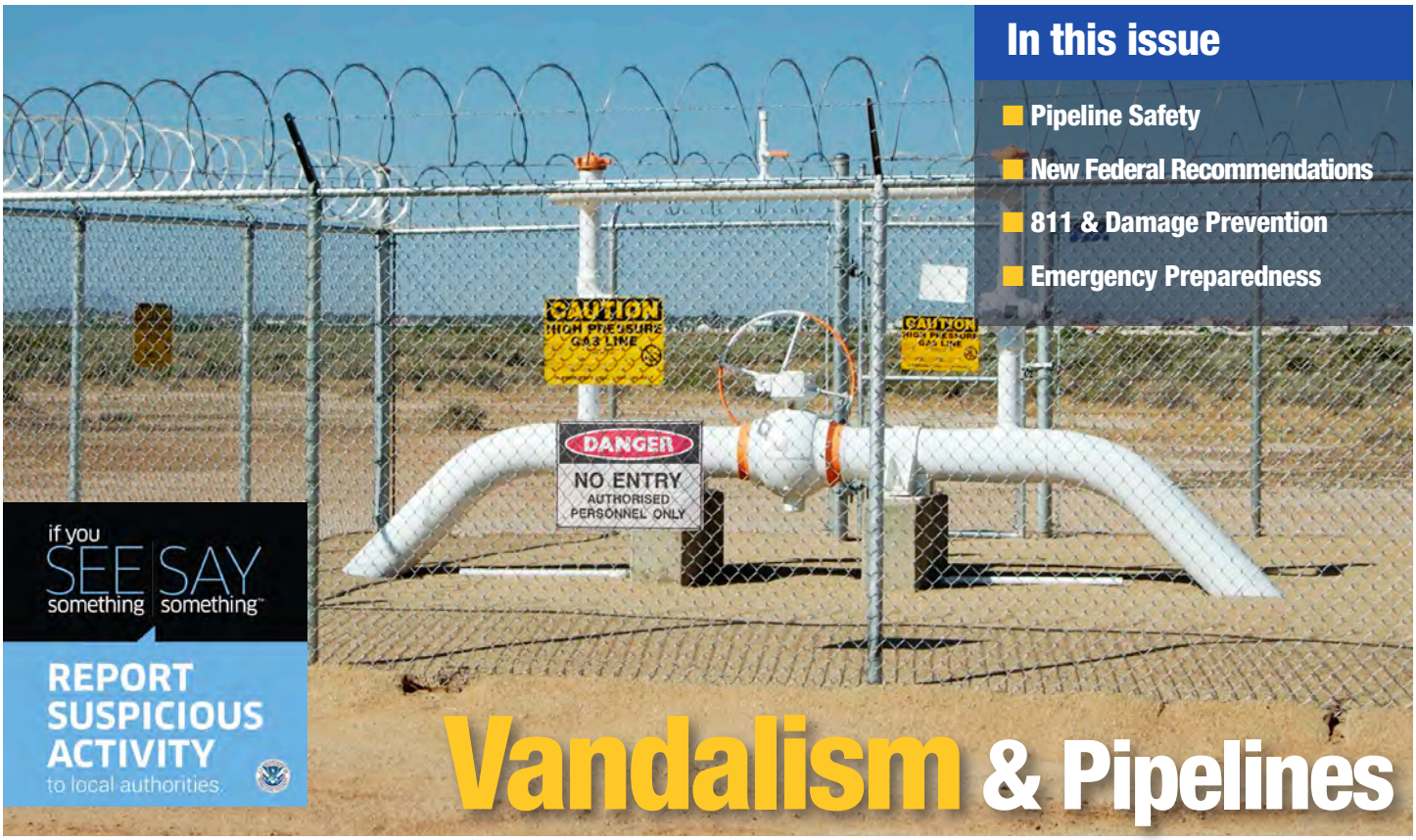
VOLUME 12, ISSUE 1 SUMMER, 2017 *Pipeline Association for Public Awareness*

pipeline awareness

safety information for public officials



In this issue

Vandalism & Pipelines

What could it mean for you?

In communities across the country, law enforcement agencies are actively partnering with pipeline operators to protect community safety during protest demonstrations and to prevent vandalism to local pipeline infrastructure.

Over the past year, anti-pipeline activists, prompted by permitting decisions for new pipeline projects, organized protests and attempts to intentionally damage pipeline facilities.

