

SOUTHERN CALIFORNIA



Coordinated Response & Excavator Exercise® PIPELINE SAFETY TRAINING



PROGRAM GUIDE

Overview

Pipeline Safety

Exercise Outline

Emergency Response Guidebook

NENA Pipeline Emergency Operations

Signs Of A Pipeline Release

High Consequence Areas Identification

Pipeline Industry ER Initiatives

Pipeline Damage Reporting Law

2023

EMERGENCY CONTACT LIST

<u>COMPANY</u>	<u>EMERGENCY NUMBER</u>
Air Products, LLC	1-800-572-6521
California Natural Resources Group (CalNRG)	1-888-664-4435
California Resources Corporation - Central Valley	1-661-763-6363
or	1-661-763-6911
California Resources Corporation - Elk Hills, LLC	1-661-763-6363
or	1-661-763-6911
Chevron Pipeline & Power.....	1-800-762-3404
Crimson Pipeline, LLC.....	1-866-351-7473
DCOR, LLC	1-888-225-1522
ExxonMobil Pipeline Company.....	1-800-537-5200
Freeport - McMoRan Oil & Gas	1-805-739-9111
Kern Energy.....	1-661-845-0761
Lodi Gas Storage, L.L.C.....	1-800-307-1107
Marathon Pipe Line LLC.....	1-833-675-1234
Martinez Pipeline Company.....	1-877-662-4575
Midstream Energy Partners (USA), LLC	1-866-295-2176
Mojave Pipeline Company, L.L.C.	1-800-334-8047
Paramount Pipeline LLC.....	1-562-244-4508
Phillips 66 Pipeline LLC.....	1-877-267-2290
Plains Pipeline L.P.	1-800-708-5071
Shell Pipeline Company LP.....	1-800-922-3459
SoCalGas	1-800-427-2200
SoCal Holding LLC.....	1-562-624-3452
TC Energy Natural Gas	1-800-447-8066
THUMS.....	1-562-624-3452
Tidelands	1-562-624-3452
Torrance Logistics Company	1-877-662-4575
TransMontaigne Product Services Inc.....	1-800-732-8140
Valero Refining Company - California	1-707-745-7562
Valero - Ultramar	1-562-491-6803
Vopak Terminal Los Angeles Inc.....	1-310-549-2221
World Oil Terminals	1-562-432-1737
Zenith Energy West Coast Terminals LLC.....	1-866-497-2284

Note: The above numbers are for emergency situations.

Additional pipeline operators may exist in your area.

Visit the National Pipeline Mapping System at www.npms.phmsa.dot.gov for companies not listed above.

<u>ONE-CALL SYSTEM</u>	<u>PHONE NUMBER</u>
Underground Service Alert of Southern California (DigAlert)	1-800-422-4133
USA North 811	1-800-642-2444
National One-Call Referral Number.....	1-888-258-0808
National One-Call Dialing Number	811

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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

Product Hazards and Characteristics**Petroleum (flow rate can be hundreds of thousands of gallons per hour)**

- Flammable range may be found anywhere within the hot zone
- H₂S can be a by-product of crude oil

<u>Type 1 Products</u>	<u>Flash Point</u>	<u>Ignition Temperature</u>
Gasoline	- 45 °F	600 °F
Jet Fuel	100 °F	410 °F
Kerosene	120 °F	425 °F
Diesel Fuel	155 °F	varies
Crude Oil	25 °F	varies

Natural Gas (flow rate can be hundreds of thousands of cubic feet per hour)

- Flammable range may be found anywhere within the hot zone
- Rises and dissipates relatively quickly
- H₂S can be a by-product of natural gas – PPM = PARTS PER MILLION
 - 0.02 PPM Odor threshold
 - 10.0 PPM Eye irritation
 - 100 PPM Headache, dizziness, coughing, vomiting
 - 200-300 PPM Respiratory inflammation within 1 hour of exposure
 - 500-700 PPM Loss of consciousness/possible death in 30-60 min.
 - 700-900 PPM Rapid loss of consciousness; death possible
 - Over 1000 PPM Unconsciousness in seconds; death in minutes
- Incomplete combustion of natural gas may release carbon monoxide
- Storage facilities may be present around populated areas/can be depleted production facilities or underground caverns
- Gas travel may be outside the containment vessel along the natural cavern between the pipe and soil

