Download the Pipeline Awareness Viewer™ (PAV) app to learn about pipelines, including:

- How to find transmission pipelines in your area
- The 811 process
- Register for a pipeline safety meeting near you
- Download the NENA call intake checklist
- How to recognize a pipeline leak
- An overview of the pipeline industry
- How to recognize the location of a pipeline
- Download the PHMSA Emergency Response Guidebook

**How to use PAV:**

- Launch the app on your device.
- Review the brief instructions.
- Tap the SCAN button and aim your camera at this page.*
- When the buttons appear, tap the lock icon to view the available content.
- Tap the buttons to view important pipeline safety information.

*For best results, enable Wi-Fi on your device prior to using the PAV app.
We need your help in preventing damage to underground pipelines. The most common cause of pipeline damage happens when a third party unknowingly digs, blasts or drills near a pipeline. If you plan to dig or do any type of excavation or construction work, NYS law requires you to call Dig Safely New York 2 full working days prior to starting your work; not counting the day of your call, weekends or holidays.

Remember any excavation activity near an underground facility can potentially cause damage to that facility. Do your part and make sure the underground infrastructure has been marked. Please call 811 before you dig.

Dig Safely New York Serves all of New York with the exception of New York City and Long Island.

Established in 1990, New York 811 (Formerly Dignet of NYC & LI Inc.) is a nonprofit organization that acts as a communications link between utility companies and individuals planning any digging activity in the five boroughs of New York City and Nassau and Suffolk Counties on Long Island. By relaying these requests, New York 811 helps protect one of the most vast, congested and complicated underground infrastructures in the nation.

Though New York 811 does not physically mark utility lines or underground facilities, we do relay digging and excavation requests to our member network. This network includes companies that own or operate underground utility lines in our region, including cable television, natural gas, electric, water, sewer and telecommunications companies.

We also devote significant time and resources to promoting safe digging through presentations, special events, partnerships, and public education and outreach.

For general information about New York 811, call 1-800-524-7603.
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**Overview**

**Pipeline Purpose and Reliability**
- Critical national infrastructure
- Over 2.7 million miles of pipeline provide 65% of our nation’s energy
- 20 million barrels of liquid product used daily
- 21 trillion cubic feet of natural gas used annually

**Safety Initiatives**
- Pipeline location
  - Existing right-of-way (ROW)
- ROW encroachment prevention
  - No permanent structures, trees or deeply rooted plants
- Hazard awareness and prevention methods
- Pipeline maintenance activities
  - Cleaning and inspection of pipeline system

**Product Hazards and Characteristics**

**Petroleum (flow rate can be hundreds of thousands of gallons per hour)**
- Flammable range may be found anywhere within the hot zone
- H2S can be a by-product of crude oil

<table>
<thead>
<tr>
<th>Type 1 Products</th>
<th>Flash Point</th>
<th>Ignition Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>-45 °F</td>
<td>600 °F</td>
</tr>
<tr>
<td>Jet Fuel</td>
<td>100 °F</td>
<td>410 °F</td>
</tr>
<tr>
<td>Kerosene</td>
<td>120 °F</td>
<td>425 °F</td>
</tr>
<tr>
<td>Diesel Fuel</td>
<td>155 °F</td>
<td>varies</td>
</tr>
<tr>
<td>Crude Oil</td>
<td>25 °F</td>
<td>varies</td>
</tr>
</tbody>
</table>

**Natural Gas (flow rate can be hundreds of thousands of cubic feet per hour)**
- Flammable range may be found anywhere within the hot zone
- Rises and dissipates relatively quickly
- H2S can be a by-product of natural gas – PPM = PARTS PER MILLION
  - 0.02 PPM Odor threshold
  - 10.0 PPM Eye irritation
  - 100 PPM Headache, dizziness, coughing, vomiting
  - 200-300 PPM Respiratory inflammation within 1 hour of exposure
  - 500-700 PPM Loss of consciousness/possible death in 30-60 min.
  - 700-900 PPM Rapid loss of consciousness; death possible
  - Over 1000 PPM Unconsciousness in seconds; death in minutes

- Incomplete combustion of natural gas may release carbon monoxide
- Storage facilities may be present around populated areas/can be depleted production facilities or underground caverns
- Gas travel may be outside the containment vessel along the natural cavern between the pipe and soil

**Propane, Butane and Other Similar Products**
- Flammable range may be found anywhere within the hot zone
- Products cool rapidly to sub-zero temperatures once outside the containment vessel
- Vapor clouds may be white or clear

<table>
<thead>
<tr>
<th>Type 3 Products</th>
<th>Flash Point</th>
<th>Ignition Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propane</td>
<td>-150 °F</td>
<td>920-1120 °F</td>
</tr>
<tr>
<td>Butane</td>
<td>-60 °F</td>
<td>725-850 °F</td>
</tr>
</tbody>
</table>

**Line Pressure Hazards**
- Transmission pipelines – steel (high pressure: average 800-1200psi)
- Local gas pipeline transmission – steel (high pressure: average 200-1000psi)
- Local gas mains and services – steel and/or plastic (low to medium pressure)
  - Mains: up to 300psi
  - Service lines: up to regulator
    - Average 30-45psi and below
    - Can be up to 60-100psi in some areas
- At regulator into dwelling: ounces of pressure
Leak Recognition and Response
- Sight, sound, smell – indicators vary depending on product
- Diesel engines – fluctuating RPMs
- Black, dark brown or clear liquids/dirt blowing into air/peculiar odors/dead insects around gas line/dead vegetation
- Rainbow sheen on the water/mud or water bubbling up/frozen area on ground/frozen area around gas meter
- Any sign, gut feeling or hunch should be respected and taken seriously
- Take appropriate safety actions ASAP

