Pipeline Incident Response for Emergency Responders

SAFETY MOMENT

SAFETY IN EVERY STEP

ENERGY IN EVERY ACTION

TC Energy Overview

- TC Energy Operates approximately 57,500 miles of natural gas pipelines throughout the US, Canada and Mexico
- USNG's 30,480 miles of pipeline span 38 states
- Our network of natural gas pipelines supplies more than 25% of all natural gas consumed across North America
- Fuels industry, heats homes and produces reliable electrical generation

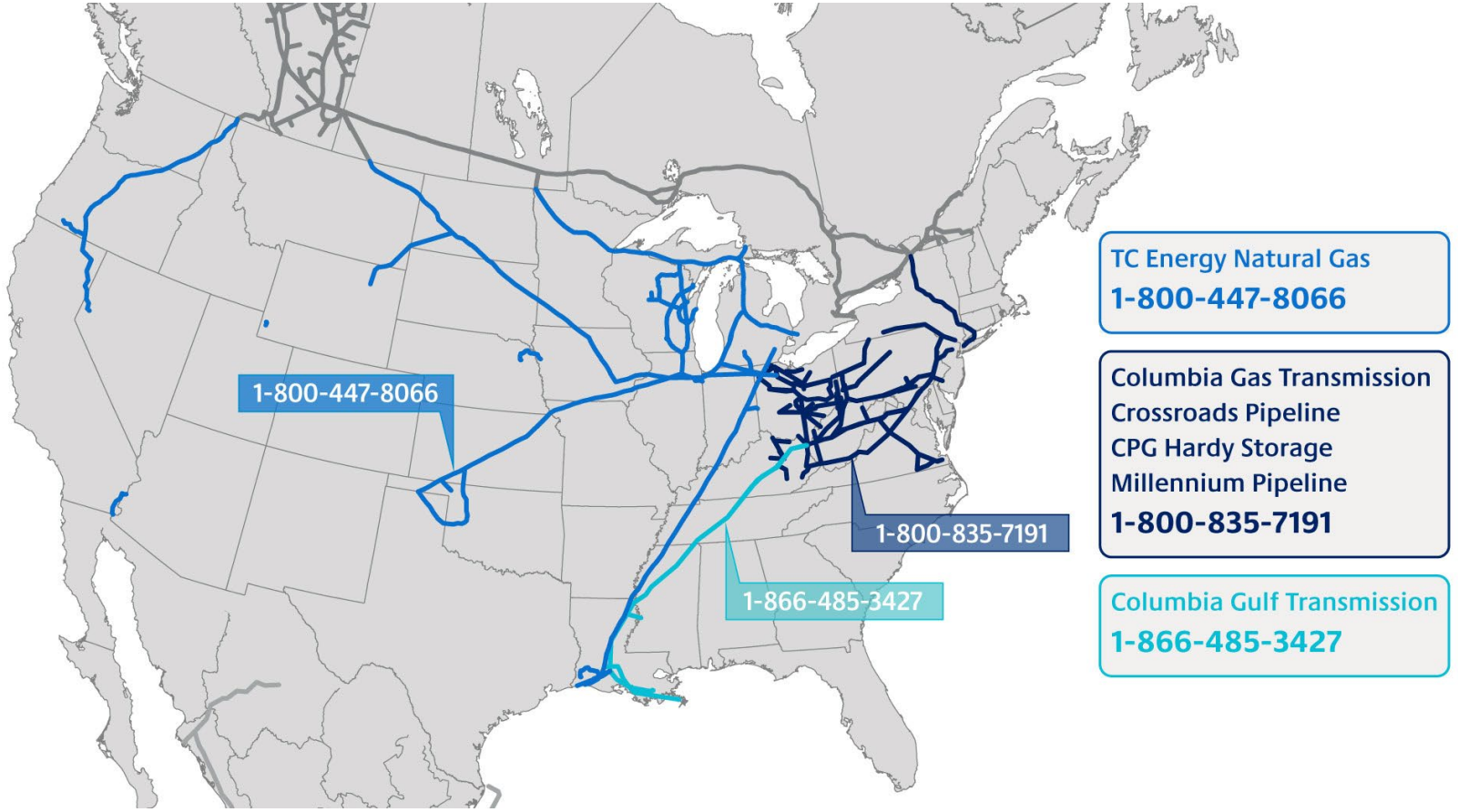
Energy transportation pipeline safety record

We aim for our pipelines and facilities to operate incident-free and to ensure our assets serve our people and communities across the continent for years to come.

Our pipeline safety programs are among the most robust in the industry and are the most important part of our business.

Emergency Contacts

This map displays TC Energy's pipeline network across the United States, along with the dedicated emergency contact numbers for each system. If you are uncertain about which pipeline operates in your specific location, please call any of the listed phone numbers. The operations center that answers will properly direct your call to the appropriate regional response team.



Pacific Mountain Region

States in Region

- Idaho
- Washington
- Oregon
- California
- Nevada
- Arizona

Pipeline Systems

- TC Energy Natural Gas

Emergency Contact

1-800-447-8066

Upland Prairie Region

States in Region

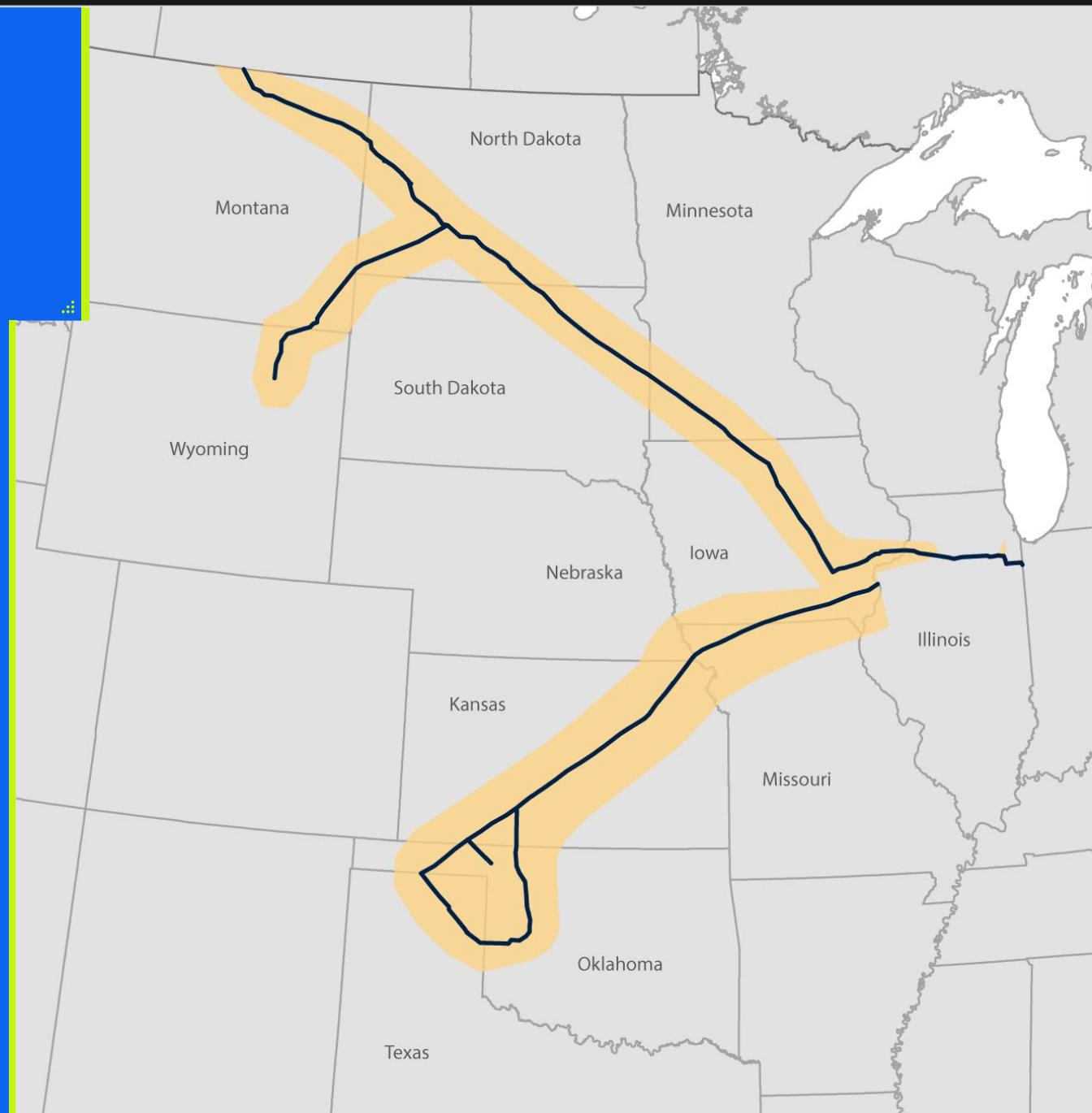
- Illinois
- Iowa
- Kansas
- Minnesota
- Missouri
- Montana
- Nebraska
- North Dakota
- Oklahoma
- South Dakota
- Texas
- Wyoming

