

Section III: Emergency Response

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Initial Actions Quick Reference List

❑ **APPROACH CAUTIOUSLY FROM UPHILL & UPWIND.**

Resist the urge to rush in; others cannot be helped until the situation has been fully assessed.

❑ **ESTABLISH COMMAND.**

Park command vehicle upwind/upgrade/upstream and away from direct involvement with casualties and on-going operations.

❑ **SECURE THE SCENE.**

Without entering the immediate hazard area, isolate the area and assure the safety of people and the environment, keep people away from the scene and outside the safety perimeter. Allow enough room to move and remove your own equipment.

❑ **STAGE INCOMING UNITS.**

Identify a large enough area where resources and equipment can be delivered, stockpiled, and utilized. Make sure the area is far enough away from the incident scene so that safety is guaranteed, but close enough for rapid deployment of staged resources.

❑ **ASSESS THE SITUATION.**

Consider the following:

- Is there a fire, a spill or a leak?
- Does it appear to be accidental or is it a Potential Terrorist Incident?
- What are the weather conditions and terrain?
- Who/what is at risk: people, property or the environment?
- What actions should be taken: Is an evacuation necessary? Is diking necessary?
- What resources (human and equipment) are required and are readily available?
- What can be done immediately?

❑ **SEARCH FOR SECONDARY DEVICES.**

If the incident appears to be intentional, be aware of the possibility for secondary attacks against responders.

❑ **PROVIDE A DETAILED SITUATION REPORT:**

1. Number of victims
2. Signs and symptoms (use [CBRNE Agent Indicator Matrix](#) on pg. QR IX-X)
3. Wind direction

❑ **INITIATE NOTIFICATIONS & OBTAIN HELP.**

Advise dispatch to notify responsible agencies and call for assistance from qualified personnel. Call NRC at 800-424-8802

- | | | |
|----------------------|---------------------------|-------------------------|
| • HAZMAT/EOD support | • Hospitals | • SCBA refill support |
| • EMS support | • Medical Assistance Team | • Mass Casualty support |
| • <i>DES</i> | • Environmental experts | • Public Health |

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❑ **IDENTIFY THE HAZARDS.**

- Placards, container labels, shipping documents, material safety data sheets, Rail Car and Road Trailer Identification Charts, and/or knowledgeable persons on the scene are valuable information sources.
- Evaluate all available information and consult the [2004 Emergency Response Guidebook \(ERG\)](#) to reduce immediate risks. Remember, the guide provides only the most important and worst case scenario information for the initial response in relation to a class of hazardous materials. As more material-specific information becomes available, the response should be tailored to the situation.

❑ **DECIDE ON SITE ENTRY.**

Any efforts made to rescue persons, protect property or the environment must be weighed against the possibility that you could become part of the problem.

❑ **RESPOND.**

Respond in an appropriate manner. Establish a command post and lines of communication. Rescue victims where possible and evacuate if necessary. Maintain control of the site. Continually reassess the situation and modify the response accordingly. The first duty is to consider the safety of people in the immediate area, including your own.

❑ **USE APPROPRIATE SELF-PROTECTIVE MEASURES.**

Minimize number of personnel exposed to danger.

- Proper PPE
- Time, Distance, Shielding

❑ **PRESERVE EVIDENCE.**

If it appears to be an intentional event, make every effort to protect the crime scene as much as possible.

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Emergency Contact Numbers For Incidents Involving CBRNE

National Response Center - Chem-Bio Emergency Hotline	(800) 424-8802
MT DES Duty Officer	(406) 841-3911
Regional HazMat Teams (contact DES)	(406) 841-3911
Regional EOD Teams (contact DES)	(406) 841-3911
Agency for Toxic Substances and Disease Registry	(404) 498-0120
Bureau of Alcohol Tobacco, and Firearms (BATF) --EOC	(800) 800-3855
--ATF Helena Field Office	(406) 441-1100
Burlington Northern Santa Fe Railway Emergency Response Center	(800) 832-5452
CDC Emergency Response Center	(770) 488-7100
CHEMTREC	(800) 424-9300
CHEMTEL	(800) 255-3924
CHLOREP (Chlorine Institute)	(800) 424-9300
Cyanide Hotline –Medical Treatment Information Dupont Chemical	(800) 441-3637
-Transportation Incidents Dupont Chemical	(901) 357-1546
Department of Defense Hazardous Materials Hotline	(800) 851-8061
Department of Energy Idaho Operations Office Warning Communications Center	(208) 526-1515
EPA Region 8 (Denver) Emergency Response Center	(800) 227-8914
-- EPA OSC	(303) 293-1788
Federal Bureau of Investigation --EOC	(202) 323-3300
--FBI Helena Field Office	(406) 443-3617
Federal Emergency Management Agency (FEMA) EOC	(800) 634-7084
FEMA National Interagency Emergency Operations Center (NIEOC)	(202) 646-2470
Fort Harrison VA Hospital – POC Carrie Lloyd	(406) 442-6410
Homeland Security EOC	(202) 282-8101
Missoula Rural Fire District	(406) 549-6172
Montana Rail Link Emergency Response Center	(406) 523-1463
National Emergency Coordination Center	(202) 898-6100
National Pesticide Information Center	(800) 858-7378
National Railroad Emergency Hotline	(800) 424-0201
Nuclear Regulatory Commission Operations Center (<i>accepts reports of accidents involving radiological materials.</i>)	(301) 816-5100 (collect calls OK)
Olympus Environmental, Helena	(406) 443-3087
Onyx Environmental, Butte	(406) 782-4201
Poison Control Center Rocky Mountain Poison and Drug Center	(800) 525-5042
Union Pacific Railroad Emergency Response Center	(800) 595-3488
(USAMRIID) U.S. Army Medical Research Institute of Infectious Diseases	(888) 872-7443

EPA Region 8 Emergency Response Program

EPA may provide assistance when the responding agency is in a situation beyond available resources of the local responders. EPA is not a First Responder. EPA cannot respond on site to every spill, but can always offer technical assistance. EPA can be accessed 24 hours per day.

CALL

EPA Emergency Response and 24-Hour Spill Reporting:

1-800-424-8802 – National Response Center or

1-800-227-8914 (or 303-293-1788) – EPA Region 8 Emergency Response Center

The following **emergency response resources** are available through EPA at the direction of the Federal On-Scene Coordinator (OSC) with a 2- to 18- hour response time, depending on the location of the incident.

- ◆ Oil & Hazardous Substance Spill Response
- ◆ Air Monitoring Equipment
- ◆ Radiological Monitoring Equipment
- ◆ Level A – D Entry Teams
- ◆ Air, Water, & Soil Sampling
- ◆ Spill Containment/Remediation
- ◆ Technical Assistance
- ◆ Response to NBC Incidents

EPA's Federal On-Scene Coordinator (OSC)

The Federal OSC is the primary Federal representative at a response to a non-terrorism HazMat incident. EPA OSCs work with the local responders to monitor and assist response efforts and protect human health and the environment. In a vast majority of cases, the OSC is there to assist the Incident Commander. The OSC is the POC for the coordination of Federal efforts with the local response community. EPA Region 8 has 11 OSCs based in Denver. Requests for an OSC may be made by calling **303-293-1788**.

EPA's Environmental Response Team (ERT)

The ERT supports EPA's OSCs with expertise in treatment technology, biology, chemistry, hydrology, geology, and engineering. EPA's ERT can provide 24-hour access to special decontamination equipment for chemical releases and advice to the OSC in hazard evaluation; risk assessment; multimedia sampling and analysis; on-site safety; cleanup techniques; water supply decontamination and protection; application of dispersants; and disposal. ERT support may be requested through the Federal OSC

Coast Guard's National Strike Force (NSF)

The NSF is composed of three strategically located strike teams, a public information assist team, and a coordination center. The NSF has specially trained personnel and is equipped to respond to major oil spills and chemical releases. NSF response time to an incident is from 12 to 24 hours. The NSF provides response management, entry level A – C, site assessments, safety and action plan development, and documentation for both inland and coastal zone incidents. The coordination center maintains a national inventory list of spill response equipment. NSF support may be requested through the Federal OSC.

CBRN Incident Indications and First Responder Concerns

NOTE: For additional information on weapons of mass destruction (WMD/CBRNE) hazards and response, including information addressing first responder concerns, see [Section IV](#)

CHEMICAL:

Indications.

The following may indicate a potential chemical WMD has been released. There may be one or more of these indicators present.

- An unusually large or noticeable number of sick or dead wildlife. These may range from pigeons in parks to rodents near trash containers.
- Lack of insect life. Shorelines, puddles, and any standing water should be checked for the presence of dead insects.
- Considerable number of persons experiencing water-like blisters, weals (like bee-stings), and/or rashes.
- Numbers of individuals exhibiting serious health problems, ranging from nausea, excessive secretions (saliva, diarrhea, vomiting), disorientation, and difficulty breathing to convulsions and death. (*esp.* [SLUDGEM](#))
 - **S**- salivation (drooling)
 - **L**- lacrimation (tearing)
 - **U**- Urination
 - **D**- Defecation, diarrhea
 - **G**- GI upset (cramps)
 - **E**- Emesis (vomiting)
 - **M**- Muscle twitching
- Discernable pattern to the victims. This may be “aligned” with the wind direction or related to where the weapon was released (indoors/outdoors).
- Presence of unusual liquid droplets, e.g., surfaces exhibit oily droplets or film or water surfaces have an oily film (with no recent rain).
- Unscheduled spraying or unusual application of spray.
- Abandoned spray devices, such as chemical sprayers used by landscaping crews.
- Presence of unexplained or unusual odors (where that particular scent or smell is not normally noted).
- Presence of low-lying clouds or fog-like condition not compatible with the weather.
- Presence of unusual metal debris—unexplained bomb/munitions material, particularly if it contains a liquid.
- Explosions that disperse or dispense liquids, mists, vapors, or gas.
- Explosions that seem to destroy only a package or bomb device.
- Civilian panic in potential high-profile target areas (e.g., government buildings, mass transit systems, sports arenas, etc.).
- Mass casualties without obvious trauma.

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First Responder Concerns.

The first concern must be to recognize a chemical event and protect the first responders. Unless first responders recognize the danger, they will very possibly become casualties in a chemical environment. It may not be possible to determine from the symptoms experienced by affected personnel which chemical agent has been used. Chemical agents may be combined and therefore recognition of agents involved becomes more difficult.

BIOLOGICAL:

Indications.

Indicators that a WMD incident involving biological agents has taken place may take days or weeks to manifest themselves, depending on the biological toxin or pathogen involved. The Centers for Disease Control and Prevention (CDC) recently developed the following list of epidemiological clues that may signal a bioterrorist event:

- Large number of ill persons with a similar disease or syndrome.
- Large numbers of unexplained disease, syndrome, or deaths.
- Unusual illness in a population.
- Higher morbidity and mortality than expected with a common disease or syndrome.
- Failure of a common disease to respond to usual therapy.
- Single case of disease caused by an uncommon agent.
- Multiple unusual or unexplained disease entities coexisting in the same patient without other explanation.
- Disease with an unusual geographic or seasonal distribution.
- Multiple atypical presentations of disease agents.
- Similar genetic type among agents isolated from temporally or spatially distinct sources.
- Unusual, atypical, genetically engineered, or antiquated strain of agent.
- Endemic disease with unexplained increase in incidence.
- Simultaneous clusters of similar illness in noncontiguous areas, domestic or foreign.
- Atypical aerosol, food, or water transmission.
- Ill people presenting near the same time.
- Deaths or illness among animals that precedes or accompanies illness or death in humans.
- No illness in people not exposed to common ventilation systems, but illness among those people in proximity to the systems.

First Responder Concerns

The most practical method of initiating widespread infection using biological agents is through aerosolization, where fine particles are sprayed over or upwind of a target where the particles may be inhaled. An aerosol may be effective for some time after delivery, since it will be deposited on clothing, equipment, and soil. When the clothing is used later, or dust is stirred up, responding personnel may be subject to “secondary” contamination.

Biological agents may be able to use portals of entry into the body other than the respiratory tract. Individuals may be infected by ingestion of contaminated food and water, or even by direct contact with the skin or mucous membranes through abraded or broken skin. Use

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protective clothing or commercially available Level C clothing. Protect the respiratory tract through the use of a mask with biological high-efficiency particulate air (HEPA) filters.

Exposure to biological agents, as noted above, may not be immediately apparent. Casualties may occur minutes, hours, days, or weeks after an exposure has occurred. The time required before signs and symptoms are observed is dependent on the agent used. While symptoms will be evident, often the first confirmation will come from blood tests or by other diagnostic means used by medical personnel.

NUCLEAR/RADIOLOGICAL:

Indications.

Radiation is an invisible hazard. There are no initial characteristics or properties of radiation itself that are noticeable. Unless the nuclear/radiological material is marked to identify it as such, it may be some time before the hazard has been identified as radiological.

First Responder Concerns.

The main concern with radiation is that it is an invisible hazard. Unless the responding public safety agency has radiological detection equipment, or the nuclear material at issue is clearly marked and identified, there is a strong chance that the initial identification of a radiological or nuclear hazard will go unnoticed. Although, there is no one piece of equipment available on the market to meet all detection requirements, there are separate detectors for each type of radiation. An additional concern would be the availability of protective clothing and breathing gear (SCBA), in sufficient quantities, to protect first responders. Alpha particles pose a significant inhalation threat and can prove highly lethal. It is imperative that proper PPE to include SCBA be used when responding to any suspected Nuclear/Radiological scene.

If first responders are subjected to large amounts of radiation due to major radiation accidents or nuclear attack, they can expect serious consequences to their health. *It should be noted that individuals suffering from radiation injuries are NOT radioactive!*

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CBRNE Agents Indicator Matrix

HOW TO USE:

1. Units arrive at scene where even at a distance multiple persons are affected.
2. Units should **STOP-LOOK-LISTEN** and relay observations to Dispatch. *Radio Transmit Codes (RTC)* may be used to protect information on open channels.
3. On the MATRIX, place a check mark in the "Indicator Present" column for each observed symptom.
4. For every **row** in which the Indicator Present column is checked, place another check in each un-shaded box including those with words inside the box.
5. At the bottom of the page, add the total number of check marks for each column; record as page totals; and transfer the totals to page 2. The column with the highest number of indicators should be considered the agent material most likely present.

STOP, LOOK, & LISTEN

Resist rushing in, approach incident from upwind, stay clear of all spills, vapors, fumes and smoke. Be extremely mindful of enclosed or confined spaces

INDICATORS NOTICED BY FIRST RESPONDER

(These indicators are listed in the order in which the indicator would be noticed by first responding personnel to the scene of a CBRNE emergency.)

