



**Incident Commander's and
First Responder's Guide
For
Responding To
Biological/Chemical
Threats**

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**Provincial Emergency Program
Ministry of Public Safety and Solicitor General**

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For ease of use, the Guide separates Biological and Chemical incident information by color.

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Disclaimer

Extensive and reasonable care has been exercised in the preparation of this document. Biological/chemical information, references and authorities were used to document the applicability of the information contained herein. This document is designed to function only as a guide to incident commanders and not to be used as a hard and fast set of rules. At the scene of any terrorist incident involving chemical/biological threat agents circumstances vary and are unpredictable. Incidents may require only the most rudimentary application of the suggestions made in this document, but may also require extremely complex intervention procedures that are beyond the scope of this document.

Foreword

This First Responder's Guide for Responding to Biological/Chemical Threats has been developed in coordination with "stakeholders" from federal agencies (the "interagency"), and state and local emergency responder communities. It is a tool to assist first responders in the field in assessing options during the first two hours of an incident involving a potential biological or chemical agent. It is intended to augment existing response policies and not supersede local protocols. This guide is general in nature and not intended to be a technical guide for emergency responders. The guide has dual applicability in law enforcement and public safety communities. I sincerely hope you will find this guide to be beneficial.

Mervin W.C. Harrower
Director
Provincial Emergency Program

Acknowledgments

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RCMP "E" Division Emergency Coordination Office

Office of the Fire Commissioner

British Columbia Ambulance Service

British Columbia Centres for Disease Control

Biological Threat Agent Incidents

General incident objectives for responding to known or unknown potential biological threats.

Incident Objectives

- Remove people from harm's way
- Assess situation
- Be cognizant of secondary devices
- Secure the perimeter, set up operation areas, and establish hazard control zones (i.e., hot, warm and cold zone)
- Control and identify agents involved
- Rescue, consider decontamination, triage, treat and transport victims
- Stabilize incident
- Avoid additional contamination
- Secure evidence and treat as a crime scene

On-Scene General Assessment

In assessing the situation commanders should consider:

- Evacuating persons from the potential at-risk areas to minimize potential exposure
- Number of apparent victims
- Weather conditions, wind direction, atmospheric conditions, and time of day
- Plume direction (vapor/cloud movement)
- Types of injuries and symptoms presented (potentially none if a recent biological incident)
- Information from witnesses' (what they saw and heard)
- Exact location of incident (type of occupancy)
- Nature of agent and type of exposure
- A safe access route and staging area
- Isolating area and deny entry

Additionally commanders should insure first responders:

(AWARE)

- A**pproach scene from upwind/upgrade
- W**ear at least respiratory protection immediately
- A**lert other first responders of potentially dangerous conditions
- R**estrict entry to area
- E**valuate victims' signs/symptoms and alert others

On-Scene General Assessment

(continued)

Observe possible indicators of a Biological Threat Agent:

- Unusual Dead or Dying Animals
 - sick or dying animals, marine life, or people (note: *this condition would not occur in the early stages of an incident*)
- Unusual Casualties
- Unusual Liquid, Spray, Powder or Vapor
 - spraying and suspicious devices or packages

Hazard Assessment

Types:

- Bacteria (e.g., anthrax, plague)
- Virus (e.g., smallpox, viral hemorrhagic fevers)
- Toxins (e.g., ricin, botulism)

Bacteria and Virus types are living organisms. They:

- enter the body via inhalation, ingestion, or breaks in skin.
- grow and reproduce.
- can be contagious and cause an epidemic.

Toxins are not living organisms. They:

- enter the body the same as pathogens.
- are not contagious.

Characteristics:

- Requires a dispersion device typically for aerosol generation
- Non-volatile
- Is not absorbed through intact skin
- More toxic by weight than chemicals agents and industrial chemicals
- Poses a possible inhalation hazard
- Have a delayed effect ranging from several hours, to days, or weeks
- Are invisible to our senses

On-Scene Assessment

Scenario #1:

An anonymous caller indicating a biological agent (e.g., Anthrax) threat or envelope (letter unopened or opened; no release).

Protective equipment or decontamination and prophylaxis treatment should not be required unless hazards or risks are indicated.