Pipeline Systems

- TC Energy Natural Gas
- Columbia Gas Transmission

Emergency Contact

1-800-447-8066
1-866-485-3427



American Gulf Region

States in Region

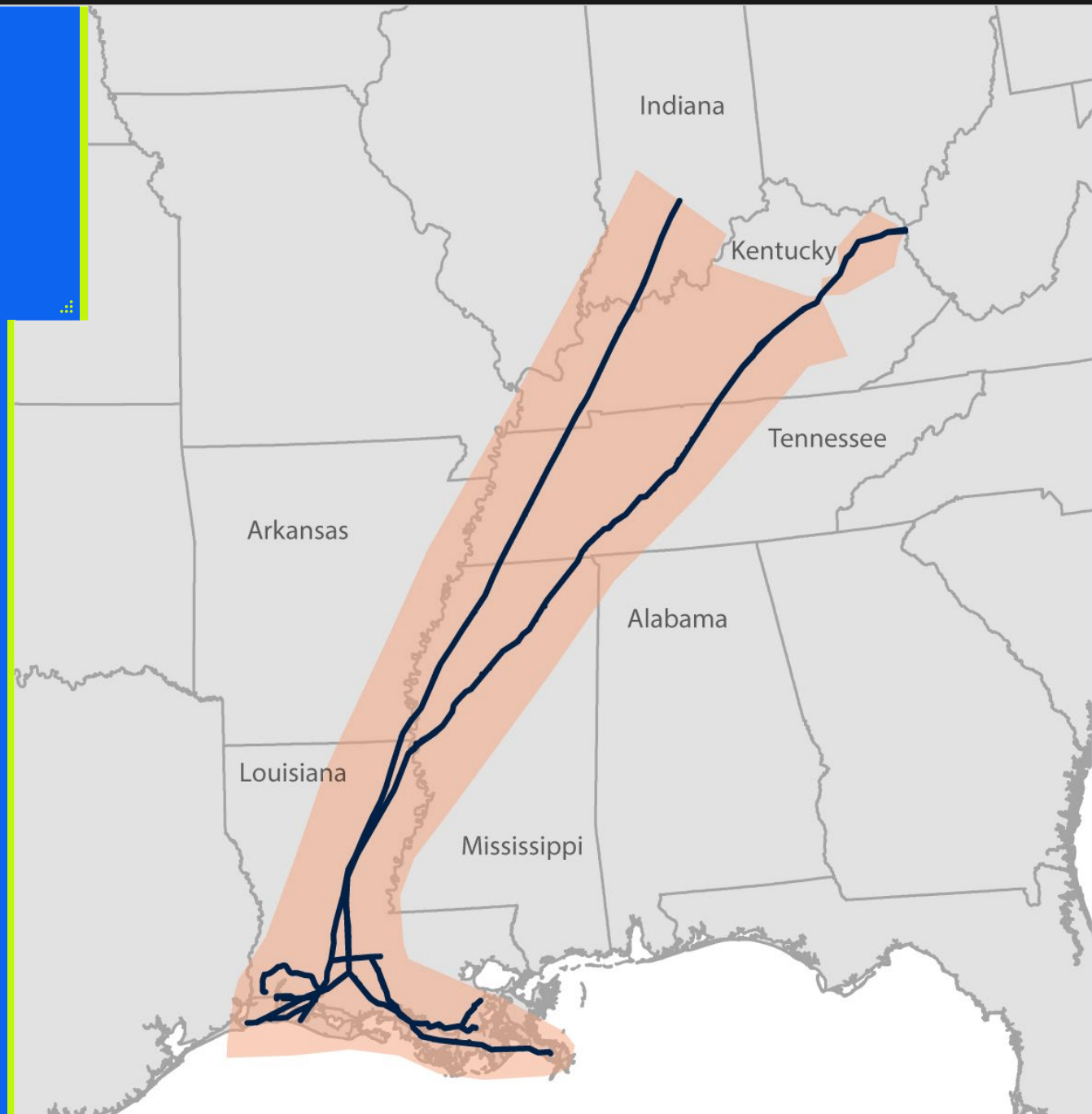
- Arkansas
- Indiana
- Kentucky
- Louisiana
- Mississippi
- Tennessee

Pipeline Systems

- TC Energy Natural Gas
- Columbia Gulf Transmission
- Columbia Gas Transmission

Emergency Contact

1-800-447-8066
1-866-485-3427
1-800-835-7191



Mid-Atlantic Region

States in Region

- Maryland
- New Jersey
- New York
- North Carolina
- Pennsylvania
- Virginia
- West Virginia

Pipeline Systems

- Columbia Gas Transmission
- Millenium Pipeline
- CPG Hardy Storage

Emergency Contact

1-800-835-7191

Central Region

States in Region

- Kentucky
- Maryland
- Ohio
- Virginia
- West Virginia

Pipeline Systems

- TC Energy Natural Gas
- Columbia Gulf Transmission
- Columbia Gas Transmission
- Crossroads Pipeline
- CPG Hardy Storage

Emergency Contact

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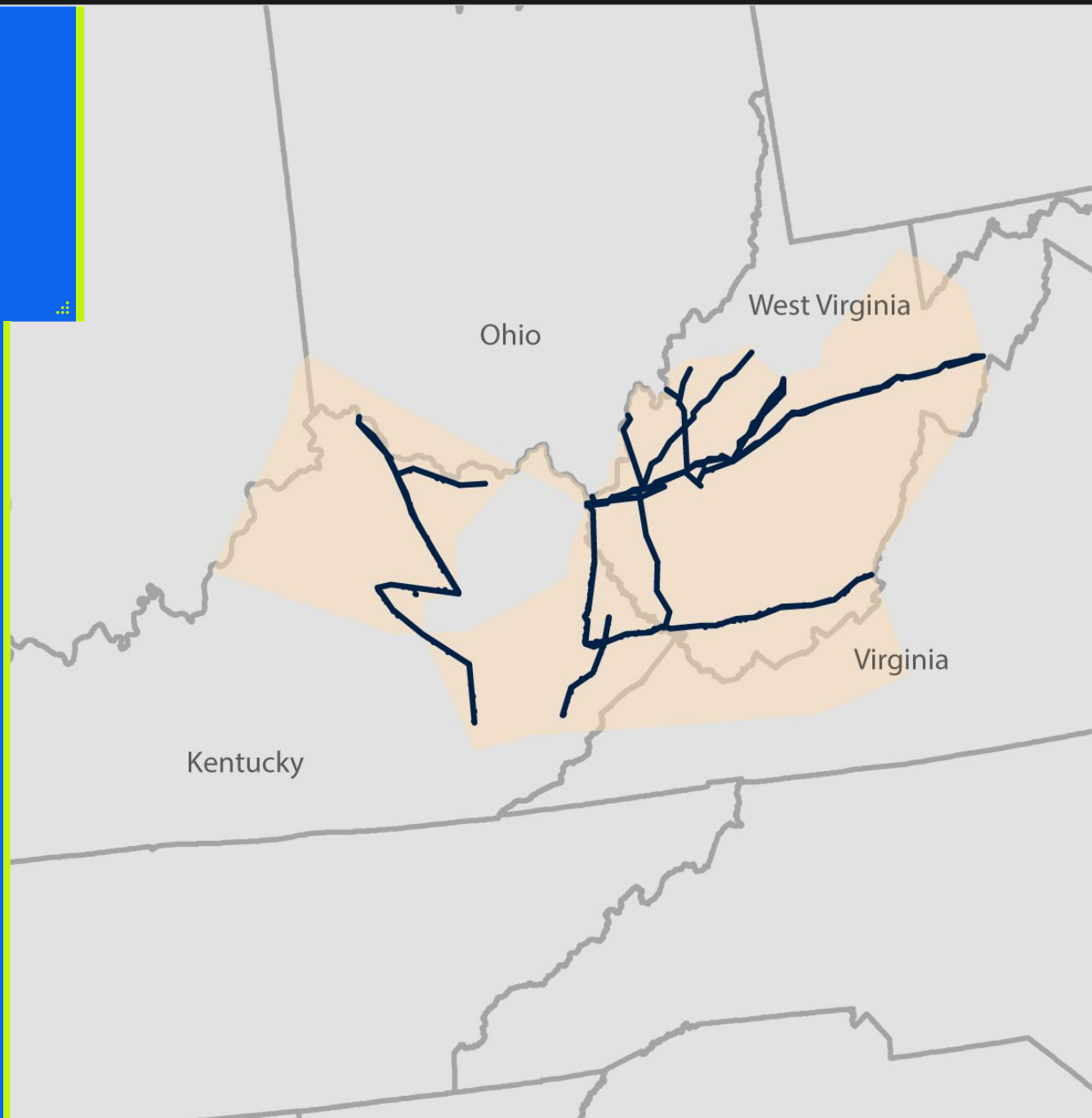
1-866-485-3427
1-800-835-7191



Appalachia Region

States in Region

- Maryland
- New York
- Ohio
- Pennsylvania
- West Virginia

Pipeline Systems

- Columbia Gas Transmission
- Crossroads Pipeline
- TC Energy Natural Gas
- Millenium Pipeline
- CPG Hardy Storage

Emergency Contact

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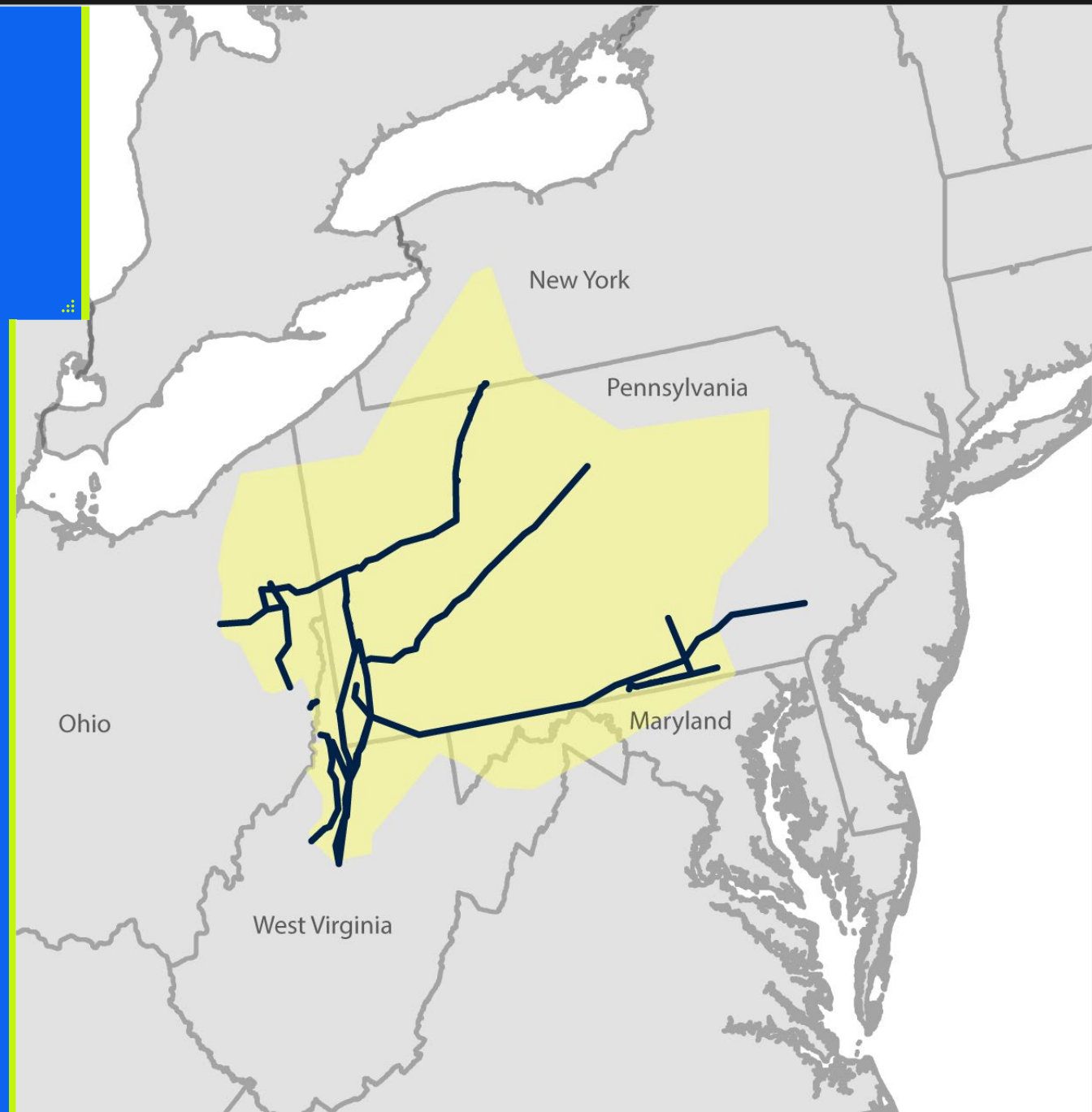
1-800-447-8066