High Consequence Area (HCA) Regulation
- Defined by pipeline regulations 192 and 195
- Requires specialized communication and planning between responders and pipeline/gas personnel
- May necessitate detailed information from local response agencies to identify HCAs in area

Emergency Response Basics
- Always follow pipeline/gas company recommendations – pipeline representatives may need escort to incident site
- Advance preparation
  - Get to know your pipeline operators/tour their facilities if possible
  - Participate in their field exercises/request on-site training where available
  - Develop response plans and practice
- Planning partners
  - Pipeline & local gas companies
  - Police – local/state/sheriff
  - Fire companies/HAZMAT/ambulance/hospitals/Red Cross
  - LEPC/EMA/public officials
  - Environmental management/Department of Natural Resources
  - Army Corps of Engineers/other military officials
  - Other utilities
- Risk considerations
  - Type/volume/pressure/location/geography of product
  - Environmental factors – wind, fog, temperature, humidity
  - Other utility emergencies
- Incident response
  - Always approach from upwind/park vehicle a safe distance away/if vehicle stalls – DO NOT attempt to restart
  - Gather information/establish incident command/identify command structure
  - Initiate communications with pipeline/gas company representative ASAP
  - Control/deny entry: vehicle, boat, train, aircraft, foot traffic, media – refer all media questions to pipeline/gas reps
- Extinguish fires only
  - To aid in rescue or evacuation
  - To protect exposures
  - When controllable amounts of vapor or liquid present
- Incident notification – pipeline control center or local gas company number on warning marker
  - In Pipeline Emergency Response Planning Information Manual
  - Emergency contact list in Program Guide
  - Call immediately/provide detailed incident information
- Pipeline security – assist by noting activity on pipeline/gas facilities
  - Report abnormal activities around facilities
    - Suspicious excavation/abandoned vehicles/non-company personnel/non-company vehicles
    - Freshly disturbed soil/perimeter abnormalities

One-Call
- One-Call centers are not responsible for marking lines
- Each state has different One-Call laws. Familiarize yourself with the state you are working in
- Not all states require facility owners to be members of a One-Call
- You may have to contact some facility owners on your own if they are not One-Call members
- In some states, homeowners must call before they dig just like professional excavators
Pipeline Safety

Pipeline Incident Response

The Scenario
- 911 call from an ABC Pipeline employee regarding a block, late model, dually pickup with a female driver.
- Female driver exited the vehicle.
- Walked around the ABC Pipeline property.
- Tanglefoot, tan shirt, military-style boots.
- Pipeline employee did not see any company property tampered with.
- The employee started the investigation, flagged, and would like extra patrol in the area.

Coordinated Response Events

Man gets 20 years for trying to blow up pipeline (June 2012)
http://www.bknews.com/

First responders evacuate area, close roads due to H2S leak (Oct 2013)
http://www.thedailygreen.com/

Death toll from Mexico pipeline blast reaches 91 (Jan 2015)
http://www.craco.com/

Workers hurt in explosion when backhoe strikes gas line (July 2015)
http://www.utopia.com/

Human error caused pipeline explosion that killed 2 in northern Illinois (Dec 2017)
http://www.chicago Tribune.com/

Be aware of extremist and protestor activities.

Program content and slides subject to change
Pipeline Safety

**Program Objectives**

1. Learn responsibilities and resources prior to beginning excavating and in the event of an emergency.
2. Acquaint yourself with responsibilities prior to excavating and with the operator’s ability to respond to a pipeline emergency.
3. Identify the types of hazards with unsafe digging and pipeline emergencies.
4. Plan how all parties can engage in effective communication and mutual assistance to minimize hazards to life or property.

*Code of Federal Regulations (CFR); Title 49 CFR Parts 192 and 195

**Roll Call**


**Pipeline Operators**

**Local Operator Information**

- Operator and/or company name
- Pipeline systems and products
- Location of pipelines
- Pipeline size/operating pressure(s)
- Type of response(s) to a pipeline emergency

*Information in your materials may not represent all pipeline companies in your area

**Program Resources**

[Images of documents and resources]

**Pipeline Mileage Overview**

<table>
<thead>
<tr>
<th>Pipeline Type</th>
<th>New York</th>
<th>Nationwide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Liquid</td>
<td>1,148</td>
<td>215,622</td>
</tr>
<tr>
<td>Gas Transmission</td>
<td>4,589</td>
<td>300,651</td>
</tr>
<tr>
<td>Gas Gathering</td>
<td>74</td>
<td>13,382</td>
</tr>
<tr>
<td>Gas Distribution Main</td>
<td>49,307</td>
<td>1,295,945</td>
</tr>
<tr>
<td>Gas Distribution Service</td>
<td>38,358</td>
<td>927,065</td>
</tr>
<tr>
<td><strong>Total Mileage</strong></td>
<td><strong>93,476</strong></td>
<td><strong>2,757,666</strong></td>
</tr>
</tbody>
</table>

*Pipeline and Hazardous Materials Safety Administration (PHMSA)
Pipeline Safety

Pipeline System Types

Transmission: Can vary in size and have greater flow and pressure than other types of pipelines. They can transport natural gas or other refined products from a gathering, processing, or storage facility to processing, or additional storage facilities.

Distribution: Are unique to natural gas systems. These pipelines are used to deliver product to end-users or customers and are mostly found in populated areas.

Gathering: Transport gases and liquids, such as oil or natural gas, from the community's source to a processing facility and/or storage facilities.

Storage Facilities: Above or underground facilities used to receive and store hazardous liquid or natural gas transported by a pipeline for reinjection and continued transportation.

