Pipeline Emergency Response Guidelines

Pipeline Association *for* Public Awareness

– 2014 Edition –

Pipeline Emergency Response Guidelines

Pipeline Association for Public Awareness

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Introduction

Pipelines are the safest and most reliable way to transport energy products, including: natural gas, crude oil, liquid petroleum products, and chemical products unless you know of another purpose or this has relevance. Pipelines are primarily underground, which keeps them away from public contact and accidental damage. Pipelines can move large volumes of product at a significantly lower operating cost when compared to other modes of transportation. Despite safety and efficiency statistics, unless you say how/why increases present a potential population growth near pipelines present the potential for a pipeline incident.

To meet the pipeline industry's goal of reliable incident-free operation, pipeline operators invest substantial human and financial resources to protect the people, property and environments near pipelines. Damage prevention measures include routine inspection and maintenance, corrosion protection, continuous monitoring and control technologies, public awareness programs, integrity management and emergency response plans. While pipelines are generally the safest method of transporting hazardous chemicals, they are not failsafe. Pipeline product releases, whether in the form of a slow leak or rupture, are a risk in any community.

In the unlikely event of an incident near or involving a pipeline, it is critical you know how to respond and are prepared to work together with the pipeline operator's representatives.

This guide contains a set of general interoperable emergency response procedures and is intended to provide fire fighters, law enforcement officers, emergency medical technicians and all other emergency responders who may be the first to arrive at the scene with the basic information they need to safely handle a pipeline incident. It should not be considered a substitute for emergency response training, knowledge or sound judgment. This guide contains information that will help you make decisions about how to best protect your emergency response team and the surrounding public during a pipeline incident.

Please review and become familiar with the emergency response guidelines before you are called to respond to a pipeline incident.

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PIPELINE BASICS

Before we discuss how to respond to a pipeline incident, let's quickly review the basics about pipelines:

- *What are pipelines and what purpose do they serve?*
- *Where are pipelines located?*
- *How will you identify a pipeline right-of-way and use pipeline markers?*
- *How does the operator monitor pipeline performance and ensure reliability?*

Pipelines in Your Community

People across the nation expect to have the energy they need to drive their cars, heat their homes and cook dinner, never really considering how they get the petroleum, natural gas, and other chemical products necessary to power their daily activities.

The pipeline industry has installed more than 2.1 million miles of pipeline to transport a variety of gases and liquids from gathering points to storage areas, and from refineries and processing plants to customers' homes and places of business. The U.S. Department of Transportation (DOT) defines a pipeline system as all parts of a pipeline facility through which a hazardous liquid or gas moves in transportation, including piping, valves, and other appurtenances connected to the pipeline, pumping units, fabricated assemblies associated with pumping units, metering and delivery stations, and breakout tanks. To ensure these pipeline systems remain safe, a body of local, state and federal laws, regulations and standards govern pipeline design, construction, operation, and public awareness and damage prevention programs.

Specifically, pipeline operators use a series of gathering, transmission and distribution pipelines to transport more than 43 different gas and liquid products.

- **Gathering** pipelines transport crude oil and natural gas from the wellheads and production facility to processing facilities where the oil, gas and water are separated and processed.
- **Transmission** pipelines move refined liquid products, crude oil, and natural gas from refineries to marketing and distribution terminals typically using larger diameter, high-pressure lines.
- **Distribution** systems for liquid and gas products vary. Liquid products are stored and transported by tanker trucks to their final destination, while gases, such as natural gas, butane, propane, ethane, etc., are transported from a storage location directly to residential and industrial customers through low-pressure distribution pipelines.

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Pipeline Right-of-Way

Although typically buried underground, pipelines may also be found aboveground in extremely cold and harsh environments, and at pump and compressor stations, some valve stations and terminals. Whether aboveground or belowground, pipelines are constructed along a clear corridor of land called the right-of-way (ROW). The ROW may contain one or more pipelines, may vary in width, and will cross through public and private property. The ROW should be free of permanent structures and trees and be identified with a marker sign.

Pipeline Marker Signs

Aboveground signs and markers identify the approximate location of underground pipelines. Markers are required to be present wherever a pipeline crosses under roads, railroads or waterways. They may also be found at other intervals and locations along the pipeline right-of-way, such as near buildings and pipeline facilities. Markers do NOT tell you the exact location, depth or direction of the pipeline; the pipeline may curve or angle around natural and manmade features. If there are multiple pipelines in the ROW, a marker sign should be posted for each pipeline.

Pipeline markers may look different, but every sign tells you the same information:

- Pipeline product
- Pipeline operator
- 24-hour emergency phone number

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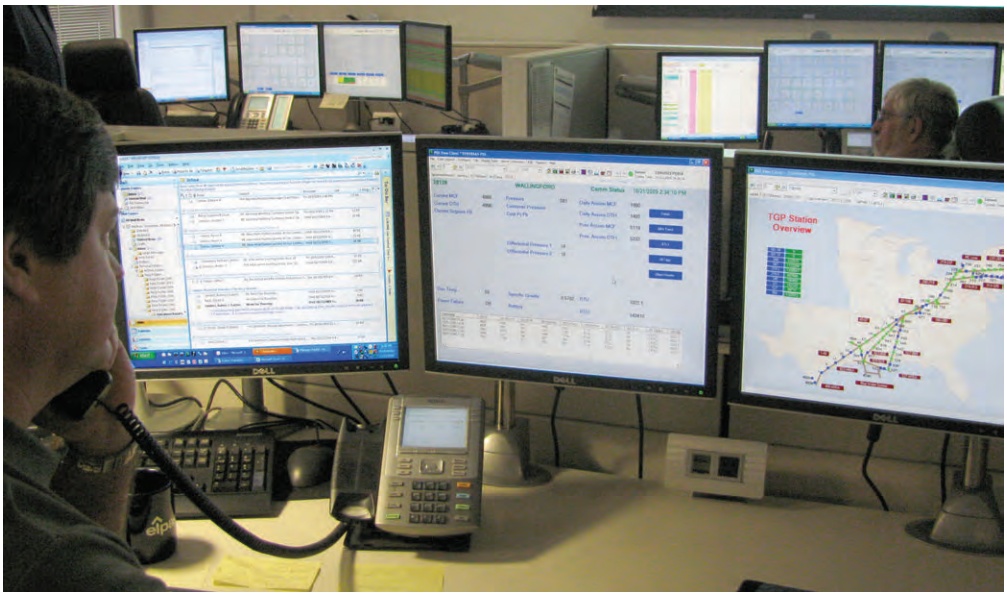
NOTE *If you are responding to a 9-1-1 call about a strange odor or leak in the area, approach the scene with caution, look for clues that a pipeline is involved, and find a marker sign identifying the pipeline product, operator and phone number to call to report the incident and obtain additional information.*



Pipeline Control Center

When you call the 24-hour emergency phone number on a marker sign, you will speak with someone at the pipeline operator's control center. The control center is the heart of pipeline operations. Information about the pipeline's operating equipment and parameters is constantly communicated to the control center where personnel use computers to monitor pipeline pressure, temperature, flow, alarms, and other conditions in the pipeline. While pipeline operators work hard to achieve reliable incident-free operation, accidents do occur. In the event of an emergency, the control center may be able to immediately shutdown the pipeline and begin to isolate the source of the leak. The pipeline operator's control center may also have the capability to remotely open and close valves and transfer products both to and from the main pipeline at marketing and distribution facilities.

