

Improvised Nuclear Device Response and Recovery

Communicating in the Immediate Aftermath

June 2013



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Foreword

A nuclear detonation in the United States is one of the most catastrophic incidents imaginable. While the United States Government is working domestically and with international partners to ensure this scenario never occurs, failing to plan for managing the consequences of such an event would be irresponsible.

Should a nuclear detonation occur, a crucial task for Federal, State, local, tribal and territorial authorities and private-sector organizations will be communicating clear and consistent messages to the public. All levels of government have responsibility for coordinating and communicating information regarding the incident to the public immediately after a nuclear detonation. State, local and tribal authorities retain the primary responsibility for responding to large-scale incidents, such as a nuclear detonation. Effectively communicating health and safety instructions to the population will be a critical factor in building trust, comforting the nation, saving lives and minimizing injury.

This document was developed as a resource for emergency responders and federal, state, and local officials communicating with the public and the media during the immediate aftermath of a nuclear detonation in the United States. An interagency group of communications and radiation technical experts developed the messages in this document, which include key messages for the impacted community and the nation, and anticipated questions and answers for distribution to the public in the immediate aftermath of a nuclear detonation.

Since the 2010 interim use version of the document, the message content was reviewed by state and local responders and tested for comprehension through a series of public focus groups. The document was also reviewed by the Advisory Team for Environment, Food and Health, which is a radiological emergency response group tasked with providing protective action recommendations to state and local governments on behalf of its member agencies, including the Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), United States Department of Agriculture (USDA) and the Environmental Protection Agency (EPA). FEMA's Federal, State and local Nuclear/Radiological Communications Working Group also participated in the review and update of this document. The final document takes into account all of the feedback received during these reviews.

Ideally, there will never be a need for these messages; however officials at all levels of government have a responsibility to the American people to be prepared to respond and communicate effectively in the event of any type of national emergency, including a nuclear detonation.

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Introduction

The goal of this document is to aid responders in providing information and life-saving instructions to the public in the immediate aftermath of an Improvised Nuclear Device (IND) detonation. This timeframe is defined as the initial moments following the explosion until the 72-hour period when Federal assistance is expected to arrive and assist the local response forces.

People who receive specific instructions for appropriate actions following an IND attack will be more likely to make effective and prompt decisions to maximize their safety. The underlying mission of this messaging document is to share as much relevant information as possible to maximize public health and safety following a nuclear detonation.

Specifically, this document is designed as a tool for Federal, State, local, tribal and territorial officials and emergency responders who will interact with the media and the public following an IND incident. The pre-scripted key messages and questions and answers included in this document focus on saving lives and minimizing injury as well as addressing the concerns of the nation as a whole. If used across all levels of government, the message consistency and accuracy will also build confidence and trust in the government's response to the incident.

The anticipated questions are arranged by relevance to preserving health and safety of populations affected by the nuclear explosion. This document also contains several appendices, including 1) Federal jurisdiction following IND explosion, 2) Basic risk communications principles, 3) Example radio and social media templates for use after an IND explosion, 4) Responses to additional emergency response related questions, 5) A list of volunteer organizations and 6) Acknowledgement of the groups that developed and reviewed this document.

While the details of a nuclear incident will vary by its size and location, the issues addressed in this document are universally applicable to any nuclear detonation. While other official sources of messaging may prove useful in the days and weeks following an IND attack, this document is a key resource for officials at all levels of government communicating with the public or media immediately following an IND incident.

“Improvised Nuclear Device Response and Recovery: Communicating in the Immediate Aftermath” is meant to be used in combination with the “Planning Guidance for Response to an Improvised Nuclear Detonation” (2nd edition, published in June 2010 by the National Security Staff and Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats). “Communicating in the Immediate Aftermath” builds from the nuclear incident response recommendations in the “Planning Guidance” and provides life saving instructions that need to be conveyed after an IND detonation.

The information in “Communicating in the Immediate Aftermath” provides messages vitally important to saving lives during a response to a nuclear explosion. While this document does not include instructions for pre-event disaster awareness, the guidance in this document can be used for basic disaster education.

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Key Messages

Impacted Community: Immediate Action Message

Suggested for local or state spokesperson: Fire Chief, Police Chief, Mayor, Governor

- A nuclear explosion has occurred at [Location] in [City]. Potentially deadly radiation will be in the air right after a nuclear explosion.
- If you are in the [Defined Location] area, get inside a building immediately.
 - Cover your mouth and nose with a protective layer—like a cloth or a towel—to reduce the amount of potentially harmful particles you breathe.
- You can survive a nuclear explosion by taking the following steps:
 - **Get inside:**
 - If you are anywhere in the [Location] area, get inside a building as quickly as possible. If a multi-story building or a basement can be safely reached within a few minutes of the explosion, go there immediately.
 - The safest buildings have brick or concrete walls.
 - Close all windows and doors and go to a basement or to the center of the building, away from windows and outer walls.
 - If you are in a car, find a building immediately and get inside. Cars will not protect you from radiation.
 - **Stay inside:**
 - Inside a building or in an underground area is the best place for you and your loved ones after a nuclear explosion.
 - Plan to stay inside for at least 12-24 hours or until you are instructed to leave by authorities or emergency responders.
 - The most dangerous radiation levels will decrease significantly during this time.
 - Do not leave your building to get children and adults. Children and adults in schools, hospitals, nursing homes and daycare facilities will be cared for at the facility and will not be released to go outside. Going outside to get your loved ones will expose you and them to extremely dangerous radiation.
 - **Stay tuned:**
 - The Emergency Alert System will broadcast important safety messages over cell phone, radio, television and the Internet.
 - Instructions will be updated as more information is available.
 - **Stay calm and help those around you:**
 - It's common for shocking experiences to trigger strong, often upsetting, reactions.
 - Do your best to remain as calm as you can and take care of yourself
 - Take a few moments to steady yourself so you can better help your loved ones; breathe deeply, close your eyes, and try to relax your body.

Key Messages: Immediate Action Message

- Friends and family are very important sources of support to help calm down; stay in contact with loved ones whenever possible.
 - Seek accurate information about what is happening.
 - Provide emotional support to those around you, particularly children.
 - Children react to signs of stress in parents and caregivers; try to speak in an even manner and tone.
 - If possible, give children practical tasks or activities.
 - Understand that children at different developmental levels (e.g. toddlers, school-age children, teenagers) will have different needs and reactions.
 - Individuals and families in and around the affected region often experience distress and anxiety about safety, health, and recovery.
 - These reactions are common and usually decrease over time.
-
- These steps to protect you and your family are the same for your pets and animals.
 - Again, get inside, stay inside and stay tuned for more information. Following these steps can save your life.

Impacted Community: Additional Safety Measures (self-decontamination, food and water safety)

Suggested for local or state spokesperson: Fire Chief, Police Chief, Mayor, Governor

- A nuclear explosion has occurred at [Location] in [City]. Potentially deadly radiation will be in the air right after a nuclear explosion.
- If you are in this area, take the following steps as quickly as possible: Get inside, stay inside and stay tuned for more information. Following these steps can save your life.
- If you are in the [Location] area, get inside a building immediately.
 - Radioactive material settles on the outside of buildings. Stay as far away from the outside as possible and go to the basement or the center of the building.
 - The most dangerous radiation levels will decrease significantly in the first 24 hours.

Self-Decontamination

- Radioactive material settles like dust on your clothing, your body and other exposed objects.
- If dust- or sand-like material falls on you or your devices, quickly take the following steps to reduce your radiation exposure and to keep radioactive material from spreading:
 - **Remove your outer layer of clothing.**
 - Removing your outer layer of clothing can remove up to 90% of radioactive material. Be careful not to breathe radioactive dust that could shake loose when removing your clothes.
 - Seal the clothing you were wearing in a plastic bag or other container and place the container away from people and pets.
 - **Wash yourself off.**
 - Take a warm shower with lots of soap. Do not burn or scratch your skin.
 - Wash your hair with shampoo or soap and water. Do not use conditioner because it will cause radioactive material to stick to your hair.
 - If you cannot shower, use a wipe or clean wet cloth to wipe skin that was not covered by clothing, like your hands and face.
 - Gently blow your nose and wipe your eyes and ears with a clean wet cloth.
 - **Put on clean clothing.**
 - Clothing stored in a closet or inside a closed drawer is clean.
 - If you do not have clean clothes, shake or brush off your outer layer of clothing and redress. Be careful not to breathe in any dust-like particles.