Product Characteristics

Hazardous Liquids:
- Chemical, petrochemical, other refined products
- Liquid inside liquid out of the pipeline
  - BR Guide 129 (Page 77)

Highly Volatile Liquids:
- Propane, butane, ethane, natural gas liquids
- Liquid inside vapor out of the pipeline
  - BR Guide 125 (Page 164)

Natural Gas:
- Gas inside and out of the pipeline
  - BR Guide 125 (Page 164)
  - *Dispose is subject to McNorton

Above Ground Storage Tanks

Tank farms/Terminals

Considerations when responding to tank fires:
- Work with your local operator to:
  - Develop an effective response plan
  - Identify products and hazards
  - Determine evacuation routes

Response recommendations:
- Cool containers by flooding with water
- Use unannounced hose holders/monitor nozzles
- Do not direct water at safety devices or icing may occur
- Let product burn, even after supply line/system is closed
- Beware of the potential for Boiling Liquid Expansion Vapor Explosion (BLEVE)
Pipeline Safety

**Underground Storage Fields**

Emergency Response “Non-Intervention”
- Emergency contact information found on pipeline markers and all wellhead locations
- Always be aware of wind direction; walk into the wind, away from hazardous fumes
- Do not drive into a leak or vapor cloud
- Monitor combustible atmosphere
- Determine hazardous area and escape routes

**Local Distribution Systems**

- Be aware not all natural gas leaks are from excavation, unintended leaks from slivers, water heaters, furnaces, etc.
- Caution: use combustible gas indicators on sites when called out on natural gas leak events
- Intercap can be stripped as it travels through soil
- Service lines may be separated from the meter when damaged underground
- Frost heaves, breaking pipes
- Gas meters break due to snow build up from melting snow falling from roofs

**Excess Flow Valve (EFV)**

- Automatic reduction of gas flow should service line break
- May not completely stop the flow of natural gas
- May not hear a distinct hissing sound
- Migration and ignition sources may still exist
- Always work a coordinated response with your local operator

**National Emergency Number Association**

Pipeline Emergency Operations Standard

NENA’s Pipeline Emergency Operations Workgroup Recommendations
- Awareness of pipelines affecting the 911 Service Area
- Pipeline leak recognition and initial response actions
- Additional notifications to pipeline operators

Initial Intake Checklist
- Quick reference guide in program materials

Pipeline Emergency Operations Standard/Model Recommendations
- Access the full report through NENA.ORG

“Actions taken during this time frame significantly impact the effectiveness of the response and are critical to public safety”

Program content and slides subject to change
Pipeline Safety

Coordinated Response Exercise

Exercise Assumptions and Artificialities

In any exercise, assumptions and artificialities may be necessary to complete play in the time allotted and/or account for logistical limitations.

Objectives Review*

✓ Learned the responsibility and resources
✓ Acquainted you with responsibilities prior to excavating and with the operator's ability to respond to a pipeline emergency
✓ Identified the types of hazards with unsafe digging and of pipeline emergencies
✓ Planned how all parties can engage in effective communication and mutual assistance to minimize hazards to life or property


Coordinated Response Events

Man gets 20 years for trying to blow up pipeline (June 2012)
http://www.thedetroitnews.com/

First responders evacuate area, close roads due to H2S leak (Oct 2013)
http://www.wwnewstoday.com/

Death toll from Mexico pipeline blast reaches 91 (Jan 2019)
https://www.reuters.com/

Workers hurt in explosion when backhoe strikes gas line (July 2015)
http://www.wtsp.com/

Human error caused pipeline explosion that killed 2 in northern Illinois (Dec 2017)
http://www.chicagotribune.com/

Be aware of extremist and protector activities.

Program content and slides subject to change
Exercise Outline

Block I: Scenario and Response Questions

Pipeline Scenario
At 6:00 a.m. today the ABC Pipeline Operator arrives at the facility and begins inspecting an above-ground valve site. He immediately notices four metal cylinders with closed ends; red, black and white wires around the cylinders; a pressure switch, 9-volt battery, a device resembling a cell phone and duct tape holding the metal cylinders to the gate valve.

Based on scenario information provided, participate in a discussion concerning the key issues raised in Block I. Identify any additional requirements, critical issues, decisions, or questions that should be addressed at this time. Be prepared to share your table discussion with the entire group.

Discussion Questions
Following the initial 911 call and subsequent mobilization of the response resources assigned by dispatch:

• Pipeline personnel: What are the Pipeline Company’s initial actions in response to this call (Emergency Response Plan)?
• What agencies and/or departments should be notified and who makes that call?
• Once on the scene, what are the actions of the local Pipeline Operator?
Briefing Update

Emergency responders have arrived on scene. An Incident Command Post (ICP) has been set up nearby. While gathered at the ICP, on scene personnel monitor bomb technicians. The technician utilizes a robot to monitor the device, with the assistance of support personnel.

Without warning, an audible ringing sound is heard coming from the IED, followed by the device detonating a few seconds later. While the product isn’t on fire, it is releasing from the facility now.

Based on the scenario information provided, participate in a discussion concerning the key issues raised in Block II. Identify any additional requirements, critical issues, decisions, or questions that should be addressed at this time.

Discussion Questions

Given our shared priorities of preserving life, property, and the environment:

• How will the emergency services, pipeline operators, and excavators stay in communication?

• What factors would help determine the appropriate protective action(s) for this incident?
  • Shelter-in-place
  • Evacuation

• Pipeline personnel: Given the detonation, what procedures will your control center (SCADA system) and field personnel follow?

• What sources can you use to find information about product hazards and characteristics?
Briefing Update

The local pipeline operator has advised that the process of closing remote valves and “drawing down” the product in the affected area has begun.