- Law enforcement response including local police.
- Incident commanders should consider whether full fire department response is needed unless device or suspicious material is present or individuals are symptomatic (notify Medical Health Officer as local Standard Operating Procedures (SOP) dictate).
- Incident commanders should consider whether full HAZMAT response is needed unless device or suspicious material or individuals are presenting symptoms (notify Medical Health Officer as local Standard Operating Procedures (SOP) dictate).
- Treat as a crime scene.

Response Strategy

Scenario #1:

An anonymous caller indicating a biological agent (e.g., Anthrax) threat or envelope (letter unopened or opened; no release).

Personal Protective equipment, decontamination, and/or prophylaxis treatment should not be required unless hazards or risks are indicated. Routine law enforcement investigation (similar to a bomb threat).

- Persons in the at-risk area should be rapidly evacuated and evaluated by medical/public health professionals as appropriate.
- Treat as a crime scene.
- Information gathering at the scene (threat assessment to determine credibility of a threat).
- Screen package/envelope by Bomb Squad to ensure no dispersal mechanism/device inside.
- Double bag the envelope and place in a suitable container like evidence paint can.
- Control the material as evidence with documentation of "chain of custody"
- Search to confirm no substance or additional package/envelope is present.
- Assess the building ventilation system to rule out forced entry and tampering.
- An inspection of the building's ventilation system may be warranted based on the assessment.
- Attention should be focused on appliances or devices foreign to the surroundings.

On-Scene Assessment

Scenario #2:

A package/envelope/device with a potential threat of a biological agent (present or released).

Suspicious material(s) with a threat of a biological agent should initiate a public safety response including notifications according to existing local SOP:

- Local Police, Bomb Technicians/Squad.
- Fire, BCAS, and HAZMAT units
- Local and state health and environmental departments
- Treat as a HAZMAT/crime scene

Response Strategy

Scenario #2:

A package/envelope/device with a potential threat of a biological agent (present or released).

Suspicious material(s) with a threat of a biological agent should initiate a public safety response including notifications according to existing local SOP:

- Persons in the at-risk area should be rapidly evacuated and evaluated by medical/public health professionals as appropriate.
- Treat as a HAZMAT/crime scene.
- Follow local protocols for evaluating risk regarding potential explosive device(s).
- If an explosive device is not ruled out coordinate efforts with local/regional Bomb Squad.
- If an explosive device is ruled out evaluate for potential chemical, biological, or radioactive source material.
- If radioactive source material appears to be present, follow local plans for requesting additional assistance.
- Perimeter security denying entry into crime scene.
- Follow protocols for documenting the crime scene.
- Decontamination at the site should only be considered for the individual(s) who came in direct physical contact /inhalation with alleged biological powder.
- Remove and double-bag clothes and/or provide on-site shower.

Response Strategy

(continued)

Scenario #2

A package/envelope/device with a potential threat of a biological agent (present or released).

- Immediate medical evaluation and transport to a medical facility are usually not indicated. This decision can be made in conjunction with the local health officer based on a threat assessment.
- Even in a "true" release, prophylaxis can be temporarily delayed until definitive agent identification is completed.
- Clothing of exposed persons should be removed at home and either routinely laundered or double-bagged for evidence purposes based on instructions.
- Post-Decontamination considerations:
- Law enforcement personnel should interview all potential victims and document their names, addresses, and phone numbers.
- Decisions to provide treatment for Biological Threat Agents should be made by public health officials.
- Consider mental health of potentially exposed persons.
- It is important that sample results be relayed to exposed victims once available to either initiate additional medical procedure(s) if tests are positive or to eliminate fears and anxiety if tests are negative.
- If explosive devices are ruled out and the evaluation for potential chemical, biological, or radioactive source material is negative then response continues as a law enforcement investigation.

A Glossary of Terms

Anthrax - an infectious, usually fatal disease of warm-blooded animals, especially cattle and sheep, caused by the *bacillus anthracis* bacterium. The toxin that exists as spores can live in the soil. The spores are very resistant in the environment and may survive for decades in certain soil conditions. Spores are dormant forms of a bacterium, bacterium produces the toxin.

Bacteria - Single celled organisms that multiply by cell division and that can cause disease in humans, plants and animals.

Biological Threat Agents - Living organisms or the materials derived from them that cause deterioration of material. Biological threat agents may be used as liquid droplets, slurry, aerosols, or dry powders.