APPEARANCE (at a distance, multiple persons affected)	IP	RTC	A	B	C	D	E	F	G	H	
Prostration		1-1									
Involuntary twitching and jerking		1-2									
Convulsions		1-3									
Coma		1-4									
Confusion		1-5									
Bleeding from orifices (nose, ears, mouth, rectum)		1-6									
Coughing		1-7									
Sneezing, violent & persistent		1-8									
Vomiting		1-9		Bloody							
SKIN	IP	RTC	A	B	C	D	E	F	G	H	
Reddening of lips and skin		2-1									
Blisters, painless (ask victim)		2-2									
Blisters, painful (ask victim)		2-3									
Gray areas of dead skin that does not blister		2-4									
Sunburn like appearance (erythema)		2-5									
Pain, stinging or deep aching (ask victim)		2-6									
Clammy skin		2-7									
Skin lesion, multiple pinpoint		2-8									
Hair loss, large quantities		2-9									
EYES	IP	RTC	A	B	C	D	E	F	G	H	
Pinpointing of pupils		3-1									
Enlargement of pupils		3-2									
Lesions		3-3									
Involuntary closing		3-4									
Tears or Tearing		3-5									
Immediate burning & gritty feeling		3-6									
Pain in and above eyes, aggravated by bright light		3-7									
Dimness of vision (ask victim)		3-8									
RESPIRATORY	IP	RTC	A	B	C	D	E	F	G	H	
Coughing-up of frothy sputum		3-9								Bloody	
Severe and uncontrollable coughing		3-10									
Hoarseness, (may progress to loss of voice)		3-11									
Runny nose- copious		4-1									
Decreased Breathing Rate		4-2									
Increased Breathing Rate		4-3									
Breathing Depth increased		4-4									
Breathing Difficult (ask victim)		4-5									
Dry throat (ask victim)		4-6									
Tightness in chest (ask victim)		4-7									
TOTAL INDICATORS OF PAGE ONE:		IP	RTC	A	B	C	D	E	F	G	H

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EXAMINATION (with protection if significant indicators above are found)										
CARDIOVASCULAR	IP	RTC	A	B	C	D	E	F	G	H
Pulse Slow		4-8								
Blood Pressure LOW		4-9								
Blood Pressure HIGH		5-1								
Heart action rapid & feeble		5-2								
Heart beat, rapid		5-3								
Headache (ask victim)		5-4								
Headaches, frontal (ask victim)		5-5								
Dizziness (ask victim)		5-6								
DIGESTIVE SYSTEM	IP	RTC	A	B	C	D	E	F	G	H
Diarrhea		5-7		Bloody						
Involuntary defecation and urination		5-8								
Nausea		5-9								
Localized Sweating		5-10								
Excessive sweating		5-11								
TEMPERATURE	IP	RTC	A	B	C	D	E	F	G	H
Fever		6-1								
Subnormal		6-2								
HISTORY or ENVIRONMENTAL	IP	RTC	A	B	C	D	E	F	G	H
Odor- Apple Blossom		6-3								
Odor- Pepper like		6-4								
Odor- Garlic		6-5								
Odor- Horseradish		6-6								
Odor- Bitter Almonds (faint)		6-7								
Odor- Sour Fruit		6-8								
Odor- Peach kernels (faint)		6-9								
Odor- New mown hay or freshly cut grass		6-10								
Odor- Fruity to geranium like		7-1								
Unscheduled and unusual spray being disseminated		7-2								
Unusual liquid droplets, oily, no recent rain.		7-3								
Abandoned spray devices		7-4								
Dead Animals, Birds, Fish		7-5								
Dead Weeds, Trees, Bushes, Lawns, etc.		7-6								
Illness associated with specific geographic area, i.e. victims have different treatment location, but all work within same area.		7-7								
Immediate fatalities not associated with trauma		7-8								
Lack of insect life		7-9								
Low lying clouds not explained by surroundings		7-10								
Reports of colleagues, medical community, media, etc. with similar unexplained illness.		8-1								
TOTAL INDICATORS PAGE TWO	IP	RTC	A	B	C	D	E	F	G	H
<ol style="list-style-type: none"> 1. Put on Respiratory Protection 2. Report all observations to Dispatch 3. Report wind conditions (speed & direction) 4. Calm Victims: "Help is on the Way!!" 5. Direct walking wounded to a collection point 6. Touch NOTHING and no victims until in PPE!! 7. REMAIN CALM 	Indicator Present	Radio Transmit Code	Nerve Agents	Blister Agents	Blood Agents	Choking Agents	Irritating Agents	Incapacitating Agents	Biological Agent	Radiological Materials
TOTAL INDICATORS OF ALL PAGES	IP	RTC	A	B	C	D	E	F	G	H

Introduction

Terrorist incidents involving chemical, biological, radiological nuclear, or explosive materials (CBRNE) and cyberterrorism are considered technologically hazardous incidents by nature. Almost all incidents that are believed to be a terrorist act will be treated as both a crime scene and as a hazardous materials incident with additional complicating factors. If the incident is only a potential act of terrorism, it is still considered a crime scene. Regardless of the mechanism or motive behind the incident, responders should remain focused on reducing the impact of the event as efficiently and safely as possible. Terrorist event or not, all responders must follow established safety guidelines that are pertinent to their respective agencies.

Due to the highly destructive and technical nature of cyber and CBRNE terrorist incidents, special technical expertise, training, and equipment are required to provide a public safety, health, and medical services response in an extremely time-critical manner.

This section is intended to address those items that are critically important to emergency responders at the onset of an incident or event that threatens the public safety or health of the community.

The term “law enforcement” will be used in this text to mean either or both Police and Sheriff’s Departments depending on the situation and location. The term “local jurisdiction” will be used to mean Lewis & Clark County and all of the cities and towns that includes.

Additionally, the various rural fire departments will likely play a major role in responding to a CBRNE incident. For reasons of simplicity, “Fire Department” will be used in a general sense in this text to represent the lead fire service agency. If an incident occurs outside of the jurisdiction of the Helena Fire Department, the lead fire services agency will be dependent upon current jurisdictional boundaries and the requirements of this plan will pertain to that particular lead agency in accordance with established Mutual Aid agreements and the existing Emergency Operations Plan)

Types of Threat

The *HazMat-Terrorism Incident Response Plan* recognizes two types of “threat” situations. In the event of received intelligence, articulated threats, or suspicious circumstances or events, the following terms shall apply. These terms are in conjunction with the threat levels established by the FBI:

Potential Threat:

Intelligence, an articulated threat, or an occurrence (*e.g. presence of suspicious letter/package, individual(s), or activity*) indicates a potential for a terrorist incident. However, this potential threat has not yet been assessed as credible. Local response levels to a potential threat range from Level One to Level Three. *Upon receipt of any potential threat, the PSD will dispatch Law enforcement personnel to determine the threat’s credibility.*

Credible Threat:

A threat assessment indicates that the potential threat is credible, and confirms the possible involvement of CBRNE material in the developing incident. Intelligence will vary with each threat, and will impact the level of the local response. At this level, the situation requires the tailoring of response actions to use resources needed to anticipate, prevent, and/or resolve the crisis. The *crisis management* response will focus on law

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enforcement actions taken in the interest of public safety and welfare, and is predominantly concerned with preventing and resolving the threat. The *consequence management* response will focus on contingency planning and pre-positioning of tailored resources, as required. The threat increases in significance when the presence of an explosive device or CBRNE agent capable of causing a significant destructive event, prior to actual injury or loss, is confirmed or when intelligence and circumstances indicate a high probability that a device exists. In this case, the threat has developed into a CBRNE terrorist situation requiring an immediate process to identify, acquire, and plan the use of Federal resources to augment State and local authorities in lessening or averting the potential consequence of a terrorist use or employment of CBRNE agents. Local response levels to a credible threat range from [Level Three to Level Five](#).

Scope

Primary Objectives in Response to a Terrorist Act

The following points are the main objectives for the first responders to a CBRNE incident:

- 1) Protect the lives and safety of the citizens and first responders;
- 2) Isolate, contain, and/or limit the spread of any cyber, nuclear, biological, chemical, incendiary, or explosive devices;
- 3) Identify the type of agent/devices used;
- 4) Identify and establish control zones for the suspected agent used;
- 5) Ensure emergency responders properly follow protocol and have appropriate protective gear;
- 6) Identify the most appropriate decontamination and/or treatment for victims;
- 7) Establish victim services;
- 8) Notify emergency personnel, including medical facilities, of dangers and anticipated casualties and proper measures to be followed;
- 9) Notify appropriate State and Federal agencies;
- 10) Provide accurate and timely public information;
- 11) Preserve as much evidence as possible to aid in the investigation process;
- 12) Protect critical infrastructure;
- 13) Fatality management;
- 14) Develop and enhance medical EMS; and
- 15) Protect property and environment.

Concept of Operations

This annex and portions thereof will be implemented as directed by the County Administrator, City Manager, County Disaster & Emergency Services (DES) Coordinator or Incident Commanders as appropriate.

Upon receiving notification of a suspected terrorist incident, the local 911 Communications Center will advise both the Helena Police Department and the Lewis & Clark County Sheriff's Office. If the reported threat is deemed credible by law enforcement, the senior officer/deputy on shift will then ensure the notification of the Helena Field Office of the FBI, the Fire Department, and the Lewis & Clark County DES Coordinator.

Section III: Emergency Response

Local emergency response organizations will respond to the incident scene(s) and make appropriate and rapid notifications to local, State, and Federal authorities as necessary. This may include calls to:

- The [National Response Center](#) (1-800-424-8802)
- MT DES (1-406-841-3911)
- The local FBI office (1-406-443-3617)

Federal law calls for any incident involving Hazardous Materials (CBRNE) to be managed by Fire Services. However, in cases involving unexploded or suspected ordinance (*e.g. a primary or secondary device*), or where there is a more immediate threat to human life posed by a Potential Threat Element (PTE) (*e.g. the terrorist/perpetrator is on scene and posing a threat*) than by any other aspect of the incident, Law Enforcement will either assume incident command or enter into a Unified Command structure until the situation is deemed safe enough for Fire Services to respond.

Operating Procedures

The following guidelines are to be used for all incidents involving CBRNE materials in Lewis & Clark County. The primary concept that must be kept in mind at all times is first responder safety. First responders who are not trained to the required level for operations in possibly contaminated or otherwise hostile areas are best used to demarcate the affected area and effect an evacuation of the surrounding area.

EMERGENCY SERVICES COMMUNICATIONS (911 DISPATCH):

The 9-1-1 Communications Center presents the first opportunity to identify that a potential CBRNE incident exists. A CBRNE terrorist attack will most likely yield an abundance of calls for assistance. Through close scrutiny of the information provided and rapid crosschecking of the numerous reports, a well-trained operator should be alerted to the possibility that the incident is not routine in nature. Identifying the incident and relaying this potential threat information and precautionary measures to **all** of the responding units may be the key to saving the lives of many of the first responders on the scene. Public Safety Dispatchers (PSD) receiving a call of a suspected CBRNE incident shall adhere to the following procedures as applicable:

Questions for the Caller

Note: Any symptoms relayed to Dispatch by either callers or responders should be recorded on the [CBRNE Agents Indicator Matrix](#) to assist in agent identification.

- What is your name and address and the phone number you are calling from?
- What is the location of the incident?
- What is the nature of the incident? (leak, explosion, spill, fire, derailment, rollover, dispersion, etc.)
- What is the container type? (truck, rail, car, pipeline, drum, canister, etc.)
 - If rail car or truck, are there identification numbers visible?
- (*If no visible container found*) Did you hear any hissing or spraying?
- Do you know what the material is? (placards, manifest, or shipping invoice info?)
- Is anyone injured or sick?
 - How many?

Section III: Emergency Response

➤ What are their symptoms and complaints?

- Is the incident inside or outside of a building?
- What is the type of structure where the incident occurred?
- Did you see anyone or anything suspicious?
- Did you see anyone wearing protective clothing (e.g., mask, gloves, chemical suits)?
- Can you describe the perpetrator or a getaway vehicle?

Dispatch Actions

➤ ***Dispatch***

- Law Enforcement
- Fire/Hazardous materials (HazMat) (*if there are casualties and/or there has been an explosion, spill, or determination of credible threat by Law Enforcement*)
- Emergency Medical Services (EMS) (*if there are casualties*)

➤ ***Update Responding Units***

- Provide responding units of any new information
- Provide special response routes of travel (upwind/upgrade)
- Provide special instructions or precautions (e.g., use of PPE, report to staging areas)
- Provide weather updates, wind direction, and speed
- Provide any description of perpetrators and getaway vehicles (e.g., warn of potential contamination, additional devices on perpetrators)
- Provide number of victims, their signs, and symptoms

➤ ***Notifications***

- Local Federal Bureau of Investigation (**FBI**) office – Weapons Of Mass Destruction (WMD) Coordinator (Chuck Amdahl **443-3617**)
- Notify the Lewis & Clark County DES Coordinator (**447-8285**)
- MT DES (**841-3911**)
- Notify local health department; give information:
 - Agent information
 - Patient signs and symptoms
 - Number of casualties
 - Notify hospitals, clinics, and healthcare facilities
 - Consider establishment of off-site treatment center
- Notify Environmental Protection Agency (**EPA**) (**800-227-8917**)
- Notify the Counter Terrorism Planner (*to assist with Threat Analysis*)

Further Actions for Agent-Specific Incidents:

These actions are to be taken by the PSD in the event of a suspected or actual incident where information is given suggesting a particular type of agent.

Section III: Emergency Response

Chemical Agent

- *Dispatch* Fire Department.
- *Advise the reporting party of the following, when applicable:*
 - Remain calm.
 - Do not breathe vapor or touch any liquids on the ground. If there is vapor or mist in the air move upwind from the immediate area while covering mouth and nose with a clean cloth.
 - Cover bare arms and legs and make sure any cuts or abrasions are covered or bandaged.
 - If splashed with an agent, immediately wash it off using copious amounts of warm soapy water.
 - Anyone in contact with the substance should remain near immediate location and wait for emergency personnel.

Suspected Biohazard (e.g. Anthrax)

- *Dispatch* Law Enforcement to determine threat's credibility, (*and* Fire Department if requested by Law Enforcement).
- *Advise the reporting party of the following, when applicable:*
 - Remain calm, minimize handling the letter or package. Leave substance or device intact (do not open letters or containers, do not move them).
 - Minimize contact with other people in the area.
 - Wash exposed skin with copious amounts of soap and water for 60 seconds.
 - Anyone in contact with the substance should remain at the immediate location and wait for emergency personnel.

Suspected Explosive Device

- *Dispatch* Fire Department.
- *Notify* local ATF office (**441-1100**)
- *Advise* the initial responding unit(s) of the information obtained from the initial complaint assessment. This will be transmitted via Mobile Data Computer (MDC) whenever practical to minimize transmissions over the radio.
- If the device has not detonated, Advise the reporting party of the following, when applicable:
 - Avoid all radio transmissions within at least 500 feet of a suspected device. This includes cell phones, two-way radios and wireless intercom systems.
 - Avoid smoking within 50 feet (or more) from a suspicious device.
 - Do not move or touch a suspicious item.
 - If it can be safely done, implement building/department bomb threat/evacuation plans.

FIRST RESPONDER ARRIVAL ON SCENE:

Whether prewarned of a potential incident or by recognizing it on arrival at the incident scene, responders should take several immediate steps to protect themselves. With proper precautions and protective equipment, responders are able to effectively perform rescue operations and scene

Section III: Emergency Response

management safely. The initial actions that are taken by the first responders will set the stage for the rest of the operation. *In general, all first responders should:*

- Respond to all incidents using appropriate protective equipment.
- Gather as much information from dispatch as possible regarding the incident.
- Determine wind direction and speed at incident location. This information should be available from police and fire dispatchers. Approach the incident scene from upwind (with the wind behind you) and uphill, when possible.
- Survey the scene from a safe distance before making approach.
- Park responding apparatus a safe distance away. Do not drive apparatus into the suspected area, as crews may become casualties. Do not block access.
- Assess on-scene indicators and request additional resources if needed. Keep in mind that a common mistake made by first responders is to expect the usual and not the unusual. If in doubt, err on the side of safety and request additional resources as they can easily be cancelled later. In the case of suspected multiple casualties, always consider activating a mass casualty call as early as prudently possible.
- Establish Incident Command and initiate an accountability system.

