

TEXAS



PIPELINE SAFETY TRAINING



PROGRAM GUIDE

Overview

Pipeline Safety

Excavation Best Practices Checklist

Signs Of A Pipeline Release

What To Do If A Leak Occurs

Pipeline Emergency

Common Ground Alliance Best Practices

Pipelines In Our Community

Damage Prevention Programs

Pipeline Damage Reporting Law

2025

RAILROAD COMMISSION OF TEXAS

TEXAS DAMAGE PREVENTION RULES

All damages to underground gas or hazardous liquid pipeline facilities in the State of Texas are required by law to be reported electronically by filing a Texas Damage Reporting Form (TDRF) through the Railroad Commission of Texas (RRC) webpage. For details of the law and the reporting form please visit <http://www.rrc.state.tx.us>.

Excavators must notify the pipeline company through the One-Call Center immediately but not later than two hours following the damage incident.

The new rule can be found at:

<https://www.rrc.state.tx.us/general-counsel/rules/>

*16 TAC Chapter 18, Underground Pipeline Damage Prevention
Effective; September 1, 2007*

Table of Contents

Overview.....	2
Pipeline Safety.....	3
Excavation Best Practices Jobsite Checklist	15
Signs Of A Pipeline Release / What To Do If A Leak Occurs / Pipeline Emergency.....	16
Common Ground Alliance Best Practices / Pipelines In Our Community.....	17
Damage Prevention Programs / Pipeline Markers / Call Before You Dig / OSHA General Duty Clause.....	18
Product Characteristics	19
Pipeline Damage Reporting Law / Websites	20
Operator Information	21
About Paradigm.....	22

Pipeline Purpose and Reliability

- Critical national infrastructure
- Over 2.7 million miles of pipeline provide 65% of our nation's energy
- 20 million barrels of liquid product used daily
- 21 trillion cubic feet of natural gas used annually

Safety Initiatives

- Pipeline location
 - Existing right-of-way (ROW)
- ROW encroachment prevention
 - No permanent structures, trees or deeply rooted plants
- Hazard awareness and prevention methods
- Pipeline maintenance activities
 - Cleaning and inspection of pipeline system

Leak Recognition and Response

- Sight, sound, smell – indicators vary depending on product
- Diesel engines – fluctuating RPMs
- Black, dark brown or clear liquids/dirt blowing into air/peculiar odors/dead insects around gas line/dead vegetation
- Rainbow sheen on the water/mud or water bubbling up/frozen area on ground/frozen area around gas meter
- Any sign, gut feeling or hunch should be respected and taken seriously
- Take appropriate safety actions ASAP

High Consequence Area (HCA) Regulation

- Defined by pipeline regulations 192 and 195
- Requires specialized communication and planning between responders and pipeline/gas personnel
- May necessitate detailed information from local response agencies to identify HCAs in area

One-Call

- One-Call centers are not responsible for marking lines
- Each state has different One-Call laws. Familiarize yourself with the state you are working in
- Not all states require facility owners to be members of a One-Call
- You may have to contact some facility owners on your own if they are not One-Call members
- In some states, homeowners must call before they dig just like professional excavators



**Know what's below.
Call before you dig.**

Pipeline Emergency Response Training

Contractor and Excavator Personnel



Instructor:



EXCAVATOR 811 This information is for informational purposes only and does not constitute an offer of insurance. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Paradigm

Continuing Education Unit (CEU) Opportunities

Texas Department of State Health Services
Program Approval Number: 600892

Law Enforcement & Fire Services approved at the local level.

EXCAVATOR 811 This information is for informational purposes only and does not constitute an offer of insurance. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Paradigm

Pipeline Operator Challenges

- Timely notification of the incident
- Denied entry at scene of incident
- Quick access to remote valves/ICP
- Getting equipment into the area
- Communications with incident command
- Clear lines of communication (both ways)
- Face to face meetings with local officials
- Pre-planning with emergency services.



Do contractors and excavators face some of these same challenges?

EXCAVATOR 811 This information is for informational purposes only and does not constitute an offer of insurance. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Paradigm

Local Operator Information*

- Operator and/or company name
- Pipeline systems and products
- Location of pipelines
- Pipeline size/operating pressure(s)
- Operator Response(s) to a pipeline emergency

*Information in the materials may not represent all pipeline companies in your area.