Biological Threat - the intentional use of biological threat agents as weapons designed to kill or injure humans, animals, or plants, or to damage equipment.

Etiological Agents - living microorganism, or toxin, which causes or may cause human disease.

Toxins - toxic substance of natural origin produced by an animal, plant, or microbe. They differ from chemical substances in that they are not manmade. Toxins may include botulism, ricin, and mycotoxins

Chemical Threat Agent Incidents

General incident objectives for responding to known or unknown potential chemical threats.

Incident Objectives

- Remove people from harms way.
- Assess situation
- Be cognizant of secondary devices
- Secure the perimeter, set up operation areas, establish hazard control zones (i.e., hot, warm and cold zone)
- Control and identify agents involved
- Rescue, consider decontamination, triage, treat and transport victims
- Stabilize incident
- Avoid additional contamination
- Secure evidence and treat as a crime scene

On-Scene General Assessment

In assessing the situation first responders should consider:

- Evacuating persons from the potential at-risk areas to minimize potential exposure
- Weather conditions, wind direction, atmospheric conditions and time of day
- Plume direction (vapor/cloud movement)
- Number of apparent victims
- Types of injuries and symptoms presented (potentially none if a biological incident)
- Type of exposure and nature of possible agent
- Information from witnesses' (what they saw and heard)
- Exact location of incident (type of occupancy)
- Suggested safe access route and staging area
- Isolate area and deny entry

Additionally commanders should ensure first responders:

(AWARE)

- A**pproach scene from upwind/upgrade
- W**ear at least respiratory protection immediately
- A**lert other first responders of potentially dangerous conditions
- R**estrict entry to area
- E**valuate victims' signs/symptoms and alert others.

On-Scene General Assessment (continued)

Observe possible indicators of a Chemical Threat Agent:

- Unusual or Dying Animals
 - lack of insects

- Unexplained Casualties
 - multiple victims
 - serious illness
 - nausea, trouble breathing,
 - convulsions
 - definite casualty patterns

- Unusual Liquid, Spray or Vapor
 - droplets, oily film
 - unexplained odors
 - low clouds/fog unrelated to weather

- Suspicious Devices/Packages
 - unusual metal debris
 - abandoned spray devices
 - unexplained munitions

Hazard Assessment

Characteristics:

- Requires a dispersion device typically for aerosol generation.
- Requires weaponization.
- Can be found as a solid, liquid or gas.
- The less volatile the agent the more persistent.
- Clinical effects vary from immediate to hours.
- Effects of chemical threat agents are affected by:
 - temperature
 - humidity
 - precipitation
 - wind speed
 - nature of terrain and buildings

Types:

- Nerve Agents
- Blister Agents
- Blood Agents
- Choking Agents
- Irritating Agents

The five classes of chemical threat agents all may produce incapacitation, serious injury, and/or death. Dose dependent in each victim. Effects range from mild to deadly.

On-Scene Assessment

Scenario #3:

An anonymous caller indicating a chemical agent threat (no release).

Protective equipment or decontamination and prophylaxis treatment should not be required unless hazards or risks are indicated:

- Law enforcement response including.
- Incident commanders should consider whether full fire department response is needed unless device or suspicious material is present or individuals are symptomatic (notify Medical Health Officer as local Standard Operating Procedures (SOP) dictate).
- Incident commanders should consider whether full HAZMAT response is needed unless device or suspicious material or individuals are presenting symptoms (notify Medical Health Officer as local Standard Operating Procedures (SOP) dictate).
- Treat as a crime scene.

Response Strategy

Scenario #3:

An anonymous caller indicating a chemical agent threat (no release).

Protective equipment or decontamination and prophylaxis treatment should not be required unless hazards or risks are indicated.

Conduct routine law enforcement investigation (similar to a bomb threat):

- Persons in the at-risk area should be rapidly evacuated and evaluated by medical/public health professionals as appropriate.
- Treat as a crime scene.
- Information gathering at the scene (threat assessment to determine credibility of a threat).
- Search to confirm no substance or additional package/envelope is present.
- Assess building ventilation system to rule out forced entry and tampering.
- Inspection of the building ventilation system may be warranted based on the search.

Attention should be focused on appliances or devices foreign to the surroundings.