Coordinated vandalism targeting pipeline infrastructure in four states prompted federal regulators to issue a bulletin in 2016 warning communities that damage to piping and aboveground system assets can have significant community safety consequences.

Under federal law, individuals who damage pipeline facilities in the United States can face large fines and up to 20 years in prison. Unfortunately, attempts to damage pipelines continue. Authorities in South Dakota and Iowa confirmed that earlier this year, protesters seriously damaged sections of newly constructed pipelines.

In response to these threats, pipeline operators have increased efforts to monitor and protect pipeline infrastructure through their security and surveillance programs. They also rely on the support of local public officials and law enforcement to protect facilities from vandalism.

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Pipelines – fueling your community

The energy and fuels we use every day move across the country from production sites to end users through a variety of methods including tanker trucks, rail cars, ships and pipelines.

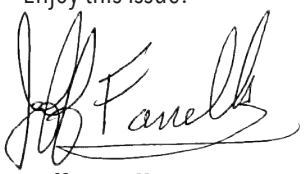
The National Academy of Sciences and safety oversight authorities consistently recognize pipelines as the safest way to transport energy and link our communities to the energy products we rely on every day. The first pipeline was built in 1879. Today, pipelines form an underground highway system comprised of 2.6 million miles of gathering, transmission and distribution pipelines transporting the energy we use every day in our homes and businesses.

In addition to being safer, pipelines are consistently more reliable than other methods of energy transportation. Utilizing pipelines instead of additional tanker trucks or rail cars reduces traffic and wear on roads and rails. Moving energy fuels through a single high-volume pipeline, for example, replaces the need for 1,500 tanker trucks every day.

For more than ten years, this publication has served as a trusted information resource for local public officials and has facilitated increased pipeline awareness across the country. Each issue includes reference information and updates on current topics related to pipeline safety.

In this issue, we explore the importance of protecting community safety during protests and acts of vandalism involving pipeline facilities. We discuss new regulatory requirements for storage facilities and excess flow valves and what they mean for your community. We also talk with a local public official who served as Incident Commander during a pipeline emergency in his community to get his advice for how you can enhance your community's emergency preparedness.

Enjoy this issue!



Jeff Farrells,

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What is a pipeline right-of-way?

For the pipeline industry, protecting pipelines and keeping communities safe are the top priorities.

This commitment begins even before a pipeline is built when operators secure an easement agreement from each landowner, utility or other government entity. This agreement provides the operator permission to build and maintain a pipeline on the land and govern the activities permitted by both the landowner and the pipeline operator.

Operators typically use the term "right-of-way" when referring to the land governed by the easement. Rights-of-way allow operators to easily access pipelines for monitoring, maintenance and emergency situations.

Not all rights-of-way are the same size. Some are defined with specific sizes and boundaries, while others are undefined. Many factors determine the width of a right-of-way, including the number and size of pipelines located within it, the wishes of the landowner and pipeline operator, and state or federal regulations.

While exact terms vary, easement agreements typically contain certain right-of-way restrictions designed to protect the pipeline and keep neighbors and the broader community safe.

Rights-of-way provide easy access to the pipeline for monitoring, maintenance and emergency situations.

Common Right-of-Way Restrictions

Right-of-way encroachment is a pipeline industry term that refers to violations or deviations from the terms outlined in the easement agreement.

Because they have the potential to affect pipeline integrity and safety, the following activities are often prohibited within the right-of-way:

- Building residential structures fences, sheds or barns
- Pouring a driveway
- Installing a swimming pool or sprinkler system
- Storing vehicles or flammable materials
- Planting trees, shrubs or gardens
- Removing tree stumps

Depending on the details of the easement agreement, these activities may be restricted or require special approval from the pipeline company.

As a public official:

- You may receive requests to provide property owners with copies of their easement agreements; these are often made available through county clerks.
- You may be involved with general land-use decisions that impact pipeline rights-of-way; review the report, model ordinances and resources provided by the Pipeline Informed Planning Alliance at **https://primis.phmsa.dot.gov/comm/pipa/pipa_audience_local_government.htm**

Pipelines in your community

A red marker in the middle of a park. A white sign mounted on a fence. A yellow post on the side of the road. Pipeline markers may come in different shapes, colors and sizes, but all of them identify the general location of underground pipelines and utility lines and provide critical safety information for the public.