FIRE DEPARTMENT:

On arrival, fire department units may immediately be faced with mass casualties (e.g., trauma, chemically contaminated, and psychosomatic) as well as major scene and command and control challenges. The fire response and Incident Command System (ICS) will be severely tested by the magnitude of the incident. Rapid employment of the elements of a CBRNE incident response is essential to protect life.

- Establish or assume Incident Command
- Establish communications
- Secure, isolate, and deny entry to area
- Establish safety zones
- Establish water supply, hose lines, and suppression duties
- Identify if live victims remain in the area of attack
- Rescue live victims
- Establish casualty collection points (CCPs)
- Perform mass decontamination, triage, and treatment of victims
- Monitor and maintain water runoff

Fire Department Sector Assignments

- Safety
- EMS and triage
- Water
- HazMat
- Decontamination
- Accountability
- Rehabilitation
- Staging
- Operations
- Police liaison
- Public Information Officer (PIO)

HazMat Team

Missions performed by HazMat teams on a CBRNE incident will predominantly be the same as a normal HazMat response. However a deliberate attack will most likely yield many more

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casualties, occur in a densely populated area or a large gathering, and be a criminal act. HazMat operations must be closely coordinated with law enforcement.

- Approach upwind and updrift of the incident
- Wear Level A HazMat PPE/SCBA
- Identify the material/agent using test detection equipment and patient symptoms
- Collect samples for laboratory analysis
- Avoid contact with liquids
- Be alert for secondary devices
- Consider perpetrator may still be on scene
- Establish
 - Communications with command post
 - Safety, hot, warm, and cold zones
 - Casualty holding area
 - Technical decontamination for responders, evidence, equipment, and apparatus
- Provide area monitoring during response operations
- Provide equipment monitoring during recovery operations

LAW ENFORCEMENT:

A CBRNE weapons attack will pose unique challenges to each level of the law enforcement response. Even though the FBI has jurisdiction over domestic WMD incidents, the initial response falls on local law enforcement. The size of the initial scene perimeter (due to vapor hazards), operating in personal protective clothing and evaluating and processing a contaminated crime scene are only some of the key challenges facing law enforcement.

- Establish LE command
- Establish communications between fire department IC and LE commander
- Establish personnel and equipment staging area
- Be alert for secondary devices, weapons, and perpetrators
- Ensure appropriate PPE is worn based on mission, hazard zone of operation, and the likelihood of contamination

*** PPE recommended for law enforcement officers operating on the perimeter of a chemical incident consists of Level C, tyvek type, or charcoal lined full body chemical suit, full-face negative pressure respirator, overboots, and butyl gloves with police gear worn over the chemical protective suit.**

Officers operating in the decontamination corridor should wear the above minus the option of a charcoal lined suit.

- LE commander assigns additional duties for patrols
- Begin investigation

*** Identification of law enforcement officers in PPE is an issue of concern. Using vests and writing department names on suit with markers can be readily duplicated by perpetrators**

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seeking to gain access to, or escape from, the incident scene. Careful consideration must be given to officer identification in PPE. For more information on officer PPE see this [link](#)

Law Enforcement Roles

Basically, the roles that law enforcement will perform on a CBRNE incident are the same as for any crime scene. However, due to the nature of the event, level of training, availability of protective equipment, and special equipment requirements, local departments may not be able to perform several tasks. It is imperative that officers always operate within their level of training and protective equipment when dealing with a CBRNE incident, response, and investigation.

- Traffic and crowd control outer perimeter
- Crowd control in decontamination area
- Security
 - Site access
 - Responders and victims
 - Victim's personal belongings
 - Law enforcement sensitive equipment
 - Evidence
- Crime scene processing
- Evidence collection and decontamination
- Witness interviews
- Multiagency communications
- Suspect detention
- Long-term site security

Patrol

The first key element to a successful response to a CBRNE incident and to providing for officers' safety is rapid identification of the hazard and immediately gaining control over the responding units. The normal tendency to rush onto the scene to assist victims must be controlled. It is possible that officers on scene at the time of an attack, or the first arriving officers, could become casualties. A call to assist an officer in distress must be handled differently in a CBRNE incident or a large part of the immediate response force may be lost.

- Senior officer will assume on-scene command
- Notify command and responding units of situation
- Designate areas for responding patrols to report to staging area
 - Verify levels of PPE with fire/HazMat before responding to scene
- Establish liaison with Incident Command and command post
- Identify manpower requirements
- Establish scene control
- Control additional responding units
- Get advice from fire department on contaminated zones, safe zones, and PPE requirements
- Do not enter the contaminated area

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Bomb Squad

Bomb technicians routinely operate in a highly dangerous environment with sophisticated equipment; however, none of this standard equipment provides protection from chemical agent hazards. Protective suits and specialized equipment for bomb technicians are limited; however, a chemical incident is likely to require them to operate in a contaminated environment and dispose of devices that may contain chemical agents. Police and fire commanders, bomb squads, and HazMat teams need to work together to formulate and rehearse plans for dealing with these types of problems.

- Establish communications with fire command, HazMat, and police command
 - Ensure actions are coordinated with each level of command
- Establish bomb squad staging area equipment/vehicles
- Identify appropriate PPE needed for agent hazard
 - Reconnaissance may be conducted in chemical or biological (C/B) protective clothing only
 - ◆ In areas where HazMat has not been determined, agent type and concentration Level A protection (fully encapsulating suit and SCBA) is warranted
 - ◆ If HazMat has identified agent and concentration, coordinate PPE levels with them
 - ◆ At a minimum, Level C PPE should be worn
- Have fire and HazMat teams establish technical decontamination area for personnel, evidence, and equipment
- Be alert for perpetrators who may still be on the scene
- Request Special Weapons and Tactics (SWAT) team (as needed) to secure perimeters
- Conduct search, disarmament, and detonation of suspected devices

Special Weapons and Tactics Team

SWAT teams represent the law enforcement agency with the most training and diversity, operating in various specialized equipment under a variety of circumstances. As such, they are the most probable unit to perform specialized operations at a chemical incident, including operations inside the contaminated zones. Mission necessity, equipment, and training must always be considered prior to committing a team for operations in a contaminated environment.

- Establish communications with IC and police command
- Liaison with command post
- Assist with security
- Staging area for equipment
- Be alert for secondary devices
- Suspect detention and apprehension
- Coordinate for decontamination support if conducting mission inside warm and hot zones

Intelligence

Prior to the occurrence of a chemical incident, intelligence networks should be established between local, state, and federal agencies, including adjoining departments. WMD should become a standard element of their information gathering and intelligence sharing.

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- Identify possible “theme” for attack
- Identify group(s) that may be responsible for attack
- Identify related events and other possible targets
- Determine if threat warrants notification and security for other related targets
- Conduct regional notifications of incident

Investigation

It can be expected that a deliberate CBRNE attack will be directed at a high-profile event involving a large number of people. As such, the number of potential witnesses can be in the hundreds or thousands. Identifying and locating everyone from the scene will be an enormous task for investigators.

- Witness interviews
- Suspect interrogations
- Identify locations where witnesses have been taken
 - Alternative treatment centers
 - Hospitals
- Public announcement to reach witnesses who departed area
- Establish hotline and tip line

EMERGENCY MEDICAL SERVICES:

All EMS responding to the incident will report to the designated staging area selected by the Incident Commander. A [Medical Unit Leader](#) will work with the IC to coordinate the EMS response, and develop an emergency medical plan if needed.

The greatest challenges facing EMS on a CBRNE incident will be the number of actual casualties (e.g., trauma and agent exposure)—segregating these casualties from nonexposed victims and performing triage and possibly minor medical intervention while in a contaminated environment.

Determine proper level of PPE and respiratory protection needed for EMS personnel in their assigned work area.

***PPE recommended for EMS operating in warm zone consists of either turnout gear (taped) with SCBA or Level C consisting of tyvek style overgarment with hood and foot cover, full-face, negative pressure respirator, butyl rubber gloves, and overboots. PPE for operating in cold zone Level C, as described above.**

- Be alert for secondary devices and perpetrators
- Avoid contact with liquids
- Rapid prioritization of number of patients
- Triage victims based on medical necessity
 - ◆ Mass-casualty incident (MCI) protocols
 - ◆ Simple Triage and Rapid Treatment (START) system
 - ◆ Segregate victims and coordinate decontamination prioritization with fire department and HazMat based on:
 - Triage categorization

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- Likelihood of agent exposure
- Establish patient identification and tracking
- Collect victim personal property
- Turn personal property over to law enforcement for security
- Establish
 - ◆ Communications with command post and hospitals
 - ◆ Staging for EMS personnel, ambulances, supplies, and resources
 - ◆ Transportation area
- Direct walking wounded to a designated on-site CCP
- Transport yellow and red-tagged triage patients to medical treatment facility using emergency medical transports
- Transport green-tagged triage patients to ACF using mass transit assets

Patient Segregation

Unlike most MCIs, victims of a CBRNE incident need to be evaluated not just on their medical condition (standard MCI triage protocols), but their likelihood of contamination must be considered in determining priority for decontamination.

- Ambulatory casualties: Able to understand directions, talk, and walk unassisted
- Nonambulatory casualties: are unconscious, unresponsive, or unable to move unassisted
- All patients need to be tracked by identification and documentation and be tagged or marked prior to decontamination

Decontamination Prioritization

- Casualties closest to the point of release
- Casualties with reported exposure to vapor or spray
- Casualties with liquid agent contamination to clothing or skin
- Casualties with serious medical symptoms (e.g., shortness of breath and chest tightness)
- Casualties with conventional injuries
- Casualties with no visible signs or symptoms of agent exposure and no conventional injuries

Decontamination for final category is more for psychological than medical reasons.

* Additional information may be found in the [Guidelines for Mass Casualty Decontamination During a Terrorist Chemical Agent Incident](#).

Hospital Notification

Community medical systems are faced with managing two principal populations when responding to a CBRNE incident: those transported from the incident scene and those who self-refer. In the case of the Tokyo subway sarin attack, the majority of the people seeking medical attention self-referred. Timely notification of the incident and subsequent updates on the suspected and known agent as well as treatment protocols are essential to hospital safety and patient care.

- Notify
 - ◆ Staff

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- ◆ Doctors
- ◆ Nurses
- ◆ Security
- ◆ Emergency department (ED)
- ◆ Maintenance department
- Estimate number of casualties
- Alert hospital of possible self-referrals
- Suggest hospitals establish decontamination procedures for walk in-patients using hospital personnel
- Give suspected agent information
- Advise of treatment protocols
- Caution hospital staff to use protective measures

*** PPE recommended for hospital personnel performing decontamination operations and casualty care and triage prior to decontamination should be Level C protection consisting of tyvek type suit with integrated hood (not charcoal lined suits) and foot covers, full-face, negative pressure respirator, butyl rubber gloves, and overboots.**

Casualty Processing

- Patient identification and tracking
- Observe/report victim symptoms of agent exposure
- Patient transport
- Determine if number of casualties exceeds the capabilities of existing healthcare systems
 - ◆ Off-Site Triage, Treatment, and transportation Center (OST3C) needs to be established
- Identify needs for long-term patient tracking
- Establish critical incident stress debriefing (CISD) team for victims

Hospital Actions

- Lock down the hospital to avoid contamination and subsequent hospital shutdown
- Establish single entry and egress point
- Establish ICS
- Establish a triage area outside of the facility
- Provide a decontamination station outside the facility with fire hose/stand pipe
- Integrate local EMS tag and triage system into the hospital method for catastrophic care
- Wear the appropriate level of PPE
- Identify accurate bed availability
- Use preestablished medical treatment protocols for chemical WMD
- Initiate patient evacuation plans; relocate patients to other areas inside the hospital or to other rehabilitation hospitals

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- Establish and maintain communications with the health department and Emergency Operations Center (EOC)
 - ◆ Share casualty information
 - ◆ Mitigate effects of the incident
 - ◆ Exchange update information

Off-Site Triage, Treatment, and Transportation Center

There may be a large number of people at a CBRNE incident who are not exposed to the agent and who will still seek some form of treatment. To allow the existing medical system to provide care for those who need it most, communities should consider establishing an alternative treatment center for the less serious and “worried well” population. An evaluation of the impact of the casualties on the medical system and the decision to open an alternative treatment center should be made between the IC, public health officer, and the emergency manager.

Activate OST³C

- Determine facility and location
- Appoint staffing
 - ◆ Administrative
 - ◆ Operational
 - ◆ Support
- Equipment, supply, and antidote caches
- Security
- Establish warm and cold zones
- Coordinate ambulances and alternate transportation
- Establish a temporary morgue

OST³C Facility Requirements

- Tables, chairs, beds, televisions, PA systems, and chalk and dry erase boards
- Bathrooms
- Cafeteria
- Auditorium and large open room area for briefings
- Locker rooms; showers for males and females
- Parking facilities and large fields
- Good access roads
- Telephones and electricity
- Heat and air-conditioning

OST³C Patient Flow

- Perimeter security
- Initial triage
- Gross decontamination required (if not decontaminated at the incident site)
- Registration
- Detailed decontamination
- Redress and secondary triage
- Treatment

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- Data collection and law enforcement investigation
- Replenishment area and cafeteria
- Victim assistance
- CISD

Fatality Recovery and Management

Residual contamination and difficulty in verifying that a body is completely decontaminated require special considerations in both body recovery and decisions on returning remains to the family members.

* *Additional information is contained in the report titled [Guidelines for Mass Fatality Management During Terrorist Incidents Involving Chemical Agents](#)*

- Establish communications and coordination between command post, law enforcement, medical examiner (ME), and public health
- Deceased victims are evidence of the crime scene
- Deceased victims remain in place until released by lead law enforcement agency and the ME
- Personnel processing deceased need appropriate PPE based on contamination threat

*** PPE recommendation for body recovery operations should be made based on results of HazMat monitoring conducted at the incident scene. If law enforcement and ME personnel enter the area prior to HazMat determining the type and concentration of agent, Level A PPE should be worn.**

- Be alert for secondary devices and booby traps
- Establish decontamination area for deceased
- Identify, tag, and track deceased and their personal property
- Establish a temporary morgue
- Request Disaster Mortuary Operational Response Team (DMORT) clergy, and CISD team
- Prepare information for funeral homes regarding agent and dangers of handling the bodies
- Determine if bodies can be released to families

EMERGENCY MANAGEMENT:

Not unlike a major natural disaster, a CBRNE incident will challenge all of the local and regional resources and involve a large state and federal response. Emergency managers are well prepared to deal with those disasters common to their area (e.g., tornados, floods, hurricanes, earthquakes), but a CBRNE incident presents its own unique challenges.

- Activate the Emergency Operations Center (EOC) to serve as a Joint Operations Center (JOC) at the request of the IC.
- Notify local, city, and county officials.
- Activate the Emergency Alert System (EAS).
- Coordinate with responding agencies to establish a single point of contact (POC) for public release of information.
- Establish Joint Information Center (JIC) as needed.

