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## **UNIT 3. PREINCIDENT PLANNING**

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## Unit 3. Preincident Planning

### Unit Objectives

At the end of this unit, you should be able to:

- Plan for mass fatalities incidents.
- Describe the differences between planning for different types of mass fatalities incidents.
- Complete an activity in which you will determine special needs for a mass fatalities incident described in a scenario.

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### Scope

The scope of this unit will include:

- Introduction and Unit Overview.
- Planning for Mass Fatalities Incidents.
- Assessing the Mass Fatalities Annex.
- Resource Planning.
- Involving Community Stakeholders.
- Involving Stakeholders.
- Mass Fatalities Exercise Programs.
- Planning For Contaminated Remains.
- Coordinating Recovery With Remains Processing.
- Unit Summary.

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### Time Plan

The suggested time plan for this unit is shown below.

Topic	Time
Introduction and Unit Overview	5 minutes
Planning for Mass Fatalities Incidents	35 minutes
Assessing the Mass Fatalities Annex	5 minutes
Resource Planning	30 minutes
Involving Community Stakeholders	5 minutes
Involving Stakeholders	5 minutes
Mass Fatalities Exercise Programs	20 minutes
Planning For Contaminated Remains	35 minutes
Coordinating Recovery With Remains Processing	5 minutes
Unit Summary	5 minutes
<b>Total Time</b>	<b>2 hours 30 minutes</b>

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### INTRODUCTION AND UNIT OVERVIEW

#### Visual 3.1



#### Notes:

This unit will include:

- Planning for mass fatalities incidents.
- The differences between planning for different types of mass fatalities incidents.
- An activity in which they will determine special needs for a mass fatalities incident described in a scenario.

**What has been your role in the emergency planning process?**

**In your experience, how has planning for incidents helped to ensure an effective response (or, what has been the effect of insufficient planning)?**

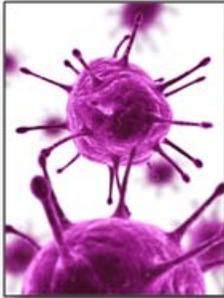
### INTRODUCTION AND UNIT OVERVIEW

#### Unit Objectives

#### Visual 3.2

### Unit Objectives

- Describe how a Mass Fatalities Annex fits into the overall Emergency Operations Plan (EOP).
- Describe the differences between planning for different types of mass fatalities incidents.
- Analyze a scenario to determine special needs for a mass fatalities response.



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Visual 3.2  
Mass Fatality Incident Response

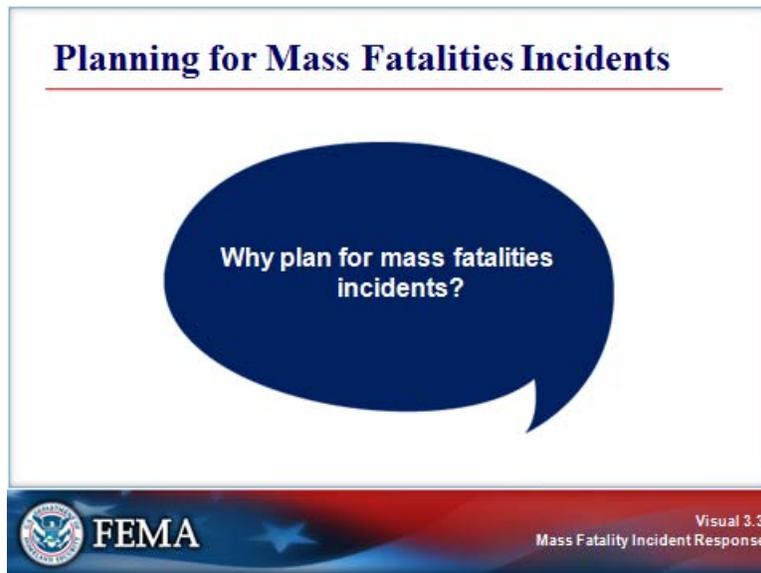
#### Notes:

At the end of this unit, you should be able to:

- Describe how a Mass Fatalities Annex fits into the overall Emergency Operations Plan (EOP).
- Describe the differences between planning for different types of mass fatalities incidents.
- Analyze a scenario to determine special needs for a mass fatalities response.

**PLANNING FOR MASS FATALITIES INCIDENTS**

**Visual 3.3**



**Notes:**

**Why plan for mass fatalities incidents?**

### PLANNING FOR MASS FATALITIES INCIDENTS

#### Visual 3.4

### Planning for Mass Fatalities Incidents

- Safer, more coordinated recovery
- Ready resource acquisition
- Faster identification and return
- Availability of contingency plans
- Comfort to surviving family members



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Visual 3.4  
Mass Fatality Incident Response

#### Notes:

Note the historical examples that illustrate the importance of planning for mass fatalities incidents.

- Asian earthquake and tsunami (December 2005). The media focused on the tsunami that struck Phuket, Thailand, which had approximately 5,300 fatalities. Other countries in the area suffered far more extensive damage and far more fatalities. The countries that suffered the highest number of fatalities were:
  - Indonesia: More than 115,000 fatalities.
  - Sri Lanka: Approximately 31,000 fatalities.
  - India: More than 10,000 fatalities.

Any country would have nearly an insurmountable task addressing those fatality numbers.

- Haitian earthquake (January 2010). Haiti, an extremely poor island country, experienced a 7.0 earthquake. More than 220,000 died as a result of the quake, and more than 300,000 were injured. Additionally, more than 4,000 people died from cholera following the quake.
- Fukushima (Japan) earthquake and tsunami (March 2011). A 9.0 earthquake struck off the coast of Japan, which in turn, caused a 28-foot tsunami. While many were killed as a result of the earthquake, many more died as a result of the tsunami. Additionally, although the Fukushima Daiichi Nuclear Power Plant survived the earthquake, it was severely damaged by the tsunami, which breached the island's 30-foot flood wall and washed over the facility's backup power generation system. As a result, three reactors experienced explosions and leaked radioactive matter into the water and air. By July, estimates of the dead and missing reached 22,000.

**PLANNING FOR MASS FATALITIES INCIDENTS**

**Visual 3.5**

**As With Every Incident . . .**

- All mass fatalities disasters and emergencies start and end at the local level.
- State and Federal response resources are driven from the bottom up.
- Local planning and available resources will set the tone for the rest of the operation.



 **FEMA**  Visual 3.5  
Mass Fatality Incident Response

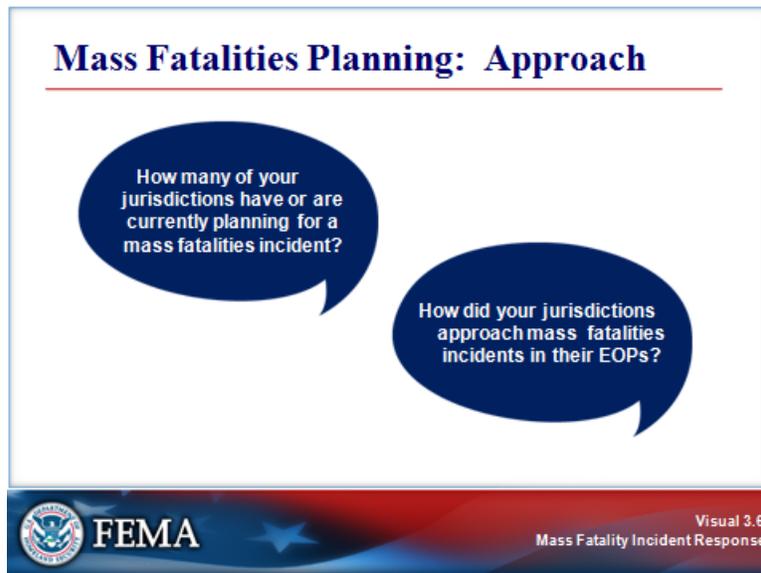
**Notes:**

As with every incident:

- All mass fatalities disasters and emergencies start and end at the local level.
- State and Federal response resources are driven from the bottom up.
- Local planning and available resources will set the tone for the rest of the operation.

