

Before darkening the room, offer a welcome and overview.

Begin by introducing the program and its topic:

Today's training session focuses on working safely around underground natural gas pipelines. By following the procedures we'll cover here today, you can keep yourself and your coworkers safe and on the job. On the other hand, if you cut corners where gas pipelines are concerned, you put yourself and your coworkers at risk of serious injury and even death. Please pay careful attention, and ask questions if you don't understand.

Darken the room.

Natural Gas Basics

- **Natural gas travels through pressurized underground pipelines of varying diameters.** The size of a gas line is NOT a reliable indicator of the internal pressure.
- **Dominion Energy adds a distinctive, rotten-egg or sulfur-like odor to natural gas to assist in the detection of leaks.** However, in certain conditions, you may not be able to smell this odorant.
- **A natural gas leak can be ignited by a tiny flame or spark—even from a lit cigarette or a phone.**



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Understanding natural gas basics will help you prevent accidents around natural gas pipelines.

- Natural gas travels through pressurized underground pipelines of varying diameters. These pipelines range from one inch to four feet wide. There are three types of pipes used in the system: transmission pipelines, main lines (also called distribution lines) and service lines. It pays to be careful around ALL types of pipelines. Pipeline pressure can vary from ¼ pound to 1,000 pounds per square inch. The pressure is what moves the gas through the pipes. It's also what makes damaging a pipeline so dangerous.
- Dominion Energy adds a distinctive, rotten-egg or sulfur-like odor to natural gas to assist in the detection of leaks. However, in certain conditions, this smell may not be apparent. Additionally, weather and soil conditions can strip the odorant from the gas.
- A natural gas leak can be ignited by a tiny spark or flame—even from a lit cigarette or a phone. To avoid spark hazards, do not turn anything electrical on—or off—in the vicinity of a gas leak.

Call 8-1-1 Before You Dig

- **Call 811 before digging** so lines can be marked and you can dig a safe distance away. Call 811 or use the online ticket-entry system:

- **ID:** digline.com
- **OH:** oups.org
- **NC:** nc811.org
- **SC:** sc811.com
- **TX:** texas811.org
- **UT:** bluestakes.org
- **WV:** wv811.com
- **WY:** onecallofwyoming.com

- **Before you call, pre-mark your proposed excavation area** with white paint, flags and/or stakes so locators can easily identify and mark affected utilities.

- **If you don't call 811, you risk hitting an underground gas line.** You or your coworkers could be hurt or killed. You may be held liable for any damages, as well as repairs and outage costs.



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Call 811 before you dig. Underground natural gas lines can pose an unseen but very real danger.

- Notify your local one-call system before digging by calling 811 or using the online ticket-entry system. They will arrange to mark underground utility lines so you can dig safely. Be sure to leave adequate time in your job schedule. The service is free, but the costs of not calling can be very high. Building in a few extra days for the job costs less in the long run than spending months or years recovering physically and financially from a gas line incident. And remember, it's the law.
- Use these URLs to access online ticket entry when digging in Idaho, Ohio, North Carolina, South Carolina, Texas, Utah, West Virginia and Wyoming.
 - ID: digline.com
 - OH: oups.org
 - NC: nc811.org
 - SC: sc811.com
 - TX: texas811.org
 - UT: bluestakes.org
 - WV: wv811.com
 - WY: onecallofwyoming.com
- Before you call, pre-mark your proposed excavation area with white paint, flags or stakes so locators can easily identify and mark affected utilities.
- If you don't call 811, you risk hitting an underground gas line. You or your coworkers could be hurt or killed. You may be held liable for any damages, as well as repairs and outage costs.

Wait the Required Time

■ Wait for utilities to mark their lines.

Do not dig until all utility owners have marked their lines or advised you that the area is clear to dig. Wait time for each state is as follows:

- **ID, UT, WY:** Wait two full business days, excluding the date you call 811, weekends and legal holidays.
- **OH, WV, TX:** Wait 48 hours, excluding weekends and legal holidays.
- **SC, NC:** Wait three full business days, excluding the date you call 811, weekends and legal holidays.



- ### ■ If you wait the required time and the locate is not completed, do not dig!
- Notify the 811 service that your locate request has not been fulfilled.

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Wait the required amount of time before starting on any digging project.

