

ENVIRONMENTAL INCIDENTS RESPONSE MANUAL

Sampling Guide & Public Health Technical Support

Colorado Department of Public Health and Environment

2010 Edition

24/7 Emergency Response & Spill Reporting: 1- 877- 518- 5608
Immediate Technical Support Duty Officer: 303-594-5219

<http://www.cdphe.state.co.us/lr/index.htm>

Environmental Incidents Response Manual Sampling Guide & Public Health Technical Support

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Colorado Department
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IMPORTANT TECHNICAL SUPPORT AND NOTIFICATION NUMBERS

General Resources

CO Dept Public Health & Env - Emergency Response & Spill Reporting	(24/7)	877-518-5608
CO Dept Public Health & Env - Epidemiology/Disease Control Hotline - Disease Control & Environmental Epidemiology Division	(24/7) (business hrs)	303-370-9395 303-692-2700
CO National Guard - Civil Support Team (CST) / WMD	(24/7)	720-847-6874
CO State Patrol – Hazmat Response Team	(24/7)	303-239-4501
Chempack Cache Emergency Request/ Activation	(24/7)	303-239-4501
National Response Center (<i>federal response</i>)	(24/7)	800-424-8802
<i>Rocky Mountain Poison Control Center</i>	<i>Denver Metro</i>	303-739-1123 800-332-3073
State Oil & Safety – Technical Support		303-318-8547
Colorado- Wyoming Joint Terrorism Task Force (JTTF) - FBI	(24/7)	303-629-7171

Regional Public Health Laboratories

El Paso County	719-578-3121
Pueblo County	719-583-4318
Weld County	970-304-6415 x2273



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ABOUT THIS MANUAL

This manual was developed with the assistance of multi-disciplinary workgroups comprised of Colorado state and local public health professionals, state and local hazardous materials response team specialists, the U.S. Postal Service, the Federal Bureau of Investigation (FBI) and the Colorado National Guard Civil Support Team – WMD Unit. The Colorado Department of Public Health and Environment (CDPHE) wishes to express its gratitude to all those who offered their expertise to this manual.

The purpose of this manual is to act as a resource to responders of incidents involving biological, chemical and radiological agents. It provides guidance for obtaining technical support and laboratory diagnostics from CDPHE.

Technical support provided by CDPHE may vary for each event due to the combined information shared on the hazard, the safety assessment at the scene and the subsequent impact on first responders or the public.

Laboratory diagnostics are available for incidents involving criminal acts (such as violators of hazardous materials laws) and credible threats for acts of terrorism. This manual details environmental sampling collection expectations and procedures for submission to the CDPHE Laboratory these incidents and all other situations requiring sample diagnostics.

No samples will be accepted at state health department laboratories
without prior notification
AND
approval from the department

Note: The Colorado Department of Public Health and Environment is not a first responder agency. The department provides technical expertise as secondary responders supporting on-scene first responders.

CDPHE does not retrieve or provide transport for samples intended to go to the department's laboratory. The transport of samples is the responsibility of on-scene agencies.

REQUESTING STATE HEALTH DEPT SUPPORT PROTOCOL

Incidents should be reported to CDPHE Emergency Preparedness and Response Division via the **24/7 Emergency Response & Spill Reporting Line 1-877-518-5608**. Assistance can be requested at the time of the report. The following will subsequently occur for each type of incident:

General - Technical Support

- 1) Call the 24/7 Emergency Line
- 2) Request technical support
 - Specify the type of support

The Emergency Preparedness and Response Division will notify:

- The local public health agency for the jurisdiction impacted
- Appropriate state or federal agencies
- CDPHE Divisions assisting based on the potential impact to human health or the environment.

Air: Air quality monitoring during wild fires ■ Plume modeling to support first responders with explosions ■ Asbestos risk assessment and removal. Air Pollution Control Division (303) 692-3100

Food: Food, dairy, or drug safety assessments and guidance. Division Environmental Health and Sustainability (303) 692-3645

Hazardous Materials or Solid Waste: Chemical or radiologic materials guidance ■ Solid waste segregation guidance ■ Radiologic equipment guidance. Hazardous Materials-Waste Mgmt Division 303-692-3320

Human Exposure: biological or chemical exposure guidance. Disease Control & Environmental Epidemiology Division (303) 692-2700

Water: Drinking water contamination guidance ■ Waste water treatment disruption guidance ■ Waterways contamination guidance. Water Quality Control Division (303) 692-3500

Terrorism – Credible Threats

- 1) Call the 24/7 Emergency Line
- 2) Request credible threat support
 - a. Summarize incident
 - b. Specify type of support

The Emergency Preparedness and Response Division will notify:

- The local public health agency for the jurisdiction impacted
- CDPHE Laboratory Division and other divisions assisting (based on the potential of biological, chemical or radiological agents as well as air, water, food or soil)
- Colorado Department Public Safety, Office of Preparedness and Security (CIAC)
- Appropriate federal agencies (FBI, EPA, HHS, DOE, USPS)

Laboratory Diagnostic Support

1. Call the 24/7 Emergency Line
2. Request laboratory support
 - Provide details on situation

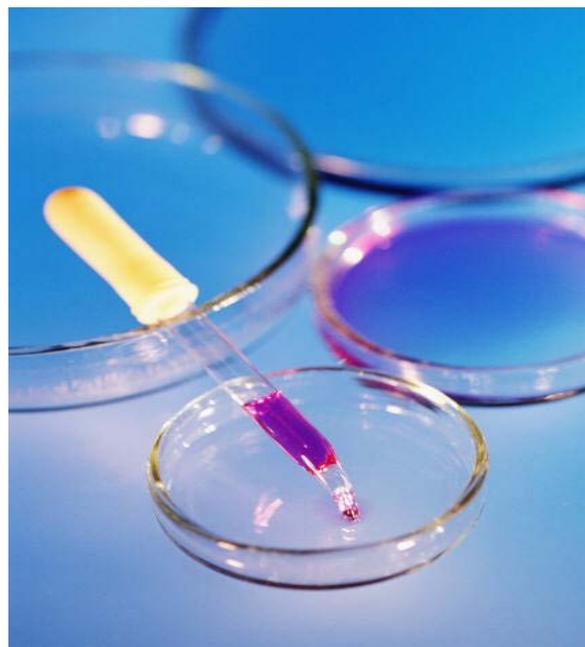
The Emergency Preparedness and Response Division will notify:

- The Laboratory Services Division and other divisions assisting (based on the potential impact to human health or the environment).

The CDPHE Laboratory may be contacted directly: 303-692-3090 or pager: 877-705-1016

For more complete information about the state health department laboratory services, go to: <http://www.cdphe.state.co.us/lr/index>.

[Click here to see the Credible Threat Section for more details](#)



FIELD OPERATIONS

Scene Characterization

The scene characterization is a concise summary of information that is assembled within the first two hours of being on site. When responders are seeking technical and laboratory support, this initial assessment should occur prior to contacting CDPHE. CDPHE will request the following information, which comprises the Scene Characterization Report:

1. What are the results of the Hazard Assessment Report (for immediate risks)?
 - Is the incident an 'Accidental' or 'Deliberate' event?
 - If deliberate, is there a 'Credible' or 'Non-Credible' threat?
2. What type of agent is involved? - *biological, chemical, radiological*
3. What type of media is the agent in? - *air, water, soil, food*
4. What is the Safety Assessment?
5. What are the rapid Field-Test results?
6. Do you have Collection Documentation for the samples?

CDPHE will NOT test samples collected from 'non-credible' threats except under a 'fee-for-service' basis and with prior laboratory approval.

Hazard Assessment Report

The Hazard Assessment Report is a part of the Scene Characterization Report. The initial Hazard Assessment Report can be brief and added to as the details of the event unfold.

Accidental/Deliberate/Suspicious

It is important to determine if the incident is accidental or deliberate. They are classified as 'SUSPICIOUS' when:

1. Unknown powder-like substance exists (for example, in letters/packages)
2. Threatening communication exists
3. Illness is associated with the item

A logical explanation for a substance's presence must be ruled out if a release is an unknown substance with no apparent threat or illness associated with it. Assess the items for company labels as they can help explain the material. If there is an explanation that is reasonable/defendable, the item is determined 'ACCIDENTAL' and 'NON-CREDIBLE.' No further action is required.

If the evidence indicates a 'DELIBERATE' incident, proceed to the threat analysis.

Deliberate Threat Analysis

Any situation – accidental or deliberate – that is a violation of hazardous materials regulations or is a criminal act requires specific steps to support legal action. This needs to be determined early to ensure Chain-of-Custody occurs.

The threat assessment, including the credible/non-credible threat determination is often based on the information received by the on-scene responders. If the threat is deemed 'credible' begin the steps to protect the public and the responders. This should be communicated to the appropriate officials as soon as possible.

Threat determination and response is a multi-disciplinary process – click to go to ['Credible Threat' section for more details.](#)

Unable to Resolve Threat Status

If the suspicion of a threat cannot be resolved, notify supervisor, police, fire and the FBI before closing the case.

Threat Determination Guide

UNOPENED Letter/Package:

An increased threat risk may exist if:

- Oily stains, suspicious discolorations or powder is present on the letter/package
- No return address or foreign, fictitious address
- Foreign mail, airmail, special delivery markings
- Restrictive markings, such as 'confidential' or 'personal'
- Excessive postage stamps
- Handwritten or poorly typed addresses
- Incorrect titles
- Titles, but no names
- Misspelling of common words
- No return address
- Excessive weight
- Rigid envelope
- Lopsided or uneven envelope
- Protruding wires or tinfoil
- Excessive security materials, such as masking tape, string, etc
- Visual distractions

OPENED Letter/Package

An increased threat risk may exist if:

- Liquid, spray, powder or vapor is noted
- Unusual odor exists
- Threatening note exists

If its determined to be a 'Credible Threat,' contact:

- ❖ Local responders & HazMat team
- ❖ Local and state designated agencies
- ❖ Local and state public health agencies
- ❖ FBI
- ❖ US Postal Service (if involves US mail)

Potential Human Exposure

If potential human exposure exists to a biological, chemical or radiologic agent, a decision must be made in a reasonable period of time (preferably less than 2 hours) to:

1. **Release the individuals** ☒ no public health or medical follow-up; ☒ no decontamination of exposed
2. **Release the individuals** ✓ do have public health or medical follow up (talk to the leads before release occurs); ☒ no decontamination of exposed
3. **Do Not release individuals** ☒ no public health or medical follow-up; ✓ do decontaminate exposed
4. **Do Not release individuals** ✓ do have public health & medical follow-up; ✓ do decontaminate exposed

Have a local plan with your public health agency and medical lead; know who is responsible for obtaining the names and contact information for each individual potentially exposed so adequate follow-up can occur.

Type of Agent

Use DOT documents, signage/placards, company experts, responder experience and interviews to determine the agent.

It is important for responders to inform CDPHE personnel providing support the methods used to obtain this preliminary agent identification information.