Local first responders and elected officials (city and county) have arrived on scene and are requesting to speak with command staff.

A television station has arrived on-scene and is also requesting to speak with command staff. They are broadcasting live from the scene.

Based on scenario information provided, participate in a discussion concerning the key issues raised in Block III. Identify any additional requirements, critical issues, decisions, or questions that should be addressed at this time.

Discussion Questions

Given the situation as it currently stands:

• Pipeline personnel: How long will it take to stop the flow of product?
• Who will coordinate the actions of the excavators on scene?
• Is there the potential for federal and state agencies to be involved in this incident?
• How will emergency responders and the pipeline company coordinate to inform the media?

This app is only available on the App Store for iOS devices.
EMERGENCY RESPONSE PLANS FOR GAS AND HAZARDOUS LIQUID PIPELINE OPERATORS

Federal regulations for both gas and hazardous liquid pipelines require operators to have written procedures for responding to emergencies involving their pipeline facility. Because pipelines are often located in public space, the regulations further require that operators include procedures for planning with emergency and other public officials to ensure a coordinated response. Please contact your local pipeline operators for information regarding their company specific emergency response plan.

Natural Gas
Each operator shall establish written procedures to minimize the hazard resulting from a gas pipeline emergency. At a minimum, the procedures must provide for the following:

• Receiving, identifying, and classifying notices of events which require immediate response by the operator.
• Establishing and maintaining adequate means of communication with appropriate fire, police, and other public officials.
• Prompt and effective response to a notice of each type of emergency, including the following:
  1. Gas detected inside or near a building.
  2. Fire located near or directly involving a pipeline facility.
  3. Explosion occurring near or directly involving a pipeline facility.
  4. Natural disaster.
• The availability of personnel, equipment, tools, and materials, as needed at the scene of an emergency.
• Actions directed toward protecting people first and then property.
• Emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property.
• Making safe any actual or potential hazard to life or property.
• Notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them both planned responses and actual responses during an emergency.
• Safely restoring any service outage.
• Each operator shall establish and maintain liaison with appropriate fire, police, and other public officials to:
  1. Learn the responsibility and resources of each government organization that may respond to a gas pipeline emergency;
  2. Acquaint the officials with the operator's ability in responding to a gas pipeline emergency;
  3. Identify the types of gas pipeline emergencies of which the operator notifies the officials; and
  4. Plan how the operator and officials can engage in mutual assistance to minimize hazards to life or property.

HAZARDOUS LIQUIDS

(a) General: Each operator shall prepare and follow for each pipeline system a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies. This manual shall be reviewed at intervals not exceeding 15 months, but at least once each calendar year, and appropriate changes made as necessary to insure that the manual is effective. This manual shall be prepared before initial operations of a pipeline system commence, and appropriate parts shall be kept at locations where operations and maintenance activities are conducted.

Emergencies. The manual required by paragraph (a) of this section must include procedures for the following to provide safety when an emergency condition occurs:

• Receiving, identifying, and classifying notices of events which need immediate response by the operator or notice to fire, police, or other appropriate public officials and communicating this information to appropriate operator personnel for corrective action.
• Prompt and effective response to a notice of each type emergency, including fire or explosion occurring near or directly involving a pipeline facility, accidental release of hazardous liquid or carbon dioxide from a pipeline facility, operational failure causing a hazardous condition, and natural disaster affecting pipeline facilities.
• Having personnel, equipment, instruments, tools, and material available as needed at the scene of an emergency.
• Taking necessary action, such as emergency shutdown or pressure reduction, to minimize the volume of hazardous liquid or carbon dioxide that is released from any section of a pipeline system in the event of a failure.
• Control of released hazardous liquid or carbon dioxide at an accident scene to minimize the hazards, including possible intentional ignition in the cases of flammable highly volatile liquid.
• Minimization of public exposure to injury and probability of accidental ignition by assisting with evacuation of residents and assisting with halting traffic on roads and railroads in the affected area, or taking other appropriate action.
• Notifying fire, police, and other appropriate public officials of hazardous liquid or carbon dioxide pipeline emergencies and coordinating with them preplanned and actual responses during an emergency, including additional precautions necessary for an emergency involving a pipeline system transporting a highly volatile liquid.
• In the case of failure of a pipeline system transporting a highly volatile liquid, use of appropriate instruments to assess the extent and coverage of the vapor cloud and determine the hazardous areas.
• Providing for a post accident review of employee activities to determine whether the procedures were effective in each emergency and taking corrective action where deficiencies are found.
Emergency Response

Hazard Area Radius

Evacuation Radius - Radiant Heat
In accordance with NENA Pipeline Emergency Operations Standard/Model Recommendation NENA 56-007 (https://www.nena.org/?page=PipelineEmergStnd)

**GOALS FOR INITIAL INTAKE:**
1. Obtain and Verify Incident Location, Callback and Contact Information
2. Maintain Control of the Call
3. Communicate the Ability to HELP the Caller
4. Methodically and Strategically Obtain Information through Systematic Inquiry to be Captured in the Agency’s Intake Format
5. Recognize the potential urgency of situations involving the release of dangerous gases or liquids related to pipelines or similar events of this nature and immediately begin the proper notifications consistent with agency policy
6. Perform all Information Entries and Disseminations, Both Initial and Update

**FIRST RESPONSE CALL INTAKE CHECK LIST**

The focus of this Standard is on the first minute of the call intake process. Actions taken during this time frame significantly impact the effectiveness of the response and are critical to public safety.

The following protocol is intended as a solid framework for call intake, but should not in any manner rescind or override agency procedures for the timing of broadcasts and messaging.