While they may appear different at first glance, every pipeline marker includes the name of the operator, the product in the pipeline and a phone number to call in the event of an emergency. And while they don't mark the exact location of the pipeline, they are placed close enough to remind the public that a utility is buried nearby.

Pipeline markers do not designate the exact location, depth or number of pipelines in the area, and the lines below do not always run in a straight line between markers. For these reasons, markers should never be used as a reference point for buried infrastructure when conducting any excavation activity.

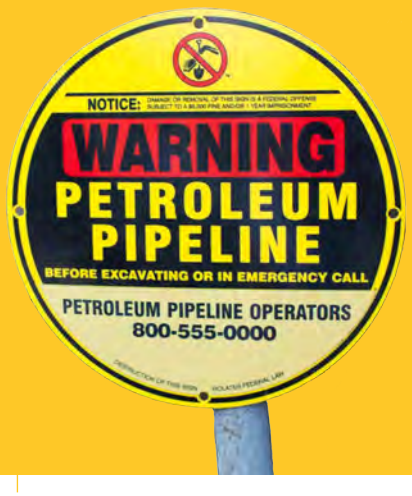
Pipeline markers are located along the path of larger transmission pipelines. Markers may or may not be located continuously along gathering lines or distribution lines. Most gas service lines that connect to homes and businesses do not have pipeline marker signs.

Markers are protected by federal law, and intentionally damaging one can result in a fine. If you notice a missing or damaged pipeline marker, call the pipeline operator using the number on a nearby sign so it can be replaced.

GATHERING PIPELINES collect oil and natural gas from production fields. These pipelines are generally found in rural areas.

TRANSMISSION PIPELINES carry larger quantities of energy resources–like oil, natural gas and other fuels–longer distances from production areas to refineries, processing plants, storage facilities and distribution system connection points.

DISTRIBUTION PIPELINES deliver natural gas to manufacturing, commercial and residential customers to produce electricity, provide heat, cook food and run machines that make products and provide services.



KNOW THE HAZARDS

PRODUCTS AND FACILITIES
SAFETY INFORMATION FOR PUBLIC OFFICIALS

Natural Gas is a naturally occurring resource formed millions of years ago as a result of heat and pressure acting on decayed organic material. It is extracted from wells and transported through gathering pipelines to processing facilities. From these facilities, it is transported through transmission pipelines to distribution pipeline systems. The main ingredient in natural gas is methane (approximately 94 percent). Natural gas is odorless, colorless, tasteless and nontoxic in its natural state. An odorant (called mercaptan) is normally added when it is delivered to a distribution system. At ambient temperatures, natural gas remains lighter than air. However, it can be compressed (CNG) under high pressure to make it convenient for use in other applications or liquefied (LNG) under extremely cold temperatures (-260° F) to facilitate transportation.

Petroleum Gas is a mixture of gaseous hydrocarbons, primarily propane, butane and ethane. These products are easily liquefied under pressure and are used for residential or commercial heating and other industrial applications. Propane and butane are often stored and transported under pressure as Liquid Petroleum Gas (LPG) in portabe containers for use as fuel for heating and cooking applications. LPG is usually transported through hazardous liquid transmission pipelines and may also be identified as Highly Volatile Liquids (HVLs) or Natural Gas Liquids (NGLs). Vaporized LPG may also be found in small systems. LPG is a tasteless, colorless and odorless gas. When transported via transmission pipelines it typically will not have odorant added. Odorant is added when LPG is offloaded to a distribution pipeline system or transport tanks to facilitate leak detection.

Petroleum Liquids is a broad term covering many products, including crude oil, gasoline, diesel fuel, aviation gasoline, jet fuel, fuel oil, kerosene, natural gas liquids, naphtha, xylene and other refined products. Crude oil is unrefined petroleum that is extracted from beneath the Earth's surface through wells. As it comes from the well, crude oil contains a mixture of oil, gas, water and other impurities, such as metallic compounds and sulfur. Refinement of crude oil produces petroleum products that we use every day, such as motor oils and gasoline. Crude oil is transported from wells to refineries through gathering or transmission pipelines. Refined petroleum products are transported in transmission pipelines to rail or truck terminals for distribution to consumers. Odorant is not added to these products because they have a natural odor.

Anhydrous Ammonia is the liquefied form of pure ammonia gas. It is a colorless gas or liquid with an extremely pungent odor. It is normally transported through transmission pipelines and is used primarily as an agricultural fertilizer or industrial refrigerant.