The information should include:

- ✓ Agent Classification
(biological or toxins, chemical, radiological)
- ✓ Physical Form
(powder, liquid, vapor)
- ✓ Mixed with – soil, water, air, food, etc
- ✓ Quantity (best estimate)

Approximately 80 percent of contamination can be removed by taking off outer garments

Known Human Exposure

It is critical that a decision be made in a reasonable period of time (preferably within two hours) as to the action to take for individuals exposed to a substance. Defining exposure will be dependent on the agent involved. If the level of hazard is unknown, use professional judgment to ensure proper medical care occurs.

Credible Threat Exposure

Inform local law enforcement so proper handling of items deemed evidence can occur. This may include clothing as well as human or substance samples.

Hazardous Substance Exposure

Decontaminate individuals identified as exposed to a hazardous substance prior to them leaving the scene. Ensure privacy and dignity is maintained. Provide proper clothing for individuals at the completion of the decontamination process.

Record names and contact information for all exposed individuals. Determine if medical and public health follow-up is necessary. Contact the local public health agency so surveillance for potential illness can occur, if appropriate.

Brief EMS prior to transporting exposed individuals; prior approval of the transport agency is required. Properly clean a contaminated ambulances prior to re-use.

Chempack Caches provide medical supplies to support exposures to nerve agents. Determine early in the scene assessment if this resource is needed. Follow the 'Request Protocol' to access and move the cache to the scene.

Safety Assessment

The dangers associated with an agent exposure are influenced by the availability of proper personal protective equipment and weather conditions.

For suspicious envelopes/ packages, identify all persons who have touched the item. This is important for health surveillance, medical monitoring and/or health & safety measures.

Credible Threat: Envelope/Package

UNOPENED Envelope/Package:

1. Wash hands with soap and water if the item was touched
2. Double wrap the item in plastic wearing gloves (latex, nitrile or vinyl) and a particulate mask
3. Move to a secure location, if possible
4. Treat as a crime scene and proceed as with opened letter/package

OPENED Envelope/Package:

1. Do not touch, smell or inhale near the item or substance
2. Avoid hand contact with outer clothing or skin
3. Keep mouth and nose closed or cover face with sheets of paper or protective mask
4. Evacuate persons from at-risk areas to minimize potential exposure
5. Isolate area and deny entry
6. Wash hands with soap and water if the item was touched
7. If clothing is contaminated, remove outer clothing, place in garbage bags and label the bag 'BIOHAZARD' (one bag per person)
8. Give clothes to law enforcement for lab analysis

Go to: 'Credible Threat Samples'

Click here to Go to: 'Suspicious Powder Response Flowchart'

SAMPLE COLLECTION AND TESTING

Rapid Field Testing

Field testing is the process of screening for unknown contaminants, whether 'Toxic Industrial Chemicals' (TICs), biological agents, potential WMD agents, or other agents:

The purpose of field testing is for:

- Tentative identification of contaminant
- Hazard reduction and mitigation to rule out potential risks of:
 - Explosives/ volatility
 - Radiological agents
 - Chemical agents
 - Flammability/ volatility
 - Corrosive/pH determination
- Determination of isolation, evacuation or other measure is warranted
- Initiating chain-of-custody steps

Field Test Equipment – Equipment may include, but is not limited to: colorimetric tubes, biological immunoassay 'tickets,' paper chemical agent detectors (M8 paper), wet chemistry chemical agent testing detectors (M256 kits), chemical agent monitors, surface acoustic wave (SAW) monitors, infrared spectrometers chemistry categorization kits.

Field Test Accuracy – False positive test errors, misinterpretation of results and cross sensitivities to non-hazardous substances can occur. The outcome of incorrect results could provoke unnecessary concern, evacuations, panic, and media attention.

False negatives could result in a true hazardous agent being missed.

Utilizing multiple testing methods is ideal.

Field Test Support – CST

The National Guard 8th Civil Support Team (CST), Weapons of Mass Destruction (WMD) Unit, works for State Governors under the command and control of the Adjutant General. The team can provide support in the form of conducting some advanced field testing. When they deploy to an incident they link up with the on-scene incident command and provide a direct-support military relationship. However, the team remains under military control.

Requesting operational deployment of the team is accomplished via contacting the State Emergency Operations Center 24/7 number at 303-279-8855. For general assistance contact the CST-WMD Unit directly at 720-847-6874. The anticipated deployment time is 4 hours from a validated alert; but the team is typically mobile within 2 hours.

If the material is of a small enough size that the entire sample could be consumed during field testing, retain the sample for more definitive laboratory testing (a non-destructive field test may be used).

CDPHE Lab Accepts Samples for: biological, chemical & radiological agent testing, based on the sample type.

- Human Specimens
(blood, sputum, aspirates, etc.)
- Fomites
(papers, powders, food, soil, etc.)
- Culture isolates
(identification, / confirmation)

State Health Dept Lab Support

The CDPHE Laboratory will create a scene-specific sample collection plan with those involved on-scene (using the Scene Characterization Report). They will guide first responders on the preferred sampling method, quantity and shipping steps for the situation.

Samples will NOT be accepted at the CDPHE laboratory without prior notification & approval

When a sample is being forwarded to the CDPHE lab, include:

- Field screening tests performed
- Field screening test results
- Manner in which the samples being sent were collected
- Quantity of samples being sent

More on Laboratory Services Division:
<http://www.cdphe.state.co.us/lr/index.htm>

Inventory of Samples – Send samples with a summary document that lists:

- Sample identification number per sample
- Sample location for each sample
- Sampling method for each sample

Documentation - Save field test items such as immunoassay "tickets" and buffer solutions, chemical or biological monitor 'data log' printouts – or - record the data.

Maintain the scene characterization records as well, including incidents dismissed as non-credible threats.

Credible Threat Samples

When a credible threat exists, *all samples should be screened for volatile organic compounds, explosives, incendiaries, and ionizing radiation prior to sample collection.* This is critical if the original letter/package is being sent to the lab.

The FBI and local law enforcement are expected to provide CDPHE with confirmation that such safety checks and radiological screen occurred prior to the sample leaving the scene.

Be prepared to provide the laboratory with information on the item, including labeling on original shipping containers.

When the sample(s) are approved, provide the lab with information on the transport vehicle and driver. CDPHE will provide driving instructions to the correct laboratory facility and any safety criteria essential to accept the sample.

Unable to Resolve Threat Status

Treat as a crime scene if suspicion is unresolved or a threat exists.

Samples will NOT be accepted at the CDPHE laboratory without prior notification & approval

1-877-518-5608

The CDPHE Lab will NOT accept items with any dimension exceeding 11 ½ inches

Prioritizing Samples and Tests – Credible Threats

CDPHE’s laboratory will prioritize samples based on public health incidents and credible threat status. The *Credible Threat Specimen Triage Guide* (Chart 1.0) is utilized to determine threat-related prioritization. The responder will be informed by laboratory personnel of the priority status at the time of the testing request. Those submitting samples should follow the protocols outlined in the *Sample Collection section* of this manual to ensure samples submitted are processed in a timely manner and provide the best results feasible.

Chart 1.0. Credible Threat Laboratory Specimen Triage Guide	
HUMAN SPECIMENS / CULTURE ISOLATES	ENVIRONMENTAL SPECIMENS
<u>Cases with illness</u> - signs and symptoms were reviewed by a clinician or epidemiologist as consistent with infection/intoxication due to a recognized biologic, chemical or radiologic (CBR) agent associated with a credible threat.	<u>Credible Threat</u> – collected from a scene or associated with an event that is deemed a credible threat for a CBR agent by the FBI, in concert with local law enforcement.
Action: Perform testing immediately on receipt of specimen (24/7) and refer to other federal or state laboratories as soon as possible.	
Testing: <i>Conduct testing with multiple methods</i>	
<u>Cases with illness, low terrorism link</u> – the patient is ill but the clinical picture is not typical of a CBR agent.	<u>Criminal act</u> – collected from a scene or associated with a criminal act (felony menacing, hoax) with a specific agent known, but no credible threat.
Action: Perform testing on the next regular business day	
Testing: <i>Perform testing using a single method for the threat agent on probable criminal specimens; other testing deemed appropriate as indicated by the situation</i>	
<u>No discernible illness</u> – or – specimen was obtained for epidemiologic studies.	<u>Non-credible threat.</u> – Collected from scene when a credible threat was ruled out.
Action: Refer submitters to local health department or private laboratories offering testing for threat agents or for the identification of a substance on a fee-for-service basis. *	
Testing: <i>As requested by submitter</i>	

* Environmental testing for anthrax* and powder identification+ is available at a fee-for-service:
 • Industrial Laboratories, 1450 East 62nd Avenue, Denver, CO 303-287-9691 * +
 • CSU Veterinary Diagnostic Laboratory, Ft Collins, CO 80523 970-491-1281 *

General Sampling

General Guidelines

Collect the sample if law enforcement, hazardous materials and public health personnel determine a credible threat or legal action is required related to the incident or substance. Duplicate samples may be required for law enforcement.

Only properly trained personnel should collect samples. Appropriate personal protective equipment as specified in OSHA standard 1910.120 should be worn. CDPHE will provide specimen and packing guidelines.

Perform all field screenings and sample collection steps in accordance with nationally recognized standards.

Use multiple test methods when possible.

Collect and test background samples from the area of the contaminant (to compare the test results).

If possible, photograph the area prior to sampling. Follow law enforcement procedures and practices.

Consider obtaining technical support from a local public health agency or CDPHE program prior to sampling.

Prepare sample labels for each container before beginning the sample collection step (to minimize the time spent at the contamination site). Record the sample label information on the Chain-of-Custody Form; the form will serve as a sample inventory document.

Samples will NOT be accepted at the CDPHE laboratory without prior notification & approval

1-877-518-5608

Chain-of-Custody

Follow the appropriate security measures for samples considered evidence. Initiate Chain-of-Custody steps prior to sample collection and keep samples under the control of designated person at all times. When samples are not in the possession of the designated person, secure samples. Document the Chain-of-Custody steps for each sample on the 'Chain-of-Custody Form.'

Record the following information on the labels of Chain-of-Custody samples:

- Unique sample number or identifier
- Analysis Type (biological, chemical, radiological – specific test, if known)
- Description of sample location
- Type of sample
- Time and date of sample collection
- Name of person collecting sample
- (Optional) Map of the sample area

Change gloves between each sample to prevent cross-contamination.

Collect no more than 10 grams of material per sample.

Place each sample in an unused, self-sealing sterile bag and properly label each bag, seal the bag.

Clean the outside of the sealed bag with sodium hypochlorite (0.5-0.6%) just prior to leaving the contaminated area.

Place the cleaned sealed bag into another unused self-sealing bag.

Place contaminated items in a biohazard bag; proceed to decontamination area.

Place the sealed sample bag into a shipping container (See 'Transporting' section for details). Transport samples at ambient temperature, unless specified otherwise, to the CDPHE Laboratory.