These procedures are established as recommended practices to consider with existing agency policy and procedure to ensure the most swift and accurate handling of every incident involving the release of dangerous gases or hazardous liquids.

All information should be simultaneously entered, as it is obtained by the telecommunicator, into an electronic format (when available) that will feed/populate any directed messages which will be sent to emergency responders in conjunction with on-air broadcasts.

**Location:**

Request exact location of the incident (structure addresses, street names, intersections, directional identifiers, mile posts, etc.) and obtain callback and contact information.

**Determine Exactly What Has Happened:**

Common signs of a pipeline leak are contained in Table 1 below. If any of these conditions are reported, THIS IS A PIPELINE EMERGENCY.

**TABLE 1**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Natural Gas (lighter than air)</th>
<th>LPG &amp; HVL (heavier than air)</th>
<th>Liquids</th>
</tr>
</thead>
<tbody>
<tr>
<td>An odor like rotten eggs or a burnt match</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>A loud roaring sound like a jet engine</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>A white vapor cloud that may look like smoke</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>A hissing or whistling noise</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The pooling of liquid on the ground</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>An odor like petroleum liquids or gasoline</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fire coming out of or on top of the ground</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dirt blowing from a hole in the ground</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bubbling in pools of water on the ground</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>A sheen on the surface of water</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>An area of frozen ground in the summer</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>An unusual area of melted snow in the winter</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>An area of dead vegetation</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
**Signs Of A Pipeline Release**

**SIGHT**
- Liquid on the ground
- Rainbow sheen on water
- Dead vegetation in an otherwise green area
- Dirt blowing into the air
- White vapor cloud
- Frozen area on ground

*Signs vary based upon product

**SMELL**
- Odors such as gas or oil
- Natural gas is colorless and odorless
  - Unless Mercaptan has been added (rotten egg odor)

**SOUND**
- A hissing or roaring sound

**OTHER - NEAR PIPELINE OPERATIONS**
- Burning eyes, nose or throat
- Nausea

---

**What To Do If A Leak Occurs**

- Evacuate immediately upwind
- Eliminate ignition sources
- Advise others to stay away
- **CALL 911** and the pipeline company – number on warning marker
  - Call collect if necessary
- Make calls from safe distance – not “hot zone”
- Give details to pipeline operator:
  - Your name
  - Your phone number
  - Leak location
  - Product activity
  - Extent of damage
- **DO NOT** drive into leak or vapor cloud
- **DO NOT** make contact with liquid or vapor
- **DO NOT** operate pipeline valves (unless directed by pipeline operator):
  - Valve may be automatically shut by control center
  - Valve may have integrated shut-down device
  - Valve may be operated by qualified pipeline personnel only, unless specified otherwise
- Ignition sources may vary – a partial list includes:
  - Static electricity
  - Metal-to-metal contact
  - Pilot lights
  - Matches/smoking
  - Sparks from telephone
  - Electric switches
  - Electric motors
  - Overhead wires
  - Internal combustion engines
  - Garage door openers
  - Firearms
  - Photo equipment
  - Remote car alarms/door locks
  - High torque starters – diesel engines
  - Communication devices

---

**Pipeline Emergency**

**Call Gas Control Or Pipeline Control Center**
Use *Pipeline Emergency Response Planning Information Manual* for contact information
Phone number on warning markers
Use state One-Call System, if applicable

**Control Center Needs To Know**
Your name & title in your organization
Call back phone number – primary, alternate
Establish a meeting place
Be very specific on the location (*use GPS*)
Provide City, County and State

**Injuries, Deaths, Or Property Damage**
Have any known injuries occurred?
Have any known deaths occurred?
Has any severe property damage occurred?

**Traffic & Crowd Control**
Secure leak site for reasonable distance
Work with company to determine safety zone
No traffic allowed through any hot zone
Move sightseers and media away
Eliminate ignition sources

---

**Fire**
Is the leak area on fire?
Has anything else caught on fire besides the leak?

**Evacuations**
Primary responsibility of emergency agency
Consult with pipeline/gas company

**Fire Management**
Natural Gas – **DO NOT** put out until supply stopped
Liquid Petroleum – water is **NOT** recommended; foam IS recommended
Use dry chemical, vaporizing liquids, carbon dioxide

**Ignition Sources**
Static electricity (*nylon windbreaker*)
Metal-to-metal contact
Pilot lights, matches & smoking, sparks from phone
Electric switches & motors
Overhead wires
Internal combustion engines
Garage door openers, car alarms & door locks
Firearms
Photo equipment
High torque starters – diesel engines
Communication devices – not intrinsically safe
Pipeline safety regulations use the concept of “High Consequence Areas” (HCAs), to identify specific locales and areas where a release could have the most significant adverse consequences. Once identified, operators are required to devote additional focus, efforts, and analysis in HCAs to ensure the integrity of pipelines.

Releases from pipelines can adversely affect human health and safety, cause environmental degradation, and damage personal or commercial property. Consequences of inadvertent releases from pipelines can vary greatly, depending on where the release occurs, and the commodity involved in the release.

**What criteria define HCAs for pipelines?**

Because potential consequences of natural gas and hazardous liquid pipeline releases differ, criteria for HCAs also differ. HCAs for natural gas transmission pipelines focus solely on populated areas. (Environmental and ecological consequences are usually minimal for releases involving natural gas.) Identification of HCAs for hazardous liquid pipelines focuses on populated areas, drinking water sources, and unusually sensitive ecological resources.