Propane, Butane and Other Similar Products

- Flammable range may be found anywhere within the hot zone
- Products cool rapidly to sub-zero temperatures once outside the containment vessel
- Vapor clouds may be white or clear

<u>Type 3 Products</u>	<u>Flash Point</u>	<u>Ignition Temperature</u>
Propane	- 150 °F	920-1120 °F
Butane	- 60 °F	725-850 °F

Line Pressure Hazards

- Transmission pipelines – steel (*high pressure: average 800-1200psi*)
- Local gas pipeline transmission – steel (*high pressure: average 200-1000psi*)
- Local gas mains and services – steel and/or plastic (*low to medium pressure*)
 - Mains: up to 300psi
 - Service lines: up to regulator
 - Average 30-45psi and below
 - Can be up to 60-100psi in some areas
- At regulator into dwelling: ounces of pressure

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

Emergency Response Basics

- Always follow pipeline/gas company recommendations – pipeline representatives may need escort to incident site
- Advance preparation
 - Get to know your pipeline operators/tour their facilities if possible
 - Participate in their field exercises/request on-site training where available
 - Develop response plans and practice
- Planning partners
 - Pipeline & local gas companies
 - Police – local/state/sheriff
 - Fire companies/HAZMAT/ambulance/hospitals/Red Cross
 - LEPC/EMA/public officials
 - Environmental management/Department of Natural Resources
 - Army Corps of Engineers/other military officials
 - Other utilities
- Risk considerations
 - Type/volume/pressure/location/geography of product
 - Environmental factors – wind, fog, temperature, humidity
 - Other utility emergencies
- Incident response
 - Always approach from upwind/park vehicle a safe distance away/if vehicle stalls – DO NOT attempt to restart
 - Gather information/establish incident command/identify command structure
 - Initiate communications with pipeline/gas company representative ASAP
 - Control/deny entry: vehicle, boat, train, aircraft, foot traffic, media – refer all media questions to pipeline/gas reps
- Extinguish fires only
 - To aid in rescue or evacuation
 - To protect exposures
 - When controllable amounts of vapor or liquid present
- Incident notification – pipeline control center or local gas company number on warning marker
 - In **Pipeline Emergency Response Planning Information Manual**
 - Emergency contact list in **Program Guide**
 - Call immediately/provide detailed incident information
- Pipeline security – assist by noting activity on pipeline/gas facilities
 - Report abnormal activities around facilities
 - Suspicious excavation/abandoned vehicles/non-company personnel/non-company vehicles
 - Freshly disturbed soil/perimeter abnormalities

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

CORE-EX Program Resources

Logos for CORE-EX, VSM (VALLEY STATE MOUNTAIN), ERP (EMERGENCY RESPONSE PROGRAM), and TCC (TRAINING CENTER) are displayed alongside images of manuals such as 'EMERGENCY RESPONSE MANUAL' and 'RESPONSE EXERCISE'.

DIGALERT

Underground Service Alert of Southern California (DigAlert) began operations on September 13th, 1976, in response to a tragic and deadly accident that occurred in Culver City in June.

DigAlert now serves over 900 utility owner/operators in nine Southern California counties:

- ✓ Imperial
- ✓ Inyo
- ✓ Los Angeles
- ✓ Orange
- ✓ San Bernardino
- ✓ San Diego
- ✓ Santa Barbara
- ✓ Riverside
- ✓ Ventura

Our mission is to ensure safety of excavation works and the general public by preventing damage to underground infrastructure through advocacy, education and operation of an effective, efficient communications link between excavators and owners of underground infrastructure.

Examine and Discuss

- ✓ Basic Definitions
- ✓ Owner/Operator Responsibilities
- ✓ Excavator's Responsibilities
- ✓ Consequences
- ✓ Answer your questions

Excavation is defined in 4216 (g)

“Excavation” means any operation in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means of tools, equipment, or explosives in any of the following ways:

- ✓ Grading
- ✓ Trenching
- ✓ Digging
- ✓ Ditching
- ✓ Drilling
- ✓ Augering
- ✓ Tunnelling
- ✓ Sawing
- ✓ Cable or pipe plowing and diving

or
any other way!



