



Pipeline Emergency Preparedness & Training: Effective Pre-Planning Techniques for Pipeline Emergencies

Pipeline incidents require effective pre-planning for a safe emergency response. Pre-planning for pipeline emergency response should begin with an understanding of the types of pipeline facilities located in the response agency's jurisdiction. This information is best obtained from the pipeline operators although information for hazardous liquids, natural gas transmission, and liquefied natural gas (LNG) facilities can be obtained using the National Pipeline Mapping System (NPMS). NPMS is a federally managed database that provides location and attribute information for facilities throughout the United States. Pipeline operators are required to submit geographical information system (GIS) data regarding their systems to the NPMS. Public sector emergency responders can apply for access to NPMS and receive the GIS data for pre-planning and response use. More information about the NPMS can be found at <https://www.npms.phmsa.dot.gov/About.aspx>.

The focus of pre-planning efforts should be concentrated in two areas: pipelines and large above-ground facilities. Pipelines are linear assets that often traverse large geographical areas. While mostly underground and unseen, regulated pipelines are required to be marked with signage and markers indicating the name of the operator, the product being transported, and a twenty-four-hour emergency phone number. Large above-ground pipeline facilities may include compressor or pumping stations, gas processing and LNG plants, and breakout tank facilities.

Public sector responders should include a simplified site diagram to serve as the basis for a pre-plan and regularly verify emergency contact information for the facility. Pipeline facility personnel have detailed emergency plans and training programs for personnel. Effective pre-planning usually begins with facility site walk-throughs

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Best Practices

"Our department attends the annual emergency response seminars hosted by your and other companies. We participated in a table top drill this past year as well as had a gas company representative give a presentation to our entire membership at a monthly training opportunity." - **J. Groner, Columbiana FD, Columbiana, OH**

"We used the Kinder Morgan Pipeline Safety pamphlet to develop a training and a written quiz to assess dispatchers' knowledge of pipeline safety and response."

"We hold annual exercises from Tabletop to Full Scale to meet SERC requirements. Our entire staff attends the pipeline sponsored training."

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conducted by company personnel. The locations of hazardous materials (HAZMAT) storage, evacuation/rally points, and emergency shut down devices/safety systems should be identified and noted. Effective pre-planning includes discussions between pipeline personnel and public sector responders related to expectations for response actions in the event of an emergency.

Additionally, Natural gas transmission pipeline operators solicit input from public officials and emergency responders regarding the location of “identified sites” (areas of congregation or limited mobility facilities) to identify “High Consequence Areas” (HCAs). Identified sites may include recreational areas, schools, hospitals, prisons, nursing homes, or similar facilities. Proactively reviewing this information with pipeline personnel can be very useful in determining pre-planning activities for HCAs. For more information regarding HCAs visit:

<https://primis.phmsa.dot.gov/comm/FactSheets/FSHCA.htm?nocache=6356>. To report identified sites near Kinder Morgan use our online form:

https://www.kindermorgan.com/public_awareness/government/submitHCAinfo.aspx

While pipeline emergencies are rare, pre-planning should occur. Safety is a shared responsibility and pipeline operators welcome the opportunity to coordinate pre-planning with public sector emergency response partners.

Pipeline Emergency Response Tactics: Responding to a Petroleum Pipeline Incident

Millions of barrels of liquid petroleum products including gasoline, diesel, natural gas liquids and condensate are transported daily in pipelines throughout the United States in a safe and efficient manner. Pipelines continue to be one of the safest modes of transportation for the nation’s fuel supply.



Unlike pipelines that transport a single commodity such as natural gas, petroleum pipelines transport a variety of materials, often sequentially through a process known as batching. In batching,

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Did you know ...

811 is the nationally recognized three digit number to provide notification of pending excavation activity so that utilities can properly locate underground assets. Help us spread the word for safety ...Call 811 before you dig!



**Know what's below.
Call before you dig.**

Kinder Morgan Pipeline Incident Response Tactics

To view Kinder Morgan’s Pipeline Incident Response Tactics, go to:
https://www.kindermorgan.com/pages/public_awareness/government/incidentrespons etactics.aspx

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multiple products are transported in a pipeline with or without a physical barrier between the products. Pipeline operators in control rooms track flow of the products and schedule delivery at various terminals or receipt points along the pipeline.