**PLANNING FOR MASS FATALITIES INCIDENTS**

**Visual 3.6**



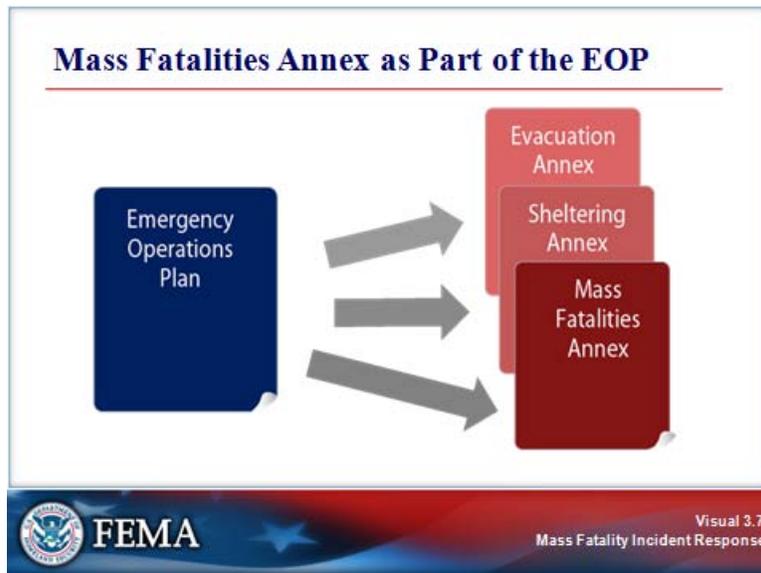
**Notes:**

**How many of your jurisdictions have or are currently planning for a mass fatalities incident?**

**How did your jurisdiction address mass fatalities incidents in its Emergency Operations Plan (EOP)?**

**PLANNING FOR MASS FATALITIES INCIDENTS**

**Visual 3.7**



**Notes:**

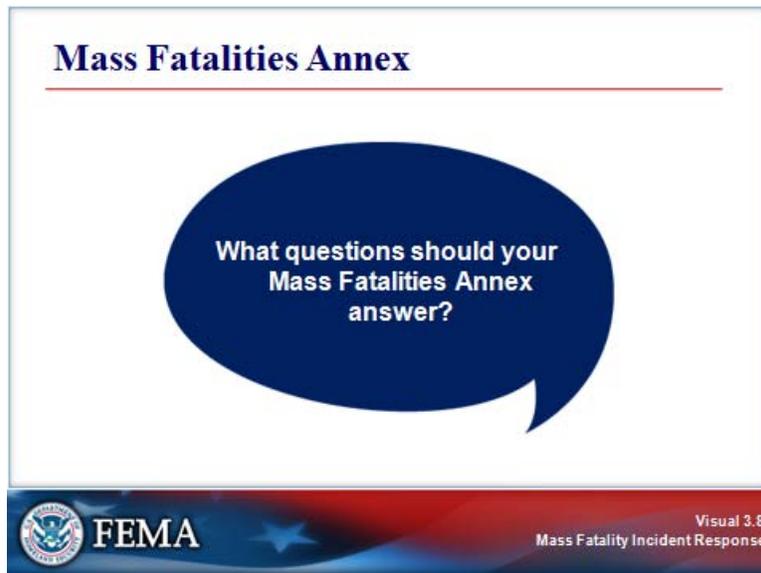
Mass fatalities incidents require specific planning to ensure that, if a mass fatalities incident occurs, the jurisdiction can address the situation—at least until help arrives.

Address mass fatalities incidents as an annex to the jurisdiction’s EOP, noting that developing a separate mass fatalities plan:

- Can be redundant with the EOP.
- Risks incompatibility with the EOP.

**PLANNING FOR MASS FATALITIES INCIDENTS**

**Visual 3.8**



**Notes:**

**What questions should your Mass Fatalities Annex answer?**

**PLANNING FOR MASS FATALITIES INCIDENTS**

**Visual 3.9**

**Mass Fatalities Annex**

The Mass Fatalities Annex should include any information that is specific to a mass fatalities incident.

- Assumptions
- Concept of operations
- Additional resource requirements, including personnel



 **FEMA** Visual 3.9  
Mass Fatality Incident Response

**Notes:**

The Mass Fatalities Annex should include any information that is specific to a mass fatalities incident.

- Assumptions
- Concept of operations
- Additional resource requirements, including personnel and sites that could be used as temporary morgues following a mass fatalities incident

Note the types of information that would be specific to a Mass Fatalities Annex. For example:

- Assumptions.
  - The number of deaths that would constitute a mass-fatalities incident.
  - A temporary morgue would be required.
  - Some remains may require special treatment because they are contaminated, infected, etc.
  - Family members will expect remains to be released immediately.

### PLANNING FOR MASS FATALITIES INCIDENTS

- Concept of operations:
  - Victim location and field processing (e.g., ensuring that personal effects are linked to the victim)
  - Morgue floor plan
  - Victim processing through the morgue
  - Family notification process
  - Victim release procedures
  
- Special resource requirements:
  - Personnel
  - Equipment
  - Supplies

These points are examples only. It may be easier to ensure that the Mass Fatalities Annex is complete and accurate by using a worksheet as a guide.

**PLANNING FOR MASS FATALITIES INCIDENTS**

**Instructions:** Use this or a revised checklist as a guide to ensuring that your jurisdiction's Mass Fatalities Annex addresses all critical areas.