Food Safety

- Food in sealed containers and any unspoiled food in your refrigerator or freezer are safe to eat. Medicine in sealed containers is safe.
- Use a damp towel or cloth to clean all cans, bottles, packaged foods, counters, plates, pots and utensils before using them.
- Seal these towels or cleaning cloths in a plastic bag or other container and place them away from people and pets.

Water Safety

- Bottled water and sealed juice or soda containers will be free of radioactive contamination. Wipe or rinse the outside of bottles or cans before opening them.
- You can drink tap water if no other drinks are available.

Nationwide: Immediate Message

Suggested for state and national spokesperson: President of the United States, Department of Homeland Security Secretary

- A nuclear explosion has occurred at [Location] in [City]. Potentially deadly radiation will be in the air right after a nuclear explosion, but the most dangerous radiation levels will decrease significantly during the first 24 hours.
- If you are in this area, take the following steps as quickly as possible: Get inside, stay inside and stay tuned for more information. Following these steps can save your life.
 - The radioactive material outside is extremely dangerous.
 - Go the basement or the middle of the building.
 - The safest buildings have brick or concrete walls.
- The Federal government is doing everything in its power to help those in need and is taking all possible precautions to protect the American people.
 - All government resources and emergency responders are fully engaged to identify and assist those in need.
 - Federal, State, local, tribal and territorial governments are following existing emergency response plans for coordinating all available resources.
- The Federal government is working to determine who is responsible for this attack. It will take time to determine those responsible, and we ask that you not rush to judgment until more information is available.
- Americans across the nation can best help by:
 - If you are in the affected area, stay inside until instructed otherwise by authorities.
 - If you are in the surrounding or outside area, stay away to allow emergency responders to help those in need.
 - If you see anything suspicious, contact your local authorities immediately.
 - Use text messaging to communicate with friends and family, to free up phone lines for those needing immediate.
 - Stay tuned to television, radio or any web-enabled device for updated safety instructions and information.
- More information about this situation is available at [Website].
 - Contact your local volunteer organization to help with requests for food, clothing and blood donations.
 - To help reunite you and your family, check social network sites like Facebook or Twitter for information about your loved ones.
- We, as a city and as a nation, will recover from this tragedy.
 - This process will not occur overnight. We must be patient and work together to assist those in the affected area and to rebuild what we have lost.

Nationwide: Repeated Informational Message

This message can be used to instruct people on what they can do to protect themselves in case of another attack and to provide people with specific actions to take.

Suggested for national spokesperson: President of the United States, Department of Homeland Security Secretary

- All levels of government are responding to this explosion and are taking all possible precautions to protect against a future attack.
- If you are in the area, take the following steps as quickly as possible: Get inside, stay inside and stay tuned for more information.
 - Cover your mouth and nose with a protective layer—like a cloth or a towel—to reduce the amount of potentially harmful particles you breathe.
- After a nuclear detonation, the following steps can save your life:
 - **Get inside:**
 - If you are anywhere in the [Defined] area, get inside a building as quickly as possible. If a multi-story building or a basement can be safely reached within a few minutes of the explosion, go there immediately.
 - Close all windows and doors and go to a basement or to the middle of the building. The safest buildings have brick or concrete walls.
 - If you are in a car, find a building immediately and get inside. Cars will not protect you from radiation.
 - **Stay inside:**
 - Inside a building or an underground area is the best place for you and your loved ones after a nuclear explosion.
 - Plan to stay inside for at least 12-24 hours or until you are instructed to leave by authorities or emergency responders.
 - The most dangerous radiation levels significantly decrease during this time.
 - Do not leave your building to get children and adults if they are more than a few minutes from you. Children and adults in schools, hospitals, nursing homes and daycare facilities will be cared for at the facility and will not be released to go outside. Going outside to get your loved ones will expose you and them to extremely dangerous radiation levels.
 - **Stay tuned:**
 - The Emergency Alert System will broadcast important safety messages over cell phone, radio, television and the Internet.
 - Instructions will be updated as more information is available.
- These steps to protect you and your family are the same for your pets and animals.

Expected Questions During the First 12 Hours

Situation Specifics

1. What happened?

- A nuclear explosion occurred at [LOCATION] in [CITY].
- If you are in [define AREA], get inside and stay inside.
 - Emergency responders and radiation experts are working to identify the path of the radioactive material.
 - Weather conditions, like rain, snow or wind, will affect the spread of radiation.
 - Even if your location appears normal, radiation outside may still be a danger.
 - Staying inside, away from the radioactive material outside, can save your life.
- Radiation experts are gathering information and will provide updates as we learn more.
 - Radiation levels are extremely dangerous after a nuclear explosion, but the most dangerous radiation levels will decrease significantly during this first 24 hours.
 - People will be evacuated when radiation experts confirm it is safe to leave their building.
 - Until you are instructed to leave, you are safest if you stay inside a building with brick or concrete walls or in a basement.

2. Where did the IND come from?

- Early indications are that this was a deliberate attack using an improvised nuclear device.
- The Federal government is using all available means, including law enforcement, intelligence and technical resources, to determine who is responsible for this attack.
 - It will take time to determine those responsible.
 - We ask that you not rush to judgment until more information is available.

3. How big was the explosion?

- It is too early to know the size of the explosion.
- However, this is a very serious disaster.

4. Is there an immediate danger?

- If you are in [LOCATION], you are in danger extremely high levels of radiation.
- Go to a basement or the center of the building, and close all windows and doors. Stay as far away from the radiation outside as possible.
- If you are told to stay inside, it is because the radiation outside is dangerous.
- Follow the safety instructions provided by emergency response officials. These instructions will be updated as more information is available.

5. What should I do if I am in the area where the explosion occurred?

- Stay inside unless told otherwise by authorities. This will protect you from harmful radiation and keep roads clear for emergency vehicles.
 - People without power can use a battery-powered device like a radio, cell phone, or computer to get information.
- Unless you are critically injured, stay away from hospitals, fire and police stations.
- Use text messaging rather than phone calls to communicate with friends and family. Try and keep your messages as short as possible.
- If you were in a vehicle or outside when the explosion occurred, get inside a building immediately.
 - If a multi-story building or an underground structure like a basement can be safely reached within a few minutes, go there immediately.
 - If a brick or concrete building is not available, quickly get inside the nearest building with the thickest walls.
- Do not abandon your car on the road. Instead, park your car without impeding traffic. This will allow emergency responders to help people in need of assistance.

6. How many people have been hurt or killed?

- We cannot speculate on the specific number of casualties right now.
- We know that people need help.
- We are focused on getting people in the affected area help as quickly and safely as possible.

7. Are people safe?

- If you are in [LOCATION], you are in danger extremely high levels of radiation.
- You are safest inside a basement or building made of brick or concrete for the first 12-24 hours, while radiation levels outside are most dangerous.
- If you were instructed to stay inside, remain inside until you are told otherwise by authorities.
- Instructions given by officials or emergency responders are for your safety. The instructions will be updated as more information is available.

8. How can people learn about the safety of their family members?

- Use text messaging, e-mail and social media, like Facebook and Twitter, to communicate with family and friends.
 - After a nuclear explosion, you are unlikely to be able to complete a phone call.
 - This using text messaging and social media will free up phone lines, allowing people in extreme need to call for help and emergency personnel to communicate with each other.
- Emergency responders are gathering and organizing all personal information as quickly as possible.
 - If you are separated from your children or loved ones, search online for registries where people can identify themselves and their location.
 - Registries will take some time to populate and gaining computer access to register or search may take hours to days.
- You can seek additional information and counseling services at [LIST ORGANIZATIONS or LOCATIONS].

9. What types of radioactive material were spread by the nuclear explosion?

- A variety of radioactive materials are spread over a wide area after a nuclear explosion.
 - Many of the types of radioactive material will be identified over time, but the initial response efforts do not depend on knowledge of the specific materials.
- What we do know is that radiation levels are extremely dangerous after a nuclear detonation but the levels reduce rapidly, in just hours to a few days.
- Initial safety instructions are the same regardless of the specific radioactive materials.

10. Where is the radioactive material located?

- Weather conditions like wind and rain will affect the spread of radioactive material.
- Radiation experts are monitoring air and ground to determine the location of radioactive material.
- Emergency responders are working to get people out of dangerous areas.
 - If you are in [LOCATION], stay inside and wait for the most dangerous radiation levels to decrease. This can take from a few hours to a few days.
 - Until radiation levels decrease, the public and emergency responders are safer staying inside rather than evacuating. You will not be able to outrun radiation.
 - People will be instructed to leave when the danger decreases.
- Safe evacuation routes and available shelter locations will be updated as more information is available.