EXCAVATOR 811 This information is for informational purposes only and does not constitute an offer of insurance. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Coverage is provided by a third party. The availability of coverage is subject to underwriting and other conditions. This information is not intended to be used as a basis for any insurance policy. Paradigm

Coordinated Response Exercise*

- Learn** your requirements and responsibilities prior to beginning excavating.
- Acquaint** you with the operator's ability to respond to a pipeline emergency. And find out what the company responsibilities are once you notify 811 before you can dig.
- Identify** the types of pipeline emergencies.
- Plan** how all parties can engage in mutual assistance to minimize hazards to life, property and the environment.

Code of Federal Regulations (CFR): 49 CFR Parts 192 and 195

Roll Call: Excavators, Public Officials, Emergency Responders, and Pipeline Operators



Program Resources

Safe Digging Practices

<https://commonroundalliance.com/>

Safe Digging Practices and Resources

<https://bestpractices.commonroundalliance.com/1-Introduction/101-Best-Practices-Manual-Version-200>

EXCAVATION SAFETY TRAINING
Underground Facility Damage Prevention & Safety

Damage Prevention Manager

Texas811

What Will be Covered

- > 811 – One Call Process
- > Texas Excavation Laws
- > Locator Positive Response
- > Documentation/Photos
- > Excavation Best Practices
- > Damage Investigation/Reporting Requirements
- > Predictive Analytics: High Risk Excavation

Texas811

Reference Documents

- **Texas Utilities Code Title 5 Chapter 251**
 - Underground Facility Damage Prevention & Safety
 - Effective 1999
 - Establishes the One call system and addresses all Utilities and Pipelines
- **Texas Administrative Code Title 16 Chapter 18**
 - Underground Pipeline Damage Prevention
 - Effective 2007
 - Specific to Gas Distribution and Gas & Hazardous Liquids Pipelines
- **Common Ground Alliance**
 - Best Practices
 - Established 1999
- **OSHA Title 29 CFR**
 - 1926.651 (c) Specific Excavation Requirements

Texas811

Texas811

Our Purpose:
To protect billions of dollars in underground infrastructure and keep the public safe.

- EVERY "one call" locator ticket submitted in Texas originates with Texas811.
- Texas811 averages 19,71K locator tickets submitted per day. Over 4,000,000 tickets per year.
- All Class A Facilities are required by laws to be registered with one call (Class B is voluntary)
- Texas811 is the link between your plans to dig and our member utility companies.
- There is no cost for making the call to Texas811. (48 Hour waiting period required)
- Texas811 also provides excavation education to excavators, emergency responders and the general public.

Texas811

Excavation: Defined By The Law



Excavate: Movement of earth by any means

Excavator: A person that engages in or is preparing to engage in the movement of earth



Before Excavation Begins

- Plan Ahead
- Do a Worksite Assessment
- Communicate with:
 - Office Personnel
 - Field Crews
- Gather Worksite Information:
 - Location
 - Driving Instruction
 - Marking Instructions
 - Type of Work
 - Onsite Employee Contact Information
- White-line Proposed Worksite



White Lining

Excavator's designation of area to be excavated using white paint, white flags, white stakes, or any combination of these.



Texas811 One Call Process Notification Center



CALL 811 OR 800-344-8377




CLICK THE PORTAL WWW.TEXAS811.ORG



Documentation and Photos

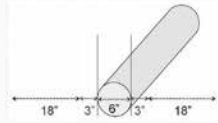

- Photos
 - Use Hit Kits for Pro-Dig Photos
 - Take from different directions
 - N,N.E,S.E, S, SW, NW
 - 12 o'clock, 3 o'clock, 6 o'clock and 9 o'clock
 - 80/20/10/5
 - Include the flags and marks
 - Show the locate marks in reference to the white-dashed proposed excavation site
 - Time/Date Stamp
 - If possible, include GPS coordinates on photos

Tolerance Zone

Half the nominal diameter of the underground pipeline plus a minimum of 18 inches on either side of the outside edge of the underground pipeline on a horizontal plane.

Utility Pothole or Daylight to expose underground facilities.

Safe Excavation Practices



- Hand Digging
- Vacuum Excavation
- Spotters
- Backfilling



In Case of a Damage

- Contact the facility owner directly (if known)
- Call 811 to report the "Dig Up" within 1 hour
- Do not attempt to repair any pipeline or cable
- Do not backfill the area around the damaged line




If Gas or Hazardous Liquids are Released...