- Wait for utilities to mark their lines. Do not dig until all utility owners have marked their lines or advised you that the area is clear to dig.
 - ID, UT, WY: Wait two full business days, excluding the date you call 811, weekends and legal holidays.
 - OH, WV, TX: Wait 48 hours, excluding weekends and legal holidays.
 - SC, NC: Wait three full business days, excluding the date you call 811, weekends and legal holidays.
- If you wait the required time and the locate is not completed, do not dig! Notify the 811 service that your locate request has not been fulfilled.

Conduct a Visual Site Survey



- **Do not rely exclusively on the locate marks.** Look for visual indicators of underground facilities that have not been marked.
- **Check with property owners about any private underground lines** that would not have been marked by the locator.
- **Also check for signs of something buried after the locate was completed,** such as a fresh trench.

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Conduct a visual site survey before beginning any digging.








- Do not rely exclusively on the locate marks. Look for visual indicators of underground facilities that have not been marked, such as meters and valves. Use your common sense and industry knowledge.
- Check with property owners about any private underground lines that would not have been marked by the locator because they do not belong to a utility.
- Also check for signs of something buried after the locate was completed, such as a fresh trench.

Respect the Marks, and Dig with Care

- **Not all utilities are 811 members.** You are responsible for notifying non-member utilities about your project. Check with 811 for more information.
- **Respect the locator marks.** Maintain utility indicator marks, and follow them when digging.
- **Dig with care.** Hand dig to expose marked utility lines and verify their location. Exercise extreme caution when digging near buried utilities, and have a spotter present to observe the excavation whenever heavy equipment is used.
- **Know the underground utility color code:**

AMERICAN PUBLIC WORKS ASSOCIATION COLOR CODE FOR LOCATOR MARKS



	Electric power lines
	Gas, oil or steam pipelines
	Communications lines, cables or conduit
	Potable water
	Reclaimed water, irrigation and slurry lines
	Sewers and drain lines
	Temporary survey markings
	Proposed excavation

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Respect the marks and dig with care. After you contact 811, the underground utility locator service will arrange for each member utility to send someone out to your dig site to mark the underground lines.

- Not all utilities are 811 members and may not be notified. You are responsible for notifying non-member utilities. Check with 811 for more information.
- Respect the locator marks. Maintain utility indicator marks for the duration of the job, and follow them when digging. If lines become indistinguishable, call 811 to refresh them—do NOT use paint to refresh fading marks yourself!
- Dig with care. Hand dig to expose marked utility lines and verify their location. Exercise extreme caution when digging near buried utilities, and have a spotter present to observe the excavation whenever heavy equipment is used.
- Know the underground utility color code. Utilities use these colors to mark their lines. Learn the code to stay safe.
- *Point to the chart as you speak.*
 - Red: Electric power lines
 - Yellow: Gas, oil or steam pipelines
 - Orange: Communications lines, cables or conduit
 - Blue: Potable water
 - Purple: Reclaimed water, irrigation and slurry lines
 - Green: Sewers and drain lines
 - Pink: Temporary survey markings
 - White: Proposed excavation

Respect the Tolerance Zone

- Follow state laws for digging within the “tolerance zone,” a safety area that spans the width of a marked utility plus a specified distance from each indicated outside edge.
- The tolerance zone is a *minimum* safety clearance. Protect yourself by using the *maximum* possible distance.



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Respect the tolerance zone. This not only protects buried utilities from damages, but it also protects you from injury.

- Follow state laws for digging within the “tolerance zone,” a safety area that spans the width of a marked utility plus a specified distance of up to 24 inches on either side of the indicated outside edge of the utility on a horizontal plane. Refer to laws in your state for the appropriate distance. Use **ONLY** hand tools or vacuum technology within this safety zone.
- The tolerance zone is a minimum safety clearance. Locator marks are only the locator’s most reasonable interpretation of the equipment’s signal. So protect yourself by using the maximum possible distance.

Know When to Stop Digging

- **If there are no locate marks after you have waited the required time**, do NOT dig. Call 811, and wait until utility lines are marked or you have been notified that the area is clear of lines.
- **If you do not understand the locate marks**, do NOT dig. Ask your supervisor what you must do to work safely.
- **If you cannot visually verify the location of marked natural gas pipelines by hand digging**, STOP digging and contact Dominion Energy immediately.
- **If you find unmarked, mismarked or seemingly abandoned facilities**, STOP digging. Assume all utility lines are in service, and report them to 811.
- **If you see signs of something buried after the locate was complete**, such as a fresh trench, STOP digging. Call 811.
- **If the marks fade or are destroyed**, STOP digging and call 811 to request a new ticket. Do not resume digging until the area is re-marked.