11. Where is the radioactive material going?

- According to current weather predictions, the areas [DIRECTION] of [CITY] will have the highest, most dangerous radiation levels, but the path can change depending on weather conditions.
- The further you are from the explosion, the less radioactive material will reach your area.
 - Dust- or sand-like particles containing dangerous radiation will fall to the ground in the area closest to the explosion.
 - Weather conditions, like rain, snow or wind, will affect the spread of radioactive material.
- Safety instructions will be provided to those in areas affected by the nuclear explosion.
 - The explosion damage will not extend more than 3 to 5 miles, but radioactive material in the air will travel further. Stay tuned for important safety instructions.
 - Radiation experts and emergency responders are working to confirm the path and location of the radioactive material.
 - Safety instructions will be updated as more information is available.

12. Is the situation under control?

- Emergency responders, radiation experts, and representatives from all levels of government are working together to protect the public and save lives.
- Law enforcement is working to apprehend those responsible for this horrific act.
- The country is facing unprecedented challenges and a long, difficult response, but together we will recover both physically and emotionally.

13. Could there be another nuclear explosion?

- At this time, we have no information to indicate that additional attacks are being planned; however, we are taking all possible security precautions to protect the American people.
- As a nation, we must continue to be alert.
 - If you see anything suspicious, contact a local law enforcement official or the FBI.
- Stay tuned to television, radio or and the Internet for important updates.

14. What are emergency responders doing?

- Radiation experts will determine whether an area is safe to enter and how to best help people in the affected area.
- After an area is safe for emergency responders to enter, they will provide medical assistance, firefighting, law enforcement and evacuation assistance.
 - Radiation experts and emergency responders continue to gather information on structural damage, radiation levels, location of radioactive material, and how quickly radiation levels are decreasing.
 - Some areas near the explosion may not be safe to enter for days, weeks or years.

15. What will happen to people in the affected communities?

- While it is too early to know the specific impacts, we know that this has been a catastrophic event where lives have been lost and homes and businesses destroyed.
- All levels of government are coordinating their efforts to do everything possible to help the people affected by this disaster.
- As life-saving activities continue, follow the instruction of emergency responders.
 - These instructions are for your safety.
 - These instructions are based on the best information we have right now.
 - These instructions will be updated as more information is available.

16. What is the condition of the city that was attacked?

- This explosion caused severe damage to buildings, roads, bridges and communications systems in the areas closest to [LOCATION].
 - (Provide updates on the status of power outages, communications outages, water systems, sewage systems, road and bridge conditions).
- We are taking the following steps to restore damaged systems:
 - (Provide information on steps being taken to bring systems back up online).
- It may take a significant amount of time to get private and public systems working again.

17. How can the public help?

- Immediately after the explosion, there are three things the public can do to help:
 - Let emergency responders help those in need:
 - If you are near the affected area, stay inside unless told otherwise by authorities. This will help protect you from radiation and keep roads clear for emergency vehicles.
 - Unless you are critically injured, stay away from hospitals, and fire and police stations. These facilities need to be available for injured victims.
 - Keep phone lines clear
 - Use text messaging to communicate with friends and family.
 - This will free up phone lines, allowing people in extreme need to call for help and emergency personnel to communicate with each other.
 - Provide shelter
 - If you are able to take someone seeking shelter into your home, there are simple safety steps to keep radioactive material out of your home.
 - First, ask your visitor to remove their outer layer of clothing and place it in a plastic bag. Place the bag away from people and pets.
 - If possible, have your visitor shower with soap and warm water to remove any remaining radioactive material.
 - If they do not have clean clothes, ask your visitor to shake or brush off their outer layer of clothing and redress. Do not breathe in any dust-like particles.
 - Do your best to remain as calm as you can and take care of yourself by
 - Maintaining healthy eating, sleeping, and exercise routines
 - Staying in contact with loved ones whenever possible.
 - Seeking accurate information about what is happening.
 - Reaching out to helplines, when they're available, if your anxiety becomes overwhelming.
 - Provide emotional support to those around you, particularly children.
 - Children react to signs of stress in parents and caregivers; try to speak in an even manner and tone.
 - If possible, give children practical tasks or activities.
 - Understand that children at different developmental levels (e.g. toddlers, school-age children, teenagers) will have different needs and reactions.
 - Understand that it's common for individuals and families in and around the affected region to experience distress and anxiety about safety, health, and recovery.
 - These reactions are common and usually decrease over time.

Public Safety and Protective Action Guidance

18. What should the public do to protect themselves?

- If you are in the affected area of [LOCATION], get inside a building as quickly as possible.
 - If a multi-story building or a basement can be safely reached within a few minutes of the explosion, go there immediately.
 - Close all windows and doors and go to a basement or to the middle of the building.
 - If you are in a car, find a building immediately and get inside. Cars do not protect you from radiation.
- Follow the instructions from State and local officials and emergency responders.
 - These instructions are for your safety.
 - These instructions are based on the best information we have right now.
 - These instructions will be updated as we gather more information.

19. What is being done to protect those in schools, hospitals and nursing homes?

- Children and adults in schools, hospitals, nursing homes and daycare facilities will be cared for at those facilities and will not be released to go outside until instructed by emergency responders that it is safe to do so.
- Schools, hospitals, and nursing homes have emergency plans in place to protect people at the facility in the event of a nuclear explosion.
 - These plans include keeping everyone inside, providing assistance for those with functional needs, and, if necessary, ensuring safe evacuation.
 - Going outside to retrieve your loved ones will expose you and them to dangerous and potentially deadly levels of radiation.

20. Is the air safe to breathe?

- If you are within 50 miles of [LOCATION], these simple steps can reduce exposure from breathing in radioactive particles:
 - Cover your mouth and nose with a protective layer—like a mask or a towel—to reduce the amount of potentially harmful particles you breathe.
 - Close doors and windows if possible.
- The explosion released large amounts of radioactive material and debris into the air.
 - Radiation is one of many hazards released as a result of this explosion.
 - The radioactive material released in the air is dangerous for the immediate area and the areas nearby to the explosion.
 - Weather conditions, like rain, snow or wind, will affect the spread of radioactive material.
- Radiation experts and Federal, State, local, tribal and territorial emergency responders are monitoring the conditions in the affected area and will let you know when it is safe to leave.
 - Air monitoring results will be shared with the public as soon as possible.

21. Are food and medications safe?

- Food in sealed containers and any unspoiled food in your refrigerator or freezer is safe to eat. Medication in sealed containers is safe.
- Use a damp towel or cloth to clean all cans, bottles, packaged foods, counters, plates, pots and utensils before using them.
 - Seal these towels or cleaning cloths in a plastic bag or other container and place them away from people and animals.
- Do not eat food that was outside at the time of the explosion.
- Nursing mothers should take the following additional precautions to reduce radiation exposure to their babies:
 - If you were near the explosion, use baby formula until you are able to contact your doctor for further instructions or advice.
 - You may continue to breastfeed if there is no other source of food available.
 - As soon as possible, tell emergency workers that you are breastfeeding so they can help you and your child get the proper attention.

22. Is the water safe to drink?

- Until we have drinking water test results, only bottled water is certain to be free of contamination.
- You can safely drink water, juices or other drinks in sealed containers or in your refrigerator or freezer.
 - A sealed package or storage location will protect the liquid inside from radioactive contamination.
 - If a sealed container was exposed to radioactive dust outside, use a clean towel to wipe off the bottle to remove any radioactive material before opening it.
- Tap or well water can be used for cleaning yourself and your food.
 - The risk from having radioactive material on your body or consuming radioactive material on your food is significantly reduced by washing, even if the water itself is contaminated.
 - Boiling tap water does not get rid of radioactive material.
- If needed, water in a toilet tank or from a hot water heater tank will also be free of radioactive contamination.

23. Will my power, natural gas and water work after a nuclear explosion?

- Buildings may lose power, which will prevent lights and electricity from working.
 - If you move to a basement and plan to light a match or candle for heat, light or cooking, be sure that smoke can escape.
- Gas lines could break, which will prevent gas-powered cooking and heating.
 - If buildings in your area use natural gas, smell for gas before lighting any fire for heat, light or cooking.
 - If you smell gas, turn off any gas outlets as soon as it is safe to do so.
- Buildings in some areas may lose water pressure, which will prevent the toilet from flushing.
 - If your toilet cannot be flushed, use a container with a cover—like a garbage can or bucket—to dispose of human waste.
 - If possible, use a plastic bag as a liner and use disinfectant to protect against the spread of disease and to control the smell.
 - Water in a toilet tank will be free of radioactive contamination and can be used for washing.