Do This:

- Stop Work Immediately and Abandon Equipment in Place
- Stay Upwind/Uphill
- Keep Others Away from Area
- Eliminate Potential Ignition Sources
- Call 911 Immediately
- Call 811 when 7 ft to 10 feet + Dig/Tip Ticket!
- File a Railroad Commission TDR# Report online within 30 Working Days

Do Not:

- Attempt to Stop the Leak
- Drive into any Release of Product
- Operate any Pipeline Valves or Mechanisms
- Extinguish Any Fires
- Come into Contact with Escaping Product





Damage Investigation

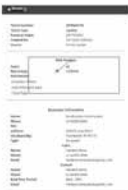


Damage Prevention Through Predictive Analytics

• Texas811 provides a list of the top three risk factors that are driving risk of the job said to help you and the excavator, better understand and react to the risk.

• Some of the risk factors you can expect to see on the ticket:

- Equipment Used
- Excavator History
- Nature of Work
- Size of the work area
- Geographic Location
- Length of the work area
- Anzahl of member companies in the work area
- Proposed duration of the excavation
- Soil Status, White Lined, or Devotional Boring is present
- Ticket Type



© 2018 - Texas811 LLC
All rights reserved




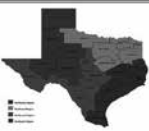

Frequently Asked Questions

- Question: If all utilities on my one call locate ticket have responded prior to the 48th hour, may I begin to dig?
- Question: When does the 48th hour timeframe begin?
- Question: Will water and sewer lines be located and marked?
- Question: Do the marks and flags on the ground identify the exact location of the underground facility?
- Question: How long is my one call ticket valid?
- Question: What are the reporting requirements when an underground facility is damaged?



Damage Prevention Council of Texas

Our Mission
To facilitate underground utility & pipeline damage prevention, promote best practices, and contribute toward public safety and environmental protection through stakeholder education and communication.









Damage Prevention Manager
DPM@texas811.org



Dredging Operations

If your company conducts dredging operations, shoreline stabilization or pile driving activities, please be aware of the following:

- Underground hazardous liquids and natural gas pipelines do traverse lakes and navigable waterways
- 811 requirements to submit a one-call ticket prior operations commencing, to include a sub-aqueous ticket option
- Identify all pipeline warning markers near the shorelines where you will be working
- Contact the pipeline company as part of your pre-planning before work begins



Logging Operator Responsibilities

- Notify pipeline company before work begins
- No skidding of logs on right of way
- Crossing of pipeline must be approved
- Drop cut trees away from pipeline
- Do not remove existing cover
- Restore right of way



Right-of-Way (ROW) and Pipeline Markers

DAMAGE OR REMOVAL OF THIS SIGN IS A FEDERAL OFFENSE SUBJECT TO A \$5,000 FINE AND/OR ONE YEAR IMPRISONMENT

REMOVE OR DESTROY A PIPELINE MARKER

EXCAVATOR 811

Integrity Management

Pipeline companies are required to have Integrity Management programs to insure safe and efficient operations:

- Internal and external cleaning and inspection, of the pipeline and affected areas
 - Rights-of-Way and valves
- Supervisory Control and Data Acquisition (SCADA)
- Identification of High Consequence Areas (HCA)
- Aerial Rights of Way Patrols
- Public Awareness Outreach to stakeholders
- Participation as a member of 811
- Operator Qualification (OQ) Training
- Local Distribution Company (LDC)
 - Meter Testing
 - Leak Surveys
 - May also be utilized on transmission pipelines



EXCAVATOR 811

Product Characteristics

Hazardous Liquids

- ER Guide 1.28 (Pages 186-187)
- Crude oil, jet fuel, gasoline and other refined products
 - Liquid in and liquid out of the pipeline

Highly Volatile Liquids

- ER Guide 1.15 (Pages 160-161)
- Propane, Butane, Ethane and natural gas liquids
 - Liquid in and vapor out of the pipeline

Natural Gas

- ER Guide 1.15 (Pages 160-161)
- Gas in and gas out of the pipeline
 - Odorant Mercaptan added where required



EXCAVATOR 811

Anhydrous Ammonia (NH₃)

ER Guide 1.25 (Pages 186-187)

Potential Hazards

- Toxic, may be fatal if inhaled, ingested or absorbed through skin
- Cloud may not be visible
- Vapors are initially heavier than air and spread along ground
- Wear full protective clothing/SCBA

Health Hazards

- Vapors may cause dizziness or suffocation
- Vapors are extremely irritating and corrosive
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite
- Fire will produce irritating, corrosive and/or toxic gases
- (LEL) 15% to (UEL) 28% (NIOSH Pocket Guide to Chemicals)

Public Safety

- Immediate precautionary measure, isolated spill or leak area at least 330 ft all directions
- Keep unauthorized personnel away
- Stay upwind and/or upstream
- Vapors are lighter than air



