



Pipeline Emergency Preparedness & Training: Tabletop Exercises – A Guide to Designing Effective Simulations

Tabletop exercises are a great opportunity to practice key elements of emergency response and assess preparedness prior to a pipeline emergency. They reinforce key response processes and procedures and, if designed properly, the exercises promote teamwork, foster a common understanding of response objectives and priorities.

The most important factor to consider when designing a tabletop exercise is to create realistic goals by determining what you want to evaluate and why. Some tabletop exercises may be primarily focused on mobilizing resources, others on communication elements critical for an effective response, and still others on coordination or structure (e.g., ICS). The best exercises typically encompass all of these elements.

Once you've identified goals and objectives, it's time to create a scenario that will trigger the exercise. Key considerations during this phase are to design an incident that is realistic, yet not so routine that it allows participants to anticipate next steps or actions without a discussion. Don't get overly complex in designing the scenario. Too many moving parts might work against the objectives of the exercise. The key is to find the right balance between a challenging scenario that sparks conversation and promotes communication and decision-making, without becoming overly complex. If an exercise is too detailed it might begin to lose cohesion and work against forging a common understanding of response protocols.

Tabletop exercise design should consider high-level actions such as:

- notification, mobilization and communication with key response team members

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Best Practices

“We attend the annual Paradigm meetings in Douglas, Ga. as well as attending Pipeline Emergencies Company Officers Tactics.”- **Robert Mikell, Ray City Fire Department, Ray City, Ga**

“We have meetings with pipeline personnel, EMA director and sheriff's department so that we are aware of new construction, possible risks, and plans of action for multiple hazardous scenarios.”

“We hold annual tabletop drills and attend local pipeline operator-sponsored training meetings.”- **John Waldo, Huntsville Fire Department-EMC, Huntsville, TX.**

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- a review of the structure for responding to the simulated emergency
- demonstration of participants understanding of their individual tasks and responsibilities, and participants fit into the overall structure

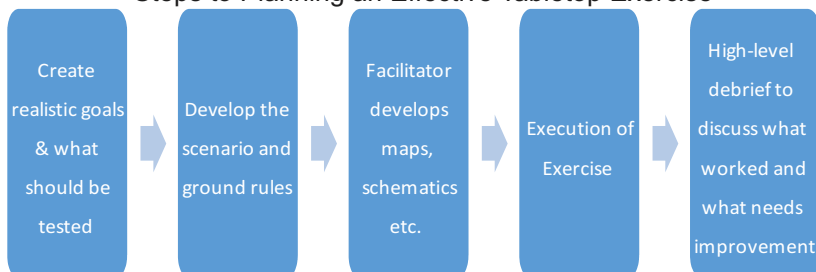
How the facilitator manages the tabletop can determine the success of the exercise. First, identify tools that will help drive the discussion of response activities. These tools might include an electronic presentation, detailed maps or schematics, models, etc. Next, establish and review ground rules and objectives for the tabletop at the start of exercise. They should promote input from participants and emphasize the importance of participation while highlighting that all input is welcomed and no one will be penalized for their responses.

After reviewing the objectives and ground rules, the facilitator should communicate how the exercise will begin (“Today we’re going to look at how we would respond to a pipeline incident”), followed by situational comments (“This event is taking place during morning rush hour” or “The wind is blowing out of the north with gusts up to 15 mph.”). The facilitator sets the scene, promoting a “here’s what we are dealing with” challenge and encouraging participants to provide input and find solutions. Facilitators must be careful not to drive participants toward actions and conclusions, but rather promote an atmosphere where participants determine courses of action.

For documentation, either the facilitator or a designated scribe should take notes, especially in regards to key actions taken or considered, necessary communications and coordination steps, etc. These notes can then provide the basis for a post-scenario “hot wash” discussion and/or an after-action report. Ideally, this summary should provide insight on what worked well and action items for improvement.

Kinder Morgan routinely conducts tabletop exercises using the techniques highlighted in this article. If your organization is interested in participating in a joint tabletop exercise, please complete the form found at: PA-inforequest.kindermorgan.com

Steps to Planning an Effective Tabletop Exercise



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Kinder Morgan Tabletop Drill Guides and Scenarios

Kinder Morgan has developed step by step guides on how to incorporate tabletop drills into an upcoming training meetings. For Natural Gas click [here](#). For Hazardous Liquids click [here](#).