NOTE *As an emergency responder, you can help control the incident by being prepared to communicate as much information as possible to the pipeline operator about the current incident situation.*

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Pipeline Maps

National Pipeline Mapping System (NPMS)

Maps of transmission pipelines and contact information for pipeline operators in your area can be found in the National Pipeline Mapping System (NPMS) at: www.npms.phmsa.dot.gov. The directory can be searched by zip code or state and county. More detailed pipeline maps are also available to Emergency Responders who have obtained a logon ID and password through the Pipeline Integrity Management Mapping Application (PIMMA) access link.

Identified Site Emergency Planning Application (ISEPA)

This is a new mapping application developed by this Association for disseminating detailed pipeline information and collecting information about populated areas near pipelines (identified sites). It is intended to be a resource for agencies involved in emergency planning. It contains the following information:

- Product transported in the pipeline
- Pipeline size in inches (if provided by the member company)
- Recommended initial evacuation distance
- Pipeline company emergency phone number
- Company name, non-emergency contact, phone, and email address
- Link to document containing additional company information (if available)

The mapping application can be accessed at http://isepa.pipelineawareness.org If you are visiting the site for the first time, you must request access. Please click on **"Request Login Credentials"** and submit your information. Users are cautioned that the application DOES NOT INCLUDE ALL PIPELINES. If you zoom in and don't see any pipelines in your area, just navigate to Utah – Salt Lake County to see a good example of what the application is intended to provide. We welcome your comments.

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PRODUCTS TRANSPORTED

Natural Gas (DOT ERG 115)

Natural gas is the predominant product found in gas distribution pipelines, and with few exceptions, is transported via pipelines in its gaseous form. Like crude oil, it is a naturally occurring resource formed millions of years ago as a result of heat and pressure acting on decayed organic material. It is extracted from wells and transported through gathering pipelines to processing facilities. From these facilities it is transported through transmission pipelines to distribution centers (or distribution pipeline systems). The main ingredient in natural gas is methane (94%). Natural gas is odorless, colorless, tasteless and nontoxic in its natural state. When transported via transmission pipelines, natural gas typically does not have odorant added. An odorant is added when it is delivered to a distribution system. At ambient temperatures it remains a lighter than air gas; however, it can be compressed (CNG) under high pressure to make it convenient for use in other applications or liquefied (LNG) under extremely cold temperatures (-260° F) to facilitate transportation.

Indications of a Leak

- An odor like rotten eggs or a burnt match (odorized natural gas only)
- A loud roaring sound like a jet engine
- A hissing or whistling noise
- Fire coming out of or on top of the ground
- Dirt blowing from a hole in the ground
- An area of frozen ground in the summer
- An unusual area of melted snow in the winter
- An area of dead vegetation
- Bubbling in pools of water

Hazards of a Release

- Highly flammable and easily ignited by heat or sparks
- Will displace oxygen and can cause asphyxiation
- Fire may produce irritating and/or toxic gases
- Vapors may form an explosive mixture with air
- Vapors may cause dizziness or asphyxiation without warning
- Is lighter than air and can migrate into enclosed spaces

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Petroleum Gas (DOT ERG 115)

Petroleum gas is a mixture of gaseous hydrocarbons, primarily propane, butane, or ethane, which are easily liquefied under pressure and commonly used for residential and commercial heating, auto-propane, or other industrial applications. Propane and butane are often stored and transported under pressure as liquid (LPG) in portable containers for use as fuel for heating and cooking applications. LPG is usually transported through hazardous liquid transmission pipelines; however, vaporized propane and butane pipelines may also be found in small distribution systems. LPG is a tasteless, colorless and odorless gas and when transported via transmission pipelines typically will not have odorant added. An odorant is added when LPG is offloaded to a distribution system or transport tanks to permit detection of vapor leakage.

Indications of a Leak

- A white vapor cloud that may look like smoke
- A hissing or whistling noise
- An odor like petroleum liquids or gasoline
- Fire coming out of or on top of the ground
- Dirt blowing from a hole in the ground
- A sheen on the surface of water
- An area of frozen ground in the summer
- An unusual area of melted snow in the winter
- An area of dead vegetation
- Bubbling in pools of water

Hazards of a Release

- Highly flammable and easily ignited by heat or sparks
- Will displace oxygen and can cause asphyxiation
- Vapors are heavier than air and will collect in low areas
- Contact with skin may cause burns, injury, or frostbite
- Fire may produce irritating and/or toxic gases
- Vapors may form an explosive mixture with air

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Petroleum Liquids (DOT ERG 128)

Petroleum liquids is a broad term covering many products, including: crude oil, gasoline, diesel fuel, aviation gasoline, jet fuel, fuel oil, kerosene, natural gas liquids, naphtha, xylene and other refined products. Crude oil is unrefined petroleum that is extracted from beneath the earth's surface through wells. As it comes from the well, crude oil contains a mixture of oil, gas, water and other impurities, such as metallic compounds and sulfur. Refinement of crude oil produces petroleum products that we use every day, such as motor oils and gasoline. Crude oil is normally transported from wells to refineries through gathering pipelines. Refined petroleum products are normally transported in transmission pipelines to rail or truck terminals for distribution to consumers. Odorant is not added to these products because they have a natural odor.

Indications of a Leak

- The pooling of liquid on the ground
- An odor like petroleum liquids or gasoline
- A sheen on the surface of water
- An area of dead vegetation

Hazards of a Release

- Highly flammable and easily ignited by heat or sparks
- Vapors are heavier than air and will collect in low areas
- Contact with skin may cause burns, injury, or frostbite
- Fire may produce irritating and/or toxic gases
- Runoff may cause pollution
- Vapors may form an explosive mixture with air

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Anhydrous Ammonia (DOT ERG 125)

Anhydrous ammonia is the liquefied form of pure ammonia gas. It is a colorless gas or liquid with an extremely pungent odor. It is normally transported through transmission pipelines located in the Midwest and is used primarily as an agricultural fertilizer or industrial refrigerant.

Indications of a Leak

- A white vapor cloud that may look like smoke
- A hissing or whistling noise
- Dirt blowing from a hole in the ground
- An irritating and pungent odor

Hazards of a Release

- Will displace oxygen and can cause asphyxiation
- Vapors are heavier than air and will collect in low areas
- Contact with skin may cause burns, injury, or frostbite
- Toxic and may be fatal if inhaled or absorbed through skin
- Vapors are extremely irritating and corrosive
- Fire may produce irritating and/or toxic gases
- Runoff may cause pollution

Carbon Dioxide (DOT ERG 120)

Carbon dioxide is a heavy gas that is normally transported in transmission pipelines as a compressed fluid. It is a naturally occurring colorless, odorless and tasteless gas used in the petroleum industry. Under normal conditions carbon dioxide is stable, inert and nontoxic.

Indications of a Leak

- A hissing or whistling noise
- Dirt blowing from a hole in the ground
- An area of frozen ground in the summer
- An unusual area of melted snow in the winter
- Bubbling in pools of water

Hazards of a Release

- Will displace oxygen and can cause asphyxiation
- Vapors are heavier than air and will collect in low areas
- Contact with skin may cause burns, injury, or frostbite
- Vapors may cause dizziness or asphyxiation without warning

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Ethanol (DOT ERG 127)

Ethanol, also called ethyl alcohol, is a colorless liquid that is widely used as an additive to automotive gasoline. It may be transported in buried transmission pipelines.