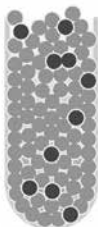
EXCAVATOR 811

Hydrogen Sulfide (H₂S)

Highly toxic, colorless gas

ERG Guide 117 (Pages 170-171)

Workers in oil and natural gas drilling and refining may be exposed because hydrogen sulfide may be present in oil and gas deposits and is a byproduct of the desulfurization process of these fuels. *OSHA Oil and Gas Well Drilling and Servicing eTool



2-5ppm

Prolonged exposure may cause nausea and tearing of the eyes

100-150ppm

Loss of smell (olfactory fatigue or paralysis)

500-700ppm

Staggering, collapse in 5 minutes. Death after 30 to 60 minutes

700-1,000ppm

Rapid unconsciousness, "knockdown" or immediate collapse within 1 to 2 breaths, breathing stops, death within minutes

1,000-2,000ppm

Nearly instant death

*https://www.osha.gov/SLC/etools/oilanden/general_safety/h2s_monitoring.html

EXCAVATOR 811

Paradigm

Hydrogen (H₂)

Description and Release Characteristics

ERG Guide 115 (Pages 166-167)

- Lightest of all gases
- Colorless, odorless, tasteless and nontoxic
- Dissipates quickly in its gaseous form
- Displaces Oxygen
- Flammable (burns with a pale blue, almost invisible flame)
- In liquid form, can cause cryogenic burns to skin and eyes



EXCAVATOR 811

Paradigm

Petroleum Products Batching



PIPELINE COMPANIES USE BATCHING LINES

Paradigm

EXCAVATOR 811

Paradigm

Above Ground Storage Tanks

Considerations when responding to tank farms/ terminals

Work with your local operator to:

- Develop an effective response plan
- Identify products and hazards
- Determine evacuation radius

Response recommendations:

- Cool tank(s) or nearby containers by flooding with water
- Use unmanned hose holders/monitor nozzles
- Do not direct water at safety devices or icing may occur
- Let product burn, even after air supply line/system is closed
- Beware of the potential for Boiling Liquid Expanding Vapor Explosion (BLEVE)

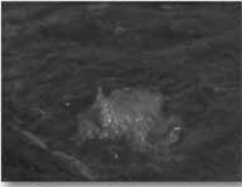


EXCAVATOR 811

Paradigm

Leak Recognition

- Pools of liquid on the ground near a pipeline
- Dense white cloud or fog over a pipeline
- Discolored vegetation surrounding a pipeline
- Unusual dry spot in an otherwise moist field
- Dirt blowing up from the ground
- Bubbling in marshland, rivers or creeks
- Oily sheen appearing on water surfaces
- Frozen ground near a pipeline
- Unusual noise coming from a pipeline
- Unusual smell or gaseous odor



SIGHT

SOUND

SMELL

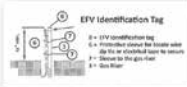
EXCAVATOR 811

Paragon

Local Distribution Systems

Caution

- Be aware, not all natural gas leaks are from excavation, unintended leaks from stoves, water, heaters, furnaces, etc. can occur
- When called out on natural gas leak events, use combustible gas indicators
- Mercaptan can be stripped as it travels through soil
- Frost heaves, breaking pipes
- Gas meter breaks due to snow buildup from melting snow falling from roofs



Excess flow valve meter tags

- Identification tags [192.381(c)]
- The presence of an excess flow valve on the service lines must be marked with an identification tag. The identification tag will typically be located at the top of the service riser below the meter stop valve

EXCAVATOR 811

Paragon

Excess Flow Valve (EFV)

Local Distribution Lines

- Automatic reduction of gas flow should a service line break
- May not completely stop the flow of natural gas
- May not hear a distinct hissing sound
- Migration and ignition sources may still exist
- Always work a coordinated response with your local operator
- Not all service lines have an EFV installed