Erie Plains Region

States in Region

- Ohio

Pipeline Systems

- Columbia Gas Transmission
- Crossroads Pipeline
- TC Energy Natural Gas

Emergency Contact

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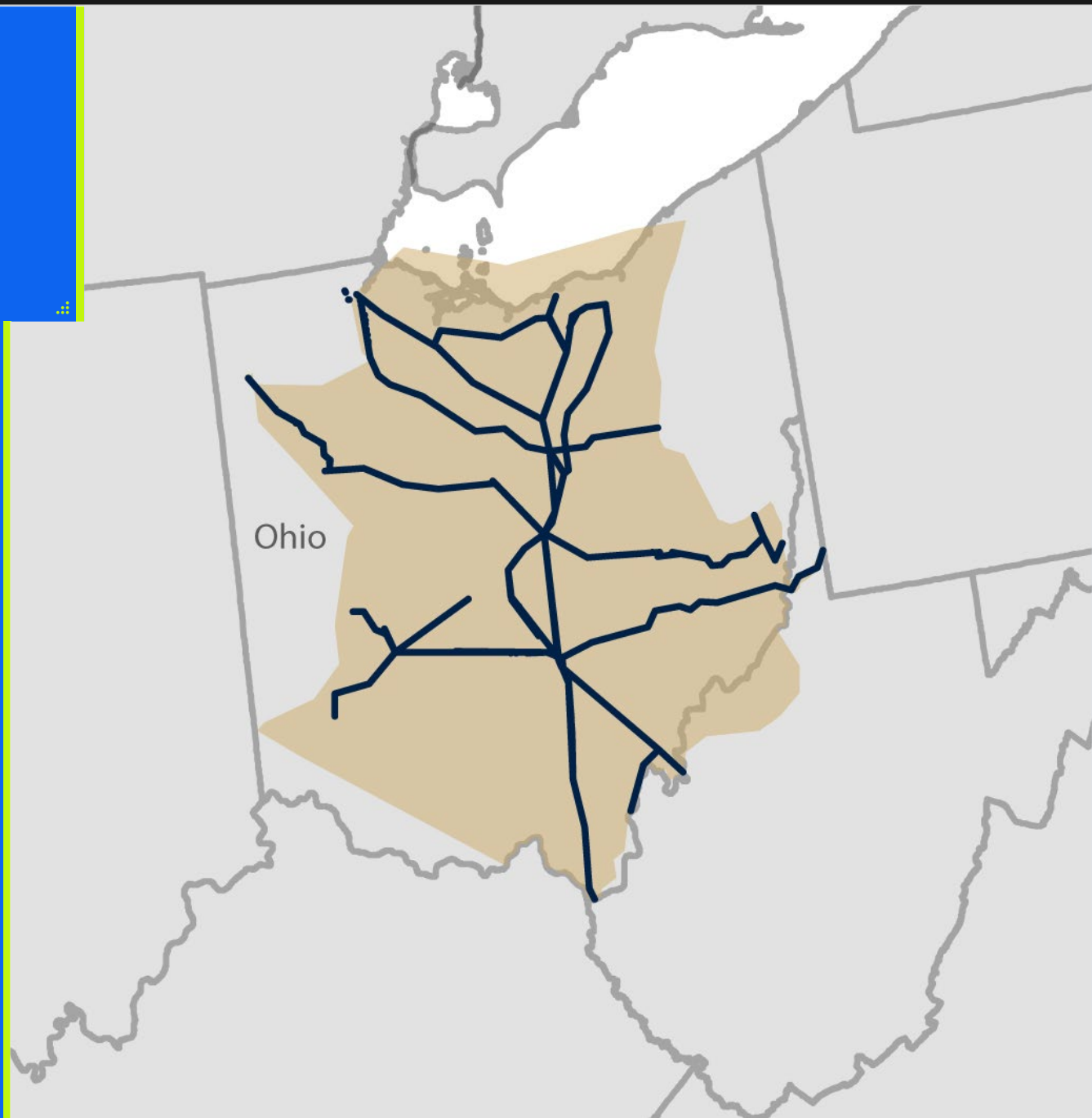
1-800-447-8066



Heartland Region

States in Region

- Illinois
- Indiana
- Michigan
- Ohio
- Wisconsin

Pipeline Systems

- TC Energy Natural Gas
- Columbia Gas Transmission
- Crossroads Pipeline

Emergency Contact

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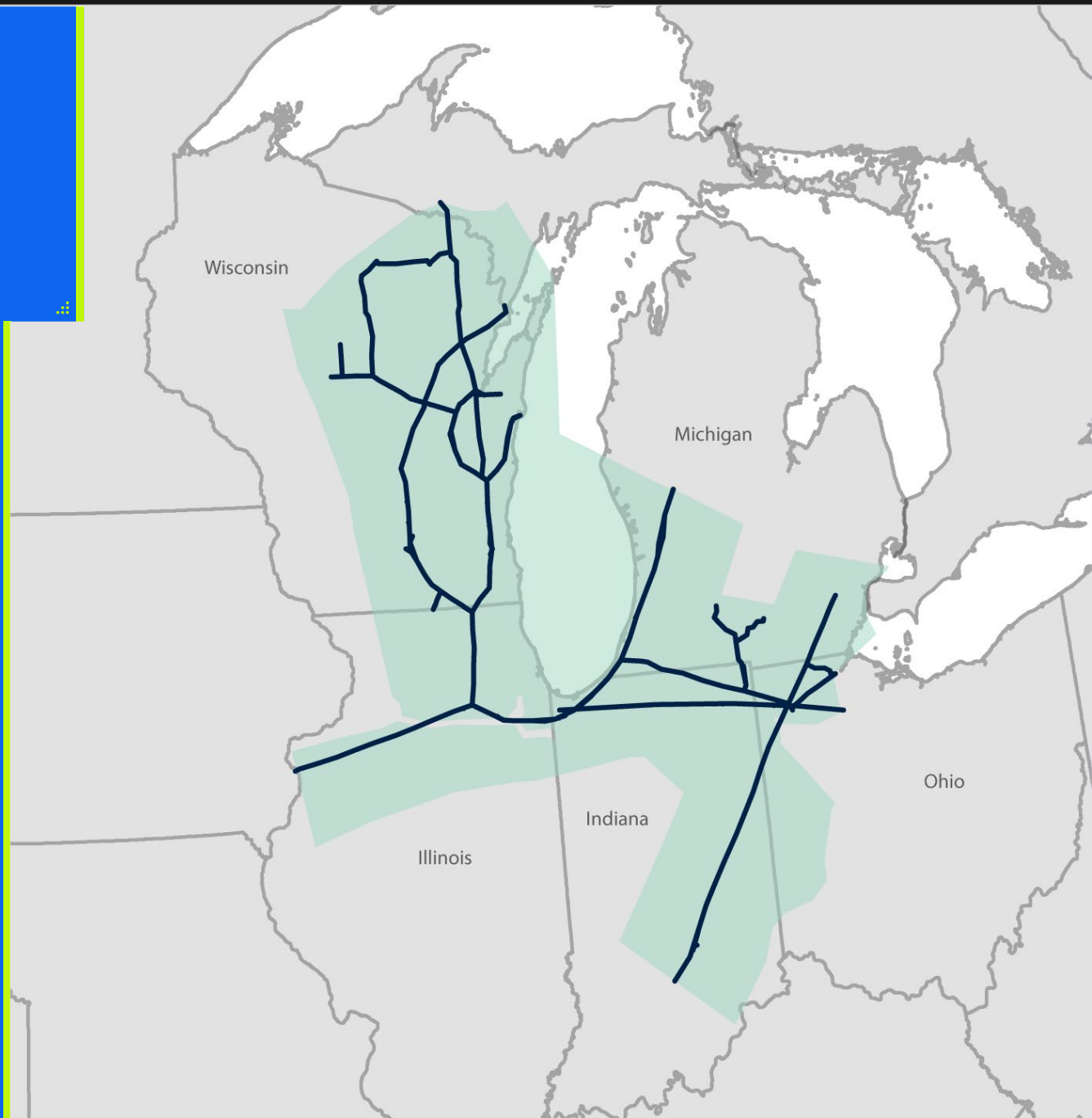
1-800-835-7191