Excavator is defined in 4216 (h)

Except as provided in Section 4216.8, "excavator" means any person, firm, contractor or subcontractor, owner, operator, utility, association, corporation, partnership, business trust, public agency, or other entity that, with their own employees or equipment, performs any excavation

Subsurface Installation is defined in 4216 (s)

"Subsurface installation" means any underground pipeline, conduit, duct, wire, or other structure, except nonpressurized sewerlines, nonpressurized storm drains, or other nonpressurized drain lines.

- ✓ Every operator of a subsurface installation, except the Department of Transportation (Cal/Trans), shall become a member.

✓ Excavators if working on Cal/Trans right-of-way or if there are known nonpressurized underground utility lines that are not being notified on your ticket – contact those entities directly.

811 Process For EVERY Excavator

- ✓ Delineate
- ✓ Contact 811
- ✓ Wait
- ✓ Confirm
- ✓ Practice Safe Excavation



Delineation is defined in 4216 (d)

"Delineate" means to mark in white the **location** or **path** of the proposed excavation using the guidelines in Appendix B of the "Guidelines for Excavation Delineation" published in the most recent version of the Best Practices guide of the Common Ground Alliance.

- ✓ Display the excavator's company identifier (name, abbreviations, or initials).
- ✓ Only delineate "actual work area"
- ✓ Use a continuous line, dots marking the radius of the arcs, dashes marking the four corners of the project or dashes outlining the excavation project.
- ✓ Limit the size of each dash to approx. 6 to 12 inches long and 1 inch wide.
- ✓ Use arrows 4 feet to 50 feet apart to show direction of excavation.

Utilities **DO NOT** have to locate and field mark if the site is **not delineated**.

Use of Equipment Other Than Hand Tools To Determine Exact Location of a Subsurface Installation

This type of equipment CANNOT be used if installation type is marked in ORANGE communication, alarm or signal lines, cables or conduit – or marked as street lighting or traffic signal.



- ✓ Equipment is a handheld percussive pneumatic, electric or hydraulic hammer weighing less than 40lbs.
- ✓ Bit width no less than 4 inches wide with rounded edges.
- ✓ Classification of soil within tolerance zone classified by CalOsha as type A or type B.
- ✓ Owner/Operator has responded.
- ✓ The bit edge shall be placed parallel, not perpendicular, to the orientation of the subsurface installation as indicated by the field mark.

Vacuum Excavation

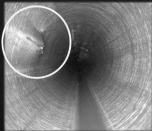
4216.4 (2) (A) An excavator may use a vacuum excavation device to expose subsurface installations within the tolerance zone if

- ✓ An excavator informs the regional notification center of their intent to use vacuum for hand exposing.
- ✓ The operator has marked the subsurface installation.
- ✓ The excavator has contacted any operator whose subsurface installations may be in conflict with the excavation.
- ✓ The operator has agreed to the use of a vacuum excavation device.



Find Vacuum Contact Information at direct.digalert.org or text vacuum & ticket number to 442.630 (DIGAL7) or [DigAlertApp](#)

Damage(s) to Underground Substructure



An excavator discovering or causing damage to a subsurface installation, including all

- ✓ Breaks
- ✓ Leaks
- ✓ Nicks
- ✓ Dents
- ✓ Gouges
- ✓ Grooves

or other damage to subsurface installation lines, conduits, coatings, or cathodic protection, shall immediately notify the subsurface installation operator.

An excavator discovering or causing damage shall notify the regional notification center within 48 hours of discovering or causing the damage, 4216.4 (c) (3).

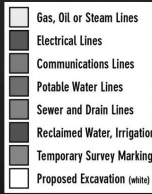
Report a Damage to the CA Underground Facilities Safe Excavation Board

Section 4100 of Title 19 of the California Code of Regulations requires that an excavator causing or discovering a damage must file a **report immediately, and in no case longer than two hours** after learning of the damage of any of the following types:

- ✓ Damage to any pipe or structure in a subsurface installation whether or not the damage results in the escape of any flammable, toxic, or corrosive gas or liquid.
- ✓ Damage to high priority subsurface installation of any kind.
 - ✓ High pressure natural gas pipelines with normal operating pressure greater than 4130PSIA (gauge)
 - ✓ Petroleum pipelines
 - ✓ Pressurized sewerage pipelines
 - ✓ High voltage electric supply lines, conductors, or cables that have a potential to ground of greater than or equal to 60kV.
 - ✓ Hazardous materials pipelines that are potentially hazardous to workers or the public if damaged.
- ✓ Damage causing injury that requires treatment at a facility that provides medical services, such as a clinic or hospital.
- ✓ Damage causing fatality.