General Equipment/ Materials

Items needed for sample collection:

- ❑ Non-powdered, sterile gloves (e.g. latex, nitrile or vinyl gloves)
- ❑ Dacron swab - not cotton or calcium alginate
- ❑ Non-sterile self-sealing bags
- ❑ Permanent markers
- ❑ Labels and forms
- ❑ Sodium hypochlorite (bleach) at 0.5–0.6% concentration – in a squirt bottle
- ❑ Shipping container approved for transport (See *Packaging and Shipping*)
- ❑ Biohazard bag (for contaminated waste)
- ❑ Chain-of-Custody Form - Required for all credible threat samples

Items that might be useful:

- Sample Documentation/ Inventory Form
- Ultra Filtration Field Concentration Apparatus
- Camera
- Sealable Plastic Bag (bubble wrap baggies can be used)
- Shipping Container or Rigid Shipping Container

It is important to follow any special laboratory requirements given for sample collection and transport; this may affect the quality of the analytical results.

Verify that latches/locks are secured before leaving the site. Remove all PPE at the site perimeter and place waste material into a heavy-duty plastic trash bag before leaving the scene. Properly label this contaminated waste.

Biological/ Microbial Sampling

Collecting Surface Samples

Swab/Wipe Method

For information from the CDPHE Lab, click [here](#) This swab method is used for sample collection on small, non-porous surfaces that do not have a large accumulation of dust and dirt (e.g. keyboards, hard-to-reach areas within machinery, mail sorters, ventilation grilles, etc.).

The wipe method is used for sample collection on large non-porous surfaces that are > 100cm² (1 ft²); e.g. tabletops, counters, desks, file cabinets, floors, windowsills, mailboxes, non-carpeted floors, etc.

Sampling Equipment Needed:

Add the following items to those listed in the 'General Equipment/ Materials' section:

- ❑ Sterile 3" X 3" or smaller synthetic (non-cotton) gauze pad
- ❑ Tweezers (if needed)
- ❑ Solution to moisten swab - Sterile saline (0.85%) or Phosphate buffered saline (PBS) 0.1M, pH 7.2
- ❑ Sterile conical centrifuge tube (polypropylene or polystyrene)

Collection Procedure:

1. Don sterile, non-powdered gloves over the standard PPE gloves and clothing
2. Pre-label each container
3. Transfer label information to the Chain-of-Custody Form
4. Aseptically obtain a sterile 3" X 3" or smaller synthetic (non-cotton) gauze pad
5. Moisten the gauze with sterile saline or sterile phosphate buffered saline (PBS)
6. Wipe the sample surface 1 ft²
Avoid letting the gauze pad dry
7. Make enough vertical S-strokes to cover the entire sample area
8. Fold the exposed side of the pad

Make horizontal S-strokes over the same area

9. Place the sampled gauze in a sterile conical vial, and cap the vial – OR – Place the sampled swab in a sterile conical centrifuge tube, break off the shaft below the area that was held during sampling and cap the tube
10. Ensure vial or tube is labeled and place it in a self-sealing bag
11. Follow Chain-of-Custody steps

HEPA Vacuum Method

This method is used for sampling large porous or non-porous, dusty or dirty surfaces areas (e.g. carpeting, ceiling tile upper surfaces, ventilation systems, and papers).

Sampling Equipment Needed:

Add the following items to those listed in the 'General Equipment/ Materials' section:

- ❑ Non-powdered, sterile gloves (latex, nitrile, or vinyl gloves)
- ❑ Dust filter sock (Midwest Filtration Company or equivalent)*
- ❑ HEPA vacuum w/ collection nozzle
- ❑ Rubber bands
- ❑ Biohazard bags
- ❑ Sterile bags
- ❑ Alcohol wipes
- ❑ Shipping container approved for transport

Note: If the number of CFUs per gram of dust is desired, use pre-weighed filter socks – or – the mean filter weight of several socks as a background, representative weight.

Pre-label each container and transfer the label information to the Chain-of-Custody Form.

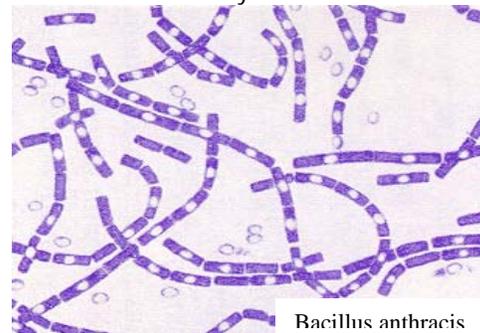
Collection Procedure:

1. Don sterile, non-powdered gloves over standard PPE gloves & clothing
2. Insert a cone-shaped Dust Collection Filter Sock into the vacuum nozzle

3. Fold the plastic sleeve over the outside of the nozzle
- Secure with an elastic band or hold firmly with a gloved hand
4. HEPA-vacuum the surface. Make one pass of the entire sampling area at a slow rate (12inches/ 5 seconds)
Note: 1-2 tablespoons of vacuumed debris is desired
5. Remove the tape/elastic band and discard as contaminated waste
6. Remove the cone-shaped dust collection filter sock and place in a self-sealing bag
7. Roll the filter and place it in a sterile conical bag
8. Label the bag and place the cleaned sealed bag in another unused self-sealing bag
9. Clean the outside of the sealed bag with sodium hypochlorite (bleach) at 0.5– 0.6% concentration
10. Place contaminated material into a biohazard bag; proceed to decontamination
11. Place the sample bag in a container approved for transport

To collect another sample, wipe the nozzle with an alcohol wipe, change gloves, and repeat steps 1-11.

Note: Alcohol wipes will remove contamination from the nozzle surface but will not sterilize the surface. To determine if cross-contamination of samples occurs, occasionally insert a filter sock into the vacuum nozzle after collecting a sample and cleaning nozzle. Withdraw the sock and place in a sterile conical tube for analysis.



Biological/Microbial Sampling (cont)

General Equipment/ Materials

Items needed for Sample collection:

- ❑ Non-powdered, sterile gloves (e.g. latex, nitrile or vinyl gloves)
- ❑ Dacron swab - not cotton or calcium alginate
- ❑ Non-sterile self- sealing bags
- ❑ Permanent markers
- ❑ Labels and forms
- ❑ Sodium hypochlorite (bleach) 0.5–0.6% concentration in a squirt bottle
- ❑ Shipping container approved for transport (*See Packaging and Shipping*)
- ❑ Biohazard bag (for contaminated waste)
- ❑ Chain-of-Custody Form - *Required for all credible threat samples*

Items that might be useful:

- Sample Documentation/ Inventory Form
- Ultra Filtration Field Concentration Apparatus
- Camera
- Sealable Plastic Bag (bubble wrap baggies can be used)
- Shipping Container or Rigid Shipping Container

Collecting Water Samples - Biologic

Technical support may be required. It can be obtained through the local public health agency or CDPHE's Water Quality Control Division. Click [here](#) for water samples information. Samples are accepted for chemical and biological/ microbial agent analysis.

Samples may be collected from drinking water, ambient water or wastewater. Water samples may be from surface sources, storage tanks, pressurized pipes or other distribution system element. See [Figure II-2](#) for submitting tests when samples are related to outbreaks.

Samples from large bodies of water such as reservoirs, whether finished or source water, requires different sampling techniques than those used for distribution systems.

Environmental Incident Response Manual

For drinking water contaminants levels, click [here](#). The EPA Environmental Response Team's standard operation procedure #2013 is an acceptable technique for collecting sampling from these types of water sources.

Sampling Equipment Needed:

Add the following items to those listed in the 'General Equipment/ Materials' section:

- ❑ Preservative and/or dechlorinating agent (if needed)
- ❑ Ultra Filtration Field Concentration Apparatus
- ❑ Sealable Plastic Bag (bubble wrap baggies can be used)
- ❑ Shipping Container or Rigid Shipping Container
- ❑ Frozen Ice Packs (preferred) or Sealable Freezer Bags filled with ice
- ❑ Heavy Trash Bag

Pre-label each sample container and record the label information on the Chain-of-Custody Form.

Collection Procedure – Water Faucet:

1. Don sterile, non-powdered gloves over standard PPE gloves and clothing
2. Check for in-line filters (home treatment devices) that might interfere with sampling. Remove the device and collect the sample
Note: Collect sample from the device if it cannot be removed; note this on the label
3. Flush the water for a time period sufficient to displace the water in the lines (for a representative sample of the distribution system)

Note: Keep the flow rate from the faucet sufficiently low in order to avoid splashing and aerosolizing water droplets. Divert water to a drain, if possible.

If the water flushed from the faucet poses a hazard to the discharge area, consider collecting the discharge for decontamination.

If the decision is made to analyze the samples immediately, contact the CDPHE laboratory as soon as possible so they can prepare for arrival of the samples.

If the decision is made to hold the samples (rather than send to the laboratory for immediate analysis), consider the stability of the suspicious agent in unpreserved samples.

Preserved sample holding times are based on the respective analytical methods desired and are typically 7 to 28 days for preserved samples.

Chill samples, but protect from freezing when holding. If a threat is of concern, hold samples until the threat evaluation is complete and the decision is made to either analyze the samples or close the investigation.

Collection Procedure – Microbial Tests

Sampling techniques for microbial contaminants may vary based on the suspected agent. The following guidelines will also apply, based on the type of testing requested.

Bacteria Tests – Collect a 4-liter sample of water.

Virus Tests – Collect 100 and 1,200 liters of water and filter through a positively charged filter.

Send the processed filters for viral testing of water samples to the laboratory. Viruses adsorbed to the filter can be eluted in the field and shipped as a one-liter retentate (or concentrate) to a laboratory for further processing.

Protozoa Tests - Collect a 10-liter sample of water. Follow Method 1623: Cryptosporidium and Giardia in Water by Filtration by IMS/FA, EPA-821-R-99-006, April 1999, <http://www.epa.gov/nerlcwww/> (cont)

Protozoa Testing (cont)

1. Fill sample containers with water flowing from the sample tap.
2. Do NOT rinse or overfill the sample containers. This is important if containers have a preservative or dechlorinating agent.
3. Add preservative/ dechlorinating agent (if required) when preparing supplies prior to going to the site.
4. Wipe the outside of the sealed containers with an aseptic wipe or mild bleach solution.
5. Attach custody seal to the each sample container (if required).
6. Place the sample container into a sealable plastic bag.
7. Bubble wrap baggies can provide protection against breakage of container.
8. Place the sealed bags containing the samples into an appropriate, rigid shipping container .
9. Pack with frozen ice packs (preferred) or sealable freezer bags filled with ice.
10. If ice is used, the bag should be thoroughly sealed to avoid leakage. Transport samples at ambient temperature unless otherwise indicated.

Additional instructions for packaging samples containing potentially infectious biological contaminants are provided in the '[Transporting](#)' section .