Great Lakes Region

States in Region

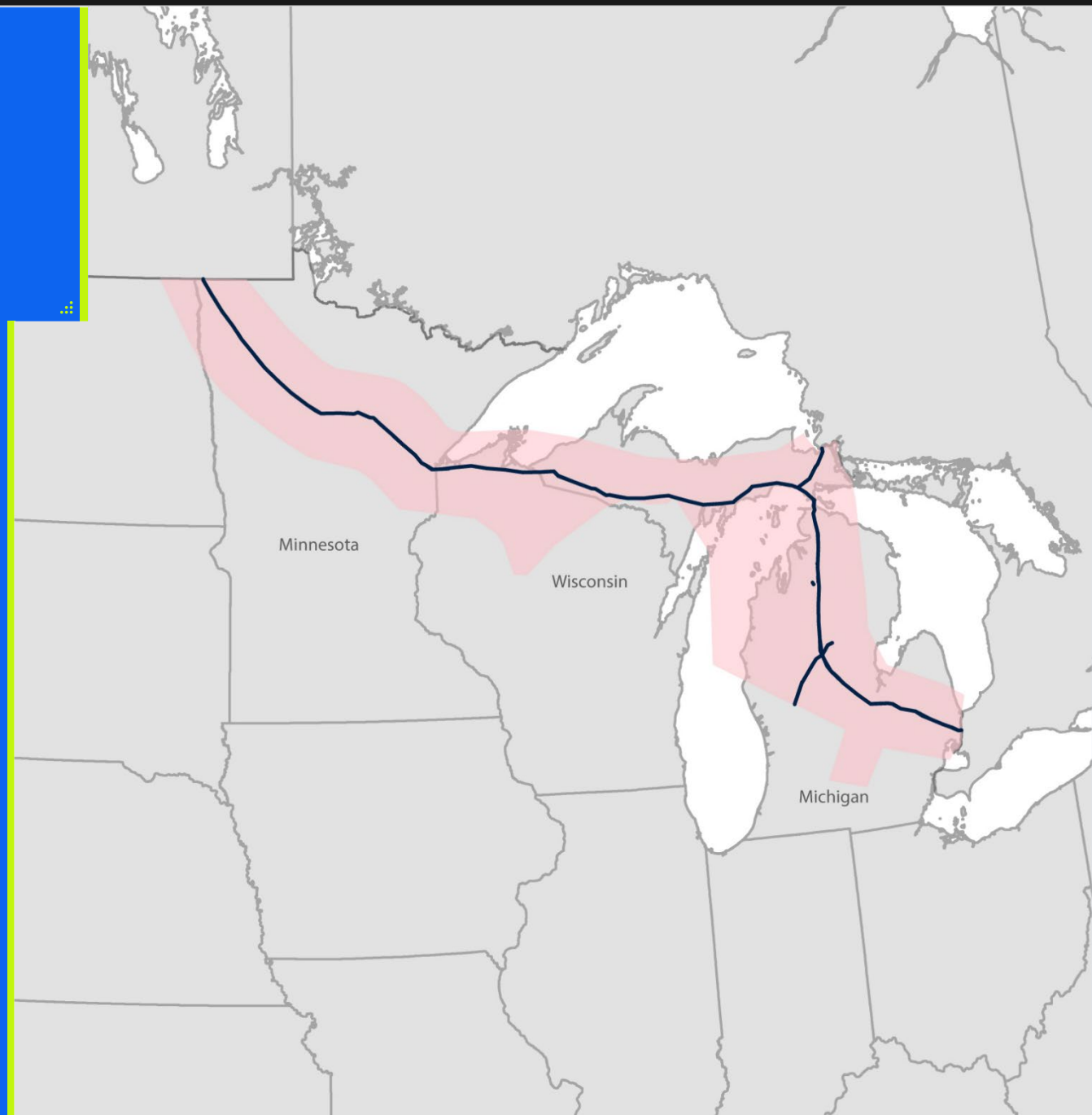
- Michigan
- Minnesota
- Wisconsin

Pipeline Systems

- TC Energy Natural Gas

Emergency Contact

1-800-447-8066



Contact information

Non-Emergency Contact Information

1-855-458-6715

Public_Awareness@tcenergy.com

About this Course

The TC Energy pipeline response course is designed to provide awareness for emergency responders who may respond to an incident involving a TC Energy natural gas pipeline release.

Note: This is a general guide, and any further questions can be directed to local staff.

Overview

OVERVIEW

- **Pipeline Purpose & Reliability**
  - State & Federal Regulations
  - Role and Function of Pipelines
  - Pipeline Safety & Integrity
- **Pipeline Right-of-Way**
  - Pipeline Right-of-Way & Encroachments
  - Report Damage or Suspicious Activity
- **Incident Response**
  - Leak Recognition
  - Responding to Incidents
  - Advance Preparedness

Pipeline Purpose and Reliability

Overview of Pipelines

Objectives

- Identify regulatory agencies for the pipeline industry.
- Review roles and functions of pipelines.
- Recognize safety and integrity standards for pipelines.

Federal Regulatory Agency

US DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) oversees INTERSTATE pipelines

- Pipelines that cross state borders (transmission pipelines)
- Monitor compliance
- Programmatic inspections
- Incident investigation
- Direct dialogue
- www.phmsa.dot.gov

Pipeline and Hazardous Materials Safety Administration

State Regulatory Agencies

NAPSR

National Association of Pipeline Safety Representatives

https://www.napsr.org/state-program-managers.html

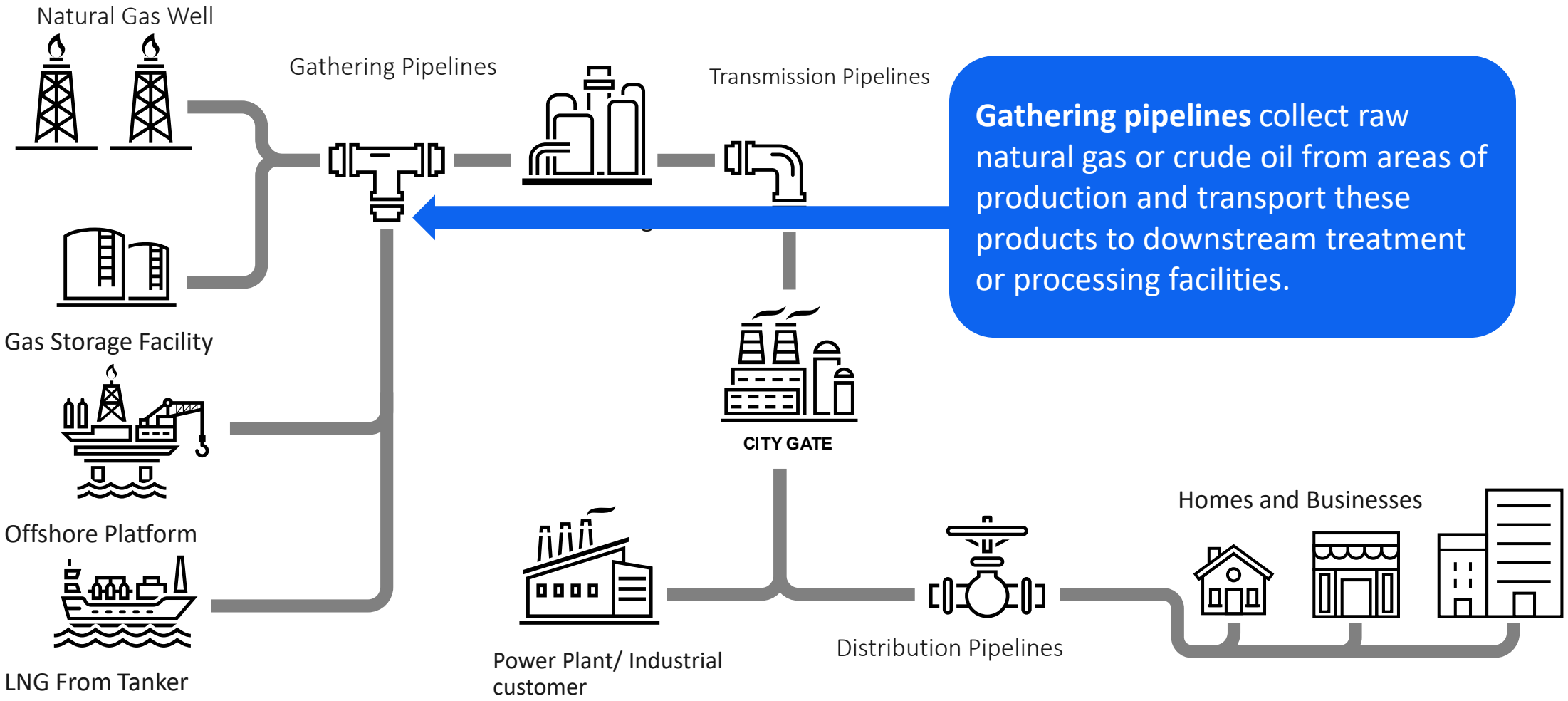
Role and Function of Pipelines

What are pipelines?

Where are pipelines?

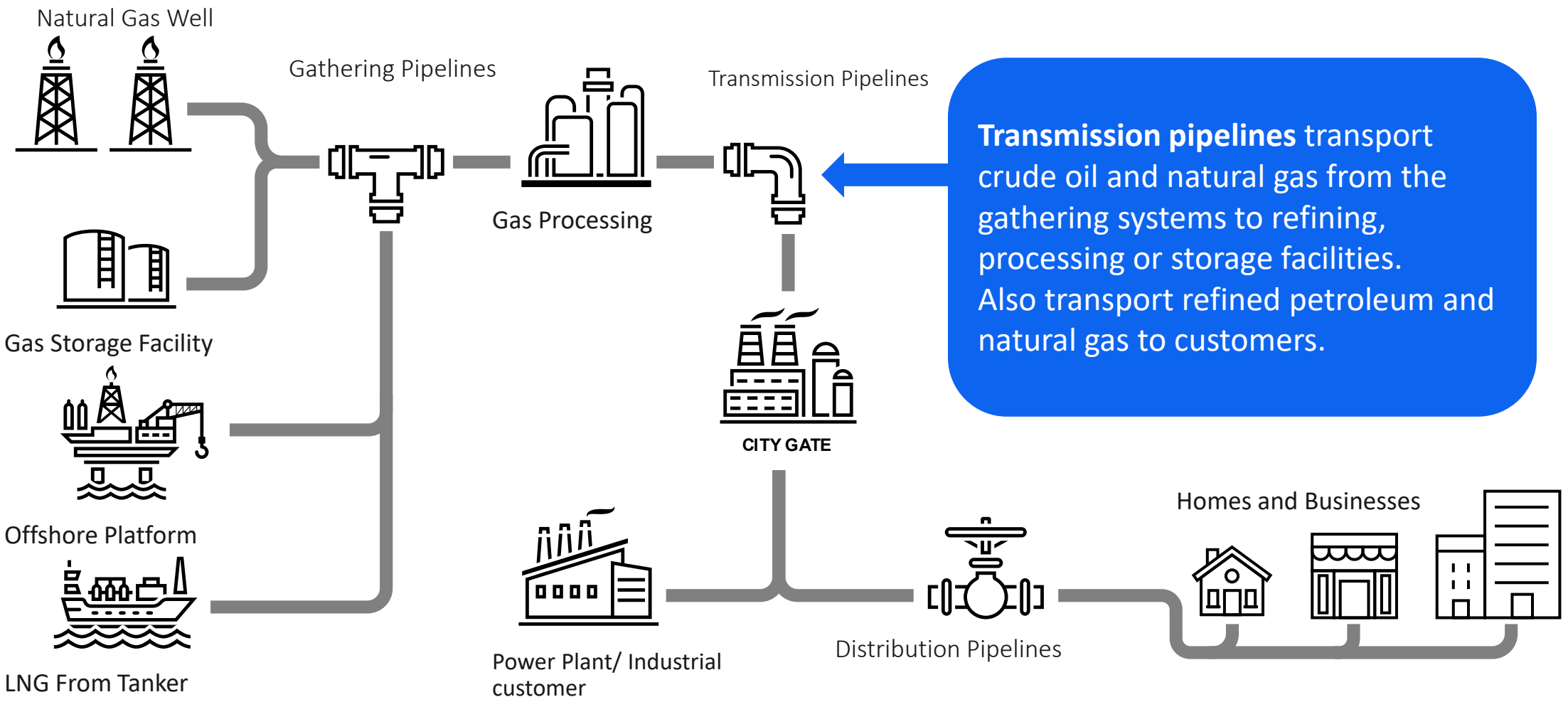
Why are pipelines important?