24. Will people need to evacuate the affected area?

- You should plan to stay inside a building for the first 12-24 hours or until you are told by emergency responders that it is safe to leave.
- If you are instructed to evacuate, quickly pack important papers, necessary medicines and a change of clothes.
 - Follow the evacuation route provided by emergency responders.
 - You will be stopped at a “check point” to wash radioactive material from your vehicle.
 - Emergency responders must remove radiation from you, your family and your pets before you can enter a shelter.
- If you have been instructed to stay inside, it is because the situation outside is too dangerous to attempt evacuation at this time, or because a safe evacuation route has not yet been established.

25. Will shelters be available for people instructed to evacuate?

- Yes, shelters will be available for people instructed to evacuate.
- People will be evacuated away from the path of radiation to limit their radiation exposure.
- Emergency responders will guide you to shelters when conditions are safe enough for you to move there.
 - Shelters will provide water, food, some medicines, and basic sanitary facilities.
 - You should take needed medicines and prescriptions, important papers and a change of clothes with you.

26. What are the options for evacuation and sheltering with pets?

- You can clean radioactive material from pets just as you would remove radioactive material from people.
 - Use a brush to gently remove any dust-like particles from your pet's coat. Do not breathe any particles that come from your pet's coat.
 - If possible, shampoo your pet using lukewarm water. Do not use conditioner.
- While pets are accepted at some evacuation facilities, many emergency shelters cannot accept pets for public health reasons.
 - Service animals are not considered pets and will be accepted in evacuation shelters.
- If you are evacuating with a pet:
 - Listen to local radio news broadcasts for information on pet evacuation and the locations of available pet shelters.
 - Pets will not be allowed into any shelter until they are thoroughly washed to remove any radioactive material.
 - Preserving and protecting human life takes priority over pets.
 - If possible, bring a cage, leash, food, medication and veterinary records, including immunization records.

27. What plans are in place for people who don't have transportation?

- Emergency responders are trained on how to help those who do not have access to transportation and those who cannot care for themselves following an IND incident.
- Transportation will be provided to evacuate people from dangerous areas.

28. Can I let someone into my home after a nuclear explosion?

- Providing shelter to someone who was outside during the nuclear explosion can save their life without endangering your own.
- If you are able to take someone seeking shelter into your home, follow these safety steps to keep radioactive material out of your home.
 - First, ask your visitor to remove their outer layer of clothing and place it in a plastic bag or another container. Place the container away from people and pets.
 - Second, have your visitor shower with soap and warm water to remove any remaining radioactive material. They should not use conditioner in their hair.
 - If no shower or clean clothes are available, ask your visitor to brush off any loose material that may have settled on their clothing. They should use a wipe or clean wet cloth to wipe any skin that was not covered by clothing, like their hands and face.

29. What should people do if they do not have food, water or medications?

- If you are in the impacted area and your life is threatened by no access to, or running out of, life-sustaining medication like insulin or heart medication, take the following steps to get medication and avoid radioactive material outside:
 - Call 911 if possible.
 - Seek help from a neighbor.
 - As a last resort, you can go to the closest medical facility.
- If your condition is not life-threatening, stay inside for 12-24 hours or until instructed otherwise.
 - Treat burn, cut and shock injuries with first aid – there is no need to delay treatment because of radiation.
 - Going outside to look for food, water or medicine soon after an explosion can put you in immediate danger.
- If you have to go outside for any reason, cover your nose and mouth to avoid breathing any radiation particles. Clean yourself thoroughly, put on clean clothing and wash exposed areas with soap and water when you come back inside.

30. Is pet food safe?

- As with human food, sealed pet food is safe for animals to consume.
- As with human food, rinse or wipe off any debris from a closed can or package with tap water and dispose of the washcloth in a plastic bag away from people and animals.

31. What should people do if they are on a boat near the impacted area?

- If you are on a boat, get to water that is at least 5 feet deep and 200 feet or more from shore, stay inside the boat and navigate away from the affected area.
 - While boats do not protect you from radiation, distance from the explosion will.
- The largest, most dangerous radioactive particles will sink in the water. Quickly and carefully wash or sweep away any dust- or sand-like particles that land on the boat. Cover your mouth and nose to prevent breathing in radiation particles and avoid direct contact with these particles.

Emergency Response Capabilities

32. What is being done in response to the detonation?

- Federal, State, local, tribal, territorial and private-sector emergency responders are working to save lives as close to the impacted area and as quickly as possible.
- Health and safety officials are working closely to effectively respond to this explosion and to provide medical and safety assistance to those in need.
- Specialized teams are assessing the damage and determining the extent of radioactive contamination. Safety instructions will be updated based on their findings.

33. Who is managing the response?

- State and local governments in the impacted areas are at the forefront of the response.
- Police and firefighters are on the scene, working to save as many people as possible.
 - Emergency responders across the nation have been trained to respond to this type of disaster.
- Emergency responders are following existing safety plans to use all available resources and respond as quickly and safely as possible. Federal responders and resources are already supporting the response with experts, equipment and additional resources.

34. How is the government responding?

- Emergency responders at all levels of government are working together, using all available resources and doing everything possible to help those affected by this incident.
 - Emergency responders will provide health and safety assistance, including firefighting, law enforcement, and evacuation help for people in the affected area.
 - Emergency responders have prepared and practiced their existing plans to respond to this incident.

35. What is the role of radiation experts after a nuclear explosion?

- Federal and State governments have experts who specialize in the effects of radiation on the human body and the environment, such as trained physicians, radiation specialists and emergency response teams.
- These radiation experts are analyzing the impacts of this nuclear explosion and are health and safety recommendations.

36. Which areas are safe for emergency responders to enter?

- Areas close to the explosion are dangerous for the public and emergency responders following a nuclear incident.
 - Emergency responders will only enter an area after radiation experts determine that it is safe for them to do so.
- As soon as radiation levels decrease enough for emergency responders to safely enter, the responders will work to save lives in the affected areas.

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Expected Questions After the First 12 Hours

Situation Update

37. What are the effects on national infrastructure from this explosion?

- At this time, we don't know if there will be any lasting effects on national infrastructure.
 - (Provide updates on the status of power outages, communications outages, water systems, sewage systems, road and bridge conditions).
 - (Provide information on steps to restore damaged systems).

38. Can people return to the area near the explosion?

- At this time people in [AREA] should stay inside a building, unless instructed to do otherwise.
- If you have been evacuated, do not return until you are told it is safe to do so by authorities.
- Attempting to return before it is safe will put you and your loved ones in danger and will keep emergency responders from helping people who need immediate assistance.

39. Can the affected area be returned to its former use?

- A long, difficult cleanup awaits and the most important goal of the cleanup is to keep people safe.
 - This nuclear detonation has created areas with dangerously high levels of radiation.
 - Some heavily contaminated areas may never be reoccupied. Other areas may take years before they can be returned to their former use.
- The affected area will be closed to non-emergency responders until radiation experts determine the location and amount of radioactive contamination.
 - Once an analysis of the affected area is made, a cleanup plan will be developed with input from the community and emergency response and safety officials.

40. How soon will a map displaying the areas affected be available?

- Initial maps showing the affected areas—where the radioactive material is going and locations where actions need to be taken—are being developed.
 - These maps will be made available to the public as soon as possible and will be updated as new information is available.
 - The initial maps are based on very limited information and on the best estimates and predictions of radiation, weather and scientific experts.
- You will be able to view maps of the affected areas at [WEBSITE].

41. How are evacuation decisions being made?

- Evacuation decisions are based on factors such as weather conditions, size of the detonation, radiation levels, and damage to roads and structures along evacuation routes.
 - Radiation levels are extremely dangerous after a nuclear detonation, but the most dangerous radiation levels will decrease significantly in the first 24 hours.
 - During the time with the highest radiation levels it is safest to stay inside a building, away from the radioactive material outside.
- As radioactive material moves through the air, people in the path will be asked to take safety measures.
- All safety instructions are made by State and local officials with the support of radiation and weather experts. Their goal is to save lives and reduce radiation exposure to the public.
 - Pay close attention to emergency broadcasts and information from officials or emergency responders for important safety instructions.

42. Should people eat food from their gardens or locally caught fish and game?

- If you are close to the affected area, it is likely that the radioactive material has settled on the ground and outdoor crops or gardens.
- Do not pick or eat food from your garden or food grown in the affected area until further notice.
- Do not eat fish or game caught in the affected area until further notice.
- Authorities will be testing agricultural products in the affected area and will let you know if they are safe to eat.
 - Follow food safety instructions from public safety officials.