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- Determine if incident exceeds local jurisdiction capabilities
- Notify state DES.
- Make available resources, as needed
- Start compiling data for replenishment of losses and reimbursement of funds
- Work with EPA on environmental site cleanup
- Maintain communications with the Incident Command Post (ICP)

Media Considerations

Public Information Officer (PIO)

- Establish a PIO for the incident
- Establish a media staging and briefing area
- Maintain single contact person for release of information
- Schedule regular press releases
- Include key agency representatives in press releases to answer specific questions
- Use media for public service announcements

Pertinent Information for PIO

- Information on hazard/agent
- Symptoms
- Number of people affected
- Size of the contaminated area
- Treatment for the agent
- Threat of spreading the contamination
- Directions that people who were not treated at the scene should follow
- Prognosis of the exposed victims

Media Arrival

- Local, national, and international
 - ◆ Radio stations
 - ◆ Television stations
 - ◆ Newspapers
 - ◆ Other news agencies
 - ◆ Tabloids

Public Notification

- Establish a single POC
- Release brief statement of the event
- Request the public not visit the area of the incident scene
- Provide the public information on:
 - ◆ Self-decontamination

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- ◆ Information on and directions to alternative treatment centers
- ◆ Chronology of the event
- ◆ Public safety information
- ◆ Instructions for the victims
- ◆ Locations that the public needs to avoid
- Give regular media and public updates

RESPONSE ACTIONS:

Initiate Incident Command.

The first arriving unit will need to establish Incident Command until replaced by a more senior or more qualified responder. The decisions that the Incident Commander (IC) makes during the first 10 to 15 minutes of the response are the key to both protecting responders and saving lives of the victims of the attack. The ability to recognize critical needs and prioritize the limited resources available to perform them requires a thorough knowledge of CBRNE incident response procedures and the threats and dangers of the potential agents. It is also critical to the safety of everyone on the incident and overall success of the incident response that all agencies operate as a Unified Command, not a series of individual agency command posts.

- Establish command post upwind and upgrade away from direct involvement with victims, responders, or emergency response vehicles
- Give detailed situation report of:
 - Estimated number of casualties
 - Location of hot, warm, and cold zones
 - Recommendations for PPE
- Request additional resources immediately
- Establish a dedicated radio channel or direct telephone line with the Emergency Dispatch and Communications Center
- Consider the threat of secondary devices
- Establish a decontamination area for civilian victims and another for technical decontamination of responders, equipment, and evidence collection
- Request communications and dispatch to notify hospitals of mass casualties and the possibility of contaminated victims who have left the scene showing up at their facilities
- Establish accountability of all responders on scene
- Request that a supervisor or senior ranking law enforcement officer report to the command post
- Alert all personnel that the incident is a crime scene and to use caution to preserve suspected evidence, if possible
- Coordinate rescue operations with law enforcement
- Ensure law enforcement advises on activities being conducted in the immediate area:
 - Search for secondary devices
 - Evaluate and perform render-safe procedures (RSPs) on devices

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- Investigation requirements

Establish Scene Control

It is highly likely that many people, including responders, will want to rush into a scene to rescue people. Personal safety must be considered once an incident has occurred because additional casualties and victims must be avoided. It is paramount that emergency responders work together to:

- Establish Incident Hazard Area control;
- Stage additional responding units a safe distance away from the scene. Anticipate and position the apparatus at an advantageous position for both an easy deployment and a quick tactical retreat.
- Perform a sweep of the area to locate/assist possible disoriented victims and secondary or multiple devices
- Set up field command centers, triage, and decontamination areas;
- Direct victims to appropriate sites/facilities,
- Determine evacuation and/or shelter in place zones; and
- Follow strict personal safety protocols.

Witnesses and people close to the incident may be wandering around or inside buildings waiting for direction from emergency personnel. Presence of people on the scene should be controlled either by sheltering in place or extraction. Victims that are able to walk may wander away from the initial scene.

Establish and Secure Communications

It is important to:

- Identify the channel or frequency on which the responders will need to monitor and transmit.

In the case of multi-agency responses, it will be paramount to:

- Establish a location where personnel with a variety of equipment can be staged to assist with the communication between agencies.

On-Scene Communications Needs

- Need spare and replacement radios, batteries, chargers, and supplies
- Mutual-aid radios and frequencies for ability to communicate with multiple agencies and jurisdictions
- Hard wired telephones to relieve use of radios
- Wireless cellular telephones as an alternate to radio overload
- Hard wired or wireless fax machines:
 - ◆ Free up airtime use of radios
 - ◆ Send and receive information and resource list without being monitored or heard by others
- Vehicle or handheld computers

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- Private and business owned two-way radios may be used to relieve overloaded emergency radios
- Message runners in the event of loss of radio communications

Identify the "Hazard Control Zone"

With every terrorist incident there will be an area that may be hazardous to any personnel or civilians within the area. When possible, first responders should

- Determine where the most hazardous location is and initiate control zone procedures.

Establish an Inner Incident Perimeter

An inner perimeter must be established so emergency personnel have a safe and controlled area to work in and assemble. The establishment and demarcation of the inner perimeter will automatically designate the inside boundary of the "Outside Incident Perimeter." The inner perimeter will include additional operational and/or functional perimeters to be determined by first responding personnel. These additional perimeters will include hot, warm, and cold zones and small staging or operational areas, such as decontamination corridors and triage and transport areas.

Establish and Adjust the Outer Incident Perimeter (As Needed)

The establishment of the outer incident perimeter will be a by-product of the establishment of the "Inner Incident Perimeter" as the inside demarcation line of the outer perimeter is also the outside demarcation line of the inner perimeter. The outside demarcation line of the outer perimeter will be established under the advice of the appropriate command officer. The intent of the outer perimeter is to secure a buffer area between the working units and the general community.

- Outside perimeter control will be maintained by local law enforcement forces and should be setup as early as possible.
- Clearly marked and designated entry and exit points must be identified and communicated to Command, Dispatch, and all responding units.
- The effects of possible chemical plumes should be taken into consideration when determining the outer perimeter.
- Provide for traffic control and allow for entry and egress corridors for emergency vehicles. When designating perimeters, natural barriers such as roads, canals, and fences should be considered.

Once the perimeters are established, the

- Evacuation of all non-emergency and unauthorized personnel inside the designated perimeters must be accomplished.

The appropriate command officer must determine whether or not

- Any of these individuals will need to be decontaminated and/or
- Contact information needs to be documented for future follow-up.

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Establish Scene Incident Command Post

An Incident Command Post (ICP) should be established between the inner perimeter and the outer perimeter to provide on-site coordination of services. Mobile units should be brought in when there are no suitable buildings in the area. Contact and request the closest mobile Incident Command Post available (*Lewis & Clark Search and Rescue has a recreational vehicle that may be used as an MCP. POC: Mike McCarthy 447-8258.*)

- Sweep for secondary devices prior to the Incident Command Post being set up.
- Locate the ICP uphill and upwind of the incident, if possible.
- Make provisions for providing command post security to guard against the placement of a secondary device and intrusions in general.
- Monitor and control area traffic to protect against the placement of large secondary explosive devices, such as car bombs.
- Establish and maintain direct contact from the Scene ICP to the Emergency Operations Center (EOC) to ensure requests for assistance and information updates.

Select a Staging Area for Incoming Resources

- A large enough area where resources and equipment can be delivered, stockpiled, and utilized.
- Area is far enough away from the incident scene so that safety is guaranteed, but close enough for instantaneous deployment of staged resources.
- This area should also be swept for secondary devices prior to becoming operational.
- Law enforcement will set up perimeter security and maintain security until the conclusion of the incident. Security should be designed against the placement of secondary devices and intrusions.
- Provisions must be made for the hydration and feeding of staged staffing resources.
- The Logistics Group must be contacted so that they can setup a refueling schedule for operational and staged apparatus.

Assess the Situation

Do a visual assessment of the scene and report this information back to dispatch. The location of the incident may be an indicator as to whether or not this may have been a terrorist event. ***Indicators may include:***

- Occupancy or location
- Symbolic or historical site
- Public building or assembly areas
- Controversial business
- Prior incident history for location
- Infrastructure systems
- Type of incident. (An intentional act or
- On-scene warnings. On-scene observations could indicate something out of the ordinary (such as unusual equipment or supplies on site, secondary devices)
- Incidents involving firearms
- Explosives and/or incendiaries
- Non-trauma mass casualty incidents
- Unexplained illnesses or deaths

Section III: Emergency Response

- unusual circumstances)
- Trends or previous terrorist incidents
- Timing of the incident. (Incidents that occur on the anniversary date of another significant event (for example, Waco, Oklahoma City)

When making this assessment, consider the following:

- Is there a fire, a spill or a leak?
- Does it appear to be accidental or is it a Potential Terrorist Incident?
- What are the weather conditions and terrain?
- Who/what is at risk: people, property or the environment?
- What actions should be taken: Is an evacuation necessary? Is diking necessary?
- What resources (human and equipment) are required and are readily available?
- What can be done immediately?

Identify and Request Additional Resources

As soon as possible, the first responders should determine what type of additional support is, or may be, needed. Many different response agencies will have specialized roles to play in a CBRNE incident.

Once the specialized teams arrive, the response actions may include:

- 1) Identification of any possible secondary devices
- 2) Identification of agent
- 3) Protective measure to reduce and/or eliminate the threat
- 4) Identification and removal of casualties/fatalities
- 5) Decontamination of casualties/fatalities
- 6) Triage of casualties
- 7) Preservation of crime scene

Identification of Possible Secondary Devices

Recent events with incendiary devices have highlighted the need for extreme caution on the part of responders. Secondary devices aimed at first responders have been found and have detonated at the initial scene. Bomb squad and/or other qualified personnel should perform this assessment.

The law enforcement senior officer, upon the advice of the on-scene bomb squad, must determine whether or not cellular phones, radios, beepers, and car alarm remotes must be turned off or kept away from suspected bombs. The radio frequency transmitted by one of these devices may cause a device to detonate.

Once the command post area has been swept for secondary devices, law enforcement will make provisions for providing command post security to guard against the placement of a secondary device and intrusions in general.

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Identification of Hazardous Material/CBRNE Agent

Unknown Substance Testing and Identification - During an incident there might be a need to test an unknown substance to determine whether or not it is a hazardous material or a WMD agent. Most first responding Hazardous Material Teams are able to conduct preliminary testing to determine, to a certain degree, the makeup of the substance. More definite testing will need to be conducted to positively identify the substance in question.

Biological - On-scene Hazardous Material/Bio Teams may conduct or assist in evaluation of a preliminary sample collection for the presence of biological agents. If more definitive testing is required, the testing will be coordinated through **Montana DES (406-841-3911)** and conducted by the Montana Public Health Laboratory.

- 1) Any test with a positive indication of a hazardous material may automatically escalate the response. Law enforcement will usually take possession of the properly bagged substance and start the procedure for transporting the substance so that more definitive testing can be conducted. The substance will be transported to a testing facility where further testing will be conducted.
- 2) Any positive indication as manifested by multiple casualties exhibiting the same to similar types of symptoms, in and of itself, will be cause enough to escalate the on-scene response and may activate the Federal Response Plan or CONPLAN.
- 3) In the situation where there is a negative result on the field-testing and there is an absence of casualties, a sample of the unknown material may still be collected as evidence for law enforcement case investigation.

The standard operating procedure for transporting a sample of the unidentified substance to the Montana Public Health Laboratory for testing is as follows:

- Montana DES will be notified by phone (841-3911) as soon as possible and will be informed of the nature and extent of the incident and asked that they contact the Montana Public Health Laboratory to test a substance in order to identify its nature. (The FBI JTTF (443-3617) must also be notified).
- While under the direct supervision of the ranking or senior officer on-scene, properly trained and protected personnel, a sample of the substance in question will be triple bagged. The bags will be decontaminated using all appropriate safety procedures to render it safe for transport.
- The sample will then be transported to the laboratory by an appropriate vehicle and escort.
- Upon arrival at the lab, the substance will be turned over to lab personnel.
- This exchange will be done following all applicable procedures to protect the chain of custody.
- The Montana Public Health Laboratory will conduct the test in its facilities and provide test results to the on-scene Hazardous Material Team leader, the FBI, and Montana DES as soon as possible after the delivery of the substance in question.

Nuclear - On-scene Hazardous Material Teams will survey for the presence of radioactive types of materials and should be able to provide a quantitative assessment on the exposure levels

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emanating from alpha, beta, and gamma sources present on the scene. The Hazardous Material Team will identify and establish an appropriate safety perimeter.

Chemical - On-scene Hazardous Material Teams will conduct preliminary field-testing for the presence, classification, and concentration of hazardous chemicals. The on-scene Hazardous Material Teams may be supported by the **Rocky Mountain Poison Information Center**; 24-hour "Hot Line" at **(800) 525- 5042** . They will use victim symptomology to try to further identify the substance in question. Additional assistance in chemical identification and course of action is available at **ChemTrec's** 24-hour "Hot Line" at **1-800-424-9300**. If the substance in question is military in nature, contact **U.S. Army Operations Center** at **703-697-0218** (for explosive materials) or **Defense Logistics Agency** at **1-800-851-8061** (for dangerous materials other than explosives).

Removal of Casualties/Fatalities

Designated and properly protected response personnel will

- Extricate victims who are unable to move themselves outside of the hot-zone. The extrication of victims will be done in accordance with standard triage practices.
- Obvious fatalities will be left in place pending the activation and arrival of the Coroner/Medical Examiner's Team and/or Disaster Mortuary Operational Response Team (D-MORT).

Casualty Rescue

The threat of cross-contamination of victims through contact with liquid agent or residue continues even after the initial agent release. The rapid removal of casualties from the contamination, triage, and decontamination areas is essential to reducing additional agent-related injuries. ICs must make rapid decisions on casualty rescue based on protective equipment available and an evaluation of the contamination threat. As many ambulatory casualties as possible should be removed from the area without rescuers entering the incident site. It should be expected, though, that live, nonambulatory casualties will be present at any chemical incident.

** Additional information on guidelines for rescue operations may be found in the [Guidelines for Incident Commander's Use of Fire Fighter Protective Ensemble \(FFPE\) with Self-Contained Breathing Apparatus \(SCBA\) for Rescue Operations During a Terrorist Chemical Agent Incident.](#)*

- Use bull horns and vehicle public address (PA) system to give directions
- Be alert for secondary devices
- Establish communications with command post
- Determine if there are live victims in the contaminated area
- Use PPE options for rescue:
 - ◆ Level-A HazMat suit with SCBA
 - ◆ Tyvek suit underneath firefighter turnout gear; all cuffs and closures (taped) with SCBA
 - ◆ Firefighter turnout gear (taped) with SCBA

***The IC evaluates the chemical threat, potential to save lives, risk to responders, and time constraints to achieve each level of responder protection before determining what level of PPE to use to perform rescue operations.**

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- Decide to rescue or wait for HazMat to arrive
- Notify command post, emergency management, and health department with estimated number of victims
- **Avoid contact with liquids**

***Responders need to be aware that the closer they are to the point of dissemination of the agent the more likely they are to expose themselves to liquid contamination. Additionally, responders should avoid contact with any deceased based on the threat of liquid contamination and the fact that they are part of the crime scene.**

- Assist and direct all victims to decontamination and triage area

Decontamination of Casualties

The standard Hazardous Material decontamination procedure will be followed. If it is determined that an alternate decontamination method is needed due to a particular contaminant, the on-scene Medical Officer in Charge, Poison Control, ChemTrec, local Hazardous Material Team, and/or the military will be consulted.

The local Fire/Rescue decontamination standard operating procedures, developed by their respective Hazardous Material Team, should address the capabilities and provisions for decontaminating mass casualties from triage to hospital.