**HCAs for hazardous liquid pipelines:**

- Populated areas include both high population areas (called “urbanized areas” by the U.S. Census Bureau) and other populated areas (areas referred to by the Census Bureau as a “designated place”).
- Drinking water sources include those supplied by surface water or wells and where a secondary source of water supply is not available. The land area in which spilled hazardous liquid could affect the water supply is also treated as an HCA.
- Unusually sensitive ecological areas include locations where critically imperiled species can be found, areas where multiple examples of federally listed threatened and endangered species are found, and areas where migratory water birds concentrate.

**HCAs for natural gas transmission pipelines:**

- An equation has been developed based on research and experience that estimates the distance from a potential explosion at which death, injury or significant property damage could occur. This distance is known as the “potential impact radius” (or PIR), and is used to depict potential impact circles.
- Operators must calculate the potential impact radius for all points along their pipelines and evaluate corresponding impact circles to identify what population is contained within each circle.
- Potential impact circles that contain 20 or more structures intended for human occupancy; buildings housing populations of limited mobility; buildings that would be hard to evacuate. (Examples are nursing homes, schools); or buildings and outside areas occupied by more than 20 persons on a specified minimum number of days each year, are defined as HCAs.

* [https://primis.phmsa.dot.gov/comm/FactSheets/FSHCA.htm](https://primis.phmsa.dot.gov/comm/FactSheets/FSHCA.htm)

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**Identified Sites**

Owners and companies of gas transmission pipelines are regulated by the US Department of Transportation (DOT). According to integrity management regulations, gas pipeline companies are required to accept the assistance of local public safety officials in identifying certain types of sites or facilities adjacent to the pipeline which meets the following criteria:

(a) A small, well-defined outside area that is occupied by twenty or more persons on at least 50 days in any twelve-month period (the days need not be consecutive). Examples of such an area are playgrounds, parks, swimming pools, sports fields, and campgrounds.

(b) A building that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12 month period (the days and weeks need not be consecutive). Examples included in the definition are: religious facilities, office buildings, community centers, general stores, 4-H facilities, and roller rinks.

(c) A facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate. Examples of such a facility are hospitals, schools, elder care, assisted living/nursing facilities, prisons and child daycares.

**Identified Site Registry**

Pipeline operators need your help keeping people and property safe. Identified Sites - locations where many people occupy an area near a pipeline asset or facility. These are places where people may gather from time to time for a variety of reasons.

Some of these sites are very difficult for companies to obtain without help from those with local knowledge of the area.

Please use the following website to gain secure access, so you can assist in identifying sites where people congregate in your community:

my.spatialobjects.com/admin/register/ISR

Pipeline operators are required by law to work with public officials who have safety or emergency response, or planning responsibilities that can provide quality information regarding identified sites.

* 49 CFR §192.903.
In 1999, the Department of Transportation sponsored the Common Ground Study. The purpose of the Common Ground Study was to identify and validate existing best practices performed in connection with preventing damage to underground facilities. The collected best practices are intended to be shared among stakeholders involved with and dependent upon the safe and reliable operation, maintenance, construction, and protection of underground facilities. The best practices contain validated experiences gained that can be further examined and evaluated for possible consideration and incorporation into state and private stakeholder underground facility damage prevention programs.

The current Best Practices Field Manual is divided into nine chapters that provide a collection of current damage prevention best practices. The nine chapters include:

1. Planning & Design Best Practices
2. One Call Center Best Practices
3. Location & Marking Best Practices
4. Excavation Best Practices
5. Mapping Best Practices
6. Compliance Best Practices
7. Public Education Best Practices
8. Reporting & Evaluation Best Practices
9. Miscellaneous Practices

To view the latest version of the Best Practices please visit www.commongroundalliance.com

According to National Transportation Safety Board statistics pipelines are the safest and most efficient means of transporting natural gas and petroleum products, which are used to supply roughly two-thirds of the energy we use. These pipelines transport trillions of cubic feet of natural gas and hundreds of billions of ton/miles of liquid petroleum products in the United States each year.

This system is comprised of three types of pipelines: transmission, distribution and gathering. The approximately 519,000 miles of transmission pipeline* transport products, including natural gas and petroleum products, across the country and to storage facilities. Compressor stations and pumping stations are located along transmission and gathering pipeline routes and help push these products through the line.

Approximately 2.2 million miles of distribution pipeline* is used to deliver natural gas to most homes and businesses through underground main and utility service lines. Onshore gathering lines are pipelines that transport gas from a current production operation facility to a transmission line or main. Production operations are piping and equipment used in production and preparation for transportation or delivery of hydrocarbon gas and/or liquids.

*mileage according to the Pipeline Hazardous Materials Safety Administration (PHMSA).
Pursuant to 49 CFR Parts 192.614 (c)(2)(i) and 195.442 (c)(2)(i) pipeline operators must communicate their Damage Prevention Program’s “existence and purpose” to the public in the vicinity of the pipeline and persons who normally engage in excavation activities in the area in which the pipeline is located.

State and federally regulated pipeline companies maintain Damage Prevention Programs. The purpose of which is to prevent damage to pipelines and facilities from excavation activities, such as digging, trenching, blasting, boring, tunneling, backfilling, or by any other digging activity.

**Pipeline Markers**

The U.S. Department of Transportation (DOT) requires the use of signs to indicate the location of underground pipelines. Markers like these are located on road, railroad, and navigable waterway crossings. Markers are also posted along the pipeline right-of-way.

The markers display:
- The material transported
- The name of the pipeline operator
- The operator’s emergency number

**MARKER INFORMATION**
- Indicates area of pipeline operations
- May have multiple markers in single right-of-way
- May have multiple pipelines in single right-of-way
- DOES NOT show exact location
- DOES NOT indicate depth (never assume pipeline depth)
- DOES NOT indicate pipeline pressure

**Call Before You Dig**

Statistics indicate that damage from excavation related activities is a leading cause of pipeline accidents. If you are a homeowner, farmer, excavator, or developer, we need your help in preventing pipeline emergencies.

