING... OR TRAVELING IN THE VICINITY OF hazard location .

A brief description of the hazard event HAS OCCURRED time of actual / expected onset .

(instruction block)

TO PROTECT YOURSELF FROM potential harmful effects of hazard ...
THE FOLLOWING ACTIONS ARE ADVISED .

* DO protective action 1

* DO protective action 2

* DO AVOID THE AREA

* DO NOT negative instruction

* DO NOT CALL 9 1 1 UNLESS YOU HAVE AN ACTUAL PERSONAL EMERGENCY.

*DO NOT CALL THE WEATHER SERVICE.

FOR FURTHER INFORMATION … TUNE TO LOCAL RADIO.

FOR FURTHER INFORMATION… CALL name of info AT telephone nu .

FOR ASSISTANCE WITH EVACUATING… CALL organization AT telephone nu .

Appendix D: Job Aid #4, HazCollect Standard Operating Procedure Template

1. Background

a. Emergency Alert System

1) The purpose of the Emergency Alert System (EAS) is to protect the public by providing warnings of hazardous conditions via emergency television and radio broadcast when immediate public protective actions are required. ***The use of the EAS system is governed by FCC rules, and inappropriate use may result in fines.***

2) Guidelines for the implementation of the Emergency Alert System are included in the State of _____ Emergency Alert System Plan, prepared by the State Emergency Communications Committee (SECC). The State EAS plan has been approved by the Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission.

3) Procedures for local officials or the NWS to transmit emergency information to the public during a local emergency using the EAS are included in the [name of Local EAS Plan], which has been prepared by the Local Emergency Communications Committee (LECC). *[If applicable.]*

4) In addition, procedures for issuing Child Abduction Emergency warnings are included in the _[name of state or local Amber Alert plan]_____.

5) *[Reference other local or regional plans that may apply to warning authorities, such as local/regional/statewide Emergency Operations Plans, Local Emergency Preparedness Committee (LEPC), Radiological Emergency Preparedness (REP) Program, Chemical Stockpile Emergency Preparedness Program (CSEPP) plans, etc.]*

b. All-Hazards Emergency Message Collection System (HazCollect)

1) The National Weather Service has automated the process of issuing emergency warnings via the HazCollect system. The message is composed using NWEM authoring software, ____[name of software product]_____, and transmitted directly to the HazCollect server via the Internet. The message is formatted for distribution over the EAS system, NOAA Weather Radio, and other NWS dissemination systems.

2) In the event of loss of Internet connectivity, the backup system is direct contact with the NWS Weather Forecast Office, per Section 6.h below.

2. Purpose

The purpose of this Standard Operating Procedure (SOP) is to ensure the dissemination of appropriate, timely, accurate, and complete Non Weather Emergency Messages (NWEMs) to the public via the National Weather Service (NWS) All-Hazards Emergency Message Collection System (HazCollect) and the Emergency Alert System.

3. Scope

a. This procedure applies to EAS warnings issued for residents of and visitors to ___[name of jurisdiction]___.

b. All messages transmitted via the HazCollect system are intended for EAS transmission. If the message is not intended for EAS transmission, this SOP does not apply.

c. Our EAS plan defines the types of emergencies for which EAS warnings may be issued as: [insert definition of emergency from state or local EAS plan] .

d. This SOP applies to the following NWEM message types:

- Evacuation Immediate (EVI)
- Shelter in Place Warning (SPW)
- Fire Warning (FRW)
- Hazardous Materials Warning (HMW)
- Law Enforcement Warning (LEW)
- Civil Emergency Message (CEM)
- Local Area Emergency (LAE)
- Administrative Message (ADR)
- Child Abduction Emergency (CAE, i.e. Amber Alert)
- 911 Telephone Outage Emergency (TOE)
- *[Add other products only if you are likely to use them]*

4. Policy

a. When warranted by emergency conditions, warning messages shall be composed using the appropriate template as a guide. See Appendix 1, NWEM Templates.

b. The message must be reviewed and approved by an individual, acting in one of the capacities listed below, before it is transmitted via HazCollect: *[List the appropriate positions, consistent with individuals named in the State or Local EAS Plan. Name at least two alternatives to provide 24/7 coverage.]*

- Chief Elected Official
- Chief Executive
- Fire Chief (MUST approve FRW and HMW?)
- Police Chief/Sheriff (MUST approve LEW and CAE?)
- Emergency Management Director
- Public Health Director
- Public Information Officer

c. The Public Information Officer (PIO) shall be consulted for coordination of supplementary information services. At a minimum, the PIO shall be notified of any public warnings.

d. These procedures shall be incorporated and tested during emergency response exercises.

e. Following exercises, or activation of the HazCollect/EAS system for an actual incident, an After Action Review shall evaluate performance, and identify any corrective actions needed. Implementation of corrective actions shall be monitored. See Appendix 2, HazCollect After Action Review Checklist.