Roles and Functions of Pipelines



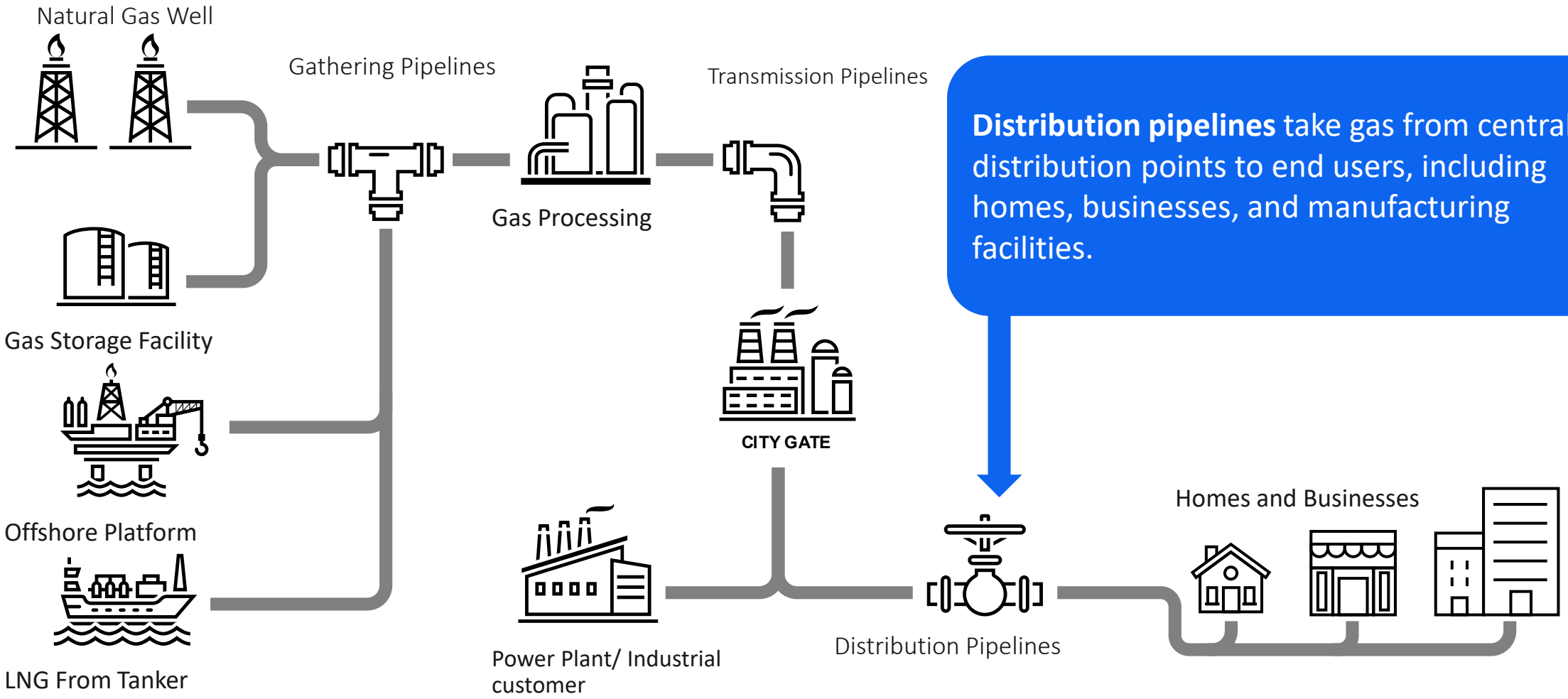
Gathering pipelines collect raw natural gas or crude oil from areas of production and transport these products to downstream treatment or processing facilities.

Roles and Functions of Pipelines



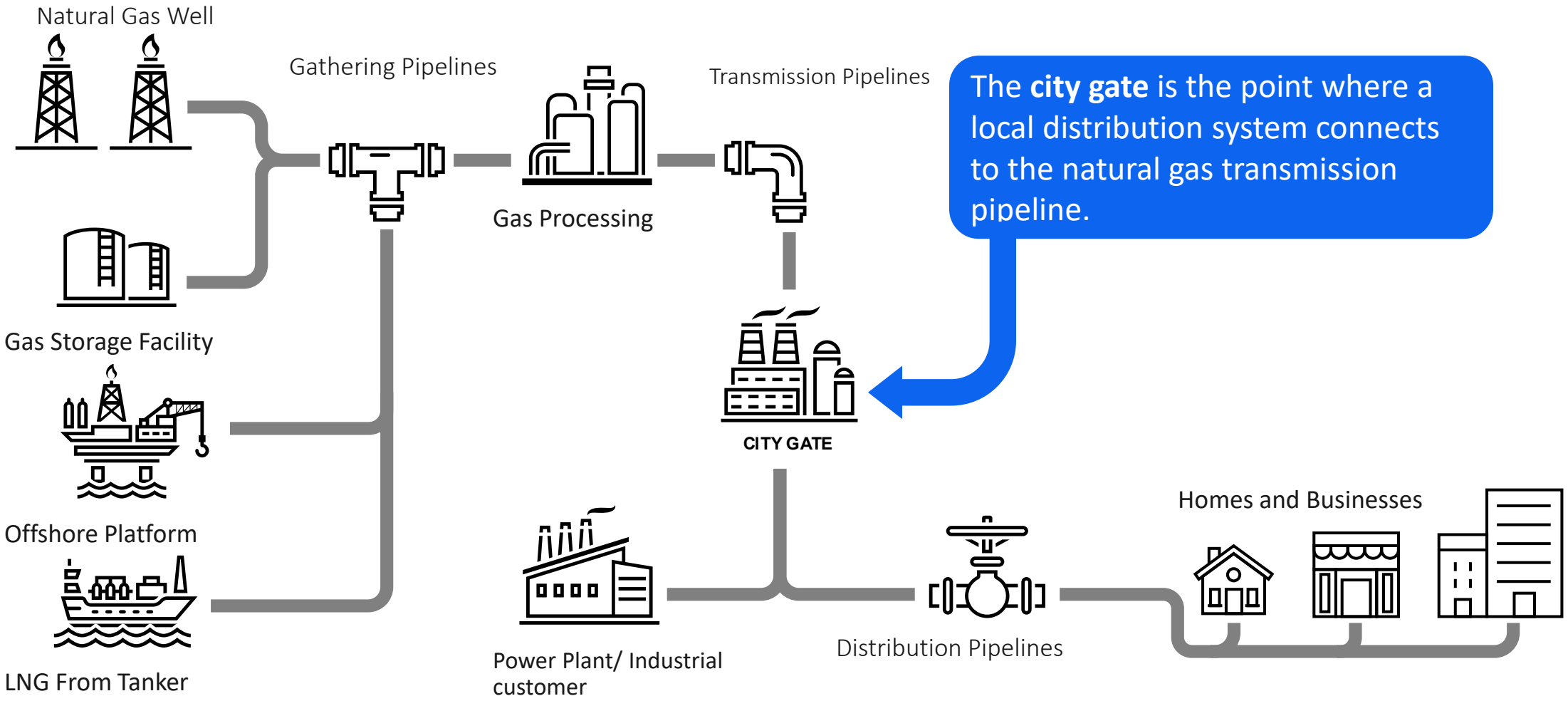
Transmission pipelines transport crude oil and natural gas from the gathering systems to refining, processing or storage facilities. Also transport refined petroleum and natural gas to customers.

Roles and Functions of Pipelines



Distribution pipelines take gas from central distribution points to end users, including homes, businesses, and manufacturing facilities.

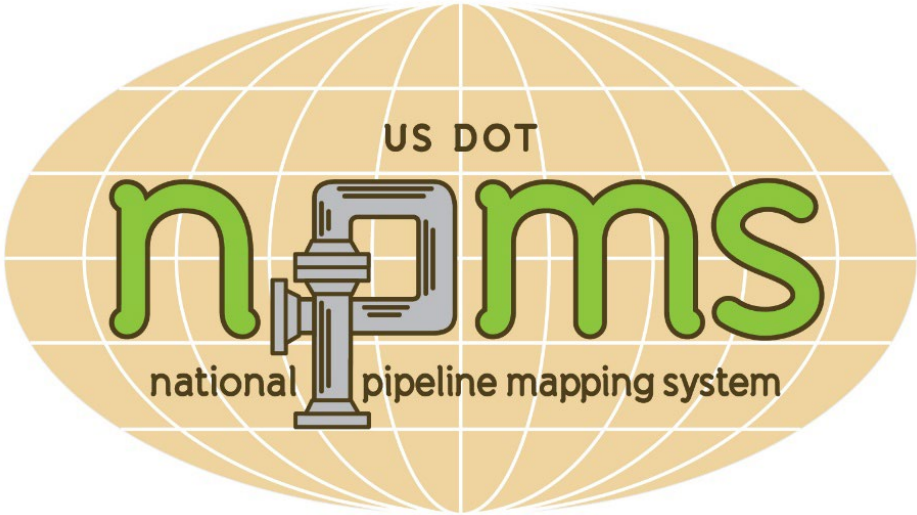
Roles and Functions of Pipelines



The **city gate** is the point where a local distribution system connects to the natural gas transmission pipeline.