- ✓ Provide information of active or inactive subsurface installations, if available.
- ✓ Utilities must mark *within* the area delineated for excavation.
- ✓ Mark an "A" inside a circle the presence of any abandoned subsurface installations, if known, *within* the delineated area.
- ✓ Mark where multiple subsurface installations of the same type are known to exist.
- ✓ Mark the number of subsurface installations.
- ✓ Mark newly installed subsurface installations in active digging areas.



Electronic Positive Response (EPR) is defined in 4216 (e)

Electronic Positive Response (EPR) means an electronic response from an operator to the regional notification center providing the status of an operator's statutorily required response to a ticket.



- ✓ Every operator shall supply an electronic positive response (EPR) through the regional notification center before the legal excavation start date and time.
- Response Codes EPR Best Practices

Utility Response Required Field Meet when Excavating near "High Priority" Facilities

Excavation proposed **within 10 feet** of a high priority line, the owner/operator must notify the excavator and schedule an onsite meeting before the legal excavation start/date time.



"Operators of subsurface installations who are members of, participate in, and share in, the costs of a regional notification center..."

- ✓ In 2022, there were over 2 million "No Conflict" EPR responses.
- ✓ If your company is receiving too many ticket notifications that the response is no conflict, check your Member Polygon.
- ✓ Member Polygon allows viewing the polygon notifications area for your member code(s) on a map.

Shape files can be polygons, lines or points. Polygon shape files are imported without buffering; they are considered pre-buffered and must be a minimum of a 50ft buffered file. Line and point shape files will be buffered by a specific number of feet, which you must specify (minimum of 50ft).

Underground Safety Board



Communication to all stakeholders and posting public announcements via the _____.



"CARCGA's mission is to eliminate safety risks to life, health, and property while also preventing damage to underground infrastructure and vital public services.."

Join CARCGA's efforts in damage prevention.



Each excavator, operator, or locator shall communicate with each other and respect the appropriate safety requirements and ongoing activities of the other parties, 4216.4 (d).

DIG SAFE!

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Get the App





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



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CORE-EX 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 distribution company from a safe distance




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CORE-EX InfraGard – Protecting Critical Infrastructure

InfraGard is a partnership between the FBI and members of the private sector for the protection of U.S. Critical Infrastructure.

16 Critical Infrastructure Sectors:

- Chemical
- Commercial Facilities
- Communications
- Critical Manufacturing
- Dams
- Defense Industrial Base
- Emergency Services
- Energy
- Financial Services
- Food and Agriculture
- Government Facilities
- Healthcare and Public Health
- Information Technology
- Nuclear Reactors, Materials, and Waste
- Transportation Services
- Water & Wastewater Systems



<https://infogard.org>

Paradigm


CORE-EX Emergency Response Portal (ERP)

PHMSA Advisory Bulletin issued October 2010
<https://my.spallobjects.com/admin/registree/ERP/>

Provides agencies secure access to participating pipeline operator profiles include:

- Contact information
- Counties of operation
- Product(s) transported

*Additional information updated to share pipeline mapping, emergency response plans.



Paradigm

CORE-EX Pipeline Preparedness Training Center

Share with others in your 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

Emergency Officials Use Code: 2023CORE Excavators Use Code: 2023EX

911 Communications Director: Appreciate the opportunity to do this online and have it available for my staff. Very informative!

Battalion Chief: Thank you for the information: I also like the fact of being able to take the course online when I cannot make the live sessions.

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

Deputy Emergency Management Coordinator: Excellent presentation, Thank you for the resources and useful web pages.

Fire Chief: Thank you for providing this informative course. I would like to see more courses like this. It is a very good review and helps so tremendously.

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

Police Chief: The training is very informative, and I will pass this onto our Fire Department and our Law Enforcement Supervisors. Great job!!

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

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Product INFORMATION



The Emergency Response Guidebook is available at:

<https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2021-01/ERG2020-WEB.pdf>



This app is only available on the App Store for iOS devices.

