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| **Opening Remarks and Introductions**  
Please introduce yourselves  
the pipeline operators  
PAPA members  
and other dignitaries |
At the completion of this training, individuals will possess the following knowledge, skills, and abilities:

1. Awareness of the different types of pipelines and their purposes
2. Ability to recognize a pipeline right-of-way
3. Knowledge of the information contained on pipeline markers
4. Awareness of information available through various mapping systems
5. Ability to recognize a pipeline leak
6. Awareness of the potential hazards associated with a pipeline leak
7. Understanding of the actions to take in response to a pipeline leak, including the essential communications that may be necessary
8. Knowledge of the actions operators take to protect and maintain the integrity of pipelines
9. Awareness of the additional resources that are available
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<tr>
<td>• Pipelines are the safest and most reliable way to transport energy products</td>
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<tr>
<td>• Pipeline operators regularly monitor the integrity of their pipelines to ensure safe operations</td>
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<td>• Even with these efforts, an unintended release is possible and responding agencies must be prepared to act</td>
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<tr>
<td>• This guide provides a general set of interoperable emergency response procedures and gives responders the basic information needed to safely handle a pipeline incident</td>
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There are over 2.7 million miles of pipelines in the United States.

Pipelines are facilities through which hazardous liquids or gas move in transportation, and include:

- Pipelines
- Valves
- Compressor stations
- Pumping units
- Meter stations
- Storage tanks
### Pipelines in Your Community

#### Gathering Pipelines
- Transport crude and natural gas from the well-head to processing facilities

#### Transmission Pipelines
- Transport natural gas and refined products from refineries to marketing or distribution centers through larger diameter higher pressure pipelines

#### Distribution Pipelines
- Transport natural gas from transmission pipelines to customers through lower pressure smaller diameter pipelines

---

**Objective 1**
### Pipeline Right-of-Way (ROW)

- All 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
- Enables pipeline personnel to gain access for inspection, maintenance, testing or emergencies
- The ROW should be free of permanent structures (encroachments) and large trees

**Objective 2**
Pipeline Marker Signs
Aboveground signs and markers identify the approximate location of underground pipelines. Markers may look different, but every sign tells you the same information:

• Product Transported
• 24 Hour Emergency Phone Number
• Pipeline Company Name

Objective 3
The Most Important Size Up Information a Responder can Have!
Pipeline Marker Signs

Aerial Marker
ROW
Vent Pipes

Approximate Locations
- Pipeline Markers are not exact locators of the line
- They can be Offset a considerable distance

Objective 2
<table>
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<tr>
<td><strong>Pipeline Control Center</strong></td>
<td><strong>The Pipeline Operator is the direct line to the solution of your problem</strong></td>
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<tr>
<td>• 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.</td>
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<tr>
<td>• The control center is the heart of pipeline operations.</td>
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<tr>
<td>• 24 hours per day / 7 days a week free of charge</td>
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<tr>
<td>• The quickest way to get operator help</td>
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<tr>
<td>• Pipeline Specific Information</td>
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<tr>
<td>• Product</td>
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<td>• Pressure</td>
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<tr>
<td>• Resources</td>
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<tr>
<td>• Additional Hazards</td>
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</table>
National Pipeline Mapping System (NPMS)

- NPMS contains information for all transmission pipelines
  - Hazardous Liquids Pipelines
  - Breakout tanks
  - Natural Gas Pipelines
  - LNG Plants
- Does NOT include gathering or local distribution pipelines
- Data is displayed by county
- Agencies can obtain this information in digital format
- PIMMA access provides operator contact information

Objective 4
High Consequence Areas

- Pipeline safety regulations use the term “High Consequence Areas” (HCAs), to identify specific locations and areas where a release could have the most significant consequences.

- Once identified, operators are required to perform additional inspections and analysis to ensure the integrity of pipelines.

- “Identified Sites” are locations normally occupied by 20 or more people on a regular basis and may create an “HCA” if close enough to the pipeline.