5. Responsibilities

a. Emergency Management Director [Coordinator] (ESF #5)

1) Coordinate planning with the National Weather Service Weather Field Office [and LECC *if applicable*].

2) Apply for necessary system authorizations on behalf of the jurisdiction.

3) Ensure training requirements are completed.

4) Ensure this SOP is incorporated into exercise planning.

5) Ensure After Action Reviews are conducted, corrective actions identified and implemented.

6) Issue and maintain this SOP.

b. MIS/System Administrator *[substitute appropriate title]*

1) Assist with procurement, installation, and maintenance of NWEM authoring tool software.

2) Establish and maintain operator accounts.

3) Assist with implementing NWEM templates.

4) Respond to technical issues.

5) Participate in After Action Reviews as needed.

6) Implement Corrective Actions as assigned.

c. Communications Center Supervisor (ESF #2) *[substitute appropriate title]*

1) Designate System Operators to ensure coverage 24/7.

2) Ensure System Operators complete necessary training.

3) Ensure that each NWEM has required review and approval before transmitting.

4) Assist with preparation of System Operator Job Aids as needed.

5) Participate in After Action Reviews.

6) Implement Corrective Actions as assigned.

d. Public Information Officer (PIO, ESF # 15) *[substitute appropriate title]*

1) Assist with the design of NWEM templates.

2) Provide support for supplementary information services. *[such as "Hot Lines", Web site updates, media briefings]*

3) Participate in After Action Reviews.

4) Implement Corrective Actions as assigned.

6. **Procedure**

a. Apply Criteria to the Warning Decision: When an incident or hazard has occurred, is occurring, or is likely to occur, evaluate whether an NWEM/EAS warning or other emergency message is appropriate using the following criteria:

1) Does this event pose a **significant threat** to public safety and/or property?

2) Is the probability of occurrence high?

3) Is the location well defined?

4) Is the onset time relatively short (within the maximum 6 hour duration of an NWEM)?

5) If the message will be broadcast after 10:00 PM and before 7:00 AM, is the potential impact of high severity? *[Check with NWS WFO for local guidance as to nighttime hours.]*

6) If this event does not meet the warning criteria above, does the event meet the description of specific purpose NWEM emergency alert types: Telephone Outage Emergency, Child Abduction Emergency, Avalanche Watch *[if applicable]*?

7) Does the event constitute a Local Area Emergency or qualify for a Civil Emergency Message?

8) If the event fails to meet the criteria for either a warning or other emergency alert message, do not use this SOP. Consider other means of dissemination.

b. Collect Essential Information: If the criteria has been met, collect the information required to compose the message, including:

1) Who (source of warning)

2) What (type of hazard)

3) Where (location of hazard)

4) When (time of hazard, including duration)

5) Why (reason for the protection guidance)

6) How (protection guidance; what to do and what NOT to do)

7) Source for additional information

c. Prepare the NWEM: Prepare the message using the appropriate template. The prepared message may be entered into the NWEM authoring tool, but not transmitted until approved. *[Software-specific instructions may be included here or appended.]*

d. Obtain Review and Approval: Obtain necessary review and approval per Section 4.b above.

e. Transmit: Upon approval, enter the message into the NWEM authoring tool in the required format (if not previously entered) and transmit. In the event Internet connectivity is disrupted, send the warning message to the local Weather Forecast Office via *[describe local procedure, e.g. fax, email, etc.]*

f. Validate: Validate successful transmission by monitoring NOAA Weather Radio and local radio or television stations.

g. Monitor Public Response: The following data sources will be used to monitor public response to protective instructions, as warranted by the event. When the Emergency Operations Center is activated, daily reports will be submitted to the Planning Section Chief *[substitute appropriate title]* for analysis. *[Adapt the following as appropriate.]*

   1) Regular news media reports and social media (Internet) activity; Public Information Officer

   2) Observations from first responders in the field; Incident Command staff

   3) Phone bank activity; Public Information Officer

   4) Information and Referral Service (211) activity; 211 Liaison

   5) 911 Call Center activity; Call Center Supervisor

   6) Traffic counters; Street/Highway Department

   7) Traffic cameras; Street/Highway Department

   8) Shelter activity; Shelter Manager/Liaison

h. Update: As needed, correct, cancel, or update the original message if not expired. If expired, issue a new warning as needed.