Indications of a Leak

- The pooling of liquid on the ground
- An odor like petroleum liquids or gasoline
- An area of dead vegetation

Hazards of a Release

- Highly flammable and easily ignited by heat or sparks
- Vapors are heavier than air and will collect in low areas
- Contact with skin may cause burns, injury, or frostbite
- Fire may produce irritating and/or toxic gases
- Runoff may cause pollution
- Vapors may form an explosive mixture with air

Hydrogen Gas (DOT ERG 115)

Hydrogen gas is commonly produced from the steam reforming of natural gas. It is frequently used near its production site, with the two main uses being petrochemical processing and ammonia production. It is a flammable gas that is colorless, odorless and lighter than air. It is nontoxic, but can act as a simple asphyxiant in confined spaces. Hydrogen is normally transported between industrial facilities as a gas.

Indications of a Leak

- A hissing or whistling noise
- An unusual area of melted snow in the winter
- An area of dead vegetation
- Bubbling in pools of water

Hazards of a Release

- Highly flammable and easily ignited by heat or sparks
- Will displace oxygen and can cause asphyxiation
- Fire may produce irritating and/or toxic gases
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- Is lighter than air and can migrate into enclosed spaces

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Sour Crude Oil (DOT ERG 131), Sour Gas (DOT ERG 117)

Products containing little or no sulfur are often referred to as "sweet", whereas, products containing high concentrations of sulfur and hydrogen sulfide (H_2S) are commonly referred to as "sour". Hydrogen sulfide is a colorless, flammable, corrosive and extremely toxic gas with an offensive rotten egg odor. It is created naturally by the bacterial breakdown of sulfur-containing organic materials. Industrial activities that can produce hydrogen sulfide include petroleum/natural gas drilling and refining, wastewater treatment, coke ovens, tanneries, and paper mills. In natural gas and crude oil, it is a contaminant that must be removed before products are sent to commercial markets.

Hydrogen sulfide can be dissolved in liquids and may be released by agitation, depressurization, or heating. Since hydrogen sulfide is heavier than air, it will collect in low places. Refer to Appendix A for additional leak and hazard information.

Hydrogen sulfide's offensive odor is readily detectable at very low concentrations. However, smell cannot be relied upon to forewarn of dangerous concentrations because it rapidly degrades the sense of smell due to paralysis of the olfactory nerve. A longer exposure to lower concentrations has a similar desensitizing effect on the sense of smell. Exposure to relatively low levels of hydrogen sulfide can be fatal. The physical effects of various concentration levels are shown below.

ppm	Physical Effects
1	Can be smelled (rotten egg odor)
10	Obvious and unpleasant odor *(Permissible 8 hour exposure level – OSHA)*
50	Loss of sense of smell in 15 minutes *(10 minute exposure level once only if no other measurable exposure occurs – OSHA)*
100	Loss of smell in 3–15 minutes, stinging in eyes and throat, altered breathing *(Immediately Dangerous to Life and Health – OSHA)*
500	Unconscious quickly, death will result if not rescued promptly

NOTE

H_2S has a much broader LEL / UEL range than natural gas: 4% – 44%.

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EMERGENCY PREPAREDNESS

Pipeline incidents present some of the most dangerous situations an emergency responder may encounter. Pipelines contain flammable, hazardous and even deadly petroleum gases, liquids, and other chemical products that present emergency responders with a myriad of hazards and risks that vary depending on the topography, weather, and properties of the material involved. For the majority of pipeline incidents, you will have a limited number of options to actually stop the leak. In almost all cases, the pipeline operator will be required to resolve the incident safely. Consequently, your goal is to minimize the level of risk to other responders, the community and the environment.

Advance knowledge of where pipelines are located in your community, the products transported in them, and how to contact and work together with the pipeline operator in the event of an incident are key factors to an effective and safe response. Each pipeline operator maintains an emergency response plan that outlines the roles and responsibilities of company, contractor, and local response personnel.

What you should know before an incident

- The names of companies operating pipelines in your community
- Emergency and non-emergency contact information for all operators
- The approximate location of the pipelines
- What materials or products are being transported in the pipelines
- The physical indications of an unintended release
- The possible hazards associated with an unintended release
- The maximum potential impact an unintended release may have
- The steps that should be taken to protect the public

Following standardized procedures will bring consistency to each response and will help minimize the risk of exposure to all responders. The information in this guide provides a framework to discuss safety issues as they relate to the hazards and risks presented by pipeline emergencies in your community.

After reviewing the standard pipeline incident response steps, you should discuss your agency's pipeline emergency preparedness and how you will handle an incident in your community.

NOTE *Pipeline operators will report hazardous leaks and other emergency conditions that may have an adverse impact on public safety or the environment to local 911 centers.*

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INCIDENT RESPONSE STEPS

To effectively respond to a pipeline leak, spill or fire, emergency responders need to understand the hazards and risks associated with the incident. You should seek additional information about the pipeline in question as soon as possible. Calling the 24-hour emergency phone number on a nearby pipeline marker sign, contacting the appropriate emergency response agency, and consulting the information in the DOT *Emergency Response Guidebook* may provide more detailed, situation-specific information.

Pipeline operators hope you never have to respond to a pipeline incident, but if you do, **remember**:

- Every incident is different—each will have special problems and concerns.
- Continue to gather information and monitor the situation until the threat is removed.

Step 1. Assess the Situation

Approach with Caution from Upwind Location

To protect yourself and other responders from any hazards associated with the incident it is critical you approach cautiously from an upwind and/or crosswind location.

- Do not park over manholes or storm drains.
- Do not approach the scene with vehicles or mechanized equipment until the isolation zones have been established. Vehicle engines are a potential ignition source.
- Do not walk or drive into a vapor cloud or puddle of liquid.
- Use appropriate air-monitoring equipment to establish the extent of vapor travel.

  Because any number of fire and health hazards may be involved, it is important you resist the urge to rush in until you know more about the product and hazards involved in the incident. Consider the following:

  - Is there a fire, spill or leak?
  - What are the weather conditions?
  - What direction is the wind blowing?
  - What is the terrain like?
  - Who and what is at risk: people, property or environment?
  - Is there a vapor cloud?

Approaching the scene with caution is critical when responding to a pipeline incident.

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- What actions should be taken: evacuation or diking?
- What human/equipment resources are required and readily available?
- What can be done immediately?

Secure the Scene

Securing the scene is an important part of site safety.

Without entering the immediate hazard area, you want to isolate the area and deny entry to unauthorized persons including other responders. It may be necessary to evacuate everyone in the danger area to a safe location upwind of the incident area.

Employ NIMS and the Incident Command System

Developed by the Department of Homeland Security, the National Incident Management System (NIMS) integrates effective practices in emergency preparedness and response into a comprehensive national framework for incident management. The NIMS enables responders at all jurisdictional levels and across all disciplines to work together effectively and efficiently.

Because pipeline incidents require coordination of information and resources among all responders, the Incident Command System (ICS) is one of the most important 'best practices' in the NIMS. The ICS provides common terminology, organizational structure and duties, and operational procedures among operator personnel and various federal, state and local regulatory and response agencies that may be involved in response operations.

Incident Commander.

Identify an Incident Commander. The Incident Commander is the person responsible for the management of on-scene emergency response operations. In cooperation with the pipeline operator's point of contact, the Incident Commander determines when it is safe for the response teams to enter the area and access the pipeline. The Incident Commander must be trained to perform these responsibilities and not be automatically authorized by virtue of his/her normal position within the organization.

Establish a command post, lines of communication and a staging area for additional responding equipment and personnel.