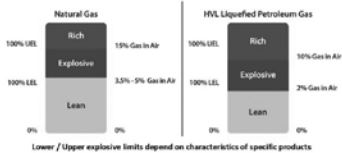


EXCAVATOR 811

Paragon

Explosive Limits

Explosive Limits vs. Percent of Gas in Air

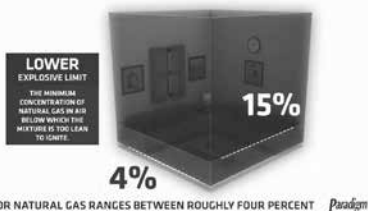


Lower / Upper explosive limits depend on characteristics of specific products

EXCAVATOR 811

Paragon

Explosive Limits



EXCAVATOR 811

Paradigm

Farm Taps

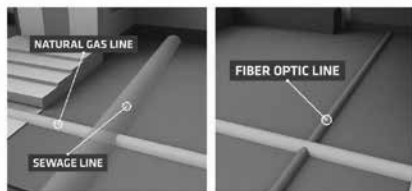
- Mainly in rural areas, some natural gas pipeline companies may have facilities commonly referred to as "farm tap"
- These natural gas settings are made up of valves, pipes, regulators, relief valves and a meter. It may be located near the home or within the general vicinity
- To report the smell of gas near a farm tap, call 911 and the local gas company from a safe distance
- The lines after a farm tap or residential meter may or may not be PRIVATE LINES, be aware of these



EXCAVATOR 811

Paradigm

Horizontal Directional Drilling (Cross Bore)



THROUGH A SEWAGE LINE. LOCAL DISTRIBUTION, TRANSMISSION

Paradigm

EXCAVATOR 811

Paradigm

Pipeline Awareness Training Center

Share with others in your crew, company, or agency unable to attend today's program

- Access to your local pipeline sponsor information
- Download the same documents presented in this program
- Certificate of completion provided upon completion of course


trainingcenter.pdigm.com

Use Code: 2025EX

Commissioner: Very Informative and increased my awareness of the resources available to our county leadership in case of an emergency.

Geologist: Concise, informative, appreciate the audio and visual components, and the course documents provided.

Laborer: Great course, as a reminder of what's out there and how to deal with it.

PHDP Coordinator: Excellent course material, explanation and instruction.

Safety Manager: This is a good course to add to our Texascan Safety Program Training and New Hire Training Package.

Technician: Very informative and ESSENTIAL to anyone doing or planning to do any kind of excavation work!

EXCAVATOR 811

Paradigm

EXCAVATOR RESPONSIBILITIES:

- Call Before You Dig - It's the Law!
- Wait the required time for the markings!
(state specific time – check your local One Call Law)
- Tolerance Zones – May vary by state and/or company!
- Respect the marks!
- Dig with care!

RISK CONSIDERATIONS

- Type/volume/pressure/location/geography of product
- Environmental factors – wind, fog, temperature, humidity
- Sight, sound, smell – indicators vary depending on product
- Black, dark brown or clear liquids/dirt blowing into air/peculiar odors/dead insects around gas line/dead vegetation
- Rainbow sheen on the water/mud or water bubbling up/frozen area on ground/frozen area around gas meter
- Other utility emergencies

PIPELINE MARKERS

The U.S. Department of Transportation (DOT) requires the use of signs to indicate the location of underground pipelines. Markers like these are located on road, railroad, and navigable waterway crossings. Markers are also posted along the pipeline right-of-way. Markers may not be located directly over the pipeline it marks.

The markers display:

- The product transported
- The name of the pipeline operator
- The operator's emergency number



- White Lining (Pre-marking)
 - One Call Facility Request
 - One Call Access
 - Locate Reference Number
-
- Separate Locate Request
 - Pre-excavation Meeting
 - Facility Relocations
 - One Call Reference Number at Site
 - Contact Names and Numbers
 - Positive Response
 - Facility Owner/Operator Failure to Respond
 - Locate Verification
 - Work Site Review with Company Personnel
 - Documentation of Marks
 - Facility Avoidance
 - Marking Preservation
 - Excavation Observer
 - Excavation Tolerance Zone
 - Excavation within the Tolerance Zone
 - Vacuum Excavation
 - Mismarked Facilities
 - Exposed Facility Protection
 - Locate Request Updates
 - Facility Damage Notification
 - Notification of Emergency Personnel
 - Emergency Coordination with Adjacent Facilities
 - Emergency Excavation
 - Backfilling
 - As-built Documentation
 - Trenchless Excavation
 - No Charge for Providing Underground Facility Locations
 - Federal and State Regulations



Signs Of A Pipeline Release

SIGHT*

- Liquid on the ground
- Rainbow sheen on water
- Dead vegetation in an otherwise green area
- Dirt blowing into the air
- White vapor cloud
- Frozen area on ground

*Signs vary based upon product

SMELL

- Odors such as gas or oil
- Natural gas is colorless and odorless
 - Unless Mercaptan has been added (*rotten egg odor*)