The CDPHE Lab will NOT accept items with any dimension exceeding 11 ½ inches



Water Chemical Testing

Collection Procedure: - Chemical Testing

Click here for detailed [lab guidance](#) . If the water samples are a hazardous chemical, it may be necessary to implement specific sampling techniques. The guidelines below will apply.

For Open-Top caps and septa-seal sample containers, make certain the Teflon (smooth) side is facing towards the water.

For Closed-Top caps (pesticides, etc.), fill the container to the top, leaving very little or no headspace.

If necessary add preservatives and/or dechlorinating agents to collection containers. This can be added when preparing supplies prior to going to the site or collecting the sample.

1. Fill sample containers with water flowing from the sample tap.
Do NOT use rubber or plastic tubing during sample collection.
Do NOT rinse or overfill the containers if a preservative or dechlorinating agent is used.
2. Wipe the outside of the sealed containers with an antiseptic wipe or mild bleach solution.
3. Attach a custody seal to the sample container (if required).
4. Place the sample container into a sealable plastic bag .
Bubble wrap baggies can provide protection against breakage of glass containers.
5. Place the sealed bags containing the samples into an appropriate rigid shipping container.
6. Pack with frozen ice packs (preferred) or sealable freezer bags filled with ice.
7. If ice is used, the bag should be thoroughly sealed to avoid leakage
8. Transport samples at ambient temperature, unless otherwise indicated.

Food Samples

Food suspected of causing foodborne illness can be tested for bacteria or toxins, but not viruses or most parasites.

If a potential foodborne outbreak exists, notify your local public health agency. The CDPHE [Division of Environmental Health and Sustainability](#) can provide support.

Acceptable food samples include:

- Food from the suspect meal
- Swabs of food preparation area
- Food prepared in a similar manner as the suspect food
- Unopened samples when canned or packaged food is suspected

Sampling Equipment Needed:

Add the following to those listed in the 'General Equipment/ Materials' section:

- ❑ Sterile plastic – food - gloves
- ❑ Sample containers
- ❑ Sterile plastic cups with screw tops for liquids

When possible, use sterile utensils to collect the sample. If not available, sanitize an appropriate utensil with an alcohol wipe or a sanitizer (200 ppm bleach or 400-ppm quaternary ammonia). *Note: an adequate sample quantity is approximately 200g (1/3-1/2 lb.)*

Collection Procedure-Solid/Liquid Food:

1. Place the food product in a sterile Ziploc® bag, Whirlpak® or container .
Do NOT touch or handle the inside of the sample container.
2. Tightly seal the bag or container to prevent leakage.

Ship within 3 days of collection packed in an insulated box as follows:

- ❖ Frozen foods – ship on dry ice
- ❖ Perishable or cold foods – ship on ice or with refrigerated packs
- ❖ Can(low moisture) foods – ship at room temperature

Dead Bird Samples

Microbial Testing - West Nile Virus

For general information about West Nile Virus in Colorado, click [here](#)

Birds provide early warning of West Nile virus (WNV) activity and can determine areas of increased risk of human exposure. Obtain a sample within 48 hours of the bird dying. For detailed CDPHE Laboratory guidance, click [here](#)

Sampling Equipment Needed:

Add the following items to those listed in the 'General Equipment/ Materials' section:

- Eye protection/goggles to protect from splattered material during swabbing
- Trash bag – for disposal of bird carcass
- (Optional) N95 Respirator – to cover the nose and mouth

Note: The above materials are supplied by local public health agencies for 'Avian Oral Swab Collection'

- 1 Instruction Sheet
- 1 Map of Regional Test Laboratories and County designations
- 20 Dacron swabs
- 20 Screw-cap tubes, 1.5 ml
- 10 Shipping containers (double-mailer)
- 10 Biohazard labels
- 10 Diagnostic specimen labels
- 1 Sheet Sample Collection Number labels
- 10 Avian Swab Requisition Form 272 (see Figure II-1: Form 272)

Note: The above materials are supplied by CDPHE (303-692-3074). Request the 'Bird Kit' (10 pack).

Collection Procedures: West Nile Virus

1. Put on gloves and face or eye protection (respirator use is optional).
2. Open the bird's beak and check for any maggots or signs of decay.

If maggots/decay is present do **NOT** obtain a sample

3. Swab the interior of the bird's beak and throat (under tongue as well) with a Dacron swab.
4. Place the tip of the swab into the screw-cap tube.
5. Break the shaft from the swab so the it fits in the vial.
6. Seal the tube with the cap and tighten securely.
7. Place the screw-cap tubes in the metal sample container.
8. Add strips of newspaper/paper towel to prevent movement of tubes in the container.
9. Put the metal sample container into the cardboard mailer.

10. Complete Requisition Form 272
Note: Samples with incomplete forms will not be tested

11. Indicate the bird species and all other sample and location information requested
12. Classify the bird type by comparison with identification chart; if no clear match, check "other."
13. Transfer the sample collection number label to Requisition Form 272.
14. Duplicate sample collection number label to each of the two 1.5 ml screw-cap sample collection tubes.

Change gloves between specimens to prevent cross-contamination and dispose of discarded gloves in an appropriate biohazard waste container

Figure II - 1: Form 272 - For West Nile Virus Testing

The form is titled 'REQUEST FOR ANALYTICAL SERVICES' and is for 'LABORATORY USE ONLY'. It contains the following sections:

- CUSTOMER:** EN000020, Name: Denver City-County - Public Works Dept., Address: 5440 Roslyn St, Door E-1 QA Materials Lab, City/ST/Zip: Denver, CO 80216, Contact: C. Smith, Phone: 303-286-6476.
- SPECIMEN INFORMATION:** Collection #: 00015, Collected: 10/14/03, Time: 9:33 a.m., Collected by: CS.
- SPECIMEN:** ASPIRATE, Carcass, Culture tube or plate, Serology/plasma, SWAB, OTHER.
- SOURCE:** BLOOD, LYMPH NODE, THROAT/ORAL.
- ANIMAL/BIRD:** species: Stellar's Jay, dead, euthanized, other. SEX: MALE, FEMALE. Human bite? YES, NO, unknown. Bite location: [blank].
- NAME OF PERSON BITTEN:** 1300 County Rd 2, ADDRESS: Craig, CO, CITY: [blank], STATE: CO, ZIP: [blank], COUNTY: Mo. Park.
- TEST ORDER:**
 - MICROBIOLOGY:** CULTURE, CONFIRMATION, Isolate identification, Molecular Testing: WEST NILE VIRUS, ST. LOUIS ENCEPHALITIS, WESTERN EQUINE ENCEPHALITIS, OTHER.
 - SEROLOGY:** RABIES, PLAGUE, OTHER.

Figure II-2: Instructions for Completing Form 272

All items listed below must be completed except the Comments/History Section (*this section is for the customer's use*)

Blank items on Requisition Form# 272	Information Required
Space below Laboratory Use Only Required	Affix the sample collection number to both the sample collection tube and to <i>Form #272..</i>
Customer - preprinted Required	Enter the contact name and phone number (information may already be printed on the form)
Specimen Information Required	Fill in the collection time; indicate month/day/year and time. Enter the name of the person collecting the specimen. <ul style="list-style-type: none"> • Enter the type of specimen • Record 'Throat/oral' when submitting bird swabs
Animal/Bird Required	Enter the identity of the bird species. Record if the specimen was live, euthanized, or dead when found. => (<i>Ignore the section labeled "Name of Person Bitten"</i>) Enter the address, city, state, ZIP, and county
Comments/History <i>Optional</i>	Enter additional information related to the sample or collection site that may be of epidemiologic value.
Test Order (left-hand side) Required	<ul style="list-style-type: none"> • State: "West Nile Virus testing"

Ship the sample container via UPS or Greyhound bus service to the appropriate laboratory. Use the account numbers provided to the person that is designated as the county point-of-contact.

Test results are mailed to the submitting agency and electronically to the county point-of-contact. Notification to the agency or individual who submitted the dead bird will be the responsibility of the local health department.

Animal Samples – Plague Testing

For general information about plague in Colorado, click [here](#)

Guide – Submission Plague Testing

Rodents	Whole carcass, freeze if decay is evident. Double bag in clear zip-top bags; ship to CDPHE.
Cats & dogs	Lymph node aspirate, or abscess aspirate, swab; if expired, liver and spleen tissue, in syringe with needle removed or sterile vial. Ship to CDPHE.
Fleas	Place pool in plastic vial as per WNV mosquito pools, ship to CDPHE.

Animal Samples – Rabies Testing

Collecting Samples - General

For general information about rabies, click [here](#) Rabies confirmation analysis is performed at CDPHE's Laboratory and Colorado State University's Diagnostic Laboratory (Fort Collins). Local public health and animal control agencies can assist in preparing rabies samples.

Technical Support—on rabies exposure, testing, bite follow-up and reporting, as well as rabies pre- and post- exposure prophylaxis is available. Contact the Disease Control and Environmental Epidemiology Division at 303-692-2700 during business hours; 303-370-9395 after hours or emergencies.

Processing of Samples - through the CDPHE laboratory will be based on time of arrival of the sample. Samples received before 11:00 A.M. on a regular business day, are processed that same day. Samples received after 11:00 A.M. are processed the next workday, unless an emergency involving human exposure exists.

Positive rabies results are reported via phone immediately to the submitting agency and to the Disease Control and Environmental Epidemiology Division. Negative results are reported by mail.

Submitting agencies can call the CDPHE Laboratory Services Division for results during regular business hours at 303-692-3485 or 303-692-3499. To call CSU Diagnostic Lab: 970-491-1281. Click below for information on setting up a CDPHE Laboratory account for rabies testing:

<http://www.cdphe.state.co.us/lr/services/RabiesMemoNewAccts-TestReq-03312010.pdf>

Collecting Animal Samples

Domestic Samples – Domestic animal sample analysis via CDPHE laboratory is limited to those involved in human exposure. Appropriate domestic animal samples include dogs, cats, ferrets, livestock, etc.

Dogs and cats involved in human bites are required under Colorado law to be held for a 10-day observation period (as opposed to euthanizing and testing the animal). **Any exception to this requirement must have prior approval from CDPHE.** If the animal remains healthy for 10-days the risk of rabies transmission is eliminated. Rabies testing is then unnecessary.

Wildlife Samples – Appropriate wild animal samples include carnivorous, terrestrial mammal species and bats involved in human or domestic pet exposure. With prior approval, bats, skunks or wildlife exhibiting neurological symptoms are accepted for surveillance purposes. Rodents, rabbits and hares (wild or domestic) are rarely infected and are not accepted for rabies testing by CDPHE.