Objective 4
Identified Site Emergency Planning Application (ISEPA)

- Mapping application for all types of pipelines that includes additional information:
  - Product transported in the pipeline
  - Pipeline size in inches (if provided)
  - Recommended initial evacuation distance
  - Pipeline company emergency phone number
  - Company name and non-emergency contact information
  - Link to document with additional information (if provided)
- Emergency Responders can register “Identified Sites” on the map to inform pipeline companies of potential HCA’s for planning purposes
- Does NOT include all pipelines
- Is not open to the public and requires a login ID and password (this will be provided to agencies upon request)

Objective 4
Identified Site Emergency Planning Application (ISEPA)

- Pipelines are in Red
- Yellow is a preliminary planning evacuation zone based on hazard
- Organizations can add identified sites (HCAs like schools and hospitals)
- Click on Pipeline and get more information
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<td><strong>Objective 4</strong></td>
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</table>
Common Products:
- Natural Gas
- Petroleum Gas
  - LPG, HVL, NGL
- Petroleum Liquids
  - Crude oil
  - Refined products
- Anhydrous Ammonia
- Carbon Dioxide
- Ethanol
- Hydrogen Gas
- Sour Crude Oil
- Sour Gas

Objective 6
• **Natural gas** is the predominant product found in gas distribution pipelines, and is transported via pipelines in its gaseous form

• It is transported through transmission pipelines to distribution centers (or distribution pipeline systems)

• The main ingredient in natural gas is methane (94%)

• 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

• 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
**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

**Objective 5**
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 (non-odorized gas)
- Is lighter than air and can migrate into enclosed spaces

Objective 6
Odorization:

- In all natural gas distribution pipelines, and often in transmission pipelines located in heavily populated areas, the natural gas must be odorized.
- Mercaptan products are added for leak recognition (smells like rotten eggs or a burnt match).
- Remember, anytime anyone smells the distinct mercaptan odor, they should be very cautious.
**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 or other industrial applications.

- Propane and butane are normally stored and transported under pressure as a liquid (LPG).
- LPG transported in transmission pipelines may be called Highly Volatile Liquids (HVLs) or Natural Gas Liquids (NGLs).
- Vaporized propane and butane may be in gas distribution pipeline systems.
- LPG is a tasteless, colorless and odorless gas.
- LPG in pipelines typically does not have odorant added. Odorant is added when products are off-loaded to a distribution system or transport tanks.
system or transport tanks
## 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
- 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

### Objective 5

### Objective 6
• Fire may produce irritating and/or toxic gases
### 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.
- Refinement of crude oil produces the refined petroleum products that we use every day, such as motor oils and gasoline.
- Refined petroleum products are normally transported in transmission pipelines to rail or truck terminals for distribution to consumers.
- Most of these products have a distinct petroleum 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
**Anhydrous ammonia** is the liquefied form of pure ammonia gas. It is a colorless gas or liquid with an extremely pungent odor. It is commonly used in the Midwest for 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**
- 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
- Vapors are extremely irritating and corrosive to skin and Eyes
- Under the right conditions can burn. Fire may produce irritating by products

**Objective 5**

**Objective 6**
• Runoff may cause pollution
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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<td>• Bubbling in pools of water</td>
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</table>
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

**Objective 5**

**Objective 6**
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**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
- 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

---

**Objective 5**

**Objective 6**
enclosed spaces
Sour Crude Products

- Products containing little or no sulfur are often referred to as “sweet”, whereas, products containing high concentrations of sulfur and hydrogen sulfide (H2S) 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.
- In natural gas and crude oil, it is a contaminant that must be removed before products are sent to commercial markets.
- Hydrogen sulfide is heavier than air, it will collect in low places.
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.

**Objective 6**
### Emergency Preparedness

- Pipeline emergencies are some of the most dangerous situations an emergency responder can encounter.
- Advance knowledge of pipelines in your community along with knowing how to contact and work together with the pipeline operator are key factors to an effective and safe response.

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### Emergency Preparedness

**What you should know before an incident:**

- Names of the Companies operating pipelines in your community
- Emergency and non emergency contact information for all pipeline operators
- Approximate location of the pipelines
- Products transported in the pipelines
- Physical indications of a leak
- Possible hazards associated with a release
- Potential impact on the community
- Steps that should be taken to protect the public
- Response capabilities of the pipeline operator

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<td>• Response capabilities of the pipeline operator</td>
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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.

