

HAZARDOUS MATERIALS

Standard Operating Guidelines

For First Responders

Scope: This SOP provides a basic philosophy and strategic guidelines for hazardous materials situations while adhering to Federal and state regulations and recognized standards.

Hazardous Materials incidents encompass a wide variety of potential situations including fires, spills, transportation accidents, chemical reactions, flammability, radiological hazards, corrosives, explosives, health hazards, chemical reactions, and a combination of factors. This SOP provides a general framework for handling a hazardous materials incident but does not address the specific tactics or control measures for particular incidents.

Every incident presents the potential for exposures to hazardous materials and the products of combustion from fire. Both types of incidents may present severe hazards to personnel safety.

This procedure is specifically applicable to known hazardous materials incidents, but it does not reduce the need for appropriate safety precautions at every incident. The use of proper personal protective equipment including SCBA whenever appropriate, and the utilization of all Standard Operating Guidelines on a continual basis is the starting point for this SOP.

The main objective for any first responder is to avoid involvement in which you are not trained or adequately equipped.

Further this SOG is intended for the first responder at the Awareness or Operations level who is not part of an organized hazmat team.

Training

There are four (4) levels of training associated with hazardous materials response and first responders:

- Awareness
- Operations
- Technician
- Specialist

This SOG will only cover the Awareness and Operations level roles and responsibilities:

Awareness

Introduction. First responders at the awareness level shall be trained to meet all competencies as outlined by Federal Occupational Safety and Health Administration (OSHA), Maine BLS or U.S. Environmental Protection Agency (EPA) requirements and NFPA 472 standards.

Definition. First responders at the awareness level are those persons who, in the course of their normal duties, may be the first on the scene of an emergency involving hazardous materials. First responders at the awareness level are expected to recognize hazardous materials present, protect themselves, call for trained personnel, and secure the area (deny entry).

General Guidelines. Public Safety personnel when first on scene of an emergency involving hazardous material shall possess knowledge and skills:

To efficiently analyze the incident and implement response actions consistent with local emergency response plans, the organizations Standard Operating Procedures, and other guidance.

For determining hazardous materials present and their associated hazards and appropriate protective actions to be implemented at the awareness level.

The following tasks are expected to be carried out:

Implement actions consistent with the local emergency response plan, the organization's standard operating procedures, and other guidance.

Given various facility and/or transportation situations:

- Identify where hazardous materials are present,
- Identify the hazardous material(s) by name,
- UN/NA identification number and/or type placard applied,

Identify the actions to be taken to protect themselves and others,

Control access to the scene,

Identify the appropriate notifications to be made and how to make them consistent with the local emergency response plan or the organization's standard operating procedures.

- a. Identify the DOT hazard classes and divisions of hazardous materials and identify common examples of materials in each hazard class or division.

Identify typical container shapes that may indicate hazardous materials.

- b. Identify the primary hazards associated with each of the DOT hazard classes and divisions of hazardous materials by hazard class or division.

Identify facility and transportation markings and colors that indicate hazardous materials, including:

UN/NA identification numbers.

NFPA 704 markings;
Military hazardous materials markings;
Special hazard communication markings;
Pipeline marker; and
Container markings

Identify the entries on shipping papers that indicate the presence of hazardous materials.

c. Identify the difference between hazardous materials incidents and other emergencies.

Identify the basic information on safety data sheets (SDS) and shipping papers that indicates hazardous materials.

Identify where to find SDS's.

Identify entries on an SDS that indicate the presence of hazardous materials.

d. Identify the typical occupancies and locations in the community where hazardous materials are manufactured, transported, stored, used, or disposed of.

e. Identify the location of both the local emergency response plan and the organization's standard operating procedures.

f. Identify typical ignition sources found at the scenes of hazardous materials incidents.

g. Identify the techniques used to isolate the hazard area and deny entry to unauthorized persons at hazardous materials incidents.

