

Excavating safely near pipelines.

What you need to know - Crude oil

Please keep this brochure for future reference in case of an emergency.
To request additional copies, please contact us. See inside cover for contact details.



Why are you receiving this brochure?

This brochure contains important safety information for those doing excavation, digging, ground disturbance or other work that can affect ground cover over or near pipelines and pipeline right-of-ways. This includes information about:

- How to recognize a pipeline in the area
- Your obligations when working on or near a right-of-way
- One-Call Requirements
- What is a crossing agreement and why you may need one
- Recognizing and responding to a pipeline leak
- Consequences of unsafe digging
- How TC Energy ensures pipeline safety
- Contact information

To help you understand the role you play in contributing to pipeline safety, we ask that you review the information provided. If you would like more information, have questions or would like to request additional copies of this brochure, please contact us at public_awareness@tcenergy.com or call 1-855-458-6715.

In the case of a pipeline emergency or to report suspicious activity along the right-of-way, please contact 911 and law enforcement, and then call the TC Energy emergency number 1-866-920-0007. This telephone number is also printed on the nearest pipeline marker, and on the back of this brochure.

TC Energy respects your privacy. To find out more about TC Energy's commitment to privacy and protecting your personal information, please see www.TCenergy.com/privacy.

Purpose of pipelines and pipeline facilities

Pipelines are the safest and most efficient method to transport the energy that we need and use every day. Our pipelines and pipeline facilities are built using industry best practices, which include using the highest quality materials during construction and implementing a rigorous pipeline maintenance program. This includes the facilities required to safely operate the pipeline, like pump stations and tank terminals.

Pump stations are necessary to maintain controlled and appropriate pressure and flow along the length of the pipeline to ensure continuous and safe operation.

Tank terminal is an industry term for a storage facility. They consist of a number of interconnected storage tanks where oil is measured and collected until it is ready to be transported through the pipeline.

Prevent an incident, before it happens



CALL 811—it's free

The best safety practices stop accidents before they happen. Just like you won't drill into a wall without knowing where the studs are, it makes sense to find out where the underground utilities are located. Unfortunately, digging without a locate is the leading cause of pipeline incidents.

Before conducting any excavation, either by hand or with machinery, contact your local One-Call Center at least 2 days in advance by calling '811' – America's national toll-free number for requesting underground utility location.

The One-Call Center will notify the facility owners in your area, who will send representatives to mark these facilities with flags, paint or other marks, helping you avoid damaging them. Even with a locate, any excavation on a TC Energy right-of-way requires a TC Energy representative be present.

A notification to the One-Call Center is required by law in the United States. The service is free and could prevent accidents, injuries or deaths.

Learn more about the One-Call requirements in your state by visiting www.call811.com.

Know what utility markings mean

When you request a locate, colored flags and/or paint are used to mark the location and type of underground utility.

Proposed excavation
Temporary survey markings
Electric power lines, cables, conduit and lighting cables
Gas, oil, steam, petroleum or gaseous materials
Communication, alarm or signal lines, cables or conduit
Potable water
Reclaimed water, irrigation and slurry lines
Sewers and drain lines

Recognizing a pipeline in your area

The general location of pipelines can be determined by two characteristics: a pipeline right-of-way (ROW) and pipeline markers.

Right-of-way

- A ROW can usually be recognized as a cleared strip of land in a linear or fairly straight line, cleared of structures and trees.
- The ROW contains the pipeline and a buffer area that usually extends 25 feet or more on either side of the pipeline where certain activities are restricted to ensure the continued safety and integrity of the pipeline.
- The ROW must be kept clear of fences, buildings, trees or any other type of structure. The impact of a fence post, weight of a shed or the roots of a tree can cause either immediate or long-term damage to the pipeline.
- These could also impede access to the area for any required maintenance, repair work, aerial or ground patrols, emergency situations or required federal or state inspections, resulting in safety risks and possible costly impacts to structures on the ROW.



Pipeline markers

- Found within line-of-sight on a ROW and at locations where the pipeline crosses streets, highways, waterways and railways.
- Markers only show the approximate location of the pipeline, and the depth of the line may vary. **You CANNOT use pipeline markers as a determination of where or where not to dig.**
- Pipeline markers display the pipeline operator, emergency number and the product transported in the pipeline.
- It is against the law to willfully deface, damage, remove or destroy any pipeline sign.
- Only a TC Energy representative can determine the location and depth of the pipeline. Pipelines may not follow a straight course between marker signs.