<b>Mass Fatalities Planning Worksheet</b>		
<b>Item</b>	<b>Covered?</b>	
	<b>Yes</b>	<b>No</b>
1. What types of incidents are likely to result in mass fatalities?		
<ul style="list-style-type: none"> <li>• Are all types of incidents included in the Mass Fatalities Annex?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• Are incidents requiring special treatment (e.g., contaminated remains) noted as such?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
2. What special equipment and supplies are needed for noncontaminated, noninfected remains.		
<ul style="list-style-type: none"> <li>• Are the equipment and supplies available in the jurisdiction?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• If not, have arrangements been made to acquire these resources?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• Does the annex include 24/7 contact information of suppliers?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• Have arrangements been made for disposal of large amounts of medical waste?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

**PLANNING FOR MASS FATALITIES INCIDENTS**

<b>Mass Fatalities Planning Worksheet</b>		
Item	Covered?	
	Yes	No
3. What additional equipment and supplies would be needed for contaminated or infected remains?		
<ul style="list-style-type: none"> <li>• Are the equipment and supplies available in the jurisdiction?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• Has a mutual aid or other agreement been executed with surrounding jurisdictions to supply equipment and/or supplies?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• If not, does the jurisdiction have a way of obtaining the equipment and supplies with _____ hours?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• Does the annex include 24/7 contact information of suppliers?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• Have arrangements been made for disposal of large amounts of contaminated or infected medical waste?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
4. Have options been explored for a temporary morgue?		
<ul style="list-style-type: none"> <li>• In large-scale disasters with many fatalities, is temporary interment an option?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

**PLANNING FOR MASS FATALITIES INCIDENTS**

<b>Mass Fatalities Planning Worksheet</b>		
Item	Covered?	
	Yes	No
5. What and how many additional personnel (by profession) would be needed to process remains?		
<ul style="list-style-type: none"> <li>Where will the personnel come from? In what timeframe?</li> </ul>		
<ul style="list-style-type: none"> <li>Have mutual aid or other agreements been developed to acquire the additional personnel?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>Does your jurisdiction have 24/7 contact information for each person?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
6. Have options been explored for temporary storage of remains?		
<ul style="list-style-type: none"> <li>What are the options? If outside sources are planned, what are those sources?</li> </ul>		
7. At what point will you know that State and/or Federal assistance, such as DMORT, are required?		
Who will make that decision?		

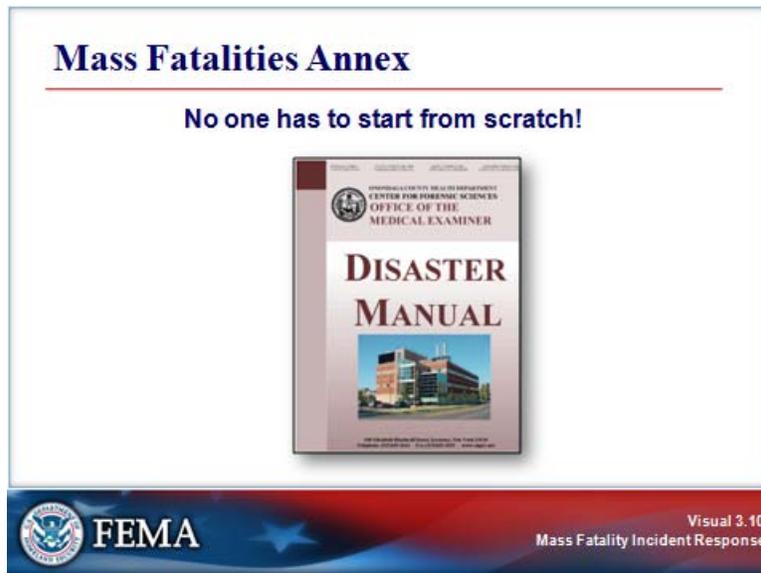
**PLANNING FOR MASS FATALITIES INCIDENTS**

<b>Mass Fatalities Planning Worksheet</b>		
<b>Item</b>	<b>Covered?</b>	
	<b>Yes</b>	<b>No</b>
8. How will families of the victims be notified? By whom?		
<ul style="list-style-type: none"> <li>Will counseling be available for family members?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>Who or what organization will be responsible for counseling services?</li> </ul>		
<ul style="list-style-type: none"> <li>What steps will be taken to ensure that personal belongings will be linked to the remains for release to the family?</li> </ul>		
<ul style="list-style-type: none"> <li>How/when will remains be released?</li> </ul>		
<ul style="list-style-type: none"> <li>In situations in which remains are highly fragmented, has a plan been developed to determine when remains will be released to relatives (i.e., once or multiple times)?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>



**ASSESSING THE MASS FATALITIES ANNEX**

**Visual 3.10**



**Notes:**

It is critical for every community to review its Mass Fatalities Annex and update it, as needed, to fit the community's particular circumstances.

In planning for mass fatalities incidents, no one has to "start from scratch." Just as resources exist in the community for response, resources exist for conducting planning steps, such as assessing the community's annex.

Assessment of the annex can be aided by the use of planning checklists. The following activity will focus on using checklists to assess your Mass Fatalities Annex.

**ASSESSING THE MASS FATALITIES ANNEX**

**Activity: Assessing the Mass Fatalities Annex**

<b>Mass Fatalities Annex Review Checklist</b>				
<b>Does your community's Mass Fatalities Annex . . .</b>	<b>Yes</b>	<b>No</b>	<b>Don't Know</b>	<b>Notes</b>
• Specify who is legally in charge of the remains at a mass fatalities incident?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Consider the types of natural and/or technological hazards that could cause a mass fatalities incident?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Include mutual aid agreements with Medical Examiners/Coroners/forensic scientists, and others in surrounding jurisdictions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Specify how to contact specialists for assistance in a mass fatalities incident?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Include a list of all of the resources that may be needed for a mass fatalities incident along with the:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
○ Location of each resource?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
○ Method of delivery to the scene?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
○ Point of contact?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
○ 24-hour telephone number?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Specify the use of ICS?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Include a process for notifying additional personnel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Include forms for documenting expenses for equipment and supplies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Address who will set up and run the Family Assistance Center?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Outline who will be considered next-of-kin for official notification and release of remains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Include policies on sensitive items such as cremation of remains, procedures for fragmented remains, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Include a policy for contaminated remains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Include a strategy for catastrophic numbers of fatalities, incorporating temporary storage of remains pending identification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### RESOURCE PLANNING

#### Visual 3.11

### Resource List

- All resources that may be needed in this type of emergency
- Where to get the resource
- How it will be delivered to the scene
- How long it will take to get there
- Who's going to pay for it



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Visual 3.11  
Mass Fatality Incident Response

#### Notes:

When a mass fatalities incident occurs, one of the key elements in a community's EOP is the resource list.

The resource list should contain information about:

- All resources that may be needed in this type of emergency.
- Where to get the resource.
- How it will be delivered to the scene.
- How long it will take to get there.
- Who's going to pay for it.

The following activity will provide you with an opportunity to brainstorm the types of facilities and resources that you will need to respond to a mass fatalities incident.

### RESOURCE PLANNING

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#### Activity: Determining Resource Requirements

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#### Visual 3.12

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**Activity: Determining Resource Requirements**

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Follow the steps below to complete this activity:

1. Work in groups as assigned by the instructor.
2. Review the mass fatalities incident in the Student Manual.
3. List the facilities and resources that you will need and how you will acquire them.
4. Be prepared to present your list to the class.

 You will have 15 minutes to complete this activity.

**FEMA**Visual 3.12  
Mass Fatality Incident Response

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#### Notes:

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**Purpose:** The purpose of this activity is for you to brainstorm needed resources for a mass fatalities incident. You will determine what resources you will need and how to access them.

**Instructions:** Follow the steps below to complete this activity:

1. Work in groups as assigned by the instructor.
2. Review the mass fatalities incident in the Student Manual.
3. List the facilities and resources that you will need and how you will acquire them.
4. Be prepared to present your list to the class.
5. You will have 15 minutes to complete this activity.