43. What should farmers do with their crops and livestock?

- We are asking farmers in [AREA] to not harvest, eat or distribute their crops until radiation test results are analyzed.
- If you are outside the shelter and evacuation areas, take these steps to protect your livestock:
 - Move your livestock indoors.
 - Use only stored feed and covered water. If possible, avoid using feed that was kept outside.
 - Wear gloves, boots, an apron and a dust mask to protect yourself while caring for your livestock.
- We recognize that crops and livestock are critical to livelihoods. State and local officials will provide information as soon as radiation test results are available.
 - Designated Federal agencies will declare affected agricultural areas as disaster areas and will work with farmers and ranchers to obtain disaster assistance.
 - Because an IND explosion is a manmade event and is not covered under crop insurance, Federal agencies will help farmers and ranchers obtain assistance.

44. What are some expected emotional reactions to this type of emergency?

- Following a frightening emergency event it is common for individuals and families in and around the affected region to experience distress and anxiety about safety, health, and recovery.
- People may experience reactions such as:

Expected Questions After the First 12 Hours:
Situation Update

- Irritability or sadness.
- Difficulty making decisions or following directions.
- Headache, stomach pain, or difficulty breathing.
- Consuming more alcohol or having interpersonal conflict.
- These reactions are common and usually decrease over time. If symptoms persist or worsen it will be important to seek the help of a health or behavioral health professional.
- Do your best to remain as calm as you can and take care of yourself
- Provide emotional support to those around you, particularly children.

International Interest

45. What are the potential economic impacts from this explosion?

- There has been significant damage to people, businesses, buildings and infrastructure in the immediate area of the explosion.
- Officials from all levels of governments are working to gather more information to better understand the full economic impact from this explosion.
- The economic impact will not be known until radiation experts and emergency responders assess the situation and determine the extent of damage caused by the nuclear explosion.

46. Will the radioactive material affect other countries?

- Federal and international organizations are monitoring the path of the radiation in the air and the radioactive fallout from the explosion as it moves around the world.
- Federal officials are sharing information about the release with other countries and will continue to do so as we gather more data.

47. Will this impact air travel?

- Until we have more information, expect air travel to be restricted, particularly in the areas nearest the nuclear explosion.
- Reduced air traffic will keep the airspace free for air monitoring and the continuing investigation.

48. Will this impact use of navigable waterways?

- Until we have more information, expect the use of navigable waterways to be restricted in areas nearest the nuclear explosion.
- Reduced water traffic will keep the waterways free for response and recovery activities.

Roles and Responsibilities

49. Who is coordinating the disaster response?

- State and local governments in the impacted areas are at the forefront of the response.
- The Federal government is committed to supporting State, local, tribal and territorial governments and emergency responders.
 - The FBI is leading a coordinated criminal investigation with the support of Federal, State and local law enforcement partners.
 - Federal response and recovery organizations, including FEMA, the Department of Energy, EPA and U.S. Department of Health and Human Services (HHS), among others, are working as quickly as possible to identify the dangers and risks from this explosion.
- The United States government has established processes and plans to receive help from foreign governments who offer to assist in emergency response operations.

50. Will there be an investigation to determine what happened?

- Early indications are that this was a deliberate attack using an improvised nuclear device.
- The Federal government is using all available means, including law enforcement, intelligence, and technical resources, to determine who is responsible for this attack

51. What Federal agency is leading the response?

- The President of the United States is taking a primary leadership role in the response to this tragic event.
 - Under the President's authority, a national emergency has been declared and he has directed Federal agencies to dedicate resources and effort to assist those affected.
 - The President has also directed the Secretary of Homeland Security to oversee the Federal government's response and assistance to State and local governments.
- See Annex 1 for the full Federal jurisdiction for nuclear incidents.

Radiation and Improvised Nuclear Device (IND) Overview

IND Basics

52. What is an Improvised Nuclear Device (IND)?

- An IND is an explosive nuclear device with energy measured in kilotons (a small fraction of Cold War-era nuclear weapons) that can be detonated with no warning.
 - This weapon can cause significant destruction and severely damage areas within 3-5 miles of the explosion.
- An IND explosion releases radioactive material, which makes it much more dangerous than other types of explosions.
 - An IND should not be confused with a radiological dispersal device (RDD), which is commonly called a “dirty bomb”. A dirty bomb uses an explosive device to spread radioactive material without a nuclear explosion.
- An IND may be constructed from stolen nuclear weapon components or made from scratch using nuclear material to produce a nuclear explosion.

53. What is a nuclear explosion?

- A nuclear explosion involves a large blast that produces an intense wave of heat, light, air, and radiation.
- Anything immediately near the explosion, including buildings, roads and cars, will be destroyed. The resulting dust and debris will be pulled upward and form a cloud above the explosion.

54. What is nuclear fallout?

- After a nuclear detonation, material in the explosive cloud will cool and fall to the ground; this is known as fallout.
 - Fallout is dangerous because it contains radioactive material.
 - The radioactive material in fallout can be carried long distances by wind before it falls back to the earth.
 - Fallout particles look like dust, sand, or ash, and can be seen as they fall from the sky after an IND detonation.

55. Why is a nuclear explosion so dangerous?

- The blast, heat, and radiation from a nuclear explosion can cause massive casualties and significant damage to buildings and property.
- A nuclear explosion releases extremely dangerous levels of radiation, which is harmful to humans and animals.
 - People hundreds of miles away from the explosion could be exposed to lower levels of radioactive fallout carried by winds.
 - The most dangerous radiation levels from fallout will decrease significantly after a nuclear explosion, in during the first 24 hours.

56. How far will the radioactive material travel?

- Radioactive material can be carried hundreds of miles by wind.
- As radioactive material moves through the air, radioactive fallout will drop on the surfaces below.
 - Larger particles, containing greater amounts of radioactive material, fall closest to the explosion.
- The further you are from the explosion, the less radioactive material will reach your area.
- People in the path of radioactive material should follow important safety instructions from officials and emergency responders and avoid coming in contact with radioactive material.

57. How will precipitation affect the fallout?

- Any type of precipitation, such as rain or snow, will push radioactive material toward the ground.
 - The precipitation gathers and concentrates the radioactive particles in the air and brings them to the ground, similar to the way rain collects pollen from the air and brings it to the ground.
 - Radiation levels will likely be higher in areas that experience precipitation after a nuclear explosion.

Radiation Basics

58. What is radiation?

- Radiation is the release of energy from unstable atoms in the form of particles or waves.
 - Everything is made of atoms.
 - Some atoms are unstable and release energy to become stable. These atoms are radioactive.
- Radiation can be detected using special equipment.
- People cannot see, smell, hear, feel or taste radiation.
- Radiation affects people by depositing energy in the body, which damages body tissue.
 - Radioactive material can be harmful when it contacts your skin, inhaled from the air, or enters your body through an open wound.
 - Unnecessary radiation exposure should be avoided.

59. What are the types of radiation?

- Ionizing radiation is the type of dangerous radiation that is released after a nuclear explosion.
 - Ionizing radiation can alter a person's DNA or cells.
- Non-ionizing radiation is not strong enough to cause internal damage.
 - Examples of non-ionizing radiation are sunlight, radio waves, cell phone signals and microwaves.

60. What is background radiation?

- Background radiation is radiation that is always around us. Everyone is exposed to some amount of background radiation.
- Background radiation comes from natural sources such as rocks, soil and outer space.
- Background radiation levels vary across the country, states and even within individual cities.
 - This can be due to elevation; higher elevations have more exposure to cosmic radiation.
 - It can be due to rock composition; some kinds of rocks contain more radioactive materials than others.

61. How is radiation exposure measured?

- Radiation specialists use complex tools to measure, analyze and calculate how much radiation a person receives following a nuclear explosion.
- In the United States, the radiation dose a person receives is measured in a unit called a rem.
 - Small doses of radiation are measured in millirems, which are one-thousandth of a rem.
 - Other countries use different units.
- The average person in the United States receives a dose of about 620 millirem of radiation per year due to natural radiation and medical procedures.
 - Aggressive cancer treatments can expose a person to higher amounts of radiation, ranging from 40 to 4,000 rem over a series of treatments.