As with any pipeline emergency, it is important for first responders to quickly identify the pipeline operator and make initial notification via the posted emergency number. This information can be found on pipeline markers situated along the right of way or at above ground facilities such as valve sites or pumping stations. In the case of petroleum pipelines, operators can provide first responders with key information regarding what commodity is currently being transported. In addition, the pipeline operator can provide first responders with access to safety data sheets (SDS) which will provide health and safety, firefighting, and spill containment guidelines. Both the U.S. Department of Transportation's Emergency Response Guidebook (ERG) and the specific SDS for the product should be consulted to develop appropriate response actions.

Upon arrival at a suspected pipeline incident, a thorough scene size-up should be conducted. As soon as possible, the operator of the pipeline should be identified and contacted via the emergency number displayed on marker signage. Regardless of the specific material involved, the area should be isolated and ignition sources eliminated. First responder personnel should avoid direct contact with material and use combustible gas indicator (CGIs) to ascertain if any concentrations of flammable vapors are present. In the event that storm drains, sewer systems, or bodies of water are at risk from released product, steps should be taken to implement defensive spill containment measures. Pipeline operator representatives are the best source of information related to isolation of leaks and mitigation of product spills.

Overview of Pipeline Systems: Overview of Pipeline Construction Process

Pipelines are a critical component of our nation's energy system. As the United States' demand for energy increases, so does our need for more pipelines to safely transport it. Pipeline construction is a very detailed and lengthy process, sometimes taking up to 2 years, with many stages and processes involved.

Regulatory Planning and Approvals

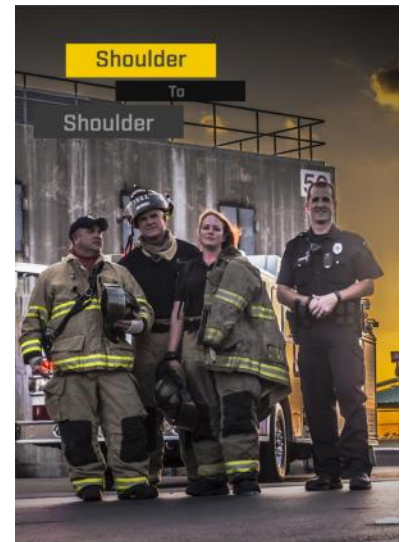
When planning the pipeline, the pipeline company works with the State regulatory agencies, and Native American Tribes when

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First Responder Training Video Series

Learn how to safely and effectively respond to a pipeline emergency, how pipelines work, how different products impact response, response leading practices, how to better prepare to respond to pipeline incidents and roles in pipeline response. Videos feature interviews with pipeline and emergency response experts, covering a wide variety of emergency response disciplines.

* Videos available at www.shoulder2shoulder.tv



www.shoulder2shoulder.tv

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Is there a topic you'd like to see featured in the next issue?! Please click [here](#) to suggest your topic for *The Responder* newsletter!

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applicable, that oversee pipeline, land, and environmental safety. In order to ensure pipeline safety and protection of the environment pipeline companies go through a stringent process of permitting. To ensure the water is protected, the pipeline company gets permits from the US Army



Corps of Engineers, which consults with the US Fish and Wildlife Service on protecting endangered species. Some companies may also voluntarily conduct geological assessments for pipeline integrity and environmental considerations. To begin construction on an interstate natural gas transmission pipeline, a company must obtain approvals from the Federal Energy Regulatory Commission, or FERC. During this process, FERC determines if there is sufficient need for a new pipeline, and analyzes the proposed route in order to minimize landowner and environmental impacts. Once FERC approval is obtained, the next stage of construction preparation begins.

Construction

The area that the pipeline will traverse is surveyed and staked, and is then cleared of all debris, trees and brush. Clearing the route, soil erosion controls, such as silt fencing are installed where necessary. Next, grading is conducted to minimize steep slopes of land in order to reduce the number of bends in the pipeline. As part of the grading processes the topsoil is carefully removed and placed in a stockpile that will be placed back over the pipeline once construction is completed. After this, a trench, typically at least 30 inches deep (depending upon location population, density, type of soil and type of pipeline), is made for the pipeline to lay in. During trenching, large rock may need to be removed with blasting equipment.