1. Call your state’s One-Call center before excavation begins - regulatory mandate as state law requires.
2. Wait the required amount of time.
3. A trained technician will mark the location of the pipeline and other utilities (private lines are not marked).
4. Respect the marks.
5. Dig with care.

National One-Call Dialing Number:

![811 call before you dig]

For More Details Visit: www.call811.com

**American Public Works Association (APWA) Uniform Color Code**

- **WHITE** - Proposed Excavation
- **PINK** - Temporary Survey Markings
- **RED** - Electric Power Lines, Cables, Conduit and Lighting Cables
- **YELLOW** - Gas, Oil, Steam, Petroleum or Gaseous Materials
- **ORANGE** - Communication, Alarm or Signal Lines, Cables or Conduit
- **BLUE** - Potable Water
- **PURPLE** - Reclaimed Water, Irrigation and Slurry Lines
- **GREEN** - Sewers and Drain Lines

**OSHA General Duty Clause**

Section 5(a)(1) of the Occupational Safety and Health Act (OSHA) of 1970, employers are required to provide their employees with a place of employment that “is free from recognizable hazards that are causing or likely to cause death or serious harm to employees.”

Pipeline Industry ER Initiatives

Pipeline Emergency Response Training
Professional Development Opportunities for Individuals and Organizations

www.pipelines.training

Online Emergency Response Training

Shoulder to Shoulder
Roles in Pipeline Emergency Response

Watch the Shoulder to Shoulder video series at shoulder2shoulder.tv
### Product Characteristics

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>LEAK TYPE</th>
<th>VAPORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIGHLY VOLATILE LIQUIDS</strong> [SUCH AS: BUTANE, PROPANE, ETHANE, PROPYLENE, AND NATURAL GAS LIQUIDS (NGL)]</td>
<td>Gas</td>
<td>Initially heavier than air, spread along ground and may travel to source of ignition and flash back. Product is colorless, tasteless and odorless.</td>
</tr>
<tr>
<td><strong>HEALTH HAZARDS</strong></td>
<td></td>
<td>Will be easily ignited by heat, sparks or flames and will form explosive mixtures with air. Vapors may cause dizziness or asphyxiation without warning and may be toxic 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.</td>
</tr>
<tr>
<td><strong>NATURAL GAS</strong></td>
<td>Gas</td>
<td>Lighter than air and will generally rise and dissipate. May gather in a confined space and travel to a source of ignition.</td>
</tr>
<tr>
<td><strong>HEALTH HAZARDS</strong></td>
<td></td>
<td>Will be easily ignited by heat, sparks or flames and will form explosive mixtures with air. Vapors may cause dizziness or asphyxiation without warning and may be toxic if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.</td>
</tr>
<tr>
<td><strong>HAZARDOUS LIQUIDS</strong> [SUCH AS: CRUDE OIL, DIESEL FUEL, JET FUEL, GASOLINE, AND OTHER REFINED PRODUCTS]</td>
<td>Liquid</td>
<td>Initially heavier than air and spread along ground and collect in low or confined areas. Vapors may travel to source of ignition and flash back. Explosion hazards indoors, outdoors or in sewers.</td>
</tr>
<tr>
<td><strong>HEALTH HAZARDS</strong></td>
<td></td>
<td>Inhalation or contact with material may irritate or burn skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution.</td>
</tr>
</tbody>
</table>
Excavation Best Practices Jobsite Checklist

EXCAVATOR RESPONSIBILITIES:
- Call Before You Dig - It’s the Law!
- Wait the required time for the markings! (state specific time – check your local One Call Law)
- Tolerance Zones – May vary by state and/or company!
- Respect the marks!
- Dig with care!

RISK CONSIDERATIONS
- Type/volume/pressure/location/geography of product
- Environmental factors – wind, fog, temperature, humidity
- Sight, sound, smell – indicators vary depending on product
- Black, dark brown or clear liquids/dirt blowing into air/peculiar odors/dead insects around gas line/dead vegetation
- Rainbow sheen on the water/mud or water bubbling up/frozen area on ground/frozen area around gas meter
- Other utility emergencies

PIPELINE MARKERS
The U.S. Department of Transportation (DOT) requires the use of signs to indicate the location of underground pipelines. Markers like these are located on road, railroad, and navigable waterway crossings. Markers are also posted along the pipeline right-of-way. Markers may not be located directly over the pipeline it marks.

The markers display:
- The product transported
- The name of the pipeline operator
- The operator’s emergency number

- White Lining (Pre-marking)
- One Call Facility Request
- One Call Access
- Locate Reference Number
- Separate Locate Request
- Pre-excavation Meeting
- Facility Relocations
- One Call Reference Number at Site
- Contact Names and Numbers
- Positive Response
- Facility Owner/Operator Failure to Respond
- Locate Verification
- Work Site Review with Company Personnel
- Documentation of Marks
- Facility Avoidance
- Marking Preservation
- Excavation Observer
- Excavation Tolerance Zone
- Excavation within the Tolerance Zone
- Vacuum Excavation
- Mismarked Facilities
- Exposed Facility Protection
- Locate Request Updates
- Facility Damage Notification
- Notification of Emergency Personnel
- Emergency Coordination with Adjacent Facilities
- Emergency Excavation
- Backfilling
- As-built Documentation
- Trenchless Excavation
- No Charge for Providing Underground Facility Locations
- Federal and State Regulations

811. Know what’s below. Call before you dig.

24
Pipeline Damage Reporting Law As Of 2007

H.R. 2958 Emergency Alert Requirements

Any person, including a government employee or contractor, who while engaged in the demolition, excavation, tunneling, or construction in the vicinity of a pipeline facility;

A. Becomes aware of damage to the pipeline facility that may endanger life or cause serious bodily harm or damage to property; or

B. Damages the pipeline facility in a manner that may endanger life or cause serious bodily harm or damage to property, shall promptly report the damage to the operator of the facility and to other appropriate authorities.