- Response capabilities for:
  - Responding Agencies
  - Pipeline Operators
  - Personnel training
  - Responding units
  - Cooperative agreements

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<tr>
<td>• Cooperative agreements</td>
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</table>
Incident Response Steps

- Responders must understand the hazards and risks associated with the incident
- Seek additional information about the pipeline in question as soon as possible by calling the 24-hour emergency phone number for the pipeline operator
- Every incident is different - each will have special problems and concerns
- Refer to information contained in the North American Emergency Response Guidebook (NAERG) or more commonly the DOT ERG
- Continue to gather information and monitor the situation until the threat is removed

Incident Response Steps

- Responders must understand the hazards and risks associated with the incident
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<tr>
<td>• Use what you know - pipelines release hazardous materials</td>
<td><strong>Objective 7</strong></td>
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<tr>
<td>• The ERG provides actions for the first moments of any Haz-Mat emergency</td>
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<tr>
<td>• The ERG white page guidance:</td>
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<tr>
<td>• Approach Cautiously</td>
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<tr>
<td>• Secure The Scene</td>
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<tr>
<td>• Identify the Product and Hazards</td>
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<tr>
<td>• Assess the Situation</td>
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<tr>
<td>• Call for Help</td>
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<tr>
<td>• Respond Appropriately</td>
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<tr>
<td>• Do NOT assume gasses or vapors are harmless due to lack of smell!</td>
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</tbody>
</table>
### Approach with Caution

- Stay clear of vapors, fumes, smoke and spills.
- Do not walk or drive into a vapor cloud or puddle of liquid.
- 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.
- Use appropriate air-monitoring equipment to establish the extent of vapor travel.

**Objective 7**
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.

• 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 or cones
  • Define entry and exit routes

Objective 7
Employ the Incident Command System

• Employing the Incident Command System (ICS) is one of the most important actions to take.

• ICS provides common terminology, organizational structure, duties, and operational procedures among operator personnel and various federal, state and local agencies that may be involved in response operations.

• Identify an Incident Commander (IC)

**Objective 7**
Identify

- Locate pipeline marker sign:
  - Product
  - Operator
  - 24-hour emergency phone number
- Contact pipeline operator
- Refer to the DOT Emergency Response Guidebook

Objective 7
**Assess**

- Is there a fire, spill or leak?
- Is there a vapor cloud?
- 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?
- What actions should be taken:
  - Evacuation
  - Shelter in-place
  - Diking?
- What human/equipment resources are required?
Obtain Assistance

Contact Your Organization and initiate the local emergency response plan

Call The Pipeline Operator and have:

- Call Back numbers, contact name
- Detailed Location and address
- Type of Emergency (Fire, Leak, Gas)
- Time of release
- Known injuries
- Exposures
- Any special situations

Initiate Emergency Response

**Objective 8**

Contacting pipeline operators as soon as possible is critical to controlling the incident
The protection of people is always the highest priority. Protective actions are those steps taken to preserve the health and safety of emergency responders and the public during a pipeline incident.

**Rescue and Evacuate People**

- Do not walk or drive into a vapor cloud or puddle of liquid.
- Evacuate or shelter-in-place as appropriate
- Enter the area only when wearing appropriate protective gear - such as Structural Fire Fighters’ Protective Clothing

If Natural Gas is escaping in a building, refer to Appendix D for additional precautions.
APPENDIX D - 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.

The formula is: square root of pressure x nominal pipe size x 2.28.

*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.

Pressure (psig)

Pipeline Size (Inches)
Eliminate Ignition Sources

- Park vehicles in a safe location
- 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, Do **NOT** switch lights on or off or use anything that may create a spark.

Fire Control

- Let primary fire burn
- Cool surrounding structures
- Beware hot spot re-ignition
- Eliminate potential ignition sources
- Do **NOT** inhale fumes, smoke or vapors
- Do **NOT** Operate pipeline equipment

**Objective 7**
## 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.

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 and be ignited by a source in the area.
- Do not ignite a vapor cloud!
- Avoid forced ventilation of structures and excavations.
- Limited fog misting can be of some benefit if knocking down a vapor

### Objective 7
Leak Control

- liquid pipeline leaks and ruptures can create major problems with spill confinement and containment.
- Where the spill will be in a few hours?
- 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.
  - 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 exposures - In NO circumstances should efforts be made to extinguish the fire until the source of supply has been cut off or controlled.