Once trenching is completed, the pre-coated pipeline is laid out in 40-80 foot segments- this is called stringing. To accommodate the topography of the land, the pipeline may need to be bent in certain areas with a bending machine. The different segments of pipe are welded together and inspected, with every weld passing through a vigorous inspection process, to validate the integrity of the weld.

The welds are coated to prevent corrosion. The trench is then inspected again for any debris before the pipeline is lowered into

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WISER

WISER 5.4 Release Includes:

- *More detailed bibliographies for much of the substance data
- *Protective distance mapping now supports the export of KML (Keyhole Markup Language) on the WISER for Windows and WebWISER version
- *Redesigned the WISER for Windows protective distance mapping capability

A set of WISER tutorial videos can be viewed [here](#) and videos can also be found in the training section of the [NLM YouTube Channel](#).



NPMS iPhone app for PIMMA and Updates

The National Pipeline Mapping System (NPMS) has iPhone app for PIMMA, can be accessed by searching for "pipeline information" on the App store. New High Population Area (HPA) and Other Population Area (OPA) datasets are now available for download from the Population Data Page.

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the trench. Once in place, the pipeline is pressure tested. Finally, the pipeline is covered with the backfill.

Pressure Testing

Before any pipeline is placed into service, it undergoes pressure testing. Pressure testing using water (Hydrostatic testing) is the most commonly used, and involves injecting water into the pipeline at 125% (or greater) of the maximum operating pressure of the pipeline for 4 to 8 hours, depending on the type and location of the pipeline.

After the hydrotesting has been completed, the pipeline is dewatered, purged of air and then commissioned for operation by introducing the commodity into the pipeline.

Restoration

Restoration occurs during various stages of the construction project with the goal to restore the pipeline right-of-way as closely as possible to the way it looked prior to construction. This includes carefully placing the topsoil that was saved back over the pipeline and reseeding the area, if necessary.

Keeping Pipelines Safe/Practices & Protocols: Pipeline Inspection and Safety Tools



In-line inspection tool commonly known as a smart pig

Pipeline inspection is an important part of pipeline integrity management programs. Pipelines are carefully monitored and inspected through a wide array of safety measures and tools, spanning from walking the pipeline to very sophisticated technologies.

Pipelines are constructed with instrumentation, such as sensors placed along the pipe that provide pressure and flow rate readings, as well as other pertinent information that is communicated back to the operator's control facility. In addition to this information, routine aerial and foot

patrols are conducted to make sure there are no leaks, encroachments, or other hazards to the pipeline. Operators also rely on the public and the emergency response community to report suspicious persons and/or activities near the pipeline.

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NOTE

If you would like to request additional information, or to schedule a presentation or tabletop drill with Kinder Morgan, please fill out the form found at **PA-inforequest.kindermorgan.com**



First Responder Online Pipeline Training

To access the API-AOPL Emergency Response Team's free online training, click <https://nasfm-training.org/>

NOTE

To read past issues of *The Responder*, please go to the archived issues at http://www.kindermorgan.com/pages/public_awareness/The_Responder/archive.aspx

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Pipeline companies routinely utilize in-line inspection (ILI) tools, also referred to as smart pigs, to inspect for anomalies or defects. The ILI tool is typically inserted into a pipeline at a valve or meter station, and is pushed through the pipeline by the commodity already in the line. They travel along the pipeline recording information on pipe thickness, metal loss, dents, cracks, and signs of corrosion.

Companies utilize integrity digs to inspect pipelines after receiving anomaly or defect information from the ILI tool or in areas where ILI tools cannot be used. This involves excavating sections of the pipeline to look for anomalies or defects in the pipe. If a defect is found it is repaired or replaced.

Through careful monitoring via instrumentation and routine maintenance, operators work around the clock to keep pipeline systems safe. For more information on in-line inspection tools, go to <http://www.aopl.org/wp-content/uploads/2015/10/ILI-Smart-Pigs-Pipeline-Issues-Series.pdf> or <https://www.ingaa.org/AEL/AELBlog/32767.aspx> ■

NOTE

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