EMERGENCY RESPONSE PLANS FOR GAS AND HAZARDOUS LIQUID PIPELINE OPERATORS

Federal regulations for both gas and hazardous liquid pipelines require operators to have written procedures for responding to emergencies involving their pipeline facility. Because pipelines are often located in public space, the regulations further require that operators include procedures for planning with emergency and other public officials to ensure a coordinated response. Please contact your local pipeline operators for information regarding their company specific emergency response plan.

Natural Gas

Each operator shall establish written procedures to minimize the hazard resulting from a gas pipeline emergency. At a minimum, the procedures must provide for the following:

- Receiving, identifying, and classifying notices of events which require immediate response by the operator.
- Establishing and maintaining adequate means of communication with appropriate fire, police, and other public officials.
- Prompt and effective response to a notice of each type of emergency, including the following:
 1. Gas detected inside or near a building.
 2. Fire located near or directly involving a pipeline facility.
 3. Explosion occurring near or directly involving a pipeline facility.
 4. Natural disaster.
- The availability of personnel, equipment, tools, and materials, as needed at the scene of an emergency.
- Actions directed toward protecting people first and then property.
- Emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property.
- Making safe any actual or potential hazard to life or property.
- Notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them both planned responses and actual responses during an emergency.
- Safely restoring any service outage.
- Each operator shall establish and maintain liaison with appropriate fire, police, and other public officials to:
 1. Learn the responsibility and resources of each government organization that may respond to a gas pipeline emergency;
 2. Acquaint the officials with the operator's ability in responding to a gas pipeline emergency;
 3. Identify the types of gas pipeline emergencies of which the operator notifies the officials; and
 4. Plan how the operator and officials can engage in mutual assistance to minimize hazards to life or property.

**Reference 49 CFR 192.615*

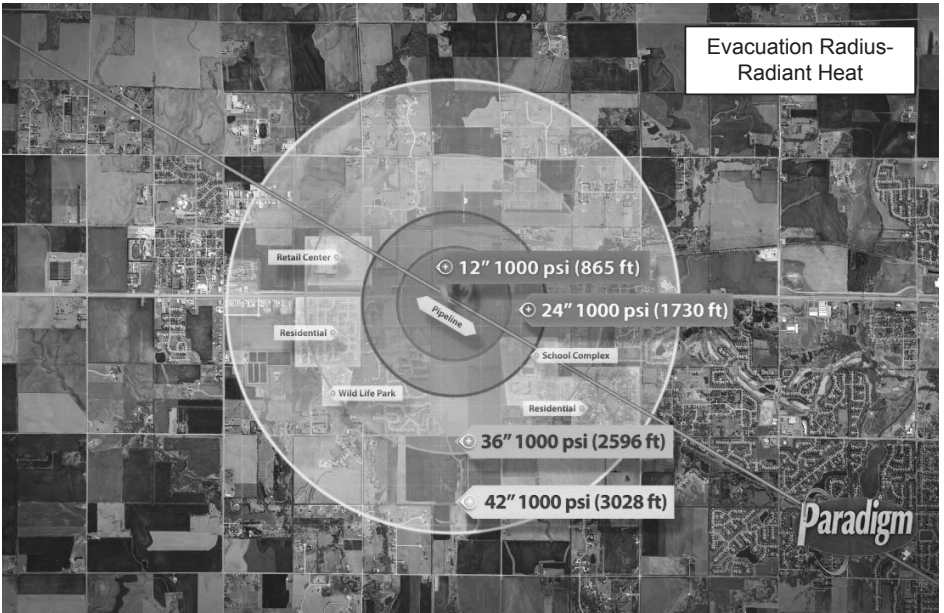
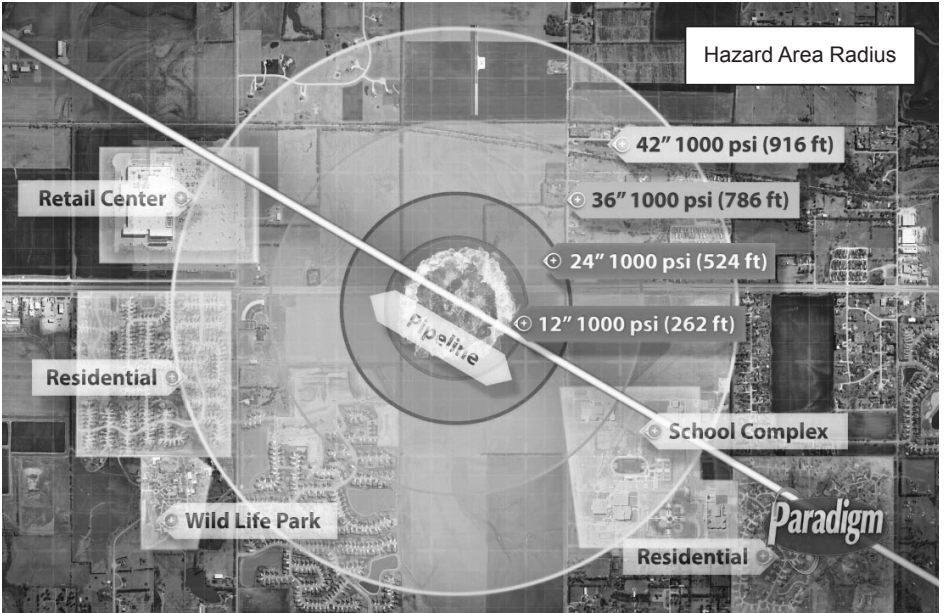
HAZARDOUS LIQUIDS