National Pipeline Mapping System (NPMS)

- Allows public access to view pipeline maps
- Search for pipeline operator contact information in a selected county, state, or zip code.
- Transmission Lines ONLY
- www.npms.phmsa.dot.gov



Pipeline Safety and Integrity

- There are several layers of safety to prevent damage to pipelines
  - Markers and signs
  - Pipeline control centers
  - High-consequence areas (highly populated)
  - Ground and aerial patrols
  - Internal cleaning and inspections
  - Pigging
  - Shut-down valves
  - Ground surveys
  - Cathodic protection

High Consequence Areas – HCA's

- Populated areas include both high population areas and other populated areas
- Drinking water sources include those supplied by surface water or wells and where a secondary source of water supply is not available
- Facility occupied by persons who are: confined, of impaired mobility or would be difficult to evacuate

Pipeline Control Room

- Operates 24 hours a day / 7 days a week
- Monitors pressure, flow and volume
- Uses SCADA (Supervisory Control and Data Acquisition) to input commands to remotely operate pipeline control equipment
- Some may have remote shut off capability (DO NOT shut off valves – wait for a TC Energy representative)

Aerial Patrols / Pigging / Cathodic Protection

- Aerial Patrols:
  - Potential leaks
  - Unlawful encroachments
  - Unsafe excavations
- Pigging:
  - Clean and inspect their pipelines to ensure safe, proper operation
- Cathodic protection:
  - Low-voltage current on the pipeline
  - Deters corrosion of the pipe

Pipeline Right-of-Way

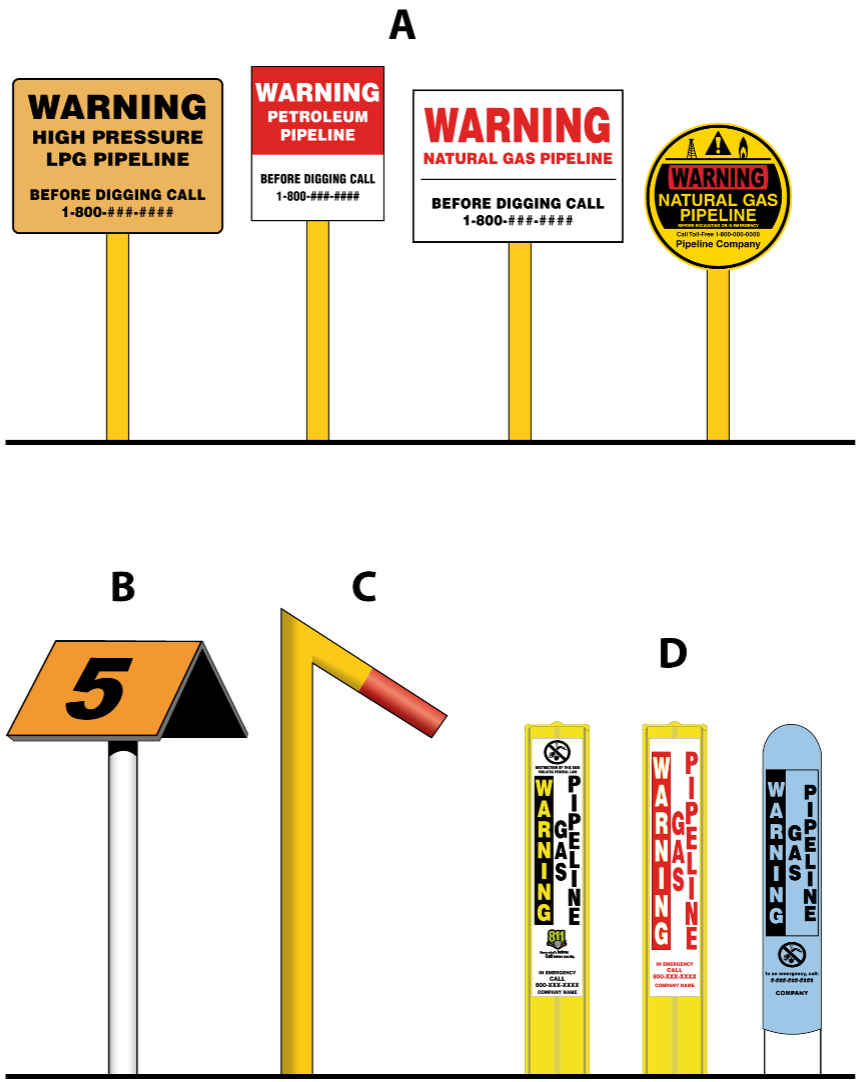
Pipeline Right-of-Way

Objectives

- Pipeline right-of-way guidance.
- Emergency Preparedness Communications.

Right-of-Way & Encroachment

- Land on either side of a pipeline
- Provides access for operators to perform maintenance on pipelines, valves, etc.
- Protects from encroachment
- Restricted from building, planting, storing or traveling
- Creates an Exclusion Zone
- Pipeline markers are found within the right-of-way



A. Located near roads, railroads and along the pipeline ROWs
B. Marker for pipeline patrol plane
C. Pipeline casing vent
D. Painted metal or plastic posts

Pipeline Markers

- Does Show:
  - Product Name
  - Company Name
  - Emergency Number
- Does NOT Show:
  - Size or Pressure
  - Exact Location
  - Depth

It is a federal violation to intentionally damage or remove a pipeline marker

Emergency Preparedness Communications

- Our priority is to protect life and property
  - Call Emergency Response phone number during an incident
  - Emergency Response Plans
  - Maintain plans to minimize and mitigate the impact of an incident
  - Mutual Assistant Drills and Exercises
  - Exercises are required to simulate actual response scenarios to test accuracy of emergency response plans

Incident Response

Incident Response

Objectives

- Recognize a potential pipeline leak.
- Identify procedures for incident response.
- Explain mitigation measures for preventing pipeline incidents.

Potential Hazards

Although pipeline incidents are relatively rare, accidents do occur.

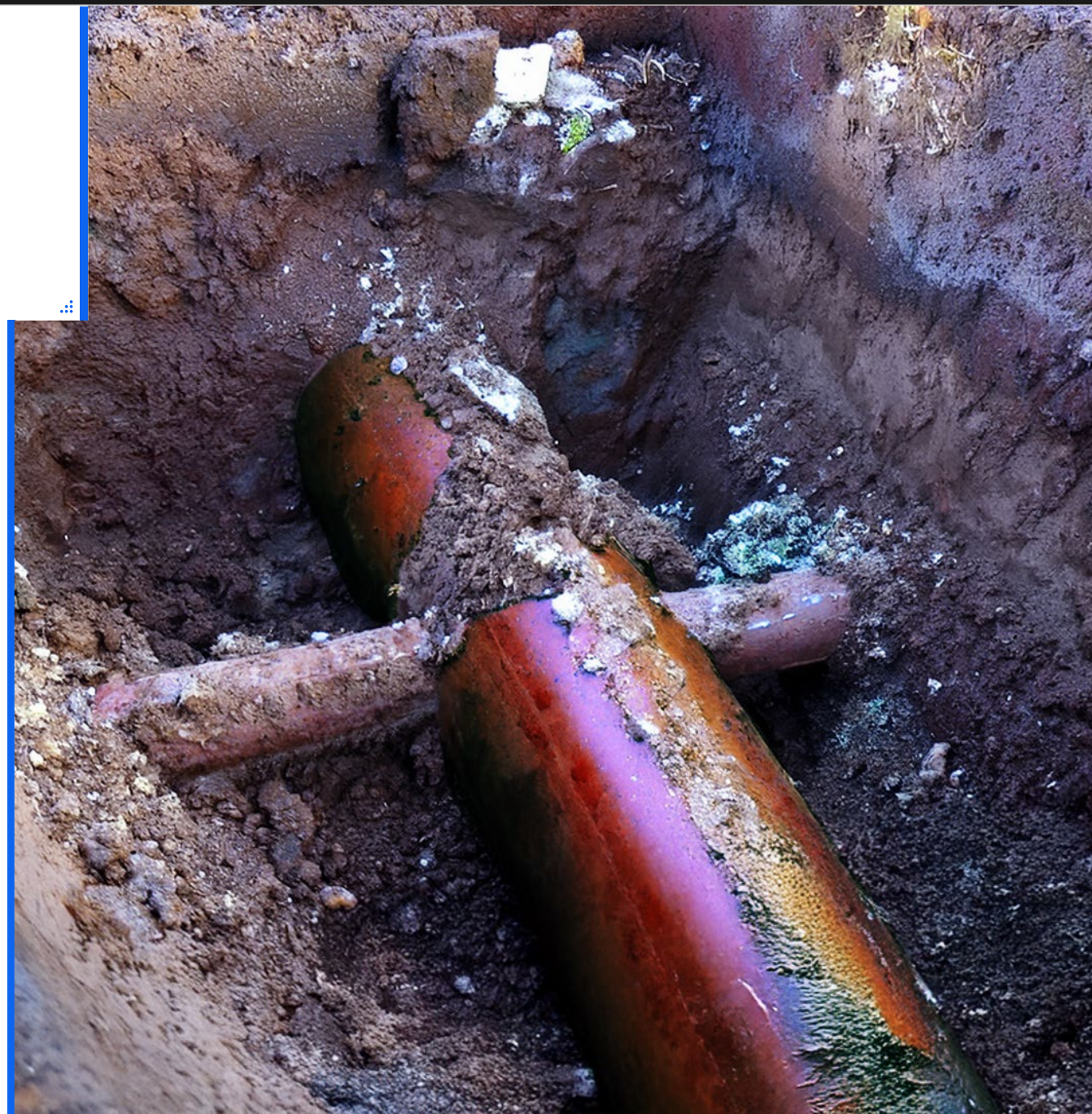
- Excavators not calling 811 for proper markings prior to excavation
- Corrosion and Material Defects
- Natural and Environmental Factors
- Operational and Mechanical Errors

Potential Hazards

Cross Bores

A cross bore occurs when the gas line intersects an existing underground utility such as a sewer line.

- Happens when trenchless technology is used.
- Can get cut when cleaning a sewer line.
- Leaking natural gas in the sewer system can create a safety risk.