Warning sign



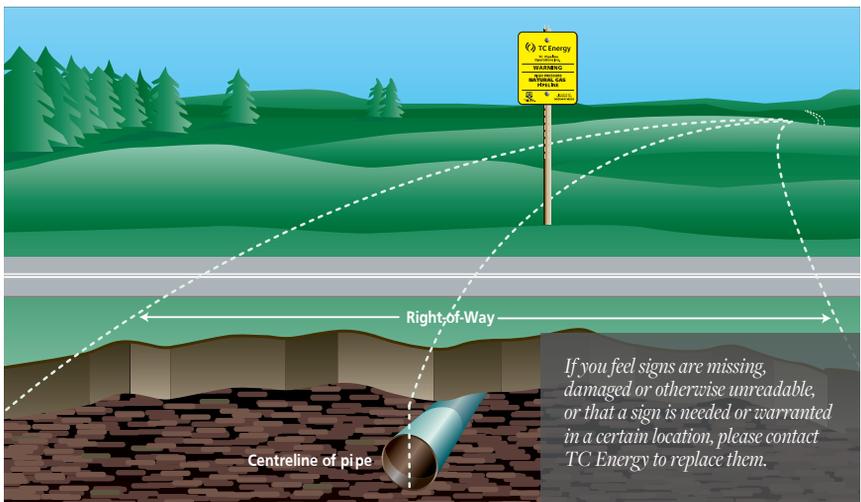
Line marker



Vent marker



Aerial marker



What if I need to use the right-of-way?

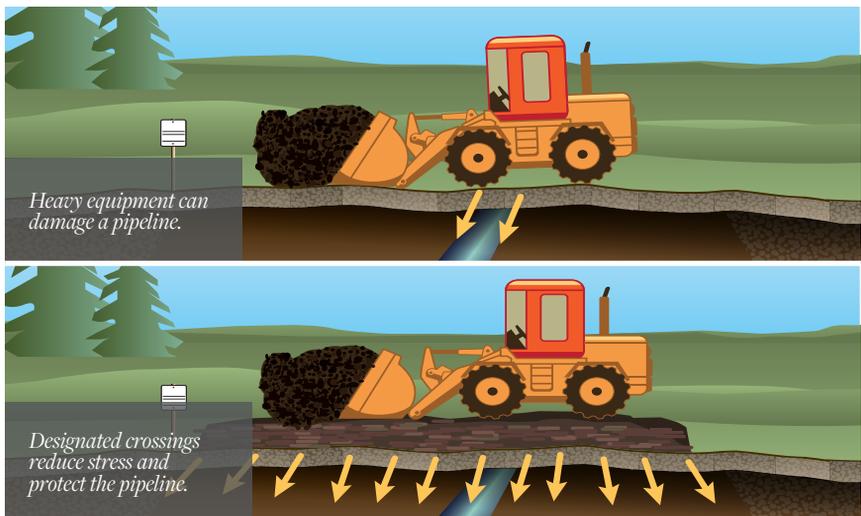
Depending on your plans or activity, it can still be possible for you to work on or use the ROW. Some activities are permitted under normal farming practices, while crossings and encroachments require approval and oversight from the pipeline operator.

A crossing or encroachment is a temporary or permanent structure across, on, along or under a facility or pipeline right-of-way. A crossing can also mean equipment or machinery crossing over the pipeline right-of-way or facility site. Both need an agreement so that the pipeline operator can understand the scope of work, the risk and what measures need to be taken to mitigate those risks.

You can learn more about permitted activities and crossing agreements at www.tcenergy.com/sustainability/safety/safe-digging.

We're here to help. If you think your activity might require a crossing agreement with TC Energy, please contact us by phone at **1-800-562-8931** or by email at us_crossings@tcenergy.com. To better serve you and speed up your request, please provide the following information:

- Proposed activity – what are you planning to do?
- Location of proposed work (GPS coordinates are preferred)
- Make and model of any equipment that will cross/encroach the pipeline facilities
- Proposed activity date
- Axle load (weight)
- Your name and phone number
- Email address



How do I know if I need a crossing agreement?

While this isn't a comprehensive list, it can provide guidance on some of the most common activities undertaken on or near a ROW.