Decontamination (decon) is to proceed as soon as possible, based on two considerations:

- 1) Whether a person or an article is contaminated; and
 - 2) The physical property of the contaminant (gas, liquid, or solid).
- In all cases, as much contamination as possible should be left in the Hot Zone.*
 - Priority must be given to the decontamination of persons. Generation of diluted contaminant (due to flushing or any other action) requires the capture and confinement of that material, whenever possible.

In decontamination, time is of the essence. The longer that a person remains in contact with a hazardous material, the greater the absorption of the contaminant by that person. Quick decontamination of victim(s) is the goal of first responders. The most effective decontamination time is within 1 to 2 minutes after exposure. The simple removal of the victims' clothing can effectively remove much of the contaminants.

- All decontamination actions conducted by first responders will be carried out using the appropriate personal protection equipment (PPE) as determined by the senior Hazardous Materials Officer on-scene or by the appropriate standard operating procedures (SOPs). ***In the event of gas or vapor contamination, the simple removal of the outer layer of clothing on the victim may be sufficient decontamination.***

If further, or more thorough, decontamination is necessary, it will be performed in the following three stages:

- 1) **Gross decontamination**, involves the safe removal of the victim from the contaminated environment, complete removal of the victims' clothes, and a complete head to toe rinse with the appropriate solution (usually plain water or a combination of water and 0.5% household bleach.)

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- 2) **Secondary decontamination** involves more thorough washing of the victim in a head to toe fashion using a decontamination solution, which is then followed by a complete rinsing.
- 3) **Definitive decontamination** is carried out by a series of washes and rinses until such time that it is certain that all contaminants have been removed from the victim. Definitive decontamination will usually take place at a medical facility.

In the absence of Hazardous Materials trained personnel, the following chart provides a guide as to the type of decontaminating solution best suited for a particular substance:

Substance	Decontamination
Nerve Agent	Soap, Water & Bleach Solution
Sulfur Mustard	Soap, Water & Bleach Solution
Lewisite	Soap, Water & Bleach Solution
Cyanide	Soap & Water
Phosgene	Soap & Water
Ammonia	Soap, Water & Irrigate Eyes
Chlorine	Soap, Water & Irrigate Eyes
CN Gas (Mace)	Soap, Water & Irrigate Eyes
CS Gas (Tear)	Soap, Water & Irrigate Eyes
Oleoresin capsicum (Pepper Spray)	Soap, Water & Irrigate Eyes

First responding units arriving at a suspected terrorist attack will

- ❑ Position their apparatus and equipment in an up-wind position and prepare to set up a drench decontamination corridor using on-board appliances and water supply, if necessary. If and when possible, first-in engine or aerial companies should connect to an appropriate hydrant and conduct a forward lay to provide a supply line to guarantee an uninterrupted water supply to adequately perform gross decontamination operations and anticipate the initial elements of a decontamination corridor. In the absence of a hydrant, a secondary source of water must be located, drafting operations should be considered, and the appropriate tanker apparatus should be deployed.

Decontamination

For decontamination to be beneficial to the exposed victims of a CBRNE incident, it must be performed within minutes of the agent exposure; however, decontamination after the initial exposure is necessary to reduce the possibility of agents on the clothing or skin. This is essential to protect responders and other victims from cross-contamination. Studies have been done looking at the advantages of using soaps, detergents, and bleach in the decontamination process; however, the only decontaminant expected to be immediately available to the first responder is water. The theories and procedures referred to in this plan are based on decontaminating victims using large volumes of water.

* *Additional information may be found in [Guidelines for Mass Casualty Decontamination During a Terrorist Chemical Agent Incident](#)*

- Establish decontamination locations upwind and upgrade of the incident
- Decontamination personnel must wear PPE/SCBA

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- ◆ Firefighters recommended turnout gear (taped) with SCBA
- ◆ EMS recommended turnout gear (taped) with SCBA or Level C
- ◆ Police recommended Level C

***Level C protection recommended for decontamination consists of full-face, negative pressure respirator with Clean Water Act (CWA) filters, full body chemical protection suit (e.g., tyvek or similar [not charcoal lined] military style due to potential to exposure to water) with integral hood and foot covers, butyl rubber gloves, and overboots.**

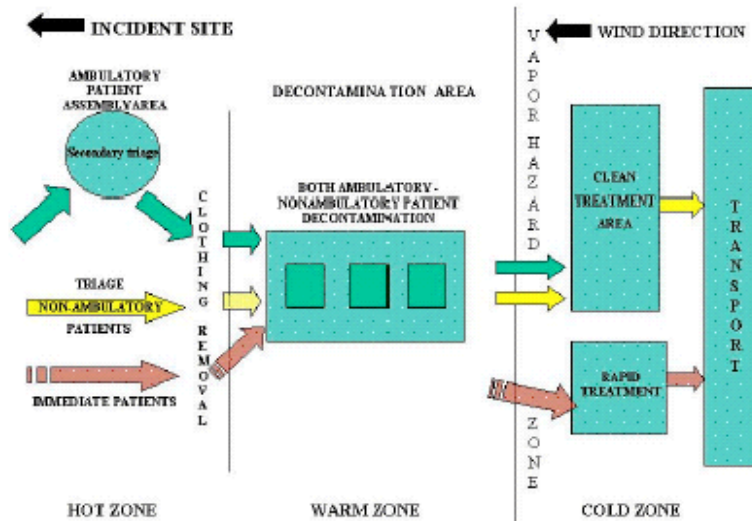
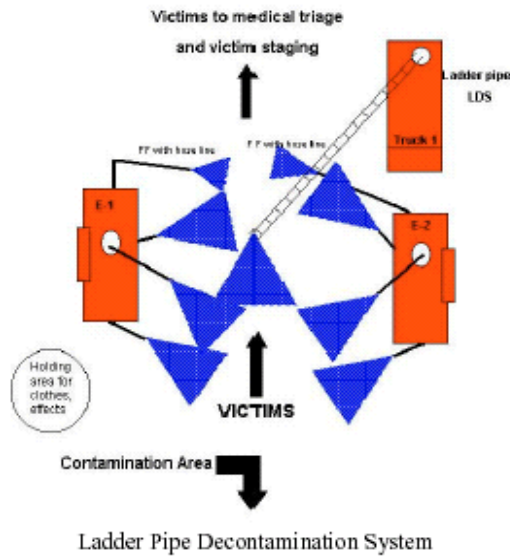
- Be alert for secondary devices, weapons, and perpetrators
- Request police for security of personnel, victims, personal property, and collection and preservation of evidence
- Avoid contact with unknown liquids
- Decontaminate (**immediately**) casualties with liquid contamination on their skin or clothing
- Clothing removal is decontamination. Encourage victims to remove clothing at least down to their undergarments
 - ◆ Bag and tag personal belongings
- Prioritize asymptomatic, symptomatic, and nonambulatory casualties
- Coordinate decontamination with EMS triage activities
- Establish separate technical decontamination for responders away from mass-casualty decontamination

Concerns of Mass Decontamination

- Requires large volumes of water
- Containment of contaminated water runoff
 - ◆ Saving lives takes priority
 - ◆ Attempts to control runoff and environmental damage should be made as control of the situation is gained
 - ◆ Notify health department and EPA
- Weather and wind conditions
- Decontamination corridors are ideal targets for secondary devices
- Perpetrators may be among victims
- Victim identification and tracking
- Prioritization for decontamination based on medical conditions and likelihood of contamination
- Factors that determine the highest priority for ambulatory victim decontamination
 - ◆ Casualties closest to the point of release
 - ◆ Casualties reporting exposure to vapor or aerosol
 - ◆ Casualties with evidence of liquid deposition on clothing or skin
 - ◆ Casualties with serious medical symptoms (shortness of breath, chest tightness etc.)
 - ◆ Casualties with conventional injuries

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- Security of personal property and clothing
- Security of sensitive equipment (e.g., police officers' weapons)
- Separation of male and female victims
- Determine method of water application
 - ◆ Must provide large quantity of water
 - ◆ Handheld hose lines
 - ◆ Aerial towers
 - ◆ Ladder Pipe Decontamination System (LDS)
 - ◆ Emergency Decontamination Corridor System (EDCS)



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Types of Decontamination

- Passive (clothing removal)
- Dry agents
 - ◆ Dirt
 - ◆ Baking Soda
 - ◆ Charcoal
 - ◆ Flour
 - ◆ Sawdust
 - ◆ Silica gel
- Wet agents
 - ◆ Soap and water
 - ◆ Water (only)
 - ◆ Bleach (equipment decontamination)
- Air decontamination (positive pressure ventilation [PPV]/portable fans)

Decontamination Resource Needs

- Engine companies to establish, maintain, and apply water
- Truck companies for ladder pipe and ventilation duties
- Ambulances and EMS personnel for treatment and transport of victims after decontamination
- Police for security and control
- Tracking of victims and personal property
- Dry clothing and blankets
- Department of Public Works (DPW) and highways for traffic control devices, sand bags, and equipment
- Alternate transportation methods for victims
 - ◆ Only casualties who have undergone gross decontamination on site
 - ◆ Mass transit vehicles used
 - ◆ Triage green only
 - ◆ Transport to alternative care facility (ACF)
 - ◆ Medical personnel to accompany each transport
 - ◆ Drivers with Level C PPE

***Level C PPE recommended for transport drivers consists of full-face, negative pressure respirator, full body chemical suit (tyvek or charcoal lined), chemical, and/or biological protective gloves**

- Relief crews for all emergency personnel

Technical Decontamination

Technical decontamination refers to the detailed decontamination (e.g., wash, rinse, underlying procedures) used by specialized teams, most notably HazMat. It is recommended that at least one technical decontamination area be set up to support the special response teams that operate in the hot and warm zones. This includes law enforcement response and investigative teams.

- Established separate from victim decontamination
- Firefighters
- EMS providers
- HazMat technicians

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- Bomb squad
- Law enforcement
- Civilian workers
- Evidence
- Equipment
- Vehicles
- Be prepared to provide decontamination support during recovery operations

***The establishment of technical decontamination stations can become both a confusing and space absorbing process. Many organizations with technical decontamination capabilities insist on using their own decontamination assets rather than using already established technical decontamination corridors manned by local HazMat responders. The IC should be aware of this and plan accordingly. As multiple mutual-aid and state and federal response teams converge on the incident scene, technical decontamination can become a space use nightmare. Best practices involve use of personnel and specialized equipment from responding agencies on an already established technical decontamination corridor.**

Triage of Casualties

Triage will be performed in accordance with the Simple Triage and Rapid Treatment (S.T.A.R.T) method. Most many fire rescue departments have adopted this MCI triage method. Every local fire department should have START kits on their first response apparatus as part of their standard equipment inventory.

S.T.A.R.T. is a tag system designed to assess a large number of victims rapidly and can be used by all personnel regardless of their medical training. The initial triage is accomplished by the assessment of respiratory rate, perfusion, and mental status. Triage ribbons/tags are used to identify the priority of the patients.

- RED - **First Priority** - IMMEDIATE
- YELLOW - **Second Priority** - DELAYED
- GREEN - **Third Priority** - AMBULATORY
- BLACK - **Deceased**

Secondary triage is performed on all patients during the treatment phase in the medical sector. During this phase patients can be up-graded or down-graded depending upon the dynamics of their injuries.

Treat Casualties

The reality of an incident of large proportions has shown that victims will leave the scene and either walk to or find a rapid transport to a medical facility--usually the facility closest to the incident site. The danger in this is that victims may be contaminated with an agent that could then contaminate other people, vehicles, and medical facilities which will in turn increase the number of casualties and overwhelm the facility.

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Emergency personnel on scene should plan to have a staging area for victims. Local medical facilities will be contacted as soon as possible in order for them to prepare an exterior triage and decontamination area to ensure the safety of their staff and facility.

Medical and other personnel will be apprised of conditions that may develop over time in case patients develop complications later on. Patients who exhibit suspect symptoms will be treated by established protocols.

Isolate and Quarantine the Injured and Exposed

The criteria and procedures for isolating/quarantining the injured and other exposed people who cannot be safely extracted, pending arrival of appropriate assistance, should be addressed in the local fire/rescue department's procedure manuals.

Usually the first arriving unit will perform the initial size-up. An approximation of the number of victims and MCI level will be announced. Special needs such as isolation or quarantining exposed victims will be determined at this point. Incident command and a staging area will be established.

Most fire department hazardous materials operating policies require that the area be isolated and entry denied to all personnel until the material(s) has/have been identified. Protective clothing and equipment necessary to operate safely in the affected area must be utilized.

Decisions regarding long-term quarantining of the community for highly contagious biological agents will be made by Emergency Management in consultation with the County Health Department, State Health Department, and the Centers for Disease Control and Prevention (CDC).

Transport Victims

Victims should be decontaminated at the scene prior to transportation. Transportation of decontaminated patients to the appropriate facilities will follow the standard protocols for a mass casualty incident. In-place, on-scene, temporary sheltering of victims may be deemed necessary while receiving facility resources are stabilized. Coordination with other county, state, and federal resources will be conducted through the State Division of Emergency Management.

Locate Stocks Of Available Antidotes (As Needed)

Currently the amount of antidotes carried routinely on local pre-hospital rescue vehicles is minimal. Most rescue trucks only carry enough atropine to treat one or two patients (for organophosphate exposure, like nerve gas). These rescue trucks are supplied with no other type of antidote.

In order to treat a large-scale contamination, three approaches should be taken:

- First, the local Public Health System should stockpile quantities of antidotes available for distribution to field responders and local hospitals. Local hospitals may also be able to provide rescue trucks with antidotes, depending upon the antidote and required amount.
- Second, additional supplies may be available from State and/or Federal sources, but these sources must be pre-identified and pre-planned prior to an incident. Additional antidotes may be available from surrounding Veterans Administration Medical Centers, Fire/Rescue Supply Bureaus, EMS supply bureaus, and local pharmaceutical distribution warehouses.

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- Finally, through activation of National Disaster Medical Services (NDMS), additional resources can be requested.

Preserve the Crime Scene

If the event is determined to be a possible terrorist act, evidence collection will be essential. The responding local law enforcement agency will secure the crime scene, and notify the state law enforcement and the FBI.

Health and Human safety issues will take precedence over evidence collection. However, responders should try to minimize the amount of disruption to the scene.

The FBI will be notified of any potential terrorist-related act, regardless of the number of casualties. The FBI response may include such field office resources as the WMD Coordinator, SWAT, HAZMAT-trained personnel (like the Hazardous Materials Response Unit or HMRU), Bomb Technicians, and the Evidence Response Team (ERT). Additional FBI resources may be called from outside the local area, as needed.

The initial local FBI Field Office point of contact is the WMD Coordinator. Other FBI personnel may be dispatched to the scene, or appropriate areas, for liaison or investigative purposes. These technical teams may make entry into hazardous material scenes and work alongside local Hazardous Material and Bomb Squad personnel. These FBI resources are capable of agent detection, identification, and sampling, but may request the assistance of local first responder resources. Additionally, FBI Bomb Technicians will assist in the detection and neutralization of possible secondary devices.

The purpose of the FBI's Evidence Response Team is to photograph, sketch, document, and gather evidence at the crime scene for the purpose of investigation and eventual prosecution. Depending on the previous training, members of the ERT may be capable of conducting operations at hazardous material scenes.

Arrange for Disposition of the Deceased

In the event of a mass casualty incident involving the use of a CBRNE device, decontamination of the deceased will need to be performed. Decontamination of the deceased should take place at the scene, while preserving any significant evidentiary material. It is the responsibility of the lead Incident Commander to determine who will be the best suited to perform this function and to supervise the procedure.