Operations

Introduction. First responders at the operations level shall be trained to meet all requirements at the awareness and operations levels. In addition, first responders at the operations level shall receive training to meet federal Occupational Safety and Health Administration (OSHA), Bureau of Labor Standards (BLS), U.S. Environmental Protection Agency (EPA) requirements or NFPA 472 standards, whichever are appropriate for their jurisdictions.

Definition. First responders at the operations level are those persons who respond to releases or potential releases of hazardous materials as part of the initial response to the incident for the purpose of protecting nearby persons, the environment, or property from the effects of the release. They shall be trained to respond in a defensive fashion to control the release from a safe distance and keep it from spreading.

General Guidelines. For determining hazardous materials present and their associated

hazards and appropriate protective actions to be implemented at the operational level, the following tasks are expected to be carried out:

Given both facility and transportation situations involving hazardous materials:

Survey the hazardous materials incident to identify the containers and materials involved,

Whether hazardous materials have been released, and the surrounding conditions,

Collect hazard and response information using safety data sheets (SDS), CHEMTREC/CANUTEC and contacts with the shipper/manufacturer,

Predict the likely behavior of the material and its container in the incident involving a single hazardous material,

Estimate the potential harm within the vulnerable area,

Identify resources available for determining the concentrations of a released hazardous material within a vulnerable area,

Identify the defense options for absorption, diking, damming, diversion, retention, dilution, vapor dispersion, and vapor suppression,

Determine whether available personal protective equipment and training for its use is appropriate for implementing a defensive option,

Identify emergency decontamination procedures,

Identify how to establish and enforce scene control including control zones, emergency decontamination, and communications,

Initiate the incident management system (ICS/IMS) specified in the local emergency response plan and the organization's standard operating procedures,

Perform the defensive control actions selected including a site safety plan,

Evaluate the status of the defensive actions taken in accomplishing the response objectives,

Identify the methods for communicating the status of the planned response to the incident commander,

Identify the methods for immediate notification of the incident commander and other response personnel.

- a. Identify and list the surrounding conditions that should be noted when surveying hazardous materials incidents.
- b. Given a pesticide label, identify each of the following pieces of information; then match the piece of information to its significance in surveying the hazardous materials incident:

Name of pesticide;
Signal word;
Pest control product (PCP) number (in Canada);
Precautionary statement;
Hazard statement; and
Active ingredient

- c. Identify the basic techniques for the following protective actions at hazardous materials incidents:

Evacuation; and
In-place protection
- d. Identify the items to be considered in a safety briefing prior to allowing personnel to work on a hazardous materials incident.
- e. Identify the procedures for requesting additional resources at a hazardous materials incident.
- f. Response procedures will be consistent with standard operating procedures developed by the responding organization including appropriate training levels and equipment.
- g. Protect personnel and equipment from contamination.

Notification

Communication Center (E911):

Most notifications will occur to a Communication Center who will attempt to obtain any and all information from the person reporting a hazardous materials incident. The information should, if possible, include

- Date and time of the report
- Date and time of the spill
- Name/company/business name of person reporting the spill
- Telephone
- Call back telephone and contact person if different than reporter
- Location of spill, address, town
- Product type, quantity spilled, is more spillage possible?
- Additional information, including resources at risk
 - Public Safety
 - Drinking water well, public/private
 - Land/ground
 - Surface water
 - Sewer
 - Vapors in building/atmosphere

Use of the State of Maine Hazardous Materials Incident Notification Form or AR-1 will aid the call taker in collecting the information needed.

The incident call taker should stay on the telephone with the caller to gain additional information after dispatching the fire department. Any additional information should be relayed to responding units after dispatching.

If the call comes from a person with particular knowledge of the hazardous situation, have that person meet and direct the arriving units.

The Communication Center will obtain the prevailing wind speed and direction and announce them to the responding units. If they do not report it, the first responding unit shall request wind speed and direction.