References:
[Optionally, list relevant references such as NWS Instructions, local, regional or state plans or agreements, statutory authorities, etc. Adapt the following as appropriate.]

47 CFR 11, Emergency Alert System
State of _____ Emergency Alert System Plan
Region ___ Local Emergency Alert System Plan
[City/County/State] Emergency Operations Plan, Annex __: Warning
State of _____ Amber Alert Plan
National Weather Service Instruction 10-1708, All-hazards Emergency Message Collection System

Appendices: *[Adapt the following as appropriate.]*

Appendix 1, NWEM Templates
Appendix 2, HazCollect After Action Review Checklist
Appendix 3, *[Software specific information]*
Appendix 4, *[Other job aids, etc.]*

Appendix E: Job Aid #5, HazCollect After Action Review Checklist

Job Aid #5, HazCollect After Action Review Checklist, Sample Criteria for an Actual Event

Event:_____Prepared By:_____Date:_____

Criteria	Satisfactory		Corrective Action Needed	Assigned To	Date Due	Date Complete
	Yes	No				
1. Was the appropriate criteria applied to the warning decision?						
2. Was the appropriate NWEM product used?						
3. Was the hazard description adequate?						
4. Were the public instructions adequate?						
5. Was the message format correct?						
6. Were approval procedures followed?						
7. Did the HazCollect software perform correctly?						
8. Was the NWEM broadcast over NOAA radio?						
9. Was the NWEM broadcast over the EAS system?						
10. Was text correctly rendered to voice?						
11. Were supporting information services in place?						
12. Was the public response adequately monitored?						
13. Did the public respond appropriately?						

Appendix F: Acronym List in Alphabetical Order

Key for undefined acronyms in Source/Type:
GEN = General usage
ORG = Organization name
TECH = Technical term

Acronym	Definition	Source/Type
ADR	Administrative Message	EAS/NWR
AMBER (Alert)	America's Missing: Broadcast Emergency Response	DOJ
API	Application Programming Interface	TECH
AVA	Avalanche Watch	EAS/NWR
AVW	Avalanche Warning	EAS/NWR
AWIPS	Advanced Weather Interactive Processing System	NWS
CAE	Child Abduction Emergency	EAS/NWR
CAP	Common Alerting Protocol	OASIS
CDW	Civil Danger Warning	EAS/NWR
CEM	Civil Emergency Message	EAS/NWR
CMAS	Commercial Mobile Alert System	FCC
COG	Collaborative Operating Group	FEMA/DMIS
CRS	Console Replacement System	NWR
CSEPP	Chemical Stockpile Emergency Preparedness Program	FEMA
CTA	Call To Action	NWS
DHS	Department of Homeland Security	ORG
DMIS	Disaster Management Interoperability Services	FEMA
DM-OPEN	Disaster Management Open Platform for Emergency Networks	FEMA/DMIS
DOJ	Department of Justice	ORG
EAS	Emergency Alert System	FCC
EM	Emergency Manager/Management	GEN
EMA	Emergency Management Agency	GEN
EMWIN	Emergency Managers Weather Information Network	NWS
EOP	Emergency Operations Center	GEN
EOP	Emergency Operations Plan	GEN
EPA	Environmental Protection Agency	ORG
EQW	Earthquake Warning	EAS/NWR
EVI	Evacuation Immediate	EAS/NWR
FCC	Federal Communications Commission	ORG
FEMA	Federal Emergency Management Agency	ORG
FIPS	Federal Information Processing Standards	NIST
FOC	Full Operating Capability	NWS