Websites:

Call Before You Clear
www.callbeforeyouclear.com

Association of Public-Safety Communications Officials - International (APCO)
www.apcointl.org/

Common Ground Alliance
www.commongroundalliance.com

Federal Emergency Management Agency
www.fema.gov

Federal Office of Pipeline Safety
www.phmsa.dot.gov

National Fire Protection Association (NFPA)
www.nfpa.org

National Pipeline Mapping System
www.npms.phmsa.dot.gov

National Response Center
www.nrc.uscg.mil or 800-424-8802

Paradigm Liaison Services, LLC
www.pdigm.com

United States Environmental Protection Agency (EPA)
www.epa.gov/cameo

Wireless Information System for Emergency Responders (WISER)
www.wiser.nlm.nih.gov

FOR MORE INFORMATION ON THE NASFM PIPELINE EMERGENCIES PROGRAM
www.pipelineemergencies.com

FOR EMERGENCY RESPONSE INFORMATION, REFER TO DOT GUIDEBOOK.
FOR COPIES: (202) 366-4900
Paradigm is public awareness. We provide public awareness and damage prevention compliance services to assist with the regulatory requirements of 49 CFR 192 and 195, as well as API RP 1162. Since 2001, the oil and gas industry has worked with Paradigm to fulfill public education and community awareness requirements.

Our history of implementing public awareness programs and compliance services pre-dates API RP 1162. Most of the pipeline industry’s large, mid-sized and small operators, as well as many local distribution companies utilize Paradigm’s compliance services.

In serving our clients, Paradigm performs full-scope compliance programs from audience identification through effectiveness measurement. In addition, we offer consulting services for plan evaluation and continuous improvement. At the completion of each compliance program, we provide structured documentation which precisely records all elements of the program’s implementation to assist with audits.

Paradigm leads the way in industry service. Pipeline operators and local distribution companies trust in Paradigm to implement their public awareness and damage prevention programs. Each year we:

- Distribute 25 million pipeline safety communications
- Compile and analyze roughly 250,000 stakeholder response surveys
- Facilitate over 1,200 liaison programs
- Implement approximately 1,000 public awareness compliance programs
- Provide audit support and assistance with over 50 public awareness audits

Contact Paradigm for more information regarding custom public awareness solutions.

Contact us:
Paradigm Liaison Services, LLC
PO Box 9123
Wichita, KS 67277
(877) 477-1162
Fax: (888) 417-0818
www.pdigm.com
<table>
<thead>
<tr>
<th>Operator Name(s) / Contact Information</th>
<th>Type(s) of Pipeline Systems Operating</th>
<th>Location within County</th>
<th>Pipe Size and Operating Pressure Range(s)</th>
<th>Average Emergency Response Time(s)</th>
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We need your help in preventing damage to underground pipelines. The most common cause of pipeline damage happens when a third party unknowingly digs, blasts or drills near a pipeline. If you plan to dig or do any type of excavation or construction work, NYS law requires you to call Dig Safely New York 2 full working days prior to starting your work; not counting the day of your call, weekends or holidays.

Remember any excavation activity near an underground facility can potentially cause damage to that facility. Do your part and make sure the underground infrastructure has been marked. Please call 811 before you dig.

Dig Safely New York Serves all of New York with the exception of New York City and Long Island.

Established in 1990, New York 811 (Formerly Dignet of NYC & LI Inc.) is a nonprofit organization that acts as a communications link between utility companies and individuals planning any digging activity in the five boroughs of New York City and Nassau and Suffolk Counties on Long Island. By relaying these requests, New York 811 helps protect one of the most vast, congested and complicated underground infrastructures in the nation.

Though New York 811 does not physically mark utility lines or underground facilities, we do relay digging and excavation requests to our member network. This network includes companies that own or operate underground utility lines in our region, including cable television, natural gas, electric, water, sewer and telecommunications companies.

We also devote significant time and resources to promoting safe digging through presentations, special events, partnerships, and public education and outreach.

For general information about New York 811, call 1-800-524-7603.
Overview

Pipeline Safety

Product Scenarios

Emergency Response Guidebook

NENA Pipeline Emergency Operations

Signs Of A Pipeline Release

High Consequence Areas Identification

Pipeline Industry ER Initiatives

Pipeline Damage Reporting Law

**NEW YORK**

Coordinated Response & Excavator Exercise®

Pipeline Safety Training

How to use PAV:

- Launch the app on your device.
- Review the brief instructions.
- Tap the SCAN button and aim your camera at this page.*
- When the buttons appear, tap the lock icon to view the available content.
- Tap the buttons to view important pipeline safety information.

*For best results, enable Wi-Fi on your device prior to using the PAV app.

Download the Pipeline Awareness Viewer™ (PAV) app to learn about pipelines, including:

- How to find transmission pipelines in your area
- The 811 process
- Register for a pipeline safety meeting near you
- Download the NENA call intake checklist
- How to recognize a pipeline leak
- An overview of the pipeline industry
- How to recognize the location of a pipeline
- Download the PHMSA Emergency Response Guidebook

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VIEW INTERACTIVE CONTENT*