Under Federal law certain spills must be reported as indicated on the AR-1 form. Additionally all spills are required to be reported to Maine DEP pursuant to Title 38 MRSA Section 1318-B. It is the facilities/spillers responsibility to make the appropriate notifications. However as a matter of course the communications center should ensure at a minimum the Maine DEP, Maine Emergency Management Agency and County EMA office and are made aware of any spill.

First Arriving Unit:

The first arriving trained local responder will establish incident command and begin a size-up. The first responder must consciously avoid committing themselves to a dangerous situation. When approaching the scene area, slow down or stop to assess any visible activity taking place. Evaluate effects of wind, topography and location of the situation.

If the incident is a transportation accident use of the Emergency Response Guidebook (ERG) shall be used to help determine the type of chemical being released, applicable safety zones and other safety information that will be important to conduct an appropriate size up.

Command will advise all other responders to stage until instructed to take specific action. Responders must stage in a safe location, taking into account wind speed and direction, spill flow, explosion potential and other factors that could jeopardize the safety of personnel.

Size-Up:

As soon as possible, a size up must be conducted to evaluate the need for additional resources whether it is Maine DEP or a Regional Response Team. They can then assist in determining the need for additional resources.

Command must conduct a careful size-up before deciding on a commitment. It may be necessary to take immediate action to make a rescue or evacuate an area, but this should be done with an awareness of the risk to first responder personnel, taking advantage of available protective equipment.

The objective of the size-up is to identify the nature and severity of the immediate problem and gather sufficient information to formulate a safe action plan. A hazardous materials incident requires a more cautious and deliberate size-up than most other situations.

Avoid premature commitment of equipment and personnel to potentially hazardous locations. Proceed with caution in evaluating risks before formulating a plan and keep uncommitted resources at a safe distance.

Identify a hazardous area based on potential danger, taking into account the hazardous materials involved, time of day, wind and weather conditions, location of the incident and degree of risk to unprotected personnel. Take immediate action to evacuate and/or rescue persons in critical danger if possible, providing for the safety of rescuers.

The major problem in most cases is to identify the type of hazardous materials involved in a situation and the hazards presented before formulating a plan of action. Look for labels, markers, and shipping papers; refer to pre-fire plans, and talk to personnel at the scene (plant management, responsible party, truck drivers). Utilize reference materials carried on apparatus and contact other sources for assistance in sizing up the problem (Maine DEP, RRT, Chemtrec, other agencies, manufacturers of materials, etc.).

Action Plan:

Under OSHA regulations every hazmat incident must have a written action plan. Based on the initial size-up and any information available, the Incident Commander will have to formulate an action plan to deal with the situation.

Most hazardous materials are intended to be maintained in a safe condition for handling and use through confinement in a container or protective system. The emergency is usually related to the material escaping from the protective container or system and creating a hazard on the exterior. The strategic plan must include a method to get the hazardous material back into a safe container, dispose of it, or allow it to dissipate safely.

The specific action plan must identify the method of hazard control and identify the resources available and/or required to accomplish this goal. It may be necessary to select one method over another due to the unavailability of a particular resource or to adopt a "holding action" to wait for needed equipment or supplies.

Hazardous material incidents have no specific plans for mitigation because the action plan is solely dependent on the materials involved. Research concerning the identity of the material must be made to determine the action plan.

Normally on all hazardous material incidents where a substance has been released, the Maine DEP and county EMA office shall be notified to aid in the development of the action plan, decontamination and cleanup of the material released. If it is determined that additionally human resources are needed Maine DEP, county EMA or Maine Emergency Management Agency can activate a RRT who will also aid in the planning process.

The Action Plan Must Provide For:

1. Safety of the first responder.
2. Safety of citizens.
3. Evacuation of endangered area, if necessary.
4. Control of situation.
5. Stabilization of hazardous material.
6. Disposal or removal of hazardous material.

Avoid committing personnel and equipment prematurely or "experimenting" with techniques and tactics.

Many times it is necessary to evacuate and wait for special equipment or expert resources to arrive.

