

HAZARDOUS MATERIAL INCIDENT RESPONSE

Purpose:

The purpose of this guideline is to provide basic information about the District's overall approach to hazardous material incident response.

Scope:

This guideline applies to all personnel.

Policy:

- A. In responding to hazardous material incidents the District shall make every effort to protect nearby persons, property or the environment from the effects of the release. This shall be done from a defensive position, whenever possible .
- B. Attempts to stop the release shall be completed by properly trained and equipped hazardous material specialists or technicians. Those individuals may be employees or members of the Burlington Fire Protection District, Boone County Emergency Management (BCEM), the Boone County Hazardous Incident Response Team (HIRT) and/or the Northern Kentucky Regional Hazmat/WMD Response Unit. Interventions on an incident that require training to the level of Hazardous Materials Operations may be handled by members of the Burlington Fire Protection District if they are properly trained and certified.
- C. Employees and members of the Burlington Fire Protection District may join as members of the Boone County HIRT and/or the Northern KY Regional Hazmat/WMD Response Unit, with the approval of the Fire Chief, as long as they have met the qualifications, certifications and applications for membership with those units and have been accepted by those units.
- D. Personnel shall follow all requirements of the Boone County Emergency Operations Plan, Annex Q, pertaining to Hazardous Materials.

Hazardous Material Response Certification Levels/Designations:

- A. First Responder Awareness Level – These are the individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response notification process. The primary focus of their hazmat responsibilities is to secure the incident site, recognize and identify the materials involved and make appropriate notifications. These individuals would take no further action to control or

mitigate the release. All BFPD members must be trained to this level to respond on EMS apparatus or staff vehicles. (See Operations Level for fire apparatus requirements) According to 29 CFR 1910.120(q)(6), a responder at the Awareness Level must have:

- An understanding of hazardous substances and the risks associated with them in an emergency
- An understanding of the potential outcomes associated with an emergency created when hazardous substances are present
- The ability to recognize the presence of hazardous substances in an emergency
- An understanding of the role of the first responder at the Awareness Level, including site security and control and use of the U.S. Department of Transportation's Emergency Response Guidebook
- The ability to realize the need for additional resources and to provide good information to the communication center

B. First Responder Operations Level – These individuals represent most fire department personnel. These are individuals that respond to releases or potential releases of hazardous substances as part of the initial response for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their primary function is to contain the release from a safe distance, keep it from spreading and protect exposures. All BFPD personnel that respond on fire apparatus are required to obtain certification to this level. According to 29 CFR 1910.120(q)(6), a responder at the Operations Level must have:

- Knowledge of basic hazard and risk assessment techniques;
- Knowledge of how to select and use proper personal protective clothing and equipment available to the operations-level responder;
- An understanding of basic hazardous materials terms;
- Knowledge of how to perform basic control, containment, and or confinement operations within the capabilities of the resources and personal protective equipment available;
- Knowledge of how to implement basic decontamination measures;
- An understanding of the relevant standard operating procedures and termination procedures.

C. Hazardous Materials Technician Level – These are the individuals who respond to releases or potential releases for the purposes of stopping the release. Unlike the operations level, they generally assume a more aggressive role in that they are often able to approach the point of a release in order to plug, patch or otherwise stop the release of a hazardous substance. BFPD Members trained to this level have the option of joining

the Boone County HIRT and/or NKY Hazmat/WMD Regional Response Unit upon meeting the qualifications, certification and application processes for those units and with the approval of the Fire Chief. According to 29 CFR 1910.120(q)(6), a responder at the Technician Level must have the following skills and knowledge levels:

- Capable of implementing the local Emergency Operations Plan;
- Able to classify, identify and verify known and unknown materials by using field survey instruments and equipment (direct reading instruments)
- Able to function within an assigned role in the Incident Management System;
- Able to select and use the proper specialized chemical personal protective clothing and equipment provided to the Hazardous Materials Technician;
- Able to understand hazard and risk assessment techniques;
- Able to perform advanced control, containment and/or confinement operations within the capabilities of the resources and equipment available to the Hazardous Materials Technician;
- Able to understand and implement decontamination procedures;
- Able to understand basic chemical and toxicological terminology and behavior

D. Hazardous Materials Specialist – These are the individual who respond with and provide support to Hazardous Materials Technicians. While their duties parallel those of the Technician, they require a more detailed or specific knowledge of the various substances they may be called upon to contain. This individual would also act as the site liaison with federal, state, local and other governmental authorities in regard to site activities. According to 29 CFR 1910.120(q)(6), a responder at the Specialist Level must ha Capable of implementing the local Emergency Operations Plan;