OTHER - NEAR PIPELINE OPERATIONS

- Burning eyes, nose or throat
- Nausea

SOUND

- A hissing or roaring sound

What To Do If A Leak Occurs

- Evacuate immediately upwind
- Eliminate ignition sources
- Advise others to stay away
- **CALL 911** and the pipeline company – number on warning marker
 - Call collect if necessary
- Make calls from safe distance – not “hot zone”
- Give details to pipeline operator:
 - Your name
 - Your phone number
 - Leak location
 - Product activity
 - Extent of damage
- DO NOT drive into leak or vapor cloud
- DO NOT make contact with liquid or vapor
- DO NOT operate pipeline valves (*unless directed by pipeline operator*):
 - Valve may be automatically shut by control center
 - Valve may have integrated shut-down device
 - Valve may be operated by qualified pipeline personnel only, unless specified otherwise
- Ignition sources may vary – a partial list includes:
 - Static electricity
 - Metal-to-metal contact
 - Pilot lights
 - Matches/smoking
 - Sparks from telephone
 - Electric switches
 - Electric motors
 - Overhead wires
 - Internal combustion engines
 - Garage door openers
 - Firearms
 - Photo equipment
 - Remote car alarms/door locks
 - High torque starters – diesel engines
 - Communication devices

Pipeline Emergency

Call Gas Control Or Pipeline Control Center

Use **Pipeline Emergency Response Planning**

Information Manual for contact information

Phone number on warning markers

Use state One-Call System, if applicable

Control Center Needs To Know

Your name & title in your organization

Call back phone number – primary, alternate

Establish a meeting place

Be very specific on the location (**use GPS**)

Provide City, County and State

Injuries, Deaths, Or Property Damage

Have any known injuries occurred?

Have any known deaths occurred?

Has any severe property damage occurred?

Traffic & Crowd Control

Secure leak site for reasonable distance

Work with company to determine safety zone

No traffic allowed through any hot zone

Move sightseers and media away

Eliminate ignition sources

Fire

Is the leak area on fire?

Has anything else caught on fire besides the leak?

Evacuations

Primary responsibility of emergency agency

Consult with pipeline/gas company

Fire Management

Natural Gas – DO NOT put out until supply stopped

Liquid Petroleum – water is NOT recommended; foam IS recommended

Use dry chemical, vaporizing liquids, carbon dioxide

Ignition Sources

Static electricity (*nylon windbreaker*)

Metal-to-metal contact

Pilot lights, matches & smoking, sparks from phone

Electric switches & motors

Overhead wires

Internal combustion engines

Garage door openers, car alarms & door locks

Firearms

Photo equipment

High torque starters – diesel engines

Communication devices – not intrinsically safe

In 1999, the Department of Transportation sponsored the Common Ground Study. The purpose of the Common Ground Study was to identify and validate existing best practices performed in connection with preventing damage to underground facilities. The collected best practices are intended to be shared among stakeholders involved with and dependent upon the safe and reliable operation, maintenance, construction, and protection of underground facilities. The best practices contain validated experiences gained that can be further examined and evaluated for possible consideration and incorporation into state and private stakeholder underground facility damage prevention programs.

The current Best Practices Field Manual is divided into nine chapters that provide a collection of current damage prevention best practices. The nine chapters include:

1. Planning & Design Best Practices
2. One Call Center Best Practices
3. Location & Marking Best Practices
4. Excavation Best Practices
5. Mapping Best Practices
6. Compliance Best Practices
7. Public Education Best Practices
8. Reporting & Evaluation Best Practices
9. Miscellaneous Practices

To view the latest version of the Best Practices please visit www.commongroundalliance.com



Pipelines In Our Community

According to National Transportation Safety Board statistics pipelines are the safest and most efficient means of transporting natural gas and petroleum products, which are used to supply roughly two-thirds of the energy we use. These pipelines transport trillions of cubic feet of natural gas and hundreds of billions of ton/miles of liquid petroleum products in the United States each year.

This system is comprised of three types of pipelines: transmission, distribution and gathering. The approximately 519,000 miles of transmission pipeline* transport products, including natural gas and petroleum products, across the country and to storage facilities. Compressor stations and pumping stations are located along transmission and gathering pipeline routes and help push these products through the line.

Approximately 2.2 million miles of distribution pipeline* is used to deliver natural gas to most homes and businesses through underground main and utility service lines. Onshore gathering lines are pipelines that transport gas from a current production operation facility to a transmission line or main. Production operations are piping and equipment used in production and preparation for transportation or delivery of hydrocarbon gas and/or liquids.

*mileage according to the Pipeline Hazardous Materials Safety Administration (PHMSA).