If the incident involves a biological agent, the Coroner's Office will work with experts from the County Health Department to determine the best way to deal with the disposition of the deceased. The Centers for Disease Control and Prevention (CDC) may also be involved, depending on the circumstances.

Given the type and nature of the device that is used, it is possible that evidence such as projectiles, bomb fragments, and/or chemical compounds could be found on the bodies of the deceased. The FBI Evidence Response Team will place evidence collection experts and equipment on the scene and/or wherever the bodies are taken for autopsy. In the event that the FBI is not on the scene and will not be responding, normal evidence gathering protocols will be implemented. In the absence of the FBI, the responsibility for crime scene preservation and evidence will belong to the local law enforcement agency with assistance from state law enforcement, as required.

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In an event where the Coroner's Office becomes overwhelmed, the Medical Examiner's Commission (within FDLE) could activate the Disaster Mortuary Operational Response Team (D-MORT). The incident must be declared a *federal* emergency in order to activate this resource. D-MORT provides assistance to local agencies in terms of morgue equipment, personnel and total mortuary care (such as autopsies, preparations, caskets, and funeral arrangements).

Facilities

In order to meet the needs of the victims, responders, and the media in a terrorist event, the following facilities may be needed:

- ❑ **Incident Command Post:** The first responders may choose to run their operations from a mobile command post, a tent, or an existing structure. Some agencies have mobile command units and/or tents that can be set up at the incident site to run their operations. These agencies must be identified and mutual aid pacts must be arranged so that these assets can be made immediately available.

If a suitable building is close to the scene, the Incident Commander may request the use of this structure. A determination by the Incident Commander would be made as to what support equipment is needed in any of these situations.

- ❑ **Casualty Collection Point:** Large facilities, such as auditoriums or schools, may be necessary to hold victims waiting to be treated or to be reunited with family members. It is critical to ensure that screening is performed to ensure proper decontamination of exposed individuals. Appropriate officials will provide guidance as to which contaminant(s) has/have been used and the appropriate measures to be taken.

Initial monitoring should consist of a brief screening to simply identify contaminated individuals. More detailed screening and decontamination will take place if the initial monitoring determines that contamination does or may exist. Vehicles can be directed through a vehicle wash down to eliminate any gross contaminants prior to initial survey.

- ❑ **Joint Information Center:** As a result of terrorist incidents, media representatives from all over the world will likely be present. In order to facilitate their needs and keep the media up to date, the Public Information Officer in charge will establish an Emergency News Center. This site may be either an indoor or outdoor facility. It should be close to the incident scene, but not so close that it interferes with the response operations.

The Public Information Officer in charge will be responsible for the coordination of public information.

There are three main mechanisms for the delivery of Emergency Public Information:

- 1) Emergency Management may use the Emergency Alert System (EAS) when a sudden event requires immediate contact with the general public. Pre-scripted EAS messages should be designed and stored at the local EOC. The Public Information Officer should execute these messages.
- 2) Local Emergency Information Hotlines (Rumor Control) should be established to adequately inform the public. The Rumor Control number may be made public through the local media. The clear, accurate, and timely distribution of information to the public is essential.

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- 3) Media interface: The Public Information Officer should manage the media interfaces. All other departmental spokespeople must coordinate their announcements through the designated Public Information Officer.

Additionally, the local response agency's websites should be updated as an event evolves providing more detailed information for the public, press quotes, and photos of the event if needed.

Resources

- **Military Assistance:** Assistance from the local National Guard may be requested by the local DES Coordinator providing the proper declarations have been made and there is a demonstrable "Imminent Serious Need". State DES will request Military assistance through the Governor's office in accordance with Montana Law.
- **Obtaining State/Federal Assistance:** Requests for additional assistance are made directly to the State Emergency Operations Coordinator in accordance with the statewide Mutual Aid Agreement and Comprehensive Emergency Management Plan.
- **Forensic Investigation and Evidence Collection:** Terrorist acts are criminal acts and, as such, evidence collection will be an essential component to the incident recovery. Depending on the crime scene, the evidence collection may delay restoration of normal activities at the location for an extended time.

Recovery

The length of the recovery period from a terrorist incident will depend greatly on the type of incident that has occurred. The following items need to be considered:

- **Search and Rescue Operations:** In the case of a large building collapse, a search and rescue operation could last until the last body is removed from the site. Search and rescue operations for viable victims usually last for about ten days. Further operations will continue from there, as directed, or as the situation dictates.
- **Long Term Issues:** Depending on the incident and agent used, the victims could require very complicated and lengthy treatment.
 - **Biological** - If a biological agent is used the recovery stage could last for years. Large numbers of people may need to be quarantined for long periods of time.
 - **Nuclear** - If people are contaminated with radioactive material, there may be a lot of people who are sick for extended periods of time. If structures are exposed to large doses of radiation, they may not be usable for years.
 - **Chemical** - The short and long-term effects of people exposed to chemicals varies widely according to type and dosage. There may be a terrific strain on the medical community in an effort to meet the needs of victims. In addition to the human factors, decontamination of facilities may be a very lengthy process.

People may be in hospital facilities for weeks or months, depending on their condition. The critical time before a facility can return to normal operations will depend on the circumstances.

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Other factors must be considered for the following circumstances and will be based upon incident-specific criteria and local issues:

- ✓ **Cyber**
- ✓ **Public Awareness**
- ✓ **Victim Support Services**
- ✓ **Legal Considerations**
- ✓ **Site Remediation**

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Attachment A: Agent Morphology

BALLISTICS/EXPLOSIVES

Ballistic injuries resulting from terrorist attacks are still the most common and have the highest "lethality index". A determined individual or group of individuals armed with assault type weapons can produce a high rate of casualties in a short period of time.

Table 3.1 - Lethality Index for Ballistic Injuries¹

Weapon	Fatalities	Nonfatal Injuries	Lethality Index*
Bullets			
Low Velocity	35	430	0.08
High Velocity	152	261	0.37
Fragmentation Munitions	5	33	0.13
Homemade Bombs	10	164	0.06
High explosive Devices	79	281	0.22
Hand Thrown missiles	0	304	0
*Lethality Index is the number of fatalities divided by the number of injuries and fatalities combined [LI=fatalities / (injuries + fatalities)].			
Information derived from Journal of the Royal Army Medical Corps			

Bombs are the most common weapons of terrorists. Bombs are easy to make from ordinary household materials and can be very effective. A fertilizer bomb blasted the Alfred P. Murrah Federal Building in Oklahoma City. When a bomb of this type explodes, it sends a shockwave in all directions and smashes into buildings blocks away. As this shock wave travels, powerful vacuum forms behind it, sucking in the entire atmosphere that has been displaced by the original shockwave. The surrounding area is smashed a second time by the aftershock. All this takes less than a second. Materials in the way of these shockwaves became high velocity projectiles. Walls move away from the blast and then back toward the blast before finally crumbling. Floors and roofs defy gravity for a split second before collapsing to the ground. This can all be accomplished by the use of common household substances.

Most fertilizer bombs, like the Oklahoma City bomb, generate blast waves that can exceed 6800 miles per hour. High-order military explosives, such as C4 and Semtex, can create blast waves almost three times as fast.

Table 3.2 - Mechanisms of Blast Injuries²

Type of Blast Injury	Mechanism	Injuries	Diagnostic Procedures	Treatment
Primary	<ul style="list-style-type: none"> Injury from blast wave as it travels through the air or water 	<ul style="list-style-type: none"> Pulmonary contusion Hollow viscous perforation (possibly delayed) 	<ul style="list-style-type: none"> History and Physical examination Chest Radiograph 	<ul style="list-style-type: none"> Pulmonary toilet Ventilatory support Laparotomy as

1 Owen-Smith MS. A computerized data retrieval system for the wounds of war: the Northern Ireland casualties. J R Army Med Corps. 1981; 127:31-54.

2 **Terrorism in America. An Evolving Threat:** Matthew S. Slater, MD; Donald D. Trunkey, MD; **Archives of Surgery**, Special Article B October 1997

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Type of Blast Injury	Mechanism	Injuries	Diagnostic Procedures	Treatment
		<ul style="list-style-type: none"> ▪ Perforated eardrums 	<ul style="list-style-type: none"> ▪ Serial abdominal examination 	indicated
Secondary	<ul style="list-style-type: none"> ▪ Injury from primary and secondary missiles as they are propelled outward by the explosion 	<ul style="list-style-type: none"> ▪ Penetrating missile injury ▪ Orthopedic injuries 	<ul style="list-style-type: none"> ▪ History and physical examination ▪ Neurovascular evaluation of involved extremities ▪ Direct skeletal radiographs 	<ul style="list-style-type: none"> ▪ Fracture stabilization ▪ Debridement ▪ Tetanus prophylaxis ▪ Laparotomy or thoracotomy as indicated
Tertiary	<ul style="list-style-type: none"> ▪ Injury sustained when the casualty is propelled (displaced) through the air and then impacts onto a relatively fixed object 	<ul style="list-style-type: none"> ▪ Closed head injury ▪ Cervical spine injury ▪ Orthopedic injuries 	<ul style="list-style-type: none"> ▪ History and physical examination ▪ Cervical spine evaluation ▪ Computed tomography of the head as indicated ▪ Direct skeletal radiographs 	<ul style="list-style-type: none"> ▪ Neurosurgical intervention for intracranial mass lesions ▪ Fracture Stabilization
Miscellaneous	<ul style="list-style-type: none"> ▪ Burn injuries, inhalation injuries, and injuries related to structural collapse 	<ul style="list-style-type: none"> ▪ Burns ▪ Inhalation injury ▪ Crush syndrome ▪ Compartment syndrome 	<ul style="list-style-type: none"> ▪ History and physical examination ▪ Creatine kinase level 	<ul style="list-style-type: none"> ▪ Secure airway ▪ Fluid resuscitation ▪ Burn coverage
<p><i>Primary missiles are those derived from the bomb container itself. Secondary missiles are those generated from the surrounding blast environment (e.g. Glass and other building materials).</i></p>				

BIOLOGICAL AGENTS

Governments have used biological warfare as long as civilization has depended on agriculture. Today, various governments continue to research the development of poisonous toxins that are far more deadly than chemical warfare agents. Two of the earliest reported uses of toxins occurred in the sixth century BC: the Assyrian poisoning of enemy wells with [rye ergot](#), and Solon's use of the purgative herb [hellebore](#) during the siege of Krissa.

The use of biological agents is the oldest weapon of the [NBC](#) triad. Biological agents are more deadly than chemical agents and occur in nature and are being artificially developed in the laboratory. Large numbers of naturally occurring poisons have also been examined to determine their value as warfare agents. These include Capsaicin (an extract of cayenne pepper and paprika), Ricin (a toxic substance found in the castor bean), and Saxitoxin (a toxic substance secreted by certain shellfish).

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Table 3.3 - Biological Agent Quick Information Chart³

Agent	Class	Transmission	Symptoms	Treatment
Anthrax (<i>Bacillus anthracis</i>)	▪ Bacteria	▪ Inhalation of bacillus or spores	▪ Dyspnea ▪ Cyanosis ▪ Pulmonary edema ▪ Respiratory failure	▪ Vaccination ▪ Antibiotics
Bubonic plague (<i>Yersinia pestis</i>)	▪ Bacteria	▪ Fleas	▪ Fever ▪ Delirium ▪ Cutaneous lesions	▪ Vaccination ▪ Antibiotics
Salmonella species	▪ Bacteria	▪ Ingestion	▪ Gastrointestinal symptoms ▪ Fever	▪ Antibiotics
Botulinum toxin (<i>Clostridium botulinum</i>)	▪ Bacterial ▪ (Neurotoxin)	▪ Inhalation ▪ Contact (skin wound)	▪ Paralysis	▪ Supportive
Gas gangrene (<i>Clostridium perfringens</i>)	▪ Bacteria	▪ Wound infection	▪ Necrotizing ▪ Soft tissue infection	▪ Antibiotics ▪ Surgical Debridement
Ebola	▪ Virus ▪ (Filoviridae)	▪ Body fluids	▪ Fever ▪ Hemorrhage ▪ Convulsions	▪ Supportive ▪ No specific treatment

Biological agents generally fall into one of three types:

- 1) **PATHOGENS** - Living, reproducing, disease-producing organisms.
 - a. **Bacteria.** Capable of reproducing outside living cells. *Examples: anthrax, tularemia, bubonic plague, cholera, and typhoid fever.*
 - b. **Viruses.** Infective agents composed of DNA or RNA that can only reproduce inside living cells. *Examples: Venezuelan equine encephalitis (VEE), yellow fever, smallpox, hemorrhagic fever (Marburg and Ebola), and human immunodeficiency virus (HIV).*
 - c. **Rickettsiae.** Parasitic microorganisms whose diseases are transmitted by the bite of ticks, lice, and fleas. These parasites require a living host as opposed to bacteria. *Examples: Rocky Mountain spotted fever, Q fever, and flea-borne typhus.*
 - d. **Yeast and Fungi (Mycotoxins).** Mycotoxins were allegedly used in aerosol form ("yellow rain") to produce lethal and non-lethal casualties in Laos (1975-1982), Kampuchea (1979-1981), and Afghanistan (1979-1981). Since the alleged victims were usually unprotected civilians or guerilla forces in remote jungle areas, it was extremely difficult to confirm the attacks or recover samples. However, over 10,000 deaths have been attributed to the use of these agents in these three campaigns.⁴

³ **Terrorism in America, An Evolving Threat:** Matthew S. Slater, MD; Donald D. Trunkey, MD; **Archives of Surgery**, Special Article B October 1997

⁴ **Jane's Chem-Bio Handbook.** Frederick R. Sidell, MD; Dr. William C. Patrick, III; and Thomas R. Dashneill. Jane's Information Group, 1998. Page 185.

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- e. Genetically Engineered Pathogens. Through advanced biochemical techniques, pathogens are subject to enhancement to increase their utility. *Examples: antibiotic-resistant bacteria, bacteria genetically altered to have advanced aerosol and environmental durability, immunologically altered viruses resistant to standard vaccines and not identifiable to classical serological means.*
- 2) **TOXINS** - Non-living, poisonous chemical compounds produced through the metabolic activities of living organisms. Toxins are 1,000 times more lethal or effective than standard chemical agents. *Examples: snake venom, scorpion venom, Ricin, Saxitoxin (produced by marine algae), and puffer fish venom.*
- 3) **ENDOGENOUS BIOLOGICAL REGULATORS (EBRs)** - Chemical substances produced in the body to regulate various body functions such as muscle contractions, blood pressure, heart rate, temperature, and immune responses. *Examples: hormones, adrenalin, and delta sleep-inducing peptide.*

The most practical method of initiating infection using biological agents is through the dispersal of agents as minute, airborne particles (aerosols). Finely divided particles of liquid or solid suspended in a gas are sprayed over a target where the particles may be inhaled. An aerosol may be effective for some time after delivery, since it will be deposited on clothing, equipment, and soil. When the decontaminated clothing is used later, or dust is stirred up, responding personnel may be subject to a secondary dispersal.

Biological agents may be able to use portals of entry into the body other than the respiratory tract. Individuals may be infected by ingestion of contaminated food and water or even by direct contact with the skin or mucous membranes through abraded or broken skin. This makes the use of protective clothing a must, along with protection of the respiratory tract through the use of a mask with biological filters or SCBA.