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Know when to stop digging. When you work around gas lines, knowing when to stop a job could save your life.

- If there are no locate marks after you have waited the required time, do NOT dig. Call 811, and wait until utility lines are marked or you have been notified that the area is clear of lines.
- If you do not understand the locate marks, do NOT dig. Ask your supervisor what you must do to work safely.
- If you cannot visually verify the location of marked natural gas pipelines by hand digging, STOP digging and contact Dominion Energy immediately.
- If you find unmarked, mismarked or seemingly abandoned facilities, STOP digging. Assume all utility lines are in service, and report them to 811.
- If you see signs of something buried after the locate was complete, such as a fresh trench, STOP digging. Call 811.
- If the marks fade or are destroyed, STOP digging and call 811 to request a new ticket. Do not resume digging until the area is re-marked.

Watch Out Around Pipeline Markers



- Pipeline markers indicate the need for extra care around natural gas transmission pipelines.
- These markers are general indicators only. They do not show the exact location, path or depth of gas pipelines.
- The markers should never be used as a substitute for calling 811.
- Call the number on the marker if you notice any type of suspicious activity or construction occurring nearby without Dominion Energy personnel present.

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Watch out around pipeline markers. It's critical to be aware of gas transmission pipelines in the vicinity of your job site.

- Pipeline markers indicate the need for extra care around natural gas transmission lines. These markers are usually found at roadways, railroad crossings and other points along the pipeline route.
- These markers are general indicators only. For security purposes, they do not show the exact location, path, depth or number of gas pipelines in the area, and not all pipelines follow a straight course between markers. Maps can also be viewed to identify the approximate locations of major natural gas pipelines. You can access them via the National Pipeline Mapping System website: npms.phmsa.dot.gov.
- The markers should never be used as a substitute for calling 811. Nor should you rely on the pipeline maps. 811 is your best resource for natural gas pipeline locates.
- Call the number on the marker if you notice any type of suspicious activity or construction occurring nearby without Dominion Energy personnel present.

Natural Gas Leak Detection: Look, Listen and Smell

- **Dominion Energy adds a distinctive, rotten-egg or sulfur-like odor to its distribution natural gas pipelines to assist in leak detection.** However, this odor may fade, or you may not be able to smell it. Typically, odorant is not added to transmission pipelines.
- **Don't rely on your nose alone. Use your senses of sight, hearing and smell to detect a natural gas leak.** Here are the signs:
 - The distinctive odor of natural gas
 - Continuous bubbling in water
 - A hissing, whistling or roaring sound
 - Dead or dying vegetation (in an otherwise moist area) over or near a pipeline
 - Dirt blowing into the air from a hole in the ground
 - An exposed pipeline after an earthquake, fire, flood or other disaster
 - Frozen ground in warm weather
 - A damaged connection to a gas appliance



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Natural gas leak detection: Look, listen and smell. Use all your senses to help you recognize a natural gas pipeline leak.

- Dominion Energy adds a distinctive, rotten-egg or sulfur-like odor to its distribution natural gas pipelines to assist in the detection of gas leaks. However, this odor may fade, or you may not be able to smell it. Typically, odorant is not added to transmission pipelines.
- Don't rely on your nose alone. Use your senses of sight, hearing and smell to detect a natural gas leak. Here are the signs:
 - The distinctive odor of natural gas. This smells like sulfur or rotten eggs.
 - Continuous bubbling in water.
 - A hissing, whistling or roaring sound. The sound will vary with the pressure in the line.
 - Dead or dying vegetation (in an otherwise moist area) over or near a pipeline.
 - Dirt blowing into the air from a hole in the ground. This will vary with pressure as well.
 - An exposed pipeline after an earthquake, fire, flood or other disaster.
 - Frozen ground in warm weather.
 - A damaged connection to a gas appliance.

Responding to a Natural Gas Pipeline Leak

■ **If you suspect a gas leak or if you contact a gas pipeline, take these steps:**

- **Warn others and leave the area immediately.**
- **Do not use matches or lighters, start an engine or operate any electrical device—even a phone.** A spark could ignite leaking gas, causing a fire or explosion.
- **Leave the excavation open.** Do not operate any gas pipeline valves or attempt to bury or fix the pipeline by folding, crimping or clamping the pipe.
- **From a safe location, immediately report the incident to 911 and Dominion Energy,** even if there is no visible damage to the pipeline.
- **Stay away from the area** until utility workers say it is safe to return.
- **Report the incident to your supervisor.**



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Responding to a natural gas pipeline leak. The single greatest risk from natural gas leaks is explosion. Even the smallest spark can ignite leaking gas, and sparks can come from some unexpected sources. So it's important to know the proper do's and don'ts for dealing with a natural gas leak.

