Pipeline Emergency Preparedness & Training: Tailboard Scenario of a Natural Gas Transmission Pipeline Rupture – How Would You Respond?

Consider your organization's response to the following scenario involving a pipeline operator:

- There is a pipeline rupture and fire on a 20-inch natural gas line, at Four Corners Junction, adjacent to State Highway 60, two miles north of Shelbydale, a heavily populated suburb of San Martino (population 750,000).
- An unidentified caller first reported the fire to 911 at 7:07 a.m. The caller also reported that a person had been injured. Response units and an ambulance were immediately dispatched to the site identified by the caller.
- Upon arriving at the scene around 7:20 a.m., personnel with your response organization are able to verify that a contractor, Ace Construction Company, was operating a backhoe in the area. Preliminary reports indicate the operator of that equipment, identified as Mike Moore, struck the pipeline. The caller believes that exhaust from the backhoe started the fire.
- There was no other work going on in the area, and pipeline operator personnel at the scene report that they had not been asked to locate the pipeline from a one call request.
- Flames are over 200-feet in the air and grass and nearby trees are on fire as well. Heavy southwesterly winds are blowing, and residual fires are moving toward the Somerset Apartment complex to the northeast side of State Highway 60.
- Approximately 70 yards north of the Somerset Apartments in a strip mall that includes approximately 15 businesses. On the next block, immediately northward is Wallingham Academy, a private school.
- The backhoe is consumed by flames within the rupture zone.
- The pipeline company has dispatched crews to valve locations on both sides of the rupture in an effort to isolate the gas source. The company estimates that will take at least 30-45 minutes for the fire to noticeably subside as the gas flow is curtailed.

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Best Practices from Emergency Response Peers

"The LEPC is required to be aware of these practices so they can communicate to the Public and First Responders. The LEPC is also responsible to ensure capabilities exist in their community to deal with an emergency release of any hazardous materials into the community."

"Pipeline seminars given in Somerset, N.J. every year for police, fire responders- this is a very knowledgeable program."

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- The County Sheriff's Department has closed the busy intersection and has begun diverting traffic around Four Corner's Junction, which was already clogged with morning rush-hour commuters. Both the Sheriff's Department and pipeline operator are seeking assistance and counsel from your response organization as to evacuations and establishment of a Command Post.

Consider your response to this scenario using the following questions:

- ✓ *What are your strategic response objectives?*
- ✓ *What are your key actions in relation to priorities?*
- ✓ *What considerations need to be taken as to the determination of an evacuation zone?*
- ✓ *Where would you advise that the Command Post be established?*
- ✓ *Are you comfortable with "letting the fire burn itself out" as the natural gas source is isolated?*
- ✓ *In your view, what parties or organizations need to be present in the Command Post?*
- ✓ *Are there other resources, not yet cited, that need to be part of this response effort?* ■

Pipeline Emergency Response Tactics: Responding to a CO_2 Pipeline Incident

Kinder Morgan is the largest transporter of CO_2 in America, moving more than 1.3 billion cubic feet of product per day through 1,300 miles of pipe. While CO_2 pipeline accidents are very rare, it is important for emergency responders to be well-versed in identification and response tactics as recommended in the **Emergency Response Guidebook.**

Should a leak or release occur, our systems will be shut down and the leaking section of the pipeline will be isolated. Given that CO_2 is colorless and odorless, it can make leak identification a bit more difficult. Some general indicators of a CO_2 pipeline leak may include:

- presence of a cloud, fog or ice near the pipeline
- dead or discolored vegetation near healthy plants
- bubbles in water near the pipeline
- blowing of dirt or dust, along with an unusual hissing sound

Prior to, or upon arrival, first responders should reference pipeline maps in their possession. Maps for CO_2 pipelines can be printed from the National Pipeline

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Note

If you would like to request additional information or subscribe to *The Responder*, please fill out the form found **here**.

First Responder Online Pipeline Training

To access the API-AOPL Emergency Response Team's free First Responder Online Pipeline Training, click **here**.

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Mapping System. To access the National Pipeline Mapping System, **click here**.

Emergency responders should arrive on-scene with appropriate personal protective equipment (PPE), including turnout gear, mask and a self-contained breathing apparatus (SCBA). Wearing a SCBA is a critical precaution, since CO_2 can displace oxygen in the area.

Upon arrival, it is important to quickly identify the pipeline operator, and make contact through the phone number listed on the pipeline marker. If first responders and dispatch are not able to locate a pipeline marker because it has been damaged or removed, the National Pipeline Mapping System is a valuable tool that can be used to locate operators in the area.

Once the operator has been called and identified, a thorough area assessment must be conducted quickly, and the incident site should be isolated and evacuated. All non-essential personnel must stay away from the hazard area, and the establishment of hot, warm, and cold zones, a decontamination zone, and medical evaluation areas should be prompt. If there are any injuries, responders should not attempt to assess a patient's vital signs in a hazardous atmosphere, but instead should evacuate the patient as quickly as possible to the cold zone or medical evaluation area for an examination.

During the response, it is critical that oxygen gas detectors such as an "MSA" or "QRAE" devices are used to monitor the amount of oxygen in the atmosphere. CO_2 has a density of almost 1.5 times greater than oxygen, meaning it will congregate in confined spaces close to the ground, so proper ventilation is imperative. Positive pressure ventilation (PPV) systems found on fire trucks, or booster fans can typically mediate and properly vent the area in most circumstances. When preparing to leave the "hot zone" and enter the decontamination zone, always ensure that an oxygen deficient atmosphere does not exist prior to the removal of PPE and SCBA. ■

Overview of Pipeline Systems: Design and Construction of a Pipeline System

As the nation's need for energy continues to grow, pipelines become an ever-increasing critical resource to meet demand. In some cases, to accommodate the need for increased capacity, new pipelines must be constructed. The process for pipeline construction requires extensive planning and is usually implemented in distinct phases.