Exposure to biological agents, unlike chemical agents, may not be immediately apparent. Casualties may occur minutes or hours to days or weeks after an incident has occurred. The time required before symptoms are observed is dependent on the agent used. There are currently no effective monitoring devices available for first responders for use in determining whether they are involved in an incident involving biological agents, though work continues on developing such devices. Often the first clue will come from blood tests, or by other means used by medical personnel, or by observing possible symptoms of people exposed in the area. HazMat Teams and local FBI special response teams have field test kits and procedures to detect the presence of some biological agents such as anthrax.

Some clues may be present that could be indicators that an NBC incident involving biological agents has taken place:

- 1) Unusual numbers of sick or dying people and animals are present. For example, all the birds that are usually present at outside trash bins are dead; no insect sounds, etc.
- 2) Reported illness reflects an unusual or impossible agent for the geographic area or there is an unusual distribution of the disease (that is, the casualties are aligned with the wind direction outdoors).

Biological attacks will be different from natural outbreaks of disease. For example, a steady stream of patients presents to medical facilities instead of the usual peaks and valleys. Or the

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illness may occur in an unusual environment or time of year (such as cases of anthrax showing up where none have occurred before).

Early warning and rapid identification of biological agents is of primary importance. This warning can sometimes be supplied by intelligence sources, but early warning is not usually available.

Some of the more common or anticipated biological weapons are as follows:

Anthrax

An acute infectious disease caused by the spore-forming bacterium bacillus anthracis. It occurs most frequently in cattle, goats, and sheep that acquire spores from direct contact with contaminated soil. Humans usually become infected through contact with, ingestion of, or inhalation of anthrax spores from infected animals or their products (like goat hair). Human-to-human transmission has not been documented.

Following are sample guidelines for responding to a WMD threat involving anthrax.⁵

1. Anonymous caller indicating a WMD threat (including anthrax)

- Law enforcement response including local authorities, State DES, and FBI.
- Fire department/HazMat response not recommended unless device or substance is found
- Routine law enforcement investigation.
- Investigative actions during this response may include:
 - Information gathering at the scene
 - Building evacuation/search following local protocol
 - Taking control of the building ventilation system may be warranted, but only if based upon investigative findings.
 - Attention should be focused on appliances or devices foreign to the surroundings.
 - Included should be an assessment of the building ventilation system to rule out forced entry and tampering.
 - Investigations similar to a telephonic bomb threat.
 - ***Protective equipment should not be required unless hazards or risks are indicated.***
- Suspicious findings during investigation should initiate a public safety response including:
 - Fire/EMS/HazMat
 - EOD team.
 - Notifications per local plan, which includes local and state health departments.

2. Potential WMD device located

- Follow local protocols for risk assessment and evaluation of potential explosive devices. Included in the response should be:
 - Law enforcement including local authorities, State Warning Point, and FBI.
 - Fire/EMS/HazMat.
 - EOD team.
 - Local and state health departments
- If explosive device is not ruled out, coordinate efforts with local/regional EOD authority and notify FBI Bomb Data Center (BDC).

⁵ Adapted from National Domestic Preparedness Office, Special Bulletin Number 6. January 12, 2000.

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- If explosive device is ruled out:
 - Evaluate for potential chemical, biological, or radioactive filler.
 - If radioactive filler appears to be present, follow plans for requesting additional assistance, to include Department of Health, Bureau of Radiation Control.
 - If no hazardous materials appear to be present, response continues as a law enforcement investigation.
 - Device with potential chemical or biological filler or supplement.
 - Follow local and FBI ERT protocols for documentation of the crime scene.
 - Contain the package following recommendations from a hazardous materials authority. FBI will assure notification of FBI/HMRU.
 - Options include double bagging, steel cans, poly containment vessels, or utilization of a hazardous materials over-pack.
 - Control the material as evidence and follow plan for laboratory analysis.
 - Potential release of WMD material from a device.
 - Control the ventilation system.
 - Follow protocols for a hazardous materials incident.
 - Evaluate the extent of contamination.
 - Evacuation of affected areas and decontamination procedures should be selected on the basis of an incident and risk assessment.
 - Provide medical attention following the recommendations from the local/regional public health medical authority.
 - Control and/or isolate the hazard.
 - Treat as a hazardous materials crime scene.
 - FBI will request assistance from FBI-HMRU.
- 3. Specific situations - envelope with potential threat of anthrax, letter opened, and material present.**
- Public safety response including local authorities, State Warning Point, and FBI.
 - Contain the package following recommendations from a hazardous materials authority.
 - Options include double bagging, steel cans, poly containment vessels, or utilization of a hazardous materials over-pack.
 - Control the material as evidence and follow plan for laboratory analysis.
 - Provide medical attention/decontamination following the recommendations from the local/regional public health medical authority.
 - Evaluate the extent of contamination.
 - Evacuation of the affected area and decontamination procedures should be selected on the basis of an incident hazard and risk assessment.
 - *Generally, medical prophylaxis and decontamination have not been indicated except for washing hands with soap and warm water.*
- 4. Specific Situations - envelope with potential threat of anthrax, letter opened, and no specific material present.**
- Law enforcement response including local authorities, State Warning Point, and FBI
 - Fire department/EMS/HazMat response not recommended unless suspicious material is found or individuals are presenting symptoms.

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- Handle the package following local and FBI ERT protocols
 - Double bag the material and place in a suitable container such as an evidence paint can.
 - Control the material as evidence and follow plan for laboratory analysis.
 - ***No medical attention/decontamination is necessary unless symptoms are present, although local public health authorities should be notified.***
 - Handle as a law enforcement investigation.
- 5. Specific situations - envelope with potential threat of anthrax, letter not opened.**
- Law enforcement response including local authorities, State Warning Point, and FBI.
 - Fire department/HazMat response not recommended unless unsuspecting material is found and threat is deemed credible.
 - Handle the package following local and FBI ERT protocols.
 - Double bag the material and place in a suitable container such as evidence paint can.
 - Control the material as evidence and follow [plan](#) for laboratory analysis.
 - **No medical attention/decontamination is necessary.**
 - Handle as a law enforcement investigation.

Note: According to the CDC, hand washing is sufficient for those who have touched the envelope and letter. Decontamination or prophylaxis is not warranted.

Smallpox

The last reported case in the world was in 1977, and the last case in the U.S. was in 1949. This devastating disease, for which there is no therapy, has a 30% mortality rate and commonly leaves survivors blind or seriously scarred. Smallpox is spread by aerosol or droplets and has an incubation period of 14 days. Initial symptoms resemble the flu but are followed by a rash, which, unlike chicken pox, evolves with lesions in identical stages of evolution. The disease is infectious only during the rash phase. The major mechanisms of disease control are isolation (quarantine) and vaccination. **Vaccination up to 4-5 days after exposure may prevent mortality.**

Vaccination is confounded by two problems: first, the national stockpile is not currently sufficient for more than several million people. The second problem is adverse reaction to the vaccination (occurs with a frequency of 3 per million--40% of these cases are fatal and the rest usually have residual neurological problems).

This disease has historically been the most feared in medicine and now represents a highly attractive form of biological weapon. Smallpox is attractive as an agent of bioterrorism in part because abandonment of vaccine programs has resulted in near universal vulnerability to smallpox.⁶

CHEMICAL AGENTS

Chemical agents are defined as any chemical substance intended to kill, seriously injure, or incapacitate humans due of its physiological effects. They are compounds that, through their chemical properties, produce lethal or damaging effects on man.

⁶ D.A. Henderson, Director, Johns Hopkins Center for Civilian Biodefense [Studies, reviewed](#)

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Persistency is an expression of the duration of effectiveness of a chemical agent. The level of persistency is used to describe the tactical use of chemical agents and should not be used as terms to technically classify the agent:

Nonpersistent Agents - Remain in the target for a relatively short period of time. The hazard, predominately vapor, will exist for minutes or, in exceptional cases, hours after dissemination of the agent. *As a general rule of thumb, nonpersistent agent duration will be less than 12 hours.*

Persistent Agents - Remain in the target area for longer periods of time. Hazards from both vapors and liquids may exist for hours, days, or even weeks after dissemination of the agent. *As a general rule of thumb, persistent agent duration will be greater than 12 hours.* There are many factors that will affect the persistency of chemical agents:

- 1) **Type of Agent** - Different agents have various consistencies or viscosity with similarities ranging from rubbing alcohol to motor oil and will evaporate or dissipate at approximately the same rate.
- 2) **Amount of Agent** - Different amounts and dispersal methods used (aerosol, splash) also determine the persistency of an agent.
- 3) **Terrain** - The terrain will also affect the duration of an agent (open area, vegetative, urban, soil composition).
- 4) **Weather** - Wind, temperature, humidity, solar radiation, and precipitation all impact on the duration of an agent.

Types of Chemical Agents

The menu of chemical agents is enormous as there are agents typically used by the military, agents found in industry, agents concocted in clandestine labs, and combination agents (more than one chemical agent combined for dual effects).

It would be impossible to put together a complete list of all possible chemical agents and their possible combinations, but it is feasible to list a group of chemical agents that have a higher degree of likelihood for being used in the field by terrorists agents. This list is presented in symptom logic order:

- 1) Nerve Agents
- 2) Blister Agents
- 3) Choking Agents
- 4) Blood Agents
- 5) Incapacitating Agents
- 6) Vomiting Agents
- 7) Compound/Mixed Agents
- 8) Irritant or Tear Gas

These agents are further described in more detail in the following pages.

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Table 3.4 - Chemical Agent Quick Information Chart ⁷

Class	Examples	Mechanism	Symptoms	Treatment
Nerve Agents	Tabun, Sarin, Soman, VX, malathion, parathion, sevin	Inhibition of acetylcholine-esterase	Weakness Salivation Miosis Paralysis Hypoxia	Atropine 2 - Pralidoxime
Vesicants (Blister Agents)	Mustard Gas, Lewisite Nitrogen Mustard Gas	Alkylation	eye inflammation or upper respiratory tract irritation	Decontamination
Choking Agents	Phosgene Diphosgen	Variable	Tearing, coughing, Dyspnea Pulmonary edema	Supportive
Cyanide (Blood Agents)	Hydrogen cyanide (AC) Cynogen halides (cyanogen chloride)	Form stable complexes with metallo-porphyrins	Hypoxia	Nitrites
Incapacitating Agents	Quinuclidinyl benzilate Cannabinols Barbituates	Variable	Central nervous system alterations	Physostigmine

NERVE AGENTS

Nerve agents acquired their name because they affect the transmission of nerve impulses in the nervous system. All nerve agents belong chemically to the group of organo-phosphorus compounds. They are stable, easily dispersed, highly toxic, and have rapid effects both when absorbed through the skin and via respiration.

All these nerve agents produce the same basic physiological effect: they act upon enzymes at the myoneural (muscle-nerve) junction, causing immediate convulsions, paralysis, and death. They are capable of entering the body either through the lungs or the skin and are deadly in very small quantities.

Nerve agents may be absorbed through the skin, respiratory tract, gastrointestinal tract, and the eyes. However, significant absorption through the skin takes a period of minutes, and prompt medical treatment and decontamination are imperative and sometimes quite successful.

Physical and Chemical Properties

The most commonly mentioned nerve agents are listed below⁸:

The "G" series of nerve agents include **Tabun (GA)**, **Sarin (GB)**, and **Soman (GD)**. These military nerve agents are generally volatile and will evaporate at approximately the same rate as water. As a liquid, these substances are heavier than water and will sink. As a vapor, they are heavier than air and will tend to sink to the lowest level (like basements and subways).

VX is a persistent military nerve agent that does not evaporate readily and is significantly heavier than air. Its primary contact hazard is as a liquid.

Parathion and Malathion are commercial pesticides. They are quickly metabolized in the body and cause effects similar to those of nerve agents. However, they are significantly less toxic.

⁷ Adapted from; Terrorism in America, An Evolving Threat: Matthew S. Slater, MD; Donald D. Trunkey, MD; Archives of Surgery, Special Article B October 1997

⁸ Jane's Chem-Bio Handbook. Frederick R. Sidell, m.d.; Dr. William C. Patrick, III; and Thomas R. Dashneill. Jane's Information Group, 1998. Page 32-52.

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Sevin (carbaryl) is a commonly used insecticide that is absorbed by ingestion and through the skin and eyes. Carbamates cause similar effects as nerve agents. However, unlike the organophosphate compounds, the toxic effect is not permanent. After several hours, the carbamate will spontaneously leave the system. This should be considered in victim care and medical treatment.

Mechanism of Action

A characteristic of nerve agents is that they are extremely toxic and that they have very rapid effect. The nerve agent, either as a gas, aerosol, or liquid enters the body through inhalation or through the skin. Poisoning may also occur through consumption of liquids or foods contaminated with nerve agents.

The route for entering the body is of importance for the period required for the nerve agent to start having effect. It also influences the symptoms developed and, to some extent, the sequence of the different symptoms. Generally, the poisoning works faster when the agent is absorbed through the respiratory system than via other routes.

Poisoning takes longer when the nerve agent enters the body through the skin. Since the first symptoms do not occur until 20-30 minutes after the initial exposure, immediate decontamination is essential. The poisoning process may be rapid, however, if the total dose of nerve agent is high.

Symptoms

The most identifiable characteristic of nerve agent exposure is the extreme constriction of the iris (miosis) causing pinpoint pupils. Other characteristic symptoms include increased production of saliva, a running nose, and a feeling of pressure on the chest. Short-range vision also deteriorates and the victim feels pain when they try to focus on an object nearby. This is usually accompanied by headache. More unspecific symptoms are tiredness, slurred speech, hallucinations, and nausea.

Exposure to a higher dose leads to more pronounced symptoms. Tightening of the chest and dramatic mucous membrane secretions (eyes, nose, and mouth) lead to coughing and difficulty in breathing. Discomfort in the gastrointestinal tract may develop into cramps and vomiting. Involuntary discharge of urine and defecation may also occur. Symptoms, like twitching, from the skeletal muscles are very typical. If the poisoning is moderate, this may express itself as muscular weakness, local tremors, or convulsions.

When exposed to a high dose of nerve agent, the muscular symptoms are more pronounced. The victim may suffer convulsions and lose consciousness. To some extent, the poisoning process may be so rapid that earlier mentioned symptoms may never have time to develop. Muscular paralysis caused by nerve agents also affects the respiratory muscles, which is the direct cause of death. Consequently, death caused by nerve agents is a kind of death by suffocation.