### RESOURCE PLANNING

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#### Activity: Determining Resource Requirements

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##### *Incident Scenario: Motorcoach Accident*

On May 19, 1999, at about 9:00 a.m., a 55-passenger motorcoach was traveling eastbound on an interstate highway in a major city. Visibility was good and the pavement was dry. The bus, carrying 43 passengers, was enroute to a casino approximately 80 miles away. The bus departed the right side of the highway, crossed the shoulder, and traveled onto the grassy side slope along the shoulder. It continued on the side slope, struck the end of a guiderail, traveled through a chain-link fence, vaulted over a paved golf cart path, collided with the far side of a dirt embankment, and then bounced and slid forward upright to its final resting position.

Twenty-two passengers were killed; the driver and 15 passengers received serious injuries, and 6 passengers received minor injuries.

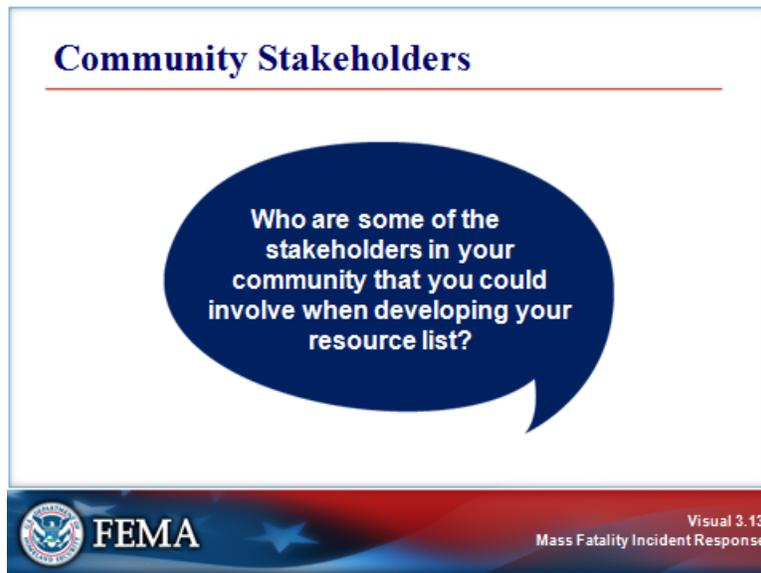
At the time of the accident, a city police officer was on routine patrol traveling westbound on the interstate highway. The officer noticed the bus leaning against the chain-link fence. Noticing that the front end of the bus was heavily damaged, the officer pulled over onto the median and notified the dispatcher of the accident. Notification was made at 9:02 a.m.

The officer and a witness, who had previously pulled over in his van, attempted to enter the bus through the left side. The witness stated that they tried first to break the side windows but when they could not, they attempted unsuccessfully to enter the bus through other openings. The witness stated that he then moved toward the third or fourth window on the right side of the bus and saw an elderly woman hanging out of a side window with one of her feet trapped inside the vehicle. When the witness could not remove the woman through the window, he tried to alleviate the pressure on her trapped foot by supporting her weight. He said that while supporting this passenger, he realized that he was standing on top of a body, which was underneath a large piece of shattered glass. After another rescuer arrived and pulled the body away from the side of the bus, the witness returned to supporting the woman.

By 9:10 a.m., fire and emergency medical service (EMS) personnel began arriving. The emergency medical technicians (EMTs) who arrived first at the accident scene reported that they found 10 people on the ground outside of the bus. Because there were fatalities, the Medical Examiner was called to the scene. Other victims were still in the bus, so the EMTs entered the bus by breaking the left-side windows and removed the passengers.

**INVOLVING COMMUNITY STAKEHOLDERS**

**Visual 3.13**



**Notes:**

**Who are some of the stakeholders in your community that you could involve when developing your resource list?**

### INVOLVING STAKEHOLDERS

#### Visual 3.14

**Your Community Stakeholders**

- Public Health Department
- Public officials
- Metropolitan Medical Response System (MMRS)
- Public Works
- Insurance carriers & other private-sector organizations
- Military installations
- Bureau of vital statistics
- Hospitals
- Others?



Visual 3.14  
Mass Fatality Incident Response

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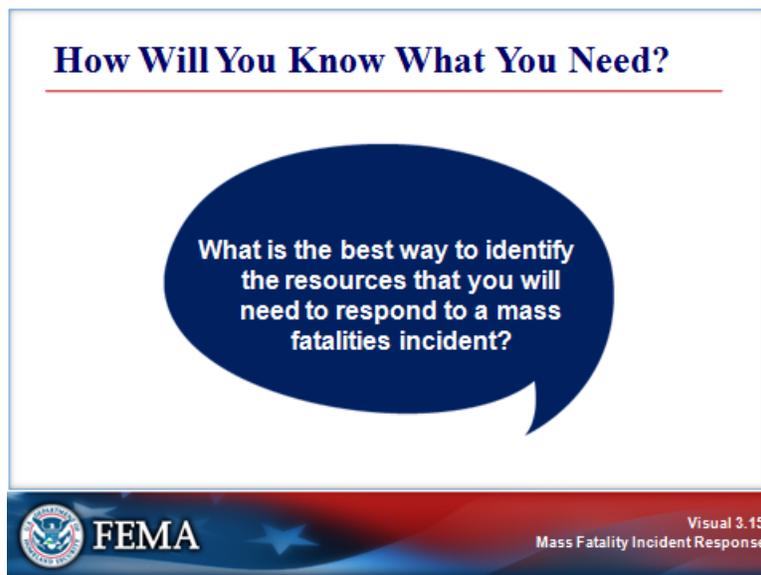
#### Notes:

Stakeholders within the community can include:

- Public Works Department.
- Public Health Department.
- Public Officials.
- Metropolitan Medical Response System.
- Insurance carriers and other private-sector entities.
- Military installations.
- Bureau of Vital Statistics.
- Hospital.
- Others.