**Know what's below.
Call before you dig.**

Training Center

Supplemental training available for agencies and personnel that are unable to attend:

- Train as your schedule allows
- Download resources including pipeline operator specific information
 - Sponsoring pipeline operator contact information
 - Product(s) transported
- Receive Certificate of Completion

Visit <https://trainingcenter.pdigm.com/> to register for training



Damage Prevention Programs

Pursuant to 49 CFR Parts 192.614 (c)(2)(i) and 195.442 (c)(2)(i) pipeline operators must communicate their Damage Prevention Program's "existence and purpose" to the public in the vicinity of the pipeline and persons who normally engage in excavation activities in the area in which the pipeline is located.

State and federally regulated pipeline companies maintain Damage Prevention Programs. The purpose of which is to prevent damage to pipelines and facilities from excavation activities, such as digging, trenching, blasting, boring, tunneling, backfilling, or by any other digging activity.

Pipeline Markers

The U.S. Department of Transportation (DOT) requires the use of signs to indicate the location of underground pipelines. Markers like these are located on road, railroad, and navigable waterway crossings. Markers are also posted along the pipeline right-of-way.

The markers display:

- The material transported
- The name of the pipeline operator
- The operator's emergency number

MARKER INFORMATION

- Indicates area of pipeline operations
- May have multiple markers in single right-of-way
- May have multiple pipelines in single right-of-way
- DOES NOT show exact location
- DOES NOT indicate depth (*never assume pipeline depth*)
- DOES NOT indicate pipeline pressure



Call Before You Dig

Statistics indicate that damage from excavation related activities is a leading cause of pipeline accidents. If you are a homeowner, farmer, excavator, or developer, we need your help in preventing pipeline emergencies.

1. Call your state's One-Call center before excavation begins - regulatory mandate as state law requires.
2. Wait the required amount of time.
3. A trained technician will mark the location of the pipeline and other utilities (private lines are not marked).
4. Respect the marks.
5. Dig with care.

National One-Call Dialing Number:



Know what's below.
Call before you dig.

For More Details Visit: www.call811.com

American Public Works Association (APWA) Uniform Color Code

	WHITE - Proposed Excavation
	PINK - Temporary Survey Markings
	RED - Electric Power Lines, Cables, Conduit and Lighting Cables
	YELLOW - Gas, Oil, Steam, Petroleum or Gaseous Materials
	ORANGE - Communication, Alarm or Signal Lines, Cables or Conduit
	BLUE - Potable Water
	PURPLE - Reclaimed Water, Irrigation and Slurry Lines
	GREEN - Sewers and Drain Lines

OSHA General Duty Clause

Section 5(a)(1) of the Occupational Safety and Health Act (OSHA) of 1970, employers are required to provide their employees with a place of employment that "is free from recognizable hazards that are causing or likely to cause death or serious harm to employees."

<https://www.osha.gov/laws-regs/oshact/section5-duties>

Product Characteristics

PRODUCT	LEAK TYPE	VAPORS
HIGHLY VOLATILE LIQUIDS [SUCH AS: BUTANE, PROPANE, ETHANE, PROPYLENE, AND NATURAL GAS LIQUIDS (NGL)]	Gas	Initially heavier than air, spread along ground and may travel to source of ignition and flash back. Product is colorless, tasteless and odorless.
HEALTH HAZARDS	Will be easily ignited by heat, sparks or flames and will form explosive mixtures with air. Vapors may cause dizziness or asphyxiation without warning and may be toxic if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases.	

PRODUCT	LEAK TYPE	VAPORS
NATURAL GAS	Gas	Lighter than air and will generally rise and dissipate. May gather in a confined space and travel to a source of ignition.
HEALTH HAZARDS	Will be easily ignited by heat, sparks or flames and will form explosive mixtures with air. Vapors may cause dizziness or asphyxiation without warning and may be toxic if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.	

PRODUCT	LEAK TYPE	VAPORS
HAZARDOUS LIQUIDS [SUCH AS: CRUDE OIL, DIESEL FUEL, JET FUEL, GASOLINE, AND OTHER REFINED PRODUCTS]	Liquid	Initially heavier than air and spread along ground and collect in low or confined areas. Vapors may travel to source of ignition and flash back. Explosion hazards indoors, outdoors or in sewers.
HEALTH HAZARDS	Inhalation or contact with material may irritate or burn skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution.	

Pipeline Damage Reporting Law As Of 2007

H.R. 2958 Emergency Alert Requirements

Any person, including a government employee or contractor, who while engaged in the demolition, excavation, tunneling, or construction in the vicinity of a pipeline facility;

- A. Becomes aware of damage to the pipeline facility that may endanger life or cause serious bodily harm or damage to property; or
- B. Damages the pipeline facility in a manner that may endanger life or cause serious bodily harm or damage to property, shall promptly report the damage to the operator of the facility and to other appropriate authorities.