Potential Hazards Associated with Pipeline Leaks Chart

To view an outline of potential hazards associated with a release of specific products, go to:

www.kindermorgan.com/content/docs/KM_HAZARDS_CHART.pdf

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.**

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Pipeline Emergency Response Tactics: Responding to Natural Gas Escaping Inside a Building

The directional drill crew, rushing to complete a job before rain sets in, didn't update the one-call notice ticket showing a new excavation location. As the drill work progresses, a pipeline transporting natural gas is nicked and gas begins migrating underground, through the sewer system and into a multi-story residential structure. Numerous 911 calls report a smell of natural gas in the structure and fire units are dispatched to the scene. While fictitious, this incident can, and does, occur sometimes with tragic results.



Natural gas escaping inside a building should be treated with urgency and caution. When dispatched to a report of natural gas accumulating in a structure, it is imperative that the pipeline operator be contacted as soon as possible to assist with the location and isolation of the leak.

Upon confirmation of gas accumulation in a structure, responders should ensure elimination of all ignition sources and begin evacuations immediately. Occupants should be evacuated to a safe location far enough from the structure to minimize risk should an explosion occur. In addition, responders should use combustible gas indicators (CGIs) to assess for gas migration that may occur through sewers, storm drains, or other underground voids.

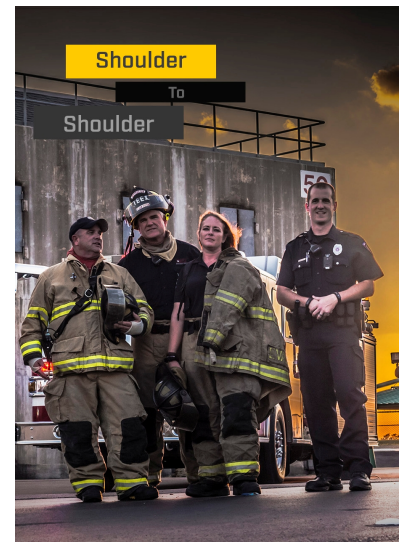
When responding to notification of a potential release understanding the characteristics of natural gas is important. Natural gas is typically odorless. However a chemical may be added to give it the characteristic sulfuric smell similar to garlic or rotten eggs, particularly on distribution systems and in high population areas on transmission systems. While recognizing the odor might aid in determining the presence of natural gas, only the use of instrumentation can accurately measure concentration of the product. For example, "odorant fade" is possible, where the concentration of odorant in the gas stream decreases. A calibrated CGI unit is used to determine the concentration of natural gas in the air and compare it against the associated explosive limits, referred to as the lower explosive limit (LEL) and upper explosive limit (UEL).

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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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A reading on a combustible gas indicator of less than the LEL means the gas to air mixture is too lean to burn. Conversely, a reading above the UEL means the mixture is too rich to burn. In situations where gas to air mixtures are above the upper explosive limit, extreme care should be exercised since ventilation will result in concentrations that can be explosive.

Unlike propane, natural gas is lighter than air, and when released will typically dissipate in the atmosphere. When searching for natural gas accumulations in structures, responders should be aware of this physical characteristic and take samples at high and low points in the structure. Extreme caution should be exercised when natural gas is trapped in sealed enclosures such as basements, attics, storage rooms, and similar areas.

Emergency Responder Spotlight: Madison County EMA's Preparation for Pipeline Emergencies

While first responders are tasked with responding to a wide variety of events, being called to a suspected pipeline emergency carries its own unique challenges. With many different energy commodities falling under the pipeline emergency response umbrella it is important that first responders develop relationships with local pipeline operators and practice their knowledge and available training prior to an emergency (for more information on commodities transported refer to the next article).