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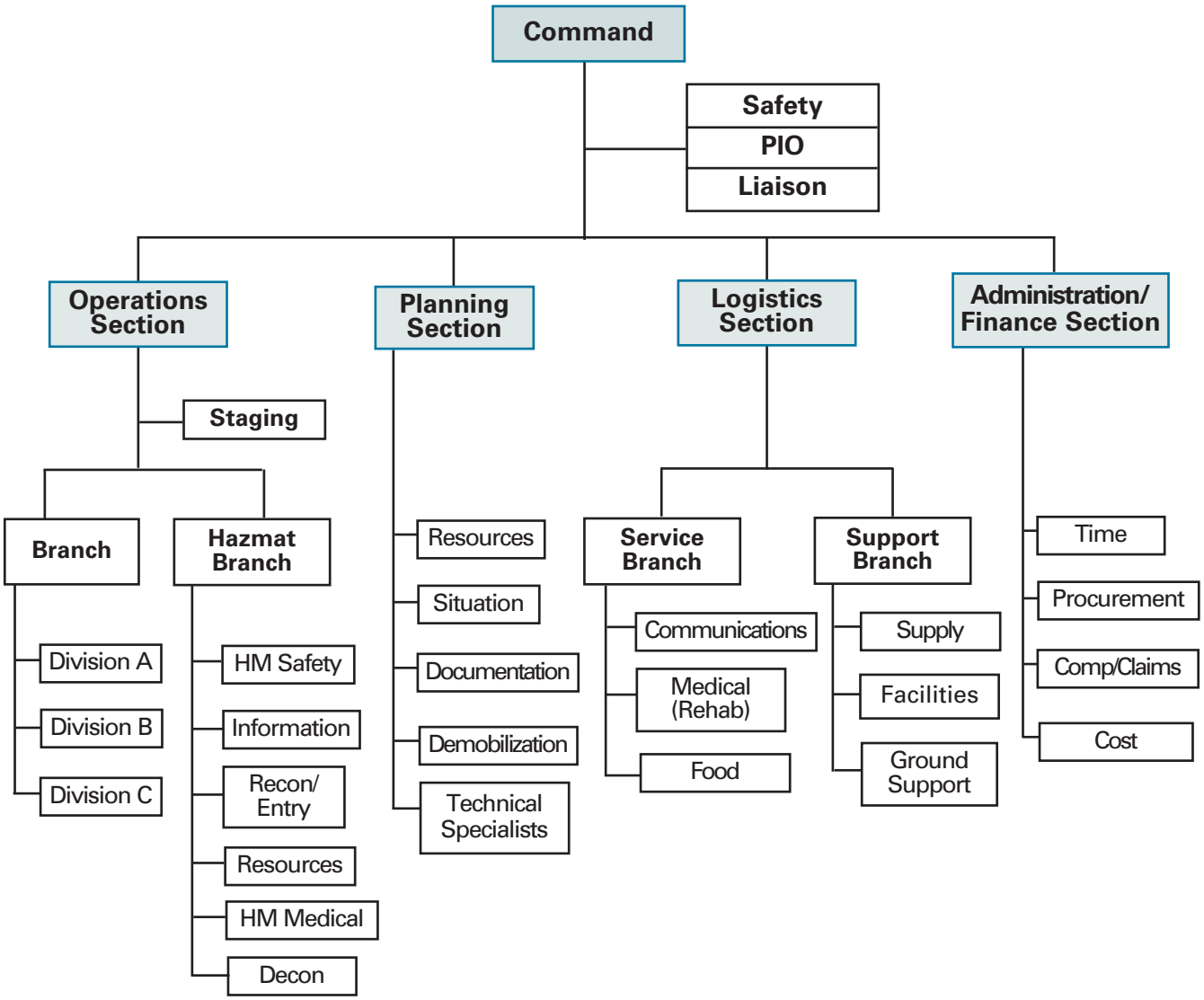
INCIDENT MANAGEMENT STRUCTURE



The Incident Command System consists of the Incident Commander, the Command Staff, and the general staff consisting of the Operations, Planning, Logistics and Finance/Administration Sections.

Information and resource coordination between response agencies is vital to effectively manage a pipeline incident.

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NOTE *If other units are on-scene, ensure operations are coordinated and unified command is established.*

A product's physical and chemical properties determine how the product will behave and how it can harm. Emergency responders need to analyze the problem and assess potential outcomes based on the hazardous materials involved. Understanding the hazards will enable you to understand what risk you will be taking and help you select the best course of action with the least risk.

- Locate a pipeline marker sign to identify the pipeline product, operator and 24-hour emergency phone number.
- Call the emergency phone number to report the incident to the pipeline operator's control center. Control center personnel may provide additional information about the pipeline product and its hazards.
- Use the DOT ***Emergency Response Guidebook*** to identify potential hazards, establish initial isolation distances, and determine response tactics. Additional information is contained in Appendix A, B and C.
- Use air-monitoring equipment appropriate to the materials in the pipeline. Do NOT assume gases or vapors are harmless because of a lack of smell or quick desensitization to the strong odors of materials such as hydrogen sulfide or anhydrous ammonia.
- Use the highest level of precaution and protection until you know the area is safe of flammable, toxic, and mechanized and electrical hazards.

Use caution as you may encounter:

- Flammable atmospheres
- Hydrogen sulfide (H_2S) in crude oil/natural gas pipelines
- Anhydrous ammonia pipelines
- Oxygen deficient/enriched atmospheres

NOTE *If natural gas is escaping inside a building, refer to Appendix D for additional precautions.*

Step 2. Respond to Protect People, Property and the Environment

Protective actions are those steps taken to preserve the health and safety of emergency responders and the public during a pipeline incident. While the

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pipeline operator concentrates on the pipeline, responders should concentrate on isolating and removing ignition sources and moving the public out of harms way. Several response procedures can and should be pursued simultaneously. You will also need to continually reassess and modify your response accordingly.

Establish Isolation Zones and Set Up Barricades

Isolation zones and barricades prevent unauthorized people and unprotected emergency responders from entering the hazard area and becoming injured. The size of the containment area will be dictated by the location and size of the release. You also want to consider atmospheric conditions, as isolation distances change from daytime to nighttime due to different mixing and dispersion conditions in the air. Remember, gas odor or the lack of gas odor is not a sufficient measurement to establish safe isolation zones.

- Based on the type of incident, use any or all of the following to calculate and establish isolation zones:
  - DOT *Emergency Response Guidebook*
  - Information from the pipeline operator's representative
  - Heat intensity levels
  - Measurements from air-monitoring equipment
- Use visible landmarks, barricade tape and traffic cones to identify hot/warm/cold zones.
- Define entry and exit routes. Plan an escape route in case conditions deteriorate.
- Be certain to allow enough room to move and remove your own equipment. The more time, distance and shielding between you and the material the lower the risk.

The DOT *Emergency Response Guidebook* (ERG) is a good source of information on hazardous materials.

Rescue and Evacuate People

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

- Do not walk or drive into a vapor cloud or puddle of liquid.
- Evacuate or shelter-in-place as necessary, providing instruction and frequent updates to the public while evacuated or sheltered-in-place.
- Administer first aid and medical treatment, as needed.
- Enter the area only when wearing appropriate protective gear, such as Structural Fire Fighters' Protective Clothing (SFPC) (helmet, coat, pants, boots, gloves and hood) and a Positive Pressure Self-Contained

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Breathing Apparatus (SCBA). Because no single protective clothing material will protect you from all dangerous pipeline materials, always use the highest level of caution.

Eliminate Ignition Sources

Ignition sources include electrical motors, firearms, vehicles, telephones, emergency radios, cigarettes, construction equipment, static electricity, open flames or sparks.