62. What are the different types of ionizing radiation?

- Radioactive material from a nuclear explosion may emit any of four types of ionizing radiation: alpha particles, beta particles, gamma rays and neutrons.
 - Alpha particles:
 - A piece of paper or the outer layers of skin will stop alpha particles.
 - Radioactive material that emits alpha particles (alpha emitters) is most harmful when inhaled, swallowed or enters into the blood stream through wounds.
 - Beta particles:
 - Beta particles can be stopped by a single layer of clothing or by a thin layer of protective material.
 - Beta particles are capable of penetrating exposed skin and causing radiation damage such as skin burns.
 - Beta particles are most hazardous when they are inhaled, swallowed or enters into the blood stream through wounds.
 - Gamma rays:
 - Gamma rays are similar to x-rays taken in a doctor's office. Several feet of concrete or another dense material, like the lead aprons worn during medial x-rays, are required to stop gamma rays.
 - Gamma rays can penetrate a person's entire body and are the primary concern following a nuclear explosion.
 - Gamma rays and x-rays typically pass completely through the human body. However, they deposit a fraction of energy in a person's body tissue that can cause harmful health effects.
 - Neutrons:
 - Neutrons are released immediately after a nuclear explosion and last only a few seconds in the impacted area.
 - Neutrons are very penetrating. Several feet of concrete or another dense material are required to stop them.
 - Neutrons interact with tissues in the body and have the potential to cause damage.

63. How much radiation is considered low risk?

- According to radiation safety experts, radiation exposure between 5–10 rem usually results in little to no harmful health effects.
 - Infants, the elderly and pregnant women are more sensitive to radiation exposure than healthy adults.
- It takes a large dose of radiation—more than 75 rem—in a short amount of time (usually minutes) to cause immediate health effects like acute radiation sickness.
 - Differences like age, gender and even previous exposure are factors that might influence a body's reaction to radiation exposure.
- You can lower your risk of developing health effects by limiting your exposure to radiation.
 - Get inside a building or to a basement to protect yourself.
 - Get clean.
 - Listen to officials and emergency responders for further safety instructions.

64. Who sets radiation exposure limits?

- Federal agencies provide guidance on levels of radiation that may warrant safety actions.
 - For example, the U.S. Environmental Protection Agency provides guidance on evacuation and sheltering and the Food and Drug Administration provides guidance on radiation contamination and food safety.
 - Specialists from these and other agencies are advising State and local officials and emergency responders.
- Some states also have established radiation exposure limits.

Exposure, Contamination and Decontamination

65. What is the difference between radiation exposure and contamination?

- Radiation exposure occurs when radiation interacts with the body. Radiation contamination occurs when radioactive materials settle on a surface or enter a person's body.
 - Radioactive contamination can be spread in the same way that dust or mud can be tracked into the home or spread to another person or object.
 - Radioactive contamination on your skin, hair, clothes or objects like a purse or a car can typically be easily removed by brushing off the radioactive particles.
- You can be exposed to radiation without being contaminated.
 - Having a medical x-ray is an example of being exposed but not contaminated.
 - After a nuclear explosion, a person or object can leave the area following the release of radioactive material and still be contaminated.
 - If you are or were in the [AREA], listen for instructions on how to remove the contamination.

66. What is internal and external radiation contamination?

- Internal contamination occurs when radioactive material enters the body.
 - Radiation can be swallowed, inhaled or enter the body through skin wounds.
 - Different kinds of radioactive materials may affect different parts of your body.
- External contamination occurs when radioactive material settles on a surface like your body or clothing, a structure, or an object.

67. What is decontamination?

- The process of removing radioactive material from people, pets or objects—usually by simple washing—is called decontamination.
 - Radioactive particles fall from the air like dust or sand and settle on objects below, including people, buildings, cars and roads.
 - If radioactive material falls on you, you should remove these particles as quickly as possible. Do not breathe any dust-like particles.
- Decontaminating yourself will reduce your exposure to harmful radiation.
 - The longer the particles stay on your skin, the more harm the radiation can do.
 - Reducing your radiation exposure is critical to protecting you and your family after a nuclear explosion.

68. How do I decontaminate myself?

- To reduce the chance of harm from radiation, remove radioactive particles from your body and clothing as quickly as possible.
- Quickly take the following three steps to reduce your radiation exposure and to keep radioactive material from spreading:
 - Remove your outer layer of clothing.
 - Removing your outer layer of clothing can remove up to 90% of radioactive material. Be careful not to breathe radioactive dust that could shake loose when removing your clothes.
 - Seal the clothing you were wearing in a plastic bag and place the bag away from people and pets.
 - Wash yourself off.
 - Take a warm shower with lots of soap to help remove radioactive material. Do not scald, scrub or scratch your skin.
 - Wash your hair with shampoo or soap and water. Do not use conditioner because it will cause radioactive material to stick to your hair.
 - If you cannot shower, use a wipe or clean wet cloth to wipe skin that was not covered by clothing, like your hands and face.
 - Gently blow your nose, wipe your eyelids, eyelashes and ears with a clean wet cloth.
 - Put on clean clothing.
 - Clothing stored in a closet or away from radioactive material is clean.
- If it is not practical to discard your clothes, remove the outer layer, shake or brush off your clothes and redress. Do not breathe any dust-like particles.

69. How should people decontaminate their pets?

- Radiation affects pets and livestock the same way that it affects people.
- Contaminated animals can expose people and property to radiation.
- If your pet was outside in the affected area, take the following steps to remove any radioactive material that may have settled on your pet:
 - Wash your pet thoroughly with shampoo and water and rinse completely.
 - Wear waterproof gloves and, if possible, a dust mask to protect yourself from radiation particles.
 - Keep cuts and abrasions on you or your pet covered when washing your pet to avoid getting radioactive material in the wound.

70. How should people decontaminate their homes?

- Emergency responders or local officials will let you know if you need to decontaminate your home.
- If you need to decontaminate your home, emergency responders or local officials will provide specific guidance on protective clothing and safety instructions for cleaning inside and outside your home.

Monitoring

Environmental Monitoring

71. How is radiation monitored or detected?

- Specialized monitoring instruments can accurately detect radiation, even at very low levels.
- Different types of detectors are used for different types of radiation.
- Radiation experts use these instruments to measure and analyze the radiation levels in areas after a nuclear explosion.

72. How do you know if radiation is background or from the incident?

- Distinguishing between background radiation and radiation from a specific event is not easy.
- However, after a nuclear explosion, there will be areas where radiation levels are clearly above normal.
 - Some areas have historical data on background radiation levels.
- Radiation experts use models, monitoring and sample analysis to identify areas with elevated radiation levels from the nuclear explosion.

73. How will authorities let people know what areas are dangerous?

- Federal, State, local, tribal and territorial emergency responders are monitoring air and ground conditions to locate areas with dangerous levels of radiation.
- Stay tuned to television, radio or Internet sources to receive information about what areas are dangerous and where evacuation is recommended.
 - Plan to stay inside for 12-24 hours or until emergency response officials say it is safe to evacuate.
 - Safety information will be updated as further information is available.
- Up-to-date and verified information will be posted at [WEBSITE].

74. How will the government test for radiation?

- Emergency responders and experts are taking air, soil, water and food samples and looking for radioactive material to get a better picture of the environmental impacts.
- Federal, State, local, tribal and territorial partners are working together to implement plans for detailed environmental sampling and analysis.
 - The priority is gathering information that has a direct impact on public safety, such as levels of radioactive contamination and water safety.
 - In the days, weeks and months ahead, these samples will be analyzed to help us understand the environmental impacts on precipitation, bodies of water, soil, vegetation, crops, livestock, and milk.
- Until we determine the extent of the contamination we cannot truly understand the environmental impacts from this attack.

Population Monitoring

75. How do people know if they have been exposed to radiation?

- If you were near the location of a nuclear explosion, you may have been exposed to radiation and may be contaminated by radioactive material.
- If you came in contact with any dust-like particles falling from the sky following a nuclear explosion, you may have been exposed to radiation and may be contaminated by radioactive material.
- Federal, State and local authorities are monitoring radiation levels after the explosion and can determine whether or not you have been exposed to dangerous levels of radiation.
 - If you were exposed to a small dose of radiation, you will not see any immediate health effects.
 - If you were exposed to a large dose of radiation, you may experience nausea, skin reddening, or skin burns.
- Tune in to your television news, radio, or connect to the Internet for more information about the areas where dangerous radiation may have fallen and specific instructions on what to do if you were in these areas.