On-Scene Assessment

Scenario #4:

A package/device with a potential threat of a chemical agent (present or released).

Suspicious material along with a threat of a chemical device should initiate a public safety response including notifications according to existing local SOP:

- Persons in the at-risk area should be rapidly evacuated and evaluated by medical/public health professionals as appropriate.
- Local Police, Bomb Technicians/Squad.
- Fire, EMS, and HAZMAT
- Local and state health and environmental departments
- Treat as a HAZMAT/crime scene

Response Strategy

Scenario #4:

A package/device with a potential threat of a chemical agent (present or released).

Suspicious material along with a threat of a chemical or release of a chemical device should initiate a public safety response including notifications according to existing local plans:

- Persons in the at-risk area should be rapidly evacuated and evaluated by medical/public health professionals as appropriate.
- Treat as a HAZMAT/crime scene.
- Follow local protocols for evaluating risk regarding a potential explosive device(s).
- Coordinate efforts with local / regional Bomb Squad and the local FBI office if an explosive device is not ruled out.
- Evaluate for potential chemical, biological, or radioactive source material if an explosive device is ruled out.
- Follow local plans for requesting additional assistance if radioactive source material appears to be present.
- Establish perimeter security denying entry into the HAZMAT/crime scene.

Response Strategy (continued)

Scenario #4

A package/device with a potential threat of a chemical agent (present or released).

Personal Response Safety Considerations

- Wear self protection
- Wear the highest level of Personal Protective Equipment (PPE) until additional agent information indicates otherwise
- Be alert for secondary devices

Response Strategy

- Establish decontamination capability and begin HAZMAT operations
- Evaluate need to evacuate or protect in place
- Preserve crime scene
- Alert hospitals regarding imminent mass casualties; consider use of field hospitals
- Coordinate control of personnel
- Restrict scene access
- Conduct evacuation
- Provide scene security
- Estimate number of casualties
- Arrange for transportation
- Establish decontamination areas
- Separate victims with symptoms at triage from those without symptoms
- Set up separate decontamination sites for civilians and emergency response personnel

A Glossary of Terms

Blister Agent - a chemical agent, also called a vesicant, which causes severe blistering and burns to tissues, skin, eyes, and respiratory tract. Exposure is through liquid or vapor contact. Also, referred to as mustard agents; examples include lewisite and mustard.

Blood Agent - a chemical agent that interferes with the ability of blood to transport oxygen and causes asphyxiation. Examples include cyanogen chloride and cyanide.

Choking Agent - a chemical agent that causes physical injury to the lungs. It may cause the lungs to fill with liquid, which results in lack of oxygen, hence choking on liquids. Examples include chlorine and phosgene.

Irritating Agent - a chemical agent, also called riot control agents or tear gas, which causes respiratory distress and tearing designed to incapacitate. Examples include pepper spray and tear gas.

Nerve Agent - a substance that interferes with the central nervous system. Exposure is through liquid contact with the eyes or skin and inhalation of the vapor. Three distinct symptoms associated with nerve agents are pinpoint pupils, headaches, and chest tightness. Examples include sarin, tabun and VX. *Note: Many symptoms are associated with exposure. Victims severity of exposure, i.e., condition, can be clinically graded by initial symptom/signs at evaluation and during repeat exam.*

Notification

Local Police _____

Local Fire Department _____

BC Ambulance Service _____

Telephone List

The following list of telephone numbers is provided as suggested contacts for first responders and/or incident commanders. The toll free number for the Provincial Emergency Program is for use after initial notifications are made, and for supplemental guidance.

Local Medical Health Officer _____

Poison Control Centre _____

Provincial Emergency Program (800)-663-3456

Other local number _____

Other local number _____

Other local number _____

Useful Links

Links:

Provincial Emergency Program (BC)

www.pep.bc.ca

Centre for Disease Control (BC)

www.bccdc.org/

Office of Critical Infrastructure Protection and Emergency Preparedness (CA)

www.ocipep.gc.ca

Health Canada

www.hc-sc.gc.ca/english/

Centres for Disease Control (US)

www.cdc.gov/

Environmental Protection Agency (US)

[www.http://www.epa.gov/emergencies/index.htm](http://www.epa.gov/emergencies/index.htm)

Federal Emergency Management Agency (US)

www.fema.gov/