- Eliminate ignition sources, if possible without additional exposure or great risk.
- Park all emergency vehicles at a safe distance beyond the isolation zone (upwind).
- Do NOT light a match, start an engine, use a telephone or radio, switch lights on or off, or use anything that may create a spark.

Control Fires, Vapor and Leaks

Because there are many variables to consider, the decision to use water on fires or spills involving water-reactive materials should be based on information from an authoritative source, such as the pipeline operator, who can be contacted by calling the 24-hour emergency phone number listed on a nearby pipeline marker sign.

WARNING Some products, such as anhydrous ammonia, can react violently or even explosively with water. Water getting inside a ruptured or leaking container may cause an explosion or the product's reaction with water may be more toxic, corrosive, or otherwise more undesirable than the product of a fire without water applied. Consequently, it is best to leave a fire or leak alone except to prevent its spreading.

Fire Control

Extinguishing a primary fire can result in explosive re-ignition. Unless it is necessary to save human life, flammable gas fires should NOT be extinguished on flammable gas pipelines unless the fuel source has been isolated and the pipeline operator advises you to take this action! If the fuel source is not shut off and the fire is extinguished, leaking gas can migrate away from the pipeline and find an ignition source.

- Let the primary fire burn. Eliminate potential ignition sources.
- Cool surrounding structures, equipment and vessels. Because water is an inefficient and even dangerous way to fight fuel fires, use a fog pattern, NOT a straight stream of water. Please note some products

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are not compatible with water; refer to the DOT *Emergency Response Guidebook*.

- Do not inhale fumes, smoke or vapors.
- Once the primary fire is out, beware of hot spot re-ignition.
- Do not operate pipeline equipment.

It is important to wear proper protection and use appropriate chemical agents and equipment when containing the vapor release until the pipeline operator arrives on scene.

Vapor Control

Limiting the amount of vapor released from a pool of flammable or corrosive liquids requires the use of proper protective clothing, specialized equipment, appropriate chemical agents, and skilled personnel. For these reasons, it is best to contain the hazards and wait for the pipeline operator's representative to handle the pipeline and its product.

- Do not inhale fumes, smoke or vapors.
- Eliminate ignition sources! Flammable gases may escape under pressure from a pipeline, form a vapor cloud, and be ignited by an ignition source in the area. Explosions of unconfined vapor clouds can cause major structural damage and quickly escalate the emergency beyond responder capabilities.
- Do not ignite a vapor cloud! Pipeline operators will perform this dangerous task.
- Avoid forced ventilation of structures and excavations. Forced ventilation can actually increase the possibility of a flammable atmosphere.
- Limited fog misting can be of some benefit if knocking down a vapor cloud, especially if such a cloud appears to be spreading beyond the

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containment site. Fog misting must be used carefully to prevent incompatible product/water mixing or the spread of product to other areas, as containment dikes may become overfilled.

- Product-compatible foam can be used to suppress vapors or for rescue situations, however, be extremely cautious if fuel discharge is not yet stopped.

CAUTION Before using water spray or foam to control vapor emissions or suppress ignition, obtain technical advice based on chemical name identification. Refer to the pipeline operator and DOT *Emergency Response Guidebook*.

Leak Control

In addition to hazards such as flammability, toxicity and oxygen deficiency, liquid pipeline leaks and ruptures can create major problems with spill confinement and containment. What seems like a minor spill may evolve into a major spill as liquid inside the pipeline continues to drain out of the line.

Floating and skimmer booms.

- Ask yourself where the spill will be in a few hours, how close the incident is to exposures or sensitive areas, and what can be done to confine the spill or divert it away from exposures.
- Establish barriers to prevent leaks from spreading to water sources, storm drains or other sensitive areas. There are several basic containment devices that can be used to prevent the migration of petroleum products on land or on small streams.
  - Storm sewer or manhole dam
  - Small stream containment boom
  - Pipe skimming underflow dam
  - Wire fence or straw filter dam

If a leak is accidentally ignited, firefighting should focus on limiting the spread of fire damage, but in NO circumstances should efforts be made to extinguish the fire until the source of supply has been cut off or controlled.

- Do not walk into or touch spilled material.
- Do not operate pipeline equipment.

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Step 3. Call for Assistance of Trained Personnel

Contact Your Organization

As soon as possible, contact your organization. This will set in motion a series of events ranging from dispatching additional trained personnel to the scene to activating the local emergency response plan. Ensure that other local emergency response departments have been notified.

Call the Pipeline Operator

Immediately call the 24-hour emergency phone number of the pipeline operator, which is listed on a marker sign located at a nearby road crossing, railroad or other point along the pipeline right-of-way. During the call, pipeline control center personnel will dispatch a representative to the scene. The control center will immediately act to shutdown the pipeline and isolate the emergency. The pipeline control center may also have the capability to remotely open and close manifold valves and to transfer products both to and from the main pipeline at marketing and distribution facilities.

- Be prepared to provide pipeline control center personnel with the following information:
  - Call-back number, contact name (usually the Incident Commander)
  - Detailed location, including state, county, town, street or road
  - Type of emergency: fire, leak, vapor
  - When incident was reported locally
  - Any known injuries
  - Other officials on site: police, fire, medical, LEPCs, etc.
  - Surrounding exposures/sensitive areas
  - Any special conditions: nearby school, hospital, prison, railroad, etc.
  - Local conditions: weather, terrain

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Step 4. Work Together with the Pipeline Operator

Protection of life, property and the environment is always the highest priority. Pipeline operators will work in concert with local emergency responders to eliminate possible sources of ignition for a leak or vapor cloud and to limit or contain the spill. Communication and coordination are the key elements of every response effort.

911 Centers and Pipeline Control Centers

- Receive initial notifications and collect critical information.
- Dispatch personnel and equipment to the scene.
- Disseminate information to other agencies or organizations.
- Establish a point of contact for ongoing communications.

Pipeline Operator's Representative

- Serves as the primary contact for communication between the operator's team and emergency responders. They will be familiar with the Incident Command System and are normally HAZWOPER certified as well.
- Establishes contact with the Incident Commander before and upon arrival to avoid accidental entry into isolation zones or ignition of the release.
- Recommends actions to take especially as they relate to containment and control of the pipeline product. The pipeline operator's representative(s) is trained to know:
  - How to shut off the supply of gas or liquid. Only the operator's representative is trained to operate pipeline equipment.
  - What potential hazards may be present at the location.
  - What additional complications may result from response activities as they relate to the pipeline and its product.
  - How to fight small fires with hand held extinguishers, administer basic first aid, perform CPR, and assist with evacuations or traffic control.

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Emergency Responders

- Maintain site control and act as Incident Commander.
- Eliminate ignition sources. Provide standby fire-watch personnel.
- Suppress vapor generation.
- Provide standby rescue personnel to pipeline operator personnel entering the incident area to stop the release.
- Help maintain containment dams and install more as needed.
- Monitor the atmosphere in the repair and containment areas.

Together, Incident Commander and Pipeline Operator's Representative

- Identify public health action levels regarding petroleum-related hazards during a release/discharge, as well as the protective actions to be taken for the public.
- Establish unified command as soon as practicable. As the responsible party, operators will take an active role in the incident command structure.
- Review whether it is safe for the operator's emergency response team and/or their equipment to enter the incident area.
- Determine whether the zone of influence needs additional barricading and diking.
- Coordinate public information needs for the affected area to ensure relevant information is disseminated to the public/media.
- Decide when the area is safe for the affected public to re-enter.
- Share any "after action" reports and cooperate on improvements to response procedures.