- Capable of implementing the local Emergency Operations Plan
- Able to classify, identify and verify known and unknown materials by using field survey instruments and equipment (direct reading instruments)
- Knowledge of state emergency response plan
- Able to function within an assigned role in the Incident Management System;
- Able to select and use the proper specialized chemical personal protective clothing and equipment provided to the Hazardous Materials Technician;
- Able to understand hazard and risk assessment techniques;

- Able to perform advanced control, containment and/or confinement operations within the capabilities of the resources and equipment available to the Hazardous Materials Technician;
- Able to understand and implement decontamination procedures;
- Able to understand basic chemical and toxicological terminology and behavior

Incident Classifications:

- A. Level I – A Level I incident is a minor hazardous material incident within the capabilities of local first responders. A Level I incident is defined as a release of a known hazardous material in a quantity less than the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or Superfund Amendments Reauthorization Act (SARA) Title III reportable quantities. At a minimum, an exclusion zone and a command post should be established for a Level I incident. An exclusion zone is the area of maximum hazard and is restricted to personnel wearing appropriate personal protective equipment.
- B. Level II – A Level II incident is a major incident that poses many additional problems for local first responders and may require assistance from other agencies. A Level II incident is defined as, the release of a known hazardous material in a quantity that is in excess of the CERCLA or SARA Title III reportable quantity; the release of any quantity of a known solid or liquid toxic material in a critical public area; or the release of any quantity of an unknown solid, liquid, or gaseous toxic material. All gases, other than natural gas will be considered toxic. A formal command post and a staging area should be established. Incident zones and their control must be established and maintained. Localized evacuation may be required. Outside agencies may need to be notified.
- C. Level III – A Level III incident is a localized disaster. The incident has escalated beyond the capabilities of our local resources and jurisdiction. The incident may last for days and large-scale evacuation may be necessary. Many outside sources may be needed to provide assistance and support. These agencies might include, but not be limited to: chemical manufacturers; American Red Cross, Salvation Army; U.S. Coast Guard; U.S. Environmental Protection Agency; Kentucky Natural Resources and Environmental Protection Cabinet; Kentucky Division of Emergency Management; and other local, state or federal agencies.

Incident Response:

- A. Level I – For suspected or known Level I incidents, the Public Safety Communications Center (PSCC) shall dispatch the first alarm HazMat Deployment (1HZ Level I) consisting of one engine, one squad and the on-call BCEM employee. The BCEM employee and/or the incident commander may request the response of the Boone County

HIRT/Northern Kentucky Hazmat/WMD Response Unit whenever hazardous materials are involved and additional expertise or equipment is required. A Level I incident involving a small quantity of gasoline, fuel oil, or other vehicle fluids generally will not require the response of a squad or BCEM employee. NKY Hazmat/WMD Unit 123 may be requested in place of the larger Unit 373 for small spills and absorbent requests.

- B. Level II – For suspected or known Level II incidents, PSCC shall dispatch the first alarm HazMat Deployment (1HZ Level 2) consisting of one engine, one squad, the on-call BCEM employee and NKY Hazmat/WMD Unit 373. The BCEM employee and/or the incident commander shall request the response of the entire Response Team whenever hazardous materials are involved and additional expertise or equipment is required.
- C. Level III – For suspected or known Level III incidents, PSCC will dispatch the first alarm HazMat Deployment (1HZ Level 3) consisting of one engine, one squad, the on-call BCEM employee, NKY Hazmat/WMD Unit 373 and if requested entire Response Team whenever hazardous materials are involved and additional expertise or equipment is required.

Hazard Classification System:

The Department of Transportation (DOT) has categorized hazardous materials into 9 basic hazard classes. Divisions are sub-classes that identify specific groups of materials within a particular hazard class. The following is a list of the 9 hazard classes and their divisions (sub-classes):

- A. Explosives (Class 1):
 - a. Division 1.1 – Explosives with a mass explosion hazard
 - b. Division 1.2 – Explosives with a projectile hazard
 - c. Division 1.3 – Explosives with predominantly a fire hazard
 - d. Division 1.4 – Explosives with no significant blast hazard
 - e. Division 1.5 – Very insensitive explosives with a mass explosion hazard
 - f. Division 1.6 – Extremely insensitive articles
- B. Gases (Class 2):
 - a. Division 2.1 – Flammable gases
 - b. Division 2.2 – Non-flammable, non-toxic gases
 - c. Division 2.3 – Toxic gases
- C. Flammable and Combustible Liquids (Class 3):
- D. Flammable Solids/Spontaneously Combustible Materials/Dangerous When Wet/Water-Reactive Substances (Class 4):
 - a. Division 4.1 – Flammable solids
 - b. Division 4.2 – Spontaneously combustible materials
 - c. Division 4.3 – Water-reactive substances/Dangerous when wet materials
- E. Oxidizing Substances and Organic Peroxides (Class 5):