Leak Identification

- Knowing how to recognize and respond to a possible leak or release is key in pipeline safety.
- A leak or release can be recognized by three senses:
  - Sight
  - Sound
  - Smell

Leak Identification

YOU MAY SEE

- White cloud or fog
- Discolored plants or vegetation
- Flames or vapors near the pipeline
- Water bubbling for no reason

YOU MAY HEAR

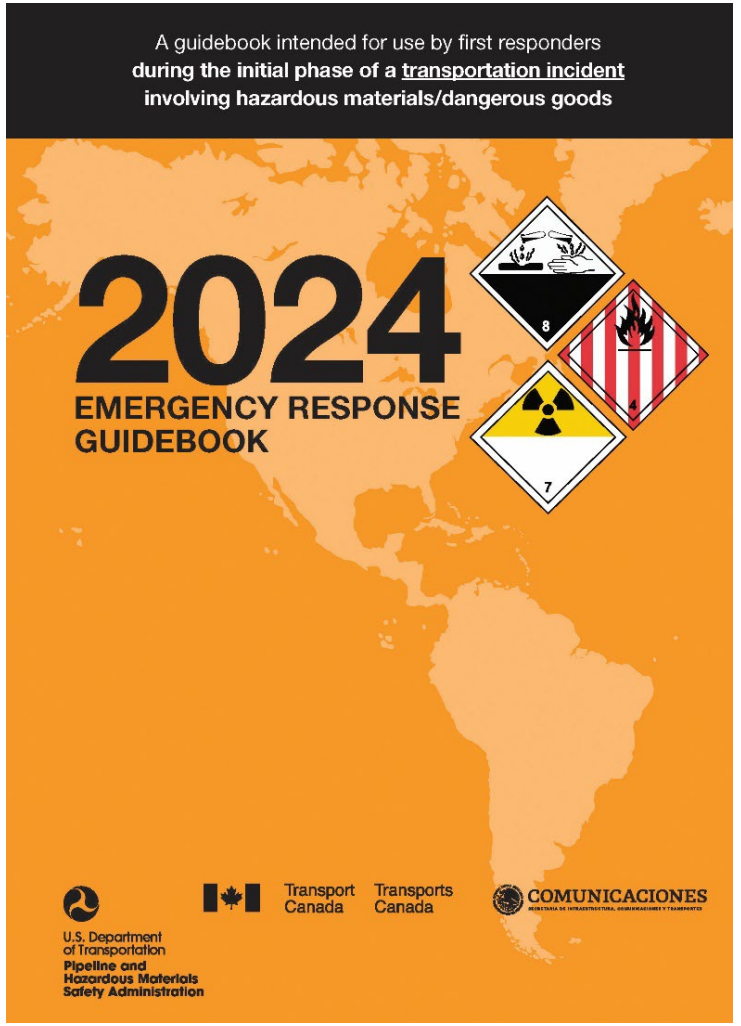
- Hissing
- Roaring
- Bubbling

YOU MAY SMELL

- Products can be odorless
- Transmission vs. distribution
- Odorants (mercaptan, etc.)
- Mercaptan can smell like a skunk or rotten egg
- Some smells are dangerous!

Leak Identification

- Knowing the product that is piped through your jurisdiction is important
- Contact local pipeline operators to help identify products
- Product charts can be found in the ERG
- Responders should reference the ERG when responding to a pipeline incident (free download, smartphone app)



Product Properties

PRODUCT	LEAK TYPE	VAPORS	HEALTH HAZARDS	FIRE HAZARDS
Natural Gas	Gas	Lighter than air	Extremely high concentrations may cause irritation or asphyxiation	Extremely flammable and easily ignited by heat, sparks or flames

Priority to protect life

TC Energy makes a continuous effort to ensure the Emergency Response Plan is executed to protect life, preserve the environment, and communicate the status of an emergency to all stakeholders.

Utilization of the LIPS System

To enhance Emergency preparedness TC Energy executes the “LIPS” system.

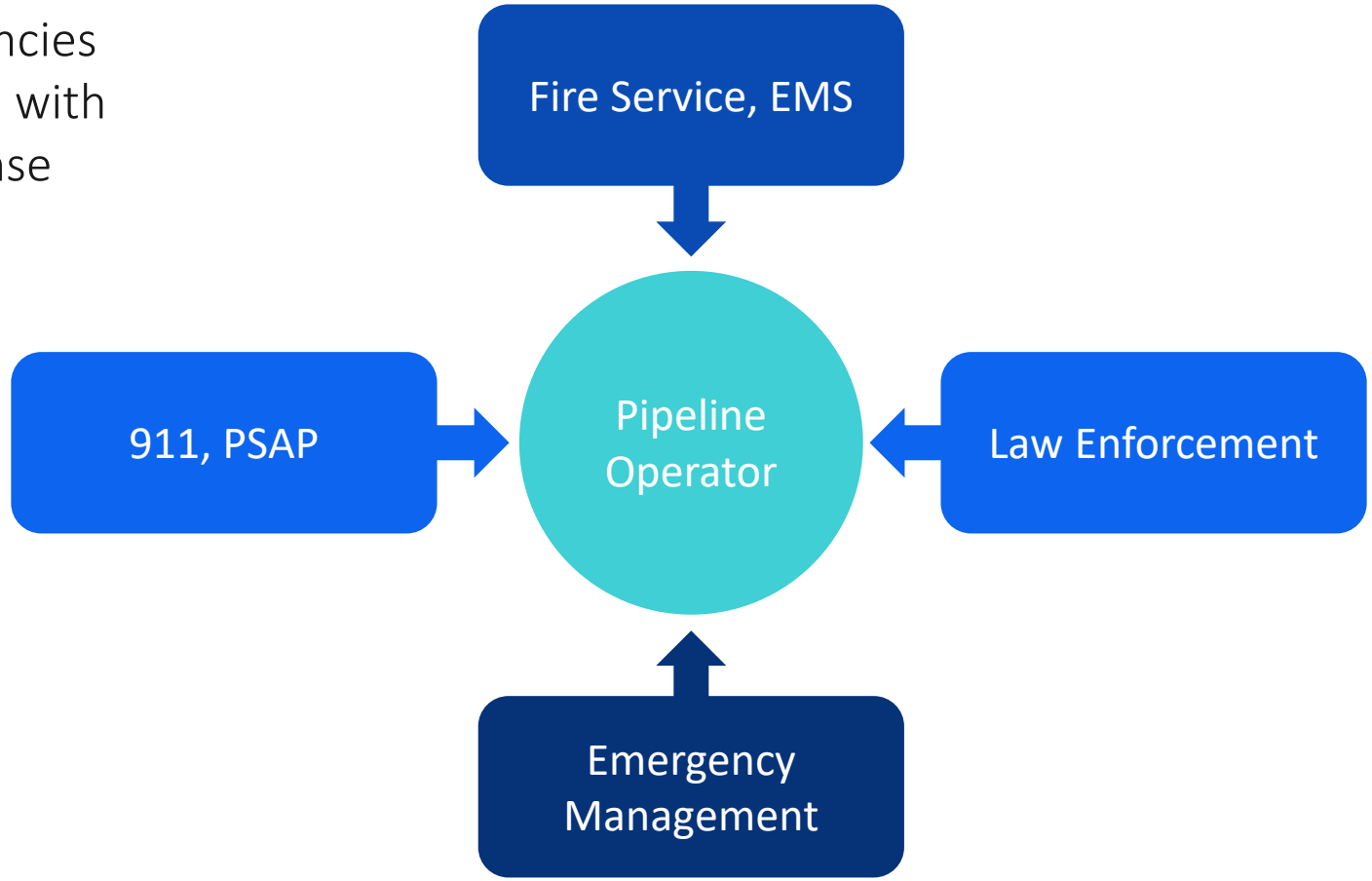
- **L** - Life preservation
- **I** - Incident stabilization
- **P** - Property preservation
- **S** - Stakeholder communication

Response to a pipeline incident

- In the unlikely event an incident should occur, TC Energy's top priorities are to ensure the safety of the public and Emergency Responders, and to minimize effects on life and property.
- TC Energy will immediately respond by:
  - Shutting down the affected pipeline if necessary.
  - Isolating the impacted section of the pipeline through either automatic valve shutoff or manual valve operation.
  - Dispatching emergency personnel to the location of the incident.

Incident Response Procedures

- Numerous agencies will be involved with pipeline response



Pre-Arrival Incident Response Procedures

- Pre-arrival information
  - Make sure TC Energy is notified immediately at the time of dispatch
  - Weather conditions, wind direction
  - Response area - location
  - Mutual aid - Fire, Police, EMS, Emergency Management

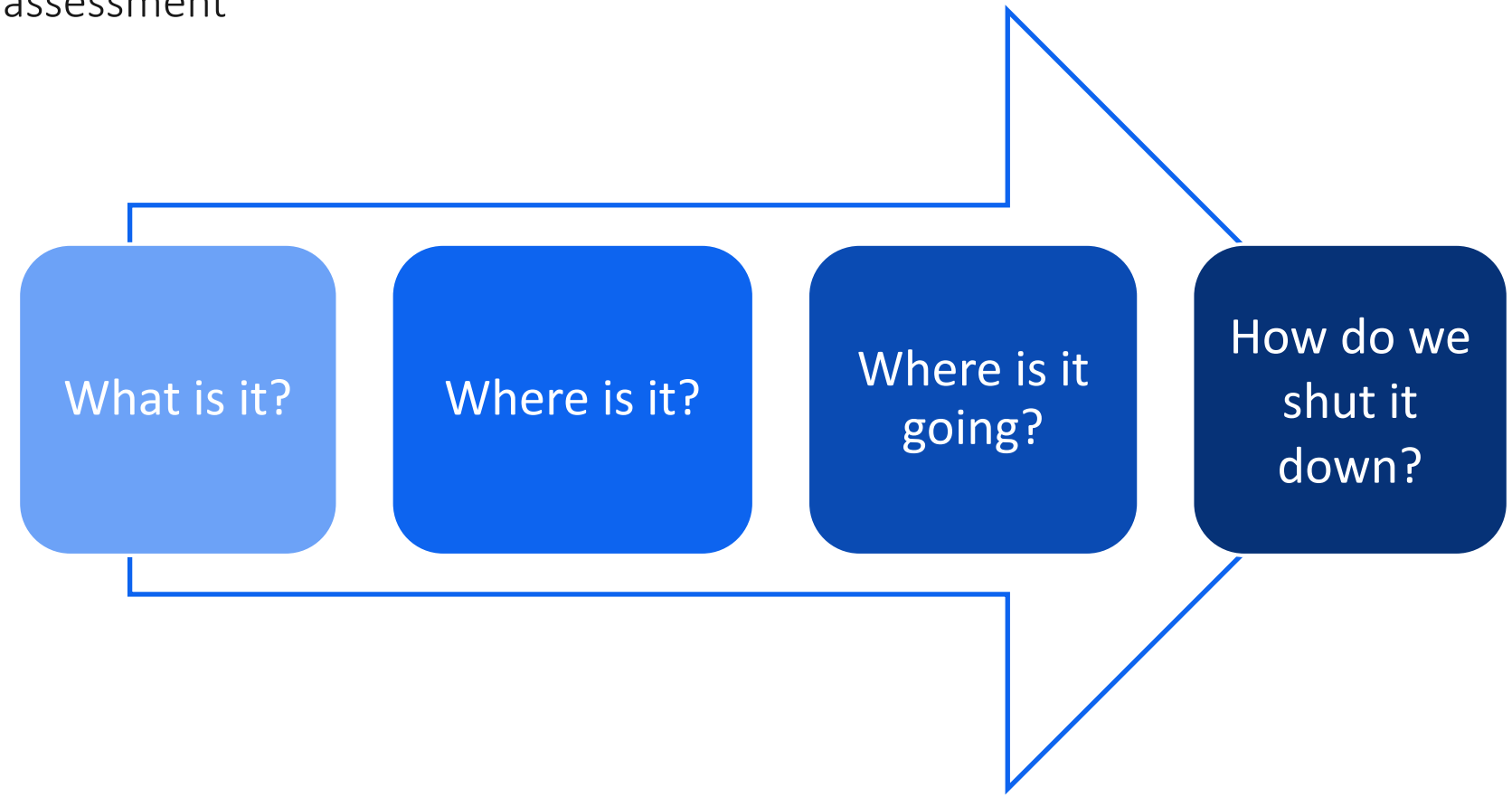
Arrival
Incident Response Procedures

- Arrival
- Police may be first on scene
- Consider responder safety
  - Approach uphill and upwind
  - DO NOT drive through product
  - Face rigs outward
  - Eliminate any potential ignition sources
  - Radios could be ignition sources
  - Establish incident command (29 CFR 1910.120)