**MASS FATALITIES EXERCISE PROGRAMS**

**Visual 3.15**

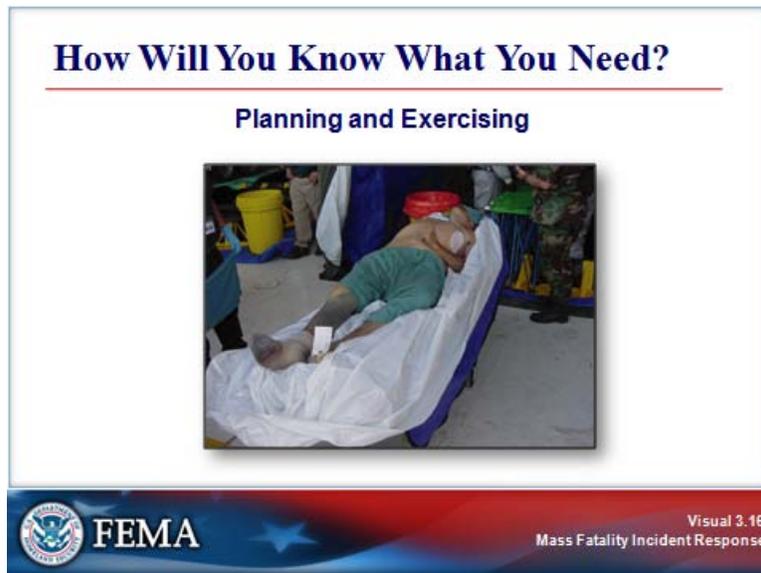


**Notes:**

**What is the best way to determine the resources you will need to respond to a mass fatalities incident?**

**MASS FATALITIES EXERCISE PROGRAMS**

**Visual 3.16**

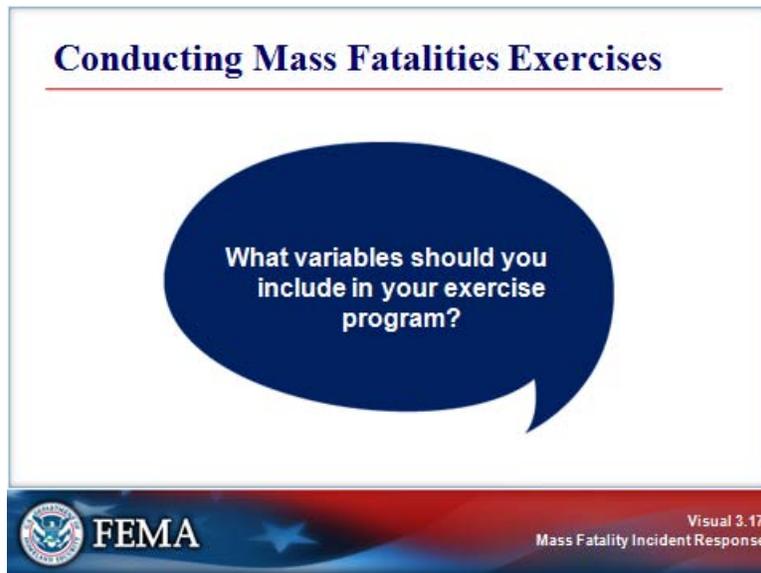


**Notes:**

The best way to know which resources will be necessary and how to acquire them is through planning and exercises. Exercises should be progressive, progressing from orientations, through tabletops, functional, and full-scale exercises.

**MASS FATALITIES EXERCISE PROGRAMS**

**Visual 3.17**



**Notes:**

**What variables should you include in your exercise program?**

**MASS FATALITIES EXERCISE PROGRAMS**

**Visual 3.18**

**Exercise Variables**

- Small- and large-scale incidents
- Incidents that present the highest risk or the greatest challenge
- Incidents where needed resources aren't available
- Incidents that focus on the first 48 hours, which are most chaotic.



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Visual 3.18  
Mass Fatality Incident Response

**Notes:**

Note the variables shown in the visual as options for mass fatalities exercise programs.

Resources, such as flags for marking remains or personnel property when completing grid searches, can be forgotten easily. A progressive exercise program that addresses the many variables that could be involved in mass fatalities responses can help identify those types of resources.

**MASS FATALITIES EXERCISE PROGRAMS**

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**Activity: Assessing the Mass Fatalities Annex**

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**Visual 3.19**

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**Activity: Assessing the Mass Fatalities Annex**

Follow the steps below to complete this activity:

1. Work in table groups as assigned by the instructor.
2. Refer to the planning checklist in the Student Manual.
3. Review your jurisdiction's Mass Fatalities Annex and answer the questions.

 You will have 15 minutes to complete this activity.

 **FEMA** Visual 3.19  
Mass Fatality Incident Response

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**Notes:**

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**Purpose:** The purpose of this activity is to allow you an opportunity to assess your knowledge of your jurisdiction's Mass Fatalities Annex. You will use the checklist provided to answer questions about your jurisdiction's annex.

**Instructions:** Follow the steps below to complete this activity:

1. Work in table groups as assigned by the instructor.
2. Refer to the planning checklist in the Student Manual.
3. Review your jurisdiction's Mass Fatalities Annexes and answer the questions.
4. You will have 15 minutes to complete the activity.

**PLANNING FOR CONTAMINATED REMAINS**

**Visual 3.20**



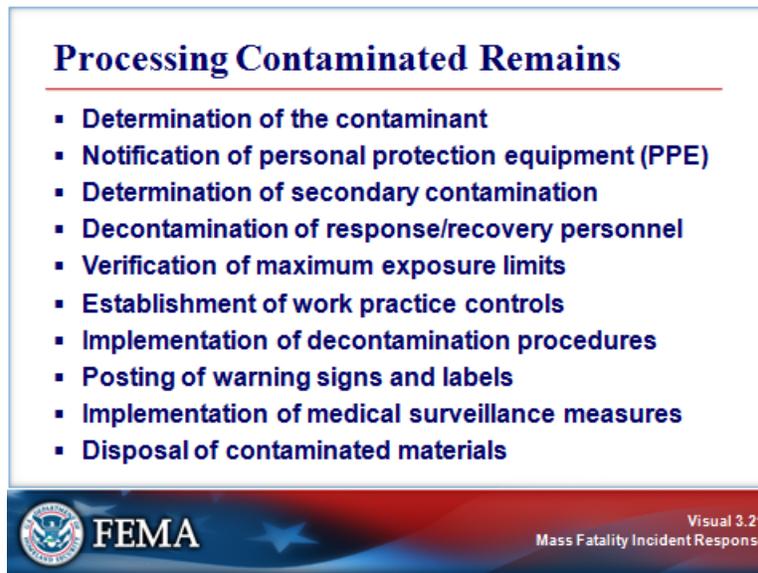
**Notes:**

**How many of you have worked at incidents where the remains were contaminated?**

**How did you detect that the remains were contaminated?**

### PLANNING FOR CONTAMINATED REMAINS

#### Visual 3.21



#### Notes:

The determination that remains are contaminated triggers a whole range of additional processing steps.

Note the criticality of planning for mass fatalities incidents that involve contaminated remains. For example:

- Determination of the contaminant must be completed before anything else because the type of contamination will dictate how other steps must be completed. Procedures (e.g., use of buddy system, use of proper level of PPE) must be implemented to determine the contaminant safely but quickly.
- Posting of warning signs and labels is not only required by Federal law, it is a major protection measure for those handling remains and, potentially, personal property.
- Disposal measures for contaminated materials are also controlled by Federal law and must be completed in a way that eliminates the potential for later recontamination.

Discussion of how these measures affect remains processing will be covered later in this course.

**PLANNING FOR CONTAMINATED REMAINS**

**Visual 3.22**

**Identifying Potential Contaminants**

- Centers for Disease Control and Prevention (CDC) has developed a list of critical chemical and biological agents that may be used by terrorists.
- Many of these agents have industrial or military uses.
- The agents are factored into agent categories.



 **FEMA**  Visual 3.22  
Mass Fatality Incident Response

**Notes:**

The Centers for Disease Control and Prevention (CDC) has developed a list of critical chemical and biological agents that may be used by terrorists. Many of these agents are “dual use”—having industrial and/or military uses.

Chemical agents are more likely than biological agents to require decontamination. Some biological agents, however, may require decontamination. Biological agents, such as anthrax, that are transmitted by spores, those that cause external lesions, such as smallpox, and those that produce contaminated secretions, such as the AIDS or Ebola viruses, require decontamination and the use of personal protective equipment (PPE) for all who could come in contact with the agent.

The agents are factored into agent categories. The categories, as developed by the Centers for Disease Control and Prevention (CDC), are shown in the tables on the next pages.

