Pipeline Emergency Preparedness & Training: NIMS, NRF, ESF-12 (Energy) and Pipelines

The federal government developed and manages several resources that enhance our nation’s emergency management capabilities including the National Incident Management System (NIMS), National Response Framework (NRF) and Emergency Support Function (ESF) Annexes.

NIMS provides a structured framework for managing incidents and was developed by the Department of Homeland Security to be used regardless of the cause, size, location or complexity of an incident. The cornerstone of NIMS is the Incident Command System (ICS). The private sectors as well as federal, state, local and non-governmental agencies utilize ICS to manage emergencies including those involving pipelines.

NRF is an all-hazards plan that builds upon NIMS and was developed specifically for elected and appointed leaders responsible for the safety and welfare of their community, as well as leaders of non-governmental organizations and the private sector. The NRF defines key principles, roles and structures that organize the way our country will respond to and manage incidents. It outlines how state and federal governments, counties, tribes and nongovernmental partners should apply these principles for a coordinated, effective national response. NRF also identifies special circumstances that trigger the federal government to exercise a larger role, including catastrophic incidents where a state requires significant support.

Within the NRF are ESF Annexes. ESF Annexes outline the structure for coordinating federal interagency support for specific industry-related incidents. The ESF Annex for Energy, ESF-12, is led by the Department of Energy (DOE) and outlines the DOE’s responsibility to maintain continuous and reliable US energy supplies through preventive measures and restoration and recovery actions.

The ESF-12 requires DOE to:
- Collect, evaluate and share information regarding pipeline system damage
- Estimate the impact of pipeline system energy shortages within affected areas
- Collect information concerning the pipeline system restoration process, including projected schedules, percent of restoration completion and geographic restoration information
- Provide technical expertise to operators and conduct field assessments to help

Keeping Pipelines Safe: Right-of-Way Patrols, In-Line Tools & Testing

Pipeline operators actively monitor underground lines and aboveground facilities 24-hours a day using field data transmitted to control centers. In addition, they employ a variety of methods to visually inspect the line from the air, on foot and inside the pipeline as outlined in their Integrity Management plans.

Listed below are several methods pipeline operators use to inspect pipeline rights-of-way and aboveground facilities.

In-Line Tools

In-line Tools, commonly called “pigs,” are tools used to inspect, and in some cases clean, the interior of a pipeline. Propelled by the energy of the product itself, a “smart pig” inspection can evaluate pipe wall density and shape; check for signs of corrosion; and detect abnormalities. These “smart pigs” record inspection data for review by trained technicians.

Foot Patrols

During foot patrols, pipeline field personnel walk along sections of a pipeline to visually inspect the right-of-way for potential signs of a leak and to identify right-of-way maintenance
government and private-sector stakeholders to overcome challenges in restoring the pipeline system.

Both NIMS and the NRF are designed to improve the nation’s incident management capabilities and overall efficiency. Pipeline operators, like Kinder Morgan, are trained in NIMS and ICS to better aid emergency responders during a pipeline incident.


Visit the NRF Resource Center at www.fema.gov/emergency/nrf/index.htm#/.

Pipeline Emergency Response Tactics: Crisis Communication at the Scene of an Incident

During a pipeline emergency, open and frequent communication between response agencies and pipeline operators is imperative. It is also important that emergency officials responsible for communicating with media and the public provide timely and accurate information.

Emergency response agencies can enable effective communication between agencies and with outside parties, such as pipeline operators, at the scene of a pipeline emergency by establishing the Incident Command Structure (ICS) and using appropriate communication equipment. ICS outlines clear responsibilities including a Public Information Officer (PIO) and liaison roles with operators and other agencies.

The PIO serves a critical role during large-scale emergencies or those that may attract media attention. News media personnel may arrive at the scene of a pipeline emergency. Emergency officials at the scene are typically the most credible and knowledgeable source for information about the emergency.

In today’s environment of instantaneous communications, emergency response personnel must deal as effectively with media relations as they do with all other aspects of emergency management. The media are an effective conduit to communicate with the general public, and communicating with the media simply cannot be placed on the “back-burner” for later.

Assure that individuals assigned to serve as a PIO during an emergency have been trained in media relations and are provided accurate and timely information. Listed below are tips for emergency responders who will be communicating with the media and public during a pipeline emergency:

- Early in the emergency, establish a defined PIO area. Do not allow reporters to wander aimlessly around the scene. When selecting a PIO area avoid: operationally sensitive areas including the Command Post, rehab areas and areas with limited ingress or egress.
- Identify a PIO at the scene and have him or her coordinate with other stakeholders prior to addressing the news media.
- Take notes and develop a media statement; obtain release approval and keep the Incident Commander informed of issues related to media inquiries.
- Provide new, updated and verified information.
- Don’t be afraid to say that you “don’t know” and offer to get back to them when you have more information.
- Train other responders on how to “hand-off” the news media to designated PIO personnel.

Aerial Patrols

Pipeline operators hire specifically-trained and certified pilots to fly planes and helicopters with special equipment over aboveground facilities and along the pipeline route to visually inspect the right-of-way.