(a) General: Each operator shall prepare and follow for each pipeline system a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies. This manual shall be reviewed at intervals not exceeding 15 months, but at least once each calendar year, and appropriate changes made as necessary to insure that the manual is effective. This manual shall be prepared before initial operations of a pipeline system commence, and appropriate parts shall be kept at locations where operations and maintenance activities are conducted.

Emergencies. The manual required by paragraph (a) of this section must include procedures for the following to provide safety when an emergency condition occurs:

- Receiving, identifying, and classifying notices of events which need immediate response by the operator or notice to fire, police, or other appropriate public officials and communicating this information to appropriate operator personnel for corrective action.
- Prompt and effective response to a notice of each type emergency, including fire or explosion occurring near or directly involving a pipeline facility, accidental release of hazardous liquid or carbon dioxide from a pipeline facility, operational failure causing a hazardous condition, and natural disaster affecting pipeline facilities.
- Having personnel, equipment, instruments, tools, and material available as needed at the scene of an emergency.
- Taking necessary action, such as emergency shutdown or pressure reduction, to minimize the volume of hazardous liquid or carbon dioxide that is released from any section of a pipeline system in the event of a failure.
- Control of released hazardous liquid or carbon dioxide at an accident scene to minimize the hazards, including possible intentional ignition in the cases of flammable highly volatile liquid.
- Minimization of public exposure to injury and probability of accidental ignition by assisting with evacuation of residents and assisting with halting traffic on roads and railroads in the affected area, or taking other appropriate action.
- Notifying fire, police, and other appropriate public officials of hazardous liquid or carbon dioxide pipeline emergencies and coordinating with them preplanned and actual responses during an emergency, including additional precautions necessary for an emergency involving a pipeline system transporting a highly volatile liquid.
- In the case of failure of a pipeline system transporting a highly volatile liquid, use of appropriate instruments to assess the extent and coverage of the vapor cloud and determine the hazardous areas.
- Providing for a post accident review of employee activities to determine whether the procedures were effective in each emergency and taking corrective action where deficiencies are found.

**Reference 49 CFR 195.402*



In accordance with NENA Pipeline Emergency Operations Standard/Model Recommendation NENA 56-007 (<https://www.nena.org/?page=PipelineEmergStd>)

GOALS FOR INITIAL INTAKE:

1. Obtain and Verify Incident Location, Callback and Contact Information
2. Maintain Control of the Call
3. Communicate the Ability to HELP the Caller
4. Methodically and Strategically Obtain Information through Systematic Inquiry to be Captured in the Agency's Intake Format
5. Recognize the potential urgency of situations involving the release of dangerous gases or liquids related to pipelines or similar events of this nature and immediately begin the proper notifications consistent with agency policy
6. Perform all Information Entries and Disseminations, Both Initial and Update

FIRST RESPONSE CALL INTAKE CHECK LIST

The focus of this Standard is on the first minute of the call intake process. Actions taken during this time frame significantly impact the effectiveness of the response and are critical to public safety.

The following protocol is intended as a solid framework for call intake, but should not in any manner rescind or override agency procedures for the timing of broadcasts and messaging.

These procedures are established as recommended practices to consider with existing agency policy and procedure to ensure the most swift and accurate handling of every incident involving the release of dangerous gases or hazardous liquids.