Appropriate samples must be submitted to ensure a valid test:

- Bats – Submit the entire animal
- Dogs/Cats/Skunks/Raccoons/other small animals – Submit head only
- Livestock – Submit brain only

Guide – Submission Rabies Testing

Domestic animals	Note: horse or bovine head - remove the brain prior to submission
Wildlife	<u>Emergency Status</u> when skunks or bats are involved
Human Exposure	=> Call Epidemiology for surveillance 303-692-2628
Preparation	Use safety protection - Seek an expert (vet) for decapitation
Shipment	Do <u>NOT</u> freeze – ice packs only; Prevent leakage of packing container Complete <u>Rabies Form</u> and send with sample via Courier or bus
Test results	Positive results are reported by phone to submitter Negative results are sent by mail (but submitter can call: 303-692-2628)

Collecting Procedure: Rabies Testing

1. Removal of heads or brains should be performed by knowledgeable person with appropriate personal protective equipment (PPE) for protection.
2. Place the sample in a plastic bag and seal; place the sealed bag in a second bag and seal.
3. Refrigerate sample immediately; hold at 35-40°F (2-8°C).
4. Complete a Rabies Epidemiology Form (available from CDPHE, local public health or animal control agencies)
5. Label the sample bag with the Rabies Epidemiology Form number.
6. Attach the Rabies Form to each sample.
7. Place sample in an inner waterproof container with cold packs.
8. Do NOT use dry or wet ice.
9. Do NOT freeze or place sample in a preservative (such as Formalin).
10. Place the container in an outer shipping container.
Mark as "Biological Specimen."

Note: It is the responsibility of the submitting agency to ensure no leakage during shipment.

Rabies samples may be shipped by bus, airfreight or overnight delivery to the CDPHE Laboratory. **DO NOT SEND BY MAIL** unless overnight delivery is guaranteed.

The CDPHE Lab will NOT accept items with any dimension exceeding 11 ½ inches

Classifying Samples

The United Nations, Federal agencies, United States Postal Service (USPS) and private carriers strictly regulate the packaging and shipment of biological, chemical and radiological samples to ensure the safety of their workers, the public and the package recipients.

Before sending specimens to the CDPHE laboratory for testing, submitters must determine the following:

1. **Type of Specimen** – powder, blood, tissue, chemical, and/or radioactive
2. **Type of Analysis** – biological, chemical, and/or radiological
3. **Quantity** – needed for testing
4. **Classification** – hazardous and/or infectious material (*Note: If classified as hazardous and/or infectious, the CDPHE Laboratory must be notified prior to shipping the specimen*)
5. **Temperature** – required to preserve the specimen during transit
6. **Package Size and Containment** – meets CDPHE Laboratory criteria.
7. **Transport Time** – for sample arrival at the CDPHE Laboratory
8. **Criminal Investigation** – evidence; Chain-of-Custody document exists

The CDPHE laboratory does not accept packages larger than 11 ½ inches.

To obtain information on appropriate packaging and shipping of specimens, call CDPHE Laboratory: 303-692-3090.

For more complete information and ordering of forms or shipping specimens to the CDPHE Lab, click [here](#)

Packaging/Mailing Specimens

For information on how to send samples via the CDPHE Lab courier, click [here](#)
The USPS has specific requirements for mailing samples, whether infectious or Non-Infectious.

Mailing a Specimen Tube

Primary Container – The specimen tube is the primary container.

Write the specimen number on the side of the specimen tube and cover with cellophane tape.

Use a strip of parafilm to wrap and seal the lid/cap interface.

Wrap the specimen tube in absorbent material (paper towels).

Secondary and Tertiary Containers – If using a double mailer for a tube culture, the 'inner mailer tube' (usually metal) is the *secondary* container and the 'outer mailer tube' is the *tertiary* container.

Insert the wrapped specimen tube into the 'inner mailing tube' and cap the tube.

Fold up paperwork and wrap it around the 'inner mailing tube.'

Place the 'inner mailing tube' with its accompanying paperwork inside the outer mailing tube, which usually is made of paperboard.

LABELING – MAIL TUBES

Attach a *To/From* label to the outside of the container. Print on the label:

- Name and address of the Shipper and the Receiver

- Name and 10-digit telephone number of the person responsible for the specimen.

Note: The CDPHE Laboratory would prefer the Responsible Party use a 24-hour telephone number, if available.

- Print **Micro 0622** (Public Health Microbiology Laboratory mail code) under-the return address
- Affix a minimum of one **BIOHAZARD** label to the 'outer mailing tube'
- If the sample is a known organism, print organism name or Bacteria on the BIOHAZARD label
- If the sample is a medical or diagnostic specimen, print *Medical Clinical* or *Diagnostic Specimen* on the BIOHAZARD label

Mailing a Specimen Plate

Do NOT use a standard double mailer to send a specimen plate.

Primary Container – The specimen plate is the primary container.

Write the specimen number on the face of the plate; cover with cellophane tape.

Use a strip of parafilm to wrap and seal the lid/cap interface.

Wrap the plate with an absorbent material, such as paper towels. Use packing material to secure the inner contents from movement.

Secondary and Tertiary Containers – The inner container is the 'secondary' container. It is a cardboard box small enough to fit into the tertiary container, which is also a cardboard box. The secondary container may also be a specially made "plate mailer" (usually Styrofoam). cont.

Mailing a Specimen Plate (cont)

Insert the wrapped plate into the secondary container (box or plate) and seal tight. Use packing material to secure the inner contents from movement, if necessary.

Fold up paperwork and attach it to the secondary container.

Place the secondary container with its accompanying paperwork inside the outer mailing box.

LABELING – SPECIMEN PLATE CONTAINER

Attach a *To/From* label to the outside of the box. Print on the label:

- Name and address of the Shipper and Receiver
- Name and 10-digit telephone number of the person responsible for the specimen

Note: The CDPHE Laboratory would prefer the Responsible Party use a 24-hour telephone number, if available.

- Print **Micro 0622** (Public Health Microbiology Laboratory mail code) under the return address
- Affix at least one BIOHAZARD label to the outer box
- If the sample is a known organism, print: *organism name* or '*Bacteria*' on the BIOHAZARD label
- If the sample is a medical/diagnostic specimen, print: *Medical, Clinical* or *Diagnostic Specimen* on the BIOHAZARD label



OVERNIGHT Mailing
Non-Infectious Substances

Specimen Tube – Non-Infectious

Follow the steps for mailing a specimen tube (previous section) up to inserting in the tertiary container.

Place the secondary container with its accompanying paperwork inside the tertiary container. This is usually made of paperboard, such as a standard FedEx box.

Over pack the tertiary container. This container must be large enough to accommodate the FedEx Air Waybill pouch without folding it. The Air Waybill must be visible to read without removing it from the pouch, as well as easy to remove and insert.

LABELING – OVERNIGHT TUBES, NON-INFECTIOUS

Follow the same steps for tube label requirements (previous section). Add:

- Attach FedEx Air Waybill pouch to the outside of the tertiary container. Make sure the Air Waybill will fit without folding and is visible to read without removing it from the pouch.

See the section below on completing the Air Waybill. For medical, clinical or diagnostic specimens, use a standard FedEx air waybill (the 'Dangerous Goods' Air Waybill is not necessary). Once complete, insert the Air Waybill into the pouch.

- Affix a minimum of one BIOHAZARD label to the tertiary container
- For medical/diagnostic specimens, print: *Medical, Clinical* or *Diagnostic Specimen* on the BIOHAZARD label

Specimen Plate – Non-Infectious

Follow the steps outlined for mailing specimen plates in the previous section.

Place the secondary container, with its accompanying paperwork, inside the tertiary box and seal. (If necessary, use packing material between the two boxes). Pack this container inside a FedEx box (tertiary container).

LABELING – OVERNIGHT PLATE, NON-INFECTIOUS

Follow the steps for labeling specimen plates in the previous section.

Attach FedEx Air Waybill pouch to the tertiary container. Make sure the Air Waybill will fit without folding. It must also be visible to read without removing it from the pouch.

- Affix a minimum of one BIOHAZARD label to the 'outer mailing tube'
- For medical/diagnostic specimens, print: *Medical/Clinical* or *Diagnostic Specimen* on the BIOHAZARD label

Infectious Substances

If the specimen being mailed contains a known or suspect agent that is infectious, the final packaging must have additional information and meet requirements.

No more than 50 ml/50 g of infectious substance can be shipped in a single United Nations approved package.

Only United Nations approved packaging can be used for overnight shipping of infectious substances

The fiberboard box in which the mail container is placed must be a tested and UN-approved for specialized containment of infectious substances. The box must exhibit UN performance markings that verify it meets the requirements; e.g., "U.N. Class 6.2/95."

Overnight Mailing – Infectious Agent (cont)

Prepare mailing of samples as detailed in the non-infectious substance section. There are no specific requirements for packing the mailing container inside the U.N. box other than ensure the contents is secure and immobile.

Mailing Process for FedEx:

OVERNIGHT PLATE, INFECTIOUS SUBSTANCE

Note: Private contract couriers can be used to transport samples to the CDPHE Laboratory. Contact the lab for instructions.

Follow the steps outlined in the non-infectious section, but do NOT cover up any U.N. markings. Place an Air Waybill window pouch on the box in a manner that allows the Air Waybill to be easily removed and reinserted. The Air Waybill must be readable through the window, and it must not be folded.

Follow the steps in the previous section for general mailing to complete the To/From label. *Note: The information on the To/From label and the FedEx Air Waybill must be the same.*

Affix at least one BIOHAZARD label to the mailing container. If the biological agent is known, print: '(name)' or 'Bacteria.'

Special U.N. approved boxes have the phrase "Infectious Substance" and the performance markings printed on them. However, the information mentioned above still must be added.

All FedEx shipments must be able to accommodate the Air Waybill and pouch. The Air Waybill must fit in the pouch without folding, be easily inserted or removed, and be read without removal.

Non-infectious Substances

If the sample is a medical or diagnostic specimen, use the standard Air Waybill supplied by FedEx.

COMPLETING THE AIR WAYBILL

Over-packing

Over-packing is repacking into a larger, non-specific box. Print: "Over-pack Used" below the IATA statement if this step is occurring. This is done to provide a larger outer container to ensure the FedEx and To/From labels fit on the box.

Note: the labeling requirements pertaining to Infectious Substances must be placed on the outer box AND on the inner packaging.

To be safe when over packing, print a statement on the outside confirming use of "U.N. Approved" packaging on the inside.

Dangerous Goods'

- Use the 'Dangerous Goods' Air Waybill for infectious agent samples
- Print: account number and date
- The To/From sections must be filled out completely, including phone numbers and it must match the To/From label on the package.
- Check the Overnight box Note: **Do NOT FedEx on a Friday unless the business is open on Saturday to receive it.**
- Check the "Dangerous Goods as per attached Shipper's Declaration" box (Section 6).
- If the account number listed in section 1 is to be billed, check the "Sender" box (Section 7).
- Fill in Total Package and Total Weigh'. Use estimated weight in the Total Weight blank. (For shipping purposes, each specimen contains approximately 2 mg; thus, 2 tubes = 4 mg, etc.)
- In the Transport Details section, mark through the boxes stating Cargo Aircraft Only and Radioactive.
- For the Air Waybill Section marked Nature and Quantity of Dangerous Goods, the bottom area must be accurate (or the package will not be delivered).