FRW	Fire Warning	EAS/NWR
HMW	Hazardous Materials Warning	EAS/NWR
HRG	HazCollect Review Group	NWS
IOC	Initial Operating Capability	NWS
IPAWS	Integrated Public Alert and Warning System	FEMA
LAE	Local Area Emergency	EAS/NWR
LECC	Local Emergency Communications Committee	EAS/NWR
LEPC	Local Emergency Planning Committee	EPA
LEW	Law Enforcement Warning	EAS/NWR
LP	Local Primary	FCC/EAS
NAB	National Association of Broadcasters	ORG
NIST	National Institute of Standards and Technology	ORG
NOAA	National Oceanic and Atmospheric Administration	ORG
NUW	Nuclear Power Plant Warning	EAS/NWR
NWEM	Non-weather Emergency Message	NWS
NWR	NOAA Weather Radio	NWS
NWS	National Weather Service	ORG
NWSI	National Weather Service Instruction	NWS
NWSTG	National Weather Service Telecommunications Gateway	NWS
NWWS	NOAA Weather Wire Service	NWS
OASIS	Organization for the Advancement of Structured Information Standards	ORG
REPP	Radiological Emergency Preparedness Program	FEMA
RHW	Radiological Hazard Warning	EAS/NWR
SAME	Specific Area Message Encoding	NWR
SECC	State Emergency Communications Committee	FCC/EAS
SOP	Standard Operating Procedure	GEN
SPW	Shelter In Place Warning	EAS/NWR
SR	State Relay	FCC/EAS
SSL	Secure Sockets Layer	TECH
TOE	Telephone Outage Emergency	EAS/NWR
UGC	Universal Geographic Code	WMO
VOW	Volcano Warning	EAS/NWR
VPN	Virtual Private Network	TECH
VTEC	Valid Time Event Code	NWS
WCM	Warning Coordination Meteorologist	NWS
WFO	Weather Forecast Office	NWS
WMO	World Meteorological Organization	ORG

Appendix G: Acronym List in Source/Type Order

Key for undefined acronyms in Source/Type:
GEN = General usage
ORG = Organization name
TECH = Technical term

Source/Type	Acronym	Definition
DOJ	AMBER (Alert)	America's Missing: Broadcast Emergency Response
EAS/NWR	ADR	Administrative Message
EAS/NWR	AVA	Avalanche Watch
EAS/NWR	AVW	Avalanche Warning
EAS/NWR	CAE	Child Abduction Emergency
EAS/NWR	CDW	Civil Danger Warning
EAS/NWR	CEM	Civil Emergency Message
EAS/NWR	EQW	Earthquake Warning
EAS/NWR	EVI	Evacuation Immediate
EAS/NWR	FRW	Fire Warning
EAS/NWR	HMW	Hazardous Materials Warning
EAS/NWR	LAE	Local Area Emergency
EAS/NWR	LEW	Law Enforcement Warning
EAS/NWR	NUW	Nuclear Power Plant Warning
EAS/NWR	RHW	Radiological Hazard Warning
EAS/NWR	SPW	Shelter In Place Warning
EAS/NWR	TOE	Telephone Outage Emergency
EAS/NWR	VOW	Volcano Warning
EPA	LEPC	Local Emergency Planning Committee
FCC	CMAS	Commercial Mobile Alert System
FCC	EAS	Emergency Alert System
FCC/EAS	LECC	Local Emergency Communications Committee
FCC/EAS	LP	Local Primary
FCC/EAS	SECC	State Emergency Communications Committee
FCC/EAS	SR	State Relay
FEMA	CSEPP	Chemical Stockpile Emergency Preparedness Program
FEMA	DMIS	Disaster Management Interoperability Services
FEMA	IPAWS	Integrated Public Alert and Warning System
FEMA	REPP	Radiological Emergency Preparedness Program
FEMA/DMIS	COG	Collaborative Operating Group
FEMA/DMIS	DM-OPEN	Disaster Management Open Platform for Emergency Networks
GEN	EM	Emergency Manager/Management

GEN	EMA	Emergency Management Agency
GEN	EOC	Emergency Operations Center
GEN	EOP	Emergency Operations Plan
GEN	SOP	Standard Operating Procedure
NIST	FIPS	Federal Information Processing Standards
NWR	CRS	Console Replacement System
NWR	SAME	Specific Area Message Encoding
NWS	AWIPS	Advanced Weather Interactive Processing System
NWS	CTA	Call To Action
NWS	EMWIN	Emergency Managers Weather Information Network
NWS	FOC	Full Operating Capability
NWS	HRG	HazCollect Review Group
NWS	IOC	Initial Operating Capability
NWS	NWEM	Non-weather Emergency Message
NWS	NWR	NOAA Weather Radio
NWS	NWSI	National Weather Service Instruction
NWS	NWSTG	National Weather Service Telecommunications Gateway
NWS	NWWS	NOAA Weather Wire Service
NWS	VTEC	Valid Time Event Code
NWS	WCM	Warning Coordination Meteorologist
NWS	WFO	Weather Forecast Office
OASIS	CAP	Common Alerting Protocol
ORG	DHS	Department of Homeland Security
ORG	DOJ	Department of Justice
ORG	EPA	Environmental Protection Agency
ORG	FCC	Federal Communications Commission
ORG	FEMA	Federal Emergency Management Agency
ORG	NAB	National Association of Broadcasters
ORG	NIST	National Institute of Standards and Technology
ORG	NOAA	National Oceanic and Atmospheric Administration
ORG	NWS	National Weather Service
ORG	OASIS	Organization for the Advancement of Structured Information Standards
ORG	WMO	World Meteorological Organization
TECH	API	Application Programming Interface
TECH	SSL	Secure Sockets Layer
TECH	VPN	Virtual Private Network
WMO	UGC	Universal Geographic Code