Carbon Dioxide is a heavy gas that is normally transported in transmission pipelines as a compressed fluid. It is a naturally occurring, colorless, odorless and tasteless gas used in the petroleum industry. Under normal conditions, carbon dioxide is stable, inert and nontoxic.

Ethanol (also called ethyl alcohol) is a colorless liquid that is widely used as an additive to automotive gasoline. It may be transported in buried transmission pipelines.

Hydrogen Gas is commonly produced from the steam reformation of natural gas. It is frequently used near its production site, with the two main uses being petrochemical processing and ammonia production. Hydrogen is a flammable gas that is colorless, odorless and lighter than air. It is nontoxic, but can act as a simple asphyxiant.

"Sour" Crude Oil and "Sour" Gas refer to products containing high concentrations of sulfur and hydrogen sulfide. Products containing little or no sulfur are often referred to as "sweet". Hydrogen sulfide (H2S) is a toxic, corrosive contaminant found in natural gas and crude oil. It has an odor like the smell of rotten eggs or a burnt match. Exposure to relatively low levels of hydrogen sulfide (500 ppm) can be fatal.

LEAK, HAZARD & EMERGENCY RESPONSE INFORMATION

	Natural gas	Petroleum gas	Petroleum liquids	Anhydrous Ammonia	Carbon Dioxide	Ethanol	Hydrogen Gas	Sour Gas (H2S)	Sour Crude Oil (H2S)	Liquids & Natural Gas
INDICATIONS OF A LEAK										
An odor like rotten eggs or a burnt match	1	1						●	●	1
A loud roaring sound like a jet engine	●							●		●
A white vapor cloud that may look like smoke		●		●						
A hissing or whistling noise	●	●		●	●		●	●		●
The pooling of liquid on the ground			●			●			●	●
An odor like petroleum liquids or gasoline		●	●			●			●	●
Fire coming out of or on top of the ground	●	●					●	●		●
Dirt blowing from a hole in the ground	●	●		●	●		●	●		●
A sheen on the surface of water		●	●						●	●
An area of frozen ground in the summer	●	●			●	●	●	●		●
An unusual area of melted snow in the winter	●	●			●		●	●		●
An area of dead vegetation	●	●	●				●	●	●	●
Bubbling in pools of water	●	●			●		●	●		●
An irritating and pungent odor				●				●	●	
HAZARDS OF A RELEASE										
Highly flammable and easily ignited by heat or sparks	●	●	●			●	●	●	●	●
Will displace oxygen and can cause asphyxiation	●	●		●	●		●	●		●
Vapors are heavier than air and will collect in low areas		●	●	●	●	●		●	●	●
Contact with skin may cause burns, injury or frostbite		●	●	●	●	●	●	●		●
Initial odor may be irritating and deaden the sense of smell								●	●	
Toxic and may be fatal if inhaled or absorbed through skin				●				●	●	
Vapors are extremely irritating and corrosive				●				●	●	
Fire may produce irritating and/or toxic gases	●	●	●	●		●	●	●	●	●
Runoff may cause pollution			●	●		●			●	●
Vapors may form an explosive mixture with air	●	●	●			●	●	●	●	●
Vapors may cause dizziness or asphyxiation without warning	1	1			●		●	●	●	1
Is lighter than air and can migrate into enclosed spaces	●						●			●
EMERGENCY RESPONSE										
Avoid any action that may create a spark	●	●	●	●			●	●	●	●
Do NOT start vehicles, switch lights or hang up phones	●	●	●	●			●	●	●	●
Evacuate the area on foot in an upwind and/or uphill direction	●	●	●	●	●	●	●	●	●	●
Alert others to evacuate the area and keep people away	●	●	●	●	●	●	●	●	●	●
From a safe location, call 911 to report the emergency	●	●	●	●	●	●	●	●	●	●
Call the pipeline operator and report the event	●	●	●	●	●	●	●	●	●	●
Wait for emergency responders to arrive	●	●	●	●	●	●	●	●	●	●
Do NOT attempt to close any pipeline valves	●	●	●	●	●	●	●	●	●	●
Take shelter inside a building and close all windows				●	●			●	●	

Note (1) these products are naturally odorless and only certain pipeline systems may be odorized.