If the headings below are not on your copy of the Air Waybill, print them in as shown on the example.

For bacterial isolates or cultures, fill in the label sections as follows:

- PROPER SHIPPING NAME - Print: 'Infectious Substance Affecting Humans Bacteria: (insert name) '

If more than one isolate is being sent, give the name of the predominant or most pathogenic organism.

- CLASS OR DIVISION – Print: '6.2'
- U.N. or ID No. – Print: U.N. 2814
- QUANTITY AND TYPE OF PACKING – Print: 'One Fiberboard Box (X) mg'

Fill in the weight of the specimen(s). (For shipping purposes, each specimen contains approximately 2 mg; thus, 2 tubes = 4 mg, etc.).

One shipment of infectious substance must NOT exceed 50 grams or 50 mL.

- PACKING INST – Print: '602'
- ADDITIONAL HANDLING INFORMATION – Print: 'Prior arrangements as required by the IATA Dangerous Goods Regulations 1.3.3.1 have been made.' (IATA Statement.)
- IATA statement – Print: (name and phone number of Responsible Party for the specimen. If over-packing samples; print: 'Over-Pak Used' here.

Fill out the balance of the sheet as instructed. Note- The 'Place and Date' blank refers to name and location of receiving facility.

- NATURE AND QUANTITY OF DANGEROUS GOODS - Print 'Emergency Phone Number' (enter a 24-hr number for a person/business liable for emergency response regarding the shipment).

Other Shipping Methods -On the outside edge of the "Infectious Substance" diamond stamped on the box, Print: 'Affecting Humans; Bacteria: (name of agent)' and 'U.N. 2814.'

*Appendix 1: Guidance on Initial Responses to a Suspicious Letter/Container With a Potential
Biological Threat*



This is an FBI – DHS – HHS/CDC Coordinated Document

A large number of potentially suspicious letters and packages continue to be reported to federal, state, and local law enforcement and emergency response agencies nationwide. In some instances these letters or packages may include powders, liquids, or other materials. Federal, state, and local response agencies should be mindful of the potential for small-scale exposure, which could result from material contained in threatening or suspicious packages. While this guidance is generally focused on the initial response to potential biological threats, all personnel responding to such incidents must be aware of the potential for exposure to hazardous chemical and/or radiological materials in addition to biological hazards. Additionally, there may be a threat posed from secondary releases or devices. Consistent with established protocols, response agencies should follow standard law enforcement procedures and hazard risk assessments in response to calls, and should pre-identify the relevant local public health points of contact to be notified in the event of a potential bioterrorism event.

The following guidelines are recommendations for local responders, based on existing procedures (including recommendations from the International Association of Fire Chiefs). This document provides guidance on the initial response to a suspicious letter/container, while other follow-on response plans, such as portions of the National Response Plan (NRP), may be utilized if a threat is deemed credible. In general, these potential threats or incidents fall into one of five general scenarios. They are as follows:

1. Letter/container with unknown powder-like substance and threatening communication (with or without illness):

Since there is an articulated threat, it is likely that the substance was intentionally introduced into the package in an effort to validate that threat. An articulated threat itself (with or without the presence of a suspicious substance) is a federal crime and may also constitute a violation under state and local statutes. The local Federal Bureau of Investigation (FBI) Weapons of Mass Destruction (WMD) Coordinator and/or FBI Joint Terrorism Task Force (JTTF), a certified HAZMAT unit, local law enforcement, and the local public health department should be notified. The role of Incident Commander (IC) will be assumed by the appropriate authority, as designated by state or local law. In many cases, the IC will be the most senior public safety officer (most likely the fire department chief or deputy chief, however, in many circumstances it may be a local sheriff or senior local or state police official). As such, it is the responsibility of the IC to establish the Incident Command System (ICS) and to ensure that notifications of the above-mentioned responders have been made or are in the process of being made. As the referenced agencies arrive, the IC will evolve into a Unified Command, as necessary.

Guidance on Initial Responses to a Suspicious Letter / Container With a Potential Biological Threat

At this stage, and later again as necessary, the FBI will conduct a timely WMD threat assessment with local law enforcement/fire/HAZMAT personnel. Depending on the nature of the threat, this assessment may include relevant interagency partners. This process utilizes coordination from FBI Headquarters elements to conduct an initial assessment of the credibility of the threat and provide technical support to responders who are on-scene. In coordination with recommendations from the threat assessment process and the unified command on-scene, an appropriately trained HAZMAT unit should screen evidence for the presence of chemicals and radiological material and double-bag in clear sealed bags (where possible), consistent with chain-of-custody requirements. Before packaging and when possible, photographs of the letter/container should be taken and relevant information should be documented, in coordination with the FBI WMD Coordinator. Under NO CIRCUMSTANCES should an unprotected responder, such as a law enforcement officer, attempt to package an unknown substance.

If this incident involves an unopened container such as a box, it must be evaluated by a certified bomb technician/explosives ordinance disposal personnel prior to being handled by HAZMAT. Any such letters/packages must also be evaluated by the HAZMAT unit for only a broad class of radiological and chemical threats prior to being released to law enforcement personnel for transport. This is required by the laboratory in an effort to protect the staff members who will ultimately be opening the container and performing definitive biological testing and/or forensic examinations.

The FBI, or the responding law enforcement agency, will ensure that a certified HAZMAT team has performed necessary field safety screening before transporting to an appropriate laboratory. This field safety screening should be clearly documented and limited to screening for pH (for liquids), radioactivity, volatile organic compounds, flammable materials, and oxidizing agents. Definitive analysis will only be performed by the appropriate laboratory.

A chain-of-custody form must be initiated along with an incident report. The FBI will then coordinate delivery of the evidence to the designated Laboratory Response Network (LRN) laboratory for further testing and analysis.

If individuals immediately present with illness in this scenario, the public health departments will have an increased role in the initial response. These issues are further addressed in the 'Critical Response Issues for Scenario #1' included below.

If the FBI Headquarters-led threat credibility assessment process deems the threat to be credible, the FBI will immediately notify the Centers for Disease Control and Prevention (CDC), the Department of Homeland Security Operations Center (HSOC), and other appropriate federal agencies. Appropriate response guidelines to a credible threat will be utilized from the NRP, including the Biological Annex and Terrorism Incident Law Enforcement and Investigation Annex. Depending on the nature and scale of the incident, the Department of Homeland Security (DHS) may choose to help coordinate response activities based on NRP procedures which, at a minimum, may include coordinating a joint public affairs statement.

2. Letter/container with a threat but no visible powder or substances present:

Merely threatening the use of a chemical or biological agent *is* a violation of federal law and merits investigation. As in scenario #1, all of the responders should be notified. Although no powder may be visible to the eye, there could be trace amounts of material present that could represent a health risk and also provide critical forensic evidence required for further investigation and prosecution. Therefore, the guidance in Scenario #1 also applies to responses to a letter/container containing a threat with no visible powder or substance.

3. Letter/container with unknown powder, no articulated threat, and no illness:

As there is no threat and no one is ill, it must be determined if there is a logical explanation for the presence of this substance. For example, HAZMAT teams have responded to a number of letters that contained crushed samples from vitamin and pain-relief companies. If a reasonable and defensible explanation can be given as to the source of the substance, that there is no articulated threat, and that no one is ill, then no further actions are necessary.

If, however, a reasonable source cannot be determined or there is any uncertainty, the steps outlined in scenario #1 must be conducted.

4. Letter/container with no visible powder, no threat, but recipients are ill:

This scenario has the most potential for ambiguity and confusion. Those who come in contact with *Bacillus anthracis* (anthrax), or other biological pathogens/toxins, may not immediately appear symptomatic. Although no powder or substance may be available to be collected for environmental testing, public health officials may decide to utilize clinical samples from potentially exposed individuals. Additionally, in this scenario it may be difficult to determine if a letter/container is actually associated with the illness. As there is no specific threat to investigate, this is primarily a public health and medical issue; but this scenario also represents a potential criminal act that should be jointly investigated by public health and law enforcement. The initial notifications will largely be the same as scenario #1, with public health taking a primary role in the response. While the primary concern is the treatment and well-being of the recipient, public health and law enforcement should maintain close contact, while public health determines the nature of the illness and law enforcement examines any relevant intelligence. Depending on the scale and nature of the incident, if HHS/CDC is notified they will maintain close contact and coordinate with DHS. If a potential criminal nexus is identified, the FBI will conduct an initial threat assessment and initiate appropriate actions and notifications listed under scenario #1.

5. Letter/container arrives with no powder, no threat, the recipient is not ill, but the recipient is concerned about the package:

With strict regard to federal criminal statutes, no investigative actions are necessary in this matter. However, if other threat indicators are present such as excess postage, misspelled names, unusual odors/colors, etc., law enforcement and the United States Postal Inspection Service should be notified to evaluate it for potential hazards. If the assessment determines that

the letter/container is “suspicious,” then appropriate steps outlined in scenario #1 would be initiated.

Critical Response Issues for Scenario #1:

1. Request the assistance of the nearest certified hazardous materials response team to conduct risk assessments, field safety screening, sample (evidence) collection, decontamination, and other mitigation activities. Any sample (evidence) collection must be coordinated with law enforcement (FBI).
2. Notify appropriate law enforcement (local, state and local FBI WMD coordinator/JTTF, postal inspectors) when a potential threat is identified.
3. Do not touch, move, or open any suspicious package until an initial hazard risk assessment of the package can be performed in coordination with HAZMAT personnel and law enforcement.
4. An initial threat credibility assessment will be coordinated via the local FBI WMD Coordinator and the FBI Counterterrorism Division’s Weapons of Mass Destruction Operations Unit (WMDOU). This will include the FBI Laboratory Division, Hazardous Materials Response Unit (HMRU) and other select interagency subject matter experts, tailored for the specific threat. This assessment includes an analysis of technical feasibility, operational practicability, behavioral resolve, and examination of any intelligence that might relate to the threat. If the threat is determined to be credible, other appropriate federal agencies will be notified, to include DHS and HHS/CDC. Additional information on this process is available from the NRP, including the Biological Annex and Terrorism Incident Law Enforcement and Investigation Annex.
5. Contact your local public health department (who should in turn notify state authorities and the CDC) if there is a threat of public health exposure or environmental contamination exists. HHS/CDC will then notify the HSOC, where appropriate.
6. In coordination with law enforcement, always notify the U.S. Postal Inspection Service, whenever it appears that the threat was delivered through the U.S. Postal Service. Assist with ensuring that origin and tracking information is obtained from the package (ideally, photographs of the front and back).
7. Treat the scene as a crime scene. Preserve evidence in coordination with law enforcement and ensure that materials are safely packaged. Take steps to retain enough suspicious material for:
 - a. Laboratory analysis;
 - b. Forensic examination of criminal evidence, regardless of whether the threat is ultimately determined to be accompanied by a hazardous material.
8. Transfer custody of evidence to a law enforcement officer as soon as possible. Maintain chain of custody by obtaining a record of names and signatures every time custody of a suspicious material or sample for laboratory analysis changes hands.
9. Perform basic field safety screening of the substance to rule out explosives, radiation, flammability, corrosives, and volatile organic compounds prior to transporting the materials to the appropriate LRN, as coordinated with the FBI WMD Coordinator. All field safety screening that

is performed by responders should be clearly documented and shared with law enforcement and the LRN.