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DAMAGE PREVENTION—A SHARED RESPONSIBILITY

Pipeline Integrity

The pipeline industry uses a wide range of tools and technologies to maintain safe operations. They visually inspect aboveground pipes and related equipment for corrosion and damage. Operator personnel walk, drive and fly over pipeline right-of-ways inspecting them for unauthorized activities, leaks, and other conditions that might endanger the pipeline. As you already know, pipeline control center personnel continuously monitor pipeline operations and will initiate corrective actions if problems are identified. Pipeline operators also use in-line inspection tools known as "smart pigs", hydrostatic testing, electro-magnetic testing, and other techniques to identify defects which could threaten pipeline integrity. If inspection and testing identify any integrity-threatening conditions, the operator takes corrective action to maintain safe operations.

One-Call Centers and Calling 811

Many types of emergency situations can affect buried pipelines. These include: train derailments, floods, earthquakes, forest fires, structure collapses, and other similar events where earth has been disturbed or will be moved as part of the response efforts. In these situations, pipeline companies should be notified as soon as possible so they can monitor and verify the integrity of nearby pipelines. Responders may be able to notify pipeline operators of the emergency by calling 811 and informing the One-Call Center of the situation. If the call center procedures allow these types of notifications, all operators with buried facilities in the area will be notified and will respond. Coordination with pipeline operators during these types of emergency situations will ensure the safety of the response team and also the surrounding community.

Damage Reporting

In our nation's time of heightened security, it is more important than ever to protect pipelines against damage or attack. Homeland security and infrastructure protection is a shared responsibility. Report any damages unusual or suspicious activities along a pipeline right-of-way to the pipeline operator. The operator will immediately investigate and repair any damage.

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Appendix A

Leak, Hazard, and Emergency Response Information

	Natural Gas	Petroleum Gas	Petroleum Liquids	Anhydrous Ammonia	Carbon Dioxide	Ethanol	Hydrogen Gas	Sour Gas (H2S)	Sour Crude Oil (H2S)	Liquids & Odorized Nat Gas
INDICATIONS OF A LEAK										
An odor like rotten eggs or a burnt match	(1)	(1)						X	X	X
A loud roaring sound like a jet engine	X							X		X
A white vapor cloud that may look like smoke		X		X						
A hissing or whistling noise	X	X		X	X		X	X		X
The pooling of liquid on the ground			X			X			X	X
An odor like petroleum liquids or gasoline		X	X			X			X	X
Fire coming out of or on top of the ground	X	X					X	X		X
Dirt blowing from a hole in the ground	X	X		X	X		X	X		X
A sheen on the surface of water		X	X						X	X
An area of frozen ground in the summer	X	X			X		X	X		X
An unusual area of melted snow in the winter	X	X			X		X	X		X
An area of dead vegetation	X	X	X			X	X	X	X	X
Bubbling in pools of water	X	X			X		X	X		X
An irritating and pungent odor				X				X	X	
HAZARDS OF A RELEASE										
Highly flammable and easily ignited by heat or sparks	X	X	X			X	X	X	X	X
Will displace oxygen and can cause asphyxiation	X	X		X	X		X	X		X
Vapors are heavier than air and will collect in low areas		X	X	X	X	X		X	X	X
Contact with skin may cause burns, injury, or frostbite		X	X	X	X	X	X	X	X	X
Initial odor may be irritating and deaden the sense of smell								X	X	
Toxic and may be fatal if inhaled or absorbed through skin				X				X	X	
Vapors are extremely irritating and corrosive				X				X	X	
Fire may produce irritating and/or toxic gases	X	X	X	X		X	X	X	X	X
Runoff may cause pollution			X	X		X			X	X
Vapors may form an explosive mixture with air	X	X	X			X	X	X	X	X
Vapors may cause dizziness or asphyxiation without warning	X				X		X	X	X	X
Is lighter than air and can migrate into enclosed spaces	X						X			X
EMERGENCY RESPONSE										
Avoid any action that may create a spark	X	X	X			X	X	X	X	X
Do NOT start vehicles, switch lights, or hang up phones	X	X	X			X	X	X	X	X
Evacuate the area on foot in an upwind and uphill direction	X	X	X	X	X	X	X	X	X	X
Alert others to evacuate the area and keep people away	X	X	X	X	X	X	X	X	X	X
From a safe location, call 911 to report the emergency	X	X	X	X	X	X	X	X	X	X
Call the pipeline operator and report the event	X	X	X	X	X	X	X	X	X	X
Wait for emergency responders to arrive	X	X	X	X	X	X	X	X	X	X
Do NOT attempt to close any pipeline valves	X	X	X	X	X	X	X	X	X	X
Take shelter inside a building and close all windows				X				X	X	

Note (1) these products are naturally odorless and only certain pipeline systems may be odorized.

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Appendix B

General Product Characteristics

Products (1)	**Flash Point** (deg. F)	**Flammable Limits** (% in air by volume)	**Auto Ignition** (deg. F)	**Vapor Density** (air = 1)
Natural Gas (2)	**-300**	**4.0 – 16.0**	**1000**	**0.6**
Methane	-306	5.0 – 15.0	1076	0.55
Ethane	-211	3.0 – 12.5	882	1.04
Petroleum Gas (3)	**-170**	**2.0 – 12.0**	**800**	**>1**
Propane	-156	2.1 – 9.5	842	1.56
Butane	-76	1.9 – 8.5	550	2.07
Ethane	-211	3.0 – 12.5	882	1.04
Ethylene	-76	2.7 – 36.0	842	0.98
Propylene	-162	2.4 – 10.3	851	1.49
Petroleum Liquids	**-45 - 240**	**0.5 – 15.0**	**410**	**>1**
Crude Oil	-40 - 200	0.6 – 8.0	492	4.5
Gasoline	-45	1.2 – 7.8	536	3.5
Diesel Fuel	100 - 130	0.6 – 7.5	494	4.5
Aviation Gasoline	-50	1.2 – 7.1	824	3.5
Jet Fuel	100 - 140	0.6 – 19.0	410	4.5
Fuel Oil	100 - 240	0.6 – 7.5	410	4.5
Kerosene	100 - 162	0.7 – 5.0	410	4.5
Naphtha	-3	1.1 – 5.9	550	2.5
Xylene	63	1.0 – 7.0	867	3.7
Anhydrous Ammonia	**NA**	**16.0 – 25.0**	**1204**	**0.6**
Carbon Dioxide	**NA**	**NA**	**NA**	**>1**
Ethanol	**55**	**3.3 – 19.0**	**685**	**1.6**
Hydrogen Gas	**-423**	**4.0 – 75.0**	**932**	**0.07**
Hydrogen Sulfide Gas (H2S)	**-115**	**4.0 – 44.0**	**500**	**1.19**

Notes:

1. The bolded entries represent broad product categories. The corresponding information has been generalized and may vary depending on the specific product or combination of products transported. Information shown for specific products may also vary by grade or individual manufacturer.
2. Natural gas that is stored or transported in the liquid state is commonly referred to as LNG.
3. Petroleum gasses may be transported as a gas or a liquid. When transported as a liquid, they are commonly referred to as Liquefied Petroleum Gas (LPG), Natural Gas Liquids (NGL) or Highly Volatile Liquids (HVL). These products will be in the form a liquid when under pressure but will take the form of a gas when released to the atmosphere.
4. This information was compiled from multiple sources: WISER, Wikipedia, and various MSDS sheets. It is intended to provide general guidance and is not inclusive of all products. Manufacturers MSDS sheets should be referred to when specific information is needed.