Control of Hazardous Area:

A hazardous material incident has two zones associated with the scene, similar to a fire. There are the hazard zone and the evacuation zone. Encompassed within the hazard zone area is the hot zone, warm zone and cold zone. It is imperative for the safety of everyone that the hazardous areas be controlled by fire and police agency personnel

HOT Zone:

The HOT Zone is the area in which personnel are potentially in immediate danger from the hazardous condition. This is established by the Incident Commander and controlled by the fire department. Access to this area will be rigidly controlled and only personnel with proper protective equipment and an assigned activity will enter. All companies will remain intact in a designated staging area until assigned. Personnel will be assigned to monitor the entry and exit of all personnel from the Hot Zone. The Hot Zone should be geographically described to all responding units if possible. A Safety Officer must be established to control access to the Hot Zone and maintain an awareness of which personnel are working in the area.

Responsibility for control of personnel in this zone includes not only fire department personnel, but any others who may wish to enter the Hazard Zone (Police, press, employees, tow truck drivers, ambulance personnel, etc.)

Warm Zone:

The Warm Zone is the larger area surrounding the Hot Zone in which has a lesser degree of risk to personnel. All civilians should be removed from this area. The limits of this zone will be enforced by the police department based on distances and directions established in consultation with the Incident Commander. The area to be evacuated depends on the nature and amount of the material and type of risk it presents to unprotected personnel (toxic, explosive, etc.).

In some cases, it is necessary to completely evacuate a radius around a site for a certain distance (i.e. potential explosion).

In other cases, it may be advisable to evacuate a path downwind where toxic or flammable vapors may be carried (and control ignition sources in case of flammable vapors). **NOTE:** When toxic or irritant vapors are being carried downwind, it may be most effective to shelter in place. Keep everyone indoors with windows and doors closed to prevent contact with the material instead of evacuating the area. In these cases, companies would be assigned to patrol the area assisting citizens in shutting down ventilation systems and evacuating persons with susceptibility to respiratory problems. The responsibility for safety of all potentially endangered citizens rests with the Incident Commander.

When evacuation is required, the Incident Commander shall define and control the evacuation process in conjunction with other agencies such as police. When the evacuation entails persons and properties in adjacent communities, the community in which the incident has occurred shall be in command of the evacuation process. The fire department shall assist and cooperate under the direction of the agency requesting evacuation in the community where the release has occurred.

Cold Zone:

The Cold Zone is the outside area surrounding the Warm Zone where no specialized personal protective equipment is necessary. The Command Post shall be located in the Cold Zone.

Use of Non-Fire Department Personnel: In some cases it may be advantageous to use non-fire department personnel to evaluate hazards and perform certain functions for which they would have particular experience or ability. This practice should only be conducted under the supervision and direction of a qualified hazardous materials team.

General Factors to Consider:

Due to the wide variety of situations first responder may encounter in dealing with hazardous materials, the following considerations will not attempt to provide specific guidelines on any one individual chemical or situation and are not listed in any priority.

- a. It is imperative that the first arriving responder(s) will determine the quantity and what hazardous material(s) is involved prior to taking action to stabilize the incident.
- b. Entering the incident scene to make positive identification may involve a considerable risk. The danger of explosions, leaking gas and poisoning may be great.
- c. Action taken prior to determining the product involved may be totally wrong and may severely compound the problem.
- d. Transportation emergencies are often more difficult than those at fixed locations. The materials involved may be unknown, warning signs may not be visible, or obscured by smoke and debris; the driver may be killed or missing. D.O.T. hazardous materials marking systems are sometimes inadequate because some hazardous materials in quantities up to 1,000 pounds do not require a placard, and there may be combinations of products involved with only a "dangerous" label showing. Sometimes only the most evident hazard is identified while additional hazards are not labeled.
- e. The following items may be significant to consider at any hazardous materials incident. (Not all will be significant at any particular incident). **Do only these steps that you have the training and equipment for and that can be done safely:**

1. Cooling Containers:

- a. Use adequate water supply.
- b. Apply heavy streams to vapor space.
- c. Use unmanned streams.
- d. Use natural barriers to protect personnel.