Requires written consent:

- Constructing or installing a facility across, on, along or under a TC Energy pipeline right-of-way.
- Conducting ground disturbance (excavation or digging) on or within the prescribed area (30 metres or 100 feet from the centreline of the pipeline).
- Driving a vehicle, mobile equipment or machinery across a TC Energy pipeline right-of-way outside the travelled portion of a highway or public road.
- Using any explosives within 300 metres or 1,000 feet of TC Energy's pipeline right-of-way.

Does not require consent:

- Activities covered under existing land agreements between you and TC Energy.
- Activities related to the growing of crops or the raising of animals, provided the activity does not involve deep tilling practices, installation of permanent structures or an increase or decrease in the cover over the pipeline.

Examples of activities that REQUIRE consent:

- Reducing or adding soil cover
- Fencing/landscaping
- Ground leveling
- Clearing/brushing/grubbing
- Trenching
- Earth moving
- Drainage ditch clean out
- Drain tile installation
- Augering
- Ditching
- Terracing
- Stockpiling/storage/parking
- Burning
- Asphalt/driveway work

Examples of activities that DO NOT require consent*:

- Plowing
- Fertilizing
- Disking
- Cultivating
- Seeding
- Planting
- Baling
- Harvesting

*activities listed must be less than 18" deep, or else they require consent

Recognizing a crude oil pipeline leak

Although a pipeline leak is rare, it is important to know how to recognize the signs. Use your senses of sight, smell and hearing to detect a potential pipeline leak.



You might see:

- Amber/black liquid which can display as a black patch or pool on the ground.
- A rainbow sheen or black liquid on top of water.
- Dead or dying vegetation on/near the right-of-way in an area that is usually green.
- Stained or melted snow/ice over the pipeline area.



You might smell:

- A slight smell similar to “rotten egg”, gasoline, tar or “skunk-like” odor.



You might hear:

- A roaring, hissing or whistling noise.

Possible hazards of a crude oil leak or rupture

- Crude oil may be flammable and explosive under certain conditions
- Dizziness or suffocation can occur if the vapors displace oxygen in an enclosed area or occur in conditions that allow high concentration

Important information about crude oil

Crude oil is a liquid mixture of naturally occurring petroleum hydrocarbons. Crude oil is amber to black in color depending on the source. It can possess a rotten egg, gasoline, tar or skunk-like odor.

Crude oil vapors are volatile, and can be flammable and explosive. Vapors are heavier than air and can travel along the ground in low-lying areas. Oil vapors can be ignited by many sources including cellular phones, radios and vehicles. Crude oil can contain varying levels of hydrogen sulfide (H₂S), an extremely poisonous gas. H₂S vapors can cause eye, skin and respiratory tract irritation, and can be lethal.

Since the oil batched in an oil pipeline changes regularly, the specific Safety Data Sheet for the product in question will be provided in the event of an emergency.

Responding to a leak or pipeline strike

A “strike” is any contact with a pipeline and can include mechanical equipment like a backhoe, or hand tools such as a shovel. Any contact with a pipeline can affect the pipeline’s integrity or the protective corrosion coating, so it’s important to follow these steps so that a TC Energy representative can inspect the pipeline and its coating for any damage.



If you strike a pipeline or witness any of the typical signs of a leak, or any other unusual sights, sounds or smells near a pipeline location, it is important that you follow these steps:

1. Stop all excavation and construction. Shut off all machinery if safe to do so and move away from the area on foot – warn others to do the same.
2. Do not attempt to repair the pipe or operate any valves.
3. Call ‘911’ as soon as you are in a safe location. Describe the situation and inform the operator of any injuries, leaking product or fire.
4. Call TC Energy’s emergency number (see the back of this booklet) and explain the incident. This number is available on all pipeline marker signs.
5. Do not continue your project until authorized by a TC Energy representative.
6. If you cause or witness even minor damage to a pipeline or it’s coating, please notify TC Energy immediately. A gouge, scrape, dent or crease requires an inspection and possible repairs for the long-term safety of all parties and the surrounding area.

Do not cover a pipeline that has been disturbed, as it will make it more difficult to find the damaged area.

Consequences of unsafe digging



Risk of serious injuries and death.



Interrupted services such as electricity, gas and water.



Fines and repair costs to fix the underground utility line(s).

What does TC Energy do to ensure pipeline safety?