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Appendix C

Recommended Minimum Evacuation Distances For Natural Gas Pipeline Leaks and Ruptures

(Not applicable for Butane, Propane, or other Hazardous Liquids)

Pipeline Size (Inches)

Pressure (psig)	4	6	8	10	12	16	20	22	24	30	36	42
100	91	137	182	228	274	365	456	502	547	684	821	958
200	129	193	258	322	387	516	645	709	774	967	1161	1354
300	158	237	316	395	474	632	790	869	948	1185	1422	1659
400	182	274	365	456	547	730	912	1003	1094	1368	1642	1915
500	204	306	408	510	612	816	1020	1122	1224	1529	1835	2141
600	223	335	447	558	670	894	1117	1229	1340	1675	2011	2346
700	241	362	483	603	724	965	1206	1327	1448	1810	2172	2534
800	258	387	516	645	774	1032	1290	1419	1548	1935	2322	2709
900	274	410	547	684	821	1094	1368	1505	1642	2052	2462	2873
1000	288	433	577	721	865	1154	1442	1586	1730	2163	2596	3028
1100	302	454	605	756	907	1210	1512	1664	1815	2269	2722	3176
1200	316	474	632	790	948	1264	1580	1738	1896	2369	2843	3317
1300	329	493	658	822	986	1315	1644	1809	1973	2466	2959	3453
1400	341	512	682	853	1024	1365	1706	1877	2047	2559	3071	3583
1500	353	530	706	883	1060	1413	1766	1943	2119	2649	3179	3709
1600	365	547	730	912	1094	1459	1824	2006	2189	2736	3283	3830
1700	376	564	752	940	1128	1504	1880	2068	2256	2820	3384	3948
1800	387	580	774	967	1161	1548	1935	2128	2322	2902	3482	4063
1900	398	596	795	994	1193	1590	1988	2186	2385	2981	3578	4174
2000	408	612	816	1020	1224	1631	2039	2243	2447	3059	3671	4283
2100	418	627	836	1045	1254	1672	2090	2299	2508	3134	3761	4388
2200	428	642	856	1069	1283	1711	2139	2353	2567	3208	3850	4492

Table 1 – Evacuation Distance in Feet

The applicable leak or rupture condition is that of a sustained trench fire fueled by non-toxic natural gas escaping from two full bore pipe ends. Blast overpressure is not addressed. The distances shown in Table 1 are intended to provide protection from burn injury and correspond to a thermal heat flux exposure level of 450 Btu/hr ft2. This is the accepted limit of heat exposure for unprotected outdoor areas where people congregate; as established by the US Department of Housing & Urban Development Code 24CFR51, Subpart C, Siting of HUD Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature. The formula used to calculate distance was taken from the Gas Research Institute Report GRI-00/0189, A Model for Sizing High Consequence Areas Associated with Natural Gas Pipelines, 2001, prepared by C-FER Technologies. That model does not take into account wind or other factors which may greatly influence specific conditions. Users are advised that the distances shown in Table 1 are considered to be "general information" only and are not intended to replace a site specific risk analysis. The Pipeline Association for Public Awareness makes no warranty with respect to the usefulness of this information and assumes no liability for any and all damages resulting from its use. Anyone using this information does so at their own risk.

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Appendix D

Natural Gas Escaping Inside a Building

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- EXTREMELY FLAMMABLE.
- Will be easily ignited by heat, sparks or flames.
- Will form explosive mixtures with air.
- Vapors from liquefied gas are initially heavier than air and spread along ground.

CAUTION: Natural Gas / Methane (UN1971) is lighter than air and will rise. Natural Gas/ Methane (UN1971) fires are difficult to detect since they burn with an invisible flame. Use an alternate method of detection (thermal camera, broom, etc.)

- Vapors may travel to source of ignition and flash back.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

HEALTH

- Vapors may cause dizziness or asphyxiation without warning.
- Some may be irritating if inhaled at high concentrations.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire may produce irritating and/or toxic gases.

PUBLIC SAFETY

- Approach cautiously.
- Establish an effective and safe perimeter.
- Position apparatus out of danger zone (avoid front of building and over manhole covers and sewers).
- Keep unauthorized personnel away.
- Secure the scene and deny entry.

EVACUATION

- Evacuate the public to a safe distance
- As soon as possible, contact the gas operator and coordinate large scale evacuations.
    - DOT ERG 115 recommends initial isolation distance of at least 100 meters (330 feet) in all directions.
    - Pipeline operators, however, upon assessment at arrival may recommend a greater evacuation distance.

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EMERGENCY RESPONSE

- Wear positive pressure self-contained breathing apparatus (SCBA) as well as full structural firefighter protective clothing.
  - Structural firefighters' protective clothing will only provide limited thermal protection
- Listen for hissing sound, but use CAUTION as no noise may be heard.
- Monitor the atmosphere, using multiple monitors where possible
  - Action Criteria: 0 to 10% of the LEL — Use Extreme Caution
  - Action Criteria: 10% of the LEL or greater — **DO NOT ENTER THE BUILDING**
- If possible, determine the source of the release without risk to the responders. Multiple locations are possible due to damage or pullout at joints.
- Monitor for natural gas traveling away from source toward exposures.
- Control ignition sources (smoking, open flames, internal combustion engines and motors).
- Do not operate electric devices such as switches, etc. Sparks can cause ignition.
- Be cautious of contacting the piping system; a static spark may occur and result in ignition.
- Whenever possible, adopt a defensive or non-intervention mode and wait for the utility company to arrive.
- Protect exposures from the radiant heat of the fire.
- Never extinguish the fire until the leak can be shut off and controlled, unless there is immediate danger to life.
- With any leak, always anticipate and expect that ignition will occur.

TACTICAL CONSIDERATIONS

- **Natural gas released inside buildings presents one of the greatest flammable hazards to emergency responders.**
- **Building full of natural gas should only be approached when needed with extreme caution and with a minimum number of personnel. CGI readings in excess of 10% LEL require evacuation of the building.**
- Stop or control the gas release at the appliance, or service meter valve.
- If possible to do safely, ventilate the area. If the flammable atmosphere is above the upper explosive limit (UEL), keep in mind that during ventilation the atmosphere will pass back through the flammable range of 4% to 16% gas to air. Also remember that fans are a potential ignition source.
  - Natural gas, depending on the makeup, requires a minimum mixture of 4% to 16% in air to ignite (40,000 ppm. to 160,000 ppm)
  - **NOTE:** Odor can be detected as low as 1 ppm. However, if underground migration occurs, odorant may be stripped from the gas.
- **NORMALLY, DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.** Extinguish surrounding fires, but not gas fed fire.
- Use protective hose streams to approach if necessary.

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- **DO NOT CLOSE** main valves or any other large transmission or distribution vales. This can lead to serious problems elsewhere in the system.
- Closed valves should remain closed until opened by gas utility personnel.
- Do not squeeze off gas piping — static electricity may cause ignition.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Assess the victim to determine if he/she is breathing normally. The level of treatment provided should be based on your level of individual training.
- Professional Rescuers provide artificial respirations if the victim is in respiratory distress.
- Non-Professional Rescuers begin CPR if the victim is not breathing normally
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

OTHER CONSIDERATIONS

- Decontaminate if necessary to remove the odorant.
- Debrief all responders and schedule a critique with all involved.

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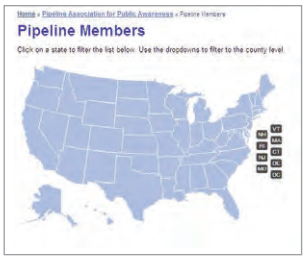
Additional Resources

Pipeline Member Contact Directory



If you want additional information, the complete member directory is available at: http://www.pipelineawareness.org/about/members-list/

This listing can be filtered by state and county to include only the members in your area. It can also be downloaded in PDF format and includes both emergency and non-emergency contact information.