2. Remove Uninvolved Materials:

- a. Move individual containers.
- b. Move tank cars away from flame.
- c. Cool containers before moving.

3. Stop the Leak:

- a. Close valves.
- b. Place plug in openings.
- c. Place container in upright position.
- d. Use water spray to approach leak.

4. Apply Diluting Spray or Neutralizing Agent:

- a. Dilute water-soluble liquids.
- b. Flush corrosives to reduce danger.
- c. Use spray streams to absorb vapor.
- d. Use water with caution on some materials.

5. Construct Dams, Dikes or Channels:

- a. Direct running liquid away from exposures.
- b. Control run off from corrosive materials.
- c. Use sand or dirt.

6. Remove Ignition Sources:

- a. Start down wind.
- b. Eliminate all sources of heat, spark, and friction.

7. Call for Additional Resources:

When additional resources are anticipated, the Incident Commander shall work with available incident Section Chiefs to determine specific needs. These additional resources may be local and easily reached. If not local a request to the county EMA should be made who will then work on meeting the resources needs.

Please keep in mind whoever orders additional resources may be responsible for their costs. Whenever possible ensure that the spiller is prepared to pay the cost. Maine DEP also should be consulted before ordering resources as they may already have resources available or if the resources are determined to be necessary may help in the reimbursement of the cost. However, they will only assist in the reimbursement when it has been determined by a DEP responder that the resource is necessary.

Decontamination:

The purpose of decontamination is to assure that any potentially harmful or dangerous residues on persons or equipment are confined within the Hot Zone. Decontamination is intended to prevent the spread of contaminants beyond the defined area, particularly to avoid carrying contaminants back to the fire station or to other environments.

The specific measures required to decontaminate personnel or equipment will vary with the contaminant, the circumstances, and the level of contamination. These factors must be considered on a case-by-case basis, within the guidelines as recommended by a qualified Hazardous Materials Team.

The Incident Commander is responsible for assigning a Decontamination Officer at incidents that involve a potential decontamination problem. This function should preferably be assigned to personnel from the Hazardous Materials Response Team. It must be integrated into the management of the Hot Zone.

The Decontamination Officer is responsible for determining the most appropriate decontamination procedures and managing the decontamination process.

The initial assessment of decontamination requirements must be based upon the specific needs of the situation. This must take into account the specific materials involved, the degree and type of exposure, and the most appropriate methods. The assessment will require research and may involve consulting with toxicology resources.

When the need for a decontamination area is indicated, this function will be established as a group or division.

1. Decontamination Officer:

The Decontamination Officer must assume that all personnel and equipment leaving the Hot Zone are contaminated. Three courses of action are available:

- a. Confirm Not Contaminated - using instruments or due to the nature of the situation.
- b. Decontaminate - as appropriate to the situation and release.
- c. Retain and Package - for removal from the site for disposal or decontamination at a different location. In all cases, the primary objective must be to avoid contaminating anyone or anything beyond the Hot Zone.

2. Decontamination Area:

The decontamination area should be established within the Warm Zone perimeter adjacent to the entrance/exit. Personnel and/or equipment shall not be permitted to leave the Warm Zone without approval from the Decontamination Officer.

The Decontamination Area should provide a corridor leading away from the source of contamination toward the exit, with stations along the way for the deposit of tools, equipment, protective clothing and other items. Monitoring personnel and equipment should be appropriately placed along the path. A person traveling along the path should experience a decreasing level of contamination along the way. When showers or spray nozzles are used, adequate space must be provided to avoid contamination of other areas or persons.

All contaminated items must remain within the perimeter of the Warm Zone until decontaminated or safely packaged for removal. Personnel should be assigned to inspect persons and/or equipment before they can be released from the Decontamination Area. This inspection may be visual or may involve the use of monitoring instruments, when available. It must be assumed that items or persons are contaminated, unless their non-contamination can be confirmed.