Pipeline design and surveying – During the initial stage of pipeline construction planning, the size and capacity of the pipeline is determined based on customer needs and future growth. A preliminary route for the pipeline is determined and survey crews are dispatched to survey the proposed route. Once the pipeline route is finalized it is marked with stakes.

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WISER Update- New as of 8/13/2015!

WISER for iOS 4.6, a universal app for Apple iOS devices, is now available. This new release adds the following tools to WISER's toolbox:

- Radiation Unit Converter
- Radiation Dose Estimator
- Two triage algorithms, START Adult Triage Algorithm and JumpSTART Pediatric Triage Algorithm

WISER
Wireless Information System for Emergency Responders

NPMS

To access the National Pipeline Mapping System and locate pipelines in your area, please go to **https://www.npms.phmsa.dot.gov/default.aspx**

Note

Please add us to your trusted sites to keep *The Responder* coming to your inbox!

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Construction Preparation – The construction process is initiated by clearing of the right-of-way. This is accomplished through the removal of trees and brush as well as grading to prepare the working space. Silt fences and other erosion control measures are installed and maintained throughout the construction process. Top soil is carefully removed and placed to the side for later reinstallation to restore vegetation.

Construction – During the construction stage, the pipeline route is re-staked and the pipeline segments are strung along the right of way. The trench for the pipeline is excavated and care is taken to remove rocks or any debris that could damage the coating of the pipe during installation. The pipe segments are then welded together by certified pipeline welders. The welds are x-rayed for quality control and the pipe joints coated to protect them from corrosion. The pipe is then carefully lowered into the excavation area and the trench covered.

Post-Construction – After construction of the pipeline is complete, the right-of-way is restored and seeded to establish vegetation and to prevent erosion. Typically the pipeline is pressure tested using water and inspected through the use of an internal inspection tool otherwise known in the industry as a "smart pig". The pipeline is cleaned and thoroughly inspected before being placed into service.

The entire pipeline construction process can take several months to even years to complete. Throughout the construction process, trained and qualified inspectors carefully ensure that proper construction procedures are implemented and safety procedures/processes are being followed. Pipelines are constructed to safely transport the critical fuel that energizes our nation and keeps our economy growing. To request additional information on Kinder Morgan's pipeline construction process, please **click here**.

Additional resources:
http://www.aopl.org/pipelines-in-your-community/pipeline-construction-steps/
http://www.ingaa.org/cms/65.aspx ■

Keeping Pipelines Safe/ Practices & Protocols: New Development near Pipelines- Awareness & Involvement

Outside force damage continues to be a leading cause of pipeline incidents. Despite the energy industry's efforts to enhance damage prevention through a variety of measures, including the national one-call number 811, hits to pipelines still occur.

Historically, pipelines were constructed in rural areas away from population growth and commercial development. Over time, what were once agricultural farm areas have now become bustling neighborhoods, strip malls, and hospitals. How do we avoid creating enhanced risk where there is a comingling of pipelines and community growth?

Partnerships between pipeline operators and local government planning and

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The Responder Annual Readership Survey

Please keep an eye out for *The Responder* Annual Readership survey in your inbox! Your comments and feedback on this brief survey are very important to us, and allow us to make sure we are providing you with the information you need. Thank you in advance for your participation!

FYI

For more information on Pipeline Incident Response Tactics, please click **here**.

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zoning agencies are fundamental to avoiding conflicts related to development and pipeline encroachment. A powerful tool that aids in proper land use planning is the National Pipeline Mapping System or NPMS. The **NPMS** is a national geographic information system (GIS) populated by pipeline operators that depicts the location of hazardous liquid and natural gas transmission pipelines. Local government agencies can establish Pipeline Information Management Mapping Application (**PIMMA**) accounts to view pipeline data at the county or parish level. Maps are available for printing and pipeline operator contact information can be obtained through the system for questions and coordination of land use development.

Emergency response officials are a critical component of the proper land use equation. In many cases, emergency management, fire department, and law enforcement personnel are involved in land use/development planning and construction activities. In addition, these officials are vital stakeholders engaged in continuous dialogue with pipeline operators. Through effective, on-going communications the pipeline operators and agency officials can help identify areas where land use conflicts with pipelines may arise before new land development.

While pipeline incidents are rare, they do occur. As population density increases near pipelines, the need for coordinated emergency planning between pipeline operators and emergency responders becomes increasingly important. Emergency responders are uniquely qualified to assist pipeline operators in identifying areas of limited mobility such as nursing homes, day cares, prisons, and hospitals which should be considered during emergency planning efforts.
Several resources have recently been developed to aid in facilitating the discussions related to proper land use planning:

https://www.fema.gov/media-library/assets/documents/101688 (Hazard Mitigation Planning: Practices for Land Use Planning and Development near Pipelines – FEMA\Pipeline and Hazardous Materials Safety Administration)

https://primis.phmsa.dot.gov/comm/publications/PIPA/PIPA-Report-Final-20101117.pdf#pagemode=bookmarks (Partnering to Further Enhance Pipeline Safety in Communities Through Risk-Informed Land Use Planning –Final Report or Recommended Practices) ■

Did you know...

811 is the nationally recognized 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***!

Kinder Morgan Social Media

Facebook:
https://www.facebook.com/KinderMorganInc?rf=108038462610747

Twitter:
https://twitter.com/Kinder_Morgan