Pipelines Nearby – Mobile Friendly Web Application

This application is available both on the web and from mobile devices. If you are using a GPS enabled device, it will take the coordinates from your mobile phone and render information for the five participating member pipelines closest to that location (only pipelines provided to us). It can be accessed at: www.pipelinesnearby.org

Emergency Response Capabilities Database and Web Application

To enhance our mutual response, the website has a section to capture and display Emergency Response Capabilities for both First Responders and Pipeline Operators. Please logon to register your agency's capabilities and the results will be accessible to all organizations: http://capabilities.pipelineawareness.org/

Emergency Responder Training Videos

Use this series of Pipeline Emergency Response videos to learn about strategic considerations when responding to a pipeline release in your community. The complete series can be accessed at http://www.pipelineawareness.org/er-videos/

Online Interactive Training Scenarios

Access a library of interactive training scenarios to apply your knowledge and solve problems. The training materials are intended to provide basic pipeline emergency response information to firefighters, law enforcement officers, emergency medical technicians and all other emergency responders to help them safely handle a pipeline incident since they may be the first to arrive at an incident. These resources may be accessed at: http://www.pipelineawareness.org/welcome-government-and-emergency-officials/

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Responding to Utility Emergencies – Online Course

This online course is designed to help first responders and community officials recognize the potential hazards involving natural gas. Certificates are provided for successfully completing the course. The web address is https://papa.rtueonline.com

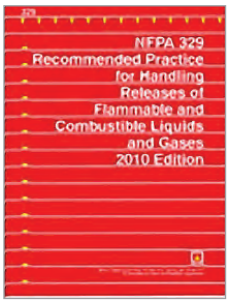
Pipeline Emergencies Second Edition – Online Course

This curriculum is provided by the National Association of State Fire Marshalls. The online book contains extensive background information about various types of liquid and gas pipeline facilities. The online book and other training materials can be accessed here: www.pipelineemergencies.com

National Emergency Number Association (NENA) Pipeline Emergency Operations Standard/Model Recommendation Document 56-007

This Standard is intended to aid Public Safety Answering Points (PSAP) in the development and implementation of emergency communications protocols pertaining to pipeline emergencies. The web address is http://www.nena.org/

NFPA 329: Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases



This recommended practice outlines the appropriate methods for responding to fire, explosion, and human health hazards resulting from the release of a flammable, combustible, or otherwise hazardous liquid, gas, or vapor that may migrate to a subsurface structure. It incorporates provisions from *NFPA 328: Recommended Practice for the Control of Flammable and Combustible Liquids and Gases in Manholes, Sewers, and Similar Underground Structures*. This resource may be accessed at: http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=329

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Emergency Response Capabilities

The Emergency Response Capabilities Database & Reporting Tool is a free, web-based resource developed to enhance emergency preparedness and response planning in communities with pipeline infrastructure. The application can be accessed by going to www.capabilities.pipelineawareness.org

Please submit information regarding your organization's response capabilities by completing the following form. The information will be added to the database and will be included in the online reports. The email information you enter on this form will be used as your initial username and password.

Once the information has been submitted, you will receive a confirmation e-mail within 14 business days to verify that the capabilities have been added to the online system. Please e-mail the completed form to info@pipelineawareness.org, mail to 16361 Table Mountain Parkway, Golden, Colorado 80403, or fax to 720-446-2960.

Organization Information

Organization Name:

Contact Name:

Contact Email:

Contact Phone:

Organization Type:

- ☐ CEMA or LEPC
- ☐ Hazmat Unit
- ☐ PSAP or 911 Center
- ☐ EMS Department
- ☐ Pipeline Company
- ☐ Sheriff Department
- ☐ Fire Department
- ☐ Police Department
- ☐ State Police or Highway Patrol

Organization Location

Location information allows capabilities to be reported by a specific state or county. You can enter up to three states with corresponding counties. Complete a separate form if your jurisdiction or pipeline footprint includes more than three states.

State: Counties:

State: Counties:

State: Counties:

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Emergency Response Capabilities

Capabilities

Select all that apply, even if only one individual or responding unit has the capability.

Personnel have:

- ☐ certification for Emergency Medical Technician (EMT)
- ☐ certification for Level 1 First Aid
- ☐ participated in pipeline emergency mock exercises or drills
- ☐ responded to an actual gas leak in a building
- ☐ responded to an actual pipeline emergency
- ☐ reviewed the NASFM Pipeline Emergencies Training
- ☐ reviewed the PAPA Pipeline Emergency Response Scenarios
- ☐ taken a HAZWOPER 24 or 40 Hour Course
- ☐ taken HAZWOPER 1ST Responder Awareness Level training
- ☐ taken HAZWOPER 1ST Responder Operations Level II training
- ☐ training on the DOT Emergency Response Guidebook (ERG)
- ☐ training on the Incident Command System (ICS)
- ☐ training on the National Incident Management System (NIMS)
- ☐ Operations Level Certification under NFPA 472
- ☐ knowledge of the practices in NFPA 329
- ☐ accessed the National Pipeline Mapping System (NPMS)

Responding units carry:

- ☐ 800 trunking radios
- ☐ computer or mobile on scene internet access
- ☐ DOT Emergency Response Guidebook (ERG)
- ☐ dry chemical (Class BC) hand held fire extinguishers
- ☐ flares or other traffic control devices
- ☐ instruments to detect Carbon Monoxide (CO)
- ☐ instruments to detect Hydrogen Sulfide (H2S)
- ☐ instruments to detect Natural Gas (methane)
- ☐ instruments to detect Propane (hydrocarbons)
- ☐ instruments to monitor Oxygen levels
- ☐ listing of emergency contacts for their area
- ☐ other response plans or procedures

Cooperative agreements are in place to:

- ☐ deploy absorbent materials
- ☐ deploy containment devices
- ☐ deploy earth moving equipment
- ☐ dispatch Hazmat Units

Responding Units can:

- ☐ deploy foam

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INCIDENT RESPONSE CHECKLIST

Pipeline operators will concentrate on shutting down pipeline facilities. Responders should focus on protecting the public and isolating or removing ignition sources.

1. ASSESS THE SITUATION

- ❑ **Approach with caution from upwind/crosswind location**
  - Do not walk or drive into a vapor cloud or puddle of liquid
  - Do not park over manhole or storm drain
  - Use air-monitoring equipment
  - Note conditions of hazard, weather, surrounding community and available resources
- ❑ **Secure the scene, denying entry to unauthorized persons**
- ❑ **Employ NIMS and Incident Command System**
- ❑ **Identify hazards**
  - Locate pipeline marker sign: product, operator, 24-hour emergency phone number
  - Contact pipeline operator
  - Refer to DOT *Emergency Response Guidebook*

2. PROTECT PEOPLE, PROPERTY AND THE ENVIRONMENT

- ❑ **Establish isolation zones and set up barricades**
- ❑ **Rescue and evacuate people**
  - Evacuate or shelter-in-place
  - Administer first-aid
- ❑ **Eliminate ignition sources**
- ❑ **Control fire, vapor and/or leak**
  - Let primary fire burn
  - Cool surrounding structures
  - Beware hot spot re-ignition

3. CALL FOR ASSISTANCE OF TRAINED PERSONNEL

- ❑ **Contact your organization**
- ❑ **Call the pipeline operator**

4. WORK TOGETHER WITH THE PIPELINE OPERATOR

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