**PLANNING FOR CONTAMINATED REMAINS**

<b>CDC Bioterror Categories Agents</b>	
<b>Category A: Presents the Highest Risk to the Population</b>	<p>Category A agents include pathogens that are rarely seen in the United States but present an extreme risk to the population if introduced. High-priority agents include organisms that pose a risk to national security because they:</p> <ul style="list-style-type: none"> <li>• Can be disseminated or transmitted from person to person easily.</li> <li>• Have the potential for major public health impact, resulting in high mortality rates.</li> <li>• Might cause public panic and social disruption.</li> <li>• Require special action for public health preparedness.</li> </ul> <p>Examples of Category A agents include:</p> <ul style="list-style-type: none"> <li>• Anthrax (<i>Bacillus anthracis</i>).</li> <li>• Botulism (<i>Clostridium botulinum</i> toxin).</li> <li>• Plague (<i>Yersinia pestis</i>).</li> <li>• Smallpox (<i>Variola major</i>).</li> <li>• Tularemia (<i>Francisella tularensis</i>).</li> <li>• Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg, and arenaviruses [e.g., Lassa, Machupo]).</li> </ul>
<b>Category B: Presents the Second Highest Risk to the Population</b>	<p>Category B agents include those that:</p> <ul style="list-style-type: none"> <li>• Are moderately easy to disseminate.</li> <li>• Result in moderate morbidity rates and low mortality rates.</li> <li>• Require specific enhancements of CDC's diagnostic capacity and enhanced disease surveillance.</li> </ul> <p>Examples of Category B agents include:</p> <ul style="list-style-type: none"> <li>• Brucellosis (<i>Brucella</i> species).</li> <li>• Epsilon toxin of <i>Clostridium perfringens</i>.</li> <li>• Food safety threats (e.g., <i>Salmonella</i> species, <i>Escherichia coli</i> O157:H7, <i>Shigella</i>).</li> <li>• Glanders (<i>Burkholderia mallei</i>).</li> <li>• Melioidosis (<i>Burkholderia pseudomallei</i>).</li> <li>• Psittacosis (<i>Chlamydia psittaci</i>).</li> <li>• Q fever (<i>Coxiella burnetii</i>).</li> <li>• Ricin toxin from <i>Ricinus communis</i> (castor beans).</li> <li>• Staphylococcal enterotoxin B.</li> <li>• Typhus fever (<i>Rickettsia prowazekii</i>).</li> <li>• Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis]).</li> <li>• Water safety threats (e.g., <i>Vibrio cholerae</i>, <i>Cryptosporidium parvum</i>).</li> </ul>

**PLANNING FOR CONTAMINATED REMAINS**

<b>CDC Bioterror Categories Agents</b>	
<b>Category C: Presents a Relatively Low Risk to the Population at the Current Time</b>	<p>Category C agents are the third highest-priority agents that include emerging pathogens that <u>could be engineered for mass dissemination in the future</u> because of</p> <ul style="list-style-type: none"><li>• Availability.</li><li>• Ease of production and dissemination.</li><li>• Potential for high morbidity and mortality rates and major health impact.</li></ul> <p>Examples of Category C agents include emerging infectious diseases, such as Nipah virus and hantavirus</p>

**PLANNING FOR CONTAMINATED REMAINS**

Categorization of Potential Chemical Agents		
CHEMICAL AGENTS		
Agent Type	Examples	CAS Registry Number+
Nerve Agents	<ul style="list-style-type: none"> <li>• Tabun</li> <li>• Sarin</li> <li>• Soman</li> <li>• GF</li> <li>• VX</li> </ul>	<ul style="list-style-type: none"> <li>• 77-81-6</li> <li>• 107-44-8</li> <li>• 96-64-0</li> <li>• 329-99-7</li> <li>• 50782-69-9</li> </ul>
Blood Agents	<ul style="list-style-type: none"> <li>• Hydrogen cyanide</li> <li>• Cyanogens chloride</li> </ul>	<ul style="list-style-type: none"> <li>• 74-90-8</li> <li>• 74-90-8</li> </ul>
Blister Agents	<ul style="list-style-type: none"> <li>• Lewisite</li> <li>• Nitrogen and sulfur mustards</li> <li>• Phosgene oxime</li> </ul>	<ul style="list-style-type: none"> <li>• 541-25-3</li> <li>• 63918-89-8</li> <li>• 75-44-5</li> </ul>
Heavy Metals	<ul style="list-style-type: none"> <li>• Arsenic</li> <li>• Lead</li> <li>• Mercury</li> </ul>	<ul style="list-style-type: none"> <li>• 7440-38-2</li> <li>• 7439-92-1</li> <li>• 7439-97-6</li> </ul>
Volatile Toxins	<ul style="list-style-type: none"> <li>• Benzene</li> <li>• Chloroform</li> <li>• Trihalomethanes</li> </ul>	<ul style="list-style-type: none"> <li>• 71-43-2</li> <li>• 71-43-2</li> <li>• 71-43-2</li> </ul>
Pulmonary Agents	<ul style="list-style-type: none"> <li>• Phosgene</li> <li>• Chlorine</li> <li>• Vinyl chloride</li> </ul>	<ul style="list-style-type: none"> <li>• 75-44-5</li> <li>• 7782-50-5</li> <li>• 75-01-4</li> </ul>
Incapacitating Agents	<ul style="list-style-type: none"> <li>• BZ (3-quinuclidinyl benzilate)</li> <li>• Pesticides</li> <li>• Dioxins</li> <li>• Furans</li> <li>• PCBs</li> </ul>	<ul style="list-style-type: none"> <li>• 136-23-2</li> <li>• Multiple</li> <li>• 1746-01-6</li> <li>• 110-00-9</li> <li>• 1336-36-3*</li> </ul>
Explosives	<ul style="list-style-type: none"> <li>• Ammonium nitrate combined with fuel oil (ANFO)</li> </ul>	<ul style="list-style-type: none"> <li>• 6484-52-2</li> </ul>
Flammable Gases and Liquids	<ul style="list-style-type: none"> <li>• Gasoline</li> <li>• Propane</li> <li>• Jet fuel (JP-5/JP-8)</li> </ul>	<ul style="list-style-type: none"> <li>• 8006-61-9</li> <li>• 74-98-6.</li> <li>• 8008-20-6</li> </ul>
Poisonous Industrial Gases, Liquids, and Solids	<ul style="list-style-type: none"> <li>• Cyanides</li> <li>• Nitrites</li> </ul>	<ul style="list-style-type: none"> <li>• 57-12-5</li> <li>• 14797-65-0**</li> </ul>
Corrosive Industrial Acids and Bases	<ul style="list-style-type: none"> <li>• Nitric Acid</li> <li>• Sulfuric Acid</li> </ul>	<ul style="list-style-type: none"> <li>• 7732-18-5. 35</li> <li>• 7664-93-9</li> </ul>

+CAS Registry Number is a unique identifier assigned by the Chemical Abstracts Service to every chemical described in the open scientific literature. CAS is a collection of disclosed chemical substance information. CAS numbers offer a reliable, common and international link to every specific substance across the various nomenclatures and disciplines used by branches of science, industry, and regulatory bodies.

\*Note that there is a chemical PCBS, which is different from PCBs. The CAS No. for PCBS is 80-38-6.

\*\*There are several CAS numbers for nitrites. Check the specific nitrite (e.g., sodium nitrite, isobutyl nitrite) when searching for a CAS number.