Preparing for a pipeline emergency

Interview with Allen Dodson

Faulkner County Judge Allen Dodson served as Local On Scene Coordinator for emergency response during the 2013 Pegasus Pipeline spill in Mayflower, AR. Here's his advice for preparing for a pipeline emergency in your community.

What happened in Mayflower in March 2013?

A crude oil transmission line ruptured in a residential subdivision in the town of Mayflower, Arkansas, releasing approximately 3,000 barrels of oil. Mayflower authorities evacuated the subdivision, a perimeter was established around the subdivision and the other impacted areas as the oil flowed toward Lake Conway and into a cove.

What was your role during the pipeline emergency?

As the county chief executive, my role during initial response was to work with state and local agencies, including our own, to make an initial assessment, organize resources, and take steps to ensure safety and minimize damage while awaiting further resources and the ramp-up of a formal response organization with federal, state, local, and private entities.

What advice do you have for public officials in pipeline communities who are responsible for community safety or who may play a formal role in pipeline emergency preparedness?

Most important of all - be ready to lead. Learn and become proficient in National Incident Management System (NIMS), Incident Command System (ICS), and how a Unified Command works. Know your role, your duty, and the legal limits of your authority.

Know your resources and those at all levels likely to be available for immediate response. Understand how response evolves from the time of the incident through immediate response, and then how those efforts transition to formal operations by a structured response organization – which can be quite large.

Remember your priorities - safety of responders and citizens, then property, then the environment. Conduct response exercises with pipeline operators. Be involved no matter your role, and learn other roles. Be prepared to think on your feet and make decisions quickly with the information you have available. Trust the skill of those around you, and trust their desire to do well for their community.

*Access free online training resources for responders in your community at **papapipelinevideos.org**.*

The site includes reference resources, videos and nine interactive training scenarios including modules for 911 dispatchers, fire, law enforcement and HAZMAT.

Preventing Damage to Pipelines

Pipelines and underground utility lines were damaged more than 275,000 times in 2015.

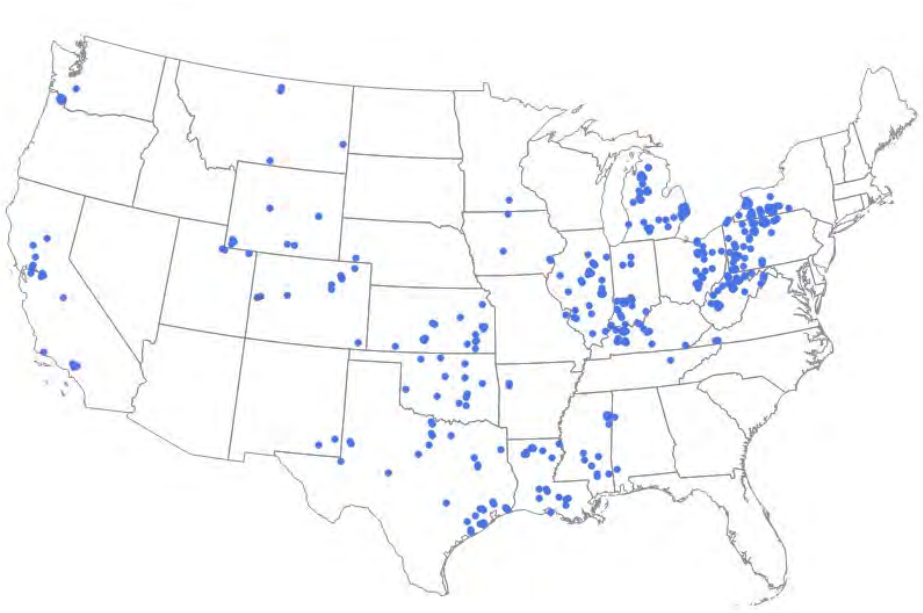
According to the Common Ground Alliance's DIRT report, almost 40% of these damages occurred during work to water and sewage systems and road and highway projects.

Public officials can protect community safety by encouraging the agencies and contractors they manage to participate in the One Call process for every project, even if they are exempt from state legal requirements.

Calling 811 or submitting an online ticket at clickbeforeyoudig.com initiates notification to pipeline and underground utility operators who will mark the location of their lines and be available to discuss project considerations.

Learn more about One Call requirements in your community by visiting call811.com and download excavation best practices at commongroundalliance.com/best-practices-guide.

Safer Gas Storage Facilities



Approximately 400 gas storage facilities are located across the United States.