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Table 3.5 - Effects of Nerve Agents in Humans ⁹

Organ or System	Effect
Eye	Miosis (pinpoint pupils), conjunctival injection; pain in or around eye; complaints of dim or blurred vision
Nose	Dramatic mucous discharge (Rhinorrhea)
Mouth	Increased salivation
Pulmonary Tract	Tightness of chest (Bronchoconstriction) and increased secretions, cough; shortness of breath; on exam: wheezing, rales, ronchi
Gastrointestinal Tract	Increase in secretions and motility; nausea, vomiting, diarrhea; complaints of abdominal cramps, pain
Skin and Sweat Glands	Sweating
Muscular	Fasciculations ("rippling"), local or generalized; twitching of muscle groups, flaccid paralysis; complaints of twitching, weakness
Cardiovascular	Decrease or increase in heart rate; usually increase in blood pressure
Central Nervous System	<i>Acute effects of severe exposure:</i> loss of consciousness, convulsions (or seizures after muscular paralysis), depression of respiratory center to produce apnea <i>Acute effects of mild or moderate exposure:</i> forgetfulness, irritability, impaired judgment, decreased comprehension, a feeling of tenseness or uneasiness, depression, insomnia, nightmares, difficulties with expression

Table 3.6 - Recommended Therapy for Casualties of Nerve Agents ¹⁰

Exposure Route	Exposure Category	Signs & Symptoms	Therapy
Inhalation (Vapor)	Minimal	Pin-point pupils with or without nasal discharge; reflex nausea and vomiting	<5 min of exposure: 1 MARK I kit >5 min of exposure*: observation
	Mild	Pin-point pupils; nasal discharge; mild difficulty breathing; reflex nausea and vomiting	<5 min of exposure: 2 MARK I kits >5 min of exposure: 0 or 1 MARK I kit, depending on severity of difficulty in breathing

⁹ **Adapted from:** Recommended therapy for casualties of nerve agents; Textbook of Military Medicine Part I; Warfare, Weapons, and the Casualty; Medical Aspects of Chemical and Biological Warfare, **Office of the Surgeon General, Department of the Army, United States of America: 1997, page 145: #97-22242**

¹⁰ **Adapted from:** Recommended therapy for casualties of nerve agents; Textbook of Military Medicine Part I; Warfare, Weapons, and the Casualty; Medical Aspects of Chemical and Biological Warfare, Office of the Surgeon General, Department of the Army, United States of America: 1997, page 167: #97-22242

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Exposure Route	Exposure Category	Signs & Symptoms	Therapy
Inhalation <i>(Vapor)</i>	Moderate	Pin-point pupils; nasal discharge; moderate to severe difficulty breathing; reflex nausea and vomiting	<5 min of exposure: 3 MARK I kits + diazepam >5 min of exposure: 1 - 2 MARK I kits
	Moderately Severe	Severe difficulty breathing; gastrointestinal or neuromuscular signs	3 MARK I kits; standby ventilatory support; diazepam
	Severe	Loss of consciousness; convulsions; flaccid paralysis; breathing stops	3 MARK I kits; ventilatory support; suction; diazepam
Dermal <i>(Liquid on Skin)</i>	Mild	Localized sweating, twitching	1 MARK I kit
	Moderate	Gastrointestinal signs and symptoms	1 MARK I kit
	Moderately Severe	Gastrointestinal signs plus respiratory or neuromuscular signs	3 MARK I kits; standby ventilatory support
	Severe	Same as for severe vapor exposure	3 MARK I kits; ventilatory support; suction; diazepam
<i>*Casualty has been out of contaminated environment during this time</i>			

BLISTER / MUSTARD AGENTS

These are chemical agents that affect the eyes, respiratory tract, and skin. Blister agents initially cause irritation of the eyes (and respiratory tract, if inhaled), erythema (reddening of the skin), then blistering or ulcerations, followed by systemic poisoning. There are three types of blister agents: mustards, arsenicals, and urticants.

Mustard is usually classified as a blistering agent owing to the wounds caused by this substance resembling burns and blisters. However, blister agents also cause severe damage to the eyes, respiratory system, and internal organs. The effect of mustard agent is delayed and the first symptoms do not occur until 2-24 hours after exposure. Lewisite and phosgene oxime, however,

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produce immediate pain on whatever part of the body comes in contact with the liquid or vapor, such as the eyes or skin.

Physical and Chemical Properties

Mustard “gas” is actually a liquid that is much heavier than water and its vapor is heavier than air. It has an odor of mustard, onions, or garlic that is usually detected when concentrations are close to toxic levels. Mustard can be absorbed into the body through the eyes, the skin, and the airways within seconds of contact.¹¹

Symptoms

There are no immediate physical signs of mustard exposure. The first sign of exposure to mustard is usually redness of the skin. Over a period of hours small blisters appear and gradually combine to form larger blisters. Irritation and redness are usually the first effects in the eyes. Victims may complain of not being able to see; this is usually due to swelling and inflaming eyelids.

Signs of damage to the upper airways may include sinus pain, irritation of the nose, a sore throat, or a hacking cough. If more than a minimal amount is inhaled symptoms may include voice changes, with hoarseness or loss of voice. If large amounts are inhaled it can lead to damage of the lower airways producing shortness of breath and a severe productive cough. The shorter the onset time of these lower airway effects, the more threatening the diagnosis. Survival is unlikely if these symptoms appear earlier than 4 hours after exposure.

Absorption of a large amount will also damage the bone marrow. However, these effects are not evident for approximately 3-5 days.

Antidotes & Treatments

There is no treatment or antidote that can affect the basic cause of mustard agent injury. Therefore, the most important measure is to rapidly and thoroughly decontaminate the patient with soap and water. Eyes are rinsed with water or a physiological salt solution for at least five minutes. A casualty should remain under observation since no signs or symptoms occur within the first few hours.

Medical treatment may include antibiotics and local anesthetics to relieve pain. Despite treatment, inflammation and light sensitivity in the eyes may remain for long periods.

CYANIDES/BLOOD AGENTS

Cyanide produces clinical effects by causing cell death. It does so by entering each contaminated cell of the body and poisoning the mechanism that uses oxygen. Oxygen enters the body through the lungs and is carried by the blood to the cells. Cyanide prevents the cells from using the oxygen and they suffocate.

The body can destroy small amounts of cyanide and leave no effects on the body. Large amounts will affect the brain or central nervous system. The brain and central nervous system are dependent on oxygen and most effects of cyanide poisoning are those caused by a lack of oxygen in the brain. Exposure to a large amount will cause a sudden loss of consciousness,

¹¹ Jane's Chem-Bio Handbook. Frederick R. Sidell, m.d.; Dr. William C. Patrick, III; and Thomas R. Dashneill. Jane's Information Group, 1998. Page 63-74.

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followed by convulsions. After 3-5 minutes breathing will stop. Death will usually occur within 10 minutes.

INCAPACITATING / IRRITATING AGENTS

Riot control agents such as CS, CN, CR, and pepper spray are commonly used in the civilian world. These agents are solids that are usually dispersed in a liquid spray. There are minor differences between riot control agents, however, the effects are similar: they cause pain or burning on exposed mucous membranes and skin.

Tearing, reddening, and closing of the eyes usually accompany burning in the eyes. If these substances are inhaled, there will be a difficulty in breathing and tightening in the chest. Skin may also become irritated and burn. The effects of these agents begin within seconds of contact and decrease as the casualty moves to clean air. It is rare for these agents to produce serious harm to a casualty, unless disseminated in a forceful manner.

COMPOUND/MIXED AGENTS

The possible mixing of chemical agents presents an additional concern to first responders in that it will be difficult to identify (by symptoms alone) which type of chemical agent is being used.

NUCLEAR/RADIATION

Radiation is defined as high-energy particles or gamma rays that are emitted by an atom as the substance undergoes radioactive decay, which is the process in which a radioactive nucleus emits radiation and changes to a different isotope or element. The types of radiation are in the following forms of energetic particles:

- Alpha particles
- Beta particles
- Photons (gamma rays and X-rays)
- Neutrons

Particles lose their energy by depositing it in the material they move through, whether that material is air, water, people, or lead. Radiation, regardless of intensity, has the potential to produce harmful effects on human beings, animals, and plant life. Background (natural) radiation poses little threat to our systems. However, serious health consequences can be expected if a person is subjected to large amounts of radiation. The types of radiation and their effects are as follows:

- **ALPHA** (particulate) radiation particles cannot penetrate the outer layer of skin. They can be stopped by thin layers of light materials (such as a sheet of paper) and pose no direct or external radiation threat. *However, they pose a serious health threat if inhaled or ingested.* Therefore, a respirator or the use of Self-Contained Breathing Apparatus (SCBA) is highly recommended. The range in air for alpha particles is 1 to 3 centimeters.
- **BETA** (particulate) radiation particles can penetrate skin, but not vital organs (lungs, gastrointestinal tract, heart, etc.) and represent a hazard both internally and externally. Beta radiation can be lethal depending upon the dose and length of time of exposure. It is easily shielded by aluminum. The range in air for beta particles is approximately 10 feet. Initial symptoms are itching and burning of the skin, with later symptoms that include reddening of the skin and more severe changes in pigmentation, hair loss, and sores.

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- **GAMMA** (energy) and **NEUTRON** radiation particles can penetrate through the body and represent a hazard both internally and externally. These rays have high energy and a short wavelength. Shielding against gamma radiation requires thick layers of dense materials, such as lead. Gamma and neutron radiation typically have a range in air of several hundred feet.

Table 3.7 - Nuclear Agents¹²

Agent	Particles	Planned Use	Potential For Terrorist Use	Mode of Contamination	Critical Body Site
Uranium 235 & 238	<ul style="list-style-type: none"> ▪ Alpha ▪ Beta ▪ Gamma 	<ul style="list-style-type: none"> ▪ Reactor fuel ▪ Nuclear weapons 	<ul style="list-style-type: none"> ▪ Nuclear weapons 	<ul style="list-style-type: none"> ▪ Inhalation ▪ Skin ▪ Wound absorption 	<ul style="list-style-type: none"> ▪ Bone
Plutonium 239	<ul style="list-style-type: none"> ▪ Alpha ▪ Gamma 	<ul style="list-style-type: none"> ▪ Reactor fuel ▪ Nuclear weapons 	<ul style="list-style-type: none"> ▪ Nuclear weapons 	<ul style="list-style-type: none"> ▪ Inhalation ▪ Wound absorption 	<ul style="list-style-type: none"> ▪ Bone
Cesium 137	<ul style="list-style-type: none"> ▪ Beta ▪ Gamma 	<ul style="list-style-type: none"> ▪ Medical & Industrial radiation source 	<ul style="list-style-type: none"> ▪ Radiation Poisoning 	<ul style="list-style-type: none"> ▪ Inhalation ▪ Skin ▪ Gastrointestinal 	<ul style="list-style-type: none"> ▪ Total Body
Iodine 131	<ul style="list-style-type: none"> ▪ Beta ▪ Gamma 	<ul style="list-style-type: none"> ▪ Medical 	<ul style="list-style-type: none"> ▪ Radiation Poisoning 	<ul style="list-style-type: none"> ▪ Inhalation ▪ Skin ▪ Gastrointestinal 	<ul style="list-style-type: none"> ▪ Thyroid
Cobalt 60	<ul style="list-style-type: none"> ▪ Gamma 	<ul style="list-style-type: none"> ▪ Medical & Industrial radiation source 	<ul style="list-style-type: none"> ▪ Radiation Poisoning 	<ul style="list-style-type: none"> ▪ Inhalation ▪ Gastrointestinal 	<ul style="list-style-type: none"> ▪ Gastro-intestinal

The main concern with radiation is that it is an invisible hazard. Unless the responding public safety agency has radiological detection equipment, or the nuclear material at issue is clearly marked and identified, there is a strong chance that the initial identification of a radiological or nuclear hazard will go unnoticed. Although, there is no one piece of equipment available on the market to meet all detection requirements, there are separate detectors for each type of radiation. An additional concern would be the availability of protective clothing and breathing gear, in sufficient quantities, to protect first responders.

If first responders are subjected to large amounts of radiation due to major radiation accidents or nuclear attack, they can expect serious consequences to their health. *It should be noted that individuals suffering from radiation injuries are NOT radioactive!*

Of importance is the dose or amount of radiation absorbed over a period of time. There are many terms used to measure the dose of radiation. One is the Roentgen Equivalent Man (rem), which is a unit of absorbed dose that takes into account the relative effectiveness of the radiation involved in causing health effects. Another measurement of the absorbed dose of radiation is known as rad. Sometimes rad measurements are referred to as Gray, which is the equivalent of 100 rad. In this document, health effects are expressed in rad.

- 1) 50 to 200 rad - Approximately 6 hours after exposure, the individual may have symptoms ranging from none to transient mild headaches. There may be a slight decrease in the ability to conduct normal activities. Less than 5 percent of individuals in the upper part of the exposure range will require hospitalization. Average hospital stay will be 45 to 60 days, with no deaths.

¹² **Adapted from** Textbook of Military Medicine

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- 2) 200 to 500 rad - Approximately 4 to 6 hours after exposure, individuals will experience headaches, malaise, nausea, and vomiting. Symptoms are not relieved by antiemetics in the upper exposure range. Individuals can perform routine tasks, but any activity-requiring moderate to heavy exertion will be hampered for 6 to 20 hours. After this period, individuals will appear to recover and enter a latent period of 17 to 21 days. If individuals have received 300 rads or more, they will have large quantities of hair loss between 12 to 18 days after exposure. Following the latent stage, symptoms will return, requiring 90 percent of the personnel to be hospitalized for 60 to 90 days. Probably less than 5 percent of those at the lower dose range will die, the percentage increasing toward the upper end of the dose range.
- 3) 500 to 1,000 rads - Approximately 1 to 4 hours after exposure, severe and prolonged nausea and vomiting will develop that are difficult to control. Diarrhea and fever develop early in individuals in the upper part of the exposure range. Significant incapacitation is seen in the upper ranges. Initial symptoms last for more than 24 hours, then go into a latent period lasting 7 to 10 days. Following the latent stage, the symptoms return requiring 100 percent of the individuals to be hospitalized. Of those in the lower range, 50 percent will die, the percentage increasing toward the upper range. All deaths occur within 45 days. The survivors require 90 to 120 days of hospitalization before recovery.
- 4) 1,000 rad or more - Less than 1 hour after exposure, individuals develop severe vomiting, diarrhea, and prostration. There is no latent period. All individuals require hospitalization and die within 30 days.

Attachment B: ICS Forms

[ICS Form 201-3 Initial Incident Organization](#)

[ICS Form 201-5 Site Safety and Control Analysis](#)

[ICS Form 201-7 Initial Site Assessment](#)

[ICS Form 203 Organizational Assignment List](#)

[ICS Form 205 Incident Radio Communications Plan](#)

[ICS Form 205-1 ICS Positions/Phone Numbers](#)

[ICS Form 207 Organization Chart Staging Manager](#)

[ICS Form 207-1 Organization Chart Deputy Ops Chief](#)

[ICS Form 213 General Message Resource Request](#)

[ICS Form 213a General Message Resource Request FD to SECC](#)

[ICS Form 215-1 Operational Planning Work Sheet](#)

[ICS Form 216 Field Resource Status & Demobilization Request](#)

[ICS Form 217 Radio Frequency Assignment Worksheet](#)

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Attachment C: HazMat Decision Models

[Initial Response Big Picture Decision Model](#)

[Initial HazMat Response Operations Decision Model](#)

[Initial HazMat Response Technician Decision Model](#)

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Attachment D: Useful Links

All documents are on the accompanying Compact Disk. If using this document electronically simply click on the links below to go right to the desired document.

- ❖ [Guidelines for Responding to a Chemical Weapons Incident](#) (*link*)
- ❖ [Guidelines for Use of Personal Protective Equipment by Law Enforcement Personnel During A Terrorist Chemical Agent Incident](#) (*link*)
- ❖ [Guidelines for Mass Casualty Decontamination During a Terrorist Chemical Agent Incident.](#) (*link*)
- ❖ [Guidelines for Mass Fatality Management During Terrorist Incidents Involving Chemical Agents](#) (*link*)
- ❖ [Guidelines for Incident Commander's Use of Fire Fighter Protective Ensemble \(FFPE\) with Self-Contained Breathing Apparatus \(SCBA\) for Rescue Operations During a Terrorist Chemical Agent Incident](#) (*link*)
- ❖ [2004 Emergency Response Guidebook \(ERG\)](#) (*link*)

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