- If you suspect a leak or if you contact a gas pipeline, even if a leak is not obvious, take these steps:
 - Warn others to stay away and leave the area immediately.
 - Do not use matches or a lighter, start an engine or operate any electrical device—even a phone. A spark could ignite leaking gas, causing a fire or explosion.
 - Leave the excavation open. Do not operate any gas pipeline valves or attempt to bury or fix the pipeline by folding, crimping or clamping the pipe.
 - From a safe location, immediately report the incident to 911 and Dominion Energy, even if there is no visible damage to the pipeline.
 - Stay away from the area until utility workers say it is safe to return.
 - Report the incident to your supervisor.

Natural Gas Safety Review

- Call 811 or use your state's online ticket-entry system before you dig.
- Pre-mark your dig area with white paint, markers or flags.
- Wait the required amount of time before digging.
- Conduct a visual site survey before digging.
- Respect the marks, and dig with care.
- Watch out around pipeline markers.
- Know the warning signs of a natural gas leak.
- Review your emergency plan, so everyone knows what to do if your equipment contacts a natural gas pipeline.
- In a natural gas emergency, leave the area, avoid spark hazards, and call 911 and Dominion Energy immediately.

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So let's review the key safety points of this presentation.

- Call 811 or use your state's online ticket-entry system before you dig. It's required by law.
- Pre-mark your dig area with white paint, markers or flags. This helps locators more easily identify and mark affected utilities.
- Wait the required amount of time before digging.
- Conduct a visual site survey before digging. You might find something that the locator overlooked.
- Respect the marks and dig with care. Make sure you dig safely within the tolerance zone.
- Watch out around pipeline markers. Report any suspicious activity nearby.
- Know the warning signs of a natural gas leak.
- Review your emergency plan, so everyone knows what to do if your equipment contacts a natural gas pipeline.
- In a natural gas emergency, leave the area, avoid spark hazards, and call **911** and Dominion Energy immediately.

811 Information

- To reach your state's underground utility locator service, call 811 or use the online ticket-entry system:
 - ID: digline.com
 - OH: oups.org
 - NC: nc811.org
 - SC: sc811.com
 - TX: texas811.org
 - UT: bluestakes.org
 - WV: wv811.com
 - WY: onecallofwyoming.com
- ID, UT, WY: Wait **two full business days**, excluding the date you call 811, weekends and legal holidays.
- OH, TX, WV: Wait **48 hours**, excluding weekends and legal holidays.
- NC, SC: Wait **three full business days**, excluding the date you call 811, weekends and legal holidays.

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And now let's review the 811 URLs and wait times.

- To reach your state's utility locator service, call 811 or use the URLs shown here to access online ticket entry.
- The wait time in Idaho, Utah and Wyoming is two full business days, excluding the date you call 811, weekends and legal holidays.
- The wait time in Ohio, Texas and West Virginia is 48 hours, excluding weekends and legal holidays.
- The wait time in North Carolina and South Carolina is three full business days, excluding the date you call 811, weekends and legal holidays.

Contact Information

- In case of a natural gas emergency, call **911** and Dominion Energy:
 - **OH:** 800-535-3000
 - **NC:** 877-776-2427
 - **SC:** 800-815-0083
 - **TX:** 911
 - **WV:** 800-934-3187
 - **ID, UT, WY:** 800-767-1689
- For additional information, visit Dominion Energy's website at domsafety.com/contractors.

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Last but not least, here is some important contact information to keep handy:

- In case of a natural gas emergency, call 911 and Dominion Energy:
 - OH: 800-535-3000
 - NC: 877-776-2427
 - SC: 800-815-0083
 - TX: 911
 - WV: 800-934-3187
 - ID, UT, WY: 800-767-1689
- For additional information, visit Dominion Energy's website at domsafety.com/contractors.

**worker
beware**

**Working Safely Around
Natural Gas Lines**

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Thank you for your attention.

Take questions and begin discussion. If you are using the trainer's guide, in it you will find more detail about the properties of natural gas, when to contact Dominion Energy and other information.

Discuss how this information conflicts with what your audience believed about natural gas safety, and ask how they may have put themselves or others at risk in the past. Ask what they would have done differently had they had this training before.

Dominion Energy thanks you for helping to keep workers safe.