Following a gas leak at the Aliso Canyon Underground Natural Gas Storage Facility near Los Angeles, California in October 2015, an interagency taskforce led by the Department of Energy and Department of Transportation's Pipeline and Hazardous Material Administration (PHMSA) recommended expanding federal safety regulations for gas storage facilities across the country.

The leak at Aliso Canyon raised questions regarding the environmental impact of gas storage leaks as well as the impact on electric and gas system reliability. The leak also highlighted a patchwork of state regulations and a lack of federal minimum safety standards. New federal regulations aim to strengthen operations and maintenance procedures. In response to a PHMSA advisory bulletin issued last year, storage operators are actively reviewing their operating, maintenance and emergency response procedures to ensure they adequately address the potential for facility leaks. They are also reviewing the location and operations of shut-off valves, leak detection equipment and emergency plans.

The interim final rule issued on January 18, 2017 incorporates by reference two industry standards (American Petroleum Institute's Recommended Practice 1170 "Design and Operation of Solution-mined Salt Caverns used for Natural Gas Storage" and 1171 "Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs") and clarifies responsibility for safety inspections.

The new regulations also require storage operators to file annual reports, incident reports and safety-related condition reports using an assigned Operator Identification Number (OPID).

Storage Facilities Near You

Learn more about the gas storage facilities in your community using the U.S. Energy Information Administration's (EIA) interactive map. The EIA website also provides information regarding aboveground tanks and underground storage in oil and natural gas reservoirs, aquifers and salt caverns.

*Maps of storage facilities can be accessed at **eia.gov/state/maps**.*

New federal regulations aim to strengthen operations and maintenance procedures.

Building & maintaining safe pipelines

Searching and sniffing for leaks

Pipeline operators are using drones with infrared cameras, cars with methane detectors and even dogs to identify leaks. In this photo, Pipe Dogs Technician Richard Eckles and a sniffer dog search for pipeline leaks.

Photo by Beck Weppler

Pipeline operators maintain detailed integrity management plans that include ongoing operations and maintenance activities, right-of-way patrols, in-line inspection, sampling and other activities. They also follow specific engineering, design and construction standards.

Contact the operator directly for an overview of their Integrity Management Plan and details regarding how they build and maintain safe pipelines.

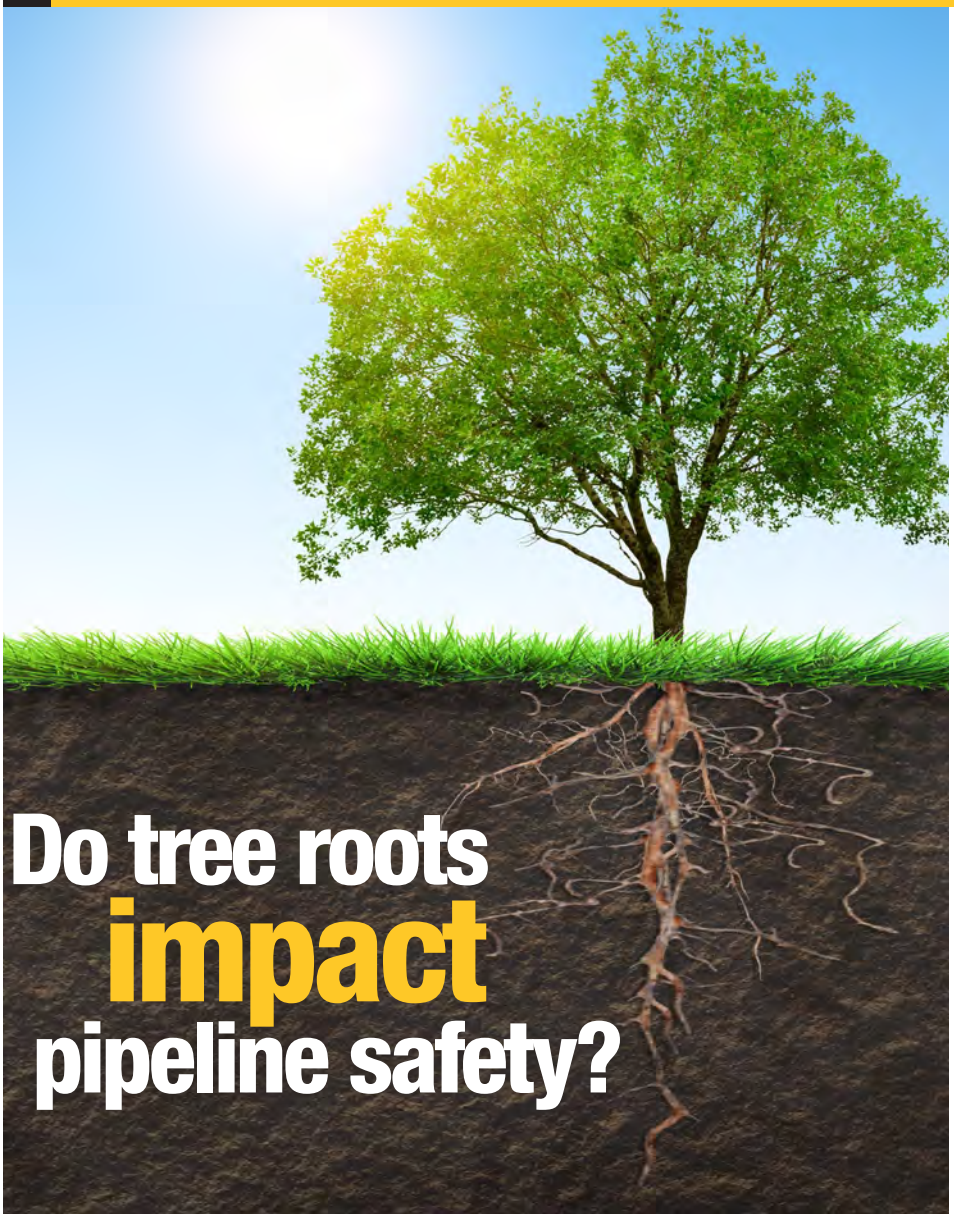
Most operators take the following steps to ensure the safety of their lines:

PLANNING & CONSTRUCTION

- Evaluating the potential risks posed to the pipeline under different operating conditions
- Designing the strength and thickness of pipelines to adhere to or exceed standards
- Burying pipelines at a sufficient depth depending on the type and location of the pipeline
- Coating the pipeline in order to prevent corrosion and damage
- Installing cathodic protection (a low voltage current that runs over the pipeline) to safeguard the steel from external corrosion
- Examining X-rays depicting the welds of pipe connections for any signs of possible defects or cracks
- Conducting pressure tests to confirm the integrity of the pipe before the pipeline becomes fully operational
- Placing pipeline markers at regular intervals aboveground to visually indicate the presence of the pipeline

ONGOING MAINTENANCE

- Monitoring pressure and flow inside the pipeline
- Adding an odorant with a distinctive smell (normally like rotten eggs or a burnt match) to consumer-ready gas distribution systems so people can recognize a leak
- Injecting corrosion inhibitors to prevent corrosion from occurring inside the pipeline
- Participating in local one call notification systems and promoting 811 and "Call Before You Dig" messaging to ensure safe digging
- Making sure that all pipelines are properly marked prior to excavation
- Inspecting the interior of the pipeline using current technology at regular intervals
- Maintaining a clear right-of-way around the pipeline to accommodate periodic inspections (either by foot or by airplane) for any signs of a leak, obstruction or encroachment
- Providing training to pipeline employees to meet qualification standards
- Training emergency responders to recognize a potential release and know how to properly respond



Do tree roots impact pipeline safety?

Pipeline operators actively maintain rights-of-way including clearing trees when they believe they pose a threat to the integrity of the pipeline.

At the bottom of an 8-foot hole in the middle of a California vineyard, two arborists carefully remove soil from where grape roots have wrapped around a Pacific Gas & Electric (PG&E) gas transmission pipeline. The work is slow-going, but the information gathered will benefit utility customers nationwide and make natural gas systems safer.

A 2010 study by the U.S. Department of Transportation's Pipeline and Informed Planning Alliance highlighted the potential damage tree roots can cause to pipelines. Utilities like PG&E are trying to learn more.

"When we started investigating some of our pipe and the trees next to it, we found that the tree roots were going much deeper (than three feet)," explains Marvin Penner, a PG&E manager of land asset management.

Arborists, horticulturists and soils experts from Fresno State University joined pipeline risk management and environmental consultants to investigate how different types of tree species, soil and irrigation can impact pipelines. The study was sponsored by PG&E and included data gathered from 53 locations along the operator's pipeline system in California.