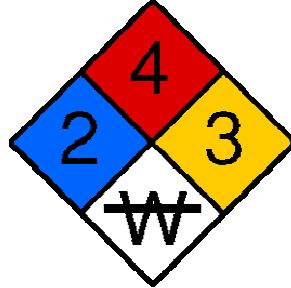
- a. Division 5.1 – Oxidizing substances
- b. Division 5.2 – Organic peroxides
- F. Toxic & Infectious Substances (Class 6):
 - a. Division 6.1 – Toxic substances
 - b. Division 6.2 – Infectious substances
- G. Radioactives (Class 7)
- H. Corrosives (Class 8)
- I. Miscellaneous Hazardous Materials/Products, Substances or Organisms (Class 9)

Identification and Recognition:

Hazardous materials must be identified before any action can be taken to control the incident. Failure to properly identify the materials involved will only make the situation more hazardous. Several types of information sources are available to help responders identify hazardous materials.

- A. Placards – Placards are 10 ¾” diamond-shaped symbols that must be applied to each side and end of a motor vehicle, rail car, freight container, or portable tank container carrying hazardous materials. The color, symbol, and UN hazard class numbers on placards alert responders to the hazards of the material. The 4-digit UN ID number may be shown on the placard or on an adjacent orange panel displayed on the ends and sides of a cargo tank, vehicle, or rail car.
- B. Labels – Labels are 4” diamond-shaped symbols applied to packages. Every DOT classified hazardous material shipment must be marked with the appropriate labels unless otherwise specified.
- C. Shipping papers – DOT regulations require that shipping papers must accompany shipments of hazardous materials and hazardous wastes. The shipping papers typically identify the shipping name, type of packaging, and total quantity of the shipment.
- D. Material Safety Data Sheets (MSDS) – MSDS information is completed by the manufacturer and regulated by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). Information like the material name, physical and chemical data, the manufacturer’s name, and special precautions are typically listed.
- E. CHEMTREC – The Chemical Transportation Emergency Center is a 24-hour, 7 day a week emergency communication service that can provide valuable information (1-800-424-9300) in the event of a hazardous materials emergency.
- F. Emergency Response Guidebook – A guidebook published by the Department of Transportation carried on all apparatus. The ERG was designed to assist first responders during the initial phase of a hazmat incident.
- G. NFPA 704 Marking System – The National Fire Protection Association (NFPA) 704 marking system is primarily designed for fixed facilities like

buildings, storage tanks, or individual rooms where hazardous materials identification is necessary. This system also uses a diamond-shaped symbol, colors, and numbers, to alert responders to the presence of hazardous materials. Each hazard poses a varying degree of danger and is rated on a scale from 0 (least hazardous) to 4 (most hazardous).



- a. Flammability (Red)
 1. 4 – Extremely flammable
 2. 3 – Ignites at normal temperatures
 3. 2 – Ignites when moderately heated
 4. 1 – Must be preheated to burn
 5. 0 – Will not burn
- b. Health (Blue)
 1. 4 – Too dangerous to enter vapor or liquid
 2. 3 – Extremely dangerous-use full protective clothing
 3. 2 – Hazardous-use breathing apparatus
 4. 1 – Slightly hazardous
 5. 0 – Like ordinary material
- c. Reactivity (Yellow)
 1. 4 – May detonate; vacate area if materials exposed to fire
 2. 3 – Strong shock or heat may detonate
 3. 2 – Violent chemical change possible; use streams at a distance
 4. 1 – Unstable if heated; use normal precautions
 5. 0 – Normally stable
- d. Special information (White)
 1. ~~W~~ - Water Reactive
 2. OXY – Oxidizing chemicals
- H. Pipeline markings – Any place an underground pipeline crosses a mode of transportation, the pipeline owner is required to place a sign identifying the owner, pipeline contents, and emergency contact numbers.
- I. Container markings – Depending on the type of hazardous material, some containers are required to have hazard information labels or information that will assist responders with identification stenciled directly onto containers.
- J. Military Warning System – Whenever possible, the military uses the DOT placarding system, but in some cases, it may employ its own system. The Emergency Response Guidebook contains contact numbers for incidents involving materials being shipped by, for, or to the Department of Defense.