10. In coordination with the local FBI WMD Coordinator (and/or a responding law enforcement entity), transport samples to the designated CDC-qualified LRN facility. If field safety screening detects the presence of chemical or radiological hazards, the FBI WMD Coordinator will contact FBI Headquarters for guidance regarding which laboratory is appropriate to perform the analysis. This will be done as part of the threat credibility assessment process noted above (see #4).

11. In coordination with public health and law enforcement, identify and list the names and contact information for anyone who may have been exposed to the suspicious substance so that they may be contacted when the LRN test results are available or if there is other additional information. If positive results are obtained, state and local public health departments will need to contact those potentially exposed as soon as possible to provide appropriate assistance (e.g., antibiotics, education, additional testing, vaccination, surveillance/symptom reporting).

12. In coordination with the FBI, identify a single point-of-contact for incident follow-up.

13. If LRN tests identify positive results for threat agents or a threat is determined to be credible, the FBI will immediately notify the DHS and other appropriate federal agencies to initiate relevant NRP actions, as necessary. The DHS will work closely with the FBI, HHS/CDC and other agencies to ensure a coordinated response.

Note on field screening

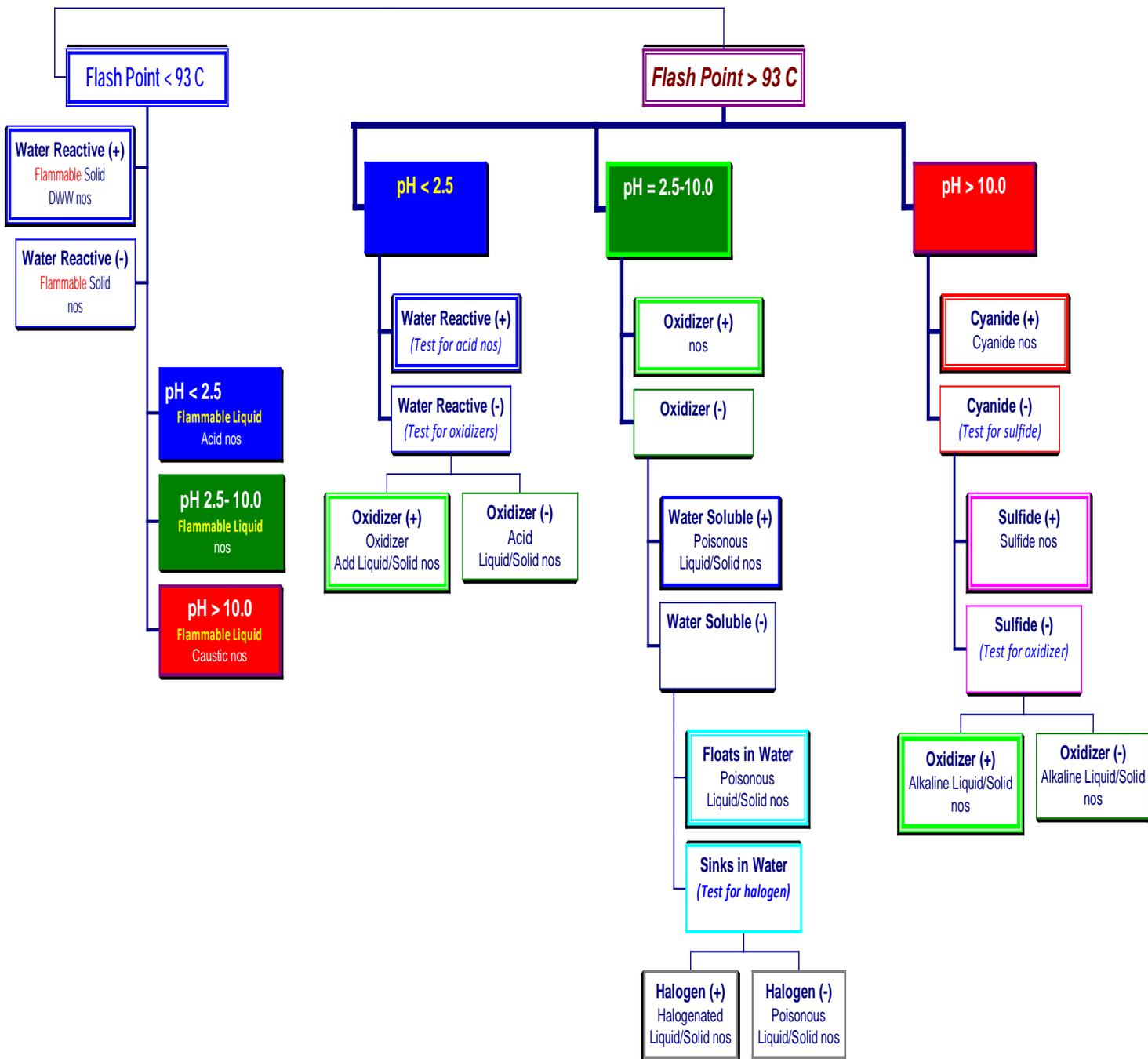
Once activities are complete to address immediate public safety concerns, every effort must be made to preserve evidence necessary for public health and law enforcement investigations.

In situations where biological threat agents are suspected, the item(s) should be field safety screened and immediately transported in law enforcement custody to an LRN laboratory. This should be done in coordination with the local FBI WMD Coordinator.

Field safety screening should be limited to ruling out explosive devices, radiological materials, corrosive materials and volatile organic compounds. Currently, there are no definitive field tests for identifying biological agents. Additional field testing can mislead response efforts by providing incorrect or incomplete results, and destroy limited materials critical for definitive laboratory testing required to facilitate any appropriate public health and law enforcement response.

This information is provided for guidance. Questions related to the content of this document can be addressed to: Scott Steele, Ph.D., Counterterrorism Division, WMD Countermeasures Unit, Federal Bureau of Investigation, E-mail: sssteel2@leo.gov

Appendix 3: Chemistry Classification of Unknowns – Liquid or Solid



Appendix 4: CDPHE Laboratory Tested Availability – Biological Agents

Testing Available by Disease/Agent

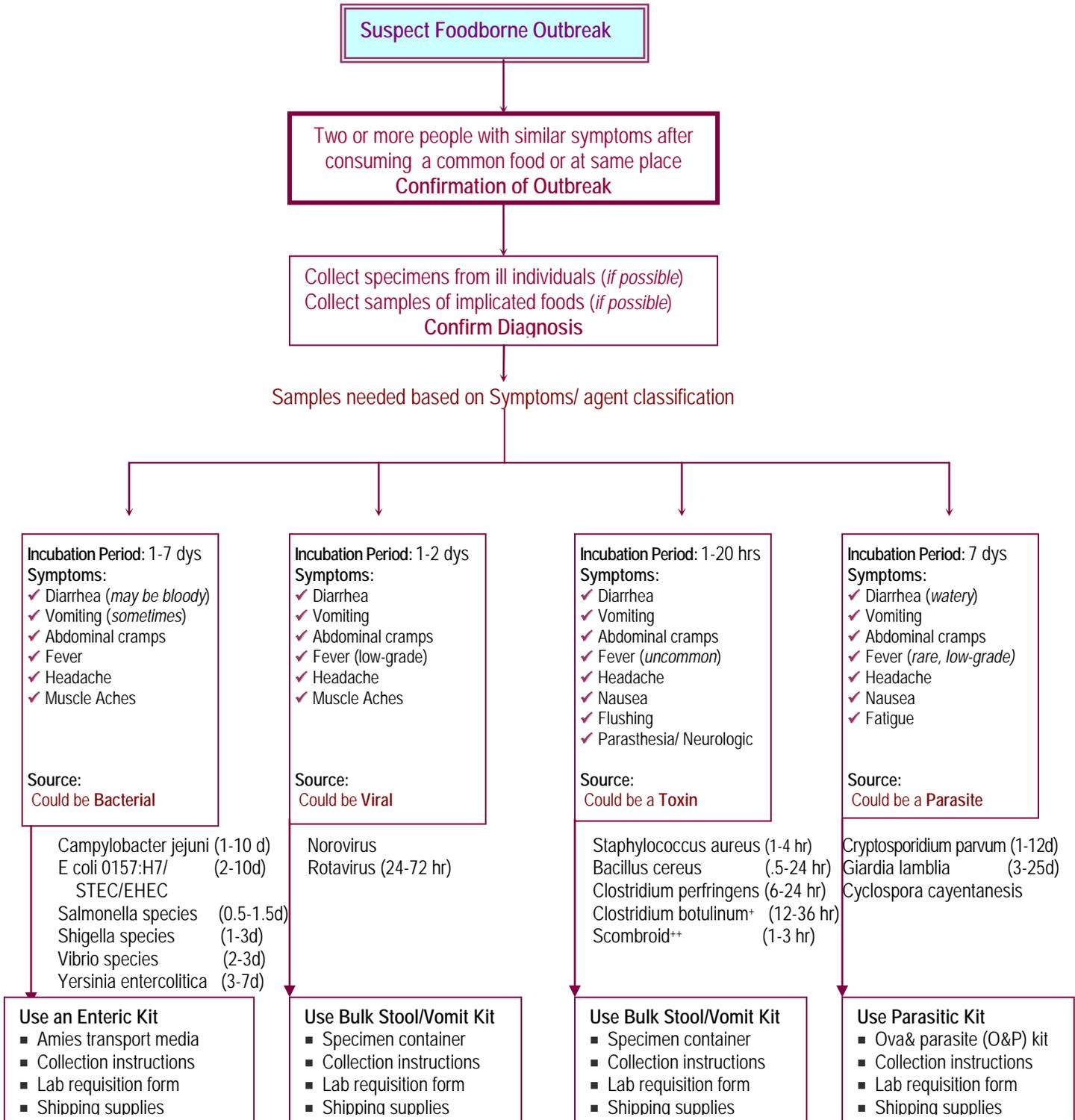
Disease (Agent)	DFA*	PCR**	Culture	Toxin***	Antigen****	Serology
Anthrax (<i>Bacillus anthracis</i>)	X	X	X			
Botulism (<i>Botulinum</i> toxin)			X			
Brucellosis (<i>Brucella</i> spp.)		X	X			X
Cholera (<i>Vibrio cholerae</i>)			X			
Glanders (<i>Burkholderia mallei</i>)		X	X			
Melioidosis (<i>Burkholderia pseudomallei</i>)		X	X			
Plague (<i>Yersinia pestis</i>)	X	X	X			
Ricin		X			X	
Tularemia (<i>Franciscella tularensis</i>)	X		X			X
SEB (Staph enterotoxin B)					X	
Q fever (<i>Coxiella burnetii</i>)		X			X	X
Rash illness testing						
Orthopox		X				
Vaccina (vaccine virus)		X				
Variola (Smallpox virus)		X				
Varicella Zoster (Chickenpox & Shingles virus)		X				

* Direct fluorescent antibody stain ** Polymerase Chain reaction *** Bioassay **** Time-resolved fluorescence (TRF) immunoassay

Duration for Test Results

- Preliminary Testing (Direct exam, DFA, Antigen, PCR) – 2-4 hours
- Confirmatory testing (culture & identification) – 24-48 hours

Appendix 5: Suspect Foodborne Outbreak Flowchart



Note: Outbreaks of unknown etiology may require use of more than one type of specimen collection kit.