76. Where can people go to be checked for radiation exposure?

- Local officials in the affected area will set up radiation testing centers within days after the explosion.
 - These testing centers, known as reception centers, will check people for radiation exposure and assist them with needed services.
- Tune in to television news, radio, or connect to the Internet to learn about the location of these testing centers and receive safety instructions.
- Unless you have a life-threatening condition, you should not leave your building until you have been instructed by officials or emergency responders that it is safe to leave.

77. Why are you tracking people who have been exposed to radiation?

- Federal, State, local, tribal and territorial officials will set up reception centers within days after the explosion to check people for radiation exposure, assist them with needed services and enter them into a registry.
- The registry will allow emergency responders and medical staff to follow up with people who need immediate health care and monitor those who have been exposed to radiation from the explosion.
- The registry may also provide information to help reunite family members who were separated at the time of the explosion.

Health Effects

Health Effects of Radiation Exposure

78. Will a distant nuclear explosion affect my health?

- A distant nuclear explosion may produce radiation that could affect your health.
- Radiation experts are monitoring air, ground and water samples to locate areas with dangerously high levels of radiation.
- If radiation levels near your location are found to be dangerous, authorities will provide instructions to protect you from any health hazards.
 - Minimizing unnecessary radiation exposure is best.
 - Radiation from natural and man-made sources, called background radiation, is always around us. Low levels of radiation do not present significant health risks.
 - It takes a very large dose of radiation in a very short amount of time to cause immediate health effects.
- If you are near the affected area after a nuclear explosion, follow the instructions of Federal, State and local authorities to protect yourself from radiation danger.

79. Does exposure to radiation present some risk?

- Risk from radiation depends on the amount, the type and the duration of radiation exposure.
- Although low levels of radiation do not present significant health risks, minimizing your exposure to radiation is the best way to avoid harm.
- Take the following steps to limit exposure to radiation following a nuclear explosion:
 - Decrease your exposure to radiation by staying inside until you are told by officials or emergency responders that it is safe to leave.
 - Protect yourself from radiation by putting thick, dense materials, like soil or concrete, between you and the radioactive material outside.

80. What are the health effects of radiation exposure?

- Radiation can affect the body in a number of ways and the health effects may take years to develop.
- It takes a large dose of radiation—more than 75 rem—in a short amount of time (usually minutes) to cause immediate effects, such as acute radiation sickness.
 - According to radiation safety experts, radiation exposure between 5–10 rem usually results in little to no harmful health effects.
- If you have developed skin burns, develop nausea or begin vomiting shortly after radiation exposure, seek medical attention as soon as it is safe to leave your shelter.
 - These may be symptoms of radiation sickness.
 - These symptoms can develop several days after you were exposed to radiation.
 - Nausea from pre-existing conditions should not be confused with radiation sickness.
- There are some treatments available for people exposed to certain types of radioactive material. Medical professionals will determine if medical treatments are appropriate.
- You should treat cuts, bruises or injuries with first aid.

81. Does radiation cause cancer?

- There is clear evidence that high doses of radiation can raise your risk of cancer.
 - While cancer has been associated with high doses of radiation received over short periods of time, the cancers usually do not appear for many years, even decades.
- However, at low doses, your risk of cancer from radiation becomes so small that it cannot be separated from exposure to chemicals, genetic pre-disposition, smoking, or diet.
 - Radiation from natural background and other routine sources is a minor contributor to our overall cancer risk.
- The risk of radiation-related cancers increases with the level of radiation exposure.
- Health officials will monitor people affected by a nuclear explosion for long-term health effects, including cancer.

82. What populations are most at risk to radiation exposure?

- Infants, children, the elderly, pregnant women and people with compromised immune systems are more susceptible to health effects from radiation exposure than healthy adults.
 - A developing fetus is most susceptible to health effects from radiation exposure because the cells are developing so rapidly.
- The steps for reducing radiation exposure are the same for all populations.

83. What is radiation sickness?

- Radiation sickness and acute radiation syndrome/sickness (ARS) occur when a person is exposed to very high levels of radiation during a very short amount of time.
- Symptoms of radiation sickness include skin burns, nausea and vomiting very shortly after a significant exposure to radiation.
 - These symptoms may appear within minutes or days.
 - If you experience these symptoms, seek medical attention as soon as you can safely leave your building.
- You cannot get ARS from long-term exposure to small amounts of radiation.

84. Are there any treatments for radiation sickness?

- There are limited treatments available for people with radiation sickness. These treatments only work for certain types of radioactive materials and need to be prescribed by a doctor.
 - Medical professionals will determine if treatments are appropriate.
 - Treatments for radiation sickness focus on reducing infections, maintaining hydration and treating major injuries and burns.
 - Some medical treatments are available for limiting or removing internal contamination.
- Local emergency workers and medical professionals will monitor the situation to determine what medical treatments are needed and what kind of treatment to provide for each patient.
- If you experience skin burns, nausea and vomiting shortly after exposure to radiation, seek medical attention as soon as you can safely leave your building.

85. Are there specific protective actions for pregnant women?

- Pregnant women should follow the same protective action steps as the rest of the population.
- In addition, pregnant women should:
 - Inform emergency workers and safety officials in a reception center or emergency shelter that they are pregnant so that they can receive proper attention.
 - Call or visit their doctor or OB/GYN as soon as possible after they can safely leave their building.

86. Should nursing mothers continue to breastfeed?

- If you were near the nuclear explosion, you may have been exposed to radiation.
- Radiation and other harmful substances can be passed through breast milk.
- If possible, switch to baby formula until you are able to contact your doctor for further instructions or advice.
- You may continue to breastfeed if there is no other source of food available.
- If you are in a community reception center or emergency shelter, tell emergency workers that you are breastfeeding so they can help you get the proper attention.

87. Are there other health effects?

- Traumatic events can be very distressing to people.
- It is common for individuals and families in and around the affected region to experience distress and anxiety about safety, health, and recovery.
- Research shows that most people's natural resilience, coping skills, and support systems will allow them to avoid any severe reactions.
- People may experience reactions such as:
 - Irritability or sadness.
 - Difficulty making decisions or following directions.
 - Headache, stomach pain, or difficulty breathing.
 - Consuming more alcohol or having interpersonal conflict.
- These reactions are common and usually decrease over time. If symptoms persist or worsen it will be important to seek the help of a health or behavioral health professional.
- To manage stress reactions, do your best to remain as calm as you can and take care of yourself by
 - Maintaining healthy eating, sleeping, and exercise routines
 - Staying in contact with loved ones whenever possible.
 - Seeking accurate information about what is happening.
 - Reaching out to helplines, when they're available, if your anxiety becomes overwhelming.
- Provide emotional support to those around you, particularly children.
 - Children react to signs of stress in parents and caregivers; try to speak in an even manner and tone.
 - If possible, give children practical tasks or activities.

- Understand that children at different developmental levels (e.g. toddlers, school-age children, teenagers) will have different needs and reactions.

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Appendix 1: Federal Jurisdiction for Nuclear Incidents

Incident Lead

- Department of Homeland Security (DHS)
- White House

Federal Law Enforcement

- Department of Justice (DOJ) - Specifically, the Federal Bureau of Investigation (FBI) if incident site is classified as a crime scene.

Public Messaging

- DHS (lead with support from all other departments and agencies)

Public Health and Medical Services

- Department of Health and Human Services (HHS)

National Disaster Medical System Coordination

- HHS

Nuclear/Radiological Assets

- Department of Energy/National Nuclear Security Administration (DOE/NNSA)
- DHS

Environmental Decontamination and Clean up

- Environmental Protection Agency (EPA)

Defense Support to Civil Authorities

- Department of Defense (DoD)

Food Safety

- U.S. Department of Agriculture (USDA) - health and care of animals and plants on farms, safety for meat, poultry and processed egg products at slaughter and processing facilities, and in commerce.
- HHS/Food and Drug Administration (FDA) - enforcing food safety laws governing domestic and imported food, except for meat, poultry, and processed egg products.

Stafford Act Declaration

- Federal Emergency Management Agency (FEMA)

International

- Department of State (DoS)

Evacuation Centers and Shelters

- American Red Cross

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Appendix 2: Basic Risk Communications Principles: How to Communicate After an IND Explosion

Communicating accurate information regarding the risks of different levels of radiation exposure is a key factor in addressing public fears and concerns. The public is generally unaware of radiation hazards and radiation safety and needs to be reassured that the response to an IND explosion is being safely and properly executed. In addition, communicators need to be aware that the public is not prone to panic, but may unknowingly behave in ways harmful to themselves and those around them (self-evacuation, retrieving loved ones, etc.).