**PLANNING FOR CONTAMINATED REMAINS**

Contamination Categories and Example CBRN Chemicals of Concern			
Non-Persistent Chemicals		Persistent Chemicals	
Toxic Industrial Chemicals (TICs)		Chemical Warfare Agents (CWA)	CWA
<ul style="list-style-type: none"> <li>• Arsine</li> <li>• Ammonia</li> <li>• Chlorine</li> <li>• Fluorine</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrogen Sulfide</li> <li>• Phosgene</li> <li>• Sulfur Dioxide</li> </ul>	<ul style="list-style-type: none"> <li>• GB</li> <li>• GA</li> </ul>	<ul style="list-style-type: none"> <li>• VX</li> <li>• HD</li> </ul>
<p><i>Non-persistent chemicals</i>—For TICs and vapor-released CWA, human remains require no decontamination as residual will have degraded in minutes. If liquid/droplet CWA was present, may require decontamination decon (soapy water preferred, dilute bleach solution alternative) and/or monitoring to non-detect with available field equipment.</p> <p><i>Persistent chemicals</i>—hazard from vapor-only release should be mitigated by removal of external clothing/PPE. Aerosol/liquid contamination will require decon (soapy water preferred, dilute bleach solution alternative) followed by monitoring to non-detect with field equipment (i.e., ICAM). VX requires use of specialized instrumentation to “clear safe levels (criteria available from USACHPPM).</p>			

Medical Management Precautions for Select Diseases				
Standard Precautions		Contact Precautions	Droplet Precautions	Airborne & Contact Precautions
<ul style="list-style-type: none"> <li>• Anthrax</li> <li>• Cholera</li> <li>• Q Fever</li> <li>• Shigellosis</li> <li>• Tularemia</li> </ul>	<ul style="list-style-type: none"> <li>• Typhoid fever</li> <li>• Typhus</li> <li>• Toxins</li> </ul>	<ul style="list-style-type: none"> <li>• Brucellosis (if draining lesions)</li> <li>• Melloidosis</li> </ul>	<ul style="list-style-type: none"> <li>• Glanders</li> <li>• Influenza</li> <li>• Viral encephalitides</li> <li>• Plague (Pneumonic) (until patient treated for 3 days)</li> </ul>	<ul style="list-style-type: none"> <li>• Smallpox</li> <li>• Viral hemorrhagic fevers (VHFs) (e.g., Ebola, Marburg)*</li> </ul>
<p>Standard = Gloves, frequent hand washing, splash protection (gown, mask, eye)                      Contact = Standard + Isolation/cohorting of patients; dedicated equipment                      Droplet = Standard + Isolation/cohorting, surgical/HEPA filter/N-95 mask                      Airborne = Standard + isolation, monitoring and negative pressure room, HEPA filter/N-95 mask                      Management of Biological Casualties Handbook, “The Bluebook,” and the Control of Communicable Disease Manual (2004) (formerly FM 4-02.33).</p> <p><i>*It is recommended that human remains be sealed and buried in a leak-proof container. Embalming is not recommended.</i></p>				

**PLANNING FOR CONTAMINATED REMAINS**

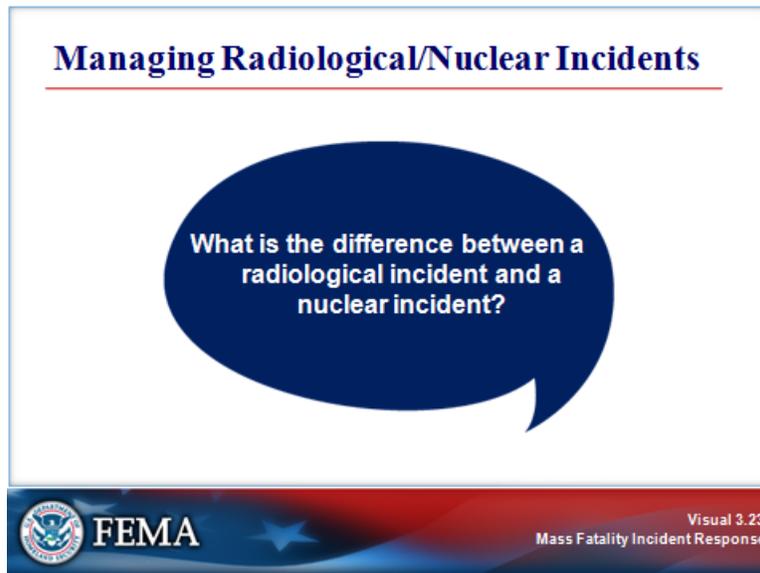
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**Planning for incidents involving radiological or nuclear materials**

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**Visual 3.23**

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**Notes:**

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Incidents involving radiological or nuclear materials have characteristics that are similar and characteristics that are much different from each other.

**What is the difference between a radiological incident and a nuclear incident?**

**PLANNING FOR CONTAMINATED REMAINS**

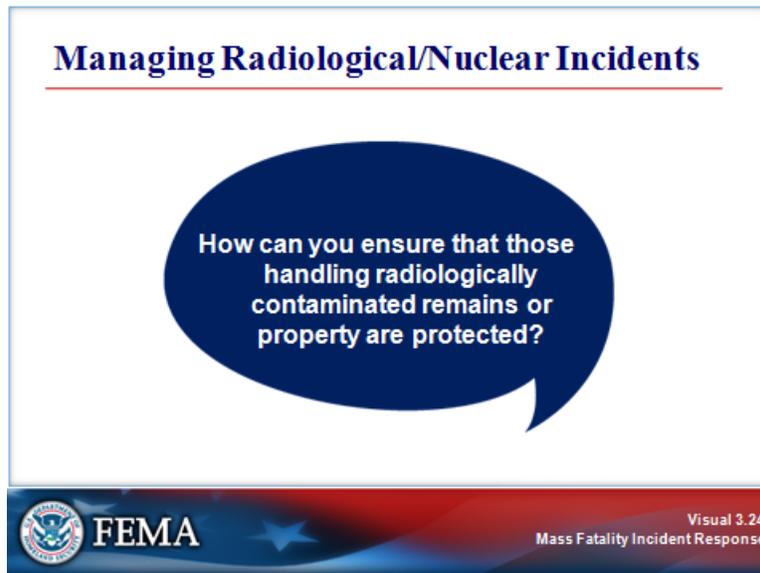
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**Planning for incidents involving radiological or nuclear materials**

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**Visual 3.24**

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**Notes:**

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**How can you ensure that those handling radiologically contaminated remains or property are protected?**

### PLANNING FOR CONTAMINATED REMAINS

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#### Planning for Incidents Involving Radiological or Nuclear Materials

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##### Protecting Responding Personnel

Use the steps below to protect responding personnel during recovery of radiologically contaminated remains.

1. Use appropriate Personal Protective Equipment (PPE) when evaluating and treating victims known or suspected to be contaminated with radioactive material.
2. Require all responders to wear a personal radiation dosimeter to monitor radiation doses. (Consult a Radiation Safety Officer (RSO) at a local hospital or the State health department about the types and proper wearing of personal radiation dosimeters.) Ensure that all personal radiation dosimeters are collected by trained personnel.
3. Require workers who remove radioactive shrapnel from victims to wear a finger ring dosimeter on their dominant hand in addition to the one worn on the torso. Note that:
  - Finger dosimeters often are not read locally, so the actual radiation dose to fingers and hands will not be available in real time.
  - The Radiation Safety Officer may be able to estimate the dose to fingers and hands based on the body dosimeter reading if a finger ring is not used.
  - Personal dosimeters providing real-time readings may be taped to the forearm.