3. Decontamination Area Precautions:

During the decontamination process, all personnel working in the Decontamination Area must be adequately protected from contaminants. The Decontamination Officer will identify and require the appropriate personal protective equipment. These individuals and their equipment may also require decontamination after use.

Any runoff or residue from decontamination procedures must be contained within the Warm Zone and retained for proper disposal. Contaminated run-off must not be allowed to spread or escape. Diking may be necessary.

4. Contaminated Patients:

Patients in need of medical treatment should be removed from the source of contamination as quickly as possible, but remain within the Warm Zone perimeter. These patients must not be allowed to contaminate further areas or persons. It may be necessary to bring treatment personnel (with adequate protective clothing) into the Warm Zone to deal with these patients, unless they can be rapidly and effectively decontaminated. Once decontaminated, the patients and treatment personnel may leave the Warm Zone.

5. Transportation:

If it is necessary to transport contaminated patients to medical facilities, the receiving hospital must be notified in advance of the nature of the contamination, in order to make necessary preparations. The ambulance used will be considered contaminated and will have to be decontaminated before being used to transport any non-contaminated persons. The ambulance should be brought to the Warm Zone perimeter for loading. When feasible, the ambulance should be prepared by draping exposed surfaces with sheets or polyethylene covers.

6. Decontaminated Persons:

When persons are decontaminated at a Decontamination Area, they may be released to leave the Warm Zone. This includes fire department personnel, other emergency personnel, civilians, and patients. The Decontamination Officer will determine when it is appropriate to release custody of protective clothing, personal effects, and equipment. The Decontamination Officer may release individuals who are substantially decontaminated and direct them to medical facilities for further evaluation or decontamination. Individuals may also be directed to shower, change clothes, or take other secondary decontamination measures

Protective Equipment

Personal Effects:

When feasible, protective clothing and personal effects should be decontaminated and released from the Warm Zone with the individual. If the Decontamination Officer determines this is not feasible, these items will be carefully guarded by decontamination personnel until a determination can be made regarding their final inspection.

Tools and Equipment:

The Decontamination Officer will determine when tools and equipment may be released from the Warm Zone. No item shall be removed without approval. The Decontamination Officer may impound equipment for later evaluation and have it packaged for storage or transportation.

Incident Commander Responsibility:

In summary of this policy, the Incident Commander must accomplish the following objectives to mitigate the hazardous material incident:

1. Establish Incident Command and stage all other responding companies at a safe location from the incident.
2. Identify any and all materials involved and determine the exact cause for the release.
3. Isolate areas involved and identify potential areas of involvement.
4. Develop an action plan based on the known product(s) involved with the assistance of outside or specialized teams if required. Action plan must provide for:
 - a. Safety of fire department personnel.
 - b. Safety of citizens.
 - c. Evacuation of endangered area, if necessary.
 - d. Control of situation.
 - e. Stabilization of hazardous material.
 - f. Disposal or removal of hazardous material.

A qualified Hazardous Materials Response Team must be requested as soon as possible. A Hazardous Materials Team Commander shall work alongside the Incident Commander

NATURAL GAS INCIDENTS

Scope:

Fire Department units may encounter natural gas in a variety of situations and incident types, each presenting a different set of hazards and problems. The following guidelines present an approach that will be applicable in the majority of situations, but do not replace good judgment and experience in dealing with any particular incident. The guidelines should be used whenever situations are encountered that do not clearly indicate that a different approach is required to more safely resolve the hazard.

Natural gas is much lighter than air and will dissipate rapidly in the outside environment. Inside buildings, however, it tends to pocket, particularly in attics and dead air spaces. The flammable limits are approximately 4% to 15% in air. Natural gas itself is non-toxic; however it displaces oxygen and can result in asphyxiation if in a confined space.

Burning natural gas should normally not be extinguished, since this would change the situation to a non-visible hazard with explosive potential. Fires should be controlled by stopping the flow.