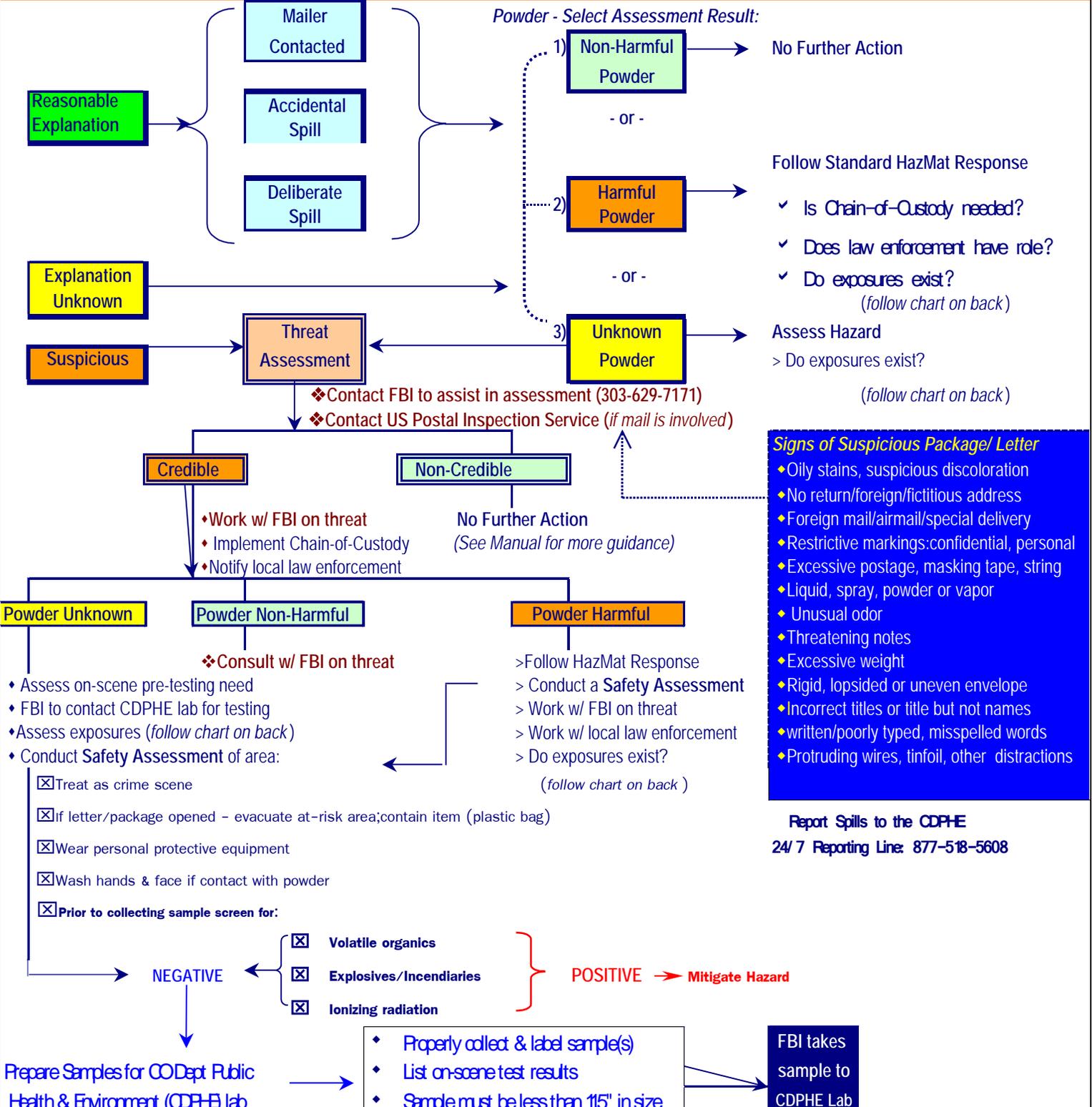
+ In suspect cases of botulism, collect stool, serum and the implicated food and call (303-692-2700) immediately.

++ In suspect cases of scombroid fish poisoning, fish tissue must be examined for histamines (stool and/or vomit cannot be tested).

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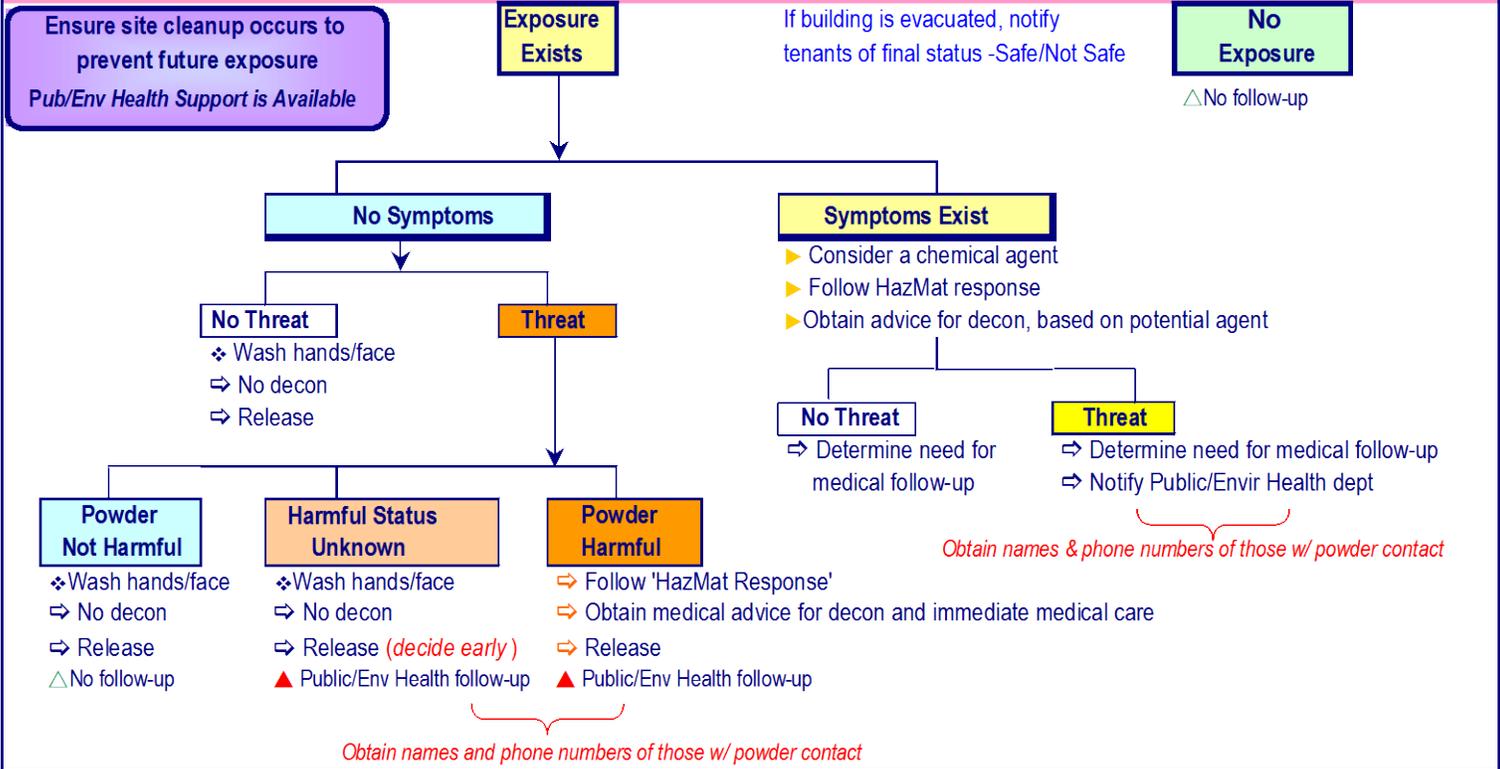
Suspicious powder incidents are a multi-disciplinary response. This document does not replace or supercede any local or agency protocols for primary response or investigations but is intended to compliment the response efforts of those agencies.

Hazard Assessment



The CO Department of Public Health & Environment (CDPHE) created this document in partnership with the CO National Guard Civil Support Team (CST), the U.S. Postal Inspection Service (USPIS) and the Federal Bureau of Investigation (FBI) as a tool to assist responders. (cdphe2005/Rev2008)

Potential Human Exposures



Important Notification Numbers

Colorado Department Public Health & Environment (CDPHE)	24/7 Emergency Response Line	877-518-5608
	Disease Control Reports 303-692-2700	303-370-9395
Colorado Dept Public Safety	State Patrol Hazmat Response	303-273-1900
	After-Hours	303-239-4501
Colorado National Guard Civil Support Team (CST)	General Assist	720-847-6874
	Request Team	303-279-8855
Federal Bureau Investigation (FBI)		303-629-7171 WMD Coord
U.S. Postal Inspection Service (USPIS)		877-876-2455 opt'n 2
Rocky Mountain Poison and Drug Center	24/7 Denver-Metro Area	303-739-1123
	Outside metro Area	800-222-1222
National Response Center	24/7 Notification	800-424-8802
Regional Public Health Laboratories		
	El Paso County	719-578-3121
	Pueblo County	719-583-4318
	Weld County	970-304-6415 x2273

Estimated Support Response Time - Credible Threat

Agency	Time to Scene		Time Assessment/Testing	Total time
USPIS	Within 1 hr to scene	(most locations)		6 hours (per incident)
FBI	Within 1 hr to scene		Threat investig'n: 1-3 hrs (w/ local law enf)	
CST	Within 30 min to mobilize	(1-4 hrs to scene)	Preliminary tests: 1-2 hrs (CDPHE to confirm)	
CDPHE Lab	24/7 for sample approval		Bio & Chem tests: 3hrs (after sample arrive)	

This Suspicious Powder Response Guide is an appendix in the 'Environmental Incidents Response: Technical Support & Sampling Manual' published by the Colorado Department Public Health and Environment, Laboratory Services Divisions and Emergency Preparedness & Response Division.

CDPHE:2005/rev2008.2010