Appendix H: Net Link References by Chapter

Lesson #	Label	Format
1.1	NOAA Weather Radio	Web
	FCC Emergency Alert System (EAS)	Web
1.2	NWS HazCollect Web site	Web
	NWS Instruction 10-1708: All-hazards Emergency Message Collection System	PDF
	HazCollect Fact Sheet	PDF
1.3	FCC EAS Rules, 47 CFR 11	Web
	State EAS Plans Directory	Web
	NWS Warning Coordination Meteorologist (WCM) Roster	Web
	FEMA Comprehensive Preparedness Guide (CPG) 101	PDF
	USDOJ Amber Alert Website	Web
1.4	Application for Disaster Management Collaborating Operating Group	Web
	Application for HazCollect Access	Web
2.1	*NWS Instruction 10-518: Non-Weather Related Emergency Products*	PDF
	FCC EAS Rules, 47 CFR 11.31, EAS Protocol	Web
2.2	*NWS Instruction 10-1712: NWR All Hazards SAME Encoding*	PDF
3.1	OASIS Emegency Management Technical Committee (EM TC)	Web
	OASIS EM TC CAP Profile Subcommittee	Web
	FCC Next Generation EAS System	Web
	FEMA Integrated Public Alert & Warning System (IPAWS)	Web
	FCC Commercial Mobile Alert System (CMAS)	Web
3.4	*NWS Instruction 10-1703: Valid Time Event Code*	PDF
3.5	*NWS Instruction 10-1701: Text Product Format and Codes*	PDF
3.6	*NWS Instruction 10-1702: Universal Geographic Code*	PDF
	NWS WMO Communication Header Description	Web
4.1	*Annotated Bibliography for Public Risk Communication*	PDF
	Communication of Emergency Public Warnings	PDF
	Effective Disaster Warnings	PDF
	NOAA Weather Radio for Deaf and Hard of Hearing	Web
4.7	NWS Service Assessment Reports	Web
	FEMA Higher Education Program College List	Web
5.3	FCC Guidance for Live Code Testing of EAS	PDF

Appendix I: Net Link References by Organization

Organization	Label	Format
DOJ	USDOJ Amber Alert Website	Web
FCC	FCC Commercial Mobile Alert System (CMAS)	Web
	FCC Emergency Alert System (EAS)	Web
	FCC EAS Rules, 47 CFR 11	Web
	FCC EAS Rules, 47 CFR 11.31, EAS Protocol	Web
	FCC Guidance for Live Code Testing of EAS	PDF
	FCC Next Generation EAS System	Web
FEMA	*FEMA Comprehensive Preparedness Guide (CPG) 101*	PDF
	FEMA Higher Education Program College List	Web
	FEMA Integrated Public Alert & Warning System (IPAWS)	Web
FEMA/DM	Application for Disaster Management Collaborating Operating Group	Web
NWS	Application for HazCollect Access	Web
	NOAA Weather Radio	Web
	NOAA Weather Radio for Deaf and Hard of Hearing	Web
	NWS HazCollect Fact Sheet	
	NWS HazCollect Web site	Web
	NWS Instruction 10-518: Non-Weather Related Emergency Products	PDF
	NWS Instruction 10-1701: Text Product Format and Codes	PDF
	NWS Instruction 10-1702: Universal Geographic Code	PDF
	NWS Instruction 10-1703: Valid Time Event Code	PDF
	NWS Instruction 10-1708: All-hazards Emergency Message Collection System	PDF
	NWS Instruction 10-1712: NWR All Hazards SAME Encoding	PDF
	NWS Service Assessment Reports	Web
	NWS Warning Coordination Meteorologist (WCM) Roster	Web
	NWS WMO Communication Header Description	Web
OASIS	OASIS Emegency Management Technical Committee (EM TC)	Web
	OASIS EM TC CAP Profile Subcommittee	Web
OTHER	*Annotated Bibliography for Public Risk Communication*	PDF
	Communication of Emergency Public Warnings	PDF
	Effective Disaster Warnings	PDF
	State EAS Plans Directory	Web