TC Energy conducts a rigorous pipeline maintenance program to ensure the integrity and safety of our systems. This includes but is not limited to:

- 24/7 Monitoring of our facilities
- In-line inspections of pipelines that can identify the smallest of issues or defects for repair
- Regular patrols of the right-of-way
- Multiple shut-down valves to isolate and limit potential releases
- Cathodic protection to prevent corrosion
- Hydrostatic testing
- Investigative digs
- Ground surveys

In addition to this, TC Energy invests millions every year in research and development to improve and enhance the safety of our pipelines, from smart drone patrolling, fiber optic monitoring, greenhouse gas reduction and environmental sustainability. TC Energy's employees are trained to meet all mandated federal requirements for Pipeline Operator Qualifications in the U.S.

In accordance with federal regulations, some segments along TC Energy's pipelines have been designated as High Consequence Areas (HCAs) where extra precautions are taken, known as Integrity Management Programs (IMPs). For information regarding these measures, contact TC Energy at public_awareness@tcenergy.com.

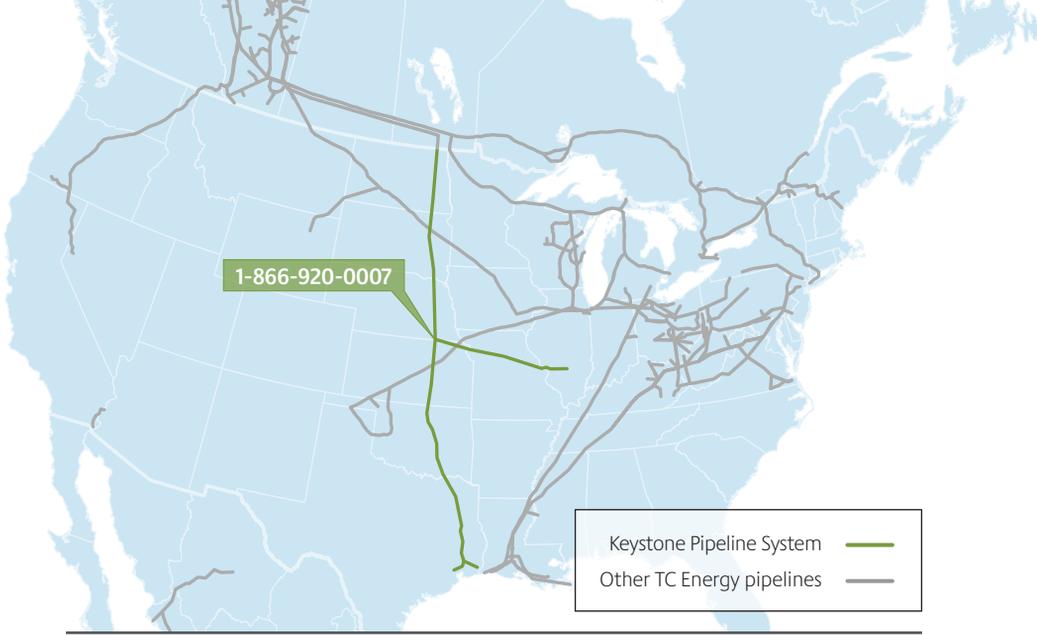
TC Energy's response to a pipeline incident

A pipeline incident could involve an uncontrolled or unplanned release of natural gas or oil from the pipeline system. TC Energy's state-of-the-art leak detection systems, elevated safety features and specially trained staff ensure that leaks will be quickly identified and addressed.

In the unlikely event an incident should occur, TC Energy will work with emergency response officials to ensure everyone is familiar with local operations and related safety issues. TC Energy will immediately respond by:

- Shutting down the affected pipeline if necessary
- Isolating the impacted section of the pipeline through either automatic valve shutoff or manual valve operation
- Dispatching emergency personnel to the location of the incident

TC Energy's operations extend across North America with established offices in various communities. Each region is fully staffed with qualified employees trained in pipeline safety and emergency response to ensure the safe and efficient operation of the facilities in the area. TC Energy will not restart the pipeline until the issue has been addressed and it is safe to do so, with the approval of industry regulators.



U.S. One-Call Center 811
 Online requests. www.call811.com

General inquiries

Public awareness 1-855-458-6715
 Landowner inquiries 1-877-287-1782
 Crossing requests. 1-800-562-8931
 Crossing email us_crossings@tcenergy.com

Emergency numbers

Keystone Pipeline System 1-866-920-0007

TC Energy is regulated by U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) in the United States.

Further information regarding pipelines located in your community can be accessed through the National Pipeline Mapping System at www.npms.phmsa.dot.gov.