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<tr>
<td>• Receive initial notifications and collect critical information</td>
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<td>• Dispatch personnel and equipment to the scene</td>
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<td>• Disseminate information to other agencies or organizations</td>
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<tr>
<td>• Establish a point of contact for ongoing communications</td>
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</table>
Pipeline Operator’s Representative

- Serves as the primary contact for communication between the operator’s team and emergency responders
- Establishes contact with the Incident Commander before and upon arrival
- Recommends actions to take especially as they relate to containment and control of the pipeline product

Objective 7
Pipeline Operator’s Representative

- Knows how to shut off the supply of gas or liquid
- Only the operator’s representative is trained to operate pipeline equipment
- The Pipeline Representative is the primary contact and is the ultimate subject matter expert regarding the product being released

Objective 8
Emergency Responders

- Maintain site control and act as Incident Commander (IC)
- Eliminate ignition sources and suppress vapors
- Provides standby rescue personnel to pipeline operator personnel entering the incident area to stop the release
- Monitor the atmosphere in the repair and containment areas

Objective 7
<table>
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<tbody>
<tr>
<td><strong>Together Incident Commander and Pipeline Operator’s Representative</strong></td>
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<tr>
<td>• Identify public health hazards and additional protective actions to be taken</td>
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<tr>
<td>• Participate in Unified Command</td>
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<tr>
<td>• Determine when the operator’s personnel can safely enter the area</td>
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<tr>
<td>• Determine when the zone of influence needs additional diking</td>
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<tr>
<td>• Coordinate public information needs</td>
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<tr>
<td>• Decide when it is safe for the public to re-enter the area</td>
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<td>• Share any “after action” reports and cooperate on improvements</td>
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**Pipeline Integrity**

- The pipeline industry uses a wide range of tools and technologies to maintain safe operations by visually inspecting aboveground pipes and related equipment for corrosion and damage.

- On a regular basis, personnel walk, drive and fly over pipeline right-of-ways inspecting them for unauthorized activities, leaks, and other conditions that might endanger the pipeline.

- Pipeline operators also use in-line inspection tools known as “smart pigs” to inspect below grade pipe and equipment by hydrostatic testing, electro-magnetic testing, and other techniques to identify defects which could threaten pipeline integrity.

- When inspection efforts identify any integrity-threatening conditions, the operator takes corrective action to maintain safe operations.

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**Objective 8**
### Pipeline Integrity

- Right of Way Inspections
- 24/7 Monitoring
- Cathodic Protection
- Pipeline Coatings
- In Line Inspection (ILI) tools
- “Smart Pigs”

**Objective 8**
Pipeline Integrity

Internal Inspection Devices (Smart Pigs) are mechanical devices moved through a pipeline to inspect the pipe for defects and corrosion

Objective 8
Excess Flow Valves (EFV) and Curb Valves

- **Excess Flow Valves** automatically restrict the flow of gas in service lines that have been cut or damaged.
- Excess flow valves may not be installed in all service lines.
- **Curb Valves** protect against uncontrolled gas releases from larger commercial and industrial users. Gas distribution companies are required to install curb valves, manually operated shutoff valves near the service main, or EFVs.
- Policies regarding the operation of curb valves by emergency response personnel should be coordinated with the local gas company so all parties are clear about what might be expected.

Objective 8
Emergencies Affecting Pipelines

- Many types of emergency situations can affect buried pipelines (train derailments, floods, earthquakes, forest fires, structure collapses, etc.)
- Pipeline companies should be notified 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
- Coordination with pipeline operators during emergencies will ensure the safety of the response team and also the surrounding community

Objective 9
Security and Damage Reporting

- In our nation’s time of heightened security, Homeland security and infrastructure protection is a shared responsibility.
- Report any damage or unusual activity along a pipeline right-of-way to the pipeline operator.
- The operator will immediately investigate and repair any damage.

**Objective 8**
Summary

- Responding to pipeline emergencies is as detailed as any hazardous materials event
- Responders must understand the hazard and risks of the products
- They must be well acquainted with the transmission, distribution and service systems
- They also have to have a strong knowledge base to operate safely at these incidents
Appendices

A. Leak, Hazard and Emergency Response Information
B. General Product Characteristics
C. Recommended Minimum Evacuation Distances For Natural Gas Pipeline Leaks and Ruptures
D. Natural Gas Escaping Inside a Building
E. Storage Facilities

- Additional Resources
- Emergency Response Capabilities
- Incident Response Checklist

**Objective 9**
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**Scenarios – www.pipelineawareness.org**

- Natural Gas
- Hazardous Liquids
- Emergency Planning

**Pipeline Association for Public Awareness**
For Additional Information:
www.pipelineawareness.org