DO NOT!
Fight primary fires
Operate valves

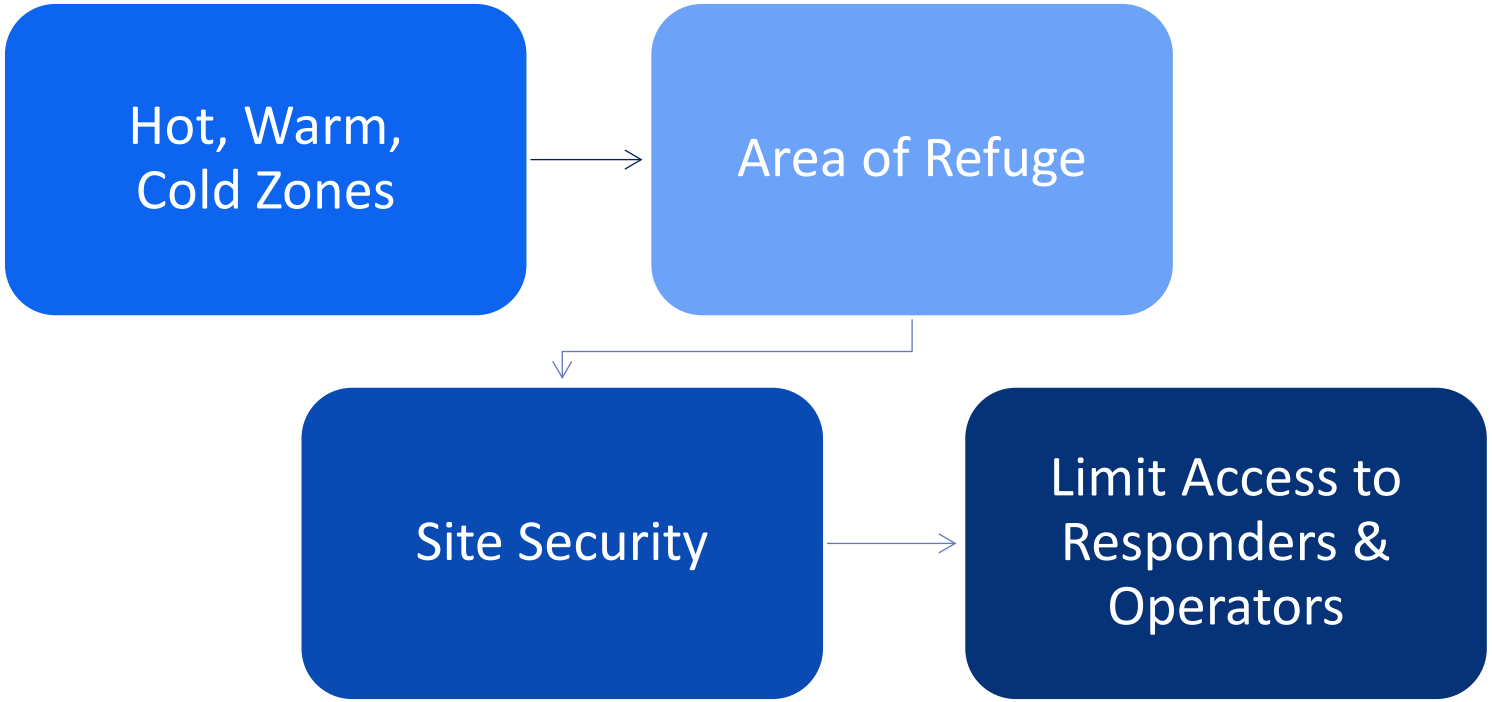
On-Scene
Incident Response Procedures

- On-scene assessment



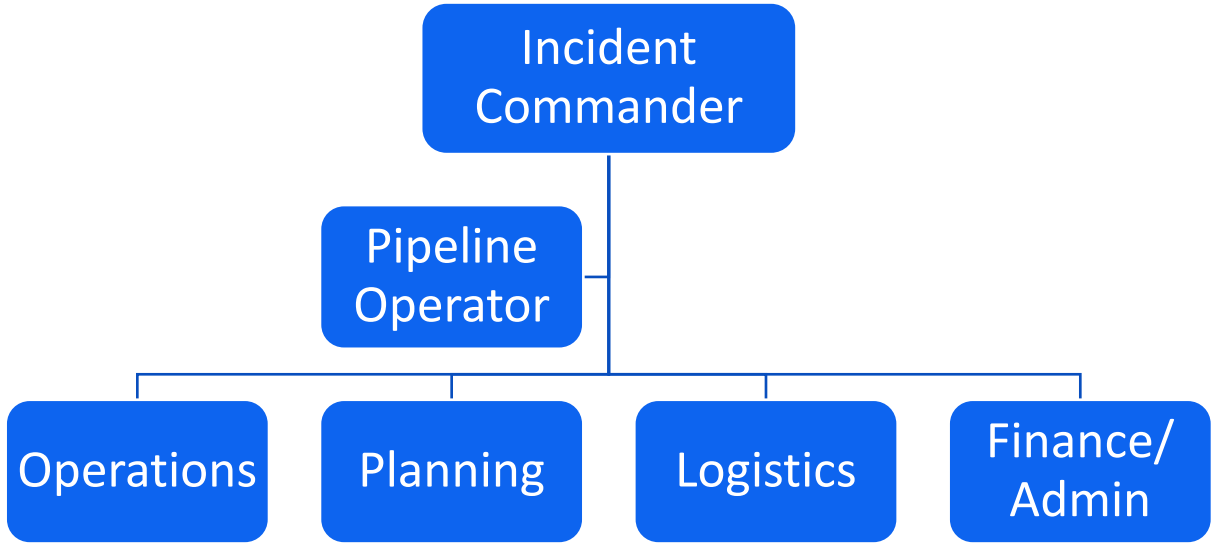
On-Scene
Incident Response Procedures

- Scene Setup



Incident Response Procedures

- Establish unified command
- Ensure pipeline operator has been contacted by 911 PSAP
- TC Energy may provide maps and specific information, ability to remotely shut down valves
- TC Energy personnel are trained and operate in Incident Command System (ICS)
- ICS should be scalable/flexible



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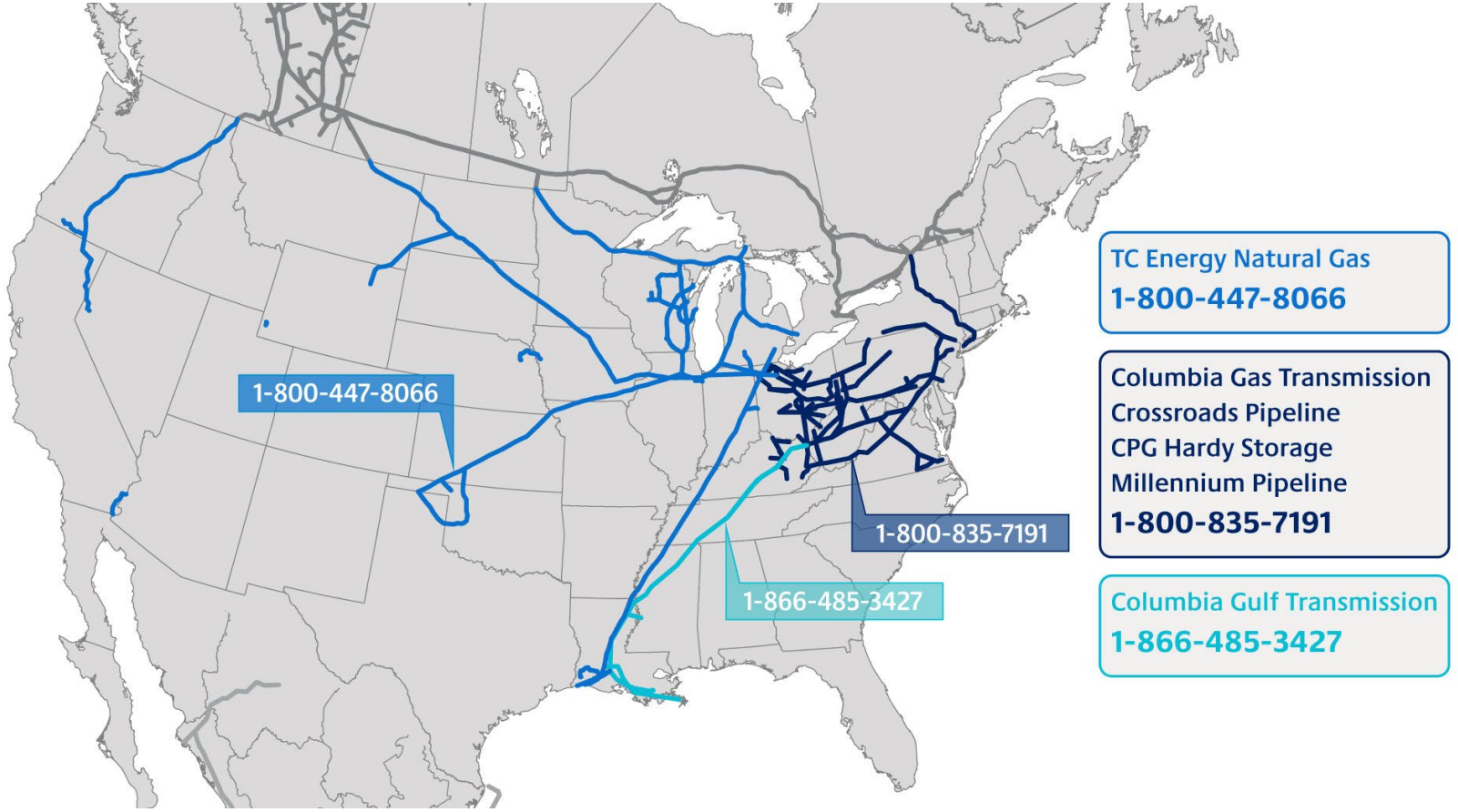

Contact information

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Public_Awareness@tcenergy.com

Any Questions

Confidential and Proprietary