Madison County EMA in Wampsville, New York has made pipeline emergency response preparation a top priority. Included in their Madison County Hazardous Materials Plan is a section specific to responding to pipeline emergencies. In addition to their comprehensive Hazardous Materials Plan, they also ensured that the pipeline operators in their county have a representative on their Local Emergency Planning Committee (LEPC). Having local pipeline operators attend their quarterly LEPC meetings has proven an effective way for all parties to be familiar with the pipeline assets in the county, the associated hazards of the commodities transported, and emergency response capabilities and priorities. During these meetings, operators frequently present information and provide updates that first responders in the county may need to be aware of—such as Emergency Shutdown (ESD) systems, scheduled maintenance activities, and planned or on-going pipeline construction. Doug Shattuck, Fire Coordinator with Madison County EMA, has found that these meetings have proven to be a crucial communication link between first responders and pipeline personnel in their county.

The Madison County EMA has been invited to and has conducted

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Suggest an Article for *The Responder!*

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!

WISER

WISER 5.3 Update Release Includes:

- *Added fourth generation agents substance records and reference material
- *Added the ASPIRE decision-aiding tool and PRISM guidelines
- *Updated the use and display of data bibliographies

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.

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system orientation training at compressor stations, and reviewed case studies of pipeline emergencies with pipeline operators in their jurisdiction. By meeting with pipeline personnel on a regular basis, Madison County is able to ensure all of its pipeline operations maps are current and readily available to all first responders, as well as ensuring that they have updated contact information for local pipeline operators.

While various states and counties may handle emergency response planning and training differently, examining each other's practices can offer opportunities for growth or improvement. If you are interested in conducting training with Kinder Morgan personnel in your area please fill out the form at:

PA-inforequest.kindermorgan.com.

Special thanks to Doug Shattuck with the Madison County EMA for sharing his department's best practices

Overview of Pipeline Systems: What's in the Pipeline? - A Look at Commodities Transported via Pipeline

There are over 2.5 million miles of energy pipelines in the United States. This intricate transportation system is responsible for transporting many important and vital commodities safely throughout our country. Some of these products are transported directly into homes, others are used for transportation, and some are transported to meet important manufacturing needs. Pipelines transport all of these commodities but each of them has unique characteristics and purpose.

Carbon Dioxide (CO₂) plays an important part in recovering crude oil from mature oil fields, and is transported through transmission pipelines or smaller distribution pipelines. Enhanced oil recovery efforts are also known as EOR.

Crude oil is a mixture of hydrocarbons that formed from plants and animals millions of years ago- a fossil fuel. It is commonly found in liquid form in underground wells or reservoirs. It is extracted from the ground and then transported from wells to refineries through transmission or gathering lines where the crude is separated out into usable petroleum products.

Liquefied petroleum gas (LPG) pipelines also transport a mixture of hydrocarbon gases- primarily propane, ethane and butane. These are common products that are used in households or for industrial purposes. These gases are liquefied under pressure, and are frequently stored and transported in containers and are labeled

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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**



Products Kinder Morgan Transports in Each State We Operate

Click here to see which products Kinder Morgan transports via pipeline in your state

https://www.kindermorgan.com/public_awareness/additionalInformation/erg/products_transported.aspx

First Responder Online Pipeline Training

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

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as LPG.

Natural gas supplies nearly one-fourth of all the energy in the United States. It is a naturally occurring, typically odorless, colorless and tasteless gas. To give it the distinguishable sulphur-like (e.g., rotten egg or garlic) smell, odorant is frequently added to the gas in highly populated areas and in distribution pipelines. At ambient temperatures, natural gas is lighter than air, but it can be compressed under high pressure or liquefied (LNG) under extreme cold temperatures for transport.

Refined products pipelines carry products such as gasoline, diesel fuel, jet fuel, fertilizers and home heating oils. These refined products are transported through pipelines to large fuel terminals with storage tanks, and then are usually loaded into tanker trucks. Tanker trucks then deliver these products the last few miles directly to gas stations, homes or other end-users.

In addition to being the safest mode of transportation for these critical commodities, pipelines are the most cost effective form of transport as well. Pipelines transport over two-thirds of all refined products and crude oil in the United States. For more information on energy commodities transported by Kinder Morgan visit our website

https://www.kindermorgan.com/public_awareness/additionalnformation/erg/products_transported.aspx
or contact us at: PA-inforequest.kindermorgan.com ■

NOTE

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