Aerial patrols provide a bird’s-eye view of large sections of the pipeline right-of-way. During an aerial patrol, the right-of-way is examined for ground changes, construction activities, encroachments and other factors that could affect the pipeline. In some cases, thermal data can also be collected to pinpoint the location of a potential leak along the right-of-way or at aboveground facilities.

Product Sampling

When needed, samples of the product transported can be collected and tested to monitor product quality and to detect early signs of pipeline corrosion.

Hydrostatic Testing

Hydrostatic testing can be used to verify the integrity of a transmission pipeline. Once the product is cleared from a section or sections of a pipeline, water is then injected into the pipeline and pressurized to ensure the integrity of the pipeline section. Hydrostatic testing is performed before product is transported through new pipelines.

New & Emerging Technologies

The pipeline industry is continually developing more efficient and effective ways of monitoring and protecting pipelines. Current projects under development include:

- Use of remotely-piloted aerial patrol drones.

(continued on page 1)
Pipelines 101: An Overview of the Natural Gas Pipeline System

In the United States, natural gas is transported almost exclusively through pipelines. There are three distinct types of lines within the natural gas pipeline system: gathering lines, transmission lines and distribution lines.

Gathering lines transport natural gas from the wellhead and production areas to processing and treating facilities. Transmission lines, like those operated by Kinder Morgan, are typically large, high-pressure pipelines. Transmission lines transport gas within and across state borders to marketing and distribution terminals and large industrial customers. Finally, distribution pipelines bring gas from storage locations and what is known as the “city gate” to residential and business customers. Distribution lines are typically smaller, low-pressure pipelines.

In the United States, Kinder Morgan operates approximately 24,000 miles of natural gas transmission lines. Kinder Morgan’s natural gas lines include:

- KM Interstate Gas Transmission (Colo., Kan., Neb., Mo., Wyo.)
- KM Louisiana Pipeline (La.)
- KM North Texas Pipeline (Texas)
- KM Tejas Pipeline (Texas)
- KM Texas Pipeline (Texas)
- Midcontinent Express Pipeline (Okla., Texas, La., Miss., Ala.)
- Natural Gas Pipeline Company of America (Texas, N.M., Okla., Ind., La., Ark., Mo., Kan., Iowa, Ill., Neb.)
- Rockies Express Pipeline LLC (Colo., Wyo., Neb., Kan., Mo., Ill., Ind., Ohio)

(continued from page 2)

- A high-altitude secure balloon-borne network that works with a ground-based laser system along the pipeline right-of-way
- A joint program between the National Aeronautical Space Administration (NASA) and the U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA) to develop new satellite technologies that would provide more frequent right-of-way surveillance and earlier pipeline incident detection

If you would like to know more about Kinder Morgan’s right-of-way patrols, in-line inspection and testing in your jurisdiction, contact your local Kinder Morgan representative or visit http://PA-InfoRequest.kindermorgan.com.

(continued on page 4)
Because pipelines run horizontally, they need an occasional boost to keep the product moving. For natural gas lines transporting pressurized gas, this job is done by a series of aboveground facilities called compressor stations. Compressor stations are typically the largest aboveground facilities associated with natural gas transmission pipelines and are located at key intervals every 40 to 100 miles along the pipeline route.

Valves are also located along the natural gas pipeline system. Valves are used to restrict the flow of the product or to provide access to a section of the line for cleaning or maintenance. Natural gas pipelines also have pressure relief valves, known as reliefs.

Reliefs are an important component of the pipeline system that enables operators to control the pressure of gas in the pipelines. They alleviate line pressure by venting a small quantity of natural gas when needed. A blowing relief should never be shut off or capped by emergency response personnel. Only trained and certified pipeline technicians should handle a blowing relief.

If a transmission pipeline emergency occurs, emergency response personnel should isolate the area and restrict entry to pipeline personnel only. A local pipeline representative will operate valves as needed. Emergency responders should not operate a pipeline valve without the pipeline operator’s permission.

Gas lines, like other pipelines, are monitored around-the-clock using sensors that transmit data to the control center. Data is monitored continuously to ensure safe operations.

For more information about Kinder Morgan’s natural gas pipelines in your jurisdiction, contact your local Kinder Morgan representative or visit http://PA-InfoRequest.kindermorgan.com.

You can also download a copy of Kinder Morgan’s brochure for emergency responders in communities with natural gas pipelines at www.kindermorgan.com/public_awareness/AdditionalInformation/KMSafetyBrochures.cfm.

Best Practices

“Dispatchers attend the yearly training that Kinder Morgan puts on in Colby.”

Sherman County Communications, Goodland, Kan.

“People from the pipeline [company] come to our station, and we have training and drill.”

Willow City VFR, Willow City, Texas

“We participate in tabletops and circulate information received.”

Fremont County Sheriff’s Office, Riverton, Wyo.

“We attend local pipeline operator-sponsored seminars.”

Artesia Fire Department Artesia, N.M.

“We attend a yearly pipeline operator-sponsored training meeting, and I forward the letters I receive to my staff.”

Converse County Sheriffs Office, Douglas, Wyo.

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