Incidents at Which an Explosion Has Occurred:

The first arriving engine company shall establish a water supply and assume command. Hose lines must be advanced for the protection of personnel and to combat the fire. Attempting to extinguish the burning gas will cause an invisible uncontrollable hazard if the flames are extinguished prior to shutting off the gas. Once the source has been shut down, the fire can be extinguished as per the applicable standard operating guidelines.

Units arriving at the scene of a structure explosion must consider natural gas as a possible cause. Explosions have occurred in structures that were not served by natural gas. Underground leaks may permit gas to travel considerable distances before entering a structure through the foundation, around pipes, or through void spaces. In these circumstances, the cause of the explosion may be difficult to determine.

1. Until it can be determined that the area is safe from the danger of further explosions, evacuate all civilians and keep the number of fire department and/or other emergency personnel (i.e., gas company personnel) in the area to the minimum number necessary to stabilize the situation. Take a pessimistic point of view.
2. Do not rely on gas odor. Use combustible gas indicators to check all suspected areas. Gas company personnel also have combustible gas meters for this purpose.
3. Check areas systematically using combustible gas meters. Start close to the area of the explosion, and increase the area until readings indicate no detectable concentration. Map the readings for the affected area.

4. If a gas concentration is encountered inside, adjacent to, or underneath any building, secure all possible sources of ignition in the affected area. Cut electricity from outside the affected area to avoid arcing. Ventilate buildings where gas is found.

5. The use of ground probes is essential to evaluate potential under-ground leaks. When gas company personnel are on the scene, ground probe readings and locations must be coordinated. Time, location, and concentration should be recorded for each probe. Subsequent readings should be taken from same holes when possible.

6. The Incident Commander shall provide for effective interaction between gas company personnel and the fire department. Gas company personnel are responsible for locating and eliminating leaks in the gas system. As industry specialists, they can provide the Incident Commander with valuable assistance in the effective handling of these incidents.

Incidents Involving a Reported Gas Leak - No Fire or Explosion:

Calls for "odor of gas," "gas leak," "broken gas line," and similar situations may range from minor to potentially major incidents. All of these situations should be approached as potentially dangerous.

First arriving unit(s) should position upwind and uphill from the incident. Water supplies should be secured through the use of supply lines or by positioning the engine at a hydrant.

With gas company personnel on the scene of an incident, it shall be standard procedure for the first fire department unit to provide effective interaction between agencies. Gas company personnel shall be responsible for locating and eliminating leak sources. Gas company personnel shall obtain a sufficient number of gas concentration readings, using their combustible gas meters for the Incident Commander to evaluate the hazard and take appropriate action.

In all cases, fire department units shall take whatever actions are necessary to provide for the safety of life and property.

Your local emergency operations plan (EOP) or the Local Emergency Planning Committee (LEPC) plan should be used as a basic guide for these incidents. A minimum number of personnel should be allowed to enter the area to size-up the situation while any additional units stage in a location out of the potentially dangerous zone.

1. Evacuate any civilians in the area of escaping gas.
2. Attempt to locate the source of the gas and any shutoff devices available.
3. Gas leak situations within a building where the source of the leak is unknown or uncontrolled, shut off the gas supply at the meter. The Incident Commander shall ensure the meter is red-tagged and locked off until repairs are completed. This is most easily accomplished with the cooperation of the gas company at the scene.

4. If there is any indication of gas accumulating within a building, evacuate civilians from the structure and control ignition sources. Shut off electrical power from an outside breaker. Check for explosive concentrations with a combustible gas meter if there is any suspicion of accumulation within a structure. Ventilate using positive pressure ventilation if necessary.

5. If the gas Company personnel must evacuate to shut off a leak, provide stand-by protection with a charged 1 ¾" or greater hose line with firefighters in full protective equipment including SCBA.

Personnel Safety:

All personnel working in the vicinity of a known or suspected gas leak shall wear full protective clothing including SCBA. Personnel working in a suspected ignitable atmosphere (i.e., attempting to shut off a gas line) shall utilize SCBA and shall be covered by a charged protective hose line. The number of exposed personnel will be kept to an absolute minimum at all times.