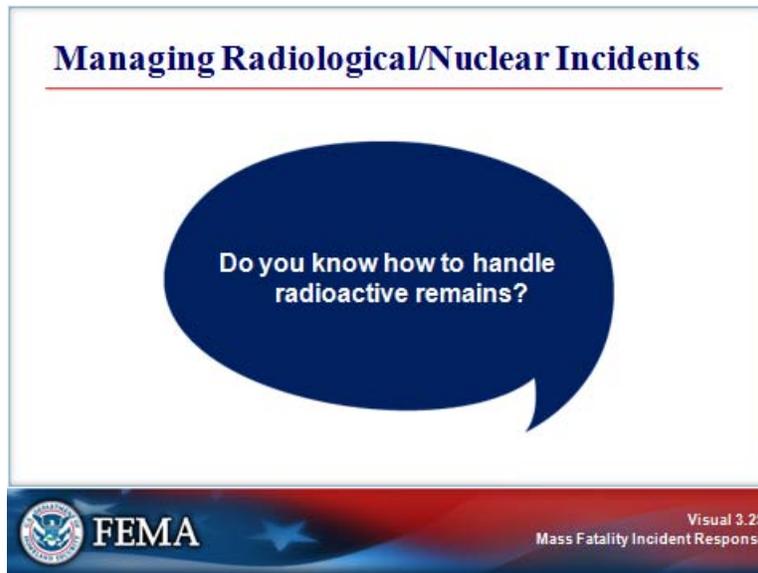
**ATTENTION! Pregnant healthcare workers should not be permitted to work in:**

- **Pre-decontamination areas.**
- **Decontamination areas.**
- **Areas where internally contaminated patients are cared for or domiciled.**
- **Areas where there are elevated levels of environmental radiation.**
- **Storage areas where contaminated remains are stored, handled, or transported.**

**PLANNING FOR CONTAMINATED REMAINS**

**Planning for incidents involving radiological or nuclear materials**

**Visual 3.25**



**Notes:**

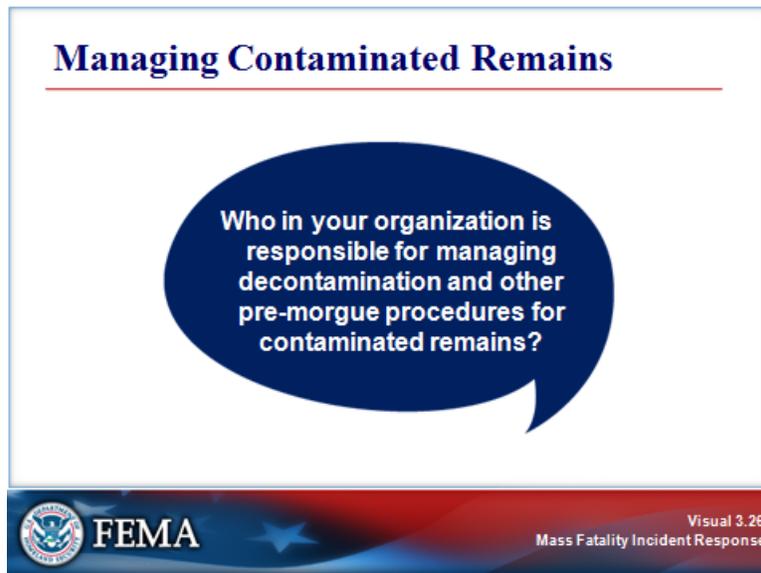
**Do you know how to handle radioactive remains?**

Note that:

- Additional information about gross decontamination of remains is located at: [www.remm.nlm.gov/ext\\_contamination.htm](http://www.remm.nlm.gov/ext_contamination.htm).
- A model for handling potentially contaminated remains is contained in: Transportation Emergency Preparedness Program (TEPP) Planning Products Model Procedures for Medical Examiner/Coroner on the Handling of a Body/Human Remains that are Potentially Radiologically Contaminated, which is located at: [www.em.doe.gov/PDFs/transPDFs/Medical\\_Examiner\\_Coroner.pdf](http://www.em.doe.gov/PDFs/transPDFs/Medical_Examiner_Coroner.pdf).

**PLANNING FOR CONTAMINATED REMAINS**

**Visual 3.26**



**Notes:**

**Who in your organization would be responsible for managing decontamination and other pre-morgue procedures for contaminated remains?**

COORDINATING RECOVERY WITH REMAINS PROCESSING

Visual 3.27

**Coordinating Recovery With Remains Processing**

- Persons overseeing any facet of remains processing should not also oversee recovery operations.
- Coordination between persons overseeing recovery and those overseeing remains processing must be planned for in advance of an incident.



FEMA

Visual 3.27  
Mass Fatality Incident Response

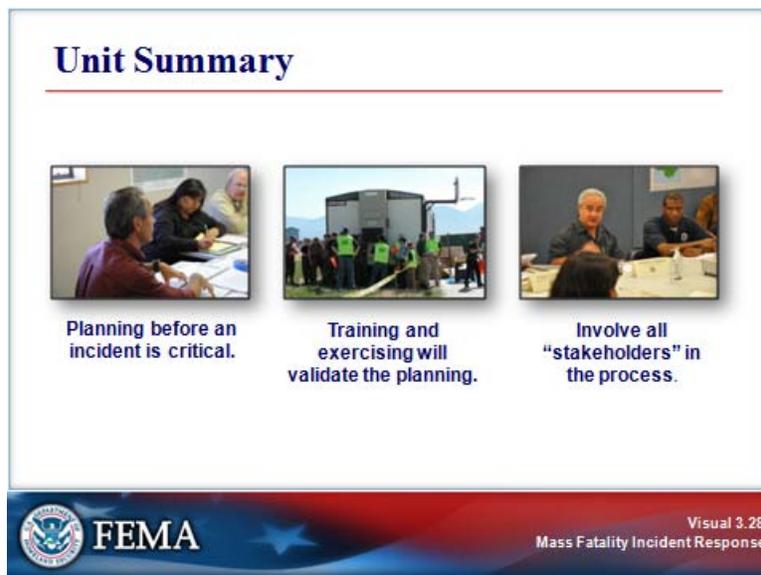
Notes:

Recovery must be coordinated and separated from remains processing.

- Persons overseeing any facet of remains processing should not also oversee recovery operations. Recovery operations in a mass fatalities incident can be very complicated, especially if the remains are fragmented. Morgue operations will be equally complex. Recovery and morgue operations, therefore, should be kept separate but coordinated.
- To ensure efficient recovery and morgue operations, job responsibilities and coordination procedures must be developed before an incident occurs. Specific procedures, such as traffic flow into and out of a temporary morgue, may be determined on site, but preincident coordination, wherever possible, will facilitate the identification and release of remains to family members.

### UNIT SUMMARY

#### Visual 3.28



#### Notes:

Note that:

- Planning before the incident is important.
- Training and exercising will validate the planning so that you will know whether your Mass Fatalities Annex will actually work in an incident.
- Planners need to involve all of the stakeholders in the process.

Unit 4 will cover managing mass fatalities operations.