The following information is a reminder of basic risk communications principles that will make communicating following a nuclear explosion more effective.

Role of a spokesperson in an emergency:

1. Give people actionable steps that will help them and their loved ones.
2. Build trust and credibility for all levels of emergency response following an IND.
3. Reduce rumors surrounding the incident and recovery.
4. Acknowledge that there is a process in place to recover from this incident.
5. Be consistent, compassionate and respectful.

Initial Messaging must:

1. Be short.
2. Be relevant.
3. Give positive, actionable steps.
4. Repeat important messages.
5. Be accessible to all audiences.

Initial messages must not:

1. Use jargon.
2. Be judgmental.
3. Make promises that can't be kept.
4. Include humor.

Key factors that must be acknowledged when communicating after a nuclear explosion:

1. Provide simple, clear instructions to help people overcome psychological barriers.
 - a. Help reduce feelings of fear, anxiety, confusion, dread, hopelessness or helplessness.
 - b. People can survive this unexpected catastrophe if they take the right steps.
2. Recognize that all risks are not accepted equally.
 - a. Involuntary exposure to radiation is perceived as high risk by the public.
 - b. Parents will react differently than others; their first concern is for their child's safety.
3. Acknowledge efforts being made by responders.
 - a. Emergency responders are executing existing response and recovery plans.
 - b. All efforts are being made to decrease illness, injury and deaths.
4. Understand that media coverage will begin within 10 minutes of the explosion.
 - a. Use all means of communications. Television is the primary source of information following a major disaster, followed by Internet and radio.

Appendix 2: Basic Risk Communications Principles:
How to Communicate in the Immediate Aftermath of an IND Explosion

5. It is common for individuals and families in and around the affected region to experience distress and anxiety about safety, health, and recovery.
 - a. Do your best to remain as calm as you can and take care of yourself
 - b. Provide emotional support to those around you, particularly children.
 - c. These reactions are common and usually decrease over time. If symptoms persist or worsen it will be important to seek the help of a health or behavioral health professional.

2.1: Pre-Event Checklist for Effective Response to an IND Explosion

Assess the information needs of the public, the media, public officials, emergency responders, and other stakeholders; identify ways to meet these needs.

Identify credible third parties who could support your messages.

Train staff in emergency risk communication skills.

Recruit spokespersons with effective presentation and personal interaction skills.

Train, recruit or teach staff to communicate with people with disabilities and/or those with limited English-language proficiency.

Set up a system to monitor what appears in the media, on websites, and in other online sources of information.

Establish an organizational protocol for all contacts with the media and ensure all staff are aware of the organizational protocol for contact with the media.

Establish an efficient clearance and approval procedure and ensure all staff are aware of the clearance and approval procedure for the release of messages to the public, the media and other stakeholders.

Determine how you would greet, register and handle journalists who arrive at the site of the emergency.

Develop a system for prioritizing and responding to media requests and inquiries.

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Appendix 3: Example Radio and Social Media Templates for an IND Explosion

A sample message that can be used immediately after a nuclear explosion is copied below. This template is useful as an initial announcement for radio and social media applications. When more information about the explosion is known, additional messages can be added about what is happening, the perimeter of the suspected dangerous areas, the actions people should take to protect themselves, and where to go for more information. Emergency responders, communicators and public officials should be encouraged to use specific messages from this document to answer questions that may arise following an IND explosion.

“There has been an explosion at [LOCATION]. Fire and police personnel are responding. Because of the size and the extent of the explosion and the presence of significant radiation levels, this may have been a nuclear explosion, releasing a large quantity of radioactive material. People should stay away to facilitate response efforts and reduce the possibility of radiation exposure from this incident. If you are outside, go inside the nearest building. If you are inside a building, you should stay inside. If the building has a basement, go to the lowest level. If the building does not have a basement, get as close as possible to the center of the building and go up two or three floors if it is a multistory building.

We request that people avoid using telephones, including cell phones, to ensure lines are available for emergency responders. We will provide a follow-up message on this issue in one hour or sooner if additional information becomes available. This follow-up message is estimated to be issued not later than [TIME].”

Source: National Council on Radiation Protection and Measurements (NCRP). *Responding to a Radiological or Nuclear Terrorism Incident: A Guide for Decision Makers*. NCRP report no. 165. Bethesda, MD: NCRP; 2010, pp. 128-129.

Twitter / Facebook / Text message templates:

- You can survive a nuclear explosion by protecting yourself.
- Get inside and stay inside a building.
- Go to the basement or the center of a building—get away from the radiation outside.
- If possible, shower and change into clean clothes.
- Stay tuned to television, radio or Internet sources for updates and instructions.

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Appendix 4: Additional Emergency Questions

1. What should I have in an emergency supply kit for a disaster?

- You should plan to stay in your shelter for at least 12-24 hours or until authorities tell you that it is safe to leave.
- If possible, you should keep a battery- or hand crank-operated radio, a flashlight, food, water and medicine to last you and your family for at least one day and possibly longer.

2. What is a Federal disaster declaration?

- A Federal disaster declaration is requested by the State governor and approved by the President following a catastrophic incident such as an IND explosion.
- The declaration makes available a wide range of Federal resources to State, local, tribal and territorial governments to aid the response and to help individuals and businesses affected by the event in their recovery.

3. How do these recommendations relate to advice for other disasters?

- Following an IND explosion, the most important steps are to get inside, stay inside and stay tuned for more information.
- Advice will vary, but will be based on instructions for hurricanes, floods, wildfires or other types of disasters. Listen for instructions from authorities on the best actions for you to take.

4. What about nuclear power plant emergencies?

- All communities and states where nuclear power plants are located are required to have up-to-date plans and procedures to deal with all possible emergencies.
- Power plant personnel conduct frequent drills and exercises to assure that all plans, both at the plant and in the surrounding communities, are successful and that staff is fully trained.

5. What will an emergency responder look like?

- Emergency responders are made up of medical, police and fire officials from State, local, tribal and territorial organizations. The responders will wear different types of protection, but they will be wearing clothing with an official logo from their organization.
- Following the initial emergency responders, radiation control officials and safety experts will come to the affected area for further analyses.

6. Where can I get more information about helping after this event?

- See the listings in Appendix 5, Volunteer Organizations, for additional information following an IND explosion.

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Appendix 5: Volunteer Organizations

This is not a comprehensive list of volunteer and donation organizations.

With the exception of the American Red Cross, the organizations listed below are programs run by the federal government.

American Red Cross	Blood donations, Financial donations	www.redcross.org
Serve.gov	Find and create volunteer opportunities in your community	www.serve.gov
FEMA Helping Others	Provides links to donation and volunteer opportunities	http://www.fema.gov/rebuild/recover/howtohelp.shtm
Citizen Corps	Provides and helps coordinate volunteer opportunities	www.citizencorps.gov
USAID	Provides support overseas	www.usaid.gov
USAID: Volunteers for Prosperity	Links skilled volunteers (doctors, nurses, teachers...) with opportunities overseas	www.volunteersforprosperity.gov
Medical Reserve Corps	Supplements existing local emergency and public health resources	http://www.medicalreservecorps.gov/HomePage

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Appendix 6: Working Group Member Acknowledgement

Nuclear Detonation Response Communications Working Group (2009/2010)

Chair: Tammy Taylor (Office of Science and Technology Policy)

U.S. Department of Agriculture (USDA)	Angela Harless, Ruth Lodder, Jack Patterson
Department of Defense (DOD)	Dustin Hart, Matthew Kawas, Eric Mazzacone, Eugene McFeely, Donald Miles, John Robinson
Department of Energy (DOE)	Casey Ruberg
Department of Health and Human Services (HHS)	Elleen Kane, Carol McCurley, Rita Chappelle
Department of Homeland Security (DHS)	Lisa Bajusz, Kevin Briggs, Robert Davis, Jeffrey Glick, Michael Gresalfi, Stanley Heath, Charles Hoffman, Michael Kangior, Jeff Karonis, Chad Wood
Department of Transportation (DOT)	Jeffrey Vanness
Director of National Intelligence (DNI)	Paul Clausen
Environmental Protection Agency (EPA)	Jessica Wieder
National Oceanic and Atmospheric Administration (NOAA)	Albert Mongeon
Office of Science and Technology Policy	William Belote, Mark LeBlanc
American Red Cross	Catherine Kane
Veterans Affairs	James Lacey

Nuclear/Radiological Communications Working Group

Chairs: Jessica Wieder, EPA
 Ji Sun Lee, DHS Science and Technology
 Coordinator: Jonathan Lifland, ORISE

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