A safety perimeter shall be established and maintained around any suspected gas leak. "Fire line" tape can be used to identify the safety perimeter when necessary.

FLAMMABLE LIQUID INCIDENTS

Scope:

Flammable liquids present particular problems for fire protection, health, safety and environmental protection. The frequency of encounters with flammable liquids makes them a particular concern for the fire department.

The main operational problems with flammable liquids are fire extinguishment, ignition prevention and disposal of spills. All three of these may be involved in the same incident.

Extinguishment:

The principal agent for flammable liquid fire fighting is AFFF (Aqueous Film Forming Foam). AFFF is generally available at most FD's. The initial attack on any flammable liquid fire should be made with AFFF.

The extinguishing action of AFFF is based on its ability to rapidly cover the flammable liquid surface with a film. This film prevents the escape of flammable vapors, but may have difficulty sealing against hot metal surfaces. The application of AFFF should be gentle to avoid breaking the seal and agitating the liquid below.

Some flammable liquids are difficult or impossible to extinguish with AFFF, including alcohols, gasohol, ketone, and other polar solvents. It is normally not possible to extinguish some of these liquids even with a higher application rate of regular AFFF. A supply of alcohol-type foam concentrate (AFFF/ATC) should be obtained to be used on alcohol and polar solvent incidents.

Gasoline with alcohol/ethanol added is now commonly distributed throughout the country. Plain AFFF will not extinguish fire involving gasoline containing alcohol. It will be necessary to use the alcohol-type foam concentrate (AFFF/ATC) for extinguishing these types of flammable liquids fires.

Spills:

Flammable liquid spills include spills without fire and any remaining fuel after a fire has been extinguished. In both of these cases, the liquid must be protected to prevent ignition until it can be picked up or removed.

All personnel working around spills of sufficient size must wear full protective clothing to afford protection in case of possible ignition. SCBA must be used in vapor areas.

1. Cover spills immediately with AFFF to seal vapors. The application may need to be repeated regularly, as the seal will break down in 10-20 minutes. For polar solvent liquids, use Alcohol-Type Concentrate AFFF/ATC.
2. Control ignition sources in the area of the spill. Extinguish pilot lights, flares, open flames, etc. Prohibit smoking. Position vehicles to prevent the contact of vapors with running engines or

exhaust systems. Disconnect electrical power from a remote location to prevent arc-caused ignition.

3. Do not permit the flammable liquid to run-off into storm drains, sewers or drainage systems. Dam the run-off and cover the spill with AFFF or AFFF/ATC pending disposal.

Disposal:

1. Large quantity spills should be picked up with a tanker truck whenever possible. This requires a fuel transfer pump or vacuum truck and personnel familiar with fuel transfer precautions.

2. Smaller spills, which cannot be picked up with a tanker, must be absorbed or emulsified.

A. Absorbent materials, in rolls and pads, may be used to absorb small spills.

3. It is the spillers' responsibility to properly dispose of hazardous materials and not the responsibility of the fire department.

Safety:

All personnel working around a flammable liquid spill must wear full protective clothing. This includes SCBA when working in and around areas where flammable vapors are present.

Unless absolutely necessary, personnel shall not work in the spill area. When it is necessary to perform a rescue or control a leak, the spill must be covered with AFFF or AFFF/ATC and all possible precautions against ignition must be taken. The area shall be monitored with a combustible gas meter.

The number of exposed personnel must be kept to a minimum.

Contamination:

A sufficient size fuel spill can and will cause contamination of the ground and ground water. The Maine DEP shall be contacted with any size spill. As appropriate Maine DEP will contact agencies to assist in clean up of the affected area. The fire department is not responsible for the cleanup or disposal of hazardous materials. When appropriate, the fire department may assist in the cleanup of the affected area when the product(s) is known, as well as its effect on human health.

This section applies to all spills or releases of hazardous materials to the environment.

FINAL NOTES –

When in doubt, don't react and place yourself or others in harm.

SAFETY is everyone's job and your #1 priority.