All information should be simultaneously entered, as it is obtained by the telecommunicator, into an electronic format (when available) that will feed/populate any directed messages which will be sent to emergency responders in conjunction with on-air broadcasts.

Location:

Request exact location of the incident (structure addresses, street names, intersections, directional identifiers, mile posts, etc.) and obtain callback and contact information.

Determine Exactly What Has Happened:

Common signs of a pipeline leak are contained in Table 1 below. If any of these conditions are reported, THIS IS A PIPELINE EMERGENCY.

**TABLE 1
Common Indications of a Pipeline Leak**

Condition	Natural Gas (lighter than air)	LPG & HVL (heavier than air)	Liquids
An odor like rotten eggs or a burnt match	X	X	
A loud roaring sound like a jet engine	X	X	
A white vapor cloud that may look like smoke		X	
A hissing or whistling noise	X	X	
The pooling of liquid on the ground			X
An odor like petroleum liquids or gasoline		X	X
Fire coming out of or on top of the ground	X	X	
Dirt blowing from a hole in the ground	X	X	
Bubbling in pools of water on the ground	X	X	
A sheen on the surface of water		X	X
An area of frozen ground in the summer	X	X	
An unusual area of melted snow in the winter	X	X	
An area of dead vegetation	X	X	X

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

Pipeline safety regulations use the concept of “High Consequence Areas” (HCAs), to identify specific locales and areas where a release could have the most significant adverse consequences. Once identified, operators are required to devote additional focus, efforts, and analysis in HCAs to ensure the integrity of pipelines.

Releases from pipelines can adversely affect human health and safety, cause environmental degradation, and damage personal or commercial property. Consequences of inadvertent releases from pipelines can vary greatly, depending on where the release occurs, and the commodity involved in the release.

What criteria define HCAs for pipelines?

Because potential consequences of natural gas and hazardous liquid pipeline releases differ, criteria for HCAs also differ. HCAs for natural gas transmission pipelines focus solely on populated areas. (Environmental and ecological consequences are usually minimal for releases involving natural gas.) Identification of HCAs for hazardous liquid pipelines focuses on populated areas, drinking water sources, and unusually sensitive ecological resources.

HCAs for hazardous liquid pipelines:

- Populated areas include both high population areas (called “urbanized areas” by the U.S. Census Bureau) and other populated areas (areas referred to by the Census Bureau as a “designated place”).
- Drinking water sources include those supplied by surface water or wells and where a secondary source of water supply is not available. The land

area in which spilled hazardous liquid could affect the water supply is also treated as an HCA.

- Unusually sensitive ecological areas include locations where critically imperiled species can be found, areas where multiple examples of federally listed threatened and endangered species are found, and areas where migratory water birds concentrate.

HCAs for natural gas transmission pipelines:

- An equation has been developed based on research and experience that estimates the distance from a potential explosion at which death, injury or significant property damage could occur. This distance is known as the “potential impact radius” (or PIR), and is used to depict potential impact circles.
- Operators must calculate the potential impact radius for all points along their pipelines and evaluate corresponding impact circles to identify what population is contained within each circle.
- Potential impact circles that contain 20 or more structures intended for human occupancy; buildings housing populations of limited mobility; buildings that would be hard to evacuate. (Examples are nursing homes, schools); or buildings and outside areas occupied by more than 20 persons on a specified minimum number of days each year, are defined as HCA's.

* <https://primis.phmsa.dot.gov/comm/FactSheets/FSHCA.htm>

Identified Sites*

Owners and companies of gas transmission pipelines are regulated by the US Department of Transportation (DOT). According to integrity management regulations, gas pipeline companies are required to accept the assistance of local public safety officials in identifying certain types of sites or facilities adjacent to the pipeline which meets the following criteria:

- (a) A small, well-defined outside area that is occupied by twenty or more persons on at least 50 days in any twelve-month period (the days need not be consecutive). Examples of such an area are playgrounds, parks, swimming pools, sports fields, and campgrounds.
- (b) A building that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12 month period (the days and weeks need not be consecutive). Examples included in the definition are: religious facilities, office buildings, community centers, general stores, 4-H facilities, and roller rinks.
- (c) A facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate. Examples of such a facility are hospitals, schools, elder care, assisted living/nursing facilities, prisons and child daycares.

Identified Site Registry

Pipeline operators need your help keeping people and property safe.