- K. National Response Center – The NRC, which is operated by the U.S. Coast Guard, receives reports required when dangerous goods and hazardous substances are spilled. Federal law requires that anyone who releases into the environment a reportable quantity of a hazardous substance (including oil when water is, or may be affected) or a material identified as a marine pollutant must immediately notify the NRC. When in doubt as to whether the amount released equals the required reporting levels for these materials, the NRC should be notified. Contact numbers listed in the ERG.
- L. Other sources – Responders can obtain valuable information by observing the occupancy or location where the incident occurs, the types of containers involved, interviewing bystanders and responsible parties, obtaining a manufacturer or trade name of the material involved, or making general observations at the scene.

Guideline:

- A. Safety – Approach the incident from a direction that is upwind, uphill and up stream if possible. While enroute, attempt to obtain as much information as possible from PSCC. This information could influence strategic and tactical decisions made during the initial hazard assessment by first arriving units.
- B. Isolation – One of the initial tasks at any incident is establishing an initial perimeter. Isolating the area and denying entry will help to prevent further exposure to the materials involved and will help reduce the spread of any potential contamination. The ERG contains recommendations that will help you determine appropriate isolation distances and protective actions even if the identity of the material is unknown.
- C. Notifications – Minor incidents that can be safely managed by the District and BCEM employees will not require any other notifications. The incident commander should ensure that the proper agencies are notified should the incident escalate beyond local agencies.
- D. Command and Management – Typically the District will remain in control of the incident until it escalates beyond local agencies, at which time a unified command structure will be implemented. This command structure may include local, state and federal officials from various agencies. The location of the command post should be identified early and communicated to all responding agencies.
- E. Identification and Hazard Assessment – Hazardous materials must be properly identified in order to assess the hazards presented by the emergency. The material must be identified before any action options can be considered. Failure to properly identify the materials involved can significantly increase the hazards to the public, responders, property, and the environment. The ERG contains valuable information that can assist responders with the initial identification of the materials involved. Also

available for identification of materials is the Multi-Rae Detector and Ph paper.

- F. Action Planning – Action planning involves clearly identifying the nature, size, and complexity of the problem, the evaluation of the adequacy of resources available to solve the problem, the wisdom to know when to ask for help early, and the use of these resources to safely manage the incident. Good action planning also involves the consideration of a non-intervention strategy as an action option (isolation, denying entry, letting incident run its course).
- G. Personal Protective Equipment – The primary exposure routes are (1) inhalation (2) ingestion (3) absorption and (4) injection. Proper selection of personal protective equipment (PPE) must include consideration of the exposure routes of the materials involved. There are four levels of personal protective equipment (PPE).
 - a. Level A – Highest level of respirator and skin protection (Operations Level personnel are not permitted to work in Level A PPE)
 - b. Level B – High level of respiratory protection; less skin
 - c. Level C – Air Purifying Respirator (APR); modest skin protection
 - d. Level D – Ordinary work uniform (Complete bunker gear is considered Level D PPE)
- H. Containment and Control – There are three basic strategies for containment and control.
 - a. Non-intervention (isolate, deny entry, let incident run its course)
 - b. Defensive (actions focused on containment)
 - c. Offensive (actions requiring control measures performed by technicians)
- I. Public Protective Actions – Due consideration must be given to the material involved, the population threatened, the resources and capabilities of responders, time involved to accomplish the evacuation, current and predicted weather, ability to communicate with the public, and whether or not special populations will have to be evacuated. There are three types of actions taken to protect the public:
 - a. Evacuation (removing people from threatened area to safe area)
 - b. Shelter-in-place (keeping people inside a protective structure)
 - c. Limited evacuation may be appropriate in some situations.
- J. Decontamination (decon) – The goal of decontamination is to prevent the spread of contamination by removing hazardous materials from people and equipment.
 - a. Primary decon is the standard layout set up for emergency responders entering hazardous environments.
 - b. Emergency decon is a type of rapid, urgent decontamination that could be as simple as using a hoseline off of an engine company to conduct wet decon.
 - c. Mass decon is a term used to describe the decontamination of a large number of victims, involves a large number of resources, and requires the assistance and cooperation of multiple agencies.

- d. Decon can be either wet or dry depending on the type of materials involved.
- e. Decon units from the Northern Kentucky Regional Hazmat/WMD Response Team are available upon request.
- K. Disposal – It is the District’s policy not to take possession or dispose of hazardous materials. The designated responsible party for the incident must make arrangements to handle this phase of incident operations.
- L. Documentation – Hazardous materials incidents typically involved liability issues. Responders are held accountable for their actions regarding the protection of life, property, and the environment. Proper documentation is essential and provides valuable information about the incident that may be used in a legal setting, in training scenarios, or entries into the medical histories of responders for future references.