"Some trees have a more aggressive root system or the pattern of root development would go deeper where it would be more likely to encounter a pipeline. And other trees have a more shallow root system or smaller roots that just don't reach that deep. We got involved, basically, to map that," said Dr. Charles F. Krauter, a professor of soils and water at Fresno State University.

Results of the study along PG&E's system indicate the need for continued research across the country and reconfirm that tree roots can wrap around and damage a pipeline's protective coating. Contact pipeline operators in your community to learn more about their Integrity Management Plans and vegetation management strategies designed to prevent tree root damage to their pipelines.

Portions of this article are reprinted with permission from an article that appeared in PG&E Currents.

Access the final report and other information at http://www.water.ca.gov/regulations/

ADDITIONAL INFORMATION


Sinclair Pipeline Company

Hazardous Liquids Facilities

Emergency	(800) 321-3994
Non-Emergency	(307) 328-3643
Webaddress	www.sinclairoil.com/pipelines.htm
Contact	Jon Brown PO Box 185 Sinclair, WY 82301 (307) 328-3643 jbrown@sinclairoil.com

MEMBER INFORMATION

If you have questions about the Pipeline Association for Public Awareness, our programs or need more information from any of our members, please visit www.pipelineawareness.org. Here you'll find a U.S. map with dropdown menus that filter by county level.

COPIES OF MATERIALS PROVIDED TO THE GENERAL PUBLIC OR EMERGENCY RESPONSE OFFICIALS

Pipeline members will send you copies of the materials they provide to the general public or emergency officials in your area.

Just email your request to the company contact person listed in the Pipeline Member Directory.

PIPELINE INTEGRITY MANAGEMENT PLANS

Member companies will provide additional information about their integrity management program upon request. This information may be posted on their website, or it may be obtained through the company contact person listed in the Pipeline Member Directory.

EXCESS FLOW VALVES

New federal regulations expands use of excess flow valves (EFVs) to include single-family residents, multi-family residents and small commercial businesses that meet certain system requirements.

WHAT'S AN EFV?

An EFV is a device that's designed to automatically shut off the flow of natural gas if a service line ruptures or breaks.

WHERE IS IT INSTALLED?

The EFV is installed on the service pipeline that runs underground between the gas main and the meter on your property.

HOW DOES IT WORK?

Because the EFV restricts the flow of gas when the service line ruptures or breaks, it helps reduce the chance of natural gas-related property damage and injury.

Installing an EFV doesn't protect against leaks that might happen in your house or small punctures in the pipe or meter. An EFV doesn't shut off the flow of gas completely, so some gas could still leak if a pipe or meter is damaged.

BENEFITS OF AN EFV

If a meter is damaged during a car crash or similar accident, an EFV will significantly reduce the flow of gas. This can reduce the chance of natural gas-related damage or injury.

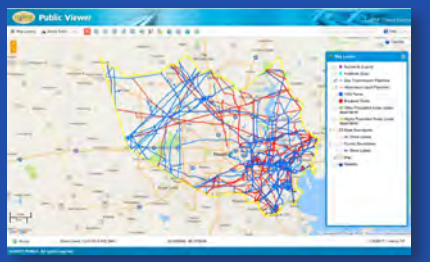
More commonly, an EFV restricts gas flow when an excavator accidentally hits a service line. Although an EFV may limit the damage caused by such an incident, the best way to prevent one is to make sure those who are digging on your property call 811.

Reprinted with permission from the Black Hills Energy website.

Pipeline Maps

Local public officials can view online maps of hazardous liquid and gas transmission pipelines, Liquefied Natural Gas (LNG) plants and breakout tanks in their community through the Pipeline Information Management Mapping Application (PIMMA).

Login or request PIMMA access at npms.phmsa.dot.gov/PIMMA/.



Resources

www.call811.com

www.commongroundalliance.com

www.nena.org

www.pipeline101.com

PHMSA resources for pipeline safety stakeholders include:

PHMSA Stakeholder Communications Website: http://primis.phmsa.dot.gov/comm/

National Pipeline Mapping System(NPMS): http://www.npms.phmsa.dot.gov

Community Liaison Services: http://primis.phmsa.dot.gov/comm/CATS.htm

http://phmsa.dot.gov/pipeline/safetyawareness-and-outreach/excavator-enforcement

https://primis.phmsa.dot.gov/comm/pipa/landuseplanning.htm