Identified Sites - locations where many people occupy an area near a pipeline asset or facility. These are places where people may gather from time to time for a variety of reasons.

Some of these sites are very difficult for companies to obtain without help from those with local knowledge of the area.

Please use the following website to gain secure access, so you can assist in identifying sites where people congregate in your community:

my.spatialobjects.com/admin/register/ISR

Pipeline operators are required by law to work with public officials who have safety or emergency response, or planning responsibilities that can provide quality information regarding identified sites.



* 49 CFR §192.903.

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
- Submit Agency Capabilities Survey
- 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.	

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



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

Association of Public-Safety Communications Officials - International (APCO)

www.apcointl.org/

Common Ground Alliance

www.commongroundalliance.com

Federal Emergency Management Agency

www.fema.gov

Federal Office of Pipeline Safety

www.phmsa.dot.gov

National One-Call Dialing Number: 811

www.call811.com

Government Emergency Telecommunications

www.dhs.gov/government-emergency-telecommunications-service-gets

Infrastructure Protection – NIPC

www.dhs.gov/national-infrastructure-protection-plan

National Emergency Number Association

<https://www.nena.org/?>

National Fire Protection Association (NFPA)

www.nfpa.org

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

Paradigm Liaison Services, LLC

www.pdigm.com

United States Environmental Protection Agency (EPA)

www.epa.gov/cameo

Wireless Information System for Emergency Responders (WISER)

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

FOR MORE INFORMATION ON THE NASFM PIPELINE EMERGENCIES PROGRAM

www.pipelineemergencies.com

FOR EMERGENCY RESPONSE INFORMATION, REFER TO DOT GUIDEBOOK.

FOR COPIES: (202) 366-4900

www.phmsa.dot.gov/hazmat/erg/emergency-response-guidebook-erg



Register for access to
Training Center
Code: 2023CORE or 2023 COREX



Register for access
to the Emergency
Response Portal



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



UNDERGROUND SERVICE ALERT

— NORTHERN CALIFORNIA & NEVADA —

UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA AND NEVADA

USA North 811 provides a free and effective Damage Prevention service that protects the communities and underground facilities in Central and Northern California, as well as the entire state of Nevada.

USA North 811 began operation in May of 1975 and incorporated as a Non-Profit Mutual Benefit Corporation in 1986. Our objective is to receive planned excavation reports from public or private excavators and to transmit those planned excavation reports to all participating members of USA North who may have facilities at that excavation site. Our members will:

1. Mark or stake the horizontal path of their facility, or
2. Provide information about the location of their facility, or
3. Advise the excavator of clearance for facilities that they own.

For more information visit our website at www.usanorth811.org.



UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

Underground Service Alert of Southern California, aka DigAlert, is the Free Notification Center for anyone digging in the following nine Southern California counties – Inyo, Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara and Ventura.

For more information visit our website at www.digalert.org.

CALIFORNIA

Underground Service Alert of Northern California and Nevada:
811 or 800-642-2444

Website: www.usanorth811.org

Hours: Open 24 hours a day, seven days a week

Advance Notice: 2 working days, not counting the date of notification, up to 14 calendar days

Marks Valid: 28 days (1 year for ACE tickets)

Law Link: <https://usanorth811.org/services/law-update>

*DOT exempt

TICKETS			STATE LAWS & PROVISIONS							NOTIFICATION EXEMPTIONS				NOTIFICATIONS ACCEPTED								
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Premarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects	Tolerance Zone
N	Y	Y	N	Y	Y	Y*	Y	Y	Y	Y	Y	N	Y	N	N	N	Y	N	Y	N	N	24"

Underground Service Alert of Southern California: 811 or 800-422-4133

Website: www.digalert.org

Hours: 6:00 AM - 7:00 PM, M-F

Advance Notice: 2 working days, not counting the date of notification, up to 14 calendar days

Marks Valid: 28 days (1 year for ACE tickets)

Law Link: <https://www.digalert.org/calaw>

*DOT exempt

N	Y	Y	N	Y	Y	Y*	Y	Y	Y	Y	Y	N	Y	N	N	N	Y	N	Y	N	N	24"
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Chart Reference: <https://pipelineawareness.org/media/1507/2019-excavation-safety-guide-pipeline-edition.pdf>



1.877.477.1162 • ca.pipeline-awareness.com