Websites:

Call Before You Clear

www.callbeforeyouclear.com

Common Ground Alliance

www.commongroundalliance.com

Federal Office of Pipeline Safety

www.phmsa.dot.gov

National One-Call Dialing Number: 811

www.call811.com

National Pipeline Mapping System

www.npms.phmsa.dot.gov

National Response Center

<https://www.epa.gov/emergency-response/national-response-center> or 800-424-8802

Occupational Safety & Health Administration (OSHA)

www.osha.gov

Paradigm Liaison Services, LLC

www.pdigm.com

United States Environmental Protection Agency (EPA)

www.epa.gov/comeo

Wireless Information System for Emergency Responders (WISER)

<https://wiser.nlm.nih.gov/>



Register for access to
Training Center
Code: EX



Operator Information

Operator Name(s) / Contact Information	Type(s) of Pipeline Systems Operating	Location within County	Pipe Size and Operating Pressure Range(s)	Average Emergency Response Time(s)

Paradigm is public awareness. We provide public awareness and damage prevention compliance services to assist with the regulatory requirements of 49 CFR 192 and 195, as well as API RP 1162. Since 2001, the oil and gas industry has worked with Paradigm to fulfill public education and community awareness requirements.

Our history of implementing public awareness programs and compliance services pre-dates API RP 1162. Most of the pipeline industry's large, mid-sized and small operators, as well as many local distribution companies utilize Paradigm's compliance services.

In serving our clients, Paradigm performs full-scope compliance programs from audience identification through effectiveness measurement. In addition, we offer consulting services for plan evaluation and continuous improvement. At the completion of each compliance program, we provide structured documentation which precisely records all elements of the program's implementation to assist with audits.

Paradigm leads the way in industry service. Pipeline operators and local distribution companies trust in Paradigm to implement their public awareness and damage prevention programs. Each year we:

- Distribute 25 million pipeline safety communications
- Compile and analyze roughly 250,000 stakeholder response surveys
- Facilitate over 1,200 liaison programs
- Implement approximately 1,000 public awareness compliance programs
- Provide audit support and assistance with over 50 public awareness audits

Contact Paradigm for more information regarding custom public awareness solutions.

Contact us:

Paradigm Liaison Services, LLC
PO Box 9123
Wichita, KS 67277
(877) 477-1162
Fax: (888) 417-0818
www.pdigm.com





811: Your First Step to Safe Digging in Texas!

Your Role in Safe Digging Matters!

In Texas, pipeline incidents are caused by someone accidentally striking a pipeline. These accidents are preventable with one simple call to 811. Whether you're digging to plant a tree, build a fence, or begin construction, Texas law requires you to contact Texas811 at least **two working days (excluding weekends & holidays)** before you start any excavation project. This allows time for utility and pipeline operators to mark the location of underground facilities, helping you dig safely and avoid costly and dangerous hits.

How Texas811 Works Texas811 is here to help prevent underground utility damage. When you call 811:

1. Texas811 notifies member utility and pipeline operators of your plans.
2. Utility and pipeline locators mark the approximate location of underground lines using flags or paint.
3. Once marks/flags are in place, and you have waited the 48 business hours - you are cleared to dig carefully.

We're Here for You 24/7

Texas811 agents are available around the clock to take your call. Visit Texas811 <https://texas811.org/> for more information on the 811 system and to access free safety resources for you and your company.

Free Safety Training

If your team would benefit from additional excavation safety training, the Texas811 Damage Prevention Team offers free sessions. Schedule yours <https://texas811.org/damage-prevention>

Note: Texas811 is a notification center only and does not locate utilities.

TEXAS

Texas811: 800-344-8377 or 811

Website: www.texas811.org

Hours: 24 hours

Advance Notice: 48 hours (not more than 14 days, excluding weekends and holidays)

Marks Valid: 14 working days

Law Link:

<http://primis.phmsa.dot.gov/comm/DamagePreventionSummary.htm>

* Plus half the diameter of the pipeline from the outside edge of either side of the pipeline

TICKETS			STATE LAWS & PROVISIONS								NOTIFICATION EXEMPTIONS				NOTIFICATIONS ACCEPTED							
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Permits	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects	Tolerance Zone
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	Y	Y	16"	Y	Y	Y	N	N	18"



1.877.477.1162 • tx.pipeline-awareness.com